Death and serious injury from assault of children aged under 5 years in Aotearoa New Zealand: A review of international literature and recent findings

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Foreword

A key responsibility of the Children's Commissioner, as set out in the Children's Commissioner's Act 2003, is to 'undertake and promote research into any matter that relates to the welfare of children'. As part of those investigative powers, this literature review was commissioned, the authors being asked to review what is known about serious injury from assault of children under five years of age.

The review brings together the findings of many studies from a number of countries and adds to the general body of knowledge we have about death and serious injuries sustained by the youngest members of our society.

Child homicide and intentional assault is a significant issue in New Zealand. Effective action against child abuse and neglect will need to combine the best efforts of those working in health, child protection and education, as well as those with expertise from the wider social sector.

My thanks to Mavis Duncanson, Don Smith and Emma Davies for their efforts in working together to produce this informative discussion document.

John Angus
Children's Commissioner

Abstract

The review brings together the findings of studies done in many countries and aims to make a contribution towards the efforts currently underway to find ways to reduce rates of abuse and neglect in this country. The main findings of the review were that young children who experience serious injury or death come from a small group within the population, whose families experience multiple risk factors with complex relationships between them. The children most at risk of death or serious injury from assault are young (risk is highest on the first day of life), with unsupported young mothers who received little or no antenatal care, living in a home where there is ongoing family violence and lack of basic necessities. They are likely to have previously received attention from health services for injury, and children living with disabilities are at greater risk. The perpetrator is more likely to be a non-biological parent (compared with biological parent) and to misuse alcohol and/or other drugs. A small group of parents have serious mental illness associated with the death or injury of a child. The serious injury event is often triggered by factors such as a persistently crying baby, a severe conflict with the other parent, or impending parental separation.

Introduction

Assault resulting in serious injury and death for young children is a priority concern for any society. It is particularly relevant for New Zealand where rates of child maltreatment death are among the highest in rich countries. This paper is a further step in the development of an effective strategy to detect and prevent child abuse that leads to serious injury or death of children in New Zealand. It brings together the different perspectives of health and social development to describe factors associated with such abuse and neglect of children aged under five years, and draws on important earlier work undertaken by the Ministry of Social Development[1].

The relationship between research, policy and practice in the interests of children at risk of abuse is complex. Research provides a detailed view at a particular time and place, but often looks at factors in isolation. Policy development seeks ways to move from the current situation to a preferred situation, informed by a variety of sources. Research is just one of the sources of information in policy development, which may be constrained, especially within government, by pre-existing policy platforms and competing priorities for action and funding. Practice in the community is ideally informed by research, and evidence-based policy can help to achieve best practice. Practitioners can, however, be constrained by service needs which leave little time to critically review and modify practice. Consequently they deliver 'as good as possible' rather than 'best' practice. Translating information from the realms of research into effective policy requires a good understanding of the history of current law, policy and practice, as well as a sophisticated understanding of the professional, political and personal drivers of the various institutions and workforces involved.

This paper intends to inform serious conversations about preventing abuse and neglect of children aged under five years in New Zealand. Identifying factors associated with high rates of death and severe injury from assault is a further step in finding effective ways for agencies to work together to prevent harm and promote wellbeing for all children.

This report looks at reviews of death and serious injury, using the most accessible and most often studied data. However these children represent just one end of a continuum of violence within our communities. In addition to those children who are admitted to hospital, or who die, as a result of abuse and neglect, many more live

with violence that results in significant physical and mental disability with ongoing psychological and social consequences. Estimates of the frequency of child maltreatment in high-income countries vary depending on the data source[2], with community-based studies consistently reporting higher estimates than official child-protection statistics.

Official statistics in New Zealand show that in the 2005/2006 financial year, Child, Youth and Family (CYF) received notifications for 6699 children under two years of age. A major source of concern is the high proportion of these children who are repeat notifications following an early, possibly erroneous, decision that the risks did not justify a face-to-face social worker assessment. One quarter of the children aged under two years who were notified to CYF were determined at first assessment to require no further action. However 1018 (62 percent) of these children had been re-notified to CYF as of 31 August 2008[3]. Across all ages the CYF repeat notification is 67 percent.

Another data source relates to hospital admissions for child maltreatment. Fewer than 5 percent of children with substantiated child abuse are likely to have injuries requiring medical attention, and for such children identification of the assault by clinicians involved in their care is important[4].

Table 1 shows that between 1995 and 2004 (inclusive), intentional assault (this definition includes neglect) resulted in hospital admission for 443 children aged under five years, almost one child every week. Over half (58 percent) of these children were aged under one year, and over three-quarters (77 percent) were aged under two years. In the same time period 51 children aged under five years died as a result of assault. Almost half (49 percent) of these children were aged under one year, and over two-thirds (69 percent) were aged under two years.

Table 1. Number and percentage of children aged under five years in Aotearoa New Zealand admitted to hospital with non-fatal assault injury or dying as a result of assault 1995-2004 inclusive, by year of age. Data source: New Zealand Health Information Service data provided by Injury Prevention Research Centre, University of Otago.

	Non-fatal assault hospitalisations		Deaths	
	n	% of total	n	% of total
Age <1	255	58	25	49
Age 1	86	19	10	20
Age 2	40	9	6	12
Age 3	35	8	7	14
Age 4	27	6	3	6
Total	443	100	51	100

Background

Lawrence (2004)[5] developed a typology of fatal assaults based on the scenario around the child's death, although noting that social factors may overlap or occur in each. Lawrence considered children from birth to age 17. The focus of this monograph is on children aged under five years, who accounted for 52 percent of child deaths from assault in New Zealand from 1996 to 2004. Lawrence's categories that are relevant to this monograph are:

- Neonaticide (child killed in the first month of life)
- Infanticide (child killed in the first year of life)
- Filicide (child killed by a member of their own family). Resnick (1969)[6] identified five subtypes: altruistic; acutely psychotic; unwanted child; accidental and spouse revenge
- Fatal child abuse, 'battered baby' or non-accidental injury
- Family breakdown (child killed by a parent estranged from the other parent)
- Fatal sexual assault (child killed after being sexually assaulted).

Risk factors for child abuse and neglect that leads to serious injury or death of children can be categorised as static (background and unlikely to change) or dynamic (usually current, may change and is also likely to change with treatment/intervention). Dynamic risk factors are further divided into those that are modifiable; those that are

currently considered not modifiable; and trigger risk factors that are highly associated with the event that results in serious injury or death of the child. Such trigger factors may trigger abuse by themselves, and are critical in determining the timing of abuse.

The type of assault may also affect the outcome. For very young children, especially those aged under one year, almost all forms of assault are likely to more serious injury, rather than a higher incidence of assault. Similarly, death from 'shaking' only occurs in very young children. At older ages some types of injury, such as firearms or drowning, are more likely to result in serious injury or death than other types of injury such as assault to limbs.

An unpublished analysis of 57 child homicide deaths of children under 5 years of age in New Zealand between 1991 and 2000 found that the perpetrator was the father in 18 cases (11 were Maori, and all died as a result of violent assault); The mother was the perpetrator in 14 cases, of which 8 died by violent assault (including 5 of the 8 Maori children) and the other 6 by restriction of the airways; and a de facto partner was the perpetrator in 15 cases (14 were Maori and 12 of these deaths were by violent assault)[7].

The first day

American studies show that infants are most at risk of death or serious injury from assault from birth to 28 days of age (the neonatal period). The risk of death by homicide is 10 times as great on the first day of life than on any day in the rest of their lives[8]. Death of a child immediately after birth is usually the sole action of a mother often after a hidden pregnancy[9]. The methods are often 'indirect' and involve leaving the baby to 'expire' without support for life. However, these are infrequent – for instance Herman-Giddens et al (2003)[10] reported a rate of killings at 2.1 per 100,000 births per year in North Carolina 1985 – 2000. Perpetrators were typically young, single mothers, often poor and with poor social supports and disproportionately African American.

The first year

A recent international review found that one quarter of child victims killed by their mothers are under the age of one year[11]. These infants are at particular risk of fatal child abuse (also known as 'battered baby' syndrome or non-accidental injury) which often occurs within the family. The mother or primary caregiver is the most likely perpetrator. The most common pattern of assault is escalating physical violence, or a

'culture of violence' in the household. Infants also die as a result of 'one off' assault, most often in the context of caretaker anger and frustration, where their vulnerability means that they are particularly susceptible to serious injury or even death with a degree of force that would cause less damage to an older child[12,13].

Two-thirds of infants killed by men were previously abused by the perpetrator, and many of the killings occurred when the men were left with the temporary care of a young crying child who they wanted to 'silence'[14-18]. Lucas et al (2002)[19] observed that the majority of families had had some significant life stressor within one month of the filicide.

Very young children are also at increased risk of abuse and neglect. Severe physical abuse in children under 1 year in Wales is six times greater than for children aged 1 to 4 years and 120 times more common than for children and young people aged 5-13 years[20].

Age one to five years

Lawrence[5] cites Christoffel, Lui and Stamler (1981)[21] who suggest that rates of death from assault for children aged 1-4 years closely correlate with deaths at all ages. Similarly, Fiala and LaFree (1988)[22] argue that rates of violence for children and adults are similar. The issue mentioned for babies aged under one year, of men being left with the temporary care of a young crying child who they wanted to 'silence', is also likely to be relevant in this age group. Lyman et al (2003)[9] cites three studies that suggest parents are the most likely perpetrators of homicides for those 1-5 years of age.

Factors associated with fatal assault and serious injury

This section includes results from case control studies. Such studies compare children who are abused or neglected, with children who are not. Factors associated with fatal assault and serious injury are those that occur more commonly in the group of children who experience abuse and neglect. The odds ratio (OR) is an estimate of the magnitude of the association between the factor and the outcome, in this case the outcome is a child living with confirmed abuse and neglect.

Maternal age

Children with mothers aged under 15 years, or aged under 17 years with two or more children, are significantly more likely to be fatally abused or experience serious injury

as the result of assault than children with mothers aged 25 years[23]. Risk is also higher if the child's mother had less than 12 years of education (compared with 16 or more years of education). The increased likelihood of serious assault for children with a mother aged under 15 years is almost sevenfold (OR=6.8), for a mother aged under 17 and one or more siblings the risk is more that ten times (OR=10.9), and for a mother aged under 17 years with less than 12 years education risk is eightfold (OR=8)[23].

Prenatal services

The likelihood of serious assault is increased tenfold (OR=10.4) for a child whose mother did not receive prenatal care, or dropped out of antenatal classes[23]. Risk is also increased if the mother of the child is uncooperative with social service or health agencies. (De Panfilis and Zuravin 2002)

Father's attitude to child

Resnick (1969)[6] noted that "fathers were more likely to kill when there is doubt about paternity and when the progeny is viewed as a financial burden on their career". Cavanagh, Dobash and Dobash (2007)[14] have identified that under-education, underemployment and significant criminal histories are significant risk factors.

Non-biological parents

A child is more likely to experience abuse and neglect at the hands of a non-biological than a biological parent. The likelihood of being killed by a non-biological mother is more than twice that of being killed by a biological mother (OR = 2.4), and the risk is increased by the presence of the mother's biological children in the same household[24].

Males are more likely perpetrators of assault resulting in death or serious injury, and this risk is particularly great when the male is not the biological father of the child (OR = 8 to 12)[24-26]. Rimsza et al (2002)[27] reported that in Arizona between 1995 and 1999, the perpetrators were equally likely to be the father of the child or mother's boyfriend (32 percent each) with the mother of the child the perpetrator in 27 percent of the cases.

For Maori in New Zealand a non-biological father is almost twice (OR=1.6) as likely as the mother of a child to be a perpetrator of assault resulting in death, and five times more likely than a biological father (OR=5)[7]. Radhakrishna et al (2001)[28]

reported OR of 2.6 more likely for a non-biological father compared with a biological father, and OR of 2 compared with no father in the home. Stiffman et al (2002)[26] reported that children in a household with a non-biologically related male were eight times more likely to die from abuse than if there were two caregivers biologically related to the child. The risk is not elevated for single parents if there are no other adults living in the household.

Family violence

Lucas et al[19] and Brewster et al[17] both report that a substantial proportion of perpetrators of fatal assault were involved in domestic or family violence or neglect before the fatal incident. Cavanagh et al (2005)[14] reported that of their analysis of 'fathers who murdered' two thirds had ongoing family violence to an intimate partner at the time. Similar is also reported in Alder and Polk (1996)[29] and Adinkrah (2003)[30].

Merrill et al (2004)[31] completed an investigation of the psychosocial characteristics of navy recruits with risk of violence to partners and children and found elevated symptoms of dysphoria, post traumatic stress and self dysfunction predicted child abuse only and that in addition alcohol related problems predicted they were also at risk of intimate partner violence (indicating the two risks were independent and additive).

Lyman et al (2003)[9] report in a small sample that 'hands' were the most common weapon (61 percent) and most likely used as an impulsive reaction to an unresponsive child. Three studies[32,33,9] report that many child homicides occur during parental quarrels.

Mental illness

Lewis and Bunce (2003)[34] reported that mothers who were psychotic were more likely to have voiced homicidal ideation towards their children at least two weeks before killing them. Both psychotic and non-psychotic women were likely to have had a severe conflict with the father of the children within days of the filicide. Krischer et al (2007)[35] report that filicidal women who were subsequently admitted to a forensic psychiatric centre were severely depressed with a history of self-directed violence and a high rate of suicide attempts following the filicide event. In contrast, a high proportion of these mothers who killed their babies in the first days or months of life had severe psychotic disorders in association with poor social support. Barraclough and Harris (2002)[36] reviewed 144 cases of suicide preceded by murder from England

and Wales, and found that depression was a common diagnosis for mothers who killed younger children and then themselves, and severe depression with respect to infant victims.

Alcohol and other drugs

Mitic and Greschner (2002)[37] report that alcohol consumption was 'present' in the fatality report of 31 percent of deaths of children under five years of age. Alcohol and drug abuse is associated with lack of supervision of the child[38]. The likelihood of serious child abuse is increased six to eightfold if the child's mother was engaged in hazardous drinking around the time of conception (OR=6.2) or in the first trimester of pregnancy (OR=8.2). Barraclough and Harris (2002)[36] report that for male perpetrators within the family, substance abuse with or without mental illness was more likely. There have also been reports of child deaths as a result of alcohol poisoning, although there is little information about how often young children are given alcohol in their homes.[39]

Socio-economic status

Lawrence (2004)[5] reports socio-economic status has a differential effect whereby non-accidental injury and neglect deaths (0-4 years) occur at a higher rate in low socio-economic status groups, and perpetrators are characterised by poverty, instability and unemployment (the latter may also involve increased access to the child). They report an increased likelihood of abuse when parents have significant concerns about 'making ends meet' of six and a half times the population average (OR=6.5).

Ethnicity of child

In New Zealand Maori ethnicity is a static risk factor associated with a sixfold increase in risk of serious injury or death from assault for male children and a threefold increase in risk for female children[40]. In the United States African-American children have a higher likelihood of needing care and protection[41].

Disability

Children with disabilities are more likely than other children to experience abuse and neglect[42,43] and an association has also been observed between failure to thrive and abuse and neglect.[44] Casanueva et al 2008[45] found a high prevalence (35 percent) of developmental delay among children aged 0-3 years referred to child protection services in the United States, both among those with substantiated and

unsubstantiated abuse and neglect. Significantly, only 12 percent of these children were receiving the health and educational services they were entitled to.

Past injury

DePanfilis and Zuravin (2002)[46] report that a significant precursor is that the younger the victim the more likely that there had been previous physical injuries. An important point of intervention is using hospital admissions or visits to health services for a 'physical injury' as an alert to the possible need for intervention. Further investigation must be undertaken whenever there is a discrepancy between the parents' or caregivers' explanation and the professionals' opinion or physiological signs and for certain types of injuries.

Subdural haemorrhage is an injury seen predominantly in abused children aged under one year. In the United Kingdom 82 percent of cases of subdural haemorrhages were suggestive of abuse and a clear history of shaking was obtained in 42.5 percent of cases, although this was never the first explanation provided[47]. In New Zealand it is probably one of the most common presentations in children under 2 years of age at hospitals (Kelly and Hayes, 2004)[48]. Infants who present with metaphyseal, rib, skull, long bone or pelvic fractures in the absence of serious and well documented injury incidents should also be considered as highly likely to need protection from abuse and neglect[49].

Circumstances of injury

As mentioned above, trigger factors can precipitate latent abuse in interaction with pre-existing background or dynamic risk factors. Such triggers are often of short duration, sometimes just a few seconds. Knowledge of current and potential trigger factors is important to improve predictive accuracy of assessments[50].

A crying baby can be a factor in men killing an infant. A community random sample study[51] in the Netherlands identified that 5.6 percent of parents of children 1-6 months have slapped, shaken or smothered a baby because of it crying and the rate is highest for immigrants, unemployed parents and families that include a non-biological parent.

Lewis and Bunce (2003)[34] also suggest a common trigger stress event for the abuse of the child for mothers was a severe conflict with the father of their young children within days of the filicide.

Schmidt et al (1966)[52] and Lucas et al (2002)[19] suggest that the most likely time for the fatal abuse is weekends and times when parents (especially fathers) are likely to be in proximity to the child.

It is postulated that a catalyst, or common stressor, is an argument between the parents concerning an impending marital break-up. With older children these circumstances can be associated with murder-suicide events. It has been suggested that those who feel guilty about committing homicide are more likely to commit suicide soon afterwards[53].

There is also a specific risk around the time following case closure or the first referral, with high rates of re-referral in the year following case closure[54].

Multiple risk factors

The identified risk factors seldom occur in isolation. Relationships between them are complex. In Sweden it is estimated that children who experience serious injury or death within their families come from no more than eight percent of the population at the extreme end of the socio-economic scale, who overall face 'high excess risks of manifold problems'. A population based study[55] in Florida, USA, identified risk factors for abuse and neglect include mother smoking during pregnancy (RR 2.8); more than two siblings (RR 2.7); Medicaid beneficiary (RR 2.1); unmarried marital status (RR 2.0); and low birth weight infant (RR 2.0). Infants who had four of these five risk factors had a maltreatment rate seven times higher than the population average. (The relative risk (RR) is a measure of the magnitude of the association between the factor and the outcome, measured in a longitudinal cohort study.)

Attempts to reduce serious child assaults have sought to address interacting risk factors, and to strengthen protective factors, in individual households and in society at large. Therefore, for such families preventive measures need to be 'multimodal' to address multiple risk factors[56].

Interventions

There have been a number of studies considering possible interventions to reduce the incidence and impact of assault on children. These studies have tended to be dichotomised into addressing 'risks' or 'protective' factors using either a case-finding clinical intervention approach or a public health universal approach. The former

seeks to find the 'at risk' households and take action within those families to protect children. The latter assumes that improving all parenting will include improving the safety of 'at risk' children by bringing the behaviour of their parents closer to the statistical norm.

Any intervention needs to take into account associated support and ongoing services required. These are essential to the efficacy of any mental health treatment (more than a one off course of a single therapy). For example, in 2007 the British National Institute for Health and Clinical Evidence (NICE) published best practice guidelines for antenatal and postnatal care for women with mental health disorders[57] (and related consumer guidelines[58]). This provides a best practice framework for those mothers identified as having a mental health disorder, and associated risks for mother and baby, but does not address the identification of those at risk in the general community.

In a recent and comprehensive review of interventions and their evaluation, Klevens and Whitaker (2007)[59] found strong evidence that home visitation services and positive parenting programmes could reduce the risk of child maltreatment, and some evidence for a positive effect of educating teenagers about parenting, providing written information or a DVD to new parents, and case co-ordination. Other proposed interventions include public investment in child-care, improvement of welfare of families and promoting scientifically based child-rearing strategies. Media campaigns aimed at prevention of child abuse seem likely to have limited effect[60].

Home visitation programmes and out of home care

Studies of home visitation programmes have shown mixed results[61-62]. The current consensus seems to be that home visitation programmes may reduce the likelihood of future maltreatment[46] but that their effectiveness will depend upon the quality of the relationship between the worker and the members of the family[63], the content of the programme as delivered and received by the families[64], and the level of resources allocated to the family[65]. In the United Kingdom, the Nurse-Family Partnership, and Early Start programmes have shown reductions in child abuse and neglect. Programmes that address a broad range of needs are more relevant and more likely to engage families, with better outcomes[66 67].

Family attrition from the programme and fewer visits than planned lead to poor results [61,62,68-70]. The selection and matching of a suitable worker to families is

therefore an important factor. So too is the persistence with families who fail to engage with the programme[71]. In the New Zealand context, Connolly and Doolan (2007) rightly point out that the Family Group Conference has the potential to elicit support from family/whanau (including grandparents) in a way that is not available in other countries[72].

Low intensity in-home services may reduce the risk of further incidents of abuse for children who live in households with a substantiated risk of maltreatment[73]. For such children the benefits of home visitation may be strengthened by increasing the level of mental health involvement in the programmes[74]. If home visitors are trained and supported to use a validated postnatal depression scale, this may identify further children where there is increased risk of serious harm[75]. Effective prevention or early intervention programmes require significant state expenditure, possibly more than that required for a statutory child protection service[74].

Parent training programmes

Some parent training programmes have an overall positive effect on rates of child maltreatment[76]. They appear to be more effective when the delivery includes home visitation or is partly within the home. Inclusion of a behavioural component, and individual as well as group sessions, also enhances the outcomes. Very few of the studies, however, examined the effect on families known to have abused children.

Families where children are at high risk of maltreatment are less likely to participate in such programmes and when they do, have a high attrition rate[77] consistent with non-cooperation being a risk factor for abuse[71]. In a United States study, Casanueva et al (2008)[45] found that parenting training provided to mothers who were investigated by Child Protection Services did not significantly change parenting practices.

Case co-ordination

There is little doubt that many agencies in health, welfare and community services are involved with the same small group of children in the population who are at significant risk of serious injury or death from assault. Lack of communication between professionals from the different sectors has been identified as an important factor in child maltreatment deaths in many countries, including New Zealand[78].

The goal of any case co-ordination system should be 'a good professional network that listens and responds to the worries of children and parents[79]. Case workers need support from their agencies to participate in inter-agency initiatives[80]. It is important that the system facilitates effective collaboration.

*There is a powerful impetus across a range of jurisdictions to move towards more strategic levels of collaboration in order to deliver more integrated child welfare services. Too often the establishment of collaborative structure and systems are mistaken for the realisation of collaborative activity (*Horwath and Morrison, 2007)[81].

The United Kingdom Government's Green Paper 'Every Child Matters' has provided clear directives for health and social care agencies to resolve longstanding inter-professional differences and find ways of getting an 'ideal' balance between different values and ways of working in partnerships and integrated services. These differences include the kinds of people being drawn to different professions, differences in demographic (age, gender, ethnicity); differences in status, language, focus, orientation and time perspectives; professional identity, professional status and professional discretion and accountability as well as the often stated differences between the medical and social work models.

In New Zealand Doolan and Connolly (2006)[82] have identified a need for new approaches that include multiple agencies. They recognise that this will require a cross-agency understanding of what constitutes abuse and depend on common systems of assessment, intervention planning and information and case management. There will need to be clearer protocols about the circumstances in which different degrees of information will be shared and the limitations of access to information by various professionals.

Out of home care

A service that has become available in New Zealand is government funded early childhood education (subject to availability) for children under 5 years of age. This is now a routine means of support for families at risk. Some social service agencies have developed such childcare as an integral part of their services to 'at risk' families. There are also culturally specific child care services and other parental support, again with a focus on wider family support (and in the first language of the parents). A recent review of cross-national factors that may influence rates of child abuse suggests that government support of this type may mitigate economic stressors that

have been found to be associated with higher rates of child abuse[83]. It may be possible to progressively increase use of these services to provide a bridge of additional support for at risk families, giving the child access to other supportive adults and reducing the stress on parents who would otherwise have 24 hour parenting. However, availability of these services in the lower socioeconomic areas where they would have the greatest effect is limited[84].

Some fostercare agencies offer weekend respite care which has particular potential for at risk families as it is during these prolonged periods of sole contact (and stress) that abuse is most likely to happen. It is unclear whether these services are still funded. Full time fostercare has not been studied as an alternative for abused children, yet one study observed that 50 percent of abused children remaining in the home continued to be abused[85].

Looking forward

Effective action against child abuse and neglect in New Zealand will need to combine the best efforts of child protection, social and health service expertise. To date the leadership and most service delivery for child abuse has rested with the social service agencies – within government by Child, Youth and Family and at the local level by non-government organisations. However, in the past decade there has been a growing awareness of the impact of child abuse on health services and the health of young people. In the USA the Centers of Disease Control and Prevention have developed a public health response to abuse and neglect[86]. The underlying principles promote parenting as the broad theme for prevention and intervention work, and financial support to promote professional development around public health approaches to child maltreatment. Their top priorities are:

- Develop and evaluate optimal methods for national surveillance of child maltreatment for each of the four types of child maltreatment (physical abuse, sexual abuse, emotional abuse and neglect)
- Develop and test field-based interventions and prevention activities for child maltreatment
- Create national standards for Child Fatality Review programmes and committees
- Commission systematic reviews on what is known by clinicians and policy makers about child maltreatment (especially neglect)

- Conduct research to examine mechanisms and processes that explain the relationship between risk factors and outcomes (including health outcomes and also include victimisation and perpetration)
- Develop and market a guidelines document listing best practices for child maltreatment interventions and describing prevention protocols for all types of child maltreatment, with a special focus on neglect
- Develop conceptual models that address mechanisms and processes of the origin and perpetuation of child maltreatment of all four types of child maltreatment
- Replicate and extend studies of previously developed child maltreatment interventions, attending to moderators, mediators, new clinical techniques, and reduction of obstacles to interventions
- Facilitate the implementation of evidence-based models by providing enhanced funding and prestige for providers delivering best practice protocols[86].

New Zealand has an established Well Child Tamariki Ora Framework involving midwives during pregnancy and the first few days after birth, and Well Child service providers in the remaining pre-school years. It would be helpful to optimise the skills of this existing universal workforce to identify babies and infants who live with an increased risk of serious abuse and harm and enable them to institute appropriate action in collaboration with Child, Youth and Family and other agencies.

New Zealand also has well-established early childhood education, which is almost universally used by children aged 3-5 years. Such centres may provide a focus for continuing parental education and support, identifying children at increased risk of serious injury and death from assault and taking appropriate action, also in association with appropriate agencies.

It is important that any approach to child abuse and neglect addresses physical abuse, sexual abuse, emotional abuse and neglect. Investment in professional development and in multi-agency approaches to attaining best outcomes for children will be required. This may include provision of fellowships or some other type of financial support. The strengths of both casework and population level approaches will be important to make the progress that is much needed.

New Zealand has a particularly strong base of information available in the Child, Youth and Family, Health, Accident Compensation Corporation and coronial systems that would allow a comprehensive review of factors associated with serious injury and death from assault that is impossible in almost any other country. It's time we used this information base to its best effect.

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