

Super Helper!

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Super Helper: a PDSA Model QI Project

- Implementing a program to automate exporting blood results to the surgical list, minimising user-error, and reducing workload.

The Surgical Patient's Journey

General Surgery on-call teams rotate and admit patients between 4 weekdays (Mon-Thu) and three weekend days (Fri-Sun).

During this time admitted patients stay under the admitting team regardless of location in the hospital; discharged patients are followed-up by the admitting consultant.

Patients requiring longer inpatient stay at the end of the 4 or 3 day on-call block are handed over to Team A/Team B for ongoing inpatient care.

The List?

The surgical list is a handover sheet with the teams' patients' information as below:

Location in hospital							
Date of Admission	Name	Presenting Complaint and PMHx	Diagnosis +/- differentials	Investigations (Blood results and imaging)	Theatre date	IDL ?	Current issues and plan

The surgical list allows for quicker and easier ward rounds as the latest investigations, progress and plans are available to hand.

It ensures everyone is up to date and facilitates teamwork and remote discussions between members of the team, important as seniors are often in theatre.

Further, handovers are quicker and safer with all team members having their own set of constantly updated physical notes

The on-call FY1 is responsible for adding new patients to the on-call list and keeping the list updated; particularly with new blood results/investigations, progress this admission and plans.

Further, the Team A and B ANPs and FY1 update their list, and on the weekend the weekend FY1 updates both Team A's and B's lists.

Initial Data Gathering (PDSA Cycle 1)

Survey of 15 FY1s and ANPs in the surgical department of VHK was carried out. This consisted of qualitative open questions (general opinions) and closed questions (utility of list, accuracy of blood results copied, time spent updating the list).

All surveyed agreed that the surgical list is essential in the current on-call model to patient care.

Specific comments to the above were:

"The list makes ward rounds better and safer;"

"I would be lost without it on the on-call shifts."

Some issues were raised from the practical side of keeping the list updated.

12 out of 15 surveyed noted that updating the lists took a lot of their time:

"It's hard to do as well as the other things;"

"It's why I end up staying late so often;"

"It takes so long and I don't get breaks on most of my on-call shifts."

8 out of 15 affirmed noticing incorrect blood results copied onto the list – most frequently single digit or single result errors.

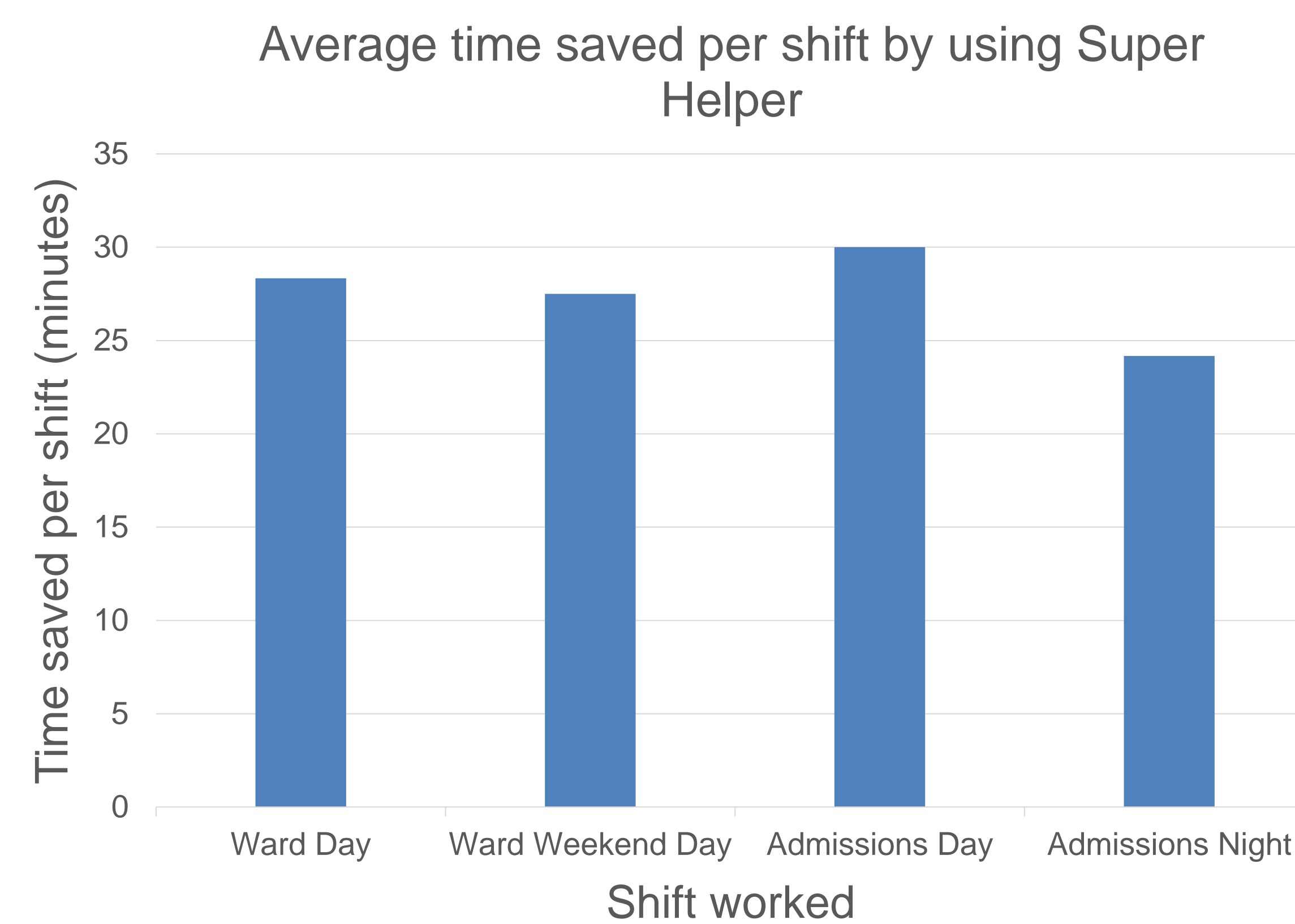
13 out of 15 affirmed noticing blood results on the physical list were often not kept up to date:

"Practically half the bloods are old by day 3."

Goals of Intervention (PDSA Cycle 1)

- To minimise the error arising from copying blood results to the list, and;
- To minimise the time spent copying blood results to the surgical list by 20minutes/shift. Thereby:
- Reducing the risk of incorrect blood results being copied to the list;
- Reducing the time burden on FY1s and ANPs, reducing the need for missed breaks and working late;
- Increasing time spent attending to patients, and improving patient and staff wellbeing.

Study Outcomes (PDSA Cycle 2)



"A fantastic system and well done for inventing it, use it every day"

"Thank you so much for developing this tool! I can see how it will save hours of work in the future, as I estimate I spend at least 2 hours a day doing the list on my busy on-call day!"

"It's really useful and makes things a lot easier!"

"It's clever and the comments are refreshing at the end of an on-call block :D"

Technical Design Criteria (PDSA Cycle 1)

The design criteria for the program were:

- Secure handling of patient information, with no local or cache storage of patient sensitive data;
- Minimal IT background or training required to operate;
- Selection of different output formats for on-call and Team A/B lists;
- No requirement for executable code install on NHS computers or servers;
- System-proof to multiple operating systems and future updates;

The practical option that fulfilled the above requirements was for coding to be completed with visual basic on a set of matrix arrays in Microsoft Excel.

Excel VBA is secure, pre-installed on NHS computers, and stores no data past the RAM-level. The remaining requirements were met in the design of the program and its presentation to the target FY1s and ANPs.

Full PDSA Cycles 1-3

PDSA Cycle 1:

P&D: Discussed with Mr Koffeman for approval.

Initial survey on surgical list as before, and Super Helper was designed and rudimentarily beta-tested

S: Identified issues with the practicalities of updating the surgical list

A: PDSA Cycle 2:

P&D: The UI was streamlined in design for ease of use, and code implemented to automatically reset and prime the program. Bug-fixes implemented.

An "Instructions" tab was added to Super Helper to familiarise new users with the program.

Super Helper was formally presented at Friday teaching on the 19 February.

S: Feedback was gathered via surveys:

- 12 out of 13 reported Super Helper as easier and quicker in use than manually copying results;
- 1 out of 13 reported Super Helper took the same time as manually copying as the Super Helper output needed formatting afterwards.
- Three respondents requested in free text for the feature to automatically adjust spacing in output formatting (similar to above).
- One requested for the feature to output only today's bloods, for admissions shift

A: PDSA cycle 3

P&D: Options to adjust output formatting and choose cumulative/single results were added as per previous feedback.

Super Helper was presented to the new FY1s rotating at induction.

S: Feedback was gathered via surveys:

- 8 out of 12 reported Super Helper as easier to use and quicker to update blood results;
- 2 out of 12 reported lack of awareness of Super Helper;
- 2 out of 12 reported initial difficulties in accessing and operating Super Helper

• See PDSA Conclusions

A: See PDSA Next steps

PDSA Conclusions (Cycle 3)

Super Helper is easier to use than manually copying, and results in significant time saving that achieved the target of saving 20minutes per shift.

Input error will have been reduced by virtue of machine automation, though data was not collected to ascertain this.

There is some lack of awareness of Super Helper (likely in part to the developer having rotated on, and some initial difficulty in use for those who do not receive demonstrations.

PDSA Next Steps (Cycle 3)

Integrating an introduction to or demonstration of Super Helper into induction materials would enhance awareness of Super Helper.

More detailed instructional materials, including a video demonstration, would allow for easier access to Super Helper.

Super Helper is compatible with Windows XP through Windows 10 and all versions of Microsoft Office. There is good potential for Super Helper use to be rolled out to other boards with minor adjustments to accommodate different versions of TRAK as necessary.