Research can be defined as a “rigorous inquiry to increase knowledge and improve practices”. Research in anaesthesia is considered vital in order to advance the image of the specialty as an academic discipline and its further development, but the ultimate aim is to improve clinical care of patients. In recent years there has been a decline in anaesthesia research in affluent countries like Canada, Japan, and United Kingdom. The reasons cited are several and diminishing university resources, changes in redistribution of research funds, and staff shortage have all been incriminated. International funding agencies currently lay more emphasis on basic science research and on major health problems like cancer, cell biology, AID’s, mental illness and cardiovascular disease.

Problems that hinder research in developing countries have been reviewed by Abu-Zidan et al. who list lack of research education and training, lack of appreciation for the value of research, shortage of research resources, limited access to health informatics, individualism and inability to work within groups. Inspite of such limitations it has been shown that with local political will and local investment health research output has increased in some Latin American countries.

The problems and challenges of anaesthesia research in developing countries are even more complicated. Anaesthesia is still a shortage specialty in Pakistan with number of vacant posts in academic departments. Although the number of anaesthetists qualifying from residency programs and taking fellowship examination have increased exponentially over the years but there is perpetual migration of these qualified anaesthetists to Middle East, Europe and the American continent. This leaves overworked specialist with increasing service demands and least interest in research. For the few who are interested the research funding is sparse and limited to only three national bodies i.e. Higher Education Commission (HEC), Pakistan Medical and Research Council (PMRC), and Pakistan Science Foundation (PSF). Anaesthesia is seen as a low priority for research both abroad and in Pakistan. Individual institutional monetary contributions to research is also negligible. The training opportunities in research are limited, and there are other limitations like lack of modern anaesthetic equipment and newer anaesthetic drugs. Any research done with anaesthetic agents and outdated equipment is not acceptable to any international journal of repute.

Should anaesthesia research not be done in developing countries? If research is a need in developed countries for the image of the specialty it is more so in developing countries. If research need is there then the next question that arises is what type of research. We do not have the equipment or the research funds to compete with the affluent countries but there are areas where research is needed and it can be combined with improvement in patient care. This is research with a more direct impact on clinical practice. Quality improvement exercises whether done as audits, reviews of practice or mortality and morbidity do not need major financial investment and are highly cost effective. There are examples of such research from developing countries being published in high impact anaesthesia journals and leading to improved patient management. Anaesthesiologists have lead the field of patient safety and perioperative care in many countries and that can be true here as well.

The models of research in developing countries need not follow the models in developed countries and should be based on their own needs and priority. Double blind randomized controlled trials (RCTs) provide best evidence and are regarded as a powerful investigative tool but good research need not always be RCT’s. Observational research can answer questions where treatment is unrelated to outcome measures e.g. studies on adverse effect. Many landmark publications in anaesthesia e.g. on LMA and nerve techniques were not RCT’s.

There are other areas that may not be of interest to developed countries e.g. simple innovative techniques that reduce cost significantly, or anaesthetic drugs used in perioperative patient management because better alternates are available. An example is the intra-operative use of drugs like tramadol or nalbuphine when newer shorter acting narcotics are not available. The results of such trials when published in our local journals will be relevant as it will benefit out local population.

In addition research needs to be further strengthened by capacity building. At the national level the College of Physicians and Surgeons of Pakistan (CPSP) is already exposing anaesthesia residents to concepts of research by requiring a dissertation before specialty certification.
However, most students feel it as an imposition and not contributing to their future work. It is important that residency training should go hand in hand with teaching residents an understanding of the research process and its value. This should be taught as a longitudinal theme throughout the four years of the anaesthesia residency programs. It is currently being recommended that information literacy and critical appraisal skills especially interpreting the results of clinical research are introduced formally in anaesthesia residency curricula.\textsuperscript{15} Dissertations should simply not be a repetition of studies done in western countries but have some value and benefit to local population.

At institutional level, those in academic departments of anaesthesia should make an active effort to keep research activity live and kicking. University departments should have yearly and long-term goals for research, for establishing priorities, and for building research capacity. Research skills of both residents and faculty can be further enhanced through short courses, and taking help from other departments with better research foundations. Cambridge Department of Anaesthesia have addressed the problems of anaesthesia research by introducing the Cambridge SMART Course, a foundation course in Scientific Methods and Research Techniques targeting post-fellowship registrars. They also offer two fully funded posts every year, of one year duration to individuals who have specific interest in research.\textsuperscript{16} The Aga Khan University has also tried the model of offering extra modular teaching leading to Masters in Clinical Research (MCR) to a selected group of residents and faculty.

Research in anaesthesia in developing countries will always be an issue and will require a sustained effort from committed individuals. Lastly a quote from Kitz et al. is worth stating.\textsuperscript{17} “It is very easy to argue that the main function of our teaching institution is the training of anaesthesiologist and that research is therefore, not a strictly necessary activity. However, teaching and training when not continually enriched by the leaven of research become flat and unimaginative, and eventually fixed in outmoded concepts”.\textsuperscript{17}

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