Innovation:development of a National Task Sharing Program to reduce maternal, neonatal and child deaths in Liberia

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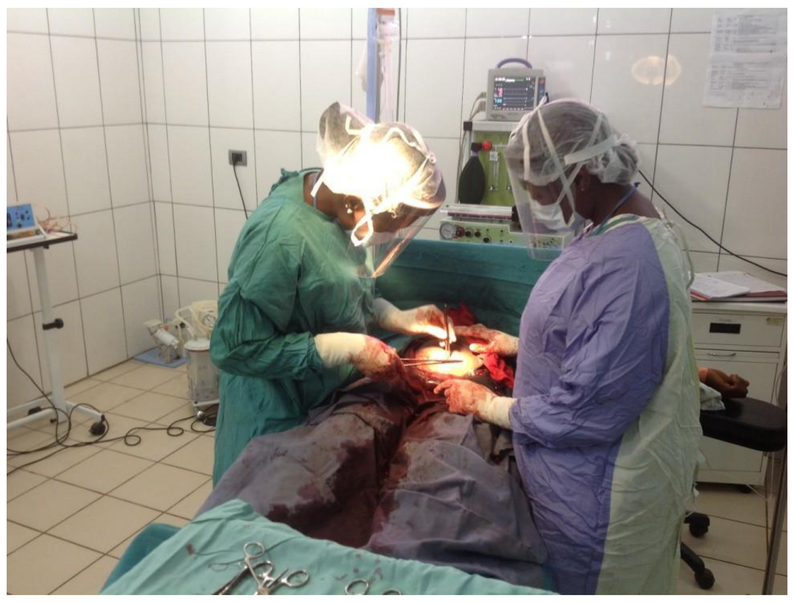
Background

In 2016 with a major shortage of doctors (only 203 for a population of 4.5 million) and a situation where few doctors were working in rural county hospitals and a maternal mortality ratio of 1072/100,000 live births, a series of new programmes to train midwives and nurses in advanced obstetrics, advanced neonatal hospital care and recently advanced paediatric hospital care have been established.

Introducing the innovation

Trainees were employed by the MOH and all but 2 of the total 19 qualified obstetric clinicians, all of the latest 9 trainee obstetric clinicians, and all of the qualified and trainee neonatal clinicians have been recruited from rural counties and return after training to practice in rural hospitals. All 12 of the trainee paediatric clinicians are about to begin training and currently are being recruited from 5 rural counties.

Most apprenticeship-based training is undertaken by Liberian specialists with support from two international experts from Nigeria (for neonatal and paediatric training) and international consultant obstetricians and paediatrician volunteers from the UK for weekly tutorials and examnations undertaken using distance learning techniques.



Qualified obstetric clinician leading an emergency Caesarean Section

Celebrating World Prematurity Day 2021 by neonatal clinicians and trainees at CB Dunbar maternity hospital which is the main training centre in Liberia

Progress to date 2021 November

Since 2016 there have been 3 consecutive 3-year courses of apprenticeship and tutorial-based training courses for 19 midwives to become fully qualified obstetric clinicians able to manage all major surgical and medical emergencies in pregnancy including Caesarean section for obstructed labour, vacuum deliveries, ruptured ectopic pregnancies, antepartum and postpartum haemorrhage. Nine additional trainees started in September 2020 and are due to qualify in 2023. All qualified obstetric clinicians are subsequently licensed to practice after qualification in rural public hospitals assigned to by the Ministry of Health for 5 years. Additional specialist training in ultrasound scanning is a recent addition to the curricula.

Since 2018 there have been 2 consecutive 2-year courses of apprenticeship and tutorial-based training courses for 7 nurses to become fully qualified neonatal clinicians able to manage in hospitals all medical emergencies that occur in newborn infants including respiratory failure, sepsis, birth asphyxia and low birth weight/preterm problems. Eight additional trainees started in August 2020 and are due to qualify in 2022.

About to begin and funded by Irish Aid is a 2-year training programme in advanced hospital care for 12 nurses to become paediatric clinicians.

Methods of training, evaluation and evidence

Trainees are employed by the MOH and all but 2 of the total 19 qualified obstetric clinicians, all of the latest 9 trainee obstetric clinicians and all of the qualified and trainee neonatal clinicians have been recruited from rural counties and the aim is for them to return after training to practice in rural hospitals. All 12 of the trainee paediatric clinicians re being recruited from 5 rural counties.

Most apprenticeship-based training is undertaken by Liberian specialists with support from two international experts from Nigeria (for neonatal and paediatric training) and international consultant obstetricians and paediatrician volunteers from the UK for weekly tutorials undertaken using distance learning techniques. After every teaching session there is a written examination on the previous week's tutorial. Trainees all complete logbooks on every procedure they undertake which are evaluated in MCAI UK using cloud transfer and made available to the MOH and Liberian Board for Nursing and Midwifery.

Health system strengthening has been needed to ensure that the hospitals in which training is being undertaken are suitably renovated and equipped. Emergency drugs, medical and surgical supplies are provided by the internationally funded training programmes to ensure that trainees have the means to initiate care with minimal delay.

Once qualified obstetric and neonatal clinicians are involved in training junior doctors and other midwives and doctors in advanced obstetrics, neonatal and paediatric care.

Two additional programs resulting from the training of obstetric and neonatal clinicians

The presence of sufficient numbers of trained experts in obstetrics has permitted the development of obstetric outreach activities since October 2019 in two rural counties (Grand Gedeh and RiverGee). Qualified obstetric clinicians, complete with a portable ultrasound scanner, pulse oximeter, BP machine, point of care Hb monitor, urine stick tests for protein, glucose and infection, visit clinics far away from the county hospital which are able to deliver comprehensive EmONC and ensure early management of pregnancy complications including early transfer to hospital. From January to August 2021 the Outreach Programme for Grand Gedeh county undertook 22 outreach visits to 17 different clinics and health centres, including one refugee camp. A total of 322 mothers were assessed of which 124 had complications identified. Some had more than one issue identified which included 3 placenta previa, 3 multiple gestations, 13 breech, 71 with grand multiparity of 4 or higher, 17 mothers over 40 years old, 4 with calcified placenta or oligohydramnios, 1 with antepartum haemorrhage, 5 with previous Caesarean sections, 37 with mothers under 18 years of age, 1 an elderly primigravida and 8 with other problems.

An additional programme involving task-sharing has, since July 2017, been the development of fetal monitoring by mothers during labour using a portable ultrasound fetal heart rate detector. This programme, undertaken in 4 rural hospitals, is designed to reduce intrapartum stillbirth and birth asphyxia. Mothers are trained to help midwives detect fetal distress by monitoring the heart rates of their unborn babies for 1 minute immediately following every uterine contraction during both the latent and active phases of labour. In the 4 hospitals up to 29th September 2021, 2,931 mothers have monitored their babies with 220 changes in fetal heart rate identified and action taken to address possible fetal distress. One by-product of this programme has been the introduction of intravenous paracetamol for the control of labour pain which was identified as a major problem by most mothers participating.

Moving forwards, constraints and opportunities

Following a meeting on 13th April 2021 between MOH, Liberian Board for Nursing and Midwifery (LBNM) and MCAI, chaired by the Chief Medical Officer (CMO) of Liberia, it was agreed that all obstetric, neonatal and paediatric clinicians would receive their licenses from now on from the LBNM. Further discussions continue with the CMO of Liberia and LBNM to institutionalise training of all neonatal and obstetric clinicians at William K. Tubman University where the aim is for BSc awards for all qualified clinicians to become established in collaboration with the Global Health Academy and Nursing Now initiative at Edinburgh University in Scotland.

The main constraint has related to a continuing lack of emergency drugs and supplies to treat patients resulting in dangerous delays where poverty-stricken families need to go to local private pharmacies and purchase them before emergency treatment can be given. The second relates to delays in providing enhanced salaries for the latest cohort of 14 qualified staff with many still receiving only 125 USD per month for undertaking a large majority of advanced obstetric and neonatal care in rural hospitals.

Conclusions

In conclusion, these "task sharing" approaches to hospital maternity, neonatal and paediatric care are feasible and provide a sustainable solution to improving maternal, neonatal and child healthcare and in saving the lives of pregnant women, their babies and children by implementing an innovative training program to meet the challenge of the lack of obstetricians and paediatricians in rural and poverty-stricken areas of Liberia and other low resource countries or those suffering emergencies resulting from armed conflict where specialists in hospital care are limited.