

and prioritize the ICBs, a survey was conducted with the international group of experts from the educational sector. The outcomes of the expert survey were used to create the condensed list containing the most important ICBs.

**Results.** The literature search allowed identifying additional ICBs and creating a comprehensive list of items. In order to improve its usability, a multi-dimensional list was constructed distinguishing between tangible (i.e. special education) and intangible items (i.e. cognitive deficits). Based on the expert survey, the international applicability of the list was validated and the most important ICBs from the economic perspective were determined.

**Conclusions.** Mental health interventions can affect a large number of educational facilities. The list of ICBs developed in this study could be used to select relevant educational facilities for economic evaluations of specific mental health disorders. Further research is needed to define, measure, and value the identified ICBs in order to facilitate the practical application of the list in economic evaluations.

## OP151 Cost-Utility Of Gender-Neutral HPV Vaccination In Ireland

Conor Teljeur ([cteljeur@hiqa.ie](mailto:cteljeur@hiqa.ie)), Eamon O Murchu, Patricia Harrington and Mairin Ryan

**Introduction.** A number of economic evaluations of gender-neutral human papillomavirus (HPV) vaccination have been published, generally finding that the cost-effectiveness is sensitive to the uptake rate in girls. In Ireland there is a girls-only program in place, but the initial high uptake rate (>85 percent) was substantially impacted by high profile negative publicity concerning perceived vaccine safety issues. Efforts to address perceived safety concerns have recently yielded a partial recovery in uptake rates. The aim of this study was to estimate the cost-utility of extending the program to include boys and explore the impact of fluctuating uptake rates.

**Methods.** A previously published cost-utility model used in the United States of America and Norway was adapted to the Irish setting and populated with Irish epidemiological and cost data. Comparators included no vaccination, and girls-only and gender-neutral vaccination, both with either a 4-valent or 9-valent vaccine. Vaccination is at age 12 years and oropharyngeal and penile cancers were excluded in the base case analysis. Additional analyses were used to incorporate fluctuating uptake rates into the model.

**Results.** A 9-valent girls-only program dominated the existing girls-only 4-valent program. The incremental cost-effectiveness ratio (ICER) for a gender-neutral 9-valent program was EUR 50,823/quality-adjusted life year (QALY). Gender-neutral vaccination would be cost-effective at a willingness-to-pay threshold of EUR 45,000/QALY when the uptake rate is below 78 percent. The ICER decreased to between EUR 41,000 and EUR 42,000/QALY when the uptake rate was allowed to fluctuate across six to 12 yearly cycles.

**Conclusions.** The cost-effectiveness of gender-neutral HPV vaccination is highly sensitive to the assumed uptake rate in girls. Large fluctuations in HPV vaccine uptake rates have been observed in a

number of countries in the last decade. Incorporating fluctuating uptake rates in the model shows that a gender-neutral program may be more cost-effective than when a stable uptake is assumed.

## OP152 Pharmacoeconomic Assessment And Drug Expenditure Reduction In Ireland

Cormac Kennedy ([cormackennedy1@hotmail.com](mailto:cormackennedy1@hotmail.com))

**Introduction.** All new products to be reimbursed from the Irish health budget are subject to a rigorous assessment by the National Centre for Pharmacoeconomics (NCPE). Following assessment, a recommendation is made regarding its cost-effectiveness at the submitted price. This may lead a reduction in the drug price. This study aimed to determine the reduction in expenditure due to the pharmacoeconomic assessment process in Ireland.

**Methods.** Product details, submitted price and gross budget impact were recorded for each NCPE submission from 2012 to 2015. The latter was chosen as reimbursement data are currently available until 2016. A product was included if its assessment suggested price reduction was required and the product was reimbursed under the High-Tech Drug Scheme (HTDS), a scheme for high cost drugs in a primary care setting. The utilization and actual expenditure of each product was extracted from national reimbursement data for the year after approval. The expected expenditure, calculated using the submitted price, was then compared to the actual expenditure.

**Results.** A total of 162 products were assessed during the study period. There was a potential price reduction for 65 products based on the assessment outcome. Of these, 15 were reimbursed under the HTDS. A reduction in expenditure was evident for eight of the 15 products (53 percent). The average reduction was eight percent of the expected expenditure. All products showed an actual expenditure greater the predicted budget impact submitted by the applicant.

**Conclusions.** To the authors' knowledge, this is the first report of expenditure reduction due to a pharmaco-economic assessment process. With the ever-increasing utilization of high cost drugs, the study demonstrates the importance of a process to assess and negotiate cost-effective drug prices. However, the study underestimates reductions, as it is yet to include commercial rebates returned to a central budget. Future research will aim to capture these reductions.

## OP157 Carbon Ion Radiotherapy: A Systematic Review

Gregor Goetz ([Gregor.Goetz@hta.lbg.ac.at](mailto:Gregor.Goetz@hta.lbg.ac.at)), Marija Mitić, Tarquin Mittermayr and Claudia Wild

**Introduction.** Due to the promising physical dose distribution of carbon ion radiation therapy (CIRT), CIRT can be regarded as a novel tumor irradiation technique and is sometimes considered as a breakthrough therapy for various tumor types. However, it is unclear whether superiority or inferiority can be claimed when