Introduction

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This special issue of the *International Journal of Public Policy* continues the journal's special emphasis on public affairs informatics research as a tool to generate evidence-based research to illuminate public affairs and health problems and propose knowledge-based solutions. The advantages of basing public policy decisions on evidence-based research are well-accepted in academic and policy arenas, but implementation is often hampered when such solutions require government support that is dependent on the popular political will. This problem has been emphasised recently by the US President Barack Obama in his effort to promote sweeping policy change in the US healthcare system. In his recent speech to the American Medical Society (Sweet, 2009) and his televised ABC Town Hall appearance, *Questions for the President: Prescription for America* (ABC News, 2009), President Obama called for broader use of evidence-based guidelines in healthcare, and touted the use of evidence-based care to reduce rapidly-rising US medical expenditures and generate savings that could be used to provide healthcare to approximately 55 million Americans who are unable to afford health insurance.

In their article on per capita health expenditures across racial and ethnic groups in the USA, Wang, Mullins, Chang, Gourley, Shih, Cushman, Dagogo-Jack and White-Means note that, compared to all the other countries in the world, the USA has the highest per capita healthcare expenditure but fails to produce the best health outcomes for its citizens. Such a comparison highlights the need to look at healthcare reform from a global perspective to determine what factors account for the differences in expenditures and outcomes. In the USA, Wang et al. identify disparity across racial and ethnic groups as one factor that contributes to an inferior ranking across a variety of health indicators when the USA is compared to other developed nations. Three other articles in this issue

also provide evidence of disparities in healthcare opportunities within the US population: Lee, Chung and Yang provide evidence of a disparity in access to primary care in rural America; Lewis finds that African-Americans are far more likely than Caucasian or Hispanic Americans to be diagnosed with mental illness; and Linkov and LaPorte call attention to disparity in research on and treatment of disability among cancer survivors. Beyond the healthcare arena, Ismail and Bahadir also highlight the effects of socio-economic disparities on governance and corruption.

The research that identifies these disparities, details their effects on outcomes and proposes remedies illustrates the power of informatics to produce usable information that can generate knowledge-based solutions. For example, Chukmaitov, Tang and Brooks use an informatics approach to seek cost-effective solutions to problems in the healthcare arena. Their article compares the cost of common healthcare procedures between freestanding ambulatory surgery centres and hospital-based outpatient departments in Florida, and finds substantially lower charges for outpatient procedures using the ambulatory surgery centres. Given these results, they suggest policy-makers look more carefully at charge and cost data in their decision-making and contracting process, but these results could also be used to investigate cost differences and ferret out best practices that might help lower costs in the hospital environment. Fiedler and Wan also address the issues of cost and quality of care in a study that finds traditional facilities (such as hospitals, remote physicians or referral care) may not be the best choice for treatment of chronic conditions that require long-term care. Their investigation of chronic viral hepatitis in Central Florida suggests the need for a disease management organisation (DMO) approach that can use health informatics to generate treatment protocols for specific populations. For treatment other than acute or emergency care, the authors suggest separate facilities could produce defined treatment plans that could improve outcomes as well as offering more cost-effective treatment. Wang, Wan, Shi and Lin add to the debate on healthcare financial issues with research that contradicts the prevailing concern that physician income declines under managed care. Their research finds that physicians participating in managed care actually earned more than their counterparts.

The Linkov and LaPorte article is another case in point; these authors note that prevention of cancer-related disabilities could lower costs and improve outcomes by facilitating collaboration among relevant specialists and public health service organisations. Their article provides an information technology solution – the Global Health Supercourse project – to link the varied specialty fields together to provide better quality care. This article details the development and achievements of the Supercourse project and its potential to develop multidisciplinary research projects and disseminate research findings to classrooms, public health service providing organisations, nurses and educators.

The article by Tasdoven and Sahin also takes a multidisciplinary approach to illustrate the utility of data mining to support efficient decision-making tools in different public and private sectors. Here, the authors discuss a number of data mining applications in healthcare, private business and criminal justice. Then, focusing particularly on criminal justice, they demonstrate how data mining and informatics tools can support both decision-making and cost-effective solutions for efficient public service delivery.

These articles demonstrate the potential for informatics and evidence-based research to generate knowledge-based solutions, but three other articles also point out that these solutions are dependent on the quality of the data and research methods, as well as the difficulties in implementation. Jeff Goltz speaks to this issue with an article

demonstrating that comparisons of crime rates and police presence based on the traditional police-resident population ratio may not provide an accurate measure of police performance, particularly in areas that have large numbers of temporary residents such as tourists, in-commuters and a transient homeless population. Demonstrating the effect of this actual service population, Goetz notes that accurate information is necessary to incorporate service populations into resource decisions to develop effective public safety strategies and budget public police service funds more effectively to reduce crime.

While Goetz calls for better data, Qin and Wang focus on better tools. Their article notes the need for quality custom software to tailor applications to specific uses in the public affairs arena. Their paper presents a software quality prediction model that overcomes the limitations of traditional methods which rely on existing software defect data. Utilising a new approach to algorithms and information processing for public affairs informatics research, the authors results find their model performs better than the traditional model in prediction accuracy and effectiveness. This kind of research contributes to the conceptual and theoretical foundations of developing custom software for specific public affairs purposes, and offers much promise for quality control in the customisation and development of applications that can improve public affairs informatics research and practice.

Shareef, Kumar, Kumar and Archer highlight the need for such research and practice, noting that modern information and communication technology (ICT) can be particularly effective in offering solutions to public dissatisfaction with government performance and credibility. Developed nations have used ICT to increase citizen participation and enhance government performance through the development of electronic government (EG), but this approach has not had as much success in developing countries. The authors' study of the impediments to EG in Bangladesh highlights some of the ways in which the adoption criteria and implementation strategy for ICT in developing countries may differ from the track followed by developed countries because developing nations may not have the investment, operational and dynamic learning capabilities necessary for development of EG. These authors identify eight critical factors crucial to developing these capabilities.

Although the authors' focus is on developing nations, it is worth noting that the critical factors they identify apply to developed nations as well. Their comment that 'adoption, usage and proliferation of ICT and the implementation of EG need enormous technical knowledge, skilled public administration, good social interaction and a culture that is open to change' is just as true for developed countries like the USA as it is for Bangladesh. Such a comparison – between one of the world's richest countries and one of its poorest – illustrates the advantages of taking a global view of public policy problems to learn what works and what does not, and ferret out common elements that apply across nations and disciplines.

In this case, the eight crucial elements necessary for the adoption of EG in Bangladesh mentioned in the Shareef et al. article can be applied across nations and disciplines to illuminate prerequisites for technological change. For example, the first critical factor on their list – central government support and long-term political commitment – is just as crucial to implementation of knowledge-based solutions in developed nations. Nowhere is this more apply illustrated than in the current debate over healthcare reform in the USA. One of the key points of healthcare reform involves development of electronic record-keeping, which has the potential to both cut costs and

improve healthcare in the USA. Although the USA has most if not all of the fundamental capabilities mentioned by Shareef et al., the critical factor of long-term political commitment has thus far been lacking, and this insight focuses attention on the 'public' aspect of public affairs informatics. Though good research can pinpoint problems, propose and test solutions and even offer decision-making tools, achieving its true promise is dependent on acceptance and implementation.

In his ABC Town Hall meeting referenced earlier, Obama remarked:

> "Let me tell you, though, that we actually do know in a lot of instances what works and what doesn't. What's lacking is not knowledge. We've been debating this stuff for decades. What's lacking is political will, and that's what I'm hoping the American people provide" (ABC News, 2009).

Obama's frequent mention of the results of scientific studies and the need for evidence-based solutions reflect attempts to rationally frame the issue to generate this political will. Two things required to generate such support reflect the purpose of this journal, that is to promote good, solid research, based on the best data and methodologies available to generate knowledge-based solutions and to establish an effective channel of communication between researchers, policy-makers, practitioners and academics concerned with policy issues. But beyond these requirements is the necessity to also establish an effective communication with the 'public' in the public arena. While this aspect of public affairs is the domain of politics and politicians, researchers can help by providing quality research that provides the facts – in political terms, the 'ammunition' – these politicians need to obtain the public support necessary for implementation of knowledge-based solutions.

All of the articles in this issue illustrate the type of research necessary to provide such ammunition. For example, the article by Chukmaitov, Tang and Brooks that finds substantially lower charges for outpatient procedures using ambulatory surgery centres suggests policy-makers look more carefully at charge and cost data in their decision-making, but also opines that payers might follow suit: 'once this information becomes public'. The information, once public knowledge, could also support efforts to investigate cost differences and ferret out best practices that might help lower costs in the hospital environment.

Taking such information from research to the public is one of the best ways to support implementation of evidence-based solutions. The article by Linkov and LaPorte demonstrates the power of informatics to achieve this end with the Global Health Supercourse, a project dedicated to support interdisciplinary research and to disseminate results across specialties and a wide spectrum of consumers from public health organisations to service providers, and by extension, to the consumer and general public. Fiedler and Wan's article highlights the importance of employing managerial epidemiology and disease management strategies for chronic disease such as hepatitis.

From a political perspective, publicising the results of strong research can generate more support for evidence-based solutions. Research than identifies disparities – such as that done by Wang et al. and Lee et al. in this issue – can support calls for reform, as can research that demonstrates the interdisciplinary effect of disparities (Ismail and Bahadir) and research that identifies inefficiencies that could be corrected to improve public problems. The articles by Linkov and LaPorte, Chukmaitov et al. and Shareef et al. illustrate the potential for this type of research to improve governance. Good research can also help counter opposition to knowledge-based solutions. For example, in the US

healthcare context, the Wang et al. article that contradicts the prevailing concern that physician income declines under managed care, and finds that physicians participating in managed care actually earned more than their counterparts, provides an argument to counter physician fears of lower earnings under a government plan.

The potential for political use of research information to meet the needs of policy-makers and to support the use of knowledge-based solutions to public problems cannot be discounted, but neither should it be taken for granted. The power of public affairs informatics research also carries responsibilities; because the consequences of inaccurate information and poor research can generate a loss of credibility, the true potential for public affairs informatics lies in its ability to use the best tools and data to provide accurate information and sound recommendations to solve public problems.

The articles in this issue by Tasdoven and Sahin, Goltz, and Qin and Wang advance the goals of public affairs informatics by improving the data and tools necessary to develop the accuracy and effectiveness of public affairs research across an interdisciplinary spectrum of public problems. This journal's objective to encourage debate about public policy, governance and the implementation of public programs also promotes this goal by encouraging critique of developments in these arenas to improve both research and practice. And although many of us may wish to leave politics to the politicians, the journal's objectives to establish a channel of communication between public policy-researchers and policy-makers and implementers, and to provide a vehicle for dissemination of knowledge garnered from an evidence-based approach, provide the opportunity to support the implementation of knowledge-based solutions that can help foster the ultimate goal of public policy solve public problems and of good governance to improve the lives of the governed.

In conclusion, comparative effectiveness studies should be conducted to provide pertinent information to guide the selection of policy options or alternative choices. Thus, knowledge-based decision-making can be made through the use of public affairs informatics.

References

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