Review of the situation of equity in access to maternal and child health care in the Asia-Pacific region

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Abbreviations

ADB – Asian Development Bank
EOC – Essential Obstetric Care
GDP – Gross Domestic Product
MCH – Maternal and Child Health
MDG – Millennium Development Goal
UN – United Nations
WB – World Bank
WHO – World Health Organization
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Introduction

The importance of access

Improving maternal and child health outcomes is central to achieving the Millennium Development Goals (MDGs). Three MDGs (Goals 4, 5 and 6) deal explicitly with improving health conditions of mothers and children (Table 1). There is strong global consensus and evidence that the technical interventions and knowledge already exist to reduce maternal and child mortality and morbidity to low levels in all countries, and that it is possible to do so at modest cost without requiring expensive technologies. It does however require that health systems ensure access to a continuity of care from before pregnancy, through professional skilled birth attendance and childhood. For most of the major causes of mortality in mothers and children, effective and cheap interventions do exist, but the problem remains that many do not benefit from these (WHO 2005).

Whether mothers and children benefit from available effective interventions depends not only on whether those interventions are available in their communities, but also on whether they in practice make use of them. Access thus has both supply and demand aspects, both of which must be considered. In addition, it is increasingly evident and appreciated that concerns about access must also address financial protection when using services. Households must be able to use necessary services without experiencing catastrophic and impoverishing financial consequences; otherwise their very use will become a source of hardship.

<table>
<thead>
<tr>
<th>Table 1: Maternal and Child Health-related MDGs and health indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal 4: Reduce child mortality</strong></td>
</tr>
<tr>
<td>• Under-5 mortality rate</td>
</tr>
<tr>
<td>• Infant mortality rate</td>
</tr>
<tr>
<td>• Proportion of 1-year old children immunized against measles</td>
</tr>
<tr>
<td><strong>Goal 5: Improve maternal health</strong></td>
</tr>
<tr>
<td>• Maternal mortality rate</td>
</tr>
<tr>
<td>• Proportion of births attended by skilled health personnel</td>
</tr>
<tr>
<td><strong>Goal 6: Combat HIV/AIDS, malaria and other diseases</strong></td>
</tr>
<tr>
<td>• HIV prevalence among young people aged 15-24</td>
</tr>
<tr>
<td>• Condom use rate of the contraceptive prevalence rate</td>
</tr>
<tr>
<td>• Number of children orphaned by HIV/AIDS</td>
</tr>
<tr>
<td>• Prevalence and death rates associated with malaria</td>
</tr>
<tr>
<td>• Proportion of population in malaria risk areas using effective malaria prevention and treatment measures</td>
</tr>
<tr>
<td>• Proportion of tuberculosis (TB) cases detected and cured under directly observed treatment, short course (DOTS)</td>
</tr>
<tr>
<td>• Prevalence and death rates associated with TB</td>
</tr>
</tbody>
</table>

General patterns of access to health care for women and children

Overall or average access to maternal and child health (MCH) services varies greatly between countries and within countries, with access being close to adequate and universal in advanced economies, and often, but not always, inadequate and unequal in poor countries. However, quantifying these differences is not straightforward or easy. If we consider access as implying the notion that all mothers and children are enabled to make sufficient use of and benefit from appropriate and acceptable healthcare services when they are ill and in need of such services, then measuring such access is not easy. For example, statistics of the physical provision of services can be misleading, since they do not tell us how economic barriers may prevent people
from using such services. The same per capita indicators of the availability of hospitals providing essential obstetric care can imply quite different levels of access in a geographically dispersed population such as Mongolia's than in a densely populated region such as Java. Similarly, indicators showing equal use of services by mothers in different economic circumstances are not sufficient, because they don't tell us whether the equal use of services is adequate in relation to the differences in actual need for services. Moreover, simply asking mothers about whether they need services can be misleading, because awareness of the need for services is partially dependent on knowledge and norms, which can vary between individuals and populations (Rannan-Eliya 2004).

Whilst recognising the limitations in generally available indicators, most indicators point to consistent differences in the supply of or use of MCH services between regions across the world, as illustrated in Figure 1, which uses data for WHO regions. For the most part, these differences are also related to underlying differences in access to all health services. Levels of physical provision of general healthcare inputs, such as hospital beds and health workers are highest in the advanced economies of Europe and Americas, and lowest in Africa and South-East Asia. These translate into significant differences in the frequency of use of general health services, which are ultimately reflected in differences in the use of MCH services. For an indicator such as skilled attendance at birth, which is closely linked to the capacity of the overall health system, access is close to universal in developed economies in Europe, Americas and the Pacific region, relatively high in much of East Asia, and less than 50% in most of Africa and South Asia. Similar patterns are also seen in the case of use of modern contraceptives and provision of child immunizations, such as measles.

Figure 1: Indicators of general access to health services in different regions

![Figure 1: Indicators of general access to health services in different regions](image)

Source: WHO (2007)

Such regional and also country averages mask significant variations in access between rich and poor within countries. In the developed countries of Europe, Americas and East Asia, where overall service provision is high, levels of use of MCH services vary only modestly, if at all, between those at different ends of the income
range. For the most part, physical access to health services is good for all income groups. However, in the poorest developing countries in all regions, significant disparities exist between rich and poor. For many indicators, such as use of skilled birth attendance or use of modern medical treatment for sick children, the disparities between the richest and poorest quintiles can be as much as four-fold or more (Figure 2).

**Figure 2: Inequalities in use of MCH services – average rich/poor ratio, Demographic Health Surveys 1991-2002**

<table>
<thead>
<tr>
<th>Service</th>
<th>Rich/Poor Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled Assistance at Delivery</td>
<td>4.8</td>
</tr>
<tr>
<td>Use of Modern Contraception</td>
<td>4.4</td>
</tr>
<tr>
<td>Use of Antenatal Care (&gt;3 visits)</td>
<td>3.1</td>
</tr>
<tr>
<td>Child Vaccinations</td>
<td>2.3</td>
</tr>
<tr>
<td>Use of Oral Rehydration Therapy</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Chapter 1: Inequalities in maternal and child health outcomes in Asia

Disparities by household economic status

Inequalities in maternal and child health outcomes are widespread throughout developing Asia. In developed economies in the region (Japan, Korea, Hong Kong SAR, Singapore), the disparities are minimal or non-existent, but this is in the context of very good population averages. Where health indicators are very high, and mortality rates close to zero, any disparities that might exist are not only hard to measure, but also ultimately inconsequential. In the developing economies, where the population averages are not so good, it is generally the case that inequalities in outcomes are significant and the norm.

Outcome inequalities are easiest to assess for child health and nutrition, but for most countries is difficult to measure reliably for maternal health. A good general measure of this is the extent to which outcomes vary by household economic status. In general, it would appear that disparities are worse for nutritional indicators than for child health generally, which reflects the greater importance of household economic resources to overall food security which is the key determinant of nutritional outcomes. Figures 3-4 illustrate this by showing the variations by wealth quintile in infant mortality rates and severe stunting in Asian countries with recent DHS-type data. As can be seen, large disparities between the poorest and richest households are the norm for both. In countries such as Cambodia and Bangladesh, these are more than two-fold. However, it is worth noting that per capita income is not the over-riding determinant. In countries, which are most successful in improving outcomes in the poorest quintile, these poor households may actually be better off than the richest quintiles in other countries. For example, the IMR rates in the poorest quintile in Viet Nam, Philippines and Sri Lanka are actually lower than in the richest quintiles in Cambodia, India and Nepal.

Figure 3: IMR in Asian countries by wealth quintile

Source: Analysis of DHS data by World Bank and Sri Lanka data by Institute for Health Policy
Figure 4: Severe stunting in Asian countries by wealth quintile

Source: Analysis of DHS data by World Bank, Vietnam by Knowles et al. (2008) and Sri Lanka by IHP.

Disparities by other stratifiers

If we look beyond disparities by income level (proxied in the above charts by wealth indices), we find that disparities exist in almost all countries across most social dividers. Figure 5 and 6 illustrate this by showing the variation in infant and child mortality rates within India and within Indonesia. In general, outcomes are worse in rural than urban areas, worse the less education mothers have, and worse the poorer the households. Disparities between male and female children also exist in many countries, but these are not universal, and evidence indicates that they are reducing in several countries. Evidently, most major disparities tend to coincide with both differences in socioeconomic status, and differences related to residential location. Both of these imply that barriers to access are related to both household capabilities, as well as differences in the availability of services.

Figure 5: Infant and child mortality by stratifiers, India 1998-1999

Source: Saleem-Ismail et al. (2007)
Inequalities in risk protection

Recent work provides substantial evidence that a major source of inequity in most countries is the inability of the health care systems to protect households against catastrophic and impoverishing financial risks associated with seeking health (van Doorslaer et al. 2007). In general, risk protection is weaker in regional countries with lower levels of per capita GDP, but is clearly negatively correlated with the extent to which healthcare financing relies on out-of-pocket financing (Figure 7). Nevertheless even within this context, some poorer regional countries, notably Sri Lanka, Malaysia and Thailand, do quite well in ensuring effective risk protection despite significant levels of out-of-pocket financing. At the same time, a few countries, such as Viet Nam, which have relatively good performances in terms of overall access to services, do poorly in terms of risk protection.

Accessing maternal and child health care can clearly be one source of financial risk for households, and this is most likely to be the case for maternal care, in particular childbirth and its complications. However, empirical analysis of the extent to which maternal and child health is associated with inequalities in risk protection is currently limited. Figure 8 sheds some light on this with an analysis of how household expenditures related to facility-based childbirth vary in India by household economic status. As can be seen, although richer households are more likely to use private services and spend more than 10% of their income on accessing care, the incidence of catastrophic expenditures where households spend more than 40% of their income on accessing care is concentrated in the poorest households.
**Figure 7: Incidence of catastrophic health expenditures against reliance on out-of-pocket financing, selected Asia-Pacific countries**

![Graph showing incidence of catastrophic health expenditures against reliance on out-of-pocket financing for selected Asia-Pacific countries.](image)

*Source: van Doorslaer et al. (2007).*

**Figure 8: Delivery care related expenditures and institutional delivery by expenditure decile in India, 2004**

![Graph showing delivery care related expenditures and institutional delivery by expenditure decile in India, 2004.](image)

*Source: Bonu et al. (2007)*
2. Inequalities in use of maternal and child health care in Asia

Although major determinants of illness are rooted in environmental and biological factors, such as poor sanitation and inadequate nutrients, effective medical treatments are available at low cost which can treat most sickness in children and mothers. If these are used, most of the maternal and child morbidity and mortality seen in the poorest countries can be mitigated or eliminated. Other than individual studies, which have examined the effectiveness of single interventions, some of the most persuasive evidence comes from country experiences in the region. In particular, the historical successes of Sri Lanka, Kerala, Malaysia and even Viet Nam, in achieving low levels of child and maternal mortality with minimal resources and despite poor living conditions, demonstrate the impact that widespread provision and use of modern medical services can have (Caldwell 1986). For example, many studies in Sri Lanka have shown that it is the early and frequent use of effective medical treatment that enables poor families to achieve low levels of child mortality, despite unhealthy living conditions (Caldwell et al. 1989; De Silva et al. 2001). The evidence is even clearer in the case of maternal mortality. Reducing maternal deaths requires ensuring access to emergency obstetric care, which ultimately means widespread use of institutional and medically-supervised childbirth. Despite this, there continue to exist substantial inequities in use of essential maternal and child health services in most developing countries of the region.

Maternal health care and contraception

Use of antenatal and skilled birth attendance varies greatly in the developing countries of the region, as illustrated in Figures 9-10. In certain countries, such as Thailand and Sri Lanka, and in the central Asian countries such as Kyrgyzstan, use is close to universal (>90%), whilst in the rest of South Asia and Indochina, in countries such as Nepal and Cambodia, antenatal care is used by less than 40% of mothers, and less than 20% of mothers give birth under skilled birth attendance. The figures show the range in differentials in use between the richest and poorest quintiles. Inequalities in use are greater the lower the overall level of use of both services, and in the case of skilled birth attendance the disparities are four to ten-fold in countries such Pakistan and Cambodia. In general, disparities in use between rich and poor mothers are greater for skilled birth attendance than for antenatal care. This is notable since the evidence indicates that skilled birth attendance has more of a beneficial health impact than antenatal care. The pattern of variation across countries suggest that as services are first introduced, the richest and most educated mothers readily make use of these services, since disparities in use across countries is less for the richest quintile. However, use lags in the poorer quintiles, and so significant disparities are the consequence. All the countries, which have reduced inequalities have done so by achieving near-universal levels of use, which ultimately means bringing-up the levels of use by the poorest mothers.

The pattern of inequalities with use of contraception is somewhat different to maternal care. In general, disparities between the poorest and richest quintiles are relatively small in most countries, and typically less than two-fold (Figure 11). This may reflect the high priority placed on expanding delivery of family planning services and stimulating demand in most Asian countries. Interestingly, in both Viet Nam and Sri Lanka, the disparities are actually reversed, with use of modern contraception being higher in the poorest quintile than in the richest quintile. In Sri Lanka, this has been observed since at least the mid-1980s, and is an outcome of effective supply measures and high levels of demand, so that use of contraception no longer reflects the impact of
Figure 9: Inequalities between richest and poorest quintiles in antenatal care by medically-qualified providers, selected Asian countries

Source: Analysis of DHS data by World Bank.

Figure 10: Inequalities between richest and poorest quintiles in skilled birth attendance, selected Asian countries

Source: Analysis of DHS data by World Bank and Sri Lanka DHS data by Institute for Health Policy.
Child health care

The pattern of inequalities in use of effective interventions for child health also shows considerable inequalities in most countries, but differences exist between different interventions. In the case of immunization, there is a wide range in average levels of coverage, but several countries, such as Sri Lanka, Thailand and Malaysia, are able to achieve near universal levels of coverage (>90%). In these countries, disparities between rich and poor children are small. In the other countries, immunization coverage is less and disparities greater, but the inequalities in coverage are less than say for most maternal care services (Figure 12). This may be because most countries have special programs for providing immunization against childhood diseases, and these programs often actively seek out children to immunize in the community.

If we look at acute curative interventions, which are more dependent on mothers taking the child to a medical facility at the time of illness, use of appropriate treatments is generally not as high. For example, the use of medical providers for children with fever ranges from 15% to 65% across countries (Figure 13). Disparities in use between rich and poor households tend to be only two to three-fold, and there is no obvious pattern in the size of disparities in relation to overall use levels.

Source: Analysis of DHS data by World Bank and Sri Lanka DHS data by Institute for Health Policy.
Figure 12: Inequalities between richest and poorest quintiles in DPT coverage, selected Asian countries

Source: Analysis of DHS data by World Bank and Sri Lanka DHS data by Institute for Health Policy.

Figure 13: Inequalities between richest and poorest quintiles in use of medical treatment for fever, selected Asian countries

Source: Analysis of DHS data by World Bank.
3. Emerging evidence on determinants of inequalities in use of maternal and child health care in Asia

The availability of data sets such as those from the DHS surveys makes it possible to increasingly explore the determinants of equity in maternal and child health using multivariate analysis, as has been done now for Viet Nam (Knowles et al. 2008). The development of asset indices for proxying wealth also makes it possible to include household economic status as a variable in these analyses, and the development of new analytical methods, such as use of decomposition techniques will enrich our understanding of the determinants in future (O’Donnell et al. 2008). This section reports on results from some recent analyses of relevance to the region.

Social determinants of maternal and child health outcomes in WHO-SEAR countries

The WHO Commission on Social Determinants of Health has sponsored a number of analyses, which have attempted to decompose the determinants of maternal and child health outcomes, using a social determinants framework developed by the Commission. One analysis in WHO-SEAR countries (Bangladesh, India, Nepal, Sri Lanka, Indonesia) has looked at the determinants of inequalities in skilled birth attendance and stunting in children (Saleem-Ismail, Rannan-Eliya, and Perera 2007). This analysis used a decomposition methodology to identify the relative contributions of different factors to observed inequalities in outcomes.

In the case of skilled birth attendance, it found that socio-economic status of households and health systems factors accounted for 75-86% of inequities observed in four of the countries with significant inequalities (Figure 14). Of the individual (household) factors, wealth inequalities contributed one quarter to one third (Table 2). However, it was also noted that despite the existence of substantial income inequalities in Sri Lanka and Thailand, substantial inequalities in use of skilled birth attendance were not observed. These results indicated that policies that achieve high levels of health services coverage, particularly increasing access in rural areas, can largely mitigate inequalities in access linked to income.

A similar analysis of inequities in childhood stunting in the same countries found that socioeconomic position and intermediary determinants explained 68-98% of the observed inequalities. Of these, household wealth was by far the most important factor, contributing as much as 40% (Sri Lanka) to 68% (Bangladesh) of the observed inequalities. Health systems factors played a very small role. These results indicate that for nutritional outcomes, such as protein-energy malnutrition, inequalities in the economic status of households play the critical role, probably through its link to overall household food security, and that health system interventions in most countries have minimal capacity to eliminate the inequalities. This result is similar to that of a more general global analysis of nutritional inequalities by van de Poel et al. (2008). This can be contrasted with other outcomes such as maternal health and child health in general, where health system factors are more important.

1 This framework is similar to that used in the analyses for Viet Nam.
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Figure 14: Contribution of broad factors to inequities in skilled birth attendance in four SEAR countries

Table 2: Percentage contribution to inequities in skilled birth attendance of six of the most common determinants (that contribute positively to inequities) across four SEAR countries

<table>
<thead>
<tr>
<th></th>
<th>Wealth</th>
<th>Mother's education</th>
<th>Valid antenatal care</th>
<th>Quality of antenatal care</th>
<th>Partner's education</th>
<th>Urban (residence)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>27</td>
<td>14</td>
<td>8</td>
<td>18</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>India</td>
<td>31</td>
<td>12</td>
<td>7</td>
<td>18</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Indonesia</td>
<td>27</td>
<td>12</td>
<td>6</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Nepal</td>
<td>35</td>
<td>10</td>
<td>9</td>
<td>19</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 3: Percentage contribution to inequities in childhood stunting of six of the most common determinants (that contribute positively to inequities) across the four countries

<table>
<thead>
<tr>
<th></th>
<th>Wealth</th>
<th>Mother's biological characteristics</th>
<th>Sanitation facilities</th>
<th>Mother's education</th>
<th>Exposure to media</th>
<th>Partner's education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>68</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>India</td>
<td>28</td>
<td>13</td>
<td>11</td>
<td>19</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Nepal</td>
<td>15</td>
<td>12</td>
<td>19</td>
<td>16</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>40</td>
<td>20</td>
<td>19</td>
<td>19</td>
<td></td>
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</tr>
</tbody>
</table>
Community level variations in use of services and the impact of community learning

Many analyses have revealed, as in Viet Nam, significant differences in uptake of services at the level of communities. Although disparities in health service provision or differences in physical access between different geographical areas are common, and can be usually shown to be linked to these inequalities in use of services, not all variations in use of maternal and child health services are simply explicable on the basis of physical and economic barriers.

In the case of fertility and family planning, a considerable amount of work in the past three decades has identified the important role played by changes in social norms and beliefs through the transmission of ideas between individuals in changing uptake of services (National Research Council 2001). For example, Montgomery and Casterline (1993) showed that changes in uptake of contraceptive services in Taiwan varied at the level of townships, and were probably related to the diffusion of messages between households. Such changes occur partly through interactions between individuals and households at the community level, and partly at higher levels of social aggregation. Although this has been shown most clearly for changes in uptake of family planning services, some recent work has also provided evidence of such behavioural processes being behind differences in uptake of maternal and child health services in general. Rannan-Eliya (2004) looked at the community level variations in use of maternal and child health services in India, and showed that although differences in service provision at the level of communities explained some of the variation, that there was still a large degree of community-level variation which was not explained by observable determinants, such as education and wealth. It was concluded that some of these variations might be the impact of social learning processes at the level of communities.

Concluding thoughts

Throughout developing Asia, there exist considerable disparities in maternal and child health outcomes, and these are substantially related to disparities in use of effective services. In general, countries which have been more successful in increasing overall levels of use of services, such as skilled birth attendance, have been able to reduce these disparities the most. In most cases, the disparities coincide with differences in household economic status and social characteristics, such as education. These indicate the importance that household capacity and knowledge play in determining uptake of available services. In addition, a considerable part of the disparities is related to disparities in supply of services, and this is most evident in urban-rural differences. There is also increasing evidence that differences in learning and the spread of health-promoting messages and ideas also contributes to differences in uptake of services between communities.

Consequently, whether mothers and children have access to services and actually make use of them when they are available depends on a number of factors related to both the supply of services, the knowledge of the mothers and their families, and other physical and economic barriers to use. In some cases, such as family planning and immunization coverage, strong efforts to expand supply can be effective in reducing inequities, but where uptake of services is strongly dependent on the knowledge and behaviour of mothers and carers, other social determinants, such as education, and the ability of households to financially afford services must also be important.
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