year during the observation (post-index) period. Costs were compared between cohorts using cost ratios (CR), and confidence intervals (CI) and p-values were generated using non-parametric bootstrap procedures. ***Results:*** In total 92 and 218 patients were included in the pembrolizumab and nivolumab cohorts, respectively. After weighting, mean age was 55 years in both cohorts, while the proportion of females was lower in the pembrolizumab (35.3%) compared to the nivolumab cohort (44.1%). Mean Quan-Charlson comorbidity index score was well balanced (pembrolizumab: 4.2; nivolumab: 4.3). During the observation period (pembrolizumab: 295 days; nivolumab: 274 days), pembrolizumab initiators had significantly lower all-cause hospitalization costs (CR [95% CI]: 0.29 [0.06-0.76], p=0.016) and cHL-related hospitalization costs (CR [95% CI]: 0.09 [0.00-0.31], p<0.001) than nivolumab initiators. All-cause and cHL-related outpatient visit costs were not statistically different between cohorts. ***Conclusions:*** In this real-world study, adult cHL patients initiated on pembrolizumab had significantly lower all-cause and cHL-related hospitalization costs compared to patients initiated on nivolumab.

Economic Evaluation Applications: Burden and Value of Therapies

ED1
ANTIMICROBIAL RESISTANCE IN US HOSPITALS: BURDEN AND VALUE OF INVESTMENT IN DEVELOPING NEW TREATMENTS

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Objectives: This research aims to quantify the burden of antimicrobial resistance (AMR) from the perspective of hospital stakeholders and the value of continued investment in developing new treatments. ***Methods:*** A dataset representative of the US population demographics and health characteristics was constructed by merging the American Community Survey, Behavioral Risk Factor Surveillance System and data on nursing home residents. Prediction equations linking patient demographics and health characteristics to likelihood of hospitalization within hospital service lines were generated using the Medical Expenditure Panel Survey and applied to the population file. Data from the National Healthcare Safety Network were used to calculate state-specific rates of AMR in hospitalized patients experiencing an infection. Peer-reviewed published research provided estimates for AMR-attributable outcomes, including mortality, inpatient days, and direct & indirect costs. Results were calculated under a base case scenario reflecting current rates of infection continuing into the future, and alternative scenarios reflecting changes in future rates of infection and resistance. ***Results:*** Base case results suggested approximately 4,100 AMR-attributable deaths would occur in the base modeling year, resulting in over $700 million in direct costs, increasing to 5,300 deaths and $907 million in direct costs by 2035. Under a scenario in which rates of resistance increase to 100%, reflecting a hypothetical scenario where alternative antimicrobial treatments are no longer effective, projected 2035 AMR-attributable deaths increase to 30,700 (480% increase from base case) and direct costs of $8.4 billion (826% increase from base case). Infections are projected be highest in general surgery and thoracic surgery service lines, where high infection risk could potentially make surgeries too risky to perform. ***Conclusions:*** Though its current burden is substantial, AMR's potential future burden is significantly more concerning. Investing in AMR prevention strategies will be necessary to reverse course with respect to increasing resistance.

ED2
ELEMENTS OF VALUE FOR GENE THERAPY: A SYSTEMATIC REVIEW

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Objectives: ISPOR recommends that value assessments include elements beyond traditional quality-adjusted life years (QALYs) and costs. We aimed to identify non-traditional value elements relevant to gene therapies as it is unclear to what extent they have been included in gene therapy value assessments. ***Methods:*** We searched PubMed and Embase for full-text articles discussing non-traditional value elements defined by the 2018 ISPOR framework in the context of gene therapy that were published in English between 2015-2020. Health technology assessment (HTA) reports published by the Institute of Clinical and Economic Review and National Institute for Health and Care Excellence were collected. Articles and reports were included if they proposed methods for incorporation or accounted for specified value elements in economic evaluations or real-world decision making. ***Results:*** Twenty-four of 644 articles identified met inclusion criteria; 17 were peer-reviewed journal articles and 8 HTA reports. Disease areas for which specific gene therapies were discussed included cancer, beta thalassemia, inherited eye disease, hemophilia, spinal muscular atrophy, and severe immunodeficiency. The most common non-traditional value elements were productivity (n=12), severity of disease (n=10), equity (n=4), and scientific spillover (n=4). Productivity was captured as an indirect cost in cost-effectiveness analyses (CEAs). Although severity of disease, equity, and scientific spillover were not explicitly quantified, they were incorporated into HTA body decisions: severity through conditional market access, QALY weighting, higher CEA thresholds, and lower discount rates; equity through higher CEA thresholds and QALY weighting; and scientific spillover through accelerated market access. Multi-criteria decision analysis was also proposed. ***Conclusions:*** Use of novel value elements for gene therapies appears to be sparse in health economic studies to date. Methods of QALY weighting, varying CEA thresholds, discount rates, and specialized access pathways accounted for novel elements in value assessments. Future research on the feasibility, quantification, and incorporation of novel value elements for gene therapies is warranted.

ED3
SOCIETAL BURDEN OF DEMENTIA-RELATED PSYCHOSIS IN THE US: A COST OF ILLNESS ANALYSIS

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Background: Dementia-related psychosis (DRP), characterized by hallucinations and delusions, may accelerate the cognitive/functional decline among patients with dementia. Such declines have debilitating consequences on patients, caregivers, and society. While previous research has estimated total annual-direct DRP costs, analysis of both direct and indirect costs is important in understanding the overall societal burden of DRP. ***Objectives:*** To estimate the societal burden and associated costs of DRP in the US population. ***Methods:*** A Markov model was developed to assess the societal cost burden of DRP. The five DRP health states in the model were: mild, moderate, severe, end-of-life-care, and death as an absorbent health state. Cycle length was 30-days. Societal costs were calculated as a sum of total annual direct and indirect costs. Total indirect costs included both formal (paid by Medicare, Medicaid, or LTC insurance) and informal (caregiver time and patient out-of-pocket costs) caregiver costs, respectively. Prevalence, disease-severity, transition probabilities, and costs were derived from the literature. One-way sensitivity analysis was conducted to test the model's robustness by varying inputs and assumptions. ***Results:*** The estimated total annual-societal cost of DRP is $263B, and approximately $122B (46%) and $141B (54%) were indirect and direct costs, respectively. Of the total indirect costs, formal and informal caregiver costs including end-of-life-care costs were approximately $44.75B and $77.25B, respectively. End-of-life-care contributed $10B and $22B of the total formal and informal caregiver costs, respectively. ***Conclusions:*** Results of this analysis demonstrate that indirect costs contribute to approximately half of the total annual societal DRP costs; with caregiver costs contributing nearly 30% of the total. Given the aging US population, in addition to direct costs, indirect costs related to the caregiver and out-of-pocket costs may impose an enormous burden on the healthcare system. Given this public health concern, better management strategies and improved therapeutic options for DRP are needed.

ED4
ECONOMIC BURDEN OF ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD) AMONG CHILDREN AND ADOLESCENTS IN THE UNITED STATES (US): A SOCIETAL PERSPECTIVE

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Objectives: To comprehensively assess the economic burden associated with ADHD among children and adolescents in the US in 2018. ***Methods:*** Excess costs (in 2018 US dollars) incurred by children and adolescents with ADHD were evaluated from a societal perspective. Direct healthcare costs were estimated using data from the Truven Health Analytics MarketScan® database (01/01/2013-12/31/2018). Direct healthcare costs, non-direct healthcare costs (i.e., research and training, education, substance use [adolescent only], and road traffic accidents [adolescents only]), and indirect costs (i.e., caregiving, unemployment [adolescent only], productivity loss [adolescent only], and premature mortality [adolescent only]) were assessed using academic and governmental publications. ***Results:*** Based on an estimated ADHD prevalence of 10.0% among children (N=2.9 million) and 6.5% among adolescents (N=1.7 million), total excess costs incurred by children and adolescents with ADHD were estimated at $19.4 billion ($6,799 per individual) and $13.8 billion ($8,349 per individual), respectively. Among children,