

Implications of COVID-19 pandemic on Cost of Routine Immunizations

Group Discussion



TVEE
TEACHING VACCINE
ECONOMICS EVERYWHERE

Objectives

- The aim of this activity is to discuss as a group on how you will conduct and analyze a costing study.
- Students are encouraged to share their thoughts and opinions, share their experiences and practical examples.

Background

The COVID-19 pandemic has already disrupted immunization services that are critical to the prevention of morbidity and mortality from vaccine-preventable diseases in many low- and middle-income countries (LMICs)

In these settings, the health benefits associated with routine childhood immunization greatly outweigh the COVID-19 related health risks.

The conduct of routine vaccine delivery will need to be modified in order to be successfully implemented in the pandemic context.

While modification of vaccine delivery strategy will increase the health outcomes despite the impact of the pandemic, it will have a significant impact on the **economic efficiency** and **budget requirements** of the EPI programs

Developing a Study Proposal

1. What is the main **study question and objective**?
2. What should the **aim/goal(s)** of the study be?
3. Who is the **target audience**?
4. Who is the **target population**?
5. Which **perspective** will you use?
6. What is the **time horizon**?

Important for Unit 4 submission

Data Collection

Imagine Country X has provided you with their current total costs of routine immunization

Capital costs	Cost (\$, 000)	% of cost
Cold chain	570	1.5%
Vehicles	2 000	5.2%
Buildings	1 085	2.8%
Other	557	1.5%
Sub-total	4 212	11.0%
Recurrent costs		
Vaccine and supplies	6 168	16.2%
Vaccine injection and safety supplies	186	0.5%
Paid labor	18 130	47.5%
Volunteers/ community health workers	730	1.9%
Allowances for travel/ subsistence	4 390	11.5%
Cold chain (energy)	120	0.3%
Vehicles (maintenance, fuel)	2 770	7.3%
Communications,	725	1.9%
Building maintenance, utilities	350	0.9%
Other supplies and printing	372	1.0%
Sub-total	33 941	89.0%
Total	38 153	100%

Questions

1. How are the results useful from a program planning and management perspective?
2. Which costs of introducing COVID-19 vaccine will be most important to estimate accurately for a cost effectiveness evaluation?
3. Would any of these be less important for program budgeting?

What are the most important components that need to be taken into consideration to calculate the cost of introducing COVID-19 Vaccine into *your own country's* routine immunization program?

Type	Source(s)

Costing Approach

- Which approach is the **most feasible** to undertake in **your country**?
 - Bottom-up vs Top-down
 - Micro-costing vs Gross costing
- How will you estimate the start-up costs? What resources are available to you?
- What are the challenges you expect to face in collecting cost data?

Published Analysis

Analysis and Presentation by

Thinkwell: Christina Banks, Flavia Moi, Laura Boonstoppel

Harvard School of Public Health : ALLISON PORTNOY, STEPHEN RESCH

Overview of the Scenarios

1.

Personal protective equipment (**PPE**) & Infection Prevention and Control (**IPC**) measures for immunization sessions

2.

Adding staff to ensure **physical distance** is maintained and for **screening** during immunization sessions

3.

Context adjustments: changes in session sizes and frequency, hazard pay to compensate health workers

4.

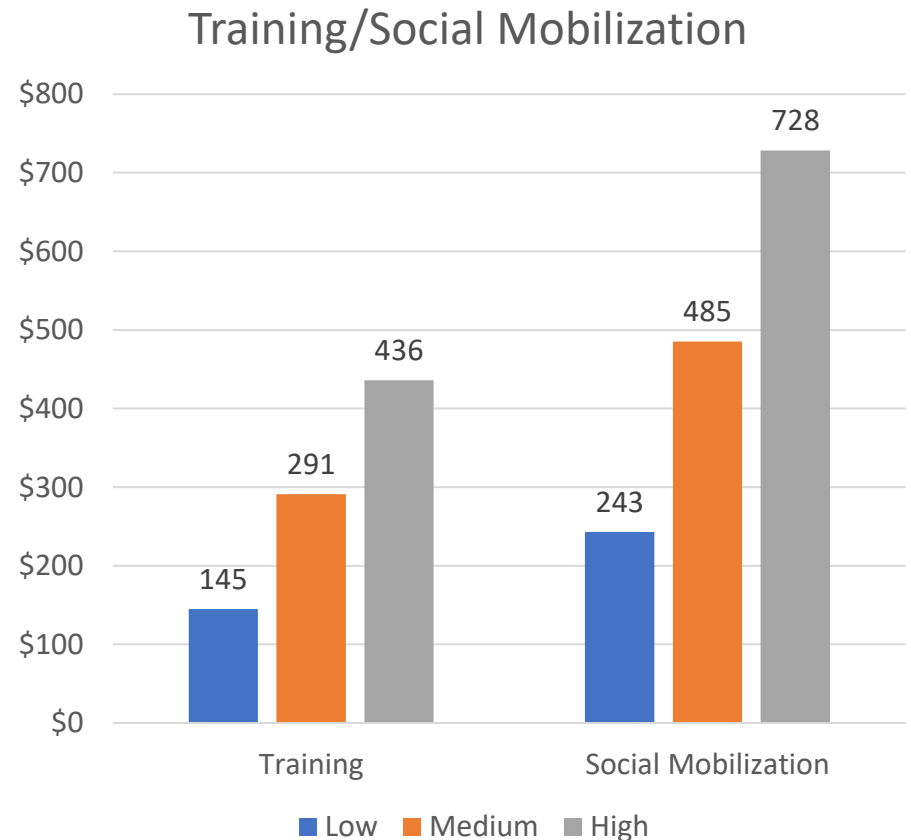
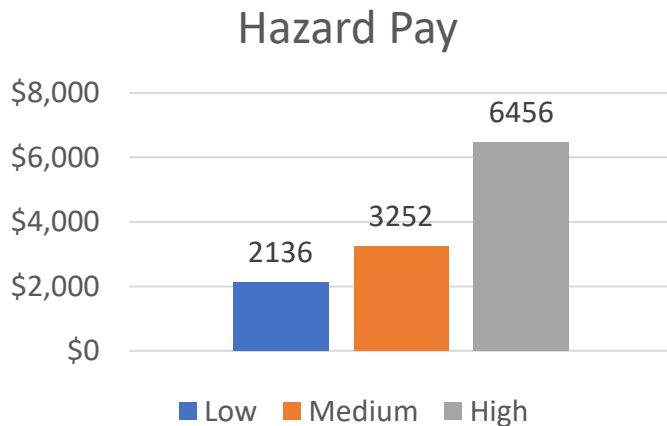
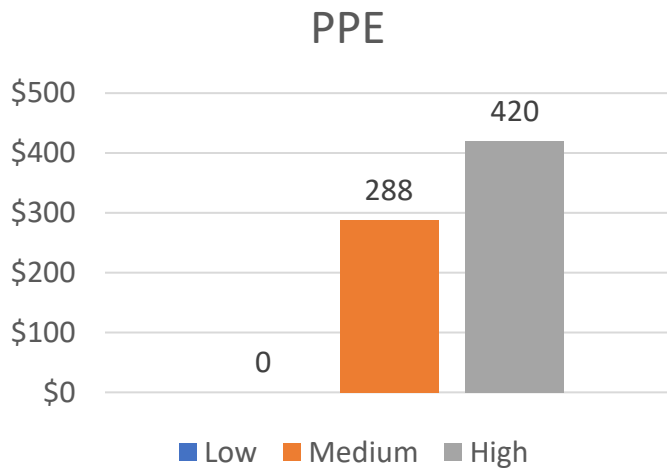
Other **operational cost** increases: additional social mobilization, communication, training, transport, etc.

Routine Immunization - Intensity

Intensity

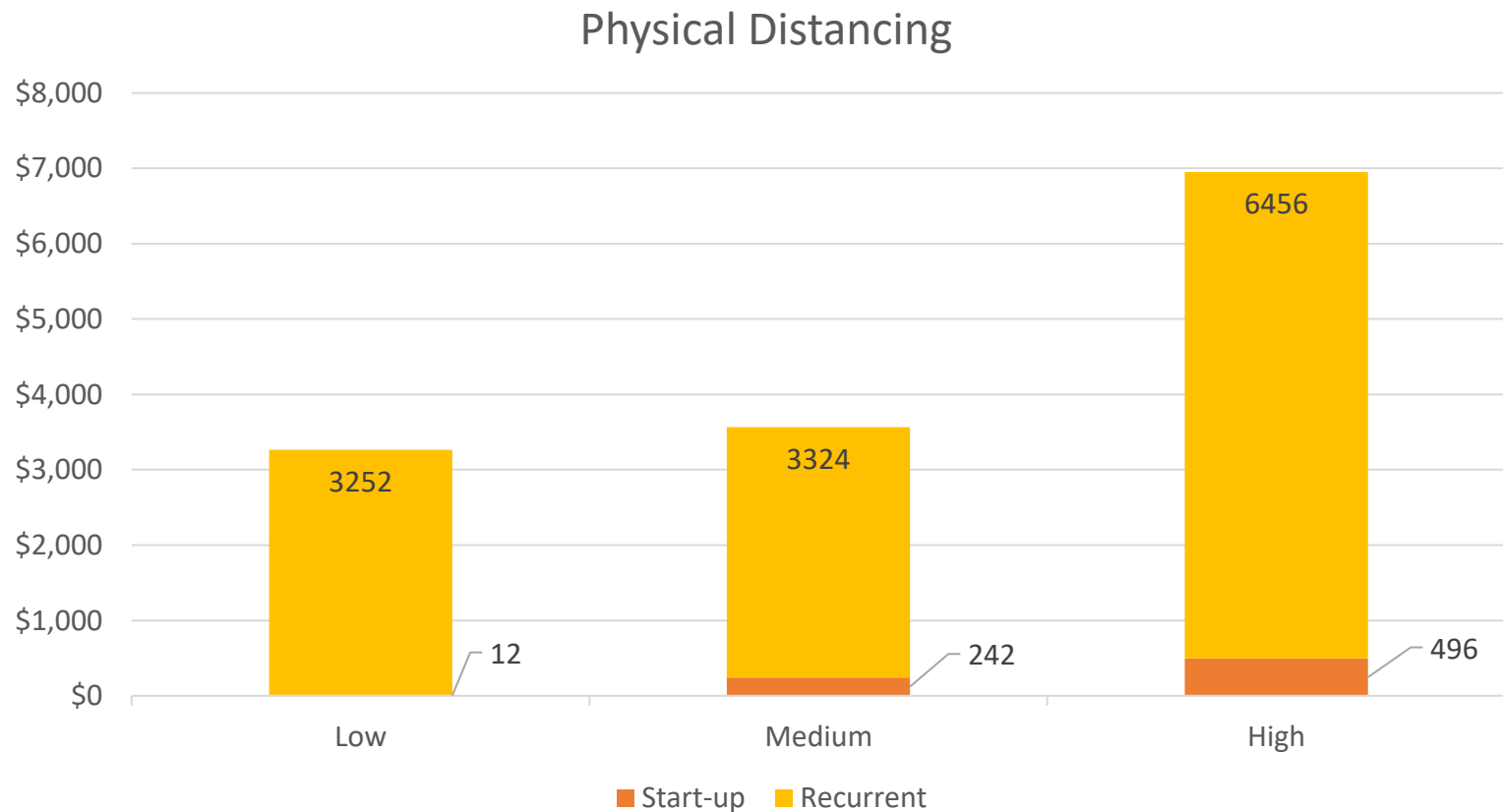
	1. PPE	2. Physical Distance	3. Hazard pay	4. Training/Social mobilization
LOW	No PPE	One additional team member Hand washing station for facility waiting area (simple)	10% of salary hazard pay rate	50/100% of estimated costs required for COVID-19
MEDIUM	1 mask per health worker per day Hand sanitizer for vaccinators	One additional team member Hand washing station for facility waiting area (higher quality) Tape; plexiglass barriers	20% of salary hazard pay rate	100/200% of estimated costs required for COVID-19
HIGH	1 x mask per health worker per day Reusable goggles for vaccinators 1 x pair of gloves per client per day for vaccinators 2 x pair of gloves for non-vaccinators per day	Two additional team members Hand washing station for facility waiting area Tape; plexiglass barriers; one screening tent & thermometer per facility	30% of salary hazard pay rate	150/300% of estimated costs required for COVID-19

Annual Incremental Costs of Intervention by Intensity (includes recurrent costs)



Annual Incremental Costs of Intervention by Intensity

(includes start-up and recurrent costs)



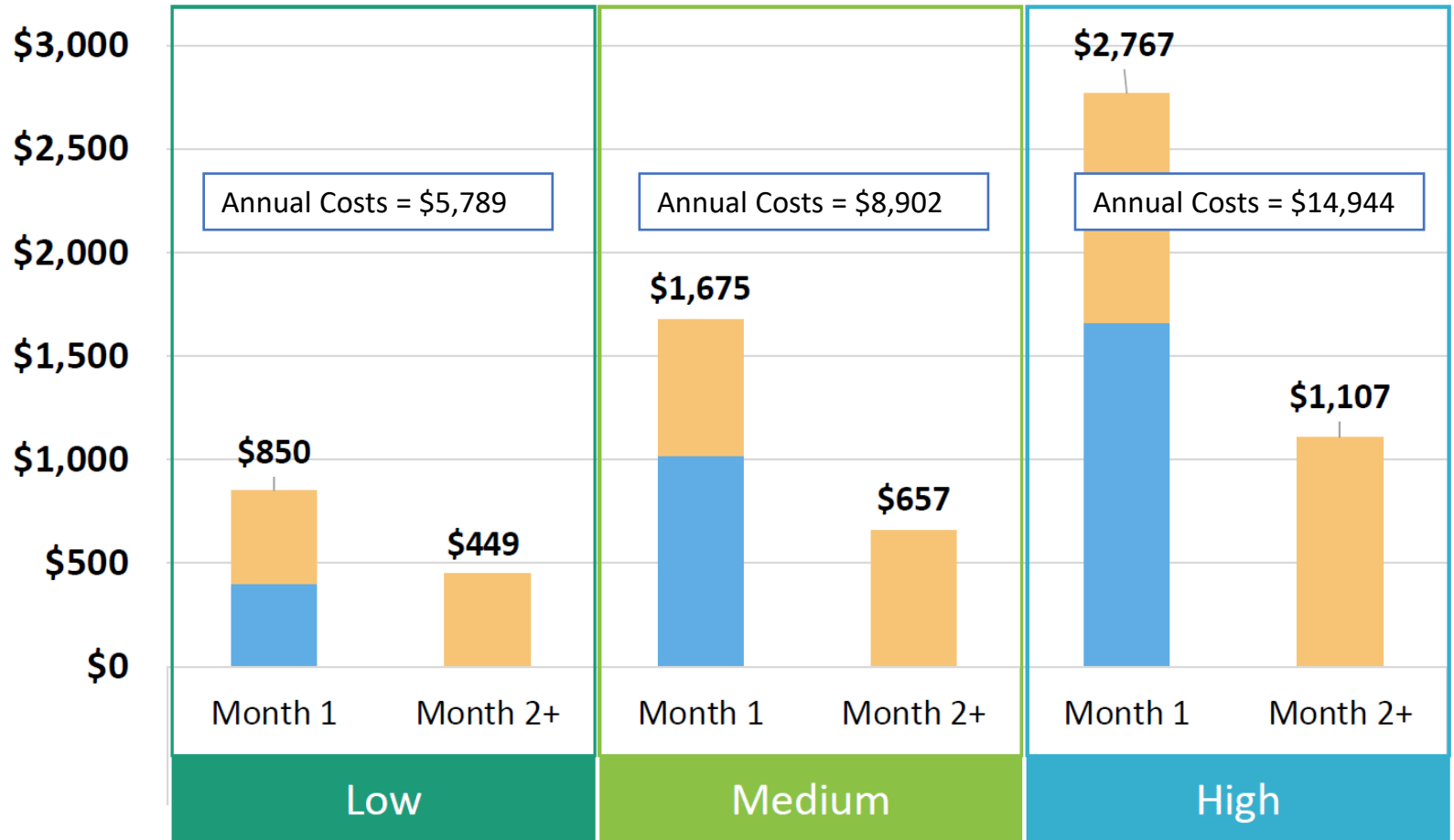
Routine Immunization – Incremental Costs

R= recurrent
S= Start-up

Intensity

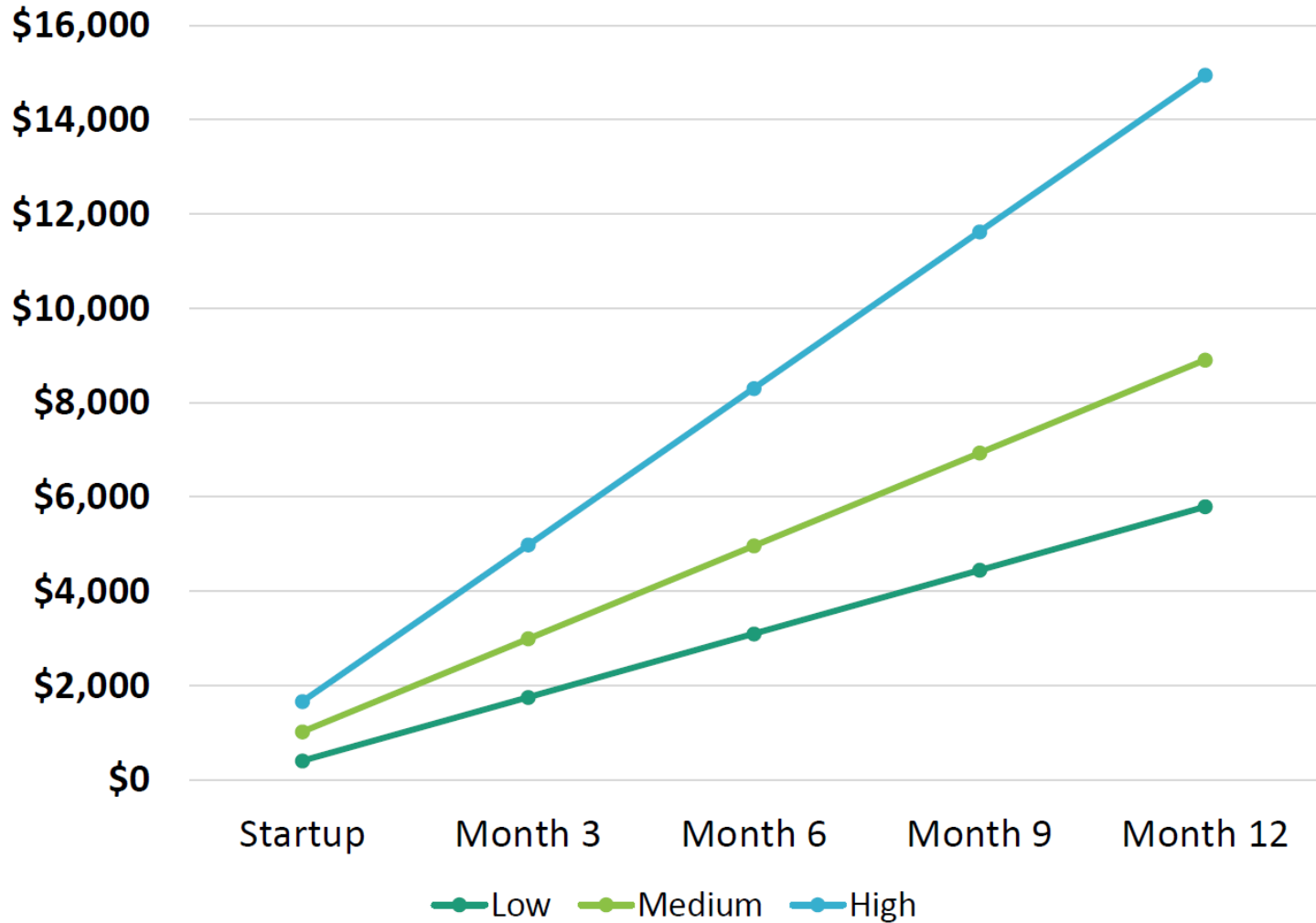
	1. PPE	2. Physical Distance	3. Hazard pay	4. Training/Social mobilization
LOW	No PPE R = \$0	One additional team member Hand washing station for S = \$12 R = \$271	10% of salary hazard pay rate R = \$178	50/100% of estimated costs required for COVID-19 St = \$145 Ssm = \$243
MEDIUM	1 mask per health worker per day Hand sanitizer for vaccinators R = \$24	One additional team member Hand washing station for facility waiting area (higher quality) S = \$242 R = \$277	20% of salary hazard pay rate R = \$271	100/200% of estimated costs required for COVID-19 St = \$291 Ssm = \$485
HIGH	1 x mask per health worker per day Reusable goggles for vaccinators 1 x pair of gloves per client per day for vaccinators 2 x vac R = \$35	Two additional team members Hand washing station for facility waiting area Tape; plexiglass barriers; one screening tent & thermometer per facility S = \$496 R = \$538	30% of salary hazard pay rate R = \$538	150/300% of estimated costs required for COVID-19 St = \$436 Ssm = \$728

AVERAGE PER-FACILITY COSTS OVER TIME, COST CATEGORIES COMBINED



■ Startup costs ■ Recurrent costs

CUMULATIVE PER-FACILITY COST OVER TIME, BY SCENARIO:



Discussion of Results

Consider Country X

Country X is a middle-income country with a GDP of \$50 billion. They have a population of 30 million with children consisting of 4% of the population, and the elderly being 30% of the population. About 60% of the population lives in rural areas.

In 2015 they established UHC and immunization is covered under it as a benefit. They have allocated 5% of GDP towards UHC, of which 2% (\$50 million) is dedicated towards immunization activities. The EPI has very recently achieved 96% DTP3 coverage with the cost per FIC being \$35. The program has about 3000 facilities (of varying levels) throughout the country.

In March 2020, the country got its first COVID-19 case and since then they have barely been able to control the spread of infection. As of today, they have had about 90,500 cases with a recovery rate of 88%. The cost to treat each patient with COVID-19 is approximately \$2500.

They have decided to divert 10% of the EPI budget towards emergency care and building additional infrastructure to treat active cases. This, along with the additional health screening and prevention measures has resulted in their EPI program being severely disrupted and they expect immunization coverage to drop down to 85%.

Given the 4 scenarios provided, which is the most important one to consider for *your country*?

1.

Personal protective equipment (PPE) & Infection Prevention and Control (IPC) measures for immunization sessions

2.

Adding staff to ensure **physical distance** is maintained and for **screening** during immunization sessions

3.

Context adjustments: changes in session sizes and frequency, hazard pay to compensate health workers

4.

Other **operational cost** increases: additional social mobilization, communication, training, transport, etc.

Average Cost per Facility

1. Which intensity of the scenario works *is ideal* given budget and logistical restrictions?
2. Would you adopt the same intensity for all facilities, or will you vary it by geography?
3. How long will your EPI program be able to sustain these modifications?
4. How will your EPI program monitor these costs per facility to ensure efficiency? (costs will vary depending on adherence and associated health outcomes for HCWs)

Implications for Financing

1. Is the current EPI budget able to cover the costs of these mitigation strategies? Completely or partially?
2. If not, have you identified additional source of funding? What are they?
3. Do these additional costs take away resources from other line items of the EPI program?
 - If yes, how does it effect the program outcomes?
4. How will this change once COVID-19 vaccine is developed and deployed?