Strengthening immunization demand and delivery: Lessons from existing evidence

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Recently, global progress for many vaccines has stagnated

- Improved coverage for multiple vaccines leading up to 2010
- Recently, coverage for established vaccines stuck at 85%
- In 2019, 19.7 million children not fully immunized, 14 million of which were “zero-dose”
  - Backsliding in LAC and West Pacific
  - Measles cases hit decades high of 863,000 cases (139% increase from 2018)

WHO and UNICEF 2020
Recently, global progress for many vaccines has stagnated

- **10 countries account for 62 percent of children** who are not fully immunized: Nigeria, India, DR Congo, Pakistan, Ethiopia, Brazil, Philippines, Indonesia, Angola, and Mexico
  - Immunization gaps span **both rural and urban areas**
- **Fragile or conflict-affected countries** accounted for 44% of zero-dose children
- Growing **skepticism about vaccine safety** and **complacency** about progress to date
- Incomplete coverage associated with:
  - Poverty
  - Mother’s education
  - Mother’s age

WHO and UNICEF 2020; Chard et al. 2020; WHO 2018; UNICEF East Asia and Pacific Regional Office 2015 UN News 2019; UNICEF 2019; NY Times 2020
COVID-19 caused large disruptions

Disruptions to immunization services include:

- Suspended immunization campaigns
- Lack of PPE for health workers
- Capacity-constrained health workers
- Fear of COVID-19 exposure
- Limited transportation and travel
- HMIS data in India’s shows impact of lockdown

WHO, UNICEF, and GAVI Pulse Poll One and Two.
COVID-19 Lockdown and Immunization Disruptions in Rajasthan, India

- Rajasthan focused on catch-up effort after lockdown eased
- Despite that, children who turned 9 months during the lockdown ("heavily exposed") have lower probability of completed First-Year Immunizations

Jain et al. 2020
Supply side: Physical access and quality

- Limited Health Worker Capacity
- Lack of Supplies or Equipment
- Poor Incentive Structure
Demand Side: Understanding low investment rates when access is readily available

- Low Private Benefits
- Lack of Trust, Lack of or Inaccurate Information
- Behavioral Biases
Outline

- Strengthening vaccine delivery
  - Physical access and quality
  - Supporting frontline health workers
- Increasing demand for immunization
  - Incentives
  - Information campaigns
  - Trust in health systems
Strengthening vaccine delivery
Quality community-based services can increase uptake

In India, reliable NGO-provided monthly immunization camps at the village level tripled rates of full immunization

Banerjee et al. 2010
Quality community-based services can increase uptake

In Uganda, community monitoring reduced increased immunization rates for BCG, polio, and measles

- Reduced health worker absenteeism
- Improved quality and quantity of health care provision

Björkman and Svensson 2007; Björkman and Svensson 2009

Note: Statistically significant difference relative to the comparison group is noted at the 1% (**), 5% (**), or 10% (*) level.
Motivating health care workers

**Improved monitoring and performance-based incentives** can motivate health workers and improve performance

- In Pakistan, polio vaccination rates were low partly because health workers were paid a flat rate with minimal monitoring
  - Flat rate of 100 rupees (~$1) per day, during two-day monthly immunization drives, with self-reporting on how many vaccines were administered

- Smartphone-based monitoring alongside performance-based incentives increased vaccination rates by 15-17 percent
  - 1000 rupees (~$10) for meeting goal of administering 300 vaccines across two days
  - Measuring health workers’ innate tendency to procrastinate and then tailoring incentives that helped them to overcome this tendency was especially impactful

Andreoni et al. 2020
Incentivizing health workers to improve immunization may be more difficult outside of specific vaccine drives.

Performance-based community block grants in Indonesia had no impact on immunization after 18 or 30 months, despite immunization as a performance indicator.

- Immunization was one of 12 performance indicators.
- Baseline immunization was 65 percent.
- Performance incentives initially led to greater health worker effort and performance on prenatal visits, weight checks, and malnutrition.
- Possible that immunization was harder indicator to improve.

Olken et al. 2014
Increased motivation should be matched by effective means of demand generation

Health workers receiving performance-based pay in the DRC increased their attendance and effort to attract patients

• No impact on service utilization (including immunization) or health outcomes

Health workers sought to generate demand for services through reduced user fees and outreach

• Reduced facility revenue without generating additional demand
• After performance pay phased out, worker attendance dropped and workers became less intrinsically motivated

Huillery and Seban 2017
Insights for vaccine delivery programming

**Reliable access** (i.e. guarantee a nurse will be there when I come) is paramount

Consider **prioritizing mobile outreach services** for routine immunization and immunization catch-up during COVID-19 recovery

Ensuring that **health workers effort is properly incentivized** is important. Policymakers can use performance-based pay, monitoring, social recognition, depending on context.
Increasing demand for immunization
Small incentives can increase demand and complement supply-side investments

In India, adding a small incentive more than doubled full immunization rates compared to immunization camps alone

- 21pp (116%) increase relative to immunization camps only

Banerjee et al. 2010
India: Incentives improved persistence across immunization schedule

Banerjee et al. 2010
Small incentives can increase demand

In the United States, small incentives increased demand for the flu shot among individuals at a health clinic

- $5 incentive: 19pp (95%) increase
- $10 incentive: 30pp (150%) increase

Alsan et al. 2019;
Insights for incentives

Consider **small incentives** to increase demand for immunization and complement investments in vaccine delivery.

Creating **incentives that signal progress** through the immunization schedule may be an important design feature.
Peer networks can also be leveraged to promote immunization

- A large body of evidence from around the world shows that peers and community members can influence behavior

- For example in Haryana, India, well-connected individuals in a community effectively
  - Spread important information on immunization
  - Increased full immunization coverage by 27 percent compared to randomly selected information seeds

- Two RCTs in India demonstrate that community members can reliably and easily identify well-connected individuals at low-cost

Celebrities and social media platforms can help spread key messages and combat misinformation

- In Indonesia, celebrity endorsement significantly increased the likelihood that a tweet promoting immunization was liked or retweeted relative to similar tweets without celebrity endorsement.
  - Effect came from celebrity authorship itself, not just passing on a message
  - Exposure to 15 campaign tweets:
    - Increased knowledge about a key anti-myth message by 12%, though no impacts on other knowledge areas
    - No impact on self-reported immunization of own children
- In India, a video information campaign on WhatsApp from a credible celebrity improved self-reported compliance with COVID-19 prevention guidelines
- In Zimbabwe, WhatsApp messages from local media organizations to their newsletter subscribers debunked myths about fake cures and increased knowledge about COVID-19

Alatas et al 2020; Banerjee et al. 2020; Bowles et al. 2020
Insights for information campaign programming

- Leverage social networks to accelerate information diffusion about immunization and motivate uptake

- Consider educating celebrities and leveraging their voices to diffuse information

- Consider using social media apps like Twitter and WhatsApp to share key public health messages and combat misinformation
Increased trust in the health system may be critical

**Increased trust in the health system could improve cooperation** with health guidelines

- In Sierra Leone, community monitoring and status awards increased clinic utilization and perceived health care quality
- In the United States, black men were more likely to trust providers of the same race, which increased preventive health care utilization rate, including uptake of flu vaccine

Confidence in the health system may be especially important during:

- Crises
- Recovery and immunization catch-up
- Introduction of new health products like a potential COVID-19 vaccine

[Christensen et al. 2020; Alsan et al. 2019]
Insights for addressing mistrust of health services

In instances where marginalized groups may be less willing to get vaccinated or historical events have undermined vaccine confidence, trust-building policies such as the ability to see health providers from the same race, implementation of accountability mechanisms, etc. may reduce mistrust and increase take up.
Promising policy interventions to increase vaccination rates include:

- Conveniently located and easily accessible services
- Appropriate incentives for health workers providing immunizations
- Small incentives for individuals/parents to seek immunization
- Information campaigns can leverage social networks, celebrities, social media platforms
- Trust-building policies

Understanding which types of investment to improve vaccine demand and supply will depend greatly on the specific context

- J-PAL researchers and staff ready to help World Bank TTLs think about adapting this evidence to local contexts
- Email Anupama Dathan (J-PAL Health Sector Manager) at adathan@povertyactionlab.org to coordinate follow-up discussions
COVID-19 and Influenza Vaccine

- As of November 2020, **188 million doses** of influenza vaccines had already been distributed in the US.

- Manufacturers have projected they will provide as many as **194 to 198 million doses** of influenza vaccine in the U.S market.
Appendix
Cash transfers can act as both income support and encourage uptake of healthy behaviors

- Transfers **conditioned** on healthy behavior usually **increase adoption**, especially in the short term; impact of unconditional transfers depends on household priorities
  - Cash transfers provide income support, enabling households to pursue their priorities
  - Adding conditions helps to target and change certain behaviors

- Evidence on CCTs’ impact on immunization is mixed
  - A program in Nicaragua conditioned on preventive care, including immunization, increased vaccination rates within 5 months by as much as 20 percentage points, but effects had faded out year later except for households far from health facilities and for those with mothers with lower levels of schooling
  - A program in Indonesia changed other behaviors such as attended births and improved child health overall, but had no impact on immunization 2 or 6 years later

Barham and Maluccio 2009; Cahyadi et al. 2020 | J-PAL’s review of evidence on cash transfers and health outcomes is available [here](#)
Charging fees for many key preventive health products dramatically reduces take-up

J-PAL’s REVIEW OF THE EVIDENCE IS HERE
People are just as likely to use free products as they are products they paid for.

J-PAL’s review of the evidence is here.