

Experience and Outcomes of Home Monitoring

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Foundation Trust



Interventional Cardiologists

Coronary disease



48 months post PCI

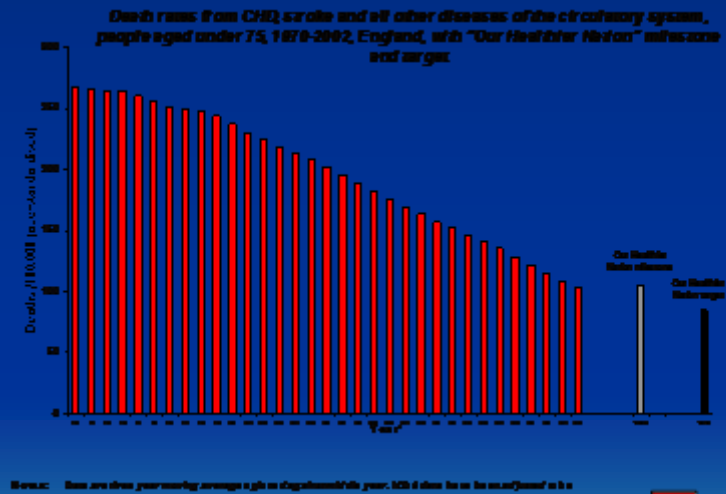


Intervention and the reduction in mortality

Coronary disease

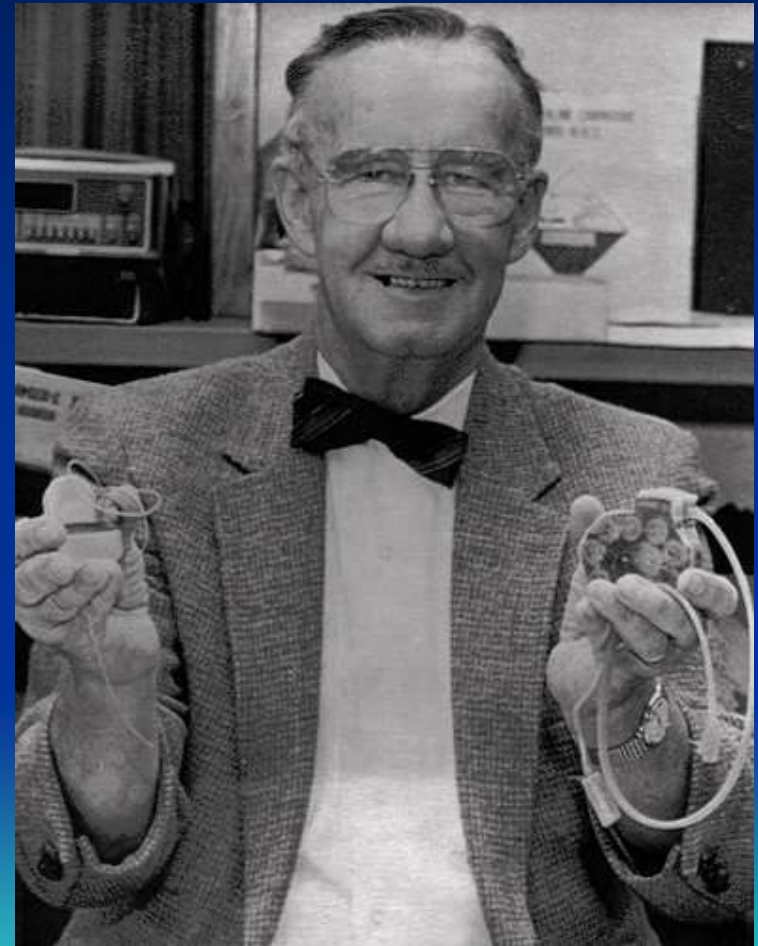


Reduction in CHD mortality



Wilson Greatbatch (1919 – 2011)

- 1958
 - First pacemaker implanted in a dog
- 1960
 - First Human implant
- 1983
 - Implantable pacemaker was named one of the 10 greatest engineering contributions to society by the US National Society of Professional Engineers.



Have we got a problem with pacemakers?

- Increasing complexity
- Increasing capability
- Demographic changes
- Focus is on complex devices

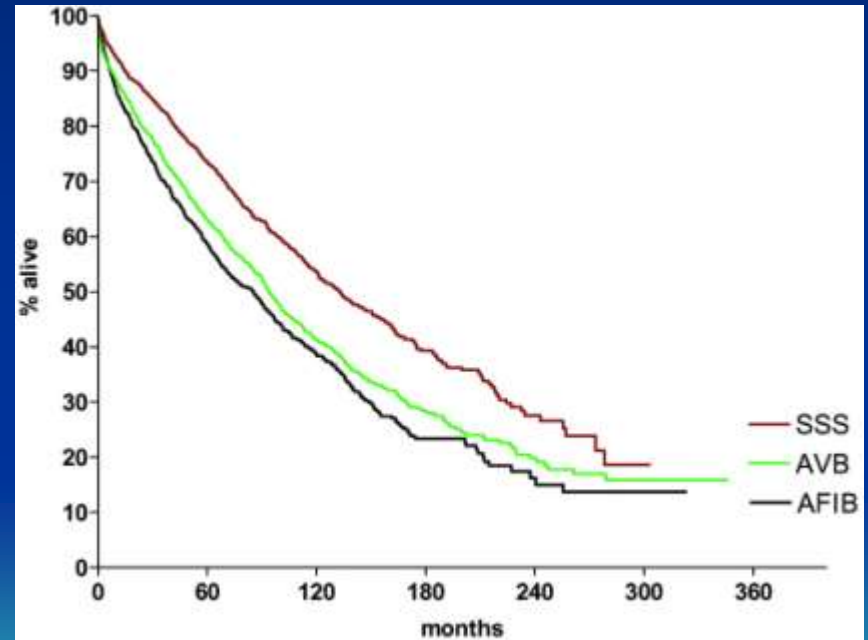
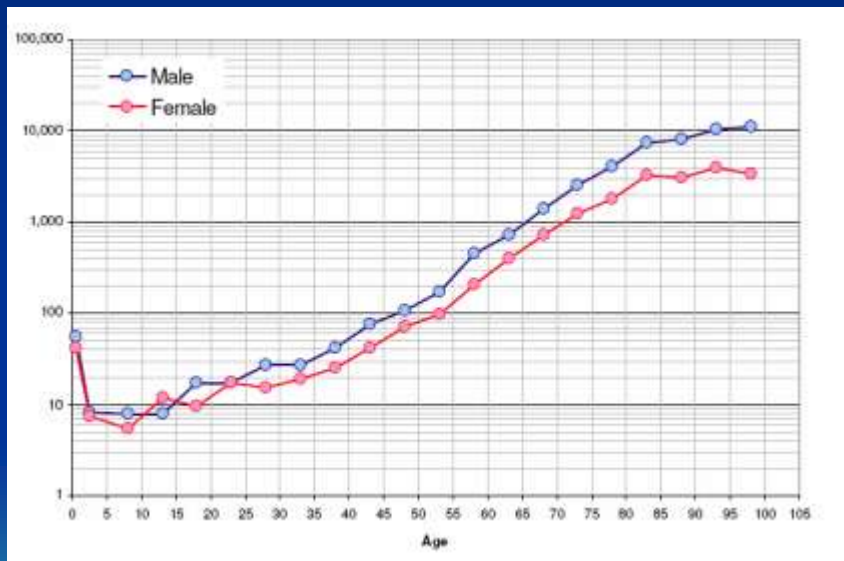


Have we got a problem with follow up?

30 year survival rates of 6505 patients
1972 – 2000.

Brunner M et al. Eur Heart J 2004;25:88-95

Incidence and age at implant



Pacing Service at ASPH - population 380,000

- 300 new implants a year
- 2500 pacemakers/devices under follow up



Home monitoring systems

- Biotronik Home Monitoring™
- Medtronic CareLink™
- Boston Scientific Latitude™
- St Jude Merlin.net

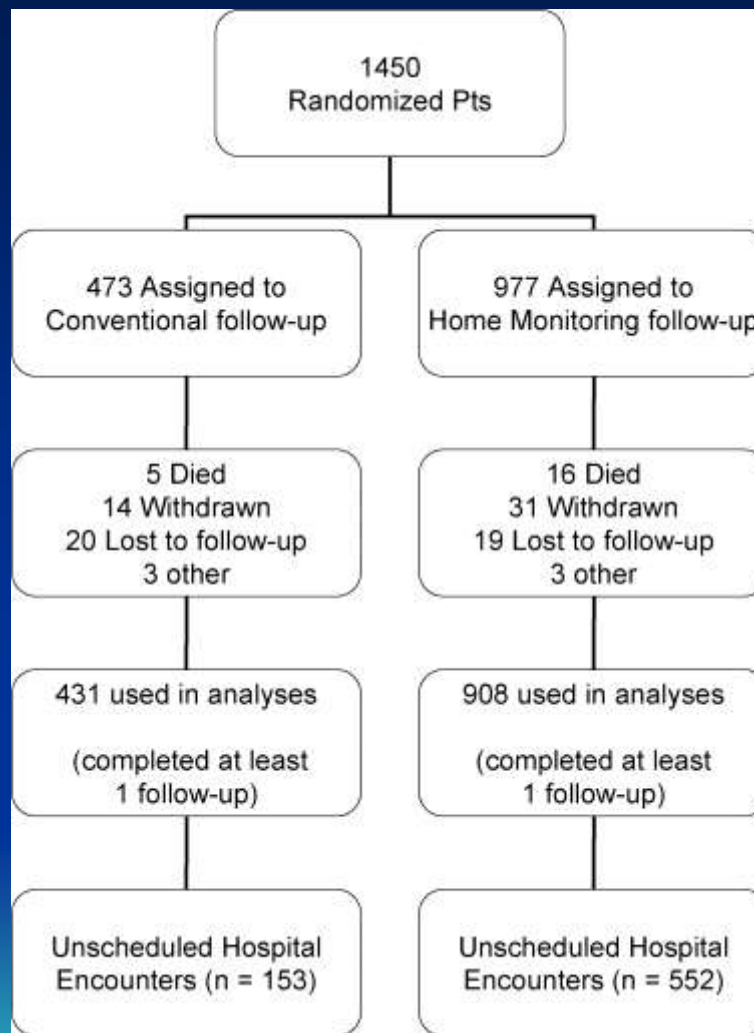


Biotronik Home monitoring: The Virtual Clinic



- 2000
 - First implant of remote monitoring device
- 2002
 - World wide introduction
- 2004
 - Introduced at ASPH
 - 137 patients registered
 - 61 bradycardia devices
 - 5 biventricular devices
- 2010
 - Cardiostim innovation award -

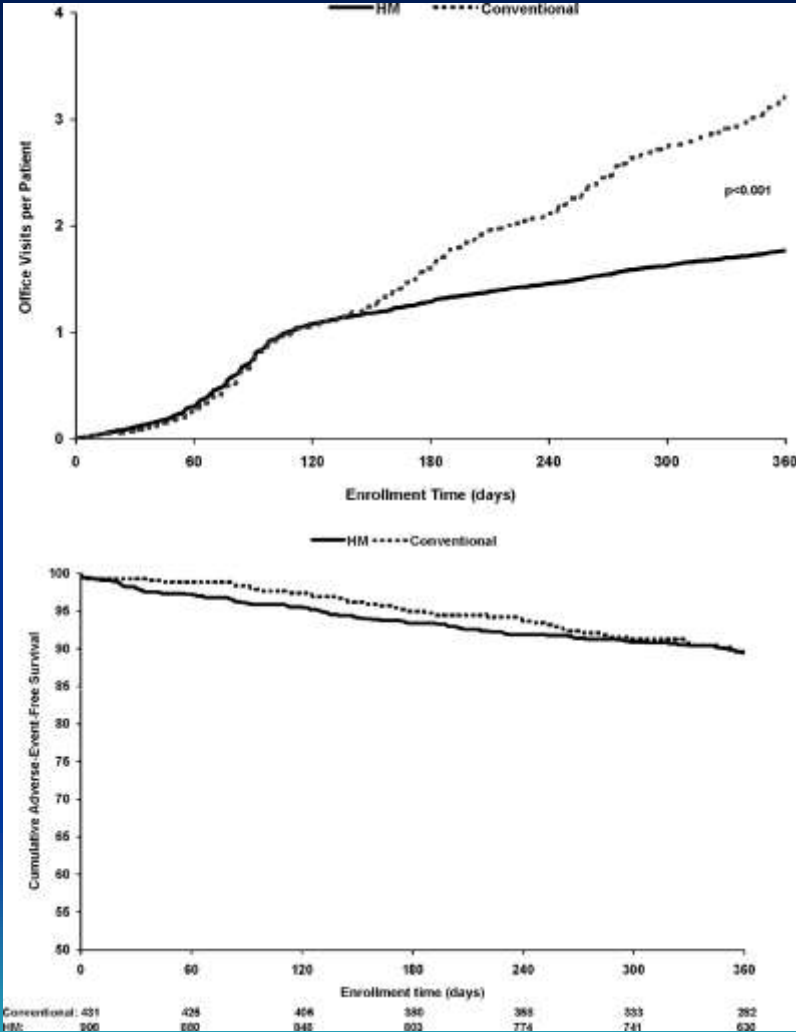
TRUST Trial



Lumax-T/Lumos-T
Safely RedUceS
RouTine Office
Device Follow-up

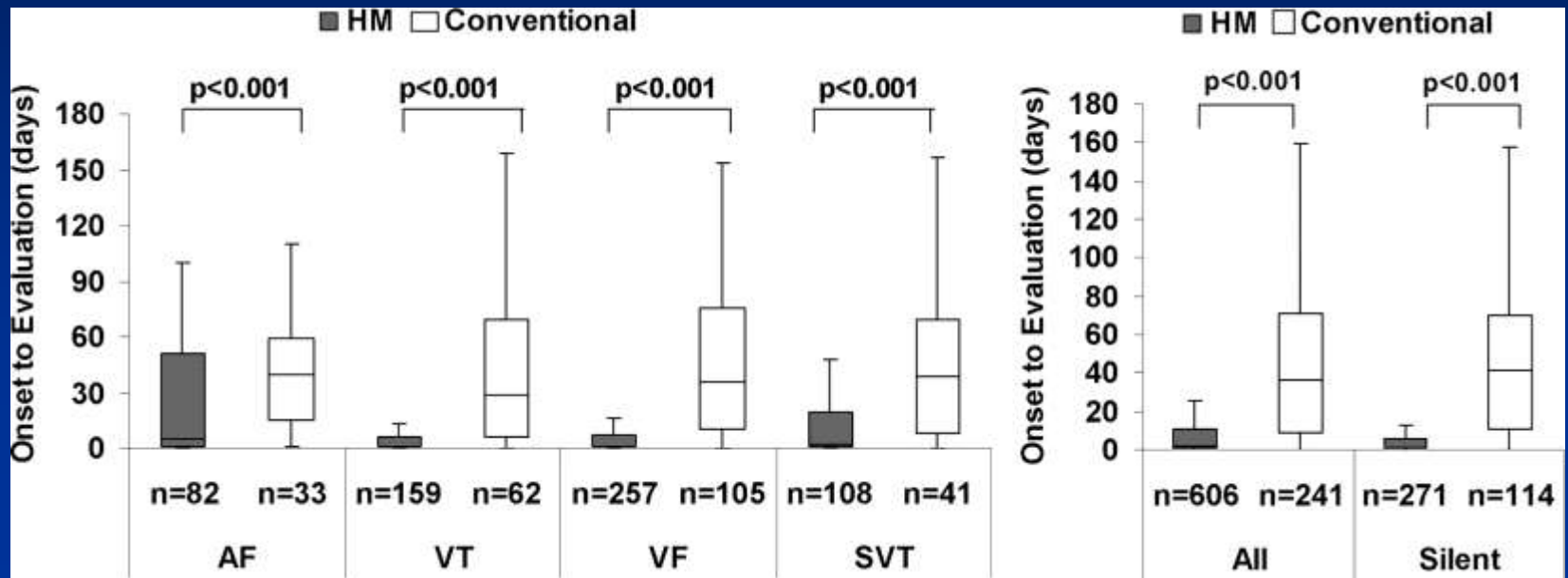
Varma N et al. *Circulation* 2010;122:325-332

Cumulative hospital-based encounters for ICD evaluations (sum total of scheduled plus unscheduled).



Varma N et al. *Circulation* 2010;122:325-332

Early detection



Varma N et al. Circulation 2010;122:325-332

Objective

To assess the safety, feasibility and benefits of Virtual at-home follow-up (V-group) utilising Home Monitoring[®] technology

against

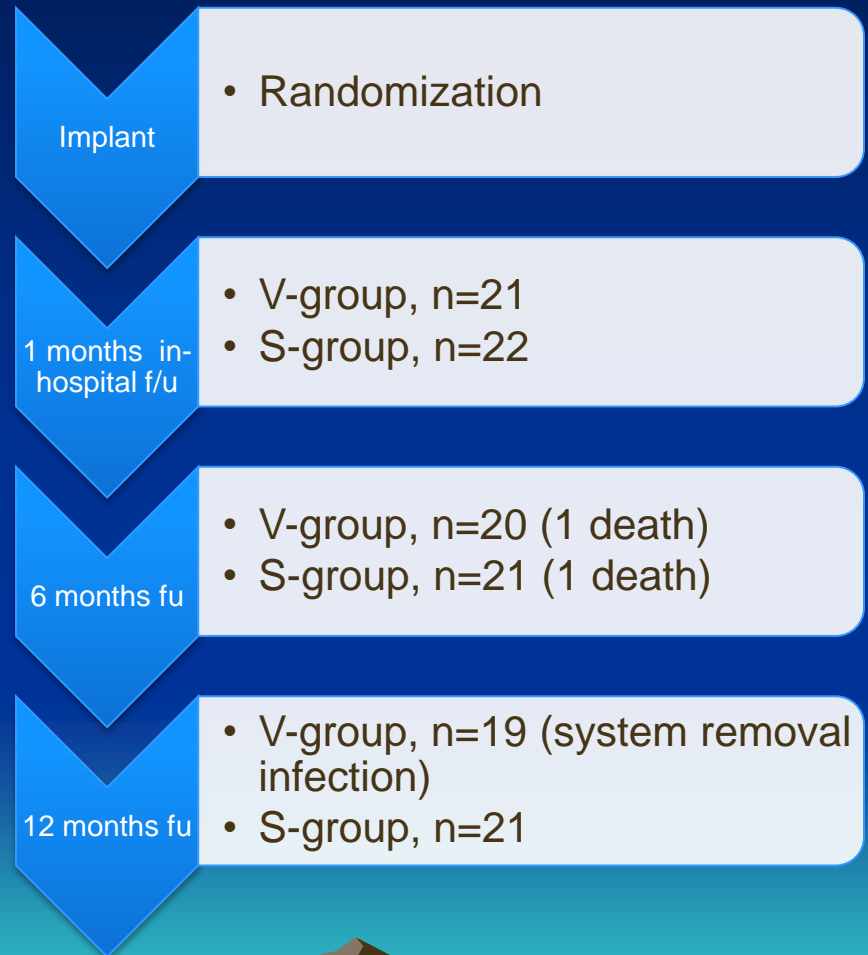
Standard in-hospital follow-up (S-group) for routine pacemaker assessment.



Method

- Randomised
- Prospective
- Open

- Divided to V-group and S-group after initial 1-month in-hospital follow-up

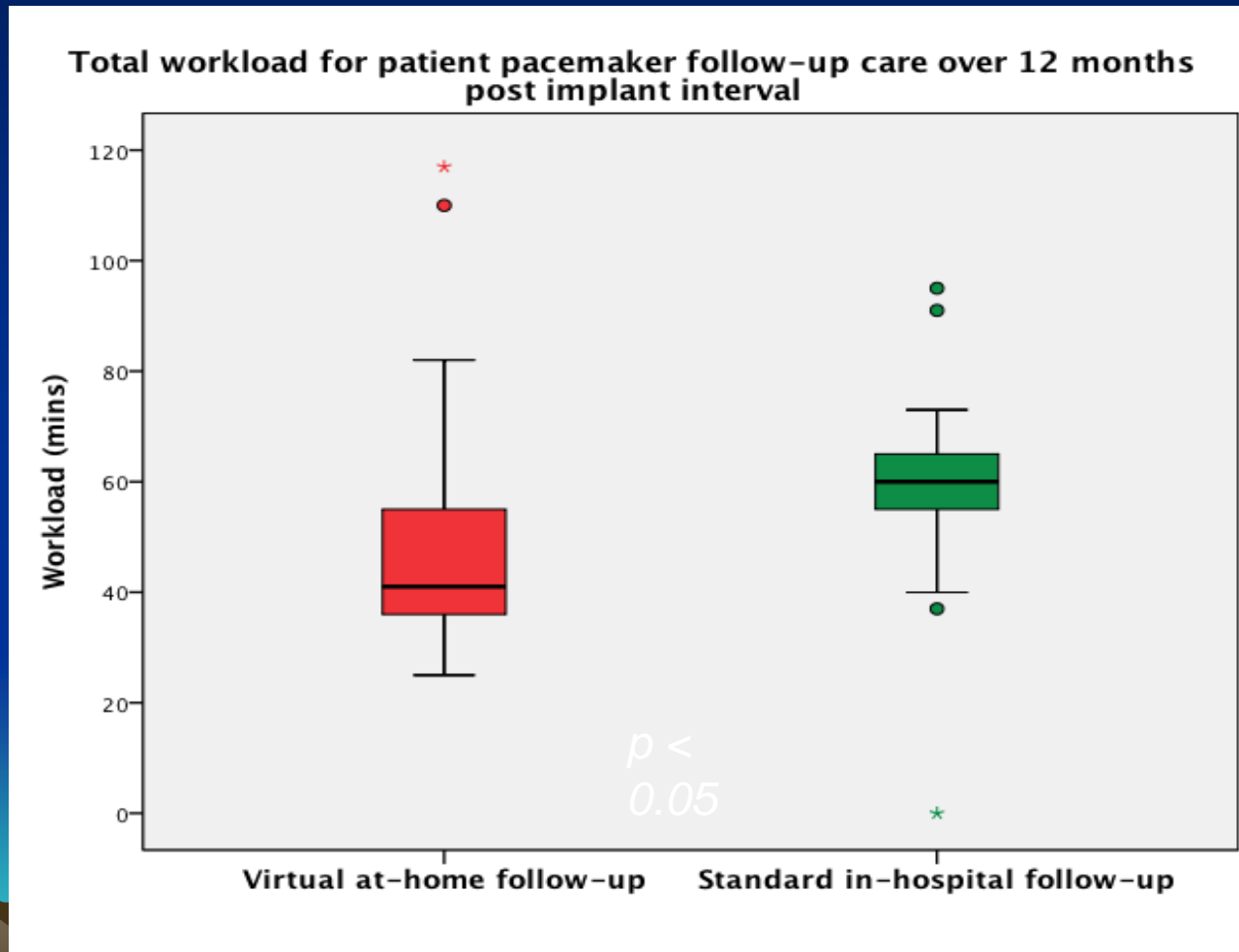


Outcome measure

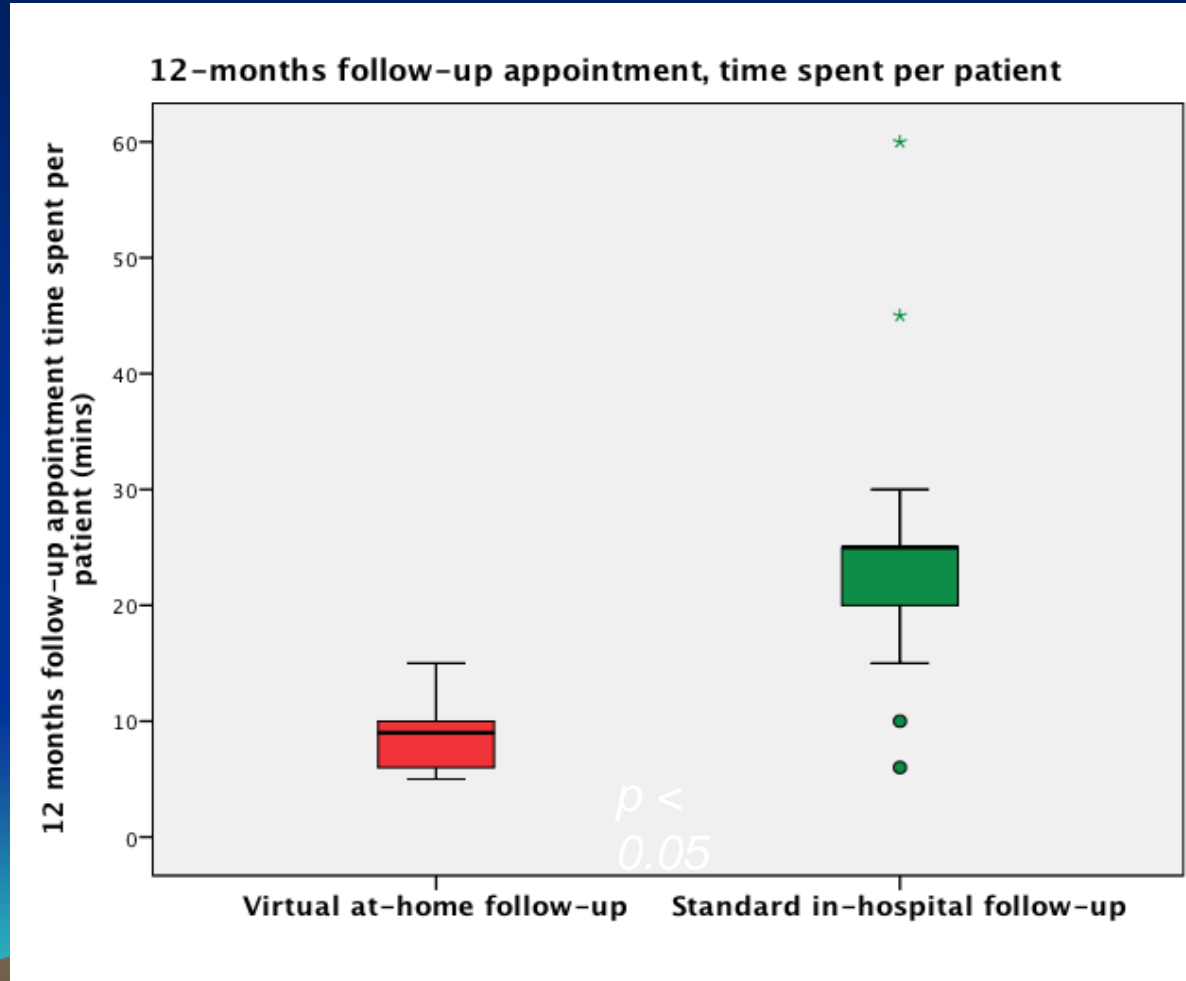
- Primary: Total workload for pacemaker patient care in both groups
 - Time (minutes) for data analysis
 - Time (minutes) for clinical examination and other patient contact
- Secondary
 - adverse device events



Results - Primary end-point



Results - 12 months follow up appointment time spent per patient



Results - Secondary end-point

Adverse events:

Three patients in the Virtual at-home follow-up group experienced device related adverse event

- Two lead displacement
- One wound infection
- Unrelated to follow up method



Conclusion

A virtual at-home pacemaker follow-up clinic is a safe & feasible alternative to the standard in-hospital follow-up clinic.

- Remote pacemaker follow-up duration is significantly shorter when compared with standard in-hospital follow-up assessment.
- It reduces the hospital workload over the 12 months follow-up period and, at the 12-month stage.
- It provides a time and potential cost saving of sixty-four per cent per patient follow-up.



What else have we learnt ?

- Takes time to adjust and trust the technology
- You need a critical mass of patients and clear processes to monitor and reassure the patient
- How safe and robust is conventional follow up in this country? – this provides a great audit
- Additional clinical benefits
- Need to concentrate on the largest patient burden