

# A summary of current studies related to chiropractic and manual therapies for pediatric patients

By co-editors Cheryl Hawk, DC, PhD, CHES and Sharon Vallone, DC, FICCP

In the March 2019 position statement by the Chiropractic Board of Australia, Interim policy on spinal manipulation for infants and young children, the Board recommends that chiropractors do not treat any children under age two years with spinal manipulation (<https://www.chiropracticboard.gov.au/News/2019-03-14-Board-announces-interim-policy>).

This is an interim position awaiting an independent expert review by Safer Care Victoria on spinal manipulation for infants and young children.

The Board goes on to state that, “there is no current clinical guideline, or peer-reviewed publication, to guide chiropractors with respect to the care of infants and young children, and the use of spinal manipulation in particular.”

While we acknowledge that there is not enough research on the effects of spinal manipulation on infants and young children, we would like to be sure that chiropractors and the public realize that there currently exists a growing body of evidence, plus an evidence-based set of recommendations for “best practices” for chiropractic care of children, which provide fairly substantial support for the safety of chiropractic care.

It is also important to note that for this interim policy the Board defines “spinal manipulation” as “moving the joints of the spine beyond the child’s usual physiological range of motion using a high velocity, low amplitude thrust.” This definition is important to keep in mind, because much of the published research on manual therapy involving children, particularly infants, suggests that very often Doctors of Chiropractic (DCs) and osteopathic physicians (DOs) do not use high velocity, low amplitude (HVLA) thrusts.

This editorial will briefly address a few of the studies which we hope will also be covered in the future review by Safer Care Victoria. It focuses on the safety of manual therapy in general because this is the chief concern of the recent policy. Effectiveness is, of course, important, but safety must be a primary concern.

**2019 Systematic review of manual therapy for the pediatric population.** This review detailed the use of manual therapy for children. “Manual therapy” included high-velocity, low-amplitude thrust maneuvers, mobilization, and low-force manual techniques. It found that in the 20 (of 50) studies

that reported on adverse events, no serious or long-lasting adverse events were reported for children receiving any type of manual therapy.<sup>1</sup>

**2018 Systematic review and meta-analysis of manual therapy for unsettled, distressed and crying infants.**<sup>2</sup> This thorough study is somewhat unique in that it included not only randomized controlled trials (RCTs) but observational studies as well, excluding only single case reports and non-peer-reviewed literature. It included studies in which the intervention was manual therapy, defined as involving “physical and/or manual contact with the patient for therapeutic intent.” This study stated that manual therapy is a “relatively low risk intervention.”<sup>2, p.13</sup> In fact, in the meta-analysis, the authors found that, “there was an overall RR [Risk Ratio] of 0.12 (95% CI 0.12 to 0.66); that is, those who had manual therapy had an 88% reduced risk of having an adverse event compared with those who did not have manual therapy.”<sup>2, p.6</sup>

**2015 Review of adverse events related to manual therapy for infants and children.**<sup>3</sup> This extensive review searched from the inception of searchable databases through March 2014, and included all manual therapists—this is a period of more than 50 years. Serious adverse events in infants and children receiving any type of manual therapy were rare. A total of 15 serious adverse events were reported, including three reported deaths. It is important to note that none of the deaths and seven of the 15 serious adverse events were attributed to chiropractors, even though chiropractors provide a substantial majority of manual care for children. In four of the seven serious adverse events related to chiropractic care, underlying preexisting pathology such as osteogenesis imperfecta contributed. It is also important to note that HVLA manipulation was applied in 10 of the 15 total serious adverse events. Mild, transient adverse effects such as temporary soreness or temporarily increased crying were much more commonly reported.

**Review of biomechanical forces of chiropractic techniques used with children.**<sup>4</sup> This study discusses the findings of literature related to the amount of biomechanical force applied when chiropractors work with infants and children. It found that DCs often modify their usual techniques according to the patient’s age, decreasing the amount of biomechanical force, particularly with respect to HVLA. The description of Marchand’s findings and recommendations arising from a survey of European chiropractors is particularly relevant to preventing adverse events.<sup>5</sup> See Table 1 for a summary of these recommendations. In this context, it is worth noting that

many, if not most, chiropractic colleges in the U.S. are now using Force-Sensing Table Technology in training students in application of HVLA techniques, so they will be able to deliver selected levels of force.<sup>6</sup> It is also worth noting that, as indicated in Table 1, thrust manipulation (HVLA) is not recommended for infants and children under age two.

**Recommendations on “best practices” for chiropractic care of children.**<sup>7,8</sup> These recommendations were first published in 2009 and then updated, based on an accompanying systematic review, in 2016. The 2009 original paper was actually structured to follow a current (at that time) Australian draft guideline on the same topic. The updated one included a systematic review, but the recommendations regarding safety did not change substantially. Based on the literature, and still congruent with the more recent studies summarized above, we recommended practices which would not only address the safety of manual procedures

themselves, but would also help avoid what Vohra et al term “indirect” adverse events: those occurring as a result of delayed referral for necessary care from another provider, or failure to correctly diagnose “red flags” which would contraindicate chiropractic care.<sup>9</sup> These recommendations include age-appropriate history and examination; detection of “red flags” and modification of manual techniques to be suitable to the patient’s age, size, developmental stage—especially in terms of skeletal development, muscle mass and ligamentous flexibility—and comfort.

**Conclusion**

The current studies summarized above suggest that manual therapies are rarely associated with serious adverse events in children, even infants. For additional protection of patients, our profession has also developed an evidence-based set of recommendations for “best practices” for chiropractic care of children.

Level and age	Type of force	% of force used for adults	Approximate Newtons (actual force)
Grade 1: Ages 0-2 months	Low force; Low speed	10%	~11 N
Grade 2: Ages 3-23 months	Low force; Low speed	30%	~34 N
Grade 3: Ages 2-8 years	Moderate force; Moderate speed	50%	~56 N
Grade 4: Ages 8-18 years	Moderate force; High speed	80%	~90 N

**Table 1. Recommended application of biomechanical forces to children of different age groups.**<sup>4,5</sup>

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