An ethical perspective on measures to increase vaccination coverage

Claudia I. Emerson, PhD
Les Pensières, Fondation Mérieux
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Vaccination Coverage in LMICs

- In 2012, 22.6M infants did not receive the vaccines to protect them against DTP
- 70% of these children live in 10 LMICs

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Source: WHO-UNICEF Immunization Summary 2012
Vaccination Coverage in LMICs

- Coverage of measles-containing vaccines in rural areas is up to 33% lower than in urban areas.
- Coverage can also be very low amongst the urban poor: migrant populations, indigenous communities.
- Richest 1/5 up to 58% higher coverage than poorest 1/5.
- India: significant difference in coverage between girls and boys (Corsi et al, 2009).

Inequities:

- geographic/access
- socio-economic
- gender-based, e.g. educational status of mother.

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A few reasons why vaccination coverage is low

• Lack of access to vaccines

• Parental refusal or failure to seek vaccines
  o inadequate or misguided information about risks / benefits
  o lack of motivation in the face of competing priorities

• Missed children: challenge of determining which children have been vaccinated, what vaccines they have received, and how many doses and when

• Failing to ‘reach the unreached’
  o major cultural barriers
  o security risks
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Parental refusal or failure to seek vaccines

• Highly influenced by community beliefs; rumors absorbed easily

• Value perceptions tied to experiences with health care system, disease
  o Client-provider interaction and communication is vital

• Lack of ‘comfort and confidence’: i) perceived risks/benefits of vaccines; ii) costs and characteristics of delivery

• Influenced by family dynamics, relationships

• Influenced by quality and availability of information about vaccines → and who provides it

• Correlated with socioeconomic status and education
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Figure 3: Factors Affecting Household Demand for Immunization

- Previous experience with health care provider (quality of patient-client interaction)
- Beliefs and fears
- Community-level pressure
- Individual factors of parents, such as education and income levels
- Individual factors of children, such as gender, birth order, and health status
- Perceived risk of infection and illness
- Knowledge of the value and benefits of vaccination (through education or health service communication)

- Opportunity cost of seeking services, related to time cost of waiting and traveling and missed time from work
- Permission of household authority figure(s) and community
- Household assets, such as vehicle for travel
- Income level
- Knowledge of timing and location of providers
- Location of household

Source: Barham et al, 2007
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Missed children

- Some children have never had access to vaccines, others lost to follow-up

- Challenge: tracking and monitoring coverage

- (Novel) methods for tracking children to improve immunization coverage may raise ethical concerns
  - tattoos
  - marking with indelible ink
  - biometrics
  - (RFID?)
Measures to improve immunization coverage

- Incentive-based
  - conditional cash transfers (CCTs)
  - food, vouchers

- Motivation through use of mobile technology
  - SMS reminders

- Compulsion
  - mandatory vaccination

- Marking and tracking children to monitor immunization coverage
Incentive-based measures: Conditional Cash Transfers

- Demand-side measure meant to address barriers faced by poor families in deciding whether to vaccinate children
- Evaluations of these programs demonstrate a positive effect on health-seeking behaviour
- Mexico & Nicaragua: CCTs increased vaccination coverage, particularly among children not reached by traditional program strategies, i.e., those living far from health facility

Incentive-based measures: food & other non-financials

- Nicaragua: attendance at an immunization camp increased from 77% to 94% when food incentives equivalent to approx. 3-5 days of wages were offered.

- A camp with incentives also increased immunization rates in neighbouring villages.

- Incentives coupled with improved supply of services can be more cost effective than improving supply of services alone.

- Insecticide-treated bednets, food and mobile vouchers have also been used in incentive-based programs.

Source: Banerjee et al, 2005
Use of mobile technology: SMS reminders

- Study in rural Western Kenya: mobile technology used to address demand-side barriers: lack of knowledge, forgetfulness, prohibitive transportation costs (+ mobile cash transfer)

- SMS reminders sent three days prior to, and on the scheduled day of immunization, for 1st (age 6 weeks) and 2nd doses (age 10 wks) of DTP-HepB-Hib (Pentavaelnt) vaccine, using open source Rapid SMS software.

- Increase in immunization coverage reported, but more follow-up needed

- System is not perfect: mobile entry is subject to human error

- Sometimes husband did not approve of woman’s participation in the program, or suspected that the vaccines being given were experimental.

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Compulsion: mandatory vaccination

• Compulsory vaccination works!
  o effective in preventing disease outbreaks
  o reaching and sustaining high immunization coverage rates
  o expediting the introduction of new vaccines

• Legislation usually includes an exemption

• Merits are hotly debated: compulsion is seen as an affront to autonomy, and exemption is easily obtained
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Is there anything ethically remiss about use of these measures?

• incentives may be deemed coercive
• exploiting the vulnerability of the poor
• ignites the wrong motivators: dependency vs. rational decision-making
• ignore contexts, structural barriers, e.g. patriarchy
• leads to inequity: incentivized vs. non-incentivized
• SMS=privacy invasive
• compulsion=failure to respect autonomy
• fundamental affronts to dignity

Overriding ethical Considerations

• Justice
• Respect for persons / communities
• Empowering women
• Public interest / avoidance of harm
• ‘Obligation to rescue’
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Marking & tracking children

- Nail marking with indelible ink
- Temporary tattoos
- Biometric technology
- RFID? Other?

Ethical, Social & Cultural (ESC) Risks
- Stigma
- Privacy
- Safety
- Bodily Integrity
- Vulnerability
- Research or practice?

Mitigation Strategies for Addressing ESC Risks
- Consent
- Community Engagement
- Narrative
- Ethics Review
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Conclusions

• Incentive-based and compulsory measures to increase immunization coverage raise ethical concerns, but these do not justify abandoning the measures

• Overriding ethical considerations of justice and the public interest are more compelling

• We have moral obligations to rescue those in distress when means and opportunity present themselves

• Tagging and tracking children to improve immunization coverage also raises ethical issues, but these are not insurmountable
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Thank you!

emersonc@smh.ca