



Homeopathy in the paediatric population

Français en page 178

Today, more and more Canadians, including children, are being exposed to a wide variety of alternative health care products and services. Nationally, we spent \$3.8 billion on complementary and alternative medicine (CAM) and natural health products between 1996 and 1997 (1). In 2001, 75% of Canadians used one or more natural health products and 19% consulted a CAM practitioner (2,3). Homeopathy is one of the more popular alternative therapies used in children (4). The present statement reviews the principles of homeopathy and the evidence, or lack thereof, for its use in specific paediatric conditions. Its purpose is to enable physicians, health care workers and families to make appropriate patient-management decisions. A systematic review of the current literature was performed using PubMed, CAM on PubMed, the Cochrane Library and Health Canada's Web sites (search terms used: homeopathy, alternative and complementary medicine, children, paediatrics, infants and teens). Due to the paucity of studies in the purely paediatric population, some articles cited included adult data. No trials analyzing the effects of over-the-counter paediatric homeopathic preparations were found.

HISTORICAL PERSPECTIVE

Homeopathy, a word derived from the Greek *omeos*, meaning similar, and *pathos*, meaning suffering, was developed at the end of the 18th century by the German physician Samuel Hahnemann (5,6). It soon spread to other European countries and the United States, in part because conventional medical remedies at that time were often more dangerous or painful than the diseases they were meant to treat. In this century, some patients have turned to alternative medicine, including homeopathy, because of a growing dissatisfaction and disenchantment with a 'high-tech', depersonalized medical system (6-8). In addition, homeopathy, by virtue of its purported non-toxic nature, appeals to those with legitimate concerns about conventional drugs (9). Homeopathy is one of the most popular CAM therapies worldwide, especially in Europe (7,10). In the United States, its use has increased fivefold since 1990, largely through the sale of over-the-counter products (11). Homeopathy and homeopathic medicines should not be confused with herbal remedies.

PRINCIPLES OF HOMEOPATHY

A major tenet of homeopathy is the law of similars or 'like cures like' (ie, a substance can 'cure' in a patient the same

set of symptoms it can induce in a healthy individual) (7). A plant, mineral or other product is chosen on the basis that it would, if given to a healthy volunteer, cause the presenting symptoms of the patient (12). When given in a very diluted form, the chosen homeopathic remedy should alleviate these symptoms. Currently, there are over 2000 substances known as remedies in the homeopathic materia medica (13). For example, a homeopathic preparation derived from cockroaches may be used to treat a form of asthma characterized by suffocation with an accumulation of mucus (14). Another manifestation of asthma might be treated with a different preparation. Choosing remedies based on the symptoms rather than the disease itself is an integral part of the holistic approach to treatment by homeopathic practitioners (6).

As the remedy in its pure form would likely have some degree of toxicity, it is diluted and shaken (succussed) in a 1:10 (X or D for decimal) or 1:100 (C for centesimal) dilution in a water-alcohol solution. The higher the dilution is, the more potent the medicine. Insoluble substances are pulverized and formed into pellets with sucrose and/or lactose (15). Highly diluted preparations are greater than Avogadro's number and no longer contain the original molecule. The precise mechanism of action of homeopathic medicines on biological symptoms is still unexplained (5). For many, the lack of a scientific explanation for homeopathic treatments raises questions about its legitimacy (5,6,10,12,15). Some believe that complex interactions occur during dilutions that impart a 'memory' of the original substance to the water molecule (12,13). The ongoing debate over its mechanisms of action is beyond the scope of this article.

CLINICAL PRACTICE

The practice and scope of homeopathy are varied. Homeopathic medicines can be bought over the counter without any medical advice or, sometimes, with only the recommendations of a pharmacist (eg, camilia for teething). Homeopaths (who are rarely licensed physicians in Canada) may use varied approaches to treatment. One method is 'classical' homeopathy, where a long, detailed description of symptoms, often very different in scope to a traditional medical history, will result in the administration of a single remedy given in infrequent doses (6). 'Clinical' homeopathy

uses combinations of remedies to treat variations of a clinical condition. Some practitioners may also use other devices, such as electronic instruments (6). Such variability in the methods of practising homeopathy is one of the reasons that trials involving homeopathy are difficult to conduct, analyze, compare and reproduce (16).

REGULATION AND SAFETY OF HOMEOPATHY

The Canadian Natural Health Products Directorate, a branch of Health Canada, deals with the concerns of stakeholders involved with homeopathy and aspects of its regulation (17). As of January 2004, approved homeopathic products receive a drug identification number (DIN-HM). The criteria for the regulation of these medicines can be accessed at the Health Canada Web site <www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/evidence_homeopathic_med_guidance_e.pdf>.

Properly prepared homeopathic medicines are generally considered to have few side effects because they are so dilute (13). For the same reason, they are unlikely to interact with conventional medicines. There is, however, a phenomenon described by homeopathic practitioners as 'aggravation of symptoms', whereby a small number of patients may have initial worsening of their symptoms for a few hours after taking the preparation (18). A review (18) of English-language articles retrieved from biomedical databases, homeopathic journals and symposia from 1970 to 1995 on adverse effects of homeopathic medicines and products was published in 2000. The authors found that the quality of information on adverse effects was poor and lacking in important details to assess causality. They concluded that there was a very small risk of toxicity of homeopathic medicines when compared with placebo (18). However, they noted that there are reservations to drawing that conclusion because the mode of assessment of adverse effects was not usually described. Homeopathic products (combinations of often-undiluted homeopathic medicines with herbal or other ingredients) have been shown to be potentially harmful.

One case report (19) of contact dermatitis (baboon syndrome) due to the ingestion of a homeopathic preparation of mercury was reported in Spain. A second report (20) of mercury intoxication requiring chelation therapy was reported in an infant treated for diaper dermatitis with homeopathic mercury. It is difficult to link possible adverse effects to homeopathic remedies because they are often obtained over the counter.

Although there are relatively few concerns with the safety of properly prepared homeopathic products, there are some issues with homeopathy's belief system and its practitioners. In some cases, homeopaths do not refer children for conventional care, whereas in other situations, parents may delay seeking medical attention while awaiting results from homeopathy (8,21).

Another area of major concern is the negative attitude toward immunizations disseminated by some homeopathic practitioners. In Quebec, a study (22) found that 40% of nurses who administer vaccines agreed with the statement that homeopathy can eliminate the need to vaccinate. Another study (23) conducted in Germany among medically

qualified homeopathic and non-homeopathic physicians showed that while classical vaccines, such as the diphtheria, pertussis, tetanus and poliomyelitis vaccines, are well accepted in both groups, others are less accepted by homeopathic physicians. A survey of 42 homeopaths in Massachusetts (21) discovered that only 35% recommended vaccinations and 9% actively opposed them. Several other surveys on the attitudes of homeopaths toward vaccination have reported similar results (24,25). In England, a study (26) found that homeopathy was the most common reason cited for parental nonadherence with immunization regimens.

HOMEOPATHY USE IN CHILDREN

How often is homeopathy used to treat childhood illness and conditions? A 1992 study (4) conducted in a paediatric ambulatory department in Montreal, Quebec, found that of the 11% who had used CAM, homeopathy ranked second in overall use. In a survey conducted in England (27), it was demonstrated that of the 18% of children who had used a complementary therapy, homeopathy was one of the most popular treatments for dermatological; ear, nose and throat; respiratory; and emotional disorders. In two British paediatric studies (28,29), 15% of children with asthma and 35% of children with atopic dermatitis who had tried CAM used homeopathy. In Norway, children are visiting homeopaths in ever increasing numbers: from 10% in 1985 to 25% in 1998 (30). A 1999 survey of Italian children (31) revealed that 7.7% had used homeopathy.

EFFICACY OF HOMEOPATHY

Overall, the quality of the clinical trials of homeopathy do not compare favourably with those of conventional medicine (32). Nonetheless, attempts have been made using meta-analyses of the available data to determine whether homeopathy is more effective than placebo. In 1991, Kleijnen et al (33) conducted a meta-analysis of 105 trials with analyzable results. They concluded that there was sufficient evidence to indicate a statistically positive result in favour of homeopathy, although many of the trials were of poor methodological quality. This result came with several important caveats and concerns, not the least of which was a call for larger, rigorous, double-blind studies.

The next meta-analysis done in 1997 by Linde et al (34) reviewed 89 trials that the authors judged acceptable. They concluded (using an OR) that it was unlikely that the clinical effects of homeopathy were completely due to the placebo effect. There was not enough evidence to conclude that homeopathy was effective for any specific condition. However, their method of choosing studies has been questioned, with some detecting a bias toward studies with positive results (35,36). Another meta-analysis by Linde and Melchart (37) compared individualized homeopathy with another treatment, placebo or no treatment. In the 19 trials that yielded sufficient data, homeopathy was significantly more effective than placebo. When the trials were restricted to those with the soundest methodology, no significant effect could be seen. Firm conclusions of general efficacy cannot be made due to the poor quality of the trials, the high attrition rates and the unknown role of publication bias (32,38-40).

TABLE 1
Homeopathic treatment of specific conditions in children

Condition	Type of study	Study description	Results	Comments	References
Otitis media	Observational trial	Comparison of homeopathic versus conventional treatment	No difference in pain, recurrence or tympanogram	Poor study design	41
	Randomized, double-blind, placebo-controlled trial	Comparison of homeopathic treatment versus placebo	No difference in treatment failure, but fewer symptoms in homeopathy group	Small sample size	42
	Nonblinded, randomized controlled trial	Comparison of homeopathic versus standard treatment	No difference in hearing loss or antibiotic use	Small sample size	43
	Uncontrolled trial	Homeopathic treatment only	72% achieved pain control by 12 h		44
	Pilot study	Treatment with 10 different homeopathic remedies	Issues for a proper study were defined		45
Adenoid hypertrophy	Randomized, double-blind trial	Comparison of homeopathic treatment versus placebo	No difference in need for adenoidectomy		46
Asthma	Randomized, double-blind, placebo-controlled trial	Homeopathic and conventional treatment versus placebo and conventional treatment	No difference between adjunctive homeopathic treatment versus placebo		47-52
	Uncontrolled trial	Individualized homeopathy	No difference in forced expiratory volume or exhaled nitrous oxide	Very small sample size	53
	Cochrane review		Not enough evidence to assess role of homeopathy		54
Allergies	Patient as own control	Homeopathic with conventional treatment	Conventional medication use decreased	Many problems with the study	55
Cold/flu	Nonblinded trial	Comparison of homeopathic treatment versus placebo	No decrease in symptoms or need for antibiotics or tonsillectomy/adenoidectomy		56
	Cochrane review in prevention/treatment of flu	Homeopathic treatment only	Small reduction in symptoms	Review cannot recommend use of treatment	57
Diarrhea	Randomized trial (and meta-analysis done by same authors)	Comparison of homeopathic treatment versus placebo	Significant decrease in number of stools on day 3 and duration of diarrhea	Well-designed studies	58-60
	Meta-analysis	Comparison of homeopathic treatment versus placebo	Positive effect of homeopathy		61
Warts	Randomized, nonblinded trial	Comparison of homeopathic treatment versus placebo	No difference between groups	Reference 64 is a review of other dermatological conditions	62-64
Chemotherapy-induced stomatitis	Randomized, blinded trial	Comparison of Traumeel (BHI Inc, USA) versus placebo	Statistically significant difference favouring homeopathy	Multiple design problems	65
Postoperative agitation	Nonrandomized, nonblinded trial	Comparison of homeopathic treatment versus placebo	Homeopathy provided greater relief	Major methodological and reporting flaws	66
ADHD	Nonrandomized, noncontrolled trial	Treatment with various homeopathic remedies	75% of ADHD improved with homeopathic treatments	Major methodological problems	67

ADHD Attention deficit hyperactivity disorder

Because of the inconclusive nature of the data thus far, the belief system of the individual will most likely influence the interpretation of the results – opponents of homeopathy are unlikely to be swayed by a tendency toward positive trials, whereas its adherents are more likely to be dismissive of negative results.

HOMEOPATHIC TREATMENT OF SPECIFIC CONDITIONS IN CHILDREN

Table 1 summarizes homeopathic treatments in paediatric patients that have been reported in the literature. It provides information on the type of study, a brief description of the study, followed by treatment outcome and specific

comments. While parents frequently use homeopathic remedies for colic and teething, no studies were found in the medical literature search on the use of these preparations for these conditions.

SUMMARY

Homeopathy is a common form of CAM used to treat paediatric conditions. Based on the available evidence, adverse effects from properly prepared homeopathic medicines seem to be uncommon, although they may be under-reported. However, a major concern is the reluctance on the part of those who practice homeopathy to support vaccinations. As well, delays in seeking conventional medical therapies while waiting for results from homeopathic treatments may jeopardize the child's health.

Questions about the use of homeopathy and other CAM therapies or products should be a routine part of the paediatric history, especially for children with chronic conditions. As with all CAM therapies, physicians should be prepared to respond to parents' questions on homeopathy in an informed and nonjudgemental manner. There are only a few good studies (42,58,60) showing possible benefits of homeopathy when prescribed by trained practitioners for a selected number of specific conditions in children. Therefore, more rigorous studies showing efficacy need to be completed before it can be recommended as a credible complementary or alternative therapy for the paediatric population.

ACKNOWLEDGEMENTS: The Community Paediatrics Committee thanks their colleagues from the Drug Therapy and Hazardous Substances Committee for their feedback during the development of this statement.

REFERENCES

- Health Canada. Applied Research and Analysis Directorate. Health Policy Research Bulletin: Complementary and alternative health care: The other mainstream. Issue 7, November 2003. <www.hc-sc.gc.ca/iacob-dgiac/arad-draa/english/rmd/bulletin/mainstream.html> (Version current at February 7, 2005).
- Hay Health Care Consulting Group. Berger population health monitor overview report March 2001. (Contact Earl Berger 416-815-6405)
- Millar WJ. Patterns of use – alternative health care practitioners. *Health Rep* 2001;13:9-21.
- Spigelblatt L, Laine-Ammara G, Pless IB, Guyver A. The use of alternative medicine by children. *Pediatrics* 1994;94:811-4.
- Merrell WC, Shalts E. Homeopathy. *Med Clin North Am* 2002;86:47-62.
- Jonas WB, Kaptchuk TJ, Linde K. A critical overview of homeopathy. *Ann Intern Med* 2003;138:393-9.
- Ernst E, Kaptchuk TJ. Homeopathy revisited. *Arch Intern Med* 1996;156:2162-4.
- Horowitz BZ. Homeopathic remedies for children: Are they cause for concern? *J Toxicol Clin Toxicol* 2000;38:355-6.
- Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients: A meta-analysis of prospective studies. *JAMA* 1998;279:1200-5.
- Fisher P, Ward A. Complementary medicine in Europe. *BMJ* 1994;309:107-11.
- Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: Results of a follow-up national survey. *JAMA* 1998;280:1569-75.
- Vickers A, Zollman C. ABC of complementary medicine: Homeopathy. *BMJ* 1999;319:1115-8.
- Breuner CC. Complementary medicine in pediatrics: A review of acupuncture, homeopathy, massage, and chiropractic therapies. *Curr Probl Pediatr Adolesc Health Care* 2002;32:353-84.
- Malthouse S. Homeopathic remedies for asthma. *Can Fam Physician* 1997;43:1917.
- Homeopathic products. *Med Lett Drugs Ther* 1999;41:20-1.
- National Institutes of Health Office of Alternative Medicine, Practice and Policy Guidelines Panel. Clinical practice guidelines in complementary and alternative medicine. *Arch Fam Med* 1997;6:149-54.
- Health Canada. Consultation on Homeopathic Products – Summary Report. May 15 and 16, 2002. <http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/sum_rep_homeopathic_consultation_e.pdf> (Version current at February 7, 2005).
- Dantas F, Rampes H. Do homeopathic medicines provoke adverse effects? A systematic review. *Br Homeopath J* 2000;89(Suppl 1):S35-8.
- Audicana M, Bernedo N, Gonzalez I, Munoz D, Fernandez E, Gastaminza G. An unusual case of baboon syndrome due to mercury present in a homeopathic medicine. *Contact Dermatitis* 2001;45:185.
- Montoya-Cabrera MA, Rubio-Rodriguez S, Velazquez-Gonzalez E, Avila Montoya S. [Mercury poisoning caused by a homeopathic drug]. *Gac Med Mex* 1991;127:267-70.
- Lee AC, Kemper KJ. Homeopathy and naturopathy: Practice characteristics and pediatric care. *Arch Pediatr Adolesc Med* 2000;154:75-80.
- Dionne M, Boulianne N, Duval B, et al. Manque de conviction face à la vaccination chez certains vaccinoteurs québécois. *Can J Public Health* 2001;92:100-4.
- Lehrke P, Nuebling M, Hofmann F, Stoessel U. Attitudes of homeopathic physicians towards vaccination. *Vaccine* 2001;19:4859-64.
- Sulfaro F, Fasher B, Burgess MA, for the Immunisation Interest Group of the Royal Alexandra Hospital for Children. Homeopathic vaccination. What does it mean? *Med J Aust* 1994;161:305-7.
- Ernst E, White AR. Homeopathy and immunization. *Br J Gen Pract* 1995;45:629-30.
- Simpson N, Lenton S, Randall R. Parental refusal to have children immunised: Extent and reasons. *BMJ* 1995;310:227. Erratum in: 1995;310:777.
- Simpson N, Roman K. Complementary medicine use in children: Extent and reasons. A population-based study. *Br J Gen Pract* 2001;51:914-6.
- Ernst E. Use of complementary therapies in childhood asthma. *Pediatr Asthma Allergy Immunol* 1998;21:29-32.
- Johnston GA, Bilbao RM, Graham-Brown RAC. The use of complementary medicine in children with atopic dermatitis in secondary care in Leicester. *Br J Dermatol* 2003;149:566-71.
- Steinsbekk A, Fonnebo V. Users of homeopaths in Norway in 1998, compared to previous users and GP patients. *Homeopathy* 2003;92:3-10.
- Menniti-Ippolito F, Gargiulo L, Bologna E, Forcella E, Raschetti R. Use of unconventional medicine in Italy: A nation-wide survey. *Eur J Clin Pharmacol* 2002;58:61-4.
- Jonas WB, Anderson RL, Crawford CC, Lyons JS. A systematic review of the quality of homeopathic clinical trials. *BMC Complement Altern Med* 2001;1:12. <www.biomedcentral.com/1472-6882/1/12> (Version current at February 7, 2005).
- Kleijnen J, Knipschild P, ter Riet G. Clinical trials of homeopathy. *BMJ* 1991;302:316-23.
- Linde K, Clausius N, Ramirez G, et al. Are the clinical effects of homeopathy placebo effects? A meta-analysis of placebo-controlled trials. *Lancet* 1997;350:834-43.
- Buckman R. Reproducibility of results with homeopathic remedies. *CMAJ* 1999;160:1128-9.
- Ernst E, Pittler MH. Re-analysis of previous meta-analysis of clinical trials of homeopathy. *J Clin Epidemiol* 2000;53:1188.
- Linde K, Melchart D. Randomized controlled trials of individualized homeopathy: A state-of-the-art review. *J Altern Complement Med* 1998;4:371-88.
- Reilly D, Taylor MA, Beattie NG, et al. Is evidence for homeopathy reproducible? *Lancet* 1994;344:1601-6.
- Ernst E. A systematic review of systematic reviews of homeopathy. *Br J Clin Pharmacol* 2002;54:577-82.
- Cucherat M, Haugh MC, Gooch M, Boissel JP, for the Homeopathic Medicines Research Advisory Group. Evidence of clinical efficacy of homeopathy. A meta-analysis of clinical trials. *Eur J Clin Pharmacol* 2000;56:27-33.
- Friese KH, Kruse S, Ludtke R, Moeller H. The homeopathic treatment of otitis media in children – comparisons with conventional therapy. *Int J Clin Pharmacol Ther* 1997;35:296-301.
- Jacobs J, Springer DA, Crothers D. Homeopathic treatment of acute otitis media in children: A preliminary randomized placebo-controlled trial. *Pediatr Infect Dis J* 2001;20:177-83.

43. Harrison H, Fixsen A, Vickers A. A randomized comparison of homeopathic and standard care for the treatment of glue ear in children. *Complement Ther Med* 1999;7:132-5.
44. Frei H, Thurneysen A. Homeopathy in acute otitis media in children: Treatment effect or spontaneous resolution? *Br Homeopath J* 2001;90:180-2.
45. Barnett ED, Levatin JL, Chapman EH, et al. Challenges of evaluating homeopathic treatment of acute otitis media. *Pediatr Infect Dis J* 2000;19:273-5.
46. Feuchter U, Friese KH, Moeller H. Results of a randomised prospective double-blind clinical trial on the treatment of adenoid vegetations. *Eur J Gen Pract* 2001;7:48-54.
47. White A, Slade P, Hunt C, Hart A, Ernst E. Individualised homeopathy as an adjunct in the treatment of childhood asthma: A randomised placebo controlled trial. *Thorax* 2003;58:317-21.
48. Dantas F. Homeopathy in childhood asthma. *Thorax* 2003;58:826. (Lett)
49. Brien SB, Lewith G. Homeopathy in childhood asthma. *Thorax* 2003;58:826-7. (Lett)
50. Fisher P, Chatfield K, Mathie R. Homeopathy in childhood asthma. *Thorax* 2003;58:827. (Lett)
51. Leckridge R. Homeopathy in childhood asthma. *Thorax* 2003;58:827-8. (Lett)
52. White A. Homeopathy in childhood asthma. *Thorax* 2003;58:828. (Reply to letter)
53. Li AM, Bush A, Wilson NM. Homeopathy in childhood asthma. *Thorax* 2003;58:826. (Lett)
54. McCarney R, Linde K, Lasserson T. Homeopathy for chronic asthma. *Cochrane Database Syst Rev* 2004;1:CD000353.
55. Frenkel M, Hermoni D. Effects of homeopathic intervention on medication consumption in atopic and allergic disorders. *Altern Ther Health Med* 2002;8:76-9.
56. de Lange de Klerk ES, Blommers J, Kuik DJ, Bezemer PD, Feenstra L. Effect of homeopathic medicines on daily burden of symptoms in children with recurrent upper respiratory tract infections. *BMJ* 1994;309:1329-32.
57. Vickers AJ, Smith C. Homeopathic Oscilloccinum for preventing and treating influenza and influenza-like syndromes. *Cochrane Database Syst Rev* 2004;1:CD001957.
58. Jacobs J, Jimenez LM, Gloyd SS, Gale JL, Crothers D. Treatment of acute childhood diarrhea with homeopathic medicine: A randomized clinical trial in Nicaragua. *Pediatrics* 1994;93:719-25.
59. Duggan C, Kleinman RE. Homeopathy study questions. *Pediatrics* 1994;94:963. (Lett)
60. Jacobs J, Jimenez LM, Malthouse S, et al. Homeopathic treatment of acute childhood diarrhea: Results from a clinical trial in Nepal. *J Altern Complement Med* 2000;6:131-9.
61. Jacobs J, Jonas WB, Jimenez-Perez M, Crothers D. Homeopathy for childhood diarrhea: Combined results and meta-analysis from three randomized, controlled clinical trials. *Pediatr Infect Dis J* 2003;22:229-34.
62. Kainz JT, Kozel G, Haidvogel M, Smolle J. Homeopathic versus placebo therapy of children with warts on the hands: A randomized double-blind clinical trial. *Dermatology* 1996;193:318-20.
63. Labrecque M, Audet D, Latulippe LG, Drouin J. Homeopathic treatment of plantar warts. *CMAJ* 1992;146:1749-53.
64. Smolle J. Homeopathy in dermatology. *Dermatol Ther* 2003;16:93-7.
65. Oberbaum M, Yaniv I, Ben-Gal Y, et al. A randomized, controlled clinical trial of the homeopathic medication TRAUMEEL S in the treatment of chemotherapy-induced stomatitis in children undergoing stem cell transplantation. *Cancer* 2001;92:684-90.
66. Alibeu JP, Jobert J. [Aconite in homeopathic relief of post-operative pain and agitation in children] *Pediatric* 1990;45:465-6.
67. Frei H, Thurneysen A. Treatment for hyperactive children: Homeopathy and methylphenidate compared in a family setting. *Br Homeopath J* 2001;90:183-8.

COMMUNITY PAEDIATRICS COMMITTEE

Members: Drs Cecilia Baxter, Edmonton, Alberta (1998-2004); Mark Feldman, Toronto, Ontario; William James, Ottawa, Ontario (2002-2004); Mia Lang, Edmonton, Alberta; Denis Leduc, Montreal, Quebec (chair, 1998-2004); Cheryl Mutch, Burnaby, British Columbia; Michelle Ponti, London, Ontario (chair); Linda Spigelblatt, Montreal, Quebec; Sandra Woods, Val-d'Or, Quebec (1998-2004); David Wong, Summerside, Prince Edward Island (board representative)

Liaison: Dr Richard Haber, Montreal, Quebec (Community Paediatrics Section, Canadian Paediatric Society)

Principal author: Dr Linda Spigelblatt, Hôpital Maisonneuve-Rosemont, Montreal, Quebec

The recommendations in this statement do not indicate an exclusive course of treatment or procedure to be followed. Variations, taking into account individual circumstances, may be appropriate.