Research in Pediatric critical care in India:
The way forward...

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Pediatric critical care is relatively a new specialty, but it has taken great strides in the past two decades in India. The first pediatric intensive care units (PICUs) were established in the early 90s and many more PICUs came up subsequently, predominantly in the private sector and some in teaching institutions. These PICUs have definitely raised the bar in providing high quality care for critically ill children to assure optimal recovery from life threatening problems. The availability of complex and expensive medical interventions in many of the PICUs in India and the global collaboration and guidelines has expanded the discipline considerably. However, we are still stand far behind the optimum. Besides strengthening the resources an important factor that could take us to the next level is research. Undertaking research that aims to find ways to deliver optimal care to every child within economic constraints, and innovative solutions to unique geo-regional health issues in given socio-economic milieu is the only way to move forward. The improved care in the western ICU is the result of consistent advanced research from most of their centres.

Research in our setting is challenging, partly because of the wide variety of diseases prevalent in our country and the limited resources with a profound shortage of personnel and equipments. Hence it is obvious that the model of provision of pediatric intensive care and thereby research in India has to be different from developed industrialized nations. While the western world shifted focus from incidence data to therapeutic advances, critical care research in India still has a long journey ahead. For
example, several of the critical tropical infections including malaria, enteric fever, leptospirosis, scrub typhus and encephalitis are widely prevalent in many parts of India yet we lack data regarding the epidemiology and the exact burden of these illnesses in our children. We lack data on various therapeutic interventions that are most needed and utilized by our patients. Simple observational studies, retrospective or prospective, reporting of the cases seen and managed could provide valuable information that can help in creating a local database and formulating management guidelines.

An important factor that differentiates our PICUs from western units is the necessity of cost effective practice. It is a matter of great concern for us that critical care is delivered to our children at an affordable cost. Is it possible to provide high quality care outside the 'double doors' where there is no ICU? Many low cost interventions like short term manual ventilation, nasal bubble CPAP and peritoneal dialysis are utilized with greater benefits but outcome of such interventions are not routinely reported. Comparative studies and cost effective analysis can help in developing an evidence base for such interventions to be adapted into wider clinical practice.

One of the strategies to strengthen the clinical research is to establish regional and national bodies in the field of intensive care medicine to assist and support research activities. The intensive care chapter of Indian academy of pediatrics and the pediatric section of the Indian Society of Critical Care Medicine connect pediatric intensivists all over India with the goal to disseminate scientific and educational information, set the standards in patient care and safety, training, equipment design, and to encourage research in this field. Opportunities are now available for large multi-centre research across national boundaries so as to find the best local solutions to common problems, and to increase relevance and effectiveness of available options.

Clinical research lags behind the rapid progression of the field of pediatric critical care in India. It has
to be understood that research is a vital component in improving patient care techniques and therapies. All level I and level II PICUs should serve as laboratories for clinical research. Only the centres that promoted research have stood the test of time to remain at the top in public and professional perception. Continuous ongoing clinical research is the way forward towards providing high quality care to all critically ill children.

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