PODIUM SESSION I: NEW CONCEPTS FOR HEALTH CARE DECISION MAKING

CO1
INDIVIDUAL DECISIONS AND SOCIAL VALUE: A CONCEPTUAL FRAMEWORK TO EXPLORE ALTERNATIVE DECISION MAKING APPROACHES AND THE VALUE OF HETEROGENEITY IN THE ERA OF INDIVIDUALIZED CARE

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The value of understanding and incorporating heterogeneity in decisions based on cost-effectiveness has been matter of growing interest in healthcare. Recent contributions have been proposed to characterize this value. They include the expected value of individualized care (EVIC) and the static and dynamic value of heterogeneity (VoH). While the EVIC represents the expected societal cost of ignoring patient-level heterogeneity, the VoH approach helps to define the optimal specification of a subgroup for cost-effectiveness analysis considering the available information and the related parameter uncertainty. However, the interpretation of such metrics should consider additional elements of the health system. Social value judgments and the fact that individuals do not necessarily make decisions according to social interests should be taken into account when the healthcare system pursues to implement a centered patient model such as individualized care. This paper develops a conceptual framework to explore the impact of alternative approaches to decision-making on population health and the potential trade-offs between those approaches. The main purpose of the study is to make explicit considerations that could help policy makers in their task of evaluating the implementation of a centered patient model in a healthcare system. Four decision making approaches are defined on the basis of two elements: first, the type of values used to construct health outcomes (private or societal values) and second, the level at which a decisions is made (central versus devolved). The model is formalized using classical cost-effectiveness decision rules. The alternative approaches are contrasted in terms of net health benefits which are estimated for different scenarios and illustrated with a stylized numerical example.

CO2
ADVANCING THE METHODS OF COST-EFFECTIVENESS ANALYSIS: WHY IT'S TIME TO MOVE ON FROM ICERS AND THRESHOLDS

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OBJECTIVES: Cost-effectiveness analysis of health technologies typically involves the calculation of incremental cost-effectiveness ratios (ICERs). In some jurisdictions, decision makers compare these ICERs to an explicit cost-effectiveness "threshold" as part of their deliberations. The use of a threshold remains controversial and there is disagreement over what such a threshold, if adopted, should represent. Furthermore, there are many issues and limitations with the interpretation of ICERs. This paper argues that the needs of decision makers and patients would be better served by abandoning ICERs and thresholds altogether and adopting instead a decision framework based upon a modified notion of "net benefit". **METHODS:** Using recent Ontario-based cost-effectiveness analyses as examples, we demonstrate that the traditional interpretation of ICERs can be misleading. We also demonstrate why comparing ICERs to an explicit threshold cannot satisfy the needs of decision makers or patients – regardless of the threshold used – except under very specific circumstances. We then show how the traditional "net benefit" approach to decision making may be modified to incorporate concerns for efficiency, equity, societal and ethical values, and patient preferences. **CONCLUSIONS:** Abandoning ICERs and thresholds and adopting a decision framework based upon a modified notion of "net benefit" would not only address many of the issues with ICERs and thresholds but would be easier for decision makers to interpret. It would also allow decision makers who adopt multiple decision making criteria (such as concerns for efficiency, equity, societal and ethical values, and patient preferences) to make explicit trade offs between these criteria.

CO3
MINIMIZING THE COSTS OF ANALYZING THE VALUE OF HEALTH RESEARCH

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Value-of-information (VOI) analysis can establish the expected benefits from health research. This typically involves the modeling of a disease and its treatment to fully characterize the uncertainty in outcomes of the interventions under study, which is generally complex and costly. As such, full modeling VOI often limits the practical use of VOI in prioritizing and designing research studies, particularly low-cost studies. This study 1) identifies approaches that can minimize the costs of performing VOI analysis; and 2) describes an algorithm for selecting the best VOI approach for a given clinical question. As alternatives to full modeling VOI, we identified conceptual VOI, minimal modeling and maximal modeling to be lower-cost approaches to VOI. In conceptual VOI, information is used about each of the multiplicative elements of VOI, including the durability of research evidence, to provide informative bounds on VOI without formally quantifying this through modeling. When data on comprehensive outcome measures, like QALYs or net benefit, are readily available from existing research, it may be possible to perform VOI with only minimal modeling. Instead of constructing separate models, a maximal modeling VOI uses a single comprehensive model to simultaneously inform multiple clinical questions. To select the best approach to VOI, our algorithm begins with conceptual VOI, followed by the clustering of clinical questions and maximal modeling VOI, and then minimal modeling using comprehensive outcomes. In applying the algorithm to inform priority-setting for systematic reviews within a U.S.-based agency, we found the algorithm useful and found practical applications for each of the lower-cost VOI approaches. Although full modeling VOI may aid in the planning and design of research, we find limited conditions for its use in prioritizing low-cost studies. We conclude that VOI may be useful in research prioritization and design, especially because methodology exists that can minimize the costs of analyzing the value of health research.

CO4
COST-EFFECTIVENESS ANALYSIS - APPROPRIATE FOR ALL SITUATIONS?

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Cost-effectiveness analysis (CEA) is routinely proposed to inform decision making, where a new intervention is evaluated against standard of care and the incremental investment per effect is compared against a threshold. In CEA one can explore the relationship between the incremental cost-effectiveness ratio (ICER) and the price of a new intervention. The ICER will depend upon the cost-difference in the numerator, subject to healthcare system investment; and effects difference in the denominator, again dependent upon existing investment and remaining disease burden. The gradient of the plot between ICER (y-axis) and Price (x-axis) can be informative to the possible usefulness of CEA. Firstly consider a new intervention with little health-gain in a rich healthcare setting such as end-of-life interventions in a developed country. The plot gradient will be approaching vertical, the ICER being very sensitive to price due to the relatively small denominator. We would argue CEA adds little value to decision makers, the decision relates to affordability for perceived unmet need. If effects are equivalent between interventions, cost-minimization analysis could be appropriate. Secondly consider a new intervention with significant health-gain in a poor healthcare setting with little scope for cost-offsets. The plot gradient will be approaching horizontal, the ICER being relatively insensitive to price due to the large denominator. Again we would argue CEA may add little value to decision makers. Where multiple interventions could be contemplated, even if all are cost-effective each would require investment; therefore optimization of possible budget across interventions to maximize health-gain would be more useful. We conclude the gradient of the ICER to Price relationship could indicate the usefulness of CEA to decision makers. In situations where the ICER compared with a threshold is highly sensitive or highly insensitive to price, alternative methods could be more useful to help prioritize implementation of new interventions.

PODIUM SESSION I: MEDICARE POLICIES & HEALTH CARE

ME1
EFFECT OF MEDICARE PART D ON DRUG UTILIZATION, DRUG EXPENDITURES, AND HEALTH CARE SPENDING IN PATIENTS WITH CHRONIC PULMONARY OBSTRUCTIVE DISEASE

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OBJECTIVES: To evaluate the impact of Medicare Part D on drug utilization, drug expenditures, and healthcare expenditures in patients with chronic pulmonary obstructive disease (COPD). **METHODS:** This was a retrospective study using a national sample of 688 Medicare-eligible beneficiaries with COPD from the pooled Medical Expenditure Panel Survey 2005-2009 data. Quantile regression was used to estimate the following outcomes: 1) number of prescription fills; 2) total drug expenditures; 3) out-of-pocket (OOP) drug expenditures; 4) Medicare-paid drug expenditures; 5) total health care expenditures (including all payments for inpatient care, outpatient care, prescription drugs, and other medical services); 6) OOP health care expenditures; and 7) Medicare-paid healthcare expenditures. For each outcome variable, the 50th, 75th, and 95th percentiles were estimated, adjusting for demographics and comorbidity. All expenditures were inflation-adjusted to 2009 dollars. **RESULTS:** From 2005 to 2009, the median annual number of prescription fills increased by 8.2 (29.6%), although not statistically significant (P=0.118). Total drug expenditures did not change significantly; however, quantile regressions showed reductions in OOP drug expenditures across the 50th (-$227 [-36.0%], P=0.024), 75th (-$738 [-50.8%], P=0.017), and 90th (-$1,639 [-58.5%], P<0.001) percentiles, as well as increases in Medicare-paid drug expenditures across the 50th ($624 [310.0%], P=0<0.001), 75th ($1,774 [183.0%], P<0.001), and 90th ($2,023 [80.2%], P=0.004) percentiles, adjusting for the covariates. Total and Medicare-paid health care expenditures did not change significantly between 2005 and 2009. OOP health care expenditures decreased at the 90th percentile (-$3,219 [-56.2%], P=0.003), but not at the median or 75th percentile. **CONCLUSIONS:** Medicare Part D had shifted the costs for prescription drugs from patients to Medicare in a nationally representative sample of Medicare-eligible beneficiaries with COPD. Part D was not associated with significant differences in drug utilization, total drug spending or total health care expenditures.

ME2
EFFECT OF MEDICARE PRESCRIPTION DRUG PROGRAM (PART D) ON MEDICATION ADHERENCE FOR DUAL ELIGIBLES: CASE OF ACEIS AND ARBS

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OBJECTIVES: The prescription drug coverage for dual eligibles, beneficiaries for both Medicaid and Medicare, was moved from Medicaid to Medicare Prescription Drug (Part D) program in 2006. Adherence to antihypertensive has been reported as