Key principles and methodological issues in Zero Dose costing

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Outline

1. Introduction
2. Costing process: challenges & considerations
3. Summary & recommendations
What do we mean by ‘zero dose costing’?

We want to estimate what it costs to reach zero-dose children

For example:

» The cost of identifying ZD children to then incorporate them in microplans

» The cost of outreach sessions that go further, stay longer, are more frequent

» The cost of generating demand among targeted communities

Could by any activity within the IRMMA framework
In theory, this seems pretty straightforward...

1. First, we estimate the cost of the intervention...
2. We measure how many ZD children they’ve reached through this intervention...
3. We determine the cost per zero dose child reached...
4. And compare interventions and recommend to do more of those that are the best value for money

...but there are challenges at every step
COST
To estimate the cost, we will need to estimate the resources *actually used* to implement an activity...

» The cost of identifying ZD children to then incorporate them in microplans

» The cost of outreach sessions that go further, stay longer, are more frequent

» The cost of generating demand among targeted communities
...and not just one donor’s specific contribution to an activity, as existing infrastructure and capacity matters

- The cost of identifying ZD children to then incorporate them in microplans
- The cost of outreach sessions that go further, stay longer, are more frequent
- The cost of generating demand among targeted communities

This means we need to estimate the full cost of any intervention.
How will we determine the incremental cost of a ‘new’ zero dose intervention?

If an intervention is new:

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This means we may need to evaluate the cost of all immunization services.
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But if all immunization services might be affected, how will we know what part was incremental?

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Though challenge to find districts with similar characteristics, such as high ZD prevalence, that aren’t intervening at all

So a before/after comparison is probably our best bet
But what if an intervention isn’t really ‘new’?

» A lot of what is in EAF proposals has already been done

» Interventions might be improved, better resourced, better planned for, more frequent, better paired up with other interventions, better targeted to ZD kids, etc… but not really new

» How will we capture quality improvements that aren’t easily quantified?

Capturing qualitative information alongside a costing study will help to contextualize quantitative findings.
2 DENOMINATOR
What do we even mean by a zero-dose child?

» Gavi definition: child has missed penta1 by the time it’s 18 weeks old

» But many countries consider a child as zero dose only by the time it is >1 year old

» Polio program might have a different definition from the EPI: once a child has received an OPV birth dose it is no longer considered zero dose
What do we even mean by a zero-dose child?

» If immunization records were solid, we could use any definition of ZD (or analyze for multiple)

» But most likely the date we find will not be as complete or precise
What do we even mean by a zero-dose child?

» For example, this tally sheet would consider any child >1y receiving penta1 as zero dose

» We won’t know how many children received penta1 between 18 weeks-12 months old

Clear reporting on zero dose definition used will be key
To measure how successful any intervention was at reaching ZD children ... countries need to report on this!

Reporting issues will affect the evaluation of any kind of intervention:

- How many zero-dose children were vaccinated during a new kind of outreach approach?
- How many zero-dose children were identified through a new headcount activity in the community?
- How many zero-dose children identified through activity A actually got vaccinated shortly after?

- ZD definition used is >1yo & delivery strategy for the session not recorded
- Reporting forms not available and community health workers just remind people verbally to come to an immunization session
- Identification and vaccination reporting not linked up
To measure how successful the intervention was at reaching ZD children ... countries need to report on this!

What does this mean?

» We might know how many children were identified...

» We might know how many children were reached in total

» ...but not whether, when, and through what strategy they were reached

» ...but not whether they were zero dose, or the definition of zero dose used might not align to ours, and we might not know through which delivery strategy
What alternatives can we consider?

Get **better data**:  
» Push countries to improve reporting  
» We can go measure it ourselves (go to a session and ask the mother afterwards)

Use **alternative data** and make assumptions:  
» Compare RCA data from before and after (if that exists) and assume we can attribute all reductions in ZD to our intervention  
» Use doses delivered or children vaccinated data and assume that any increase must mean also some ZD children were reached
3 UNIT COST
How will we determine the right moment to evaluate a ‘new’ ZD intervention?

The cost and how many zero-dose children are reached will likely change considerably over time.

Implementation costs might be high at first but decrease as we learn and become more efficient.

= implementation cost per intervention
How will we determine the right moment to evaluate a ‘new’ ZD intervention?

The cost and how many zero-dose children are reached will likely change considerably over time.

The number of ZD children reached might increase at first as we improve, but also decrease as after a while as there are fewer ZD kids remaining.
How will we determine the right moment to evaluate a ‘new’ ZD intervention?

The cost and how many zero-dose children are reached will likely change considerably over time.

Which means the unit cost per child would decrease at first and finally increase until (in theory) there are no ZD children left.

= cost per ZD child reached
= ZD kids reached per intervention
= implementation cost per intervention
How will we determine the **right moment** to evaluate a ‘**new**’ ZD intervention?

If feasible, consider collecting data for **various points in time** to capture the evolution of costs and ZD children reached (or at a minimum, clearly report at what point the evaluation was done).

![Graph showing cost and ZD children reached over time](image)

- Blue = cost per ZD child reached
- Green = ZD kids reached per intervention
- Orange = implementation cost per intervention
4 COMPARE
How will we **compare** the cost evidence coming out of our work?

Enhanced outreach sessions go out further and for longer to and reach 20 ZD children per session and about 30 undervaccinated kids.

**Costs:** fuel, per diem

$3.00 per ZD child vaccinated

Monthly mobile clinics in a nomadic region reach 50 ZD children per session, as well as 300 undervaccinated children and delivered nutrition, ANC, TB treatment, FP.

**Cost:** dedicated staff and van, fuel, per diem

$5.00 per ZD child vaccinated
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- Monthly mobile clinics in a nomadic region reach 50 ZD children per session, as well as 300 undervaccinated children and delivered nutrition, ANC, TB treatment, FP.
  - Cost: dedicated staff and van, fuel, per diem
    - $3.00 per ZD child vaccinated
    - $1.20 per child reached
    - $0.60 per vaccine dose delivered
    - $0.70 per child reached
    - $5.00 per ZD child vaccinated
    - $0.30 per vaccine dose delivered

- Enhanced outreach sessions go out further and for longer to and reach 20 ZD children per session and about 30 undervaccinated kids.
  - Costs: fuel, per diem
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Cost: fuel, per diem

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- $1.20 per child reached
- $0.60 per vaccine dose delivered
- $0.05 per any intervention delivered
- $0.70 per child reached
- $5.00 per ZD child vaccinated
- $0.30 per vaccine dose delivered

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**$0.10**

Per ZD child identified

New headcount method in urban slums results in 100,000 additional ZD children identified.

Cost: *a cascade training & community health workers’ time*

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...and in addition there are the cost to beneficiaries & all the other non-cost considerations: sustainability, HSS? etc.

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So to summarize, a few research principles:

1. **COST**
   - Estimate the full cost to take the importance of existing infrastructure (or lack thereof) into account.
   - Consider relevant catalytic or displacement effects of the intervention.

2. **DENOMINATOR**
   - Consider costs to beneficiaries, where relevant.
   - Identify a counterfactual, possibly before/after.

3. **UNIT COST**
   - Collect qualitative data to contextualize cost findings.
   - Consider the right timing or evaluate cost/output over time.

4. **COMPARE**
   - Let’s try to improve reporting, and/or at a minimum, clearly report on the ZD definition used, and limitations with the denominator data.
Thank you!