Addressing Child Maltreatment in New Zealand: Is Poverty Reduction Enough?

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To cite this article: Tim Dare, Rhema Vaithianathan & Irene De Haan (2014) Addressing Child Maltreatment in New Zealand: Is Poverty Reduction Enough?, Educational Philosophy and Theory, 46:9, 989-994, DOI: 10.1080/00131857.2014.938450

To link to this article: http://dx.doi.org/10.1080/00131857.2014.938450

Published online: 22 Aug 2014.

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RESPONSE

Addressing Child Maltreatment in New Zealand: Is Poverty Reduction Enough?

Jonathan Boston provides an insightful analysis of the emergence and persistence of child poverty in New Zealand (Boston, 2014, Educational Philosophy and Theory). His remarks on why child poverty matters are brief but, as he reports, “[t]here is a large and robust body of research on the harmful consequences of child poverty” (Boston 2014, pp. 10–11). One cost he does not explicitly mention is the increased risk of maltreatment faced by children living in poverty. Given the clear correlation between risk of abuse and poverty, Boston’s recommendations might be expected to go some way to addressing New Zealand’s appalling child maltreatment statistics. However, Boston himself identifies both fiscal and political barriers to the implementation of his proposed strategy. “Fundamentally”, he observes, “without adequate multi-party agreement, it will be hard to reduce child poverty on a durable basis” and “[c]urrently, such agreement is lacking” (Boston, 2014, p. 21). Even if we accept Boston’s strategies for child-poverty reduction, then, it is prudent to consider other responses to the consequences of child poverty. Significant and controversial aspects of New Zealand’s 2013 White Paper for Vulnerable Children can be read in this light, and one of them – the proposal to use predictive risk modeling (PRM) to identify children at risk of maltreatment – is the focus of this commentary.

Keywords: predictive risk modeling, child maltreatment, ethics

Introduction

Jonathan Boston provides an insightful analysis of the emergence and persistence of child poverty in New Zealand (Boston, 2014). His remarks on why child poverty matters are brief but, as he reports, “[t]here is a large and robust body of research on the harmful consequences of child poverty’ (pp. 10–11). One cost he does not explicitly mention is the increased risk of maltreatment faced by children living in poverty. Given the clear correlation between risk of abuse and poverty, Boston’s recommendations might be expected to go some way to addressing New Zealand’s appalling child maltreatment statistics.

However, Boston himself identifies both fiscal and political barriers to the implementation of his proposed strategy. ‘Fundamentally’, he observes, ‘without adequate multi-party agreement, it will be hard to reduce child poverty on a durable basis’ and ‘[c]urrently, such agreement is lacking’ (p. 21). Even if we accept Boston’s strategies
for child-poverty reduction, then, it is prudent to consider other responses to the consequences of child poverty. Significant and controversial aspects of New Zealand’s 2013 White Paper for Vulnerable Children (New Zealand Government, 2012) can be read in this light, and one of them—the proposal to use predictive risk modelling (PRM) to identify children at risk of maltreatment—is the focus of this commentary.

**Predictive Risk Modelling and Child Maltreatment**

In recent decades, social service bodies such as hospitals and welfare agencies have begun collecting large amounts of electronic administrative data about the individuals who engage with them. These data can be linked within and across systems and used to predict future adverse events. The use of PRM is relatively advanced in health care (Billings, Dixon, Mijanovich, & Wennberg, 2006; Silow-Carrol, Edwards, & Rodin, 2012), where the increased reliance on electronic medical records has made it possible to access a rich vein of diagnostic data on individual patients (Alvarez et al., 2013) and where there is growing appreciation that clinicians are rather poor at identifying patients who are at risk of future adverse events (Alaudeen, Schnipper, Orav, Wachter, & Vidyarthi, 2011; Gravelle et al., 2007). Clinicians and health care authorities have seen PRM as a way to target early and appropriate intervention and to better inform resource allocation decisions.

These possibilities might also seem to make PRM attractive in the child welfare area. Early identification and response to risk of adverse outcomes such as maltreatment is a central pillar of the public health approach to child protection. It is no surprise, then, that child welfare professionals and authorities have deployed predictive instruments. These instruments have tended, however, to be ‘operator driven’ Actuarial Risk Assessment (ARA) tools and subject to well recognized weaknesses. ARAs are rarely validated for the populations to which they are applied, undermining efficacy as there may be notable variations across geographies and child welfare populations, and are dependent on trained and motivated frontline social workers or other agents to apply them and to respond to the estimated risk; workers who do not always use them as policymakers or designers envisaged (Broadhurst, Hall, Wastell, White, & Pithouse, 2010; Gillingham & Humphreys, 2010).

Automated PRMs avoid at least some of the problems that have undermined confidence in ARAs. In contrast to ARAs, PRMs require no manual data entry, instead using routinely collected administrative data to exploit historical correlations and patterns for a specific population. Their reliance upon specific data sets makes it more likely that they will be validated for populations, or even for specific subsets of populations. They can process vastly larger sets of data than any operator driven alternatives, and so offer dramatically more accurate risk assessments.

The PRM tool linked to the New Zealand White Paper for Vulnerable Children illustrates their potential (Vaithianathan et al., 2012). The core of the tool is an automated algorithm developed and validated using an anonymized data-set linking administrative records from New Zealand’s welfare benefit and Child, Youth and Family Services systems for children who were born between January 2003 and June 2006 and had a benefit spell before the age of two, a sample of 57,986 children com-
prising about 33% of all children born in New Zealand during that period. The study algorithm was developed by identifying potential variables in cases of substantiated maltreatment in 70% of the cohort. One hundred and thirty-two variables—including demographic and historical features of a child, their family, household and community—were found to make a statistically significant contribution to the model and retained in a core algorithm which was then tested on a 30% validation sample. When the children in the validation sample were followed until their fifth birthday it was found that 48% of children with risk score of ten (the top 10% risk category), and 29% with a risk score of nine had maltreatment findings by age five.

Vaithianathan et al. (2012) suggest focusing intensive intervention on children with risk scores of nine and ten, which (in the sample) contained 37% of total national maltreatment findings, while making up 5% of the total population. If we assume that assistance would be offered in all cases of a nine or ten risk score and that 50% of subjects took up the offer, with a nominal prevention per-intervention rate of 46%, then we could expect 280 cases of maltreatment to be prevented up to age five for every two years of conducting the programme.

Critique and the Outline of a Response

Notwithstanding the apparent potential of the approach, PRM has been treated with suspicion in the child welfare area. Influential commentator Eileen Munro (2007), for instance, argues that reliance on information and communication technology (ICT) is positively harmful in child welfare (p. 41). Munro raises a number of concerns; about the accuracy of risk predictions and the resulting problem of false positives and stigmatization, about the impact on the relationship between families and child welfare professionals, and about the danger that cases of serious abuse will be hidden in the deluge of data raised by more extensive data-gathering. While Munro does not purport to offer an exhaustive critique of the use of PRM or ICT in the child welfare area, her concerns provide a useful framework around which to sketch an alternative view.

Our starting point is the observation that there is a powerful ethical imperative to find a way to protect the most vulnerable members of our community. While the application of PRM to child maltreatment does raise significant ethical concerns, in our view those concerns can either be significantly mitigated by appropriate implementation strategies or are plausibly outweighed by the potential benefits of such modelling. We see the concerns raised by Munro and others as matters to be addressed in order to allow child protection workers the benefits of PRM, rather than as reasons to reject a potentially powerful element in an appropriate suite of child protection measures.

The fact that risk prediction tools inevitably make some errors at any threshold for referral, identifying as low risk some children who go on to experience abuse or neglect, and identifying as high risk some children who do not, means that current early identification referral routes such as those initiated by health professionals and front line social service professionals must be retained. The consequences of mistaken identification as high-risk must be reduced as much as possible by, for instance, providing opportunity for experienced professionals to exercise judgement about
appropriate responses, ensuring that such professionals understand the potential of PRM to misclassify families, and providing training against confirmation bias.

The use of PRM in the child welfare area raises pressing concerns about the possible stigmatization of individuals or families as a consequence of their being identified as at high-risk. We might address these concerns by ensuring that interventions are at the minimum level necessary, and that information produced by PRM is disseminated as narrowly as possible, with as little detail as possible, consistently with achieving the benefits of the intervention. Furthermore, since those identified as at risk will have committed no wrong and most of them will not go on to do so, interventions must be preventive and supportive, not punitive. Interaction with high-risk families should be as similar as possible to that with other families needing support.

It is widely recognized that despite its capacity to deliver considerable benefits, allowing efficient allocation of resources and early diagnosis and intervention, health screening carries some costs, including those associated with the burdens of compliance, over-diagnosis, misdiagnosis, and the creation of anxiety or unwarranted confidence. The availability of an effective intervention or response to risks identified by screening programmes is widely seen as crucial to the ethical status of such programmes (Wilson & Jungner, 1968). This requires us to ask whether there is an intervention capable of mitigating the risk of the event screened for and delivering benefits to screened populations that outweigh the burdens of screening. Evidence of the efficacy of available child maltreatment interventions is, we think, arguably sufficient to satisfy the ‘effective intervention’ principle. A handful of programmes have shown some evidence of capacity to reduce child maltreatment (see for instance, Dubowitz, Feigelman, Lane, & Kim, 2009; Fergusson, Horwood, & Boden, 2012; Olds et al., 1997) though there are grounds for caution in each case, and while meta-analyses emphasize the sparse and mixed nature of the evidence that such interventions reduce the ‘direct measures’ of child maltreatment, there is greater confidence that they deliver benefits which contribute indirectly to that goal (Howard & Brooks-Gunn, 2009; Mikton & Butchart, 2009).

As Munro and others note, the use of PRM could lead to the neglect of the needs of lower risk children or social services being overwhelmed to the overall detriment of vulnerable children. There is, of course, nothing in PRM itself that entails such difficulties, and such concerns might be met by adjusting the thresholds that trigger intervention, or by better resourcing child protection authorities. We have argued that PRM should be used as an opportunity to deliver additional intensive intervention to high-risk families, not to reduce or neglect existing universal services. The retention of existing services would presumably go some way to meeting Munro’s concern about the threat to relationships between families and child welfare professionals. Of course, there are political risks with all welfare policies, but it is not clear why PRM poses greater risks in these areas than more traditional approaches, which are equally vulnerable to under-resourcing relative to caseloads, however generated.
Notes
1. The Area Under the Curve (AUC) indicates the accuracy of a model. The AUC for the Vulnerable Children PRM is approximately 76%, which is technically regarded as fair, approaching good, and is similar to the accuracy of a mammogram conducted without prior risk indication of cancer.
2. In subsequent development the MSD has tended toward interventions focused in those identified as at ‘high risk’, rather than those falling within specific and sharp edged risk deciles.
3. This figure is derived from the US Nurse Family Partnership Programme, used in Vaithianathan et al., 2012 as an illustration of possible intervention models. See Olds et al., 1997.

References


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