Research Training Opportunities in Pakistan for Postgraduates

Pakistan is a Low Middle Income Country with a 2014 estimated population 193,000,000, the seventh most populous in the world. The World Bank estimates that 41 % of the population lives below the poverty line and, at $ 69 per capita spending only 2.5 % of the GDP is allocated to health. This, inevitably, has resulted in a treatment naïve population with a high communicable and non-communicable disease burden. The health infrastructural hierarchy consists of hospitals, dispensaries, rural health centres and basic health units with most resources concentrated in urban areas. In rural areas, most of the services are administered by Lady Health Workers.[1]

In 2013, public spending on health was only $9.31 per person annually, far less than the international standard $60 with almost 80% of paying for healthcare. The doctor-to-population ratio of 1:1,127 is fewer than the World Health Organisation (WHO) recommended 1:1000 and the clinical pressures intense. Fertility, child mortality and maternal death rates remain unacceptable and the high infectious and non-communicable disease burdens mean that service delivery rather than research is the overriding priority on already stretched health service providers.[2]

Punjab and Sindh are, by some distance , the most populous states the distribution reflected in numbers of medical institutions. Of the 94 medical institutions (39 public and 56 private), 48 and 23 are in Punjab and Sindh respectively. The institutions accommodate between 100 and 300 undergraduates per year and most work towards the MBBS degree, generally obtained in 5 years after which registration to the General Medical Council (PMDC) can be sought. Much of the increase in graduate numbers in recent years has been the result of the opening of private medical colleges (run along business lines) in which the quality of tuition and clinical exposure is very variable.[3]

The clinical postgraduate programme is modelled on the US one and comprises of a year as an intern (medicine and surgery) and a residency programme in the chosen subspecialty with the aim, ultimately of obtaining the FCPS exam. In those specialties in which training is recognised by the UK colleges, this can be bolstered by application to the exams for the Royal College Membership.

Were there no other pressures, many more postgraduates would augment postgraduate training with an academic fellowship as part of a research career. However, clinical load, inadequate graduate numbers and lack of central spending combine to restrict progress for many aspiring young doctors. Compounding this is the efflux of doctors from Pakistan to both the UK and US, the so called brain drain. Between 800 and 1,600 doctors are currently leaving annually and, of these, only about 15 % return.[1]

Despite this, Pakistan has a unique place in Global Health research: it has produced seminal work in areas as diverse as improving case management of pneumonia, health in pregnancy; it has developed innovations such as school based mental health and the Lady Health Worker programmes; it has produced health leaders and has been a led the way in collaborations such as the countdown to the Sustainable Development Goals and Maternal Newborn and Child Health initiatives.[4]

Though the number of research publications from medical institutions in Pakistan increased 7.5 times between 2001 and 2011, there is a huge variation in output from 2 to 521 per year, many of the manuscripts from lower output colleges appearing only in non-indexed journal (Gaffar) illustrating the huge variation in emphasis afforded to research by teaching hospitals. Against this backdrop then, how can academic work be nurtured in a country literally teeming with opportunity for high quality research with infectious disease being a particularly fertile speciality.[5]

The two main career choices for an aspiring postgraduate clinical research academic are the commercial, company sponsored route (outwith the scope of this piece) and the academic institutional one. Success in the latter route depends on a number of factors. First of these is that the infrastructure (for example supervision, statistical back up and lab facilities) is able to support robust research and award relevant degrees (MD or PhD). The second is that sufficient funding is available, a function of institutional expertise and credibility. There are a number of training grant awarding bodies such as the Fogarty fund (the developmental limb of the US NIH) and the UK Medical Research Council and Wellcome Trust but these are highly competitive and success again related to institutional experience. Career progression after acceptance onto an academic programme involves the same steps as those in the US on which the ladder is modelled: senior instructor; assistant professor; associate professor (usually requiring a PhD) and professor.

An institutionally supported sabbatical period in an HIC academic centre of excellence (like the link between AKU and Karolinska Institute in Sweden) to augment training (for example enhancing laboratory skills in infectious disease) is a path taken by many postgraduates.

Though competitive, there are now more options as a result of a number of recent changes . Trials' activity is increasing rapidly and, though many are global health related, a number of national research cooperative groups in areas such as oncology, neurology and cardiovascular science have recently been formed in which the focus has moved from observational studies to trials. The same period has witnessed a rise in contract research

organisations (CROs) with international links and improvement of the laboratory networks . What has yet to happen, at least consistently is the state registration of institutions conducting research so the best estimate of 40 centres is probably conservative. In parallel with these changes, the regulatory environment has become more rigorous. From 2002, with the recognition by the Pakistan health authorities of the ICH-GCP guidance as the accepted standard, trial protocol adherence has improved in parallel with the other innovations. The raising of these standards has, despite the well-known geopolitical instabilities, catalysed a number of multinational company sponsored studies such as the GSK supported oncology trials.[1]

Many of the higher profile academic institutes run post graduate degree programmes specifically tailored to research. Examples include the Masters in Clinical Research at the Aga Khan University, Karachi; the Clinical Research Certified Professional Programme at the Dow University of Heath Sciences; numerous Good Clinical Practice Certification courses and ethics' training offered, for example, at the Sindh Institute for urology and Transplantation and the Shaukat Memorial Cancer Centre in Lahore.

There is no doubt that, though few currently pursue this route, the research climate has changed and academic careers are now better delineated. For many, though this still requires a degree of flexibility in terms of institution and city of choice and determination to succeed, one can't help but feel that momentum has started to gather

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