

## Health Services Research: Why it Matters to Health Policy Makers and Clinicians

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In Singapore, there appears to be a recent unprecedented flurry of interest in health services research (HSR), a fairly distinct and recognisable activity, within (i) the 2 public healthcare clusters – the National Healthcare Group and Singapore Health Services; (ii) academic settings in the National University of Singapore (NUS) and Duke Graduate Medical School (GMS); and (iii) the Ministry of Health. Globally too, HSR is a relatively new field of about 60 years.

In the US, the “think tank” Research and Development (RAND) Corporation formed the RAND Health division to provide objective analysis to improve policy and decision making through HSR, only in the 1960s.<sup>1</sup> The Agency for Healthcare Policy and Research was created in 1989,<sup>2</sup> and later re-authorised as the Agency for Healthcare Research and Quality, the leading federal agency for research on healthcare quality, costs, outcomes, and patient safety; while AcademyHealth, a leading professional society for health services researchers and health policy analysts, was formed in 2000.

Early HSR was done by clinicians, economists and sociologists. Now health services researchers come from disciplines such as biostatistics, economics, public health, epidemiology, clinical sciences, psychology, sociology, and other disparate areas such as engineering, decision theory, geography, medical informatics, operations research, pharmacy, anthropology, demographics, actuarial science and nutrition in addition to clinical medicine.

### So what is Health Services Research? And why does it Matter?

AcademyHealth defines HSR as that multidisciplinary field of scientific investigation which studies how social factors, financing systems, organisations, health technologies, and personal behaviours affect access to healthcare, the quality and cost of healthcare, and ultimately our health and well-being.<sup>3</sup> HSR examines how people get access to healthcare, how much care costs, and what happens to patients as a result of this care. Its primary goals are to identify the most effective ways to organise, manage, finance, and deliver high quality care; reduce medical

errors; and improve patient safety.<sup>4</sup> The primary interest of health services researchers is to generate and disseminate valid and reliable research that informs policy and practice, and to ensure integrity.<sup>5</sup> While HSR is grounded in theory, it does research that can be applied by clinicians, nurses, health managers and administrators, and other people who make decisions or deliver care; i.e. HSR provides the evidence for their decisions and practice.

In a nutshell, HSR informs policy making, deals with the real world as a whole rather than individuals. It involves many disciplines to deal with pragmatic issues of quality, access, costs, efficacy and efficiency. As shown in the papers in this issue, HSR deals with applied epidemiology<sup>6</sup> and real world inquiry,<sup>7</sup> where traditional methods of clinical trials design may not always be feasible; hence the need for sophisticated risk adjustment.<sup>8</sup> It is the science of measuring outcomes,<sup>9-12</sup> a measure of quality of care; and of how best to deliver appropriate and cost-effective care.<sup>13</sup> HSR also seeks to understand perceptions, values and health literacy of people<sup>14,15</sup> that are associated with certain attitudes and health-seeking behaviour. It provides quantitative measures through various decision and management science methods<sup>16,17</sup> that permit informed decisions. Secondary research techniques of identifying, critically appraising, and synthesizing published evidence support planning.<sup>18,19</sup>

### The Challenges of HSR

In other parts of the world, the beginnings of HSR were plagued with challenges.<sup>20-24</sup> The distinguishing features of HSR are that (i) it places greater emphasis on making the research relevant to policy makers, clinical practitioners, funders and managers; and (ii) results are often required quickly. The challenge therefore is to deliver research that is rigorous and of a high quality in a timely manner.

Clinicians have widely accepted evidence-based practice. Health policy makers, although lagging behind, are beginning to embrace the same. Many have no qualms over the academic and rigorous nature of HSR; some even consider it a scholarly view of an unscientific field. The difficulty in making evidence-based health policy is blamed

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on the retrospective research design, non-representativeness of the study population, problems in defining and measuring outcomes, and difficulty in interpreting and applying the evidence. Interventions are complex, the feasibility of randomised controlled trials is limited,<sup>25</sup> and study designs and data sources are less straightforward than in basic or clinical research.

Improvement of health outcomes is the main focus of any health policy reform, but often outcomes are complex and more of health service utility. Good measures must be specific, measurable, achievable, realistic and time-bound.<sup>26</sup> An illustration of the complexity in outcomes measurement is in Emergency Care HSR. Emergency medical services are expensive systems to operate, yet they seemingly have little evidence of efficacy, which in turn is difficult to define or measure. Outcomes such as mortality, which is not a frequent event, will require a large sample or a long time, or both. Lives saved, relief of suffering, and disability are all difficult to define. In addition, emergency care is but one component of the health system, and the attribution of outcomes is confounded by multiple interventions in the patients' care before and after the episode at the emergency department.

### The Stakeholder-researcher Gap

It is therefore not surprising that critics say that knowledge and evidence from HSR is of little value to stakeholders and decision/policy makers. There is a considerable knowledge base that is not translated, and there exists a gap between the recommendations and implementation. This is not new; such issues have been examined by AcademyHealth researchers in the past 25 years.<sup>23</sup> A Canadian study found 76% of decision makers surveyed commented on the lack of relevant usable research for knowledge translation.<sup>27</sup> Rundall<sup>28</sup> has identified the key competencies required in decision making, i.e. (i) formulating the question; (ii) acquiring research evidence; (iii) assessing the validity, quality and applicability of research evidence; (iv) presenting the research results in a way that will increase use; and (v) applying the evidence in decision making.

It boils down to the fact that researchers must understand the process of policy making and types of policy makers. Policy makers have information overload, and often find research results too technical or indirect, so applying them inappropriately. They want a prospective answer to the question, "What does the evidence say?" and seek interventions with intended outcomes. HSR therefore has to be completely "user-driven". The key lies in linking (and emphasizing) the stakeholder with the best-available evidence at the point of need, in a useful form. Successful translation of evidence-based services also requires evaluating the effects of the services, resources, context and needed changes in the organisation.<sup>29</sup>

Beyond the 'so what' factor is the engagement and ownership of the stakeholder. When HSR started in the United Kingdom, a customer-contractor (or a decision maker-researcher) relationship was accepted by the government, in which the customers define their requirements (what is the question?). Where this 'applied research' with a practical application is done within the customer-contractor relationship, the benefits are expected to accrue, in terms of practice, decision, policy and dissemination.<sup>20</sup>

### Where are we now, and how do we move forward?

HSR is still in its infancy in Singapore. Each of the 5 HSR centres in Singapore was established to serve distinct functions, with little, if any, overlap of roles or duplication of resources. For the National Healthcare Group, the centre provides evidence to support decisions and planning, and improves the quality of care and efficiency of health services through primary or secondary research. The research team is closely related to the practice, and the research results influence this practice. This decentralised 'local' support is highly desirable in giving pragmatic solutions and timely responses to clinicians and managers where most needed.

It has provided evidence to abandon an entrenched practice of routine blood culture before antibiotic treatment in every patient diagnosed with pneumonia in the emergency department.<sup>13</sup> The perennial dengue epidemics choke our hospital beds and manpower. Using simple variables to aid busy clinicians in identifying patients at risk of mortality (from dengue haemorrhagic fever and dengue shock syndrome) can reduce admission in those not at risk of mortality by >50% – showing the value of predictive analysis.<sup>30</sup> Discrete event simulation has also convinced stakeholders, contrary to common belief, that introducing a pharmacy automation system for picking and packing drugs will cut neither the number of pharmacists nor patients' waiting time.<sup>11</sup>

The HSR centre at the Ministry of Health aptly looks into national issues of cost, access, quality of care, and healthcare financing. HSR is an under-privileged and under-valued part of health research. It is not surprising that research funding for HSR has been unsympathetic, in particular for secondary research that provides evidence and decision support through systematic reviews and contextualised health technology assessments. In the USA, a number of federal agencies funded a total of US\$1.5 billion of HSR in 2002, accounting for 5% of total research budget for health.<sup>31</sup> The King's Fund in the United Kingdom supports research and objective analysis to influence health and social care policy, covering governance and prioritisation of research activities, and data access to researchers.<sup>32</sup> The Canadian Health Services Research Foundation ensures

that research is relevant to decision makers by focusing its resources on priority health-system issues and on filling gaps in applied health services and policy research.<sup>33</sup> Singapore needs a similar local structure of organised support for HSR through priority setting, funding and data access similar to those in the US, Canada and UK. Linked to funding, the evaluation and research payback needs careful monitoring.<sup>34</sup>

To date, none of our so-called in-house health services researchers has been formally trained in HSR. Instead they function as applied epidemiologists, applied economists, sociologists and operations research specialists, using their expertise to work on many issues. The career structure for the health services researcher suffers from a lack of professional identity, in part due to its disparate nature. The academic HSR centres in the National University of Singapore and Duke Graduate Medical School have a key role in building HSR capability, by establishing an academic pathway for a new generation of health services researchers in both the healthcare clusters and in the Ministry.

Advancing HSR in Singapore will require training and education, development of models to effect a paradigm shift in health service utilisation, and linking structure and processes to outcomes.<sup>23</sup> We earnestly hope that the conglomeration and networking of researchers in Ministry of Health, academia and the 2 public healthcare clusters will be synergistic and catalyse the expansion of local knowledge and experience in HSR. In turn, this should benefit our health services researchers and ultimately our health system.

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