Showcase Hospitals Local Technology Review Report Number 6

Timestrip®

Southampton NHS
University Hospitals NHS Trust

The Healthcare Associated Infections (HCAI) Technology Innovation Programme

The basic ways of preventing and reducing healthcare associated infections (HCAIs) are largely unchanging. The principal strategies for combating HCAIs are those associated with hand hygiene / aseptic techniques, prudent antibiotic prescribing and good clinical practice. However, new technologies and equipment can support these strategies by helping get things done differently, more swiftly or more reliably.

The Department of Health is funding the HCAI Technology Innovation Programme[1]. The Programme aims to

- Speed up the development and adoption of technologies to further help combat HCAIs
- Identify which new technologies provide the best value and will have the most impact

The Showcase Hospitals Programme

As part of the HCAI Technology Innovation Programme, Showcase Hospitals are undertaking local technology reviews of infection related products or technologies in which they have a specific interest. These are service evaluations, as defined by the National Patient Safety Agency's National Research Ethics Service, and do not therefore require Research Ethics Committee review.[2] Southampton University Hospitals NHS Trust undertook this service evaluation.

[1] For further information on the Programme see http://www.hcai.dh.gov.uk
[2] See leaflet on defining research at http://www.nres.npsa.nhs.uk/news-and-publications/publications/nres-research-leaflets/

Acknowledgements

We would like to acknowledge the support of Southampton University Hospitals NHS Trust's staff in implementing and evaluating Timestrip® and the NHS Technology Adoption Centre in the compilation of this report.

Showcase Hospitals Local Technology Review Report

Timestrip®

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Executive summary

As part of the Department of Health's Healthcare Associated Infections (HCAI) Technology Innovation Programme, Showcase Hospitals have undertaken local technology reviews of infection related products or technologies in which they have a specific interest. This is with the objective to help Directors of Infection Prevention and Control and other stakeholders to decide whether they should consider any of these products or technologies as part of their Trust's strategy to reduce healthcare associated infections.

Southampton University Hospitals NHS Trust (SUHT) chose to review Timestrip®, a device which aims to give a visual indication of the dwell-time of in-situ peripheral cannulae to prevent the cannula dwell-time exceeding the usual recommended time period of 72 hours or less[1]. Timestrip® is a single use, push-activated button associated with a graphic timeline mounted on an adhesive backing. On depression of the button, dye is released over an indicator scale to show time elapsed.

The use of cannulae to ensure reliable intravascular access is an important aspect in terms of monitoring and intervention in modern healthcare [2]. Bloodstream infections are a significant clinical problem [2]. Studies have clearly demonstrated that every type of vascular cannula has the potential for causing bacteraemic infection [3]. It is therefore important that cannula do not remain in-situ for longer than necessary.

Monitoring of peripheral cannulae at SUHT presently relies on ward staff keeping written records of time of insertion and removal, and observation of cannula sites for signs of infection. At SUHT this is currently documented on a cannula care form. Audit data at SUHT shows high levels of compliance with care of peripheral venous cannulae and timely removal. This Timestrip® evaluation aimed to gain data on the usability of the device in the clinical setting, whether it added value to the existing systems for monitoring peripheral venous cannulae and whether it enabled patients to actively participate in their care.

Timestrip® was evaluated over a five-week period during September and October 2010 on the Acute Medical Unit and the Surgical Admissions Unit at SUHT. It was attached to the dressing of the peripheral cannula at the time of cannula insertion on adult patients. It was evaluated by the staff inserting the cannulae, by the nurses responsible for the ongoing care of the cannulae and by patients who the Timestrip® device was attached to.

Data summary

- 89 per cent of responding staff felt that the Timestrip® device was easy to attach to the cannula dressing.

- 82 per cent of relevant responding staff from the acute medical ward and surgical admissions ward stated that the Timestrip® was easy to activate.

- 55 per cent of staff experienced problems when attempting to reattach the Timestrip® to a new cannula dressing while 50% experienced some degree of problems with the Timestrip® becoming dislodged or detached.

- 95 per cent of patients revealed that they experienced no discomfort from the Timestrip® device.

- 100 per cent of patients agreed that the Timestrip® was clearly visible.

- 77 per cent of patients revealed that they chose not to refer to the Timestrip® during their hospital stay.

- 13 per cent of patients experienced problems with the Timestrip® becoming dislodged or detached.

Timestrip® would add an additional cost to each peripheral cannula placement. The added cost of Timestrip® must be weighed against added benefit. Consideration must be given to the effectiveness of existing systems to monitor dwell time of peripheral cannula and whether the addition of Timestrip® would add benefit to this or not. The problems identified in this report with dislodgement and re-attaching Timestrip® reflect on the reliability of Timestrip® if this method is used to attach Timestrip® to the peripheral cannula dressing. Further development of this innovative product by the producer may resolve these issues.

Keywords: Timestrip®, Timestrip® IV™

Introduction

This report sets out the findings from an evaluation in Southampton University Hospitals NHS Trust (SUHT), one of eight Showcase Hospitals, of the in-use and economic features and adoption characteristics of Timestrip®.

The objective of this document is to help Directors of Infection Prevention and Control and other stakeholders to decide whether they should consider Timestrip® as part of their trust's strategy to reduce healthcare associated infections.

The problem

Catheter related bloodstream infections (CRBSIs)

The results of the Third Prevalence Survey of HCAI in England 2006 showed that around 8% of patients surveyed in England had an HCAI [4]. HCAIs "are infections that are acquired in hospitals or as a result of healthcare interventions" [4]. The two strongest risk factors associated with HCAIs are: The degree of underlying illness and use of medical devices [5]. It was reported to cost the NHS over £1 billion for care of those who had acquired a HCAI [6].

The use of cannulae to ensure reliable intravascular access is an important aspect in terms of monitoring and intervention in modern healthcare [2]. Bloodstream infections are a significant clinical problem [2]. Studies have clearly demonstrated that every type of vascular cannula has the potential for causing bacteraemic infection [7]. Cannula related infections originate mostly from the skin flora of patients or from organisms derived from the hands of staff handling the cannula [8]. It was demonstrated in an Australian study the bactereamia rate to be 1 per 3,000 cannulae and the infection rate to be 0.2 per 1 000 intravenous cannula days [1] [9] [10].

The Winning Ways document by The Department of Health addresses and makes recommendations for "reducing the infection risk from use of catheters, tubes, cannulae, instruments and other devices" [1][11]. It is stated in The Health and Social Care Act 2008 that all organisations must audit key policies and practices for infection prevention to ensure they are being implemented appropriately [13]. The Department of Health High Impact Interventions (HII) help achieve this [1] [12] [13]. The HII peripheral intravenous cannula care bundle addresses issues with the insertion and on going care of cannulae [1].

Peripheral intravenous cannulae should be kept in place for the minimum time necessary and the insertion site inspected regularly for signs of infection and the cannula removed if infection is suspected [1]. Cannula should be routinely replaced to a new site if still clinically indicated after 72-96 hours. If venous access is limited, the cannula can remain in-situ if there are no signs of infection [6]. If a clinical decision is made to leave a cannula in longer than 96 hours at SUHT this must be clearly documented in the patients clinical records.

Monitoring presently relies on ward staff keeping written records of time of insertion and removal, and observation of cannula sites for signs of infection. At SUHT this is currently documented on a cannula care form. Audit data at SUHT shows high levels of compliance with care of peripheral venous cannulae and timely removal.

The product

Timestrip®

At the time of the evaluation the Timestrip® was distributed in the UK by Vygon (UK) Ltd. It is a single use peripheral cannula stay time indicator and is available through the NHS Supply Chain and directly from the distributing company. Figures 1 and 2 below show the product and provide product ordering and price information. Timestrip® was also available as a component in Vygon custom packs.

Timestrip® is a push-activated button associated with a graphic timeline display mounted on a rigid adhesive backing, size 1.9cm x 4cm. After depressing the button, dye is released over an indicator scale, gradually progressing over the viewing window to show time elapsed. Timestrip® is an innovative product, which aims to give staff and patients a visual indication of how long a peripheral cannula has been in-situ. It serves as a reminder to staff of the time limitations to sited peripheral cannulae and promotes patient safety and patient empowerment. It encourages patients to participate in their care. It can be attached directly to the peripheral cannula dressing or to the patient wristband or to documentation. It can be used as an additional aid to existing forms of monitoring in-situ peripheral venous cannulae.

Figure 1. Showing Timestrip® and the timeline action.

NHS Supply Chain Code	Description
FSN 125	Timestrip® Medical - Single-use disposable peripheral cannula 3 day dwell time indicator

Height Per box	Width Per box	Depth Per box	Weight Per box	Price per box 0f 250 Timestrips® includes 20%VAT
4cm	13.4cm	14.4cm	0.17kg	£167.61

Individual Timestrip® size		Length
	1.9cm	4cm

Figure 2. Product information and ordering information for Timestrip®

The knowledge base

What was known before this evaluation

The use of Timestrip® as a visual indicator of the dwell time of peripheral venous catheters is very innovative and new and no peer-reviewed literature could be found relating to this. However Timestrip® peripheral cannula dwell time indicator was one of the NHS Supply Chain 'Top Ten Innovations for 2009'.

The evaluation

How the evaluation was done

The aims of the evaluation were

- to look at the in-use features and adoption characteristics of Timestrip® within an acute healthcare setting when used as a cannula dwell time indicator on peripheral venous cannula dressings to determine any barriers there may be to the acceptability and adoption of Timestrip®.
- To compare High Impact Intervention No.2 audit data pre and post evaluation for changes in compliance.

The evaluation was conducted on two adult patient care wards, namely the Acute Medical Unit and the Surgical Admissions Unit. Timestrip® was deployed on the wards over a 5-week period from 6th September 2010.

In the two weeks leading up to the in-use evaluation, staff responsible for inserting and maintaining peripheral venous cannulae on the two designated wards received training and information on the application and use of Timestrip®. This was provided by Vygon representatives during group sessions.

With the agreement of relevant hospital personnel Timestrip® was made available on the two wards and promotional posters, patient information leaflets and staff instructional information sheets were distributed in order to promote product usage and staff awareness. Staff who had received training on the two wards were asked to cascade training to other staff members. Wards that receive patients from the implementation wards were informed of the evaluation and information provided.

Medical assistants, assistant practitioners and some nursing staff involved in the insertion of peripheral venous cannulae were responsible for activating and applying the Timestrips® to peripheral venous cannulae dressings at the time of cannula insertion on adult patients. The member of staff gave each patient a patient information leaflet and a verbal explanation of the device. A Timestrip® instruction and information sheet for staff was placed in the patient notes together with an SUHT peripheral cannula care form documenting insertion, maintenance and removal of the cannula. If a cannula dressing required changing during the in-situ dwell time the previously activated Timestrip® was removed from the old cannula dressing and relocated onto the new dressing whenever possible.

Usability and suitability questionnaires were distributed during the last three weeks of the evaluation to medical assistants, nurses and other staff who were involved with the use of the Timestrip®. Each staff member was asked to complete the evaluation questionnaire only once.

The views of patients who had the Timestrip® attached to their peripheral cannula dressing were sought by asking them to complete a short questionnaire. If they were deemed fit enough to answer questions and with their agreement.

Timestrip® was used in conjunction with Trust policies and guidelines concerning hand hygiene, aseptic technique and insertion and maintenance of peripheral, venous cannulae.

How acceptable was the product to staff?

Forty six staff questionnaires were completed, with 18 respondents (39 per cent of all staff surveyed) from the surgical ward and 24 (52 per cent of all staff surveyed) on the acute medical ward.

Medical assistants who work on all the hospital medical wards cannulating patients completed nine (20 per cent) of these and Assistant Practitioners

working in the same capacity on the surgical ward completed seven (15 per cent). The main involvement with Timestrip® for both of these groups was attaching Timestrip® to the peripheral cannula dressing at the time of cannulation and providing patients with written and verbal information about the product.

Twenty two (48 per cent) nurses from the two wards completed the questionnaires, eight (17 per cent of staff overall) from the surgical ward and 14 (30 per cent of staff overall) from the medical ward. A proportion of nurses did cannulate patients but their main involvement with Timestrip® was during ongoing care for the peripheral line and dressing.

Four (9 per cent) of the respondents were health care assistants (HCA'S) from the two wards and who have little involvement with peripheral cannulae. Four (9 per cent) were staff from wards that patients had been discharged to from the acute medical ward and surgical admissions ward. These staff were only involved with the ongoing care of peripheral cannulae.

Technology awareness and training

Staff were asked if they received adequate information and training in the use of Timestrip®.

Fourteen (87.5 per cent) of medical assistants and assistant practitioners said yes and two (12.5 per cent) said no. Twelve nurses (55 per cent) said they had received adequate information and training and 10 (45 per cent) said they had not. Twenty eight (61 per cent) of all staff said yes whereas 18 (39 per cent) said no. A staff instruction sheet was attached to each of the patient peripheral cannula care form and was available to staff.

Question. Did you receive adequate information and training in the use of Timestrip®. **46 respondents**	**Yes**	**No**
Medical Assistants and Assistant Practitioners.	14 (88%)	2 (13%)
Nurses from both wards	12 (55%)	10 (45%)
HCA's from both wards	0 (0%)	4 (100%)
Staff from other wards	2 (50%)	2 (50%)
All Staff	28 (61%)	18 (39%)

Figure 3. Staff information and training

In-use serviceability (activation)

Staff from the surgical and acute medical wards were asked to evaluate the ease with which the Timestrip® timeline could be activated. This question was only relevant to those staff groups that cannulated patients. These were the medical assistants, medical practitioners and some nurses. Ten nurses were not included as they did not activate Timestrip® because they did not cannulate or use Timestrip®. There were 28 respondents, of which 23 (82 per cent) found Timestrip® easy to activate and five (18 per cent) responded negatively.

Question. Was Timestrip® easy to activate? **28 respondents**	**Yes**	**No**
Medical Assistants and Assistant Practitioners.	14 (87.5%)	2 (12.5%)
Nurses from both wards	9 (75%)	3 (25%)
Total for these staff groups	23 (82%)	5 (18%)

Figure 4. Staff Timestrip® activation

Additional comments from staff suggested that the activation of the product could be "*fiddly*" and that the button was "*Sometimes hard to press*".

In-use serviceability (attachment)

Staff evaluated the ease with which the Timestrip® could be attached to the cannula dressing. This applied to 28 staff. Eighty nine per cent (25 staff) of respondents indicated that they did find it easy to attach with the remaining respondents, 11 per cent (3 staff) stating that they didn't find it easy to attach.

This question was not applicable for 14 staff members and four staff gave no response.

In the additional comments, it was also stated by one staff member that the Timestrip® could perhaps benefit from being "*more flexible*" and one respondent commented "*it depended where the dressing was situated*".

Question. Was the Timestrip® easy to attach to the cannula dressing? 28 respondents	Yes	No
All staff groups	25 (89%)	3 (11%)

Figure 5 – Staff Timestrip® attachment

In-use serviceability (Timestrip® size)

The size of the Timestrip® device in relation to the cannula dressing was an important factor and staff were asked if the size of the Timestrip® was appropriate.

Seventy one per cent (27 staff) of respondents indicated that they felt the size was appropriate with 29 per cent (11 staff) of respondents giving a negative response. Eight other staff members failed to answer the question.

Additional comments from staff were that Timestrip® would be better if it was smaller, that it was too big, too rigid, the material used was too hard and did not bend.

Question. Was the size of the Timestrip® device appropriate for a peripheral cannula dressing? 38 respondents	Yes	No
All staff groups	27 (71%)	11 (29%)

Figure 6 – Staff appropriateness of Timestrip® size

In-use serviceability (clarity of Timestrip® display)

Staff were also asked if the display on the Timestrip® was sufficiently clear and over 93 per cent of respondents (41 staff) gave a positive response with seven per cent (3 staff) responding negatively.

Two staff members failed to answer the question.

Question. Did you find the display sufficiently clear? 44 respondents	Yes	No
All staff groups	41 (93%)	3 (7%)

Figure 7 - Staff Clarity of Timestrip® display

In-use serviceability (accuracy of Timestrip® timeline)

At SUHT staff record the time of insertion and removal of the cannula in the patients cannula care form. With Timestrip® operating alongside these existing methods of surveillance, the evaluation sought to establish if staff thought the Timestrip® timeline gave an accurate representation of the time elapsed since cannula insertion.

A significant proportion 26 Staff (58 per cent of staff respondents) responded by indicating that they didn't know if the Timestrip® was accurate in reflecting time elapsed. Forty two per cent (19 staff) stated that they did feel the Timestrip® was accurate in reflecting time elapsed.

One staff member failed to answer the question.

This may suggest that on the whole staff opted not to refer to the Timestrip® to monitor the time elapsed since cannula insertion.

Question. Was the Timestrip®® accurate in terms of time elapsed? 45 respondents	Yes	No	Don't know
All staff groups	19 (42%)	0 (0%)	26 (58%)

Figure 8 – Staff Timestrip® accuracy of time elapsed

In-use serviceability (unintentional dislodgement)

Staff were asked if they experienced any problems with Timestrip® becoming dislodged.

Half of staff respondents experienced problems around dislodgement with eight per cent of respondents (three staff) indicating that they had experienced "*Significant problems*" and 42 per cent of respondents (16 staff) experiencing "*Some minor problems, not significant*".

Fifty per cent of respondents (19 staff) indicated "*No problems experienced*".

Eight staff members failed to answer the question.

Two staff commented that Timestrip® gets caught on things easily. The explanation offered for this by one member of staff was that *"adhesive did not cover the whole back of the strip, so caught on things easily".*

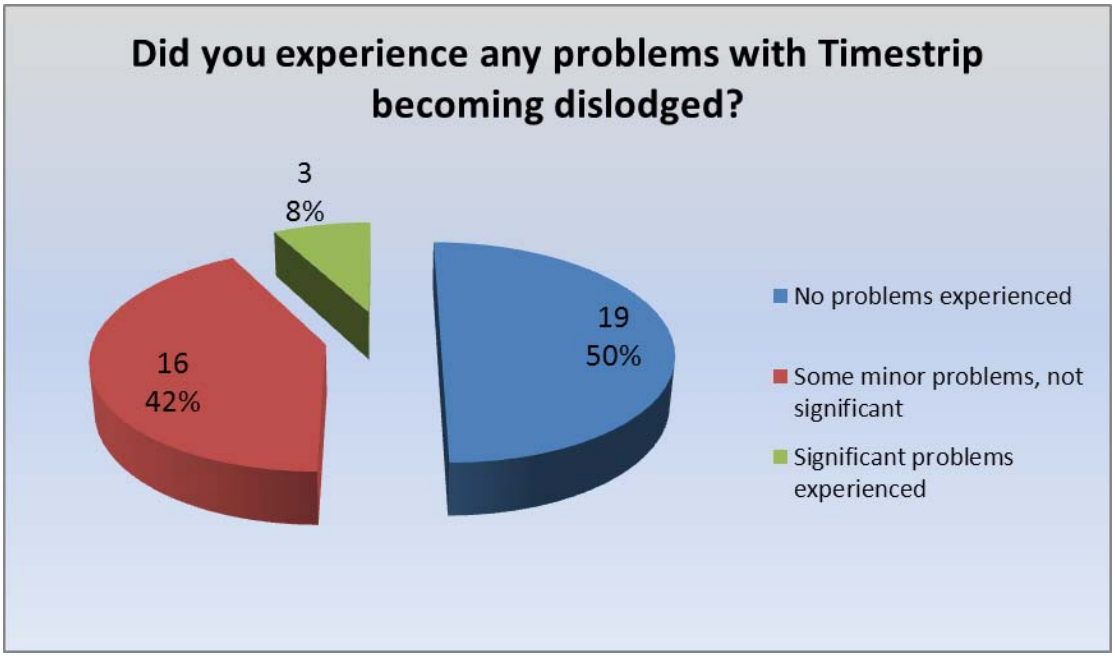

Figure 9 – Staff Timestrip® becoming dislodged

In-use evaluation (durability)

The evaluation sought to assess the durability of the Timestrip® device when used on a peripheral cannula dressing with particular importance being placed on the need for the device to remain in place when moved during cannula dressing changes.

Staff were asked:

"If you redressed a peripheral venflon, were you able to successfully remove the Timestrip® from the original dressing and replace it on the new dressing?"

A significant number of respondents 55 per cent (11 staff) indicated that they hadn't been able to successfully replace the Timestrip® when the dressing had been changed with 45 per cent (9 staff) of respondents indicating that they had been able to replace the Timestrip® after a dressing change.

Twenty six staff had not redressed a cannula with a Timestrip® on and were unable to answer the question.

Additional comments reveal that staff had experienced problems both detaching the Timestrip® and also re-applying the Timestrip® as *"stickiness lost for future dressings"* and it would "*not stick on and stay on*" when replaced.

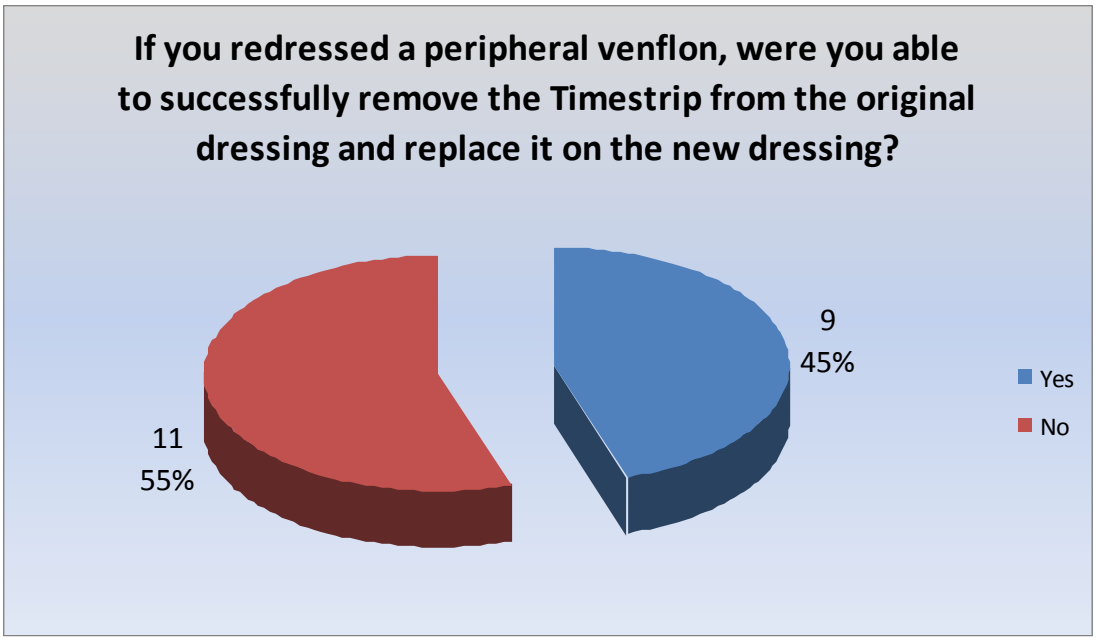

Figure 10 – Staff Timestrip® removal and replacement

When asked "Did the display get easily damaged", 17 per cent of respondents (six staff) said "Yes" with 83 per cent (30 staff) saying "No".

Ten staff members did not answer the question.

In-use evaluation – improvement on current monitoring methods

When staff were asked *"Does this product improve on current monitoring methods?"* opinions were divided but generally quite negative.

Forty six per cent of respondents (19 staff) felt that Timestrip® offered "*No improvement*" with 39 per cent of respondents (16 staff) believing that Timestrip® offered "*Slight improvement, not significant*". Only 15 per cent of respondents (6 staff) felt that Timestrip® "*Offers a significant improvement*" on current monitoring methods.

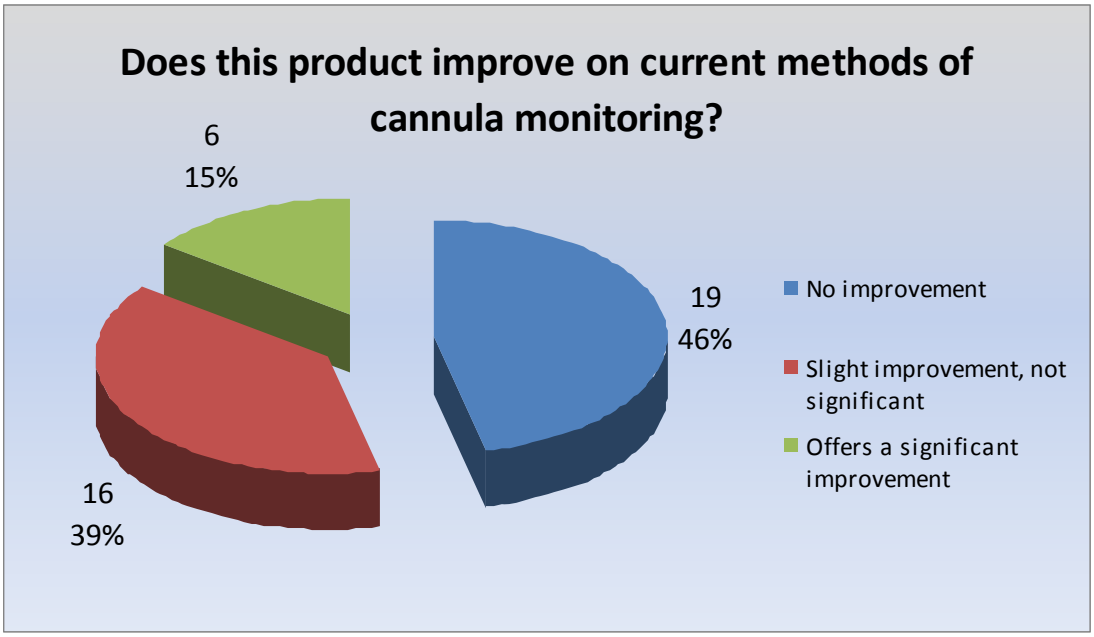

Figure 11 – Staff Timestrip® as an improvement on cannula monitoring methods

In-use evaluation – useful as an adjunct/reminder to ongoing peripheral cannula care

SUHT has a well established approach to monitoring peripheral cannula care. This was apparent when staff were asked "*Do you think Timestrip® is a useful adjunct/reminder to ongoing peripheral cannula care?"*

Forty five per cent (19 staff) thought that it was, whereas 55 per cent (23 staff) who responded thought it was not.

Additional comments revealed that staff did not feel an additional reminder was needed, as peripheral cannula care forms were ongoing.

How acceptable was the product to patients?

The evaluation also sought to gather the opinions of patients on the Timestrip® device.

Forty six patients were surveyed. 30 per cent (14 patients) were cannulated on the Medical Admissions Unit and 70 per cent (32 patients) on the Surgical Admissions Unit (Ward E5). Some evaluations were collected from wards which patients were moved to after cannulation.

Patient Technology Education & Awareness

It was the intention of the evaluation to educate patients on the intended purpose of the Timestrip® device through the distribution of written patient information leaflets at the time of cannulation.

Patients were therefore asked if they had received information about the Timestrip® device. Fifty three per cent of respondents (24 patients) stated that they had received patient information with 44 per cent of respondents (20 patients) saying that they had not and two per cent of respondents (one patient) saying they didn't know if they had received patient information.

One patient failed to answer the question.

Patients were however seemingly educated about the Timestrip® device by staff, as 69 per cent of respondents (31 patients) gave a positive response when asked if staff explained the purpose of the Timestrip® to them. Thirty one per cent of respondents (14 staff) said that staff had not explained the purpose of the Timestrip® to them. It is also worth noting that additional comments provided explain that it was not always possible for staff to explain the purpose of the Timestrip® to patients at the point of cannulation as there were instances when patients were too ill at that time.

One patient failed to answer the question.

Patient awareness of the purpose of the Timestrip® device during the course of the evaluation does however appear to have been significantly high with over 88 per cent of respondents (39 patients) answering "Yes" to the question "*Do you understand the purpose of Timestrip®?"*

Eleven per cent of respondents (five patients) provided a negative response but again additional comments appear to suggest that staff opted to educate some patients on the purpose of the device after the point of cannulation as for some patients, it was not deemed appropriate at that time due to their medical condition.

Patient acceptability

Patient opinions were sought on whether the Timestrip® device caused any discomfort whilst in use with the cannula. Ninety six per cent of respondents (43 patients) either agreed or strongly agreed with the statement "*The Timestrip® device caused no discomfort*". Four per cent of respondents (2 patients) disagreed with the statement.

One patient failed to answer the question.

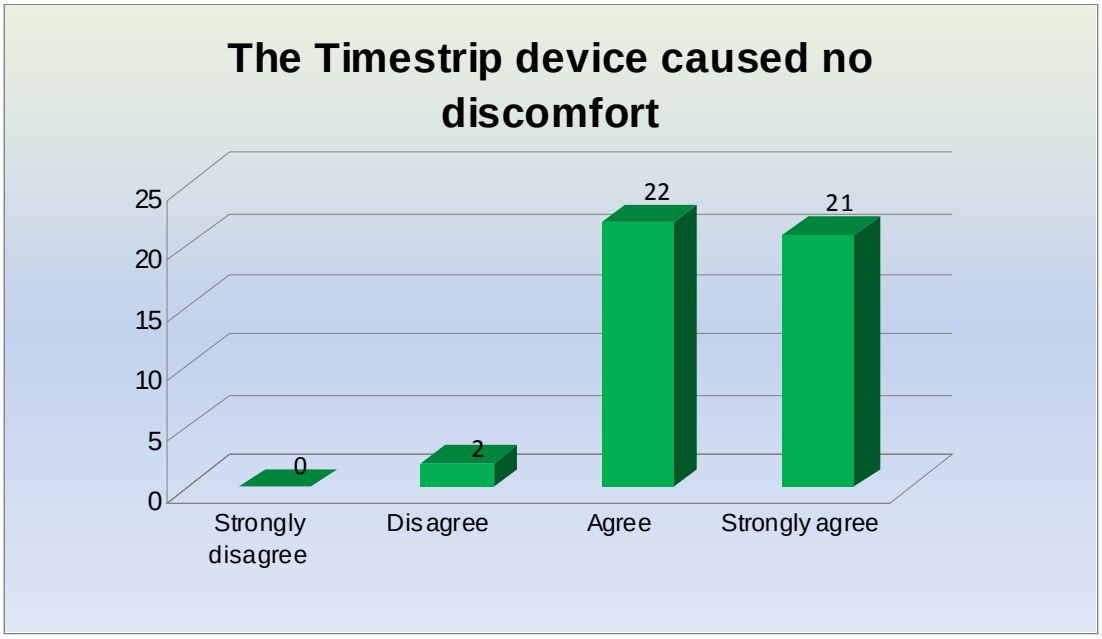

Figure 12 – Patient Timestrip® discomfort

Patients were also asked to assess the visibility of the Timestrip® device with 100 per cent of respondents (45 patients) either agreeing or strongly agreeing with the statement "*The Timestrip® device was clearly visible*".

One patient failed to answer the question.

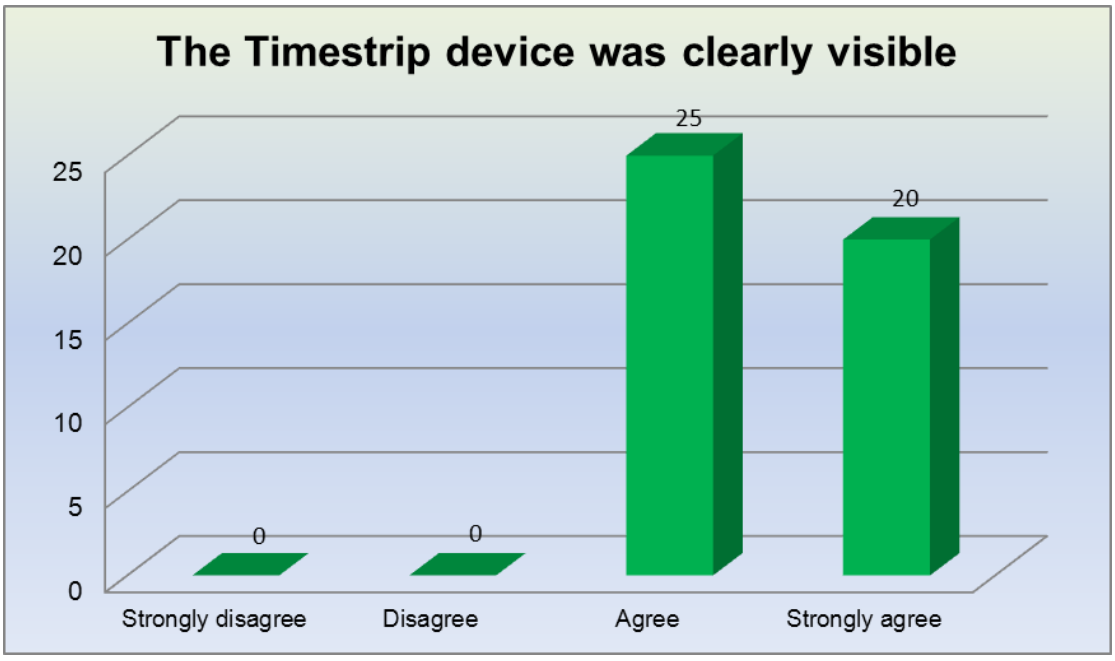

Figure 13 – Patient Timestrip® visibility

When patients were asked if the Timestrip® became dislodged or detached from the dressing the results were less positive. Thirteen per cent of respondents (six patients) either disagreed or strongly disagreed with nearly nine per cent of them (four patients) strongly disagreeing. Additional comments provided, reveal that there were problems with the Timestrip®

becoming dislodged or detached after patients had showered; with other comments revealing the Timestrip® became dislodged or detached after two days in-situ. However over 86 per cent of respondents (39 patients) either agreed or strongly agreed that the Timestrip® device did not become detached or dislodged from the dressing.

One patient failed to answer the question.

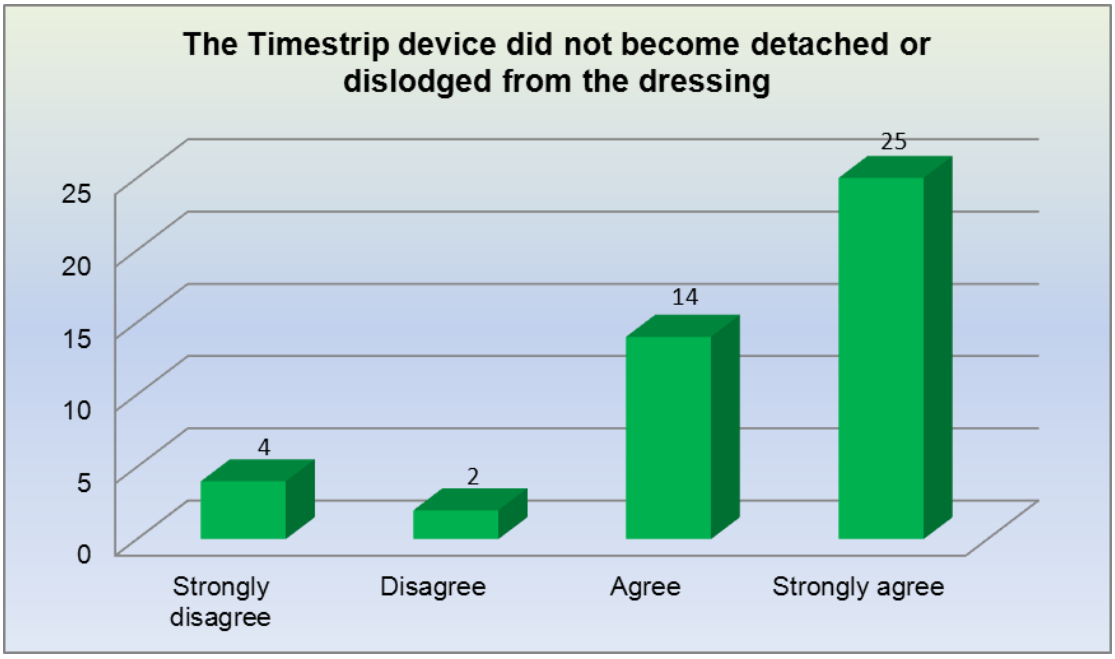

Figure 14 – Patient Timestrip® becoming detached / dislodged

It was important to assess from the evaluation if the Timestrip® device empowered patients by providing them with a visual indication of how long the cannula had been in place and, when armed with this information, if patients were then willing to bring it to the attention of attending medical staff. The evaluation set questions aimed at establishing if patients chose to refer to the Timestrip® during their stay, if they were able to use the Timestrip® as a gauge of time elapsed, and if they were then willing to bring it to the attention of medical staff.

Patients were therefore asked:
"*Did you refer to the Timestrip® product at any point during your stay to find out when it was due to be changed?*"

Only 23 per cent of respondents (10 patients) gave a "Yes" response with over 77 per cent of respondents (34 patients) revealing that they chose not to refer to the Timestrip® during their hospital stay.

Two patients failed to answer the question.

Patients were asked:
"*Were you aware of how to gauge from the Timestrip® product how long your peripheral cannula had been in place for?*"

Over 66 per cent of respondents (30 patients) gave a ”Yes” response with nearly 27 per cent of respondents (12 patients) giving a “No” response. Nearly seven per cent of respondents (three patients) said they were “Not Sure”.

One patient failed to answer the question.

Patients were asked:
“After referring to the Timestrip® device, did you alert staff at any point that the peripheral cannula needed / was shortly due for changing?”
Significantly only five per cent of respondents (two patients) revealed that they did alert staff after referring to the Timestrip® with the remaining 95 per cent of respondents (38 patients) stating they didn’t.

Six patients failed to answer the question.

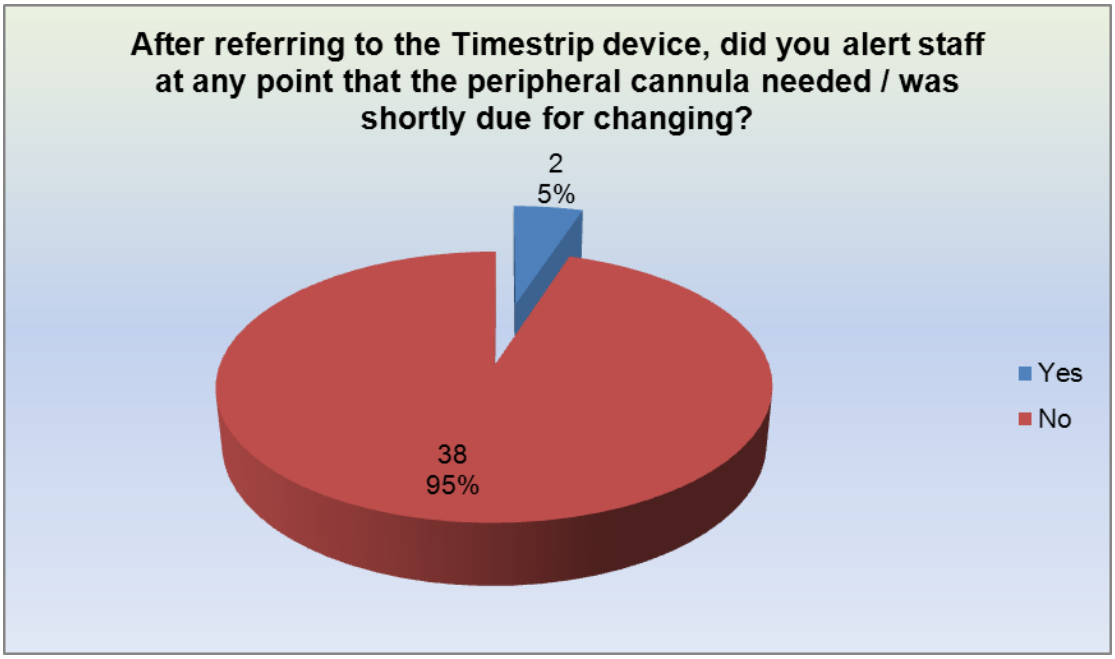

Figure 15 – Patient Timestrip® alerting staff

Whilst this reveals that the Timestrip® appears to not have been utilised by the majority of patients, the evaluation does reveal that 100 per cent of responding patients (20) stated that the peripheral cannula had been replaced within the three day period. This, possibly suggests that patients were aware of the need to replace the cannula within a 72-hour period and that the evaluation may have raised patient awareness.

Furthermore the evaluation reveals that 41 per cent of responding patients (18) felt reassured or comforted by the presence of the Timestrip® device and more encouragingly over 97 per cent of respondents (37 patients) felt that the Timestrip® was a “*good idea*”.

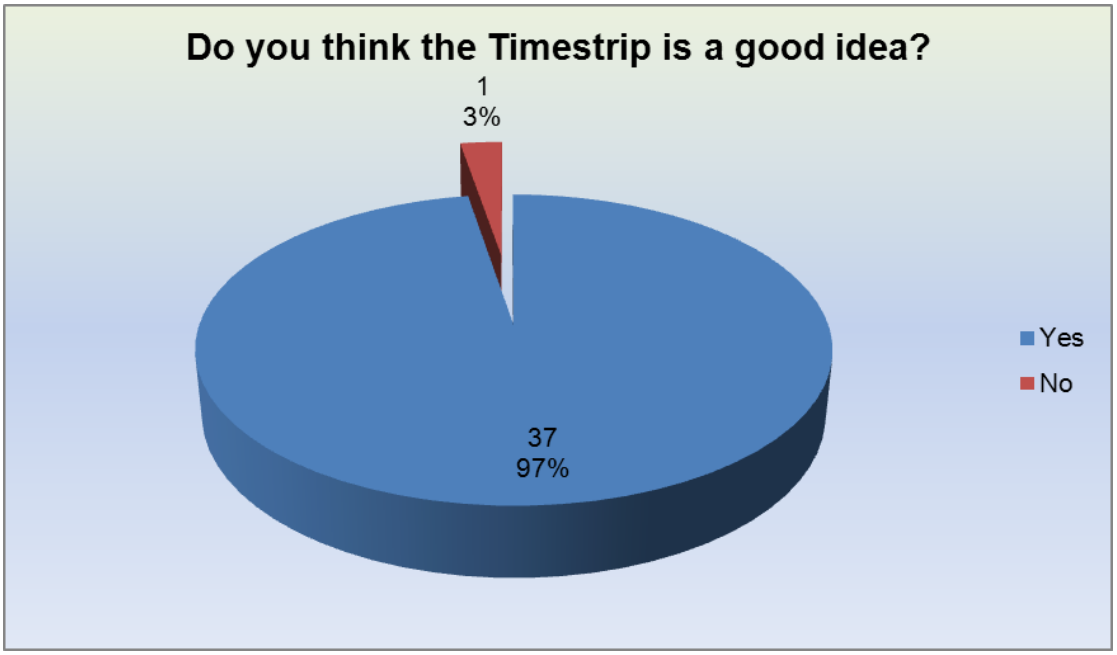

Figure 16 – Patient Timestrip® good idea

High impact interventions audit

As a key procedure cannula insertion and ongoing care is audited as required by the Health and Social Care Act 2008. In the particular elements relevant to length of dwell time of peripheral cannula shown below both of the wards involved in the study showed 100% compliance both before the evaluation and following the evaluation.

Cannula replacement

- Cannula re- sited before 72 hours or before if high risk insertion or clinically indicated.
- Documented review of cannula site i.e. (VIP Scoring) at least daily.
- Where venous access is limited, the cannula can remain in-situ if there are no signs of infection and risk assessment undertaken.

Documentation

- Document in notes details of date and time of removal of cannula, operator undertaking removal with signature.

What issues arose in relation to implementation and adoption?

Timestrip® is an innovative product and like any new product introduced into the field it is difficult to anticipate all the issues that may affect its usability and implementation.

One of the issues with the Timestrip® device would appear to lie in the frequency with which the device can become dislodged or detached from the cannula dressing. The evaluation revealed that staff and patients reported significant occurrences of this with staff noting that particular problems were experienced when patients were showered as the Timestrip® would become

dislodged and would be missing upon return to the ward. A more robust and reliable fastening system may be required in order to alleviate these issues and to facilitate the ability to replace the device onto a cannula dressing once it has been changed.

SUHT has a well established approach to monitoring peripheral cannula care and the HII Peripheral intravenous cannula care audit data shows a high level of compliance. This may have presented a barrier to acceptance of Timestrip® for this application. A majority of staff felt that Timestrip® was not a useful adjunct/reminder to ongoing peripheral cannula care, and comments expressed the feeling that there was no need for an additional reminder as the peripheral cannula care forms used at SUHT were ongoing and all that was needed.

Staff experienced some problems when attempting to inform patients of the purpose of the Timestrip® device as patients were often too ill at the time of cannula insertion to be educated on how the device could be used as a form of monitoring the time elapsed since cannula insertion. Any attempts at widespread adoption would need to ensure that there was an ongoing process of patient education in order for the device to be effectively utilised by patients as well as staff.

As with any short-term evaluation it is difficult to assess if the use of Timestrip® over an increased period of time would lead to a change in staff and patient attitudes. With opinion among staff being equally divided as to whether the Timestrip® offers an improvement on existing methods of cannula monitoring, and with patients seemingly failing to take advantage of the Timestrip®; it is difficult to conclude if improvements to the fastening system would lead to the technology being more eagerly embraced and utilised for attachment to cannula dressings in hospitals where robust monitoring systems are already in place.

Alternative placement of the Timestrip®, perhaps using a modified adhesive free Timestrip® to sit under the dressing may be more successful. Staff need to visually assess the cannula site during ongoing care and record their findings. Timestrip® placement on the patient's cannula care record may therefore still be seen by staff as an unnecessary extra and would also exclude patient involvement.

Advice and tools for trusts considering introducing Timestrip®

Important points to consider

This was a small scale evaluation conducted over a limited time period in a hospital with a well established system for cannula care already in place. Some of the issues that applied to SUHT with regard to Timestrip® may not apply elsewhere. Nevertheless, the method of attachment of the Timestrip® to the cannula dressing would need consideration by the trust and by the producer before adopting this product for this purpose.

Costs and benefits

Timestrip® is available directly from the Supplier (Vygon UK Ltd) and through the NHS Supply Chain catalogue. At the time of writing the price was £167.71 inclusive of VAT for 250 Timestrip®. Each avoidable healthcare associated infection is estimated to cost the NHS £5,000, which is the cost of around 7,500 Timestrip®. The added cost of Timestrip® must be weighed against added benefit. Consideration must be given to the effectiveness of existing systems to monitor dwell time of peripheral cannula and whether the addition of Timestrip® would add benefit to this. The problems identified in this report with dislodgement and re-attaching Timestrip® reflect on the reliability of Timestrip® if this method is used to attach Timestrip® to the peripheral cannula dressing. Further development of this innovative product by the producer may resolve these issues.

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