ARIZONA HEALTH FUTURES

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If We're So Smart: The Use of Evidence in Healthcare Practice and Policy

If we're so smart, why don't we act like it?

- **WHAT WE KNOW:** Clean hands are the single most important factor in reducing the spread of dangerous germs in healthcare settings.

- **WHAT WE DO:** Forget to wash our hands. Too busy, too inconvenient, not that big of a deal.

- **WHAT WE KNOW:** Sending heart surgery patients home with beta blockers and follow-up reduces expensive hospital readmissions.

- **WHAT WE DO:** Send some people home without beta blockers and follow-up. Is this clinical discretion – or a clinical oversight?

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St. Luke's Health Initiatives
A Catalyst for Community Health
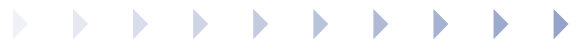
IF WE'RE SO SMART:

- On average, large physician groups use about one-third of the recommended care management processes for such common chronic conditions as asthma, depression, diabetes and congestive heart failure.[1]

- On average, the gap between the published discovery of a beneficial new clinical practice and its incorporation into routine patient care is 17 years![2]

The diffusion of evidence-based practice is *the new imperative* in healthcare. But what counts as evidence is a question of considerable debate – a debate made even more contentious by questions of equity, runaway costs and heightened concern about quality. In this *Arizona Health Futures* policy primer, we investigate how evidence is used – or not – in the decision making process in healthcare practice and policy:

- What counts as 'evidence' and how is it generated?

- What key factors influence the diffusion of innovation, and how is evidence used to inform practice and policy?

- What strategies hold potential for increasing the use of evidence in decision making processes in practice and policy settings?

clinical research

evidence-based regulation

SOCIAL NETWORKS

BELIEFS & VALUES

evidence-based assessment

evidence-based practice

The *Ideal* Pathway?

Healthcare practice and policy are inextricably intertwined. The Institute of Medicine reports, *To Err is Human*[3] and *Crossing the Quality Chasm*[4], focused our attention on quality improvement efforts, report cards and sophisticated methodologies, transforming the evaluation of healthcare quality from an issue of clinical practice into a public policy issue.[5] Following the "ideal pathway," clinical research evidence begets evidence-based clinical practice patterns, which in turn translate into evidence-based performance measures, evidence-based coverage, evidence-based regulatory oversight and so on.

Despite our trust in science-based evidence, however, the speed with which medical "best practices" become the standard of care or lead to related health policies is influenced far more by our social networks, underlying values and belief systems – and the influence of special interests and rhetorical power to define the debate – than by the evidence used to support claims of superiority.

If we're so smart, perhaps we ought to pay more attention to the social and political dynamics of how evidence-based practice plays out in real world settings.

The Practice Paradox

The historical orientation and image of scientifically trained physicians as autonomous decision makers have limited the adoption of innovative practices in a healthcare system that is increasingly collaborative and complex. In the past fifty years, science has moved beyond medicine to establish a direct relationship with patients, society and government that is no longer mediated solely through formal systems of organized medicine.

Research-based evidence is now routinely applied to population health and used to both advance and restrict social policy. In the process, it has spawned a whole new cadre of players such as pharmaceutical companies with direct-to-consumer advertising about the advantages of their product, and insurance companies that routinely use findings from clinical trials to construct their benefit packages. In particular, the move of science from individual decisions mediated by a physician to its use in shaping social policy has led to critiques of science itself becoming a source of social authority.[7]

The diffusion of innovation and adoption of a particular evidence-based practice requires not only that practitioners understand the scientific and technical differences that make it a more successful treatment, but also that they understand the social context in which it will be put to use.[8] One goal of scientific research is to explain and predict, but to that understanding one must add the patient's values, family concerns and the broader community context of human social interaction.

One need not look far for an example. Science provides knowledge about how physicians and patients should work together to best manage diabetes through diet, exercise, diagnostic monitoring and the use of medications. What those who complain about 'patient non-compliance' fail to consider, however, is that diet is about more than nutrition, encompassing aspects of social interaction, culture, lifestyle and income, just to name a few of the influencing factors. Quantifying the problem with evidence about maintaining optimum blood sugar levels is only a necessary first step in closing the gap between what we know works and what is actually done. When it comes to evidence-based best practices, patients often are not the only ones who are "non-compliant."

Clinical practice, coverage decisions and health policy influence each other in a complex web of intended and unintended consequences.

For example, in 2002 CMS established reimbursement codes to allow practitioners to manage physical health problems with behavioral, social and psychophysiological procedures based on research evidence indicating that such integration represented a *best practice* for some conditions. Curiously, however, there was no dissemination of information about the new codes, and most practitioners did not know they could use them.

The result: In light of concerns about rising medical costs, officials withdrew the codes, effectively *precluding the diffusion of innovation and adoption of evidence-based practice.*[13]

Beyond the efficacy of a proposed clinical procedure as a necessary, but not necessarily sufficient, condition for its adoption in the practice setting,[9] additional methods such as cost-benefit and cost-effectiveness analyses are also applied in decision making. But even these aren't enough. In the realm of insurance benefit design, for example, clinical efficacy and economic efficiency together do not guarantee a particular outcome. Add the application of cost-utility analysis, and the "evidence about the evidence" still shows that adoption of research-based practice remains a challenge within the healthcare system.[10]

What's the *Difference?*

CBA, CEA, CUA – what's the difference?

- **COST-BENEFIT ANALYSIS (CBA)** measures outcomes in dollars, presenting the result as a single amount representing costs minus benefits. Beyond the ethical issues generated by assigning a dollar value to a human life, CBA is challenging because of the difficulty in quantifying value-laden health-related situations and health benefits.[11] CBA establishes whether the benefits outweigh the costs on a fixed basis, and how alternatives should be ranked in terms of relative economic efficiency.

- **COST-EFFECTIVENESS ANALYSIS (CEA)** takes one of two forms. In the first approach, the cost is fixed, and the analysis determines which of several alternatives provides the largest benefit. The other form specifies a desired level of benefit and identifies the practice/policy alternative that achieves that benefit at the lowest cost. Like CBA, CEA quantifies efficiency, but CEA is preferable when monetizing the benefit is not methodologically practical or socially desirable.

- **COST-UTILITY ANALYSIS (CUA)** uses statistically derived units of measure, such as quality-adjusted life years (QALYs) or disability-adjusted life years (DALYs) in order to account for both quantity and quality of life, and changes in health status over time. The goal of such analysis is to compare the relative cost-effectiveness of medical interventions both within a given disease category and across disease states.[12]

The Policy Paradox

The dynamics of evidence-based policy innovations are similar to those of practice innovations. In a consumer society that allegedly places a high value on economic efficiency and scientific rationality, what is less clear is why public policy decisions so often appear to ignore empirical evidence.

One school of thought holds that changes in healthcare policy are debated within complex networks of relationships where diverse interests and varying degrees of political influence often outweigh the evidence in determining the eventual outcome. Commenting on the adoption of national health insurance, Victor Fuchs points out that, "Major changes in health policy, like major policy changes in any area, are political acts, undertaken for political purposes."[14]

Fuchs' statement underscores an important difference between decision making in the clinical setting, where the individual patient is the primary concern, and the public policy setting, which is necessarily concerned with the public interest. The former is placed in the model of health care as a market commodity to be bought and sold for the benefit of individual consumers. It fits well within the empirical bounds of economic efficiency and technical rationality – arguably the dominant mode of healthcare research for the past century.[15]

The Way it *Really Works*

In preparing this AHF policy primer, we talked with a number of Arizona legislators and lobbyists on how they approach the decision making process in healthcare and other policy issues. To no great surprise, we confirmed that it is relationships and "local knowledge," not research reports, that usually carry the day.

Here are some representative quotes:

"Decision making should be done in the off-season. As soon as the session is over, people should start working on health policy issues by contacting committee chairs, getting focus groups together and holding discussions with stakeholders. If you wait until the session starts, it's too late." — Legislator

"I make a lot of calls to legislators in other states and ask them, what are you doing about this issue? I get emails all the time from people who are tracking legislation and want to know what we're doing." — Legislator

"I have a few close advisors whose opinion I trust. They know what's been tried before, what works and what doesn't. I usually don't have time to read all the research." — Legislator

"Evidence usually isn't in the form of empirical research, although that's important. It's usually in the form of everyday experiences of healthcare providers, regulators and other stakeholders – you know, the anecdotal stuff." — Lobbyist

"It's amazing how many people can look at the same set of facts and draw different conclusions. You have to understand where people are coming from and play to that. It's the only way to get to where you want to go." — Lobbyist

In the public policy setting, however, healthcare represents a public good whose benefits accrue to communities and to society at large in terms of improved population health, increased productivity and higher overall quality of life. If the goal of research is to increase the *rationality* of decision making, a broader definition of rationality is needed to explain both practice and policy decision outcomes. Economic efficiency must compete with other social values such as equity and fairness in the decision making process. With a broader definition of what is 'rational,' the application of research-based evidence can improve decision making, lead to the planning of better programs and serve people in more relevant, more beneficial and more efficient ways – in effect, making the most rational decisions.[16]

A Different Set of Questions

Traditional empirical research tells us what are the most efficient and effective practices, and verifies that they are slow to diffuse through practice settings. But determining *why* this is the case requires a more qualitative approach to understanding the social context in which clinical practice and public policy decisions are made and implemented.

Where the deductive logic of experimental research enables us to explain causes, predict outcomes and control symptoms, other forms of research seek to understand the human and social meaning of those events. Where traditional research searches for specific causes and effects that define discrete parts of a system, other approaches to knowledge and understanding address the *whole* of the system, taking into account those human responses and social values that empirical research either attempts to control or ignores altogether.

In effect, these more qualitative approaches ask a different set of questions. Science and technology contribute immensely to our well-being, but they can also distort our relationship with the natural world, shaped as it is by human interaction within a social network of family, community and the environment. Our explanations and behaviors are often not in sync. The questions we should be asking focus on why this is the case, and how the diffusion of research and innovation can be enhanced by paying attention to the conscious manipulation of social relationships and networks.

Research and the
Diffusion of Innovation

Innovations refer to ideas and practices that represent new ways of thinking and of doing things. Implicit in this is the notion of improvement – better, faster, stronger. The *diffusion of innovation* is the process by which an innovation is communicated among the members of a social system.[17]

How are innovations diffused throughout a community, and what can we do to promote the communication process?

Numerous researchers have asked this question and come up with a number of models that share similar characteristics. Applying the framework originally developed by Everett Rogers, subsequent researchers have sought to identify the critical dynamics of innovation in clinical settings.

The Practice Arena

By way of illustration, ten dynamics of innovation in the practice arena developed by The Institute for the Future include:[18]

1. The advantage that the innovation will provide relative to current practice, including economic profitability, improved clinical outcomes, increased efficiency and social prestige.

2. The ability to test the innovation with minimal investment and without total commitment, such as the use of pharmaceutical samples, simple/stand-alone medical devices or web-based information systems.

3. The opportunity for potential users to observe others who have adopted the innovation.

4. Strong communication channels between those who will be influential in the decision making process, initially reflecting the persuasive influence of interpersonal social networks.

5. The degree of homogeneity within the decision making and user groups, which trades on shared meanings, shared social status and practice disciplines, and lends credibility to adoption of the innovation.

6. The stability of the innovation during the diffusion and implementation phase, including the degree to which the innovation can evolve in response to social and organizational dynamics.

7. Attention to the social rules and norms of the organization, including both formal and informal communication channels that can be used to accelerate the diffusion of innovation to the extent that they define who has contact and influence with whom, what groups of professionals are more likely to support the adoption of new practices and which are likely to resist them.

8. The role of opinion leaders who may be champions for or against the innovation, including both formal administrative and clinical leadership and the informal leaders that define existing social patterns.

9. The degree to which the innovation is compatible with existing technologies and social patterns, including the ability to generate financial reimbursement for the innovation early in its implementation.

10. The degree to which necessary infrastructure to support the innovation is in place, such as telephone, internet and intranet capabilities for imaging technology, and database integration.

Other efforts to identify the factors that influence the diffusion of innovation in practice settings report similar findings.[19]

Factors that influence the diffusion of innovation in practice settings fall into one of two primary categories:

- The first is the evidence itself, which is produced primarily through quantitative experimental and quasi-experimental research designs, including cost-benefit/effectiveness/utility analyses and randomized clinical trials. These approaches reflect our desire to have clinicians and others who deliver and manage healthcare use the best evidence available when making clinical care decisions. The research community should not only produce empirical evidence, but communicate it in ways that are timely, efficient and customer-centered.[20] Research on practice issues also has implications for policy, providing the rationale for more research, prioritizing research areas and exposing the opportunity cost of choosing one area over another.[21]

- The second and far more influential category is the role of social networks and the norms, values, roles and rules they embody. Decisions are made by people through a process of negotiation and accommodation. While facts derived from research may inform those decisions, the knowledge of any one person is limited by both capacity and perspective.[22] Research outcomes are only one input into the process, and it is the political considerations that constitute a system for attaching values to the "facts."[23]

The Policy Arena

Theory ✚ Institutions

Research ✚ Interests ━ Decisions

Practice ✚ Ideas/Values

The diffusion of research and innovation in the healthcare policy arena is arguably more complex than it is in the practice setting, but the framework for considering its multiple dimensions is more straightforward, consisting of institutions, interests and ideas.[24]

- **INSTITUTIONS** refer not to organizations per se, but to the rules, customs, systems and formal/informal relationships that govern markets, government and society in general. As such, they both constrain and facilitate the development of specific policy alternatives.[25] For example, health insurance would be considered an 'institution' under this approach. The rules, regulations and customs of operation are major factors in both setting and determining the outcome of such contentious policy issues as universal insurance coverage and community rating approaches.

- **INTERESTS** refer to the concerns and influence of special interest groups and the various stakeholders they represent, including legislators, agency administrators and the general public. The diverse and often conflicting interests of these groups are particularly salient in the developmental stages of the policy process when empirical evidence is most useful – and often most neglected.[26]

- **IDEAS** are considered here in the form of *research, information* and *values*. Some define research broadly, including in the definition knowledge that is gained through any form of inquiry, not just empirical research. But it is the consideration of values that brings an entirely different dimension to the discussion, and brings us back to the question of perspective and what is considered to be 'knowledge.' Experimental research has long been considered to be value-free, or at least value-neutral. More recent thought posits that contrary to a value-free notion of scientific research, these methods have implicit notions of how theory, research and practice are related, and they imply a political theory into our understanding of social life.[27] Thus values constitute a profound influence in shaping our ideas.

In addition to these three general factors and their various subsets, we need to underscore once again the important role social networks play in the diffusion of research and innovation in healthcare policy. Just as they do in practice settings, *social networks* provide a means of analyzing the role of information and values, as well as the influence of interest groups in the policy making process. Social networks provide the "glue" in the spread of ideas, but until recently have largely been overlooked due to the dominance of the empirical research model.[28]

Social networks determine the patterns of influence and domination within political networks.[29] Much as the diffusion of disease through a population traces the structure of social networks, the diffusion of innovation through a healthcare system follows established patterns of interaction and communication and is heavily dependent upon social as well as professional relationships.

However, whereas the factors and processes that mediate the adoption of evidence-based practices within clinical setting are similar to those that influence the health status of individuals and populations, they are distinct from the political processes that determine the distribution of those phenomena.[30] More specifically, in the political arena the influence of information and values, interests and institutions is far greater and poses a bigger challenge to the use of research to inform policy decisions.

If researchers wish to be more effective in translating research into both healthcare practice and policy, understanding – and using – social networks is the key to success.

Strategies For Translating Research into Health Policy

Science does not speak for itself. Drawing upon the organizing framework developed by John Lavis to develop a politically powerful means of transferring knowledge to policy-makers, we outline five key strategies that acknowledge the cultural fingerprints on our scientific knowledge:

1. The message communicated to policymakers must be *actionable* – based not on a single study, but on a body of evidence that translates data into ideas. In Lavis's words, "Decision makers rarely use a regression coefficient to help them solve a particular problem."[31]

2. The target audience should be specifically identified so that the message can be *framed* correctly, recognizing that various groups will require different forms of knowledge based on the specific nature of the decision they are making.

3. The credibility of the messenger – an opinion leader, researcher or trusted organization – is important to the success of the communication effort.

4. The target audience must be actively – or interactively – engaged with the messenger and the message. Passive dissemination processes don't work.

5. Whether the objective of the knowledge transfer is to inform or to persuade, it should be appropriate to the target audience and consistent with the goals for which the effort is undertaken.

Room For Improvement

WHAT POLICYMAKERS WANT[32]	WHAT HEALTH RESEARCH ORGANIZATIONS PROVIDE[33]
Brief reports and summaries that are easy to digest.	63% provide brief summaries of research reports for free, upon request.
Full reports that enable staff to understand the research and verify its accuracy.	60% provide full reports of research projects for free upon request, with the remaining 40% charging a fee for such reports.
Relevant comparative information.	34% develop messages that transcend a particular project/report.
Information about what the researcher sees as the policy implications and recommendations.	33% develop messages that specify possible actions that could be taken.

Beyond Research:
Implications for Healthcare Practice and Policy

There are many similarities in the factors that mediate the diffusion of research-based innovation between the clinical practice and public policy settings. Not surprisingly, there are also some differences, derived primarily from the scope of impact of the evidence on decisions themselves. Since health care is both a private and a public good, the overlap between research and knowledge transfer that connects practice and policy settings will likely continue.

Based on that overlap, the implications for improving the use of research in both practice and policy rest on some common considerations:

- **CONSIDER HOW HIGH EXPECTATIONS SHOULD BE SET.** Americans have expressed significant distaste for limits when it comes to healthcare.[34] We now have an entire generation that considers death just one of several options – a belief bolstered by rapid advances in technology that may one day prove them correct.[35] When these dynamics converge, it is not surprising that the expectations of researchers, providers, policymakers and the general public may be unrealistically high. While research can – and should – inform decision making, it is only one of several considerations within the practice and policy arenas. The reality of the U.S healthcare system is that research-based evidence must compete on the basis of cost and, in the political arena, on the field of personal values, social norms and cultural ideologies. The expectation that research alone will drive practice and policy decisions is clearly unrealistic.

- **CONSIDER THE ROLE OF SOCIAL NETWORKS.** Viewing the relationship between research, practice and policy through the lens of complex systems demonstrates the importance of social networks between researchers, practitioners and policymakers. Such networks potentially provide a form of social capital that can create bridges across practice disciplines and policy interests. Social relationships that cross traditional boundaries similarly provide the information and trust necessary for collaborative problem solving in both areas. On the other side of the coin, anecdotal stories and special interests live in these social networks alongside scientific research and evidence. Whether that evidence influences practice and policy decisions is determined to a large degree by the conscious understanding and manipulation of those networks.

- **CONSIDER THE FIT WITHIN THE BROADER ORGANIZATIONAL AND POLITICAL CONTEXT.** Public policy doesn't start with a solution looking for a problem. Until a problem is clearly identified and on the public agenda, research-based solutions will have to wait in the wings. Even then, the information needs and policy goals of legislators, special interest groups, the media, providers, insurers and agency administrators are likely to vary considerably, regardless of the "facts." Researchers must make the links between their findings and current practice and policy issues more obvious and relevant to their target audience(s) by tailoring the message to each group's specific needs. Understanding the system and how to "work" it is as important as demonstrating clinical efficacy and cost-effectiveness.[36]

- **CONSIDER THE ROLE OF CULTURE AND INFRASTRUCTURE.** The conscious use of social networks and message framing to communicate a broad array of social and economic values provides multiple opportunities to translate research into practice and policy. Over time, these efforts can change organizational culture and public perception. Before opportunities can be pursued, however, it is necessary to thoroughly understand the broader culture of the decision making environment and the infrastructure of institutions, roles and relationships through which it is transmitted. Many researchers, trained in narrow academic settings with their own internal reward systems, pay insufficient attention to this – and then wonder why their findings aren't applied in practice and policy.

- **CONSIDER DISRUPTIVE INNOVATION.** In practice and policy, innovation is often perceived as part of a comprehensive plan based on data analysis, assessment of customer needs, and the development of new technologies where the potential for change lies at the margins, usually in incremental steps. From the point of view of a *disruptive innovation,* however, the potential lies not at the margins, but within the as yet unknown and unrecognized needs of patients and of society. Disruptive innovation describes "innovation that is of a highly discontinuous or revolutionary nature, which is the opposite of evolutionary or incremental innovation."[37] With 20/20 hindsight, the genesis of these changes is obvious, prompting us to say that "we should have seen it coming." Most often, the new paradigm is based in technological innovation, and finds its start in underserved or marginalized segments of the market or of society.

  The potential for disruptive innovation is significant. While research based in the existing paradigm can be used to improve the current system, it will do little to predict the significant changes that will revolutionize the system itself. For that, we need to consider not what we know, but what we don't know – and to keep ourselves, our institutions and our social networks flexible and open to discovery and learning.

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Our Mission

To improve the health of people and their communities in Arizona, with an emphasis on helping people in need and building the capacity of communities to help themselves.

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St. Luke's Health Initiatives is a public foundation formed through the sale of the St. Luke's Health System in 1995. Our resources are directed toward service, public education and advocacy that improve the health of all Arizonans, especially those in need.

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2375 East Camelback Road
Suite 200
Phoenix Arizona 85016

www.slhi.org
info@slhi.org

602.385.6500
602.385.6510 fax