HEALTH ECONOMICS IN AHS

Welcome to the first issue of our Health Economics Newsletter. Full disclosure – I am not a health economist. It was a minor area of study during my undergraduate and graduate studies.

Being interested in and advancing the field of health technology assessment and innovation there was no way to avoid having a working knowledge and application of economics to inform decision and policy making in health care. My interest was based on a simple premise – if you spend money on one form of health care intervention or technology that is of value that means you cannot spend it on something else. Buying one individual health means someone else has to do without. My quest became a journey to find approaches and methods that would help policy makers and decision makers decide among non-commensurate interventions those that would result in the best possible health outcome for the community.

How do we as managers at AHS buy the maximum amount of health benefit for Albertans for the least amount of money? A sustainable health care system is in all of our interests. The objective of this quarterly newsletter will be to explore, discuss and highlight ways in which we at AHS are using health economics to make prudent choices.

A second objective is to raise the level of awareness and understanding of how health economics can be used to support our managers in making prudent decisions. We will profile projects currently underway, resource people to contact, identify sources of information in health economics and much more.

Our editorial advisory group has started with Mahmood Zarrabi as chair with support from me, Stafford Dean and Rosmin Esmail. Please send us your ideas of how the newsletter could be of benefit to you and your colleagues.
Economic Evaluation in AHS: SAP Story

Alberta Quality Matrix for Health has six dimensions, including Appropriateness, Accessibility, Acceptability, Effectiveness, Efficiency, and Safety. These six dimensions are typically used to illustrate value for money of initiatives in Alberta healthcare system. It is important to note that values demonstrated by the quality matrix are not limited to improving patients’ outcomes or saving money to the system, rather it can include reducing inequality in access to care or providing cares that are more patient centered and so are promoting patients’ and/or provider’s satisfaction.

Interdisciplinary care and direct communications among care providers have shown to improve patients’ outcomes and reduce unnecessary resource utilization. For instance, this has been demonstrated by stroke units in Calgary and Edmonton. However, establishment of stroke units in rural and small urban care setting is less feasible due to a lower volume of patients in these care settings. To address the gap in access to best practice and the inequality between large urban and rural care settings, Stroke Action Plan (SAP) has been initiated by the Cardiovascular Health and Stroke SCN which has aimed to reduce the inequities in stroke care, including access to rehab and best practice augmentation across rural and small urban centres. SAP has developed two cost-effective integrated models of care: 1) A community-based stroke rehabilitation service that includes Early Supported Discharge (ESD) and Community Rehabilitation (CR) for mild to moderate stroke patients, and 2) Based on the Canadian Stroke Best Practice Recommendations, implemented best practice standards for inpatient care of stroke patients to create a new model of care designated Stroke Unit Equivalent Care (SUEC) for all stroke patients accessing rural and small urban care centres.

Results and achievements of SAP project will be demonstrated by a report and a complementary economic evaluation that will be issued later in 2016. However, in this brief storytelling, we would highlight some challenges of conducting economic evaluation of initiatives like SAP that aim to be implemented in rural care settings and how leaders and the research team of the SAP have mitigated those challenges.

First issue or challenge is the generalizability and scalability of the initiative. This issue in general concerns about a question regarding an extent with which results of an initiative that has been tested in one site/care unit can be applicable to other sites/care units. This issue is common and relevant to all types of initiatives and care settings, but it is more problematic in rural care setting. Healthcare resources in rural care settings such as availability of health professions, intensive care and specialized services are quite variables across care units in rural area. Thus results of an initiative in one care unit are not directly applicable to other care units without any justification. In response to the generalizability issue, SAP project included all existing 13 sites for which SAP is feasible to be implemented and so excluded three other sites for which SAP is not feasible to be implemented due to very low volume of patients. Given SAP has been tested in all feasible sites within Alberta, the issue of generalizability has been eliminated.

The second issue is identifying resource implications and utilizations that are specific to implementation of an initiative. Service utilizations such as inpatient, outpatient and physician services are more readily available through the standard administrative databases such as DAD, NACRS and physician claim database in Alberta, however other services such as community based physiotherapy, long term care and home care are less often readily available. Evaluation of the initiative requires the data to be collected directly from patients through surveys and manual data collection tools and procedures. In that regard, SAP project has dealt with the data issue and service utilization using the application of the balanced scorecard to track key measures identified by the project and also for identifying key-area for action planning. For example, increase in intensity of physiotherapy services or percent of stroke patients for whom stroke order sets or protocols were implemented on admission have been collected by the scorecards.

The third issue is the costing. While Alberta has been one of the pioneers among the Canadian provinces in respect with financial stewardship and reporting using the MIS system, there is less reliable and detailed information available on cost of services utilized in rural settings. The economic evaluation of the SAP project is underway and we wait to find out how the costing issue has been analyzed in the evaluation of SAP. However one way to get around that issue is to use financial data from other sites where more robust cost data is available, mostly from Calgary and Edmonton, and then apply those cost figures to rural settings. There are shortcomings of that approach firstly because urban care settings are more costly than rural care settings and secondly due to differences in intensity of care available in each setting. Despite this, Alberta urban cost data is more robust and generalizable to be used in the evaluation more adequately than any other proxy cost data that is available. However, use of cost data other than actual cost of services used prompts the need to conduct a sensitivity analysis in order to determine how much results of the evaluation are dependent to variations in cost figures and parameters.

“Stay tuned for the final reports of SAP which is coming out soon”...
Principles of Best Practice in HTA

This newsletter has been emerged to address three main challenges in conducting HTA in Alberta Health Services: First, to improve health economics literacy across AHS; Second, to bridge the gap between decision makers and researchers; and third, to facilitate the process of conducting HTA by creating a network of health economists and identifying resources within AHS. In doing so, I thought to start with outlining principles of best practice in HTA and then to elaborate on those principles in more details in upcoming issues of the newsletter.

Health Technology Assessment (HTA) is an application of economics theory in the field of healthcare with a particular attention to assessment of costs and outcomes of existing or new technologies. Technologies that are subject to HTA include, for example, medical devices, drugs, diagnostic tests, clinical care pathway, and health promotion processes. Michael Drummond and his colleagues outlined 15 principles of best practice in HTA that are organized in four main categories:

1. STRUCTURE OF HTA PROGRAMS:
   Principle 1: The Goal and Scope of HTA Should be Explicit and Relevant to Its Use
   Principle 2: HTA Should be Unbiased and Transparent Exercise
   Principle 3: HTA Include All Relevant Technologies
   Principle 4: A clear System for Setting Priorities for HTA Should Exist

2. METHODS OF HTA:
   Principle 5: HTA Should Incorporate Appropriate Methods for Assessing Costs and Benefits
   Principle 6: HTA Should Consider a Wide Range of Evidence and Outcomes
   Principle 7: A Full Societal Perspective Should Be Considered When Undertaking HTAs
   Principle 8: HTAs Should Explicitly Characterize Uncertainty Surrounding

Major Trends in HTA

First of all, there is a greater demand for HTA overall. More stakeholders, more decision makers, and more policymakers need HTA to support their decisions. Second, there has been an increase in government and private sector HTA agencies. Third, increase in international collaboration on HTA methods. Fourth, the processes of HTA have become more transparent, more systematic and more consultative over the years. HTA has become more open; more involving people, more public notice, and more input from patients and other stakeholders. Fifth, there are more horizon scanning and systematic priority-setting. Sixth, the standards of evidence and the use of broader evidence appraisal hierarchies are increasing. Seventh, in line with the efficacy and effectiveness distinction, there is more interest in evidence from real-world practice. We do not get this data just from clinical trials and oftentimes, we do not get data very well at all from RCTs. We get more things from registries, surveillance and practical clinical trials where we capture real word data. Number eight, more specificity in HTA findings by patient, subgroups, practice setting, and provider experience. We not only want to know how something works in general, but we also want to know how it works for different kinds of patients. Ninth, we see a greater emphasis on cost effectiveness and related economic impacts, so the state of the art of those costs studies continue to improve. Tenth, there is a greater and broader use of systematic reviews, meta-analyses, and other syntheses methods. Number eleven, greater emphasis on patient-oriented reported outcomes and support for patient-centered care. Twelfth, more interest in tailoring HTA methods to particular types of technology. Thirteenth, more interest in rapid assessment in response to policy makers’ needs. Fourteenth, there is also low-cost and instant international access to published evidence, most completed HTA reports, and the awareness of ongoing health technology assessments. Fourteenth, there is a greater international collaboration in exchange in HTA methods and more attention to coordinate or align HTA. And the last, not the least, the industry and organized medicine are more aware of and interested in engaging in HTA than simply opposing it.
Discounting refers to converting future values, i.e. both costs and outcomes (clinical and non-clinical outcomes), to present value for the purpose of comparing costs and outcomes realized in different time. In real word, it is very typical to invest some money today and to harvest its benefits in future. For example, AHS has developed Alberta Screening and Prevention (AsAP) initiative in collaboration with the primary care networks. The goals was to screen patients for 12 risk factors of cardiovascular diseases such as blood pressure, body weight, smoking, exercise, flu, alcohol, diabetes, plasma lipid, pap, mammography, CRC, and CV risk. It has been expected that screening for those risk factors and consequently providing appropriate intervention in a timely manner and based on results of those risk factors will prevent cardiovascular adverse events and also reduced acute care service utilization such as emergency department visit and hospitalization over patient’s life time.

However, while the system spends money today to screen for those risk factors, benefits of the program will be realized in later years of patients’ lives which could range from a few months to more than 50 years. How one can evaluate value of money invested in the program that has such a long term return? To answer to that question, regardless of technical matters and type of modeling for the economic evaluation, the analyst needs to convert all elements of the program, monetary and non-monetary elements, to a common base-year. That is, $100 today is not equivalent in value to $100 in next 10 years nor is a year life saved at age 50 directly comparable to a year life saved at age 60 for the same patient. By applying a discount factor, all elements of a program are converted to a common-base year and so can be compared to each other.

The graph displayed on this page is an example of how value of a parameter in an economic model can change when a discount rate is applied to that parameter. In this graph, I calculated life expectancy of females aged zero to 107 years in Canada based on the information obtained from the Statistics Canada (Catalogue No. 84-537-XIE), with or without 5% discount rate applied to the life expectancy (the red and green line in the graph, respectively).

The discounted life expectancy for a given age was calculated as

$$\sum_{i=Age}^{ex(Age)} \frac{1}{(1+r)^{(Age-i+1)}}$$

where Age is the current age of the individual, ex(Age) is the life expectancy for that age, and r is the discount rate which was 5% in this case.