INTRODUCTION:

Methods that accommodate heterogeneity in outcomes are not widely used in economic evaluation. With the growth of precision medicine (PM), where choice of treatment is informed by the molecular characteristics of the patient or disease, we expect to see greater heterogeneity in effectiveness and cost of interventions. Our objective was to compare analytical frameworks for valuing heterogeneity in economic evaluation, and consider their strengths and weaknesses for applications in PM.

METHODS:

We conducted a literature review to identify papers that proposed an analytical framework for economic evaluation of a health intervention, and that placed a value on heterogeneous effects. We compared the frameworks considering the purpose of the analysis, including where in the product lifecycle the framework could be used, the types of PM interventions where the framework could be applied, and its ability to address methodological challenges of evaluating PM.

RESULTS:

Five analytical frameworks were identified: covariate adjustment methods, value of stratification, value of heterogeneity (VoH), expected value of individualized care (EVIC), and loss with respect to efficient diffusion (LED) metrics. Each framework addresses a slightly different research question, and is suited to different settings and interventions. With the exception of covariate adjustment, all focus on maximizing net benefit within certain constraints and quantify the opportunity cost of ignoring heterogeneity. Only VoH considers the relationship between heterogeneity and uncertainty, and no framework explicitly includes the cost or uncertainty associated with identifying subgroups.

CONCLUSIONS:

The ability to value heterogeneity is a critical component of economic evaluations of PM. The choice of an appropriate analytical framework will help strengthen the quality of economic evidence available to support health technology assessment of PM technologies, informing PM adoption decisions, and supporting efficient allocation of health care resources.

OP71 Evidence Grading Systems Used In Health Technology Assessment Practice

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INTRODUCTION:

To facilitate moving from research findings to conclusions when conducting systematic reviews (SRs) and health technology assessments (HTAs), evidence grading systems (EGSs) have been developed to assess the quality of bodies of evidence and communicate (un) certainty about the effects of evaluated technologies. Use of EGSs has become an essential step in conducting SRs and HTAs and those relying on review conclusions should be aware of EGSs' potential limitations.

METHODS:

This study aims to identify EGSs used in SR and HTA practice, and summarize findings on their inter-rater reliability (IRR). Relevant sources were searched to identify EGSs used in recently published SRs and IRR studies of available EGSs. Members of the International Network of Agencies for Health Technology Assessment were surveyed regarding their current approaches.

RESULTS:

Preliminary results indicate that only two conceptually similar EGSs are currently used by several organizations in SR and HTA practice: (i) the Grading of Recommendations Assessment, Development and Evaluation (GRADE) and (ii) the Agency for Healthcare Research and Quality Evidence-based Practice Center Program (AHRQ-EPC). Both approaches emphasize a structured and transparent method. However, results from published IRR studies suggest there is a risk for variability in their application due to researchers' diverse levels of training and experience in using them, and the complexity and heterogeneity of evidence in SRs.

CONCLUSIONS:

Validated EGSs can play a critical role in whether and how research findings are eventually translated into practice. However, our results indicate a low level of uptake of EGSs in HTA practice. Both currently used EGSs are susceptible to misuse that allows different researchers to grade the same body of evidence differently, and their performance has not been robustly

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explored in terms of IRR. If these results stand up to replication, one cannot rely on conclusions of published SRs, which has implications for the decisions they inform.

OP72 Added Value Of Using Individual Patient Data Meta-analysis

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INTRODUCTION:

Although individual patient data meta-analysis (IPD MA) is considered the gold standard of systematic reviews (SRs), a recent International Network of Agencies for Health Technology Assessment survey indicates that IPD MA is not frequently included in a health technology assessment (HTA), or conducted by HTA researchers. The objective of this presentation is to describe our first experience with including an IPD MA in a HTA report, discuss the added value for an evidence-based decision-making process, and advocate for expanding work in this field.

METHODS:

An overview of SRs on endovascular therapy for acute ischemic stroke included one IPD MA and six study-level SRs/MAs. Methodological quality was appraised by two reviewers independently using the tool recommended by the Cochrane IPD MA working group for the IPD MA, and the AMSTAR (A MeaSurement Tool to Assess systematic Reviews) for the study-level reviews. Pooled results from subgroup analyses based on access to primary patient data were compared to those reported in SRs that conducted subgroup analyses based on the published data to identify patients or clinical factors that would impact clinical outcomes.

RESULTS:

The overall findings were similar between the IPD MA and other SRs/MAs. However, when compared to aggregated data used in study-level SRs/MAs, subgroup analyses based on patient data allowed for adjustment of confounders, multiple categories within a subgroup, standardization of outcomes across trials, and detailed data checking. Larger sample sizes of each pre-defined subgroup permitted for more precise estimates of treatment effects. A number of methodological issues in the IPD MA were identified; particularly, no assessment of risk of bias of included trials was conducted.

CONCLUSIONS:

Access to original patient data is demanding and conducting IPD MA requires extensive resources. The advantages of having an improved quality analysis, an appropriate quantification of the effects in the analyzed subgroups, and precision of results may justify additional efforts, and may increase confidence in the decision-making process.

OP73 Problems And Promises Of Health Technologies: The Merits Of Early Health Technology Assessment

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INTRODUCTION:

Novel health technologies are being developed at a dizzying pace. The need to avoid unnecessary innovations and accelerate the adoption of valuable innovations is among the most important challenges facing healthcare systems today. To contribute to this challenge, we performed 30 so-called 'early health technology assessments' (HTA) over the last three years. We quantified the potential value, both in effects and cost. We will present our experience with performing these constructive assessments, as well as their feasibility and value in informing decisions.

METHODS:

We performed secondary analyses on an existing database of 30 assessments. We analyzed the phase of development, stakeholders involved, type of decision informed, and the technology's next steps.

RESULTS:

Out of the 30 technologies, four (13 percent) were in the idea screening phase, and had not yet started the development. Here, the room for improvement (headroom) was assessed. For 16 (53 percent) technologies that were under development but not yet

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