

PERSPECTIVES

Science Discovery in Clinician-Economist Collaboration: Legacy and Future Challenges

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Abstract

Background: 2002 Carl Taube Lecture at the NIMH Mental Health Economics Meeting

Aims of the Study: To analyze the contribution and process of clinician/economist collaboration

Methods: Personal scientific autobiography, using relationships with three economists as case examples.

Results: In joint efforts by clinicians and economists, clinicians bring an interest in case examples and in responding to unmet need, while economists bring structured analysis methods and respect for a societal perspective. Through mutual respect and discovery, both clinicians and economists can define unmet need in clinical and economic terms and help develop models and programs to improve clinical care, while maintaining a societal evaluation perspective. Key to scientific discovery is the principle that the emotions generated by data, such as hope and despair, need to be acknowledged and utilized rather than avoided or buried, provided that such feelings are used in a balanced manner in research. According to the author, collaboration helps maintain such a balance.

Discussion: Collaboration requires and builds trust, and improves the depth of research by combining different personal and disciplinary perspectives and strengths. Young investigators should be encouraged to explore collaboration and to consider their feelings in response to health and economic data as an important scientific and creative resource.

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Introduction

Recent study groups on the future of science, including mental health services research, call for greater emphasis on

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interdisciplinary collaboration, including in behavioral science and basic sciences, as well as for greater integration of clinical and social and basic sciences.¹⁻⁴ Research that bridges disciplinary boundaries has the potential to foster creative solutions to today's more complex public health and healthcare challenges, such as how to prevent mental illness or reduce burden of illness for mental disorders such as depression.^{5,6}

This paper discusses the process of and potential contributions resulting from scientific collaboration between clinicians and economists, particularly focusing on mental health services research. The paper is written as a tribute to the late Carl Taube; a version of this paper was presented as the seventh annual Carl Taube lecture at the 2002 NIMH Mental Health Economics meeting. The lecture version of this paper and the somewhat humorous accompanying slides are available at: <http://www.hscenter.ucla.edu>. The selection processes that drive different people into economics or medicine lead to tensions in interdisciplinary research, which I argue can be exasperating, exciting, and highly productive. The purpose of this talk is to illustrate that collaborative process and, like Carl Taube, to celebrate and encourage it. The format is a scientific autobiography.

The Influence of Carl Taube

Carl Taube was an NIMH staff member from 1961 until his death in 1989, and was Chief of the Mental Health Economics Research Branch from 1979 to 1984. He founded the division of health economics within NIMH, and was a champion of both mental health services research but particularly of mental health economics and policy research. He contributed extensively to the area and collaborated with many early leaders in this field.⁷⁻¹³ One of the ways that Carl contributed, and from which I personally benefited, was his style of supporting the development of junior researchers over long periods of time, and incorporating their work and vision into his own emerging view of mental health economics and services research. In this respect, my involvement with Carl both stimulated my growth as a mental health services

researcher and perhaps contributed to his ability to help the field develop at the interface of clinical services research and economics. In developing my own career at that interface over more than twenty years, I learned much about myself and the nature of collaboration between economist and clinicians, but particularly, about the important balance in the scientific work of a clinician that result from interacting with others, such as economists, with strong disciplinary-based training in research from a societal perspective. This paper presents my personal story of my growth under Carl's influence and what I learned through a series of collaborations with economists about balancing clinical and societal perspectives.

My first encounter with Carl was during a visit to NIMH in 1982, after Will Manning and I received a contract to study effects of variation in fee-for-service plans on mental health services utilization, using data from the Health Insurance Experiment (HIE).¹⁴ The scope of the HIE was a surprise to NIMH staff, who included Darrel Regier, Barbara Burns, Ben Locke, Larry Kessler, and Carl Taube. Two years out of training and without prior publications, I was overwhelmed at presenting the study to individuals whose work I had been reading for years and who themselves were actively involved in research at that time.¹⁵⁻²¹ During a lively discussion, Carl remained almost completely silent but his face was alive with excitement. He later told me that he foresaw a rapid growth of interest in mental health economics through the study. When we later presented our findings to NIMH, Carl was pleased at the blend of economic and clinical perspectives in our work, and reinforced the importance of my developing my career at that interface. I next saw Carl two years later, when I visited NIMH with John Ware and Al Tarlov to seek advice on mental health tracer conditions for the Medical Outcomes Study.²²⁻²⁴ I had published only a few papers, but Carl treated me with warmth and respect. Afterwards, he called me every few months to discuss my work or developments in the field. He liberally gave and sought advice. Two years later, Carl invited me to speak at the Future of Mental Health Services Research Conference, which he organized with David Mechanic and new NIMH staff member Ann Hohmann.²⁵ The conference was a turning point for the field: it stimulated and celebrated the integration of epidemiology, clinical services, organizational, and economic research. While I was sometimes mistakenly introduced at conferences as an economist, for this conference, Carl asked me to speak on the emerging field of quality of care research to emphasize my identity as a clinician.²⁶ Carl's own work was in policy analysis,²⁷⁻²⁹ but I believe that he thought that the future of mental health economics rested on the transparency of its relevance to clinical services. I came to realize that Carl believed I might be a vehicle to stimulate the field in this direction, as had his own work with Howard Goldman, Judy Lave, and others.^{10,30-31}

Clinician-Economist Collaboration in Science

I frame my discussion of my personal relationship with economists, and of lessons learned, with a personal view of key differences in perspectives of economists and clinicians.

Health economists are highly disciplined thinkers who like to fit theories of how the world works to often imperfect data through highly-specified analytic models. The model, if well-executed and passing most assumptions, becomes a truth that may only approximate reality but is still useful in prediction. The secret that economists know is that models do not have to be perfect to be useful, and that utility is more valuable than perfection. Clinicians as researchers are fundamentally interested in case examples and improving life for individuals today. The secret that clinicians know is that even a useful model, without change implemented in a timely manner, is not enough to relieve human suffering. Roland Sturm, an econometrician who is a current collaborator, commented on an early version of this paper and added the following point:

“A model, by definition, is wrong. You cannot have a “true” model, because that is the same as creating reality with all its complexities. A useful model abstracts from the secondary issues to focus on primary factors. [But] economic models work for larger groups, not individuals. In contrast, mental health specialists gravitate towards the individual or patient perspective.”

Tom McGuire also provided comments the different perspectives of clinicians and economists.

“(1) $HB = f(\text{measurable, observable, quantifiable}) + \text{idiosyncratic error}$ ”

Human behavior, according to Tom, is a function of measurable, quantifiable characteristics, which economists study, and idiosyncratic error, in which clinicians specialize. To the economist, idiosyncratic error is a nuisance; while clinicians seek to know as much as possible about what makes each individual unique, to best help any given individual.

When I trained in health services research through the Robert Wood Johnson Clinical Scholars Program, I did not anticipate developing an interest in financing issues and received no formal economics training. As a result, my colleagues have to show much good will in orienting me and in tolerating my naïve questions. As a psychiatrist, however, I have strong empathic skills, and can often intuitively grasp enough of the underlying issues and assumptions from an economic perspective to become a good partner in fitting economic questions to clinical situations and vice versa. It took years to develop this facility, however. My style of working with economists, and the lessons learned, is best illustrated by contrasting key aspects of work style and products in collaboration with Will Manning, Roland Sturm, and Michael Schoenbaum.

Willard Manning

Will Manning and I actively collaborated over a roughly ten year period, chiefly around analyses of the HIE, in which we attempted to bring a clinical perspective on health and services into a financing study that was strongly rooted in economic theory.^{3,32} One of my contributions was to suggest that we develop an approach to examine mental health care

delivered within primary care settings, a suggestion that resulted in my reviewing thousands of individual claims (part of the HIE data set) to specify an algorithm that identified mental health care within medical visits.⁹ In response, Will expanded the two-part model used to estimate utilization of medical services in the HIE to a four-part model that permitted estimation of insurance plan effects on use of medical and specialty services.¹⁵ A subsequent challenge in response to comments from colleagues like Tom McGuire and Randy Ellis³³ was to improve that approach by estimating the effects of price, rather than plans as a whole, on utilization. This involved collaborating with Emmett Keeler to apply an economic episode model.³⁴ The final stage of my work with Will focused on the effect of plan variation on health outcomes. Will suggested that I assume the lead responsibility for generating hypotheses for these analyses, to afford a less exploratory approach. We found that persons with pre-existing mental health problems and poverty were relatively worse off under cost-sharing compared to free plans, but those initially well and well-off had relatively worse outcomes under free care.³⁵ Will's passing the baton to me was an important empowerment intervention, increasing my confidence in contributing as a clinician to economic studies.

Shortly thereafter, Will left RAND and I shifted my focus to quality of care and health outcomes for depression in the Medical Outcomes Study (MOS).³⁶ My first paper from that study reported that limitations in functional status and well-being of depressed patients were equivalent to or greater than those associated with most major chronic medical conditions. As is often the case, I knew the findings two years before the paper was published and found it surprisingly uncomfortable to simply sit on findings documenting depression's substantial association with functioning limitations. Afterwards, I received letters from people who suffered from depression telling me they felt understood for the first time, and that our findings helped remove the veil of social stigma from depression. Those letters changed me, but to explain how requires a digression.

Clinical Responses to Data Findings and Scientific Objectivity

As scientists, we are trained to maintain objectivity and minimize or avoid bias in design, analysis, and interpretation. Clinicians, in contrast, are trained to use science and their personal intuition to be advocates for their patients' health. Clinicians maintain an alertness for unexpected serious problems, and once a problem is suspected, they are bound by oath to respond immediately and to the best of their ability. Clinicians have routine access to intimate aspects of patients' emotional and physical selves. Educators who worry that such exposure can be emotionally overwhelming extol a culture of "detached concern," or acknowledging the facts and being sympathetic, but maintaining an emotional distance from their significance. Jodi Halpern, a psychiatrist, philosopher and former mentee, in an important book,³⁷ argues that detachment interferes with empathy, an essential tool for achieving full

knowledge of the patient or developing the rapport with patients necessary to engage them in effective solutions. She posits that elevation of detached concern is a serious flaw in the culture of medicine.

The letters from the public helped me realize that the data I had been observing through years of work, scanning through thousands of claims, writing and reporting tables of numbers, applied to real people who had participated in those studies, and that the data revealed what had happened in their lives. The difficulty waiting for findings to appear in print was the distress of a concerned clinician. But I faced a dilemma: How could I respond to that concern as a scientist? I have seen little discussion in the literature of the conflict faced by scientists in dealing with their personal responses to their own data, or models for productively dealing with those responses either as people or scientists.

Roland Sturm

While I pondered this issue, I searched for a new economist collaborator to complete the Medical Outcomes Study analyses. Al Williams, an economist who then directed the RAND Health Program, suggested Roland Sturm, a new RAND hire working on nuclear power plant technology. Roland, as an econometrician, seemed to enjoy thinking about what data imply for the world beyond their reach. Over a several year period, I learned about approaches such as instrumental variables analysis,³⁸ while Roland learned about healthcare.^{39,40} Those discussions lead to a decision analysis⁴¹ in which we estimated that care for depression, particularly in primary care, could become much more effective and cost-effective, while increasing healthcare costs somewhat, if quality of care were higher. We also found that due to low levels of guideline-concordant care, treatment of depression in primary care was highly inefficient, and the prevailing policy trend of shifting patients toward primary care, while decreasing costs, was also decreasing value in terms of outcome benefits per dollar spent. We also found that improvements in patient outcomes were associated with increases in family income.

This collaboration with Roland began to give me hope that I would find a way to respond scientifically to the observations that troubled me as a clinician. As economists, both Will and Roland were committed to a societal perspective and held, in essence, a competitive market view of the uses of scientific data: Our job was to provide information to society and if it was strong enough given society's competing priorities to stimulate change, so be it. That same perspective offered a framework through which I could direct my clinical instincts and concerns, and with discipline, achieve a balance that permitted expression of that concern with scientific fairness. In particular, Roland's modeling expertise had allowed us to imagine what the world might be like under different scenarios, and to discover which scenarios might lead to improvements for patients while leaving society better off overall. This work represented a turning point in my development as a scientist who could respond more flexibly to findings to help provide solutions, as

well as observe or diagnose problems.

While we were writing that story up in “Caring for Depression,”⁴² I considered how to determine whether our conclusions derived from modeling could be replicated in real life. I wrote a series of long, rambling emails to Roland and his wife, Kathleen Bawn, also an economist.^{43,44} Roland responded to many ideas, separating wheat from chaff. During this exchange, an announcement came out for PORT-II studies to examine the effectiveness of care for specific diseases under naturalistic practice conditions.⁴⁵ I passed Roland in the hallway at RAND and excitedly asked: “Could we use a quality improvement experiment as an instrument for instrumental variables analyses of the effects of treatment under naturalistic practice conditions?” Roland’s reply was, “Certainly. I have no idea what the sample size would need to be. We will have to guess.” Thus was born the idea behind Partners in Care (PIC), an example of what Naihua Duan later called the “randomized encouragement design.”⁴⁶ The subject of rambling emails became a new opportunity for scientific discovery. For me it also meant something much deeper.

I learned that rather than detaching myself from the distress I felt over findings as a clinician, I could use that distress as a creative force, and that it was possible to do so with appropriate objectivity if that force was balanced by an equally strong respect for a societal perspective in achieving social change. It is respect for the societal perspective, rather than technical knowledge, that I have most learned from economists. I now view distress over scientific findings as a form of empathy that can improve scientific work, through suggesting new directions. The added value in clinician-economist collaboration is the balance that results between hard-earned clinical savvy in responding to emergencies, and rigorous training in and honor for a societal perspective.

Even while the opportunity to conduct PIC was fulfilling for me, the kind of data sets we were pointing toward were small for an econometrician and frustrating in their lack of policy scope. I looked for an opportunity to utilize Roland’s modeling strengths within mental health services research. From that effort, Healthcare for Communities was conceived. This study combines a large household survey with measures of clinical and economic outcomes with companion analyses of large, managed care data sets.⁴⁷ This scope was ideally suited to Roland, who developed studies on parity, impact of psychiatric disorders on economic outcomes, and many other issues, while I supported analyses of quality of care and unmet need.⁴⁸⁻⁵⁶ Busy with HCC, Roland recommended Michael Schoenbaum as the economist for Partners in Care.

Michael Schoenbaum

Michael is an economist who is keenly interested in clinical details and understanding how people and systems operate. On entering the PIC study, he spent much time talking with clinicians and coming up with new insights to guide analyses. In the first experimental results paper, we were struggling with how to analyze intervention effects on guideline concordant care over time. Persons not using treatments at one-year

follow-up could either be well and not need treatment; or sick and require treatment. The first is not a quality problem but the second is. Addressing this by stratifying people based on outcomes would break the experimental design and introduce an endogeneity, since both health and quality of care are affected by the intervention. Michael suggested the concept of “need-adjusted” quality of care, making the distinction between people who either got well or were sick but in appropriate care, from people who stayed sick without appropriate care.⁵⁷ This put all the information about changes in health and quality in the dependent variable. While this represented the solution of a good analyst, it also resulted from his investment in interacting with clinicians like Jürgen Unützer.^{58,59} Based on our findings that quality improvement for depression improved employment status, Michael became acutely interested in how improvements in care for depression affect personal economic outcomes, such as household wealth.^{30,60} Commenting on this portion of the paper, Isabel Lagomasino, a clinical colleague, commented that “money is a powerful force.” I think for Michael, learning that improved care can improve personal economic status was the equivalent for me years earlier of receiving letters from the public: It awakened his desire to help realize the hope in these findings. As a result of this hope, we had the stamina to withstand seven grant submissions to different agencies to finally achieve funding for five-year follow-up of PIC subjects to determine if economic gains were sustained (NIMH GRANT #R01MH G1570). But economists do not have the formal training that psychiatrists have in utilizing feelings generated by their work to improve their work functioning. One main purpose of this paper is to assure both Michael and more generally economists, particularly junior investigators, that it is not only possible to respond to feelings about findings - whether hope or distress - to pursue new scientific directions, but I believe it is imperative to the growth of the field and for society that we do so.

The Future of Collaboration

There are many new issues today that offer challenges and opportunities for economist-clinician collaboration. An example is identifying incentives for providers to improve quality of care, the subject of a new RWJF initiative (Depression in Primary Care: Linking Clinical and Systems Strategies) and a problem that Susan Ettner, Michael Schoenbaum, Lisa Meredith and others have been discussing at our Center. There are numerous challenges to finding good incentives. Transfers of funds across stakeholders can be necessary to align incentives for quality care, but are difficult to implement and sustain. Quality of care is multi-dimensional⁶¹ and different domains appeal to different stakeholders, who as a result may disagree on what the behavioral targets for incentives should be.⁶² Different kinds of incentives may be required to achieve different desirable target goals, but practices may not be able to implement multiple incentives. This raises the question of how to find an optimal incentive among imperfect and competing alternatives - a perfect

question for clinician-economist collaboration. My own direction, however, is toward determining whether community participation in supporting access to appropriate mental health care can improve health and economic welfare for at-risk communities.⁵ This is my response to the hope instilled by the data unfolding from Partners in Care. I know that answers may not come in my lifetime so I am actively encouraging my colleagues and trainees to explore this field.

Acknowledgements and Conclusion

I would like to acknowledge a few other economist collaborators. Joe Newhouse has been an important intellectual influence and mentor since he hired me on the HIE.⁶³ Agnes Rupp has aided the development of my economist collaborators and been a strong supporter of our work.⁶⁴ I have a unique relationship with Judy Lave: we play hooky at scientific meetings. Neither of us can listen to speeches (like the lecture I delivered from this paper) for very long when there is a world of beauty out there to enjoy. While we play hooky, we chat freely about our work, family, and lives. It began when she took me to one of her favorite museums during an AHSR meeting, and was continued the next year when I convinced her to help me search for a favorite statue of Eleanor Roosevelt's, called "Grief," in Arlington Cemetery. We searched for hours, but I only found the statue days later without Judy.

My wife, Christina Benson, a psychoanalyst and former Robert Wood Johnson Clinical Scholar, in response to this paper, commented on the psychodynamics in my relationship with Judy and other economists. In particular, Chris cited the writings of D.W. Winnicott on his concept of "transitional space."^{65,66} In this concept, children learn in interacting with their mothers that it is possible to move with trust in and out of spaces where they play together or are separate but still feel connected. This enables people to learn to be either separate or close in relation to others without undue anxiety. Scientific collaboration, according to Chris, requires a capacity to move in and out of independent or collaborative thought, a playful process which, like for mothers and children, requires and results in mutual trust and respect.

Collaboration is thus a process that requires and builds respect and has a substantial element of creative play as well as disciplined work. Collaboration between clinicians and economists requires release of disciplinary boundaries and valuing a process of discovery rather than a focus on productivity that has perhaps greater certainty when working within one's own discipline exclusively. My central message is that if such flexible, playful, and creative relationships between clinicians and economists can flourish, and if our distress and hope at scientific findings can be accepted as important insights that can with discipline guide new science directions, then we can increase our chances of meeting today's new policy and healthcare research challenges. I would like that message to bring a similar hope and encouragement to the field that Carl Taube's warm mentorship and scientific support brought to me and my collaborations.

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