Yorkshire & Humber HIEC

Turning best practice into common practice

An Evaluation of the Training and Action for Patient Safety (TAPS) Programme

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Executive Summary

Training and Action for Patient Safety (TAPS) is a major new training programme to improve safety in the NHS in Yorkshire and Humber; developed by experts in the fields of patient safety and improvement science. The programme includes an on-line learning module and three workshops. Teams are supported to identify their own patient safety problem and solution and measure the impact of any intervention on practice and patient outcomes. Here we report on the evaluation of the pilot of TAPS within the Bradford health community. Guided by the Return on Investment model we sought to assess:

- The reaction of participants to the programme.
- Changes in knowledge, skills and attitudes.
- The impact on patient safety practices and outcomes (where possible).

Eleven multi-professional teams, with between 3 and 9 members, participated in this pilot programme. The reaction of participants to all components of the programme was positive and minor modifications to the on-line learning suggested by participants have been made. Few participants completed the multiple choice questionnaire at both baseline and follow-up. However, those that did demonstrated an improvement in knowledge following the programme. The measure of safety culture demonstrated some immediate effects of the programme for communication openness, management support and organizational learning. However, other aspects of safety culture remained unchanged at the end of the programme.

Finally, 8 of the 11 teams demonstrated significant improvements in patient safety practices and/or outcomes and many reported that the programme had served to promote better multi-professional communication and teamwork. Interviews with participants two or three months after the end of the programme revealed a range of additional benefits of TAPS beyond the specific problem on which the team had focused. In addition, these interviews helped us to identify ways that the benefits of TAPS might be maximized, for example, making the on-line learning more widely available, sharing learning between TAPS programmes and facilitating opportunities for teams to disseminate their interventions. These ideas have informed our Regional Innovation Fund bid to the SHA. Together these findings suggest that TAPS has the potential to be a very successful programme if rolled out across the region, but that to maximize benefits the TAPS team, as part of HIEC, need to consider ways to support teams to share their knowledge, skills and patient safety interventions following the programme.

1. Brief overview of TAPS

The aim of the TAPS programme is to improve safety through action learning. The action learning involves an orientation meeting, pre-course work and three multi-professional workshops over a period of 20 weeks. The first workshop provides knowledge in patient safety and improvement methods. Teams are supported to identify threats to patient safety and design measurable interventions to address these threats. Two subsequent half day workshops provide a collaborative approach to reviewing progress, monitoring change and sharing lessons. Learning outcomes are given in figure 1, below.

Figure 1: TAPS Learning Outcomes

Learning Outcomes

By the end of this programme participants and specialty teams should be able to:

- Work collaboratively to address a known threat to patient safety.
- Analyse the role of human factors and systems failures in promoting patient safety.
- Identify and appraise the interventions that are available to improve safety.
- Identify and access appropriate resources to overcome barriers to implementation of the intervention.
- Choose an appropriate means of evaluating improvement.
- Measure the impact of the chosen patient safety intervention.
- Critically appraise what has been achieved through the programme including their own learning and the effectiveness of the team.
- Develop a plan for long-term sustainability of any improvement.

Clinical governance leads and healthcare organisations should be able to:

- Facilitate teams in the development and testing of an intervention that is in line with organisational priorities.
- Provide appropriate support and resources to facilitate an intervention and its measurement.
- Understand what their teams have achieved as part of the programme.
- Collaborate with teams and clinical governance leads to implement a sustainability plan (incorporating quality assurance mechanisms and dissemination of learning across an organisation(s).

2. The TAPS pilot

The recruitment process

Three health organisations in Bradford were contacted to participate in the Bradford TAPS pilot. A letter was sent from the organisation delivering TAPS to the Chief Executive and Clinical Governance Lead for (a) the teaching hospital, (b) the care trust and (c) the primary care trust, seeking a meeting to explain TAPS. In the hospital and the care trust these meetings took place as planned and the organisations then identified, through an internal process, the teams that would be participating. The primary care trust offered support to the TAPS process, but the final recruitment of primary care practices was through postgraduate deanery training practices.

The TAPS teams

A total of 11 multi-professional teams from Bradford health organisations undertook the TAPS programme. The safety issue tackled, team numbers and professional make-up is given for each of the teams in table 1 below.

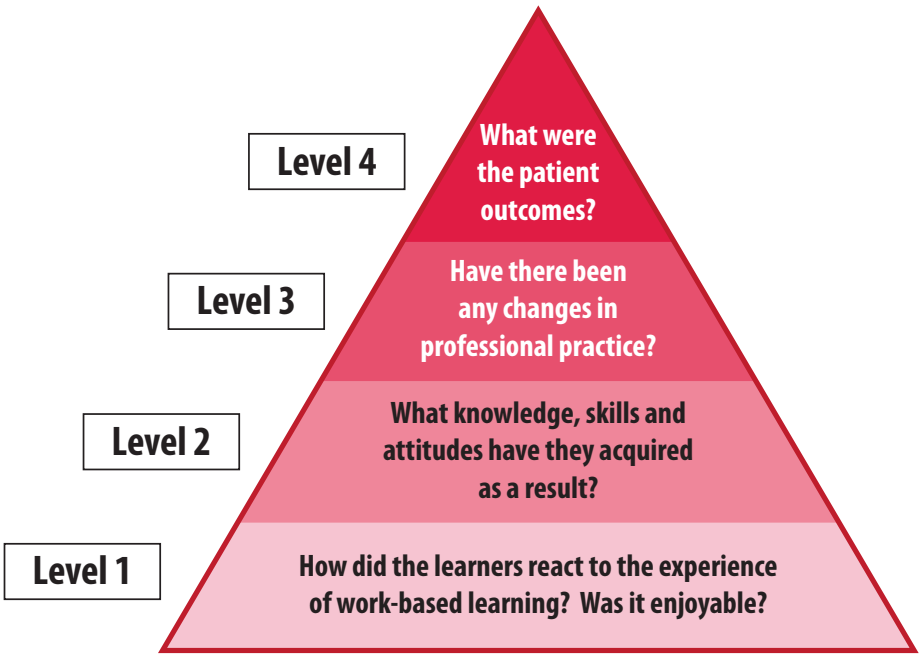
Table 1: Teams making up the Bradford TAPS programme

	Team	Focus on improving patient safety by...	Total team	Junior doctors	Professions
Bradford Hospitals NHS Fdn Trust	Surgical Assessment Unit	...reducing delays in diagnoses for acutely ill patients	6	1	Medicine; Nursing; Management
	Haematology	...improving the quality of communication at clinical handover	5	0	Medicine; Nursing; Management
	Renal	...eliminating the omission of thromboprophylaxis for those patients who need it	5	2	Medicine; Nursing; Pharmacy
	ICU	... improving the quality of communication at patient handover	9	2	Medicine; Nursing; Admin
Bradford District Care Trust	Clover – psychiatric intensive care	... establishing an effective transfer summary when patients are discharged	3	1	Medicine; Nursing
	Older people mental health	...reducing incidents of violence and aggression on in-patient wards	6	3	Medicine; Nursing Management
	Ashbrook – mental health ward	... ensuring that physical examinations are completed for all newly admitted patients	6	2	Medicine; Nursing; Management; Occ Therapy
	City Community Mental Health Team	... reducing the frequency of patient suicides	5	2	Medicine; Social Work
Bradford General Practice	Leylands Medical Practice	...improving the accuracy of the drug allergy status for all patients on SystmOne	3	1	Medicine; Pharmacy
	Sunnybank Medical Centre	... improving GP knowledge and documentation of 'red flag' symptoms and signs in patients who present with back pain	3	1	Medicine; Admin/Healthcare Assistant
	Windhill Green Medical Centre	... ensuring changes to prescriptions for dosette boxes both in the community and on discharge are done in a timely manner.	4	1	Medicine; Admin Pharmacy

3. Evaluation plan

The evaluation of the TAPS programme was designed to assess the reaction of participants to the various components of the programme, to the learning that occurs as a result of participation and the impact of the programme on patient safety measures (behaviour and outcomes) as well as on safety culture. We were also interested in understanding the longer term impact of the programme on the work of the team, other colleagues in the organisation and beyond. The evaluation process is based, in part, on the Return on Investment model of evaluation developed by Donald Kirkpatrick (1994): see Figure 2 below.

Figure 2: Kirkpatrick evaluation model



Traditionally Kirkpatrick has considered the four levels of evaluation found in Figure 2. However, the primary aim of TAPS is to instigate improvements in safety at an organisational level consequently the model of evaluation described here also involves measures of safety culture and interviews with clinical governance leads six months post-intervention (not yet completed). Evaluating a training programme serves two important aims. Firstly, it allows the continual refinement and improvement of the training for future participants and secondly, it determines whether the training is effective.

4. Evaluation Results

LEVEL 1

Reaction to workshops and online learning – assessed through evaluation sheets

Further details:

For each component of the training programme participants were asked to provide feedback using the four rating scales below:

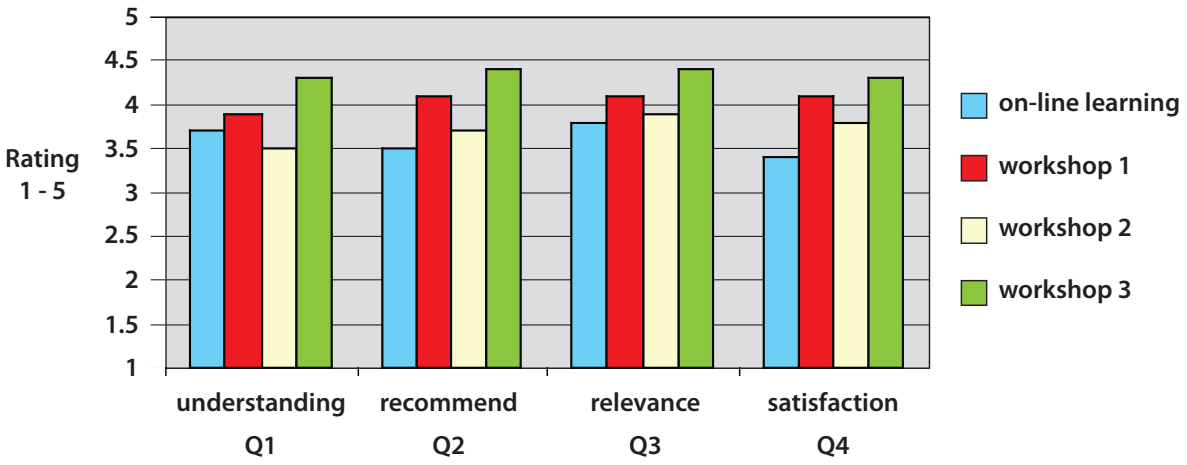
1. I have greater understanding of patient safety and implementing safety improvements (1= no, definitely not, 5=yes, definitely)
2. Would you recommend this (on-line module/workshop) to others in similar roles? (1= no, definitely not, 5=yes, definitely)
3. How relevant was this (on-line module/workshop) to the job you do? (1= not at all, 5 = highly)
4. Please rate your overall satisfaction with this (on-line module/workshop). (1= totally dissatisfied, 5= completely satisfied)

Participants were also given the opportunity to provide written feedback on the content, structure and format of each component of the training.

Results:

The feedback on each component of the training programme was positive, with average scores above the mid-point on the scale for all components of the training. Feedback was most positive for the first and the last workshops.

Figure 3: Participant reaction to workshops and on-line learning



The qualitative feedback from the on-line module evaluation sheet was useful in understanding why some participants were less positive about this aspect of the programme. Difficulty in navigating the website, problems with saving some answers and IT restrictions on work computers were the most commonly reported concerns. Participants were very positive about the mixture of presentations and interactive sessions within the workshops, commenting specifically on the interaction and benefits of the peer review process. Workshop 2 received the least positive feedback – some complex issues around measurement and analysis of improvement were covered here, making this one of the most challenging sessions for participants. This is reflected in the feedback.

Action: On-line module has now been updated to allow for easier navigation backwards and forwards throughout individual sections. Participants can also save their responses and to print these off for future reference.

LEVEL 2

A. Knowledge, skills and attitudes – Patient Safety Knowledge

A 12-item Multiple Choice Questionnaire (MCQ) with built in feedback was developed by the TAPS expert panel and completed by participants as part of the on-line learning module. The MCQ was developed:

- To identify gaps in existing knowledge about patient safety of team members and, by providing information to support each item.
- To facilitate learning.
- To provide one measure of the knowledge of team members during the TAPS programme.

Results:

A total of 43 participants (74% of those registered) undertook the multiple choice questionnaire (MCQ) at the start of the programme. The mean score at time 1 was 59% (Range 25-100, SD 17.02) indicating that there was some scope for enhancing knowledge about patient safety during the programme. Only five participants repeated the MCQ at the end of the programme. A paired t- test showed a significant difference between pre (Mean =45) and post (Mean =63) scores; CI -34.02 -2.78; t -3.270, p= 0.03. This is a statistically significant improvement. However, a larger sample size would be needed to confidently draw the conclusion that undertaking TAPS improves a participant's general knowledge of patient safety.

Action: Participants enrolled on TAPS in Doncaster, Sheffield and North Lincolnshire were encouraged to complete the MCQ at follow-up.

B. Knowledge, skills and attitudes – Safety Culture – safety culture questionnaire completed by individual team members at the start and end of the programme.

Further details:

The Hospital Survey on Patients' Safety Culture (2009) was developed by the Agency for Healthcare Research and Quality and made available to hospitals in 2004 to help them evaluate the culture of safety in their institutions[1]. The measure is completed by health professionals and includes both unit level and hospital level dimensions. Participants involved in the TAPS programme completed a paper copy of the survey (distributed at the orientation meeting) prior to the first learning workshop and again following the last workshop.

Twenty four participants completed the survey at both points in time providing sufficient data to compare responses before and after the programme. Each item on the questionnaire is scored on a 5 point scale from 1 (strongly disagree) to 5 (strongly agree). Negative items are recoded. This means that a higher score indicates a more positive safety culture for each dimension.

[1] *Hospital Survey on Patient Safety Culture: 2009 Comparative Database Report. AHRQ Publication No. 09-0030, April 2009. Agency for Healthcare Research and Quality, Rockville, MD. http://www.ahrq.gov/qual/hospsurvey09/*

Results:

The alpha reliability of each of the dimensions was acceptable (6 or above) for all dimensions with the exception of organisational learning – continuous improvement. The three items making up this dimension were therefore analysed separately.

Figure 4: Baseline and follow up scores for unit level safety culture dimensions

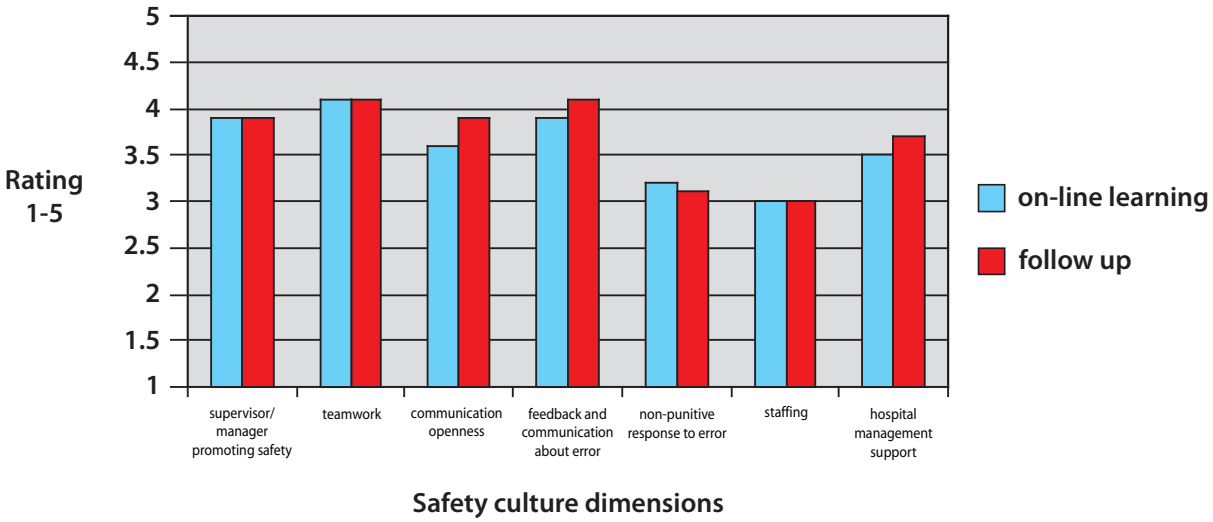


Figure 4 shows that there was very little change between the baseline and follow up safety culture scores for the majority of dimensions. However, paired t-tests revealed a significant improvement for the communication openness dimension ($t = 3.25$, $p<.01$) and a borderline significant improvement for management support for patient safety ($t= 1.85$, $p=.079$). No significant differences were identified for either of the hospital wide dimensions (teamwork across hospital units or hospital handoffs and transitions).

The items of the organisational learning dimension were analysed separately using a repeated measures Anova. The items were:

- We are actively doing things to improve patient safety.
- Mistakes have led to positive changes here and after we make changes to improve patient safety, we evaluate their effectiveness.

After we make changes to improve patient safety, we evaluate their effectiveness. A significant multivariate effect was detected ($F (2, 22) = 3.66$, $p<.05$). All three items showed improvement from baseline to follow up. The largest effect was for item 3 (baseline mean = 3.2, follow up mean = 3.8), as might expected given the nature of the programme.

Although generally small, the improvements in safety culture identified here over a relatively short period of time are positive indicators that the TAPS programme can facilitate changes in attitudes and values, not only at the individual level but also in teams and units. It is clear that the nature of the programme, with support from management has a particular impact on two dimensions; communication openness and management support.

LEVELS 3 and 4:

A. Patient outcomes and changes in professional practice – Team Measures

Further details:

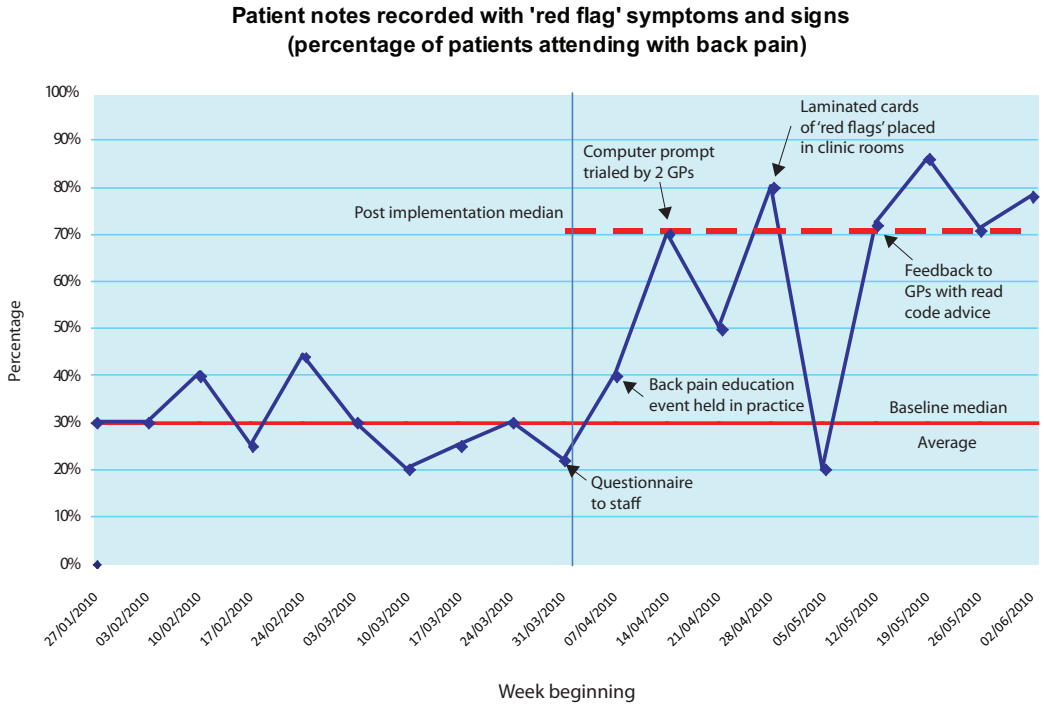
All teams were supported to develop practical measures by which they could identify changes in patient safety outcomes and/or professional practice. These were related to the problem statement that each team had developed to describe what the team was aiming to improve and why this was a priority. At least one outcome measure or proxy outcome[2] measure was identified for each team. Wherever possible measures were used that were already collected within the health system, or for which retrospective data was available. The main criteria for a good improvement measure was that it was both sensitive to the improvement that the team was intending to make and also practical to collect within routine practice. Each measure was intended to be collected weekly to build up a run chart of sequential data.

Results:

An overview of the safety areas selected by the teams and the outcomes demonstrated to date is given in table 5 (below).

For each of the measures selected the teams aimed to collect ten data points prior to the start of their intervention to establish a baseline. Simple statistical tests can be applied to subsequent points to show improvement. Run charts can also be annotated with details of the practical changes that the team has introduced; thus telling the story of the change and its effect on outcome and practice. This can be used to communicate and spread the story of improvement to others, as well as providing direct feedback and encouragement to the teams themselves. An example of an annotated run-chart (from Sunnybank Medical Centre) is provided in figure 5, below, and other examples can be found in appendix 1.

Figure 5: Example of an annotated run-chart of one 'proxy-outcome' weekly measure



[2]*A proxy-outcome measure is a process measure that serves as a proxy for the outcome because it is closely associated it, and proxy-outcomes are used when measuring the actual outcome is not feasible or can only be measured in the future.*

Table 2: overview of the safety areas

Team	Safety improvement achieved	Spread of innovation	Return on investment (ROI)	Cash-releasing potential	Other gains
Surgical Assessment Unit	Proxy-outcome: More rapid blood results leading to quicker treatment.	Addressing other safety issues. Potential to spread innovation (to reduce porter time) to interested wards within the hospital.	Demonstrated freeing up of porter time.	Some potential if applied across the hospital. Future ambition to reduce no of inappropriate tests.	Team planning to use TAPS method to address other issues identified by junior doctors.
Haematology	Process: Handover 'baton' introduced for junior doctor cover. Better communication between doctors and nurses on the ward. Better induction for junior doctors.	Improvements reported to clinical governance meeting. Team continuing to address other safety areas using the TAPS method.	Fewer agency staff required. Safer healthcare in high risk areas contributes to reduced health service costs.	Quantifiable gains in the use of agency staff.	Better team working Greater awareness of needs of junior doctors.
Renal	Proxy-outcome: Patients receive VTE prophylaxis at the correct dose throughout hospital stay.	Potential (regional) spread of prompts on SBAR handover chart.	Reduced risk of VTE potentially delivers commissioners a saving in the cost of hospital stays. Social return on investment through improved health.	None identified.	Consultant intending to use TAPS method with future juniors.
Intensive Care Unit (ICU)	Process: Introduced handover tool. Proxy-outcome: More reliable and accurate handover (testimony).	Opportunity to contribute internally to spread of best practice in using handover tools.	Safer healthcare in high risk areas contributes to reduced costs for health services.	None identified.	Good team working. Some enthusiasm to move on to consider developing an electronic tool.
Clover – psychiatric intensive care	Process: Introduction of a transfer summary when patients are discharged.	Internal improvement – no spread.	Social return on investment through more appropriate healthcare.	None identified.	None identified.
Older people mental health	Implemented 72 hour review for incidents of violence and aggression.	Nothing to spread more widely as yet – but still working on this.	Social return on investment through more appropriate healthcare.	Possible reductions in days lost due to staff absence.	Improved team working. Team intends to continue to use TAPS methodology with routine practice.
Ashbrook ward – mental health services	Process: more reliable system for completing physical examination of new inpatients. Outcome: Identified several physical problems in patients.	Process has been spread internally to other wards within the Trust. Starting to examine other areas for safety improvement .	Social return on investment through improved health.	None identified.	Enthusiasm to use the TAPS methodology to address other safety issues across the Trust.
City Community Mental Health Team	More reliable risk assessment documentation for new referrals.	Incorporating into existing work within the Trust.	Safer healthcare will contribute to reduced health service costs.	Possible reduced litigation costs in high risk areas?	Junior doctor involved in the project now has some lead responsibilities for patient safety in his new job.
Leylands Medical Practice	Number of patients with recorded allergy status increased by 15%.	Improvements in software capability is making allergy checks easy to do.	Safer healthcare will contribute to reduced health service costs Time savings chasing up allergy status.	None identified.	Poster of results used to generate enthusiasm in the practice for continuing to move the project on.
Sunnybank Medical Centre	Improvement in GP recording of 'red flag' symptoms for patients with back pain.	Potential to spread methods of supporting a change in GP behaviour.	Social return on investment through more appropriate healthcare.	None identified.	Junior doctor won a course prize for her presentation of the project.
Windhill Green Medical Centre	Improved communication around prescription changes to dosette boxes.	Other practices have requested details and are beginning to use it.	GP & pharmacists time savings Safer healthcare will contribute to reduced health service costs.	Reduction in costs of inappropriate or wasted medication.	Greater safety awareness transferring to other work.

Eight out of the eleven teams showed improvement as demonstrated through the weekly measures (see Appendix 1). Those teams that were not able to show improvement through their measures, nevertheless, did identify and report improvements through the interview conducted with team members at the end of the programme. For two of the teams there was a delay in implementing their planned changes within the 20 week time period – but both of these teams described better team working practices between the different professional groups and both reported an intention to continue and complete the work. For the third team the proxy-outcome measure identified (time for handover) turned out to be not the most important measure of improvement and the team were unable to reliably collect data to indicate the quality of the handover. Anecdotally the team were confident that the handover process had been much improved through the TAPS work and could cite examples of this.

Table 2 identifies the exact nature of the safety improvement demonstrated by each to and the extent to which spread had occurred three months after completion of TAPS. Together with the TAPS teams in the final workshop we identified two main ways in which the learning from TAPS can and will be spread. First, teams and their host organisations may want to use the change management techniques that they had developed through TAPS and apply them to other problems to achieve patient safety, quality and efficiency gains (spread of the method). Second, there is the potential to spread ideas within and across organisations. For example, the Windhill Green Medical Centre has already received requests from other practices about their system for improving communication around changes to the dosette boxes (spread of the innovation). Together these two forms of spread, if supported, will contribute to a positive Return On Investment (ROI) for TAPS.

Column 4 of Table 2 illustrates the range of ways that ROI can be realised. The extent to which these are readily quantifiable also varies with obvious implications for the ability to demonstrate a financial ROI. Where the change in resource use can be measured and attributed to the intervention (e.g. less porter time required), the cash releasing potential of TAPS can also be demonstrated. Ultimately, the implementation of evidence based safety practices can be assumed to lead to real savings in the cost of healthcare and therefore represent a proxy ROI. Where the implementation of these safety practices has a financial reward (e.g. achieving high levels of VTE risk assessment) or direct cost savings (e.g. reduced expenditure on medicines or tests) the ROI is more straightforward to calculate. For those initiatives that lead to clear benefits in health but not to cost savings then a Social Return on Investment (SROI) model may be more appropriate. Social Return on Investment (SROI) models use an estimated cost of providing an equivalent health benefit, rather than an actual cost saving, as the 'return' on the investment.

One important aspect of professional practice in which many teams noted an improvement, but was not captured through the project-focused outcome measures, was the development of multi-professional team working. This programme was focused at multi-professional team level because of the known importance of effective team working for safe practice and so the impact of improvements in this area should be considered alongside improvements in the specific projects.

All of the changes in practice and associated patient outcomes need to be considered within a return on investment model.

B. Patient outcomes and changes in professional practice – Qualitative Interviews

Further details:

All teams were approached, and agreed, to be interviewed about their experience of the TAPS programme, particularly focusing on their expectations, barriers and levers to participation and benefits of the programme. These interviews were either with individuals or in a group, depending on the availability of participants, and took place 2-3 months after the end of the programme. A semi-structured format was used and the interviewer either took extensive notes or an agreement was obtained to audio-tape the interview. Each interview lasted around 20 minutes (range 10 – 50 minutes). A thematic analysis was employed with the purpose of identifying the key strengths, areas for improvement and how we might facilitate the sustainability of TAPS in the further roll-out.

Key messages:

A detailed report of the interview results is available in Appendix 2. Participants who attended TAPS were not always completely sure what to expect, but they understood that it involved focusing on a local patient safety issue and making some improvement. Junior Doctors felt that they were encouraged to attend by senior members of staff and that owning the problem and having something to add to the CV were both important incentives.

Two main barriers to participation were identified:

- The need for protected time for staff to participate in the workshops and provide time to collect the data.
- The need for senior staff to support teams to engage with TAPS.

These two issues are inter-linked and while neither represented a significant barrier in Bradford, the support of senior staff is clearly important for the success of the programme.

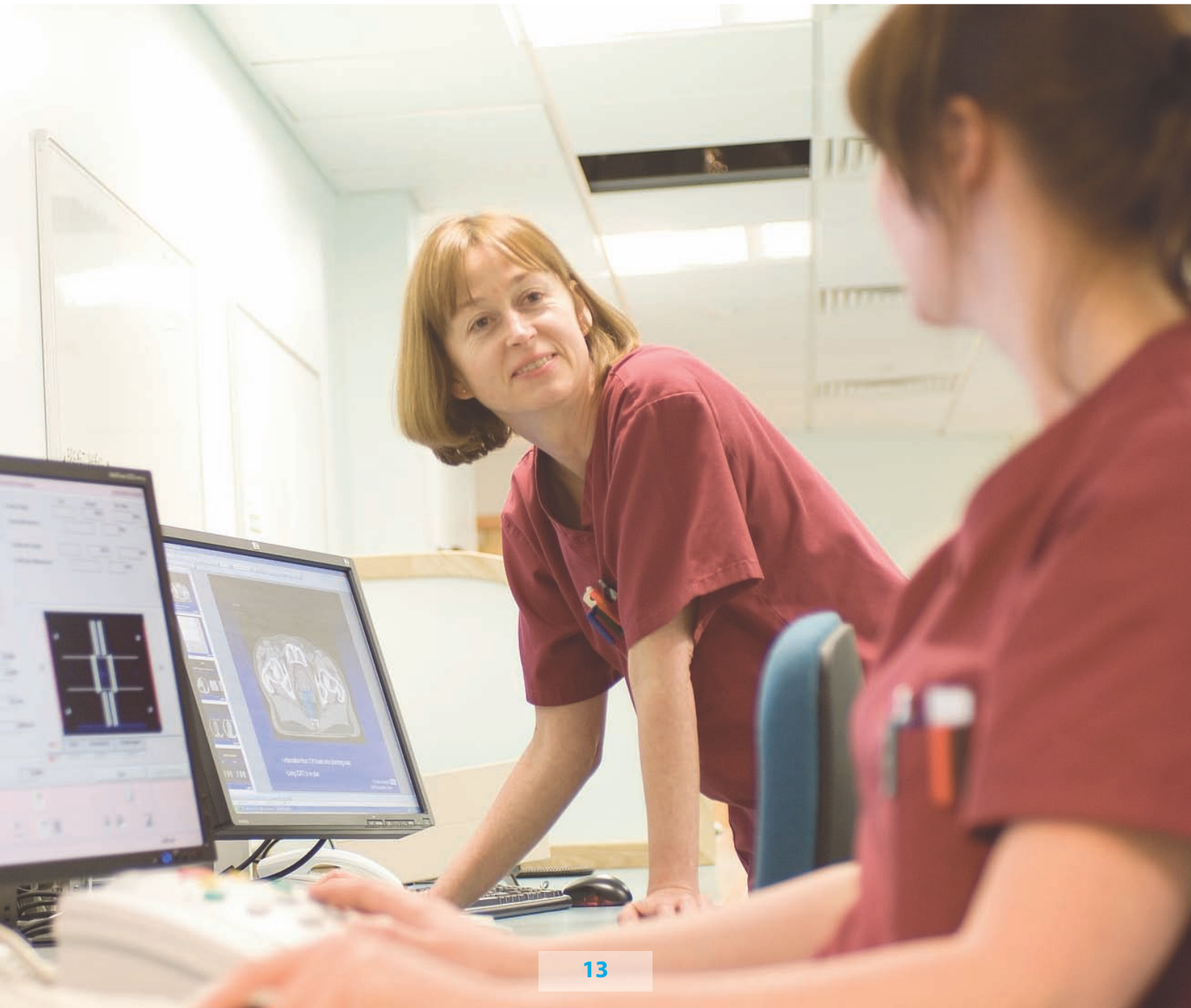
Participants reported both expected benefits (changes to patient safety practices) and unexpected benefits (improved communication and teamwork) of the programme. Many junior and senior members of staff referred to the fact that TAPS provides you with a toolkit of transferable skills for making and measuring changes to patient safety that can be used in different environments and for different problems. The interviews also highlighted opportunities for team members to share their ideas following the programme e.g. web forum and post TAPS presentation day.

5. Summary

Eleven multi-professional teams, with between 3 and 9 members participated in this pilot programme. The reaction of participants to all components of the programme was positive and minor modifications to the on-line learning suggested by participants are being made. Few participants completed the multiple choice questionnaire at both baseline and follow-up. However, those that did demonstrated an improvement in knowledge following the programme. The measure of safety culture demonstrated some immediate effects of the programme for communication openness, management support and organizational learning. However, other aspects of safety culture remained unchanged at the end of the programme. Finally, 8 of the 11 teams demonstrated significant improvements in patient safety practices and/or outcomes and many reported that the programme had served to promote better multi-professional communication and teamwork. Interviews with participants two or three months after the end of the

programme revealed a range of additional benefits of TAPS beyond the specific problem on which the team had focused. In addition, these interviews helped us to identify ways that the benefits of TAPS might be maximized, for example, making the on-line learning more widely available, supporting staff who want to continue to use TAPS principles in their practice and sharing learning between TAPS programmes.

The evaluation of the TAPS pilot has demonstrated that this programme was positively received by participants and has the potential to significantly impact on individual knowledge and attitudes to patient safety as well as make a difference for patient safety practice and outcomes. Although the demonstration of a financial ROI is more challenging, and may only be realised in the longer term, we have accrued evidence of some early wins and those teams whose work has the potential to be cash releasing. Participants also suggested ways in which the TAPS development team might improve the programme and support the spread of techniques and ideas to maximise the benefits of TAPS within and across health communities. These ideas have informed a Regional Innovation Fund bid to further roll-out TAPS with a specific focus on sustainability and spread, and with a view to optimising ROI.



Appendix 1: Case studies with annotated run charts.

Case study 1: Surgical Assessment Unit, Bradford Teaching Hospitals NHS Foundation Trust

AIM:

To improve identification of, and action for, acutely ill patients, by reducing the time taken to obtain the results of blood tests and improving documentation of action taken.

ACTIONS:

- Increased number of pods for transporting blood samples.
- Prioritisation process negotiated with pathology laboratory.
- 'Signature and action' boxes added to the bottom of blood test results sheets to improve documentation of action.
- Discussions with general surgery consultants to agree which blood tests are appropriate for a variety of presenting problems – to reduce inappropriate investigations.
- Met with junior doctors to emphasise necessity for clear contemporaneous record keeping.

RESULTS:

Reduced time for samples to leave the ward by increasing number of pods available for transport. Reduced time taken for blood results to appear on screen (and hence for diagnosis) and improved documentation of action plan following test results. Results are continuing to be monitored. Additional benefits to the portering service as use of additional pods reduces demand for porters to collect and deliver samples, freeing up porter capacity for other areas.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

The team is planning to extend their work to cover radiology investigations and point of care urine testing. Increasing the availability of pods could easily be spread. A neighbouring ward with similar issues is interested in adopting ideas. The team is continuing to make progress on getting agreement between surgeons in order to reduce the number of potentially inappropriate tests.

Figure 6: Time for blood results to leave ward

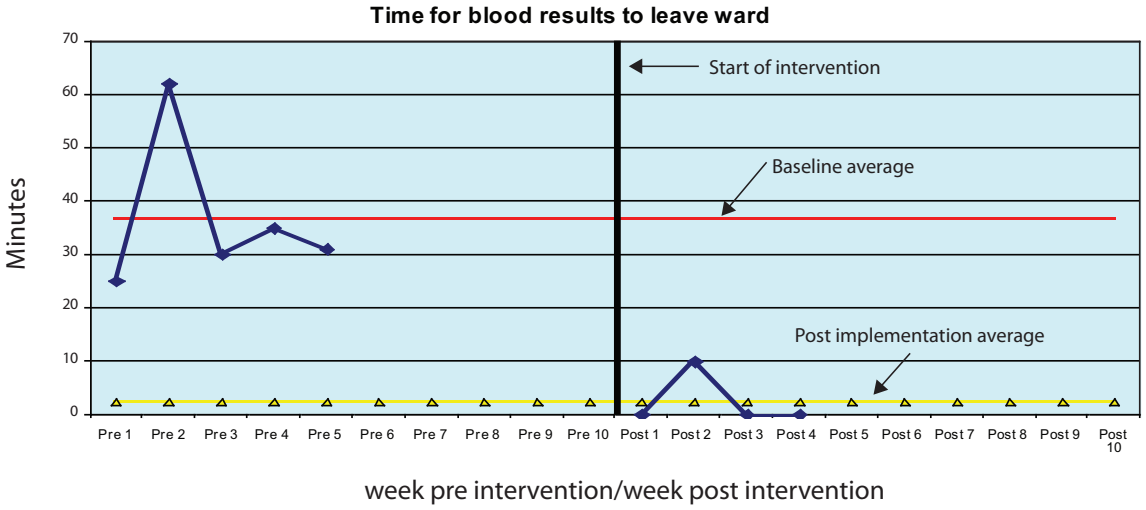
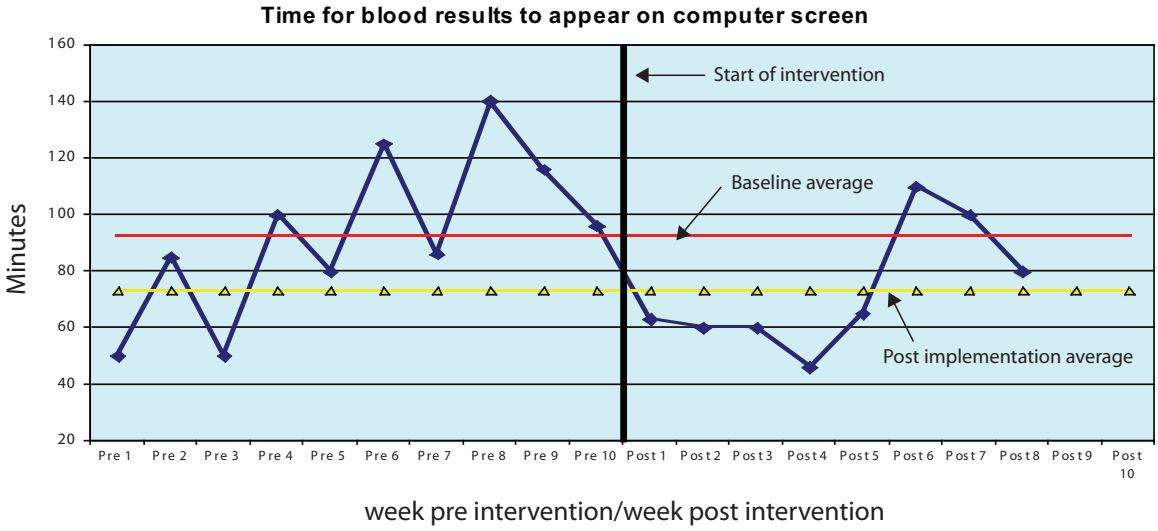


Figure 7: Time for blood results to appear on computer screen



Case study 2: Renal Ward, Bradford Teaching Hospitals NHS Foundation Trust

AIM:

To reduce the risk of Venous Thromboembolism (VTE) by ensuring that patients on the renal unit continue to be prescribed VTE prophylaxis at the correct dose throughout their inpatient stay, and also that VTE prophylaxis is omitted and subsequently restarted as appropriate in this period (in line with NICE criteria).

ACTIONS:

Introduction of Clexane prescription review prompts to SBAR (Situation, Background, Assessment, Recommendation) handover chart on ward F2. Revised in two stages, and now includes 'outlier' patients on other wards.

RESULTS:

Excellent results (100% for process and outcome measures). The new checking system was well received by members of the multi-disciplinary team according to questionnaire responses.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

Prescription review prompts in SBAR have been effective and well received and could be adopted by other areas of the Trust and by other hospitals in the region. The system has now been extended to prompt completion of the admission Trust-wide VTE prophylaxis assessment, and so there is now the opportunity to ensure that both initial AND subsequent VTE assessments are completed as part of an everyday process that is embedded in the multi-disciplinary team ward culture.

Figure 8: Clexane (prophylaxis) prescribed for patients who need it

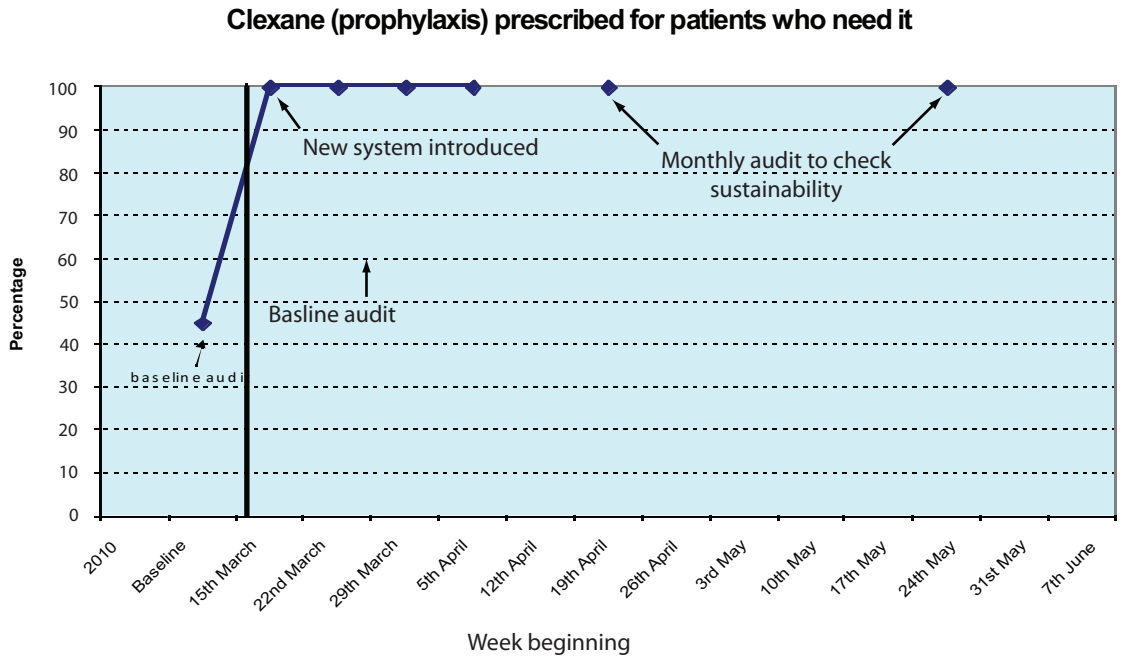
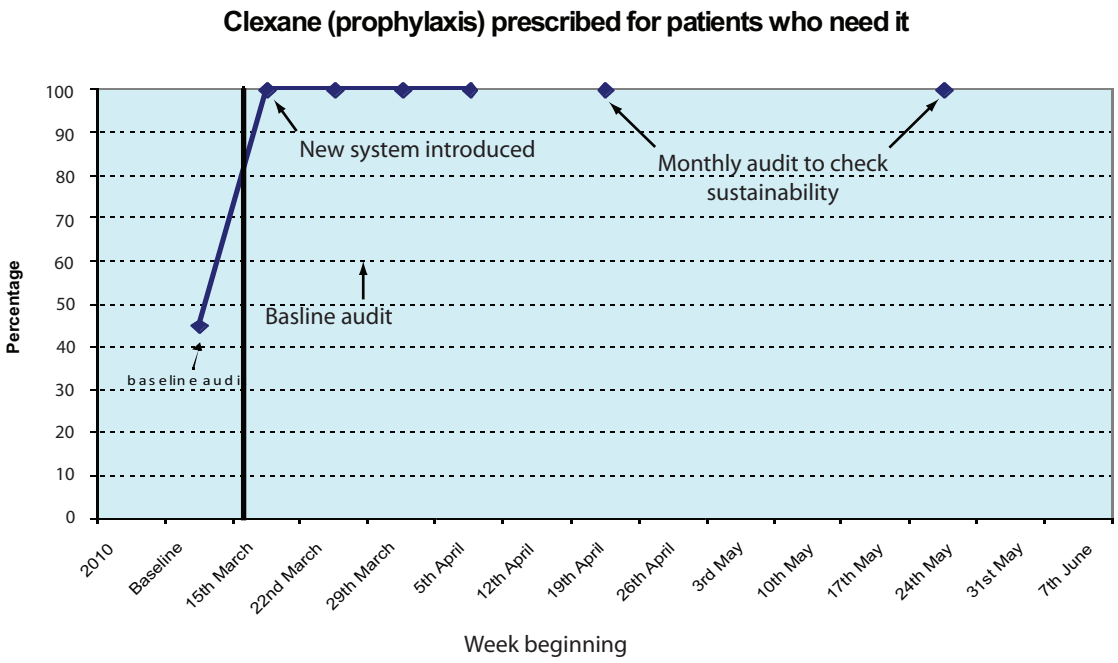


Figure 9: Clexane (prophylaxis) omitted in patients for whom omission appropriate



Case study 3: Ashbrook Ward, Bradford District Care Trust

AIM:

To identify physical health problems in patients admitted to mental health ward by complying with the Trust policy of completing a nursing and medical physical examination on admission.

ACTIONS:

Presentation to junior doctors at weekly in-house teaching session. Nursing team made aware of Care Trust policy. Audit tools designed for physical examination section on RiO (electronic records system). Multi-professional team members made aware of results of weekly audit and receive feedback on variable practice.

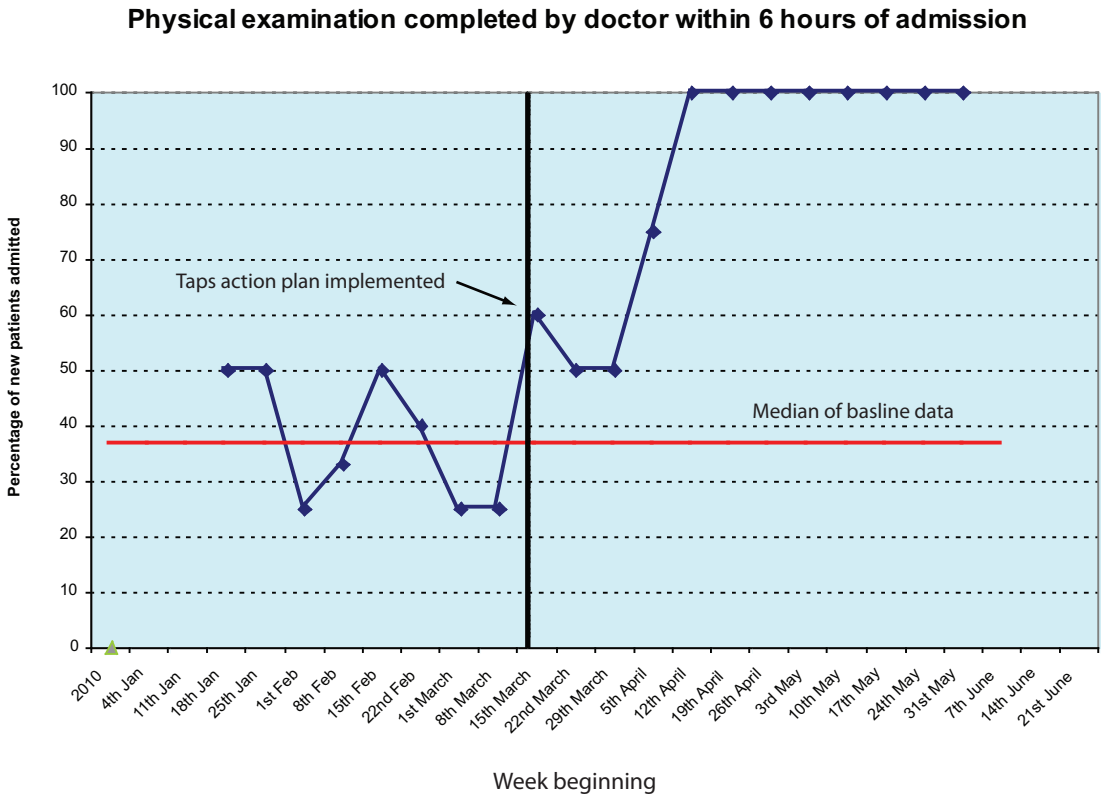
RESULTS:

Medical and nursing teams are both now reporting 100% compliance with trust policy on physical examinations.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

The team is helping other wards to adopt this initiative to improve compliance with physical exams. The team are advocates of multi-professional training together to support their working together. Other areas are being addressed.

Figure 10: Physical examination completed by doctor within 6 hours of admission



Case study 4: Sunnybank Medical Centre, Bradford (GP Training Practice)

AIM:

To improve GPs' awareness and documentation of 'red flag' symptoms/signs of back pain.

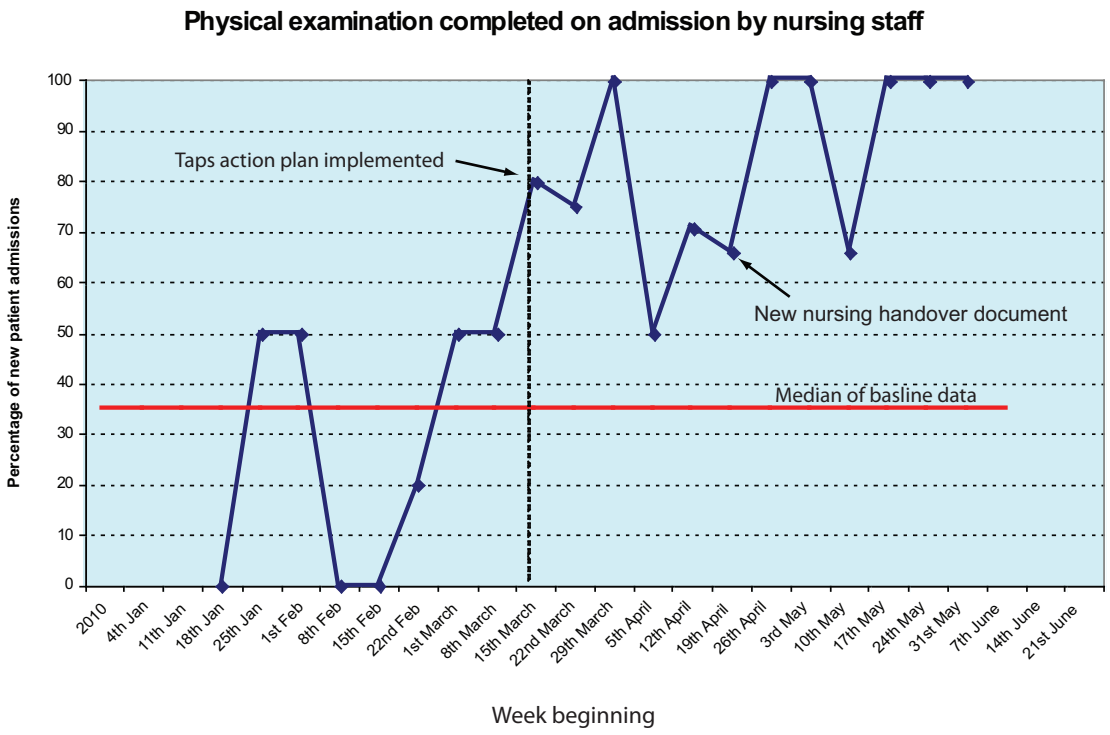
ACTIONS:

Educational event for GPs. Survey of GP awareness of red flag symptoms – subsequently fed back to GPS in anonymised bar chart form. Laminated 'red flag' prompt cards placed on all computer monitors in clinical rooms.

RESULTS:

Data show more patients are being identified with 'red flag' symptoms of back pain. In addition there is more consistency across GPs in the practice and more accurate read-coding. Survey of GP awareness has been repeated and shows clear and marked improvement.

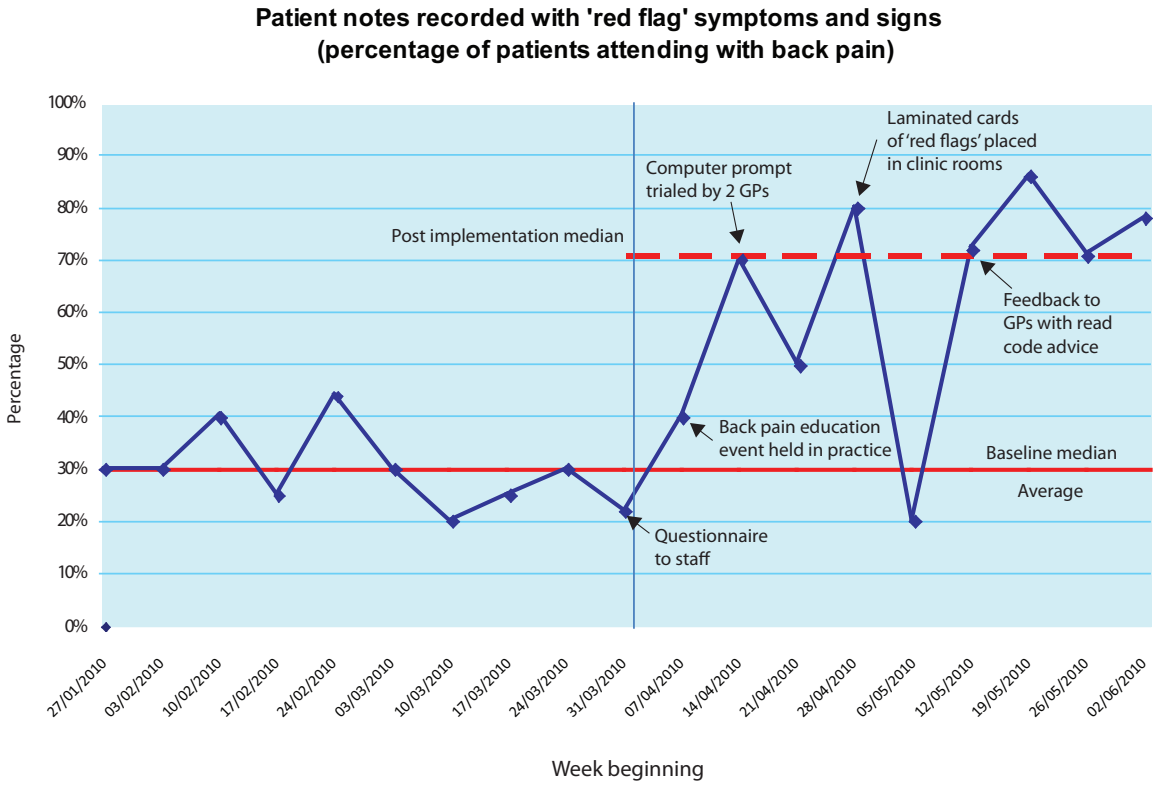
Figure 11: Physical examination completed on admission by nursing staff



IMPLICATIONS for SPREAD and SUSTAINABILITY:

Laminated cards and survey of GP perceptions – with anonymous feedback – can be easily be adopted by other GP practices, in conjunction with tailored educational input.

Figure 12: Patient notes recorded with "red flag" symptoms and signs (percentage of patients attending with back pain)



Case study 5: Intensive Care Unit, Bradford Teaching Hospitals NHS Foundation Trust

AIM:

To improve accuracy and completeness of information given on doctors' intensive care handover by taking a team approach to designing and introducing a computerised handover sheet.

ACTIONS:

Structured, electronic handover template has been designed in conjunction with ICU consultants. Handover process and responsibility for template completion established. The form is currently being tested.

RESULTS:

High energy multi-professional engagement with the change process. Staff testimony indicates that handover is more reliable and accurate but no data has been collected to demonstrate this.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

Opportunity for spread of best practice in use and development of handover tools, particularly with respect to harnessing the knowledge and needs of the multi-professional team.

Case study 6: Haematology Ward, Bradford Teaching Hospitals NHS Foundation Trust

AIM:

To reduce patient safety issues relating to aspects of communication at handover and during out-of-hours cover.

ACTIONS:

Develop and introduce a face-to-face and written handover. Analysis of the root causes of the safety issue has led to an initiative to enable junior doctors to meet with ward staff at an early stage in their deployment within the hospital. Junior doctor handover 'baton' introduced to ensure no gaps in care.

RESULTS:

Discussion with medical and nursing staff prior to implementing handover tool has made people more aware of the safety issues and has resulted in better multi-professional team-working between doctors and nurses. The initiatives introduced have resulted in less use of short-notice agency cover on the wards.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

Results of the TAPS programme were reported to the clinical governance group. The team are continuing to work on patient safety problems using the TAPS methodology.

Figure 13: Statement: In my experience, there have been patient safety issues relating to aspects of handover (1= Strongly agree 10 = strongly disagree)

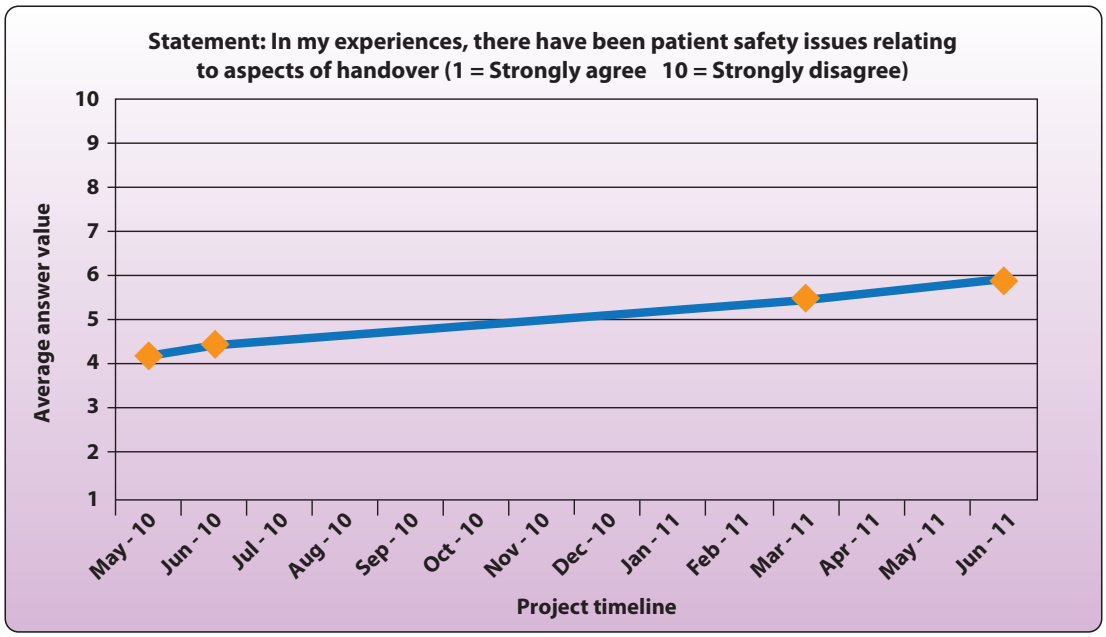
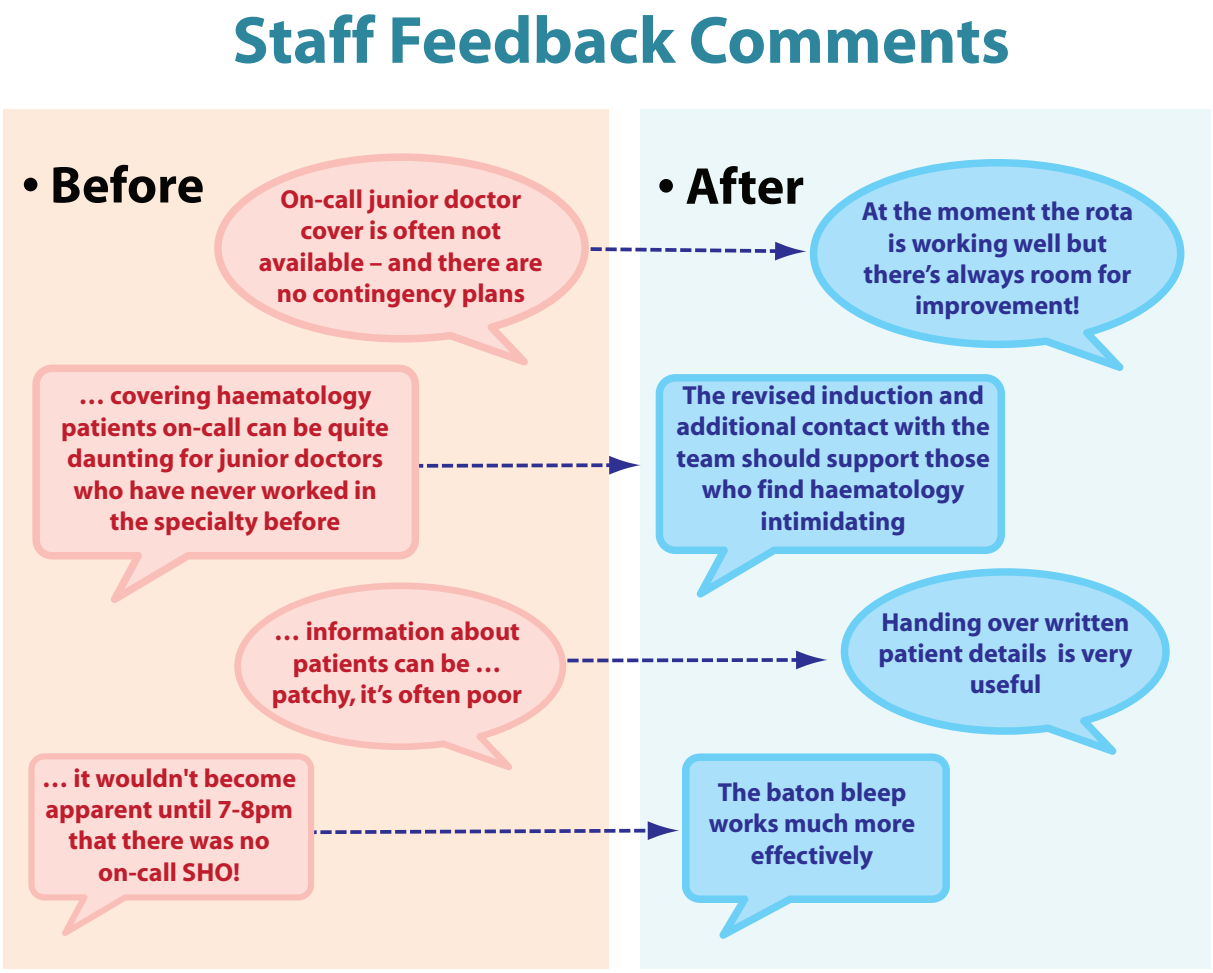


Figure 14: Staff feedback comments



Case study 7: Clover Ward (Psychiatric Intensive Care), Bradford District Care Trust

AIM:

Systematic and timely handover of nursing and medical information to the receiving service (both within the Trust and from out of area) when patients are discharged from the ward.

ACTIONS:

- Design, testing and introduction of a simple transfer summary.
- Discussions with information department around electronic template.

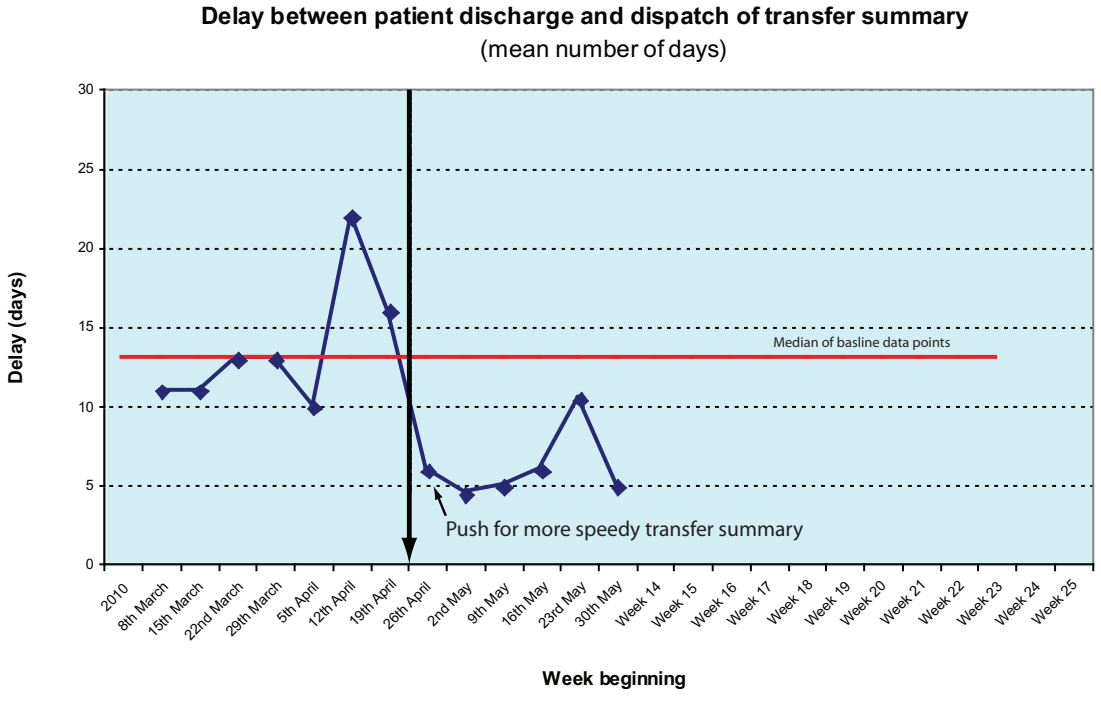
RESULTS:

Transfer form accepted as useful by the receiving services and several suggestions have been incorporated. Delays to dispatch of form have improved but limited by the current necessity to use the 'dictate-type-post' route.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

Trust may choose to support rapid transfer of information (in this and other relevant areas) by prioritising development of an electronic template.

Figure 15: Delay between patient discharge and dispatch of transfer summary



Case study 8: Leylands Medical Practice, Bradford (GP Training Practice)

AIM:

To reduce avoidable drug reactions through increased number of patients with allergy status correctly recorded in primary care.

ACTIONS:

Reminders for clinicians to take advantage of opportunities to ask patients about allergy status.

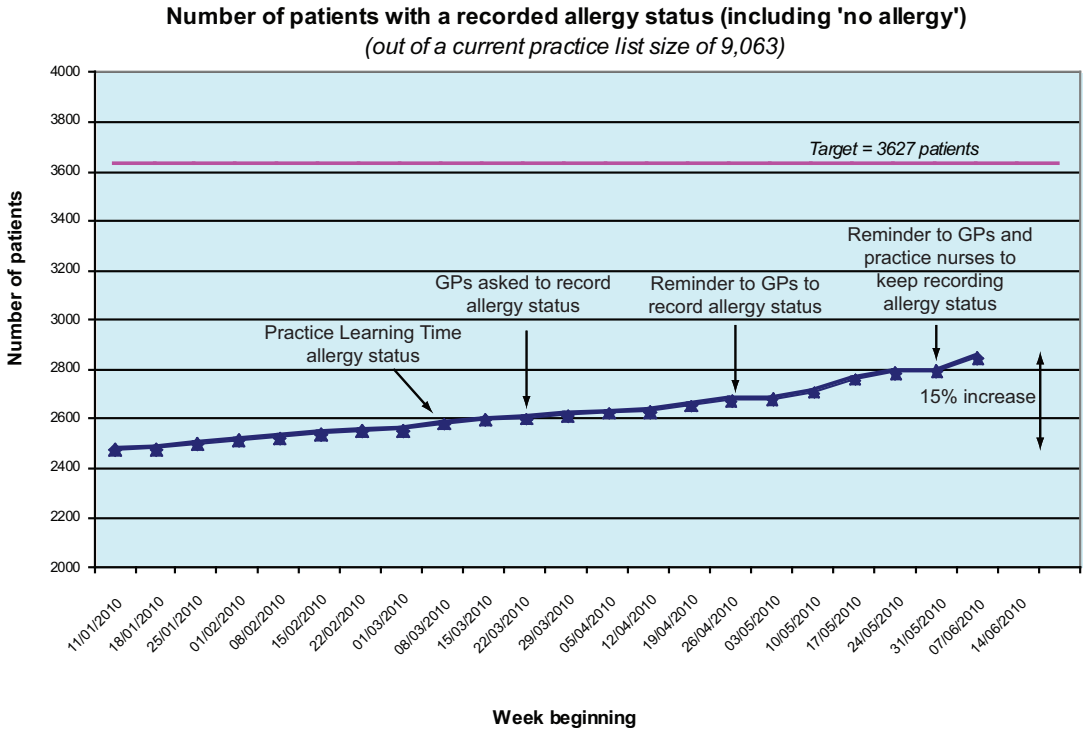
RESULTS:

Number of patients with allergy status recorded increased by 15%. Accuracy improved and concordance with secondary care improved.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

Allergy check box has been introduced by software company – thus making allergy checks easier to build into everyday practice.

Figure 16: Number of patients with a recorded allergy status (including no allergy)



Case study 9: Older People Mental Health Ward, Bradford District Care Trust

AIM:

To reduce the incidents of violence and aggression by following NICE guidelines on the short-term management of disturbed behaviour/violence.

ACTIONS:

Worked together as a multi-professional team to define which incidents need a 72 hour review and define what a review consists of. Developed a template to guide the review. The template incorporates a care bundle of factors to consider and address. Aimed to test this template on two wards.

RESULTS:

Project delayed so results not available

IMPLICATIONS for SPREAD and SUSTAINABILITY:

The team intends to sustain the method of addressing problems through multi-disciplinary team working and measurement – and to introduce it in other areas of older people's services.

Case study 10: Windhill Green Medical Practice, Bradford (GP Training Practice)

AIM:

To improve the communication of changes to dosette box prescriptions (including those made by secondary care) between GP practice team and local pharmacy.

ACTIONS:

A method of communicating dosette box prescription changes was created, tested, adjusted and implemented. The innovation included both a formalised process and a supporting form.

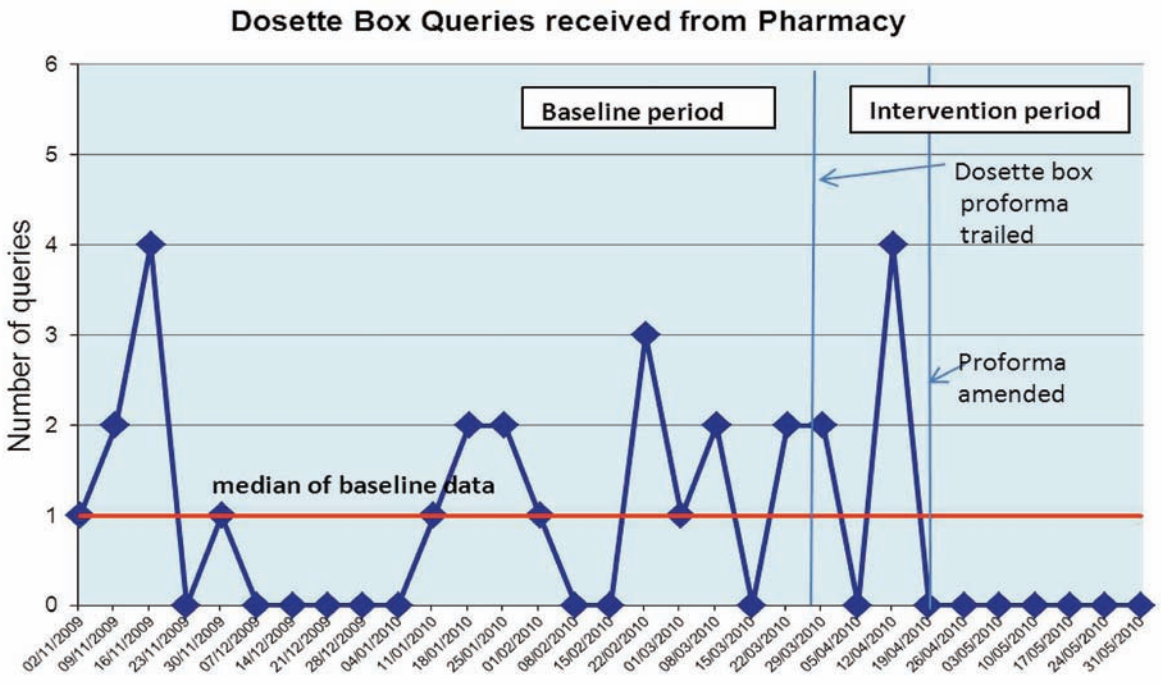
RESULTS:

The dosette box form is now in regular use. This has formalised the process and provides an audit trail for prescription changes. Queries at both GP practice and pharmacy have dropped.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

This safer practice can easily be adopted by other GP practices and pharmacies – and is already being implemented (with minor adaptations) in two further Bradford GP practices.

Figure 17: Dosette box problems – pharmacy queries



Case study 11: Bradford City Community Mental Health Team, Bradford District Care Trust

AIM:

- To reduce frequency of suicides through a thorough risk assessment including the systematic use of a risk assessment tool.
- Robust care planning.
- Good communication between all team members for all patients identified on the team caseload as high risk.

ACTIONS:

- Highlight to the large multi-disciplinary team the gap identified in documentation of risk assessments.
- Reminder checklist attached to all referrals awaiting an initial assessment.

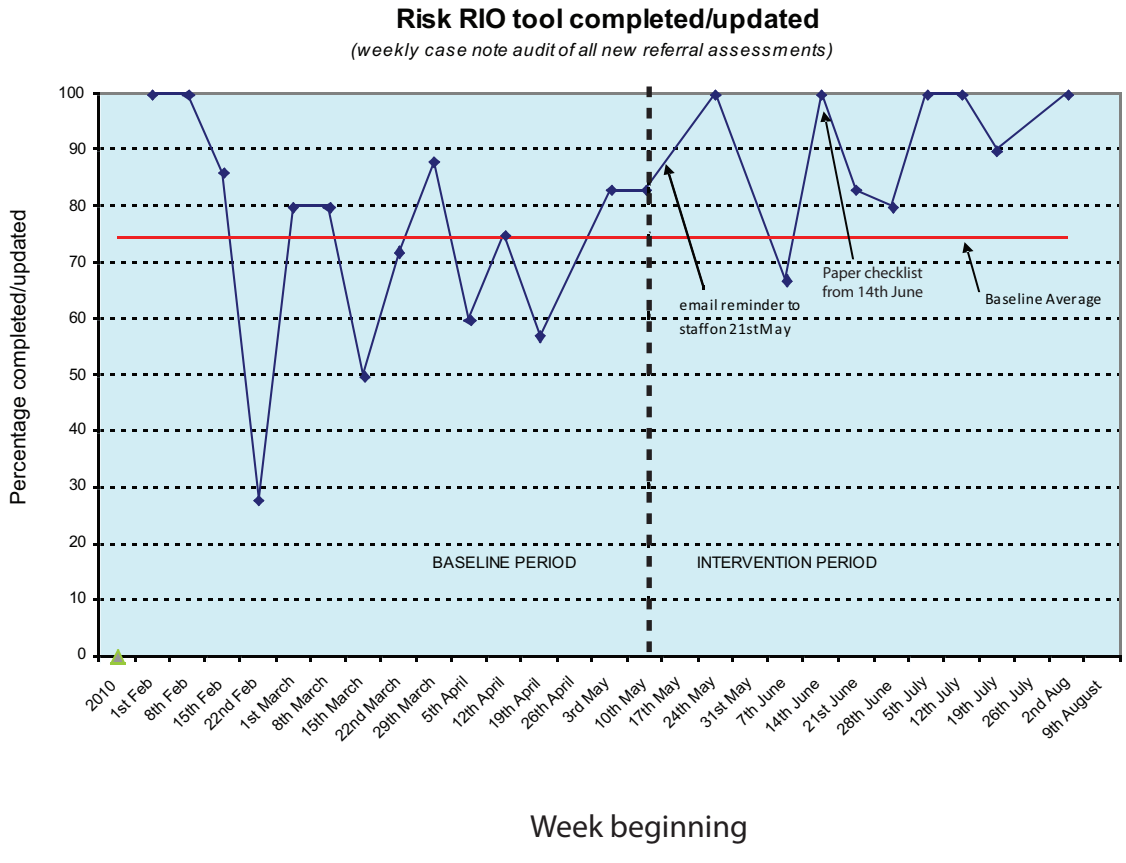
RESULTS:

The weekly data does appear to show an improvement in the completion of the risk tool for all new patient referrals.

IMPLICATIONS for SPREAD and SUSTAINABILITY:

This work will inform further work on risk assessment that is planned in the Care Trust.

Figure 18: Risk RIO tool completed/ updated



Appendix 2: Thematic Analysis of Participant Interviews

Fourteen interviews were completed with participants in the TAPS pilot programme, either individually or in groups depending on availability. A total of 22 staff took part in the interviews: 5 consultants, 3 GPs, 7 junior doctors, 6 nurses/nurse managers and 1 general manager. A semi-structured format was used and the interviewer either took extensive notes or an agreement was obtained to audio-tape the interview. Each interview lasted around 20 minutes (range 10 – 50 minutes). A pragmatic content analysis was employed with the purpose of identifying key strengths, areas for improvement and how to facilitate the sustainability of TAPS in the further roll-out.

1. What did participants expect from the TAPS programme?

Many of the participants were initially unsure of what to expect from TAPS.

> *"All I knew was that it was an initiative to sort of work… ..in lots of teams around Bradford to look at patient safety and some collaborative working". (General Practitioner)*

> *"I don't know that you could have explained – I think you have to experience the process to understand it". (General Practitioner)*

The literature handed to potential participants before the programme was helpful in encouraging them to identify a patient safety problem to resolve prior to attending the TAPS workshops.

> *"[the literature].. was enough to get you thinking, well, yes, we would be interested in doing it." (General Practitioner)*

Most participants also anticipated that TAPS would help them find the appropriate methods to resolve their identified problem. Several participants relied on patient safety issues that had previously occurred in their practice to form their attitude that TAPS would seek to develop skills to address these. In six of the fourteen interviews, participants stated their expectation that TAPS could help redesign patient safety pathways and improve the way staff dealt with issues surrounding patient safety. Two people said they thought TAPS would involve ideas on how to handle audit work, but it was clear that over time, participants realised TAPS was something more.

> *"I suppose I thought it would be some kind of audit work – rather than the project it is". (Junior Doctor, Care Trust)*

There was some inconsistency in the way that people joined the programme. Although most participants wanted to participate in TAPS, a few of them felt they had been conscripted into the programme and 'just been put forward'. Future programmes might want to explain more about the programme to potential participants and to encourage and recruit the people who are genuinely motivated in resolving patient safety issues.

> *"It came as a bit of a surprise to me as I'd not been told about the project and I just got a message saying, 'as you know you are going to be involved in this…" (Junior Doctor, Care Trust)*

The consultants who took part recommended the programme to their Junior Doctors and felt that TAPS could address the key patient safety skills Junior Doctors missed at medical school.

> *"TAPS did fit that multi-disciplinary approach, but it did have that emphasis on the Junior Doctor which is important". (Consultant, Acute Trust)*

> *"Dr [name] had put my name forward because I was coming up for consultant in two years and he thought it would be a good thing to put on my CV". (Specialist Registrar, Care Trust)*

> *"I think it's good for the career of junior doctors. It's the right sort of thing to be getting brownie points for because it serves a wider purpose". (Consultant, Acute Trust)*

2. What are the benefits of TAPS?

It is a common goal for all clinical professions, at both senior and junior level, to ensure patient safety, and as solutions to patient safety issues most commonly involve a multi-professional team, the format of TAPS was perceived to be very appropriate. Two of the hospital based interviewees noted that TAPS further developed concepts familiar from other local initiatives such as the newly launched SAFE programme.

The workshops allowed people to express their opinions and ideas freely and gave participants a chance to listen to what others have to say. This was particularly beneficial for nurses who found they were able to speak directly about their concerns to senior colleagues. Importantly, participants also had some protected time to work together.

> *"I think as nurses we value the time out, the sessions away from work, you know, they're very valuable". (Senior Nurse, Hospital)*

> *"I found it very useful working with the team and getting to know the other people within the team as well". (Junior Doctor, Care Trust)*

Although the TAPS workshops were quite long most participants found them to be very informative, more specifically they enjoyed the step by step visualisations of problem solving. Participants also welcomed improvement facilitators going around and joining up with the teams in the workshops as it allowed the teams to focus on the task in hand, discuss plans and consider action.

> *"drawing out the timeline of how we were going to achieve it.. helped sort of formulate things in a structured way and made you think what is and isn't possible". (Junior Doctor, General Practice)*

Nearly all participants agreed that TAPS encouraged them to think both on a patient and on a process level i.e. find a patient safety problem and then identify a way of improving it. The twin subjects of patient safety and improvement processes are threaded together in the TAPS programme in order to be addressed together. This type of approach inspired a new, 'more informed' perspective on patient safety, helping them to pick out early pitfalls and consider measurement strategies.

"TAPS gives you a good way of thinking about problems … it helps you approach a problem and find an early solution".
(Junior Doctor, Care Trust)

"It makes you think differently about how you do manage things, both at the ...individual patient level but also on the wider, you know, your processes level as well". (Junior Doctor, General Practice)

"It gives me a structure, you know, I can sit down now and analyse a problem". (General Practitioner)

Many of the interviewees commented positively on the TAPS method of collecting data weekly and being able to see the improvement as it happened.

"I think the most useful thing has been collecting the weekly data and looking at the changes – it's certainly made me think about doing an audit in the future, and that there might be a more useful way of doing it". (General Practitioner)

"This is actually the people doing the audits who have been doing the care... there's no middle person....so you see it then you change it and then you do it again ...so it's an immediate instant feedback process. It's not taken to any committee or anything; you just sit down and think, well, what do we need to do about this?". (Consultant, Care Trust)

"I've presented it to the GP registrars locally....collecting data weekly – people were quite keen on that actually because they could see from the work we have done, the changes that have been produced".
(Junior Doctor, General Practice)

The on-line assessment component was largely liked by participants, but some admitted to not completing this part of the programme. The use of online learning was also judged to be innovative, employing current teaching and learning methods. Participants found it very useful and convenient to do off-site.

"I thought that the online learning was excellent. In fact I'd recommend that to everyone". (Junior Doctor, Care Trust)

"I liked [the online learning]...the impression was that it was a bit more onerous than it actually turned out to be in real life".
(Consultant, Hospital Trust)

Subtle and unexpected benefit was the improvement in team communication. This was a significant finding across all interviews. The senior medical and managerial staff, junior doctors and nurses all stressed that they were communicating more effectively. The task they addressed through TAPS had brought all clinical units together as well as other partnering groups.

"it made the nursing and the medical staff [talk]…. it grew us together …. it made us a team in which we hadn't quite been a team before".
(Nurse, Acute Trust)

"it was very much a team approach…it felt that anyone could speak up and make any comment. It wasn't really a strict hierarchy". (Junior Doctor, Hospital Trust)

"Another benefit is the improved communication with local pharmacists". (General Practitioner)

A further identifiable benefit was linked to the junior doctors' rotation; once they had participated in TAPS they began to share with others including their subsequent placements. For the junior staff, themselves, there were many benefits identified:

"…I think there are benefits on lots of different levels both personally and to the unit itself…personally for me education (it's not an issue I personally knew a great deal about) … obviously there's clear benefits for patient safety and there is some economic benefit as well". (Junior Doctor, Hospital Trust)

"the training …for me was good because we have a lot of assessments and portfolios and have to write up audits and presentations….so doing that in a nice structured way". (Junior Doctor, General Practice)

"I've presented it to the GP registrars locally…and won an award". (Junior Doctor, General Practice)

"…on a personal level firstly I have more insight into patient safety issues… and secondly, again on a personal note, I came to know about different interventions which could be done (so, you know, all those things that you sometimes hear but don't know what they are). So in that sense it improved my knowledge and I can use that knowledge to improve myself as well as the service with which I am associated". (Junior Doctor, Care Trust)

"I've learnt so much about the process of making change and breaking up barriers to it and how to go about it …starting at the beginning and identifying a problem and then looking at the process, identifying places where change might happen. Even the process of getting people on board with change has been a very important thing. So Yeah, I've definitely learnt a lot of transferrable skills". (Junior Doctor, General Practice)

One participant summed up the benefits like this:

"the main thing is it works and its as simple as that, if you apply the principle… to the workplace it works and patient safety is improved as a result of it. The biggest compliment I can give it is I intend to carry on using it in my practice with my colleagues". (Senior Nurse, Care Trust)

3. What are the barriers for TAPS?

Although the workshops offered some protected time, most nurses, and a considerable number of other staff, had no such protected time in clinical practice. Consequently, participants needed to progress their TAPS task during the normal working week. Some participants stated that this could be a potential barrier for people participating as it is hard for them to change their daily rota to accommodate TAPS.

> *"I suppose ideally we would like to have protected time somehow". (Consultant, Hospital)*

> *"I think the problem for TAPS is finding the time to take the support from it". (Nurse, Care Trust)*

> *"I would have liked to have less homework to do, because there is so much to do during the day and I'd rather have done that work in a timeout session". (General Practitioner)*

> *"[although] we all became motivated, it was a conscripted effort so people were finding time issues difficult anyway". (Manager, Care Trust)*

> *"...we were thwarted [in introducing the planned change] I suppose by a combination of the ward being extraordinarily busy and also being very short of staff" "Yes very suddenly we weren't able to meet as regularly..." (Consultant and Nurse exchange, Hospital Trust)*

> *"Protecting time...I think it was quite a thing to keep it going, you know, the weekly meetings, trying to make sure that every Wednesday afternoon you could get along to the ward, and have [name] there which was obviously difficult with her shifts and so forth, and have the juniors who were having teaching that day". (Consultant, Acute Trust)*

A further potential barrier identified by participants was that if senior staff and directorates did not feel there was a direct benefit from TAPS, teams lacked the authority to disseminate their actions. Participants recommended that TAPS is clearly articulated and encouraged to seniors before addressing junior staff.

> *" It's not often that [junior doctors] get involved in safety initiatives; they're not given the authorisation I suppose, the time and space to develop these things". (Consultant, Acute Trust)*

> *"I think going through the governance leads would be a good thing...because it comes with an extra little bit of impetus, I think, when a senior clinician would like to sponsor it". (Consultant, Acute Trust)*

4. The sustainability of TAPS

Many of the participants had already utilised their learning from the TAPS course and have integrated their safety solutions into routine practice. For example, a medicines safety problem and its solution has been subsequently posted on the intranet for all staff.

> *"We've got copies on the intranet as well as paper copies to tell people who start to work here how it all works". (General Practitioner)*

The senior staff who took part believed TAPS was good for the future generation especially for junior doctors, as it would allow them to learn skills at an early stage and become autonomous in the TAPS application.

> *"it gives more and more people the skills to know how to tackle different problems so you can use the same methodology for non-patient safety". (Manager, Hospital Trust)l*

Senior staff talked about their own learning, and also about how the experience of TAPS made them more reflective.

> *"...you can see holes where you might not have... or pitfalls where you didn't see them before....for instance, I run the warfarin clinic and I've just updated the warfarin protocol and I am sure TAPS has helped me to analyse where we might not have been so thorough". (General Practitioner)*

The combination of patient safety with quality improvement makes the approach transferable to numerous aspects of practice. A few of the senior staff stated they would allocate time for weekly meetings to address issues.

> *"...it isn't just the idea of [specific TAPS project] that has spread, the number of things that have been looked at has increased as well.. so maybe there is some evidence that people are more inclined to get the idea, sort of 'geographically' and also within the topics that are being looked at". (Consultant, Care Trust)*

> *"I like the principles of TAPS and in my area it is the slips, trips and falls which is far more pertinent and I will be applying the principles of TAPS to that ...and looking at the actions we can take...following the principles that we've learnt from this". (Nurse, Care Trust)*

5. Suggestions for future improvements

Participants identified several ideas for improving the effectiveness of the TAPS programme:

- A shared TAPS on-line forum: Some participants suggested that it would be useful if the TAPS website shared ideas of other groups that participated and, importantly, demonstrate how they tackled their issue. This could be in the style of a forum; where participants can talk about their problem and its resolution. One consultant stated that if the website was less partitioned – and there was a digest of the other projects on a single page – then he would have been more likely to have a look at what others were doing and reporting.

- A TAPS basic toolkit: The suggestion was that TAPS could be developed into a basic toolkit for all organisations to use, especially those waiting to take part in the programme.
- Change time out requirements; There was some debate about whether the time out could be structured differently. One person suggested that two full days instead of one full day and two half days might be easier to rota in, another suggested half-days were easier, but most other people concluded that the workshops had been about right in timing, content and duration.
- More explicit about work commitment; Most participants were quite surprised about the amount of work they had to put in for TAPS therefore it was suggested it should be made quite explicit at the start of the course, and that a successful outcome will require out of hours learning and commitment.
- TAPS presentation day: It was suggested that there should be a TAPS presentation day in which all the groups that have participated could produce a poster with graphs visualising results for others to see, and for them to use in their own practice settings. This would allow interested parties to know how problems are being addressed to ensure patient safety as well as giving health professionals a chance to discuss their effective problem solving strategies.

> *"A good way to disseminate the project would be some sort of trust event where participants could showcase their TAPS experience". (Junior Doctor, Hospital Trust)*

> *"I know [Trust Chief Executive] was supposed to be there and I know he would have been more critical – actually that's really valuable". (Manager, Hospital Trust)*