

# Rural poverty and health services: challenges and gaps

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*Expert Meeting on Eradicating Rural Poverty to Implement the 2030 Agenda for Sustainable Development*  
*Addis Ababa, 27 February to 1 March 2019*



Photo by WHO/Yosni Shimizu

# Critical concepts and definitions

- **Health inequities** are unfair and remediable differences in health. They manifest in differential exposure, vulnerability, access, health outcomes and consequences. Health inequalities are measurable differences.
- **Social and environmental determinants** are the conditions in which people are born, grow, live, work and age, and they are largely responsible for health inequities.
- **Universal health coverage (UHC)** means all people receiving the health services they need, of sufficient quality to be effective while at the same time ensuring that the use of these services does not expose the user to financial hardship. UHC is a goal, and the means to attain it is health systems strengthening.

# Key messages

1. Rural-urban health inequities persist, compounding and intersecting with health inequities between income quintiles.
2. These health inequities are the result of weaker health systems in rural areas and adverse social and environmental determinants experienced by the rural poor.
3. Strengthening rural health systems and intersectoral action on health can contribute to rural poverty reduction.

# Differences between urban and rural – the case of maternal mortality

**Tabla 1.** Evolución de la razón de mortalidad materna en el Perú según región, zona y quintil de pobreza 2002-2011

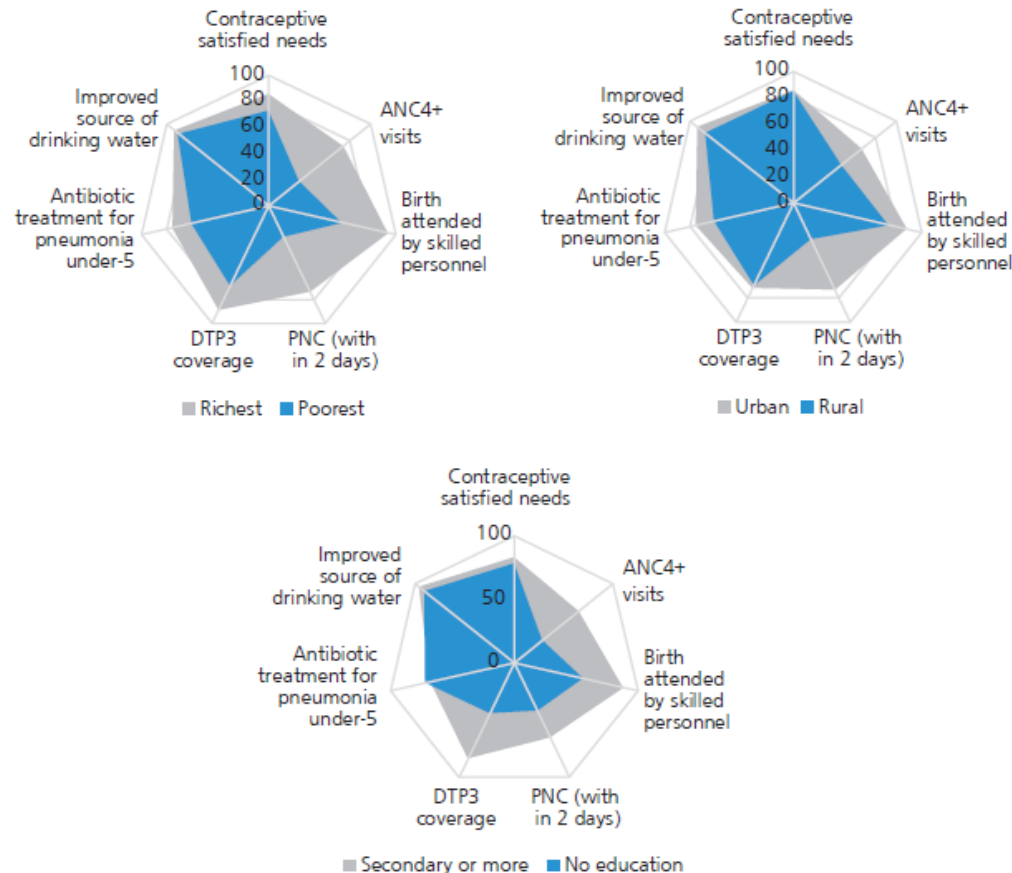
|               | 2002-2006 | 2007-2011 |
|---------------|-----------|-----------|
| <b>Región</b> |           |           |
| Costa         | 59,5      | 56,4      |
| Sierra        | 138,7     | 152,6     |
| Selva         | 183,0     | 137,5     |
| <b>Zona</b>   |           |           |
| Urbana        | 76,9      | 70,0      |
| Rural         | 192,1     | 161,5     |

**Table 2** Pregnancy-related mortality indicators by NUTS-1 region, type of settlement and age group

| Type of settlement | <i>Weighted</i>         |             | Pregnancy-related deaths (15-49) | Pregnancy-related deaths/<br>Female deaths | Pregnancy-related mortality ratio | 95% Confidence Interval Lower limit | 95% Confidence Interval Upper limit | Life time risk 1 in | Pregnancy-related mortality rate |
|--------------------|-------------------------|-------------|----------------------------------|--|-----------------------------------|-------------------------------------|-------------------------------------|---------------------|----------------------------------|
|                    | Population female 15-49 | Live births |                                  |  |                                   |                                     |                                     |                     |                                  |
| Urban              | 7,949,418               | 458,151     | 129                              | 3.3  | 28.2                              | 25.1                                | 31.3                                | 1,761               | 1.6                              |
| Rural              | 3,740,903               | 305,434     | 164                              | 5.5  | 53.7                              | 48.2                                | 59.2                                | 652                 | 4.4                              |

# Intersecting types of disadvantage - the rural poor

Inequalities in coverage of essential health services by income group, urban versus rural households, and level of education across the South-East Asia Region



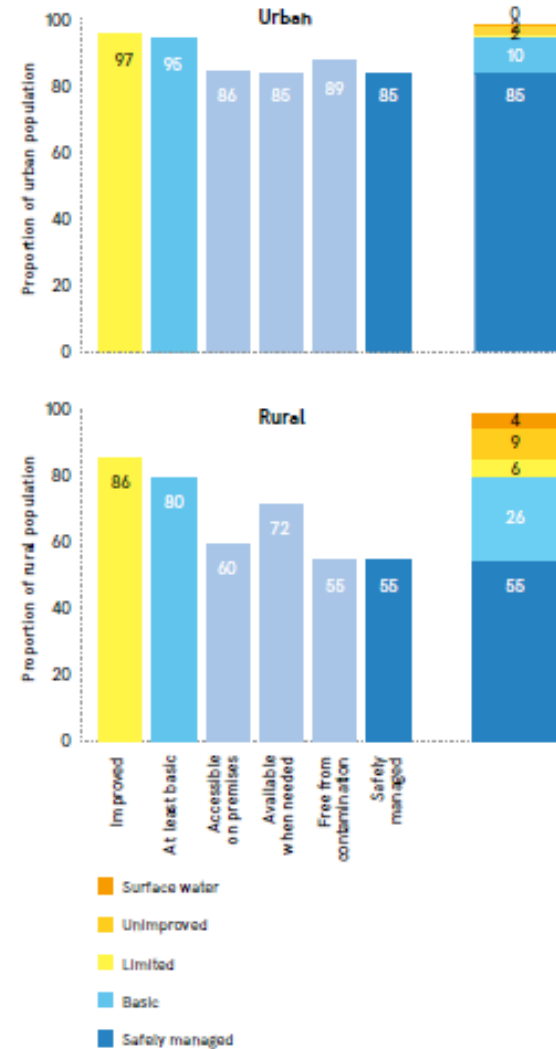
Need to also account for **gender, ethnicity, caste** and other influencing factors

Source: Monitoring progress on universal health coverage and the health-related Sustainable Development Goals in the South-East Asia Region: 2018 update

# Inequities and health determinants

## For example – drinking water:

- It is estimated that **55 per cent of the rural population** and 85 per cent of the urban population use safely managed services.
- For rural dwellers who have access to piped drinking water, the bacteriological **quality of this water** can be poor, in particular as system **maintenance** may be more neglected in rural areas.
- Contaminated water can transmit diseases such as diarrhoea, cholera, dysentery, typhoid and polio. It can also carry chemical contaminants from industry and agriculture.



Source: Progress on drinking water, sanitation and hygiene: 2017 update and SDG baselines. Geneva: World Health Organization (WHO) and the United Nations Children's Fund (UNICEF), 2017.

Fig. 33 Population using drinking water sources meeting SDG criteria for safely managed services, global, rural and urban, 2015

# Inequities and health determinants

## For example – drinking water continued:

- Contaminated drinking-water is estimated to cause more than 500 000 diarrhoeal deaths each year.
- Compounding the already present rural-urban inequities in exposure to risk factors, there are also inequities in access to treatment.
- Children in urban areas and more affluent households are more likely to receive the recommended treatment (ORS) for diarrhoeal diseases than children in rural areas and those living in poorer households.



Photo: UNICEF

**We need to scale up intersectoral action to address the determinants and improve the health system response in rural areas**

Sources:

<https://www.who.int/sustainable-development/cities/health-risks/water-sanitation/en/>

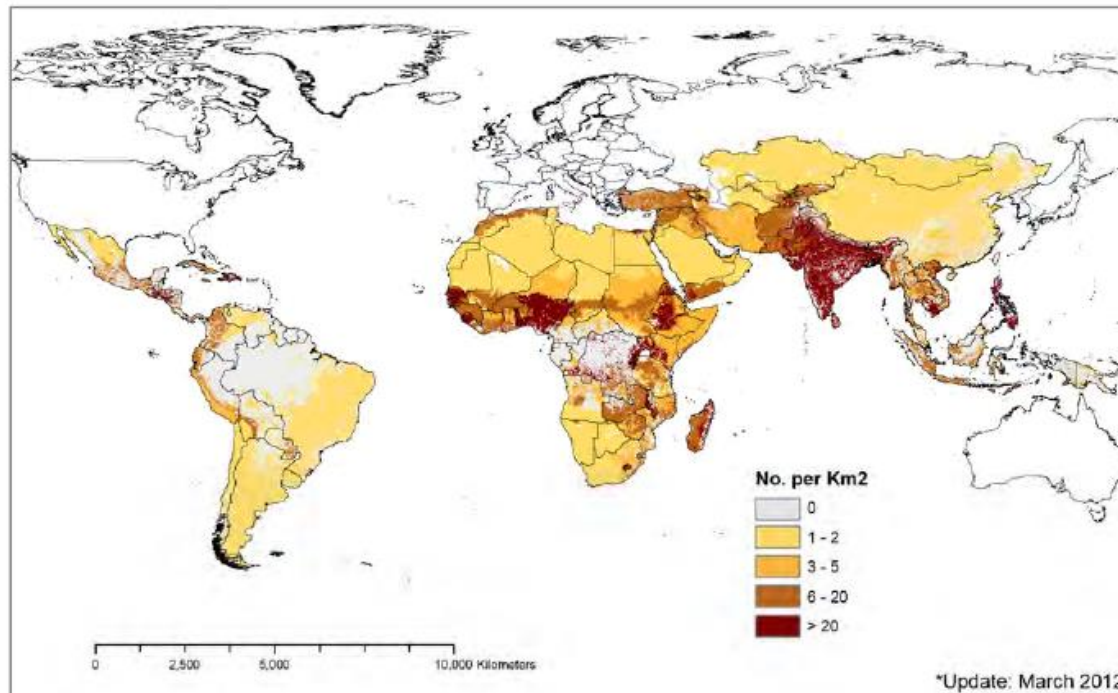
<https://data.unicef.org/topic/child-health/diarrhoeal-disease/>

# Inequities and health determinants

## For example – Endemic zoonoses

- 70% of the rural poor depend on livestock. Endemic zoonoses are a major risk factor for human disease and the profitability of livestock for the rural poor.

Density of poor livestock keepers (update of Thornton et al., 2002 by Kruska, this study)



Sources:  
FAO (2013).  
World Livestock  
2013. Changing  
disease  
landscapes.  
Rome.  
Grace D et al.  
(2012). Mapping  
of poverty and  
likely zoonoses  
hotspots.  
International  
Livestock  
Research  
Institute.



# Changing demographics and health inequities in rural areas

- Migration of children to areas of economic growth often results in **older family members being left behind** in rural areas without traditional social support structures.
- There is an **urban-rural difference in older people's health** in many countries, with rural older adults suffering poorer health than those living in urban areas, linked to adverse social determinants and weaker health systems in rural areas.
- Rural-urban inequities are also found in older adult's **access to social and health protection schemes**.
- Geographical distances and less developed transport services in rural areas pose additional challenges to accessing health and social care, who may **require these services more frequently and may face additional barriers accessing them** if they start to suffer from a loss in mobility or cognitive function.

Source:

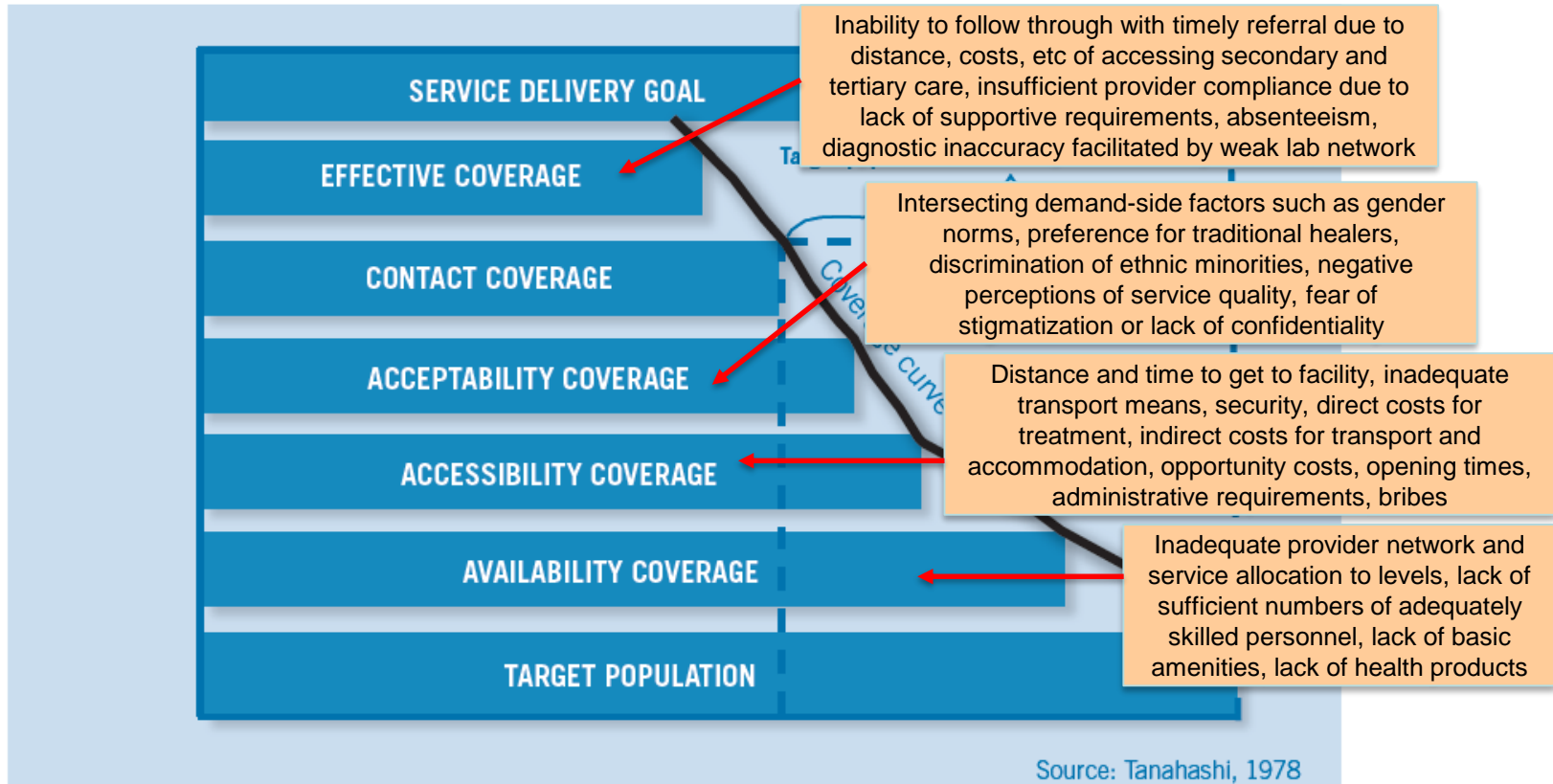
UNECE Policy Brief on Aging No. 18

WHO (2015). World report on ageing and health.

# Key messages

1. Rural-urban health inequities persist, compounding and intersecting with health inequities between income quintiles.
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3. Strengthening rural health systems and intersectoral action on health can contribute to rural poverty reduction.

# Understanding barriers faced by the rural poor using the Tanahashi Framework



Source: Tanahashi T. Health service coverage and its evaluation. Bull World Health Organ 1978; 56(2): 295-303

# Mapping barriers across the patient pathway – Mongolia example



© WHO/Koller, T

Aimag government representatives considering the barriers experienced by low-income rural and remote herder populations along the health pathway for treatment of cardiovascular disease.

# Health systems and the rural poor

- In reforms towards Universal Health Coverage, health systems need to account for the specific needs of the rural poor:
  - **Financing** – e.g., ensuring equity in financial protection (can the rural poor access financial protection and is the depth of coverage and services included appropriate for their needs?)
  - **Service delivery** – e.g., ensuring coverage by the rural poor with services of the type and intensity that are proportionate to need, using equity-oriented service delivery models that account for multidimensional poverty in rural areas
  - **Human resources** – e.g., enabling the availability of adequately skilled health personnel in rural areas, and providing gender-responsive and culturally appropriate care for the rural poor
  - **Health information systems/research** – e.g., monitoring health inequalities, strengthening rural health information systems including CRVS
  - **Medicines** – e.g., facilitating the accessibility and availability of essential medicines, technologies and health products for all (not only the urban affluent)
  - **Governance** – e.g., facilitating platforms for intersectoral action to address health determinants (e.g., IHR, water and sanitation, social protection, nutrition, agriculture, transport) and enhance social participation

# Financial protection in rural areas

- Financial protection is a key dimension of Universal Health Coverage; it means nobody suffers financial hardship as a result of getting needed health services.
- Data to monitor this is available for 132 countries; evidence for rural areas has not yet been produced. Financial protection is influenced by the way funding for health is pooled, how it is spent but also about access to services (hence, we need to account for unmet need).
- Study of 39 LMIC: On average, transportation costs were
  - 12% of per-visit treatment charges for outpatient services and
  - 17% of inpatient treatment charges for hospitalization.
- Dorjdagva J et al (2016) about Mongolia: lower income groups are less likely to access specialized services at the higher referral levels due to direct costs, including for co-payments, medicines, and consultations, as well as indirect costs, such as for transport and meals.

Source – first two bullets: Master slide set of Gabriela Flores, Health Economist, Economic Analysis and Evaluation (EAE), Health Systems and Innovation, World Health Organization, February 2019.

Source – 3<sup>rd</sup> bullet: Saksena, P., et al (2010). Health services utilization and out-of-pocket expenditure in public and private facilities in low-income countries.

World health report. <http://www.who.int/healthsystems/topics/financing/healthreport/20public-private.pdf>

Source – 4<sup>th</sup> bullet: Dorjdagva J et al (2016). Catastrophic health expenditure and impoverishment in Mongolia. Int J Equity Health. 2016,

<https://equityhealth.biomedcentral.com/articles/10.1186/s12939-016-0395-8>

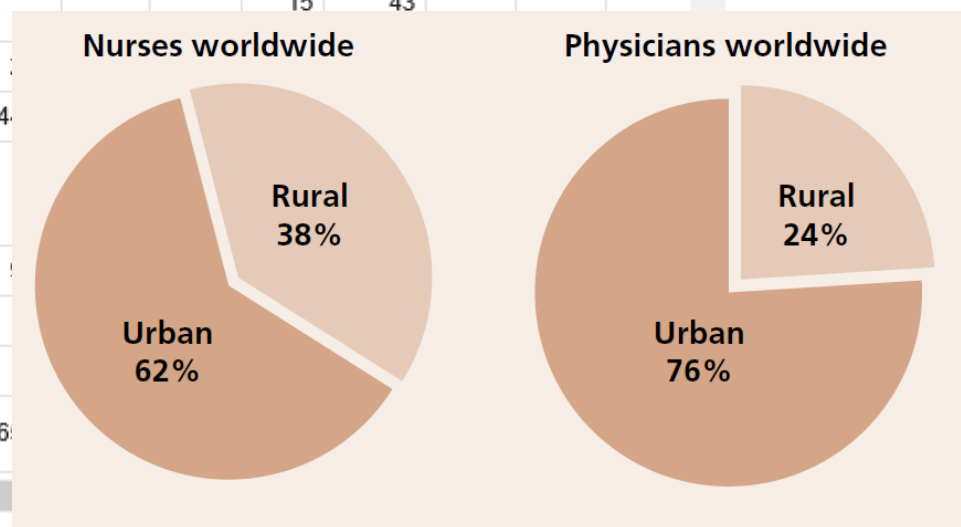


# Human resources for health in rural areas

[filter table](#) | [reset table](#)  
 Last updated: 2015-01-29

Download filtered data as: [CSV table](#) | [XML \(simple\)](#) | [JSON \(simple\)](#)  
 Download complete data set as: [CSV table](#) | [Excel](#) | [CSV list](#) | [more...](#)

| Country                  | Year | Number of physicians <sup>i</sup> |        | Number of nursing and midwifery personnel <sup>i</sup> |       | Number of nursing personnel <sup>i</sup> |        | Number of midwifery personnel <sup>i</sup> |       | Number of dentists <sup>i</sup> |        | Number of pharmacists <sup>i</sup> |       | Number of radiologists <sup>i</sup> |
|--------------------------|------|-----------------------------------|--------|--|-------|--|--------|--|-------|---------------------------------|--------|------------------------------------|-------|-------------------------------------|
|                          |      | Rural                             | Urban  | Rural  | Urban | Rural                                    | Urban  | Rural                                      | Urban | Rural                           | Urban  | Rural                              | Urban | Rural                               |
| Algeria                  | 2002 | 10526                             | 24842  |  |       | 32962                                    | 29215  | 4161                                       | 3411  | 2875                            | 5986   | 1042                               | 4371  | 1565                                |
| Benin                    | 2004 | 118                               | 193    |  |       | 3231                                     | 1734   | 383  | 441   | 1                               | 10     | 0                                  | 11    | 22                                  |
| Bhutan                   | 2004 | 2                                 | 116    |  |       | 69                                       | 261    |  |       | 0                               | 10     | 0                                  | 8     | 0                                   |
| Brazil                   | 2000 | 1532                              | 196621 |  |       | 25036                                    | 634075 |  |       | 1241                            | 152171 | 820                                | 44712 |                                     |
| Burkina Faso             | 2004 |                                   |        |  |       |  |        |  |       | 15                              | 43     |                                    |       |                                     |
| Burundi                  | 2004 | 76                                | 124    |  |       | 1065                                     |        |  |       |                                 |        |                                    |       |                                     |
| Cameroon                 | 2004 | 939                               | 2185   |  |       | 11559                                    | 14     |  |       |                                 |        |                                    |       |                                     |
| Central African Republic | 2004 |                                   |        |  |       |  |        |  |       |                                 |        |                                    |       |                                     |
| Chad                     | 2004 | 61                                | 284    |  |       | 1171                                     |        |  |       |                                 |        |                                    |       |                                     |
| Comoros                  | 2004 |                                   |        |  |       |  |        |  |       |                                 |        |                                    |       |                                     |
| Congo                    | 2004 |                                   |        |  |       |  |        |  |       |                                 |        |                                    |       |                                     |
| Côte d'Ivoire            | 2004 | 0                                 | 2081   |  |       | 1214                                     | 6      |  |       |                                 |        |                                    |       |                                     |



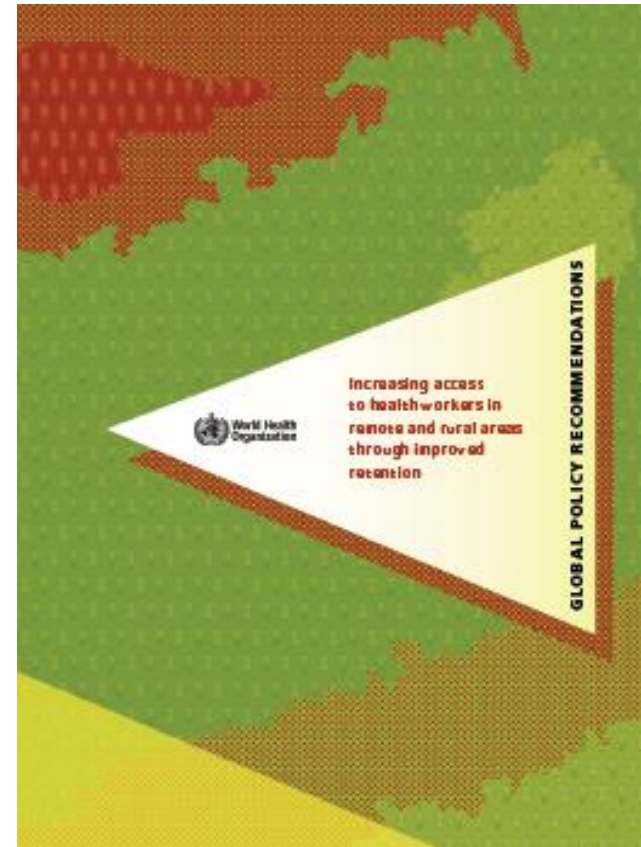
Source for excel: The 2017 update, Global Health Workforce Statistics, World Health Organization, Geneva

Source for figure: The world health report 2006 – Working together for health. Geneva, World Health Organization, 2006.

# Human resources for health in rural areas

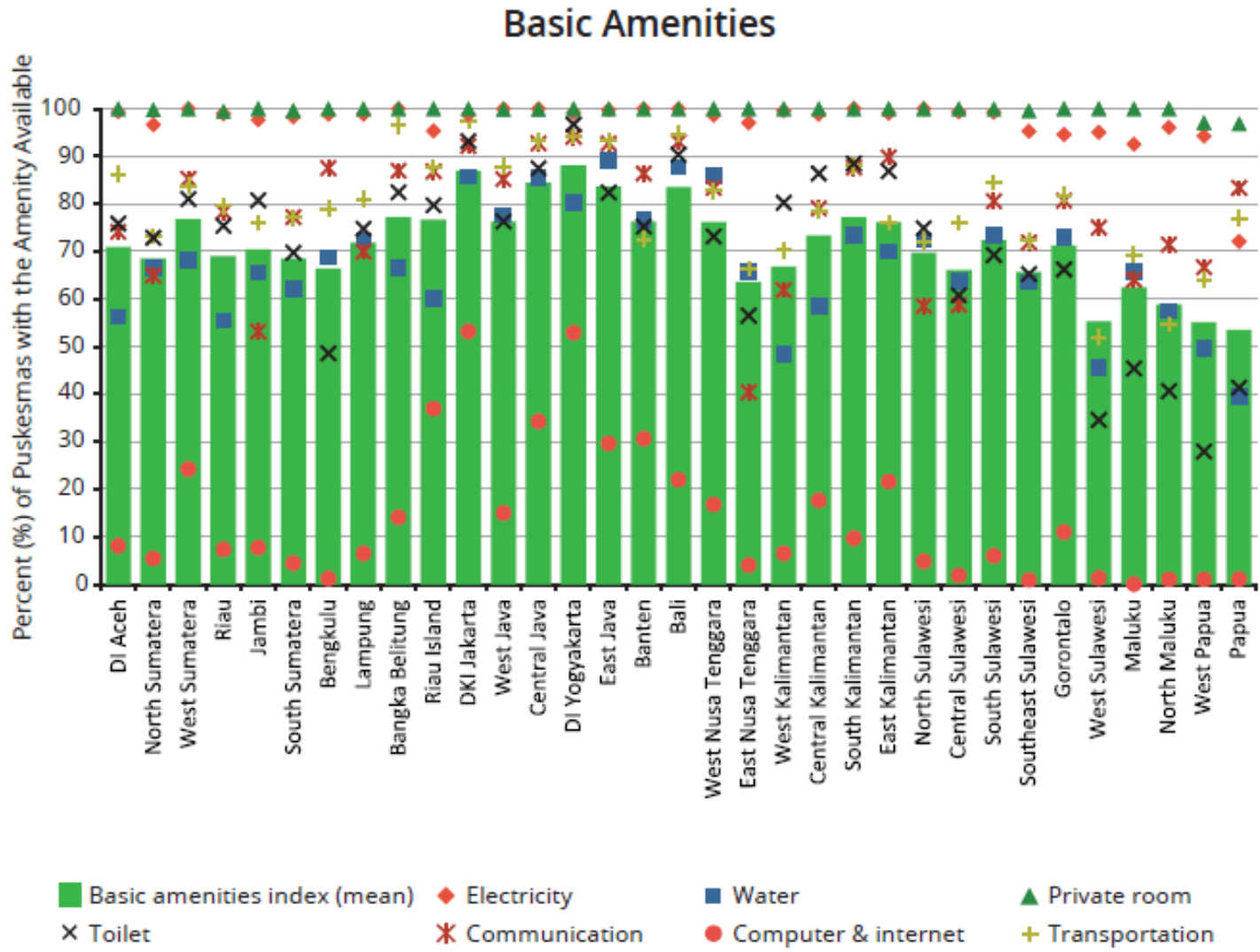
Increasing access to health workers in remote and rural areas through improved retention:

- Education recommendations
- Regulatory recommendations
- Financial incentives recommendation
- Personal and professional support recommendations





# Insufficient basic amenities in facilities – example from Indonesia



Source: Universal Health Coverage: Assessing the Readiness of Public Health Facilities to Provide Maternal Health Care in Indonesia. World Bank and Ministry of Health 2014.



# Strengthening service delivery through provider network design

## The tools

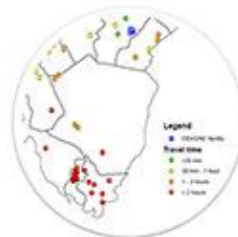
AccessMod 5 is composed of five main tools



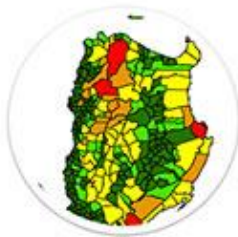
**Accessibility analysis**  
Compute the traveling time surface, informing the time needed to reach the nearest health facility.



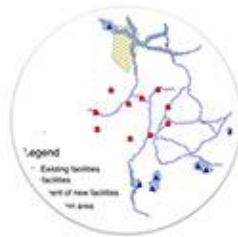
**Geographic analysis**  
Take into account the coverage capacity of each health facility to estimate the part of the target population that would not receive care despite being physically accessible.



**Referral analysis**  
Calculate travelling times and distances separating different types of health facilities.



**Zonal Statistics**  
Obtain the percentage of the population being covered in each sub-national division.



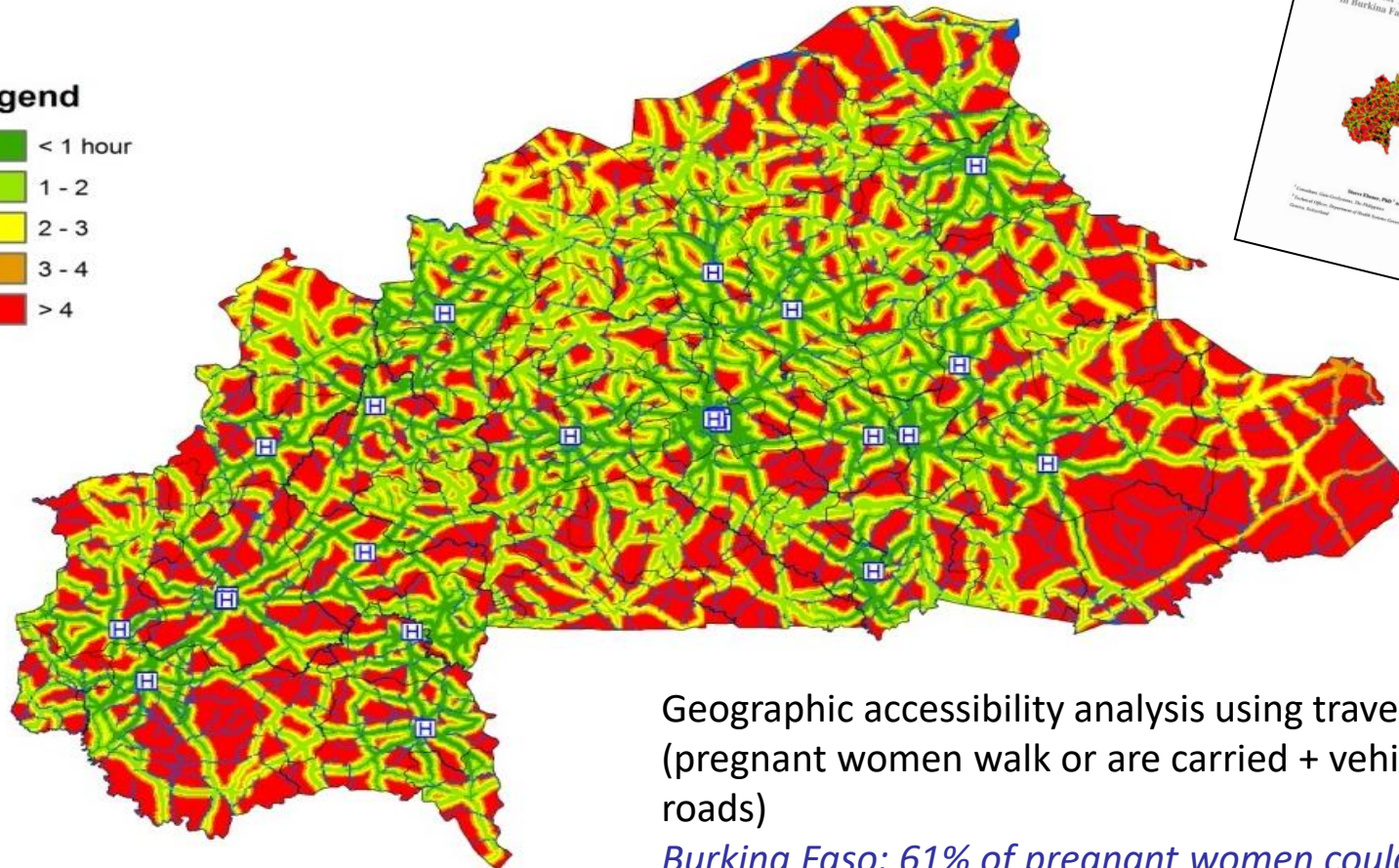
**Scaling up analysis**  
Identify the optimum location for building new health facilities.

AccessMod© is a Geographic Information Systems (GIS) toolbox that can be used to:

- Measure the **average time of travel** to different categories of health care facilities (accessibility coverage);
- Estimate **geographical coverage** (a combination of availability and accessibility coverage) to address resource use within an existing health facility network;
- Design **scenarios to model an increase in accessibility and geographical coverage** that would occur from specific investments aimed at adjusting the location of health facilities, or increasing the number and/or capacity of existing health facilities. This analysis can inform health infrastructure planning and investment strategies for UHC.

# Strengthening service delivery – Timely access to emergency obstetric care

## Legend



Geographic accessibility analysis using travel time  
(pregnant women walk or are carried + vehicle on the  
roads)

*Burkina Faso: 61% of pregnant women could reach a  
BEMOC within 2 hours*

# Strengthening service delivery – E-health

The MAPS (mHealth Assessment and Planning for Scale) Toolkit

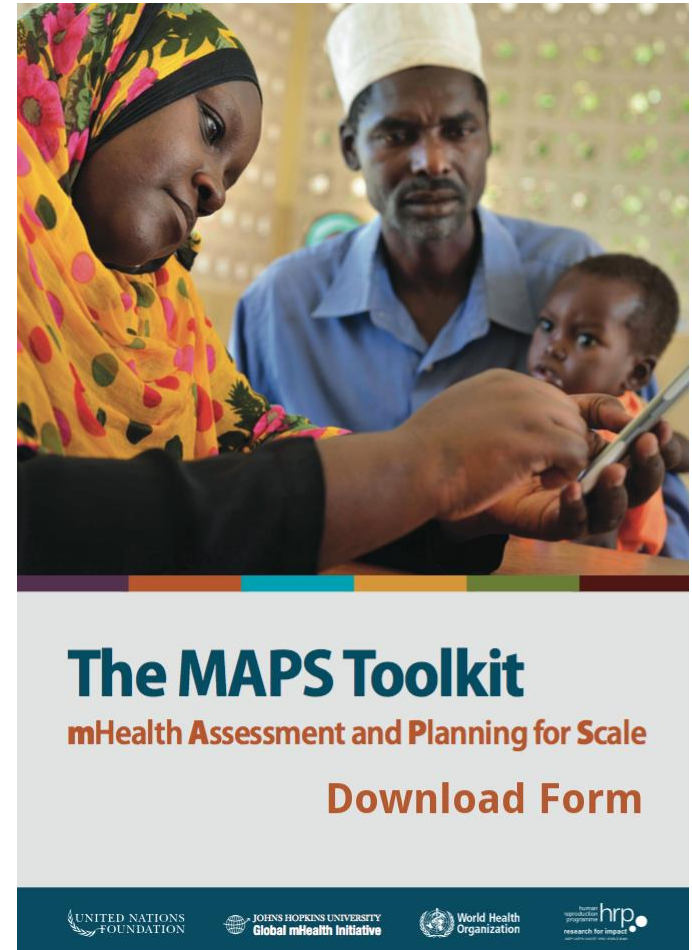


Figure 1. Conceptual model for the MAPS Toolkit

Source: The MAPS Toolkit: mHealth Assessment and Planning for Scale. Geneva: World Health Organization; 2015.

<http://www.who.int/reproductivehealth/topics/mhealth/maps-toolkit/en/>

# Strengthening rural health information systems

## INDICATORS

Mortality by age and sex  
 Life expectancy (mortality before age 70)  
 Child / neonatal mortality  
 Mortality by cause Maternal, HIV, TB, malaria, leading NCDs, suicide, road traffic accidents

Morbidity HIV, TB, malaria, hepatitis B, NTD; adolescent births

Coverage of interventions  
*Prevention:* FP, ANC4+, immunization, tobacco, alcohol, ITN, air quality etc.;  
*Treatment:* child treatment, SBA, ART, TB, severe mental illness, etc.;  
*Protection:* Catastrophic expenditure /impoverishment due to health OOP

Other  
 IHR surveillance capacity, knowledge & access SRH, etc.

## DATA SOURCES

### Integrated health information system

Civil registration and vital statistics system

Household survey and census

Health facility and community information systems

Administrative data sources

## Country system & capacity

Digital / data revolution

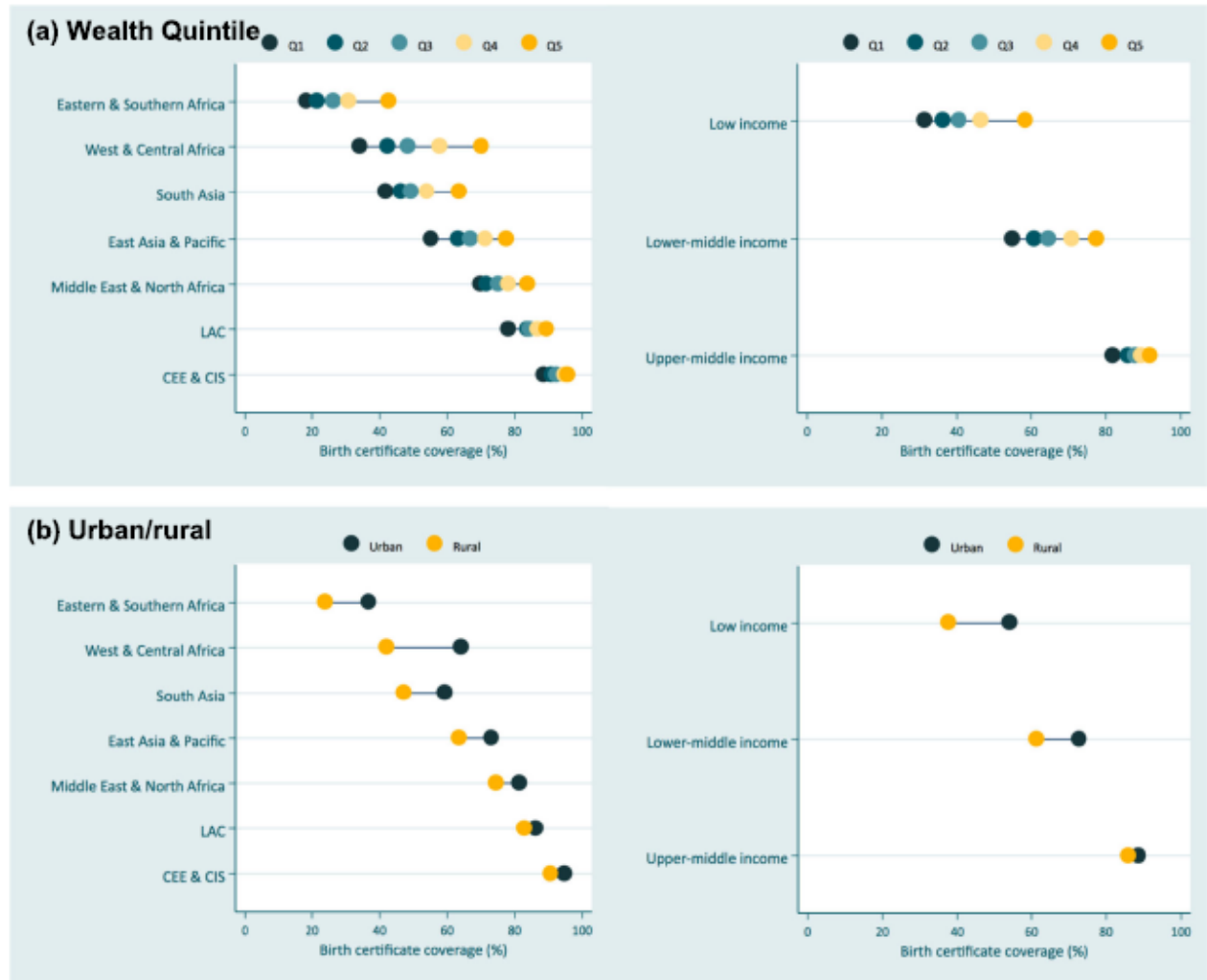
Collection  
 Compilation  
 Data quality  
 Analysis Dissemination & use

Country and global investment and alignment through SDG and related initiatives

# CRVS and the rural poor – why registration matters

Wealth and urban/rural inequalities in birth certificate coverage persist in most low and middle income countries.

Weak CRVS systems lead rural and poor children to be systematically excluded from the benefits tied to a birth certificate, and prevent these children from being counted in national health data.



# Social participation

Meta-analyses of all of these trials showed that exposure to women's groups was associated with a **37% reduction in maternal mortality and a 23% reduction in neonatal mortality**, with high heterogeneity for maternal and neonatal results.



## Women's groups practising participatory learning and action to improve maternal and newborn health in low-resource settings: a systematic review and meta-analysis

Audrey Prost, Tim Colbourn, Nadine Seward, Kishwar Azad, Arri Coomarasamy, Andrew Copas, Tanja A J Houweling, Edward Fottrell, Abdul Kuddus, Sonia Lewycka, Christine MacArthur, Dharma Manandhar, Joanna Morrison, Charles Mwansaambo, Nirmala Nair, Bejoy Nambiar, David Osrin, Christina Pagel, Tambosi Phiri, Anni-Maria Pulkki-Brännström, Mikey Rosato, Jolene Skordis-Worrall, Naomi Saville, Neena Shah More, Bhim Shrestha, Prasanta Tripathy, Amie Wilson, Anthony Costello

### Summary

**Background** Maternal and neonatal mortality rates remain high in many low-income and middle-income countries. Different approaches for the improvement of birth outcomes have been used in community-based interventions, with heterogeneous effects on survival. We assessed the effects of women's groups practising participatory learning and action, compared with usual care, on birth outcomes in low-resource settings.

**Methods** We did a systematic review and meta-analysis of randomised controlled trials undertaken in Bangladesh, India, Malawi, and Nepal in which the effects of women's groups practising participatory learning and action were assessed to identify population-level predictors of effect on maternal mortality, neonatal mortality, and stillbirths. We also reviewed the cost-effectiveness of the women's group intervention and estimated its potential effect at scale in Countdown countries.

**Findings** Seven trials (119 428 births) met the inclusion criteria. Meta-analyses of all trials showed that exposure to women's groups was associated with a 23% non-significant reduction in maternal mortality (odds ratio 0.77, 95% CI 0.48–1.23), a 20% reduction in neonatal mortality (0.80, 0.67–0.96), and a 7% non-significant reduction in stillbirths (0.93, 0.82–1.05), with high heterogeneity for maternal ( $I^2=64.0\%$ ,  $p=0.011$ ) and neonatal results ( $I^2=73.2\%$ ,  $p=0.001$ ). In the meta-regression analyses, the proportion of pregnant women in groups was linearly associated with reduction in both maternal and neonatal mortality ( $p=0.019$  and  $p=0.009$ , respectively). A subgroup analysis of the four studies in which at least 30% of pregnant women participated in groups showed a 49% reduction in maternal mortality (0.51, 0.29–0.89) and a 33% reduction in neonatal mortality (0.67, 0.60–0.75). The intervention was cost effective by WHO standards and could save an estimated 283 000 newborn infants and 36 600 mothers per year if implemented in rural areas of 74 Countdown countries.

**Interpretation** With the participation of at least a third of pregnant women and adequate population coverage, women's groups practising participatory learning and action are a cost-effective strategy to improve maternal and neonatal survival in low-resource settings.

Lancet 2013; 381: 1736–46  
This online publication has been corrected. The corrected version first appeared at [thelancet.com](http://thelancet.com) on May 19, 2014

See Comment pages 1693 and e12

Institute for Global Health, University College London, London, UK (A Prost PhD, T Colbourn PhD, N Seward MSc, T A J Houweling PhD, E Fottrell PhD, S Lewycka PhD, J Morrison PhD, B Nambiar MPH, D Osrin PhD, A-M Pulkki-Brännström PhD, M Rosato PhD, J Skordis-Worrall PhD, N Saville PhD, Prof A Costello FMedSci); Perinatal Care Project, Diabetic Association of Bangladesh, Dhaka, Bangladesh (Prof K Azad FRCPCH, A Kuddus MBBS); College of Medical and Dental Sciences, University of Birmingham, Birmingham, UK (Prof A Coomarasamy MRCCOG, Prof C MacArthur PhD, A Wilson MSc); Centre for

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# Improving the health of the rural poor contributes to poverty reduction

- Health costs associated with waterborne diseases such as malaria, diarrhoea, and worm infections represent more than one third of the income of poor households in sub-Saharan Africa.
- Longitudinal studies among agricultural workers in Kenya and miners in Botswana and Uganda demonstrate a consistent V-shaped pattern for labor force participation and productivity over the course of HIV infection, declining sharply as symptoms worsen in the months before ART initiation and rebounding to near-normal within a few months.

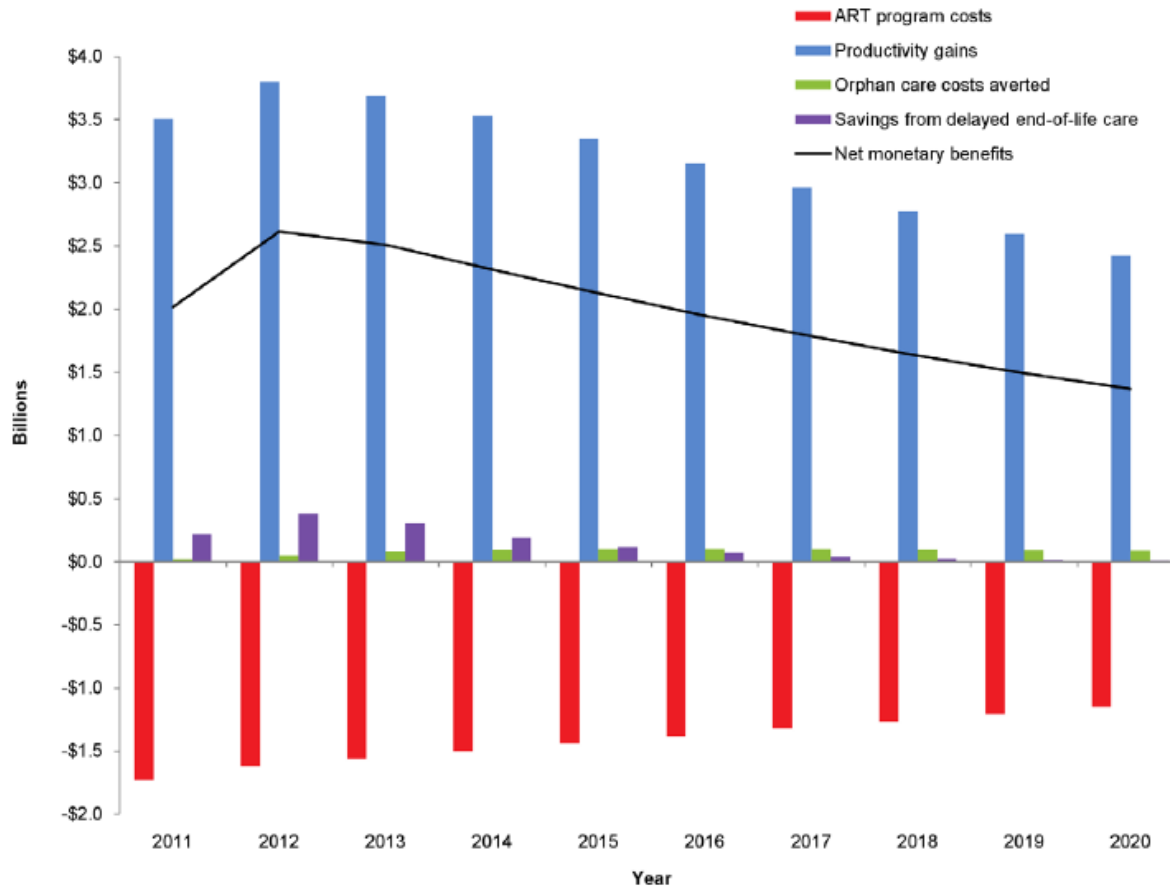
Source:

Bullet 1 - <https://www.who.int/sustainable-development/cities/health-risks/water-sanitation/en/>

Bullet 2 - <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3187775/pdf/pone.0025310.pdf>

# Improving the health of the rural poor contributes to poverty reduction

Figure. Comparing ART program costs and benefits. Annual discounted ART program costs, productivity gains, orphan care costs averted, and net monetary benefits for the cohort of Global Fund-supported patients on treatment as of 2011.

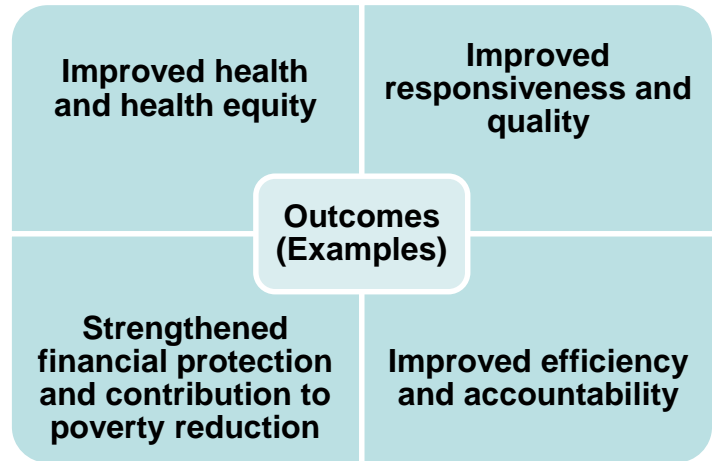
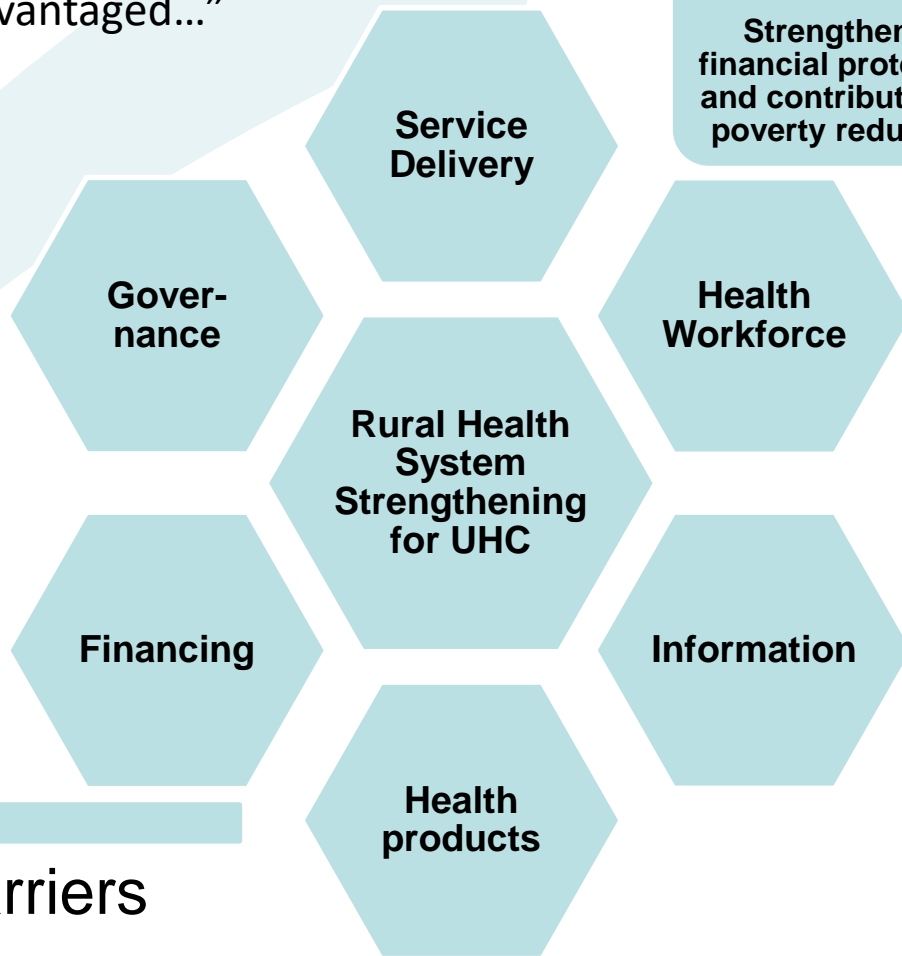


Source: Resch S, Korenromp E, Stover J, Blakley M, Krubiner C, et al. (2011) Economic Returns to Investment in AIDS Treatment in Low and Middle Income Countries. PLoS ONE 6(10): e25310. doi:10.1371/journal.pone.0025310  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3187775/pdf/pone.0025310.pdf>

**Progressive universalism for the rural poor...** “in reforms towards UHC, we must ensure that the most disadvantaged are benefitting at least as much as the more advantaged...”

The Rural Poor

Barriers



Intersectoral action and social participation as part of integrated rural development plans



Photo: WHO Oct 2018, Nigeria adolescent health services barriers assessment stakeholder meeting, which included a focus on adolescents in rural and remote areas

Thank you.

We are actively aiming to strengthen our work and partnerships for the health of the rural poor.

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