**PDSA Cycle 1**

**Aim:** what are you trying to accomplish?

Collect and analyse data on the adequacy and safety of our current patient handover sheets and the information technology that produces them following anecdotal evidence of sub-optimal patient safety

**Plan:** what will your test be?

A questionnaire to all T&O junior doctors to assess the deficient areas within our handover process and how these can best be addressed with improvements in the handover sheet

**Prediction:** what do you think will happen as a result of your test?

5 completed questionnaires were returned, with results as follows:

|  |  |
| --- | --- |
|  | Responder number |
| **Pre-Intervention questions** | 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Was you patient handover list readily accessible? | Always | Mostly | Rarely | Mostly | Mostly | Mostly |
| 2. Was your patient handover list regularly updated by the SHO covering those patients? | Mostly | Mostly | Mostly | Mostly | Mostly | Mostly |
| 3. Did your patient handover list automatically arrange itself into a sensible layout? | Rarely | Never | Never | Never | Never | Never |
| 4. Did you notice a loss of patient data when patients were transferred to your list from another? | 0-2 | 5-6 | 3-4 | 3-4 | 3-4 | 0-2 |
| 5. Have you noticed any patients that were lost off the elective lists? | 3-4 | 9-10 | 7-8 | 3-4 | 5-6 | 0-2 |
| 6. Were these lost patients mostly lost from the lists at the weekend or during the week? | Weekend | Weekend | Weekdays | Weekend | Neither | Weekdays |
| 7. At weekends, did patient handover sheets allow you to be time efficient in seeing the patients in order? | Rarely | Mostly | Never | Rarely | Never | n/a (doesn’t work w/e) |
| Notes | Only 1 person on each team could access the list at once. Messy spreadsheet Rarely contained ward locations |

The results demonstrated that (median or mean calculated):

1. Handover lists were readily accessible - MOSTLY

2. Handover lists were regularly updated by the SHO covering those patients - MOSTLY

3. Handover lists were automatically arranged into sensible layouts - NEVER

4. Patient data was lost when patients were transferred from one list to another - 3-4 TIMES

5. Patients were dropped off patient lists accidentally - 5-6 TIMES

6. These patients were dropped off these lists predominantly at the WEEKEND

7. Handover sheets allowed time efficiency at the weekend - RARELY

I predict that the test will reveal a number of elements to patient handover that are currently substandard. I believe the answers and suggestions from this questionnaire will form the basis on which a possible IT solution can be built

**Do:** what happened when you carried out your test?

**Study:** how did the results of your test compare with predictions?

The results correlated with the prediction, demonstrating substandard and potentially dangerous handover behavior. Patients or patient data were being lost from the four separate lists. There was a lack of time efficiency due to the lists at weekends with difficulty in recognising priority patients due to the separate lists and a lack of continuity within the layout.

**Act:** how will you change your previous test in light of what you have learned?

This test applies only to the initial research and would not be appropriate for the second PDSA cycle.

**PDSA Cycle 2**

**Aim:** what are you trying to accomplish?

Consensus opinion on the adequacy of the new database to take the place of the MS Word (current) handover sheets

**Plan:** what will your test be?

Show the first draft to the junior doctors, ask for feedback, consider all and act on appropriate suggestions

**Prediction:** what do you think will happen as a result of your test?

Improvement of the database ensuring it is as user friendly and intuitive as possible

**Do:** what happened when you carried out your test?

Feedback was received:

* Enable more than one user to access the database concurrently
* Correct a couple of spelling mistakes
* Smooth out programming errors

**Study:** how did the results of your test compare with predictions?

It was anticipated that there would be a few teething problems with the database and that these would only truly be discovered by implementing it and troubleshooting thereafter. All problems were easily resolved.

**Act:** how will you change your previous test in light of what you have learned?

No change to the test required, it is to be repeated following correction of the identified issues.

**PDSA Cycle 3**

**Aim:** what are you trying to accomplish?

Re-evaluate the database and gain feedback from the junior doctors as to further suggestions for improvement, implement if no further suggestions.

**Plan:** what will your test be?

The junior doctors working through the sample database, looking for flaws or errors and giving feedback with potential improvements

**Prediction:** what do you think will happen as a result of your test?

Move the database closer to the optimal solution by means of corrections of errors and improvement through feedback from colleagues

**Do:** what happened when you carried out your test?

Feedback gained:

* No new changes required
* Marked improvement on old system
* Time for trial implementation of the database

**Study:** how did the results of your test compare with predictions?

As predicted – database now ready for working trial

**Act:** how will you change your previous test in light of what you have learned?

Reversion to PDSA cycle 1 test – retesting initial criteria

**PDSA Cycle 4**

**Aim:** what are you trying to accomplish?

Assess the change in perceived patient safety and continuity following the implementation of the new database

**Plan:** what will your test be?

A questionnaire to all T&O junior doctors utilising the same question set as in PDSA cycle 1 to assess the change within our handover process and how this has changed patient safety and continuity within the department

**Prediction:** what do you think will happen as a result of your test?

I predict that the test will demonstrate a lower incidence of loss of patients or patient data from the lists. Time efficiency at the weekend will have improved and the clarity of information recorded on a daily basis will have improved due to the prompts and boxes within the new database

**Do:** what happened when you carried out your test?

|  |  |
| --- | --- |
|  | Responder number |
| **Post-Intervention questions** | 1 | 2 | 3 | 4 | 5 | 6 |
| 1. Was you patient handover list readily accessible? | Always | Mostly | Always | Always | Always | Always |
| 2. Was your patient handover list regularly updated by the SHO covering those patients? | Mostly | Mostly | Always | Always | Always | Always |
| 3. Did your patient handover list automatically arrange itself into a sensible layout? | Always | Always | Always | Always | Always | Always |
| 4. Did you notice a loss of patient data when patients were transferred to your list from another? | 0-2 | 5-6 | 0-2 | 0-2 | 0-2 | 0-2 |
| 5. Have you noticed any patients that were lost off the elective lists? | 3-4 | 3-4 | 0-2 | 0-2 | 0-2 | 0-2 |
| 6. Were these lost patients mostly lost from the lists at the weekend or during the week? | Weekend | Weekend | Weekend | Neither | Neither | Neither |
| 7. At weekends, did patient handover sheets allow you to be time efficient in seeing the patients in order? | Mostly | Always | Always | Always | Always | N/a – does not do nights |
| Notes | Great job with the database!System is good, accessible, human factor remains the problemThe elective doctors from each team can now update their own patient list. Prompts for ward location and bed number made it much easier to find patients. Easier to update as twilight doc as it automatically allocates to team list by consultant, easier than trying to find which team the patient belongs to. Prompts for Bloods/Xrays so you know if they have been requested/done more easilyHuman factors remain an issue |

The results demonstrated that (median or mean calculated):

1. Handover lists were readily accessible - ALWAYS

2. Handover lists were regularly updated by the SHO covering those patients - ALWAYS

3. Handover lists were automatically arranged into sensible layouts - ALWAYS

4. Patient data was lost when patients were transferred from one list to another – 0-2 TIMES

5. Patients were dropped off patient lists accidentally – 0-2 TIMES

6. These patients were dropped off these lists predominantly at the WEEKEND

7. Handover sheets allowed time efficiency at the weekend - ALWAYS

**Study:** how did the results of your test compare with predictions?

The results correlated with the prediction, with a reduction in patients and patient data being lost from the list. The patient handover database was now accessible from any computer that the doctor had logged onto. It was self adjusting, ordering and arranging avoiding time loss on this task and it prompted for certain pieces of information ensuring that a minimal necessary handover was given.

**Act:** how will you change your previous test in light of what you have learned?

No change required – database implemented