# Important Issues in the Continuing Mortality Revolution in the Asian and Pacific Region

*Asia is doing well in regards to mortality improvement. In the 20 years of the Asia-Pacific Population Journal's existence the life expectancy of its population has risen by 5.4 years. Gains have been greater outside East Asia, where mortality rates were already low, and are now at the level reached by the developed world around 1980.*

By John C. Caldwell and Bruce K. Caldwell*

This study will focus on mortality changes in the ESCAP region over the last two decades, predominantly from 1980-1985 to 2000-2005, but will also compare this experience with that of the three preceding decades, 1950-1955 to 1980-1985, in order to achieve perspective. That perspective will be often confined to the 99 per cent of the ESCAP region's population that live in Asia, though we will

* John C. Caldwell, Emeritus Professor of Demography, Demography & Sociology Program, Research School of Social Sciences, e-mail: Jack.Caldwell@anu.edu.au and Bruce K. Caldwell, Research Fellow, National Centre for Epidemiology and Population Health, Australian National University, Canberra.

frequently employ figures for the whole of Asia. In contrast to a previous report on the ESCAP area, we will focus on anomalies in mortality change that offer the possibility of improving the mortality experience.

The comparison of the mortality experience of the last 20 years with that of the earlier 30 years of the twentieth century's second half shows that there are great differences that need explanation and that might suggest new policies. Table 1 shows that an Asian mortality miracle dominated the world's experience during those first three decades, with a gain in life expectancy of around 19 years (almost two thirds of a year per elapsed year) compared with a global gain of less than 15 years. Excluding Asia, the world gain is less than 10 years. Not only did Asia dominate world mortality change in those first 30 years but Eastern Asia, especially China, dominated change in Asia. Both Asia and the Pacific were heterogeneous in their experience. For example, Micronesia and Polynesia, but not Melanesia, now have life expectancies similar to East Asia.

**Table 1. Regional gains in life expectancy, 1950-1955 to 2000-2005**
(all measurements in years)

| Region | Life expectancies | | 30-year gain | Life expectancy | 20-year gain |
|---|---|---|---|---|---|
| | 1950-1955 | 1980-1985 | | 2000-2005 | |
| World | 46.5 | 61.3 | 14.8 | 65.4 | 4.1 |
| More developed countries | 66.1 | 72.9 | 6.8 | 75.8 | 2.9 |
| Less developed countries | 41.0 | 58.5 | 17.5 | 63.4 | 4.9 |
| Asia | 41.4 | 60.3 | 18.9 | 65.7 | 5.4 |
| Eastern Asia | 42.9 | 67.7 | 24.8 | 72.1 | 4.4 |
| Southern Central Asia | 39.4 | 54.6 | 15.2 | 63.2 | 8.6 |
| South-Eastern Asia | 41.0 | 58.1 | 17.1 | 66.7 | 8.6 |
| Western Asia | 45.2 | 62.9 | 17.5 | 69.1 | 6.2 |
| Australasia | 69.6 | 75.0 | 5.4 | 79.0 | 4.0 |
| Melanesia | 37.5 | 52.8 | 17.3 | 60.3 | 7.5 |
| Micronesia | 53.3 | 66.3 | 13.0 | 72.0 | 5.7 |
| Polynesia | 48.6 | 64.1 | 15.5 | 71.0 | 6.9 |

*Source*: United Nations, 2003.

The most striking feature in table 1 is the slowdown in mortality reduction in the most recent period, most prominently in Eastern Asia with, a gain in the earlier 30 years of almost 25 years compared with less than five years in the latter 20 years. There are several interrelated explanations. The first is that mortality gains

will be smaller as the slowly rising ceiling of the human life span is approached. The second is that the earlier gains against mortality were relatively easy to secure because high-fertility populations are characterized by a youthful broad-based age structure. In the Asian population of 1950 one third of all deaths were infants, with one half children under the age of five. This mortality was mostly the result of infectious diseases, which were progressively brought under control. By the early twenty-first century, only 10 per cent of deaths were attributed to infants and 15 per cent to children under five years. The ailments of older populations include chronic degenerative diseases, and their conquest is difficult. Australasia (Australia, New Zealand and islands of the South West Pacific) gained less than ten years in half a century.

These reasons do not add up to a full explanation. There has been a slowdown in the decrease in mortality. The advocates of liberal economics have convinced much of the world that growth in government expenditures, including those in health and education, should be restrained to maintain past economic growth. The theory is this will bring future advances in health. Central planning proved to yield faster reductions in mortality but less economic success. Both China and India have witnessed disproportionate growth in the private health sector. As seen in table 3, neither China nor India now record mortality levels significantly better than their real (parity purchasing power) incomes.

Table 2 shows just how varied the ESCAP mortality experience is, in spite of the much vaunted globalization of health. The first group exhibits life expectancies of approximately 80 years while the second group falls short by about 30 years. Afghanistan's life expectancy is equivalent only with some of the poorest countries in Africa. The table's notable figures are the degree to which life expectancy is determined by income.

Further examination of table 2 reveals a more complex mortality picture. Afghanistan, Timor-Leste, Lao People's Democratic Republic, Cambodia and Myanmar have experienced warfare and civil unrest in the last two decades. In every country, either overcoming crisis, or promoting ideology, has tended to displace economic growth as the major policy goal. The lack of peace has directly impacted on health systems. Money has been diverted to what are regarded as more urgent priorities, such as purchasing guns and other military hardware. Health centres have been understaffed, under-supplied with drugs, and even dangerous to reach. Immunization campaigns are disrupted, and planned safe water and faecal and rubbish disposal programmes are abandoned. The main impact of disorder, however, is to limit economic growth and in turn starve development programmes of adequate funding.

**Table 2. Winners and losers: top five and bottom five countries by life expectancy, 2004**

| | Expectation of life at birth | Infant mortality rate | Under 5 mortality rate | GDP per capita (US dollars 2001) |
|---|---|---|---|---|
| **(a) Six ESCAP countries with the highest life expectancies** | | | | |
| Hong Kong, China | 82.0 | 2 | 4 | 24,074 |
| Japan | 81.5 | 2 | 4 | 32,601 |
| Australia | 79.5 | 5 | 7 | 19,019 |
| Macao, China | 79.0 | 4 | 5 | - |
| Singapore | 79.0 | 3 | 4 | 20,733 |
| New Zealand | 78.5 | 6 | 7 | 13,101 |
| **(b) Six ESCAP countries with the lowest life expectancies** | | | | |
| Afghanistan | 44.0 | 159 | 274 | - |
| Timor-Leste | 50.0 | 120 | 177 | - |
| Lao People's Democratic Republic | 55.0 | 86 | 136 | 326 |
| Cambodia | 57.5 | 71 | 103 | 278 |
| Myanmar | 57.5 | 81 | 124 | 162 |
| Papua New Guinea | 58.0 | 60 | 61 | 563 |

*Sources*: ESCAP, 2004; Maddison, 2003.

These conclusions are tested in table 3, where countries for which Maddison (2003) reports data are ranked by real per capita income (i.e. per capita gross domestic product corrected for purchasing parity and based on standardized 1990 American dollars). Where a country's income ranking is above that of its health ranking (i.e. the figure in the final column is negative), the country does not perform as well in its health status, as it could afford to do; where the figure in the final column is positive, it is doing better than economic strength might predict. This is usually achieved by above- average spending on not only the health system, but also the educational system, and is helped by individualistic cultures where each individual can speedily seek assistance when they, their children or aged dependants are sick.

The most important information in table 3 is that the rankings are extraordinarily close to each other. Differences of two, or even three, rankings are not really significant. The extent to which income determines health is stronger

than it used to be (Caldwell, 1986). One reason is that economic reform in the shape of structural adjustment programmes has led to the widespread introduction of fees for both health services and schooling. Another is that educational differences have narrowed as they reach asymptotic values and as expensive tertiary education levels are attained.

**Table 3. Relationship between real per capita income (pci) and life expectancy[a]**

| Country | Ranking order of pci by ppp[a] | Ranking order of life expectancy[b] | Difference (1)-(2) |
|---|---|---|---|
| Japan | 1 | 2 | -1 |
| Singapore | 2 | 4 | -2 |
| Australia | 3 | 3 | 0 |
| Hong Kong, China | 4 | 1 | 3 |
| New Zealand | 5 | 5 | 0 |
| Republic of Korea | 6 | 6 | 0 |
| Malaysia | 7 | 8 | -1 |
| Thailand | 8 | 12 | -4 |
| Turkey | 9 | 12 | -3 |
| Kazakhstan | 10 | 20 | -10 |
| Armenia | 11 | 10 | 1 |
| Sri Lanka | 12 | 9 | 3 |
| Uzbekistan | 13 | 17 | -4 |
| China | 14 | 12 | 2 |
| Georgia | 15 | 7 | 8 |
| Indonesia | 16 | 19 | -3 |
| Azerbaijan | 17 | 10 | 7 |
| Turkmenistan | 18 | 19 | -1 |
| Kyrgysztan | 18 | 17 | 2 |
| Philippines | 20 | 15 | 5 |
| Pakistan | 21 | 24 | -3 |
| India | 22 | 21 | 1 |
| Myanmar | 23 | 25 | -2 |
| Tajikistan | 24 | 16 | 8 |
| Nepal | 25 | 22 | 3 |
| Bangladesh | 26 | 23 | 3 |

*Notes*: [a] As estimated in gross domestic product per capita in purchasing power parity (ppp) for 2000 in fixed US Dollars by Maddison, 2003.

[b] As estimated expectations of life at birth by ESCAP, 2004.

There are, however, some ranking differences deserving comment. Thailand, which has a wide-open economy with only a vestigial welfare state apparatus, does not perform well. It could be argued that its adherence to liberal economic policy has led to faster economic growth and to lower mortality than would have been achieved if it had taken Sri Lanka's welfare state approach. By the authors' measure however, Sri Lanka's system still has health advantages. Health in the Philippines also benefits from relatively high levels of education.

More significant differences are found among the former Soviet Republics. Furthermore, the record of these countries is more complex than many have suspected. They provide the most extreme examples of both countries where the reduction of mortality is better than their economic strength would imply, and where it is worse. This may be a short-term anomaly as the new states develop new market economies and decide how much non-market support can be given to the health system. There may also be weaknesses in the statistical systems that measure both mortality and income. Some Governments have greater access to natural resources and a greater capacity to budget for health services, such as Azerbaijan with its oil industry.

## The potential for improving longevity

Examples of poor health performance can actually suggest potential answers for reducing mortality. Several of these opportunities will now be examined.

The first opportunity is when one sex does much better than the other in terms of survival. It is likely that for most of the world's history life expectancy for males and females was similar. Women experienced high reproductive mortality due to uncontrolled conception (with consequent high fertility levels), and primitive conditions for childbirth. Today, however, the life expectancy of females is four years greater than that of males. In the United States of America the gap is five years and in Western Europe six years (United Nations, 2004). The gap widened as fertility fell to very low levels. Males in these societies are also known to be more self-destructive with higher levels of smoking, excess alcohol consumption, drug use and refusal to seek early medical attention when ill.

The male to female gap in longevity is greatest in the countries emerging from the Soviet Union and in the former communist countries of Europe, all recording a gap of 7 or more years, rising to 11 years in Ukraine, 12 years in Belarus and 13 years in Russia (United Nations, 2004; Russia is recorded as 12 years in the ESCAP 2004 Population Data Sheet and hence in table 4). One proposed explanation for the higher levels is substance abuse, particularly male binge-drinking of alcohol.

**Table 4. Excessive sex differentials in life expectancy, 2004**

| Country | Life expectancy at birth | | Female excess |
| --- | --- | --- | --- |
| | **Male** | **Female** | |
| **(a) Female excess seven years and above** | | | |
| Russia | 61 | 73 | 12 |
| Kazakhstan | 61 | 72 | 11 |
| Georgia | 70 | 78 | 8 |
| Kyrgyzstan | 65 | 73 | 8 |
| Armenia | 69 | 76 | 7 |
| Azerbaijan | 69 | 76 | 7 |
| Thailand | 68 | 75 | 7 |
| Japan | 78 | 85 | 7 |
| **(b) Female excess less than three years** | | | |
| Pakistan | 62 | 61 | -1 |
| Bangladesh | 62 | 62 | 0 |
| Afghanistan | 44 | 44 | 0 |
| India | 64 | 65 | 1 |
| Nepal | 62 | 63 | 1 |
| Bhutan | 63 | 65 | 2 |
| Lao People's Democratic Republic | 54 | 56 | 2 |
| Timor-Leste | 49 | 51 | 2 |
| Papua New Guinea | 57 | 59 | 2 |

*Source:* ESCAP, 2004.

Table 4 demonstrates the extreme male to female mortality gaps in the ESCAP region. The high female rates are dominated by the former Soviet Republics. There is a loose correlation with religion, as all countries with Muslim majorities show male to female gaps of eight years or lower (Encyclopaedia Britannica, 2005) Uzbekistan and Tajikistan for example which are 76 and 85 per cent Muslim respectively, are not even included in table 4, as their gender gaps in mortality, at six and five years, are within the expected span.

The other extreme shown by table 4 is a small gender age gap or even a reverse one. This characterizes the South Asian mainland more than any other region in the world. In the past, the life expectancy of males was greater than that of females in every country of the region. Two explanatory factors predominate. The first is that male births are more favoured than female births, especially higher order female births. This is largely explained by a dowry system in which the

marriage of daughters can be expensive – even ruinously so. The second factor is that only a minority of women give birth in health facilities, or with the aid of a trained birth attendant.

Dowry is followed by the majority of South Asia's population. It was originally a North Indian Hindu practice, but also is increasingly a factor in marriages of the region's Muslims and south India's Hindus (Caldwell, Reddy and Caldwell, 1988). Families can flourish economically by having mostly sons to marry off, especially in more than one generation, and can be ruined by successive generations of daughters. Among some Indian castes the traditional response was female infanticide. Its modern equivalent is selective female abortion following the identification of the foetus' sex. In addition, selective infant and child mortality has occurred due to the relative neglect of female babies and young girls. This is often not deliberate, but adherence to cultural practices, such as the belief that boys are more fragile and have a greater need for care and medical attention plays a significant role. Differential feeding, based on the same belief, is also widespread.

The lack of adequate assistance during pregnancy and before and after birth explains the bump in excess female mortality during the main reproductive years, ages 15-35. This lack of provision is partly explained by poverty, including in some Muslim areas a male-oriented way of assigning priorities.

The situation is slowly improving. One area in which effective work has been done is family planning programmes. In the last 50-60 years, the fertility level of the region has almost halved, with the total fertility rate falling from over six to a little above three (United Nations, 2003). This alone has substantially reduced the mortality risks of younger adult women. National family planning programmes have also brought more trained persons and facilities in reproductive health to rural areas. An area of continuing concern, however, is the spread of clinics, especially in northern India and the Republic of Korea, where the sex of the foetus is identified and often followed by the aborting of female foetuses. This serves to reinforce the attitude that females are inferior. A future shortage of available brides may help to improve female status, but this is far from certain.

Tables 3 and 5 examine the dimensions of the mortality crisis in former Soviet Asia. The last 16 years have also witnessed an economic crisis, rather than a purely demographic one. In all the countries GDP per capita fell between 1990 and 2002, including as much as over 50 per cent in Tajikistan and Georgia. Realistic income assessment however, may be attained better in some countries than in others. Thus Tajikistan, Georgia, Azerbaijan, Kyrgyzstan and Armenia are all shown as recording higher life expectancies than their economic ranking would

predict (table 3), but their average per capita GDP is shown as having dropped by 41 per cent between 1990 and 2002 (table 5), while Kazakhstan, Uzbekistan and Turkmenistan are shown as having performed below economic expectations while having dropped an average of only 18 per cent in per capita GDP.

**Table 5. Health crisis in former socialist Asia and comparisons**

| Country | Life expectancy at birth | | | Increase in life expectancy at birth | | Increase in GDP pc (%) 1990-2002 |
|---|---|---|---|---|---|---|
| | 1950/5 | 1980/5 | 2000/5 | 1950/5-1980/5 | 1980/5-2000/5 | |
| Armenia | 65 | 73 | 72 | 8 | -1 | -16 |
| Azerbaijan | 61 | 68 | 72 | 7 | 4 | -36 |
| Georgia | 62 | 71 | 74 | 9 | 3 | -56 |
| Kazakhstan | 57 | 67 | 66 | 10 | -1 | -16 |
| Kyrgyzstan | 55 | 66 | 69 | 11 | 3 | -33 |
| Mongolia | 42 | 58 | 64 | 16 | 6 | - |
| Tajikistan | 56 | 66 | 69 | 10 | 3 | -62 |
| Turkmenistan | 53 | 63 | 67 | 10 | 4 | -24 |
| Uzbekistan | 56 | 67 | 70 | 11 | 3 | -16 |
| **Comparisons** | | | | | | |
| Portugal | 59 | 72 | 78 | 13 | 6 | 37 |
| Greece | 66 | 75 | 78 | 9 | 3 | 30 |
| Romania | 61 | 70 | 71 | 9 | 1 | -1 |
| Bulgaria | 64 | 71 | 71 | 7 | 0 | 10 |
| Viet Nam | 40 | 59 | 69 | 19 | 10 | - |
| Russia | 65 | 68 | 67 | 3 | -1 | -27 |
| China | 41 | 67 | 71 | 26 | 4 | 99 |
| India | 39 | 55 | 64 | 16 | 9 | 68 |

*Sources*:  United Nations, 2003; Maddison, 2003.

For this assessment, additional observations can be made. The first is that this health crisis has not emerged in the major socialist countries, China and Viet Nam, or in the former socialist country outside the Soviet Union, Mongolia. The second, and more important, point is that the crisis in the former Soviet Republics and

former socialist Eastern Europe is not a recent phenomenon. In the early 1950s Russia, Romania, Bulgaria, Armenia, Azerbaijan and Georgia recorded life expectancies similar to those of Greece and Portugal. Fifty years later the Asian countries were 4-6 years behind European Union countries, Romania and Bulgaria seven years behind, and the Russian Federation 12 years behind. Indeed, Russia had fallen behind both China and Viet Nam and was only three years higher than India. These changes clearly reflect the early emphasis in centrally planned economies on educational and universal health services, much of the latter through the workplace, and the subsequent disappearance of free health services.

A fair assessment of health status might be that the former Soviet Asian countries have weathered the change to market economies better than former communist Europe. A reasonable explanation for some having greater life expectancies than their economic levels would predict is that older higher levels of education have largely persisted. Their earlier experiences with state welfare systems may well again move them towards some kind of public health scheme or insurance.

In the authors' previous paper (Caldwell and Caldwell, 2002) attention was drawn to the fact that in Asia and elsewhere Asian slum dwellers usually had no lower mortality rates than the rural areas from which many of them had migrated, and far higher levels than the rest of the urban population. After examining the broader transition in Asia and the Pacific, the authors then focused on the situation in Dhaka, Bangladesh. This appraisal will be repeated with new data. The justification for this emphasis on urban population is that 40 per cent of Asia's population is already urban and in 20 years' time over half will be (United Nations, 2004). Dhaka's population was under half a million in 1950 and is now over 12 million. The city is one of the few in the developing world that still owes the majority of its growth to rural-urban migration.

The treatment of Dhaka this time will contrast with the previous analysis in two ways. The first is that it will focus on recent changes. The central questions studied are why populations living so close to modern medical facilities in the city benefit so little from them, and whether there has been any success. The second change is a concentration on the "real" slums, the shanty towns or *bostie* that are formed usually by squatting illegally on vacant land. The authors previously examined both *bosties* (or slums) and other poor areas. The latter were in areas where poor populations lived in mixed neighbourhoods with higher income residents. All the housing was permanent and the land legally built on. There were permanent streets and usually access to municipal services such as water, electricity, gas and garbage and sewage disposal.

Since then, a relevant published paper by Montgomery and Hewett (2005) has drawn on Demographic and Health Survey (DHS) findings for the developing world. The authors noted that 10 per cent of households in poor areas were not poor. This was also the case in the 1999-2000 Access to Health and Reproductive Health Services Study (AHRHS) conducted in Dhaka when data on slums and poor neighbourhoods were merged. It was not true, however, in the *bosti* or squatter settlements. Due to the lack of tenure rights and services, squatters were not willing to build substantial houses in their neighbourhoods, investing only in old corrugated iron, hessian bagging and earth for construction. This kept out the higher income individuals and families as well as pharmacies, doctors' offices and health centres. Nevertheless, the central finding of the Montgomery and Hewett (2005) study remains relevant. The authors found that the level of births being attended by trained personnel was 60 per cent among poor households in poor neighbourhoods, 70 per cent among both the wealthier in poor neighbourhoods and the poor in the wealthier neighbourhoods, and 80 per cent among the wealthier in wealthier neighbourhoods. This demonstrates the dual impact of the family economic situation and the neighbourhood. The same is true in Dhaka, though at a lower level because Bangladesh is among the poorer countries in which DHSs have been conducted.

## Changing access to health services in the Dhaka slums, 1999 - 2006

This section examines the impact of changes in access to health services on health behaviour and health outcomes in Dhaka, and in particular its slums, in recent years. The focus will be on infant and child mortality, and maternal mortality as these are the areas where mortality is most preventable. In recent years there has been a substantial decrease in infant and child mortality in Bangladesh, but the decline has been much more impressive in rural areas – in part because mortality was previously highest there. Retrospective data from the Bangladesh Demographic and Health Survey (BDHS) (Mitra and others, 1994; Al-Sabir and others, 2005) for the ten years preceding the 1993-1994 and 2004 surveys on Under-Five Mortality (U5M) show a slow decline in urban areas from 114 (1983/1984 - 1993/1994) to 92 (1994-2004). In rural areas there was a much steeper decline from 153 to 98.

The reduction in mortality seems to be largely attributable to improved public health measures, especially immunization. The proportion of eligible children with no vaccinations fell between 1993-1994 and 2004[1] from 8.7 to 2.8 per cent in urban areas and from 14.6 to 3.5 per cent in rural areas. The proportion of children who had received the full government-approved course of immunization (BCG,

measles, three polio doses, three DPT shots) rose from 70.4 to 80.9 per cent in urban areas and from 57.5 to 71.1 per cent in rural areas. The Government has also provided vitamin A, oral rehydration salts (ORS) for the treatment of diarrhoea, and has heavily promoted family planning.

The public health measures have been reflected in sharp declines in child mortality (deaths to children aged one to four years) from 36 to 21 per 1,000 in urban areas and 56 to 27 per 1,000 in rural areas. Similar but smaller declines were recorded for post neonatal deaths (28 days to one year), which are also strongly affected by many of the infectious diseases for which immunization is effective.

Although the data indicate the cities, including Dhaka have benefitted, their initial advantage over rural areas has largely disappeared while urban slums now appear to suffer from worse infant and child mortality; worse not only than the wealthier urban population but also the rural population. Part of the explanation lies in the government's investment, with international donor support, in primary health-care services, which have until recently focused on previously underserved rural areas. With the recent growth in the urban poor population, and increasing concern about its continuing high rates of infant and child mortality, new programmes have been developed to address this problem, including the Urban Primary Health Care Project (UPHCP) funded by the Asian Development Bank and implemented by the four main city corporations, including that of Dhaka.

Nevertheless it is clear that many preventable deaths continue to occur to both children and adults. Further improvements in preventative health, especially in immunization and ORS, will help, but major improvement probably requires a more effective curative health system. The surprising conclusion is that the more developed health system of the urban areas, especially that of Dhaka, have had very little apparent additional benefit for the inhabitants there. This is especially revelatory, as on average the urban population, and particularly the urban elite, is much wealthier and better educated, both factors normally associated with better health. Dhaka is the centre of Bangladesh's health services, with a concentration of large public hospitals and clinics. These institutions give, at least in theory, access to health services far superior to those available in rural areas. However, this access has not led to the health advantage that might be expected, with the exception of the urban elite.

A possible explanation for this conundrum is that the urban population suffers from a particularly unhealthy environment, especially in the *bosti*. The *bosti* are illegal settlements built on land either owned by the Government or simply not designated for development. This is often because the land is subject to flooding. As illegal settlements, the slums are generally ineligible for government services

such as water, sewage and rubbish collection. They also are not paved, which is a necessity in the monsoon season to prevent flooding and in the dry season to avoid pollution from open sewers. As occupants are always under the shadow of eviction, there is no incentive to improve latrines, which are generally open, or to provide clean water supplies. The housing is generally crowded and of very poor standard.

Nevertheless, it is also true that the more advanced health system in urban areas is not benefitting its inhabitants' health to the extent that it should. The reason for this is a combination of short falls in service provision, especially for the poor, and a failure to address basic sociocultural issues. The AHRHS study conducted extensive interviews on the factors affecting early child mortality and the failure to use health services effectively. With the exception of limited non-governmental organizations' services and the new urban primary health-care clinics, urban health services are mainly provided by a restricted public health sector comprised primarily of large specialist hospitals and the private sector. The large public hospitals perform an important role in providing more advanced treatment, but they are notoriously overcrowded and under-resourced. The private sector is more complex, consisting of expensive clinics catering to the wealthier, private doctors catering to a more mixed clientele and private dispensaries (or pharmacies) providing drugs to a broad cross-section of the population. For most conditions the needs of the poor are largely met by the dispensaries more difficult conditions are handled by public hospitals. An issue here is that dispensaries often provide drugs for which their staff have little knowledge (there are few trained pharmacists) while hospitals are generally seen as a place of last resort, as they can be expensive for the poor, who usually have to pay out of pocket for medicines, and are often hit with unofficial charges simply for getting treatment. Moreover, hospitals are notorious for long waiting times and generally "disrespectful" treatment. The poor find it difficult to raise the necessary money to pay for medical emergencies and many are unconvinced that they are getting the best possible treatment. The situation is particularly difficult for rural-urban migrants, who often lack the resources needed to help manage the system.

A recent major change is a growing number of private doctors competing to provide health services, this has forced many to rely on poorer patients. These doctors provide better treatment than dispensaries, and are much more convenient than public hospitals, though they are not a substitute for the large hospitals when more complicated treatment is required.

The difficulties in using the health system are particularly clear in the case of maternity services. Neonatal mortality is now a major challenge, as it accounts for nearly half of all deaths in children under five years, while a major cause of adult

female death is maternal mortality. These high rates can be reduced with the provision of antenatal check-ups. However, real progress will require access to effective obstetric services, particularly in cases of emergency. Ideally, all births, including normal deliveries, should be attended by skilled health workers, preferably in a hospital or clinic with appropriate hygiene and access to health services.

These observations should conclude that urban areas have a major advantage over rural areas, but when compared, neonatal mortality rates are similar, and in fact are worse among the urban poor. Moreover, neonatal mortality rates in the cities show no signs of improvement. For the ten-year periods preceding the 1993-1994 BDHS and the 2004 BDHS, urban neonatal mortality remained unchanged at 44 per 1,000, though in rural areas it fell from 65 to 47. The decline in rural areas probably reflects the greater provision of maternal health services, such as antenatal care, but most importantly the provision of a tetanus toxoid for pregnant women to protect their unborn children. The proportion of rural women with one or more tetanus vaccinations rose from 64.4 per cent in 1993-1994 to 84.2 per cent in 2004, while in urban areas it rose more modestly from 80.9 to 88.1 per cent. Nevertheless, neonatal mortality in both urban and rural areas remains high, presumably due to the limited availability and use of obstetric services.

More developed obstetric services should give the urban population a major advantage in terms of neonatal and maternal health. However, only a minority of the urban population, and a very small proportion of the urban poor, make effective use of the available services. The 2004 BDHS recorded only 29.6 per cent of urban women were receiving assistance from medically trained personnel (medical doctor, nurse, trained midwife or paramedic).  This figure is lower than the one from 1993, and although possibly affected by definitional issues, it is nevertheless indicative of a lack of change. The 2004 urban figure is well above the rural one of 9.2 per cent. It is nevertheless remarkably low by international standards. The low urban and rural figures are largely due to the lack of medically trained personnel attending deliveries taking place outside hospitals or clinics, the difficulties of patients to get to and use hospitals or clinics to give birth, and a preference for giving birth at home.

The preference for giving birth at home reflects a view that the hospital is an alien environment where little provision is made for the needs of expecting mothers, and the home is the most supportive environment, as a woman can get care from family and friends. It is also in keeping with the institution of *purdah*

the practice of maintaining female modesty by screening them from men or strangers. Male relatives often oppose the change from the private home to a more public hospital.

A major problem with women giving birth at home is that in cases of emergency, such as obstructed labour or eclampsia, women are less likely to get timely medical assistance. This is particularly predominant in slums, where the husband is often away from home during the birth, in part because the family cannot afford him taking time off work, and in part because birth is seen as a woman's concern, and he would be in the way. This is a problem in case the woman needs her husband to accompany her for an urgent hospital visit. In Bangladesh, it is regarded as socially unacceptable for a woman to leave home unattended, particularly, without the husband's explicit permission. In the slums, many women feel it would not be safe to leave home unaccompanied. Moreover, household expenditures are controlled by the husband and hospital treatment is often expensive. Patients generally have to pay unofficial fees, especially for medicines, because hospitals often lack essential supplies. In the AHRHS survey, women expressed great concern that if they visited a hospital they would be given a caesarean section    which they knew to be expensive – (for a poor family often ruinously so), and which they believed to be dangerous.

In general, those who provide assistance during birth    female family members, neighbours and especially traditional birth attendants    discourage official medical treatment. One well-respected female traditional birth attendant commented in a AHRHS interview that while a woman could seek medical treatment, there was no need as she could handle any emergency situation. All that was required was patience.

A major issue for neonatal and maternal deaths among slum populations is the high proportion of women returning to rural areas to give birth.  In this area of high rural-urban migration, a few women gave birth before migrating but the majority were migrants already living in the city who chose to return to either the wife's parents' household or her husband's parents' household for the birth. By doing so,  the woman could obtain care and assistance for herself and her children   something she would not have been able to get in Dhaka. However, a woman does not have access to Dhaka's health services. Moreover, the husband often remains in Dhaka (as he cannot afford to stop working) and therefore is unable to assist her when in need.

## Conclusion

Asia is doing well in regards to mortality improvement. In the 20 years of the *Asia-Pacific Population Journal*'s existence the life expectancy of its population has risen by 5.4 years. Gains have been greater outside East Asia, where mortality rates were already low, and are now at the level reached by the developed world around 1980. This paper has focused on potential gains against mortality, and has identified mortality differentials, discussing how the least privileged may be able to decrease mortality and attain the standards of higher income societies.

The major determinant of health and mortality levels is real per capita income. The situation is almost as simple as that bald statement, but not quite. China enjoyed lower mortality in the 1950s and 1960s than predicted by its per capita income, but today, with a substantially privatized health sector, no longer has such a lead. The highest mortality is found not only in the poorest countries, but also those that have experienced war and civil disorder. Here, an eventual peace dividend may take the form of both economic growth and health improvement. A generation ago, higher levels of parental education were a major determinant in the survival of a country's children, but improvements in educational access for all has weakened this advantage.

A more likely area for health gains could be the reduction of male-female mortality differentials. If good health has been achieved for one sex, it should be possible for the other. The countries most afflicted by high male mortality are the former Soviet Republics, but it should be noted that mortality in Asia is lower than the Russian Federation and other former communist countries in Eastern Europe. This is possibly due to Muslims being a higher proportion of the population, which reduces the numbers of those affected by alcohol. To the extent that the male-female mortality imbalance arises from drinking or smoking, the problem can be tackled by both education and regulation. South Asian female mortality is still high compared to male mortality. Advances have been made, through the majority of improvement can be explained as a by-product of falling fertility. Education is likely the most effective path. Successful legislation outlawing the dowry system may also have an impact. An easier target may be the socio-economic mortality differentials found in urban areas, especially larger cities, as the poor have migrated to the vicinity of the largest concentration of health facilities and providers in the country. The poor, however, need access to the providers, and the providers need access to the poor. Above all, the poor need secure land tenure, and access to roads, government services and health centres    needed even in illegal slums.

Finally, what has been the impact of an increase of 25 years in life expectancy over the last half century? Potentially detrimental population growth has been largely held in check by a considerable drop in fertility (see table 6).

**Table 6.  Continuing population growth, Asia**

|  | 1950-1955 | 1980-1985 | 2000-2005 | 2045-2050 projection[a] |
|---|---|---|---|---|
| Birth rate (per 1,000) | 43.0 | 28.3 | 20.5 | 12.5 |
| Death rate (per 1,000) | 23.6 | 9.7 | 7.7 | 10.5 |
| Annual increase (per cent) | 1.94 | 1.86 | 1.28 | 0.2 |
| Annual population growth ('000) | 28,692 | 51,043 | 44,554 | 9,349 |
| Percentage of world growth | 60 | 64 | 53 | 32 |

*Source*:  United Nations, 2003.
*Note*:    [a]  United Nations Medium Projection

Nevertheless, Asia's annual population growth is still approximately 1.3 per cent per year, down from 1.9 per cent 20 years ago, but only about 0.3 per cent lower than 50 years ago.  However, falls in the mortality rate will continue to decrease as life expectancies increase.  The full benefits of the decline in fertility will be captured, as the era of exceedingly high population growth rates draws to a close.

## Endnote

1. These figures cannot be compared directly with the mortality figures quoted above as they refer to different reference periods.

# References

Al-Sabir, Ahmed and others (2005). *Bangladesh Demographic and Health Survey, 2004*, Dhaka: National Institute of Population Research and Training (NIPORT) and Mitra and Associates; Calverton, Md.: ORC Macro.

Caldwell, John C. (1986). "Routes to low mortality in poor countries", *Population and Development Review*, vol. 12, No. 2, pp. 171-220.

Caldwell, John C. and Bruce K. Caldwell (2002). "Poverty and mortality in the context of economic growth and urbanisation", *Asia-Pacific Population Journal*, vol. 17, No. 4, pp. 49-66.

Caldwell, John C., P.H. Reddy and Pat Caldwell (1988). *The Causes of Demographic Change: Experimental Research in South India* (Madison, University of Wisconsin Press).

Encyclopaedia Britannica (2005). *2005 Book of the Year* (Chicago, Encyclopaedia Britannica, Inc).

ESCAP (2004). *2004 ESCAP Population Data Sheet* (Bangkok, United Nations).

Maddison, August (2003). *The World Economy: Historical Statistics* (Paris, Development Centre of the Organisation for Economic Co-operation and Development).

Mitra, S.N. and others (1994). *Bangladesh Demographic and Health Survey, 1993-1994*. Dhaka: National Institute of Population Research and Training (NIPORT) and Mitra and Associates; Calverton, Md.: Macro International Inc.

Montgomery, Mark R. and Paul C. Hewett (2005). "Urban poverty and health in developing countries: Household and neighbourhood effects", *Demography*, vol. 42, No. 3, pp. 397-425.

United Nations (2003). *World Population Prospects: The 2002 Revision*, vol.1. Comprehensive Tables (New York, United Nations).

_____ (2004). *World Urbanization Prospects: The 2003 Revision* (New York, United Nations).