Effectiveness of day care centre infection control interventions
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Authors' objectives
To summarise the evidence on the effectiveness of infection control interventions in day care centres.

Searching
CINAHL, EMBASE, ERIC, HealthSTAR, MEDLINE, PsycINFO, Social Science Abstracts, the Cochrane Library, and the Public Health Effectiveness database of the Hamilton Wentworth Health Unit were searched from their inception. The search strategies were detailed in an appendix to the review. The search included primary and review studies, and accepted publications in all languages. Abstracts of the following journals were handsearched for the previous 5 years: American Journal of Public Health; American Journal of Epidemiology; American Journal of Health Promotion; Canadian Journal of Public Health; Health Education and Behaviour; Health Promotion International. Key staff in all Ontario Health Units and all provincial and territorial Ministry of Health agencies were contacted for unpublished studies, as were key informants. In addition, student theses were searched using the Dissertation Abstracts database.

Study selection
Study designs of evaluations included in the review
All study designs were eligible for inclusion, ranging from randomised controlled trials (RCTs) to cross-sectional designs. Qualitative and quantitative studies were eligible. Only primary studies were eligible. Reviews were retrieved and examined for primary studies included within them. Two RCTs and one cohort study were included.

Specific interventions included in the review
Studies were eligible if the interventions examined fell within the scope of public health practice in Canada, i.e. those interventions that public health staff should be able to implement, facilitate or promote. The specific interventions included: consultation on infection control policies and procedures; inspection of premises; the creation of written policies for the management of infectious communicable disease, the exclusion of sick children and the reporting of designated diseases to a medical officer of health; and the provision of annual in-service education in basic infection control. The interventions were categorised in the review as educational sessions, counselling, mass campaigns and other. Three interventions were identified and included: (1) educational sessions on hand washing aimed at day care staff with frequent reinforcement of practice; (2) the monitoring and follow-up of immunisation status of children, with follow-up by public health nurses; and (3) exclusion and treatment policies for controlling Giardia infections.

Participants included in the review
Day care centre staff or children attending day care centres were included.

Outcomes assessed in the review
Shifts in knowledge, attitudes and practices (behaviours) by the target population were assessed. Studies that evaluated only process (rather than outcome) measures were not eligible.

How were decisions on the relevance of primary studies made?
All the identified abstracts were screened by one of the reviewers, who also screened the reference lists of retrieved articles to identify potentially eligible studies.

Assessment of study quality
A generic quality assessment tool, which combined the quality assessment and the data extraction components, was designed and piloted for use in the project. The tool used was published in the document. The internal validity of each study was based on the score achieved on each of six component ratings. The criteria used to develop the component ratings (the rating algorithm was included in the document) were: selection bias; study design (RCTs and controlled clinical trials were rated as 'strong'; cohort, case-control and time series 'moderate'); control of confounders; blinding of
the outcome assessors and study participants; data collection methods; and study drop-outs. Overall, a study was rated as 'strong' if it had four 'strong' and no 'weak' component ratings; 'moderate' if it had less than four 'strong' component ratings and one 'weak' rating; and 'weak' if it had two or more 'weak' component ratings. Two reviewers independently assessed all the studies, with the exception of the two retrieved theses, for methodological quality. Eleven of the thirteen retrieved studies were divided between two other reviewers for independent appraisal. If there was any disagreement, consensus was reached on any rating in question. The main reviewer only assessed the two theses due to time considerations.

Data extraction
The data were extracted using a specific tool developed for the study, details of which were included in the document. Two reviewers independently assessed all the relevant studies (except the theses) to extract the data.

Methods of synthesis
How were the studies combined?
The studies were combined on the basis of their quality assessment scoring. Differing components of each study were described and summarised narratively.

How were differences between studies investigated?
The interventions, location, study designs and outcomes were tabulated.

Results of the review
Thirteen studies were retrieved. Of these, three were included since they had been rated as being of a 'moderate' methodological quality. The remaining studies were rated as 'weak' and were excluded.

Two studies provided good evidence to support the effectiveness of the interventions evaluated. The third included study provided evidence that the less stringent treatment and exclusion policies for the control of Giardia in day care centres were as effective as the stricter policy, and that all three treatment and exclusion policies were effective in reducing the prevalence of Giardia. An educational session, which comprised of a 20-minute slide or tape presentation followed by an instructional period in correct hand-washing technique (i.e. demonstrations, discussion period and practice sessions), was found to be effective in the short-term period of follow-up. Nurse follow-up was an effective intervention in increasing the number of correctly immunised pre-schoolers attending child care centres. Record monitoring was found to be effective in increasing the number of correctly immunised children, as determined by parental reports. It was found that a strict exclusion and treatment policy, was found to be no more effective in preventing Giardia than other less stringent exclusion and treatment policies.

Authors' conclusions
Evidence was found to support some public health infection control practices interventions that are effective in a day care centre setting.

CRD commentary
This review addressed an important and relevant topic area using broad inclusion criteria. Several relevant databases were searched using an inclusive strategy and no language restrictions. In addition, journals were handsearched, and key people in the field were consulted. The authors noted that the time frame of when the review was conducted may mean that some relevant studies might have been missed. The methodology of this review was well described. The studies included were described and summarised appropriately.

The material presented supports the conclusions drawn.

Reviewer's comment: the findings of this review may not have direct application to the UK given the differing legal and social circumstances. In the UK, health visitors using data supplied via the Primary Care Trust already monitor the
immunisation status of pre-school aged children. Day care centres have to be registered with a Local Authority. The Local Authority, in conjunction with health and education personnel, inspects each day care centre annually. However, the results about changing practice as opposed to knowledge, especially in relation to hand-washing, have universal application.

Implications of the review for practice and research
Practice: The authors state that public health staff should provide educational sessions with frequent reinforcement of practices to improve knowledge and subsequent practice of day centre staff in the prevention and control of infectious diseases. Also, public health nurses should be used to monitor and follow-up the immunisation of children attending day care centres.

Research: The authors state that methodologically rigorous evaluation research examining behavioural change rather than knowledge should be undertaken. In addition, the scope of evaluation research should be expanded to include infection control practices such as the inspection of premises, to access toileting and nappy changing practices.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.