THE IMMUNIZATION DELIVERY COST CATALOGUE: WHAT IT IS, WHAT IT TELLS US, AND HOW YOU CAN USE IT

QUESTIONS FROM THE AUDIENCE

Question: **Can you please share any references regarding method and tools to implement a SIAs cost analysis?**

Answer: You can find methodological guidance and tools on how to cost SIAs here: **https://immunizationeconomics.org/recent-activity/2021/8/10/advanced-method-to-cost-an-immunization-campaign/**

Q: **Are there any tools for costing illnesses that the vaccines prevent?**

A: You can learn more about cost of illness methods and tools here: **https://immunizationeconomics.org/dove-home/** In general, you can find guidance & tools here: **https://immunizationeconomics.org/guidance-tools-getting-started/**

Q: **Regarding the presentation about the Immunization Delivery Cost Catalogue, were the mean or median costs presented? Was purchasing power parity considered in comparing costs across the years and across countries?**

A: Thanks for a great question. Flavia presented medians, not means. Unit costs of delivery were standardized to 2022 USD using IMF inflation rates (average consumer prices) For more method details you can review the methodology note here: **https://immunizationeconomics.org/recent-activity/2024/5/31/the-immunization-delivery-cost-catalogue-methodology-note-for-the-2024-update/**

Q: **Regarding the presentation about rotavirus introduction in Nigeria: how did you account for the impact vaccination on the incidence of Rotavirus related disease over 10 years in Nigeria using a static model (Markov)?**

A: The model captured the costs and outcomes of vaccination for each of the ten cohorts represented by 2021 to 2030. Each cohort population were captured by annual birth rate, and this population (under 1 year) were followed up for 260 weeks. However, the vaccine impact on the incidence of rotavirus infection was modelled from 6 weeks to 5 years (260 weeks) for each cohort, while considering the waning effect of the vaccine.

Q: **I saw the ThinkWell team is working on a cost summary of reaching zero-dose children as well. Is there an estimated time when this will be available yet?**

A: We are currently conducting three bottom-up country costing studies: in Pakistan, Ethiopia and Nigeria. You can read more about that work here: https://immunizationeconomics.org/cost-of-reaching-zerodose-children/ We expect to have results by Q2 2025, and we'll summarize cross-country findings. In the meantime, the IDCC analysis brief (here: https://immunizationeconomics.org/recent-activity/2024/6/11/immunization-delivery-cost-catalogue-analysis-brief/) does discuss the cost of

un/undervaccinated children as well. And you can find more work on the cost of reaching zero-dose children here: **https://immunizationeconomics.org/cost-of-reaching-zerodose-children/**

Q: **Can you please explain how the economic and financial cost perspectives differ.**

A: Financial costs represent financial outlays incurred to pay for newly acquired resources (e.g. per diem, fuel for transport, purchasing new equipment, hiring new staff), usually with straight-line depreciation. Economic costs include financial costs, as well as opportunity costs, which represent the value of using existing resources (e.g. health worker salaries, existing equipment, etc.) as well as donated items (e.g. vaccines, supplies). Therefore, a financial cost perspective will usually find greater costs than an economic cost perspective.

Q: **Regarding the presentation about the equity assessment of childhood immunization in in Myanmar, how was the benefit measured in the study?**

A: We calculated the benefits by multiplying the immunization uptake rates by the unit costs per dose of vaccination. We used concentration curves and concentration indices to show inequality. Here is how we did the analysis in our study: first, we gathered the immunization utilization across regions, urban & rural areas and also socioeconomic groups (wealth quintiles and mother's education level). For example, we collected the immunization utilization of poorest children living in urban Yangon, poorest children living in rural Yangon, poorer children living in urban Yangon, poorer children living in rural Yangon, middle-class children living in urban Yangon, middle-class children living in rural Yangon, richer children living in urban Yangon, richer children living in rural Yangon, richest children living in urban Yangon, richest children living in rural Yangon. This process was repeated for all regions. Then, we multiplied this utilization for each region, urban & rural (stratified by wealth quintiles) by the corresponding unit cost per dose which varied across regions, urban & rural settings. The resulting benefits (utilization * unit cost) were categorized by wealth quintiles and measured concentration curves & concentration indices using excel and "conindex" package in stata. The basic concept of concentration curves & concentration indices can be found here:
https://cphs.huph.edu.vn/uploads/tainguyen/sachvabaocao/2008_AnalyzingHealthEquityUsingHouseholdSurveyData_234.pdf

Q: Regarding the presentation about the equity assessment of childhood immunization in Myanmar, what factors are taken into account while adjusting the cost for different regions. Is there any difference considered across different wealth quantile?

A: We adjusted the delivery cost using regional and urban & rural cost variations from the following paper: **https://pubmed.ncbi.nlm.nih.gov/30377065/** In this paper, authors mentioned that differences in operational costs were based on vaccine transport, vaccinator's travel, labor cost to carry heavy cold boxes, cold chain energy, social mobilization, waste management, meals and accommodation costs. In our study, we didn't consider the other factors like demand generation interventions or awareness campaigns specifically for poorer families.

Q: **If the model inputs for a lower middle country are not available (E.g. Pakistan for which most of data is missing), which sources can we utilize to put in a Markov or any CEA model? Say for example we are working on HPV vaccination for which the model inputs are not available in certain countries, which sources can we utilize to bridge this gap and conduct a study?**

A: You can utilize data from other countries, like Bangladesh, India or Sri Lanka depending on which country has the data required by your model. Delivery cost data about other countries may be found in the Immunization Delivery Cost Catalogue (**https://immunizationeconomics.org/thinkwell-idcc/**), and other useful datasets can be found here: **https://immunizationeconomics.org/resourcelibrary/type-dataset/** . Once you find the required data from other countries, any estimates from reference countries (e.g. Bangladesh or India or Sri Lanka) will need to be matched to the target country (Pakistan), by applying the weights as described in the webinar.

Q: **Regarding the presentation about the Immunization Delivery Cost Catalogue, what do you think made the cost per dose higher for routine delivery, compared to SIA delivery?**

A: While SIA may require significant additional investment, they tend to reach many people in a short period of time, and spreading costs across many doses can lead to a lower cost per dose. Conversely, routine delivery requires little additional investment, but the volumes delivered tend to be significantly lower. This can lead to a higher cost per dose.

Q: **Is there a different model for costing for special populations or situations (like nomadic, conflict affected settings)?**

A: There is not a different model for costing special populations. When estimating costs for delivering in conflict-affected settings, to nomadic populations or other special target populations it is advisable to conduct more extensive scoping ahead of study implementation to understand what cost drivers may be—as they may be different than for routine childhood immunization in non-conflict affected areas or targeting non-nomadic population—and ensure they are adequately reflected in the study design. You can find available costing guidance & tools here: **https://immunizationeconomics.org/guidance-tools-getting-started/**