

Supplementary appendix. Poverty reduction and equity benefits of introducing or scaling up measles, rotavirus and pneumococcal vaccines in low- and middle-income countries: a modeling study by Riumallo Herl et al.

Table A 1 List of 41 Gavi-eligible low- and middle-income countries included in the study

Countries
Armenia
Bangladesh
Benin
Burkina Faso
Burundi
Cambodia
Cameroon
Chad
Comoros
Congo Republic
Côte d'Ivoire
Democratic Republic of the Congo
Ethiopia
Gambia
Ghana
Guinea
Haiti
Honduras
Indonesia
Kenya
Kyrgyzstan
Lesotho
Liberia
Malawi
Mali
Mozambique
Nepal
Niger
Nigeria
Pakistan
Rwanda
Senegal
Sierra Leone
Tajikistan
Tanzania
Timor-Leste
Togo
Uganda
Yemen
Zambia
Zimbabwe

Table A 2 Number of medical impoverishment cases in 1000's averted by vaccines in 41 low- and middle-income countries for those cohorts born between 2016 and 2030. 95% uncertainty ranges (UR) are given in parentheses.

	(1) Measles vaccine (95% UR)	(2) Pneumococcal conjugate vaccine (95% UR)	(3) Rotavirus vaccine (95% UR)
Current coverage trends			
Lowest	1,995 (1,718-2,285)	13 (6-21)	8 (3-16)
2 nd Quintile	1,611 (1,348-1,860)	3 (0-6)	2 (0-4)
3 rd Quintile	792 (628-946)	0 (0-0)	0 (0-0)
4 th Quintile	582 (338-814)	0 (0-0)	0 (0-0)
Highest	0 (0-0)	0 (0-0)	0 (0-0)
Total	4,986 (4,486-5,466)	16 (9-24)	10 (4-18)
Best case			
Lowest	2,108 (1,812-2,415)	91 (70-114)	119 (93-145)
2 nd Quintile	1,660 (1,384-1,912)	92 (72-112)	88 (66-113)
3 rd Quintile	835 (664-1,006)	56 (40-71)	48 (34-65)
4 th Quintile	618 (362-868)	29 (16-42)	16 (8-28)
Highest	0 (0-0)	0 (0-0)	0 (0-0)
Total	5,226 (4,694-5,738)	267 (232-307)	271 (230-314)

Note: Current coverage trends represent current vaccination forecasts. Best case includes additional Gavi funding for the expansion or implementation of vaccines. Figures present the average value of cases by economic quintile with 95% uncertainty ranges.

Table A 3 Percentage of medical impoverishment cases in 1000s averted by vaccines in 41 low- and middle-income countries for those cohorts born between 2016 and 2030. 95% uncertainty ranges (UR) are given in parentheses.

	(1) Measles vaccine (95% UR)	(2) Pneumococcal conjugate vaccine (95% UR)	(3) Rotavirus vaccine (95% UR)
Current coverage trends			
Lowest	39.7% (35.2-44.3)	81.9% (60.8-98.0)	85.4% (55.0-100.0)
2 nd Quintile	32.7% (28.3-37.1)	17.8% (2.0-9.2)	14.6% (0.0-45.0)
3 rd Quintile	15.7% (12.7-18.7)	0.0% (0.0-0.0)	0.0% (0.0-0.0)
4 th Quintile	11.8% (7.2-15.9)	0.0% (0.0-0.0)	0.0% (0.0-0.0)
Highest	0.0% (0.0-0.0)	0.0% (0.0-0.0)	0.0% (0.0-0.0)
Best case			
Lowest	40.1% (35.4-44.8)	34.2% (27.9-40.8)	43.8% (36.4-50.9)
2 nd Quintile	32.1% (27.8-36.4)	34.2% (27.9-40.4)	32.5% (25.8-39.5)
3 rd Quintile	15.9% (12.8-18.9)	20.8% (15.8-26.3)	17.7% (12.7-23.3)
4 th Quintile	11.9% (7.3-16.1)	10.7% (6.3-15.5)	5.9% (2.8-9.8)
Highest	0.0% (0.0-0.0)	0.0% (0.0-0.0)	0.0% (0.0-0.0)

Note: Current coverage trends represent current vaccination forecasts. Best case includes additional Gavi funding for the expansion or implementation of vaccines. Figures present the average value of cases by economic quintile with 95% uncertainty ranges.

Table A 4 Total out-of-pocket (OOP) health expenditures (in 1,000,000 2011 International \$) cases averted by vaccines in 41 low- and middle-income countries for those cohorts born between 2016 and 2030. 95% uncertainty ranges (UR) are given in parentheses.

	(1) Measles vaccine (95% UR)	(2) Pneumococcal conjugate vaccine (95% UR)	(3) Rotavirus vaccine (95% UR)
Current coverage trends			
Lowest	498 (421-571)	3 (2-5)	7 (5-10)
2 nd Quintile	658 (551-756)	5 (4-7)	11 (7-15)
3 rd Quintile	787 (658-904)	6 (4-8)	12 (7-15)
4 th Quintile	979 (816-1,126)	9 (6-11)	18 (11-23)
Highest	1,283 (1,088-1,491)	11 (7-15)	20 (12-27)
Total	4,200 (3,910-4,517)	34 (29-40)	68 (56-79)
Best case			
Lowest	518 (439-592)	17 (15-20)	22 (18-25)
2 nd Quintile	687 (577-787)	23 (20-27)	30 (25-35)
3 rd Quintile	826 (692-948)	28 (24-32)	35 (29-40)
4 th Quintile	1,026 (856-1,180)	36 (30-41)	44 (37-51)
Highest	1,357 (1,154-1,575)	55 (46-63)	59 (49-68)
Total	4,412 (4,111-4,736)	159 (147-170)	189 (175-203)

Note: Current coverage trends represent current vaccination forecasts. Best case includes additional Gavi funding for the expansion or implementation of vaccines. Figures present the average value of cases by economic quintile with 95% uncertainty ranges.

Table A 5 Percentage of total out-of-pocket (OOP) health expenditures averted by vaccines in 41 low- and middle-income countries for those cohorts born between 2016 and 2030. 95% uncertainty ranges (UR) are given in parentheses.

	(1) Measles vaccine (95% UR)	(2) Pneumococcal conjugate vaccine (95% UR)	(3) Rotavirus vaccine (95% UR)
Current coverage trends			
Lowest	11.9% (10.1-13.7)	10.1% (6.5-14.0)	10.7% (6.8-14.9)
2 nd Quintile	15.7% (13.4-18.0)	15.8% (10.6-21.2)	16.8% (10.9-22.3)
3 rd Quintile	18.7% (16.0-21.4)	16.3% (11.0-22.4)	17.1% (10.9-22.7)
4 th Quintile	23.3% (19.8-26.5)	24.9% (17.7-32.3)	26.3% (17.5-33.7)
Highest	30.4% (26.6-34.1)	32.9% (23.6-41.1)	29.3% (20.2-38.0)
Best case			
Lowest	11.8% (10.0-13.6)	11.0% (9.3-12.9)	11.7% (9.9-13.6)
2 nd Quintile	15.7% (13.3-17.9)	14.7% (12.6-17.0)	15.9% (13.5-18.3)
3 rd Quintile	18.7% (16.0-21.3)	17.7% (15.1-20.5)	18.3% (15.6-20.8)
4 th Quintile	23.2% (19.8-26.4)	22.3% (19.3-25.3)	23.4% (19.9-26.5)
Highest	30.6% (26.8-34.3)	34.2% (30.1-38.0)	30.8% (26.8-34.3)

Note: Current coverage trends represent current vaccination forecasts. Best case includes additional Gavi funding for the expansion or implementation of vaccines. Figures present the average value of cases by economic quintile with 95% uncertainty ranges.

Figure A 1 Average coverage rate for each vaccine over 41 low- and middle-income countries over time for those cohorts born between 2000 and 2030

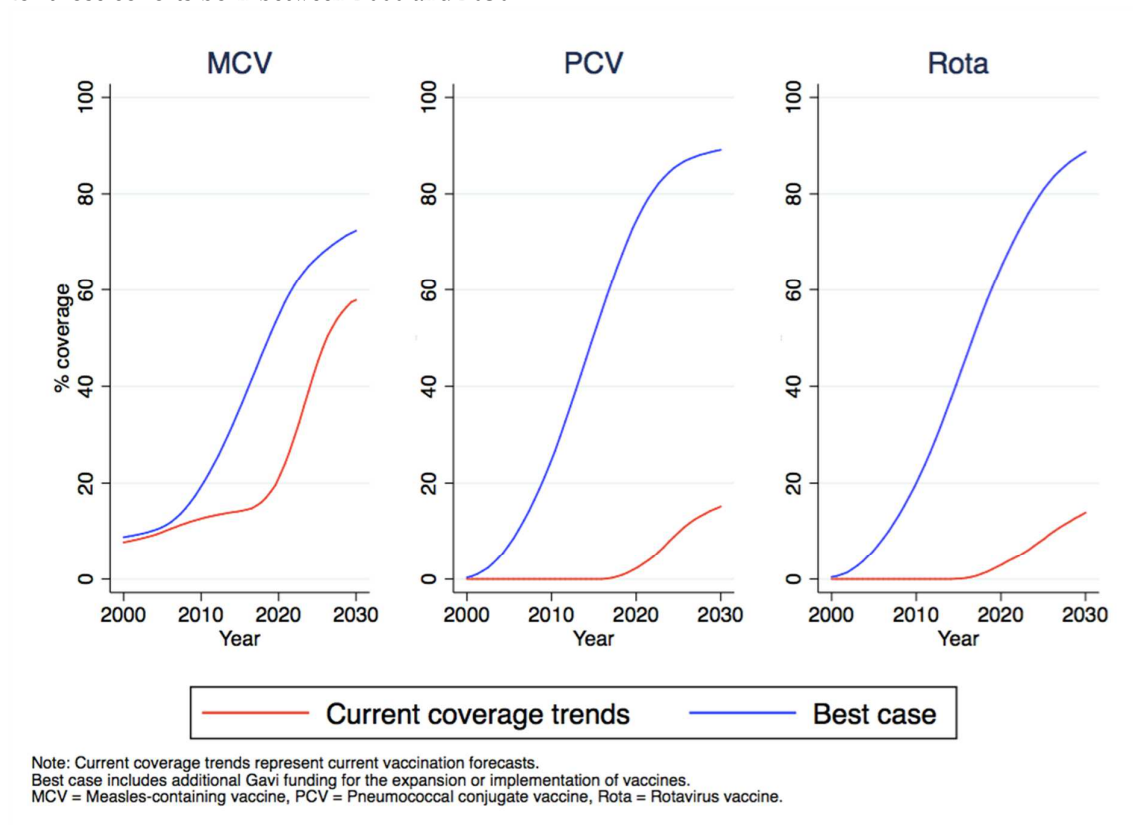


Figure A 2 Number of cases of catastrophic health costs averted by measles vaccine for each scenario under different assumptions of catastrophic thresholds (10%, 20%, 30%, and 40% of monthly household income) in 41 low- and middle-income countries for those cohorts born between 2016 and 2030

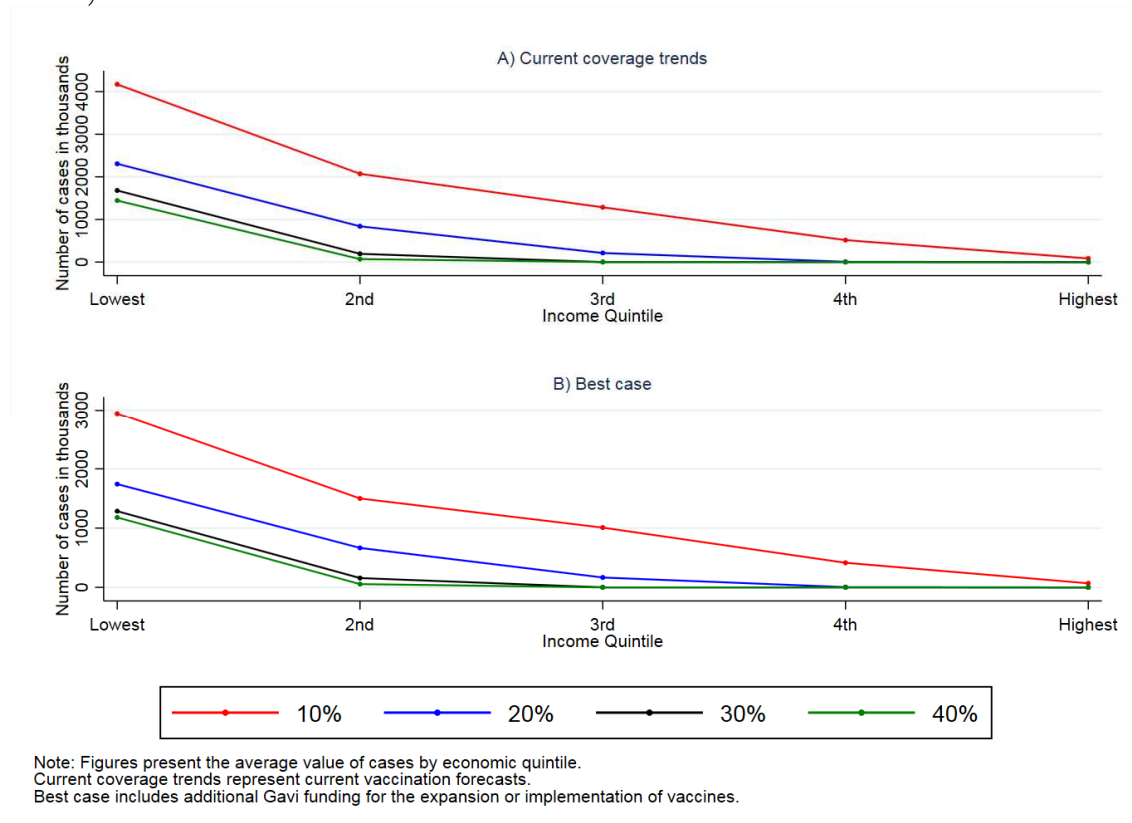


Figure A 3 Number of cases of catastrophic health costs averted by pneumococcal conjugate vaccine for each scenario under different assumptions of catastrophic thresholds (10%, 20%, 30%, and 40% of monthly household income) in 41 low- and middle-income countries for those cohorts born between 2016 and 2030

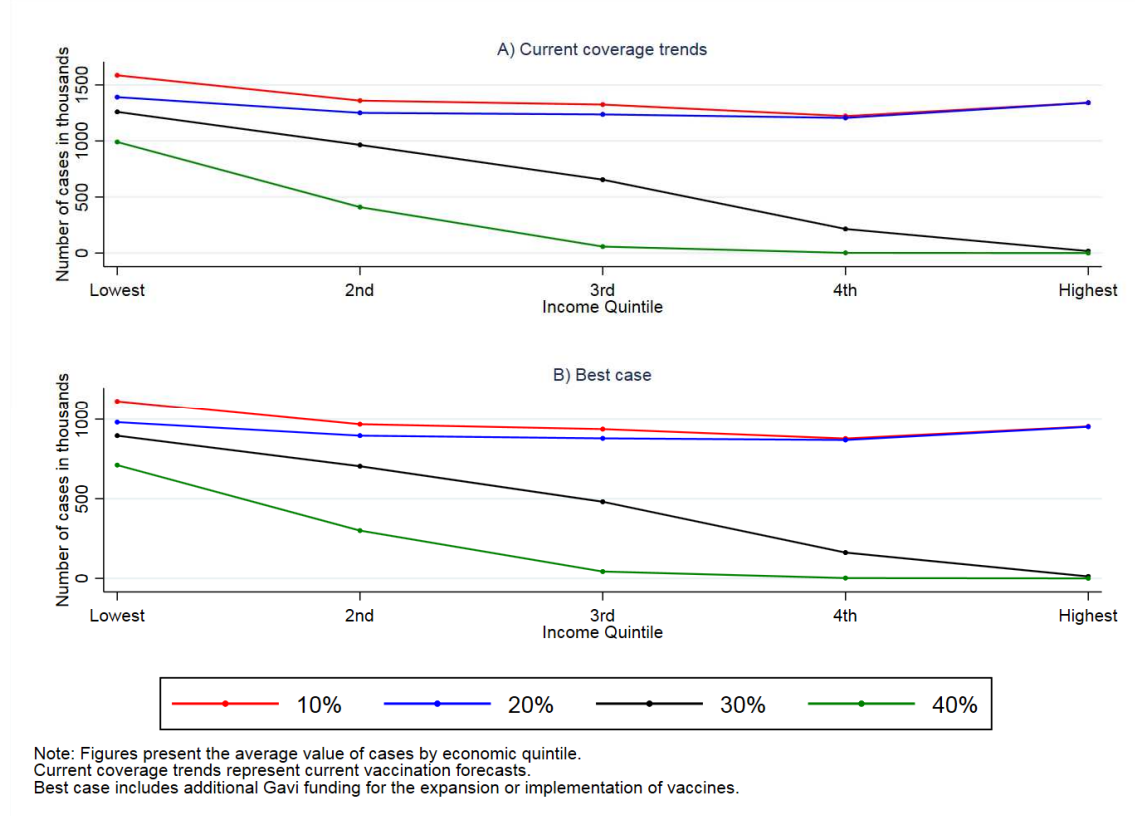


Figure A 4 Number of cases of catastrophic health costs averted by rotavirus vaccine for each scenario under different assumptions of catastrophic thresholds (10%, 20%, 30%, and 40%) in 41 low- and middle-income countries for those cohorts born between 2016 and 2030.

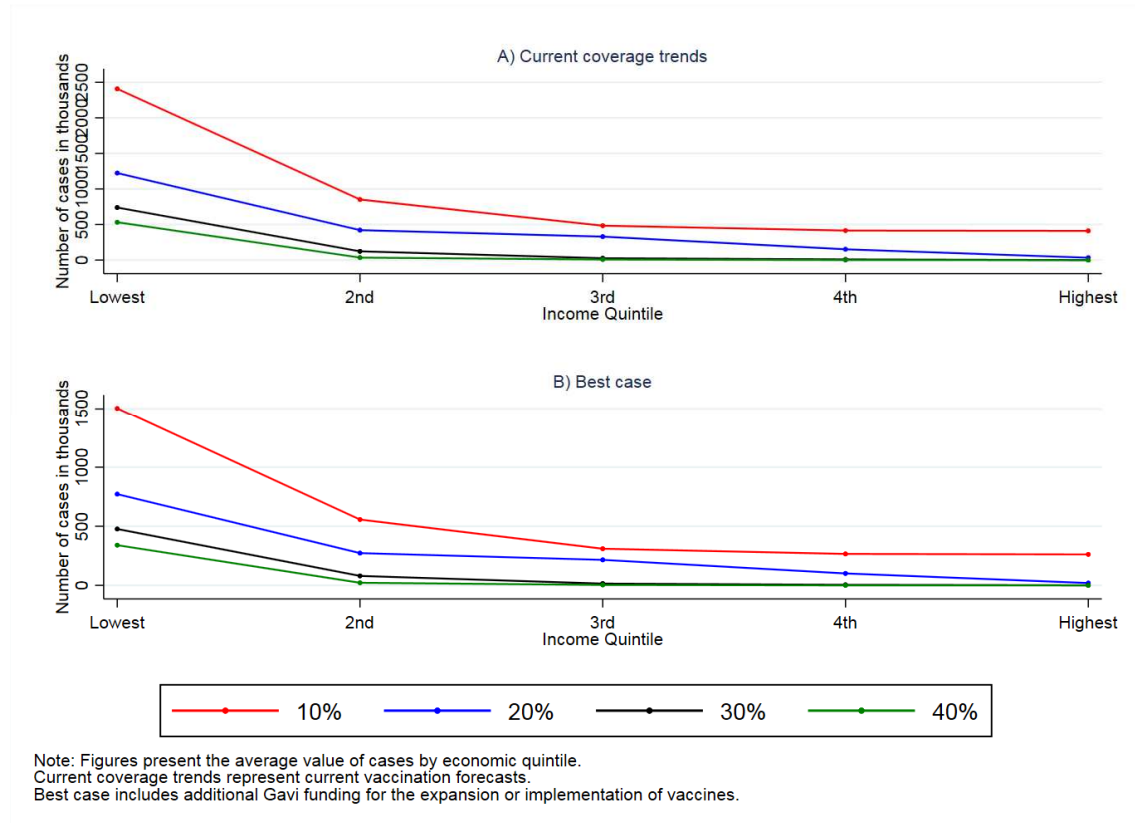


Figure A 5 Number of cases of catastrophic health costs averted by measles vaccine by scenario under assumption of largest health care utilization fraction by country in 41 low- and middle-income countries for those cohorts born between 2016 and 2030

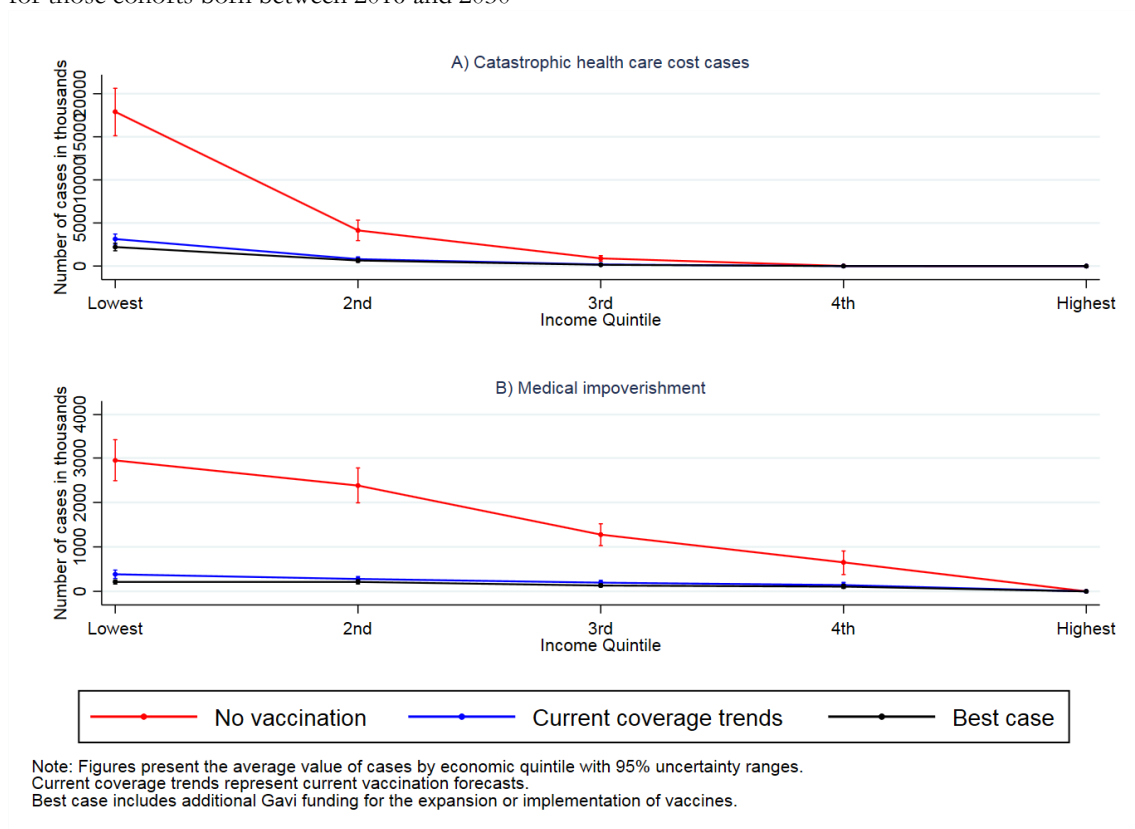


Figure A 6 Number of cases of catastrophic health costs averted by pneumococcal conjugate vaccine by scenario under assumption of largest health care utilization fraction (from highest quintile) by country in 41 low- and middle-income countries for those cohorts born between 2016 and 2030.

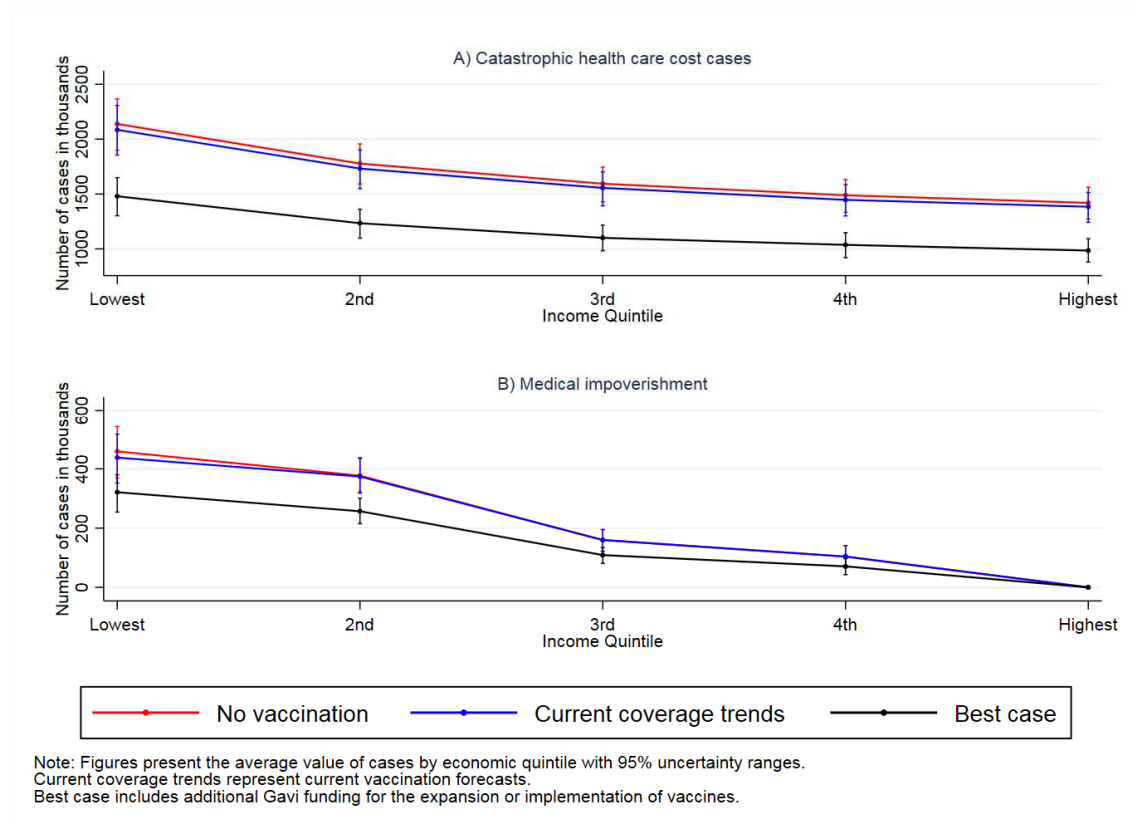


Figure A 7 Number of cases of catastrophic health costs averted by rotavirus vaccine by scenario under assumption of largest health care utilization fraction (from highest income quintile) by country in 41 low- and middle-income countries for those cohorts born between 2016 and 2030

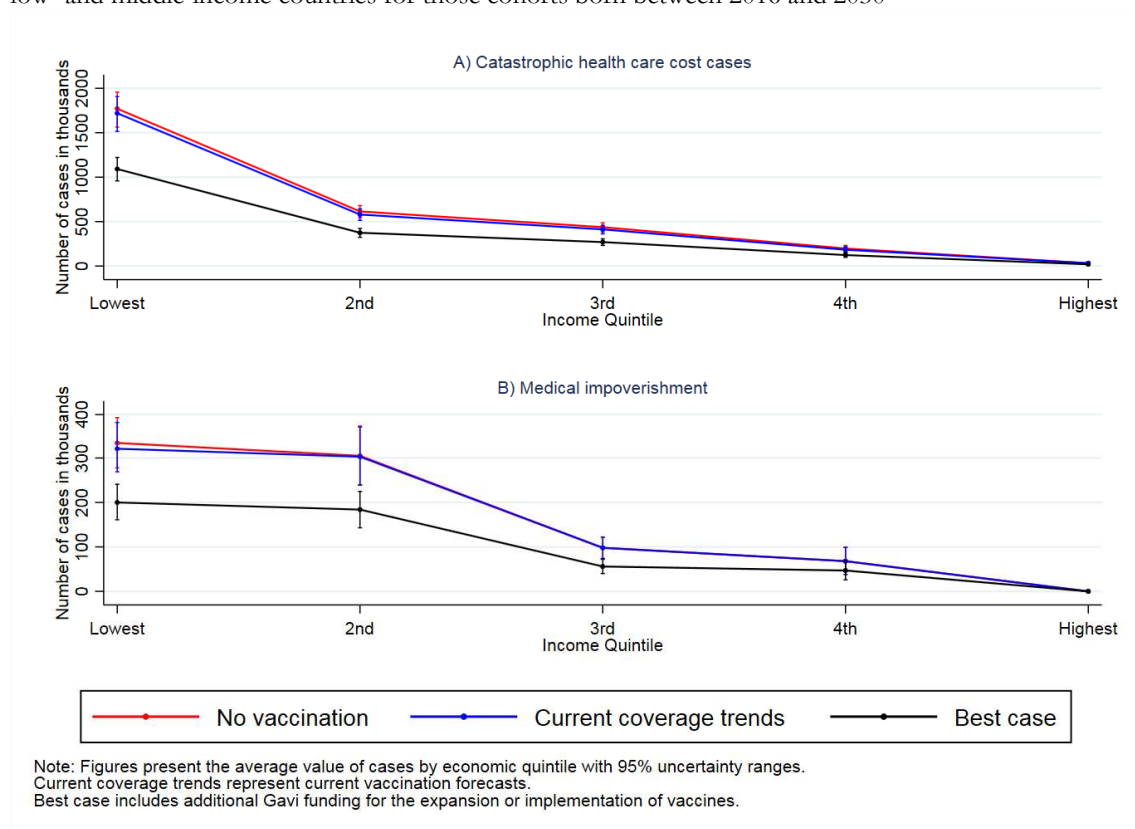


Figure A 8 Number of cases of catastrophic health costs averted by measles vaccine for each scenario under different assumptions of vaccine coverage with and without total fertility rate (TFR) adjustments in 41 low- and middle-income countries for those cohorts born between 2016 and 2030.

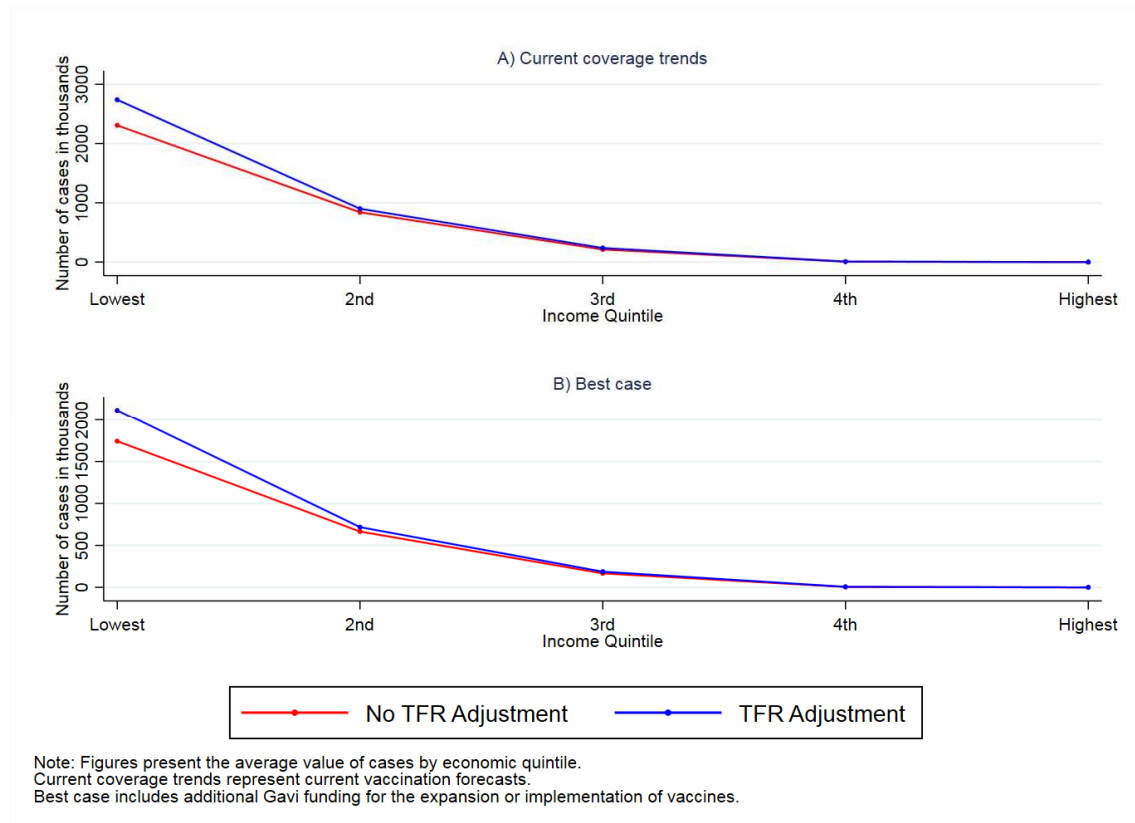


Figure A 9 Number of cases of catastrophic health costs averted by pneumococcal vaccine for each scenario under different assumptions of vaccine coverage with and without TFR adjustments in 41 low- and middle-income countries for those cohorts born between 2016 and 2030.

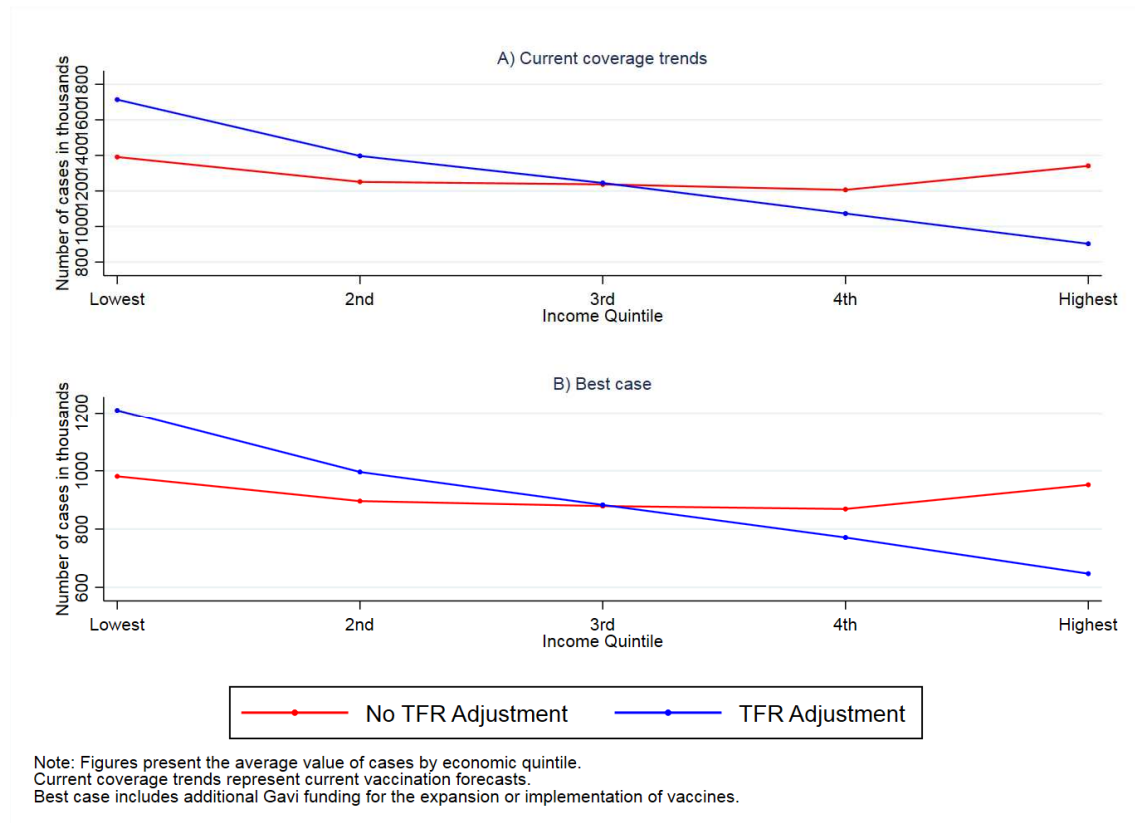


Figure A 10 Number of cases of catastrophic health costs averted by rotavirus vaccine for each scenario under different assumptions of vaccine coverage with and without TFR adjustments in 41 low- and middle-income countries for those cohorts born between 2016 and 2030.

