Response to the Back to Back debate about the effects of shaking a baby, in the absence of any impact trauma

In the 'Editorials' *From the Editor* of the June 2011 *Journal of Primary Health Care*, Felicity Goodyear-Smith framed the resolve to be debated in the *Back to Back* debate as "Is conventional wisdom right, that shaking a baby, in the absence of any impact trauma, can cause severe brain damage and death, or are the classical 'triad' findings likely to be due to natural or accidental causes, including attempted resuscitation of a collapsed infant? This debate needs to be had."[1] The Editor was crystal clear, "shaking a baby, in the absence of any impact trauma." She even clarified the definition of "severe brain damage and death" in terms of the "classical triad". The Editor did not use the term shaken baby syndrome. She did not use the term shaken impact syndrome. She has not used the term syndrome in framing this debate question for resolution. She stated precisely—"shaking a baby, in the absence of any impact trauma". If conventional wisdom were wrong and abusive shaking of infants cannot be demonstrated to be a valid primary cause of the triad, then the second half of the question answers itself—the classical 'triad' findings must have other natural and accidental causes.

Dr Squier directly addressed the Editor's challenge regarding shaking in the absence of impact trauma as a primary cause of the triad. Her presentation clearly asserts that biomechanical investigation, animal studies, tissue experiments, analogous real-life injury scenarios, anatomical/pathological correlation, and the absence of witnessed events, all contribute to the form of a solid body of evidence which fails to confirm shaking in the absence of impact trauma as a valid primary cause of the triad. Dr Squier acknowledges that "impact of itself is enough",[2] which is a well-supported position in the current medical literature.

In Dr Rorke-Adams's case in defense of "Shaking a baby, in the absence of any impact trauma" as a valid and the most likely cause of the triad, her only direct reference to pure shaking was the statement: "Pathogenesis of the triad has been ascribed to severe acceleration–deceleration forces consequent to shaking, plus or minus impact."[3] Does "ascribed" mean 'proven' or just 'generally assumed'? She gave no citation for her declaration. She enumerated no experimental research or higher-level evidence-based literature to support it. Dr Rorke-Adams does state, "An enormous body of evidence based upon peer-reviewed studies has established the high frequency of association between the triad and shaken impact syndrome."[3] It should be held in mind that association is not proof of etiology. Damp night air was certainly associated with malaria, and in fact was ascribed to be the cause of malaria, but did not prove to be the cause of malaria. The remainder of Dr Rorke-Adams's case consists of levelling attacks at the emerging alternative etiologies of the triad, as if by doing so she would establish shaking in the absence of impact trauma as a valid and the most likely cause of the "triad unassociated with evidence of physical injury" in all but a few cases of "haematological/coagulopathic disorders, rare metabolic diseases, vascular malformations, etc."

Setting aside the pitfalls of only offering a negative defence, it's important to point out that Dr Rorke-Adams only refers to "shaken impact syndrome". She fails to address the actual issue posed for debate by the Editor, which was, "shaking a baby, in the absence of any impact trauma" as the most likely cause of the triad. Whether this loss of focus on the issue came about through a lack of clarity in Dr Rorke-Adams's own mind or represents a deliberate side-stepping tactic is unclear, but the primary issue of the debate was missed. With this veering off-topic, the Editor would have been justified in returning Dr Rorke-Adams's commentary for not engaging the issue of debate.

Dr Rorke-Adams closed her effort with the caution for "Specialists involved in the tragic field of child abuse to remain ever mindful of the wisdom of John Dewey who said: 'Intelligence is not something possessed once and for all. It is in constant process of forming, and its retention requires constant alertness in observing consequences, and open-minded will to learn and courage in readjustment.'" Dr Rorke-Adams follows this with her own words: "Those who offer untested hypotheses to defend individuals who have harmed infants do a considerable disservice to science and to the victims."[3] I would suggest that the shaking hypothesis has not only been tested, but has actually been found wanting. In the absence of a demonstrated capacity for pure abusive shaking of a baby to produce the triad of retinal haemorrhage, subdural haemorrhage and encephalopathy in an infant unassociated with evidence of physical injury, those who continue to offer the shaking hypothesis may be the agents of an even greater disservice to science, infants, and their families. In view of the

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currently available reproducible experimental studies failing to confirm pure shaking as even a valid primary cause of the triad, one might well ask, "Is it time for Dr Rorke-Adams to be 'mindful of the wisdom' advised by John Dewey and find 'courage in readjustment'?"

Statement of Conflict of Interest: I have given testimony in family court and criminal court in cases of alleged physical abuse of infants and small children.

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RIGHT OF REPLY:

It is unfortunate that a physician whose professional responsibilities are focussed on young people with stomach aches, flu and infectious mononucleosis feels qualified to challenge pediatricians who diagnose and treat infants/children with natural/unnatural diseases and forensic pathologists who daily must evaluate all historical, clinical and investigative data relating to the body on a dissecting table in a morgue.

There is no substitute for hands-on experience.

Lucy B Rorke-Adams, MD

Thank you for bringing this contentious debate about the evidence base for the shaken baby syndrome to the attention of our general practice and primary health care providers in New Zealand.[1,2]

Unlike most other crimes where innocence is presumed until guilt is proven, persons accused of abusive head trauma in infants (usually six months and younger) are presumed guilty, notwithstanding impeccable credentials as parents or caregivers. Central to criminal charges is the clinical triad of subdural haemorrhages, retinal haemorrhages, and encephalopathy. These medical findings alone are often considered sufficient for conviction, where the wider context and additional corroborating evidence (or lack of it) may be just as important. Dr Squier argues that this triad is non-specific, in the absence of objective evidence of trauma. Dr Rorke-Adams also concedes "the triad is an important component within this complex constellation (of evidence), but does not stand alone." Just knowing that there are two sides to the debate should make doctors pause before launching into a premature and wrongful accusation when there is no corroborating evidence. In our laudable desire to protect infants from danger and abuse, a greater harm can be done to innocent and loving parents and their families, when there is an overlooked natural or non-traumatic cause for infant death.

This article with opposing views merits close reading, especially by those of us general practitioners who have additional responsibilities in forensic medicine. It is a debate that has raged overseas in medical, forensic and legal circles for at least two decades, but has yet to be played out in this country. The demands of natural justice are exceptionally finely balanced in these cases when the finders of fact must decide whether an infant has been abused or the parents are innocent and to be supported. The stakes are very high. So are the *ad hominem* polemics where reputations have been won... and lost.

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Re the *Back to Back* discussion on shaken baby syndome (SBS),[1,2] notwithstanding the numerous convictions over the past years, the SBS hypothesis has yet to be proven, with divergent polarised opinions continuing as to cause and effect. Could I put forward another potential candidate that actually has considerable scientific evidentiary support as the underlying common denominator, namely undiagnosed hypoascorbaemia?

The late Professor Alan Clemetson compiled a three-volume 1000 page textbook *Vitamin C* in 1989[3] in which he extensively discussed the biochemistry and pathology associated with

this greatly underrated aspect of human life. It has been established that covert subclinical scurvy is common, but strangely, the clinical implications are not considered when supposedly SBS infants are examined. However, all the haemorrhagic and skeletal findings could be consistent with episodes of acute and/or chronic scurvy. Clemetson even described a case where a nurse elevating an infant's feet to change the nappy resulted in bilateral fractured femurs. Lifting a scorbutic infant could likewise covertly result in fractured ribs only to be potentially discovered months later when x-rayed.

The sickly, growth-retarded infant with recurrent bruises and multiple fractures due to infantile scurvy or Barlow's disease should not be diagnosed as 'child abuse' until the former has been adequately investigated and excluded. However, it seems as if this is not being done. I suspect that based on the Kahui twin history (surviving twins of triplets born by Caesarean section with foetal distress at 29 weeks and subsequently bottle-fed with milk heated in a microwave), chronic scurvy ought to have been considered as highly likely. I would also suspect that all of the subsequent pathological findings would be found to be associated with scurvy if properly investigated. Much the same would apply with infections, as I pointed out with meningococcal meningitis some years ago.[4] Why is there such distain for ascorbic acid therapy?

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NZ Medical Council's position on the Four Principles

I thoroughly enjoyed Dr Kennelly's article on *Medical Ethics: four principles, two decisions, two roles and no reasons*. Medical ethics is an important topic, and the article contains some valuable lessons for regulators and standard setters, as well as for doctors.

I would like to make one clarification, however. In the second paragraph of his article, Dr Kennelly states that the Medical Council of New Zealand endorses the four principles approach to ethics. We do not do so directly. The four principles are endorsed in the New Zealand Medical Association's Code of Ethics,[1] although the Council does recognise this document and includes a copy in its publication *Cole's Medical Practice in New Zealand*.[2]

The four principles are not directly endorsed by the Council in the standards that we set in accordance with our obligation to "set standards of clinical competence, cultural competence and ethical conduct."[3] These standards are outlined in *Good Medical Practice*,[4] and in the statements we have issued on specific matters of importance to the public and the profession.

You might be interested to know that, during the last review of *Good Medical Practice* in 2008, the Council did consider whether it should endorse the four principles approach. Ultimately we did not do so. This decision was made for a number of reasons—and Dr Kennelly has identified some of these in his paper. In particular, Council members expressed concern that there are other valid approaches to medical ethics and that the four principles approach allows too broad a scope for interpretation. This last point was particularly important for us in terms of our role as a standard-setter. While the four principles approach does have many advantages as a framework for individuals in deciding a course of action, it is not necessarily the best framework for a court to use when deciding whether someone is guilty of an offense.

The Council does intend to review *Good Medical Practice* again later in the year. We would encourage your readers to participate in the review process, and to let us know their thoughts on the resource and on Council's approach to the setting of standards.

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