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Training programmes for field epidemiology

Public-health systems are an important subset of the health systems that are needed to meet the Millennium Development Goals (MDGs). How many public-health workers will be needed to achieve the MDGs is unknown, but there is an urgent unmet need.¹ Moreover, even as the MDGs are being implemented, the newly revised International Health Regulations call for the establishment of a group of experts in public-health surveillance and response in all countries.²

One strategy that has worked in the building of public-health surveillance and response systems and the workforce to operate the systems is the implementation of training programmes in field epidemiology.³ Over the past 27 years, 29 countries have created these programmes in partnership with the US Centers for Disease Control and Prevention (CDC) and WHO to directly build and strengthen public-health systems, while simultaneously training future public-health leaders. The programmes are based on CDC's Epidemic Intelligence Service which is a 2-year public-health leadership-training programme. More than 1000 public-health leaders have graduated from the training programmes in field epidemiology, and many more have completed short courses. Many graduates of training programmes in field epidemiology have moved into leadership positions within the ministries of health of their own countries.^{4,5}

Training programmes in field epidemiology are implemented by recruiting promising young medical or social scientists. The training process is typically a 2-year residency in which the principles are taught in classrooms but most of the learning is in field situations, with an experienced field epidemiologist closely supervising trainees during activities, such as public-health surveillance

and outbreak responses. This training-through-service approach means that the activities of the trainees help strengthen the public-health systems in their countries, even before they complete the programme.

This training model has been expanded to address needs beyond field epidemiology and to address the large needs of the public-health workforce. The CDC has partnered with ministries of health to develop the field epidemiology and laboratory-training programme to strengthen the application of public-health laboratory services to public-health surveillance and outbreak response. The field epidemiology and laboratory-training programme began in Kenya in 2004 followed by South Africa and Pakistan in 2007; Ethiopia, Nigeria, and Tanzania will implement programmes this year.⁶ New programmes will incorporate veterinarians to address zoonotic diseases. China created provincial training programmes in applied epidemiology in five major



Trainee from Kenyan programme conducts a survey

cities that provide short courses for public-health workers with supervision provided by Chinese trainees and graduates of the training programme in field epidemiology. These provincial programmes had trained over 200 public-health workers by the start of 2008.

There is new funding for categorical programmes to combat priority diseases, including the US President's Emergency Plan for AIDS Relief, the Global Fund to Fight Tuberculosis, AIDS and Malaria, and the GAVI Alliance. Historically, creating a legacy of health systems that sustain their goals has been difficult for categorical programmes.⁷ These programmes might now increase contributions to public health and strengthen human capacity by supporting initiatives such as training programmes in field epidemiology. Thus, the training programmes can meet and sustain their goals with an added positive effect on countries' abilities to improve health in many areas. The resulting public-health systems, led by competently trained public-health workers, will increase the host country's ability to fight AIDS, tuberculosis, and malaria—as well as diarrhoeal diseases, maternal mortality, and chronic diseases, and to address the International Health

Regulations and other disease priorities of the ministries of health.

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Indian public-private partnership for skilled birth-attendance

The provision of emergency obstetric care was recognised as vital to the reduction of maternal mortality back in 1991.¹ However, India faced a shortage of obstetricians to provide comprehensive emergency obstetric care in rural areas.^{2–4} One solution proposed by national government was to train basic doctors to provide such care. Unfortunately, this strategy was not well implemented and could not succeed.⁵ India has more than 20 000 obstetricians, of whom only 780 work in the public-health system at subdistrict level in rural India.⁴ Even in a developed state such as Gujarat the situation is no better, with only eight obstetricians in the public service for a rural population of 30 million. Various governmental efforts to install and retain obstetricians in rural areas have not succeeded.

Maternal mortality remains high in India—about 300–450 per 100 000 livebirths^{6,7}—because of the dearth of obstetricians in rural areas and unclear policies for and practice of delegation of lifesaving functions.⁸ Access to skilled care, institutional delivery, and emergency life-saving surgery, such as caesarean

section, is very limited for poor people in India.⁹ Due to gross underfunding of public-health services in India, ill health is a financial burden for people. 25% of people admitted to hospital become poor because of treatment costs.¹⁰ To decrease maternal mortality, the Gujarat Government, in consultation with the Indian Institute of Management in Ahmedabad, the Society for Education Welfare and Action—Rural (a well-known non-governmental organisation) and local obstetric societies, developed a scheme to provide free birth care to poor families through contracts with private obstetricians practising in rural areas.^{11,12} This innovative public-private partnership was called the Chiranjeevi Yojana, which means a scheme to provide long life to mothers.

The pilot study started in December, 2005, in five districts. The health department contracted more than 170 of about 200 private obstetricians in these districts to provide skilled birth-attendance, including required emergency services to poor women. The Government would pay the obstetricians Rs1795 (about US\$45) per delivery



Doctor and patient at Chiranjeevi scheme

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