

# The Hygiene Challenges Associated with Expressing Breastmilk in the Workplace

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## Introduction

The benefits of breastfeeding are widely documented. To achieve optimal development and health, it is recommended that infants should be exclusively breastfed for the first six-months [1].

Many mothers choose to express breastmilk when returning to work to enable infants to continue receiving breastmilk. When providing an infant with expressed breastmilk, parents have additional hygienic responsibility for the pump and feeding vessels, as well as ensuring safe storage of the breastmilk [2]. Sustaining breastfeeding/expressing when returning to work or education requires time and commitment on behalf of the mother, as well as a supportive workplace or study environment [3].

Although there is no legal right, if mothers continue breastfeeding beyond maternity leave, the Health and Safety Executive (Britain's national regulator for workplace health and safety) recommends that employers provide "a private, healthy and safe environment for breastfeeding mothers to express and store milk" [4].

A significant lack of data exists regarding the hygiene related experiences of mothers when expressing and storing breastmilk in the workplace.

## Purpose

The purpose for this part of "Project Expressing" was to explore the hygiene challenges associated with expressing breastmilk in the workplace.



"Project Expressing" is a research collaboration between Cardiff Metropolitan and Swansea University exploring the hygiene perceptions and practices of parents when expressing, storing and providing expressed breastmilk for infants.

## Methods

To achieve the objectives of the study, the study consisted of three phases of data collection:

- In-depth interviews were undertaken with mothers who expressed breastmilk ( $n=40$ ).
- Online questionnaires with mothers who had expressed breastmilk ( $n=625$ ).
- A time-temperature profiling study of communal workplace refrigerators ( $n=22$ ).

Ethical approval to undertake the research were obtained from the Healthcare and Food Ethics Committee at Cardiff Metropolitan University:

- Project Expressing: In-depth interviews: Sta-5678.
- Project Expressing: Online questionnaire: Sta-7026.
- Project Expressing: Thermometry study: Sta-5698.

## References

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- Health and Safety Executive. (2022) Protecting pregnant workers and new mothers. Available from: <https://www.hse.gov.uk/mothers/employer/index.htm>.

## Results

From the 40 interviews undertaken with mothers who had expressed breastmilk, 16 had expressed breastmilk in the workplace for their infant, of the 625 people that completed the online questionnaire, 164 had expressed breastmilk in the workplace.

### Quantitative data regarding expressing breastmilk in the workplace

Completion of the questionnaire determined that many challenges occurred in the workplace in relation to expressing and storage of breastmilk, for example:

- 100% reported that privacy and comfort were essential for mothers to express. However, 48% reported that a lack of private space to express breastmilk in the workplace was a challenge for them to continue providing breastmilk for their infant.
- 17% of mothers reported that access to a pump whilst away from home was a challenge. Often the logistics of transporting a breast pump to and from work was an additional challenge for them.
- 64% reported that they used workplace refrigerators for breastmilk storage, 22% were worried about the temperature of the fridge at work, and only 25% reported that their workplace refrigerator had a thermometer.
- 35% reported that lack of facilities to store breastmilk was a challenge, with 30% reporting that they did not use a workplace refrigerator to store their breastmilk, instead they reported using a cool bag or cool box with ice packs.

### Qualitative data regarding expressing breastmilk in the workplace

The in-depth interviews established that for those mothers that had been able to breastfeed directly, "returning to work" was often a reason to start expressing. Some "expressed whilst at work" to "maintain milk supply" or "for comfort". Others discussed how they "built up a stash in the freezer before returning to work" so they could stop breastfeeding when returning to work but continue providing breastmilk.

Of those that had expressed in their place of work or study, many challenges regarding suitable locations were discussed, along with a lack of support or receptiveness from their employer or colleagues. Access to appropriate facilities for sterilising equipment and storing breastmilk whilst at work were important. Some discussed colleague perceptions of breastmilk in communal fridges, concerns for fridge temperatures, and using cool bags when fridges weren't available:

"I looked on the NHS website. And it's like, 'if your fridge is at this temperature, you can keep your breastmilk for this long' when we don't have a thermometer, and I don't know the exact temperature of the fridge." (Participant 005)

"I did make sure, especially in the summer, I had some ice blocks in the cool bag so that it kept it nice and cold because you're taking it out of a cold fridge and then putting it in your warm car and driving home with it. It's not the best, so I did used to try and make sure the bag was nice and cold." (Participant 09)

"I would have liked somewhere to store the milk. But I would have been reluctant to leave it where other people could have access to it. I had a lunchbox with ice packs in. It was a little bit uncomfortable making sure it was kept cold." (Participant 020)

"I didn't have the facilities to sterilise my equipment, I found that I was wasting a lot of milk. Because I would express a second time in the day purely to keep my supplies up, but because the equipment wasn't clean, I wasn't keeping that milk." (Participant 020)

"I had a fridge in work that was a breastmilk-only fridge, that I was the only person to have a key for. So yeah, that was really supportive. I work in the NHS. So, I think it was standard in the NHS to provide the breastmilk fridge. You knew the milk wasn't going to get interfered with in any way. And it was a clean fridge, the temperature was right for breastmilk, so you weren't going to express and then it's going to spoil. So yeah, there was loads of benefits to that." (Participant 36)

"My manager's sorting out a room for me to express in... I'll store it in my cool bag in the fridge, it's just an extra layer of separation, and then the rest of the staff won't know it's breastmilk either. Because I know some people can be a bit funny about seeing breastmilk in the fridge." (Participant 028)

"There's the thing of storing it in the fridge and thinking what would I put it in to make sure that nobody touches it, and that nobody is grossed out by it, because people are idiots about breastmilk. And transporting it, the journey home from work, the logistics about keeping it at the right temperature on the way home. So there was all that to think about." (Participant 027)

### Thermometry study of workplace refrigerators

Completion of the interviews and questionnaires confirmed the need to explore the operating temperatures of workplace refrigerators.

The thermometry study collated the time-temperature profiles (every 1 minute) of domestic-type refrigerators ( $n=22$ ), located in communal workplace kitchens and offices ( $n=20$ ), at a UK-based organisation over a five-day working week.

During the thermometry study, over 450,000 data points were collated. As indicated in Table 1, the thermometry study established that:

- Refrigerator operating temperatures ranged from  $-9.4^{\circ}\text{C}$  up to  $17.6^{\circ}\text{C}$  during the time-temperature profiling.
- Mean operating temperatures in central storage locations ranged between  $-5.1^{\circ}\text{C}$  and  $10.7^{\circ}\text{C}$ , whilst mean operating temperatures in door storage areas ranged between  $3.4^{\circ}\text{C}$  and  $12.2^{\circ}\text{C}$ .
- Mean temperatures  $>5.0^{\circ}\text{C}$  were recorded in 86% of door storage areas and 77% of central storage areas.
- No refrigerators had central and/or door storage areas at temperatures  $\leq 5.0^{\circ}\text{C}$  for the duration of the working week.
- Only three refrigerators (13%) had safe temperatures ( $\leq 5.0^{\circ}\text{C}$ ) in central and door storage areas for  $\geq 50\%$  of the working week.
- 96% of refrigerators did not have thermometers to determine operating temperature.

Table 1. Mean operating temperatures of communal workplace refrigerators ( $n=22$ ).

Refrigerator ID	Refrigerator door storage area		Refrigerator central storage area	
	Mean temperature	Time $>5.0^{\circ}\text{C}$	Mean temperature	Time $>5.0^{\circ}\text{C}$
1	$8.0^{\circ}\text{C} \pm 0.7$	100%	$7.0^{\circ}\text{C} \pm 0.6$	100%
2	$12.2^{\circ}\text{C} \pm 0.6$	100%	$10.7^{\circ}\text{C} \pm 0.7$	100%
3	$3.4^{\circ}\text{C} \pm 2.9^{\text{a}}$	36% <sup>a</sup>	$2.6^{\circ}\text{C} \pm 3.0^{\text{a}}$	29% <sup>a</sup>
4	$8.1^{\circ}\text{C} \pm 0.7$	100%	$6.8^{\circ}\text{C} \pm 0.6$	100%
5	$8.6^{\circ}\text{C} \pm 0.6$	100%	$6.7^{\circ}\text{C} \pm 0.7$	100%
6	$5.9^{\circ}\text{C} \pm 0.4$	100%	$5.2^{\circ}\text{C} \pm 0.4$	84%
7	$6.9^{\circ}\text{C} \pm 0.3$	100%	$8.2^{\circ}\text{C} \pm 0.4$	100%
8	$3.9^{\circ}\text{C} \pm 3.4^{\text{a}}$	34% <sup>a</sup>	$-5.1^{\circ}\text{C} \pm 4.2^{\text{a}}$	5% <sup>a</sup>
9	$7.9^{\circ}\text{C} \pm 0.5$	100%	$5.3^{\circ}\text{C} \pm 0.6$	70%
10	$5.8^{\circ}\text{C} \pm 1.2$	87%	$5.1^{\circ}\text{C} \pm 1.7^{\text{a}}$	44% <sup>a</sup>
11	$5.0^{\circ}\text{C} \pm 0.6$	57%	$5.4^{\circ}\text{C} \pm 0.6$	79%
12	$9.2^{\circ}\text{C} \pm 0.8$	100%	$8.4^{\circ}\text{C} \pm 1.1$	100%
13	$8.4^{\circ}\text{C} \pm 0.8$	100%	$6.2^{\circ}\text{C} \pm 1.0$	90%
14	$9.8^{\circ}\text{C} \pm 0.4$	100%	$3.5^{\circ}\text{C} \pm 0.9^{\text{a}}$	2% <sup>a</sup>
15	$9.5^{\circ}\text{C} \pm 0.4$	100%	$4.5^{\circ}\text{C} \pm 0.5^{\text{a}}$	27% <sup>a</sup>
16	$10.3^{\circ}\text{C} \pm 0.3$	100%	$7.7^{\circ}\text{C} \pm 0.2$	100%
17	$10.3^{\circ}\text{C} \pm 0.5$	100%	$6.9^{\circ}\text{C} \pm 0.7$	100%
18	$5.7^{\circ}\text{C} \pm 0.5$	100%	$7.7^{\circ}\text{C} \pm 0.7$	100%
19	$3.9^{\circ}\text{C} \pm 1.8^{\text{a}}$	32% <sup>a</sup>	$-0.4^{\circ}\text{C} \pm 2.5^{\text{a}}$	2% <sup>a</sup>
20	$11.1^{\circ}\text{C} \pm 0.3$	100%	$8.5^{\circ}\text{C} \pm 0.4$	100%
21	$7.5^{\circ}\text{C} \pm 0.8$	100%	$6.2^{\circ}\text{C} \pm 0.9$	97%
22	$9.8^{\circ}\text{C} \pm 0.6$	100%	$6.1^{\circ}\text{C} \pm 0.9$	95%

<sup>a</sup>denotes mean temperatures and  $\geq 50\%$  profiling time at recommended operating temperature ( $\leq 5.0^{\circ}\text{C}$ )

## Significance of study

- Mothers indicated challenges of expressing in the workplace related to suitable facilities for expressing, sterilising and storing breastmilk.
- The majority of communal workplace refrigerators were operating at unsafe temperatures ( $>5.0^{\circ}\text{C}$ ) for the duration of time-temperature profiling.
- This study has established that workplace support should enable women to transition back into the workplace after maternity leave and express breastmilk in a suitable and hygienic environment to ensure the safety of expressed breastmilk for their infants.



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