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Sustaining Immunization Demand

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- After listening to, viewing, and studying the lecture materials in this course, you will be able to do the following:
 - Understand demand-side determinants of immunization program sustainability
 - Relate vaccination safety to vaccination rejection
 - Identify ethical principles for collective immunization programs



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Section A

The Community Participation Frame

- “... the process by which members of the community, either individually or collectively and with varying levels of commitment:
 - Develop the capability to assume greater responsibility for assessing their health needs and problems
 - Plan and then act to implement these solutions
 - Create and maintain organizations in support of these efforts
 - Evaluate the effects and bring about necessary adjustments in goals and programmes on an ongoing basis”

Community Participation

- Community participation is the cornerstone of primary health care
- Some examples we've studied in this course:
 - Census-based Bolivian model
 - Bamako Initiative
 - Polio eradication
- The decentralization strategy assumes community participation will accompany local control over health resources
- As Azfar et al (2002) concluded, it is precisely the lack of community participation that jeopardizes decentralized immunization programs, at least in the early stages

- In their review article, Zakus and Lysack (1998) state that community participation:
 - Ranges from passive to active depending on context
 - Is not well understood conceptually or technically
 - ▶ Informal local leaders acting naturally
 - ▶ The right community representatives
 - ▶ Results if health workers meet needs

Community Input



Formal Community Health Organizations

- They identify the following success factors for formal community health organizations:
 - Significant community input
 - Positive links to local government
 - Members share goals, expectations
 - Accountability, transparency
 - Some training investment
 - Represents all community groups

The Original Alma-Ata Conceptualization

- The original Alma-Ata conceptualization assumes that community participation is:
 - Continuous
 - Autonomous
 - Voluntary
 - Empowering
 - Egalitarian
 - Universally feasible

Reconceptualizing Community Participation

- Applying principles of **social learning**, community participation:
 - Needs some heterogeneity to work
 - Involves similar actors modeling each other's behaviors and personal standards
 - Reflects prevailing social norms
 - Intrinsically rewards participants
 - Rapidly diffuses prosocial behaviors
 - Transforms social structures

Reconceptualizing Community Participation

- Applying the principles of **collective action**, community participation:
 - Needs some heterogeneity to work
 - Involves self-interested actors
 - Requires a discrete, measurable goal
 - Must involve every member
 - Is short-term in nature
 - May have an expressive dimension

Reconceptualizing Community Participation

- Summarizing, **external agents** can facilitate community participation by:
 - Providing appropriate symbolic representations and highlighting actual examples of desired behaviors
 - Helping identify attainable goals
 - Providing regular progress reports
 - Recognizing desired behaviors using peer processes
 - Exchanging actors across communities
 - Keeping all actors involved



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Section B

Adverse Events, Rumors, and Rejection

- There is always a probability of adverse events following immunization (AEFI)
- Following WHO (2004), AEFIs may be due to:
 - Inherent properties of the vaccine (vaccine reaction)
 - Errors in administration (program error)
 - Coincidence
 - Anxiety (injection reaction)
- Mild vaccine reactions are commonplace, but serious vaccine reactions are quite rare

Mild event rates for specific vaccinations			
vaccine	local reaction	fever	irritability, discomfort
Hib	5-15%	2-10%	-
Hepatitis B	<= 30% children <=5% adults	1-6%	-
Measles/MMR	<= 10%	<=5%	-
OPV	none	<1%	<1%
TT/DT	<=10%	<=50%	<=60%
DTP	<=50%	<=50%	<=60%
BCG	common	-	-

Manufacturer Quality Control

- Vaccine producers must meet rigorous manufacturing practices
- WHO and government regulatory authorities (NRAs) assure quality and certify each vaccine according to strict standards
- NRAs test and release each lot of vaccine and maintain post-marketing surveillance
- Manufacturers increasingly conduct clinical trials and cooperate in AEFI surveillance in-country

- Most adverse events are due to human error in the field
 - Using non-sterile syringes
 - Recycling used syringes and needles
 - Hand contamination of vaccine or diluent
 - Reconstitution with the wrong diluent
 - Improper administration
 - ▶ For example, BCG given subcutaneously instead of intradermally

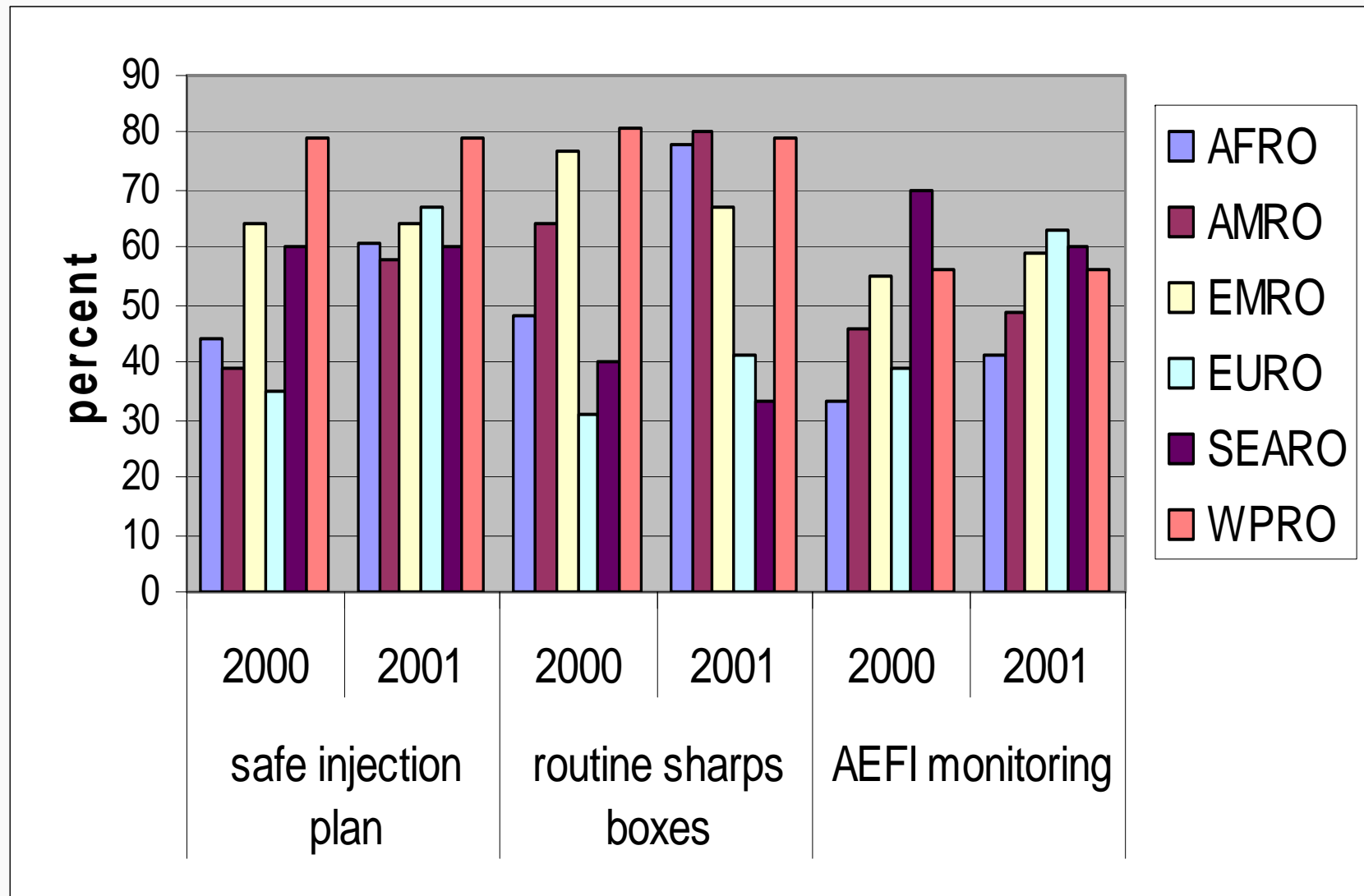
Frequency of Adverse Events

- During large-scale immunization campaigns, the frequency of AEFIs may increase, but the rate of occurrence stays the same
- Example: consider a country giving 100,000 doses of measles vaccine annually
 - Expected: 12 sore arms/100,000 doses
 - Routine EPI: we observe 1 sore arm/month
 - Week-long catch-up campaigns (say 80% coverage): we observe 9–10 sore arms/week
- Higher frequency may generate negative publicity

- To maximize safety, WHO, UNICEF, and UNFPA issued a joint recommendation in 1999 that all countries should use auto-destruct syringes
- This increases the problem of safely disposing of used needles and syringes
- Each district is expected to:
 - Have its own sharp disposal plan
 - Routinely report on use of sharps disposal boxes at each health facility offering vaccinations

- The WHO/UNICEF joint EPI reporting system routine monitors these indicators:
 - Number of countries with safe injection plans down to district level
 - Number of countries using auto-destruct syringes
 - Number of countries routinely distributing sharps boxes with all vaccine deliveries
 - The methods of sharps waste management recommended in each country
 - Number of countries with AEFI monitoring systems

Selected WHO/UNICEF Vaccine Safety Indicators



- The steady improvements in vaccine safety indicators show that countries are devoting more attention to this aspect of quality of care
- Much of the improvement can be attributed to GAVI grants to the lowest-income countries
- Popular perceptions of the quality of immunization services affects acceptance

Resistance Due to Waning Incidence

- Popular awareness of vaccine-preventable diseases and their severity declines as the numbers of cases decline
- Popular movements occasionally arise against specific vaccines
- Gangarosa et al (1998) compared pertussis incidence in a set of countries where anti-vaccine movements successfully stopped pertussis immunization to another set where there were no such movements

- Results
 - Pertussis recrudesced in the countries where vaccination was stopped
- Example: United Kingdom 1974–1978
 - Vaccine coverage fell from 80% to 30%
 - An outbreak of over 100,000 cases followed
 - Popular outcry led to reinstatement of pertussis vaccination

- Another dimension of the problem
 - Internet sites offering incorrect, biased, or misinformation
- WHO's Global Advisory Committee on Vaccine Safety has developed criteria for judging the veracity of Web sites
 - Credibility
 - Content
 - Accessibility
 - Design
- http://www.who.int/immunization_safety/safety_quality/vaccine_safety_websites/en/

Resistance and Community Demand

- Nichter (1995) studied rapid immunization efforts in Asia and Africa
- He saw that communities exhibited either active demand or passive acceptance of immunization
 - **Active demand**
 - ▶ Public is informed, knows risks, benefits
 - **Passive acceptance**
 - ▶ Public merely complies, yields to external pressure to immunize

Resistance and Community Demand

- Nichter also observed frequent resistance to vaccination
- Resistance is usually based on rumors and fears
 - Or is an opportunity for political dissent
- Vaccination has been associated with Westernization, sterilization, and Christianization
- Rumors accompany rapid immunization efforts—such as polio eradication campaigns

Case Study: Polio Vaccination in Nigeria

- EPI performance had been deteriorating in Nigeria's predominantly Muslim northern states
- National polio immunization campaigns were held in 2002
- On the advent of the 2003 campaigns, local Muslim leaders advised the population to shun polio OPV vaccine because they believed it contained sterilizing agents

Case Study: Polio Vaccination in Nigeria

- The Nigerian government formed a special safety verification committee consisting of scientists and traditional leaders
- The committee, with WHO support, tested similar OPV lots in use in India and South Africa
- In March, 2004, the committee concurred that the OPV was safe
- Renewed special immunization activities followed, emphasizing education, informed consent
- Cost: 491 polio cases in Nigeria, spread of wild poliovirus to nine adjacent countries

Resistance and Community Demand

- Vaccination acceptance, (Nichter, 1995) depends on:
 - The quality of immunization services
 - ▶ Communication, education
 - ▶ Faith in local health workers
 - Social factors
 - ▶ Gender discrimination
 - ▶ Norms
 - Cultural perceptions of vaccination, illnesses
 - ▶ Knowledge of immunity, pathogenesis
 - ▶ Logic of prevention
 - ▶ Specificity of vaccines
 - ▶ Linkage to local illness names, categories

- Verweij and Dawson (2004) consider the ethics of collective immunization programs, asking:
 - How should the inclusion of new vaccines be decided?
 - Under what conditions is compulsory immunization acceptable?
- Inevitable conflict between an individual's rights and society's interests with immunization
- They formulated seven ethical principles for collective immunization programs

Seven Ethical Principles

1. Only serious diseases are targeted
2. Each vaccine, the EPI itself, must be safe and effective
3. Burdens on individuals are minimized
4. Program burden/benefit ratio is favorable relative to alternative programs
5. Benefits and burdens are justly distributed
6. Voluntary participation is the goal but compulsory immunization is sometimes warranted
7. Public trust must be honored, protected

- Adverse events following immunization are inevitable
 - Most are not serious
 - All require close monitoring and investigation
- Countries are increasingly emphasizing vaccine safety
- Adverse events and low quality of care can spawn rumors, rejection of immunization
- Sustainability is possible when communities exhibit active demand versus passive acceptance of immunization
- Sustainability of collective immunization programs depends on maintaining high ethical principles



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Section C

Immunizations and Health Transitions

- Health transition
 - “... the cultural, social and behavioral determinants of health: that is, those determinants other than medical interventions and income ...”

Immunization as a Social Institution

- A sustainable immunization program is a set of ongoing relationships among:
 - Clients and health workers
 - Members of a community
 - Health workers, supervisors, managers
 - Managers, policymakers, donors, political leaders
- All cooperate to provide the public good of an immunized society

- There is an element of risk
 - Not all actors know one another
 - Defection by any actor could lead to costly epidemics
- An immunization program is therefore an exercise in **trust**, argues Gilson (2002)

- Trust may have calculative or emotional roots, argues Gilson (2002)
 - We trust one another because it will secure some benefit
 - We trust one another because it is the “right” thing to do
 - In any case, trust is **learned** behavior
 - Over time, it generates common values and norms of obligation

- Concepts associated with trust include:
 - **Competence**: the health worker knows what she is doing
 - **Openness**: she will tell me all I need to know
 - **Concern**: she cares about me, my family, our community
 - **Reliability**: she is there when I need her

- An immunization program is a social institution in which actors invest **impersonal trust** in one another
- Trust-based institutions lower the risks of trusting strangers through:
 - Monitoring and disciplinary procedures
 - The “faceless commitments” embodied in their expert systems (Giddens 1990)

- **Institution-based trust** is a specific response to the complexity of modern societies, adds Gilson
 - Without it, immunization programs would not be feasible
 - With it, immunization programs measurably reduce mortality and add to economic productivity

- The social norms underlying interpersonal trust are built into the institution over time
- When a trust-based institution embodies social norms relevant to its actors, it can promote **generalized trust** in other citizens of that society
 - In this way, a trust-based immunization program contributes to development in a civic sense

- This **macro-level trust** is built on micro-level trust: the client-provider and provider-manager relationships
 - The trust built up between provider and client (“facework” commitments) reinforces trust in the system
 - Trust among health staff and across health institutions reduces transaction costs

Immunization as a Social Institution: Conclusion

- High quality of care and high-trust relationships among providers therefore contribute to:
 - Inducing individual behavioral change
 - Enabling collective action
- **Conclusion**
 - Given trust, people want to participate in EPI both for their own health and to contribute to the collective good

Case Study: Uganda



Continued 45

- Birungi (1998) described some negative outcomes that accompanied disruptions of Uganda's Expanded Programme on Immunization in the early 1990s
- Observing a deterioration in quality of care, Ugandans took to self-administering their injections
- This mistrust in health institutions has increased the risk of HIV transmission

- Health workers themselves defected and adopted unsafe injection practices
- Birungi identifies the symptoms of deteriorating trust
 - Health workers mistreated clients
 - Clients doubted health workers were following safe injection standards
 - Lay people have appropriated the skills
 - Rumors about risks of injection were rife

- People's faith in immunization as an expert system had been shaken
- They now seek “domesticated” therapies, provided by individuals they personally know
- If they have to visit a health center, clients seek a provider they know

- To re-instill trust in the expert knowledge system, Birungi proposes:
 - Health workers invite injection users into the health centers and let them participate in sterilization procedures
 - Health-worker retraining in proper injection and sterilization techniques
 - A public health campaign advising of the dangers of unsafe injections

Update on Uganda's EPI: Editorial Notes

- A peak 82% of Ugandan children 12–23 months were fully immunized in 1995
- Coverage then slipped to 62% in 2001
- Using mass campaigns, Uganda interrupted polio transmission in 1997
- In 2000, Uganda received a GAVI grant which included funds for disposable syringes and injection disposal equipment

Northern Manhattan Immunization Partnership

- Northern Manhattan Immunization Partnership, New York City
- Findley et al (2003) describe a five-year community-based effort to raise immunization rates in a low-income area of New York City
- The team worked with local immunization providers (n=8) to improve their clinic performance
 - Semi-annual AFIX reviews, report cards
 - Flowsheets, recalls, and reminders
 - Immunization registry

Northern Manhattan Immunization Partnership

- They also engaged community organizations (n=20) in systematic outreach activities to reach young children
- The outreach strategies included:
 - Paid outreach workers
 - Bilingual educational materials
 - Coordination with Women, Infants, and Children (WIC) and State Child Health Insurance (SCHIP) Programs
 - A detailed community action plan

Northern Manhattan Immunization Partnership

- Outreach strategies
 - Regular visits to churches, tenant associations, day care centers
 - Home visits to dropouts
 - Health education for parents
 - Ongoing process evaluation
 - ▶ Feedback to and from community organizations, providers

Northern Manhattan Immunization Partnership

- Evaluation
 - Studied four annual cohorts of children ages 6–24 months (1996, 1997, 1999, 2000)
 - Compared randomly sampled clinic charts to the annual National Immunization Survey results for New York City
- Result
 - Local coverage increased 3.4% per year—faster than national, citywide rates
- Initial coverage increase (1997) was attributed to improved provider performance
- By 1999, improvements were due to promotion and outreach by the community organizations

- An immunization program exemplifies a society's response to its health needs
- The response must include:
 - Sustainable, high-quality services
 - Health promotion and education
 - Community engagement
- To the extent these conditions are met, the program contributes to a nation's health transition