seeking clean science and low drop out rates are deterred by the prospect of enrolling participants with comorbidities and multiple medicines, which are common features of late old age. Such individuals clearly have many risk factors for drug interactions, side effects, death, and admission, all of which may fail to flatter trial findings. Age, protocol restrictions on comorbidities, and physicians' perceptions have been identified as important contributors to the exclusion of older patients from cancer trials.³ The narrow eligibility and exclusion criteria used in many clinical trials achieve a homogeneity of study population, and so reduce unexpected variations in drug efficacy and adverse events.⁷ Clearly a tension exists between the validity and the generalisability of trial findings, but this practice leaves a yawning chasm between patients in the real world and patients who participate in clinical studies. This greatly disadvantages older people, to whom the evidence does not apply.

The second possibility is that investigators view the older population as vulnerable and so in need of protection from researchers. This, of course, undermines autonomy. Sadly, the growing regulatory burden on researchers has provided a further disincentive to research in under-studied groups.⁸ Yet, when approached, older people report a high rate of willingness to consider participation in clinical trials.⁹

The final possibility is that investigators are daunted by the hard work involved in enrolling and maintaining older, frail people in clinical trials. Screening may be a prolonged process, and many older patients wish to discuss the trial with relatives, carers, and other health professionals before enrolling. Transport and mobility problems present another set of barriers to participation, especially among poorer, socially isolated patients—who ironically are most likely to suffer from ill health. Obtaining informed consent can be more challenging, as cognitive, hearing, and visual impairments may need to be surmounted.

It cannot be assumed that the benefits to younger patients enrolled in trials can be extrapolated to frail older people.¹⁰ Several strategies could potentially improve the current situation. Firstly, regulatory authorities should ensure that the population likely to be prescribed a particular drug once licensed actually participates in its evaluation.¹¹ Secondly, those funding and commissioning research should favour proposals in

typical populations which incorporate end points that are meaningful and relevant to older people. Both ethics committees and funders should recognise as unethical applications proposing to apply arbitrary and unjustified age restrictions.¹² Funders could ensure that grant funding includes resources to address issues like access, transport, social networks, and the management of treatment-related events. Thirdly, protocols should be specifically designed to stratify by age or use modified exclusion criteria to allow the inclusion of patients with comorbid disease and multiple medication.³

Promotion of the benefits of research in older people is required by engaging with the public as a whole, older people, funding bodies, researchers, and clinicians. The greatest burden of disease in the developed world falls on older people. It is time that research activity reflected this.

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Human resources for health in Africa

Better training and firm national policies might manage the brain drain

African countries have a very low density health workforce, compounded by poor skill mix and inadequate investment.¹ Yet trained healthcare staff continue to migrate from Africa to more developed countries. The World Health Organization has estimated that, to meet the ambitious targets of the millennium development goals, African health services will need to train and retain an extra one million health workers by 2010.²

It is too simplistic and misleading to define or try to resolve the crisis in human resources for health in Africa

by looking only at overall numbers and density of workers, not least because these vary from country to country.^{3,4} Furthermore, the poor performance of health services in African countries is often compounded by shortages of drugs and other essential supplies, broken equipment, and poor logistical support. Africa needs balanced investment in human resources, infrastructure, drugs, logistics and other supportive services that will enhance the capacity to deliver health care.

Seven main principles should guide the debate on developing and refining African health services (box).

African leaders are beginning to work together on this, supported by the regional office of the World Health Organization, the New Partnerships for Africa's Development, and the African Council for Sustainable Health Development. Each country needs clear policies on human resources, based on objective analyses of needs and opportunities and aimed at strengthening the healthcare system in a sustainable way.

Such policies must include strategies for dealing with migration of health staff to developed countries.^{5 6} Mass migration of health personnel is often a symptom of the "sick system syndrome," in which many essential components of healthcare services are malfunctioning and mismanaged. Policies on migration policy must tackle the "pull factors" which induce trained personnel to seek better living conditions abroad as well as the "push factors" which make disaffected and frustrated health workers seek employment elsewhere. The "anchor factors" which encourage workers to remain in public service are important too.⁷⁻⁹ These may include well designed training programmes that increase workers' skill and competence, boost their morale, increase their job satisfaction, and improve the performance of services.

Ghana has developed two training programmes which successfully combine appropriate curriculums and policies for developing human resources. With guidance and support from the American College of Obstetricians and Gynecologists and the Royal College of Obstetricians and Gynaecologists, two Ghanaian medical schools now operate the Ghana Residency Programmes in Obstetrics and Gynaecology.^{10 11} This programme provides trainees with sound clinical knowledge and appropriate skills for practising in both hospital and community settings. The programme has produced a steady stream of obstetric specialists, practically all of whom are still working in Ghana. A programme for training midwives in lifesaving skills, run by the Ghana Registered Midwives Association in both the private and public sectors, has successfully enabled midwives to deal alone with some emergencies and also stabilise patients before referral for more specialised emergency obstetric care.¹²

Such training might be partially funded by health services in the countries which welcome health workers from Africa, thereby providing mutual benefit. And countries such as Nigeria, which produces more trained health personnel than its health system can use effectively, might benefit from a programme of managed emigration.

Africa's health authorities—with financial and technical support from national, regional, and international partners—need to design and implement creative policies for managing their human resources.

Guidelines for developing Africa's response to the crisis in human resources for health

- Strong African leadership to direct debate and discussions
- Analysis within countries to establish national and local needs for health workers
- Regional consultations and networking to share relevant lessons
- Diagnostic approaches to inform evidence based action:
Identify signs and causes of the "sick system syndrome"
Generate information about the distribution and flow, both internally and externally, of health workforces
- Development of policies on human resources which are relevant, affordable, and sustainable and are realistic about migration of trained staff.
- Adoption of and respect for policies on human resources by national authorities and development partners
- Evaluation and review within and between African countries of relevant experience and innovations

In turn, development partners, some of which may have followed only their own globally focused agendas in the past, must show that they respect the national goals and priorities of African countries.

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