INTRODUCTION

Delayed removal of Ureteric Stents has long been associated with increased morbidity, including stent calcification and fragmentation (1). Removal of these stents may involve complex retrograde surgery, or in some cases an antegrade approach via percutaneous nephrostomy.

Various types of stent registry have been trialled to minimise forgotten stents, including logbooks and card indexes, but their usefulness has been questioned (2, 3).

An electronic registry has been suggested as a preferable alternative (3).

AIMS AND OBJECTIVES

1. To analyse the accuracy of the analogue “stent book” in use in CUH.
2. To design an automated electronic stent registry.
3. To migrate all data from the analogue registry to the electronic one.
4. To assess the effectiveness of the electronic database after a trial period.

METHODOLOGY

Data was collected from the “Stent Book” at Cork University Hospital from 1/3/2015 to 29/3/2016 and analysed to determine how many stents were overdue for change/removal, how many had been recorded as removed, and of these how many within 6 months of insertion. This data was then checked against patient records to determine the accuracy of documentation in the book.

RESULTS 1 – “THE STENT BOOK”

170 stent insertions recorded
- 54 recorded as removed, 116 in situ.

Medical record review revealed 83 stents in situ
- i.e. 30% of stent removals had not been logged in the book.
- 18 (22%) >6 months old (range 6-12 months)
- 78 stents had been removed
- 9 after >6 months (range 11 days to 7 months overdue)
- 5 patients deceased, 5 patients transferred to other hospitals.

THE ELECTRONIC STENT REGISTRY

- Generated in Microsoft Excel 2007
- 3 Pages
  - Stents in situ, Stents removed, RIP/Transferred
- Formulae automatically generate date due for removal
- Formatting rules applied based on current date, highlighting overdue stents in red and those due within a month in yellow
- Stents removed sheet includes date and method of removal
- Saved to Urology Shared Drive on CUH secure network, allowing access from any hospital computer
- All data was migrated from the analogue registry to the electronic one and after a period of use, we performed a snapshot review of current stent status and recording.

RESULTS 2 – THE ELECTRONIC REGISTRY

<table>
<thead>
<tr>
<th>Status</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stents in situ</td>
<td>30</td>
</tr>
<tr>
<td>Within dates</td>
<td>20 (66%)</td>
</tr>
<tr>
<td>Within one month of due date</td>
<td>2 (6.7%)</td>
</tr>
<tr>
<td>Overdue</td>
<td>8 (26.6%)</td>
</tr>
<tr>
<td>Stents Removed</td>
<td>150</td>
</tr>
<tr>
<td>Within dates</td>
<td>127 (84.67%)</td>
</tr>
<tr>
<td>Overdue</td>
<td>21 (14%)</td>
</tr>
<tr>
<td>Date of removal unclear</td>
<td>2 (1.3%)</td>
</tr>
<tr>
<td>Care Transferred RIP</td>
<td>15</td>
</tr>
<tr>
<td>Unfil/Palliative</td>
<td>2</td>
</tr>
</tbody>
</table>

- 8 overdue patients:
  - 3 had been dated for removal
  - 1 failed removal and had been rebooked
  - 2 were not on the WL and were booked urgently
  - 2 had been lost to follow up.
  - 2/2 patients within one month of due had date for removal.
  - 16/20 patients within their dates were on the WL.
  - The remaining 4 were identified and placed on the waiting list.

DISCUSSION

Early experience with this automated electronic version demonstrates more accurate logging of stent status than the previous paper based version. It facilitates easy identification of stents soon due, or overdue for removal and allows clear recording of status on the waiting list, which we hypothesise will lower our rates of late stent removal. We acknowledge that the database is user dependent and requires diligent manual input and upkeep of data. We now plan to perform a prospective analysis of all stents inserted after the establishment of the registry to assess the effect on late stent removal rates.

CONCLUSION

The “stent book” is ineffective, both at recording stent status, and preventing prolonged placement. We present a functional electronic database, which automatically calculates due dates and highlights stents soon due for change, and those which are overdue.

REFERENCES