

Policy Brief

OVERVIEW

CONTEXT

Childhood immunization coverage rates remain alarmingly low in India's urban slums. Swift action is necessary to reduce preventable child deaths, and to accelerate achievement of MDG4.

POLICY OPTIONS

The Indian government has in place a universal immunization scheme that seeks to vaccinate all children. The implementation of this policy is falling short in urban slums, however, and needs to be reexamined and modified.

RECOMMENDATIONS

The Indian government should consider strengthening the ICDS/AWC system and use existing NGOs to facilitate this process.

SOURCES

Data for this briefing were provided by Joya Banerjee and Kirti Ghei of the Harvard School of Public Health, and Tejal Shitole of PUKAR. Complementary data were drawn from other sources. Jennifer O'Brien (Harvard) synthesized all findings for this briefing.

Urban health series.

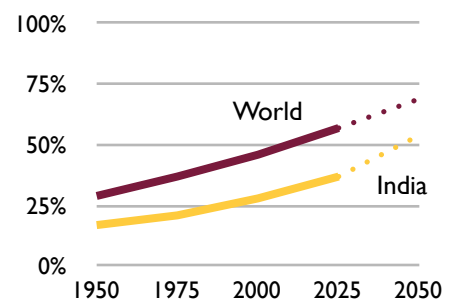
Missing the shot: shortcomings in childhood immunization coverage across India's urban slums

Executive summary. Childhood immunization coverage in India's urban slums is alarmingly low, particularly in unregistered communities, which receive little-to-no government assistance. A lack of immunization coverage increases the risk of communicable disease in these crowded and unsanitary localities, whose health systems may be ill-equipped to control infections. Insofar as India is poised to experience significant urban growth over the next 40 years, policymakers should consider strong investments in the delivery of childhood immunization in urban slums now to offset the cost of healthcare and productivity losses in the future. Based on existing data from slums in Agra and Mumbai, this briefings recommends a strengthening of the ICDS/AWC system in registered and unregistered urban slums and encourages the Government of India to engage NGOs to facilitate this process.

Context and importance of

the problem. Like most of the developing world, India is experiencing a significant increase in the urban share of its growing population. Since 1950 its population has risen from 371 million to 1.2 billion today, and its urban share has grown from 17% to 30% during this period (see right). By 2050 India is projected to be the most populous nation in the world, with more than 1.6 billion people - slightly more than half of whom will reside in urban areas. It is clear that careful planning of urban health services is a critical priority for India moving forward.

Share of the urban population, 1950-2050.



To date, India's urban transition has been beneficial for many, providing access to high quality healthcare, education, and jobs. However, rapid urbanization has also given rise to urban slums, which are characterized by extreme crowding, poor sanitation, and a high burden of

IMMUNIZATION COVERAGE IN KAULA BANDAR

RECENT EVIDENCE FROM AN UNREGISTERED SLUM COMMUNITY IN MUMBAI

In mid-2009, HSPH student Joya Banerjee and PUKAR researcher Tejal Shitole collaborated on the design and execution of a study of immunization coverage in the unregistered slum of Kaula Bandar. On average, roughly 69% of children in Mumbai are fully immunized. In Kaula Bandar, an unregistered slum, immunization coverage was estimated at just 29%.

These findings demonstrate significant disparities in immunization coverage across the urban landscape, and suggest that government-led immunization programs are failing to reach those children who could most benefit from protection against communicable disease.

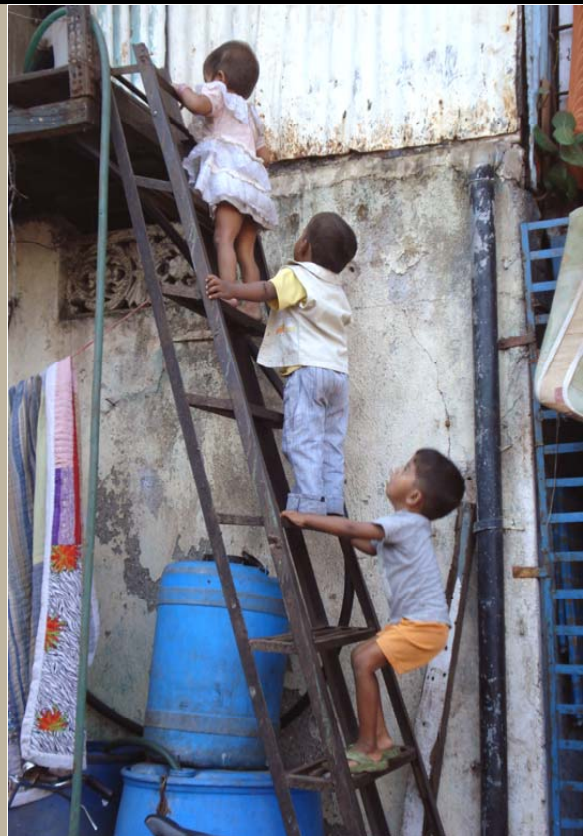


Photo courtesy of PUKAR, 2009.

communicable disease. Estimates suggest that of the 364 million urbanites today, roughly 169 million currently live in urban slums. In Mumbai alone, more than half of the city's population now resides in a slum community.

Children, who are generally considered immuno-naïve, are particularly affected by the high rates of communicable disease in slums. This increase in disease creates additional reliance on healthcare, which in India is largely private and requires out-of-pocket expenditures; this places financial strain on already poor families. In some cases, healthcare services offered in slums may be inadequate to effectively treat a child, resulting in either lasting morbidity (in the form of paralysis from polio, for example) or - even worse - in child death.

Childhood vaccines hold tremendous promise in reducing many infectious diseases, including diphtheria, hepatitis B, and measles. Administered during the first few years of life, vaccines are largely considered to be one of the most cost-effective instruments for reducing child morbidity and mortality and are thus considered

excellent tools for achieving the fourth Millennium Development Goal (MDG4), which calls for a two-thirds reduction in child mortality during the period 1990 - 2015.

The benefits of immunization extend beyond immediate health gains, too. Data suggest that children, who by virtue of immunization avoid disease and their related sequelae, are able to attend school more often and gain more from each lesson. Insofar as income as an adult is correlated with educational attainment, vaccinated cohorts are positioned to be more productive earners. Investments in child health can therefore translate into investments in future national wealth.

The Government of India (GoI) has in place a universal immunization program known as the Expanded Program on Immunization (EPI). The GoI offers the EPI package through government facilities, which administers the following vaccines:

- 1 dose of BCG vaccine to prevent tuberculosis;
- 3 doses of DTP vaccine to prevent diphtheria, tetanus, and pertussis;

- 3 doses of oral polio vaccine (OPV); and
- 1 dose of measles vaccine.

A child is considered 'fully immunized' if it has received all of the EPI vaccines.

On average, roughly 44% of children under 5 are fully immunized in India. This country-level average masks significant disparities across the urban landscape, however. Roughly 58% of *urban* children in India are fully immunized (relative to 38% in *rural* areas), yet only 44% of urban poor children (residing largely in slums) receive the full EPI package. This number likely overlooks children living in unregistered slums, where government health services are often limited; recent data from the unregistered urban slum of Kaula Bandar, located in Mumbai, supports this claim: findings from 2009 suggest that less than a third of children receive the full course of EPI vaccines.

Given the predicted growth of India's urban population, it is critical to review policy options to ensure that children residing in slums have access to life-saving vaccines. In these communities, where disease and squalor abound, the need for vaccines is greatest; yet due to shortcomings in the current immunization system, these localities have had to shoulder the health and related financial strain of managing vaccine-preventable disease. Extending immunization coverage to these areas suggests

both short- and long-term health and productivity gains - which could translate into a further boost for India's growing economy.

Policy options. The GoI has in place a series of programs dedicated to increasing health outcomes amongst children. The Integrated Child Development Scheme (ICDS), founded in 1975, is the government's flagship child health promotion program. Anganwadi workers (AWW), who operate from Anganwadi Centers (AWCs), form the community-based functionary of the ICDS. Each AWW is assigned a catchment zone of roughly 1000-1500 people and is responsible for ensuring timely uptake of health services, including child immunizations.

Recent data suggest that the presence of an AWW has significant impacts on childhood immunization coverage. Children living in slums in Agra located less than 2km from an AWC, for example, were more than twice as likely to be fully immunized and more than 56% more likely to be partially immunized as those children located more than 2km away from an AWC; these values were determined after accounting for a host of relevant covariates such as maternal education, religious, and social category.

The ICDS/AWC system, however, has failed to keep pace with urbanization. Data suggest that

there is just 1 AWW for every 6,114 people - nearly 5 times as many people as each AWW is trained and expected to cover. AWWs are particularly absent from smaller cities and from the urban periphery.

Research in Kaula Bandar, led by a collaboration between PUKAR, a Mumbai-based research collective, and the Harvard School of Public Health, adds another dimension to the AWW issue. The community is actually situated within 2km of one health post and three municipal dispensaries. Despite this proximity, immunization coverage remains low. This suggests that while the presence of health workers is important, these individuals must be further encouraged to engage with marginalized communities through, for example, household outreach or community-wide health campaigns. Research in Kaula Bandar has identified high-priority groups who should be targeted first by any outreach program; these include:

- Pregnant women;
- Mothers of children under one year of age;
- Mothers who give birth in their rural villages but return to the slum thereafter.



DETERMINANTS OF IMMUNIZATION COVERAGE IN KAULA BANDAR

RECENT EVIDENCE FROM AN UNREGISTERED SLUM COMMUNITY IN MUMBAI

In early-2010, PUKAR undertook a remarkable task in the Kaula Bandar community: an assessment of biometric data and immunization coverage of the entire population. Surveying some 6,000 people over a nine-month period, PUKAR is now better positioned to understand determinants of health and immunization in the community.

Over the coming months, PUKAR will collaborate with the Harvard School of Public Health to analyze and contextualize their data. The results of their findings will help to inform strategies for improving vaccination coverage in urban slums in India and beyond.



Photos courtesy of PUKAR, 2010.

Taken together, these findings suggest that the ICDS/ AWC program requires further investment to increase coverage of services and immunizations to residents of urban slums. The GoI may be reluctant to invest in health services for urban slum dwellers, however, out of fear that such action will encourage further settlement in these already saturated communities. More so, data from Kaula Bandar suggest that many women return to their family village to deliver children - often staying for months post-delivery. This would undermine investments in urban AWCs if infants spend the first several months of life in rural areas.

It is important to note that the GoI's investments in health services for the urban poor are largely restricted to *registered* slum communities. For communities such as Kaula Bandar, which is *unregistered*, focusing solely on increasing immunization services for registered slums would have little-to-no benefit for its constituency.

Policy recommendations.

Based on studies in Agra and Kaula Bandar (as well as supplementary data), this briefing recommends increased government investment in AWCs or similar health posts run by local governments, in both registered and unregistered slum communities. This includes:

- Increasing the ratio of AWW to children;
- Recommending that AWWs visit individual households to encourage uptake of vaccines, which was shown to work well for the polio vaccine in Kaula Bandar;
- Implementation of a pictorial or media-based campaign highlighting the importance of immunization for the high-priority cohorts listed previously;
- Routine follow-up with high-risk families to ensure completion of immunization schedule;
- Continuous training and assessment of AWW.

To defray costs and accelerate action, the GoI should identify NGOs presently working in registered and unregistered slums across India and assess their capacity to: a) engage in educational campaigns to increase awareness of the importance of childhood



immunization; and/or b) administer vaccines to children directly (following additional training). Note that in both the Agra and Kaula Bandar studies, the presence of an NGO was associated with increased immunization coverage and heightened awareness of vaccinations, respectively. Education should therefore feature strongly in any government action to increase immunization coverage in India's urban slums.

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