Number	Type of items	Orlewska	Debrabant
	General study characteristics		
1	First author and year of publication	Katarzyna Orlewska, Cost-effectiveness analysis of COVID-19 vaccination in Poland, Arch Med Sci, 18 December 2021, 2022; 18 (4): 1021–1030, https://doi.org/10.5114/aoms/144626	Kristian Debrabant, The Cost-Effectiveness of a COVID-19 Vaccine in a Danish Context, Clinical Drug Investigation, 8 October 2021, 41:975–988, https:// doi. org/ 10. 1007/ s40261- 021- 01085-8.
2	Sources of funding	Not stated	Stated, University of Southern Denmark (employer)
3	Competing interests	Stated, There are no conflicts of interests.	Stated, There are no conflicts of interests.
4	Publication type	Journal paper	Journal paper
5	Setting	Poland	Denmark
6	Patient characteristics	5 groups: general population in Poland, and based on age-group (30-39, 40-49, 60-69 and >80)	Population is based on the two age groups (18-60 years old and 60 years old and older) and divided into 4 scenarios: 1.Vaccination to 25 percent of total Danish population who are 60 years old and older. 2.Vaccination to 25 percent of total Danish population who are 18-60 years old. 3.Vaccination to 15 percent of total Danish population who are 18-60 years old and 25 percent of total Danish population who are 60 years old and older. 4.Vaccination to 40 percent of total Danish population who are 18-60 years old.
7	Type of intervention	Pfizer Comirnaty vaccine	Covid-19 vaccination with assumption of 100% efficacy (no spesific brand is mentioned)
8	Control treatment	5 groups: unvaccinated general population in Poland, and based on age-group (30-39, 40-49, 60-69 and >80)	Control is only one group which is non-vaccinated Danish general population.

9	Eligibility criteria	General population in Poland, and divided by 4 age-group (30-39, 40-49, 60-69 and >80)	Danish population who are 18 years old and older.
10	Study perspective	Polish public health care payer perspective (does not include costs of productivity loss and other societal costs associated with restrictions aimed at limiting the spread of the virus)	Health care perspective (+productivity loss)
11	Type of EEs	CEA	CEA
12	Analytic approach	Model based	Model based
	Methods and outcomes of economic evaluations		
13	Time frame of the analysis (time horizon)	1 year	6 months
14	Discount rate	Yes	Yes
15	Discount rate for costs	0%	0%, time period is 6 months in 2020
16	Discount rate for effects	3.50%	4% for < 35 years program
17	Inflation rate	No, only in 2020	No, only in 2020
18	Reference year	2020	2020
19	If model based	Markov	dynamic transmission model
20	Type and category of costs	direct health care cost	direct health care cost
21	Data source of resource use	Polish Agency for Health Technology Assessment and Tariff System (AOTMiT)	- deleted entry on a social media platform by a European Minister of Health (vaccine's price) - the regional health authorities (vaccine administration cost) - The Danish Health Data Authority (DHDA): hospitalization cost - a telephone survey by Statens Serum Institut: productivity loss - Statistics Denmark: productivity loss - statistics from Eurostat: productivity loss
22	Methods for identifying resource use	- hospitalisation: Polish Ministry of Health - length of hospitalisation: WHO data	- survey - national registry (Statistics Denmark)

	Assumptions of the measurement of resources		
23	Costs (in reported currency or in converted currency)	Year 2020, in PLN (Polish Zloty). Exchange rate: 1 euro = 4.44 PLN	Year 2020, in DKK (Danish Krona) Exchange rate: 1 euro = 7.4 DKK
24	Methods used to calculate unit costs	Own cost price calculation, based on: - hospitalisation: Polish Ministry of Health - length of hospitalisation: WHO data	Own cost price calculation, based on: - guidelines/agreement from Danish health authority - survey, and statistics (productivity loss, hospitalisation)
25	Costs	-vaccine price: 38.05 PLN - administration cost: 61.24 PLN - ambulatory treatment: 370 PLN - hospitalisation only: 1026 PLN - hospitalisation with ventilator: 4321 PLN (no CI is provided)	- vaccines price and administration cost (300, 400 and 500 DKK) --> 3 scenarios - hospitalisation (base-case): 1. hospitalization non ICU: 16,495 DKK 2. ICU for patients aged 18-59 years: 26,028 DKK 3. ICU for patients aged 60 and older: 37,050 DKK 4. Hospitalization with ventilator: 255,171 DKK - test (200 DKK) and FU by GPs (146.25 DKK)
26	Data source of effects	- mortality: life years lost with survival age data from Statistics Poland - QALY: questionnaire from other study - vaccine efficacy: Pfizer clinical data	- life-years: administrative data from Statistics Denmark and Staten Serum Institut - QALY: other study - Ministry of Finance Denmark for discount rate
27	Methods of measurement of effects	willingness-to-pay-threshold, which in Poland is 3 × GDP/per capita (147,024 PLN/QALY gained in 2020)	no specific threshold, instead the result is compared with other preventive programmes in Denmark

28	Methods of valuation of effects	indirect measurement and based on model probabilities: - The expected number of life years lost due to deaths from COVID-19 were calculated using expected survival by age as predicted by Statistics Poland in 2019 - Age-specific utility values for individuals without detected infection, obtained using the 3-level EQ-5D (EQ-5D-3L) questionnaire in a large, representative sample of the Polish population, were used to calculate the present value of the quality-adjusted life-years (QALYs) lost due to COVID-19 death, assuming a 55:45 male-to-female ratio and applying a 3.5% discount rate	indirect measurement and use 2 type of outcomes: 1. life-years (LY): weight life-years data from Statistics Denmark with data of Covid-19 related death from SSI 2. QALY: data from another Danish study
29	Effects	Table 3: QALY lost sensitive to death (not treated) and no CI is provided, but worst-best scenario instead. QALY lost/death for general population: 7.54, and age groups (30-39: 19.9, 40-49: 17.1, 60-69: 10.4 and >80: 2.1)	Explained in detail in table 4 for gained QALY (scenarios as in no 6): 1. Q50: 4490 2. Q50: 1780 3. Q50: 4850 4. Q50: 2330 No CI is provided.

30	Incremental cost–effectiveness ratios	Base case: Vaccination to 60-69 and >80 is cost saving. While cost effective for other age group and in general population. ICER (PLN/QALY): - general population: 6.249 - age 30-39: 67.823 - age 40-49: 28.135 - age 60-69: cost saving - >80: cost saving	Scenario 2 and 4 are dominated thus it is no longer included in evaluation. ICER base-case for scenario 1 is between 53,000-118,000 DKK/QALY (vaccine price 300-500 DKK), and scenario 3 is between 319,000-803,000 DKK/QALY (vaccine price 300-500 DKK).
31	Analyses of uncertainty (e.g. sensitivity analyses)	deterministic sensitivity analysis, worst and best case scenario (single parameter and combination of parameters)	It is not mentioned the type of sensitivity analysis for the study. The parameter used in sensitivity analysis are: - extra scenario with 45% population <60 and 25% of population aged 60 and older - standard mortality rate (increased to 1.5 and 2.0) - QALY parameter: 80%, 90% and 100% - vaccine efficacy: 80% - cost of hospitalization: higher and lower than base-case
32	Outcome(s) of analyses of sensitivity analyses	In the general population and in age group 30-39, the incremental cost-effectiveness ratio is most sensitive to the vaccine effectiveness, vaccine price, and SARS-CoV-2 infection rates.	Cost of hospitalisation does not affect ICER, however mortality rate and vaccine efficacy do. Vaccine price and inclusion of productivity loss affect cost effectiveness of the program.

33	Authors' conclusions	In most scenarios, vaccination to population 60-69 and >80, is cost saving, and in general and to all other age groups, vaccination is cost effective.	Without productivity loss, the elderly population should always be part of the target group for a COVID-19 vaccination programme and compared to other programmes, it is cost effective. Taking productivity loss into account, at least in the case of low vaccine prices (300 DKK), vaccinating the younger population first can actually be cost effective (key is fig 4).