What is the Evidence That Evidence is Used in Family Planning Policy, Program and Practice Decision-making?

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Abstract

Attention to global goals to increase access to family planning has increased focus on ensuring that programming is "evidence-based." The international family planning field was founded on research, including through demonstration projects, national surveys, and decades of operations research and now implementation science. Attention to research utilization, or getting evidence into action, also goes back decades in family planning. With this rich history, there is scant research on whether and how evidence is used in decision-making for family planning and reproductive health (FP/RH) programming, policies and practices, despite a growing literature on research utilization (also known as knowledge translation and other terms) in global health. Based on a realist evidence synthesis, we examine how evidence is defined by producers and users of evidence, and show how evidence, among other factors such as values and beliefs and political, economic and social considerations, influences decision-making. We also examine the facilitators and barriers to evidence use and offer several promising interventions that can promote the continued use of evidence in decision-making on family planning policies, programs and practices, including: building cultures of evidence through enabling relationships and capacity and through developing mechanisms for knowledge transfer and communication; the grounding of research in an understanding of complex health systems; being realistic about the value of single studies in decision-making; including research utilization in study protocols; enhancing research methodologies for studying complex health systems; and studying interventions on research utilization.

Introduction

A resurgence in the global focus on family planning over the past decade has increased attention towards implementing policies and programs that are based on scientific evidence. The FP2020 initiative, which challenges countries and donors to expand access to voluntary family planning to an additional 120 million contraceptive users by 2020, has been particularly instrumental in promoting evidence-based family planning and reproductive health (FP/RH) programming and policy-making. This focus on evidence-based decision-making in FP/RH policies, programs and practices is increasingly important as global development resources shrink. Ensuring that family planning policies, programs and practices are evidence-based requires the generation of evidence about what interventions work and how they can work better, and getting the evidence used in decisions about policies, programming, and practices. Much has been written about evidence-based medicine (EBM), evidence-based policy (EBP) and evidence-informed decision-making (EIDM) – all of which are intended to provide scientific and evidence-based legitimacy to policy, program and practice decisions via an objective and scientific process (Lewis, 2007; Yamey and Feachem, 2011). The emerging field of knowledge translation, (known by many names, including research utilization (McKibbon et al. 2010; Moat and Lavis, 2012; CIHR, 2004; Clar et al. 2011)), and the related discipline of dissemination and implementation research (Damschroder et al. 2009), seek to enhance ways of promoting the use of evidence in decision-making. Yet, neither set of literature makes much mention of family planning, although a number of recent studies on decision-making and use of evidence cover topics from other health areas, including HIV, TB and malaria.

The field of family planning was founded on research-based interventions. The earliest national family planning programs (in the 1950s and 1960s), including programs in Puerto Rico, India, Taiwan, Sri Lanka and Korea, used research findings to demonstrate to government officials that family planning could work in reducing fertility and improving health outcomes (Foreit and Frejka, 1998). In addition to academic research, the family planning field has long benefitted from evidence generated from the Demographic and Health Survey (DHS) and its predecessors, the World Fertility Survey and the Contraceptive Prevalence Survey, and from the Reproductive Health Survey. Since the 1980s, operations research (OR) has been undertaken to inform improvements in the implementation of family planning and reproductive health services and programs. Today, this work continues in the form of "implementation research". Current initiatives focused on promoting evidence-based implementation include the Implementing Best Practices initiative (www.ibpinitiative.org) and the family planning High Impact Practices from USAID (www.fphighimpactpractices.org/); both initiatives focus on scaling up evidence-based policies, programs and

practices. Countries are also increasingly looking to build evidence-informed policies and programs, including through ministerial calls to action on research in 2004 and 2008 (Bamako Call to Action, 2008).

Reducing the gap between what is known and what is implemented – the evidence to action gap – has long been of concern of the family planning and reproductive health community (Freedman and Berelson, 1976; Foreit and Frejka, 1998; Seidman and Horn, 1991; International Health Systems Group, 2000; Simmons et al., 2002; WHO, 2006). For example, a conference hosted by the Population Program at the East-West Center in Hawaii was held 40 years ago – this conference deliberated on how to make population and family planning research useful for programs (Echols, 1974). More than 20 years ago Koenig and Whittaker (1991: 451) observed that "the gap in translating [family planning] OR findings into tangible improvements in policies and programs remains perhaps the most significant limitation of current family planning OR projects." In the late 1990s, when developing ExpandNet, a widely used framework directing scale up which grew from experience with family planning operations research, Simmons et al. (2007: ix) noted a

> growing recognition…that 'data seldom speak for themselves' and that research-based recommendations are rarely sufficient to change practice….[and that] deliberate activities to push new insights in the policy process and to facilitate adoption of new ideas and practices by managers, providers and other stakeholders [is required].

This paper addresses the question: Given the rich history of evidence generation in family planning, what is the evidence that evidence is used in decision-making on family planning and reproductive health policies and programs? The paper explores what "evidence" means, what types of evidence policymakers and program managers seek when facing implementation decisions and how evidence relates to other factors that influence decision-making. Drawing on the wider literature on evidence-based medicine and policy and on dissemination and implementation research, along with examples from family planning and other health areas, this paper explores the facilitating factors and challenges to evidence use. It draws on the emerging knowledge translation literature to provide lessons learned on ways to increase the role that evidence plays in policy and practice decision-making on family planning and reproductive health policies and programs. While evidence-based policy making is frequently the focus of this segment of literature, the use of evidence in programs and practices is intentionally included throughout this paper in order to recognize that important decision-making occurs at all levels of health systems and health infrastructures.

Methodology

This paper is based on a realist literature search whose objective was to locate references on evidence-based policy in health or social science, knowledge transfer, translation or utilization for health or social science

programs, evidence collected from "intervention studies" in family planning programs, and "implementation science" for family planning and reproductive health. The literature search included databases, individual websites, and reviews of bibliographies. The search was conducted in PubMed/MEDLINE, Web of Science and POPLINE, in addition to snowballing references from bibliographies. References were limited to 2000-2014 in the database searches; snowballing of materials goes back to the 1990s, and in some cases earlier, in order to capture earlier literature on research utilization in family planning and seminar writing on research utilization.

Findings

What is "Evidence"?

Although the question of what constitutes evidence is seemingly simple at first glance, the answer itself is actually complex. Few articles that address evidence use actually define the term (Oliver et al., 2014). The term "evidence" has a different meaning to a decision-maker or practitioner than to a researcher (Sumner et al. 2011; Brownson et al., 2009; Lomas et al., 2005; Lewis, 2007). Definitions of rigorous or acceptable thresholds of evidence have evolved over time, both with the development of new study designs and analytic methods and with the increasing recognition that evidence and its use are context-dependent. Studies on evidence use are mostly written by researchers, and thus, not surprisingly, the meaning of evidence in the literature is often defined as research and the findings derived from research.

The scientific community operates using hierarchies of research evidence to evaluate the research findings—these hierarchies are often defined by the type of study design and statistical elements that strengthen or weaken the findings from the research. The scientific community also differentiates between research, monitoring and evaluation and other types of knowledge (e.g. tacit knowledge or practical experience), and generally places a higher value on research evidence compared to other types of knowledge or information – and more value is often placed on research published in the peer-review literature compared to programmatic research reports in the gray literature. Trostle et al. (1999), for example, contend that the type of evidence that produces research results in "knowledge," whereas evidence from monitoring merely results in "information." Generally, the predominant preference among the research community is for evidence that falls within existing hierarchies based on the type and quality of the study rather than the suitability of the methodology for the research question. Although current hierarchies of evidence consider randomized control trials to be the gold standard, efforts are underway to develop more flexible standards of evidence for reproductive health since most current systematic reviews and the WHO's GRADE system for reviewing evidence renders most evidence to be considered "weak" (STEP UP Research Programme Consortium, 2013; Shelton, 201; Lewis, 2007).

Decision-makers define "evidence" more broadly than many researchers define it and often seek a range of evidence on which to base decisions, only one piece of which is evidence from research. In an examination of the development of a malaria treatment policy in Uganda, Nabyonga-Orem et al. (2014:1) found that a broader definition of evidence according to decision-maker definitions was needed; this included "research study results (both published and unpublished), findings of monitoring and evaluation (M&E) studies and population-based surveys, Ministry of Health (MoH) reports, community complaints, and clinician observations." Likewise, when local government practitioners in the state of Victoria, Australia described what they considered to be the "evidence" that they used in their decision-making, they stated that it included "academic research, local research and evaluation, policy documents, population level or local data, community views, collegiate expertise and professional experience" (Armstrong et al., 2014: 6).

Cognizant of the needs of decision-makers for a range of evidence, in its 2004 *World Report on Knowledge for Better Health*, the WHO defined the following types of knowledge (evidence) needed to bring about health systems change: knowledge about priority problems, proven solutions, the implementation context, whether solutions are feasible in local settings and proven mechanisms to bring about change. For decision-makers, having evidence that that aligns with these types of knowledge and which fits the local context is important. Writing about evidence-based policy, Bowen and Zwi (2005: 601), state more comprehensively that evidence is something "usually sought [from research] to show effectiveness ('it works'), show the need for policy action ('it solves a problem'), guide effective implementation ('it can be done'), and show cost-effectiveness ('it is feasible and may even save money')." However, scientific research is not always geared to meet the demands for context-specific evidence, which can result in a disconnect between researchers and policy makers or decision-makers. Lomas et al (2005) differentiate between context-free scientific evidence (e.g. from RCTs), context-sensitive scientific evidence (e.g. surveys, case studies and qualitative studies), and colloquial evidence (e.g. feasibility, professional opinion and local values). Because policy decisions will always be influenced by factors other than evidence, a marriage of the two world views is necessary in order to produce and use appropriate and context-specific evidence in policy, program and practice decision-making (Oxman et al., 2009a).

How Evidence is Used in Decision-making

In the field of family planning, evidence use, also known as research utilization, has previously been defined as "making decisions concerning policy, advocacy, and resource allocation, planning and management, and program systems development and strengthening, using information generated from research" (FRONTIERS, NDb:1). Evidence is needed for a range of decision-making processes – from policy

development to routine program implementation (Trostle, 2006). To understand how evidence can inform decision-making, it is crucial to understand the policy and decision-making process and how evidence fits in.

While the early linear view which sees the policy process as being divided into four steps (problem identification, policy development, policy implementation and policy evaluation (Lasswell, 1951)) is a useful heuristic model, subsequent work shows that the policy process is complex and non-linear in nature (Walt and Gilson 1994; Bridgeman and Davis, 2003). The process of developing and implementing policies is made up of many components. These components can include using technical strategies, such as incorporating the use of evidence into decision-making, to drive strategies and resource allocation, and can include the relational aspects of policymaking, such as understanding and utilizing the social and political interactions among stakeholders during policy development and implementation (Hardee et al. forthcoming). This relational aspect includes the need for policymakers and other stakeholders to navigate the political environment and other power dynamics that affect the decision-making process (Hunsman, 2012; Gleeson, et al., 2009; Grindle, 2006, Colebatch, 2006; Howard, 2005).

To understand how evidence fits into the policy and program decision-making process, Weiss (1979) defined six models of research utilization: the knowledge-driven model, the problem solving model, the interactive model, the political model, the tactical model and the enlightenment model. The knowledge-driven model is based on a linear process that proceeds from basic research to applied research to product development and application (Weiss, 1979). The problem solving model is conceptually linked to the idea of policymaker and researchers sharing and agreeing on a goal and utilizing existing research or commissioning research to meet these goals and the interactive model recognizes that "the use of evidence is only one part of a complicated process that also uses experience, political insight, pressure, social technologies, and judgment" (Weiss, 1979: 429). The political model describes a situation in which policymakers use research to justify their predetermined positions while their adversaries use research as ammunition, and the tactical model describes using the need for additional research as a stalling mechanism in decision-making (Weiss, 1979). Finally, the enlightenment model describes a situation in which one study or a body of evidence does not directly affect decision-making, but rather "it is concepts and theoretical perspectives that social science research has engendered that permeate the policy-making process" (Weiss, 1979: 429). In Weiss' model the diffusion of research can be both positive and negative, as "advocates of almost any prescription are likely to find some research generalizations in circulation that support their points of view" (Weiss, 1979: 430). The models articulated by Weiss have been identified by others studying research utilization through the years, from using evidence to inform specific decisions (the problem-solving model), to selective use of evidence to support predetermined policy positions (the political model), to tactical requests for evidence to stall decisions and use of evidence by "opposing sides to bolster competing values" (Brownson et al., 2009: 1576), to placing value

judgments on data or framing evidence to satisfy influential decision-makers (the tactical model), to using evidence that is context-based and that informs decision-makers about the issue and potential solutions (interactive model) (DFID, 2014; Liverani et al. 2014; Freudenberg and Tsui, 2014; Brownson et al., 2009; Sumner et al., 2011). The models described by Weiss, and subsequently described by other authors, offer useful heuristic categories for understanding how evidence is used in decision-making and how it relates to other factors that influence policy, program and practice decision-making.

Policymaking and program design and implementation are complex processes, and how research evidence, particularly from individual studies, informs decision-making is also complex and difficult to measure (DFID, 2014; Kerner, 2008; Trostle et al., 1999). A number of reviews and studies have found that while the idea of using evidence may be positively regarded by individual decision-makers, evidence tends not to be a central factor in the reality of policy and program decision-making (DFID, 2014; Hyder et al. 2010). While evidence might not be the only factor in decision-making, the absence of evidence has been noted as an issue because the "lack of strong evidence makes it unlikely that government will adopt an innovation" (Spicer et al., 2014; 34). Evidence is more easily used to define problems than to suggest solutions. While the analysis has not been conducted, it is very likely that data from the DHS, or other relevant national survey, is cited in most, if not every, national population, family planning or reproductive health survey.

In a study of 83 policymakers in six countries (Argentina, Egypt, Iran, Malawi, Oman and Singapore), the policymakers "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" (Hyder et al., 2010: 73). These barriers included poor communication and dissemination of research, policymakers own inability or lack of technical capacity to interpret or understand technical data, and the influences of the ever-changing political context (Hyder et al, 2010). A study of decision-making on family planning that included both decision-makers and advocates in Ethiopia and Kenya found that decision-makers did say that evidence and data, including the cost of implementation, was important to them in decision-making (Smith et al, 2015). However, a Kenyan decision-maker explained that "in policy decisions, there is a tendency to attend to where the concerns are immediate… since the impact of lack of family planning is not immediate, then we tend to postpone it for another day" (Smith et al. 2013: 29).

Analyses have generally found that evidence that supports decision-makers' existing beliefs, and that are timely, are much more likely to be taken up (Brambila et al. 2007). Haaga and Maru (1996: 85) found in Bangladesh that "policy advice [on family planning] that is consonant with existing power relations (between layers of the hierarchy, or among functional units) is the easiest to implement." Some evidence suggests that, when used and presented correctly, research can be used to change the minds of decision-makers rather than

being used only in an instrumental fashion to support an already held position (Askew et al., 2002; Smith et al., 2015; DFID, 2014). One way to respond to decision-makers' questions and provide context-specific evidence is through the provision of evidence using a rapid response mechanism tailored to the decision-makers' needs (Mijumbi et al., 2014).

Another issue is the complexity of many policies and programs and the lack of clear evidence on which to base decisions (McCoy et al., 2010; Lyons, 2010; Kay, 2010). Complex health systems issues are not easily amenable to investigations which use strict research designs and thus constitute what are referred to as "wicked problems": those for which there is no one answer or solution. Wicked problems were described by Churchman in 1967 as being "'ill-formed, where the information is confusing, where there are many clients and decision-makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing" (cited in Glasgow et al, 2012: 650). When dealing with wicked problems, being able to identify "which measure was taken, when it was taken, and the degree to which it was pursued, reflects not only the evidence, but very real and complex political and economic pressures at different moments in time" (Harris, 2010: 83). Furthermore, evidence that goes against existing programming can be perceived as threatening to the status quo as its implementation would disturb existing structures, often without additional resources needed to fund the change (Haskins, 2015; Alvaro et al., 2010: 2)

Donor priorities can influence country use of evidence in decision-making, and these priorities may or may not align with national or local priorities. In their review of the political and institutional influences on the use of evidence in public health policy, Liverani et al. (2014: 5) explain that "donors tended to promote interventions with strong evidence bases, but they do so in ways that may neglect local context, needs and capabilities." Nabyonga-Orem and Mujumbi (2015) noted from a study of evidence for health policy that donors preferred international evidence while national stakeholders looked to local evidence. Donors determine what research they will fund, where they will fund it, and who they will fund to carry it out (Eyben, 2013; Askew et. al., 2002). Donors and multilateral organizations also have a tendency to influence national priorities based on their global agendas (Behague et al. 2009; Behague and Storeng, 2008). The family planning field witnessed a negative natural experiment in the use of evidence to guide programming during the 1990s, when, despite continued evidence of unmet need for family planning (Cleland et al. 2006), national policymakers and program managers followed the lead of donors in shifting funding to respond to AIDS.

While evidence from research should be included in decision-making, there is widespread recognition that it is not – nor should it be – the only factor that decision-makers take into consideration when making decisions about health policies, programs or practices. A DFID review examining the impact of research investments in development provided a strong recommendation that the full body of evidence, including the

strength of the evidence and its' suitability for addressing an issue, is examined rather than focusing on individual studies that support already established positions (DFID, 2014).

At the conclusion of the USAID-funded Data for Decision Making project in 2000, the International Health Systems Group at Harvard (2000: 8) noted that, "Data and evidence should be seen as an 'almost necessary' condition for policy improvement, but certainly are not a sufficient condition. Data and evidence *per se* do not create motivation or capacity for sound decision-making, although they can help mobilize forces for change."

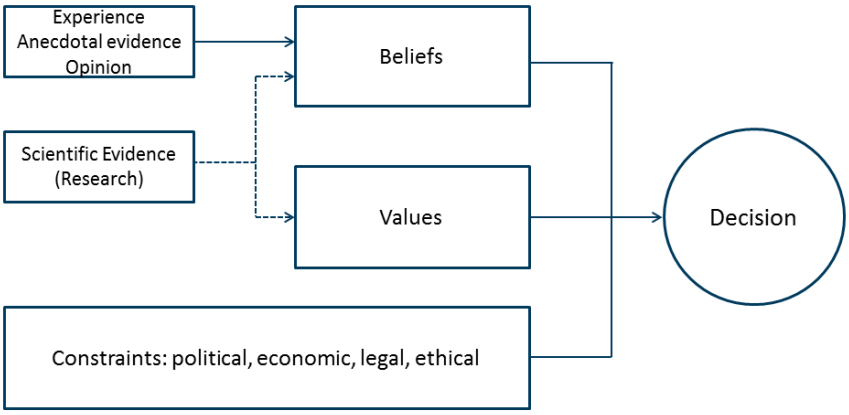
Key Influential Factors on Decision-making

The literature is clear that decision-makers take a range of factors into consideration when making decisions about policies, programs and practices. In the *Handbook for Family Planning Research*, Fisher et al. recognized that operations research results "are combined with other information (political, experiential, colleague's opinions, other research findings) to provide a more complete picture of a situation. The new information could be crucial, particularly if it provides decision-makers with the additional confidence they need to make necessary service delivery changes" (Fisher et al., 1991: 66).

While scientific evidence may be used to inform decisions, it is generally not the deciding factor in policy formulation or implementation (Kim, 2006; Eyben 2013; DFID, 2014). Criticism of the evidence-based medicine and policy paradigms suggests that they rest on naïve attempts to base policy and practice on evidence alone (Lewis, 2007; Liverani et al. 2014). Crewes and Young (2002: 12), explain that, "policy-makers are not blank slates on which it is possible to write new knowledge merely by making it available. It is well established that knowledge is socially constructed, filtered through pre-conceived ideas and values." Policy and program decision-making are influenced by other factors including politics, the social, economic and cultural context of decision-making, and the health service infrastructure (Almeida and Bascolo, 2006; Buse et al. 2006; Cookson, 2005; Peters et al. 2013; Lomas, 1997). Klein (2000) suggests that "policymakers and program decision-makers need to know whether a policy, program or practice is feasible, affordable, implementable and acceptable. If [not]…, there is little point in adopting it, whatever traditional research evidence says" (Klein, 2000 in Locock and Ziebland, 2010: 93).

Cookson (2005) provides a useful framework of the constellation of factors in addition to scientific evidence that feed into decision-making (Figure 1). The model suggests that research evidence is filtered through beliefs about the issue at hand, along with anecdotal evidence, experience and opinion, which all affect decision-making. Decisions are also affected by individual and group values and are constrained by political, legal and economic factors.

Figure 1. The Role of Evidence and Other Factors in Decisionmaking



Adapted from Cookson, 2005.

There are a number of examples of other factors taking precedence in family planning decision making. Policy making and programming for adolescent reproductive health is constrained in many countries by cultural norms that prohibit (at least in theory) sexual activity among that age group, despite evidence that a significant proportion of adolescents are sexually active (UNFPA, 2014). Policy making and programming of the Standard Days Method (SDM) of contraception is constrained in many countries due to its characterization as a "religious" method and the belief by many physicians and policymaker that, despite 20 years of evidence demonstrating high effectiveness (95% with correct use and 88% with typical use), there is not sufficient evidence to endorse SDM programming (Wright et al. 2015). Questions about whether SDM is modern or traditional method, despite the evidence on its effectiveness, was part of the impetus for a 2015 WHO and USAID-sponsored meeting to define criteria for classification of contraceptive methods.

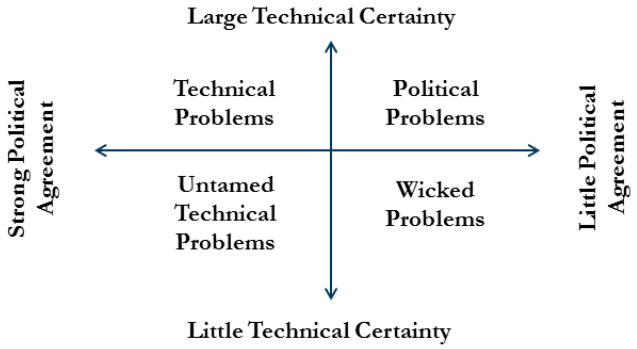
Task shifting provides another example of how beliefs can affect the interpretation of evidence. The safety and acceptability of nurse and midwife provision of IUDs has been established since the 1970s (Wright et al. 1977; Eren et al. 1983; Lassner et al., 1995), yet in some countries, such as Jordan, there has been resistance among physician stakeholders. The 2013-2017 Jordanian National Reproductive Health/Family Planning Strategy delineates the need for legislation to allow midwives to insert and remove IUDs; although the Ministry of Health has recently added this function to the job description of

midwives, they may only insert IUDs under the supervision of physicians, which greatly reduces midwives' ability to provide the IUD (Higher Population Council, 2013). Depo Provera provision in India is another example of how beliefs and political context can constrain the delivery of FP services. Depo Provera has been blocked from being included in India's public sector family planning program for decades by women's groups who ignore its approval by the WHO and its safe use by millions of women around the world. Entrenched positions can be difficult to dislodge; although mounting evidence over the years can sometimes change decisions, usually this only occurs when evidence is provided in the context of changing norms and societal conditions.

Relationships between decision-makers, researchers or other stakeholders can also exert influence (Almeida and Bascolo, 2006; Askew et al. 2002; Clar et al. 2011), as can power dynamics (Freudenberg and Tsui, 2014). In their review of the revision of the Ugandan malaria treatment policy in response to evidence on drug resistance, Nabyonga-Orem et al., (2014) noted that there were a range of stakeholders involved, some of whom played multiple roles in the process with varying levels of support for and influence over the uptake of evidence in the decision-making process to change the policy. They concluded that: "mapping the relevant stakeholders and devising mechanisms for their engagement and for how to resolve conflicts of interest and disagreements a priori will enhance uptake of evidence in policy development" (Nabyonga-Orem et al., (2014: 1).

Hill and Hupe (2009) have developed a useful schema that can be used to assess the dynamic between the scientific (evidence-based) certainty about a topic and the political consensus and contentiousness about the topic (Figure 2). This schema can help researchers understand why a decision may not seem "evidence-

Figure 2. Classifying Decision-making Based on Levels of Political Agreement and Technical Certainty



Adapted from Hill and Hupe, 2009

based" to them. The more politically contentious a topic is, the more likely the decision will be weighted in favor of factors other than research evidence. As Sumner et al. (2011) point out, family planning and reproductive health can be a highly politicized and contentious topic. Sometimes it is easier to "delay decision-making on contentious issues while less contentious topics with clearer, uncontested evidence bases are followed" (Liverani et al. 2014: 6). According to the quadrants, issues for which there is technical agreement (technical certainty) and political agreement, can be considered technical problems for which decision-making is relatively straightforward. Many service delivery issues in family planning could fall in this category—for example, when an improved technique for contraceptive provision is studied and adopted into a program. Issues for which there is technical agreement but little political agreement are classified as political problems. Meeting the needs of adolescents for family planning and reproductive health could fall in this category—there is technical certainty that adolescents require sexual and reproductive health services, but there may be political disagreement or lack of political will to address adolescent sexuality. Issues for which there is political agreement but little technical agreement fall into the quadrant of untamed technical problems. An example of this quadrant is the agreement that multiple concurrent partnerships should be addressed in HIV programming, with little agreement or evidence on how to address this issue. Within the four quadrants, the most difficult decisions fall in the quadrant of "wicked problems" – those for which there is little technical certainty and little political agreement on solutions. A current area of discussion in family planning is the focus on gaining new family planning users to reach the FP2020 goal, at the expense of retaining existing users by reducing discontinuation (RamaRao and Jain, 2015).

The Role of Researchers in Purveying Evidence for Decision-making

Researchers often consider themselves to be the 'objective' purveyors of 'the evidence,' and tend to note with distain the influence of other groups with "vested interests" on the decision-making process. For example, Sumner et al. (2011: 8) explain that those with a vested interest might adversely influence policymakers and reduce the likelihood of evidence-based policies being put into place. Yet there is growing realization that researchers have their own values that influence the research they conduct. Writing about family planning and other health areas in Mexico, Trostle et al. (1999: 104) write that "by implying that scientists do not have 'vested interests', and by claiming the moral high ground for science, this perspective can hinder the participation of researchers in policymaking. Claims of special status for science create rapid protest from other interest groups"—claims of scientific "exceptionalism" can not only alienate potential decision-makers, it can also influence whether and how those decision-makers use and implement evidence itself. It is important to note that all researchers do not speak with one voice, or support the same research, and that there have been calls for researchers to acknowledge the values and beliefs that they bring to the research process and their topics (Askew et al. 2002; Eyben et al., 2013; Lyons, 2010; Trostle, 2006; Sheikh et al., 2014). These varying vantage points can cause confusion for decision-makers about the value of evidence for

decision-making and the credibility of researchers in the process (Askew et al. 2002; Lyons, 2010; Eyben et al., 2013). Finally, there is debate in the scientific community about the proper role of researchers in representing research, with potential roles ranging from pure scientist to issue advocates interested in promoting a specific policy outcome through their research (DFID, 2014). Askew et al. (2002: 13) argue that it is important for researchers to maintain some distance from policymakers "so that they do not compromise their ability to be critical of, or disagree with the decision-maker." The roles of researcher and policymaker can shift over time, with each moving into and out of the two roles. Later sections in this paper discuss facilitating factors to researchers being successful purveyors of evidence, including working with or acting as trusted intermediaries, building decision-maker capacity to understand and user research, and creating an enabling environment.

Facilitators and Barriers to Evidence Use

Factors that contribute to or impede the use of evidence in decision-making on policies, programs and practices have commonly been referred to as "facilitators" and "barriers." Oliver et al. (2014) conducted a systematic review of barriers to and facilitators on the use of evidence by policymakers around the world, with around one-quarter of the 145 studies in low and middle-income countries. This review offers valuable insights into the most influential facilitators and barriers to evidence use in decision-making, however additional research is necessary to understand how timing affects these factors and how these factors operate specifically in the realm of family planning and reproductive health programs. The studies are mostly related to evidence use in health policy, with only one directly related to family planning (Brambila et al. (2007), in Guatemala. The study generated a long list of barriers and facilitators and Table1 lists the top five most frequently reported facilitators and barriers to use of identified evidence.

Table 1. Most Frequently Reported Barriers and Facilitators of the Use of Evidence

Top 5 barriers to evidence use	**Top 5 facilitators of evidence use**
Availability and access to research/improved dissemination	Availability and access to research/improved dissemination
Clarity/relevance/reliability of research findings	Collaboration
Timing/opportunity	Clarity/relevance/reliability of findings
Policymaker research skills	Relationship with policymaker
Costs	Relationship with researchers

Source: Oliver et al. 2014: 6.

The most frequently reported facilitators in Table 1 are found throughout the policymaking literature (DFID, 2014; Spicer et al., 2014; Grimshaw et al. 2012; Hyder et al. 2010; WHO, 2006; Almeida and Basolo, 2006; Innvaer et al. 2002; Trostle et al. 1999) and in the scale-up and family planning operations research literature

(Koenig and Whittaker, 1991; Haaga and Maru, 1996; Askew et al. 2002; Simmons et al. 2002; Simmons et al. 2007; Brambila et al. 2007).

Other facilitating factors for evidence use noted in systematic reviews included using or producing evidence that was aligned with current policy interests (Innvaer et al. 2002; Spicer et al. 2014; Grimshaw et al. 2012;), the availability of local data (Clar et al. 2011), the use of evidence that included effectiveness data (Innvaer et al. 2002), analyses of the feasibility of implementing the findings in the health system (Clar et al. 2011), community pressure and support for the intervention (Innvaer et al. 2002), and support from/involvement of multinational organizations (Clar et al. 2011). Good leadership and government support for the use of evidence was also noted by a number of authors as a facilitating factor (Oliver et al. 2014; Clar et al. 2011). Other key barriers highlighted in the literature include power and budget struggles (Innvaer et al. 2002), high turnover of policy staff (Clar et al. 2011, Innvaer et al. 2002; Koenig and Whittaker, 1991), the lack of capacity of governments to use research (DFID, 2014; Spicer et al. 2014), the lack of incentives for decision-makers and for researchers to ensure evidence use in decision-making (DFID, 2014), and a lack of understanding of the policy process by researchers (Weiss, 1979; Sutton, 1999; Trostle et al., 1999; Lomas, 2007; Brownson et al. 2009; Liverani et al. 2014). Researchers' lack of understanding of the policy and program decision-making context has been a longstanding refrain; this lack of understanding can affect the research that is conducted and how valuable evidence is for decision-making (Weiss, 1979; Haaga and Maru, 1996; Koenig and Whittaker, 1991; Lomas, 1997; Sumner et al. 2011).

Some barriers to evidence use stem from a disconnect and a lack of understanding about the role and processes of policymakers on the part of researchers and vice versa. These misconceptions were articulated by Lomas nearly 20 years ago, and are shown in Table 2; many of these attitudes continue to prevail (Lomas, 1997). In 2006, the WHO sponsored two technical consultations on turning research into practice; these included case studies from sexual and reproductive health research which noted that "linkages between those involved in generating knowledge and those responsible for applying it are inadequate and fragile" (WHO, 2006: 8). Researchers and policymakers work under different organizational structures, have different incentives driving their work, and operate under different time scales for implementation. Both groups also tend to view each other's work as producing a product (a research study or a policy/program decision) rather than as processes—this is not only reductionist, it can also lead to barriers to evidence uptake due to continued misunderstandings about roles and contexts on each side.

Table 2. Common Views of Decision-makers and Researchers of Each Other

Decision-makers' views of researchers	Researchers' views of decision-makers
Lack of responsiveness to priorities	Imposing unrealistic timelines
Measuring timeliness in years instead of weeks	Being unaware of what is a researchable question
Favoring jargon to transparent communication	Being unable to distinguish good research from bad
Preferring equivocate on to conviction when faced with real decisions	Expecting instrumental aid from enlightened research
Over-reliance on written tomes instead of succinct person-to-person debate	Ignoring research findings because of "political considerations"
	Being generally unprepared to adopt the fixed costs of monitoring, influencing, and incorporating research for decision-making

Source: Lomas, 1997.

Promising Interventions to Expand the Role of Evidence in Decision-making

While it is unrealistic to assume that research evidence will or should be the only factor which influences decision-making (Kay, 2010), it is important to ask the question of whether there are potential interventions that could increase the "space" that research holds in the decision-making process? Six categories of interventions should be considered to enhance the potential for research to contribute to decisions on family planning policies, programs and practices: building cultures of evidence use; grounding research in an understanding of the health system and decision-making processes; being realistic about the value of single studies for decision-making; incorporating research utilization plans into research protocols; strengthening research methodologies for studying complex health systems issues, and studying interventions to increase the use of evidence in decision-making on policies, programs and practices (Box 1).

Box 1. Enhancing the Potential for Research to Contribute to Decision-making on Family Planning, Policies, Programs and Practices

Build Cultures of Evidence Use

- Building Relationships: Engaging Decision-makers and Researchers in Evidence Generation and Use
- Building Capacity: Strengthening Capacity for Evidence Use
- Using Intermediaries Between Researchers and Decision-makers
- Building Knowledge Translation Platforms
- Supporting Rapid Response Mechanisms to Provide Evidence
- Making Research Directly Available
- Better Packaging and Communication of Findings

Ground Research in an Understanding of the Health System

Be Realistic about the Value of Single Studies for Decision-making

Build Research Utilization into Study Protocols

Enhance Research Methodologies for Studying Complex Health Systems Issues

Studying Interventions on Research Utilization

Build Cultures of Evidence Use

Many researchers and international agencies have made calls for fostering cultures of using evidence in decision-making (Askew et al., 2002; WHO, 2004; Lewis, 2007; Dopson, 2010; Hyder et al. 2010; Koon et al., 2013; Nutley and Reynolds, 2013; LaPelle et al. 2014; Armstrong et al., 2014). In the context of research utilization and translating evidence to programs, policies, and practices, this includes creating a common understanding among each group of the work and context of the other group, including what is meant by both decision-makers and researchers by concepts like "evidence use", "research utilization" and "decision-making". It additionally includes engaging decision-makers in research ideation and development from the outset—this allows for engagement and investment in the research and its results. Additionally, supporting the training and capacity building of researchers to understand the processes and contexts in which decision-making, policies, and programs occur is essential to enable researchers to be effective brokers of their research results and to ensure that researchers are designing research that has value to decision-makers. Additional research is needed to identify the best timing, mechanisms, and forums for doing capacity building with both researchers and decision-makers. Finally, it is essential that decision-makers have access to existing and forthcoming evidence, particularly evidence that is related to key decisions that are within their purview. Recent initiatives by global donors to ensure that funded research results (both publications and datasets) are open access are examples of encouraging progress in this area.

- **Building Relationships: Engaging Decision-makers and Researchers in Evidence Generation and Use**

One way to build a culture of evidence use is to foster ties and strengthen understanding between researchers and decision-makers. Rather than viewing 'decision-making' and 'research' as product-centered, moving towards a mutual understanding that both decision-making and research are processes—each has different timescales, requirements and incentives—would be beneficial in bridging the gap between the two groups (Lomas, 1997).

Family planning OR programs have consistently highlighted the need to engage decision-makers early in the research process. These decision-makers should come from all levels of the health system where policy or implementation decisions are being made about policies, programs or practices. Active engagement of users from the beginning of the research process increases the chances that study results will be used (Seidman and Horn, 1991; Koenig and Whittaker, 1991; Fisher et al., 1991; Solo et al., 1998; Ross, 1998; Askew et al. 2002; Nath, 2007; FRONTIERS, NDa; Sumner et al. 2011). This engagement can help ensure that the recommendations are feasible and implementable within the health system (FRONTIERS, NDa). In addition to including decision-makers in defining the research and shaping key interventions, Koenig and Whittaker (1991) and Kim (2006) note the utility of taking decision-makers to OR sites to demonstrate the value of interventions.

One of the current models for decision-maker involvement in research promotes a more active role for decision-makers in the research process. Sometimes called integrated knowledge translation (IKT), this model is becoming increasingly promoted by funders and organizations, including the Alliance for Health Policy and Systems Research, which has issued recent calls for decision maker-led implementation research. (www.who.int/alliance-hpsr/). Kothari and Wathen (2013) note the need to examine the assumptions behind IKT, namely that the onus of the responsibility for reaching out to decision-makers to develop partnerships falls on researchers; that resources exist to support these partnerships; that the effort to develop and sustain these partnerships is worthwhile despite the lack of institutional incentives for both researchers and decision-makers; and that the evidence that results from this 'jointly implemented' research is more actionable than research undertaken by researchers alone (Kothari and Wathen, 2013). The need for professional incentives for both decision-makers and researchers to sustain such partnerships has been highlighted by others also (Kerner, 2008; DFID, 2014; Kothari and Wathen, 2013). Furthermore, Freudenberg and Tsui (2014) contend that partnerships forged by researchers with policymakers can be dominated by judgments that value evidence over the messy world of politics and power in which policy and program decisions are made. They note the need to include in these partnerships stakeholders with the ability to work across the research and policy/program decision-making worlds.

- **Building Capacity: Strengthening Capacity for Evidence Use**

The lack of capacity of decision-makers to use evidence has been cited as a constraint in many studies and reviews (DFID, 2014; Nutley and Reynolds, 2013; Hyder et al. 2010; Ongolo-Zogo et al. 2015). Writing about family planning OR in Bangladesh, Koenig and Whittaker (1991: 451) stated that "technical expertise available to interpret, carry out, or synthesize OR findings is usually weak, particularly in developing countries whose programs showed the poorest performance." In 2014, a review by DFID examined a number of studies that addressed the capacity to use research in low and middle-income countries and concluded that

"unless there is sufficient capacity to absorb research results, no amount of research supply will have positive impacts" (DFID, 2014: 43). This constraint holds true in high-income contexts as well—Law (2010: 107) notes that "on the health system side, we have only begun to scratch the surface in Canada with respect to equipping individual decision makers with the tools, skills and experience necessary to engage the 'pull' side of research use effectively." Part of the issue in low and middle income countries is lack of human capacity in health systems that are stretched thin (Alvaro et al., 2010; DFID, 2014). This does not imply that decision-makers themselves necessary need to be trained, but that those decision-makers should be surrounded by and supported by advisors who are trained and competent in understanding evidence based decision-making. Ashford et al. (2006) describe a successful initiative that enhanced the use of evidence in decentralized health plans in Kenya, noting that "it was important for district staff to see the links between the priority needs identified in the surveys and the activities they prepared plans for, because it gave credibility to the ministry's reform planning effort" (Ashford et al., 2006: 670). There is need for additional research and focus on improving the capacity of decision-makers to understand and use research, including identifying strong and weak research. Topics for this research could include the timing of trainings or orientations for decision-makers, and mechanisms of training (e.g. what formats are most effective at promoting evidence use). Ashford et al. (2006) also recommend enhancing the use of evidence by integrating its use into the policy and program decision-making process linked with routine planning and management exercises.

- **Using Intermediaries between Researchers and Decision-makers**

Given the complexity of the policy and program decision-making environment, the lack of understanding between researchers and policymakers, and the lack of incentive structures, evidence suggests that many researchers may not be the best messengers of their research (Askew et al. 2002). This is in part because they are not trained to engage in the decision-making process in ways that could support use of their research (Trostle, 2006).

The importance of having intermediaries – also referred to as knowledge brokers, mediators, policy champions or policy entrepreneurs – between researchers and policymakers is not new in family planning. In 1998, Ross wrote about the importance of intermediaries in family planning operations research, saying that "Managers…may listen to…key persons located in the interface between the researcher and the manager" (Ross, 1998: xii). Askew et al. (2002: 6) wrote that, "A range of other actors, some of which are advocates for a particular moral or policy position, often mediate [the] relationship." Brambila et al. (2007) wrote about the need for policy champions to promote the expansion of evidence-based interventions. FHI successfully supported the use of policy champions "to help bridge the gap between research and programs" related to family planning and HIV integration in Nigeria, Tanzania, Uganda and Zambia (FHI, 2008a).

Knowledge brokers can come from a range of organizations. These individuals or groups "will make the most of networks but will also use connections or negotiating skills, be persistent, develop ideas, proposals and expertise well in advance of policy 'windows' – whether brought about because of a change in government, citizen action or a swing in the national mood" (Neilson, 2001, cited in Crewe and Young, 2002: 29). While researchers may be one group that decision-makers consult, credible advocates for policy and program decision-making may also consult with ministries of health and other sectors, donors, research institutions, non-governmental organizations, women's groups and political, religious and community leaders, which can increase their credibility and visibility around specific issues (Yamey and Feachem, 2011; Smith et al., 2015; Haynes et al. 2012; Brambila et al. 2007). From decision-makers' perspective, credibility of evidence is often determined based on whom the decision-makers are deemed "trustworthy" (Haynes et al., 2012), rather than who may or not be the most knowledgeable on the research. Writing about use of evidence for post-abortion care in two countries in West Africa, Askew (2006: 90) noted that policymakers in ministries said they were most likely to consider evidence if it was presented to them by some they knew personally and considered to be credible. From a study on the uptake of family planning OR evidence in Guatemala, Brambila et al. (2007: 236) added that "policy-makers tend to trust knowledge organizations and accept advice and recommendations of those they perceive as producing high-quality research without a political agenda." Knowledge brokers need to be supported by staff who can review data and evidence for relevant themes and messages that can be tailored to the stakeholders who will be making decisions (Lavis, 2006).

Some authors question the role of intermediaries, saying that knowledge brokering may be more successful to inform clinical practice than complex policymaking. As noted by Fox, "Policy-makers do not look around for a broker when they are under pressure to make a decision, which they always are. They look to their staff who either know or do not know how to find and use the best available evidence" (Fox, 2004, cited in WHO, 2004: 103). Engaging the staff of decision-makers as intermediaries may be an effective strategy to ensure evidence-informed decision-making.

- **Building Knowledge Translation Platforms**

There is currently a strong push in global health to promote knowledge translations platforms (KTPs) that link producers of research to users of research by making evidence syntheses available, and by developing demand for research and facilitating deliberative dialogues that bring stakeholders together to discuss bodies of research (Lavis et al. 2005; Moat et al. 2014). Ongolo-Zogo et al. (2015) note that knowledge translation platforms are operational in 12 countries in sub-Saharan "as partnerships among health stakeholders (policymakers, researchers, civil society, and media) to promote the systematic use of research evidence in policymaking about health systems through the production and dissemination of targeted evidence syntheses, the organization of evidence informed deliberations on health priorities, and capacity building of

stakeholders" (Ongolo-Zogo et al. 2015: 3). This combination of evidence briefs (based on systematic reviews) and deliberative dialogues seeks to address the complaint that research is not relevant or easy to use in decision-making. Neither the production of evidence briefs nor the use of platforms (e.g. family planning technical working groups or fora to develop national plans or operational strategies) is new to family planning. The current strategy of getting evidence producers and users together to determine the recommendations from research has been a recommendation since the early days of operations research (Fisher et al. 1991).

A review of use of evidence briefs and deliberative dialogues in Burkina Faso, Cameroon, Ethiopia and Nigeria found that use of the both of these methods increased policymakers' intention to use evidence (Moat et al. 2014). Additional research is needed to understand policymakers actual use of evidence following interventions such as deliberative dialogues and policy briefs, and whether knowledge translation platforms will be successful in promoting use of research evidence in decision-making (DFID, 2014). One systematic review of interventions to increase the access of policymakers to systematic reviews did not find that increased access led to measurable increases in use of the evidence (Murthy et al. 2012).

Ongolo-Zogo et al. (2015) found some evidence of an effect of knowledge translation platforms on the climate for evidence-informed health system policymaking (EIHSP) in Cameroon and Uganda. This evidence drew from a review of 54 policy documents (health sector strategic plans, disease-specific strategic plans and grant applications funded by global health initiatives) for six year periods before and after establishment of the platforms in government-owned institutions in the countries in 2006. It found that single studies and survey reports were used to describe health problems and burden of disease, but that there was "almost no citation of systematic reviews to frame health problems or to justify the strategies selected to address the problem" (Ongolo-Zogo et al., 2015: 9). The authors related the increase in EIHSP to several factors, including pressure from donors and the global push to achieve the MDGs, which led to the establishment of the KTPs EVIPNet Cameroon and REACH-PI Uganda in 2006 (Ongolo-Zogo et al., 2015).

Family planning and reproductive health do not appear to be well-represented topics in efforts to synthesize the evidence base for evidence use in policymaking in low and middle-income countries. Within collaborations, groups, and meetings, including the SUPPORT (Supporting Policy Relevant Reviews and Trials) collaboration (http://www.support-collaboration.org/index.htm), EvipNet (Evidence-Informed Policy Network, (http://global.evipnet.org/) and the 2012 International Forum on Evidence-Informed Health Policy (EIHP) in Low- and Middle-Income Countries (http://global.evipnet.org/wp-content/uploads/2013/02/Addisreport2012.pdf)), evidence uptake by policymakers has been synthesized; however, FP/RH is left out as a core focus. FP/RH has a range of platforms and initiatives to enhance

evidence-based decision-making; however, none of these initiatives resemble the model of knowledge translation platform to provide evidence syntheses and deliberative dialogues for decision-makers.

The USAID-funded K4Health (K4H) website provides a platform for evidence-informed FP/RH programming (www.K4H.org). The Implementing Best Practices (IBP) initiative "is dedicated to strengthening the capacity of the family planning/reproductive health community to identify, implement, and scale-up effective practices through sharing knowledge and resources," (http://www.ibpinitiative.org/). The High Impact Practices (HIP) initiative provides evidence from HIP briefs on proven, promising and emerging "effective service delivery or systems interventions that when scaled up and institutionalized, will maximize investments in a comprehensive family planning strategy" (https://www.fphighimpactpractices.org/). Assessments of the use of the FP service delivery HIPs are being undertaken by the IBP initiative and USAID in Mozambique, Tanzania and Guatemala. FP2020 announced in 2015 that its website is being transformed into a knowledge platform (www.familyplanning2020.org).

Linking FP/RH-specific initiatives, such as FP2020, IBP and the FP HIP Initiative, with the more general evidence use community, could potentially result in extending the scope and understand of existing evidence use initiatives while allowing the FP/RH field to capitalize on the extensive experience and knowledge that currently exists. Regional and local organizations to promote evidence-informed policy and program decision-making are emerging. For example, the Regional Center for Quality of Health Care at Makarere University in Uganda is a clearinghouse for evidence-based information concerning quality improvements in reproductive health (www.rcqhc.org) and the African Institute for Development Policy links demographic and other research with policy and practice (http://www.afidep.org/).

Although making research evidence more available and accessible to decision-makers has the potential to result in evidence-based practice and programming, there are some prevailing epistemological concerns that can act as barriers to research utilization. For example, systematic reviews are often held as a gold standard for rigorous evaluation of research; however, reviews are often restricted to short periods of time and can have narrow outcomes that are being examined. Thus, systematic reviews can inadvertently miss out on decades of useful research and research utilization documentation, and are often unable to answer questions about complex health systems. Additionally, the time span in which this type of research occurs is often unsuitable for decision-maker needs. Additional thinking and flexibility about the types of research that are used for evidence-informed decision-making – and that are included in evidence reviews – is important going forward in order to sustainably drive research evidence that can and will be used by decision-makers. The periodicity of research is also an issue. New evidence is available in an almost continuous fashion through

peer-reviewed and web-based publications and deciding how and when to evaluate "new" evidence is an important consideration for evidence use.

Sustainability is a huge issue with these initiatives, given that they are often funded by donors and that this funding may not continue to be available once the project funding has ended. One such initiative related to family planning was the Getting Research into Policy and Practice (GRIPP) initiative funded by DFID – to build an online evidence base of case studies documenting the activities undertaken to promote utilization of research findings. The website was closed down when donor funding ended and these materials are no longer available (Nath, 2007), although the papers presented at one conference are still online (http://www.socstats.soton.ac.uk/choices/workshop/). Having a repository for all such "orphaned," but still useful, evidence related to family planning is needed, perhaps through the K4H platform (https://www.k4health.org/).

- **Supporting Rapid Response Mechanisms for Providing Evidence**

Efforts to establish regional and national rapid response mechanisms to meet the evidence needs of decision-makers in a timely way have yielded some successes. For example, a rapid response mechanism based at Makerere University in Uganda and supported by a national, regional and global network of researchers was coordinated by hired staff that kept in regular contact with policymaker and health systems' stakeholders (MOH, districts, CSOs, health-related multi- and bi-lateral agencies and the private sector). (Mijumbi et al., 2014). These staff interacted with the policymakers and decision-makers to ensure that their questions could be answered within one month. The users of this rapid response mechanism tended to be mid-level policy-makers at the MOH, with no one from the districts using the service. Interestingly, the study found that the service did help the recipients. In 30/65 cases (46%), the decision-maker changed their course of action after receiving assistance from the rapid response mechanism. The service gave them more options to consider and there was high satisfaction with the service. "Policymakers echoed what several researchers have found, that policymakers are indeed interested in using research evidence and do value what it contributes to the policymaking process" (Mijumbi et al., 2014: 13).

Rapid response mechanisms have challenges. An assessment of the feasibility of establishing a regional mechanism in South East Asia, which would have included on-call mechanisms, information centers, knowledge networks, and centers for systematic reviews, generated interest among stakeholders. The assessment noted four key challenges: research capacity; resources (sustainability); diversity of countries/languages; and responsiveness (Healy et al. 2007). The assessment concluded that "moving from the broad idea of an Asian regional mechanism to action will require ongoing consultation, detailed planning, and phased implementation" (Healy et al., 2007: 1-5). The rapid response mechanism in Uganda faced both

demand and supply challenges. Decision-makers were skeptical that the researchers would understand their needs, but ended up referring the service to colleagues. Makarere University had trouble finding staff with the right skills to find and synthesize evidence for the decision-makers in a short timeframe. They also noted the need for fast and reliable internet access to be able to access materials, in addition to the need to be able to access full text research papers. Finally, they noted the need to focus on sustainability once donor funding ended (Mijumbi et al., 2014).

- **Making Research Directly Available**

Access to peer-reviewed published evidence has historically been limited to subscription-based or academic-based access; however, there are a number of initiatives underway to enhance global access to evidence, including increased donor focus on making their funded results publicly available. Researchers or program implementers who receive foundation or government-based funding are increasingly being required to make not only their publications, but also their research data sets, available via open access journals and databases. This requirement allows for a democratization of evidence as access to this information and knowledge is now globally possible with only an internet access point. Despite this increasing requirement, not all research is available via open access journals. Researchers who are publishing evidence that has the potential to be useful to decision-making for policies, programs or practices should consider submitting their materials to open access journals.

Making evidence available that may not traditionally be perceived as evidence, such as documentation of implementation, and translating a policy into practice, is something that should be encouraged. These types of evidence are essential for ensuring that the existing literature is not utilized in isolation but continues to be built upon as the evidence expands and grows. Additionally, continued focus on publishing findings and making them widely available allows for the dissemination of evidence between countries and globally to share and learn from similar issues and to create context-informed and evidence-based solutions.

An initiative in the US to make evidence more directly available to state-level public health department practitioners through electronic access to journals found that the practitioners appreciated the access but that they were short staffed and most "advocated restoring a culture of evidence-based practice by identifying appropriate committed [public health department] staff with the authority to champion evidence-based practice and usage of digital library resources" (LaPelle et al., 2014: 78). Creating supportive environments where increased accessibility to evidence is coupled with the institutionalization of evidence champions is also important for improved evidence uptake—without purveyors and translators of research findings, the

increased accessibility of evidence may well fall flat in its efforts to influence evidence-informed decision-making.

- **Better Packaging and Communication of Findings**

The critical importance of communicating research findings to a range of audiences is clearly noted in the literature (MEASURE Evaluation, 2009). Long research reports, while suitable for reaching other researchers, are not appropriate for communicating to decision-makers. There is a strong negative association between the complexity of research findings (or of their presentation) and utilization of these findings, and between the use of academic jargon and the likelihood of evidence being used by policymakers (Dobbins, 2002; Oxman et al., 2009b). Providing different stakeholder groups with the evidence they need, in technical and national languages they can understand and in ways that are respectful to them is part of the communication process (Ulin et al. 2005). The way in which findings are communicated to decision-makers can make the difference between evidence being ignored or being used for decision-making. For example, the way in which research on sensitive issues is handled, particularly research on a social, religious or cultural topic, could determine the extent to which the research results are accepted and used on a wider scale (Nath, 2007).

Promoting decision-maker literacy in research findings through ongoing collaborations and trainings with researchers has the potential to go a long way in terms of increasing evidence use and in terms of helping researchers to identify priority evidence and syntheses needed by decision-makers. An additional issue that is repeated throughout the literature is the need to assist decision-makers with the distinction between "no effects" and "negative effects" within research—often findings where there are "no effects" are interpreted as being negative effects, which can influence decision-makers to have negative perceptions of these findings rather than supporting additional investigations or evidence (Oxman et al., 2009e).

Communicating findings clearly while taking into consideration the timing, policy and budget context is important for encouraging increased and improved use of evidence in decision-making (Spicer et al, 2014). Analyzing the values, beliefs and socio-political contexts in which key stakeholders operate can help researchers and knowledge brokers to identify strategies for presenting data to the decision-makers who have the most invested or the most influence on the issue at hand (Nath, 2007). Researchers might consider partnering with advocacy organizations to communicate research findings to decision-makers to ensure that messages are tailored to various audiences (Brownson et al., 2009). For example, Advance Family Planning, an advocacy initiative that builds on the momentum of the 2012 London Summit on Family Planning, focuses on providing decision-makers with evidence that family planning is a sound investment with dividends in health and women's empowerment, socioeconomic development, the environment, and other

areas (www.advancefamilyplanning.org/). Researchers can also benefit from training on communicating their findings to various audiences. The Population Reference Bureau has long supported policy communication workshops and other training for researchers and journalists to improve the way evidence is shared with policymakers. The title of one such presentation was "Communicating Research to Policymakers: The Road to Inaction is Paved with Research Reports" (Ashford, 2001).

Enhancing the availability of evidence will be necessary but not sufficient to improve evidence-based programming and policies unless mechanisms are put in place to create "evidence literacy" for non-researchers or to create mechanisms that rapidly synthesize evidence for use by decision-makers. For example, Rosenbaum et al. (2011) carried out 21 user tests in six low and middle-income countries to test users' experiences with evidence brief formats and to generate evidence on using evidence briefs. They found that policymakers preferred to receive both abridged and full-length materials, usually in the form of a one to three-page brief and a longer report on the research (Rosenbaum et al, 2011). Additionally, they particularly valued sections of the briefs that explained the relevance for low and middle-income countries and perceived these sections to compensate for the lack of locally relevant detail in the original evidence (Rosenbaum et al, 2011). Some decision-makers struggled with understanding the numbers and text and had a poor understanding of what a systematic review was. Additionally, participants often expected information to be included that wasn't, such as recommendations, outcome measures, or costs, and many stated that they wanted shorter, clearer summaries (Rosenbaum et al, 2011). This evidence demonstrates the need make additional kinds of evidence available, while also focusing on increasing the availability of easy-to-understand formats for evidence dissemination and improving the skills of end-users of evidence.

Ground Research in an Understanding of Health Systems

Health systems are complex systems; research on family planning where the findings are intended to be used in programming needs to reflect that complexity. Countries generally have multiple ministries, departments, and organizations involved in implementing policies and programs. Sometimes lines of authority for making changes and for allocating resources are not clear. Using the United States (U.S.) as an example, Kerner (2008) illustrates operationally within the public sector, at the federal and state level, why it is difficult to get research into practice. "How best to integrate science into the program and policy decision-making that takes place in this complex system is not obvious, nor easy to evaluate" (Kerner, 2008: 196). Research that bypasses the operation of health systems by setting up special circumstances such as adding additional staff or instituting new management information system (MIS) forms, for example, may or may not be feasible to implement in the program after the study is completed (Cross et al. 2001). A feasibility study of the integration of family planning and STI services in Jamaica found confusion around whether authorities at the local, regional or national level had the jurisdiction to make policy, program and resource allocation decisions

about the integration initiative (Policy Project, 2005). Amin et al (2007) demonstrated in a review of changing the national malaria drug policy in Kenya to provide artemisinin-based combinations that the process of changing practices to integrate new therapies is incredibly complex, from a financial, political, legislative and organizational perspective. The theory of path dependence suggests that incremental changes will be easier to implement than large changes and that those responsible for implementing the changes will interpret the changes to make them fit existing systems and processes (Torfing et al. 2009).

Furthermore, making sure that research is timed to be useful for program planning and budgeting cycles is important (Seidman and Horn, 1991; Haaga and Maru, 1996; Spicer et al., 2014). Writing about use of evidence for post-abortion care in two countries in West Africa, Askew (Askew, 2006: 90) noted that policy-makers in the ministries "emphasized that recommendations from research should: i) address existing Ministry of Health priorities; (ii) be presented clearly so that they could be understood by non-researchers; and (iii) be timed to coincide with planning and budgeting cycles." The advent of widespread FP Costed Implementation Plans (CIPs) following the 2012 London Summit on Family Planning provides a timely opportunity for researchers and decision-makers to collaborate to review national family planning policies and strategies and to conduct research on the extent and types of programming that have been conducted under these CIPs. This type of evidence production aligns with country-determined plans while providing documentation of processes that have regional and global relevance.

A number of studies have noted the need to take advantage of fortuitous timing when promoting the use of evidence in decision-making (Seidman and Horn, 1991; Brambila et al. 2007; Freudenberg and Tsui, 2014). Researchers who implement research intended to affect policies, programs and practices, would benefit from training on in navigating the tensions between politics and science and in the tools of advocacy and participation (Freudenberg and Tsui, 2014: 13). Understanding the range of factors that mediate the use of evidence in decision-making, and understanding the positions and views of decision-makers and how complex and continuous an issue is and the availability and certainty of the evidence about the issue, are all important for researchers to determine as they consider their research and increasing its utility for decision-making.

Be Realistic about the Value of Single Studies for Decision-making

One issue related to evidence use is the potential for the results of single studies to be used by decision-makers. It has long been recognized, including in family planning, that single studies rarely change policy or practices (Fisher et al. 1991; Haaga and Maru, 1996; Brambila et al., 2007; Smith, 2010; Grimshaw et al., 2012; DFID, 2014; Isaacson, 2014). Reflecting on family planning operations research in Guatemala, Brambila et al., (2007: 234) observe that "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." Evidence use is often iterative for topics over time (Crewe and Young, 2002: 4; McEachran, 2006; WHO, 2006; Lyons, 2010). Thus, it is important to take a long view of the effect of evidence on policy, program and practice change. Many examples from family planning illustrate this point. The current focus on task shifting to allow community-based workers to provide the injectable contraceptive method builds on earlier evidence which demonstrated that community-based distribution of family planning was possible (Gallen and Rinehart, 1986; Solo, 1998). Further research to show the safety, acceptability, and feasibility, in addition to the scale up, of community-based distribution of injectables was carried out in Uganda, Madagascar, Kenya, Rwanda and Nigeria, along with an on-line forum, advocacy, and study tours (FHI, 2008b; Krueger et al., 2011).

The Balanced Counseling Strategy Plus (BCS+), now available in several languages and widely used in family planning programming, started off as study in Peru to help the Ministry of Health better implement its then new 1999 national norms on family planning (Population Council, 2012). The BCS in Peru assisted providers with a job aid which ensured that sufficient time was spent counseling clients on methods suitable for a their reproductive intentions (Leon et al. 2003). The BCS+, tested in South Africa and Kenya, adapted the job aid to integrate HIV and STI counseling with family planning (Liambila et al., 2008). Another tool, a checklist to rule out pregnancy, which is available in at least 10 languages and is included in global guidance and has been co-branded by a number of countries, grew from research in the 1990s that "consistently showed that women all over the world were being denied contraception if they were not menstruating when they presented for family planning services" (FHI, 2008c). Emergency contraception (EC) is another example; research on post-coital contraception started in the 1970s, with clinical trials of various drug formations of EC in the 1980s and 1990s (Marions, 2006). Establishment of the International Consortium of EC, agreements with a pharmaceutical company to market an EC product, the addition of EC to the WHO list of Model Drugs in the 1990s, and, finally, having EC registered as a drug in 96 countries by 2002 was the result of a variety of global, regional and national evidence demonstrating the effectiveness and safety of EC for use by women (Marions, 2006). However, in 2014, Palermo et al. noted the need for additional programmatic research to guide expansion of EC, noting that "since the introduction of dedicated emergency contraceptive pills in the mid-1990s, there has been relatively little research into the success of their introduction and uptake in developing countries" (Palermo et al., 2014).

Family planning studies that examine the scale-up of interventions and practices are usually based on pilot studies, which are often preceded by efficacy and acceptability studies, depending on the intervention being scaled-up. The evolution of the Navrongo pilot intervention into the national-level Community-based Health Planning and Services (CHPS) Initiative in Ghana is often cited as an example of successful evidence-based

research to policy and program implementation in the FP/RH community and as "one of a few attempts in Africa to translate findings from a research initiative into a national health reform programme (Nyonator et al., 2005). One of the original objectives pursued through both the Navrongo pilot and later scale-up efforts, was to examine whether providing family planning services and promoting contraceptive use could "induce and sustain reproductive change" (Phillips et al., 2012). The success of the Navrongo pilot in this regard was not replicated at the national level and the impact on fertility decline after CHPS scale-up was reported as negligible. Phillips et al. (2013) attribute this to the lack of transfer to the national scale of the social network strategy aimed at improving men's attitudes toward family planning, and improving women's autonomy in reproductive decision-making.

While some single studies can influence policy, these examples show that building evidence over time and based on previous findings, with links to policy and program decisions have created effective and widespread scale-up in certain contexts. However, the example from CHPS in Ghana shows that even with progressive research, decisions on programming can alter the effect of interventions. To measure the use of any single study in the chain can be difficult, but the effect of bodies of evidence over time can be more evident – and can help identify current research needs to further improve programs. "Funders who wish to fund research to improve evidence-informed policy need to be realistic that direct, attributable policy impacts are relatively rare but that evidence can and does make important contributions to how decision-makers frame issues and to selection of interventions which have a higher change of success" (DFID, 2014: 43).

Build Research Utilization into Study Protocols

Research protocols generally have sections on dissemination that follow a push model of information sharing by publishing a report, holding a dissemination meeting or developing a journal article. This model is geared more towards the needs of researchers for publication than for decision-makers' needs for decision-making. While these steps are important, enhanced research utilization sections of protocols can ensure that activities which identify the policy or program stakeholders who are important to the research will be conducted. Additionally, enhanced research utilization sections in protocols can help to define how key stakeholders will be included during the course of the study, what policy or program decisions the study might be useful for and anticipated actions of the study team to promote utilization of the findings. This section does not imply that the study team will be doing the research utilization themselves, but shows what they will do to link with others to enhance the potential for use of the study findings.

Enhance Research Methodologies for Studying Complex Health Systems Issues

The evidence-based medicine framework that favors the randomized control trial methodology to examine a fixed intervention is increasingly recognized as an inappropriate tool for measurement for complex health systems. Nevertheless, "there is a strong temptation to apply EBM methods and standards reflexively to public health" (Shelton, 2014, p. 253). Increasingly, this has resulted in a demand for multifaceted approaches and research designs that allow for the examination of interventions in complex, real-world health systems (Almeida and Bascolo, 2006; Askew et al., 2002; Behague et al. 2009; McCoy et al., 2010; Braveman et al. 2011; Brownson et al. 2009; Lavis et al., 2012; Simmons et al. 2002; Simmons et al., 2007; Yamey and Feachem, 2011; Eyben et al., 2013; and Clar et al., 2011). There are increasing calls for the use of a range of research methods to study reproductive health programming; these methods may fall outside historical definitions of rigorous evidence; however, they may have more to contribute to policy and decision-making processes (STEP UP, 2013). Studies that include information on costs and other resource needs along with evidence for change compared to current programming can enhance their usefulness in decision-making (Oxman et al., 2009b). Providing comparative options for decision-makers based on clear distinctions between resource needs and outcomes has also been found to be useful to decision-makers (Oxman et al. 2009a). The rise of health policy and systems research, implementation science and attention to studying complex adaptive systems, along with the growth of journals that publish findings from these types of studies, are responses to this need to focus research on health systems and improving the development and implementation of policies and programs (Panisset et al., 2012; Sheikh et al., 2014; USAID, ND; University of Cambridge, 2014; Paina and Peters, 2011).

Methodologies for syntheses of the literature should also be examined to consider a wider range of evidence than randomized control trials as "strong" evidence. These methodologies should include the gray literature on programs as critical pieces of evidence for triangulation with published outcomes on evidence. How an intervention is implemented, in addition to the outcomes of the intervention, are both important for decision-making. FHI 360 has developed a tool to assess the divergence between the intervention elements as intended and as implemented in studies, with an illustration of its use in a study of expanding contraceptive options for PMTCT clients in South Africa (Hoke et al., 2014).

Studying Interventions on Research Utilization

Studies of the decision-making environment and the role of evidence in decision-making are emerging for a number of global health areas, most notably HIV, Malaria and TB (Burris et al. 2011; Hutchison et al. 2011; Hunsmann, 2012). Wathen et al. (2013) followed a particular study on screening for intimate partner violence to see where and how the study was cited, including in policies and practice guidelines. They found that

evidence from the same study was not used consistently across the sources in which it was cited (Wathen et al, 2013). Oxman et al. (2009b) note a lack of research on improving the use of evidence in decision-making with regard to the following dimensions: the degree of involvement of policy-makers, the different types of forums for communication, methods for recruiting stakeholders, and the best ways of training and supporting stakeholders to ensure effective involvement throughout the evidence generation and use process (Oxman et al, 2009b). Studies of how evidence is used in decision-making on family planning polices, programs and practices, and how it is cited in policies and guidelines would be beneficial to improve evidence to action interventions.

As more research examining implementation and scale-up of evidence-informed family planning practices is undertaken, a focus of researchers should be to evaluate and share these efforts, as documentation of the process of using evidence in decision-making is scarce (Nutley and Reynolds, 2013). A number of frameworks to study evidence use or research utilization are available (Damschroder et al. 2009; Glasgow and Emmons, 2007; Bowen and Zwi, 2005; Crewe and Young, 2002; Brownson et al. 2009; DFID, 2014), including three that focus specifically on family planning and reproductive health (Nath, 2007; Bertrand and Marin, 2001; Sumner et al., 2011). These frameworks assess a number of dimensions, including the context in which evidence is considered, the process of considering the evidence and the relationships among researchers and decision-makers.

Conclusion

Attention to global goals to increase access to family planning, including the FP2020 goal of reaching 120 million additional family planning users, has increased focus on ensuring that programming is "evidence-based." This focus on evidence-based programming is not unique to family planning and comes also from needing to show results and value for money in the context of shrinking resources for global health. The international family planning field was founded on research, including through demonstration projects, national surveys, and decades of operations research and now implementation science, in addition to special studies. Furthermore, attention to getting evidence into action, or research utilization, also spans decades in family planning. Current initiatives such as FP HIP, IBP, K4Health and FP2020 all focus on promoting evidence-based family planning and reproductive health programming. With this rich history, there is surprisingly scant research on whether and how evidence is used in decision-making for FP/RH programming, policies and practices, despite a growing literature on research utilization, also known as knowledge translation among other names, in global health.

The peer-reviewed and gray literature included in the realist review that forms the basis for this paper shows that policymaking and program design and implementation are complex processes, and how research evidence informs decision-making is also complex and difficult to measure. Furthermore, health systems and how they operate are also complex and require research methodologies to address "wicked problems" whose complexity defies single answers often provided by research that controls for the messiness of the context in which it is undertaken.

The paper provides examples from family planning and other health areas showing that researchers and decision-makers have different views of what constitutes evidence for decision-making and the value of the various forms of evidence. Researchers consider evidence to be findings from research studies (with differences of opinion among researchers about legitimate methodologies), whereas decision-makers consider a range of research studies, along with monitoring and evaluation data, program reports, policy documents, community input and professional experience, as evidence. Availability of local evidence emerged as important to national decision-makers.

Furthermore, as illustrated in Cookson's (2005) model, decision-makers tend to filter scientific evidence through other factors, including their beliefs about the issue and whether the evidence fits those beliefs and is useful (e.g. feasible, cost-effective, implementable, etc.); their values surrounding the issue; and on political, economic and social constraints. The paper provided a number of examples of these other factors taking precedence in family planning decision making, including, for example: the political and cultural sensitivities around adolescent sexual and reproductive health in spite of evidence of need for information and services among this group; varying beliefs about the scientific merit of the Standard Days Method (SDM) of contraception established through two decades of research, with some still lumping it with traditional methods of fertility awareness; professional medical associations' discomfort with task shifting to allow lower levels of staff to provide services such as IUD insertion despite evidence that these cadre can provide the method safely; and activist opposition to DMPA in some countries despite WHO guidelines supporting the method. Entrenched positions can be difficult to dislodge; although mounting evidence over the years can sometimes change decisions, particularly when evidence is provided in the context of changing norms and societal conditions.

The paper also shows that while researchers see others as having "vested interests" on the topic at hand and their view own research as objective, in fact decision-makers consider researchers as just one group of stakeholders, and not necessarily without bias on the topic at hand. Furthermore, it is often clear to decision-makers that researchers as a group do not always speak with one voice regarding evidence on an issue.

Researchers are not always considered the most trusted sources by decision-makers, and thus they may consider linking with other, more trusted knowledge brokers, to convey research findings. Understanding the policy process and complex health systems into which evidence is offered is critical to designing studies and to communicating findings of studies. Researchers and decision-makers have little appreciation for each other's operating environment.

The facilitating factors and barriers to evidence use have been consistent over time and are similar for FP/RH as for other health areas. Evidence use in decision-making can be influenced by the availability of relevant evidence; the extent of collaboration between researchers and decision-makers; the clarity of the presented evidence; the timeliness of the evidence; decision-maker and researcher skills; the strength or weakness of relationships between decision-makers and researchers; and the costs of implementing research findings. Continued challenges to evidence use in decision-making stem from differences in the contexts and reward structures under which researchers and policymakers work, particularly the different timescales of research and decision-making.

Although researchers should not be expected to ensure that each study they undertake will result in policy, program or practice change, they should be aware of the history of the issue they are studying and to show how the study they are undertaking might contribute to addressing the issue through policy, program or practice change. The paper also presented a typology to categorize issues in terms of technical certainty (of the evidence) and political agreement on the issues. Research that addresses areas that are not politically contentious, and for which there is general agreement about the research findings, is more likely to be used in decision-making than research on contentious issues or for which there is not agreement among researchers. Identifying in advance, to the extent possible, which quadrant the evidence from a study will fall into, will help in developing a research utilization strategy. Furthermore, presenting bodies of evidence and their suitability for addressing an issue can reduce the use of single studies to support opposing sides of an issue or that support decision-makers predetermined views on an issue.

While it is not reasonable to expect that FP/RH policy, program and decision-making should be based on research evidence alone, we identify six promising interventions that can increase the likelihood that decision-makers will include evidence among the factors that guide and influence their decisions. The first intervention focuses on building cultures of evidence through enabling relationships between the producers and users of evidence, through strengthening capacity to use evidence, and through developing mechanisms for knowledge transfer and communication. When evidence use in decision-making becomes normative, getting research included decisions about policies, programs and practices should be easier. Secondly,

grounding research in an understanding of complex health systems will help ensure that the studies undertaken will provide evidence that is more likely to be useful for programs and feasible to implement within health systems. Thirdly, putting pressure on each and every study to result in policy, program or practice change is unreasonable, so being realistic about the value of single studies in decision-making, and the place of each study in the history of research on the topic and the current needs the study addresses, could enhance the utility of research. Fourthly, researchers can expand "dissemination" sections in their protocols to focus on research utilization by linking the study with the health system context and identifying stakeholders and process (e.g. budget and planning processes) that are important for potential use of the study findings. This does not imply that Principal Investigators of studies need to be the only ones to engage in research utilization; these sections can also identify stakeholders to be involved in promoting use of the evidence. Fifthly, the current discourse on standards of evidence (STEP UP Consortium, 2013) and the need to move beyond context-free randomized control trials to strengthen research methodologies for studying complex health systems is closely linked with discussions of promoting evidence use in decision-making. Finally, in family planning and reproductive health, insufficient attention has been paid to studying interventions to increase the use of evidence in decision-making. This line of inquiry will enhance our efforts to increase the "space" that research evidence holds, among other legitimate evidence and factors, in the policy, program and practice decision-making process.

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