in underdeveloped countries due to poverty. At the same time, despite the obvious benefits of vaccination, especially in developed countries, there has been a noticeable rise in vaccine hesitancy. With the fall in the number of vaccinated people on a global, national, regional and local level, the risk is growing of epidemics breaking out once again of illness which until recently were in the phase of elimination.

Conclusion Evidence based education, especially the experience and attitudes of all health professionals, as potential educators of the population, is the foundation for successful vaccination. The responsibility of doctors for the implementation of vaccination programmes is great, regardless whether they are directly involved in their realization or not. For the sake of better preparation of future doctors for clinical practice and public health, it is vital to strengthen the quality in undergraduate education about vaccination in order to overcome the problem of vaccine hesitancy.

P364 IS IT TIME FOR IRELAND TO CONSIDER VARICELLA VACCINATION TO THE NATIONAL IMMUNIZATION PROGRAMME?

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Background Varicella (chickenpox) is generally considered a mild illness; however the resultant disease burden is substantial. Uptake of the live-attenuated vaccine to National immunization programmes is variable among European countries. Varicella could pose serious illness and mortality among vulnerable populations such as immunocompromised and those with significant co-morbidities. Varicella vaccine is commercially available in Ireland, however not funded for universal immunization. Since 2012 hospital admissions with varicella is notifiable in Ireland.

Aims To analyse the reporting of hospitalised cases of varicella in Ireland from 2012 to 2018 for 0 to 19 years of age and to propose the potential benefits of inclusion varicella immunization to the National programme.

Methods Surveillance data submitted to health protection surveillance centre (HPSC) from January 2012 to December 2018 from hospitals around all the HSE regions of the country was analysed. Annualised rates for age categories of 0–4 years, 5–9 years, 10–14 years and 15–19 years were determined. Cross verification with hospital inpatient enquiry (HIPE) data was conducted; bed days consumed and length of stay (LOS) were estimated. Results were compared with previously published UK/Irish rates. Mortality was not analysed as part of the study. Approval for analysis of collated data from HPSC and HIPE was obtained.

Results There were 444 hospitalisations for the 0 to 19 years (mean of 63.4 admissions/year). 320/44 (72%) were in 0–4 years and 94/444 (21%) among 5–9 years, together contributing to 93% of hospitalisations. With a mean LOS of 2.86 days the varicella admissions contributed to 1269.8 bed days (inclusive of general wards, paediatric high dependency unit and paediatric intensive care unit bed utilisation) based on HIPE estimates. An increasing trend of hospitalisation was observed year-on-year for 0–4 and 5–9 years. HPSC reporting was comparable to, however lower than, the active British

paediatric surveillance unit (BPSU) study published in 2007 (including Irish data). Our sentinel rate estimate of 133.1/100,000 population (range 98.8–224.7) reflects community burden of varicella.

Conclusions Improving and standardising the varicella surveillance, highlighting the preventable acute hospital bed days due to serious illness from varicella, analysing the disease specific mortality, accurately estimating the disease burden in community including the societal costs and predicting the future implications to rate of herpes zoster among adults and the elderly; all should be factored-in to make a case for the inclusion of varicella to the National immunization programme in Ireland.

P365 PERTUSSIS VACCINATION: SHOULD WE BE DOING SOMETHING DIFFERENT?

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Background Pertussis is a highly infectious disease and an important public health concern. The main aim of pertussis vaccination is to reduce the risk of severe pertussis in infants and young children, due to the high disease-related morbidity and mortality in this age group. While the introduction of whole-cell vaccine in the 1940s led to a dramatic decrease in cases and associated fatalities, its higher reactogenicity led to its replacement with acellular vaccines, which contain fewer antigens.(1) In Ireland, despite vaccination coverage rates of 95% from 2011–2018 average rates from 2014–2018 were more than double those from 2003–2008.(2) Infants under 6 months and adults between 35 and 44 years have been disproportionately affected.(3)

Aim The aim of this review was to assess the effectiveness of wholecellular versus acellular pertussis; to analyse the relevance of recent trends in circulating strains including genetic divergent isolates; to assess the effectiveness of varying the number of antigen components in acellular vaccines and to determine the impact of different vaccination schedules on vaccine efficacy.

Methods A review of the literature was performed across three electronic databases from January 1990 to October 2018, using key search terms. A search of grey literature using the same terms and time period was also conducted.

Conclusion National Vaccination programs have not led to optimal pertussis control. Variations in scheduling or type of vaccine (wholecell or acellular) has not resulted in improved control. The change to acellular vaccination highlighted the relatively short-lived benefit on adaptive immunity and protection and lead to the introduction of booster vaccination doses at a younger age and at adolescence to counter waning immunity. Acellular vaccinations contain between one and five antigenic components. Vaccines which contain between three and five antigens demonstrate higher efficacy than vaccines with lower antigen components. In Denmark and Sweden effectiveness studies have shown some benefit in mono-component and two-antigen vaccines, although factors such as surveillance, diagnosis, variation in case definition and differences in uptake rates make comparison difficult. Mismatches between circulating strains and specific vaccine antigens, particularly pertactin, have been reported, although no evidence of higher virulence has been associated with these isolates.