

Transport for health in developing countries

Overview of issues and measures to
improve access – MDG4&5 context

January 30, 2006

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Outline

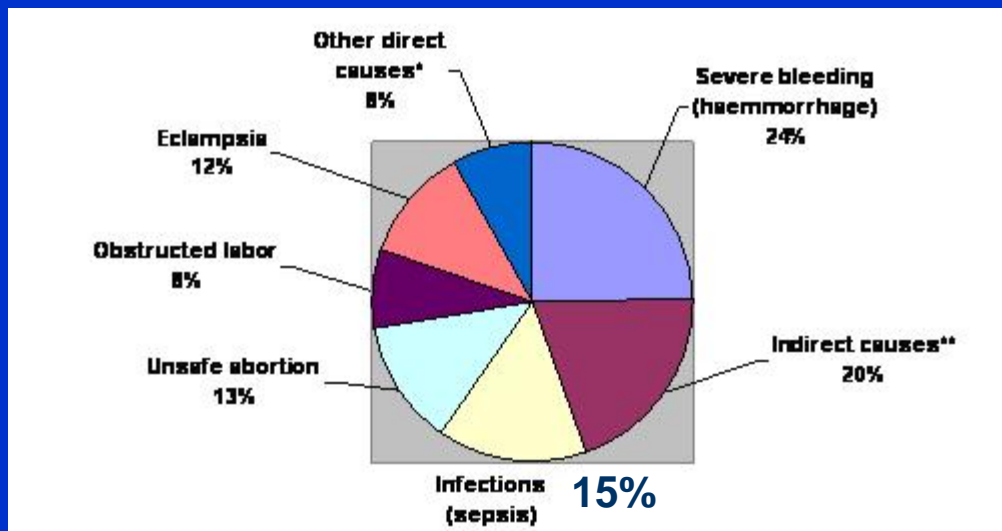
1. Causes and extent of maternal and child mortality
2. Health interventions to prevent maternal and child mortality
3. The role of transport in accessing health
4. Transport-related barriers to health
5. Transport interventions to improve access, reduce costs
6. Institutional implications for transport
7. Recommended policy options

1. Causes and Extent of burden

Maternal mortality

- 529,000 women worldwide die each year due to pregnancy and childbirth complications
- 99% of women who die live in developing countries
- Direct causes: 60-80% of maternal deaths due to five major complications (direct and unpredictable)

Causes of maternal deaths



(11-17% during delivery; 50-71% during postpartum period)

- *Indirect causes* (20% of global total):
Malaria, anaemia, HIV/AIDS and cardiovascular diseases

(Total is more than 100% due to rounding)

*Other direct causes include ectopic pregnancy, embolism, and anesthesia-related complications.

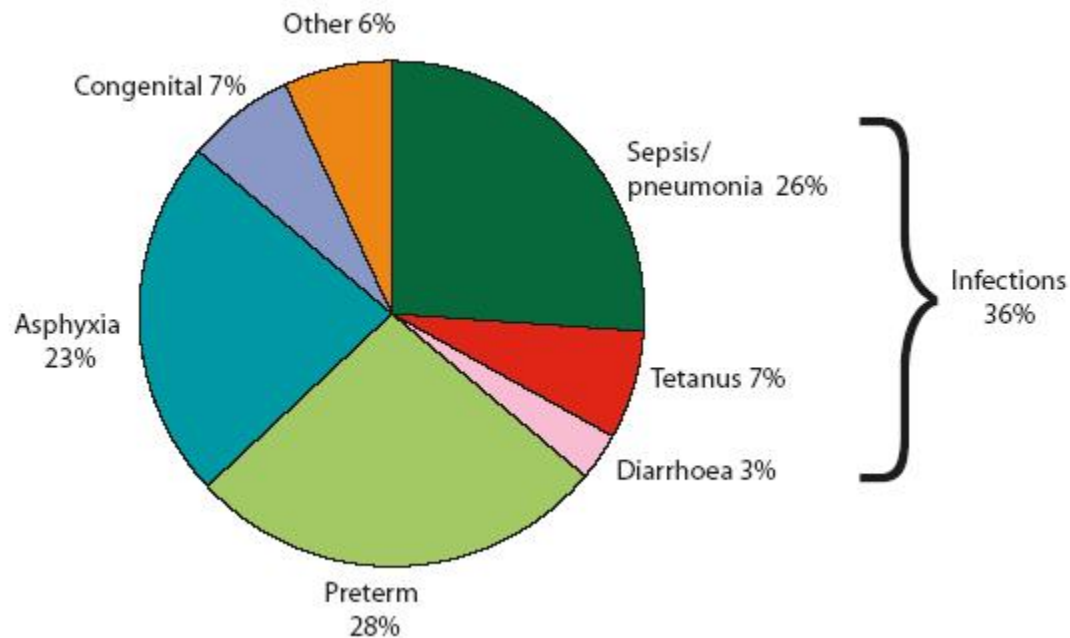
** Indirect causes include anemia, malaria, and heart disease. Source: WHO (1999)

1. Causes and Extent of burden *Cont.*

Child mortality

- The risk of death for children under 5 years is doubled if mother dies in childbirth
- 4 million children die under 1 month (40% of deaths under-5yrs) and nearly all (98%) occur in developing countries

and during first week of life



- Major causes:
Infectious diseases
Birth injury
Asphyxia
Prematurity

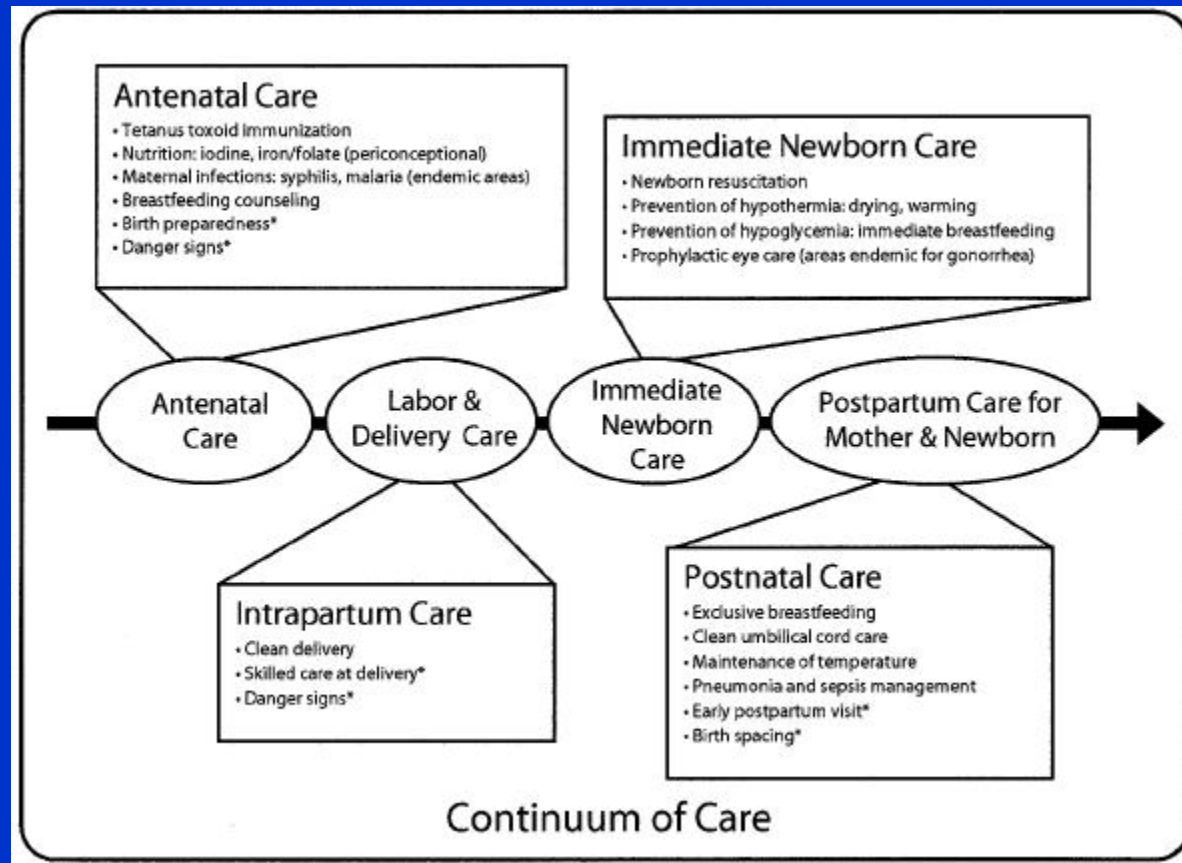
2. Health interventions

The importance of skilled professional care

- A large proportion of infant deaths and disabilities originate during the perinatal period and are determined by a woman's conditions and circumstances of birth rather than the condition of the child itself (WHO 1994).
- Antenatal care is important for maternal and newborn care but not as a screening mechanism
- Both maternal and neonatal mortality are lower in countries where mothers giving birth get skilled professional care, with equipment, drugs and other needed supplies for effective management of complications.

2. Health interventions *Cont.*

Care as a package



Maternal interventions

Prior to or During Pregnancy

- Preparedness and counselling on safe childbirth;
- Treatment of maternal complications;
- Infection control in endemic areas (malaria, syphilis and hookworm);
- Control of nutritional deficiencies
- Immunizing the mother with tetanus toxoid;
- Avoiding harmful substances

During Childbirth

- Safe and clean delivery;
- Effectively managed pregnancy complications, and
- referral for essential obstetric care

For the Newborn

- Routine care and vigilance for all newborns, during 6-12 hrs after birth;
- Special care for preterm and/or low birth weight infants, incl. Kangaroo Care;
- Identification and treatment of infections;
- Support for mothers on providing newborn care, and on recognizing danger signs and taking appropriate action;
- Immunization, and
- Prevention of vertical HIV/AIDS transmission

Neonatal Interventions

Interventions Prior to or During Pregnancy

- Nutritional Interventions
- Malaria Prophylaxis
- Maternal Immunization

Interventions During Delivery

- Prevention and Management of Delivery Complications
- Resuscitation of the newborn

Interventions After Delivery

- Kangaroo Care Method
- Breastfeeding and Nutritional Support
- Prevention and Management of Infections

Current status

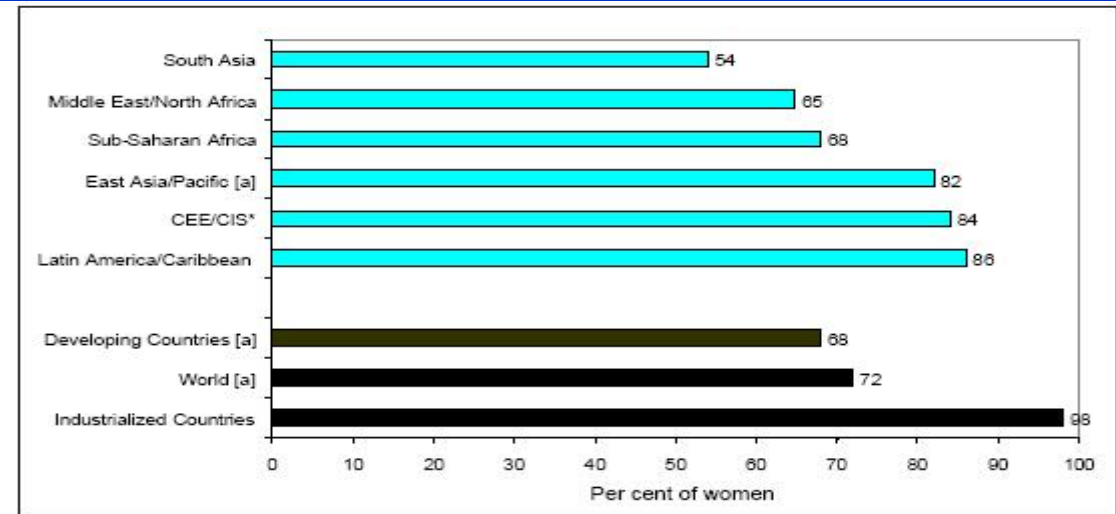
- Nearly 68% women in developing countries have at least one antenatal visit;

Developed countries: over 70% women (1990s&200-2001);

- Between 32-60% of births in developing countries are attended by a skilled attendant

Nearly 65% in developed (2005);

Antenatal Care by region

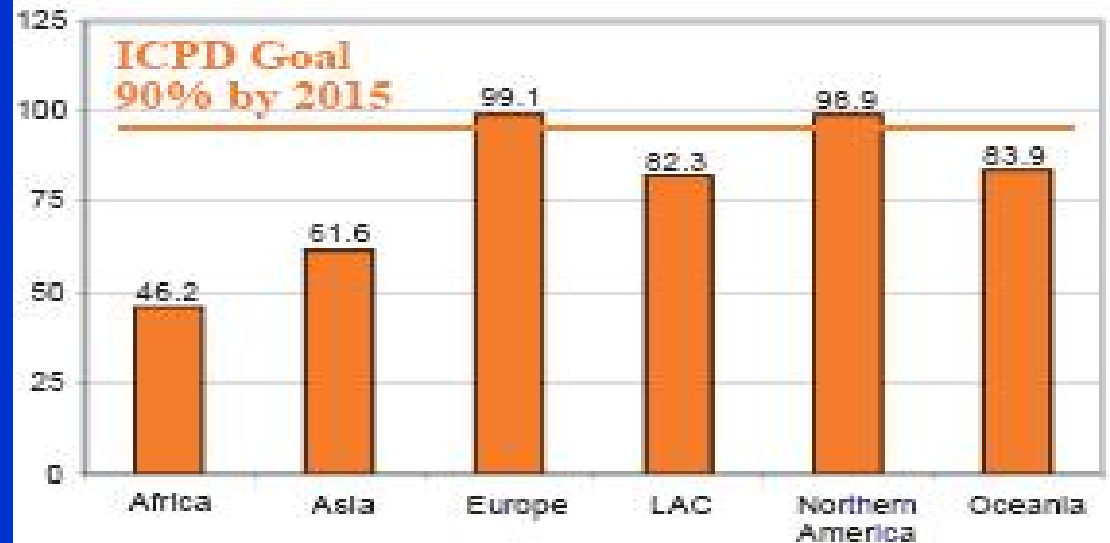


[a] Excluding China

* Central and Eastern Europe/Commonwealth of Independent States and Baltic States

Source: UNICEF/WHO 2002. Data from Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and other national surveys, late 1990s to 2001. 104 countries. Averages weighted by number of births.

Skilled attendants at delivery by region



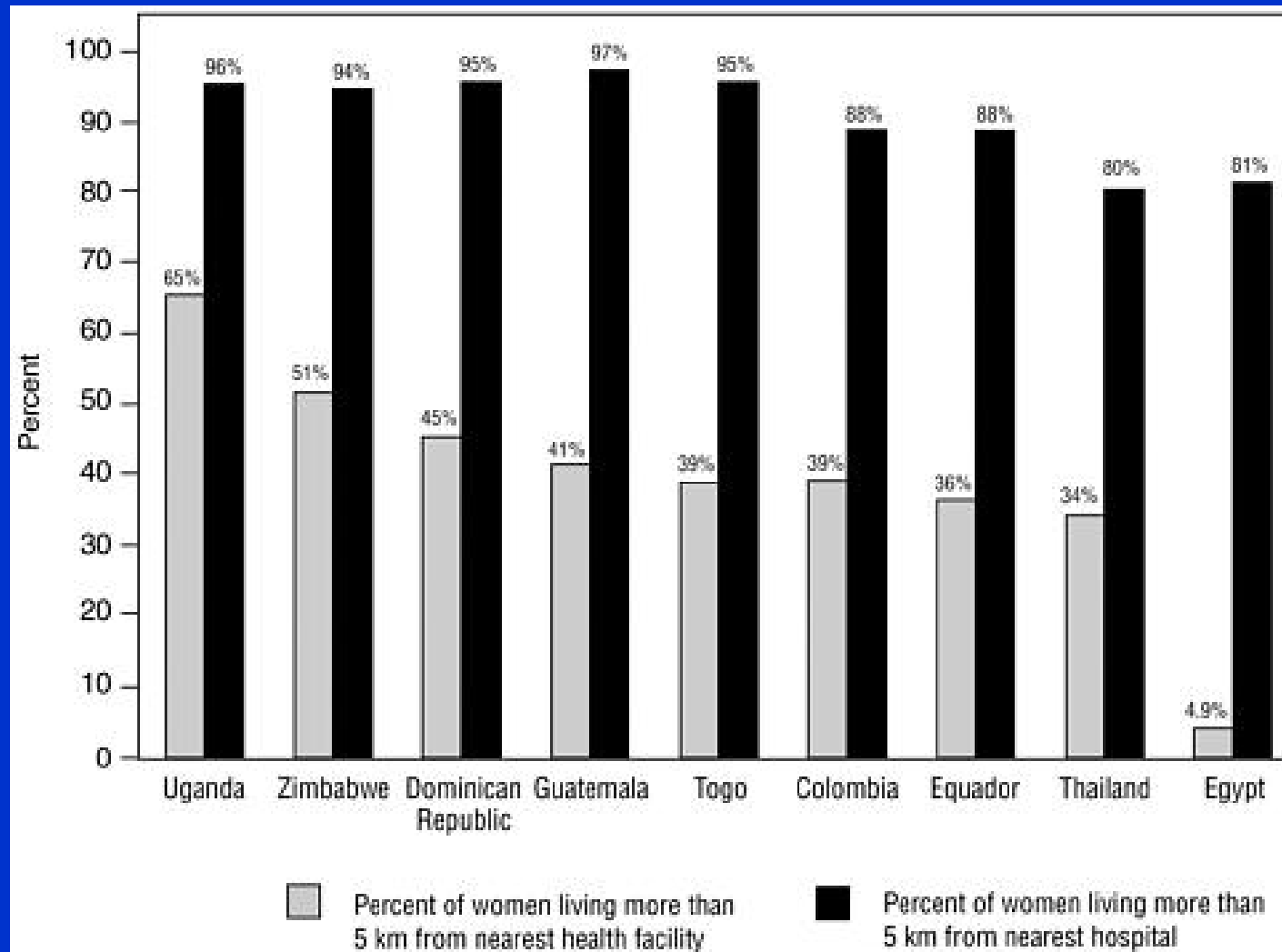
Source: 2005 Proportion of births attended by skilled health personnel (WHO Reproductive Health Indicators database)

3. The Role of Transport

Accessing maternal and child care

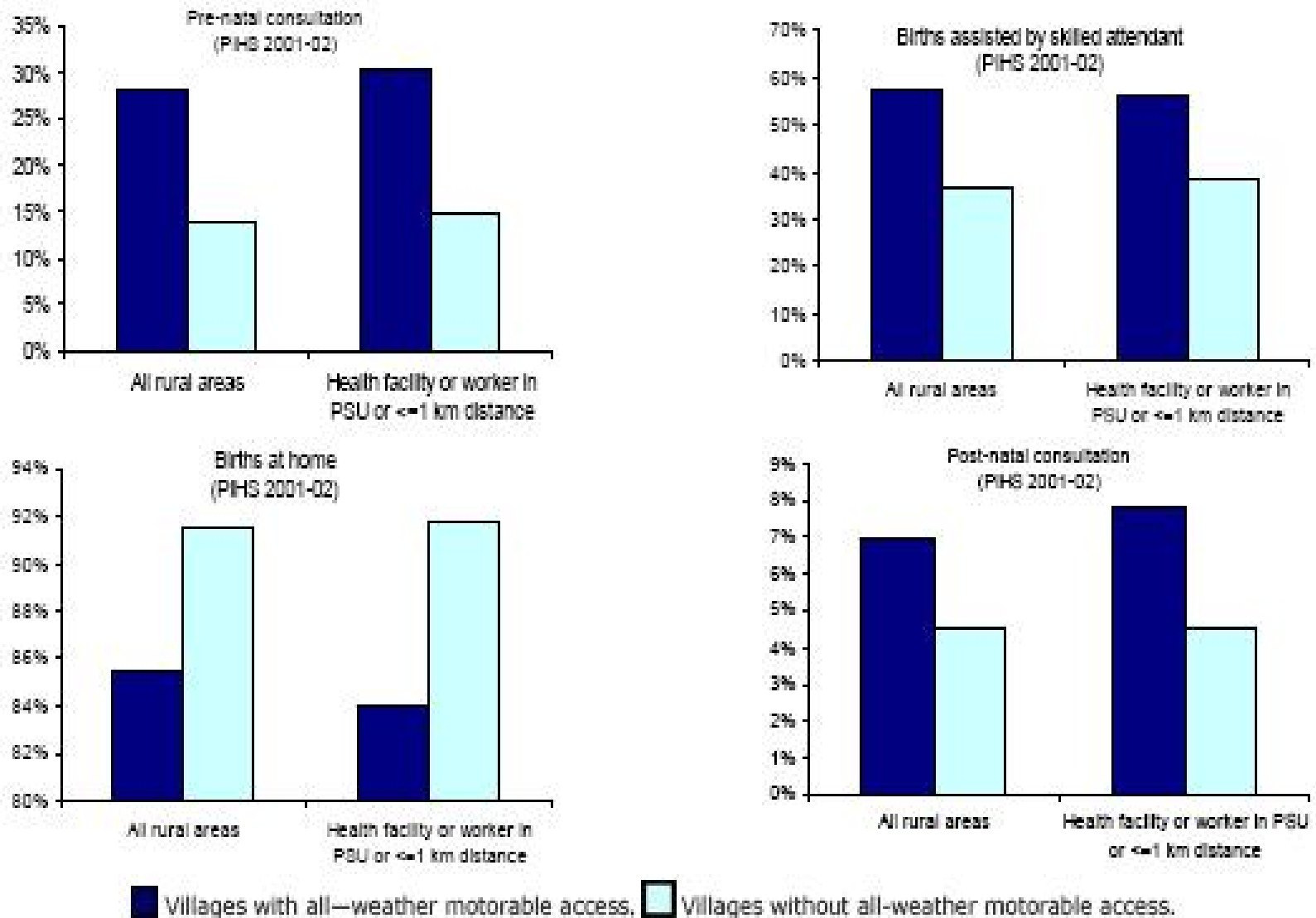
- Access to health services
- Link between potential accessibility and actual utilization
- Particularly in rural context: ratio of health facilities to population is low.
- Between 40 to 60 percent of the people living in developing countries live more than 8 km from a health care facilities

Percentage of women living more than 5km from health center/ hospital in selected developing countries



Source: WHO, 1998

Maternal and child health indicators in rural Pakistan, by type of roads

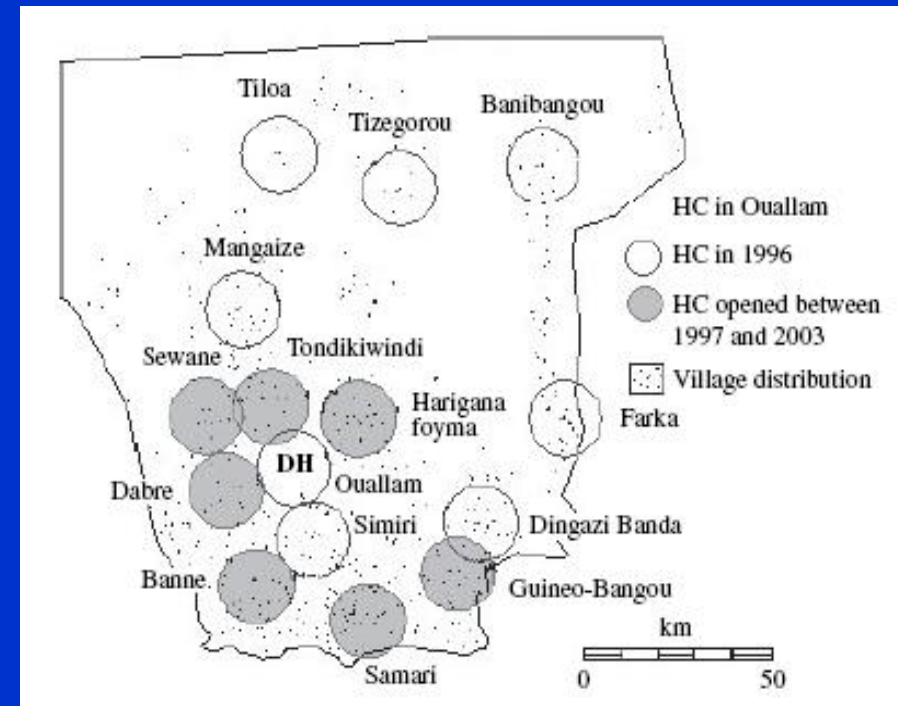
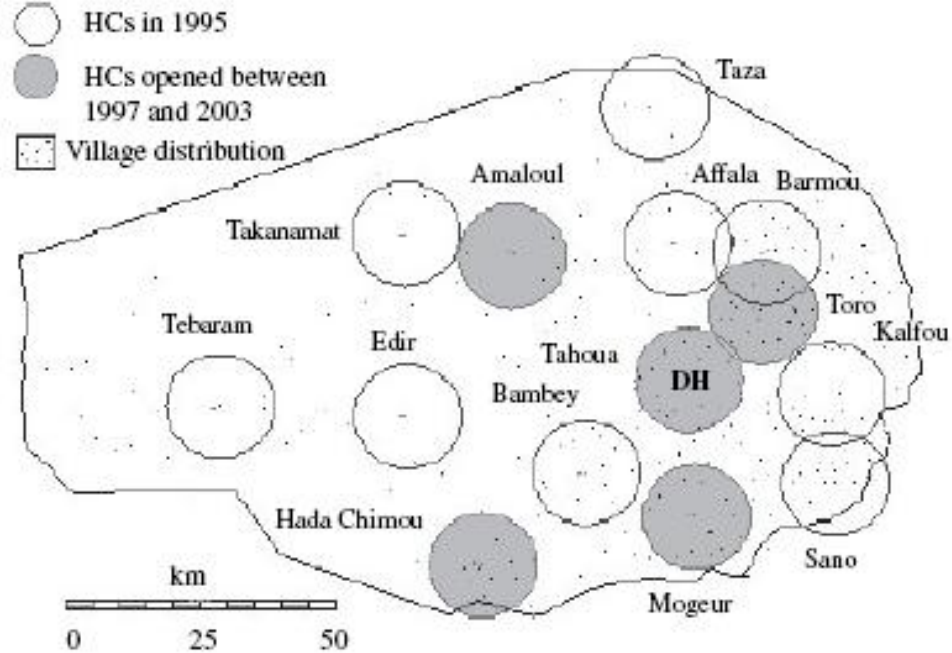


Source: Pakistan Integrated Household Survey (PIHS) 2001-02

Emergency referral system in rural Niger

HC with 10 km radius in 1995 and 2003
Tahoua District, Niger

HC with 10 km radius in 1996 and 2003
Ouallam District, Niger

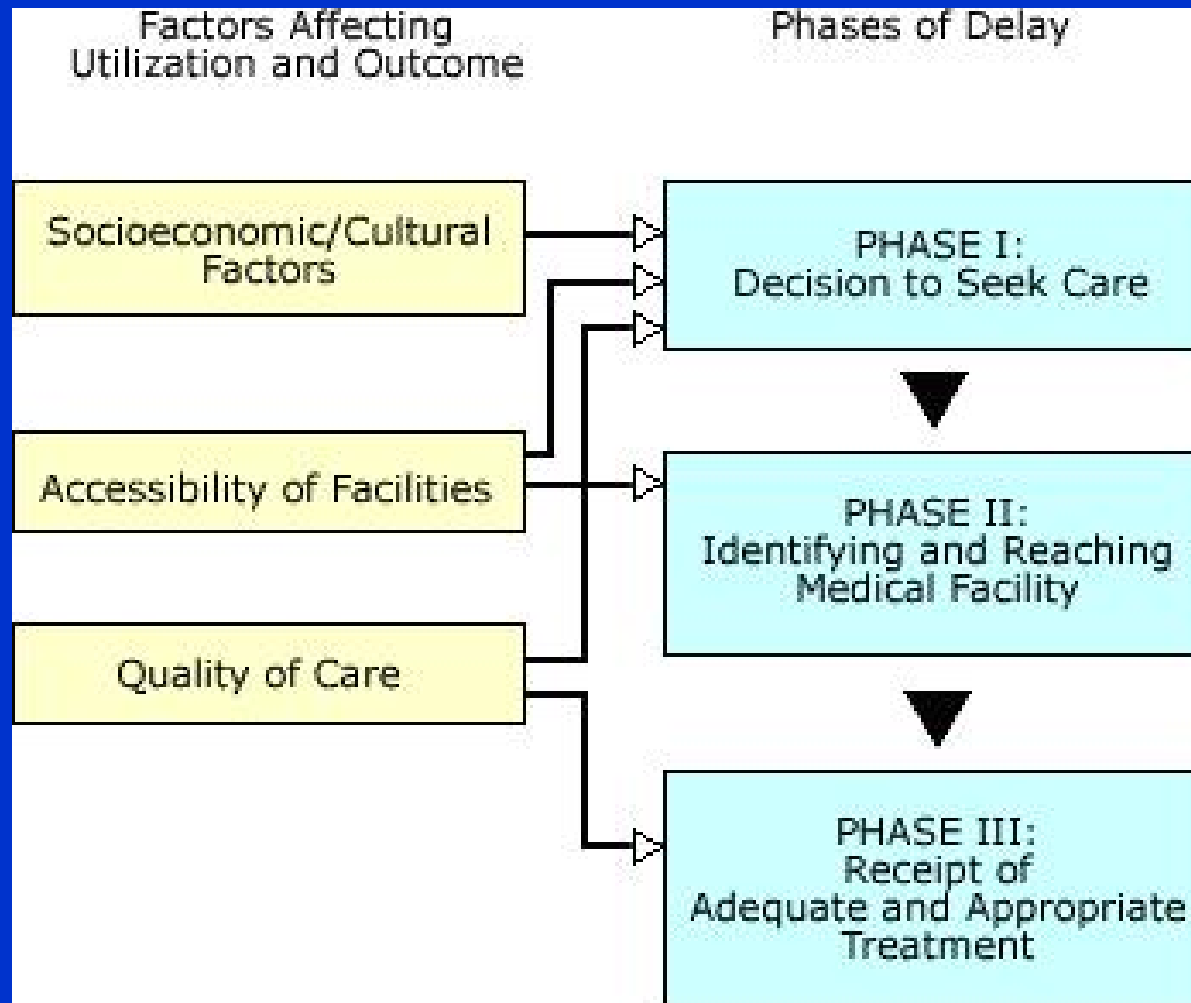


69% population lives within 10km from HC

54% population lives within 10km from HC

4. Transport related barriers

“Three-Delays Model”



Source: Thaddeus and Maine, 1994

4. Transport related barriers *Cont.*

Supply and Demand factors



SUPPLY

Transport cost

- long distance
- poor roads
- lack of vehicles
- high input prices

Input prices

- fuel cost
- capital cost

Shortage or lack of specialized transport for newborn/ premature infants and/or pregnant women

Inefficient signage and mapping system; travel congestion



DEMAND

Monetary factors

- low income
- opportunity cost

Non-monetary factors

- long distance
- few vehicles
- poor roads
- opportunity cost for relative of patient traveling to health facility

(Social/Cultural factors

- Seeking help = “weakness”
- expected transport delay
- expected low quality of care
- not aware danger signs
- fear of stigma
- man is decision-taker

5. Transport interventions

Supply and Demand factors

SUPPLY

Road rehabilitation/ upgrading of local road networks

Community-based emergency transport systems

+ communication technologies to ease up referral

Appropriate and cost efficient neonatal transport technologies

Transport means adapted to meet women needs

(Improved medical services)

Paramedical and medical staff on board transportation means



DEMAND

Cheaper transport alternatives

Non-Motorized transports (NMTs)

Financing mechanisms

-fuel funds; fee schedules; prepayment; pooled insurance scheme

(Incentives to reduce cost of lost-working time)

(“Culturally sensitive” education and community training

-Community leaders; families; labor unions; drivers)

(Information about appropriateness of health services)

5. Transport interventions *Cont.*

Examples of transport arrangements

- Community participation for rural transport with Prevention of Maternal Mortality Network (PMM)
- Certificates with special stickers on buses who participated
- Assistance of the Nigerian Union of Road Transport Workers (NURTW)

Modes of transport used by pregnant women, Kebbi state, 1990-1995

Year	On Foot	Animal	Own car /bus/taxi	Private comm.	Friends /bike	Ambulance /PMM bike	Comm. motor bike	Other	NURTW bus
	% (no.)	% (no.)	% (no.)	% (no.)	% (no.)	% (no.)	% (no.)	% (no.)	% (no.)
1990 (n=2718)	3.17 (86)	0.29 (10)	27.5 (744)	47.7 (1295)	14.4 (391)	2.4 (66)	4.2 (115)	0.3 (11)	0 (0)
1992 (n=2575)	2.4 (63)	0.11 (3)	26.8 (691)	50.5 (1301)	8.2 (214)	2.9 (77)	8.5 (218)	0.3 (8)	0 (0)
1995 (n=2644)	2.0 (53)	0 (0)	20.7 (548)	41.6 (1101)	6.9 (185)	3.3 (89)	11 (311)	0.4 (11)	13 (346)

Source: Field studies 1989-1995

Source: Shehu, 1997

6. Implications for Transport

What we know

- **Emergency transport plays key role in maternal and child health**
 - Motorized transport is likely most effective but not only option
 - Communications play substantial in system effectiveness
- **Community-based transport is effective to provide and maintain transport system**
 - Adapts to various community and cultural constraints
 - Can establish funding mechanisms
- **Transport cost and finance for health is an issue**
 - Concerns about sustainability of initiatives and fund depletion

Costs for implementing transport for health measures

- Scenarios for universal coverage of maternal and child care for 75 countries push current levels expenditure from \$US1 billion in 2006 to US\$6.1 billion in 2015 (WHO World Health Report 2005)
- Investments in health systems (training, transport and communications, health care network infrastructure) represent 22% and transport alone 5%.
- Various transport costs reflected in studies
 - Niger (2003):
 - Ambulance running cost (US\$) 6604
 - Ambulance replacement cost (US\$) 5775
 - Total yearly cost (replacement + running costs – cost-recovery): US\$ 14, 147)
 - Household average out-of-pocket for emergency evacuation: US\$18
 - Cost per inhabitant US\$0.06 per year

Source: Bossyns et al.

6. Implications for Transport *Cont*

What we do not know

- **Transport cost and finance for health is an issue**
 - Information remains general or inconsistent for comparative cost effectiveness study
 - e.g., difficulty distinguishing capital from recurring costs
 - No clear picture of overall cost to improve transport for health
- **At which level of referral system would improving transport systems be most beneficial?**
- **Public-private roles for maternal and child transport not clear**
 - Little is known about quality of care by private sector
 - Incentives to provide transport must be created
- **Urban vs. rural transport for health**
 - Differences in access levels require different interventions
 - Adapt transport to narrow gap

7. Policy recommendations

- **Improving transport and infrastructure includes non-road interventions**
 - Training of medical staff on board transport
- **Range of transport options is acceptable**
 - must be organized to fit community needs
- **Participation of local stakeholders is key for successful intervention**
 - e.g. “training of drivers on positioning patients”
- **Transport is not silver-bullet for maternal and child health**
 - Inter-sector collaboration and Health improvements needed