EDITORIAL

A movement for the protection of infancy: what we must do to lower child mortality in Papua New Guinea

In Western societies 'child protection' is often considered in the context of abuse or maltreatment. This paradigm is far too narrow for developing countries like Papua New Guinea (PNG), but it has only emerged in developed societies when effective measures are in place to protect children from deadly infectious diseases and the dangers of an impoverished existence. Simply that a given condition or circumstance has a high risk of mortality or is crippling to children, but avoidable with basic interventions, should guide our broader view of what constitutes a need for protection. In Papua New Guinea 80% of the deaths in children are in the first 12 months of life and one-quarter are in the neonatal period. It is a lesson from the history of European and other western civilizations that until there is a social movement for the protection of infants, death will continue to be seen as part of the nature of infancy, rather than the result of illnesses and therefore avoidable (1).

Papua New Guinean infants and children at the start of this century must still be protected from malnutrition, measles, pneumococcal and haemophilus infections, congenital syphilis, unsupervised village births, inappropriate adoptions, road trauma, drowning, tribal fights, gang violence, drug, alcohol and sexual abuse, HIV, illiteracy, poverty and political corruption. These are the conditions from which Papua New Guinean infants and children die, or have their lives ruined, and these are what a movement for the protection of children should focus on. Papua New Guinea's children are fortunate that, unlike those in many of the world's least developed countries, they live in a bountiful land in a relatively peaceful region; fortunate indeed that they do not need protection from land mines or famine. Sadly our neighbours in the Solomon Islands are again needing protection from the tragic consequences of civil war, which include hunger, injury, loss of family members, psychological maiming and destruction of health services.

John Biddulph understood the need for the protection of infants and children and his whole life was dedicated to this end. This tribute edition of the Journal contains the written thoughts of just a few of the scores of people who have contributed to Papua New Guinea's child health services over the last 30 years. Many of the authors were fortunate to have John Biddulph as a friend and all know of his example. A common thread among these writings is that of conditions from which current and future Papua New Guinean children must be protected. Another central theme of many of the papers is that of a society in transition and the problems and opportunities that this brings.

Vaccines will be vital to progress in child health and to the protection of children against common deadly infections. Frank Shann describes the astounding reduction in mortality that would result from achieving much higher rates of coverage for vaccines we already use, particularly measles and BCG (bacille Calmette-Guérin). He also describes the vital importance of a preventive approach to acute respiratory infection (ARI) and the urgent need for introducing immunization strategies against *Streptococcus pneumoniae*. Puka Temu and Bob Danaya in their lead article support the need for vaccine strategies for ARI. The paper by Joyce Mgone and colleagues emphasizes an important effect of measles vaccine on mortality. During an epidemic of measles a child who develops the disease after vaccination should not be considered a vaccine failure, as that child is much less likely to die than the unvaccinated child who develops measles. Measles vaccine protects against getting measles, becoming very ill from measles and dying from measles and remarkably it also protects against dying from other causes (2,3). Measles and BCG vaccines are two of the most cost-effective child health interventions in PNG; the current number of doses in the schedule must be maintained and effective coverage increased several-fold.

Introducing a pneumococcal vaccine strategy may be the single most useful new child health initiative in PNG for the next decade.

One-quarter of all child deaths occur in the first month of life. Dale Frank describes the very substantial burden of congenital syphilis and its impact on neonatal mortality in the highlands and Gilchrist Oswyn and colleagues describe the high case fatality from birth asphyxia in Port Moresby. Reducing deaths from these two conditions requires substantial improvements in maternal care. It is essential that we examine interventions that may reduce unnecessary neonatal deaths. The Paediatric Society of Papua New Guinea has developed a policy statement on Minimal Standards of Neonatal Care, published in this issue of the Journal. A study from Goroka shows how the introduction of these interventions over two and a half years reduced in-hospital neonatal mortality by 40%, but at a cost per additional life saved of K1000. This needs to be carefully evaluated in other areas before we could say how successful the Minimal Standards would be. A reduction in mortality will be heavily dependent on the introduction of better training in neonatal care. 80-90% of all neonatal deaths in PNG occur outside hospitals, so even highly successful hospital-based interventions will have a limited effect on total mortality. Barbara Howell raises the prospects of an even greater reduction in neonatal mortality from simple community-based interventions in her essay on the effect of a Village Birth Attendant Program. These two intervention studies are retrospective, and one was heavily dependent on recall, but they highlight three important points: first, that major reductions in neonatal mortality can be achieved by improving the quality of general care, in hospitals or in communities; second, that community-based interventions may be successful even where access to obstetric referral services is impossible; and third, that there is a need for more rigorously collected data. We urgently need prospective intervention trials, with careful evaluation of the cost per life saved and the proportion of the at-risk population that the intervention reaches.

John Pearn describes the morbidity and mortality from trauma and the need for programs for primary prevention using a public health model similar to that used for communicable diseases. This is a timely reminder of a major cause of disability in PNG, which falls outside traditional concepts of illness. Also timely are Michael Gracey's essay on urbanization and its effect on child health and the paper by Elizabeth Cox on the limited progress made by PNG in implementing the United Nations Convention on the Rights of the Child. Urbanization is occurring in the nation's capital and in major regional centres, with poor urban settlements and some consequent detrimental effects on the health of children. Like traumatic incidents, some of the adverse outcomes Michael Gracey and Elizabeth Cox describe have become unwanted features of life in PNG over the last decade. Increasing crime, escalating tribal and gang violence (4), sexually transmitted diseases (5), breakdown of traditional family structures and violence within families (4), and heavy reliance on highly processed food rather than a diet rich in fruits and vegetables, are all having detrimental effects on the health of families.

PNG now has an opportunity to limit further adverse effects of urbanization and improve health services. Much international assistance in health and development is available, but it must be channeled effectively. Sustainable economic development that better distributes a nation's wealth to poor people in rural areas will limit the pressure for urban drift and help prevent the further destruction of the best aspects of traditional society. Evidence is strong that a more equitable redistribution of a poor nation's wealth will also lower child mortality (6).

Opportunities in this time of adversity and change are the focus of the lead article by Puka Temu and Bob Danaya. This constructive article reinforces the need for effective partnerships with international donors, the importance of public health and the necessity of having vaccine strategies for reducing deaths from acute respiratory infections. This paper also reinforces the commitment of the government to face the enormous challenges of enforcing child rights in a society that is rapidly changing. Elizabeth Cox points out there is a long way to go, but constructive approaches that embrace all interested partners,

and are based on a united vision and resolve, are necessary.

In this regard Rachel Choy discusses the value of established health institutions becoming involved in practical training for community-based interventions, and the supportive roles that can be played by non-government organizations (NGOs). Also discussed are the needs for more integration of community interventions with the network of government services, and for critical evaluation of all new approaches. True integration of health services in this decade means much more than aid posts connected to health centres, which are in turn connected to a regional hospital. The health map in any region today may consist of aid posts and health centres, community groups, church groups and NGOs running local programs, major donors funding training and supporting district and provincial services, hospitals running curative health, training and outreach services, and activities in other sectors including agriculture and education. In many areas on every regional health map no services exist at all; the efficacy of institutions and programs vary widely; and in most regions services are sporadic and fragmented. Never before have there been so many players involved in health, never before so many opportunities, and never before such a need for central administration to understand their regional health map, in order to plan for effective integration of services and to carry out formal and objective evaluation.

Building a broad base of specific skills in child health is central to lowering mortality: from training lay village workers to specialist paediatricians. John Vince describes the very impressive results that have been achieved in postgraduate medical training in paediatrics. Paediatricians must now be funded and supported to take the role of Provincial Directors of Child Health Services. To achieve this there is a need for more regional paediatricians who have skills in epidemiology, public health and research methods; they need to be funded for public health duties and included as partners in major donor public health programs. In the foreseeable future there will be deficits in medical manpower in rural areas. Training nurses and health extension officers (HEOs) as practical specialists in child health will be much less expensive and may see more skills reach the areas where children and mothers are dying. Training at this level is the only way we will get maternal and child health experts in remote health centres. The article by Louis Samiak and colleagues on the poor understanding by graduate nurses of complex but common child health problems emphasizes the need for a higher level of specialist maternal and child health worker training. Paddy Dewan and McLee Matthew describe the development of paediatric surgical services in the last 8 years, a major achievement for cooperation between the University of Papua New Guinea (UPNG), overseas donors and several committed surgeons. Nakapi Tefuarani and colleagues outline a history of cardiac surgery in PNG in which a substantial number of children have had their lives enhanced, but they rightly conclude that current health priorities must lie elsewhere.

Malnutrition is a contributing factor to more than half of all child deaths in PNG. Keith Edwards reviews the causes of malnutrition and describes a pilot program that suggests that measuring mid-upper-arm circumference may have more utility than measuring body weight for detecting malnutrition in children living in remote areas. This is important since effective health interventions must be cheap, simple and accessible to the majority of the population.

Herbert Peters and colleagues describe the epidemiology of adoption, an unregulated social practice that has been associated with an increased risk of severe malnutrition and child death. Most of the adopted children in this case-control study of outpatients had an acceptable nutritional state and appeared well cared for, but the hidden tragedy was of avoidable maternal mortality. This paper highlights the increased risk of maternal death from village deliveries.

So what must we do to lower child mortality? We must aim for cost-effective hospital and community-based interventions directed to where the children and mothers are dying (not where the doctors want to live). We must foster more academic thinking and intervention research on the common but complex problems surrounding child and

maternal mortality. We must make the most of vaccines. We must have integration of health services rather than fragmentation. And we must have a social movement for the protection of infancy. We must work towards these things now, as next year will be too late to save the thousands of infants who will die unnecessarily this year.

Trevor Duke

Department of Paediatrics
Goroka Hospital
PO Box 392
Goroka, EHP 441
Papua New Guinea

REFERENCES

1 **Ballester R.** Child mortality: social and medical responses. *Lancet* 1999;354:SIV27.
2 **Aaby P, Samb B, Simondon F, Coll Seck AM, Knudsen K, Whittle H.** Non-specific beneficial effect of measles immunisation: analysis of mortality studies from developing countries. *BMJ* 1995;311:481-485.
3 **Shann F.** A little bit of measles does you good. *BMJ* 1999;319:4-5.
4 **United Nations Children's Fund, Papua New Guinea.** Children and women in difficult circumstances. In: Children, Women and Families in Papua New Guinea: A Situational Analysis. Port Moresby: UNICEF, 1996:139-147.
5 **Lombange CK.** Trends in sexually transmitted disease incidence in Papua New Guinea. *PNG Med J* 1984;27:145-157.
6 **Hales S, Howden-Chapman P, Salmond C, Woodward A, Mackenbach J.** National infant mortality rates in relation to gross national product and distribution of income. *Lancet* 1999;354: 2047-2049.