OP72 Innovating To Decrease Mortality And Resource Use In Surgical Inpatients: The ZERO Project

Carla Fernández-Barceló (cafernandez@clinic.cat), Ismail Abbas, Guido Muñoz, Joan Sanchez, Ricard Mellado-Artigas, Carlos Ferrando and Laura Sampietro-Colom

Introduction: Interest in early detection of complications in hospitals has increased recently. Complications after elective or urgent surgery are frequent and are associated with higher mortality rates, longer hospital stays, and more resource utilization. The ZERO project implemented an educational nursing program and developed an innovative algorithm that assesses a patient's complication risk based on clinical parameters to prevent complications and reduce hospital burden. Our aim was to present the results from one year of implementing ZERO at the Clinic Barcelona University Hospital.
Methods: A comparative effectiveness and cost study was conducted. Data from patients admitted after elective or urgent surgery were collected for one year retrospectively (n=8,844 from January 2019 to December 2019) and prospectively (ZERO) (n=8,163 from October 2021 to October 2022). Effectiveness was measured in terms of mortality, complications, and life-years gained (LYG). Length of stay (LoS) at conventional, intermediate, and intensive care units and rates of readmissions were collected for resource use. The chi-square test was used to compare categorical variables. The t-test and Wilcoxon test were used for normally and non-normally distributed continuous variables, respectively.
Results: There was a significant decrease in the rate of complications (7.8%, 95% confidence interval [CI]: -8.46, -7.19; p<0.001) with ZERO. Moreover, there were statistically significant reductions in mean LoS for readmissions to conventional wards (-5.04 days, 95% CI: -9.9, -0.18; p=0.04) and to the intensive care ward within the same episode (-4.68 days, 95%CI: -9.26, -0.14; p=0.02). The mean cost per patient was EUR2,772.92 and EUR2,591.57 before and after ZERO implementation, respectively. After accounting for the cost of implementing ZERO, there was a cost saving of EUR147.76 per patient (p=0.048), which yielded a yearly impact of EUR1,206,165 for the hospital budget.
Conclusions: This one-year analysis of the effect of ZERO on surgical patients shows that it decreases complication rates and all types of LoS, leading to overall cost savings for the hospital.

OP74 Analysis Of Literature And Research Foci In Overdiagnosis Based On Citespace

Juntao Yan (jtyan20@fudan.edu.cn), Yan Wei, Yi Yang, Shimeng Liu and Yingyao Chen

Introduction: With the rapid development of innovative health technologies, evidence increasingly shows that overdiagnosis is harmful to a person's health and that it is a global public health issue. This study aimed to analyze the current research status and corresponding foci in the field of overdiagnosis in Chinese and English databases using bibliometric methods.
Methods: A search was conducted in the English Web of Science Core Collection database and the Chinese China National Knowledge Infrastructure database for literature published from inception to 31 December 2021. CiteSpace (version 5.8 R1) software was used to perform bibliometric analysis on the countries, institutions, and keyword clusters of the included literature on overdiagnosis and to draw a corresponding visual knowledge map.
Results: A total of 2,841 English and 43 Chinese publications were included. There was an increasing trend in the annual publication volume of both Chinese and English literature, with the publication volume of English research increasing significantly since 2010. In terms of countries and institutions, the top ten in English research on overdiagnosis were all from high income countries. The cooperation among these countries and institutions was close, unlike in China where the cooperation was relatively limited. Analysis of keyword clustering showed that the potential research foci for English literature on overdiagnosis included breast cancer, thyroid cancer, prostate cancer, lung cancer, and other tumor types, whereas the clustering in Chinese records was relatively scattered and mainly focused on overdiagnosis of thyroid cancer.
Conclusions: The research topics in the Chinese literature on overdiagnosis lag significantly behind English research. It is suggested that more research on overdiagnosis and related fields should be actively promoted and conducted in China in the future.

OP78 Cost-effectiveness Of A 20-valent Pneumococcal Conjugate Vaccine To Directly Protect Adults Against Pneumococcal Disease In England

Diana Mendes (diana.mendes@pfizer.com), Ahuva Averin, Mark Atwood, Reiko Sato, Andrew Vyse, James Campling, Derek Weycker, Mary Slack, Gillian Ellsbury and Tendai Mugwagwa

Introduction: Adult vaccination with 13-valent pneumococcal conjugate vaccine is currently recommended in the UK only for very high-risk individuals, with 23-valent pneumococcal polysaccharide vaccine (PPV23) being recommended to all adults 65 years or older and those 18 years or older with specified risk conditions. A 20-valent pneumococcal conjugate vaccine (PCV20) has recently become available for use in adults with potential to address a substantial proportion of the current adult pneumococcal disease burden in the UK. We evaluated the cost-effectiveness of PCV20 vaccination compared with PPV23 in adults in England currently eligible for pneumococcal vaccination.

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Methods: A probabilistic model with a Markov-type process was used to depict lifetime risks and costs of pneumococcal disease among a cohort of English adults. Epidemiologic parameters, serotype coverage, costs, vaccine effectiveness and coverage were based on published literature or publicly available data. The National Health Service perspective was adopted, health effects were expressed in quality-adjusted life years (QALYs), and future costs and QALYs were discounted at 3.5 percent.
Results: Results suggest that under reasonable assumptions concerning disease burden, vaccine, effectiveness, and vaccine cost, PCV20 implementation of an age-and risk-based strategy targeting all adults aged 65 years or older and younger risk group adults aged 18 to 64 years would reduce a large number of pneumococcal disease hospitalizations and pneumococcal-related deaths compared to currently recommended PPV23.
The incremental cost-effectiveness ratio was well below the current willingness-to-pay range of GBP20,000-GBP30,000 per QALY gained, with PCV20 being cost saving compared with PPV23 in base case and most sensitivity analyses. Probabilistic sensitivity analysis suggests high certainty in recommending PCV20 for vaccination of adults aged 18 to 64 years in risk groups and all aged 65 years or older instead of PPV23.
Conclusions: Our findings support replacing PPV23 with PCV20 to directly protect adults against pneumococcal disease, reducing hospitalizations and saving lives in the UK.

OP79 Gene Expression Profiling In The Diagnosis Of Aggressive Large B Cell Lymphoma: An Early Exploratory Economic Evaluation

Janet Bouttell (Janet.Bouttell@glasgow.ac.uk), Neil Hawkins, Rachel Masson and John Goodlad

Introduction: The addition of gene expression profiles (GEP) to the current clinicopathological diagnosis of aggressive large B cell lymphomas may lead to the reclassification of patients, treatment changes and improved outcomes. A GEP test is in development using TempoSeq technology to distinguish Burkitt Lymphoma (BL) and Primary Mediastinal Large B Cell lymphoma (PMBCL) from Diffuse Large B Cell Lymphoma (DLBCL). This study aims to inform developers about the potential impact of the test on costs and health outcomes, and pricing and evidence generation strategies.
Methods: Decision models compared current diagnosis with current plus GEP signatures over a lifetime horizon using a UK health and social care perspective. Inputs were taken from the literature and based on assumptions. Threshold estimates were made of the maximum price of the test and impact of incorrect disease classification using a threshold of GDP30,000 (USD37,155) per Quality Adjusted Life year (QALY). One way sensitivity analysis was conducted.
Results: At base case values the BL signature delivers incremental QALYs of 0.0249 at an additional cost per patient of GBP508 (USD629). This results in a net monetary benefit (NMB) of GBP239 (USD296). The PMBCL signature delivers 0.0011 QALYs, a cost saving of GBP202 (USD250) and an NMB of GBP236 (USD292). The maximum threshold price for a combined test to be cost effective is GBP776 (USD961) (base case GBP400 (USD495)). Results are sensitive to cost differences in first line treatments and impact of false diagnoses.
Conclusions: A combined test could be cost-effective in a UK context at a price around GBP750 (USD929). The developers can use this estimate to inform return on investment calculations. The number of patients who were reclassified as a result of the addition of GEP in our model was taken from small retrospective studies and the impact of false diagnoses was based on limited evidence. If the developers choose to proceed with the development, these aspects should be incorporated in evidence generation strategies.

OP80 Diagnostic Molecular Sequencing Of DNA (Exomes And Genomes) Is Not Perfect: Implications For HTA

Camille Schubert (camille.schubert@adelaide.edu.au), Stephen Goodall and Tracy Merlin

Introduction: The recent release of powerful next-generation sequencing platforms, which can provide whole exome sequencing (WES) or whole genome sequencing (WGS) in quicker timelines and at reduced costs, has resulted in proposals for these diagnostic testing methods to be routinely integrated into clinical practice in multiple settings. However, the complexities of these diagnostic approaches, and the minimal comparative evidence available on them, creates difficulties in the evaluation of their diagnostic performance. Novel approaches need to be developed to improve the health technology assessment (HTA) of WES and WGS.
Methods: Several HTAs on genetic testing and the use of WES or WGS in fetal medicine were reviewed. Information on factors associated with this diagnostic modality that affect typical test accuracy assessment (e.g., sensitivity and specificity) was extracted. The multiple steps required for completing a WES or WGS test, and the potential for the introduction of errors (type I or type II) at each of these steps, were mapped and examples provided. The clinical and economic implications associated with imperfect and uncertain test accuracy were described.
Results: Limited data on analytical and clinical validity were identified. WES and WGS are multistep processes and errors were found in sampling, molecular sequencing, bioinformatic filtering, and variant interpretation; therefore, the assumption that WES or WGS is 100 percent sensitive or specific is not reasonable. Although alternative evidence-based estimates are unlikely to be available, the inevitability of such errors, and their implications in terms of comparative effectiveness, safety, and cost effectiveness, should be described in HTAs.
Conclusions: While unknown diagnostic accuracy remains an issue with WES and WGS testing, formal sensitivity analysis of test performance characteristics should be conducted as part of HTAs. A checklist has been developed to assist those involved in HTA and

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