Automating Dose Badge tracking

Saving time and money

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Commission

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Background

- This project took place in the Radiology department of The University Hospital of Wales

- 92 Radiographers, 92 Radiologists, 41 Radiology Department Assistants (RDAs)

- Under IRR(17) individuals working with or around ionising radiation must wear a personal Thermoluminecent Dosimeter (TLD)

- TLDs are standardly provided bi-monthly or monthly in higher dose areas

- TLDs are provided by PHE to the whole of the NHS in Wales

- Each TLD is returned at the end of the wear period and sent to RPS Velindre for processing

- Dose reports are analysed by the department Radiation Protection Supervisors to look for dose breaches

- If a TLD is lost or not returned to RPS Velindre a fine of £31.80 per TLD is charged to the department

Previous Methods

- Previously TLDs were distributed and returned without monitoring

- This method meant that those not returning or collecting badges were unidentifiable

- In the year before TLD return tracking was put into place the cost of fines to the department was £2022.60
  - For Radiographers, Radiologists and RDAs

- As a result of this a spreadsheet was set up to manually record the TLDs as they are returned
  - Poor use of Radiographer time
  - Handling all TLDs was poor infection control

Project Aims

- The aim of this project is to introduce a system that can be used to monitor the collection and returns of TLDs

- This project aims to reduce the amount of unreturned TLDs by identifying individuals that have not returned their TLDs at the end of the wear period
  - This will in turn reduce the number of fines received and cost to the department

- The user centered nature of the system should mean less Radiographer time is spent manually recording TLDs

- The system will log the time and date of the collection or return to aid more accurate dose breach investigations

Method

- Each TLD has a barcode, and the number is to each individual

- This barcode is scanned into an excel spreadsheet when collecting and returning
  - These are then logged against a list of assigned numbers supplied by PHE

- This data was then be analysed to identify those who have not returned their TLD so it can be chased before a fine is applied

- Each barcode entry is time stamped for a more accurate dose breach analysis

- The number of entries into the system was compared to the number of TLDs returned to assess interaction with the system

- Feedback sheets were also provided for individuals to leave their comments

System Overview

- Computer set up in the centre of Radiology underneath board housing TLDs

- Barcode scanner attached

- Handbook on desk

- Individuals scan their expiring TLD and click "Return"

- They then scan their new badge in and click "Collect"

- These numbers are then copied into the data table using excel macros

Dose Badge Barcode Scanning Handbook

Badge No	Time Scanned	Name	Bade Expiry	Role
82155179	27/04/2021	O SHEA CAROLE	30/04/2021	RAD

The Spreadsheet will be open ready on the computer by the dose badge boards. Please use the barcode scanner provided and go through the following steps:

1. Scan the barcode on your expiring/expired dose badge and ensure the number enters the highlighted box.

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Dosimetry Distribution System

Scan badge then select collect or return

Scan Badge Here

2. Once the badge has been scanned and the number appears in the box click return and the system will move the number to the correct page and return you to the original screen.
3. Once back at the home screen place your old badge in the returns pot and collect your new one off the board.
4. Follow steps 1 and 2 with your new badge and you're good to go.

Return

Collect

Developed by George Morris

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Any issues please contact:

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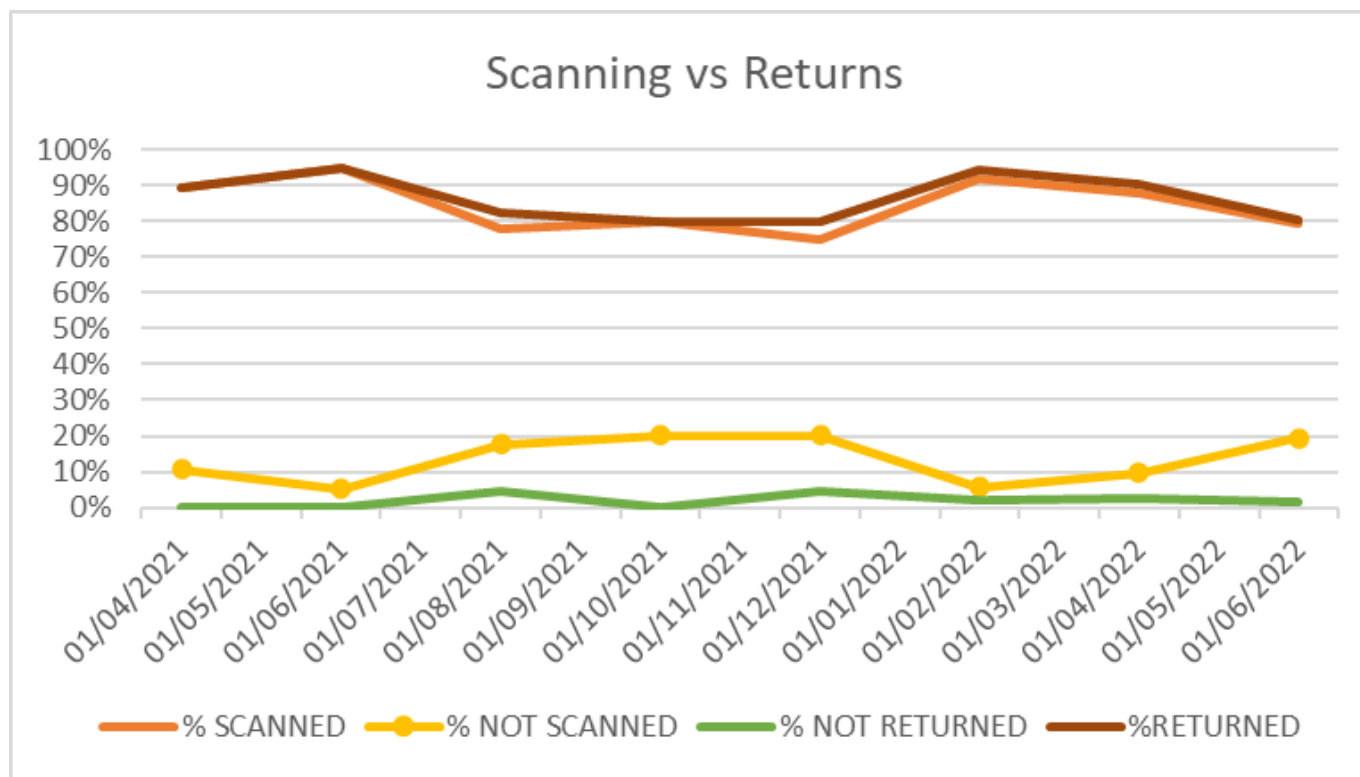
Kyle Rees- Kyle.rees@wales.nhs.uk

Results

- Radiographers only

- From April 2021 to June 2022

- 8 wear periods

- 643 Expected TLDs

- 542 Scanned TLDs

- 13 Unreturned TLDs

- £413.40 in fines
  - £557.60 less than previous year

Scanning vs Returns

Radiographer Feedback

- Only 8 Radiographers filled in feedback forms

- Q1. Was the system easy to use?
  - Yes – 7
  - No – 1 (The computer crashed)

- Q2. Do you feel the system will help improve badge collection and returns?
  - Yes - 6
  - No – 2 ("Not overall but possible easier to chase people/keep track")

- Q3. Any other comments?
  - "No, It's Class"
  - "No, Very good system. Wells done"
  - "Bigger sign on desk"

Dose Badge Barcode Scanning – Feedback

1. Was the system easy to use? (Please Circle)
   a. Yes
   b. No

2. Do you feel that this system will improve badge collection and returns? (Please Circle)
   a. Yes
   b. No

2a. If No why do you think this?
   _____
   _____
   _____
   _____

3. Is there anything you think could be changed to improve this service/Any other comments?
   _____
   _____
   _____
   _____

Any questions or queries email: George.Morris@wales.nhs.uk
Thank you for your feedback.

Outcomes

- Saved the department £557.60

- Radiographer time spend counting badges down by around 2 hours Bimonthly

- Department RPS investigations into dose breaches use date data to reduce variability and narrow down time frames

Conclusions

- Overall the department has been saved nearly £600 in a year
  - This could improve by involving more staff groups

- Radiographer time has been saved by not having to count badges in and out

- Dose breach investigations have become quicker and easier

- Changing mindsets within the department has been difficult

- Not all Radiographers interact with the system

- Doctors and RDAs yet to be fully involved with the system

- The system still requires time to input the provided barcode numbers each wear period

Next Steps

- Develop this system into a stand-alone computer programme

- Multi-centre trial

- All Wales roll-out

Thank You!

Any Questions?

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