Research Utilization:

An Annotated

Bibliography

A literature review of journal articles, bulletins and reports published between 2000 and 2012 on the topic of Research Utilization (also known as Knowledge Translation, Knowledge to Action, Research to Practice, and Implementation Research)

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2011

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Table of Contents

Categories are ordered alphabetically.

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Methods

This annotated bibliography focuses on journal articles, bulletins and reports published between 2000 and 2012 with an emphasis on findings pertinent to resource-poor settings. The review process included a search on PubMed (2000-present) using the following keywords: research to practice, research utilization, knowledge translation, knowledge utilization, knowledge to action, evidence-informed policy, evidence-based policy, implementation research and replicating interventions. The results were screened for their relevance to public health interventions —particularly reproductive and sexual health — in resource-poor settings. Additional materials were gathered from FHI 360's internal website and from FHI 360 staff members. References have been categorized according to their apparent focus within the broad topic of research utilization; in some instances these categories may not reflect the full content of a resource. A number of references could be classified into more than one category and these have been cross-referenced accordingly.

Barriers, Constraints and Challenges to Research Utilization

Research utilization strives to bridge the gap between scientific evidence and existing policy and practice. An understanding of the barriers and challenges that create and reinforce this gap can lead to new ways of implementing evidence-based policy and practice. The following resources call attention to a variety of research-utilization challenges and propose strategies for effectively addressing these constraints.

1. Bell SG, Newcomer SF, Bachrach C, Borawski E, Jemmott JB 3rd, Morrison D, Stanton B, Tortolero S, Zimmerman R. Challenges in replicating interventions. J Adolesc Health. 2007 Jun;40(6):514.

PURPOSE: To describe and reflect on an effort to document, through a set of 6 interventions, the process of adapting effective youth risk behavior interventions for new settings, and to provide insights into how this might best be accomplished.
METHODS: Six studies were funded by the NIH, starting in 1999. The studies were funded in response to a Request for Applications (RFA) to replicate HIV prevention interventions for youth. Researchers were to select an HIV risk reduction intervention program shown to be effective in one adolescent population and to replicate it in a new community or different adolescent population. This was to be done while systematically documenting those processes and aspects of the intervention hypothesized to be critical to the development of community-based, culturally sensitive programs. The replication was to assess the variations necessary to gain cooperation, implement a locally feasible and meaningful intervention, and evaluate the outcomes in the new setting. The rationale for this initiative and description of the goals and approaches to adaptation of the funded researchers are described.
RESULTS: Issues relevant to all interventions are discussed, in addition to those unique to replication. The processes and the consequences of the adaptations are then discussed. The further challenges in taking a successful intervention "to scale" are not discussed.
CONCLUSIONS: Replications of effective interventions face all of the challenges of implementation design, plus additional challenges of balancing fidelity to the original intervention and sensitivity to the needs of new populations.

2. Bertozzi SM, Laga M, Bautista-Arredondo S, Coutinho A. Making HIV prevention programmes work. The Lancet. 2008;372(9641):831.

Even after 25 years of experience, HIV prevention programming remains largely deficient. We identify four areas that managers of national HIV prevention programmes should reassess and hence refocus their efforts — improvement of targeting, selection, and delivery of prevention interventions, and optimisation of funding. Although each area is not wholly independent from one another, and because each country and epidemic context will require a different balance of time and funding allocation in each area, we present the current state of each dimension in the global HIV prevention arena and propose practical ways to remedy present deficiencies. Insufficient data for intervention effectiveness and country-specific epidemiology has meant that programme managers have operated, and continue to operate, in a fog of uncertainty. Although priority must be given to the improvement of prevention methods and the capacity for the generation and use of evidence to improve programme planning and implementation, uncertainty will remain. In the meantime, however, we argue that prevention programming can be made much more effective by use of information that is readily available.

Barriers, Constraints and Challenges to Research Utilization

3. Chang HC, Russell C, Jones MK. Implementing Evidence-Based Practice in Taiwanese Nursing Homes. J Gerontol Nurs. 2010 Jan;1:1.

To date, there is a paucity of research investigating nurses' perceptions of evidence-based practice (EBP) in nursing homes, especially in non-Western countries. This descriptive, quantitative study investigated attitudes toward and perceived barriers and facilitators to research utilization among 89 Taiwanese RNs. The majority of nurses expressed positive attitudes toward research and EBP. The most frequently cited barriers were related to insufficient authority to change practice, difficulty understanding statistical analyses, and a perceived isolation from knowledgeable colleagues with whom to discuss the research. EBP facilitators included improved access to computers and Internet facilities in the workplace, more effective research training, and collaboration with academic nurses. These findings are similar to those from research conducted in Western countries and indicate that further education and training in research for nurses working in nursing homes would be beneficial.

4. Clarkson JE. Getting research into clinical practice — barriers and solutions. Caries Res. 2004 May-Jun;38(3):321.

The success of current efforts towards evidence-based health services in many countries depends on efficient transfer of research findings to health practitioners. However, there is a lag in research being adopted. In part this is due to difficulties in interpreting or generalising research findings, in part to inertia, organisational structures and information. Clinical guidelines are usually cited as being the most effective product of evidence assessment and means of getting research into practice. The processes by which they are prepared and disseminated are discussed. Current clinical practice requires that health professionals adapt to changing systems and adopt new techniques. Therefore, in future, practice research to evaluate (a) clinical interventions and (b) dissemination and implementation strategies will become increasingly important. Recognised barriers to such research include lack of interest, lack of involvement, lack of time and lack of remuneration. High-quality research in dental primary care requires academics and dental service providers working in partnership on topics that are relevant both to clinicians and policy makers. Good project management, education and training are essential.

5. Cochrane LJ, Olson CA, Murray S, Dupuis M, Tooman T, Hayes S. Gaps between knowing and doing: understanding and assessing the barriers to optimal health care. J Contin Educ Health Prof. 2007 Spring;27(2):94.

INTRODUCTION: A significant gap exists between science and clinical practice guidelines, on the one hand, and actual clinical practice, on the other. An in-depth understanding of the barriers and incentives contributing to the gap can lead to interventions that effect change toward optimal practice and thus to better care.
METHODS: A systematic review of English language studies involving human subjects and published from January 1998 to March 2007 yielded 256 articles that fulfilled established criteria. The analysis was guided by two research questions: How are barriers are assessed? And What types of barriers are identified? The studies abstracted were coded according to 33 emerging themes; placed into seven categories that typified the barriers; grouped as to whether they involved the health care professional, the guideline, the scientific evidence, the patient, or the health system; and organized according to relationship pattern between barriers.
RESULTS: The results expand our understanding of how multiple factors pose barriers to optimal clinical practice. The review reveals increasing numbers of behavioral and system barriers. Quantitative survey

type assessments continue to dominate barrier research; however, an increasing number of qualitative and mixed-method study designs have emerged recently.

DISCUSSION: The findings establish the evolution of research methodologies and emerging barriers to the translation of knowing to doing. While many studies are methodologically weak, there are indications that designs are becoming more aligned with the complexity of the health care environment. The review provides support for the need to examine multiple factors within the knowledge-to-action process.

6. Col NF. Challenges in translating research into practice. J Womens Health (Larchmt). 2005 Jan-Feb;14(1):87.

This paper provides a high-level summary of the literature concerning barriers to disseminating research findings about medication use into clinical practice. Various interventions targeting patients or providers are reviewed. Conceptual models for understanding the multiple barriers to dissemination are critically reviewed, and an alternative framework is proposed that considers the perspective of both providers and patients and the characteristics of treatments. Areas of further research are suggested.

7. Foy R, Crilly M. Evidence-based reproductive health care: getting evidence into practice. J Fam Plann Reprod Health Care. 2004 Jan;30(1):17.

Clinical research continually produces new findings that can contribute to better patient care. However, such research cannot benefit patients unless doctors (and other health care professionals) adopt them in practice. A well-recognized time lag occurs between the emergence of research evidence and its incorporation into routine practice. This occurs because of delays in both compiling research findings in a systematic fashion and a wide range of barriers to changes in clinical practice. The problem ranges from the continued inappropriate use of ineffective practices to the failure to adopt new evidence-based practices. In this article we will examine some of the obstacles that stop us incorporating good evidence into practice, some ways to improve how we can identify evidence, and various approaches to improving clinical practice.

8. Ginexi EM, Hilton TF. What's next for translation research? Eval Health Prof. 2006 Sep;29(3):334.

The National Institutes of Health (NIH) are under increasing pressure to identify practical, cost-effective interventions, therapies, and medications. Overall, the public health impact could be substantial if effective science-based prevention and treatment programs were implemented on large scales with sufficient fidelity. Yet penetration of even the most successful interventions rarely occurs at a quick pace. Research-to-practice gaps are pervasive throughout various fields of behavioral health and safety. In this article the authors explore factors contributing to the pace of translation and reaffirm that research advances or retreats the progress of scientific discovery as data accumulate in what can be described as a translational research loop that is iterative and bidirectional. They also touch on the challenges inherent in deploying science to the marketplace, and in an attempt to foreshadow what's next for translational efforts, they conclude by offering some ideas about how researchers might more accurately conceptualize "best practices."

9. Glasgow RE, Emmons KM. How can we increase translation of research into practice? Types of evidence needed. Annu Rev Public Health. 2007;28:413.

This review summarizes key factors that have interfered with translation of research to practice and what public health researchers can do to hasten such transfer, focusing on characteristics of interventions, target settings, and research designs. The need to address context and to utilize research, review, and reporting practices that address external validity issues-such as designs that focus on replication, and practical clinical and behavioral trials-are emphasized. Although there has been increased emphasis on social-ecological interventions that go beyond the individual level, interventions often address each component as if it were an independent intervention. Greater attention is needed to connectedness across program levels and components. Finally, examples are provided of evaluation models and current programs that can help accelerate translation of research to practice and policy.

10. Glasgow RE, Lichtenstein E, Marcus AC. Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition. Am J Public Health. 2003 Aug;93(8):1261.

The gap between research and practice is well documented. We address one of the underlying reasons for this gap: the assumption that effectiveness research naturally and logically follows from successful efficacy research. These two research traditions have evolved different methods and values; consequently, there are inherent differences between the characteristics of a successful efficacy intervention versus those of an effectiveness one. Moderating factors that limit robustness across settings, populations, and intervention staff need to be addressed in efficacy studies, as well as in effectiveness trials. Greater attention needs to be paid to documenting intervention reach, adoption, implementation, and maintenance. Recommendations are offered to help close the gap between efficacy and effectiveness research and to guide evaluation and possible adoption of new programs.

11. Guindon GE, Lavis JN, Becerra-Posada F, Malek-Afzali H, Shi G, Yesudian CA, et al. Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of health care providers. CMAJ. 2010 Jun 15;182(9):E362.

Gaps continue to exist between research-based evidence and clinical practice. We surveyed health care providers in 10 low- and middle-income countries about their use of research-based evidence and examined factors that may facilitate or impede such use.
METHODS: We surveyed 1499 health care providers practising in one of four areas relevant to the Millennium Development Goals (prevention of malaria, care of women seeking contraception, care of children with diarrhea and care of patients with tuberculosis) in each of China, Ghana, India, Iran, Kazakhstan, Laos, Mexico, Pakistan, Senegal and Tanzania.
RESULTS: The proportion of respondents who reported that research was likely to change their clinical practice if performed and published in their own country (84.6% and 86.0% respectively) was higher than the proportion who reported the same about research and publications from their region (66.4% and 63.1%) or from high-income countries (55.8% and 55.5%). Respondents who were most likely to report that the use of research-based evidence led to changes in their practice included those who reported using clinical practice guidelines in paper format (odds ratio [OR] 1.54, 95% confidence interval [CI] 1.03-2.28), using scientific journals from their own country in paper format (OR 1.70, 95% CI 1.26-2.28), viewing the quality of research performed in their country as above average or excellent (OR 1.93, 95% CI 1.16-3.22); trusting systematic reviews of randomized controlled trials (OR 1.59, 95% CI 1.08-2.35); and having easy access to the Internet (OR 1.90, 95% CI 1.19-3.02). INTERPRETATION: Locally conducted or published research has played an important role in changing the professional practice of health care providers surveyed in low- and middle-income countries. Increased investments in local research, or at least in locally adapted publications of research-based evidence from other settings, are

therefore needed. Although access to the Internet was viewed as a significant factor in whether research-based evidence led to concrete changes in practice, few respondents reported having easy access to the Internet. Therefore, efforts to improve Internet access in clinical settings need to be accelerated.

12. Kajermo KN, Bostrom AM, Thompson DS, Hutchinson AM, Estabrooks CA, Wallin L. The BARRIERS scale — the barriers to research utilization scale: A systematic review. Implement Sci. 2010;5:32.

BACKGROUND: A commonly recommended strategy for increasing research use in clinical practice is to identify barriers to change and then tailor interventions to overcome the identified barriers. In nursing, the BARRIERS scale has been used extensively to identify barriers to research utilization.
AIM AND OBJECTIVES: The aim of this systematic review was to examine the state of knowledge resulting from use of the BARRIERS scale and to make recommendations about future use of the scale. The following objectives were addressed: To examine how the scale has been modified, to examine its psychometric properties, to determine the main barriers (and whether they varied over time and geographic locations), and to identify associations between nurses' reported barriers and reported research use.
RESULTS: Sixty-three studies were included, with most using a cross-sectional design. Not one study used the scale for tailoring interventions to overcome identified barriers. The main barriers reported were related to the setting, and the presentation of research findings. Overall, identified barriers were consistent over time and across geographic locations, despite varying sample size, response rate, study setting, and assessment of study quality. Few studies reported associations between reported research use and perceptions of barriers to research utilization.
CONCLUSIONS: The BARRIERS scale is a nonspecific tool for identifying general barriers to research utilization. The scale is reliable as reflected in assessments of internal consistency. The validity of the scale, however, is doubtful. There is no evidence that it is a useful tool for planning implementation interventions. We recommend that no further descriptive studies using the BARRIERS scale be undertaken. Barriers need to be measured specific to the particular context of implementation and the intended evidence to be implemented.

13. Kesterton AJ, Cleland, J. Neonatal care in rural Karnataka: healthy and harmful practices, the potential for change. BMC Pregnancy Childbirth. 2009 May;9(20).

BACKGROUND: Every year four million babies die in the first month of life and a quarter of these take place in India. A package of essential newborn care practices exists, which has a proven impact on reducing mortality, and can be implemented in low resource settings. However, childbirth and the neonatal period are culturally important times, during which there is strong adherence to traditional practices. Successful implementation of the package therefore requires in-depth knowledge of the local context and tailored behaviour change communication.
METHODS: This study was carried out in rural Karnataka, India. It uses quantitative data from a prospective survey following mothers through their experience of pregnancy and the postnatal period; and qualitative data from in depth interviews and focus group discussions conducted with mothers, grandmothers and birth attendants. It explores local newborn care practices and beliefs, analyses their harmful or beneficial characteristics and elucidates areas of potential resistance to behaviour change and implementation of the essential newborn care package.
RESULTS: Findings show that many potentially harmful newborn care practices are being carried out in the study area, such as unhygienic cord cutting, delayed breastfeeding and early bathing. Some are more amenable to change than others, depending on the strength of the underlying beliefs, and

Barriers, Constraints and Challenges to Research Utilization

acceptability of alternative care. However, movement away from traditional practices is already taking place, particularly amongst the more educated and better off, and there is a clear opportunity to broaden, direct and accelerate this process.

CONCLUSION: Community education should be a focus of the National Rural Health Mission (NRHM) and Integrated Management of Neonatal and Childhood Illness (IMNCI) program being implemented in Karnataka. The added capacity of the new Accredited Social Health Activists (ASHAs) could enable more women to be reached. With careful tailoring of behaviour change messages to the local context, government outreach workers can become effective brokers of positive change and significant improvements in home newborn care and neonatal mortality are possible.

14. Keusch GT, Kilama WL, Moon S, Szlezak NA, Michaud CM. The global health system: linking knowledge with action — learning from malaria. PLoS Med. 2010;7(1).

Conducting basic research, translating it into the development of new health tools, and delivering products to patients in need of them are core functions of an effective global health system. Yet performing these functions is a particular challenge for diseases that primarily affect the poor in low-income countries, partly because efforts to understand diseases and develop tools to combat them are often detached from efforts to deliver interventions. For malaria, the global health system has evolved over the past century to integrate better the research, development, and delivery (R&D&D) of new products to treat and control the disease. This article traces that evolution and extracts lessons applicable to the many new challenges currently facing the global health system.

15. Morrison DM, Hoppe MJ, Gillmore MR, Kluver C, Higa D, Wells EA. Replicating an intervention: the tension between fidelity and adaptation. AIDS Educ Prev. 2009 Apr;21(2):128.

Increased awareness of the importance of tailoring interventions to participants' cultures has focused attention on the limited generalizability of a single test of an intervention to determine efficacy. Adaptation is often necessary to replicate interventions across cultures. This produces a tension between fidelity to the original intervention and adaptations necessary to make the intervention relevant to the culture and circumstances of participants. This article discusses issues that arise during the course of replication, with illustrations from a replication to test the efficacy of an HIV prevention intervention for youth, using a randomized controlled design. Analysis of the issues raised leads us to suggest that a "science of replication" needs to be developed.

16. Pablos-Mendez A, Chunharas S, Lansang MA, Shademani R, Tugwell P. Knowledge translation in global health. Bull World Health Organ. 2005 Oct;83(10):723.

We discuss the "know-do gap," present a definition of knowledge translation, and discuss its relative importance in bridging the know-do gap. Some of the underlying causes of the know-do gap are listed, along with ongoing efforts to address them. Knowledge translation is considered a cross-cutting, nonlinear process that involves not only recent research findings but also knowledge that is created from the dynamic interaction of people who come together to solve public health problems, to learn, and ultimately to drive productive change. We also mention some of the activities undertaken by the World Health Organization in regards to knowledge translation. The search strategy has been nonsystematic, and reference is made to selected sources only.

17. Salsali M, Mehrdad N. Iranian nurses' constraint for research utilization. BMC Nurs. 2009;8:9.

BACKGROUND: This paper identifies the views of Iranian clinical nurses regarding the utilization of nursing research in practice. There is a need to understand what restricts Iranian clinical nurses to use research findings. The aim of this study was to identify practicing nurses' view of aspects which they perceived constrain them from research utilization that summarizes and uses research findings to address a nursing practice problem.
METHODS: Data were collected during 6 months by means of face-to face interviews follow by one focus group. Analysis was undertaken using a qualitative content analysis.
RESULTS: Findings disclosed some key themes perceived by nurses to restrict them to use research findings: level of support require to be research active, to be research minded, the extent of nurses knowledge and skills about research and research utilization, level of educational preparation relating to using research, administration and executive challenges in clinical setting, and theory-practice gap.
CONCLUSION: This study identifies constraints that require to be overcome for clinical nurses to actively get involved in research utilization. In this study nurses were generally interested to use research findings. However they felt restricted because of lack of time, lack of peer and manager support and limited knowledge and skills of the research process. This study also confirms that research utilization and the change to research nursing practice are complex issues which require both organizational and educational efforts.

18. Sola A, Dominguez Dieppa F, Rogido MR. An evident view of evidence-based practice in perinatal medicine: absence of evidence is not evidence of absence. Jornal de Pediatria. 2007;83(5):395.

OBJECTIVE: To provide valuable elements and some humor in this so-called era of "evidence-based practice" with the aim of helping clinicians make better choices in the care they deliver based on evidence, not simply or exclusively based on a randomized clinical trial (RCT) or meta-analysis (which may not be evidence).
SOURCES: Books and peer-reviewed articles are quoted and listed in the bibliography. Evidence of life, learning from our own mistakes and many other evident facts that support this review are not quoted.
SUMMARY AND FINDINGS: 1) "Absence of evidence is not evidence of absence" and "lack of evidence of effect does not mean evidence of no effect." 2) RCTs with "negative" results and those with "positive" results, but without outcomes that matter, often cannot conclude what they conclude. 3) Non-randomized clinical trials and practical trials may be important. 4) Research to prove is different than research to improve. 5) Clinical choice must assess effects on outcomes that matter to patients and their parents. 6) Quantifying adverse outcomes, number needed to damage and to treat is not that simple.
CONCLUSIONS: Significant challenges inherent to health service research must be correlated to possible clinical applications using tools to have a more "evident view of evidence-based practice" in perinatal medicine, recalling that absence of evidence is not evidence of absence.

19. Teutsch SM. The evidence for evidence-based public health. J Public Health Manag Pract. 2008 Mar-Apr;14(2):92.

The author provides a short commentary on evidence-based public health, exploring past accomplishments, current challenges and future needs.

See Also

In **Dissemination and Implementation:**

Choi BC. Understanding the basic principles of knowledge translation. J Epidemiol Community Health. 2005 Feb;59(2):93.

Siddiqi K, Newell JN. Putting evidence into practice in low-resource settings. Bull World Health Organ. 2005 Dec;83(12):882.

In **Educational Strategies to Increase Research Utilization:**

Dreisinger M, Leet TL, Baker EA, Gillespie KN, Haas B, Brownson RC. Improving the public health workforce: evaluation of a training course to enhance evidence-based decision making. J Public Health Manag Pract. 2008 Mar-Apr;14(2):138.

In **Translating Research to Policy:**

Brownson RC, Royer C, Ewing R, McBride TD. Researchers and policymakers: travelers in parallel universes. Am J Prev Med. 2006 Feb;30(2):164.

Crichton J, Theobald S. Strategies and tensions in communicating research on sexual and reproductive health, HIV and AIDS: a qualitative study of the experiences of researchers and communications staff. Health Res Policy Syst. 2011;9 Suppl 1:S4.

Gyapong JO, Selby RA, Anakwah KA. Challenges in linking health research to policy: a commentary on developing a multi-stakeholder response to orphans and vulnerable children in Ghana. Health Res Policy Syst. 2011;9 Suppl 1:S14.

Hennink M, Stephenson R. Using research to inform health policy: barriers and strategies in developing countries. J Health Commun. 2005 Mar;10(2):163.

Innvaer S, Vist G, Trommald M, Oxman A. Health policy-makers' perceptions of their use of evidence: a systematic review. J Health Serv Res Policy. 2002;7(4):239.

Jewell CJ, Bero LA. "Developing good taste in evidence": facilitators of and hindrances to evidence-informed health policymaking in state government. Milbank Q. 2008 Jun;86(2):177.

Stephenson R, Hennink M. Moving beyond research to inform policy: barriers and strategies in developing countries. Opportunities and Choices Working Paper No 2002/05. Southampton (UK): University of Southampton Press; 2002.

Barriers, Constraints and Challenges to Research Utilization

Champions

Based in "diffusion of innovations" theory, a public health "champion" is an influential figure who uses his or her expertise and interpersonal skills to promote the use of evidence-based practices and to bridge the gap between research and programming. Engaging such opinion leaders can facilitate the speed and ease with which research results are incorporated into public health policy, programs or clinical practice. The literature collected in this section demonstrates the range of evidence behind this research utilization strategy.

1. Borbas C, Morris N, McLaughlin B, Asinger R, Gobel F. The role of clinical opinion leaders in guideline implementation and quality improvement. Chest. 2000 Aug;118 Suppl 2:S24.

BACKGROUND: The lag between the publication of clinical and health-services research and the application of this information is substantial and delays health-care improvement. A wide range of corrective strategies are being used to address this issue.
OBJECTIVES: Evolution in the use of significant opinion leaders is described. Hospital quality improvement projects, undertaken by the Healthcare Education and Research Foundation (HERF), are used to illustrate the roles assumed by clinical opinion leaders. Specific theoretical frameworks are reviewed that are fundamental to successful implementation of opinion leader strategies, as well as key research on the use of clinical opinion leaders.
RESULTS: Over the past 12 years, HERF has identified the need to address not only the information needs of clinicians and organizations but also the social and organizational factors that interfere with the application of research and guidelines. The complexity of this task cannot be underestimated. However, armed with well-developed guidelines and the opportunity to work within structured guideline implementation programs with well-defined objectives and systematically applied methods, HERF's experience suggest local clinicians and communities can meet this challenge.

2. Collins BA, Hawks JW, Davis R. From theory to practice: identifying authentic opinion leaders to improve care. Manag Care. 2000 Jul;9(7):56-8, 61.

"Diffusion of innovations" and "opinion leader" theories can be translated into practical applications to improve health care delivery and financial performance by applying them to influence referral patterns and decrease variations in care. Health care organizations can rapidly spread "better practices" to their practicing physicians by understanding the social and communication networks that are naturally developed by those practitioners. Physicians view this diffusion process as promoting autonomy, and as a legitimate approach to adoption of information needed in daily practice.

3. The community popular opinion leader HIV prevention programme: conceptual basis and intervention procedures. AIDS. 2007 Apr;21 Suppl 2:S59.

OBJECTIVE: To describe the community popular opinion leader (C-POL) intervention employed in the NIMH Collaborative HIV/STD Prevention Trial, including its theoretical, conceptual, and empirical basis, intervention procedures and methods, core elements, and how its content was culturally tailored to address the needs of varied populations.

DESIGN: The programme is designed to identify, recruit, train, and intensively engage C-POLs of a target population to convey HIV risk reduction messages to people in their communities, with the intention of reducing high-risk behavior at a population level.

METHODS: Based on the diffusion of innovation theory, the intervention identified, trained, and engaged C-POL within a high-risk community population to advocate, recommend, and endorse the importance of safer behavior to other members of the same population. Nine core elements of the intervention are discussed. Data collected during rapid ethnography were used to adapt the content of the intervention for food market owners and workers in China, male patrons of wine shops and at-risk women congregating nearby in India, young people in social gathering venues in Peruvian barrios, dormitory students in Russia, and people congregating in commercial areas of growth points in Zimbabwe.

RESULTS: The C-POL intervention model taps into community strengths, altruism, and people's desire to do something to help fight against AIDS. With few exceptions, C-POLs participated enthusiastically in the training sessions and reported having conversations in the community.

CONCLUSION: Rapid ethnography can be used to tailor an intervention to diverse settings while maintaining fidelity to the core elements of the intervention.

4. Curran GM, Thrush CR, Smith JL, Owen RR, Ritchie M, Chadwick D. Implementing research findings into practice using clinical opinion leaders: barriers and lessons learned. Jt Comm J Qual Patient Saf. 2005 Dec;31(12):700.

BACKGROUND: An opinion leader-driven intervention to improve practice guideline-based medication management for patients with schizophrenia was tested at four Department of Veterans Affairs health care facilities. The concept of using opinion leaders as disseminators of research evidence and internal agents of change has been widely reported.

PROJECT OVERVIEW: Each intervention site received an intensive, multicomponent intervention during the course of one year. The project's process evaluation included ongoing brief surveys of physicians' attitudes and behaviors, logs of reports from opinion leader conference calls, and interviews with the opinion leaders toward the end of the implementation period. BARRIERS OR ISSUES AND POTENTIAL SOLUTIONS: Several barriers or problematic issues surfaced: (1) physicians do not always agree on who is an opinion leader; some sites may have no opinion leader; (2) some sites had poorly developed formal and informal social networks among physicians; (3) a focus on physicians only as agents of change; and (4) how much directive should be given to the opinion leaders concerning how to influence attitudes and behaviors?

DISCUSSION: Four major problematic issues encountered during the project offer potential solutions for addressing them.

5. Doumit G, Gattellari M, Grimshaw J, O'Brien MA. Local opinion leaders: effects on professional practice and health care outcomes. Cochrane Database Syst Rev. 2007(1):CD000125.

BACKGROUND: Clinical practice is not always evidence-based and, therefore, may not optimise patient outcomes. Opinion leaders disseminating and implementing 'best evidence' is one innovative method that holds promise as a strategy to bridge evidence-practice gaps.

OBJECTIVES: To assess the effectiveness of the use of local opinion leaders in improving the behaviour of health care professionals and patient outcomes.

SELECTION CRITERIA: Studies eligible for inclusion were randomized controlled trials that used objective measures of performance/provider behaviour and/or patient health outcomes.

Champions

DATA COLLECTION AND ANALYSIS: Two reviewers extracted data from each study and assessed its methodological quality. We calculated the absolute difference in the risk of 'non-compliance' with desired practice, adjusting for baseline levels of non-compliance where these data were available.
MAIN RESULTS: Twelve studies met our eligibility criteria. The adjusted absolute risk difference of non-compliance with desired practice varied from -6% (favouring control) to +25% (favouring opinion leader intervention). Overall, the median adjusted risk difference (ARD) was 0.10 representing a 10% absolute decrease in non-compliance in the intervention group.
AUTHORS' CONCLUSIONS: The use of local opinion leaders can successfully promote evidence-based practice. However the feasibility of its widespread use remains uncertain.

6. Group NCHSPT. Formative study conducted in five countries to adapt the community popular opinion leader intervention. AIDS. 2007 Apr;21 Suppl 2:S91.

OBJECTIVE: To obtain information about the social and cultural factors related to health behaviors influencing HIV/sexually transmitted disease (STD) transmission in study communities in China, India, Peru, Russia, and Zimbabwe so that the assessment and intervention of the National Institute for Mental Health (NIMH) Collaborative HIV/STD Prevention Trial could be adapted appropriately.
METHODS: Field observations, focus groups, in-depth interviews with key informants, and an observation of community social dynamics were conducted as part of a rapid ethnographic assessment.
RESULTS: All five sites reported a power dynamic tilted towards men, which rendered women particularly vulnerable to HIV and other STDs. Women's relative lack of power was exemplified by a double standard for extramarital sex, women's limited ability to negotiate sex or condom use, and sexual and physical violence against women. In all sites except Russia, extramarital sex is tolerated for men but proscribed for women. In Peru, power dynamics between men who have sex with men were tilted towards men who self-identified as heterosexual. Condom use (reported to be low across all sites) was often linked to having sex with only those perceived as high-risk partners. Regardless of site or study population, participants agreed on the following characteristics of an ideal community popular opinion leader (C-POL): respectable, credible, experienced (life and sexual), trustworthy, empathetic, well-spoken, and self-confident.
CONCLUSION: The ethnographic studies provided critical information that enabled the study teams to adapt elements of the Trial in culturally appropriate ways in diverse international settings.

7. Hernandez E. From Roadblock to champion: PHE advocacy and local government executives. Washington, D.C.: Population Reference Bureau; 2006.

This document uses a case study to highlight strategies for introducing reproductive health interventions, especially in instances where a decision maker may be strongly opposed. The case study features the work of PATH Foundation Philippines, Inc. (PFPI) as it attempted to integrate the distribution of condoms with coastal resource management.

8. Howell J, Shea C. Individual differences, environmental scanning, innovation framing, and champion behavior: key predictors of project performance. Journal of Product Innovation Management. 2001;18(1):15.

Little is known about key aspects of a champion's behavior: how he or she identifies ideas for product innovation, how champions gain support from key stakeholders, and the impact of champions on the performance of innovation projects over time. The authors address this knowledge gap by studying the performance of various champions. Overall, the findings suggest that the champion's personal network

of people is the most effective source of ideas. Champions make a positive contribution to a project's performance over time.

9. Howell JM, Shea CM, Higgins CA. Champions of product innovations: defining, developing, and validating a measure of champion behavior. Journal of Business Venturing. 2005;20(5):641.

This paper presents a valid and reliable measure of champion behavior.

10. Methodological overview of a five-country community-level HIV/sexually transmitted disease prevention trial. AIDS. 2007 Apr;21 Suppl 2:S3.

OBJECTIVE: To provide an overview of the National Institute of Mental Health (NIMH) Collaborative HIV/STD Prevention Trial taking place in five populations at risk of HIV and sexually transmitted diseases in China, India, Peru, Russia, and Zimbabwe, including the rationale, study management, methods, and proposed data analyses.
DESIGN: The Trial will scientifically evaluate the effectiveness of the community popular opinion leader (C-POL) community-level HIV prevention intervention that was adapted for use in the various cultures within the resource limitations faced by service providers in world regions threatened by high rates of HIV infection.
METHODS: The study phases consist of an ethnographic study, pilot studies, an epidemiological study, and a community-randomized trial. The Trial uses the C-POL intervention, which researchers selected on the basis of research that shows the intervention's success in populations vulnerable to HIV risk behavior in the United States, and has the potential to be applied in a variety of international settings.
RESULTS: Trial results will be tabulated by and across country by randomization assignment. Results will include a careful review of data to substantiate original assumptions used in the study design. Data collection will not conclude until August 2007.
CONCLUSION: Although data collection is incomplete, researchers have learned lessons throughout the development of the study. These include the importance of preliminary epidemiological studies; the close monitoring of biological testing, follow-up rates and process measures at international sites; the tailoring of assessments and interventions to various cultures; regular communication; and a review of the timeline to accommodate Institutional Review Board clearances.

11. Schwammle V, Gonzalez MC, Moreira AA, Andrade JS, Jr., Herrmann HJ. Different topologies for a herding model of opinion. Phys Rev E Stat Nonlin Soft Matter Phys. 2007 Jun;75(6 Pt 2):066108.

Understanding how opinions spread through a community or how consensus emerges in noisy environments can have a significant impact on our comprehension of social relations among individuals. In this work a model for the dynamics of opinion formation is introduced. The model is based on a nonlinear interaction between opinion vectors of agents plus a stochastic variable to account for the effect of noise in the way the agents communicate. The dynamics presented is able to generate rich dynamical patterns of interacting groups or clusters of agents with the same opinion without a leader or centralized control. Our results show that by increasing the intensity of noise, the system goes from consensus to a disordered state. Depending on the number of competing opinions and the details of the network of interactions, the system displays a first- or a second-order transition. We compare the behavior of different topologies of interactions: one-dimensional chains, and annealed and complex networks.

12. Sisk JE, Greer AL, Wojtowycz M, Pincus LB, Aubry RH. Implementing evidence-based practice: evaluation of an opinion leader strategy to improve breast-feeding rates. Am J Obstet Gynecol. 2004 Feb;190(2):413.

OBJECTIVE: The objective was to evaluate the effectiveness of opinion leaders in raising breast-feeding rates.
STUDY DESIGN: A randomized controlled trial of an opinion leader strategy in 18 hospitals in Central New York State compared mothers' intention to breast-feed during baseline and study years. Multivariate logistic regression with a mixed model analyzed the effects on breast-feeding exclusively and on breast- and formula-feeding combined.
RESULTS: Obstetric clinicians had a high degree of knowledge about breast-feeding benefits and of perceived responsibility to recommend breast-feeding. Obstetricians, family practitioners, and midwives agreed on the person identified as the opinion leader, in each case an obstetrician who was chief of obstetrics or obstetrics-gynecology. Breast-feeding rates in hospitals with the opinion leader intervention did not differ significantly from those in control-group hospitals during the study year.
CONCLUSION: The opinion leader strategy in this case did not improve breast-feeding rates during the study year. Opinion leader strategies may make assumptions about clinician control that are not justified in situations such as breast-feeding.

13. Sivaram S, Srikrishnan AK, Latkin CA, Johnson SC, Go VF, Bentley ME, et al. Development of an opinion leader-led HIV prevention intervention among alcohol users in Chennai, India. AIDS Educ Prev. 2004 Apr;16(2):137.

In 1999, we began a community-based randomized controlled prevention trial in Chennai, which aims to test the efficacy of HIV prevention messages disseminated through members of an individual's social group called community popular opinion leaders, or CPOLs. We targeted patrons of 100 bars or wine shops in the city of Chennai, India. In this article we report on the process of development of an HIV prevention intervention for wine shop patrons. First, we conducted detailed ethnography to understand social norms and CPOL and social network characteristics, including 41 in-depth interviews among wine shop patrons and gatekeepers. Second, we tailored a generic HIV education training manual to appropriately address the needs of Chennai wine shop patrons. Field-testing involved 16 focus groups with wine shop patrons and 12 sessions of participant observations in wine shops. Finally, we piloted the intervention to determine the appropriateness of the training program and its content among wine shop patrons. Our ethnographic data indicated that wine shops are a common meeting place for men. We were able to identify CPOLs influential in these settings and train them to deliver appropriate prevention messages to their close friends and associates. We found that HIV prevention messages in this population need to dispel misperceptions about HIV transmission, provide strategies and skills to adopt and sustain condom use, and target the role of alcohol in sexual behavior. We outline specific lessons we learned in intervention development in this population.

14. Smith D. The politics of innovation: why innovations need a godfather. Technovation. 2007;27(3):95.

This paper looks at the roles people must play for an innovative technology to succeed. These roles include the technological gatekeeper, the product champion, the sponsor or coach, and the godfather (whose role is emphasized).

Champions

15. Thompson GN, Estabrooks CA, Degner LF. Clarifying the concepts in knowledge transfer: a literature review. J Adv Nurs. 2006 Mar;53(6):691.

AIM: The aim of this paper is to examine the concepts of opinion leaders, facilitators, champions, linking agents and change agents as described in health, education and management literature in order to determine the conceptual underpinnings of each.
BACKGROUND: The knowledge utilization and diffusion of innovation literature encompasses many different disciplines, from management to education to nursing. Due to the involvement of multiple specialties, concepts are often borrowed or used interchangeably and may lack standard definition. This contributes to confusion and ambiguity in the exactness of concepts.
METHODS: A critical analysis of the literature was undertaken of the concepts opinion leaders, facilitators, champions, linking agents and change agents. A literature search using the concepts as keywords was conducted using Medline, CINAHL, Proquest and ERIC from 1990 to March 2003. All papers that gave sufficient detail describing the various concepts were included in the review. Several 'older' papers were included as they were identified as seminal work or were frequently cited by other authors. In addition, reference lists were reviewed to identify books seen by authors as essential to the field.
FINDINGS: Two similarities cut across each of the five roles: the underlying assumption that increasing the availability of knowledge will lead to behaviour change, and that in essence each role is a form of change agent. There are, however, many differences that suggest that these concepts are conceptually unique.
CONCLUSIONS: There is inconsistency in the use of the various terms, and this has implications for comparisons of intervention studies within the knowledge diffusion literature. From these comparisons, we concluded that considerable confusion and overlap continues to exist and these concepts may indeed be similar phenomena with different labels. All concepts appear to be based on the premise that interpersonal contact improves the likelihood of behavioural change when introducing new innovations into the health sector.

16. Valente TW, Pumpuang P. Identifying opinion leaders to promote behavior change. Health Educ Behav. 2007 Dec;34(6):881.

This article reviews 10 techniques used to identify opinion leaders to promote behavior change. Opinion leaders can act as gatekeepers for interventions, help change social norms, and accelerate behavior change. Few studies document the manner in which opinion leaders are identified, recruited, and trained to promote health. The authors categorize close to 200 studies that have studied or used opinion leaders to promote behavior change into 10 different methods. They present the advantages and disadvantages of the 10 opinion leader identification methods and provide sample instruments for each. Factors that might influence programs to select one or another method are then discussed, and the article closes with a discussion of combining and comparing methods.

17. Varkey P, Horne A, Bennet KE. Innovation in health care: a primer. Am J Med Qual. 2008 Sep-Oct;23(5):382.

As organizations strive for ways to control health care spending, address the growing needs of an aging population, and respond satisfactorily to a more informed and demanding consumer base, the opportunities for innovation have increased exponentially. By means of this article, the authors describe the basic concepts of purposeful innovation, and compare and contrast it to quality improvement. The authors also provide an overview of the terminology and types of innovation, describe the innovation

Champions

life cycle, and discuss diffusion and commercialization of innovations. This article provides a primer on innovation for quality improvement practitioners and physician leaders who play a key role in creating innovation and environments for innovations to flourish.

18. Wadhwa Av, Ford-Jones EL, Lingard L. A qualitative study of interphysician telephone consultations: extending the opinion leader theory. J Contin Educ Health Prof. 2005 Spring;25(2):98.

INTRODUCTION: It has been suggested that the use of opinion leaders in the dissemination of information may be an effective method of changing clinical practice. Recent reviews on this topic, however, have found mixed results and have concluded that further research is needed to explore the circumstances that effectively utilize opinion leaders. We studied the interphysician telephone consultation, a situation in medical practice in which we see opinion leaders at work, to generate a grounded theory of opinion leader activity.
METHODS: Data were collected and triangulated among 3 sources: documentation of 129 telephone consultations received, 51 hours of field observations of consultants, and in-depth interviews of 12 callers and 12 consultants. Analysis was performed using grounded theory methods.
RESULTS: A rich description of the context and mechanisms of opinion leader activity emerged. The results describe that opinion leader activity is effective in an informal context in which the practicing physician initiates the exchange. Valuable elements of opinion leader activity that emerged included the provision of a personal touch, reassurance, and advice that blends clinical experience with published evidence.
DISCUSSION: Our results suggest that key to effective opinion leader activity is an informal practitioner-initiated context. Formal didactic sessions led by opinion leaders, therefore, may not be an effective format. In addition to evidence-based medicine, practicing physicians value "experience-based medicine" and the personal touch and reassurance that contact with an opinion leader can provide. Using opinion leaders as a means of balancing these 2 paradigms may be a useful model for continuing medical education in this domain.

See Also

In Theory and Key Concepts

Kincaid DL. Social networks, ideation, and contraceptive behavior in Bangladesh: a longitudinal analysis. Soc Sci Med. 2000 Jan;50(2):215.

Straus SE, Graham ID, Taylor M, Lockyer J. Development of a mentorship strategy: a knowledge translation case study. J Contin Educ Health Prof. 2008 Summer;28(3):117.

In Translating Research to Policy

Sugiyama N. Theories of policy diffusion — social sector reform in Brazil. Comparative Political Studies. 2008;41(2):193.

Champions

Dissemination and Implementation

Dissemination of research findings is an important component of the research utilization process. Successful implementation of evidence-based practices requires thoughtful dissemination strategies that take into account contextual needs and influences. These resources highlight a range of models for the dissemination of research findings and strategies for the sustainable implementation of innovations. For resources on scaling up successful health service innovations, please visit ExpandNet's website at: http://www.expandnet.net/.

1. Askew I, Matthews Z, Partridge R. Going beyond research: A key issues paper raising discussion points related to dissemination, utilisation and impact of reproductive and sexual health research. Southampton (UK): University of Southampton Press; 2001. Available at: http://www.socstats.soton.ac.uk/choices/workshop/keyissues.html

This paper reviews a meeting that discussed how reproductive health research is put into practice. The attendeees — researchers, policymakers and funders — considered various strategies for strengthening the utilization, communication and evaluation of their own health research programs.

2. Baker EA, Brennan Ramirez LK, Claus JM, Land G. Translating and disseminating research- and practice-based criteria to support evidence-based intervention planning. J Public Health Manag Pract. 2008 Mar-Apr;14(2):124.

Evidence-based public health is a decision-making process to determine the best intervention approach for addressing a particular health issue, population, and setting. The decision-making process involves the identification and evaluation of criteria supporting or refuting use of intervention approaches based on previous work in the field.
OBJECTIVE: The purpose of this article is to describe the identification and evaluation of research- and practice-based evidence criteria.
METHODS: These criteria were derived through literature review and expert panel interviews.
RESULTS AND CONCLUSIONS: These evidence criteria provide the foundation for the translation and dissemination of evidence-based intervention planning processes through a web-based technical advisement system for public health practitioners. Limitations and future directions are considered.

3. Berwick DM. Disseminating innovations in health care. JAMA. 2003 Apr 16;289(15):1969.

Health care is rich in evidence-based innovations, yet even when such innovations are implemented successfully in one location, they often disseminate slowly-if at all. Diffusion of innovations is a major challenge in all industries including health care. This article examines the theory and research on the dissemination of innovations and suggests applications of that theory to health care. It explores in detail 3 clusters of influence on the rate of diffusion of innovations within an organization: the perceptions of the innovation, the characteristics of the individuals who may adopt the change, and contextual and managerial factors within the organization. This theory makes plausible at least 7 recommendations for health care executives who want to accelerate the rate of diffusion of innovations within their organizations: find sound innovations, find and support "innovators," invest in "early adopters," make early adopter activity observable, trust and enable reinvention, create slack for change, and lead by example.

4. Bradley E, Webster T, Baker D, Schlesinger M, Inouye S, Barth M, et al. Translating research into practice: speeding the adoption of innovative health care programs. Publication No 724. New York: The Commonwealth Fund; 2004.

For this study, the authors conducted case studies of four varied clinical programs to learn key factors influencing the diffusion and adoption of evidence-based innovations in health care. They found that the success and speed of the adoption/diffusion process depend on: the roles of senior management and clinical leadership; the generation of credible supportive data; an infrastructure dedicated to translating the innovation from research into practice; the extent to which changes in organizational culture are required; and the amount of coordination needed across departments or disciplines. The translation process also depends on the characteristics and resources of the adopting organization, and on the degree to which people believe that the innovation responds to immediate and significant pressures in their environment.

5. Brambila C, Ottolenghi E, Marin C, Bertrand JT. Getting results used: evidence from reproductive health programmatic research in Guatemala. Health Policy Plan. 2007 Jul;22(4):234.

This article reviews 44 operations research projects aiming to improve reproductive health services in Guatemala, conducted by the Population Council from 1988 to 2001. It documents the experience of the research program, traces the extent to which research results are identifiable in existing programs, and analyses factors influencing utilization. Utilization of research results occurs as a gradual process of information sharing, where researchers influence decision-makers through a continual stream of information rather than a single set of findings. Utilization depends on leadership, collaborative planning and implementation, close monitoring, and feasible research designs, among other factors. To influence policy formulation, organizations should form enduring links among institutions and develop critical research skills among personnel who collaborate with or manage service programs. To understand how operations research affects policy and program change, one must consider not just individual projects, but rather the synergistic impact of multiple projects on a broad range of themes over time.

6. Choi BC. Understanding the basic principles of knowledge translation. J Epidemiol Community Health. 2005 Feb;59(2):93.

This commentary identifies volume and complexity as two major challenges to effective knowledge translation. The author names integration and simplification as the basic principles of knowledge translation and provides examples of several effective, audience-appropriate public health messages used to convey research findings.

7. Cuijpers P, de Graaf I, Bohlmeijer E. Adapting and disseminating effective public health interventions in another country: towards a systematic approach. Eur J Public Health. 2005 Apr;15(2):166.

BACKGROUND: Public health interventions that have proven effective in one country are often adapted and disseminated in other countries. However, the process by which effective interventions are chosen for adaptation and dissemination in another country is often not conducted systematically. METHODS: We propose a more systematic approach and describe the main steps that have to be taken in the assessment of the usefulness of effective interventions in another national context.

RESULTS: The following steps are proposed. Step 0: Point out the most relevant areas in public health (this is a collaborative effort by policy makers, scientists and practitioners). Step 1: Identification of potentially effective interventions (through systematic literature searches). Step 2: Assessing the levels of evidence and grades of recommendation for adoption. Step 3: Can the results of the trials be generalized to the national situation? Step 4: Can the intervention be implemented in the national situation?
CONCLUSION: A more systematic approach to the adaptation and dissemination can be adopted. The basic steps described should be worked out in more detail before they can be used in practice.

8. Delany-Moretlwe S, Stadler J, Mayaud P. Rees H. Investing in the future: lessons learnt from communicating the results of HSV/HIV intervention trials in South Africa. Health Res Policy Syst. 2011; 9 Suppl 1:S8.

BACKGROUND: Communicating the results of randomised controlled trials may present challenges for researchers who have to work with communities and policy-makers to anticipate positive outcomes, while being aware that results may show no effect or harm. METHODS: We present a case study from the perspective of researchers in South Africa about the lessons learnt from communicating the results of four trials evaluating treatment for herpes simplex virus type 2 (HSV-2) as a new strategy for HIV prevention. RESULTS: We show that contextual factors such as misunderstandings and mistrust played an important role in defining the communications response. Use of different approaches in combination was found to be most effective in building understanding, credibility and trust in the research process. During the communication process, researchers acted beyond their traditional role of neutral observers and became agents of social change. This change in role is in keeping with a global trend towards increased communication of research results and presents both opportunities and challenges for the conduct of future research. CONCLUSIONS: Despite disappointing trial results which showed no benefit of HSV-2 treatment for HIV prevention, important lessons were learnt about the value of the communication process in building trust between researchers, community members and policy-makers, and creating an enabling environment for future research partnerships.

9. Dolcini MM, Gandelman AA, Vogan SA, Kong C, Leak TN, King AJ, et al. Translating HIV interventions into practice: community-based organizations' experiences with the diffusion of effective behavioral interventions (DEBIs). Soc Sci Med. 2010 Nov;71(10):1839.

Efficacious behavioral interventions developed to address the spread of HIV/STIs are currently being disseminated in the USA through a national diffusion program (DEBI) spearheaded by the Centers for Disease Control and Prevention (CDC). Understanding how interventions are translated to real world settings is necessary to further scientific knowledge of this process and to facilitate future translation efforts in public health. Prior studies have begun to elucidate how agencies translate behavioral interventions into practice, but further work is needed. Guided by the ADAPT framework, we examined agencies' assessment, preparation, and implementation of interventions. Our qualitative interview-based study focused on six community-based agencies in California (United States) funded to implement three group-level HIV interventions. Findings showed considerable variation in the extent to which agencies engaged in assessment and broad-based preparation and in the ease with which agencies implemented the interventions. The findings provide insight into the process that agencies undergo in the translation of effective behavioral interventions and illustrate how agencies can inform logic models that guide translation. We also identify relevant dimensions of existing models, including the ADAPT framework and Rogers's (1995, 2005) diffusion of innovations in organizations, that have value for agencies that are translating research to practice.

10. Epping-Jordan JE. Research to practice: international dissemination of evidence-based behavioral medicine. Ann Behav Med. 2004 Oct;28(2):81.

BACKGROUND: In recent years, there has been a dramatic rise in the global prevalence of chronic conditions. Cancer, diabetes, cardiovascular diseases chronic lung disorders, and their common behavioral risk factors are escalating rapidly in developing countries, many of which are still struggling with infectious diseases and poor health system infrastructures.
PURPOSE: This article examines the role that behavioral medicine can play to improve global health.
METHODS: The World Health Organization's Innovative Care for Chronic Conditions Framework provides a model for identifying areas for behavioral medicine influence, including patient-provider interactions, organization of health care, community mobilization, and national policy and financing.
RESULTS: Behavioral medicine has a large role to play in international health. Examples from around the world are provided.
CONCLUSIONS: Because behavior is the product of multilevel, multifactoral determinants, there are many areas of influence for behavioral medicine specialists who want to contribute to global health. By focusing attention internationally, with special attention toward the needs of developing countries, the field of behavioral medicine will be not only responding to its global responsibilities but also repositioning itself to be increasingly relevant for the 21st century.

11. Fixsen D, Naoom S, Blase K, Friedman R, Wallace F. Implementation research: a synthesis of the literature. Tampa: University of South Florida; 2005.

This document examines the evidence for the effective implementation of various service programs, including practices in mental health, social services, juvenile justice, education, early childhood education, employment services, and substance abuse prevention and treatment. The text also discusses different frameworks to guide effective implementations.

12. Fretheim A, Schunemann HJ, Oxman AD. Improving the use of research evidence in guideline development: 15. Disseminating and implementing guidelines. Health Res Policy Syst. 2006 Dec 8;4:27.

BACKGROUND: The World Health Organization (WHO), like many other organisations around the world, has recognised the need to use more rigorous processes to ensure that health care recommendations are informed by the best available research evidence. This is the 15th of a series of 16 reviews that have been prepared as background for advice from the WHO Advisory Committee on Health Research to WHO on how to achieve this.
OBJECTIVES: In this review we address strategies for the implementation of recommendations in health care.
METHODS: We examined overviews of systematic reviews of interventions to improve health care delivery and health care systems prepared by the Cochrane Effective Practice and Organisation of Care (EPOC) group. We also conducted searches using PubMed and three databases of methodological studies for existing systematic reviews and relevant methodological research. We did not conduct systematic reviews ourselves. Our conclusions are based on the available evidence, consideration of what WHO and other organisations are doing and logical arguments.
KEY QUESTIONS AND ANSWERS: What should WHO do to disseminate and facilitate the uptake of recommendations? WHO should choose strategies to implement their guidelines from among those which have been evaluated positively in the published literature on implementation research Because

the evidence base is weak and modest to moderate effects, at best, can be anticipated, WHO should promote rigorous evaluations of implementation strategies. What should be done at headquarters, by regional offices and in countries? Adaptation and implementation of WHO guidelines should be done locally, at the national or sub-national level. WHO headquarters and regional offices should support the development and evaluation of implementation strategies by local authorities.

13. Gagnon ML. Moving knowledge to action through dissemination and exchange. J Clin Epidemiol. 2011; 64(1):25.

OBJECTIVE: The objective of this article is to discuss the knowledge dissemination and exchange components of the knowledge translation process that includes synthesis, dissemination, exchange, and ethically sound application of knowledge. This article presents and discusses approaches to knowledge dissemination and exchange and provides a summary of factors that appear to influence the effectiveness of these processes. It aims to provide practical information for researchers and knowledge users as they consider what to include in dissemination and exchange plans developed as part of grant applications. STUDY DESIGN AND SETTING: Not relevant. RESULTS AND CONCLUSIONS: Dissemination is targeting research findings to specific audiences. Dissemination activities should be carefully and appropriately considered and outlined in a dissemination plan focused on the needs of the audience who will use the knowledge. Researchers should engage knowledge users to craft messages and help disseminate research findings. Knowledge brokers, networks, and communities of practice hold promise as innovative ways to disseminate and facilitate the application of knowledge. Knowledge exchange or integrated knowledge translation involves active collaboration and exchange between researchers and knowledge users throughout the research process.

14. Garner P, Meremikwu M, Volmink J, Xu Q, Smith H. Putting evidence into practice: How middle and low income countries "get it together." British Medical Journal. 2004;329(7473):1036.

Imagine a new drug that reduces the absolute risk of treatment failure by three quarters — a rare situation in the West but a reality in countries where malaria is endemic, and where adding artesunate to existing drugs has this effect on cure. In middle and low income countries, life threatening infectious diseases are everywhere: new drugs can therefore have large effects on outcomes, and even modest benefits from new interventions can have a dramatic impact on health overall. In addition, wasting resources on ineffective interventions results in technical inefficiencies and substantial opportunity costs in countries least able to afford them; the Global Fund's purchase of ineffective drugs is a recent example.
Since 1990 there has been a massive collective effort, largely fuelled by the Cochrane Collaboration, for people from middle and low income countries to "get it together"—to work collectively to bring research evidence into systematic reviews and to consider ways to ensure the findings are used in clinical practice. We all want to put research into practice, but in the past the emphasis was implementing results from single studies. Now it is widely accepted that we need to "globalise the evidence, and localise the decision"—that is, set the results from a single study in the context of other relevant research. However, these syntheses of the evidence must then be actively managed to ensure change: they require dissemination, policies and systems that enable change, and influential people motivated to stimulate change. This article highlights some of our experiences and personal observations of preparing reviews and implementing change.

15. Grimshaw JM, Eccles MP. Is evidence-based implementation of evidence-based care possible? Med J Aust. 2004 Mar 15;180(6 Suppl):S50.

Dissemination and Implementation

Traditional approaches to disseminating research findings have failed to achieve optimal healthcare. In a systematic review of 235 studies of guideline dissemination and implementation strategies, we observed the following: there was a median 10% improvement across studies, suggesting that it is possible to change healthcare provider behaviour and improve quality of care; most dissemination and implementation strategies resulted in small to moderate improvements in care; multifaceted interventions did not appear more effective than single interventions. The interpretation of our systematic review is hindered by the lack of a robust theoretical base for understanding healthcare provider and organisational behaviour. Future research is required to develop a better theoretical base and to evaluate further guideline dissemination and implementation strategies.

16. Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay CR, Vale L, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. Health Technol Assess. 2004 Feb;8(6):iii-iv, 1.

OBJECTIVES: To undertake a systematic review of the effectiveness and costs of different guideline development, dissemination and implementation strategies; estimate the resource implications of these strategies; and to develop a framework for deciding when it is efficient to develop and introduce clinical guidelines.
METHODS: Separate analyses were undertaken for comparisons of different types of intervention. The study also explored whether the effects of multifaceted interventions increased with the number of intervention components.
RESULTS: 73% of comparisons evaluated multifaceted interventions. Overall, the majority of comparisons reporting dichotomous process data observed improvements in care; however, there was considerable variation in the observed effects both within and across interventions. The majority of interventions observed modest to moderate improvements in care. No relationship was found between the number of component interventions and the effects of multifaceted interventions. The majority of studies only reported costs of treatment; only 25 studies reported data on the costs of guideline development or guideline dissemination and implementation. In general, the respondents thought that only dissemination of educational materials and short (lunchtime) educational meetings were generally feasible within current resources.
CONCLUSIONS: There is an imperfect evidence base to support decisions about which guideline dissemination and implementation strategies are likely to be efficient under different circumstances. Decision makers need to use considerable judgement about how best to use the limited resources they have for clinical governance and related activities to maximise population benefits. Further research is required to: develop and validate a coherent theoretical framework of health professional and organisational behaviour and behaviour change to inform better the choice of interventions in research and service settings, and to estimate the efficiency of dissemination and implementation strategies in the presence of different barriers and effect modifiers.

17. Grimshaw J, Eccles M, Thomas R, MacLennan G, Ramsay C, Fraser C, et al. Toward evidence-based quality improvement. Evidence (and its limitations) of the effectiveness of guideline dissemination and implementation strategies 1966-1998. J Gen Intern Med. 2006 Feb;21 Suppl 2:S14.

OBJECTIVES: To determine effectiveness and costs of different guideline dissemination and implementation strategies.

Dissemination and Implementation

DATA SOURCES: MEDLINE (1966 to 1998), HEALTHSTAR (1975 to 1998), Cochrane Controlled Trial Register (4th ed. 1998), EMBASE (1980 to 1998), SIGLE (1980 to 1988), and the specialized register of the Cochrane Effective Practice and Organization of Care group.

REVIEW METHODS: INCLUSION CRITERIA: Randomized-controlled trials, controlled clinical trials, controlled before and after studies, and interrupted time series evaluating guideline dissemination and implementation strategies targeting medically qualified health care professionals that reported objective measures of provider behavior and/or patient outcome. Two reviewers independently abstracted data on the methodologic quality of the studies, characteristics of study setting, participants, targeted behaviors, and interventions. We derived single estimates of dichotomous process variables (e.g., proportion of patients receiving appropriate treatment) for each study comparison and reported the median and range of effect sizes observed by study group and other quality criteria.

RESULTS: We included 309 comparisons derived from 235 studies. The overall quality of the studies was poor. Seventy-three percent of comparisons evaluated multifaceted interventions. Overall, the majority of comparisons (86.6%) observed improvements in care; for example, the median absolute improvement in performance across interventions ranged from 14.1% in 14 cluster-randomized comparisons of reminders, 8.1% in 4 cluster-randomized comparisons of dissemination of educational materials, 7.0% in 5 cluster-randomized comparisons of audit and feedback, and 6.0% in 13 cluster-randomized comparisons of multifaceted interventions involving educational outreach. We found no relationship between the number of components and the effects of multifaceted interventions. Only 29.4% of comparisons reported any economic data.

CONCLUSIONS: Current guideline dissemination and implementation strategies can lead to improvements in care within the context of rigorous evaluative studies. However, there is an imperfect evidence base to support decisions about which guideline dissemination and implementation strategies are likely to be efficient under different circumstances. Decision makers need to use considerable judgment about how best to use the limited resources they have for quality improvement activities.

18. Hasson H. Systematic evaluation of implementation fidelity of complex interventions in health and social care. Implement Sci. 2010;5:67.

BACKGROUND: Evaluation of an implementation process and its fidelity can give insight into the 'black box' of interventions. However, a lack of standardized methods for studying fidelity and implementation process have been reported, which might be one reason for the fact that few prior studies in the field of health service research have systematically evaluated interventions' implementation processes. The aim of this project is to systematically evaluate implementation fidelity and possible factors influencing fidelity of complex interventions in health and social care.

METHODS: A modified version of The Conceptual Framework for Implementation Fidelity will be used as a conceptual model for the evaluation. The modification implies two additional moderating factors: context and recruitment. A systematic evaluation process was developed. Multiple case study method is used to investigate implementation of three complex health service interventions. Each case will be investigated in depth and longitudinally, using both quantitative and qualitative methods.

DISCUSSION: This study is the first attempt to empirically test The Conceptual Framework for Implementation Fidelity. The study can highlight mechanism and factors of importance when implementing complex interventions. Especially the role of the moderating factors on implementation fidelity can be clarified.

19. Hirschhorn LR, Ojikutu B, Rodriguez W. Research for change: using implementation research to strengthen HIV care and treatment scale-up in resource-limited settings. J Infect Dis. 2007 Dec 1;196 Suppl 3:S516.

Dissemination and Implementation

The expansion of human immunodeficiency virus (HIV) care and treatment in Africa and other resource-limited settings has begun to mitigate the impact of the acquired immunodeficiency syndrome pandemic. As this expansion has occurred, critical research has been conducted that has helped to define best practices and establish guidelines in HIV care. However, despite this research, a tremendous gap exists between the actual delivery of care and those strategies with proven efficacy in the clinical research setting: the program-implementation gap. The field of implementation research has the potential to fill this knowledge gap and to address the barriers to the effective replication of evidence-based interventions in local settings. This article reviews the current understanding of the field of implementation research and discusses its association with other areas of health services research, clinical research, and quality management work. Opportunities for conducting implementation research are proposed, and future steps to develop the field are outlined.

20. Keith RE, Hopp FP, Subramanian U, Wiitala W, Lowery JC. Fidelity of implementation: development and testing of a measure. Implement Sci. 2010; 5:99.

BACKGROUND: Along with the increasing prevalence of chronic illness has been an increase in interventions, such as nurse case management programs, to improve outcomes for patients with chronic illness. Evidence supports the effectiveness of such interventions in reducing patient morbidity, mortality, and resource utilization, but other studies have produced equivocal results. Often, little is known about how implementation of an intervention actually occurs in clinical practice. While studies often assume that interventions are used in clinical practice exactly as originally designed, this may not be the case. Thus, fidelity of an intervention's implementation reflects how an intervention is, or is not, used in clinical practice and is an important factor in understanding intervention effectiveness and in replicating the intervention in dissemination efforts. The purpose of this paper is to contribute to the understanding of implementation science by (a) proposing a methodology for measuring fidelity of implementation (FOI) and (b) testing the measure by examining the association between FOI and intervention effectiveness. METHODS: We define and measure FOI based on organizational members' level of commitment to using the distinct components that make up an intervention as they were designed. Semistructured interviews were conducted among 18 organizational members in four medical centers, and the interviews were analyzed qualitatively to assess three dimensions of commitment to use--satisfaction, consistency, and quality--and to develop an overall rating of FOI. Mixed methods were used to explore the association between FOI and intervention effectiveness (inpatient resource utilization and mortality). RESULTS: Predictive validity of the FOI measure was supported based on the statistical significance of FOI as a predictor of intervention effectiveness. The strongest relationship between FOI and intervention effectiveness was found when an alternative measure of FOI was utilized based on individual intervention components that had the greatest variation across medical centers. CONCLUSIONS: In addition to contextual factors, implementation research needs to consider FOI as an important factor in influencing intervention effectiveness. Our proposed methodology offers a systematic means for understanding organizational members' use of distinct intervention components, assessing the reasons for variation in use across components and organizations, and evaluating the impact of FOI on intervention effectiveness.

21. Kerner JF. Integrating research, practice, and policy: what we see depends on where we stand. J Public Health Manag Pract. 2008 Mar-Apr;14(2):193.

In this special issue of the Journal of Public Health Management and Practice, the editors have taken on the important challenge of characterizing the current landscape of knowledge translation research and

practice in public health. This includes the diffusion of scientific and program evaluation evidence into public health practice and policy, the dissemination and implementation of evidence-based interventions in public health practice, and the complex issues associated with the meaning and methods of dissemination and implementation research. Three of the most important challenges for moving the field of dissemination and implementation science and research dissemination and implementation practice forward are the confusion of terminology, the meaning of evidence, and partnerships across the research, practice, and policy divides. Because many in the research, practice, and policy-making sectors do not see their role in closing the gap among research, practice, and policy, new and expanded incentives need to be put in place to encourage these collaborations. Partnerships between research, practice, and policy can help inform decisions in all three sectors to help achieve a better balance between evidence based on science and evidence based on personal experience.

22. Kislov R, Harvey G, Walshe K. Collaborations for Leadership in Applied Health Research and Care: lessons from the theory of communities of practice. Implement Sci. 2011; 6:64.

BACKGROUND: The paper combines the analytical and instrumental perspectives on communities of practice (CoPs) to reflect on potential challenges that may arise in the process of interprofessional and inter-organisational joint working within the Collaborations for Leaderships in Applied Health Research and Care (CLAHRCs)--partnerships between the universities and National Health Service (NHS) Trusts aimed at conducting applied health research and translating its findings into day-to-day clinical practice. DISCUSSION: The paper discusses seminal theoretical literature on CoPs as well as previous empirical research on the role of these communities in healthcare collaboration, which is organised around the following three themes: knowledge sharing within and across CoPs, CoP formation and manageability, and identity building in CoPs. It argues that the multiprofessional and multi-agency nature of the CLAHRCs operating in the traditionally demarcated organisational landscape of the NHS may present formidable obstacles to knowledge sharing between various professional groupings, formation of a shared 'collaborative' identity, and the development of new communities within the CLAHRCs. To cross multiple boundaries between various professional and organisational communities and hence enable the flow of knowledge, the CLAHRCs will have to create an effective system of "bridges" involving knowledge brokers, boundary objects, and cross-disciplinary interactions as well as address a number of issues related to professional and organisational identification. SUMMARY: The CoP approach can complement traditional "stage-of-change" theories used in the field of implementation research and provide a basis for designing theory-informed interventions and evaluations. It can help to illuminate multiple boundaries that exist between professional and organisational groups within the CLAHRCs and suggest ways of crossing those boundaries to enable knowledge transfer and organisational learning. Achieving the aims of the CLAHRCs and producing a sustainable change in the ways applied health research is conducted and implemented may be influenced by how effectively these organisations can navigate through the multiple CoPs involved and promote the development of new multiprofessional and multi-organisational communities united by shared practice and a shared sense of belonging--an assumption that needs to be explored by further empirical research.

23. Knerr W, Philpott A. Strange bedfellows: bridging the worlds of academia, public health and the sex industry to improve sexual health outcomes. Health Res Policy Syst. 2011; 9 Suppl 1: S13.

The public health response to sexually transmitted infections, particularly HIV, has been and continues to be overwhelmingly focused on risk, disease and negative outcomes of sex, while avoiding discussion of positive motivations for sex (e.g. pleasure, desire, love). Recent advocacy efforts have challenged this approach and organisations have promoted the eroticisation of safer sex, especially in the context of HIV

prevention. This paper is a case study of one of these organizations - The Pleasure Project. It gives a brief background on the public-health approach to sex and sexual health, and recommends an alternative approach which incorporates constructs of pleasure and desire into sexual health interventions. The Pleasure Project's aims and unorthodox communications strategies are described, as are the response to and impact of its work, lessons learned and ongoing challenges to its approach. The Pleasure Project combines evidence (rigorous and experimental as well as qualitative and anecdotal) with experiential knowledge from the sex industry and safer-sex promotion to communicate messages about eroticising safer sex to influence researchers, public health practitioners and policymakers, mainstream media and the porn world. There are significant barriers to this work, because it challenges common and entrenched norms and values related to sex and pleasure and their role in the public health sphere. Other barriers include: the limited range of existing rigorous intervention trials which incorporate pleasure constructs; the lack of effective indicators to measure pleasure constructs; limited funding and resources; discomfort among public health practitioners, researchers and donors with concepts of pleasure and sex; and rejection of erotic media as a potential tool for prevention. Despite the backdrop of sex-negative public health practice, there is anecdotal evidence that safer sex, including condom use, can be eroticised and made pleasurable, based on qualitative research by The Pleasure Project and other like-minded organisations. Yet there is a need for more research on the effectiveness of pleasure components in sexual health interventions, particularly in high-risk contexts. This need has become urgent as practitioners look for new ways to promote sexual health and as new prevention technologies (including female condoms and microbicides) are introduced or disseminated.

24. Lumbiganon P, Winiyakul N, Chongsomchai C, Chaisiri K. From research to practice: the example of antenatal care in Thailand. Bull World Health Organ. 2004 Oct;82(10):746.

The rationale for providing antenatal care is to screen predominantly healthy pregnant women to detect early signs of, or risk factors for, abnormal conditions or diseases and to follow this detection with effective and timely intervention. The recommended antenatal care programme in most developing countries is often the same as the programmes used in developed countries. However, in developing countries there is wide variation in the proportion of women who receive antenatal care. The WHO randomized trial of antenatal care and the WHO systematic review indicated that a model of care that provided fewer antenatal visits could be introduced into clinical practice without causing adverse consequences to the woman or the fetus. This new model of antenatal care is being implemented in Thailand. Action has been required at all levels of the health-care system, from consumers through to health professionals, the Ministry of Public Health and international organizations. The Thai experience is a good example of moving research findings into practice, and it should be replicated elsewhere to effectively manage other health problems.

25. Maurice J. Promoting evidence-based sexual and reproductive health care. Progress in Reproductive Health Research No 71. Geneva: UNDP/UNFPA/WHO/World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP); 2005.

This document discusses the advent and use of the "systematic review" in scientific publishing as a tool for knowledge acquisition. It also provides a systematic review of studies of maternal mortality.

26. Neumann M, Sogolow E. Replicating effective programs: HIV/AIDS prevention technology transfer. AIDS Education and Prevention. 2000;12(5):35.

The Centers for Disease Control and Prevention (CDC) works to prevent HIV infection in collaboration with community and state partners. CDC is identifying effective interventions from the research literature and disseminating these interventions to its prevention partners. This article presents the methods used by CDC scientists and original intervention researchers in CDC's Replicating Effective Programs (REP) project to (a) translate some HIV prevention behavioral intervention research into materials with enough detail and clarity that state and community partners can select and implement effective interventions and (b) transfer and support these technologies so that they can be implemented successfully. The experience of the REP project indicates that technology transfer is complex. Interventions need to be adapted to local circumstances. Prevention partners need written materials, training, and technical assistance. Researchers need to collaborate with prevention program providers to develop interventions that are feasible for prevention partners to conduct

27. Nyonator FK, Awoonor-Williams JK, Phillips JF, Jones TC, Miller RA. The Ghana community-based health planning and services initiative for scaling up service delivery innovation. Health Policy Plan. 2005 Jan;20(1):25.

Research projects demonstrating ways to improve health services often fail to have an impact on what national health programmes actually do. An approach to evidence-based policy development has been launched in Ghana which bridges the gap between research and programme implementation. After nearly two decades of national debate and investigation into appropriate strategies for service delivery at the periphery, the Community-based Health Planning and Services (CHPS) Initiative has employed strategies tested in the successful Navrongo experiment to guide national health reforms that mobilize volunteerism, resources and cultural institutions for supporting community-based primary health care. Over a 2-year period, 104 out of the 110 districts in Ghana started CHPS. This paper reviews the development of the CHPS initiative, describes the processes of implementation and relates the initiative to the principles of scaling up organizational change which it embraces. Evidence from the national monitoring and evaluation programme provides insights into CHPS' success and identifies constraints on future progress.

28. Oronje RN, Undie CC, Zulu DM, Crichton J. Engaging media in communicating research on sexual and reproductive health and rights in sub-Saharan Africa: experiences and lessons learned. Health Res Policy Syst. 2011; 9 Suppl 1:S7.

BACKGROUND: The mass media have excellent potential to promote good sexual and reproductive health outcomes, but around the world, media often fail to prioritize sexual and reproductive health and rights issues or report them in an accurate manner. In sub-Saharan Africa media coverage of reproductive health issues is poor due to the weak capacity and motivation for reporting these issues by media practitioners. This paper describes the experiences of the African Population and Health Research Center and its partners in cultivating the interest and building the capacity of the media in evidence-based reporting of reproductive health issues in sub-Saharan Africa. METHODS: The paper utilizes a case study approach based primarily on the personal experiences and reflections of the authors (who played a central role in developing and implementing the Center's communication and policy engagement strategies), a survey that the Center carried out with science journalists in Kenya, and literature review. RESULTS: The African Population and Health Research Center's media strategy evolved over the years, moving beyond conventional ways of communicating research through the media via news releases and newspaper stories, to varying approaches that sought to inspire and build the capacity of journalists to do evidence-based reporting of reproductive health issues. Specifically, the approach included 1) enhancing journalists' interest in and motivation for reporting on reproductive health issues through

training and competitive grants for outstanding reporting ; 2) building the capacity of journalists to report reproductive health research and the capacity of reproductive health researchers to communicate their research to media through training for both parties and providing technical assistance to journalists in obtaining and interpreting evidence; and 3) establishing and maintaining trust and mutual relationships between journalists and researchers through regular informal meetings between journalists and researchers, organizing field visits for journalists, and building formal partnerships with professional media associations and individual journalists. CONCLUSION: Our experiences and reflections, and the experiences of others reviewed in this paper, indicate that a sustained mix of strategies that motivate, strengthen capacity of, and build relationships between journalists and researchers can be effective in enhancing quality and quantity of media coverage of research.

29. Ploeg J, Davies B, Edwards N, Gifford W, Miller PE. Factors influencing best-practice guideline implementation: lessons learned from administrators, nursing staff, and project leaders. Worldviews Evid Based Nurs. 2007;4(4):210.

BACKGROUND: Clinical practice guidelines are promising tools for closing the research evidence-practice gap, yet effective and timely implementation of guidelines into practice remains fragmented and inconsistent. Factors influencing effective guideline implementation remain poorly understood, particularly in nursing. A sound understanding of barriers and facilitators is critical for development of effective and targeted guideline implementation strategies. AIM: This paper reports the perceptions of administrators, staff, and project leaders about factors influencing implementation of nursing best practice guidelines.
METHODS: Twenty-two organizations, in clusters of two to five, implemented one of seven guidelines in acute, community and long-term care settings. The topics were client centered care, crisis intervention, healthy adolescent development, pain assessment, pressure ulcers, supporting and strengthening families and therapeutic relationships. Fifty-nine administrators, 58 staff and 8 project leaders participated in post implementation semi-structured telephone interviews. Qualitative thematic analysis was conducted.
FINDINGS: Factors at individual, organizational and environmental levels were identified as influencing guideline implementation. Facilitators included learning about the guideline through group interaction, positive staff attitudes and beliefs, leadership support, champions, teamwork and collaboration, professional association support, and inter-organizational collaboration and networks. Barriers included negative staff attitudes and beliefs, limited integration of guideline recommendations into organizational structures and processes, time and resource constraints, and organizational and system level change. Similarities and differences in perceptions of these factors were found among staff, project leaders and administrators.
IMPLICATIONS/CONCLUSIONS: Best practice guideline implementation strategies should address barriers related to the individual practitioner, social context, and organizational and environmental context, and should be tailored to different groups of stakeholders (i.e., nursing staff, project leaders and administrators). Health care administrators need to recognize the "real" costs and complexity associated with successful implementation of guidelines and the need to ensure corporate commitment at the onset.

30. Rabin BA, Brownson RC, Haire-Joshu D, Kreuter MW, Weaver NL. A glossary for dissemination and implementation research in health. J Public Health Manag Pract. 2008 Mar-Apr;14(2):117.

Dissemination and implementation (D&I) research is increasingly recognized as an important function of academia and is a growing priority for major health-related funders. Because D&I research in the health field has emerged from research traditions in diverse disciplines ranging from agriculture to education, there are inconsistencies in the use and meaning of terms and main concepts. This glossary provides definitions for the key concepts and terms of D&I research in health (in both public health and clinical settings). Definitions are organized under five major sections: (1) foundation concepts; (2) types of research; (3) models, theories, and frameworks; (4) factors influencing the D&I processes; and (5) measurement/evaluation of the D&I process. The aim of this glossary is to aid in the development of more standardized and established terminology for D&I research, facilitate the communication across different stakeholders, and ultimately contribute to higher-quality D&I research.

31. Rashid SF, Standing H, Mohiuddin M, Ahmed FM. Creating a public space and dialogue on sexuality and rights: a case study from Bangladesh. Health Res Policy Syst. 2011; 9 Suppl 1:S12.

This article describes and analyses a research based engagement by a university school of public health in Bangladesh aimed at raising public debate on sexuality and rights and making issues such as discrimination more visible to policy makers and other key stakeholders in a challenging context. The impetus for this work came from participation in an international research programme with a particular interest in bridging international and local understandings of sexual and reproductive rights. The research team worked to create a platform to broaden discussions on sexuality and rights by building on a number of research activities on rural and urban men's and women's sexual health concerns, and on changing concepts of sexuality and understandings of sexual rights among specific population groups in Dhaka city, including sexual minorities. Linked to this on-going process of improving the evidence base, there has been a series of learning and capacity building activities over the last four years consisting of training workshops, meetings, conferences and dialogues. These brought together different configurations of stakeholders - members of sexual minorities, academics, service providers, advocacy organisations, media and policy makers. This process contributed to developing more effective advocacy strategies through challenging representations of sexuality and rights in the public domain. Gradually, these efforts brought visibility to hidden or stigmatised sexuality and rights issues through interim outcomes that have created important steps towards changing attitudes and policies. These included creating safe spaces for sexual minorities to meet and strategise, development of learning materials for university students and engagement with legal rights groups on sexual rights. Through this process, it was found to be possible to create a public space and dialogue on sexuality and rights in a conservative and challenging environment like Bangladesh by bringing together a diverse group of stakeholders to successfully challenge representations of sexuality in the public arena. A further challenge for BRAC University has been to assess its role as a teaching and research organisation, and find a balance between the two roles of research and activism in doing work on sexuality issues in a very sensitive political context.

32. Rebchook GM, Kegeles SM, Huebner D, Team TR. Translating research into practice: the dissemination and initial implementation of an evidence-based HIV prevention program. AIDS Educ Prev. 2006 Aug;18(4 Suppl A):119.

Substantial effort has gone into scientifically developing and evaluating HIV prevention interventions. These programs make only minor contributions to HIV prevention efforts until they are widely put into practice; however, little research has been conducted to study how evidence-based, community-level HIV prevention interventions diffuse from research into practice. This article explores how one such evidence-based intervention for young MSM, the Mpowerment Project (MP), is scaling up in the US. The

Dissemination and Implementation

goals of this article are threefold: (a) to describe our longitudinal study, currently underway, concerning issues regarding translating research to practice; (b) present detailed data from 69 CBOs that are implementing the MP regarding characteristics of their communities, agencies, and target populations; and (c) to present baseline data on how these agencies are attempting to implement the MP, focusing on which intervention components CBOs decided to implement, modify, or delete and the implications of these modifications.

33. Pangaea Global AIDS Foundation. A requirement from effective HIV/AIDS prevention and treatment scale-up. Report From the Expert Consultation on Implementation Science Research; 2009 July 23-24; Cape Town, South Africa. Capetown: Pangaea Global AIDS Foundation; 2009.

An expert consultation discussed how researchers and program implementers can work within the field of implementation science to achieve positive impacts in public health, and to make recommendations on the role of the U.S. National Institutes of Health in reducing the research-to-implementation gap. Recommendations include the identification of research priorities, the coordination of research activities with implementing agencies, ensuring appropriate review of research-funding applications, the development of research methods and standards of practice for implementation science, and setting priorities for the field.

34. Rimer BK, Glanz K, Rasband G. Searching for evidence about health education and health behavior interventions. Health Educ Behav. 2001 Apr;28(2):231.

Evidence is fundamental to science, but finding the right evidence in health education and health behavior (HEHB) is often a challenge. The authors discuss some of the controversies about the types of evidence that should be considered acceptable in HEHB, the tension between the use of qualitative versus quantitative data, the need for measures of important but neglected constructs, and interpretation of data from experimental and nonexperimental research. This article discusses some of the challenges to the use of evidence and describes a number of strategies and some forces encouraging the use of evidence-based interventions. Finally, the authors suggest ways to improve the practice and dissemination of evidence-based HEHB. Ultimately, if evidence-based interventions are not disseminated, the interventions will not achieve their potential. The goal should be to develop more effective interventions and disseminate them to improve the public's health.

35. Rogers S, Humphrey C, Nazareth I, Lister S, Tomlin Z, Haines A. Designing trials of interventions to change professional practice in primary care: lessons from an exploratory study of two change strategies. BMJ. 2000 Jun 10;320(7249):1580.

This paper examines the effects of two different interventions designed to facilitate the implementation of cardiovascular disease guidelines. The two interventions are teaching evidence-based medicine and facilitated-change management.

36. Rolleri LA, Wilson MM, Paluzzi PA, Sedivy VJ. Building capacity of state adolescent pregnancy prevention coalitions to implement science-based approaches. Am J Community Psychol. 2008 Jun;41(3-4):225.

A central question in adolescent reproductive health circles is how to effectively disseminate research to practitioners in a way that supports them in using the most scientifically sound and effective programming. In 2002, the Division of Reproductive Health at the Centers for Disease Control and

Dissemination and Implementation

Prevention (CDC) tackled this question by funding three national-level and five state-level organizations focused on adolescent pregnancy prevention to promote the use of science-based programs and approaches. Healthy Teen Network (HTN) and Education, Training and Research Associates (ETR), two national organizations, have partnered under this CDC funding to implement an effective model for capacity building. This paper provides an overview of the approaches used by HTN and ETR in capacity building using a seven-step process. We describe how we modified the Interactive Systems Framework for Dissemination and Implementation (ISF) for science-based innovations to apply to capacity-building for adolescent reproductive health (ARH) programs, and how we developed relevant, sustainable training and technical support. We conclude by reviewing some of the results of this training, and discuss the future work that will likely continue to advance the science behind effective dissemination of ARH research to practice.

37. Rowe, AK. Potential of integrated continuous surveys and quality management to support monitoring, evaluation, and the scale-up of health interventions in developing countries. Am J Trop Med Hyg. 2009 Jun;80(6):971.

Well-funded initiatives are challenging developing countries to increase health intervention coverage and show impact. Despite substantial resources, however, major obstacles include weak health systems, a lack of reasonably accurate monitoring data, and inadequate use of data for managing programs. This report discusses how integrated continuous surveys and quality management (I-Q), which are well-recognized approaches in wealthy countries, could support intervention scale-up, monitoring and evaluation, quality control for commodities, capacity building, and implementation research in low-resource settings. Integrated continuous surveys are similar to existing national cross-sectional surveys of households and health facilities, except data are collected over several years by permanent teams, and most results are reported monthly at the national, province, and district levels. Quality management involves conceptualizing work as processes, involving all workers in quality improvement, monitoring quality, and teams that improve quality with "plan-do-study-act" cycles. Implementing and evaluating I-Q in a low-income country would provide critical information on the value of this approach.

38. Saul J, Wandersman A, Flaspohler P, Duffy J, Lubell K, Noonan R. Research and action for bridging science and practice in prevention. Am J Community Psychol. 2008 Jun;41(3-4):165.

There is a well-known gap between science and practice. To address this gap in the areas of Child Maltreatment (CM) and Youth Violence (Y/V), the Division of Violence Prevention (DVP) at the Centers for Disease Control and Prevention (CDC) embarked on a Dissemination/Implementation (D/I) planning project. The project was aimed at identifying better ways to connect research and practice through reviews of the literature as well as through discussions with experts on violence prevention and research utilization. This introductory article sets the stage for the rest of the special issue by defining terms, providing a rationale for the planning project, describing the planning process, and summarizing what is to come in the rest of the issue.

39. Shaxson L. Improving the impact of development research through better research communications and uptake: Report of the AusAID, DFID and UKCDS Funded Workshop; 2010 November 29-30; London, UK. London: UKAID, Department for International Development, Australian Government Aid Program, UK Collaborative on Development Sciences; 2010.

This report summarizes the proceedings of a workshop co-hosted by AusAID, DFID and UKCDS. The workshop included discussions on improving research communication, the uptake of research findings, and the role of knowledge intermediaries.

40. Siddiqi K, Newell JN. Putting evidence into practice in low-resource settings. Bull World Health Organ. 2005 Dec;83(12):882.

This editorial reviews two papers in this issue of the bulletin that identify the components of success and the barriers associated with putting research into practice in low-resource settings.

41. South A. Designing and implementing a communications strategy: lessons learnt from HIV and Sexual and Reproductive Health Research Programme Consortia. Health Res Policy Syst. 2011; 9 Suppl 1:S15.

In recent years there has been increasing recognition of the importance of strategic research communication. Health research organisations need to be able to communicate their research effectively to increase the probability that the findings influence policy and practice, and benefit those in greatest need. Many research funders are making communications a requirement of research funding. This paper reflects on the experience in developing and implementing communications strategies of several Research Programme Consortia funded by the Department for International Development. Different research topics will require different communications approaches in order to be effective. This is reflected in the diversity of strategies employed by different research programmes. Strategic research communications designed to influence policy and practice require different skills and expertise from those required for carrying out research and writing it up for publication in academic journals. Therefore researchers involved in communicating research should be supported in this work. One of the ways in which research programme consortia have sought to do this is through convening workshops to develop the communications skills of researchers from partner organisations. These have proven invaluable. Another way of providing ongoing support to those involved in communicating research is through a Communications Community of Practice. Where this has been used it has proven a good way to support researchers both with ideas and resources, but also a strong sense of belonging to a community that shares a common concern with communication. Developing strong partnerships with research users, other research organisations, knowledge intermediaries and other stakeholders is vital for effective communication.Embracing the challenges and opportunities presented by communicating research to influence policy practice is vital if research is to have maximum possible impact, and demonstrate its worth at a time when funding for health and development activities is at risk. Sharing lessons learnt in this process between research programmes is important to support this work.

42. Whiteside A, Henry FE. The impact of HIV and AIDS research: a case study from Swaziland. Health Res Policy Syst. 2011;9 Suppl 1:S9.
BACKGROUND: Swaziland is experiencing the world's worst HIV and AIDS epidemic. Prevalence rose from four percent of antenatal clinic attendees in 1992 to 42.6 percent in 2004. The Report "Reviewing 'Emergencies' for Swaziland: Shifting the Paradigm in a New Era," published in 2007, brought together social and economic indicators. It built a picture of the epidemic as a humanitarian emergency, requiring urgent action from international organizations, donors, and governments. Following a targeted communications effort, the report was believed to have raised the profile of the issue and Swaziland — a success story for HIV and AIDS research. METHODS: Keen to understand how, where and why the report had an impact, Health Economics and HIV/AIDS Research Division commissioned an assessment to track and evaluate the influence of the research. This tapped into literature on the significance of

Dissemination and Implementation

understanding the research-to-policy interface. This paper outlines the report and its impact. It explores key findings from the assessment and suggests lessons for future research projects.

RESULTS: The paper demonstrates that, although complex, and not without methodological issues, impact assessment of research can be of real value to researchers in understanding the research-to-policy interface.

CONCLUSION: Only by gaining insight into this process can researchers move forward in delivering effective research.

43. Wilson KD, Kurz RS. Bridging implementation and institutionalization within organizations: proposed employment of continuous quality improvement to further dissemination. J Public Health Manag Pract. 2008 Mar-Apr; 14(2):109.

OBJECTIVE: Although organizations may initially adopt and implement interventions, the institutionalization of these interventions does not always occur. The purpose of this article is to provide an example describing the breakdown in the dissemination process using an accepted conceptualization and measurement of institutionalization. We also suggest an approach for understanding the movement of the intervention through the dissemination process to improve the likelihood of institutionalization.

METHODS: Through the Controlling Asthma in American Cities Project in St. Louis, the institutionalization of evidence-based interventions was measured in multiple settings. Specifically, data from three school districts were measured and presented. External implementation and financial support for the intervention were phased out and internal support by the districts was phased in after 2 years of implementation. Representatives for the districts and the schools were asked to complete the Levels of Institutionalization (LoIn) scales instrument measuring the institutionalization of these interventions.

RESULTS: The LoIn scale data demonstrate increasing Routinization and saturation mean scores for all school districts in the first 2 years, with decreasing scores in district A in year 3. District A did not have external facilitation of implementation and support in year 3, which is Reflected in the decreasing scores. Institutionalization did not occur in the conduct of formal evaluation, the presence of job descriptions, and the presence of similar and permanent funding in all three districts.

CONCLUSION: We propose an approach to help identify and measure processes of dissemination through continuous quality improvement, increasing the likelihood that interventions are institutionalized.

44. Wilson PM, Petticrew M, Calnan MW, Nazareth I. Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. Implement Sci. 2010; 5:91.

BACKGROUND: Addressing deficiencies in the dissemination and transfer of research-based knowledge into routine clinical practice is high on the policy agenda both in the UK and internationally.However, there is lack of clarity between funding agencies as to what represents dissemination. Moreover, the expectations and guidance provided to researchers vary from one agency to another. Against this background, we performed a systematic scoping to identify and describe any conceptual/organising frameworks that could be used by researchers to guide their dissemination activity.

METHODS: We searched twelve electronic databases (including MEDLINE, EMBASE, CINAHL, and PsycINFO), the reference lists of included studies and of individual funding agency websites to identify potential studies for inclusion. To be included, papers had to present an explicit framework or plan either designed for use by researchers or that could be used to guide dissemination activity. Papers which mentioned dissemination (but did not provide any detail) in the context of a wider knowledge translation framework, were excluded. References were screened independently by at least two reviewers; disagreements were resolved by discussion. For each included paper, the source, the date of

publication, a description of the main elements of the framework, and whether there was any implicit/explicit reference to theory were extracted. A narrative synthesis was undertaken. RESULTS: Thirty-three frameworks met our inclusion criteria, 20 of which were designed to be used by researchers to guide their dissemination activities. Twenty-eight included frameworks were underpinned at least in part by one or more of three different theoretical approaches, namely persuasive communication, diffusion of innovations theory, and social marketing.

CONCLUSIONS: There are currently a number of theoretically-informed frameworks available to researchers that can be used to help guide their dissemination planning and activity. Given the current emphasis on enhancing the uptake of knowledge about the effects of interventions into routine practice, funders could consider encouraging researchers to adopt a theoretically-informed approach to their research dissemination.

45. Department for International Development. Working Paper Series: Research Communication. DFID Research Strategy 2008-2013. London (UK): Department for International Development; 2008.

This working paper presents an overview of the key issues raised during a consultation convened by the Department for International Developmnet (DFID) in 2007. Some of the key themes included (1) the need for more research on the impacts of research communication, (2) the need for a quality-assurance system for researcher communications, and (3) the exploration of new ways to create an enabling environment for research uptake. This document is part of a 10-paper series published alongside DFID's Research Strategy for 2008-2013.

46. Yuan CT, Nembhard IM, Stern AF, Brush JE Jr, Krumholz HM, Bradley EH. Blueprint for the dissemination of evidence-based practices in health care. Issue Brief (Commonwealth Fund). 2010; 86:1.

Aimed at fostering the broad adoption of effective health care interventions, this report proposes a blueprint for improving the dissemination of best practices by national quality improvement campaigns. The blueprint's eight key strategies are to: 1) highlight the evidence base and relative simplicity of recommended practices; 2) align campaigns with strategic goals of adopting organizations; 3) increase recruitment by integrating opinion leaders into the enrollment process; 4) form a coalition of credible campaign sponsors; 5) generate a threshold of participating organizations that maximizes network exchanges; 6) develop practical implementation tools and guides for key stakeholder groups; 7) create networks to foster learning opportunities; and 8) incorporate monitoring and evaluation of milestones and goals. The impact of quality campaigns also depends on contextual factors, including the nature of the innovation itself, external environmental incentives, and features of adopting organizations.

See Also

In **Barriers, Constraints, and Challenges to Research Utilization:**

Kesterton AJ, Cleland, J. Neonatal care in rural Karnataka: healthy and harmful practices, the potential for change. BMC Pregnancy Childbirth. 2009 May; 9:20.

In **Frameworks and Models for Research Utilization:**

Dissemination and Implementation

Mendel P, Meredith LS, Schoenbaum M, Sherbourne CD, Wells KB. Interventions in organizational and community context: a framework for building evidence on dissemination and implementation in health services research. Adm Policy Ment Health. 2008 Mar;35(1-2):21.

***In* Stakeholder Engagement:**

Arrington B, Kimmey J, Brewster M, Bentley J, Kane M, Van Brunschot C, et al. Building a local agenda for dissemination of research into practice. J Public Health Manag Pract. 2008 Mar-Apr;14(2):185.

Delisle H, Roberts JH, Munro M, Jones L, Gyorkos TW. The role of NGOs in global health research for development. Health Res Policy Syst. 2005 Feb 21;3(1):3.

Mueller NB, Burke RC, Luke DA, Harris JK. Getting the word out: multiple methods for disseminating evaluation findings. J Public Health Manag Pract. 2008 Mar-Apr;14(2):170.

***In* Tools:**

Card JJ, Lessard L, Benner T. PASHA: facilitating the replication and use of effective adolescent pregnancy and STI/HIV prevention programs. J Adolesc Health. 2007 Mar;40(3):275 e1.

***In* Translating Research to Policy:**

McBride T, Coburn A, Mackinney C, Mueller K, Slifkin R, Wakefield M. Bridging health research and policy: effective dissemination strategies. J Public Health Manag Pract. 2008 Mar-Apr;14(2):150.

NESTA. Evidence for social policy and practice: Perspectives on how research and evidence can influence decision making in public services. London (UK): Nesta; 2011. [cited 2011 October 21]. Available from: http://www.nesta.org.uk/assets/features/evidence_for_social_policy_and_practice_report.

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Dissemination and Implementation

Educational Strategies to Increase Research Utilization

The resources in this section explore strategies for educating researchers and practitioners in a manner that promotes evidence-based practice. Among the educational constructs examined are continuing medical education, continuing professional development, knowledge translation, evidence-based public health coursework and clinical practicum, transformation theory, and competency-based education.

1. Davis D, Evans M, Jadad A, Perrier L, Rath D, Ryan D, et al. The case for knowledge translation: shortening the journey from evidence to effect. BMJ. 2003 Jul 5;327(7405):33.

A large gulf remains between what we know and what we practice. Eisenberg and Garzon point to widespread variation in the use of aspirin, calcium antagonists, Beta blockers, and anti-ischaemic drugs in the United States, Europe, and Canada despite good evidence on their best use. Such variation is common not only internationally but within countries. Large gaps also exist between best evidence and practice in the implementation of guidelines. Failure to follow best evidence highlights issues of underuse, overuse, and misuse of drugs and has led to widespread interest in the safety of patients. Not surprisingly, many attempts have been made to reduce the gap between evidence and practice. These have included educational strategies to alter practitioners' behaviour and organizational and administrative interventions. We explore three constructs: continuing medical education (CME), continuing professional development (CPD), and (the newest of the three) knowledge translation (box). Knowledge translation both subsumes and broadens the concepts of CME and CPD and has the potential to improve understanding of, and overcome the barriers to, implementing evidence based practice.

2. Dreisinger M, Leet TL, Baker EA, Gillespie KN, Haas B, Brownson RC. Improving the public health workforce: evaluation of a training course to enhance evidence-based decision making. J Public Health Manag Pract. 2008 Mar-Apr;14(2):138.

An evidence-based public health (EBPH) course was developed in 1997 by the Prevention Research Center at Saint Louis University School of Public Health to train the public health workforce to enhance dissemination of EBPH in their public health practice. An on-line evaluation of the course was conducted among participants who attended the course from 2001 to 2004 to determine the impact the course had on the implementation of EBPH within their Respective public health agencies (n = 107). The majority of these individuals were program directors, managers, or coordinators working in state health departments. Results from the evaluation Revealed that 90 percent of participants indicated that the course helped them make more informed decisions in the workplace. Respondents identified improvement in their ability to communicate with their coworkers and read reports. When asked to identify potential barriers, participants specified that time constraints were the biggest impediment to using EBPH skills in the workplace. These data suggest the importance of professional training opportunities in EBPH for public health practitioners. Future endeavors should focus on overcoming the barriers to the dissemination of EBPH.

3. Geyoushi BE, Matthews Z, Stones RW. Pathways to evidence-based reproductive healthcare in developing countries. BJOG. 2003 May;110(5):500.

OBJECTIVE: Developing country clinicians are aware of the discourse of evidence-based medicine but heavily constrained in their ability to access and apply new knowledge. This study aimed to obtain

primary descriptive data about access to and application of reproductive health-related medical knowledge in developing countries.

DESIGN: Qualitative study using semi-structured interviews of forty-one doctors working in obstetrics, gynecology, general practice and family planning services in India and Yemen. Outcomes were measured using descriptions of experiences, attitudes and needs.

RESULTS: Doctors felt the need to update their knowledge but this was not always achieved due to time and financial constraints. Alternative knowledge sources were described including the Internet, scientific meetings, medical family networks and speciality medical societies but access to these was limited by the expense of equipment, unfamiliarity with the technology and restricted advertisement of scientific meetings and conferences. Institutional hierarchy and conflict of generations were identified as barriers to change. Demoralisation was a common obstacle. On the positive side, involvement in medical education was a powerful driver for seeking new knowledge and applying research evidence to clinical practice.

CONCLUSIONS: Priorities are to identify needs specific to different countries and medical settings in the developing world, access for all to full text journals and educational activities that fully engage practitioners in the early stages of their careers. Clinical teachers are the nodal group with the strongest incentive to obtain and use new knowledge.

4. Hubacher D, Vilchez R, Gmach R, Jarquin C, Medrano J, Gadea A, et al. The impact of clinician education on IUD uptake, knowledge and attitudes: results of a randomized trial. Contraception. 2006 Jun;73(6):628.

BACKGROUND: Many ministries of health worldwide would like to increase use of the intrauterine device (IUD) since it is very safe, effective and inexpensive to provide. Efforts to stimulate interest in the method have not been rigorously tested.

METHODS: A randomized trial was conducted among 40 clinics in Nicaragua to test the impact of medical education on both IUD uptake and on provider knowledge/attitude toward the method. Two types of interventions were used: face-to-face medical training/education of providers and/or provision of an IUD checklist to help clinicians assess the medical eligibility of clients.

RESULTS: The interventions had no impact on uptake of the IUD or on provider knowledge/attitude.

CONCLUSION: While medical education and job tools (such as a checklist) for providers are indispensable for ensuring quality care, they may not be adequate to stimulate interest in the IUD on the part of clients.

5. Johansson B, Fogelberg-Dahm M, Wadensten B. Evidence-based practice: the importance of education and leadership. J Nurs Manag. 2010 Jan;18(1):70.

AIM: To describe evidence-based practice among head nurses and to explore whether number of years of duty is associated with such activities, and to further evaluate the effects of education on evidence-based practice and perceived support from immediate superiors.

BACKGROUND: Registered nurses in Sweden are required by law to perform care based on research findings and best experiences. In order to achieve this, evidence-based practice (EBP) is of key importance.

METHOD: All 168 head nurses at two hospitals were asked to participate. Ninety-nine (59%) completed the survey. Data were collected using a study-specific web-based questionnaire.

RESULTS: The majority reported a positive attitude towards EBP, but also a lack of time for EBP activities. A greater number of years as a head nurse was positively correlated with research utilization. Education

Educational Strategies to Increase Research Utilization

in research methods and perceived support from immediate superiors were statistically and significantly associated with increased EBP activities.

CONCLUSIONS: The present study highlights the value of education in research methods and the importance of supportive leadership. Implications for nursing management include that education is an important factor in the employment of head nurses. We recommend interventions to create increased support for EBP among management, the goal being to deliver high-quality care and increase patient satisfaction.

6. Leon FR, Rios A, Zumaran A. Training x Trainee Interactions in a family planning intervention. Eval Rev. 2005 Dec;29(6):576.

This study investigated the effects of introducing a family planning counseling model at clinics of Peru's Ministry of Health. Providers trained in the model presented greater quality of care and longer counseling sessions than did controls. The main effects, however, were misleading. Nearly all of the quality improvements were contributed by 37% of the trained providers; they had already been better performers at the pretest and complied with the new counseling model's requirement of job aid use at the posttest. The recognition that a majority of trained providers did not profit from training posed a challenge that led to improvements in the model. Training x Trainee Interactions should be explored in evaluations.

7. Matthew-Maich N, Ploeg J, Jack S, Dobbins M. Transformative learning and research utilization in nursing practice: a missing link? Worldviews Evid Based Nurs. 2009 Mar;7(1):25.

BACKGROUND: Poor or inconsistent research utilization into clinical practice is a recurrent theme across study contexts, rendering leaders disillusioned with how best to foster the uptake of research into nursing practice. This makes it imperative to look to new approaches. Research utilization involves a learning process engaging attitudes, beliefs, and behaviors; yet, this is often overlooked in approaches and models used to facilitate research use. This oversight may offer some explanation to the limited progress in research utilization to date. Transformation Theory offers an explanatory theory and specific strategies (critical reflection and critical discourse) to explore attitudes, beliefs, and behaviors so that they are understood, validated, and can better guide actions. AIM: The purpose of this article was to explore what Transformation Theory can contribute to research utilization initiatives in nursing practice. APPROACH: Transformation Theory and transformative learning strategies are discussed and critically analyzed in consideration of their potential roles in fostering research utilization in clinical nursing practice.

ISSUES AND CONCLUSIONS: (1) Research utilization is a learning process that involves knowledge, skills, feelings, attitudes, and beliefs. (2) Transformative learning strategies of critical reflection and discourse can facilitate insight into experiences, finding shared meanings among groups of people, and understanding/validating beliefs, attitudes, and feelings so they can more consciously guide future actions. This dimension is frequently neglected in research utilization efforts. (3) In combination with research utilization theories, Transformation Theory may be a missing link to make research utilization initiatives more effective in rendering and sustaining nursing practice change, thus enhancing client care and well-being. (4) Research and further consideration are both warranted and needed.

8. Oh EG, Kim S, Kim SS, Cho EY, Yoo JS, Kim HS, et al. Integrating evidence-based practice into RN-to-BSN clinical nursing education. J Nurs Educ. 2010 Jul;49(7):387.

This study examines the effects of integrating evidence-based practice (EBP) into clinical practicum on EBP efficacy and barriers to research utilization among Korean RN-to-BSN students. A one-group pretest-posttest design was used. Eighty-one students were recruited from a school of nursing in Korea. Evidence-based practice clinical practicum was composed of two consecutive programs during one semester. Lectures, individual mentoring on EBP practicum, small group, and wrap-up conferences were provided. Outcomes of EBP efficacy and barriers to research utilization were analyzed using paired t tests for 74 final participants. Evidence-based practice efficacy scores increased significantly (p < 0.05), and the barriers to research utilization scores decreased significantly after the EBP clinical practicum. The results highlight the effectiveness of EBP education among RN-to-BSN students. These results may help health educators develop effective educational strategies to integrate EBP concepts into a clinical practicum.

9. Scharff DP, Rabin BA, Cook RA, Wray RJ, Brownson RC. Bridging research and practice through competency-based public health education. J Public Health Manag Pract. 2008 Mar-Apr;14(2):131.

Reducing the gap between research and practice is gaining much needed attention. Schools of public health can play a role by ensuring that students are taught the necessary knowledge and skills to translate research into practice and to effectively disseminate research and other public health information. Competency-based education is one mechanism by which this can occur. In this article, we introduce a set of competencies specific to translation and dissemination. We describe the process used to develop the set as well as the ways in which we have begun to use these competencies for curriculum review and development. In this way, other schools and training programs in public health can begin to design curricula that will prepare their students to reduce the gap between research and practice. Graduate students will thus be effectively prepared to respond to the changing demands of the field of public health.

10. Siddiqi K, Newell J, Robinson M. Getting evidence into practice: what works in developing countries? Int J Qual Health Care. 2005 Oct;17(5):447.

PURPOSE: We summarize and comment on the available literature on the effectiveness of interventions designed to change professional behaviour in order to bring evidence into practice in developing countries.
DATA SOURCES: We used a strategy adapted from the Effective Practice & Organization Care (EPOC) Cochrane group.
STUDY SELECTION: Forty-four studies met pre-defined selection criteria. Controlled and uncontrolled trials of interventions were included. Studies measured either professional compliance with agreed standards or patients' clinical outcomes. Data extraction. Data were extracted using a pre-defined extraction tool and studies were appraised accordingly.
RESULTS OF DATA SYNTHESIS: Data were synthesized and categorized according to different types of intervention. Audit and feedback was found to be effective, at least in the short term, when combined with other approaches. Similarly, educational interventions were more effective when designed to address local educational needs and organizational barriers. We found insufficient evidence to assess the effectiveness of educational outreach, local opinion leaders, use of mass media, and reminders. Educational materials alone are unlikely to influence change. However, the majority of studies had weak designs and failed to exclude possible biases.
CONCLUSION: Current evidence for the effectiveness of interventions to change health professionals' behaviour in developing countries is either scanty or flawed due to poorly designed research. Given the recent drive to improve quality of care, this should be a priority area for researchers and international

agencies supporting health systems development in developing countries. This review provides an insight into some of the methodological issues that interested researchers may face.

See Also

In **Barriers, Constraints, and Challenges to Research Utilization:**

Kesterton AJ, Cleland, J. Neonatal care in rural Karnataka: healthy and harmful practices, the potential for change. BMC Pregnancy Childbirth. 2009 May; 9:20.

Frameworks and Models for Research Utilization

Effective research utilization requires thoughtful attention and deliberate action. The following resources offer tangible, step-by-step frameworks and models for the research utilization process. These guidelines can be adapted and used to steer public health research and implementation processes in a wide variety of settings.

1. Baumbusch JL, Kirkham SR, Khan KB, McDonald H, Semeniuk P, Tan E, et al. Pursuing common agendas: a collaborative model for knowledge translation between research and practice in clinical settings. Res Nurs Health. 2008 Apr;31(2):130.

There is an emerging discourse of knowledge translation that advocates a shift away from unidirectional research utilization and evidence-based practice models toward more interactive models of knowledge transfer. In this paper, we describe how our participatory approach to knowledge translation developed during an ongoing program of research concerning equitable care for diverse populations. At the core of our approach is a collaborative relationship between researchers and practitioners, which underpins the knowledge translation cycle, and occurs simultaneously with data collection/ analysis/ synthesis. We discuss lessons learned including: the complexities of translating knowledge within the political landscape of healthcare delivery, the need to negotiate the agendas of researchers and practitioners in a collaborative approach, and the kinds of resources needed to support this process.

2. Bowen S, Zwi AB. Pathways to "evidence-informed" policy and practice: a framework for action. PLoS Med. 2005 Jul;2(7):e166.

The contemporary public health effort sees much debate about the concepts of "evidence" and "the evidence base," and the usefulness and relevance of such terms to both policymaking and practice. A key challenge to public health is to better contextualize evidence for more effective policymaking and practice. Theory on the translation of research findings into policy and practice, and on knowledge utilization, offers only part of the solution to this complex task. The policymaking context is highly political and rapidly changing, and depends on a variety of factors, inputs, and relationships. In this article, we propose that an "evidence-informed policy and practice pathway" can help both researchers and policy actors navigate the use of evidence. The pathway illustrates different types of evidence and their uses in health policymaking, and proposes that specific capacities, such as an individual's skills, experience, and participation in networks, influence the adoption and adaptation of evidence in practice.

3. Brownson R. The road less traveled: charting a path from research to practice. J Public Health Manag Pract. 2008;14(2):89.
This article provides a summary of the articles in a special issue of *Journal of Public Health Management and Practice* that is devoted to research dissemination and implementation.

4. Buchan H, Sewell JR, Sweet M. Translating evidence into practice. Med J Aust. 2004 Mar 15;180(6 Suppl):S43.

This supplement outlines efforts by the Australian government to narrow the gap between available evidence and clinical practice. The authors also introduce several journal articles in this issue which focus on quality improvement and successful change.

5. Byskov J, Bloch P, Blystad A, Hurtig AK, Fylkesnes K, Kamuzora P, et al. Accountable priority setting for trust in health systems—the need for research into a new approach for strengthening sustainable health action in developing countries. Health Res Policy Syst. 2009;7:23.

Despite multiple efforts to strengthen health systems in low and middle income countries, intended sustainable improvements in health outcomes have not been shown. To date most priority setting initiatives in health systems have mainly focused on technical approaches involving information derived from burden of disease statistics, cost effectiveness analysis, and published clinical trials. However, priority setting involves value-laden choices and these technical approaches do not equip decision makers to address a broader range of relevant values — such as trust, equity, accountability and fairness — that are of concern to other partners and, not least, the populations concerned. A new focus for priority setting is needed.

6. Chunharas S. An interactive integrative approach to translating knowledge and building a "learning organization" in health services management. Bull World Health Organ. 2006 Aug;84(8):652.

This paper proposes a basic approach to ensuring that knowledge from research studies is translated for use in health services management with a view towards building a "learning organization." (A learning organization is one in which the environment is structured in such a way as to facilitate learning as well as the sharing of knowledge among members or employees.) This paper highlights various dimensions that determine the complexity of knowledge translation, using the problem-solving cycle as the backbone for gaining a better understanding of how different types of knowledge interact in health services management. It is essential to use an integrated and interactive approach to ensure that knowledge from research is translated in a way that allows a learning organization to be built and that knowledge is not used merely to influence a single decision in isolation from the overall services and management of an organization.

7. Curry LA, Luong MA, Krumholz HM, Gaddis J, Kennedy P, Rulisa S, et al. Achieving large ends with limited means: grand strategy in global health. International Health. 2010;2(2):82.

This article provides an overview of the principles of grand strategy — start with the end in mind, take an ecological approach, recognize that tactics matter, use positive deviance to characterize practical solutions and foster scale-up, and integrate timely intelligence and data into health interventions and improvement efforts. These principles are then discussed in relation to maternal mortality as an example of their use in all of public health

8. Damschroder L, Aron D, Keith R, Kirsh S, Alexander J, Lowery J. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implementation Science. 2009;4(1):50.

BACKGROUND: Many interventions found to be effective in health services research studies fail to translate into meaningful patient care outcomes across multiple contexts. Health services researchers recognize the need to evaluate not only summative outcomes but also formative outcomes to assess the extent to which implementation is effective in a specific setting, prolongs sustainability, and promotes

Frameworks and Models for Research Utilization

dissemination into other settings. We describe the Consolidated Framework for Implementation Research (CFIR) that offers an overarching typology to promote implementation theory development and verification about what works where and why across multiple contexts.

METHODS: We used a snowball sampling approach to identify published theories that were evaluated to identify constructs based on strength of conceptual or empirical support for influence on implementation, consistency in definitions, alignment with our own findings, and potential for measurement.

RESULTS: The CFIR is composed of five major domains: intervention characteristics, outer setting, inner setting, characteristics of the individuals involved, and the process of implementation. Eight constructs were identified related to the intervention (e.g., evidence strength and quality), four constructs were identified related to outer setting (e.g., patient needs and resources), 12 constructs were identified related to inner setting (e.g., culture, leadership engagement), five constructs were identified related to individual characteristics, and eight constructs were identified related to process (e.g., plan, evaluate, and reflect).

CONCLUSION: The CFIR provides a pragmatic structure for approaching complex, interacting, multi-level, and transient states of constructs in the real world by embracing, consolidating, and unifying key constructs from published implementation theories. It can be used to guide formative evaluations and build the implementation knowledge base across multiple studies and settings.

9. Dobbins M, Ciliska D, Cockerill R, Barnsley J, DiCenso A. A framework for the dissemination and utilization of research for health-care policy and practice. Online J Knowl Synth Nurs. 2002 Nov 18;9:7.

PURPOSE: The purpose of this paper is to construct a comprehensive framework of research dissemination and utilization that is useful for both health policy and clinical decision-making.

ORGANIZING CONSTRUCT: The framework illustrates that the process of the adoption of research evidence into health-care decision-making is influenced by a variety of characteristics related to the individual, organization, environment and innovation. The framework also demonstrates the complex inter-relationships among these characteristics as progression through the five stages of innovation namely, knowledge, persuasion, decision, implementation and confirmation occurs. Finally, the framework integrates the concepts of research dissemination, evidence-based decision-making and research utilization within the diffusion of innovations theory.

METHODS: During the discussion of each stage of the innovation adoption process, relevant literature from the management field (i.e., diffusion of innovations, organizational management and decision-making) and health-care sector (i.e., research dissemination and utilization and evidence-based practice) is summarized. Studies providing empirical data contributing to the development of the framework were assessed for methodological quality.

CONCLUSIONS: The process of research dissemination and utilization is complex and determined by numerous intervening variables related to the innovation (research evidence), organization, environment and individual.

10. Feldstein AC, Glasgow RE. A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. The Joint Commission Journal on Quality and Patient Safety. 2008 Apr;34(4):228.

BACKGROUND: Although numerous studies address the efficacy and effectiveness of health interventions, less research addresses successfully implementing and sustaining interventions. As long as efficacy and effectiveness trials are considered complete without considering implementation in nonresearch settings, the public health potential of the original investments will not be realized. A

barrier to progress is the absence of a practical, robust model to help identify the factors that need to be considered and addressed and how to measure success. A conceptual framework for improving practice is needed to integrate the key features for successful program design, predictors of implementation and diffusion, and appropriate outcome measures.

DEVELOPING PRISM: A comprehensive model for translating research into practice was developed using concepts from the areas of quality improvement, chronic care, the diffusion of innovations, and measures of the population-based effectiveness of translation. PRISM — the Practical, Robust, Implementation and Sustainability Model — evaluates how the health care program or intervention interacts with the recipients to influence program adoption, implementation, maintenance, reach, and effectiveness.

DISCUSSION: The PRISM model provides a new tool for researchers and health care decision makers that integrates existing concepts relevant to translating research into practice.

11. Flaspohler P, Duffy J, Wandersman A, Stillman L, Maras MA. Unpacking prevention capacity: an intersection of research-to-practice models and community-centered models. Am J Community Psychol. 2008 Jun;41(3-4):182.

Capacity is a complex construct that lacks definitional clarity. Little has been done to define capacity, explicate components of capacity, or explore the development of capacity in prevention. This article represents an attempt to operationalize capacity and distinguish among types and levels of capacity as they relate to dissemination and implementation through the use of a taxonomy of capacity. The development of the taxonomy was informed by the capacity literature from two divergent models in the field: research-to-practice (RTP) models and community-centered (CC) models. While these models differ in perspective and focus, both emphasize the importance of capacity to the dissemination and sustainability of prevention innovations. Based on the review of the literature, the taxonomy differentiates the concepts of capacity among two dimensions: level (individual, organizational, and community levels) and type (general capacity and innovation-specific capacity). The proposed taxonomy can aid in understanding the concept of capacity and developing methods to support the implementation and sustainability of prevention efforts in novel settings.

12. Gericke CA, Kurowski C, Ranson MK, Mills A. Intervention complexity — a conceptual framework to inform priority-setting in health. Bull World Health Organ. 2005; 83(4):285.

Health interventions vary substantially in the degree of effort required to implement them. To some extent this is apparent in their financial cost, but the nature and availability of non-financial resources is often of similar importance. In particular, human resource requirements are frequently a major constraint. We propose a conceptual framework for the analysis of interventions according to their degree of technical complexity; this complements the notion of institutional capacity in considering the feasibility of implementing an intervention. Interventions are categorized into four dimensions: characteristics of the basic intervention; characteristics of delivery; requirements on government capacity; and usage characteristics. The analysis of intervention complexity should lead to a better understanding of supply- and demand-side constraints to scaling up, indicate priorities for further research and development, and can point to potential areas for improvement of specific aspects of each intervention to close the gap between the complexity of an intervention and the capacity to implement it. The framework is illustrated using the examples of scaling up condom social marketing programmes, and the DOTS strategy for tuberculosis control in highly resource-constrained countries. The framework could be used as a tool for policy-makers, planners and programme managers when considering the expansion of existing projects or the introduction of new interventions. Intervention complexity thus

complements the considerations of burden of disease, cost-effectiveness, affordability and political feasibility in health policy decision-making. Reducing the technical complexity of interventions will be crucial to meeting the health-related Millennium Development Goals.

13. Graham ID, Logan J. Innovations in knowledge transfer and continuity of care. Can J Nurs Res. 2004 Jun;36(2):89.

In summary, the transfer of continuity-of-care innovations to practice is a complex process. Knowledge transfer is complex in and of itself, and in the case of continuity-of-care innovations this complexity is compounded by the need to simultaneously target multiple sectors, settings, agencies, and providers. Although there are a number of knowledge transfer theories/models, their use in guiding implementation activities is not yet commonplace. If the health-care system and patients/clients are to benefit from continuity-of-care research, researchers and implementers will need to become better versed in the knowledge transfer literature, experiment with these frameworks when implementing innovations, and test their usefulness with different innovations in different contexts.

14. Helfrich CD, Weiner BJ, McKinney MM, Minasian L. Determinants of implementation effectiveness: adapting a framework for complex innovations. Med Care Res Rev. 2007 Jun;64(3):279.

Many innovations in the health sector are complex, requiring coordinated use by multiple organizational members to achieve benefits. Often, complex innovations are adopted with great anticipation only to fail during implementation. The health services literature provides limited conceptual guidance to researchers and practitioners about implementation of complex innovations. In the present study, we adapt an organizational framework of innovation implementation developed and validated in a manufacturing setting and explore the extent to which it aptly characterizes implementation in health sector organizations. Through comparative case studies of four cancer clinical research networks, we illustrate how this conceptual framework captures key determinants of the implementation of new programs in cancer prevention and control (CP/C) research and helps explain observed differences in implementation effectiveness. Key determinants include management support and innovation-values fit, which contribute to an organizational "climate" for implementation. We explore the implications for researchers and managers.

15. Ho K, Bloch R, Gondocz T, Laprise R, Perrier L, Ryan D, et al. Technology-enabled knowledge translation: frameworks to promote research and practice. J Contin Educ Health Prof. 2004 Spring;24(2):90.

Knowledge translation articulates how new scientific insights can be implemented efficiently into clinical practice to reap maximal health benefits. Modern information and communication technologies can be effective tools to help in the collection, processing, and targeted distribution of information from which clinicians, researchers, administrators, policy makers in health, and the public can benefit. Effective implementation of knowledge translation through the use of information and communication technologies, or technology-enabled knowledge translation (TEKT), would benefit both the individual health professional and the health system. Successful TEKT in health requires cultivation and acceptance in the following key domains: Perceiving types of knowledge and ways in which clinicians acquire and apply knowledge in practice. Understanding the conceptual and contextual frameworks of information and communication technologies applied to health systems, particularly the push, pull, and exchange communication models. Comprehending essential issues in implementation of information and communication technologies and strategies to take advantage of emerging opportunities and overcome

existing barriers. Establishing a common and widely acceptable evaluation framework so that researchers can compare various methodologies in their rightful contexts in TEKT research and adoption. Achieving harmony and common understanding in these areas will go a long way in fostering a fertile and innovative environment to encourage research and advance understanding in this exciting domain of TEKT.

16. Jack SM. Utility of qualitative research findings in evidence-based public health practice. Public Health Nurs. 2006;23(3):277.

Epidemiological data, derived from quantitative studies, provide important information about the causes, prevalence, risk correlates, treatment and prevention of diseases, and health issues at a population level. However, public health issues are complex in nature and quantitative research findings are insufficient to support practitioners and administrators in making evidence-informed decisions. Upshur's Synthetic Model of Evidence (2001) situates qualitative research findings as a credible source of evidence for public health practice. This article answers the following questions: (1) where does qualitative research fit within the paradigm of evidence-based practice and (2) how can qualitative research be used by public health professionals? Strategies for using qualitative research findings instrumentally, conceptually, and symbolically are identified by applying Estabrooks' (1999) conceptual structure of research utilization. Different research utilization strategies are illustrated through the use of research examples from the field of work on intimate partner violence against women. Recommendations for qualitative researchers disseminating findings and for public health practitioners/policy makers considering the use of qualitative findings as evidence to inform decisions are provided.

17. Kilbourne AM, Neumann MS, Pincus HA, Bauer MS, Stall R. Implementing evidence-based interventions in health care: application of the replicating effective programs framework. Implement Sci. 2007;2:42.

BACKGROUND: We describe the use of a conceptual framework and implementation protocol to prepare effective health services interventions for implementation in community-based (i.e., non-academic-affiliated) settings.
METHODS: The framework is based on the experiences of the U.S. Centers for Disease Control and Prevention (CDC) Replicating Effective Programs (REP) project, which has been at the forefront of developing systematic and effective strategies to prepare HIV interventions for dissemination. This article describes the REP framework, and how it can be applied to implement clinical and health services interventions in community-based organizations.
RESULTS: REP consists of four phases: pre-conditions (e.g., identifying need, target population, and suitable intervention), pre-implementation (e.g., intervention packaging and community input), implementation (e.g., package dissemination, training, technical assistance, and evaluation), and maintenance and evolution (e.g., preparing the intervention for sustainability). Key components of REP, including intervention packaging, training, technical assistance, and fidelity assessment are crucial to the implementation of effective interventions in health care.
CONCLUSION: REP is a well-suited framework for implementing health care interventions, as it specifies steps needed to maximize fidelity while allowing opportunities for flexibility (i.e., local customizing) to maximize transferability. Strategies that foster the sustainability of REP as a tool to implement effective health care interventions need to be developed and tested.

18. Kitson AL, Rycroft-Malone J, Harvey G, McCormack B, Seers K, Titchen A. Evaluating the successful implementation of evidence into practice using the PARiHS framework: theoretical and practical challenges. Implement Sci. 2008;3:1.

BACKGROUND: The PARiHS framework (Promoting Action on Research Implementation in Health Services) has proved to be a useful practical and conceptual heuristic for many researchers and practitioners in framing their research or knowledge translation endeavors. However, as a conceptual framework it still remains untested and therefore its contribution to the overall development and testing of theory in the field of implementation science is largely un-quantified.

DISCUSSION: This being the case, the paper provides an integrated summary of our conceptual and theoretical thinking so far and introduces a typology (derived from social policy analysis) used to distinguish between the terms conceptual framework, theory and model - important definitional and conceptual issues in trying to refine theoretical and methodological approaches to knowledge translation. Secondly, the paper describes the next phase of our work, in particular concentrating on the conceptual thinking and mapping that has led to the generation of the hypothesis that the PARiHS framework is best utilized as a two-stage process: as a preliminary (diagnostic and evaluative) measure of the elements and sub-elements of evidence (E) and context (C), and then using the aggregated data from these measures to determine the most appropriate facilitation method. The exact nature of the intervention is thus determined by the specific actors in the specific context at a specific time and place. In the process of refining this next phase of our work, we have had to consider the wider issues around the use of theories to inform and shape our research activity; the ongoing challenges of developing robust and sensitive measures; facilitation as an intervention for getting research into practice; and finally to note how the current debates around evidence into practice are adopting wider notions that fit innovations more generally.

SUMMARY: The paper concludes by suggesting that the future direction of the work on the PARiHS framework is to develop a two-stage diagnostic and evaluative approach, where the intervention is shaped and molded by the information gathered about the specific situation and from participating stakeholders. In order to expedite the generation of new evidence and testing of emerging theories, we suggest the formation of an international research implementation science collaborative that can systematically collect and analyze experiences of using and testing the PARiHS framework and similar conceptual and theoretical approaches. We also recommend further refinement of the definitions around conceptual framework, theory, and model, suggesting a wider discussion that embraces multiple epistemological and ontological perspectives.

19. Kontos PC, Poland BD. Mapping new theoretical and methodological terrain for knowledge translation: contributions from critical realism and the arts. Implement Sci. 2009;4:1.

BACKGROUND: Clinical practice guidelines have been a popular tool for the improvement of health care through the implementation of evidence from systematic research. Yet, it is increasingly clear that knowledge alone is insufficient to change practice. The social, cultural, and material contexts within which practice occurs may invite or reject innovation, complement or inhibit the activities required for success, and sustain or alter adherence to entrenched practices. However, knowledge translation (KT) models are limited in providing insight about how and why contextual contingencies interact, the causal mechanisms linking structural aspects of context and individual agency, and how these mechanisms influence KT. Another limitation of KT models is the neglect of methods to engage potential adopters of the innovation in critical reflection about aspects of context that influence practice, the relevance and meaning of innovation in the context of practice, and the identification of strategies for bringing about meaningful change.

Frameworks and Models for Research Utilization

DISCUSSION: This paper presents a KT model, the Critical Realism and the Arts Research Utilization Model (CRARUM), which combines critical realism and arts-based methodologies. Critical realism facilitates understanding of clinical settings by providing insight into the interrelationship between its structures and potentials, and individual action. The arts nurture empathy, and can foster reflection on the ways in which contextual factors influence and shape clinical practice, and how they may facilitate or impede change. The combination of critical realism and the arts within the CRARUM model promotes the successful embedding of interventions, and greater impact and sustainability.

CONCLUSION: CRARUM has the potential to strengthen the science of implementation research by addressing the complexities of practice settings, and engaging potential adopters to critically reflect on existing and proposed practices and strategies for sustaining change.

20. Landry R, Amara N, Pablos-Mendes A, Shademani R, Gold I. The knowledge-value chain: A conceptual framework for knowledge translation in health. Bull World Health Organ. 2006 Aug;84(8):597.

This article briefly discusses knowledge translation and lists the problems associated with it. Then it uses knowledge-management literature to develop and propose a knowledge-value chain framework in order to provide an integrated conceptual model of knowledge management and application in public health organizations. The knowledge-value chain is a non-linear concept and is based on the management of five dyadic capabilities: mapping and acquisition, creation and destruction, integration and sharing/transfer, replication and protection, and performance and innovation.

21. Landry R, Amara N, Lamari M. Utilization of social science research knowledge in Canada. Research Policy. 2001;30(2):333.

This paper uses multivariate regression analyses to explore how different factors contribute to the utilization of research findings. The authors emphasize that researchers and users play an important role in determining which findings make it into practice.

22. Lavis JN, Lomas J, Hamid M, Sewankambo NK. Assessing country-level efforts to link research to action. Bull World Health Organ. 2006 Aug;84(8):620.

We developed a framework for assessing country-level efforts to link research to action. The framework has four elements. The first element assesses the general climate (how those who fund research, universities, researchers and users of research support or place value on efforts to link research to action). The second element addresses the production of research (how priority setting ensures that users' needs are identified and how scoping reviews, systematic reviews and single studies are undertaken to address these needs). The third element addresses the mix of four clusters of activities used to link research to action. These include push efforts (how strategies are used to support action based on the messages arising from research), efforts to facilitate "user pull" (how "one-stop shopping" is provided for optimally packaged high-quality reviews either alone or as part of a national electronic library for health, how these reviews are profiled during "teachable moments" such as intense media coverage, and how rapid-response units meet users' needs for the best research), "user pull" efforts undertaken by those who use research (how users assess their capacity to use research and how structures and processes are changed to support the use of research) and exchange efforts (how meaningful partnerships between researchers and users help them to jointly ask and answer relevant questions). The fourth element addresses approaches to evaluation (how support is provided for rigorous evaluations of efforts to link research to action).

23. Lee SJ, Altschul I, Mowbray CT. Using planned adaptation to implement evidence-based programs with new populations. Am J Community Psychol. 2008 Jun;41(3-4):290.

The Interactive Systems Framework (ISF) for Dissemination and Implementation (Wandersman et al.) elaborates the functions and structures that move evidence-based programs (EBPs) from research to practice. Inherent in that process is the tension between implementing programs with fidelity and the need to tailor programs to fit the target population. We propose Planned Adaptation as one approach to resolve this tension, with the goal of guiding practitioners in adapting EBPs so that they maintain core components of program theory while taking into account the needs of particular populations. Planned Adaptation is a form of capacity building within the Prevention Support System that provides a framework to guide practitioners in adapting programs while encouraging researchers to provide information relevant to adaptation as a critical aspect of dissemination research, with the goal of promoting wider dissemination and better implementation of EBPs. We illustrate Planned Adaptation using the JOBS Program (Caplan et al.), which was developed for recently laid-off, working- and middle-class workers and subsequently implemented with welfare recipients.

24. Majdzadeh R, Sadighi J, Nejat S, Mahani AS, Gholami J. Knowledge translation for research utilization: design of a knowledge translation model at Tehran University of Medical Sciences. J Contin Educ Health Prof. 2008 Fall;28(4):270.

INTRODUCTION: The present study aimed to generate a model that would provide a conceptual framework for linking disparate components of knowledge translation. A theoretical model of such would enable the organization and evaluation of attempts to analyze current conditions and to design interventions on the transfer and utilization of research knowledge.
METHODS: This research, performed in 2006-2007 at the Tehran University of Medical Sciences (TUMS), utilized two distinct methodologies: a narrative review to identify existing knowledge transfer models and frameworks and focus group discussions to determine the views and opinions of researchers and decision makers regarding barriers to knowledge translation within the health system.
RESULTS: A knowledge translation cycle is described, with five domains: knowledge creation, knowledge transfer, research utilization, question transfer, and the context of organization.
DISCUSSION: The knowledge translation cycle offers a theoretical basis for identifying basic requirements and linking mechanisms in the translation of knowledge for research utilization.

25. McWilliam CL, Kothari A, Ward-Griffin C, Forbes D, Leipert B. Evolving the theory and praxis of knowledge translation through social interaction: a social phenomenological study. Implement Sci. 2009;4:26.

BACKGROUND: As an inherently human process fraught with subjectivity, dynamic interaction, and change, social interaction knowledge translation (KT) invites implementation scientists to explore what might be learned from adopting the academic tradition of social constructivism and an interpretive research approach. This paper presents phenomenological investigation of the second cycle of a participatory action KT intervention in the home care sector to answer the question: What is the nature of the process of implementing KT through social interaction?
METHODS: Social phenomenology was selected to capture how the social processes of the KT intervention were experienced, with the aim of representing these as typical socially-constituted patterns. Participants (n = 203), including service providers, case managers, administrators, and researchers organized into nine geographically-determined multi-disciplinary action groups,

Frameworks and Models for Research Utilization

purposefully selected and audiotaped three meetings per group to capture their enactment of the KT process at early, middle, and end-of-cycle timeframes. Data, comprised of 36 hours of transcribed audiotapes augmented by researchers' field notes, were analyzed using social phenomenology strategies and authenticated through member checking and peer review.

RESULTS: Four patterns of social interaction representing organization, team, and individual interests were identified: overcoming barriers and optimizing facilitators; integrating 'science push' and 'demand pull' approaches within the social interaction process; synthesizing the research evidence with tacit professional craft and experiential knowledge; and integrating knowledge creation, transfer, and uptake throughout everyday work. Achieved through relational transformative leadership constituted simultaneously by both structure and agency, in keeping with social phenomenology analysis approaches, these four patterns are represented holistically in a typical construction, specifically, a participatory action KT (PAKT) model.

CONCLUSION: Study findings suggest the relevance of principles and foci from the field of process evaluation related to intervention implementation, further illuminating KT as a structuration process facilitated by evolving transformative leadership in an active and integrated context. The model provides guidance for proactively constructing a 'fit' between content, context, and facilitation in the translation of evidence informing professional craft knowledge.

26. MEASURE Evaluation. Data demand and information use in the health sector. Case Study Series. Chapel Hill (USA): MEASURE Evaluation; 2008, revised 2011.

This publication, the third in a three-part series, presents a series of case studies that illustrate, from a variety of settings, cases where data and information have been used, as well as examples of how interventions have successfully facilitated data demand and changed how information is used within the MEASURE Evaluation project.

27. Mendel P, Meredith LS, Schoenbaum M, Sherbourne CD, Wells KB. Interventions in organizational and community context: a framework for building evidence on dissemination and implementation in health services research. Adm Policy Ment Health. 2008 Mar;35(1-2):21.

The effective dissemination and implementation of evidence-based health interventions within community settings is an important cornerstone to expanding the availability of quality health and mental health services. Yet it has proven a challenging task for both research and community stakeholders. This paper presents the current framework developed by the UCLA/RAND NIMH Center to address this research-to-practice gap by: (1) providing a theoretically-grounded understanding of the multi-layered nature of community and healthcare contexts and the mechanisms by which new practices and programs diffuse within these settings; (2) distinguishing among key components of the diffusion process-including contextual factors, adoption, implementation, and sustainment of interventions-showing how evaluation of each is necessary to explain the course of dissemination and outcomes for individual and organizational stakeholders; (3) facilitating the identification of new strategies for adapting, disseminating, and implementing relatively complex, evidence-based healthcare and improvement interventions, particularly using a community-based, participatory approach; and (4) enhancing the ability to meaningfully generalize findings across varied interventions and settings to build an evidence base on successful dissemination and implementation strategies.

28. Peterson JC, Rogers EM, Cunningham-Sabo L, Davis SM. A framework for research utilization applied to seven case studies. Am J Prev Med. 2007 Jul;33(1 Suppl):S21.

Frameworks and Models for Research Utilization

BACKGROUND: It is widely acknowledged that prevention research often is not fully or adequately used in health practice and/or policies. This study sought to answer two main questions: (1) Are there characteristics of research utilization in communities that suggest stages in a process? (2) What factors, including barriers and facilitators, are associated with the use of prevention research in community-based programs, policies, and practices?

METHODS: Researchers used a multiple case study design to retrospectively describe the research-utilization process. A conceptual framework modified from Rogers's diffusion of innovations model and Green's theory of participation were used. Data were gathered from archival sources and interviews with key people related to any one of seven community-based practices, programs, or policies. Fifty-two semistructured interviews were conducted with program or project staff members, funding agency project managers, community administrators and leaders, community project liaisons, innovation champions, and other members of the research user system.

RESULTS: Participation in the process of research utilization was described by using characteristics of collaborative efforts among stakeholders. Program champions or agents linking research resources to the community moved the research-utilization process forward. Practices, programs, or policies characterized by greater community participation generally resulted in more advanced stages of research utilization.

CONCLUSIONS: Investigating the interactions among and contributions of linking agents and resource and user systems can illuminate the potential paths of prevention research utilization in community settings. Because community participation is a critical factor in research utilization, prevention researchers must take into account the context and needs of communities throughout the research process.

29. Pronovost PJ, Berenholtz SM, Needham DM. Translating evidence into practice: a model for large scale knowledge translation. BMJ. 2008;337:a1714.

This article describes the use of an explicit model for knowledge translation within a collaborative model for putting knowledge into practice.

30. Rychetnik L, Wise M. Advocating evidence-based health promotion: reflections and a way forward. Health Promot Int. 2004 Jun;19(2):247.

In the past few years, significant advances have been made in health promotion to generate readily accessible systematic reviews of evidence on the effectiveness of interventions and programs. The influence of this evidence on policy and practice has, however, been unpredictable, and proponents of evidence-based practice are identifying ways to increase the use of research in decisions about health promotion interventions. This paper examines the following questions: (i) is the evidence that is available on the effectiveness of interventions actually relevant and useful to current policy and practice contexts? and (ii) what is the researcher's or reviewer's role in interpreting the available evidence and advocating action based on their interpretations? The paper concludes by proposing an 'evidence-agenda map' to assist advocates of evidence-based policy and practice to identify the health promotion goals they seek to influence against the required and available evidence.

31. Santesso N, Tugwell P. Knowledge translation in developing countries. J Contin Educ Health Prof. 2006 Winter;26(1):87.

There is increasing evidence that the application of knowledge in developing countries is failing. One reason is the woeful shortage of health workers, but as this is redressed, it is also crucial that we have an

evidence base of what works to minimize the "know-do gap." The World Health Organization and other international organizations are actively building momentum to promote research to determine effective strategies for knowledge translation (KT). At this time, the evidence base for the effectiveness of those strategies is not definitive in developed countries and is relatively sparse in developing countries. It appears, however, that the effectiveness of these strategies is highly variable and dependent on the setting, and success hinges on whether the strategies have been tailored. A useful framework to provide direction for tailoring interventions is the Ottawa Model of Research Use (OMRU). Underlying OMRU is the principle that success rests with tailoring KT strategies to the salient barriers and supports found within the setting. The model recommends that barriers and supports found in the practice environment or as characteristics of potential adopters and the evidence-based innovation or research evidence be assessed and then the KT strategy tailored and executed. The model also recommends that whether the research has been applied and has resulted in improved health outcomes should be measured. Studies in developing countries, although few, illustrate that the OMRU approach may be a valid method of tackling the challenges of KT strategies to improve health care in developing countries.

32. Scharff DP, Mathews K. Working with communities to translate research into practice. J Public Health Manag Pract. 2008;14(2):94.

Partnering with the community is a necessary component of our efforts to translate research into practice. Models that depict the processes of translation and dissemination (T&D) outline a progression from the establishment of evidence through research to practice improvement by the application of evidence and new ways of thinking and doing. These models propose strategies to help ensure that scientific discoveries are translated into practice, reducing the existing significant gap between research findings and their application. For example, Brownson and colleagues described a framework and processes that are essential in moving public health research into practice. They illustrate a four-stage model: (1) discovery, in which the determinants of disease and behaviors and the effectiveness of interventions and services are identified and conceptual models are tested; (2) translation, the process of converting discoveries into forms that are applicable to a variety of audiences; (3) dissemination, in which translated information is spread to populations; and (4) change in health through long-term behavioral, organizational, and environmental change. Movement from discovery to change requires deliberate efforts to translate knowledge into clinical and community practice. Forming community partnerships is one activity that can potentially assist in this movement. In this article, we describe the importance of community engagement throughout the T&D process, strategies for increasing it, and the steps that need to occur so that community participation is recognized and utilized in T&D.

33. Sogolow ED, Kay LS, Doll LS, Neumann MS, Mezoff JS, Eke AN, et al. Strengthening HIV prevention: application of a research-to-practice framework. AIDS Educ Prev. 2000;12(5 Suppl):21.

As the HIV epidemic continues to affect at-risk and vulnerable populations, providers strive to improve prevention programs, in part by seeking new interventions with greater effects. Although interventions with scientific evidence of effectiveness are vital to this effort, many challenges limit access to research products. We examine key challenges and offer a framework for moving research to practice, one in which research steps are linked to practice steps and all these activities take place in a complex and dynamic environment. The Replicating Effective Programs (REP) project of the Centers for Disease Control and Prevention and other technology transfer activities illustrate the operation of this framework for HIV prevention. Further actions to improve technology transfer are called for. These include reducing time from study design to practice; learning from field-based implementations;

Frameworks and Models for Research Utilization

providing guidance about fidelity to, and tailoring of, science-based interventions; improving linkages among consumers, providers, and researchers; and seeking additional resources.

34. Straus SE, Holroyd-Leduc J. Knowledge-to-action cycle. Evid Based Med. 2008 Aug;13(4):98.

Healthcare systems worldwide are faced with improving quality of care and decreasing adverse events. Providing evidence from clinical research is necessary but not sufficient for the provision of optimal care. This finding has created interest in knowledge translation (KT), the scientific study of the methods for closing the knowledge-to-practice gap and the analysis of barriers and facilitators inherent in this process. There are many proposed theories and frameworks for achieving KT, which can be confusing. One conceptual framework developed by Graham et al builds on the commonalities found in an assessment of planned-action theories. This knowledge-to-action cycle comprises knowledge creation and action components. We describe the application of this knowledge-to-action framework to a common clinical challenge: preventing delirium in older adults hospitalized for hip fracture.

35. Tannahill A. Beyond evidence — to ethics: a decision-making framework for health promotion, public health and health improvement. Health Promot Int. 2008 Dec;23(4):380.

Echoing the rise of 'evidence-based medicine,' the concept of evidence-based policy and practice in the inter-related fields of health promotion, public health and health improvement has attracted increasing attention over the past two decades. More recently, again with roots traceable to biomedical thinking, there has been growing interest in ethics in relation to these fields. This paper links these two topical themes in a practical way. It explores the extent to which policies and activities 'on the ground' can and should be based on evidence, and considers the relative places of evidence and ethics in decision-making. It goes on to present the 'decision-making triangle,' a framework that gives primacy to a set of ethical principles--with available evidence and plausible theory being used to inform the application of these. After introducing the concept of 'ethical logic modeling,' the paper concludes by suggesting an 'ethical imperative' for health promotion, public health and health improvement: to make decisions based on the explicit application of ethical principles, using available evidence and theory appropriately.

36. Tugwell P, Robinson V, Grimshaw J, Santesso N. Systematic reviews and knowledge translation. Bull World Health Organ. 2006 Aug;84(8):643.

Proven effective interventions exist that would enable all countries to meet the Millennium Development Goals. However, uptake and use of these interventions in the poorest populations is at least 50% less than in the richest populations within each country. Also, we have recently shown that community effectiveness of interventions is lower for the poorest populations due to a "staircase" effect of lower coverage/access, worse diagnostic accuracy, less provider compliance and less consumer adherence. We propose an evidence-based framework for equity-oriented knowledge translation to enhance community effectiveness and health equity. This framework is represented as a cascade of steps to assess and prioritize barriers and thus choose effective knowledge translation interventions that are tailored for relevant audiences (public, patient, practitioner, policy-maker, press and private sector), as well as the evaluation, monitoring and sharing of these strategies. We have used two examples of effective interventions (insecticide-treated bednets to prevent malaria and childhood immunization) to illustrate how this framework can provide a systematic method for decision-makers to ensure the application of evidence-based knowledge in disadvantaged populations. Future work to empirically validate and evaluate the usefulness of this framework is needed. We invite researchers and implementers to use the cascade for equity-oriented knowledge translation as a guide when planning

implementation strategies for proven effective interventions. We also encourage policy-makers and health-care managers to use this framework when deciding how effective interventions can be implemented in their own settings.

37. Waitman LR, Miller RA. Pragmatics of implementing guidelines on the front lines. J Am Med Inform Assoc. 2004 Sep-Oct;11(5):436.

We commend Shiffman and colleagues ("Bridging the Guideline Implementation Gap: A Systematic, Document-Centered Approach to Guideline Implementation") for highlighting the challenges of integrating guidelines into clinical practice and proposing pragmatic mechanisms for addressing them. We note, however, that the approach advocated by Shiffman et al., as well as by numerous other groups recently, is fundamentally a document-centric model. This approach may lead others to assume that representing a guideline correctly as a "computer-readable" document is the majority of the work required for implementation success. Although the "understanding" and representation of the clinical content of a guideline are a *sine qua non* for its local implementation, the document-centric approach leaves a substantial gap between the idealized document model and any specific guideline implementation in a local clinical system. This considerable gap is not unlike the "curly braces" problem documented for the Arden Syntax a decade ago. We estimate that 90% of the effort required for successful guideline implementation is (and must be) local, and the remaining 10% of the effort involves "getting the document right." We believe that an alternative approach to local guideline implementation is to focus on the guideline's recommended actions; on the capabilities of the local care provider order entry (CPOE) or electronic health record (EHR) system that will serve as the "effecter mechanism" for the guideline; on locally available computational and clinical resources; and on the guideline's required "clinical infrastructure." We believe that guidelines should be implemented locally and directly (with a systematic approach, as described below) via local clinical systems (as opposed to a quasi-automatic implementation using a computer-readable, nationally disseminated document). The goal of both the "document-centric" and the "locally customized and guided" approaches is the same: implementation of locally effective guidelines that appropriately influence clinical decision making, resulting in desirable actions that improve patient outcomes.

38. Ward VL, House AO, Hamer S. Knowledge brokering: exploring the process of transferring knowledge into action. BMC Health Serv Res. 2009;9:12.

BACKGROUND: There are many theories about knowledge transfer but there are few clear descriptions of knowledge transfer interventions or the processes they involve. This failure to characterise structure and process in proposed KT interventions is a major barrier to the design and implementation of evaluations of particular KT strategies. This study is designed to provide a detailed description of the processes involved in a knowledge transfer intervention and to develop and refine a useful model of the knowledge transfer process. METHODS AND DESIGN: This research is taking a sociological approach to investigating the process of knowledge transfer. The approach is designed to articulate the broad components of the knowledge transfer process and to test these against evidence from case study sites. The research falls into three phases. First, we have carried out a literature review to produce a theoretical framework of the knowledge transfer process. This involved summarising, thematically analysing and synthesising evidence from the literature. Second, we are carrying out fieldwork in a mental health setting based on the application of a knowledge brokering intervention. The intervention involves helping participants identify, refine and reframe their key issues, finding, synthesising and feeding back research and other evidence, facilitating interactions between participants and relevant experts and transferring information searching skills to participants. Finally, we are using the

observations of the knowledge broker and interviews with participants to produce narratives of the brokering process. The narratives will be compared in order to identify evidence which will confirm, refute or revise each of the broad components of the knowledge transfer process. This comparison will enable us to generate a refined framework of knowledge transfer which could be used as a basis for planning and evaluating knowledge transfer interventions. DISCUSSION: This study will provide an opportunity for a detailed description of a knowledge transfer intervention and the processes which are involved. Our approach is also designed to enable us to develop and refine a useful model of the knowledge transfer process. We believe that it will significantly enhance the growing body of knowledge about knowledge transfer.

39. Wilson KM, Brady TJ, . An organizing framework for translation in public health: the knowledge to action framework. Prev Chronic Disj. 2011; 8(2):A46.

A priority for the Centers for Disease Control and Prevention (CDC) is translating scientific knowledge into action to improve the public's health. No area has a more pressing need for translation than the prevention and control of chronic diseases. Staff from CDC's National Center for Chronic Disease Prevention and Health Promotion worked across disciplines and content areas to develop an organizing framework to describe and depict the high-level processes necessary to move from discovery into action through translation of evidence-based programs, practices, or policies. The Knowledge to Action (K2A) Framework identifies 3 phases (research, translation, and institutionalization) and the decision points, interactions, and supporting structures within the phases that are necessary to move knowledge to sustainable action. Evaluation undergirds the entire K2A process. Development of the K2A Framework highlighted the importance of planning for translation, attending to supporting structures, and evaluating the public health impact of our efforts.

40. Wilson KM, Fridinger F. Focusing on public health: a different look at translating research to practice. J Womens Health (Larchmt). 2008 Mar;17(2):173.

The Centers for Disease Control and Prevention (CDC) is committed to achieving true improvements in people's health. In chronic disease prevention and health promotion, we have a good deal of evidence about which intervention strategies work in clinics and in communities to improve health, but we need to accelerate translating that evidence into practice. This paper provides an overview of initial efforts of the National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) within the CDC to identify and organize the fundamental elements of translation, with the goal of understanding what our constituents need for success and to identify key issues to consider in translation.

41. World Health Organization. Turning research into practice: suggested actions from case studies of sexual and reproductive health research. Geneva: World Health Organization; 2006.

This document presents a conceptual framework for the process of moving from research to policy and provides practical information for researchers, policymakers and program managers — especially those working in sexual and reproductive health.

See Also

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Glasgow RE, Lichtenstein E, Marcus AC. Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition. Am J Public Health. 2003 Aug;93(8):1261.

In **Dissemination and Implementation:**

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Dolcini MM, Gandelman AA, Vogan SA, Kong C, Leak TN, King AJ, et al. Translating HIV interventions into practice: community-based organizations' experiences with the diffusion of effective behavioral interventions (DEBIs). Soc Sci Med. 2010 Nov;71(10):1839.

Kerner JF. Integrating research, practice, and policy: what we see depends on where we stand. J Public Health Manag Pract. 2008 Mar-Apr;14(2):193-8.

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Rolleri LA, Wilson MM, Paluzzi PA, Sedivy VJ. Building capacity of state adolescent pregnancy prevention coalitions to implement science-based approaches. Am J Community Psychol. 2008 Jun;41(3-4):225-34.

Wilson PM, Petticrew M, Calnan MW, Nazareth I. Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. Implement Sci. 2010; 5:91.

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Armstrong R, Waters E, Crockett B, Keleher H. The nature of evidence resources and knowledge translation for health promotion practitioners. Health Promot Int. 2007 Sep;22(3):254.

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Frameworks and Models for Research Utilization

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Ebener S, Khan A, Shademani R, Compernolle L, Beltran M, Lansang M, et al. Knowledge mapping as a technique to support knowledge translation. Bull World Health Organ. 2006 Aug;84(8):636.

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Frameworks and Models for Research Utilization

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Frameworks and Models for Research Utilization

Stakeholder Engagement

Like the use of champions to promote utilization of scientific findings, stakeholder engagement is an important research utilization strategy. Key stakeholders may include policy makers, health care providers, researchers, community members, funders, and others whose work or health outcomes may be affected by an innovation. The literature in this section explores the evidence on the role of key stakeholders in research utilization and outlines strategies for effectively engaging these stakeholders throughout the research, dissemination and implementation processes.

1. Armstrong R, Waters E, Crockett B, Keleher H. The nature of evidence resources and knowledge translation for health promotion practitioners. Health Promot Int. 2007 Sep;22(3):254.

Governments and other public health agencies have become increasingly interested in evidence-informed policy and practice. Translating research evidence into programmatic change has proved challenging and the evidence around how to effectively promote and facilitate this process is still relatively limited. This paper presents the findings from an evaluation of a series of evidence-based health promotion resources commissioned by the Victorian Department of Human Services. The evaluation used qualitative methods to explore how practitioners for whom the resources were intended, viewed and used them. Document and literature review and analysis, and a series of key informant interviews and focus groups were conducted. The findings clearly demonstrate that the resources are unlikely to act as agents for change unless they are linked to a knowledge management process that includes practitioner engagement. This paper also considers the potential role of knowledge brokers in helping to identify and translate evidence into practice.

2. Arrington B, Kimmey J, Brewster M, Bentley J, Kane M, Van Brunschot C, et al. Building a local agenda for dissemination of research into practice. J Public Health Manag Pract. 2008 Mar-Apr;14(2):185.

Across North America and in other parts of the world, there has been a growing recognition that a large gap exists between public health knowledge generated through scientific discovery and its application in individual, community, organizational, and policy innovation. An academic-funder partnership sought to identify potential actions to improve the translation of public health research to practice in Missouri. Concept mapping, a structured conceptualization process, was used to develop information to support a local action planning effort to improve research translation to practice in Missouri. Nine conceptual clusters emerged: (1) provide education and training; (2) enhance capacity; (3) change incentives and accountability; (4) shift funding toward community needs; (5) support practice-based research; (6) engage and collaborate with the community; (7) share knowledge; (8) engage influentials; and (9) sustain momentum; action plans were drafted to address priorities in each cluster. The project connected the ideas of a wide-ranging set of stakeholders, identified areas of high-level agreement among stakeholders, and supported shared agenda setting.

3. Cheung A, Lavis JN, Hamandi A, El-Jardali F, Sachs J, Sewankambo N, et al. Climate for evidence-informed health systems: A print media analysis in 44 low- and middle-income countries that host knowledge-translation platforms. Health Res Policy Syst. 2011 Feb 8;9(1):7.

BACKGROUND: We conducted a print media analysis in 44 countries in Africa, the Americas, Asia, and the Eastern Mediterranean in order to understand one dimension of the climate for evidence-informed health systems and to provide a baseline for an evaluation of knowledge-translation platforms. Our focus was whether and how policymakers, stakeholders, and researchers talk in the media about three topics: policy priorities in the health sector, health research evidence, and policy dialogues regarding health issues.

METHODS: We developed a search strategy consisting of three progressively more delimited phases. For each jurisdiction, we searched Major World Publications in LexisNexis Academic News for articles published in 2007, selected relevant articles using one set of general criteria and three sets of concept-specific criteria, and coded the selected articles to identify common themes. Second raters took part in the analysis of Lebanon and Malaysia to assess inter-rater reliability for article selection and coding.

RESULTS: We identified approximately 5.5 and 5 times more articles describing health research evidence compared to the number of articles describing policy priorities and policy dialogues, respectively. Few articles describing health research evidence discussed systematic reviews (2%) or health systems research (2%), and few of the policy dialogue articles discussed researcher involvement (9%). News coverage of these concepts was highly concentrated in several countries like China and Uganda, while few articles were found for many other jurisdictions. Kappa scores were consistently greater than 0.60.

CONCLUSIONS: In many countries the print media, at least as captured in a global database, are largely silent about three topics central to evidence-informed health systems. These findings suggest the need for proactive-media engagement strategies.

4. Cordero C, Delino R, Jeyaseelan L, Lansang MA, Lozano JM, Kumar S, et al. Funding agencies in low- and middle-income countries: support for knowledge translation. Bull World Health Organ. 2008 Jul;86(7):524.

OBJECTIVE: The aim was to describe how selected health research funding agencies active in low- and middle-income countries promote the translation of their funded research into policy and practice.

METHODS: We conducted inductive analysis of semi-structured interviews with key informants from a purposive sample of 23 national and international funding agencies that fund health research in Brazil, Colombia, India, the Philippines, South Africa and Thailand. We also surveyed web sites.

FINDINGS: We found a commitment to knowledge translation in the mandate of 18 of 23 agencies. However, there was a lack of common terminology. Most of the activities were traditional efforts to disseminate to a broad audience, for example using web sites and publications. In addition, more than half (13 of 23) of the agencies encouraged linkage/exchange between researchers and potential users, and 6 of 23 agencies described "pull" activities to generate interest in research from decision-makers. One-third (9 of 23) of funding agencies described a mandate to enhance health equity through improving knowledge translation. Only 3 of 23 agencies were able to describe evaluation of knowledge translation activities. Furthermore, we found national funding agencies made greater knowledge translation efforts when compared to international agencies.

CONCLUSION: Funding agencies are engaged in a wide range of creative knowledge translation activities. They might consider their role as knowledge brokers, with an ability to promote research syntheses and a focus on health equity. There is an urgent need to evaluate the knowledge translation activities of funding agencies.

5. Delisle H, Roberts JH, Munro M, Jones L, Gyorkos TW. The role of NGOs in global health research for development. Health Res Policy Syst. 2005 Feb 21;3(1):3.

BACKGROUND: Global health research is essential for development. A major issue is the inequitable distribution of research efforts and funds directed towards populations suffering the world's greatest health problems. This imbalance is fostering major attempts at redirecting research to the health problems of low and middle income countries. Following the creation of the Coalition for Global Health Research - Canada (CGHRC) in 2001, the Canadian Society for International Health (CSIH) decided to review the role of non-governmental organizations (NGOs) in global health research. This paper highlights some of the prevalent thinking and is intended to encourage new thinking on how NGOs can further this role.

APPROACH: This paper was prepared by members of the Research Committee of the CSIH, with input from other members of the Society. Persons working in various international NGOs participated in individual interviews or group discussions on their involvement in different types of research activities. Case studies illustrate the roles of NGOs in global health research, their perceived strengths and weaknesses, and the constraints and opportunities to build capacity and develop partnerships for research.

HIGHLIGHTS: NGOs are contributing at all stages of the research cycle, fostering the relevance and effectiveness of the research, priority setting, and knowledge translation to action. They have a key role in stewardship (promoting and advocating for relevant global health research), resource mobilization for research, the generation, utilization and management of knowledge, and capacity development. Yet, typically, the involvement of NGOs in research is downstream from knowledge production and it usually takes the form of a partnership with universities or dedicated research agencies.

CONCLUSION: There is a need to more effectively include NGOs in all aspects of health research in order to maximize the potential benefits of research. NGOs, moreover, can and should play an instrumental role in coalitions for global health research, such as the CGHRC. With a renewed sense of purpose and a common goal, NGOs and their partners intend to make strong and lasting inroads into reducing the disease burden of the world's most affected populations through effective research action.

6. Dobbins M, Robeson P, Ciliska D, Hanna S, Cameron R, O'Mara L, et al. A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation strategies. Implement Sci. 2009;4:23.

BACKGROUND: A knowledge broker (KB) is a popular knowledge translation and exchange (KTE) strategy emerging in Canada to promote interaction between researchers and end users, as well as to develop capacity for evidence-informed decision making. A KB provides a link between research producers and end users by developing a mutual understanding of goals and cultures, collaborates with end users to identify issues and problems for which solutions are required, and facilitates the identification, access, assessment, interpretation, and translation of research evidence into local policy and practice. Knowledge-brokering can be carried out by individuals, groups and/or organizations, as well as entire countries. In each case, the KB is linked with a group of end users and focuses on promoting the integration of the best available evidence into policy and practice-related decisions.

METHODS: A KB intervention comprised one of three KTE interventions evaluated in a randomized controlled trial.

RESULTS: KB activities were classified into the following categories: initial and ongoing needs assessments; scanning the horizon; knowledge management; KTE; network development, maintenance, and facilitation; facilitation of individual capacity development in evidence informed decision making; and g) facilitation of and support for organizational change.

CONCLUSION: As the KB role developed during this study, central themes that emerged as particularly important included relationship development, ongoing support, customized approaches, and opportunities for individual and organizational capacity development. The novelty of the KB role in

Stakeholder Engagement

public health provides a unique opportunity to assess the need for and reaction to the role and its associated activities. Future research should include studies to evaluate the effectiveness of KBs in different settings and among different health care professionals, and to explore the optimal preparation and training of KBs, as well as the identification of the personality characteristics most closely associated with KB effectiveness. Studies should also seek to better understand which combination of KB activities are associated with optimal evidence-informed decision making outcomes, and whether the combination changes in different settings and among different health care decision makers.

7. Gagliardi AR, Fraser N, Wright FC, Lemieux-Charles L, Davis D. Fostering knowledge exchange between researchers and decision-makers: exploring the effectiveness of a mixed-methods approach. Health Policy. 2008 Apr;86(1):53.

OBJECTIVES: Knowledge exchange is thought to enhance research utilization by decision-makers but there is little guidance on appropriate methods. This study evaluated the effectiveness of a research planning exercise utilizing technical (ranking, rating) and interpretive strategies (interdisciplinary workshop deliberation).
METHODS: Participants were surveyed to establish research priorities and professional roles. Observation was used to examine actual contribution and outcomes. Semi-structured interviews with participants elicited perceived outcomes, commitment, contribution and learning. Survey data was reported with summary statistics. Transcripts were analyzed qualitatively.
RESULTS: Stakeholders were satisfied with the overall process, gaps in research were prioritized, and research questions were proposed, but anticipated intermediate or lateral outcomes were not achieved. Identifying differing perspectives and establishing relationships were unanticipated outcomes. Barriers included group dynamics, lack of clarity on objectives and processes, and minimal experience or interest in interpretive activities.
CONCLUSIONS: A conceptual framework for evaluating factors influencing knowledge exchange outcomes had not been previously investigated. Strategies for overcoming identified barriers include better facilitation, involving a critical volume of non-clinicians, in-person sharing of background information, and incentives for decision-makers. Further research is required to examine the effectiveness of different forms of knowledge exchange, and the degree to which they are currently being practiced.

8. Ginsburg LR, Lewis S, Zackheim L, Casebeer A. Revisiting interaction in knowledge translation. Implement Sci. 2007;2:34.

BACKGROUND: Although the study of research utilization is not new, there has been increased emphasis on the topic over the recent past. Science push models that are researcher driven and controlled and demand pull models emphasizing users/decision-maker interests have largely been abandoned in favour of more interactive models that emphasize linkages between researchers and decisionmakers. However, despite these and other theoretical and empirical advances in the area of research utilization, there remains a fundamental gap between the generation of research findings and the application of those findings in practice.
METHODS: Using a case approach, the current study looks at the impact of one particular interaction approach to research translation used by a Canadian funding agency.
RESULTS: Results suggest there may be certain conditions under which different levels of decisionmaker involvement in research will be more or less effective. Four attributes are illuminated by the current case study: stakeholder diversity, addressability/actionability of results, finality of study design and methodology, and politicization of results. Future research could test whether these or other variables

can be used to specify some of the conditions under which different approaches to interaction in knowledge translation are likely to facilitate research utilization.

CONCLUSION: This work suggests that the efficacy of interaction approaches to research translation may be more limited than current theory proposes and underscores the need for more completely specified models of research utilization that can help address the slow pace of change in this area.

9. Jackson-Bowers EM, Kalucy EC, McIntyre EL. Focus on … knowledge brokering. Adelaide (Australia): Primary Health Care Research and Information Service. 2006.

This paper focuses on knowledge brokers who facilitate exchanges between researchers and policymakers. The authors discuss the definition of *knowledge broker,* the evidence supporting the effectiveness of knowledge brokers and the role of knowledge brokers.

10. Keown K, Van Eerd D, Irvin E. Stakeholder engagement opportunities in systematic reviews: knowledge transfer for policy and practice. J Contin Educ Health Prof. 2008 Spring;28(2):67.

Knowledge transfer and exchange is the process of increasing the awareness and use of research evidence in policy or practice decision making by nonresearch audiences or stakeholders. One way to accomplish this end is through ongoing interaction between researchers and interested nonresearch audiences, which provides an opportunity for the two groups to learn more about one another. The purpose of this article is to describe and discuss various stakeholder engagement opportunities that we employ throughout the stages of conducting a systematic review, to increase knowledge utilization within these audiences. Systematic reviews of the literature on a particular topic can provide an unbiased overview of the state of the literature. The engagement opportunities we have identified are topic consultation, feedback meetings during the review, member of review team, and involvement in dissemination. The potential benefits of including stakeholders in the process of a systematic review include increased relevance, clarity, and awareness of systematic review findings. A further benefit is the potential for increased dissemination of the findings. Challenges that researchers face are that stakeholder interactions can be time- and resource-intensive, it can be difficult balancing stakeholder desires with scientific rigor, and stakeholders may have difficulties accepting findings with which they do not agree. Despite these challenges we have included stakeholder involvement as a permanent step in the procedure of conducting a systematic review.

11. Kerner JF. Knowledge translation versus knowledge integration: a "funder's" perspective. J Contin Educ Health Prof. 2006 Winter;26(1):72.

Each year, billions of US tax dollars are spent on basic discovery, intervention development, and efficacy research, while hundreds of billions of US tax dollars are also spent on health service delivery programs. However, little is spent on or known about how best to ensure that the lessons learned from science inform and improve the quality of health services and the availability of evidence-based approaches. To close this discovery-delivery gap, researchers and their funding agencies not only must recognize the gap between basic discovery and intervention development, addressed in part through translational research investments, but they must also work together with practitioners and their funding agencies to recognize the growing gap between innovative interventions developed through research and what is actually delivered to reduce the burden of chronic disease within the United States. From a funding-agency perspective, the complexity of the challenges of translating lessons learned from science to public health, primary care, or disease specialty service settings requires a multifaceted partnership approach to accelerate the translation of research into practice. This essay reviews the background and

challenges of closing the development-to-delivery gap and some exemplar strategies that have been used by funding agencies to address these challenges to date.

12. Lavis JN, Guindon GE, Cameron D, Boupha B, Dejman M, Osei EJ, et al. Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of researchers. CMAJ. 2010 Jun 15;182(9):E350.

BACKGROUND: Many international statements have urged researchers, policy-makers and health care providers to collaborate in efforts to bridge the gaps between research, policy and practice in low- and middle-income countries. We surveyed researchers in 10 countries about their involvement in such efforts.

METHODS: We surveyed 308 researchers who conducted research on one of four clinical areas relevant to the Millennium Development Goals (prevention of malaria, care of women seeking contraception, care of children with diarrhea and care of patients with tuberculosis) in each of 10 low- and middle-income countries (China, Ghana, India, Iran, Kazakhstan, Laos, Mexico, Pakistan, Senegal and Tanzania). We focused on their engagement in three promising bridging activities and examined system-level, organizational and individual correlates of these activities.

RESULTS: Less than half of the researchers surveyed reported that they engaged in one or more of the three promising bridging activities: 27% provided systematic reviews of the research literature to their target audiences, 40% provided access to a searchable database of research products on their topic, and 43% established or maintained long-term partnerships related to their topic with representatives of the target audience. Three factors emerged as statistically significant predictors of respondents' engagement in these activities: the existence of structures and processes to link researchers and their target audiences predicted both the provision of access to a database (odds ratio [OR] 2.62, 95% CI 1.30-5.27) and the establishment or maintenance of partnerships (OR 2.65, 95% CI 1.25-5.64); stability in their contacts predicted the provision of systematic reviews (OR 2.88, 95% CI 1.35-6.13); and having managers and public (government) policy-makers among their target audiences predicted the provision of both systematic reviews (OR 4.57, 95% CI 1.78-11.72) and access to a database (OR 2.55, 95% CI 1.20-5.43).

INTERPRETATION: Our findings suggest potential areas for improvement in light of the bridging strategies targeted at health care providers that have been found to be effective in some contexts and the factors that appear to increase the prospects for using research in policy-making.

13. MEASURE Evaluation. Making research findings actionable: A quick reference to communicating health information for decision-making. Chapell Hill (USA): MEASURE Evaluation; 2009.

This document provides a quick reference for researchers and those working in monitoring and evaluation who are trying to increase the use of best practices in health.

14. Mueller NB, Burke RC, Luke DA, Harris JK. Getting the word out: multiple methods for disseminating evaluation findings. J Public Health Manag Pract. 2008 Mar-Apr;14(2):170-6.

OBJECTIVE: To evaluate the effectiveness of different strategies for disseminating evaluation results to program stakeholders.

METHODS: The results from a process evaluation of eight states' tobacco control programs were disseminated to the state programs that were assigned to one of four dissemination conditions: print reports only, reports and web site, reports and workshop, or all three dissemination modes. Key

Stakeholder Engagement

measures included levels of usefulness of the evaluation results and satisfaction of participation by study participants.

RESULTS: Although exposure to the web site and workshop individually did not provide a statistically higher degree of usefulness, a clear upward trend was observed in usefulness as the number of dissemination modes increased. Participants who engaged in all three dissemination modes found the results more useful (P < .05) for their work and the work of their agency than participants using one or two dissemination modes. Participants who engaged in the three dissemination modes also appeared to be more likely to share the results with their colleagues (P = .06).

CONCLUSIONS: This study shows that disseminating evaluation results through multiple, active modes increased usefulness, satisfaction, and further dissemination of the results. Evaluators should consider implementing more than one mode of dissemination to share findings with stakeholders.

15. Ross S, Lavis J, Rodriguez C, Woodside J, Denis JL. Partnership experiences: involving decision-makers in the research process. J Health Serv Res Policy. 2003 Oct;8 Suppl 2:26.

OBJECTIVES: To describe researchers' experiences with involving health system managers and public policy-makers (i.e. decision-makers) in the research process, and decision-makers' experiences with the research process, including their assessments of the benefits and costs of the involvement, and their recommendations for facilitating it.

METHODS: We conducted semi-structured interviews with principal investigators and research staff for the seven research programmes funded by the Canadian Health Services Research Foundation in the 1999 and 2000 competition years, and with the decision-makers they involved in the research programmes.

RESULTS: We identify three models of decision-maker involvement — formal supporter, responsive audience, and integral partner — each of which yielded important contributions to the research process. Four factors — the stage of the research process, time commitment required, alignment between decision-maker expertise and programme needs, and an existing relationship between the researcher and decision-maker — influenced the role played by decision-makers.

CONCLUSIONS: While on balance a beneficial experience, the further promotion of decision-maker involvement in the research process should involve helping researchers and decision-makers identify strategic opportunities for decision-maker involvement and support the costs associated with the involvement. Consideration should also be given to undertaking and evaluating interactions between researchers and decision-makers outside of the research process.

16. Rycroft-Malone J, Wilkinson JE, Burton CR, Andrews G, Ariss S, Baker R, etal. Implementing health research through academic and clinical partnerships: a realistic evaluation of the Collaborations for Leadership in Applied Health Research and Care (CLAHRC). Implement Sci. 2011;6:74.

ABSTRACT: BACKGROUND: The English National Health Service has made a major investment in nine partnerships between higher education institutions and local health services called Collaborations for Leadership in Applied Health Research and Care (CLAHRC). They have been funded to increase capacity and capability to produce and implement research through sustained interactions between academics and health services. CLAHRCs provide a natural 'test bed' for exploring questions about research implementation within a partnership model of delivery. This protocol describes an externally funded evaluation that focuses on implementation mechanisms and processes within three CLAHRCs. It seeks to uncover what works, for whom, how, and in what circumstances. DESIGN AND METHODS: This study is a longitudinal three-phase, multi-method realistic evaluation, which deliberately aims to explore the boundaries around knowledge use in context. The evaluation funder wishes to see it conducted for the

process of learning, not for judging performance. The study is underpinned by a conceptual framework that combines the Promoting Action on Research Implementation in Health Services and Knowledge to Action frameworks to reflect the complexities of implementation. Three participating CLARHCS will provide in-depth comparative case studies of research implementation using multiple data collection methods including interviews, observation, documents, and publicly available data to test and refine hypotheses over four rounds of data collection. We will test the wider applicability of emerging findings with a wider community using an interpretative forum. DISCUSSION: The idea that collaboration between academics and services might lead to more applicable health research that is actually used in practice is theoretically and intuitively appealing; however the evidence for it is limited. Our evaluation is designed to capture the processes and impacts of collaborative approaches for implementing research, and therefore should contribute to the evidence base about an increasingly popular (e.g., Mode two, integrated knowledge transfer, interactive research), but poorly understood approach to knowledge translation. Additionally we hope to develop approaches for evaluating implementation processes and impacts particularly with respect to integrated stakeholder involvement.

17. Smith N, Mitton C, Peacock S, Cornelissen E, MacLeod S. Identifying research priorities for health care priority setting: a collaborative effort between managers and researchers. BMC Health Serv Res. 2009;9:165.

BACKGROUND: To date there has been relatively little published about how research priorities are set, and even less about methods by which decision-makers can be engaged in defining a relevant and appropriate research agenda. We report on a recent effort in British Columbia to have researchers and decision-makers jointly establish an agenda for future research into questions of resource allocation. METHODS: The researchers enlisted decision-maker partners from each of British Columbia's six health authorities. Three forums were held, at which researchers and decision-makers from various levels in the health authorities considered possible research areas related to three key focus areas: (1) generation and use of decision criteria and measurement of 'benefit' against such criteria; (2) identification of so-called 'disinvestment' opportunities; and (3) evaluation of the effectiveness of priority setting procedures. Detailed notes were taken from each forum and synthesized into a set of qualitative themes.
RESULTS: Forum participants suggested that future research into healthcare priority setting would benefit from studies that were longitudinal, comparative, and/or interdisciplinary. As well, participants identified two broad theme areas in which specific research projects were deemed desirable. First, future research might usefully consider how formal priority setting and resource allocation projects are situated within a larger organizational and political context. Second, additional research efforts should be devoted to better understanding and improving the actual implementation of priority setting frameworks, particularly with respect to issues of change management and the resolution of impediments to action on recommendations for resource allocation.
CONCLUSION: We were able to validate the importance of initial areas posed to the group and observed emergence of additional concerns and directions of critical importance to these decision-makers at this time. It is likely that the results are broadly applicable to other healthcare contexts. The implementation of this research agenda in British Columbia will depend upon the ability of the researchers and decision-makers to develop particular projects that fit within the constraints of existing funding opportunities. The process of engagement itself had benefits in terms of connecting decision-makers with their peers and sparking increased interest in the use and refinement of priority setting frameworks.

Stakeholder Engagement

18. Tetroe JM, Graham ID, Foy R, Robinson N, Eccles MP, Wensing M, et al. Health research funding agencies' support and promotion of knowledge translation: an international study. Milbank Q. 2008 Mar;86(1):125.

CONTEXT: The process of knowledge translation (KT) in health research depends on the activities of a wide range of actors, including health professionals, researchers, the public, policymakers, and research funders. Little is known, however, about health research funding agencies' support and promotion of KT. Our team asked thirty-three agencies from Australia, Canada, France, the Netherlands, Scandinavia, the United Kingdom, and the United States about their role in promoting the results of the research they fund.
METHODS: Semistructured interviews were conducted with a sample of key informants from applied health funding agencies identified by the investigators. The interviews were supplemented with information from the agencies' websites. The final coding was derived from an iterative thematic analysis.
FINDINGS: There was a lack of clarity between agencies as to what is meant by KT and how it is operationalized. Agencies also varied in their degree of engagement in this process. The agencies' abilities to create a pull for research findings; to engage in linkage and exchange between agencies, researchers, and decision makers; and to push results to various audiences differed as well. Finally, the evaluation of the effectiveness of KT strategies remains a methodological challenge.
CONCLUSIONS: Funding agencies need to think about both their conceptual framework and their operational definition of KT, so that it is clear what is and what is not considered to be KT, and adjust their funding opportunities and activities accordingly. While we have cataloged the range of knowledge translation activities conducted across these agencies, little is known about their effectiveness and so a greater emphasis on evaluation is needed. It would appear that "best practice" for funding agencies is an elusive concept depending on the particular agency's size, context, mandate, financial considerations, and governance structure.

19. Wandersman A, Duffy J, Flaspohler P, Noonan R, Lubell K, Stillman L, et al. Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. Am J Community Psychol. 2008 Jun;41(3-4):171.

If we keep on doing what we have been doing, we are going to keep on getting what we have been getting. Concerns about the gap between science and practice are longstanding. There is a need for new approaches to supplement the existing approaches of research to practice models and the evolving community-centered models for bridging this gap. In this article, we present the Interactive Systems Framework for Dissemination and Implementation (ISF) that uses aspects of research to practice models and of community-centered models. The framework presents three systems: the Prevention Synthesis and Translation System (which distills information about innovations and translates it into user-friendly formats); the Prevention Support System (which provides training, technical assistance or other support to users in the field); and the Prevention Delivery System (which implements innovations in the world of practice). The framework is intended to be used by different types of stakeholders (e.g., funders, practitioners, researchers) who can use it to see prevention not only through the lens of their own needs and perspectives, but also as a way to better understand the needs of other stakeholders and systems. It provides a heuristic for understanding the needs, barriers, and resources of the different systems, as well as a structure for summarizing existing research and for illuminating priority areas for new research and action.

See Also

67

Stakeholder Engagement

In Champions:

Hernandez E. From roadblock to champion: PHE advocacy and local government executives. Washington, D.C.: Population Reference Bureau; 2006.

In Dissemination and Implementation:

Delany-Moretlwe S, Stadler J, Mayaud P. Rees H. Investing in the future: lessons learnt from communicating the results of HSV/HIV intervention trials in South Africa. Health Res Policy Syst. 2011; 9 Suppl 1:S8.

In Translating Research to Policy:

Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 1 — synthesis of findings from a multi-method study of organizations that support the use of research evidence. Implement Sci. 2008;3:53.

Lavis JN, Paulsen EJ, Oxman AD, Moynihan R. Evidence-informed health policy 2 — survey of organizations that support the use of research evidence. Implement Sci. 2008;3:54.

Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 3 — interviews with the directors of organizations that support the use of research evidence. Implement Sci. 2008;3:55.

Lavis JN, Moynihan R, Oxman AD, Paulsen EJ. Evidence-informed health policy 4 — case descriptions of organizations that support the use of research evidence. Implement Sci. 2008;3:56.

Lavis JN. How can we support the use of systematic reviews in policymaking? PLoS Med. 2009 Nov;6(11):e1000141.

McBride T, Coburn A, Mackinney C, Mueller K, Slifkin R, Wakefield M. Bridging health research and policy: effective dissemination strategies. J Public Health Manag Pract. 2008 Mar-Apr;14(2):150.

van Kammen J, de Savigny D, Sewankambo N. Using knowledge brokering to promote evidence-based policy-making: The need for support structures. Bull World Health Organ. 2006 Aug;84(8):608.

Technical Assistance for Research Utilization

Technical assistance is a proven strategy for the successful implementation of research-based innovations. These resources highlight the importance of using evidence to establish strong systems for technical assistance to support community-based organizations on the ground.

1. Hunter SB, Chinman M, Ebener P, Imm P, Wandersman A, Ryan GW. Technical assistance as a prevention capacity-building tool: A demonstration using the getting to outcomes framework. Health Educ Behav. 2009 October 1;36(5):810.

Demands on community-based prevention programs for performance accountability and positive outcomes are ever increasing in the face of constrained resources. Relatively little is known about how technical assistance (TA) should be structured to benefit community-based organizations and to lead to better outcomes. In this study, data from multiple sources were used to describe an effective TA model designed to improve the capacity of community-based organizations to plan, implement, and evaluate prevention programming. This article is the first of its kind to provide detailed analyses of the TA delivered to community-based organizations to build substance abuse prevention capacity. The results of this study describe the range of TA services provided and the importance of two-way communication between the TA provider and recipient. TA recipients reported high satisfaction and an improved understanding of targeted TA activities. However, achieving these benefits requires significant program staff time, and not all skills were successfully transferred. Results from this study suggest how TA may be structured to be effective in supporting quality prevention programming in community settings.

2. Mitchell RE, Florin P, Stevenson JF. Supporting Community-based prevention and health promotion initiatives: developing effective technical assistance systems. Health Education and Behavior. 2002 October 1;29(5):620.

As research evidence for the effectiveness of community-based prevention has mounted, so has recognition of the gap between research and community practice. As a result, state and local governments are taking a more active role in building the capacity of community-based organizations to deliver evidence-based prevention interventions. Innovations are taking place in the establishment of technical assistance or support systems to influence the prevention and health education activities of community-based organizations. Several challenges for technical assistance systems are described: (1) setting prevention priorities and allocating limited technical assistance resources, (2) balancing capacity-building versus program dissemination efforts, (3) collaborating across categorical problem areas, (4) designing technical assistance initiatives with enough "dose strength" to have an effect, (5) balancing fidelity versus adaptation in program implementation, (6) building organizational cultures that support innovation, and (7) building local evaluative capacity versus generalizable evaluation findings.

See Also

In Dissemination and Implementation:

Rolleri LA, Wilson MM, Paluzzi PA, Sedivy VJ. Building capacity of state adolescent pregnancy prevention coalitions to implement science-based approaches. Am J Community Psychol. 2008 Jun;41(3-4):225.

Theory and Key Concepts

The literature collected in this section explores the key theories and concepts that have contributed to the science of research utilization, which is often referred to in these documents as knowledge translation or implementation research. Among the foundational ideas discussed are "diffusion-of-innovation theory," "decision theory," "knowledge-translation theory," "knowledge mapping," and "external validity and generalizability."

1. Armstrong R, Waters E, Roberts H, Oliver S, Popay J. The role and theoretical evolution of knowledge translation and exchange in public health. J Public Health (Oxf). 2006 Dec;28(4):384.

BACKGROUND: There is an increased emphasis in public health research on effective models and strategies to support knowledge translation (KT), the exchange, synthesis and ethically sound application of research findings within a complex set of interactions among researchers and knowledge users. In other words, KT can be seen as an acceleration of the knowledge cycle-an acceleration of the natural transformation of knowledge into use (Canadian Institutes of Health Services Research. Knowledge Translation Strategy, 2004). The most recent conceptualizations consider the complexities of public health decision-making. The role of practitioners and communities is increasingly considered. METHODS: We identify, describe and discuss the theoretical underpinnings of KT and recommend a way forward to build the evidence for more effective practice.
RESULTS: Theoretical perspectives increasingly influence research on KT in public health. A range of innovative work is being conducted to explore methods for KT using practical tools, often with the support of government.
CONCLUSIONS: KT describes a crucial and to date under-developed element of the research process. There is an important gap in theoretically informed empirical studies of effectiveness of proposed approaches in public health, health promotion and preventive medicine, and thus much of the debate remains abstract. There is clearly an urgent policy need to establish the effectiveness of KT models in a range of contexts. This must include both the consideration of development and the utilization of knowledge.

2. Barker K. Diffusion of innovations: a world tour. J Health Commun. 2004;9 Suppl 1:131.

This contribution to the 40th anniversary celebration of the diffusion-of-innovations theory discusses three health communication projects which applied the tenets of Diffusion of innovation theory with differing results: Using voodoo practitioners to pave the way for HIV/AIDS education in Haiti. A food-based approach to improving vitamin A nutrition in Nepal. Diffusion at the horizon of life: The difficulties of communicating reproductive health to youth in Mali. The article illustrates a spectrum of circumstances in which diffusion theory has been applied, in order to show the application of the theory with different populations or target groups, in different sectors, and in different regions of the world.

3. Blanchard JF, Aral SO. Program science: an initiative to improve the planning, implementation and evaluation of HIV/sexually transmitted infection prevention programmes. Sex Transm Infect. 2011 Feb;87(1):2.

The authors of this editorial assert that HIV and STI prevention programs will have a greater impact if the program-science gap is closed. They propose a new paradigm, program science, in place of the

standard model of knowledge translation, which will address the complexity of program design, implementation, and evaluation by more effectively integrating program implementers and scientists.

4. Brownson RC, Fielding JE, Maylahn CM. Evidence-based public health: a fundamental concept for public health practice. Annu Rev Public Health. 2009 Apr 21;30:175-201.

Despite the many accomplishments of public health, a greater attention to evidence-based approaches is warranted. This article reviews the concepts of evidence-based public health (EBPH), on which formal discourse originated about a decade ago. Key components of EBPH include making decisions on the basis of the best available scientific evidence, using data and information systems systematically, applying program-planning frameworks, engaging the community in decision making, conducting sound evaluation, and disseminating what is learned. Three types of evidence have been presented on the causes of diseases and the magnitude of risk factors, the relative impact of specific interventions, and how and under which contextual conditions interventions were implemented. Analytic tools (e.g., systematic reviews, economic evaluation) can be useful in accelerating the uptake of EBPH. Challenges and opportunities (e.g., political issues, training needs) for disseminating EBPH are reviewed. The concepts of EBPH outlined in this article hold promise to better bridge evidence and practice.

5. Bucknall T. A gaze through the lens of decision theory toward knowledge translation science. Nurs Res. 2007 Jul-Aug;56 Suppl 4:S60.

Research findings become evidence when an individual decides that the information is relevant and useful to a particular circumstance. Prior to that point, they are unrelated facts. For research translation to occur, research evidence needs filtering, interpretation, and application by individuals to the specific situation. For this reason, decision science is complementary to knowledge translation science. Both aim to support the individual in deciding the most appropriate action in a dynamic environment where there are masses of uncensored and nonprioritized information readily available. Decision science employs research theories to study the cognitive processes underpinning the filtering and integration of current scientific information into changing contexts. Two meta-theories, coherence and correspondence theories, have been used to provide alternative views and prompt significant debate to advance the science. The aim of this article is to stimulate debate about the relationship between decision theory and knowledge translation. Discussed is the critical role of cognition in clinical decision making, with a focus on knowledge translation. A critical commentary of the knowledge utilization modeling papers is presented from a decision science perspective. The article concludes with a discussion on the implications for knowledge translation when viewed through the lens of decision science.

6. Colditz GA, Emmons KM, Vishwanath K, Kerner JF. Translating science to practice: community and academic perspectives. J Public Health Manag Pract. 2008 Mar-Apr;14(2):144.

While evidence reviews inform practice and policy guidelines, the gap between guidelines and implementation may be growing. We place dissemination and implementation research in the context of other changes needed to drive research into practice. Multilevel approaches to research and dissemination are needed as are metrics to inform academic appointment and promotions. Moving beyond funding that stops and starts with grant cycles is a key issue from the community perspective to ensure continuity and improved health. Transdisciplinary approaches that cut across disciplinary boundaries to develop shared conceptual frameworks may help speed the integration of research with practice. Identifying and implementing structural changes to develop and support transdisciplinary teams may further facilitate this process. Changes in the approaches used to structure and implement

scientific advances into practice will help achieve the enormous potential to advance the health of the population.

7. Cornelissen E, Mitton C, Sheps S. Knowledge translation in the discourse of professional practice. Int J Evid Based Health. 2011;9(2):184.
Clients and practitioners desire up-to-date, safe and effective healthcare. Knowledge translation, a term used to describe the interchange of knowledge between its producers and users, aims to support this desire. Knowledge, and by extension knowledge translation, is subject to varying perspectives ranging from the objective truth-tested knowledge of empiricism, associated by some with academia, to knowledge in the practitioner realm. This latter knowledge is often based on multiple users' experiences and contexts, thus constructed to meet their needs. The goal of this paper is to compare and contrast knowledge and knowledge translation from empirical and constructivist perspectives. It then relates knowledge translation to professional practice discourse and concludes with thoughts on constructivist knowledge translation strategies, including practitioner-driven strategies derived from practice. For example, knowledge translation can be woven into processes to train/integrate new graduates into the healthcare system, it can be captured in practitioner-driven provision of continuing education, and/or it can be facilitated through practitioner collaboration in research via action research approaches. Regardless of the perspective taken, delivery of up-to-date, safe and effective care requires useful, relevant knowledge available when necessary and applicable to real-life issues as perceived, critically, by the knowledge end-user.

8. Dearing JW. Improving the state of health programming by using diffusion theory. J Health Commun. 2004;9 Suppl 1:21.

Year by year, the gaps between what is known about behavior change and what is actually practiced in social programs grow larger, especially for community-based programs intended to help minority populations, the poor, and those living in inner-city and rural areas. Internationally, such gaps between the state of knowledge and the state of practice lead to disparities in health, education, and development among societal groups, demographic sub-populations, communities, and countries. Data about disparities are used as evidence of inequality. Here, I discuss uses of certain diffusion of innovation theory-based concepts to systematically redress problems of inequality and disparity by reducing the differences between evidence and practice in social programs that are implemented by intermediaries (practitioners) and communicated by them to needy populations. The emphasis here is on the integrated application of knowledge about innovation attributes, opinion leadership, and clustering from diffusion theory to achieve the objective of more extensive and more rapid diffusion of especially effective programs. A set of implementation steps are offered for researchers, funders of international health programs, and the intermediaries who implement health programs.

9. Dearing JW. Evolution of diffusion and dissemination theory. J Public Health Manag Pract. 2008 Mar-Apr;14(2):99.

The article provides a review and considers how the diffusion of innovations Research paradigm has changed, and offers suggestions for the further development of this theory of social change. Main emphases of diffusion Research studies are compared over time, with special attention to applications of diffusion theory-based concepts as types of dissemination science. A considerable degree of paradigmatic evolution is observed. The classical diffusion model focused on adopter innovativeness, individuals as the locus of decision, communication channels, and adoption as the primary outcome measures in post hoc observational study designs. The diffusion systems in question were centralized,

Theory and Key Concepts

with fidelity of implementation often assumed. Current dissemination Research and practice is better characterized by tests of interventions that operationalize one or more diffusion theory-based concepts and concepts from other change approaches, involve complex organizations as the units of adoption, and focus on implementation issues. Foment characterizes dissemination and implementation Research, Reflecting both its interdisciplinary Roots and the imperative of spreading evidence-based innovations as a basis for a new paradigm of translational studies of dissemination science.

10. Dogherty EJ, Harrison MB, Graham ID. Facilitation as a role and process in achieving evidence-based practice in nursing: a focused review of concept and meaning. Worldviews Evid Based Nurs. 2010 Jun 1;7(2):76.

BACKGROUND: Facilitation is proposed as an important strategy to assist practitioners to implement evidence into practice. However, from a front-line nursing perspective, what is actually involved in facilitation, particularly in regards to research utilization, is poorly understood. AIM: To examine the current state of knowledge surrounding the concept of facilitation as a role and process in the implementation of research findings within the nursing context. Building on a previous concept analysis, we examined how facilitation has evolved over the last decade, particularly focusing on the practical elements (e.g., what it entails to operationalize and implement facilitation in nursing). METHODS: A systematic search of electronic databases identified theory and research-based nursing papers explicitly focused on facilitation in research utilization. Through a content analysis, we examined how the concept is being used, described, and applied within nursing.
RESULTS: Facilitation continues to be described as supporting and enabling practitioners to improve practice through evidence implementation. Certain aspects of the role and the strategies being employed to promote change are more evident. It was possible to formulate these into a taxonomy. Key findings include: * facilitation is now being viewed as an individual role as well as a process involving individuals and groups; * project management/leadership are important components; * no matter which approach is selected, tailoring facilitation to the local context is critical; * there is a growing emphasis on evaluation, particularly linking outcomes to nursing actions.
CONCLUSIONS: Further understanding of what facilitators are actually doing to enable changes in nursing practice based on research findings will provide the groundwork for the design and evaluation of practical strategies for evidence-based practice in nursing. Research is needed to clarify how facilitation may be used to implement change in nursing practice along with evaluation of the effectiveness of various approaches.

11. Doran DM, Haynes RB, Kushniruk A, Straus S, Grimshaw J, Hall LM, et al. Supporting evidence-based practice for nurses through information technologies. Worldviews Evid Based Nurs. 2009;7(1):4.

PURPOSE: To evaluate the usability of mobile information terminals, such as personal digital assistants (PDAs) or Tablet personal computers, to improve access to information resources for nurses and to explore the relationship between PDA or Tablet-supported information resources and outcomes.
BACKGROUND: The authors evaluated an initiative of the Nursing Secretariat, Ontario Ministry of Health and Long-Term Care, which provided nurses with PDAs and Tablet PCs, to enable Internet access to information resources. Nurses had access to drug and medical reference information, best practice guidelines (BPGs), and to abstracts of recent research studies.
METHOD: The authors took place over a 12-month period. Diffusion of Innovation theory and the Promoting Action on Research Implementation in Health Services (PARIHS) model guided the selection of variables for study. A longitudinal design involving questionnaires was used to evaluate the impact of the mobile technologies on barriers to research utilization, perceived quality of care, and on nurses' job

satisfaction. The setting was 29 acute care, long-term care, home care, and correctional organizations in Ontario, Canada. The sample consisted of 488 frontline-nurses.

RESULTS: Nurses most frequently consulted drug and medical reference information, Google, and Nursing PLUS. Overall, nurses were most satisfied with the Registered Nurses Association of Ontario (RNAO) BPGs and rated the RNAO BPGs as the easiest resource to use. Among the PDA and Tablet users, there was a significant improvement in research awareness/values, and in communication of research. There was also, for the PDA users only, a significant improvement over time in perceived quality of care and job satisfaction, but primarily in long-term care settings.

IMPLICATIONS: It is feasible to provide nurses with access to evidence-based practice resources via mobile information technologies to reduce the barriers to research utilization.

12. Dusenbury L, Hansen WB. Pursuing the course from research to practice. Prev Sci. 2004 Mar;5(1):55.

Diffusion-of-innovation theory describes the typical course by which innovations become standard practice. Research-based prevention programs are one such innovation. These programs have passed through the early phases of diffusion-innovation development and adoption by progressive schools that seek out innovations. With one quarter of the nation's schools having adopted a research-based program, the field is currently in the early majority phase of diffusion. If the patterns of normal diffusion hold true, this phase is likely to be characterized by emerging tensions between program developers and adopting schools. There are several concerns that require attention from researchers and practitioners. Practitioners need to develop their capacity to implement programs with fidelity and to adapt programs appropriately to meet their circumstance. Program developers need to simplify and redesign programs to make them appealing and useful to teachers. Operational capacity to fulfill orders and provide training needs to be developed.

13. Ebener S, Khan A, Shademani R, Compernolle L, Beltran M, Lansang M, et al. Knowledge mapping as a technique to support knowledge translation. Bull World Health Organ. 2006 Aug;84(8):636.

This paper explores the possibility of integrating knowledge mapping into a conceptual framework that could serve as a tool for understanding the many complex processes, resources and people involved in a health system, and for identifying potential gaps within knowledge translation processes in order to address them. After defining knowledge mapping, this paper presents various examples of the application of this process in health, before looking at the steps that need to be taken to identify potential gaps, to determine to what extent these gaps affect the knowledge translation process and to establish their cause. This is followed by proposals for interventions aimed at strengthening the overall process. Finally, potential limitations on the application of this framework at the country level are addressed.

14. Estabrooks CA, Thompson DS, Lovely JJ, Hofmeyer A. A guide to knowledge translation theory. J Contin Educ Health Prof. 2006 Winter;26(1):25.

Despite calls over several decades for theory development, there remains no overarching knowledge-translation theory. However, a range of models and theoretical perspectives focused on narrower and related areas have been available for some time. We provide an overview of selected perspectives that we believe are particularly useful for developing testable and useful knowledge-translation interventions. In addition, we discuss adjuvant theories necessary to complement these perspectives. We draw from organizational innovation, health, and social sciences literature to illustrate the

similarities and differences of various theoretical perspectives related to the knowledge-translation field. A variety of theoretical perspectives useful to knowledge translation exist. They are often spread across disciplinary boundaries, making them difficult to locate and use. Poor definitional clarity, discipline-specific terminology, and implicit assumptions often hinder the use of complementary perspectives. Health care environments are complex, and assessing the setting prior to selecting a theory should be the first step in knowledge-translation initiatives. Finding a fit between setting (context) and theory is important for knowledge-translation initiatives to succeed. Because one theory will not fit all contexts, it is helpful to understand and use several different theories. Although there are often barriers associated with combining theories from different disciplines, such obstacles can be overcome, and to do so will increase the likelihood that knowledge-translation initiatives will succeed.

15. Estabrooks CA, Derksen L, Winther C, Lavis JN, Scott SD, Wallin L, et al. The intellectual structure and substance of the knowledge utilization field: A longitudinal author co-citation analysis, 1945 to 2004. Implement Sci. 2008;3:49.

BACKGROUND: It has been argued that science and society are in the midst of a far-reaching renegotiation of the social contract between science and society, with society becoming a far more active partner in the creation of knowledge. On the one hand, new forms of knowledge production are emerging, and on the other, both science and society are experiencing a rapid acceleration in new forms of knowledge utilization. Concomitantly since the Second World War, the science underpinning the knowledge utilization field has had exponential growth. Few in-depth examinations of this field exist, and no comprehensive analyses have used bibliometric methods.
METHODS: Using bibliometric analysis, specifically first author co-citation analysis, our group undertook a domain analysis of the knowledge utilization field, tracing its historical development between 1945 and 2004. Our purposes were to map the historical development of knowledge utilization as a field, and to identify the changing intellectual structure of its scientific domains. We analyzed more than 5,000 articles using citation data drawn from the Web of Science. Search terms were combinations of knowledge, research, evidence, guidelines, ideas, science, innovation, technology, information theory and use, utilization, and uptake.
RESULTS: We provide an overview of the intellectual structure and how it changed over six decades. The field does not become large enough to represent with a co-citation map until the mid-1960s. Our findings demonstrate vigorous growth from the mid-1960s through 2004, as well as the emergence of specialized domains reflecting distinct collectives of intellectual activity and thought. Until the mid-1980s, the major domains were focused on innovation diffusion, technology transfer, and knowledge utilization. Beginning slowly in the mid-1980s and then growing rapidly, a fourth scientific domain, evidence-based medicine, emerged. The field is dominated in all decades by one individual, Everett Rogers, and by one paradigm, innovation diffusion.
CONCLUSION: We conclude that the received view that social science disciplines are in a state where no accepted set of principles or theories guide research (i.e., that they are pre-paradigmatic) could not be supported for this field. Second, we document the emergence of a new domain within the knowledge utilization field, evidence-based medicine. Third, we conclude that Everett Rogers was the dominant figure in the field and, until the emergence of evidence-based medicine, his representation of the general diffusion model was the dominant paradigm in the field.

16. Ferguson L. External validity, generalizability, and knowledge utilization. J Nurs Scholarsh. 2004;36(1):16.

PURPOSE: To examine the concepts of external validity and generalizability, and explore strategies to strengthen generalizability of research findings, because of increasing demands for knowledge utilization in an evidence-based practice environment.

FRAMEWORK: The concepts of external validity and generalizability are examined, considering theoretical aspects of external validity and conflicting demands for internal validity in research designs. Methodological approaches for controlling threats to external validity and strategies to enhance external validity and generalizability of findings are discussed.

CONCLUSIONS: Generalizability of findings is not assured even if internal validity of a research study is addressed effectively through design. Strict controls to ensure internal validity can compromise generalizability. Researchers can and should use a variety of strategies to address issues of external validity and enhance generalizability of findings. Enhanced external validity and assessment of generalizability of findings can facilitate more appropriate use of research findings.

17. Graham ID, Logan J, Harrison MB, Straus SE, Tetroe J, Caswell W, et al. Lost in knowledge translation: time for a map? J Contin Educ Health Prof. 2006 Winter;26(1):13.

There is confusion and misunderstanding about the concepts of knowledge translation, knowledge transfer, knowledge exchange, research utilization, implementation, diffusion, and dissemination. We review the terms and definitions used to describe the concept of moving knowledge into action. We also offer a conceptual framework for thinking about the process and integrate the roles of knowledge creation and knowledge application. The implications of knowledge translation for continuing education in the health professions include the need to base continuing education on the best available knowledge, the use of educational and other transfer strategies that are known to be effective, and the value of learning about planned-action theories to be better able to understand and influence change in practice settings.

18. Graham ID, Tetroe JM. Getting evidence into policy and practice: perspective of a health research funder. J Can Acad Child Adolesc Psychiatry. 2009 Feb;18(1):46.

From [the authors'] perspective, knowledge translation (KT) is about making users aware of knowledge or innovations and facilitating their use of it to improve health and health care systems. It is about closing the gap between what we know and what we do (reducing the know-do gap) and about moving knowledge into action. There are other terms in use to describe this concept, many of which are not operationally defined but, at the CIHR, we have developed the following working definition: "Knowledge translation is a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system. This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge user." An examination of the meaning of the specific concepts in this definition allows a more in-depth understanding of what we mean by KT.

19. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. Milbank Q. 2004;82(4):581.

This article summarizes an extensive literature review addressing the question, How can we spread and sustain innovations in health service delivery and organization? It considers both content (defining and measuring the diffusion of innovation in organizations) and process (reviewing the literature in a

systematic and reproducible way). This article discusses (1) a parsimonious and evidence-based model for considering the diffusion of innovations in health service organizations, (2) clear knowledge gaps where further research should be focused, and (3) a robust and transferable methodology for systematically reviewing health service policy and management. Both the model and the method should be tested more widely in a range of contexts.

20. Kincaid DL. Social networks, ideation, and contraceptive behavior in Bangladesh: a longitudinal analysis. Soc Sci Med. 2000 Jan;50(2):215.

Longitudinal survey data from a panel of married women in Bangladesh is used to estimate the impact of a social network approach to family planning field worker communication and to test a theoretical model of behavior change that explains why women adopt modern contraceptives. Government field workers were trained to organize group discussions with women in the homes of opinion leaders located at central points in each village's social network. A set of intervening variables, referred to collectively as 'ideation', are derived from diffusion of innovation and social network theory to explain how the social network approach affects contraceptive behavior. The rate of increase in modern contraceptive use was found to be five times greater among women in the social network approach than among women who were visited by field workers at home. The impact of the social network approach on modern contraceptive use was almost double that of conventional field worker visits after controlling for the effects of prior contraceptive use and intention, prior home visits, and selected socio-demographic characteristics. Both approaches had the same degree of impact on ideation. The results confirm the influence of ideation on fertility change and suggest that family planning programs would benefit from training field workers to use a social network approach.

21. Lomas J, Culyer T, McCutcheon C, McAuley L, Law S. Conceptualizing and combining evidence for health system guidance: final report. Ottawa: Canadian Health Services Research Foundation; 2005.

This report reviews (1) the types of evidence used to guide health systems, (2) the processes for using evidence in the health sector, and (3) the treatment of evidence, as a concept, by different stakeholder groups.

22. Lyons RF, editor. Using evidence: advances and debates in bridging health research and action. Compilation from a knowledge translation symposium; 2008 May 28; University of Oxford (UK). Halifax, Canada: Atlantic Health Promotion Research Centre; 2010.

This monograph includes papers and commentaries from a symposium on knowledge translation. The papers examine different ways of thinking about and doing knowledge translation. The monograph includes case examples from health services and policy, clinical practice, and public health.

23. McKay K, Zahnd A, Sanders C, Nepali G. Responses to innovation in an insecure environment in rural Nepal. Mountain Research and Development. 2007;27(4):302.

This paper documents the varying responses of villagers in rural Nepal. It draws conclusions about the diffusion of innovations and provides recommendations.

24. Moseley SF. Everett Rogers' diffusion of innovations theory: its utility and value in public health. J Health Commun. 2004;9 Suppl 1:149.

One of the reasons that the diffusion of innovations is one of the most cited books in the social sciences is that Rogers has been constantly reworking and expanding the framework, moving his thinking in different directions. One direction has been in the application of the framework. He has taken diffusion of innovations concepts and profitably put them to work in international development, with fertility and family planning as one of the more prominent areas where he and his thinking have made important contributions. More recently he has been working in the applied fields of nutrition education and substance abuse. But the diffusion of innovation framework has also evolved and expanded theoretically, from early models of communication process that tended to be linear and ''individual,'' to more interactive models of communication in which participants create and share information to arrive at mutual understandings of new values, new concepts, and new practices.

25. Nuyens Y, Lansang MA. Knowledge translation: linking the past to the future. Bull World Health Organ. 2006 Aug;84(8):590.

This editorial looks at several knowledge translation initiatives and draws the following lessons: (1) The systems context is paramount; (2) Continuity is important; (3) Complexity should be considered; (4) All stakeholders should be involved; and (5) Capacities are the weakest link.

26. Phillips C, Goodman K. The missed lessons of Sir Austin Bradford Hill. Epidemiologic Perspectives & Innovations. 2004;1(1):3.

Austin Bradford Hill's landmark 1965 paper contains several important lessons for the current conduct of epidemiology. Unfortunately, it is almost exclusively cited as the source of the "Bradford-Hill criteria" for inferring causation when association is observed, despite Hill's explicit statement that cause-effect decisions cannot be based on a set of rules. Overlooked are Hill's important lessons about how to make decisions based on epidemiologic evidence. He advised epidemiologists to avoid over-emphasizing statistical significance testing, given the observation that systematic error is often greater than random error. His compelling and intuitive examples point out the need to consider costs and benefits when making decisions about health-promoting interventions. These lessons, which offer ways to dramatically increase the contribution of health science to decision making, are as needed today as they were when Hill presented them.

27. Schackman BR. Implementation science for the prevention and treatment of HIV/AIDS. J Acquir Immune Defic Syndr. 2010 Dec 1;55 Suppl 1:S27.

Implementation science is the scientific study of methods to promote the integration of research findings and evidence-based interventions into health care policy and practice and hence to improve the quality and effectiveness of health services and care. Implementation science is distinguished from monitoring and evaluation by its emphasis on the use of the scientific method. The origins of implementation science include operations research, industrial engineering, and management science. Today, implementation science encompasses a broader range of methods and skills including decision science and operations research, health systems research, health outcomes research, health and behavioral economics, epidemiology, statistics, organization and management science, finance, policy analysis, anthropology, sociology, and ethics. Examples of implementation science research are presented for HIV prevention (prevention of mother-to-child transmission of HIV, male circumcision) and HIV and drug use (syringe distribution, treating drug users with antiretroviral therapy and opioid substitution therapy). For implementation science to become an established field in HIV/AIDS research,

Theory and Key Concepts

there needs to be better coordination between funders of research and funders of program delivery and greater consensus on scientific research approaches and standards of evidence.

28. Schryer-Roy A. Knowledge translation: basic theories, approaches and applications. Ottawa: International Development Research Centre; 2005.

This document reviews recent strategies designed to increase the links between research and decision-making processes, and examines theories and approaches to knowledge translation, especially in the health sector.

29. Shafer M. Defining utilization. 15th AMS Conference on Applied Climatology. American Meteorological Society, 2005 Jun 19-23; Savannah, GA.

This document discusses many concepts relevant to the utilization of research findings. The topics include what is meant by *utilization* and what successful utilization looks like. The author provides steps that a researcher can follow to increase the utilization of research findings.

30. Smith W. Ev Rogers: helping to build a modern synthesis of social change. J Health Commun. 2004;9 Suppl 1:139.

There have been some big successes in the past 40 years. Tobacco use is at an all time low. Heart disease is down. Family planning in developing countries, infant mortality, even AIDS prevention in selected countries have shown tremendous success in the diffusion of new ideas and behaviors. There have also been dramatic failures. AIDS in most of Africa and obesity and exercise in the United States are just two of the most dramatic examples of our failures in social changes. We have learned a lot about social change in the past 40 years. We know that structural changes like raising the cost of cigarettes is as effective in some settings as educating smokers and using new products like the "patch." We've seen how a dedicated, creative and embattled community of people—gay men in San Francisco—can organize streetwise diffusion of innovation to bring the annual number of new HIV infections from a high of 8000 in 1987 to a low of 200 a year in 1995. We have seen new technologies used to organize anti-war protests and seat belt laws combined with effective communication increase the number of people using seat belts effectively. We have seen simple messages about Sudden Infant Death Syndrome change the way that most parents lay their infants down for sleep. We have also seen new models of social change ebb and flow through the halls of funding organizations. Health promotion, media advocacy, social marketing, risk communication, health communication, health education, environmental "heating up," and, yes, diffusion of innovation. Today diffusion planners have a plethora of theories — reasoned action, health belief model, social norm, social capital, stages of change — to pick from as organizing theories. One of the most robust and powerful models continues to be the Diffusion of Innovation Model promoted by Ev Rogers for over 40 years. Here is just one example of how Ev Rogers work has affected our efforts here at AED. Since 1998, LINKAGES, a breastfeeding, complementary feeding, and maternal nutrition program, has been working in close collaboration with the Ministry of Health (MOH) and USAID/Ghana to design and implement a behavior change communication (BCC) program to improve infant feeding practices. The program is multi-dimensional and uses a combination of strategies—both to bring about quick changes in community norms and practices and to sustain improved nutrition over the long term by working on policy changes, information dissemination, and curricula reform in medical and nursing schools. (excerpt)

31. Squires JE, Estabrooks CA, Gustavsson P, Wallin L. Individual determinants of research utilization by nurses: a systematic review update. Implement Sci. 2011;6:1.

BACKGROUND: Interventions that have a better than random chance of increasing nurses' use of research are important to the delivery of quality patient care. However, few reports exist of successful research utilization in nursing interventions. Systematic identification and evaluation of individual characteristics associated with and predicting research utilization may inform the development of research utilization interventions.

OBJECTIVE: To update the evidence published in a previous systematic review on individual characteristics influencing research utilization by nurses.

METHODS: As part of a larger systematic review on research utilization instruments, 12 online bibliographic databases were searched. Hand searching of specialized journals and an ancestry search was also conducted. Randomized controlled trials, clinical trials, and observational study designs examining the association between individual characteristics and nurses' use of research were eligible for inclusion. Studies were limited to those published in the English, Danish, Swedish, and Norwegian languages. A vote counting approach to data synthesis was taken.

RESULTS: A total of 42,770 titles were identified, of which 501 were retrieved. Of these 501 articles, 45 satisfied our inclusion criteria. Articles assessed research utilization in general (n = 39) or kinds of research utilization (n = 6) using self-report survey measures. Individual nurse characteristics were classified according to six categories: beliefs and attitudes, involvement in research activities, information seeking, education, professional characteristics, and socio-demographic/socio-economic characteristics. A seventh category, critical thinking, emerged in studies examining kinds of research utilization. Positive relationships, at statistically significant levels, for general research utilization were found in four categories: beliefs and attitudes, information seeking, education, and professional characteristics. The only characteristic assessed in a sufficient number of studies and with consistent findings for the kinds of research utilization was attitude towards research; this characteristic had a positive association with instrumental and overall research utilization.

CONCLUSIONS: This review reinforced conclusions in the previous review with respect to positive relationships between general research utilization and: beliefs and attitudes, and current role. Furthermore, attending conferences/in-services, having a graduate degree in nursing, working in a specialty area, and job satisfaction were also identified as individual characteristics important to research utilization. While these findings hold promise as potential targets of future research utilization interventions, there were methodological problems inherent in many of the studies that necessitate their findings be replicated in further research using more robust study designs and multivariate assessment methods.

32. Straus SE, Graham ID, Taylor M, Lockyer J. Development of a mentorship strategy: a knowledge translation case study. J Contin Educ Health Prof. 2008 Summer;28(3):117.

INTRODUCTION: There are many theories and frameworks for achieving knowledge translation, and the assortment can be confusing to those responsible for planning, evaluation, or policymaking in knowledge translation. A conceptual framework developed by Graham and colleagues provides an approach that builds on the commonalities found in an assessment of planned-action theories. This article describes the application of this knowledge to action framework to a mentorship initiative in academic medicine. Mentorship influences career success but is threatened in academia by increased clinical, research, and administrative demands.

METHODS: A case study review was undertaken of the role of mentors, the experiences of mentors and mentees, and mentorship initiatives in developing and retaining clinician scientists at two universities in

Alberta, Canada. This project involved relevant stakeholders including researchers, university administrators, and research funders.

RESULTS: The knowledge to action framework was used to develop a strategy for mentorship for clinician researchers. The framework highlights the need to identify and engage stakeholders in the process of knowledge implementation. A series of initiatives were selected and tailored to barriers and facilitators to implementation of the mentorship initiative; strategies for evaluating the knowledge use and its impact on outcomes were developed.

DISCUSSION: The knowledge to action framework can be used to develop a mentorship initiative for clinician researchers. Future work to evaluate the impact of this intervention on recruitment and retention is planned.

See Also

In **Dissemination and Implementation:**

Berwick DM. Disseminating innovations in health care. JAMA. 2003 Apr 16;289(15):1969.

Rabin BA, Brownson RC, Haire-Joshu D, Kreuter MW, Weaver NL. A glossary for dissemination and implementation research in health. J Public Health Manag Pract. 2008 Mar-Apr;14(2):117.

In **Educational Strategies to Increase Research Utilization:**

Matthew-Maich N, Ploeg J, Jack S, Dobbins M. Transformative learning and research utilization in nursing practice: a missing link? Worldviews Evid Based Nurs. 2009 Mar;7(1):25.

In **Frameworks and Models for Research Utilization:**

Flaspohler P, Duffy J, Wandersman A, Stillman L, Maras MA. Unpacking prevention capacity: an intersection of research-to-practice models and community-centered models. Am J Community Psychol. 2008 Jun;41(3-4):182.

Landry R, Amara N, Pablos-Mendes A, Shademani R, Gold I. The knowledge-value chain: a conceptual framework for knowledge translation in health. Bull World Health Organ. 2006 Aug;84(8):597.

Peterson JC, Rogers EM, Cunningham-Sabo L, Davis SM. A framework for research utilization applied to seven case studies. Am J Prev Med. 2007 Jul;33(1 Suppl):S21.

In **Translating Research to Policy:**

Hanney SR, Gonzalez-Block MA, Buxton MJ, Kogan M. The utilisation of health research in policy-making: concepts, examples and methods of assessment. Health Res Policy Syst. 2003 Jan 13;1(1):2.

Jensen CB. Sociology, systems and (patient) safety: knowledge translations in healthcare policy. Sociol Health Illn. 2008 Mar;30(2):309.

Tools

A growing body of practical tools exists to facilitate the implementation of research into practice. This collection highlights various toolkits, decision-making aids, assessment tools, and guidance for evidence-based public health practice from resources such as the Cochrane Collaboration and the Guide to Community Preventive Services.

1. **Bennett G, Jessani N, editors. The knowledge translation toolkit: bridging the know-do gap, a resource for researchers. International Development Research Centre, Ottawa (Canada) and New Delhi (India): SAGE India; 2011.**

This toolkit discusses knowledge translation and how it is practiced. The toolkit includes theories, tools, and strategies to encourage and enable evidence-informed decisions.

2. **Cameron D, Lavis JN, Guindon GE, Akhtar T, Becerra Posada F, Ndossi GD, et al. Bridging the gaps among research, policy and practice in ten low- and middle-income countries: development and testing of a questionnaire for researchers. Health Res Policy Syst. 2010;8(1):4.**

BACKGROUND: A questionnaire could assist researchers, policymakers, and healthcare providers to describe and monitor changes in efforts to bridge the gaps among research, policy and practice. No questionnaire focused on researchers' engagement in bridging activities related to high-priority topics (or the potential correlates of their engagement) has been developed and tested in a range of low- and middle-income countries (LMICs).
METHODS: Country teams from ten LMICs (China, Ghana, India, Iran, Kazakhstan, Laos, Mexico, Pakistan, Senegal, and Tanzania) participated in the development and testing of a questionnaire. To assess reliability we calculated the internal consistency of items within each of the ten conceptual domains related to bridging activities (specifically Cronbach's alpha). To assess face and content validity we convened several teleconferences and a workshop. To assess construct validity we calculated the correlation between scales and counts (i.e., criterion measures) for the three countries that employed both and we calculated the correlation between different but theoretically related (i.e., convergent) measures for all countries.
RESULTS: Internal consistency (Cronbach's alpha) for sets of related items was very high, ranging from 0.89 (0.86-0.91) to 0.96 (0.95-0.97), suggesting some item redundancy. Both face and content validity were determined to be high. Assessments of construct validity using criterion-related measures showed statistically significant associations for related measures (with gammas ranging from 0.36 to 0.73). Assessments using convergent measures also showed significant associations (with gammas ranging from 0.30 to 0.50).
CONCLUSIONS: While no direct comparison can be made to a comparable questionnaire, our findings do suggest a number of strengths of the questionnaire but also the need to reduce item redundancy and to test its capacity to monitor changes over time.

3. **Campbell S, Schryer-Roy A, Jessani N. Knowledge translation: a "research matters" toolkit. Ottawa (Canada) International Development Research Centre and the Swiss Agency for Development and Cooperation; 2008.**
This Toolkit was designed for use by researchers working on health policy and systems issues in low and middle income countries.

Tools

4. Card JJ, Lessard L, Benner T. PASHA: facilitating the replication and use of effective adolescent pregnancy and STI/HIV prevention programs. J Adolesc Health. 2007 Mar;40(3):275 e1.

PURPOSE: It is important that interventions that have been shown effective in changing risky behavior be disseminated, so that they can be replicated (implemented in a new site) and so that their effectiveness in a new setting can be investigated. This article provides an update on an innovative resource for promoting the replication of effective teen pregnancy and STI/HIV prevention programs. The resource is called the Program Archive on Sexuality, Health & Adolescence (PASHA).
METHODS: A Scientist Expert Panel rates candidate adolescent pregnancy and STI/HIV prevention programs based on the strength of the evidence of their effectiveness in changing risky sexual behavior among youth ages 10-19 (10-21 for STI/HIV prevention programs). Developers of selected programs are invited to make their program and evaluation materials publicly available through PASHA. PASHA publishes and disseminates replication kits for programs it successfully acquires.
RESULTS: Fifty-six programs have been selected by PASHA's Scientist Expert Panel as "effective" in changing one or more risky behaviors associated with adolescent pregnancy or STI/HIV. Complete program and evaluation materials from 35 of these programs are now currently available through PASHA, five are pending, 12 are publicly available from other sources, and only four are not publicly available. PASHA programs are aimed at a diverse target population and cover diverse content on many abstinence and contraception/condom-related topics. Many pedagogical techniques are used to effect behavior change, noticeably role play and group discussion.
CONCLUSIONS: PASHA illustrates well the productive research-to-practice feedback loop that is the backbone of "translation research." The resource can be used by adolescent pregnancy and STI/HIV prevention practitioners to put what works to work to continue the lowering of the nation's adolescent pregnancy and STI/HIV rates.

5. Chin-Quee DS, Janowitz B, Otterness C. Counseling tools alone do not improve method continuation: further evidence from the decision-making tool for family planning clients and providers in Nicaragua. Contraception. 2007;76:377.

BACKGROUND: The decision-making tool (DMT) was developed by the World Health Organization's Department of Reproductive Health and Research and the Johns Hopkins University Center for Communication Program's staff to promote clients' informed choice and participation in family planning service delivery, to enable providers to apply evidence-based best practices during client-provider interaction and to provide the technical information necessary for optimal delivery of contraceptive methods. This tool has been tested in several countries and been shown to improve the quality of counseling for family planning clients.
STUDY DESIGN: We conducted intercept and follow-up home interviews with new family planning acceptors in three health departments in Nicaragua to assess the impact of the DMT on method continuation and counseling experiences. The study was a quasi-experimental design with 65 experimental and control clinic sites.
RESULTS: Analyses of overall and method-specific contraceptive use rates revealed no differences between experimental and control clinic clients. However, clients in the experimental group reported better counseling experiences than their counterparts in the control group.
CONCLUSION: The authors conclude that sufficient evidence exists that counseling alone — with or without specialized job aids — does not influence contraceptive use rates. A new strategy is needed to help women maintain use of family planning methods.

Tools

6. Cummings GG, Hutchinson AM, Scott SD, Norton PG, Estabrooks CA. The relationship between characteristics of context and research utilization in a pediatric setting. BMC Health Serv Res. 2010;10:168.

BACKGROUND: Research utilization investigators have called for more focused examination of the influence of context on research utilization behaviors. Yet, up until recently, lack of instrumentation to identify and quantify aspects of organizational context that are integral to research use has significantly hampered these efforts. The Alberta Context Tool (ACT) was developed to assess the relationships between organizational factors and research utilization by a variety of healthcare professional groups. The purpose of this paper is to present findings from a pilot study using the ACT to elicit pediatric and neonatal healthcare professionals' perceptions of the organizational context in which they work and their use of research to inform practice. Specifically, we report on the relationship between dimensions of context, founded on the Promoting Action on Research Implementation in Health Services (PARIHS) framework, and self-reported research use behavior.
METHODS: A cross-sectional survey approach was employed using a version of the ACT, modified specifically for pediatric settings. The survey was administered to nurses working in three pediatric units in Alberta, Canada. Scores for three dimensions of context (culture, leadership and evaluation) were used to categorize respondent data into one of four context groups (high, moderately high, moderately low and low). We then examined the relationships between nurses' self-reported research use and their perceived context. RESULTS: A 69% response rate was achieved. Statistically significant differences in nurses' perceptions of culture, leadership and evaluation, and self-reported conceptual research use were found across the three units. Differences in instrumental research use across the three groups of nurses by unit were not significant. Higher self-reported instrumental and conceptual research use by all nurses in the sample was associated with more positive perceptions of their context.
CONCLUSIONS: Overall, the results of this study lend support to the view that more positive contexts are associated with higher reports of research use in practice. These findings have implications for organizational endeavors to promote evidence-informed practice and maximize the quality of care. Importantly, these findings can be used to guide the development of interventions to target modifiable characteristics of organizational context that are influential in shaping research use behavior.

7. Fajans P, Simmons R, Ghiron L. Helping public sector health systems innovate: the strategic approach to strengthening reproductive health policies and programs. Am J Public Health. 2006 Mar;96(3):435.

Public sector health systems that provide services to poor and marginalized populations in developing countries face great challenges. Change associated with health sector reform and structural adjustment often leaves these already-strained institutions with fewer resources and insufficient capacity to relieve health burdens. The Strategic Approach to Strengthening Reproductive Health Policies and Programs is a methodological innovation developed by the World Health Organization and its partners to help countries identify and prioritize their reproductive health service needs, test appropriate interventions, and scale up successful innovations to a subnational or national level. The participatory, interdisciplinary, and country-owned process can set in motion much-needed change. We describe key features of this approach, provide illustrations from country experiences, and use insights from the diffusion of innovation literature to explain the approach's dissemination and sustainability.

8. Gawande A. The checklist: if something so simple can transform intensive care, what else can it do? New Yorker. 2007 Dec 10; pp. 86.

Tools

The author makes a strong case for the implementation of provider checklists in intensive care units (ICUs) through the use of several compelling examples.

9. Gholami J, Majdzadeh R, Nedjat S, Nedjat S, Maleki K, Ashoorkhani M, Yazdizadeh B. How should we assess knowledge translation in research organizations; designing a knowledge translation self-assessment tool for research institutes (SATORI). Health Res Policy Syst. 2011;9: 10.
BACKGROUND: The knowledge translation self-assessment tool for research institutes (SATORI) was designed to assess the status of knowledge translation in research institutes. The objective was, to identify the weaknesses and strengths of knowledge translation in research centres and faculties associated with Tehran University of Medical Sciences (TUMS). METHODS: The tool, consisting of 50 statements in four main domains, was used in 20 TUMS-affiliated research centres and departments after its reliability was established. It was completed in a group discussion by the members of the research council, researchers and research users' representatives from each centre and/or department. RESULTS: The mean score obtained in the four domains of "the question of research," "knowledge production," "knowledge transfer" and "promoting the use of evidence" were 2.26, 2.92, 2 and 1.89 (out of 5) respectively. Nine out of 12 interventional priorities with the lowest quartile score were related to knowledge transfer resources and strategies, whereas eight of them were in the highest quartile and related to "the question of research" and "knowledge production." CONCLUSIONS: The self-assessment tool identifies the gaps in capacity and infrastructure of knowledge translation support within research organizations. Assessment of research institutes using SATORI pointed out that strengthening knowledge translation through provision of financial support for knowledge translation activities, creating supportive and facilitating infrastructures, and facilitating interactions between researchers and target audiences to exchange questions and research findings are among the priorities of research centres and/or departments.

10. Grimshaw JM, Santesso N, Cumpston M, Mayhew A, McGowan J. Knowledge for knowledge translation: the role of the Cochrane Collaboration. J Contin Educ Health Prof. 2006 Winter;26(1):55.

Knowledge-translation (KT) activities, including continuing education, should be informed by the totality of available research evidence. Systematic reviews are a generic methodology used to synthesize evidence from a broad range of research methods addressing different questions. Over the past decade, there has been a dramatic increase in the availability of systematic reviews that could support KT activities. However, the conduct of systematic reviews is technically challenging, and it is not surprising that the quality of available reviews is variable. In addition, unless attempts are made to update systematic reviews, they rapidly become out of date. The Cochrane Collaboration is a unique, worldwide, not-for-profit organization that aims to help people make well-informed decisions about all forms of health care by preparing, maintaining, and promoting the accessibility of systematic reviews of the effects of health care interventions. Globally, over 13, 000 consumers, clinicians, policymakers, and researchers are involved with The Cochrane Collaboration and have to date produced over 2, 500 systematic reviews that can be used to inform KT activities. The Cochrane Collaboration publishes its reviews quarterly in The Cochrane Library. Cochrane reviews have been used to develop a number of KT-derivative products for professionals, consumers, and policymakers. Whereas most Cochrane Review groups focus on specific clinical areas, the Cochrane Effective Practice and Organisation of Care Group undertakes reviews of interventions to improve health care delivery and health care systems, including reviews of different KT activities. We summarize the activities of The Cochrane Collaboration and their contributions to KT activities.

11. Kothari A, Edwards N, Hamel N, Judd M. Is research working for you? Validating a tool to examine the capacity of health organizations to use research. Implement Sci. 2009;4:46.

BACKGROUND: "Is research working for you? A self-assessment tool and discussion guide for health services management and policy organizations," developed by the Canadian Health Services Research Foundation, is a tool that can help organizations understand their capacity to acquire, assess, adapt, and apply research. Objectives were to: determine whether the tool demonstrated response variability; describe how the tool differentiated between organizations that were known to be lower-end or higher-end research users; and describe the potential usability of the tool.
METHODS: Thirty-two focus groups were conducted among four sectors of Canadian health organizations. In the first hour of the focus group, participants individually completed the tool and then derived a group consensus ranking on items. In the second hour, the facilitator asked about overall impressions of the tool, to identify insights that emerged during the review of items on the tool and to elicit comments on research utilization. Discussion data were analyzed qualitatively, and individual and consensus item scores were analyzed using descriptive and non-parametric statistics.
RESULTS: The tool demonstrated good usability and strong response variability. Differences between higher-end and lower-end research use organizations on scores suggested that this tool has adequate discriminant validity. The group discussion based on the tool was the more useful aspect of the exercise, rather than the actual score assigned.
CONCLUSION: The tool can serve as a catalyst for an important discussion about research use at the organizational level; such a discussion, in and of itself, demonstrates potential as an intervention to encourage processes and supports for research translation.

12. Lavis J, Oxman A, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health Policymaking (STP). Health Research Policy and Systems. 2009;7(Suppl 1):I1.

This article is the introduction to a series written for people responsible for making decisions about health policies and programmes and for those who support these decision makers. Knowing how to find and use research evidence can help policymakers and those who support them to do their jobs better and more efficiently. Each article in this series presents a proposed tool that can be used by those involved in finding and using research evidence to support evidence-informed health policymaking. The series addresses four broad areas: 1) Supporting evidence-informed policymaking; 2) Identifying needs for research evidence in relation to three steps in policymaking processes, namely problem clarification, options framing, and implementation planning; 3) Finding and assessing both systematic reviews and other types of evidence to inform these steps; and 4) Going from research evidence to decisions. Each article begins with between one and three typical scenarios relating to the topic. These scenarios are designed to help readers decide on the level of detail relevant to them when applying the tools described. Most articles in this series are structured using a set of questions that guide readers through the proposed tools and show how to undertake activities to support evidence-informed policymaking efficiently and effectively. These activities include, for example, using research evidence to clarify problems, assessing the applicability of the findings of a systematic review about the effects of options selected to address problems, organising and using policy dialogues to support evidence-informed policymaking, and planning policy monitoring and evaluation. In several articles, the set of questions presented offers more general guidance on how to support evidence-informed policymaking. Additional information resources are listed and described in every article. The evaluation of ways to support evidence-informed health policymaking is a developing field and feedback about how to improve the series is welcome.

13. Leading changes in practices to improve health. The Manager: Management Strategies for Improving Health Services. 2004;13(3).

This issue of The Manager addresses community and organizational challenges that require a change in clinical or management practices. It provides a change agent's guide to action to carry out a successful change effort.

14. Lipsey MW. The challenges of interpreting research for use by practitioners: comments on the latest products from the Task Force on Community Preventive Services. Am J Prev Med. 2005;28(2 Suppl 1):1.

This commentary examines the advantages and disadvantages of two approaches to translating research into practice: the model program approach and systematic synthesis or meta-analysis. The author goes on to review the Task Force methodology behind the *Guide to Community Preventive Services.*

15. Public Policy Group, LSE. Maximizing the impacts of your research: a handbook for social scientists. Consultation draft 3. London (UK): London School of Economics and Political Science; 2011.

This guide describes various strategies to help social scientists increase the impact of their research on practice.

16. Mohllajee AP, Curtis KM, Flanagan RG, Rinehart W, Gaffield ML, Peterson HB. Keeping up with evidence: a new system for WHO's evidence-based family planning guidance. Am J Prev Med. 2005 Jun;28(5):483.

The World Health Organization (WHO) is responsible for providing evidence-based family planning guidance for use worldwide. WHO currently has two such guidelines, Medical Eligibility Criteria for Contraceptive Use and Selected Practice Recommendations for Contraceptive Use, which are widely used globally and often incorporated into national family planning standards and guidelines. To ensure that these guidelines remain up-to-date, WHO, in collaboration with the Centers for Disease Control and Prevention and the Information and Knowledge for Optimal Health (INFO) Project at the Johns Hopkins Bloomberg School of Public Health's Center for Communication Programs, has developed the Continuous Identification of Research Evidence (CIRE) system to identify, synthesize, and evaluate new scientific evidence as it becomes available. The CIRE system identifies new evidence that is relevant to current WHO family planning recommendations through ongoing review of the input to the POPulation information onLINE (POPLINE) database. Using the Meta-Analysis of Observational Studies in Epidemiology guidelines and standardized abstract forms, systematic reviews are conducted, peer-reviewed, and sent to WHO for further action. Since the system began in October 2002, 90 relevant new articles have been identified, leading to 43 systematic reviews, which were used during the 2003-2004 revisions of WHO's family planning guidelines. The partnership developed to create and manage the CIRE system has pooled existing resources; scaled up the methodology for evaluating and synthesizing evidence, including a peer-review process; and provided WHO with finger-on-the-pulse capability to ensure that its family planning guidelines remain up-to-date and based on the best available evidence.

17. Novick LF. Research to practice: guidance for the public health practitioner. J Public Health Manag Pract. 2008;14(2):87.

Tools

In this editorial, Novick provides a brief introduction to the articles in this issue of the *Journal of Public Health Management and Practice.* The articles focuses on improving the efficiency and the effectiveness of disseminating research findings into public health practice. The author reveres the *Guide to Community Preventive Services* as the "most comprehensive source for evidence-based public health (EBPH)." He identifies factors, such as time constraints, that prevent providers from better employing EBPH and mentions several articles that address these barriers.

18. Stanback J, Diabate F, Dieng T, de Morales TD, Cummings S, Traore M. Ruling out pregnancy among family planning clients: the impact of a checklist in three countries. Stud Fam Plann. 2005 Dec;36(4):311.

Women in many countries are often denied vital family planning services if they are not menstruating when they present at clinics, for fear that they might be pregnant. A simple checklist based on criteria approved by the World Health Organization has been developed to help providers rule out pregnancy among such clients, but its use is not yet widespread. Researchers in Guatemala, Mali, and Senegal conducted operations research to determine whether a simple, replicable introduction of this checklist improved access to contraceptive services by reducing the proportion of clients denied services. From 2001 to 2003, socio-demographic and service data were collected from 4,823 women from 16 clinics in three countries. In each clinic, data were collected prior to introduction of the checklist and again three to six weeks after the intervention. Among new family planning clients, denial of the desired method due to menstrual status decreased significantly from 16 percent to 2 percent in Guatemala and from 11 percent to 6 percent in Senegal. Multivariate analyses and bivariate analyses of changes within subgroups of non-menstruating clients confirmed and reinforced these statistically significant findings. In Mali, denial rates were essentially unchanged, but they were low from the start. Where denial of services to non-menstruating family planning clients was a problem, introduction of the pregnancy checklist significantly reduced denial rates. This simple, inexpensive job aid improves women's access to essential family planning services.

19. Stang A, Schwingl P, Rivera R. New contraceptive eligibility checklists for provision of combined oral contraceptives and depot-medroxyprogesterone acetate in community-based programmes. Bull World Health Organ. 2000;78(8):1015.

Community-based services (CBS) have long used checklists to determine eligibility for contraceptive method use, in particular for combined oral contraceptives (COCs) and the 3-month injectable contraceptive depot-medroxyprogesterone acetate (DMPA). As safety information changes, however, checklists can quickly become outdated. Inconsistent checklists and eligibility criteria often cause uneven access to contraceptives. In 1996, WHO produced updated eligibility criteria for the use of all contraceptive methods. Based on these criteria, new checklists for COCs and DMPA were developed. This article describes the new checklists and their development. Several rounds of expert review produced checklists that were correct, comprehensible and consistent with the eligibility requirements. Nevertheless, field-testing of the checklists revealed that approximately half (48%) of the respondents felt that one or more questions still needed greater comprehensibility. These findings indicated the need for a checklist guide. In March 2000, WHO convened a meeting of experts to review the medical eligibility criteria for contraceptive use. The article reflects also the resulting updated checklist.

20. Thornhill J, Judd M, Clements D. CHSRF Knowledge Transfer: (Re)introducing the self-assessment tool that is helping decision-makers assess their organization's capacity to use research. Healthcare Quarterly. 2009;12(1):22.

Tools

In this era of accountability and efficiency, it is only natural that health systems managers are willing to jump on board with such broad, inspirational statements as using research to inform practice and driving evidence-informed decision-making. But actually acting on these concepts in practice requires managers to openly examine the resources their organizations have in place and develop the capacity of these resources (be they people, programs or structures) to use research. This self-assessment tool is specifically intended to aid in this evaluation. Developed by the Canadian Health Services Research Foundation, this validated tool is designed precisely to help organizations examine, discuss and understand their capacity to gather, interpret and use research evidence in making decisions about how they organize and deliver health services. As seen on both the national and international fronts, the tool is particularly helpful when implemented as an initial intervention in healthcare organizations to advance evidence-informed decision-making.

21. Viergever RF, Olifson S, Ghaffar A, Terry RF. A checklist for health research priority setting: nine common themes of good practice. Health Res Policy Syst. 2010;8:36.

Health research priority setting processes assist researchers and policymakers in effectively targeting research that has the greatest potential public health benefit. Many different approaches to health research prioritization exist, but there is no agreement on what might constitute best practice. Moreover, because of the many different contexts for which priorities can be set, attempting to produce one best practice is in fact not appropriate, as the optimal approach varies per exercise. Therefore, following a literature review and an analysis of health research priority setting exercises that were organized or coordinated by the World Health Organization since 2005, we propose a checklist for health research priority setting that allows for informed choices on different approaches and outlines nine common themes of good practice. It is intended to provide generic assistance for planning health research prioritization processes. The checklist explains what needs to be clarified in order to establish the context for which priorities are set; it reviews available approaches to health research priority setting; it offers discussions on stakeholder participation and information gathering; it sets out options for use of criteria and different methods for deciding upon priorities; and it emphasizes the importance of well-planned implementation, evaluation and transparency.

22. Wesson J, Gmach R, Gazi R, Ashraf A, Mendez JF, Olenja J, et al. Provider views on the acceptability of an IUD checklist screening tool. Contraception. 2006 Nov;74(5):382.

INTRODUCTION: Family Health International developed a simple checklist to help family planning providers apply the new medical eligibility criteria (MEC) of the WHO for the use of the intrauterine device (IUD) contraceptive method.
METHODS: One hundred thirty-five providers in four countries participated in focus groups to field test the checklist. Before participating in a discussion about the checklist, each provider was given a copy of the checklist, its instructions and hypothetical client scenarios. Providers used the checklist to answer questions about the client scenarios in order to determine if they understood the checklist and if they would correctly determine IUD eligibility for women in updated categories of eligibility on the basis of the checklist.
RESULTS: Providers found the checklist easy to use and thought that it would enhance identification of eligible IUD users. Nevertheless, many providers relied on prior knowledge of IUD eligibility rather than the checklist recommendations. Providers only correctly determined eligibility for new categories of IUD use 69% of the time.

CONCLUSIONS: The IUD checklist is a useful job tool for providers, but training and effective dissemination of the WHO MEC should precede its introduction to ensure that it is correctly used.

23. Whitworth JA. Best practices in use of research evidence to inform health decisions. Health Res Policy Syst. 2006;4:11.

The WHO Advisory Committee on Health Research (ACHR) is committed to the notion that WHO should exemplify best practice in use of research evidence to inform decisions about health. A major ongoing initiative of the ACHR is the Sub-committee on the Use of Research Evidence (SURE). This group is examining WHOs roles and responsibilities in the use of research to inform decisions about health. WHOs leadership has expressed strong support for this initiative. The series of articles being published in Health Research Policy and Systems, which examine the methods used by WHO and other organisations to formulate recommendations about health, is part of the background documentation SURE has produced to inform ACHRs advice to WHO. It is critical that health policy makers look to research, not ignorance, as the basis for action in health, and that health professionals look to evidence, not opinion, as the basis for delivery of care.

24. The WHO strategic approach to strengthening sexual and reproductive health policies and programmes. Geneva: World Health Organization; 2007.

The Word Health Organization's strategic approach is a successful way to strengthen policies and programs. This document provides examples from countries that have implemented the WHO's approach. The diffusion-of-innovations theory is used to understand the spread of this approach.

See Also

In **Barriers, Constraints, and Challenges to Research Utilization:**

Ginexi EM, Hilton TF. What's next for translation research? Eval Health Prof. 2006 Sep;29(3):334.

Kajermo KN, Bostrom AM, Thompson DS, Hutchinson AM, Estabrooks CA, Wallin L. The BARRIERS scale — the barriers to research utilization scale: A systematic review. Implement Sci. 2010;5:32.

In **Dissemination and Implementation:**

Baker EA, Brennan Ramirez LK, Claus JM, Land G. Translating and disseminating research- and practice-based criteria to support evidence-based intervention planning. J Public Health Manag Pract. 2008 Mar-Apr;14(2):124.

In **Educational Strategies to Increase Research Utilization:**

Dreisinger M, Leet TL, Baker EA, Gillespie KN, Haas B, Brownson RC. Improving the public health workforce: evaluation of a training course to enhance evidence-based decision making. J Public Health Manag Pract. 2008 Mar-Apr;14(2):138.

In **Translating Research to Policy:**

Tools

Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 1 — synthesis of findings from a multi-method study of organizations that support the use of research evidence. Implement Sci. 2008;3:53.

Sutcliffe S, Court J. A toolkit for progressive policymakers in developing countries. London: Overseas Development Institute; 2006.

Translating Research to Policy

The value of using research results to inform the development and revision of public health policies is gaining recognition on a global scale. Unfortunately, researchers and policymakers are not always well connected, and so the translation of research into policy is often slowed or blocked by cultural and structural barriers. This literature examines these constraints and offers strategies for bridging the gap between research and policymaking.

1. Aaserud M, Lewin S, Innvaer S, Paulsen EJ, Dahlgren AT, Trommald M, et al. Translating research into policy and practice in developing countries: a case study of magnesium sulphate for pre-eclampsia. BMC Health Serv Res. 2005;5:68.

BACKGROUND: The evidence base for improving reproductive health continues to grow. However, concerns remain that the translation of this evidence into appropriate policies is partial and slow. Little is known about the factors affecting the use of evidence by policy makers and clinicians, particularly in developing countries. The objective of this study was to examine the factors that might affect the translation of randomised controlled trial (RCT) findings into policies and practice in developing countries.
METHODS: The recent publication of an important RCT on the use of magnesium sulphate to treat pre-eclampsia provided an opportunity to explore how research findings might be translated into policy. A range of research methods, including a survey, group interview and observations with RCT collaborators and a survey of WHO drug information officers, regulatory officials and obstetricians in 12 countries, were undertaken to identify barriers and facilitators to knowledge translation.
RESULTS: It proved difficult to obtain reliable data regarding the availability and use of commonly used drugs in many countries. The perceived barriers to implementing RCT findings regarding the use of magnesium sulphate for pre-eclampsia include drug licensing and availability; inadequate and poorly implemented clinical guidelines; and lack of political support for policy change. However, there were significant regional and national differences in the importance of specific barriers.
CONCLUSION: The policy changes needed to ensure widespread availability and use of magnesium sulphate are variable and complex. Difficulties in obtaining information on availability and use are combined with the wide range of barriers across settings, including a lack of support from policy makers. This makes it difficult to envisage any single intervention strategy that might be used to promote the uptake of research findings on magnesium sulphate into policy across the study settings. The publication of important trials may therefore not have the impacts on health care that researchers hope for.

2. Brownson RC, Royer C, Ewing R, McBride TD. Researchers and policymakers: travelers in parallel universes. Am J Prev Med. 2006 Feb;30(2):164.

Public policy, in the form of laws, guidelines, and regulations, has a profound effect on our daily lives and health status. Reasons for a lack of consistent and systematic translation of public health research into public policy is examined, including differences in decision-making processes, poor timing, ambiguous findings, the need to balance objectivity and advocacy, personal demands of the process, information overload, lack of relevant data, and the mismatch of randomized thinking with nonrandom problems. Next, several actions are suggested that should help bridge the chasm between science and policy, such as greater involvement in the process, better understanding of political decision making,

building of effective teams, and development of political champions. Scientists are obligated not only to discover new knowledge but also to ensure that discoveries are applied to improve health.

3. Burris H, Parkhurst J, Adu-Sarkodie Y, Mayaud P. Getting research into policy — Herpes simplex virus type-2 (HSV-2) treatment and HIV infection: international guidelines formulation and the case of Ghana. Health Res Policy Syst. 2011;9 Suppl 1:S5.

BACKGROUND: Observational epidemiological and biological data indicate clear synergies between Herpes simplex virus type 2 (HSV-2) and HIV, whereby HSV-2 enhances the potential for HIV acquisition or transmission. In 2001, the World Health Organization (WHO) launched a call for research into the possibilities of disrupting this cofactor effect through the use of antiherpetic therapy. A WHO Expert Meeting was convened in 2008 to review the research results. The results of the trials were mostly inconclusive or showed no impact. However, the WHO syndromic management treatment guidelines were modified to include acyclovir as first line therapy to treat genital ulcer disease on the basis of the high prevalence of HSV-2 in most settings, impact and cost-benefit of treatment on ulcer healing and quality of life among patients. METHODS: This paper examines the process through which the evidence related to HIV-HSV-2 interactions influenced policy at the international level and then the mechanism of international to national policy transfer, with Ghana as a case study. To better understand the context within which national policy change occurs, special attention was paid to the relationships between researchers and policy-makers as integral to the process of getting evidence into policy. Data from this study were then collected through interviews conducted with researchers, program managers and policy-makers working in sexual health/STI at the 2008 WHO Expert Meeting in Montreux, Switzerland, and in Accra, Ghana. RESULTS: The major findings of this study indicate that investigations into HSV-2 as a cofactor of HIV generated the political will necessary to reform HSV-2 treatment policy. Playing a pivotal role at both the international level and within the Ghanaian policy context were 'policy networks' formed either formally (WHO) or informally (Ghana) around an issue area. These networks of professionals serve as the primary conduit of information between researchers and policy-makers. Donor influence was cited as the single strongest impetus and impediment to policy change nationally. CONCLUSIONS: Policy networks may serve as the primary driving force of change in both international context and in the case of Ghana. Communication among researchers and policy-makers is critical for uptake of evidence and opportunities may exist to formalize policy networks and engage donors in a productive and ethical way.

4. Buse K, Lalji N, Mayhew SH, Imran M, Hawkes SJ. Political feasibility of scaling-up five evidence-informed HIV interventions in Pakistan: a policy analysis. Sex Transm Infect. 2009 April;85 Suppl 2:37.

BACKGROUND: Drawing on policy theories, an assessment was made of the perceived political feasibility of scaling-up five evidence-based interventions to curb Pakistan's HIV epidemic: needle and syringe exchange programmes; targeted behaviour change communication; sexual health care for male and transgender sex workers; sexual and reproductive health care for female sex workers; and promoting and protecting the rights of those at greatest risk.
METHOD: A questionnaire was emailed to 40 stakeholders and completed by 22. They expressed their level of agreement with 15 statements for each intervention (related to variables associated with policy success). Semi-structured interviews were conducted with 12 respondents.
RESULTS: The interventions represent considerable change from the status quo, but are perceived to respond to widely acknowledged problems. These perceptions, held by the HIV policy elite, need to be set in the context of the prevailing view that the AIDS response is not warranted given the small and concentrated nature of the epidemic and that the interventions do not resonate closely with values held

by society. The interventions were perceived to be evidence-based, supported by at least one donor and subject to little resistance from frontline staff as they will be implemented by contracted non-government organisations. The results were mixed in terms of other factors determining political feasibility, including the extent to which interventions are easy to explain, exhibit simple technical features, require few additional funds, are supported and not opposed by powerful stakeholders. CONCLUSION: The interventions stand a good chance of being implemented although they depend on donor support. The prospects for scaling them would be improved by ongoing policy analysis and strengthening of domestic constituencies among the target groups.

5. Campbell DM, Redman S, Jorm L, Cooke M, Zwi AB, Rychetnik L. Increasing the use of evidence in health policy: practice and views of policy makers and researchers. Aust New Zealand Health Policy. 2009;6:21.

BACKGROUND: Better communication is often suggested as fundamental to increasing the use of research evidence in policy, but little is known about how researchers and policy makers work together or about barriers to exchange. This study explored the views and practice of policy makers and researchers regarding the use of evidence in policy, including: (i) current use of research to inform policy; (ii) dissemination of and access to research findings for policy; (iii) communication and exchange between researchers and policy makers; and (iv) incentives for increasing the use of research in policy. METHODS: Separate but similar interview schedules were developed for policy makers and researchers. Senior policy makers from NSW Health and senior researchers from public health and health service research groups in NSW were invited to participate. Consenting participants were interviewed by an independent research company. RESULTS: Thirty eight policy makers (79% response rate) and 41 researchers (82% response rate) completed interviews. Policy makers reported rarely using research to inform policy agendas or to evaluate the impact of policy; research was used more commonly to inform policy content. Most researchers reported that their research had informed local policy, mainly by increasing awareness of an issue. Policy makers reported difficulty in accessing useful research syntheses, and only a third of researchers reported developing targeted strategies to inform policy makers of their findings. Both policy makers and researchers wanted more exchange and saw this as important for increasing the use of research evidence in policy; however, both groups reported a high level of involvement by policy makers in research. CONCLUSION: Policy makers and researchers recognise the potential of research to contribute to policy and are making significant attempts to integrate research into the policy process. These findings suggest four strategies to assist in increasing the use of research in policy: making research findings more accessible to policy makers; increasing opportunities for interaction between policy makers and researchers; addressing structural barriers such as research receptivity in policy agencies and a lack of incentives for academics to link with policy; and increasing the relevance of research to policy.

6. Crichton J, Theobald S. Strategies and tensions in communicating research on sexual and reproductive health, HIV and AIDS: a qualitative study of the experiences of researchers and communications staff. Health Res Policy Syst. 2011;9 Suppl 1:S4.

BACKGROUND: Sexual and Reproductive Health (SRH) and HIV issues are often controversial and neglected, leading to challenges with engaging policy actors. Research evidence is complex, posing further challenges for ensuring that policy and practice are evidence-based. Many health researchers are adopting innovative approaches to engaging stakeholders in their research, yet these experiences are not often shared. This qualitative study focuses on the research communication and policy

Translating Research to Policy

influencing objectives, strategies and experiences of four research consortia working on SRH, HIV and AIDS. METHODS: We carried out 22 in-depth interviews with researchers and communications specialists (research actors) from the four consortia and their partners, working in nine countries in sub-Saharan Africa and Asia. Using the 'framework' approach to qualitative data analysis, we identified factors that affect the interaction of research evidence with policy and practice. We used the ODI RAPID analytical framework to present these results, adapting this tool by incorporating the actions, strategies and positionality of research actors. RESULTS: The characteristics of researchers and their institutions, policy context, the multiplicity of actors, and the nature of the research evidence all play a role in policy influencing processes. Research actors perceived a trend towards increasingly intensive and varied communication approaches. Effective influencing strategies include making strategic alliances and coalitions and framing research evidence in ways that are most attractive to particular policy audiences. Tensions include the need to identify and avoid unnecessary communication or unintended impacts, challenges in assessing and attributing impact and the need for adequate resources and skills for communications work. CONCLUSIONS: We contend that the adapted RAPID framework can serve as a tool for research actors to use in resolving these tensions, through facilitating a reflexive approach to considering their own combination of attributes, skills, networks and objectives and the ways these relate to policy contexts, actors and processes.

7. Communicating research for evidence-based policymaking: A practical guide for researchers in socio-economic sciences and humanities. Brussels: European Commission; 2010.

This document reviews the stages needed to develop a dynamic communication strategy and translate research into action.

8. Drimie S, Quinlan T. Playing the role of a "boundary organisation": getting smarter with networking. Health Res Policy Syst. 2011;9 Suppl 1:S11.

BACKGROUND: This paper discusses the practices of organisations that cross the boundary between research and politics, to promote evidence-based policies and programmes. METHODS: It uses the experience of a network of organisations in Africa to describe the methodology, challenges and successes of efforts to promote utilisation of research on the inter-connections between HIV/AIDS, food security and nutrition in South Africa. It emphasises that crossing the boundary between science and politics can be done systematically and is inevitable for any attempt that seeks influence policy making. RESULTS: The paper reveals the complexity of the research-policy making interface and identifies key lessons for the practice of networking and engaging policy and decision-makers. CONCLUSION: The concept of boundary organisation is a helpful means to understand the methodological underpinnings of efforts to get research into policy and practice and to understand the 'messy' process of doing so.

9. Graham WJ, Hussein J. Ethics in public health research: minding the gaps: a reassessment of the challenges to safe motherhood. Am J Public Health. 2007 Jun;97(6):978.

Maternal and perinatal mortality reduction has remained a priority on the international health agenda for nearly wo decades. During this time, strategies for achieving these goals have shifted in emphasis from prevention of pregnancies to provision of care. Robust evidence is limited, particularly regarding what works best in delivering care in specific health system settings and at the population level. We describe the limited evidence base using a framework that highlights the consequences of the major gaps in measurement, evidence, and action, and we discuss existing opportunities for bridging these gaps at the policy level. Capitalizing on current global policy interests and generating demand-driven

evidence is a priority for enabling documentation of progress toward reaching the United Nations Millennium Development Goals for 2015.

10. Green A, Bennett S, editors. Sound choices: enhancing capacity for evidence-informed health policy. Geneva: World Health Organization; 2007.
This review explores capacity issues underlying the relationship between two key groups: policymakers and researchers. The analysis focuses on capacity constraints in four areas: (1) setting research priorities, (2) generation and dissemination of knowledge, (3) filtering and amplification of evidence, and (4) policy processes. This framework could be used to analyze critical areas for in-country capacity development.

11. Gyapong JO, Selby RA, Anakwah KA. Challenges in linking health research to policy: a commentary on developing a multi-stakeholder response to orphans and vulnerable children in Ghana. Health Res Policy. 2011;Syst 9 Suppl 1:S14.

The Research and Development Division (RDD) of the Ghana Health Service (GHS) has a remit to build research capacity and conduct policy relevant research. By being situated within the GHS, RDD has good access to directors and programme managers, within and beyond the Ministry of Health. This structure has been facilitating collaboration through research cycles for 20 years, from agenda setting to discussions on policy relevance.This approach has been applied to research activities within the Addressing the Balance of Burden in AIDS (ABBA) Research Programme Consortium to tackle the challenges facing HIV affected orphans and vulnerable children (OVCs). The government strategy on OVCs recommends they should be encouraged to live in their home communities rather than in institutions. We present lessons here on efforts to use research to build a response across different agencies to address the problems that communities and families face in caring for these children in their communities.This approach to building consensus on research priorities points to the value of collaboration and dialogue with multiple stakeholders as a means of fostering ownership of a research process and supporting the relevance of research to different groups. Our experience has shown that if the context within which researchers, policy makers and stakeholders work were better understood, the links between them were improved and research were communicated more effectively, then better policy making which links across different sectors may follow. At the same time, collaboration among these different stakeholders to ensure that research meets social needs, must also satisfy the requirements of scientific rigour.

12. Hamel N, Schrecker T. Unpacking capacity to utilize research: a tale of the Burkina Faso public health association. Soc Sci Med. 2011 Jan;72(1):31.

One of the most important challenges in addressing global health is for institutions to monitor and use research in policy-making. In low- and middle-income countries (LMICs), civil society organizations such as health professional associations can be key contributors to effective national health systems. However, there is little empirical data on their capacity to use research. This case study was used to gain insight into the factors that affect the knowledge translation performance of health professional associations in LMICs by describing the organizational elements and processes constituting capacity to use research, and examining the potential determinants of this capacity. Case study methodology was chosen for its flexibility to capture the multiple and often tacit processes within organizational routines. The Burkina Faso Public Health Association (ABSP) was studied, using in-depth, semi-structured interviews and key documents review. Five key dimensions that affect the association's capacity to use research to influence health policy emerged: organizational motivation; catalysts; organizational

capacity to acquire and organizational capacity to transform research findings; moderating organizational factors. Also examined were the dissemination strategies used by ABSP and its abilities to enhance its capacity through networking, to advocate for more relevant research and to develop its potential role as knowledge broker, as well as limitations due to scarce resources. We conclude that a better understanding of the organizational capacity to use research of health professional associations in LMICs is needed to assess, improve and reinforce such capacity. Increased knowledge translation potential may leverage research resources and promote knowledge-sharing.

13. Hanney SR, Conzalez-Block MA, Buxton MJ, Kogan M. The utilization of health research in policy-making: concepts, examples and methods of assessment. Health Res Policy Syst. 2003;1.

The importance of health research utilisation in policy-making, and of understanding the mechanisms involved, is increasingly recognised. Recent reports calling for more resources to improve health in developing countries, and global pressures for accountability, draw greater attention to research-informed policy-making. Key utilisation issues have been described for at least twenty years, but the growing focus on health research systems creates additional dimensions. The utilisation of health research in policy-making should contribute to policies that may eventually lead to desired outcomes, including health gains. In this article, exploration of these issues is combined with a review of various forms of policy-making. When this is linked to analysis of different types of health research, it assists in building a comprehensive account of the diverse meanings of research utilisation. Previous studies report methods and conceptual frameworks that have been applied, if with varying degrees of success, to record utilisation in policy-making. These studies reveal various examples of research impact within a general picture of underutilisation. Factors potentially enhancing utilisation can be identified by exploration of: priority setting; activities of the health research system at the interface between research and policy-making; and the role of the recipients, or "receptors," of health research. An interfaces and receptors model provides a framework for analysis. Recommendations about possible methods for assessing health research utilisation follow identification of the purposes of such assessments. Our conclusion is that research utilisation can be better understood, and enhanced, by developing assessment methods informed by conceptual analysis and review of previous studies.

14. Hennink M, Stephenson R. Using research to inform health policy: barriers and strategies in developing countries. J Health Commun. 2005 Mar;10(2):163.

This article examines the dissemination and uptake of health research into policy and program delivery in four developing countries. In-depth interviews were conducted with health researchers, policymakers, and practitioners at both the local and national level. The study highlights the similarities across the study countries in the barriers to effective dissemination and uptake of research results. A fundamental barrier to the uptake of research by decisionmakers is the lack of appreciation of the important contribution that research can make to policy and program development. A further barrier is researchers' lack of appropriate "packaging" of research findings that consider the needs of different policy audiences. Dissemination within academic circles also restricts access by decisionmakers nd practitioners. Overcoming the barriers requires effort on behalf of researchers, decisionmakers, and donor agencies. The strong presence of donor agencies in developing countries places them in a position both to enable and encourage dissemination activities and communication between researchers and policymakers or practitioners. Increased collaboration between all three parties is one of the key strategies toward increasing the uptake of research into health policy and program development.

15. Hutchinson E, Parkhurst J, Phiri S, Gibb DM, Chishinga N, Droti B, Hoskins S. National policy development for cotrimoxazole prophylaxis in Malawi, Uganda and Zambia: the relationship between context, evidence and links. Health Res Policy Syst. 2011;9 Suppl 1: S6.

BACKGROUND: Several frameworks have been constructed to analyse the factors which influence and shape the uptake of evidence into policy processes in resource poor settings, yet empirical analyses of health policy making in these settings are relatively rare. National policy making for cotrimoxazole (trimethoprim-sulfamethoxazole) preventive therapy in developing countries offers a pertinent case for the application of a policy analysis lens. The provision of cotrimoxazole as a prophylaxis is an inexpensive and highly efficacious preventative intervention in HIV infected individuals, reducing both morbidity and mortality among adults and children with HIV/AIDS, yet evidence suggests that it has not been quickly or evenly scaled-up in resource poor settings. METHODS: Comparative analysis was conducted in Malawi, Uganda and Zambia, using the case study approach. We applied the "RAPID" framework developed by the Overseas Development Institute (ODI), and conducted a total of 47 in-depth interviews across the three countries to examine the influence of context (including the influence of donor agencies), evidence (both local and international), and the links between researcher, policy makers and those seeking to influence the policy process. RESULTS: Each area of analysis was found to have an influence on the creation of national policy on cotrimoxazole preventive therapy (CPT) in all three countries. In relation to context, the following were found to be influential: government structures and their focus, donor interest and involvement, healthcare infrastructure and other uses of cotrimoxazole and related drugs in the country. In terms of the nature of the evidence, we found that how policy makers perceived the strength of evidence behind international recommendations was crucial (if evidence was considered weak then the recommendations were rejected). Further, local operational research results seem to have been taken up more quickly, while randomised controlled trials (the gold standard of clinical research) was not necessarily translated into policy so swiftly. Finally the links between different research and policy actors were of critical importance, with overlaps between researcher and policy maker networks crucial to facilitate knowledge transfer. Within these networks, in each country the policy development process relied on a powerful policy entrepreneur who helped get cotrimoxazole preventive therapy onto the policy agenda. CONCLUSIONS: This analysis underscores the importance of considering national level variables in the explanation of the uptake of evidence into national policy settings, and recognising how local policy makers interpret international evidence. Local priorities, the ways in which evidence was interpreted, and the nature of the links between policy makers and researchers could either drive or stall the policy process. Developing the understanding of these processes enables the explanation of the use (or non-use) of evidence in policy making, and potentially may help to shape future strategies to bridge the research-policy gaps and ultimately improve the uptake of evidence in decision making.

16. Hyder AA, Corluka A, Winch PJ, El-Shinnawy A, Ghassany H, Malekafzali H, et al. National policy-makers speak out: are researchers giving them what they need? Health Policy Plan. 2011 Jan;26(1):73.

The objective of this empirical study was to understand the perspectives and attitudes of policy-makers towards the use and impact of research in the health sector in low- and middle-income countries. The study used data from 83 semi-structured, in-depth interviews conducted with purposively selected policy-makers at the national level in Argentina, Egypt, Iran, Malawi, Oman and Singapore. Policy-makers interviewed for this study were unequivocal in their support for health research and the high value they attribute to it. However, they stated that there were structural and informal barriers to research contributing to policy processes, to the contribution research makes to knowledge generally and to the use of research in health decision-making specifically. Major findings regarding barriers to

evidence-based policy-making included poor communication and dissemination, lack of technical capacity in policy processes, as well as the influence of the political context. Policy-makers had a variable understanding of economic analysis, equity and burden of disease measures, and were vague in terms of their use in national decisions. Policy-maker recommendations regarding strategies for facilitating the uptake of research into policy included improving the technical capacity of policy-makers, better packaging of research results, use of social networks, and establishment of fora and clearinghouse functions to help assist in evidence-based policy-making.

17. Innvaer S, Vist G, Trommald M, Oxman A. Health policy-makers' perceptions of their use of evidence: a systematic review. J Health Serv Res Policy. 2002;7(4):239.

OBJECTIVES: The empirical basis for theories and common wisdom regarding how to improve appropriate use of research evidence in policy decisions is unclear. One source of empirical evidence is interview studies with policy-makers. The aim of this systematic review was to summarise the evidence from interview studies of facilitators of, and barriers to, the use of research evidence by health policy-makers.
METHODS: We searched multiple databases for interview studies with health policy-makers that covered their perceptions of the use of research evidence in health policy decisions at a national, regional or organisational level. Reviewers extracted data that were summarised in tables and analysed qualitatively.
RESULTS: The most commonly reported facilitators were personal contact (13/24), timely relevance (13/24), and the inclusion of summaries with policy recommendations (11/24). The most commonly reported barriers were absence of personal contact (11/24), lack of timeliness or relevance of research (9/24), mutual mistrust (8/24) and power and budget struggles (7/24).
CONCLUSIONS: Interview studies with health policy-makers provide only limited support for commonly held beliefs about facilitators of, and barriers to, their use of evidence, and raise questions about commonsense proposals for improving the use of research for policy decisions. Two-way personal communication, the most common suggestion, may improve the appropriate use of research evidence, but it might also promote selective (inappropriate) use of research evidence.

18. Institute of Development Studies. Getting research into policy and practice. Insights (Health). 2009 Oct; 78.

This issue of Insights focuses on innovative ways of communicating research on HIV and reproductive health. It includes specific articles about Ghana, Tanzania, South Africa and Bangladesh.

19. Jansen MW, van Oers HA, Kok G, de Vries NK. Public health: disconnections between policy, practice and research. Health Res Policy Syst. 2010;8:37.

BACKGROUND: Public health includes policy, practice and research but to sufficiently connect academic research, practice and public health policy appears to be difficult. Collaboration between policy, practice and research is imperative to obtaining more solid evidence in public health. However, the three domains do not easily work together because they emanate from three more or less independent 'niches'. Work cycles of each niche have the same successive steps: problem recognition, approach formulation, implementation, and evaluation, but are differently worked out. So far, the research has focused on agenda-setting which belongs to the first step, as expressed by Kingdon, and on the use of academic knowledge in policy makers' decision-making processes which belongs to the fourth step, as

elaborated by Weiss. In addition, there are more steps in the policy-making process where exchange is needed.

METHOD: A qualitative descriptive research was conducted by literature search. We analyzed the four steps of the policy, practice and research work cycles. Next, we interpreted the main conflicting aspects as disconnections for each step.

RESULTS: There are some conspicuous differences that strengthen the niche character of each domain and hamper integration and collaboration. Disconnections ranged from formulating priorities in problem statements to power roles, appraisal of evidence, work attitudes, work pace, transparency of goals, evaluation and continuation strategies and public accountability. Creating awareness of these disconnections may result in more compatibility between researchers, policy makers and practitioners.

CONCLUSION: We provide an analysis that can be used by public health services-related researchers, practitioners and policy makers to be aware of the risk for disconnections. A synthesis of the social, practical and scientific relevance of public health problems should be the starting point for a dialogue that seeks to establish a joint approach. To overcome the above mentioned disconnections, face-to-face encounters consistently emerge as the most efficient way to transfer knowledge, achieve higher quality and acknowledge mutual dependence. We recommend practice and policy based research networks to establish strong links between researchers, policy makers and practitioners to improve public health.

20. Jensen CB. Sociology, systems and (patient) safety: knowledge translations in healthcare policy. Sociol Health Illn. 2008 Mar;30(2):309.

In 2000 the American Institute of Medicine, adviser to the federal government on policy matters relating to the health of the public, published the report To Err is Human: Building a Safer Health System, which was to become a call to arms for improving patient safety across the Western world. By re-conceiving healthcare as a system, it was argued that it was possible to transform the current culture of blame, which made individuals take defensive precautions against being assigned responsibility for error - notably by not reporting adverse events, into a culture of safety. The IOM report draws on several prominent social scientists in accomplishing this re-conceptualisation. But the analyses of these authors are not immediately relevant for health policy. It requires knowledge translation to make them so. This paper analyses the process of translation. The discussion is especially pertinent due to a certain looping effect between social science research and policy concerns. The case here presented is thus doubly illustrative: exemplifying first how social science is translated into health policy and secondly how the transformation required for this to function is taken as an analytical improvement that can in turn be redeployed in social research.

21. Jewell CJ, Bero LA. "Developing good taste in evidence": facilitators of and hindrances to evidence-informed health policymaking in state government. Milbank Q. 2008 Jun;86(2):177.

CONTEXT: Policymaking is a highly complex process that is often difficult to predict or influence. Most of the scholarship examining the role of research evidence in policymaking has focused narrowly on characteristics of the evidence and the interactions between scientists and government officials. The real-life context in which policymakers are situated and make decisions also is crucial to the development of evidence-informed policy.

METHODS: This qualitative study expands on other studies of research utilization at the state level through interviews with twenty-eight state legislators and administrators about their real-life experiences incorporating evidence into policymaking. The interviews were coded inductively into the following categories: (1) the important or controversial issue or problem being addressed, (2) the information that was used, (3) facilitators, and (4) hindrances.

FINDINGS: Hindrances to evidence-informed policymaking included institutional features; characteristics of the evidence supply, such as research quantity, quality, accessibility, and usability; and competing sources of influence, such as interest groups. The policymakers identified a number of facilitators to the use of evidence, including linking research to concrete impacts, costs, and benefits; reframing policy issues to fit the research; training to use evidence-based skills; and developing research venues and collaborative relationships in order to generate relevant evidence.

CONCLUSIONS: Certain hindrances to the incorporation of research into policy, like limited budgets, are systemic and not readily altered. However, some of the barriers and facilitators of evidence-informed health policymaking are amenable to change. Policymakers could benefit from evidence-based skills training to help them identify and evaluate high-quality information. Researchers and policymakers thus could collaborate to develop networks for generating and sharing relevant evidence for policy.

22. Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 1 — synthesis of findings from a multi-method study of organizations that support the use of research evidence. Implement Sci. 2008;3:53.

BACKGROUND: Organizations have been established in many countries and internationally to support the use of research evidence by producing clinical practice guidelines, undertaking health technology assessments, and/or directly supporting the use of research evidence in developing health policy on an international, national, and state or provincial level. Learning from these organizations can reduce the need to 'reinvent the wheel' and inform decisions about how best to organize support for such organizations, particularly in low- and middle-income countries (LMICs).

METHODS: We undertook a multi-method study in three phases - a survey, interviews, and case descriptions that drew on site visits - and in each of the second and third phases we focused on a purposive sample of those involved in the previous phase. We used the seven main recommendations that emerged from the advice offered in the interviews to organize much of the synthesis of findings across phases and methods. We used a constant comparative method to identify themes from across phases and methods.

RESULTS: Seven recommendations emerged for those involved in establishing or leading organizations that support the use of research evidence in developing health policy: 1) collaborate with other organizations; 2) establish strong links with policymakers and involve stakeholders in the work; 3) be independent and manage conflicts of interest among those involved in the work; 4) build capacity among those working in the organization; 5) use good methods and be transparent in the work; 6) start small, have a clear audience and scope, and address important questions; and 7) be attentive to implementation considerations, even if implementation is not a remit. Four recommendations emerged for the World Health Organization (WHO) and other international organizations and networks: 1) support collaborations among organizations; 2) support local adaptation efforts; 3) mobilize support; and 4) create global public goods.

CONCLUSION: This synthesis of findings from a multi-method study, along with the more detailed findings from each of the three phases of the study (which are reported in the three following articles in the series), provide a strong basis on which researchers, policymakers, international organizations (and networks) like WHO can respond to the growing chorus of voices calling for efforts to support the use of research evidence in developing health policy.

23. Lavis JN, Paulsen EJ, Oxman AD, Moynihan R. Evidence-informed health policy 2 — survey of organizations that support the use of research evidence. Implement Sci. 2008;3:54.

BACKGROUND: Previous surveys of organizations that support the development of evidence-informed health policies have focused on organizations that produce clinical practice guidelines (CPGs) or undertake health technology assessments (HTAs). Only rarely have surveys focused at least in part on units that directly support the use of research evidence in developing health policy on an international, national, and state or provincial level (i.e., government support units, or GSUs) that are in some way successful or innovative or that support the use of research evidence in low- and middle-income countries (LMICs).
METHODS: We drew on many people and organizations around the world, including our project reference group, to generate a list of organizations to survey. We modified a questionnaire that had been developed originally by the Appraisal of Guidelines, Research and Evaluation in Europe (AGREE) collaboration and adapted one version of the questionnaire for organizations producing CPGs and HTAs, and another for GSUs. We sent the questionnaire by email to 176 organizations and followed up periodically with non-responders by email and telephone.
RESULTS: We received completed questionnaires from 152 (86%) organizations. More than one-half of the organizations (and particularly HTA agencies) reported that examples from other countries were helpful in establishing their organization. A higher proportion of GSUs than CPG- or HTA-producing organizations involved target users in the selection of topics or the services undertaken. Most organizations have few (five or fewer) full-time equivalent (FTE) staff. More than four-fifths of organizations reported providing panels with or using systematic reviews. GSUs tended to use a wide variety of explicit valuation processes for the research evidence, but none with the frequency that organizations producing CPGs, HTAs, or both prioritized evidence by its quality. Between one-half and two-thirds of organizations do not collect data systematically about uptake, and roughly the same proportions do not systematically evaluate their usefulness or impact in other ways.
CONCLUSION: The findings from our survey, the most broadly based of its kind, both extend or clarify the applicability of the messages arising from previous surveys and related documentary analyses, such as how the 'principles of evidence-based medicine dominate current guideline programs' and the importance of collaborating with other organizations. The survey also provides a description of the history, structure, processes, outputs, and perceived strengths and weaknesses of existing organizations from which those establishing or leading similar organizations can draw.

24. Lavis JN, Oxman AD, Moynihan R, Paulsen EJ. Evidence-informed health policy 3 — interviews with the directors of organizations that support the use of research evidence. Implement Sci. 2008;3:55.

BACKGROUND: Only a small number of previous efforts to describe the experiences of organizations that produce clinical practice guidelines (CPGs), undertake health technology assessments (HTAs), or directly support the use of research evidence in developing health policy (i.e., government support units, or GSUs) have relied on interviews and then only with HTA agencies. Interviews offer the potential for capturing experiences in great depth, particularly the experiences of organizations that may be under-represented in surveys.
METHODS: We purposively sampled organizations from among those who completed a questionnaire in the first phase of our three-phase study, developed and piloted a semi-structured interview guide, and conducted the interviews by telephone, audio-taped them, and took notes simultaneously. Binary or categorical responses to more structured questions were counted when possible. Themes were identified from among responses to semi-structured questions using a constant comparative method of analysis. Illustrative quotations were identified to supplement the narrative description of the themes.
RESULTS: We interviewed the director (or his or her nominee) in 25 organizations, of which 12 were GSUs. Using rigorous methods that are systematic and transparent (sometimes shortened to "'being evidence-based" was the most commonly cited strength among all organizations. GSUs more

consistently described their close links with policymakers as a strength, whereas organizations producing CPGs, HTAs, or both had conflicting viewpoints about such close links. With few exceptions, all types of organizations tended to focus largely on weaknesses in implementation, rather than strengths. The advice offered to those trying to establish similar organizations include: 1) collaborate with other organizations; 2) establish strong links with policymakers and stakeholders; 3) be independent and manage conflicts of interest; 4) build capacity; 5) use good methods and be transparent; 6) start small and address important questions; and 7) be attentive to implementation considerations. The advice offered to the World Health Organization (WHO) and other international organizations and networks was to foster collaborations across organizations.

CONCLUSION: The findings from our interview study, the most broadly based of its kind, extend to both CPG-producing organizations and GSUs the applicability of the messages arising from previous interview studies of HTA agencies, such as to collaborate with other organizations and to be attentive to implementation considerations. Our interview study also provides a rich description of organizations supporting the use of research evidence, which can be drawn upon by those establishing or leading similar organizations in LMICs.

25. Lavis JN, Moynihan R, Oxman AD, Paulsen EJ. Evidence-informed health policy 4 — case descriptions of organizations that support the use of research evidence. Implement Sci. 2008;3:56.

BACKGROUND: Previous efforts to produce case descriptions have typically not focused on the organizations that produce research evidence and support its use. External evaluations of such organizations have typically not been analyzed as a group to identify the lessons that have emerged across multiple evaluations. Case descriptions offer the potential for capturing the views and experiences of many individuals who are familiar with an organization, including staff, advocates, and critics.

METHODS: We purposively sampled a subgroup of organizations from among those that participated in the second (interview) phase of the study and (once) from among other organizations with which we were familiar. We developed and pilot-tested a case description data collection protocol, and conducted site visits that included both interviews and documentary analyses. Themes were identified from among responses to semi-structured questions using a constant comparative method of analysis. We produced both a brief (one to two pages) written description and a video documentary for each case.

RESULTS: We conducted 51 interviews as part of the eight site visits. Two organizational strengths were repeatedly cited by individuals participating in the site visits: use of an evidence-based approach (which was identified as being very time-consuming) and existence of a strong relationship between researchers and policymakers (which can be challenged by conflicts of interest). Two organizational weaknesses - a lack of resources and the presence of conflicts of interest - were repeatedly cited by individuals participating in the site visits. Participants offered two main suggestions for the World Health Organization (and other international organizations and networks): 1) mobilize one or more of government support, financial resources, and the participation of both policymakers and researchers; and 2) create knowledge-related global public goods.

CONCLUSION: The findings from our case descriptions, the first of their kind, intersect in interesting ways with the messages arising from two systematic reviews of the factors that increase the prospects for research use in policymaking. Strong relationships between researchers and policymakers bodes well given such interactions appear to increase the prospects for research use. The time-consuming nature of an evidence-based approach, on the other hand, suggests the need for more efficient production processes that are "quick and clean enough." Our case descriptions and accompanying video documentaries provide a rich description of organizations supporting the use of research evidence,

which can be drawn upon by those establishing or leading similar organizations, particularly in low- and middle-income countries

26. Lavis JN. How can we support the use of systematic reviews in policymaking? PLoS Med. 2009 Nov;6(11):e1000141.
This brief looks at the use of reviews in policymaking.

27. Lavis JN. Research, public policymaking, and knowledge-translation processes: Canadian efforts to build bridges. J Contin Educ Health Prof2006;26(1):37.

Public policymakers must contend with a particular set of institutional arrangements that govern what can be done to address any given issue, pressure from a variety of interest groups about what they would like to see done to address any given issue, and a range of ideas (including research evidence) about how best to address any given issue. Rarely do processes exist that can get optimally packaged high-quality and high-relevance research evidence into the hands of public policymakers when they most need it, which is often in hours and days, not months and years. In Canada, a variety of efforts have been undertaken to address the factors that have been found to increase the prospects for research use, including the production of systematic reviews that meet the shorter term needs of public policymakers and encouraging partnerships between researchers and policymakers that allow for their interaction around the tasks of asking and answering relevant questions. Much less progress has been made in making available research evidence to inform the urgent needs of public policymakers and in addressing attitudinal barriers and capacity limitations. In the future, knowledge-translation processes, particularly push efforts and efforts to facilitate user pull, should be undertaken on a sufficiently large scale and with a sufficiently rigorous evaluation so that robust conclusions can be drawn about their effectiveness.

28. Lezine DA, Reed GA. Political will: a bridge between public health knowledge and action. Am J Public Health. 2007 Nov;97(11):2010.

We propose a new model of the public health policy cycle: the Bridges from Knowledge to Action model. Many prevention initiatives require policy change to achieve broad implementation. Political will, society's commitment to support or alter initiatives, is essential for securing resources for policy change. We focus on the role of political will in developing and implementing public health policy that integrates scientific evidence and community participation.

29. Lomas J. Connecting research and policy. Isuma Canadian Journal of Policy Research. 2000 Spring; I(I):140.

This paper argues for a better understanding between researchers and decision makers as a step toward linking the two. To this end, the author describes research and decision making, focusing on common misconceptions.

30. Lubben M, Mayhew SH, Collins C, Green A. Reproductive health and health sector reform in developing countries: establishing a framework for dialogue. Bull World Health Organ. 2002;80(8):667.

It is not clear how policymaking in the field of reproductive health relates to changes associated with programs for the reform of the health sector in developing countries. There has been little

communication between these two areas, yet policy on reproductive health has to be implemented in the context of structural change. This paper examines factors that limit dialogue between the two areas and proposes the following framework for encouraging it: the identification of policy groups and the development of bases for collaborative links between them; the introduction of a common understanding around relevant policy contexts; reaching agreement on compatible aims relating to reproductive health and health sector change; developing causal links between policy content in reproductive health and health sector change as a basis for evidence-based policymaking; and strengthening policymaking structures, systems, skills, and values.

31. McBride T, Coburn A, Mackinney C, Mueller K, Slifkin R, Wakefield M. Bridging health research and policy: effective dissemination strategies. J Public Health Manag Pract. 2008 Mar-Apr;14(2):150.

INVESTIGATED: This study presents findings from a series of focus groups composed of stakeholders both on Capitol Hill and among national stakeholder organizations. The study was used to identify strategies health services researchers can use for the effective dissemination and expanded use of health services research in health policy.
METHODS: Focus groups were created to assess the usefulness of rural health research products and approaches for disseminating information, and in each focus group, respondents were asked for their evaluation of several types of dissemination products and approaches, as well as participants' utilization of research findings.
CONCLUSIONS: The focus groups identify strategies that include tailoring products to policymakers' needs, making research products accessible, expanding working relationships with end users, and investing in greater capacity for dissemination. Implications are drawn for researchers who need to be proactive in thinking about the applications of their research to health policy and to identify and seek resources to help them fund dissemination efforts.

32. NESTA. Evidence for social policy and practice: perspectives on how research and evidence can influence decision making in public services. London (UK): NESTA; 2011.

This report provides a method for evaluating programs, identifying what works and applying it to the support of young people and the prevention of violence among youths.

33. Oxman AD, Bjørndal A, Becerra-Posada F, Gibson M, Block MAG, Haines A, et al. A framework for mandatory impact evaluation to ensure well informed public policy decisions. The Lancet. 2010;375(9712):427.

Trillions of dollars are invested yearly in programmes to improve health, social welfare, education, and justice (which we will refer to generally as public programmes). Yet we know little about the effects of most of these attempts to improve peoples' lives, and what we do know is often not used to inform decisions. We propose that governments and non-governmental organizations (NGOs) address this failure responsibly by mandating more systematic and transparent use of research evidence to assess the likely effects of public programmes before they are launched, and the better use of well designed impact evaluations after they are launched.

34. Ranson MK, Bennett SC. Priority setting and health policy and systems research. Health Res Policy Syst. 2009;7:27.

Translating Research to Policy

Health policy and systems research (HPSR) has been identified as critical to scaling-up interventions to achieve the millennium development goals, but research priority setting exercises often do not address HPSR well. This paper aims to (i) assess current priority setting methods and the extent to which they adequately include HPSR and (ii) draw lessons regarding how HPSR priority setting can be enhanced to promote relevant HPSR, and to strengthen developing country leadership of research agendas. Priority setting processes can be distinguished by the level at which they occur, their degree of comprehensiveness in terms of the topic addressed, the balance between technical versus interpretive approaches and the stakeholders involved. When HPSR is considered through technical, disease-driven priority setting processes it is systematically under-valued. More successful approaches for considering HPSR are typically nationally-driven, interpretive and engage a range of stakeholders. There is still a need however for better defined approaches to enable research funders to determine the relative weight to assign to disease specific research versus HPSR and other forms of cross-cutting health research. While country-level research priority setting is key, there is likely to be a continued need for the identification of global research priorities for HPSR. The paper argues that such global priorities can and should be driven by country level priorities.

35. Rosenbaum S, Glenton C, Wiysonge C, Abalos E, Mignini L, Young T, et al. Evidence summaries tailored to health policy-makers in low- and middle-income countries. Bull World Health Organ. 2011;89:54.

The Supporting Policy-relevant Reviews and Trials (SUPPORT) project was an international collaboration funded from 2006 to 2010 by the European Commission's 6th Framework Programme and by the Global Health Research Initiative of the Canadian Institutes of Health Research. Its objective was to provide training and support to encourage researchers and policy-makers to undertake and use policy-relevant research. The consortium had 10 partners in nine countries in Africa, South America and Europe. This article reports on the development of summaries of systematic reviews for policy-makers in LMICs. The objective was to tailor a summary format that was sensitive to the needs of this audience.

36. Schunemann HJ, Fretheim A, Oxman AD. Improving the use of research evidence in guideline development: 13. applicability, transferability and adaptation. Health Res Policy Syst. 2006;4:25.

The World Health Organization (WHO), like many other organizations around the world, has recognized the need to use more rigorous processes to ensure that health care recommendations are informed by the best available research evidence. This is the thirteenth of a series of 16 reviews that have been prepared as background for advice from the WHO Advisory Committee on Health Research to WHO on how to achieve this.
OBJECTIVES: We reviewed the literature on applicability, transferability, and adaptation of guidelines.
METHODS: We searched five databases for existing systematic reviews and relevant primary methodological research. We used the definition "coming from, concerning or belonging to at least two or all nations" for the term international. Our conclusions are based on the available evidence, consideration of what WHO and other organizations are doing and logical arguments.
KEY QUESTIONS AND ANSWERS: *Should WHO develop international recommendations?* Resources for developing high quality recommendations are limited. Internationally developed recommendations can facilitate access to and pooling of resources, reduce unnecessary duplication, and involve international scientists. Priority should be given to international health problems and problems that are important in low and middle-income countries, where these advantages are likely to be greatest. Factors that influence the transferability of recommendations across different settings should be considered

systematically and flagged, including modifying factors, important variation in needs, values, costs and the availability of resources. *What should be done centrally and locally?* The preparation of systematic reviews and evidence profiles should be coordinated centrally, in collaboration with organizations that produce systematic reviews. Centrally developed evidence profiles should be adaptable to specific local circumstances. Consideration should be given to models that involve central coordination with work being undertaken by centres located throughout the world. While needs, availability of resources, costs, the presence of modifying factors and values need to be assessed locally, support for undertaking these assessments may be needed to make guidelines applicable. WHO should provide local support for adapting and implementing recommendations by developing tools, building capacity, learning from international experience, and through international networks that support evidence-informed health policies, such as the Evidence-informed Policy Network (EVIPNet). *How should recommendations be adapted?* WHO should provide detailed guidance for adaptation of international recommendations. Local adaptation processes should be systematic and transparent, they should involve stakeholders, and they should report the key factors that influence decisions, including those flagged in international guidelines, and the reasons for any modifications that are made.

37. Ssengooba F, Atuyambe L, Kiwanuka SN, Puvanachandra P, Glass N, Hyder AA. Research translation to inform national health policies: learning from multiple perspectives in Uganda. BMC Int Health Hum Rights. 2011; 11 Suppl 1:S13.

BACKGROUND : Research and evidence can have an impact on policy and practice, resulting in positive outcomes. However, research translation is a complex, dynamic and non-linear process. Although universities in Africa play a major role in generating research evidence, their strategic approaches to influence health policies and decision making are weak. This study was conducted with the aim of understanding the process of translating research into policy in order to guide the strategic direction of Makerere University College of Health Sciences (MakCHS) and similar institutions in their quest to influence health outcomes nationally and globally. METHODS : A case study approach using 30 in-depth interviews with stakeholders involved in two HIV prevention research project was purposively selected. The study sought to analyze the research-to-policy discourses for the prevention of mother-to-child transmission (PMTCT) and safe male circumcision (SMC). The analysis sought to identify entry points, strengths and challenges for research-to-policy processes by interviewing three major groups of stakeholders in Uganda - researchers (8), policy makers (12) and media practitioners (12). RESULTS : Among the factors that facilitated PMTCT policy uptake and continued implementation were: shared platforms for learning and decision making among stakeholders, implementation pilots to assess feasibility of intervention, the emerging of agencies to undertake operations research and the high visibility of policy benefits to child survival. In contrast, SMC policy processes were stalled for over two years after the findings of the Uganda study was made public. Among other factors, policy makers demanded additional research to assess implementation feasibility of SMC within ordinary health system context. High level leaders also publicly contested the SMC evidence and the underlying values and messages - a situation that reduced the coalition of policy champions. CONCLUSIONS : This study shows that effective translation of PMTCT and SMC research results demanded a "360 degree" approach to assembling additional evidence to inform the implementation feasibility for these two HIV prevention interventions. MakCHS and similar institutions should prioritize implementation research to guide the policy processes about the feasibility of implementing new and effective innovations (e.g. PMTCT or SMC) at a large scale in contexts that may be different from the research environments.

38. Stephenson R, Hennink M. Moving beyond research to inform policy: barriers and strategies in developing countries. Southampton: University of Southampton; 2002.

Translating Research to Policy

This article examines communication between researchers and policymakers in four countries: Malawi, Tanzania, India and Pakistan.

39. Sugiyama N. Theories of policy diffusion: social sector reform in brazil. Comparative Political Studies. 2008;41:193.

This article examines the motivations of Brazilian policymakers and how it impacts the diffusion of innovations. Two programs are discussed: *Bolsa Escola,* an education program, and *Programa Saúde da Família,* a family health program.

40. Sumner A, Crichton J, Theobald S, Zulu E, Parkhurst J. What shapes research impact on policy? Understanding research uptake in sexual and reproductive health policy processes in resource poor contexts. Health Res Policy Syst. 2011;9 Suppl 1:S3.

Assessing the impact that research evidence has on policy is complex. It involves consideration of conceptual issues of what determines research impact and policy change. There are also a range of methodological issues relating to the question of attribution and the counter-factual. The dynamics of SRH, HIV and AIDS, like many policy arenas, are partly generic and partly issue- and context-specific. Against this background, this article reviews some of the main conceptualisations of research impact on policy, including generic determinants of research impact identified across a range of settings, as well as the specificities of SRH in particular. We find that there is scope for greater cross-fertilisation of concepts, models and experiences between public health researchers and political scientists working in international development and research impact evaluation. We identify aspects of the policy landscape and drivers of policy change commonly occurring across multiple sectors and studies to create a framework that researchers can use to examine the influences on research uptake in specific settings, in order to guide attempts to ensure uptake of their findings. This framework has the advantage that distinguishes between pre-existing factors influencing uptake and the ways in which researchers can actively influence the policy landscape and promote research uptake through their policy engagement actions and strategies. We apply this framework to examples from the case study papers in this supplement, with specific discussion about the dynamics of SRH policy processes in resource poor contexts. We conclude by highlighting the need for continued multi-sectoral work on understanding and measuring research uptake and for prospective approaches to receive greater attention from policy analysts.

41. Sutcliffe S, Court J. A toolkit for progressive policymakers in developing countries. London (UK): Overseas Development Institute; 2006.

The aim of this toolkit is to identify lessons and approaches from evidenced-based practices in the United Kingdom that may be valuable for developing countries. The approaches and tools are designed for progressive policymakers who wish to use evidenced-based practices in developing countries.

42. Theobald S, Tulloch O, Crichton J, Hawkins K, Zulu E, Mayaud P, et al. Strengthening the research to policy and practice interface: exploring strategies used by research organisations working on sexual and reproductive health and HIV/AIDS. Health Res Policy Syst. 2011;9 Suppl 1:S2.

This commentary introduces the HARPS supplement on getting research into policy and practice in sexual and reproductive health (SRH). The papers in this supplement have been produced by the Sexual

Health and HIV Evidence into Practice (SHHEP) collaboration of international research, practitioner and advocacy organizations based in research programmes funded by the UK Department for International Development.The commentary describes the increasing interest from research and communication practitioners, policy makers and funders in expanding the impact of research on policy and practice. It notes the need for contextually embedded understanding of ways to engage multiple stakeholders in the politicized, sensitive and often contested arenas of sexual and reproductive health. The commentary then introduces the papers under their respective themes: (1) The theory and practice of research engagement (two global papers); (2) Applying policy analysis to explore the role of research evidence in SRH and HIV/AIDS policy (two papers with examples from Ghana, Malawi, Uganda and Zambia); (3) Strategies and methodologies for engagement (five papers on Kenya, South Africa, Ghana, Tanzania and Swaziland respectively); (4) Advocacy and engagement to influence attitudes on controversial elements of sexual health (two papers, Bangladesh and global); and (5) Institutional approaches to inter-sectoral engagement for action and strengthening research communications (two papers, Ghana and global).The papers illustrate the many forms research impact can take in the field of sexual and reproductive health. This includes discursive changes through carving out legitimate spaces for public debate; content changes such as contributing to changing laws and practices, procedural changes such as influencing how data on SRH are collected, and behavioural changes through partnerships with civil society actors such as advocacy groups and journalists.The contributions to this supplement provide a body of critical analysis of communication and engagement strategies across the spectrum of SRH and HIV/AIDS research through the testing of different models for the research-to-policy interface. They provide new insights on how researchers and communication specialists can respond to changing policy climates to create windows of opportunity for influence.

43. Tulloch O, Mayaud P, Adu-Sarkodie Y, Opoku B, Lithur N, Sickle E, et al. Using research to influence sexual and reproductive health practice and implementation in Sub-Saharan Africa: a case-study analysis. Health Res Policy Syst. 2011;9 Suppl 1:S10.

BACKGROUND: Research institutions and donor organizations are giving growing attention to how research evidence is communicated to influence policy. In the area of sexual and reproductive health (SRH) and HIV there is less weight given to understanding how evidence is successfully translated into practice. Policy issues in SRH can be controversial, influenced by political factors and shaped by context such as religion, ethnicity, gender and sexuality. METHODS: The case-studies presented in this paper analyse findings from SRH/HIV research programmes in sub-Saharan Africa: 1) Maternal syphilis screening in Ghana, 2) Legislative change for sexual violence survivors In Ghana, 3) Male circumcision policy in South Africa, and 4) Male circumcision policy in Tanzania. Our analysis draws on two frameworks, Sumner et al's synthesis approach and Nutley's research use continuum. RESULTS: The analysis emphasises the relationships and communications involved in using research to influence policy and practice and recognises a distinction whereby practice is not necessarily influenced as a result of policy change - especially in SRH - where there are complex interactions between policy actors. CONCLUSION: Both frameworks demonstrate how policy networks, partnership and advocacy are critical in shaping the extent to which research is used and the importance of on-going and continuous links between a range of actors to maximize research impact on policy uptake and implementation. The case-studies illustrate the importance of long-term engagement between researchers and policy makers and how to use evidence to develop policies which are sensitive to context: political, cultural and practical.

44. van Kammen J, de Savigny D, Sewankambo N. Using knowledge brokering to promote evidence-based policy-making: the need for support structures. Bull World Health Organ. 2006 Aug;84(8):608.

Knowledge brokering is a promising strategy to close the "know-do gap" and foster greater use of research findings and evidence in policy-making. It focuses on organizing the interactive process between the producers and users of knowledge so that they can co-produce feasible and research-informed policy options. We describe a recent successful experience with this novel approach in the Netherlands and discuss the requirements for effective institutionalization of knowledge brokering. We also discuss the potential of this approach to assist health policy development in low-income countries based on the experience of developing the Regional East-African Health (REACH)-Policy Initiative. We believe that intermediary organizations, such as regional networks, dedicated institutional mechanisms and funding agencies, can play key roles in supporting knowledge brokering. We recommend the need to support and learn from the brokerage approach to strengthen the relationship between the research and policy communities and hence move towards a stronger culture of evidence-based policy and policy-relevant research.

45. Whitty C, Kinn S. Foreword: lesson learning about getting research into policy and practice. Health Res Policy Syst. 2011; 9 Suppl 1:S1.

The UK Department for International Development (DFID) is committed to investing in research to combat poverty, reduce high mortality and morbidity in resource poor contexts and support progress towards meeting the Millennium Development Goals. Research helps us to identify what works, what does not work and how to understand the local context when introducing new ways of working. There is no point doing research if the findings do not get into policy and practice. DFID strongly encourages all research programmes to consider research uptake activities as an integral part of the research.This special supplement draws on the work of the Sexual Health HIV Evidence into Practice (SHHEP) initiative. SHHEP is a collaboration across four DFID Research Programme Consortia (RPC) that undertake research and action on HIV and Sexual and Reproductive Health in resource poor contexts. Each consortium consists of 5 or more research, advocacy or service provider institutions from the south and the north working together over a five year period on critical areas of sexual and reproductive health. The essence of SHHEP is to share learning on research uptake and research engagement in Sexual and Reproductive Health, including HIV. The group has formulated a range of targeted mechanisms to communicate health research to different audiences and spearhead change, and were finalists for the British Medical Journal 2010 Getting Research into Practice (GRiP) prize.The papers in this special supplement focus on lesson learning on getting research into policy and practice. They highlight the range of methodologies and approaches researchers and communication specialists have used in different contexts to try to ensure research does not simply gather dust on library shelves but feeds into and is relevant to policy and practice in different contexts (for example South Africa, Swaziland, Tanzania, Uganda, Malawi, Ghana, Bangladesh) and on a diversity of topic areas (Gender based violence, sexualities, orphans and vulnerable children, HIV care and treatment including male circumcision, cotrimoxazole and links with nutrition).The work reported in this supplement provides examples of approaches that have been tried and from which other researchers can learn. They demonstrate that getting research into policy and practice is complex, dynamic and multi-faceted; and a wide range of context and issue specific conceptual and practical approaches have to be used. I hope that the innovative approaches and promising ways forward, presented in these papers, will inspire and motivate others.Professor Christopher WhittyDirector Research and Evidence DivisionDepartment for International DevelopmentDr Sue KinnHead of Health ResearchDepartment for International Development.

46. Yamey G, Feachem R. Evidence-based policymaking in global health - the payoffs and pitfalls. Evid Based Med. 2011; 16(4):97.

This article discusses evidence-based policymaking in global health — including challenges, misconceptions and recommendations for the future.

See Also

In Barriers, Constraints and Challenges to Research Utilization

Guindon GE, Lavis JN, Becerra-Posada F, Malek-Afzali H, Shi G, Yesudian CA, et al. Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of health care providers. CMAJ. 2010 Jun 15;182(9):E362.

In Dissemination and Implementation

Kerner JF. Integrating research, practice, and policy: what we see depends on where we stand. J Public Health Manag Pract. 2008 Mar-Apr;14(2):193.

Whiteside A, Henry FE. The impact of HIV and AIDS research: a case study from Swaziland. Health Res Policy Syst. 2011;9 Suppl 1:S9.

In Frameworks and Models for Research Utilization

Bowen S, Zwi AB. Pathways to evidence-informed policy and practice: a framework for action. PLoS Med. 2005 Jul;2(7):e166.

In Stakeholder Engagement

Lavis JN, Guindon GE, Cameron D, Boupha B, Dejman M, Osei EJ, et al. Bridging the gaps between research, policy and practice in low- and middle-income countries: a survey of researchers. CMAJ. 2010 Jun 15;182(9):E350.

In Tools

Cameron D, Lavis JN, Guindon GE, Akhtar T, Becerra Posada F, Ndossi GD, et al. Bridging the gaps among research, policy and practice in ten low- and middle-income countries: development and testing of a questionnaire for researchers. Health Res Policy Syst. 2010;8(1):4.

Lavis J, Oxman A, Lewin S, Fretheim A. SUPPORT tools for evidence-informed health Policymaking (STP). Health Research Policy and Systems. 2009;7 Suppl 1:I1.