

# EVALUATING ADHESIVE FOAM WOUND CARE DRESSINGS IN CLINICAL PRACTICE

## Abstract

**Background:** Tissue viability nurses have an important role in ensuring that product choice is cost effective and meets the requirements of the patient population, enabling quality care to be provided. Identified as the most commonly used wound care product, foams account for a significant proportion of healthcare expenditure (Bianchi et al, 2011). **Aims:** To evaluate foam adhesive products in practice. **Method:** A group of tissue viability nurses developed an evaluation form specifically designed to capture the performance of foam adhesive dressings. The performance expectations of adhesive foams provided objectives for clinical evaluation, agreed as exudate management, conformability, adherence, ease of application, ease of removal and condition of surrounding skin. This paper describes the evaluation process and critiques the findings that enabled local decisions to be reached. The foam products chosen to be evaluated were pre-selected by clinicians via a table-top evaluation. **Results:** The evaluation results have been used to choose which foam adhesives are on the local formulary. The results also identified that dressings were being changed on a routine basis and education strategies were put in place to overcome this. Staff were involved with the formulary decisions and are happy with the outcome as well as the decisions reached.

## KEY WORDS

- ▶▶ Adhesive foam dressings
- ▶▶ Evaluation
- ▶▶ Formulary

In the current financial climate, tissue viability nurses must demonstrate that they can use resources effectively, while continuing to provide quality care and evidence that product selection decisions are based on the needs of the patient rather than the preference of the clinician (Department of Health [DH], 2010). One way that this can be achieved is by robustly reviewing wound care product usage and updating local wound care formularies.

## FOAMS

Foams are considered to be the most commonly used wound care dressing (Bianchi et al, 2011), and evidence from the author's area of practice indicates that the foams most often used are adhesives. Anecdotal evidence identified that the foams on the formulary in the author's area were not meeting patients' needs, for example, problems with skin stripping

and maceration were reported. While cost is an important element of any formulary process, it is imperative that the clinical needs of the patient are met. Only then can cost-effectiveness be achieved.

Foam products are versatile and can be used as a primary or secondary dressing. Bianchi et al (2011) concluded that no evidence is currently available that identifies one foam dressing to be superior to another. This combined with the availability of such a wide variety of foam adhesive products and supporting company literature can be confusing for clinicians, potentially leading to product choice being ritualistic or open to industry influence.

As indicated by Gray et al (2011), it is imperative that clinicians are confident that the foam product they choose meets the needs of their patient population.

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## THE STUDY

### Aims

This paper presents the process and results of an evaluation of six adhesive foam dressings in clinical practice. Foam adhesive products were reviewed by a group of clinicians who considered the properties of the individual foam dressings and selected the top six products that they wished to take forward for clinical evaluation. The table top evaluation considered various aspects, such as packaging, range of sizes and shapes, absorption, conformability and adherence.

### Study design and methods

A group of tissue viability nurses developed an evaluation form specifically designed to capture the performance of foam adhesive dressings. The performance expectations of adhesive foams provided the team with objectives for clinical evaluation. These were agreed to be:

- ▶▶ Exudate management
- ▶▶ Conformability
- ▶▶ Adherence
- ▶▶ Ease of application
- ▶▶ Ease of removal
- ▶▶ Condition of the surrounding skin.

Additionally, the reason why a dressing change was taking place; whether or not the dressing could be left in place longer; and any reasons for a dressing being discontinued, were also recorded.

Due to the variance of wound types, differences in wound sizes, patient comorbidities, and differing reasons why a foam dressing could be used, such as palliation or healing, as well as time restrictions, it was agreed not to use healing outcomes as a measure of success.

Patient assessment and the criteria for selection of a wound dressing was not to change from standard practice. To this end, nurses were asked to select only one of the foam dressings being evaluated (see *Dressing Key* above) after a foam dressing had already been identified as the wound product of choice.

The aim was to discover the optimal foam adhesive in line with current practice — this would include:

- ▶▶ Use as a secondary dressing with a variety of other wound care products

## DRESSING KEY

Foam A — PermaFoam® (Hartmann)

Foam B — Tegaderm™ Foam Adhesive (3M™)

Foam C — Biatain® (Coloplast)

Foam D — Tielle® (Systagenix)

Foam E — Allevyn™ Adhesive (Smith & Nephew)

Foam F — Trufoam Self-adhesive (Unomedical)

- ▶▶ Use on a variety of wound types and anatomical locations presented by patients on a community nursing caseload.

Patients were selected over a six-week period and nurses were requested to select the most appropriate size and shape of foam dressing to correlate with the size and anatomical location of the wound being dressed.

The nurses were asked to record six consecutive dressing changes for each patient — if six consecutive dressing changes were not achieved, the reason for this was to be recorded.

Prior to commencement of the evaluation, each company representative was invited to attend a meeting with a member from each nursing team. The aim of the meeting was to ensure that clinicians completing the evaluation were familiar with the products and understood any specific individual product requirements, such as application or removal techniques.

All nursing teams were also provided with detailed written instructions of the evaluation process.

It was decided that the evaluation should not only incorporate clinical data captured at dressing changes, but should also allow for nurses' opinions and patients' experiences to be taken into account. Nurse preference forms and patient experience forms were devised for this purpose. For nurses' opinions to be regarded as valid it was important that each had practical exposure to each of the six products. Therefore, each nursing team evaluated all of the products.

At the end of the evaluation period,

## References

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**‘All of the foams were used to treat patients with pressure ulceration, leg ulceration, traumatic wounds and surgical wounds’**

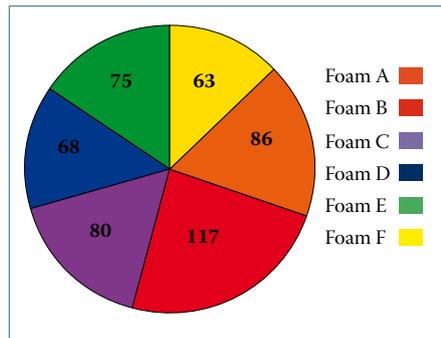


Figure 1: Proportion of changes for each dressing.

nurses were sent a nurse preference form to complete. Patient experience was captured by completing a patient experience form that asked simple questions such as:

- ▶▶ Did you find your wound care dressing comfortable?
- ▶▶ Did your dressing stay in place?
- ▶▶ Did your dressing leak?

There was also a comments box for free expression.

After collation of the evaluation forms, the results were discussed with representatives from the participating nursing teams in order for a collective decision to be reached regarding product formulary inclusion. A maximum of two products were to be chosen to be listed on the formulary — two foam adhesive products provide clinicians with sufficient choice to ensure that patient needs are being met; one foam may not be suitable for all.

**Results**

Eighteen district nursing teams across

three geographical areas recorded a total of 489 dressing changes — these ranged from 63–117 per foam product (Figure 1). Eighty-nine percent of all dressing changes were completed as routine practice.

A total of 34 evaluation forms, with a potential 204 dressing changes, were discarded due to incomplete information or obvious misinterpretation of the evaluation process. One recurring misinterpretation related to entries indicating that the size of the dressing selected was not suitable for the wound dimensions. The team had to reject these forms as the use of too small or too large a dressing has the potential to negatively affect the performance of these dressings.

The types of wounds selected for each foam group were consistent, although the number of wound types differed for each group as did the number of dressing changes.

All of the foams were used to treat patients with pressure ulceration, leg ulceration, traumatic wounds and surgical wounds (Figure 2). Other wounds included fungating ulcers, diabetic foot ulcers, burns, and donor graft sites, the number of which differed between foam groups.

The location of the wounds for all foam groups was similar. One difference noted was that Foam D was used for only three patients presenting with lower limb/foot ulceration, whereas the other foams ranged in number from 9 (Foam F) to 15 (Foam B).

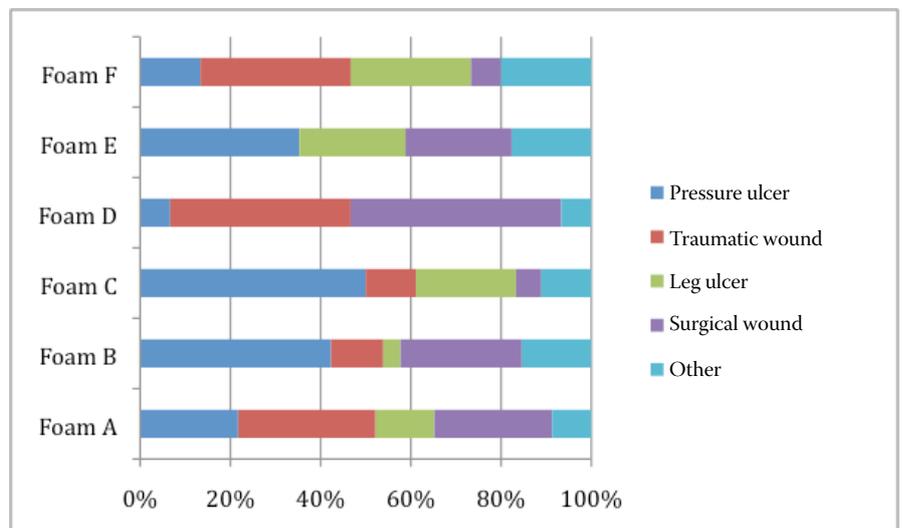


Figure 2: Wound types assigned to each foam.

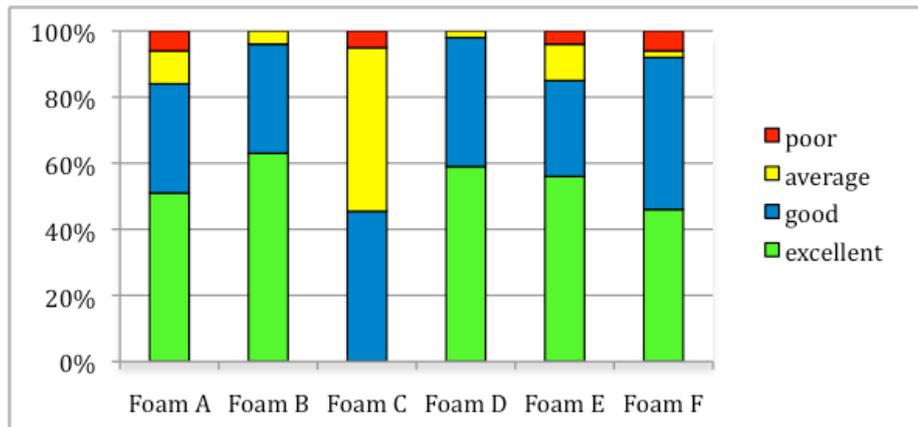


Figure 3: Ease of application.

All foam types were used both as a primary and secondary dressing with hydrogel sheets and ribbons, alginates, barrier creams and films, and povidone iodine commonly being used under the foam dressings. Foam A and E were not used in conjunction with silver alginates — all other foam groups were.

Foam B, D, and E had comparative results for ease of application, achieving over 55% for the 'excellent' and 30% for the 'good' category (Figure 3). Five of the six foam groups achieved over 80% for combined 'excellent' and 'good' categories for ease of removal (Figure 4). There was minimal difference between foam A and B — both groups achieving 'excellent' for more than half of dressings removals.

The conformability of a foam dressing can improve patient comfort and thus have a positive impact on concordance. Although there were some differences in how the foam dressings performed, there was little difference between foam B and E, with both achieving a 90% or greater score for the way the pad and the adhesive edge

contoured to the wound and surrounding skin (Figure 5). Foam D achieved a high percentage of both pad and adhesive contouring with no negative reports that neither the pad nor the adhesive contoured. Foam B was considered to be the most adherent (Figure 6).

A key function of foam dressings is their ability to manage exudate and reduce negative issues such as maceration. Foams A, B, D and E had comparably good responses from clinicians regarding exudate management (Figure 7).

Similarly, nurses recording the condition of the surrounding skin noted fewer problems with issues such as maceration and redness in Foams A, B, and D. The levels of discontinuation noted concurred with these findings, with less frequent reports of dressings being withdrawn due to negative outcomes in foams A, B and D, compared with the other foams (Figure 8).

Only Foam B was recorded as improving wear times (in over 50% of cases) with Foam D reaching 40%. Foams A, C, and F were considered less likely to remain

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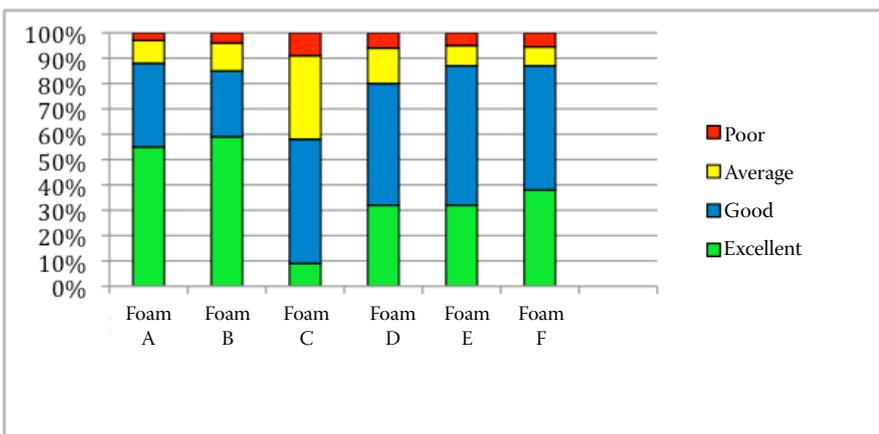


Figure 4: Ease of removal.

**‘The outcome can be used to determine the most suitable adhesive foam products used to serve the local population’**

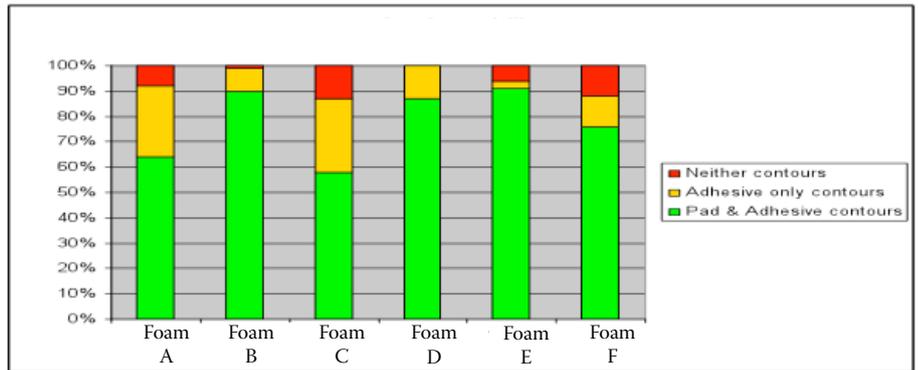


Figure 5: Conformability of foams.

in place longer than the planned interval between dressing changes (Figure 9).

A total of 49 nurse preference forms were returned. Of these, 24 were disregarded due to nurses not confirming that they had experienced practical exposure to all of the foam dressings used in the study. Overall, Foams B, D and E were identified to be the foams of choice.

Comments on the nurse preference forms reflected those on the clinical evaluations. For example, comments on Foam B and D included:

- ▶ ‘This dressing appears much better in comparison with our usual dressing’
- ▶ ‘Good dressing that remained in place and did the job’
- ▶ ‘Adherence good; removal difficult’
- ▶ ‘Patient and staff very impressed with this dressing.’

Some foam dressings attracted more negative comments such as:

- ▶ ‘A bit bulky’
- ▶ ‘It wouldn’t stay in place’
- ▶ ‘Initially good, then skin reaction occurred’

- ▶ ‘Not the best at staying in place yet difficult to remove.’

The comments on the patient experience forms often related to pain or comfort such as, ‘Wouldn’t use it again as not comfortable’, and, ‘Very happy with dressing and nurse.’

Often, the patient experience forms were completed by the nurse on the patients behalf, with comments such as, ‘Patient did not like dressing’, or, ‘Patient found it painful on removal.’

**DISCUSSION**

This evaluation aimed to capture dressing performance in wounds assessed by registered nurses as suitable for treatment with adhesive foam products. However, each foam did not have an equal number of allocated wound types or anatomical locations, nor were the wounds of equal dimension or producing an equal amount of exudate. The commonality in this study was that the suitability of the adhesive foam dressing, either as a primary or secondary wound product, was assessed

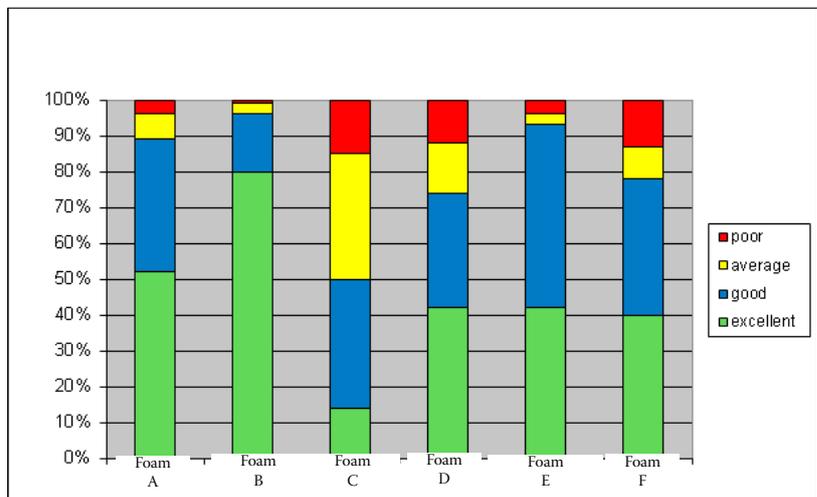


Figure 6: Adherence of foams.

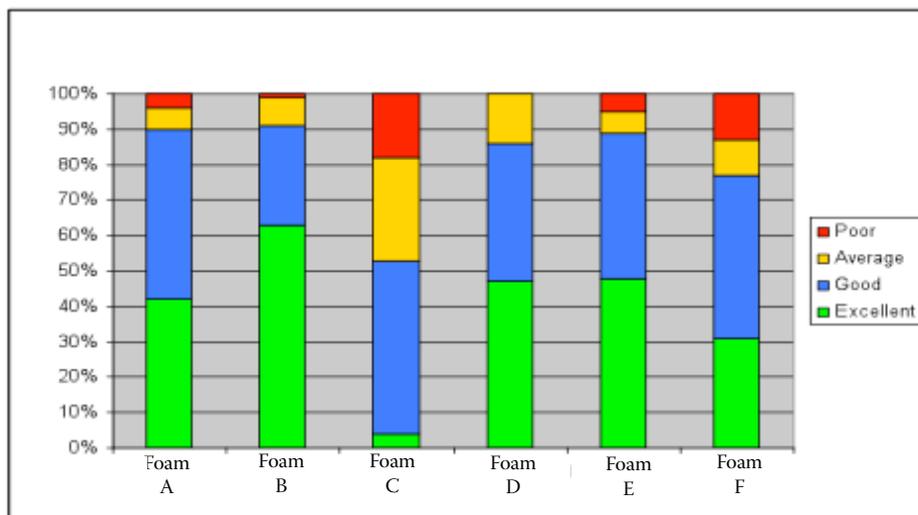


Figure 7: Exudate management performance.

by a registered nurse and that the patient was on a community nursing caseload.

The evaluation process replicated clinical practice — therefore, the outcome can be used to determine the most suitable adhesive foam products used to serve the local population.

The most common reason for dressing change was routine practice (for instance, dressing changes were performed according to a pre-determined plan, three times a week perhaps, rather than when exudate-levels dictated), despite a large proportion of reports at dressing change identifying that the dressing could have remained in place for a longer period of time. Extra wear time can reduce overall costs, particularly when managing chronic wounds, hence it should play a role in any decision regarding formulary choice.

Failure to maximise the benefits of modern foam dressings, as demonstrated by Payne et al (2009), could result in unnecessary cost, for example, if a dressing was changed more often than clinically needed. If clinicians do not maximise the use of modern dressing technology there is also the potential for clinical considerations to be overridden by procurement strategies based on purchasing cheaper dressings, which may not have the same patient benefits. Foam D was selected for use on fewer lower limbs than all other the foams. Both foam D and F were chosen for use on a

smaller proportion of pressure ulcers than the other four foams. As each nursing team were unaware of each other's product selection this occurred by chance.

However, this had minimal relevance to the overall findings as objectives for measuring success did not include healing and all parameters were based upon nursing assessment and judgment.

Likewise, the categorisation of pressure ulceration and chronicity of wounds was not recorded. Exudate management was subjective according to the assessing nurses' opinion and all products were open to the same subjectivity.

Nurse preference and free expression on the clinical evaluation forms proved to be valuable when qualifying the findings. The comments enabled discussion points to be raised and enabled a greater understanding of the practicalities of using these dressings. This was particularly important due to the large amount of nurse preference forms that were disregarded due to some nurses' lack of experience with all products.

Patient experience forms did not produce any additional information, but instead seemed to broadly support the findings of the other information-gathering methods. The majority of the forms were completed by the nurse on behalf of the patient — this may account for the similarities in the responses provided.

To overcome this in the future, patient experience could be assessed in

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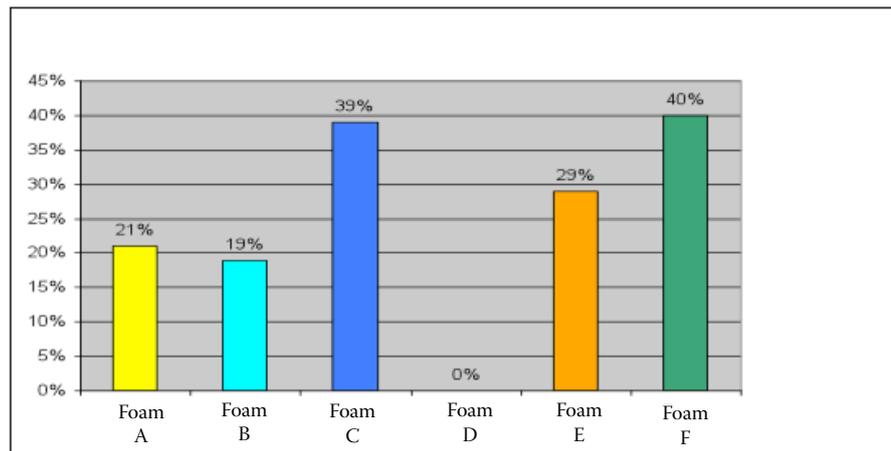


Figure 8: Amount of foam dressings discontinued.

**‘This evaluation enabled the performance of six adhesive foam dressings to be compared for use within a community population’**

different ways, for instance, a telephone questionnaire could result in different findings.

After the results were collated the group of nurses involved in the evaluation held a meeting. The results were analysed and discussed, including comments made by nurses, patients or on the patients’ behalf.

Following this group discussion, foams B, D and E were found to be the most popular products.

A collective decision was reached for foam B and D to be included on the formulary as both had fewer reports of discontinuation (Figure 8).

Additionally, foam B and D had unique differences, particularly in relation to their adhesive actions, whereas foam B and E were similar.

Including two foams on the formulary provides choice for both the nurse and the patient.

## CONCLUSION

This evaluation enabled the performance of six adhesive foam dressings to be compared for use within a community population. Nurse preference and patient experience supported the clinical findings and a collective decision was reached about which of the foams to include in the local product formulary.

For patients with wounds, product choice is only one element of their journey, with the provision of high-quality care being dependent upon a number of other factors, such as the use of concise decision-making tools, correct product usage, educated and appropriately trained clinicians, effective measuring and monitoring of wound care systems, and a collaborative approach between public, health care and industry (Stephen-Hayes et al, 2011).

Developing a local formulary based upon evidence that the needs of the patient population are being met and ensuring that collective decisions are reached has assisted with achieving the above factors.

Findings from this evaluation have informed education and training strategies, ensuring that nurses have increased their knowledge of formulary products, that decision tools are designed with reference to the specific benefits of particular products, and that collaboration with companies can identify how to maximise wear time and ensure that products are used effectively.

It is important that formulary selection is reviewed on a regular basis to ensure that local patients reap the benefits, especially as products are upgraded and new products become available. [WUK](#)

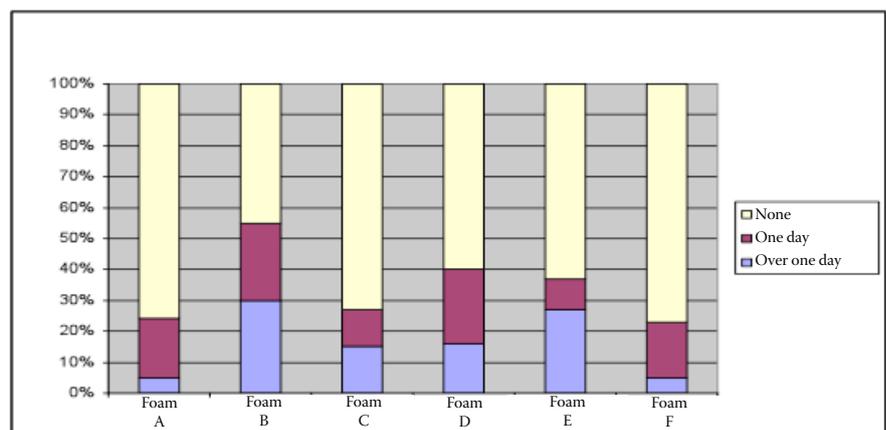


Figure 9: Extra day wear time.