



## Monitoring your Patient, not Device Malfunctions, the True Benefits of Home Monitoring

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ASPH



# Home Monitoring at ASPH

- 137 Patients
  - 61 Brady
  - 38 CRT-D
  - 33 ICD
  - 5 CRT-P
- First patient registered at SPH in early 2004
- St Peter's were the first in the country to register over 100 patients earlier this year, and well on the way to 150 later this year.

# The St Peter's Experience

- Benefits of HM
  - Email updates of patient alerts directly to email account.
  - Easy to navigate, with clear IEGMs.
  - Reduces physical clinic visits and clinic waiting times.
  - Early detection of patient issues, leading to prompt and appropriate care.
  - New bookmark on iPhone makes logging in remotely much easier – full access to the HM site.
  - New 'Quickview' makes viewing pertinent data much quicker.

# The St Peter's Experience

- *How does it help?*
- The more patients on the system, the easier it is to use as it becomes second nature.
- Patients can be grouped into device type to make navigation of the site easier.
- Some physiologists for brady, some for tachy with myself monitoring the site as a whole.

# The St Peter's Experience

- Improved workflow
  - Allows the patients that need to be seen much more promptly.
  - Those who do not need clinic visits kept on 1 year appointments.
  - Allows more flexibility with clinics – not tied down to fixed dates to see patients. HM can be accessed any time it is needed.
    - Issues can be dealt with without patient leaving home!

# Home Monitoring

- When patients attend A&E with problems, often home monitoring can expedite discharge by confirming there are no problems, or sorting problems much faster.
- Can allow other hospitals nearby who do not offer pacing clinics, to ring and ask for data concerning inpatients with pacemakers (as long as patient takes cardiomessenger with them!), and reassures them the pacemaker is functioning fine.

# Home Monitoring

- How does it help in the Primary Care setting?
  - Patients who have remote monitoring and attend clinic c/o palpitations, dizzy spells etc.
  - GP can ring the department and have reassurance the pacemaker is working fine and has picked nothing up, or there is a problem and the patient can therefore be seen in the department to be assessed.
  - Has proved very useful in the care home setting, where it is difficult sometimes for patients to make appointments.

# The Nervous Patient

- ILR implanted July 2011 for dizzy spells and blackouts. Evidence of asystole and bradycardia
- Biotronik Evia implanted in August and put on HM
- Patient still calling complaining of similar symptoms
- HM checked, no data to suggest arrhythmia or malfunction
- Patient called to reassure and continue investigations into other causes
- Diagnosis of vaso-vagal syncope made with vaso-depressor response.

# Quick View - 01-Oct-2011

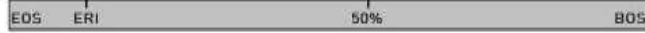
To: Ian Clement



**BIOTRONIK**  
excellence for life

Name: - DOB: - Evia DR-T Last message: 01-Oct-2011  
Patient ID: - Phone: - PM implanted 01-Sep-2011 Last clinic follow-up: 01-Sep-2011

Device status	
Battery status	OK

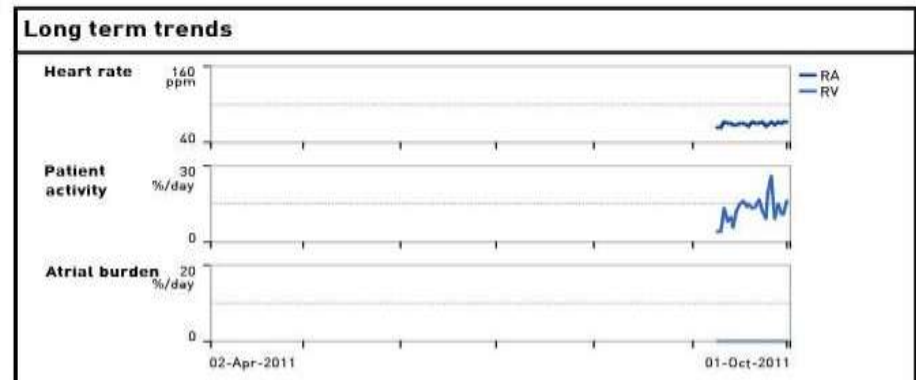
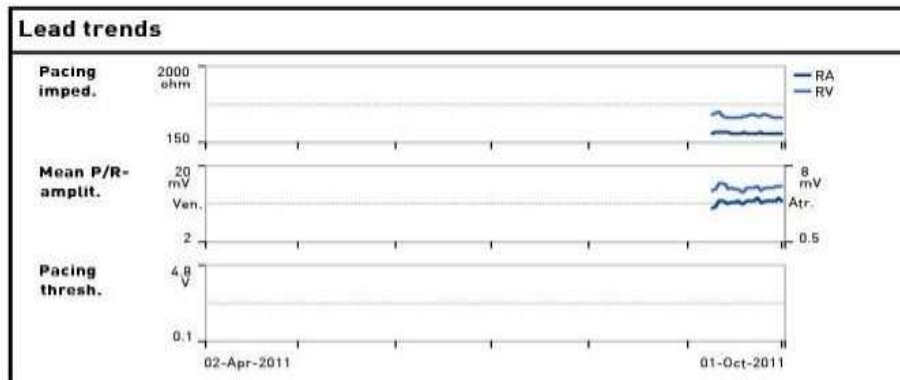
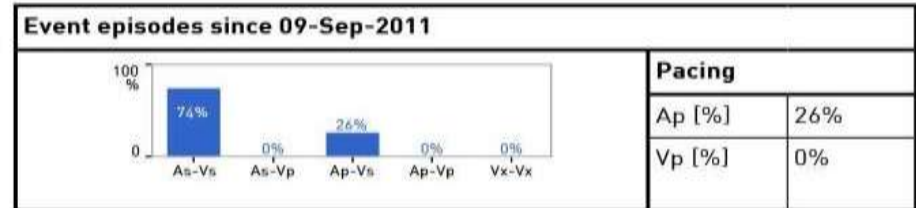


Findings
No anomalies

Brady leads	RA lead	RV lead
Pacing impedance [ohm]	351	741
Pacing threshold [V]	---	---
Sensing ampl. mean / min [mV]	4.6 / 3.2	15.1 / 12.7

Brady / AF settings	
Mode	DDD-ADI
Basic rate / UTR [ppm]	60 / 130
AV delay at 60 ppm / 140 ppm [ms]	300 / 300
Mode switching	170ppm / DDIR

Arrhythmias since 09-Sep-2011	
Atrial burden	0
Atrial arrhythmia episodes per day	0
New long atr. arrhyt. ongoing at end of mon. interv.	NO
Number of mode switching per day	0
Duration of mode switching	0
Mean ven. rate during mode switching	---
New long MS ongoing at end of mon. interv.	---
High ven. rate episodes per day	0



# The 'Remote' Remote Patient

- Device implanted at St Peter's in 2006
- Moved to Cork, Ireland and taken off HM site at SPH
- Request from Cork to add patient to HM again as he was approaching ERI and he was unable to make regular clinic visits due to his location.
- ERI triggered in May 2011 on HM
- Cork notified immediately and patient booked for elective Box Change.

# Status report - 10-May-2011

To: Ian Clement

Name: -

DOB: -

Last message: 10-May-2011

Patient ID: -

Phone: -

Last clinic follow-up: 22-Mar-2011

**Status: RED**

## Status - Summary:

Status summary for patient ID ' '

Category	Status	Finding	Info
Device	<b>RED</b>	<b>ERI detected</b> First received on 10-May-2011 01:18:11	<b>New.</b>
Automatic remark: Follow-up recommended			

## Status - Device:

<b>Battery</b>	
Status	ERI
Voltage [V]	5.74
Voltage measured on	10-May-2011
<b>Device</b>	
Status	OK
<b>Follow-up</b>	
Date of last follow-up	21-Mar-2011
<b>Transmitter</b>	
Transmitter SN	44814582
Last transmission received on	10-May-2011 01:18:11
Message type	time triggered



# The 'Remote' Remote Patient

- At St Peter's we also have a couple of patients who live in other parts of Europe for much of the year.
- Home Monitoring is a vital tool to keep up to date with the patient's wellbeing, from a cardiac point of view.
- In combination with the patient having access to local follow-up services if needed.

# The Inpatient

- Mr 'O' admitted to SPH with frequent falls.
- Had Lumax 540 VR-T DX implanted in July 2011 (first in UK) for cardiac arrest secondary to IHD.
- Had shock overnight whilst at home for VF.
- Patient was called that morning and after discussion of symptoms, advised to come to SPH to be admitted.
- Repeat requests to check device for arrhythmia/device issues on the ward on other side of the hospital.
- Patient was on HM website – what should we do.....?

# The Inpatient



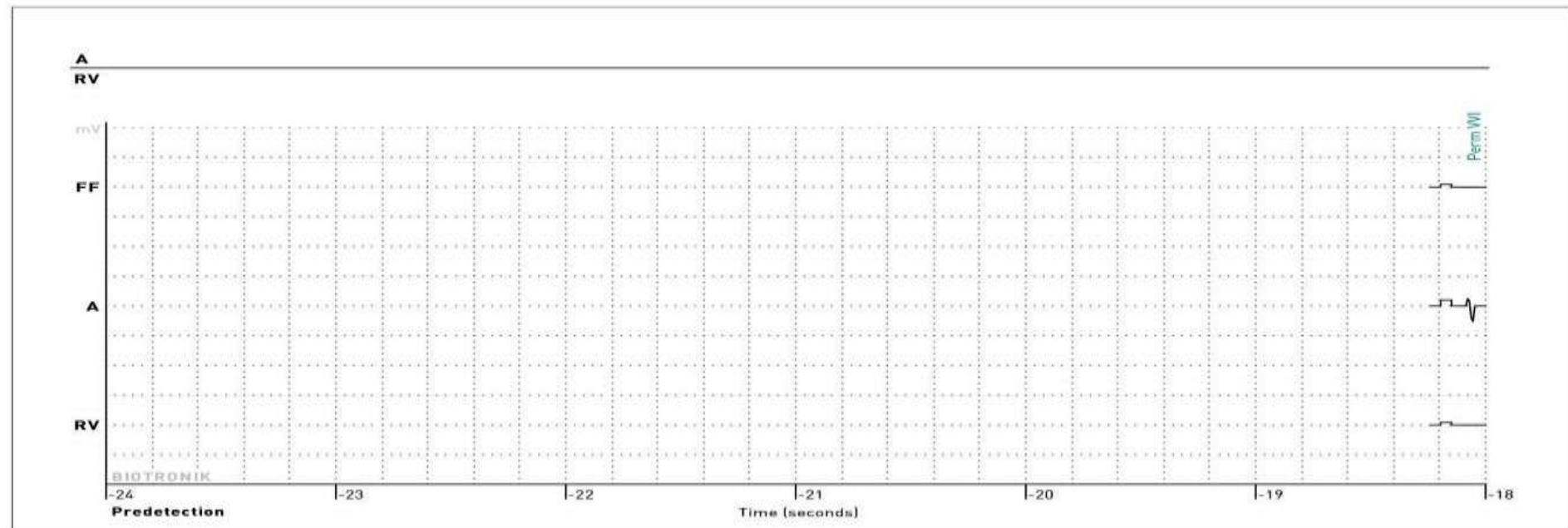
# The Inpatient

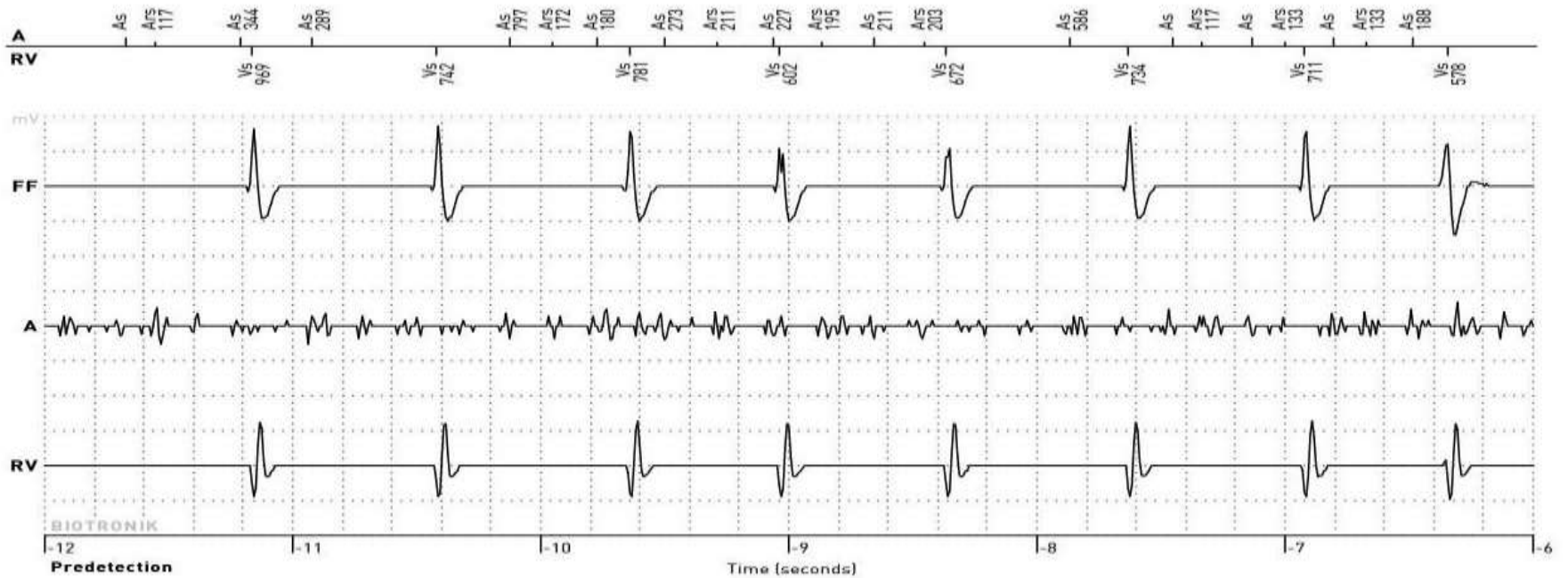
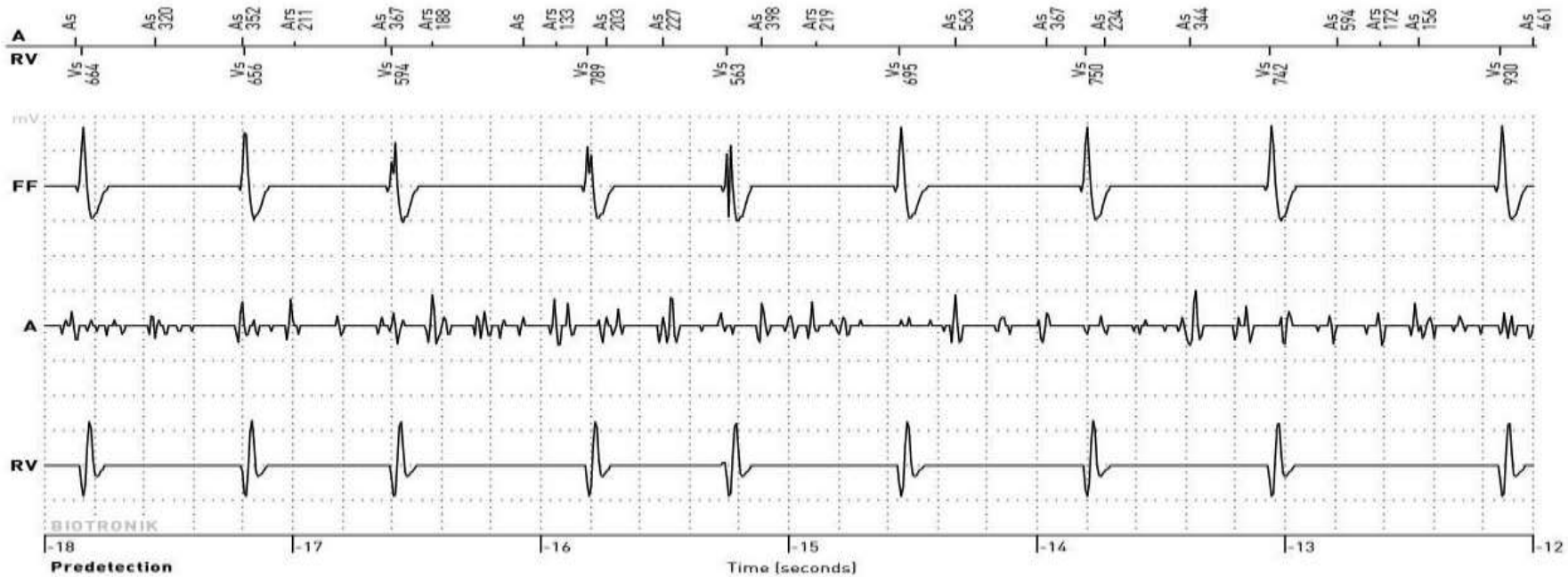
- Home Monitoring unit taken up to the ward and explained to the nursing staff how it is used
- Communication of the transmissions shared with team caring for Mr 'O'
- No arrhythmia episodes detected other than his AF.
- Saved both time for physiologists, and gave prompt information to direct the care pathway for the patient.
- Led to implementation of HM for inpatients as standard practice.

# Recordings

## Recordings - Episode 141:

General		Therapy	
Episode number	141	ATP in VT/VF delivered	0
Episode type	Atr. monitoring	ATP One Shot delivered	NO
Detection	12-Sep-2011 01:48:30	Shocks delivered	0
Termination	---	Shocks aborted	0
Duration	---	Maximum energy [J]	---
Device settings no.	14	Termination	
Detection		Mean PP at termination [ms]	ongoing
Mean PP at initial detection [ms]	200	Mean RR at termination [ms]	ongoing
Mean RR at initial detection [ms]	722	Remark	
Onset [%]	---	none	
Stability [ms]	146		
Redetection	---		





# The AF Patient

- AF detection an extremely important tool.
- HM allows almost immediate early detection of AF.
- Early detection can reduce the incidence of stroke, and even death in these patients as they are treated appropriately in a more timely manner.
- Home monitoring for me is an essential tool in treating new onset arrhythmias.
- My policy is to put all patients, where possible onto HM.

# Summary

- Very useful diagnostic tool if used correctly.
- Immediate email notification if any problem arises.
- Can call patient to discuss rather than get them to clinic.
- Expedites appropriate care, sometimes by months.
- Streamlining of clinics, prioritise patients that need to be seen.

# Home Monitoring

- Thank You!
- Thoughts and Questions?