ANNEXES

Annex 1

Summary List of Child Survival Indicators

Category	AList (primary)	B List (secondary)	Research List
Mortality	**Under 5 mortality rate [MDG]**	Infant mortality rate [MDG]	
	Neonatal mortality rate		
Infant feeding	**Exclusive breastfeeding (< 4 and < 6 months) ***	Frequency of feeding	
	Continued breastfeeding (12-15 and 20-23 months)		
	Timely complementary feeding rate (6-9 months)	% of children 0-11 months who were properly fed	Dietary diversity
Vitamin A	Vitamin A supplementation (under fives)		Vitamin A supplementation (post-partum mothers)
Malaria	Household availability of ITNs		
	ITN use (under fives) [MDG]	ITN use (pregnant women)	
	Anti-malarial treatment (under fives) [MDG]	IPT (pregnant women)	
Water and Sanitation	Use of improved drinking water sources [MDG]		Access to hand washing supplies
	Use of adequate sanitary means of excreta disposal [MDG]		Hand washing after defecation
Newborn care	Timely initiation of breastfeeding		Thermal protection for newborns
			Post-natal visits for newborns
Diarrhoea	ORT (ORS or appropriate household solution) use		
	[ORT (ORS or appropriate household solution) or increased fluids] and continued feeding received *		[ORT (ORS or appropriate household solution) or increased fluids] and continued feeding offered
Immunization	Neonatal tetanus protection at birth		
	Measles immunization coverage [MDG]		
	DPT3 immunization coverage	Hib coverage	
ARI	**Antibiotic treatment of pneumonia ***		
	Care seeking for pneumonia		
	Use of solid fuels for cooking [MDG]	Solid fuels for heating [MDG]	
Malnutrition	Birth weight below 2500 grams	Proportion of babies weighed at birth	
	Underweight prevalence [MDG]	Stunting prevalence Wasting prevalence	
Maternal health	Skilled attendant at delivery	Maternal BMI	
		Birth spacing indicator	
Other child health		Care seeking knowledge of danger signs	

Source: UNICEF. UNICEF/WHO Meeting on Child Survival Survey-based Indicators, New York, June 17-18, 2004.

Annex 2

Global monitoring of the major determinants of coverage for child survival interventions: Work in progress

Human Resources

Working Group Chair: Andy Haines, LSHTM

The processes for assessing human resource requirements are complex and include both (1) the technical aspects of estimating numbers, skills and distribution of health personnel to meet population health needs, and (2) political choices that reflect the values and resource constraints in individual countries.1 Logically, then, indicators used to monitor progress in human resource policies and practices should be based on systematic analyses of the requirements for the country in question. There are currently few examples of such country-specific indicators, but WHO has outlined criteria for their selection and proposed several within a general framework for assessing health system performance.2

The choice of indicators, however, depends on the purpose for which they are to be used. Earlier in this Chapter, we described some of the most important characteristics of indicators to be used in global monitoring. These characteristics include not only the general criteria proposed by others,3 but more specifically the indicator's reliability and validity across time and across a range of epidemiological, cultural and health systems contexts. In the area of human resources, the need for international comparisons will inevitably lead to the use of those indicators that are available across a range of countries, but the final selection must be made with care.

One example of an indicator for which country-specific data are widely available is the density of health professionals (doctors, nurses and midwives) per 1000 population. A recent analysis has shown that there are 10-fold differences in health professional density between sub-Saharan Africa and more developed regions such as Western Europe and North America.4 The findings also document a significant and consistent inverse relationship between health professional density and mortality among infants, children under the age of five, and mothers, even after taking into account socioeconomic and potential confounders. One problem with the use of health professional density as a global indicator associated with the coverage of interventions, however, is that the International Labour Office's (ILO) revision of the International Standard Classification of Occupations (ISCO) aggregates data into a hierarchical four-digit system. Different health professions can only be distinguished at the four digit level, and the minimum level of detail necessary for sound analysis of human resources is the three-digit level which allows distinctions, for example, between 'nursing and midwifery professionals' and 'nursing and midwifery associate professionals'. 5 These distinctions are needed not only to assess human

resources in a specific country context; they are also needed to develop global indicators of the skill levels of personnel available to deliver key newborn and child health interventions.

The "skill mix" of health care providers is often expressed as a ratio between professional subgroups in terms of skills or specialisation. These measures have limited validity or reliability when used in cross-country comparisons. For example, in some countries associate professionals such as clinical/medical assistants and nursing and midwifery associate professionals fulfil some of the tasks of their professional counterparts, while in others there are strict policies governing the tasks able to be performed by various cadres.

Other relevant indicators could include data on in- and out-migration, participation (proportion with relevant skills in the labour force), employment opportunities (proportion in employment) and retention within the health sector, as well as comparative earnings in relation to national norms. The balance of health personnel between state, private for profit and not- for- profit NGOs may also be relevant to decisions about availability of personnel for national health priorities. Whilst in many countries the poorest rely disproportionately on the private health care sector, the quality of care may be poor and regulation weak.

It is difficult to interpret the results of any one indicator of human resources in isolation. For example, interpreting any one indicator of human resources in terms of its effect on intervention coverage might require information about such things as:

- the distribution of the available health workforce across disease specific and other programmes in order to determine, for example, whether the expansion of funding for programmes to deliver anti- retroviral drugs for HIV/AIDS is resulting in increased recruitment of staff at the expense of existing programmes such as child health, for which there may not be dedicated streams of international funding;
- the balance between primary, secondary and tertiary sectors of the health system to determine the potential for scaling-up access to interventions at the community level;
- the distribution between urban and rural areas as a basis for assessing equity of access to services;
- the rate and methods through which health workers are trained, including attrition rates during training which indicate efficiency of use of resources.

Potential sources of data on indicators encompass a diverse range of sources including routine administrative records, such as those of professional associations and registers, as well as training institutions. However these are often fragmented and incomplete. They may be supplemented by data from population censuses, but these are conducted at long intervals and may not include sufficient detail on occupation. Household, labour force and facility surveys may provide useful additional information. Facility surveys can provide information about absenteeism, which can be very high in some settings. In many countries, however, facility surveys exclude private sector facilities and provide only a partial picture of the human resources available for newborn and child survival.
In summary, it seems unlikely that a single source of data will suffice to capture the

complexity of requirements to monitor progress in human resources for child survival at global level. The forthcoming WHO report on Human Resources for Health will review many of these issues, and together with ongoing projects designed to address the need for more and better data may lead to pragmatic solutions that can be adopted by the Countdown effort. For example, the World Health Survey includes questions on occupations relevant to the health field in more than 70 countries. (http://www.who.int/whs). Another initiative is the development of the Global Directory of Health Training Institutions. More comprehensive information of better quality is needed both to strengthen human resource policies and practices and for the development of meaningful indicators for use at national and international levels.

References

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3. Scientific Peer Review Group on Health Systems Performance Assessment Final Report Geneva 2002 http://www.who.int–systems-performance/sprg/report_of_sprg_on_hspa.htm
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Financial flows

Working Group Chair, Anne Mills

The availability of adequate financial resources is a prerequisite for scaling up effective child survival interventions to achieve the child mortality Millennium Development Goal (MDG-4). Although the challenge of achieving universal coverage of priority interventions is more complex than simply adequate financing, insufficient funding remains, for many countries, the major factor limiting their ability to reduce child mortality.

Recent studies estimate the likely cost of reducing under-five mortality sufficiently to attain MDG-4. Bryce and her colleagues recently estimated that US$ 5.1 billion in additional funds is needed annually to prevent the deaths of 6 million children in the 42 countries which account for the overwhelming majority of global under five deaths.1 Similarly, WHO estimates an additional annual cost of $2.2 billion in 2006 rising to $7.8 billion by 2015 to implement the scale-up of child survival interventions in 75 countries.2

However, little is known about how much is currently being invested in interventions or activities to improve child health, or whether levels are changing, despite considerable efforts by development agencies, governments and research institutions to track health resource flows. Specifically, we do not know the extent of financial resource flows from

external sources to priority recipient governments for child health, nor how much is being channelled to child health within recipient countries. Only with this information will it be possible to assess the extent of the resource gap between what is currently being invested and what is actually required, as well as the structure of the gaps. For these reasons, tracking child health resource flows is viewed as a critical tool for advocating effectively for additional funds and monitoring progress in reducing child mortality. Given that adequate funding is a necessary condition for the attainment of the MDG for child survival, financial flows are a good indicator of the genuine commitment of developing country governments and the international community.

Current routine data collection systems offer potential sources of information to track resources to child health. However, the methods used and level of detail rarely allow child health funds to be disentangled from general health investments. In particular, most child health expenditure flows through multi-purpose health services, and thus is not accounted for separately. Furthermore, problems of completeness and timeliness of data put limitations on the overall usefulness of existing sources. With respect to Official Development Assistance (ODA), most donors are unable to report thematic breakdowns of contributions to recipient countries. Moreover, the multitude of donors, using different aid modalities to provide support often in a poorly coordinated manner, poses additional problems. The most comprehensive database on ODA is the Creditor Reporting System (CRS) of the Development Assistance Committee in the OECD, which provides project-by-project information for the majority of all commitments (for example the CRS data is now 98% complete for Africa in 2003). The CRS database has its limitations3 and was not designed with the intention of tracking funds by functional categories, such as child health. Again, the accounting systems of national governments in developing countries make it hard to identify funds as child health expenditures since funds are typically accounted for within input categories. At the same time, these systems are often underdeveloped, which means data collection at the country level can be a lengthy and overly burdensome process.

Any future efforts to track child health financial resources are likely to face similar difficulties to those faced by existing data collection methods. In particular, a shift by many donors from individual projects to general budget support and Sector Wide Approaches (SWAps) poses new challenges in tracking resources to specific areas of the health sector. As the share of budgetary and sector-wide support rises and more funds are channelled through recipient country governments, it becomes increasingly difficult to track external financial flows in the absence of robust and flexible accounting systems.

There is currently scarce information on child health expenditures. Methods for tracking child health funds are being explored and tested with a view to assessing the feasibility of collecting such information in the future. At the country level, a Child Health sub-analysis is being piloted using the framework of the National Health Accounts, while methods are also being tested to track ODA for child health at the global level. The findings of this ongoing research will guide future methods to track resources for child health. Therefore, in the meantime, the 2005 coverage report has selected per capita total expenditure on health at

average exchange rate (USD) 2002 as a proxy indicator for measuring financial flows to child health. Country-specific estimates for this indicator have been taken from the 2005 World Health Report.4 It is likely to be a reasonably good reflection of the average amount spent on health per child within a country. The country specific values are computed by WHO to ensure comparability.

In the 2007 coverage report, it is expected that there will be sufficient data to report on one or two child health financial indicators for those countries that have carried out Child Health sub-analyses. One possible indicator is the "child health resource gap," which measures the difference between the estimated resource requirement and current child health expenditure. For this indicator to be valid, the interventions and services captured by the cost and expenditure estimates will have to be closely aligned to ensure consistency and comparability. A second appropriate indicator that could be monitored is per capita (aged 0 to 5 years) child health expenditure, which measures how much is being invested in the health of an average child in a country.

References

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4. World Health Organization. World Health Report 2005: Make Every Mother and Child Count. Geneva: WHO, 2005.

Annex 3

Coverage indicators reported on in the Child Survival Countdown 2005

NO.	CHILD SURVIVAL INTERVENTION	INDICATOR	NUMERATOR	DENOMINATOR
NUTRITION				
1	Exclusive breastfeeding (< 6 months)	Percentage of infants aged 0-5 months who are exclusively breastfed	Number of infants aged 0-5 months who are exclusively breastfed	Total number of infants aged 0-5 months surveyed
2	Breastfeeding plus complementary food (6-9 months)	Percentage of infants aged 6-9 months who are breastfed and receive complementary food	Number of infants aged 6-9 months who are breastfed and receive complementary food	Total number of infants aged 6-9 months surveyed
3	Continued breastfeeding (20-23 months)	Percentage of children aged 20-23 months who are currently breastfeeding	Number of children aged 20-23 months who are currently breastfeeding	Total number of children aged 20-23 months surveyed
VACCINATION				
4	Measles immunization coverage	Percentage of children aged 12-23 months who are immunized against measles	Number of children aged 12-23 months receiving measles vaccine before their first birthday	Total number of children aged 12-23 months surveyed
5	DPT3 immunization coverage	Percentage of children aged 12-23 months who received 3 doses of DPT vaccine	Number of children aged 12-23 months receiving 3 doses of DPT vaccine before their first birthday	Total number of children aged 12-23 months surveyed
6	Hib immunization coverage	Percentage of children aged 12-23 months who are immunized against Hib	Number of children aged 12-23 months immunized against Haemophilus influenzae type B (HiB) before their first birthday	Total number of children aged 12-23 months surveyed
OTHER PREVENTION				
7	Vitamin A supplementation coverage	Percentage of children aged 6-59 months who received at least one high dose vitamin A supplement within the last 6 months	Number of children aged 6-59 months receiving at least one high dose vitamin A supplement in the 6 months prior to the survey	Total number of children aged 6-59 months surveyed
8	Use of improved drinking water sources	Percentage of the population using improved drinking water sources	Number of household members living in households using improved drinking water sources (including household connections, public standpipe, borehole, protected dug well, protected spring, rainwater collection)	Total number of household members in households surveyed

NO.	CHILD SURVIVAL INTERVENTION	INDICATOR	NUMERATOR	DENOMINATOR
9	Use of improved sanitation facilities	Percentage of the population using improved sanitation facilities	Number of household members using improved sanitation facilities (including connection to a public sewer, connection to a septic system, pour-flush latrine, simple pit latrine, or a ventilated improved pit latrine)	Total number of household members in households surveyed
10	Insecticide treated net coverage	Percentage of children aged 0-59 months sleeping under an insecticide treated mosquito net	Number of children aged 0-59 months who slept under an insecticide treated mosquito net the night prior to the survey	Total number of children aged 0-59 months surveyed
NEWBORN HEALTH				
11	Skilled attendant at delivery	Percentage of births attended by skilled health personnel (doctor, nurse, midwife or auxiliary midwife)	Number of women aged 15-49 years with a live birth in the X years prior to the survey who were attended during childbirth by skilled health personnel (doctor, nurse, midwife or auxiliary midwife)	Total number of women aged 15-49 years surveyed with a live birth in the X years prior to the survey (Note: This reference period may differ between surveys)
12	Neonatal tetanus protection	Percentage of newborns protected against tetanus	Number of mothers with a live birth in the year prior to the survey who received at least 2 doses of TT within the appropriate interval prior to the infants birth	Total number of women aged 15-49 years surveyed with a live birth in the year prior to the survey
13	Timely initiation of breastfeeding	Percentage of newborns put to the breast within one hour of birth	Number of women with a live birth in the X years prior to the survey who put the newborn infant to the breast within 1 hour of birth	Total number of women with a live birth in the X years prior to the survey (Note: This reference period may differ between surveys)
14	Postnatal visit within 3 days of delivery	Percentage of newborns receiving a postnatal visit by a trained worker within 3 days of delivery.	Among last children born in the 5 years prior to the survey, the number receiving a postnatal visit by a trained worker within 3 days of delivery.	Total number of last children born in the five years prior to the survey.
15	Prevention of mother-to-child transmission of HIV	Percentage of all HIV-positive pregnant women who received ART prophylaxis	Number of HIV-positive pregnant women given ART prophylaxis in the preceding 12 months	Estimated number of HIV-positive pregnant women giving birth in the preceding 12 months

NO.	CHILD SURVIVAL INTERVENTION	INDICATOR	NUMERATOR	DENOMINATOR
CASE MANAGEMENT				
16	Careseeking for pneumonia	Percentage of children aged 0-59 months with suspected pneumonia taken to an appropriate health provider	Number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey who were taken to an appropriate health provider	Total number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey
17	Antibiotic treatment for pneumonia	Percentage of children aged 0-59 months with suspected pneumonia receiving antibiotics	Number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey receiving antibiotics	Total number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey
18	Oral rehydration and continued feeding	Percentage of children aged 0-59 months with diarrhoea receiving oral rehydration and continued feeding	Number of children aged 0-59 months with diarrhoea in the 2 weeks prior to the survey receiving oral rehydration therapy (oral rehydration solution and/or recommended homemade fluids) or increased fluids and continued feeding	Total number of children aged 0-59 months with diarrhoea in the 2 weeks prior to the survey
19	Antimalarial treatment	Percentage of children aged 0-59 months with fever receiving appropriate antimalarial drugs	Number of children aged 0-59 months reported to have fever in the 2 weeks prior to the survey who were treated with an appropriate anti-malarial within 24 hours of onset of symptoms	Total number of children aged 0-59 months reported to have fever in the 2 weeks prior to the survey

Note: *"-" refers to through (i.e. "0-59 months" should be read as "0 through 59 months")*

Annex 4

Category Definitions

Category Definitions			
Indicators	**On Track**	**Watch & Act**	**High Alert**
Exclusive breastfeeding to 6 months	≥50%	>20 and <50%	≤20%
Breastfeeding 6-9 mos. w/ complementary feeding	≥70%	>50 and <70%	≤50%
Continued breastfeeding at 20-23 months	≥70%	>50 and <70%	≤50%
Measles immunization rate	≥90%	51-89%	≤50%
DPT3 coverage	≥90%	51-89%	≤50%
Hib	≥90%	70-89%	No national programme
Vitamin A	≥70% for one dose	41-69%	≤40% for one dose
Drinking water	≥80%	51-79%	≤50%
Sanitation	≥70%	51-69%	≤50%
ITN use	60% or more	≥10%	<10%
Skilled attendant at delivery	≥70%	31-69%	≤30%
TT protection at birth	≥70%	41-69%	≤40%
Timely initiation of breastfeeding	>70%	50-70%	<50%
Postnatal visits			
PMTCT	≥40%	6-39%	≤5%
Careseeking for Pneumonia	≥70%	31-69%	≤30%
ORT for diarrhoea	≥50%	31-49%	≤30%
Antimalarials	≥60%	>30 and <60%	≤30%