

Cross infection associated with shared infant feeding equipment

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SUMMARY STATEMENT

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REQUEST

Is sterilisation of shared feeding equipment more effective than disinfection in preventing cross infection in mothers and infants?

REQUESTED BY

Judy Brett, Infection Control Consultant, Infection Control, Monash Medical Centre, Clayton.

METHODOLOGY

Search Strategy

The Centre for Clinical Effectiveness defines the 'best available evidence' as that research we can identify that is least susceptible to bias. We determine this according to pre-defined National Health and Medical Research Council (NHMRC, 2000) criteria (see Appendix 1).

First, we search for systematic reviews, evidence based clinical practice guidelines, health technology assessments and randomised controlled trials. If we identify sound, relevant material of this type, the search stops. Otherwise, our search strategy broadens to include studies that are more prone to bias, less generalisable or have other methodological difficulties. We include case-control and longitudinal cohort studies in our critical appraisal reports. While we cite observational and case series studies, and narrative reviews and consensus statements, in our reports we do not critically appraise them. Such studies can produce accurate results but they are generally too prone to bias to allow determination of their validity beyond their immediate setting.

Details of Evidence Request

Patient (Subject):	Mothers and infants
Intervention:	Sterilisation of infant feeding equipment
Comparison:	Disinfection of infant feeding equipment
Outcomes:	Reduction in incidence of cross infection

Search terms

(see Appendix 2 for exact search strategy)

Feeding equipment: infant feeding; bottle feeding; teat/s; bottle/s; nipples; nipple shield/s; breast pump/s; feeding equipment; milk, human; lactation; breast feeding; infant nutrition; infant/s; neonat/e/al; newborn

Intervention and comparison: sterilization and disinfection; sterilization; sterilisation; sterilise; sterilize; disinfection

Outcome: cross infection; equipment contamination; infection control

Resources Searched

We searched the following databases:

The Cochrane Library (CD-ROM) 2001 Issue 2

Medline (OVID)- 1966 to June Week 5 2000

CINAHL (OVID)- 1982 to July Week 2 2001

Current Contents (OVID)- 1993 Week 26 to 2001 Week 30

PreMedline (OVID)- July 18, 2001

Australasian Medical Index (Informat)- May 2001

Refinements, Searching & Reporting Constraints

As the CINAHL database uses "sterilization and disinfection" as an appropriate subject heading for this question, rather than distinguishing between the two, this is how we searched for the intervention and comparison of interest. All relevant records should have been identified by this strategy.

Articles about the effectiveness of cleaning of the breast before breast feeding were not included in the results as they did not specifically address shared equipment, nor were articles about HIV infection via breast milk.

RESULTS

We found no records of studies comparing the effects of sterilisation and disinfection of shared feeding equipment on rates of cross infection.

Seven articles concerning contamination of feeding equipment were identified.

All the articles were excluded from appraisal on the following grounds:

Reason for exclusion	Number
Level IV evidence	4
Non-clinical study	2
Article not in English	1
Total	7

Based on our refinements, searching and reporting constraints we are reasonably confident that these articles represent the most relevant findings published to date.

REFERENCES

ARTICLES NOT CRITICALLY APPRAISED

Descriptive Case Reports or Case Series

Jones BL, Gorman LJ, Simpson J, Curran ET, McNamee S, Lucas C, Michie J, Platt DJ & Thakker B (2000). An outbreak of *Serratia marcescens* in two neonatal intensive care units. *Journal of Hospital Infection* 46: 314-319.

Moloney AC, Quoraishi AH, Parry P & Hall V (1987). A bacteriological examination of breast pumps. *Journal of Hospital Infection* 9: 169-174.

Gransden WR, Webster M, French GL & Phillips I (1986). An outbreak of *Serratia marcescens* transmitted by contaminated breast pumps in a special care baby unit. *Journal of Hospital Infection* 7: 149-154.

Donowitz LG, Marsik FJ, Fisher KA & Wenzel RP (1981). Contaminated breast milk: A source of *Klebsiella* bacteremia in a newborn intensive care unit. *Reviews of Infectious Diseases* 3: 716-720.

Non-clinical study

Rowan NJ & Anderson JG (1998). Effectiveness of cleaning and disinfection procedures on the removal of enterotoxigenic *Bacillus cereus* from infant feeding bottles. *Journal of Food Protection* 61: 196-200.

Blenkharn JI (1989). Infection risks from electrically operated breast pumps. *Journal of Hospital Infection* 13: 27-31.

Language other than English

Knoop U, Matheis G & Schutt-Gerowitt H (1985). [Bacterial contamination of pump-collected breast milk]. *Monatsschrift Kinderheilkunde* 133: 537-541.

APPENDIX 1

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Levels Of Evidence

Based on "How to use the evidence: assessment and application of scientific evidence" (National Health & Medical Research Council, Canberra, 2000):

- | | |
|-------------|---|
| Level I | Evidence obtained from a systematic review (or meta-analysis) of all relevant randomised controlled trials. |
| Level II | Evidence obtained from at least one randomised controlled trial. |
| Level III-1 | Evidence obtained from pseudorandomised controlled trials (alternate allocation or some other method). |
| -2 | Evidence obtained from comparative studies (including systematic reviews of such studies) with concurrent controls and allocation not randomised, cohort studies, case control studies or interrupted time series with a control group. |
| -3 | Evidence obtained from comparative studies with historical control, two or more single-arm studies or interrupted time series without a parallel control group. |
| Level IV | Evidence obtained from case series, either post-test or pretest/post-test. |

APPENDIX 2

Search strategy

	Search terms for Medline
1	bottle feeding/
2	(teat\$ or bottle\$ or nipple\$ or nipple shield\$ or breast pump\$ or feeding equipment).tw.
3	nipples/
4	milk ejection/
5	milk, human/
6	lactation/
7	exp breast feeding/ or exp infant nutrition/
8	(steriliz\$ or sterilis\$ or disinfect\$).tw.
9	exp sterilization/
10	exp disinfection/
11	or/9-11
12	cross infection/
13	equipment contamination/
14	infection control/
15	(infect\$ or contaminat\$).tw.
16	or/13-16
17	infant\$ or newborn or neonat\$).mp.
18	or/1-3
19	17 and 18
20	or/4-7,19
21	11 and 20
22	16 and 21
23	limit 22 to human

\$ = truncation symbol in Ovid database