

## International child health

### G114 DISEASE BURDEN AND RISK-BENEFIT IMPLICATIONS OF USING NEW WHO CHILD GROWTH STANDARDS TO DIAGNOSE SEVERE ACUTE MALNUTRITION IN INFANTS LESS THAN 6 MONTHS OF AGE: SECONDARY DATA ANALYSIS OF 21 DEVELOPING COUNTRY DEMOGRAPHIC AND HEALTH SURVEYS

<sup>1</sup>H Blencowe, <sup>2</sup>M Kerac, <sup>3</sup>M McGrath, <sup>2</sup>C Grijalva-Eternod, <sup>2</sup>A Seal. <sup>1</sup>London School of Hygiene and Tropical Medicine, London, UK; <sup>2</sup>UCL Centre for International Health and Development, London, UK; <sup>3</sup>Emergency Nutrition Network, Oxford, UK

**Background:** Using established diagnostic criteria together with new World Health Organization child growth standards (WHO-GS) categorises more children aged 6–59 months with severe acute malnutrition (SAM). General consensus is that this may be beneficial: more children become eligible for evidence-based therapeutic feeding. To date, the effects of WHO-GS on SAM in infants aged less than 6 months have not been examined. This is an important research gap: there are already difficulties and challenges managing SAM in this age group. In this study, we describe how WHO-GS affect burden-of-disease estimates in infants. This is essential information for planning child nutrition and health services.

**Methods:** We analysed secondary data from recent demographic and health surveys from 21 developing countries. The prevalence of SAM (weight-for-height  $< -3Z$ ) was calculated using both National Center for Health Statistics (NCHS) growth references and WHO-GS.

**Results:** Data for 163 230 children (15 537 aged  $< 6$  months; 147 695 aged 6–59 months) were examined. Diagnosing SAM with the new WHO-GS rather than the old NCHS reference increases the prevalence of infant ( $< 6$  months) SAM markedly: odds ratio (OR) 5.5 (95% CI 4.81 to 6.32). There are smaller but still significant increases in SAM in children aged 6–59 months: OR 1.8 (95% CI 1.73 to 1.90).

**Conclusions:** Increases in SAM are considerably greater in infants aged less than 6 months than in those aged 6–59 months. Policy makers rolling out the new WHO-GS need to consider possible adverse risk-benefit implications. The benefits of labelling more infants with SAM might be marginal: the evidence base for treatment of SAM in infants is weak; skilled breastfeeding support is scarce; inpatient treatment cannot be easily scaled up. Risks are potentially serious: concerned carers may inappropriately introduce “top-up” foods or breast-milk substitutes, thus undermining exclusive breastfeeding (which is known to influence mortality). To address these concerns, WHO-GS implementation could be delayed until clearer risk-benefit evidence emerges or separate SAM diagnostic criteria for infants less than 6 months could be considered.

### G115 FAMILY SIZE AND USE OF CONTRACEPTION IN GULU, NORTHERN UGANDA

B Cheesebrough. Gulu University, Gulu, Uganda

**Introduction:** Gulu Referral Hospital is the main government hospital in the economic capital of Northern Uganda. Gulu district has been the location of insurgent fighting by the Lord’s Resistance Army from 1987 to 2006 and there has been much family disruption during this period as a result of the breakdown of the healthcare system, child kidnapping and other effects of war. There are now approximately 700 000 people living in internally displaced persons camps.

**Aims:** To assess family size and the use of contraception in families of children admitted to Gulu Referral Hospital.

**Methods:** Mothers of children admitted to the paediatric ward over a 2-week period (50 in total) were asked to complete a verbal questionnaire. The questions were posed by the attending doctor and translated to Acholi by the attending nurse. No mothers declined the questionnaire but five children were excluded as they were accompanied by an adult other than their mother.

**Results:** The mean number of biological children including the index child was 3.7 (range 1–9). In addition, 62% families had adopted at least one child and 34% had adopted two or more children. 46% of children adopted were children of siblings and 19% were children of “co-wives”. 56% of respondents wanted no more children (mean number of children 4.9) and 40% of respondents wanted to extend their family. Of those who wanted more children, the most desired number of children was four (55%) or five (20%). Of those who wanted no more children, 43% were using contraception and 57% were not. Overall, 40% of respondents were using contraception, with 75% of those using depot injections and 15% the oral contraceptive pill. Of those who were not using contraception, 70% said they would like to have information about contraception and 52% were unable to name any contraceptive method. 63% cited lack of information as the main reason why they were not using contraception, 13% cited fear of side effects and 13% husband’s preference.

**Conclusions:** In Gulu, women generally aim to have four or five children but more than half are also accommodating at least one adopted child, usually an orphaned child of a close relative. Less than half of the women who want no more children are using contraception, and knowledge about methods of contraception is poor. The most commonly used and most commonly named method of contraception is depot injections.

### G116 FREQUENCY OF PRESENTATION TO HEALTHCARE WORKERS AND OTHER PROFESSIONALS IN NORTHERN UGANDA

B Cheesebrough. Gulu University, Gulu, Uganda

**Introduction:** Gulu Referral Hospital is the main government hospital in the economic capital of Northern Uganda. Gulu district has been the location of insurgent fighting by the Lord’s Resistance Army from 1987 to 2006 and there are approximately 700 000 people living in internally displaced persons camps. The paediatric ward has an average of 125 admissions per month and a mortality rate of 4.4%. The overall under-5 mortality is 23 per 100 000 in Gulu district.

**Aims:** To ascertain how frequently and to whom children are being presented for ill health in an area where child mortality is high and resources are low.

**Results:** Children had been presented for healthcare advice a total of 374 times in the year leading up to the admission (mean 7.5 episodes per child, median five episodes per child). On 50% of occasions the child was presented to a healthcare worker, most commonly a clinical officer. On 49% of occasions the child was presented to a medication dispensary and 1% to a traditional healer. 78% were on medication before admission, 51% of these prescribed by a local health worker, 20% by a medicine dispenser and 20% was the parent’s decision. 32% had previously had “false tooth extraction”, a practice of cutting gums to alleviate fever and 20% scarification of the chest aimed at alleviating breathing difficulties. 94% were fully immunised and only one parent could think of any possible negative effects of immunisation.

**Conclusions:** Medicine dispensers generally have little or no medical training, and a lower priority is given to the training of clinical officers than to doctors, yet it is these people who are the first point of contact when children are unwell. Although parents

were unwilling to admit to the use of traditional healers, the use of traditional practices of cutting skin and gums was common. However, immunisation coverage was high and there is a general positive opinion of immunisation.

**G117 PHLEBOTOMY TRAINING FOR PATIENT ATTENDANTS AT QUEEN ELIZABETH CENTRAL HOSPITAL, BLANTYRE, MALAWI**

<sup>1</sup>V Walker, <sup>1</sup>D Rist, <sup>2</sup>S Lissauer, <sup>3</sup>E Molyneux, <sup>1</sup>M Goldstein. <sup>1</sup>Birmingham Children's Hospital, Birmingham, UK; <sup>2</sup>Heartlands Hospital, Birmingham, UK; <sup>3</sup>Queen Elizabeth Central Hospital, Blantyre, Malawi

**Background:** Great emphasis is placed on building human resource capacity within African healthcare systems. Any attempt to reallocate tasks from scarce professional staff to healthcare assistants is valuable. In the Queen Elizabeth Central Hospital, the major government teaching hospital, phlebotomy is the responsibility of nurses who each care for 50 or more patients. A 3-week phlebotomy teaching package was delivered in April 2008 as part of the ongoing health link.

**Aim:** To adapt an existing (UK) phlebotomy training course to teach patient attendants to undertake venepuncture and capillary sampling safely. Five Malawi healthcare staff were identified as facilitators to help on the course. They could then deliver the course as trainers, enabling the phlebotomy teaching to be self-sustaining.

**Methods:** A DVD-based training package, donated by the National Association of Phlebotomists, was used for the dedicated theory sessions. This was followed by practical training with training arms/pads then patients. All resources including black training arms were provided by the UK partnership. 25 participants were identified from the patient attendant cadre of staff, from the departments of medicine, surgery, obstetrics and paediatrics. They are non-professional with only the Junior Certificate of Education (basic English reading and writing, basic numeracy). As part of a larger evaluation project, participants of the phlebotomy course and those staff trained as trainers were interviewed 6 months after the intervention.

**Results:** All participants successfully completed the course (attendance plus 10 successful venepunctures) and 6 months later all are practising venepuncture regularly. They feel they have an enhanced job role, which in turn improves their motivation and their enthusiasm to learn other new skills. The ward nurses also commented that phlebotomy performed by the patient attendants releases them to undertake more skilled nursing tasks. The next course (December 2008) will be run by the local facilitators, with the aim of eventually giving venepuncture expertise to all the patient attenders in the hospital.

**Conclusions:** Problem solving and adaptability has been key in making this project a success. This intervention as part of a bigger partnership has shown an immediate and long-term positive impact for the healthcare staff involved and by inference the patients they are caring for.

**G118 EMBEDDING SIDE-WARD LABORATORY TEACHING AND QUALITY ASSURANCE IN MEDICAL STUDENT AND JUNIOR DOCTOR TRAINING, IBADAN, NIGERIA**

O Sodeinde, K Afolabi. University College Hospital, Ibadan, Nigeria

Medical school curricula and the full registration requirements of the Medical and Dental Council of Nigeria stipulate competencies in side-ward laboratory usage. Due to dwindling resources, innovative approaches were introduced to maintain adequate provisions for necessary training, particularly microscopy of thick and thin blood films. This procedure is a standard requirement in febrile children. Medical students and house physicians (HP) were required to make, stain and report on duplicate copies of such blood films, send the other copy to the Paediatric Research Laboratory and

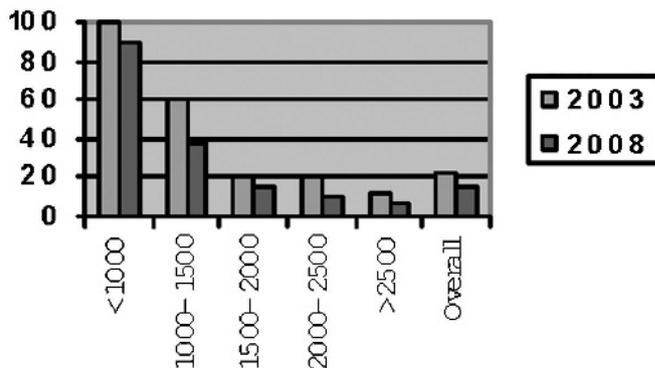
compare the latter report with their own. Malaria parasites, if found, were counted against 200 or more white blood cells (WBC; thick films). Laboratory staffing needs were met by two trained laboratory technologists supported by technology students whose 4–6 months industrial attachments (SIWES) are paid for centrally by the government. High performers were invited to spend their mandatory one-year industrial training preparatory to the higher diploma with us. For quality assurance, 10% of slides each day were randomly examined by a consultant, against the laboratory report produced. Also, 1 ml blood showing severe abnormalities (eg, disseminated intravascular coagulopathy (DIC), hyperparasitaemia) was diluted step-wise, 1-in-10, up to 10 times with compatible normal blood and blood films made from these dilutions. At various time points, the results produced by trainees on these standardised films, compared with those from the trainers, was a tool for both internal quality assurance and for measuring trainees' progress. From 2003 to 2008, 7500 blood films (average)/year were processed and 89 SIWES students hosted. Of these, seven came back for their one-year training. Among 63 HP, the training targets set were met by 58 in week 1 (making good Giemsa-stained blood films); 55 in week 2 (recognition of malaria parasites, sickle, target, burr red blood cells (RBC), "toxic" or increased WBC, ie, >2 WBC/1000 RBC, scanty platelets); 36 in week 3 (producing reliable malaria parasite counts, ie, ±10% of trainers' counts); 41 in week 4 (same target as week 3). HP have been able to make timely requests for platelet infusions in DIC even before obtaining laboratory reports. Among SIWES, these targets were reached approximately half as often as among HP. Medical student postings were too short for proper evaluation of the weeks 1 and 2 competences set for them. The 50 Naira (£0.20) fee/test covers consumables, thus assuring long-term sustainability.

**G119 "TASK-SHIFTING" TO REDUCE NEONATAL MORTALITY IN A TERTIARY REFERRAL HOSPITAL IN A DEVELOPING COUNTRY**

<sup>1</sup>H Blencowe, <sup>2</sup>M Kerac. <sup>1</sup>College of Medicine, Blantyre, Malawi; <sup>2</sup>UCL Centre for International Health and Development, London, UK

**Background:** Each year, four million neonates die worldwide, constituting 38% of all under-5 child mortality. There is a growing need for effective, inpatient-focused interventions: increasing numbers of deliveries take place in a health facility and up to 45% of neonatal mortality occurs in the first 24 h of life (before the usual time of discharge). In many developing countries, staff shortages are a major constraint to the delivery of high quality care. Addressing this problem, we explore whether good clinical outcomes can be maintained when defined tasks are "shifted" from doctors to others in the healthcare team.

**Methods:** Inpatient neonatal care was previously doctor led. In 2003, the following changes were introduced: (1) nursing auxiliary-led



G119 Figure Percentage mortality by birthweight in 2003 and 2008.

Kangaroo Care for low birthweight (<2.5 kg) infants; (2) mother-led “rooming in” on the postnatal ward for stable term babies requiring ongoing treatment and follow-up; (3) nurse-led protocols for inpatient care. Routinely collected outcome data on all admissions during a 3-month period in 2003 were compared with an equivalent period in 2008.

**Results:** Overall inpatient mortality was significantly lower in 2008 than in 2003: 124/806 (15.4%) versus 167/732 (22.8%),  $p = 0.0002$  (see fig). Mortality was also lower in each weight group in 2008 compared with 2003. This was significant in infants 1000–1500 g ( $p = 0.002$ ) and infants over 2500 g ( $p = 0.017$ ).

**Conclusions:** The highly significant reduction in inpatient mortality documented suggests that “task shifting” is at least as safe as traditional care. It is a promising strategy for improving inpatient neonatal care.

### G120 EVALUATION OF THE HEALTH LINK THAT EXISTS BETWEEN A LEADING CHILDREN'S HOSPITAL IN THE UK AND QUEEN ELIZABETH CENTRAL HOSPITAL, BLANTYRE, MALAWI

<sup>1</sup>V Walker, <sup>2</sup>S Lissauer, <sup>3</sup>E Molyneux, <sup>1</sup>M Goldstein. <sup>1</sup>Birmingham Children's Hospital, Birmingham, UK; <sup>2</sup>Heartlands Hospital, Birmingham, UK; <sup>3</sup>Queen Elizabeth Central Hospital, Blantyre, Malawi

**Background:** In 2004 a UK children's hospital established a partnership with an under-resourced paediatric department in Malawi aiming to build individual and institutional capacity. Exchange visits between nurses have taken place and nurses from the UK spend 6 months working alongside nurses in Malawi sharing skills and teaching. Shorter interventions have included 3-week training sessions in phlebotomy, radiology, play therapy and teaching skills.

**Aim:** A grant was obtained from the Tropical Health Education Trust to assess the impact of the link on both UK and non-UK partners.

**Methods:** Qualitative data were collected. UK participants were invited to attend a focus group and completed a questionnaire about their experience and the link's aims. The effect on the organisation and knowledge of the link within the trust was assessed separately. In Malawi semistructured interviews were led by three UK staff. Nurses, doctors and allied staff were interviewed about awareness of the partnership, interventions and considerations for the future.

**Results:** In the UK, seven participants attended the focus group and 77% returned questionnaires. 70% of participants felt the link had benefited them with no negative impacts on their UK jobs, and 42% felt the link had met its original aims. The link was not well known within the NHS trust as a whole. In Malawi 86 healthcare and support staff were interviewed. The link was well known; the most recognised intervention was the nursing exchange visits and was considered the most important for the future. Nurses found visits to the UK educationally beneficial and felt they led to improved morale and staff retention. UK nurses had made a positive impact through education and motivation. Specific interventions such as play therapy had changed the way some healthcare staff work, but needed consolidating by further visits. Patient assistants who had undertaken the phlebotomy course were still practising 6 months later and had improved motivation and self-worth.

**Conclusions:** The link has had a positive impact for UK and non-UK partners. UK participants have benefited on an individual basis. Specific short-term interventions in Malawi are beneficial, especially when combined with local training and consolidation visits. Staff have improved motivation and morale. This represents an important evaluation of a partnership that is making a positive impact.