



COVIDnomics

P1 COST-UTILITY ANALYSIS OF COVID-19 VACCINES IN THE BASQUE COUNTRY IN THE FIRST SEMESTER OF 2021

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Objectives: To measure the epidemiological impact of the vaccination program for COVID-19 in the Basque Country according to severity and deaths of COVID-19 cases in the scenarios with and without the vaccination program. The final objective was to carry out an economic evaluation through a cost-utility analysis estimating quality-adjusted life years (QALY) and costs from the perspective of the Health Service. **Methods:** A dynamic model representing the epidemiology of COVID-19 in the Basque population (SHARUC) already validated provided the total number of cases, hospitalizations, ICU admissions and deaths in two scenarios: with and without vaccines. A nation-wide cohort study (2.2 million inhabitants) was carried out using the Basque Health Service Database in September-December 2020 and January-June 2021 to ascertain the determinants of outcomes associated to COVID-19 (age, sex and Charlson Comorbidity Index (CCI)). Changes in life expectancy and quality-adjusted life years were estimated according to those determinants. Unit costs for healthcare outcomes were obtained from the Basque Health Service. Official and actual vaccines prices were used as sensitivity analysis. **Results:** The figures of avoided outcomes were 31,085 infections, 1,457 hospitalizations, 309 ICU admissions and 482 deaths. According to the age, CCI and sex the life expectancy rose from 34.5594 years to 34.5832 years from the scenario without vaccines to the scenario with vaccines. The incremental utility was 36,000 QALYs for the whole population. Vaccines costs were 35,2 (official prices) and 24,85 (real prices) €millions. The saved cost was 28,9 €millions which rendered an incremental cost-effectiveness ratio from €173/QALY to dominant. **Conclusions:** This is a preliminary result, showing that only the measurement of the direct costs of COVID-19-associated outcomes during the first semester of vaccination rollout made the intervention cost-effective and near dominant. Ongoing phase is aimed to measuring the cost effectiveness of vaccines for the whole 2021 year.

P2 THE VALUE OF VACCINATION: CAPTURING THE IMPACT OF VACCINATION ON HEALTH EQUITY IN HEALTH ECONOMIC ANALYSIS

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Objectives: The COVID-19 pandemic dramatically highlighted health inequities and the differential impact that vaccination can have on health, depending on social advantage. In a non-pandemic setting, vaccination can improve equity, but this broader value of vaccination is not currently considered in health economic analysis despite equity being a policy priority in many countries. **Methods:** A panel of health economists and policy experts convened to discuss how to capture the equity dimension of the value of vaccination. This was conceptualized using a distributional cost-effectiveness analysis framework with four steps leading to differential health impact: (i) differences in vaccine preventable disease incidence; (ii) differences in the vaccination uptake; (iii) differences in health effects; and (iv) differences in health opportunity costs. The concept was illustrated by a retrospective modelling exercise of 4-component meningococcal serogroup B (4CMenB) infant vaccination against serogroup B invasive meningococcal disease (MenB) in England, for which an existing model was adapted. Five social groups were analysed based on Index of Multiple Deprivation Quintiles (IMDQ). **Results:** 4CMenB infant vaccination disproportionately prevented MenB cases among more deprived groups: of all prevented cases, 40.3% were among the most deprived IMDQ (accounting for 25.9% of the target

population <5 years of age) and 78.1% among the three most deprived IMDQs. Vaccination had a positive, though small, net equity benefit, and the direction of equity impact was robust to sensitivity analyses varying the distribution of uptake, MenB carriage prevalence, and assumptions related to life expectancy and utility stratified by IMDQ. **Conclusions:** Within a national immunisation programme, 4CMenB vaccination improves health equity by preventing disproportionately more cases in more socially disadvantaged groups. The health equity impacts of vaccination can be captured in health economic evaluation although there is a need to improve the evidence base and develop more user-friendly equity impact measures.

P3 HOW MUCH DID THE COVID-19 SHIELDING POLICY COST IN WALES? RESULTS OF A COST ANALYSIS WITHIN THE EVITE IMMUNITY EVALUATION

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Objectives: The quasi-experimental EVITE Immunity study investigates the effects of shielding clinically extremely vulnerable (CEV) people during the COVID-19 pandemic on health outcomes, healthcare costs and immunity in Wales to help prepare the United Kingdom for future pandemics. Shielding was intended to protect those at highest risk of serious harm from becoming infected with COVID-19. We report the cost of implementing shielding in Wales. **Methods:** The number of people shielding was identified from the Secure Anonymised Information Linkage (SAIL) Databank. Resource costs of shielding between March and June 2020 were collated using published reports, documents and web pages, freedom of information requests to the Welsh Government and personal communications (e.g. with the office of the Chief Medical Officer for Wales, clinicians and staff involved). **Results:** When shielding began, 117,543 people were on the shielding list (46% male, 54% female). The total cost of administering the shielding programme and supporting people advised to stay at home in Wales during the initial fourteen weeks of the pandemic was £13,308,159 or £113 per person shielding. This included new resources required to compile the shielding list, inform CEV people of the shielding intervention and support and provide prescription and food deliveries. Since the list was adjusted weekly over the 3-month period (with approximately 130,000 people identified by June 2020), the cost per person shielded lies between £102 and £113. **Conclusions:** This is the first evaluation of the cost of implementing measures to meet the needs of those identified to shield in Wales. However, at the time of analysis, no opportunity cost data were available. The true cost of shielding, including its budget impact and opportunity cost and the intended and unintended effects and consequences of shielding need to be investigated and weighed up to inform whether shielding is a worthwhile policy for future health emergencies.

P4 COST ANALYSIS OF POST-COVID-19 HEALTHCARE CONSUMPTION IN THE NETHERLANDS

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Objectives: In the Netherlands, one out of eight COVID-19 patients suffer from long COVID, burdening the health budget with unknown costs. This study investigated the types of healthcare consumed after COVID-19 and the related costs. **Methods:** Data was delivered from the Dutch Lifelines COVID-19 cohort (N=76503), a subcohort consisting of adult participants from the Lifelines prospective population cohort that completed questionnaires on psychological and societal impacts of the pandemic. Health care use in the past three months was assessed in two waves of questionnaires (June 2021 and March 2022). Frequencies and costs of healthcare provider visits, day-treatment in a hospital or other institution (without stay), emergency visits, outpatient appointments, and homecare received were analyzed. The comparisons were made between a non-COVID-19 (control) group, a COVID-19 group,