# Pacing Audit – 2013-2015

## Basic Descriptors

I have now completed 3 years of a prospective pacing audit. It includes 531 procedures where I was first operator. In 2013 I implanted 160 devices, in 2014 163 and in 2015 208. 69% of patients were male. Their mean age was 72.1±13.8 years. The age range was 18-101 years. Their mean BMI was 28Kg/m2.

The breakdown of the procedures was as follows:

|  |  |
| --- | --- |
| New Reveal | 9 |
| New VVIR | 60 |
| Revision VVIR | 5 |
| Box Change VVIR | 8 |
| New DDDR | 102 |
| Revision DDDR | 11 |
| Box Change DDDR | 15 |
| New CRT-P | 32 |
| Revision CRT-P | 20 |
| Box Change CRT-P | 13 |
| New VVI ICD | 44 |
| Revision VVI ICD | 4 |
| Box Change VVI ICD | 5 |
| New DDD ICD | 27 |
| Revision DDD ICD | 15 |
| Box Change DDD ICD | 38 |
| New CRT-D | 49 |
| Revision CRT-D | 38 |
| Box Change CRT-D | 22 |
| New Sub cut ICD | 3 |
| Other | 11 |
| **Total** | **531** |

|  |  |
| --- | --- |
| CRT-D | 109 |
| VVI ICD | 53 |
| DDD ICD | 80 |
| CRT-P | 65 |
| Sub cut ICD | 3 |
| **Total “Complex”** | **310** |
| VVIR | 73 |
| DDDR | 128 |
| Reveal | 9 |
| **Total “Non-Complex”** | **210** |

I placed a total of 694 leads (RA 207, RV 359, of which 151 were ICD leads, LV 128). I made 336 axillary/subclavian punctures.

## Complications

Overall, I have had 34 complications (6.4%) in the past 3 years. 13 have been this year (6.3%). I have endeavoured to estimate the risk for the procedures I perform based on data from [Kirkfeldt et al.](http://eurheartj.oxfordjournals.org/content/early/2013/12/13/eurheartj.eht511) published in 2013. This data suggested the risk for the procedures I perform should be around 8.1%. In that study, the “major” complication rate was 5.6%, but the rate of CRT/ICD procedures was only 29% (with a complication rate of 211/1729, 12.2%), whereas my rate is 58%. Furthermore, I have included procedures such as leads which displaced which did not need replacement, “failed” procedures and pneumothoraces which did not require a drain. Nonetheless, I think there is room for improvement.

### Haematomas

I have had 6 haematomas in the last 3 years (531 procedures, 1.1%) which have required re-operation, but 4 this year. This is a problem. In part it has come from operating on warfarin – but we have stopped doing this on low risk patients (i.e. those with AF). In part, I think, it’s related to trying to shoehorn the St Jude ICDs into the old Medtronic pockets; I have had to enlarge them considerably caudally. There is almost certainly some random variation in there too. I think I have managed to adjust my technique now a little, and hope things will improve next year. The principal problem tended to come when I encountered an arteriole connecting the pectoral muscle to the skin and failed to tie this off/seal it adequately. Diathermy would help…

### Lead Displacements

I have had 5 A lead displacements (207 leads placed, 2.4%) in the last 3 years, but 4 have been this year. This has been associated with the transition to the St Jude A leads, and to an extent the new 6F Biotronik A leads. Again, I think I was overtightening the A leads, and treating them in a similar fashion to the Medtronic A leads. These tend to then uncoil themselves, whereas the Medtronic leads, which I was happy with do not. I have adjusted my technique now and tighten the A leads more slowly. I would like to be able to always zoom in and check that the screw has been deployed adequately, but am not always in a position to do so.

I have had 2 RV lead displacements this year, both with St Jude ICD leads, and both, probably, because the screw did not deploy adequately in retrospect. Again, I have adjusted by technique. I had only 2 RV lead displacement in the prior 2 years (359 leads placed, 1.1%).

However, I have not had any LV lead displacements this year, with the new St Jude quad-pole lead. My confidence with this has improved markedly and my procedure times are falling again. In the past 3 years I have placed 128 LV leads and had 5 displacements (3.9%).

### Infection

I am now happy with my infection rates. In the past 3 years, 7 people have developed infections within 1 year (1.3%). I have had only 1 this year, and that was just over the New Year period. We have not yet confirmed device infection, but she has developed a Staphylococcus Aureus infection, possibly secondary to a skin infection.

### Failed Procedures

I have had 4 patients where I have failed to implant an LV lead, apart from the subclavian being occluded. I have attempted to place 132 leads and successfully implanted 128 (97%).