Media Briefing Notes
UN Palais press corps, Geneva

Mortality Projections for Darfur
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Main points:

I estimate that up to 70,000 of the displaced people in the States of Darfur, Sudan, have died as a direct result of the conditions in which they are living since March 1st 2004. Further work will be needed to estimate the proportions of these deaths that are due to different causes, but most are due to diarrhoeal diseases exacerbated by malnutrition.

I estimate that the average mortality rate for all IDPs in Darfur during August 2004 was 2.6 per 10,000 per day, with a worst and best case range of 1.6 to 3.2.

Basis for Mortality Estimates in June 2004

Within WHO we have - since June - sought to establish a series of estimates for death rates among Internally Displaced Persons in Darfur that are related to the conditions under which they live.

In late June 2004 our analysis was that: *For 1 million displaced people, current death rate can be estimated at 2 - 2.5 per 10,000 per day, or 6,000 - 7,500 per month. The rate will increase during July, as rains start to fall, and as a result of diarrhoeal diseases and malaria, to 3 - 3.5 per 10,000 per day, or 9,000 - 10,500 per month unless adequate relief can be delivered and preventive health action is implemented. Then it might be possible to achieve the target of death rates below 1 per 10,000 per day, or 3,000 per month".*

The estimated population of displaced people in Darfur during June 2004 was 1.2 million. By September 2004 the estimate has increased to 1.8 million

In July 2004 we used the information available from a variety of surveys to estimate a range for daily mortality from March 2004, projecting it through to September. The range is from a "best case" scenario to a "worst case". The best case assumed a continuing increase in the effective provision of basic services to IDPs - water, food, sanitation and primary health care - together with critical public health interventions including measles immunisation, diarrhoeal disease prevention (especially cholera and dysentery), no major outbreaks and malaria prevention.

The worst case assumes that basic provision of relief is interrupted by insecurity and/or rains, that hygiene conditions in the camps remain unsatisfactory, that there are disease outbreaks - such as diarrhoea (including dysentery) and malaria not prevented or mitigated through adequate public health action, and that the underlying levels of

morbidity and mortality are much worse than the present available information suggests because populations at risk are just not being accessed.

Update October 2004

We have now updated the projections. The WHO crude mortality rate (CMR) survey among accessible IDPs covering mid-June to Mid August revealed that death rates were 1.5/10,000/day in North Darfur and 2.9/10,000/day in Wast Darfur. The majority of deaths were associated with diarrhoea, often bloody, with others associated with fever, symptoms of chest infection or violence.

The pyramids for populations in the households surveyed suggested that there are fewer than expected adult males and under 5 year old children (of both sexes) in the sample. Cross sectional estimates of the proportion of IDPs utilizing clean water (from standpipes) and latrines, and receiving food supplements, during August 2004, obtained through the CMR study, indicate incomplete utilization (around 75% for use of clean water and 50% for using latrines, 75% receiving food in the last month).

WHO staff acknowledge that there are potential sources of bias in the mortality estimates. However 14 experts reviewed the methodology and results and concluded that there are likely to be as reliable a set of data as could be obtained in the circumstances[1]. The Sudanese Ministry of Health, though understanding the importance of the work, wonders whether the predominant tendency was towards an overestimate. However, the Minister - as well as the UN country team - want WHO to maintain a continuous watch over both mortality rates and IDP utilization of health-giving humanitarian inputs. We will set up a system involving WHO-employed camp public health monitors (for which WHO seeks funding).

The WHO mortality figures can be explained. Our disease surveillance system (EWARN) showed an outbreak of dysentery-like illness in West Darfur during late June and early July 2004. We are also seeing an increase in malaria cases, though we like to think that this is less than we might have seen because of the preventive work (insecticide spraying in camp dwellings) that has been undertaken. It looks as though the measles immunization campaign has reduced the usually high measles-related death rates.

Taken together the West Darfur figures are close to the Worst Case scenario we developed in July 2004; North Darfur is closer to the Best Case Scenario. On the basis of the limited data obtained so far, we suspect that South Darfur is closer to the Worst Case.

Improving humanitarian situation among accessible populations

Reports from the UN Humanitarian Co-ordinator in Sudan confirm that provision of humanitarian assistance continues to improve. This suggests that the overall shape of the projection, with really high mortality rates earlier in 2004 and a reduction over the

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[1] Anonymised compilation of comments - a scientific opus in its own right - available from nabarrod@who.int

subsequent months is right. The broad range between worst and best case scenarios - even now - reflects the varying conditions throughout the three Darfur states and the continuing uncertainty because of access problems.

Inaccessible areas

WHO staff have visited the areas which are relatively inaccessible because they are not under Government of Sudan control. They appear to be much worse off than those which can be accessed. We do not have data. However, we estimate that mortality is at the higher end of the range - at least 3 per 10,000 per day - in these inaccessible areas.

The position earlier in the year

The *Medecins sans Frontieres* survey from a relatively small sample in West Darfur, published in the Lancet at the beginning of October, confirms that mortality rates were far higher before displaced people came to the camps, with violence an important cause of this excess mortality. These projections have not sought to detail deaths due to violent incidents within Darfur communities - particularly the kinds of incidents that prompted people to flee their villages. A significant percentage of deaths - even between June and August 2004 - is associated with violence, though its origins and nature have not been determined. We have not been able to estimate violence-related deaths.

So the MSF survey results suggest that the estimates for mortality in our model that cover the period March to April may be of the right order but the high level is associated both with violence and with the diseases associated with displacement and deprivation. Results of other studies examining retrospective mortality are expected shortly.

An overall estimate for IDP mortality that results from their living conditions

On the basis of data available, therefore, I now estimate that the average mortality rate for all IDPs in Darfur during August 2004 was 2.6 per 10,000 per day, with a worst and best case range of 1.6 to 3.2.

The revised estimates and projects, as of October 2004, follow:

Figure 1 shows the estimates for death rates per day from early March:

Figure 1

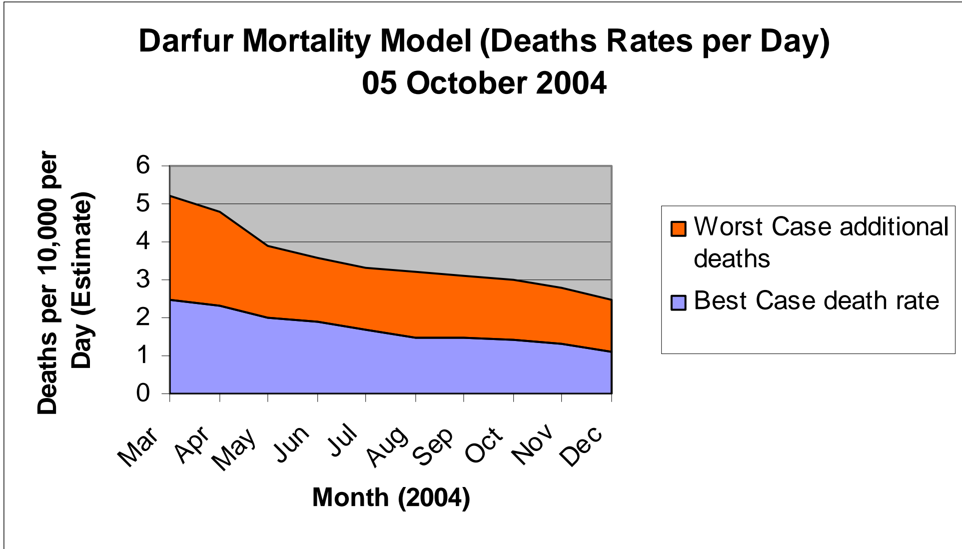
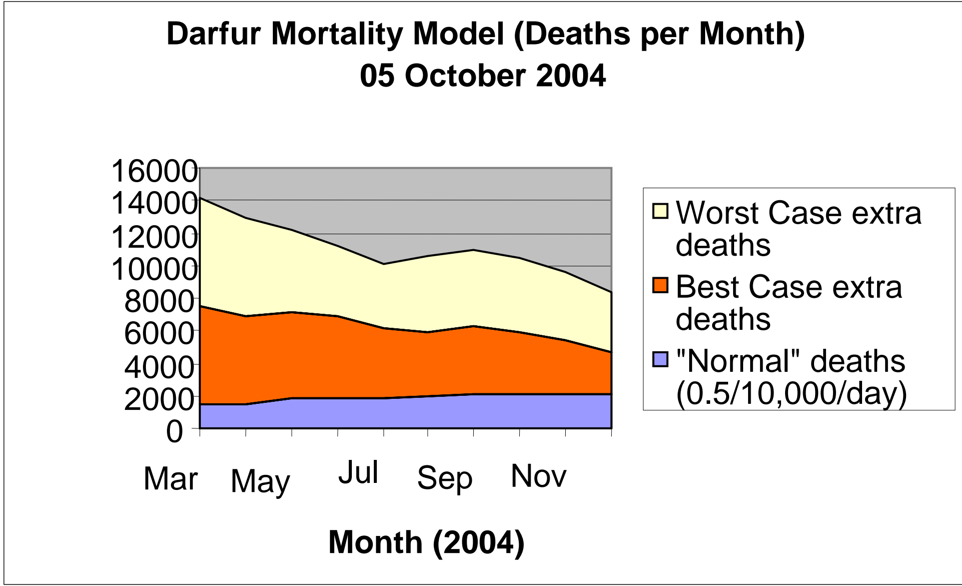


Figure 2 shows estimated death rates per month, and includes a prediction of normal death rates so that inference of excess deaths is possible.

Figure 2

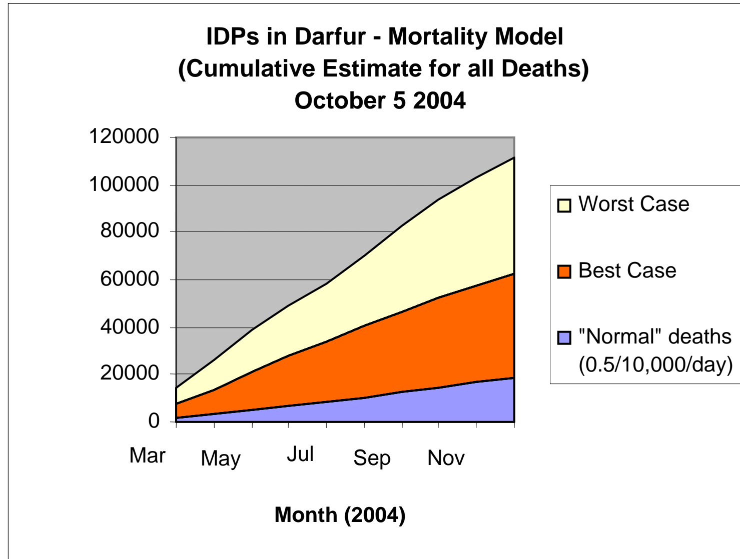


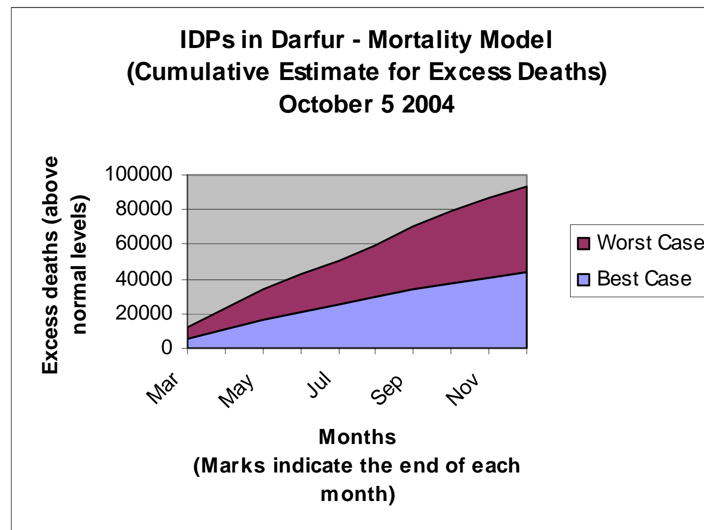
The excess monthly death rate by the end of September ranges between 4.5 and 9.0 K per month.

Figure 3 shows my estimates for the cumulative deaths in Darfur among the IDP population (which is reckoned to have increased from one to 1.8 million persons from March 1 till end September 2004): on the worst case there have now been 80,000 deaths since March 1st; the best case is 45,000.

Figue 4 shows that at the end of September 2004 the estimate cumulative excess deaths is between 70,000 and 35,000[2].

This leads me to the conclusion that up to 70,000 of the displaced people in Darfur have died as a direct result of the conditions in which they are living since March 1st . Further work will be needed to estimate the prioprtions of these deaths that are due to different causes. Figures 3 and 4 follow:





[2] The projections after end September are speculative and need further work.