PSA Tracker - A novel approach to the long term management of prostate cancer

Miranda Benney
Macmillan Uro-oncology Specialist Nurse
Wednesday 18th May 2011
10 Common UK Male Cancers 2008

- Prostate: 24%
- Lung: 15%
- Colorectum*: 14%
- Bladder: 5%
- Non-Hodgkin Lymphoma: 4%
- Malignant Melanoma: 4%
- Oesophagus: 3%
- Kidney: 3%
- Stomach: 3%
- Leukaemia: 3%
- Other Sites**: 3%
New cases of prostate cancer in Bath 1997-2010
Radical prostatectomy in Bath 1997-2010
Hypothesis

Most men with prostate cancer have stable or low risk disease which can be safely monitored remotely with PSA blood tests alone.
Purpose

• To reduce pressure on clinical staff, clinic facilities and administration staff
• To provide remote nurse led follow up
• Improve delivery and continuity of care for patients
PSA Tracker

- A computer database
- Automated letter to patient, with blood request form attached
- PSA test taken at Health Centre
- Results are entered and interpreted by Uro-oncology Specialist Nurse
- Patient is either recalled to clinic or continues on remote follow-up
- Automated letters sent to patient and GP
Process

• Recruitment started August 2004

• Treated or stable monitored disease

• PSA producing tumour

• Compliant patient
Patient Selection

- Radical treatment
  - Surgery
  - External Beam Radiotherapy
  - Brachytherapy

- Hormonal treatment

- Raised PSA but negative prostate biopsies
PSA Tracker

Enter New PSA Result
Print Letters
Add New Patient
Edit Patient Record
View Patient Record
Add New GP
Edit GP Record
Add New Surgery
Edit Surgery Record

Overdue Tests: click to view patient record:

<table>
<thead>
<tr>
<th>Surname</th>
<th>Fname</th>
<th>Test Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith</td>
<td>John</td>
<td>01/06/2005</td>
</tr>
</tbody>
</table>

Advanced   Quit
1) Enter the patient's details.

Surname:
Forename:
Title: Mr. Other:
DOB:
Address:
Hospital No.:
Address 1:
Address 2:
Town / City:
Postcode:
Phone Number:
Diagnosis Date:
Initial PSA:
Gleason:
Next Test Due:
Initial Stage:

2) Click the Update button to add this Patient.
Name: David, Wren  Hosp.No: 9876543  DOB: 11/12/1945
Initial PSA: 5.4  Gleason: 4+5  Initial Stage: T2a  Next PSA Test Due: 01/09/2005

History: Radical prostatectomy for high grade tumour 2003. Staging MRI/bone scan negative
Pathology: extracapsular extension with positive margins. LN clear.
Radiotherapy for rising PSA 2004, later started hormones.

Date | PSA Value | Treatment
--- | --- | ---
01/12/2002 | 5.2 | Radical prostatectomy
01/03/2003 | 0 | None
01/06/2003 | 0.2 | None
01/09/2003 | 0.4 | None
01/12/2003 | 0.7 | Radical radiotherapy
01/03/2004 | 0.2 | None
01/06/2004 | 0.6 | None
01/09/2004 | 1.5 | Zoladex
01/12/2004 | 0.2 | Zoladex
01/03/2005 | 0 | Zoladex
Dear Mr <Surname>

I’m pleased to say that your latest PSA test is satisfactory. You should have your next PSA test within 2 weeks of <PSA_due_date>. Please keep the form attached below in a safe place, and use it to have this test. You should not have any other PSA tests before this time, unless your GP instructs you otherwise.

If you have any questions or problems before then you should either contact your GP or telephone the Urology Department using the number above. We would also like to hear from you if you have any of the following symptoms:

- Blood in the urine
- Increasing difficulties in passing urine
- Aches and pains in the bones lasting more than 1 week

Yours sincerely

Mr J McFarlane MS FRCS(Urol)
Consultant Urologist

---

**LABORATORY REQUEST FORM**

**NHS PATIENTS ONLY**

Please print in block capitals using a ballpoint pen.

- Directorates of Pathology: Royal United Hospital, Bath BA1 3NG. Telephone: 01225 824700

<table>
<thead>
<tr>
<th>Lab Number</th>
<th>Specimen Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Blood</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Registration Number</th>
<th>NHS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Surname</th>
<th>(Previous Surname)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forename</th>
<th>Date of Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;DOB&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ward/GP Code</th>
<th>Urology OPD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>McFarlane</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consultant</th>
<th>Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPM</td>
<td>RUH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient's Address &amp; Postcode</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Address1&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Additional Copies To</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Uro-oncology nurses (Urology Dept)</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

**Clinical Details** — Include relevant drug therapy, operations, etc.

This patient is on the computerised PSA follow-up programme.

Please label report "PSA Tracker" to allow rapid processing.
Dear Mr <Surname>

Your latest PSA test is slightly higher than the last one. This may well not require any treatment, but I would like to discuss this with you further in the outpatient clinic. An appointment letter is enclosed.

Yours sincerely

Mr J McFarlane MS FRCS(Urol)
Consultant Urologist
Process

- 1 clinic session per week
- Direct number for patient queries
- Access back into MDT
- Dedicated slots available for those who are recalled back to clinic
Results April 2011

- 765 pts enrolled
- 3600 OPA’s saved
- 15 pts declined offer of remote follow-up
- Many have forgotten, but most respond to reminder letter
- No unexpected deaths (30 pts have died from unrelated causes)
Results April 2011

- No admissions or outpatient attendances from complications related to prostate cancer

- 85 patients have required recall to clinic due to disease progression or rises in PSA and re-biopsy offered if necessary

- Some patients have gone back onto remote follow up after a period of clinic monitoring
Patient Satisfaction Audit

To ensure patients are comfortable being monitored via the PSA Tracker

To ensure that patients are satisfied with the information they receive about the system
Methodology and Results

• Patient questionnaire sent to the first 126 patients (Including patients who were active and suspended)

• 76% response rate

• 2 patients did not know what the PSA Tracker was and were excluded from the analysis
Main Benefits

• 80 said not having to travel to the RUH

• 60 said not having parking problems

• 61 said not having to wait in outpatients

• 11 said needing less time off work
Other Benefits

“Far quicker to visit GP surgery”

“Keeping an eye on my condition”

“Knowing my PSA results and regular PSA assessments”

“Prompted to have blood test”

“Satisfaction with my consultant”
Disadvantages

“none provided test results are negative, otherwise all very positive”

“lack of face to face exchange and not knowing exact PSA level”

“...no chance to speak to consultant about any minor problems”

“none provided I can ring RUH urology to discuss any problems”

“just being able to remember to book a blood test at the appropriate time”
97% patients altogether were either satisfied or very satisfied.
PSA Tracker Check Clinics

• Pts on the Tracker > 2 years, and not seen in Urology clinic

• 87 people seen over 3 clinics, by either Consultant Urologist or Registrar

• Recent PSA, DRE performed

• 2 refused to come back to clinic
Results

- 73 pt (84%) had no change in condition

- 3 (3.4%) had cancer changes
  - 1 rising PSA, but would have been recalled
  - 2 in stage, commenced alpha blocker/ PDE5 inhibitor

- 7 (8%) had non cancer changes
  - 1 re biopsy due to DRE change, no cancer
  - 6 medication changes

- 4 (4.6%) Suspended, no longer needing follow up
Developments

- Working with NHS Improvements and North Bristol NHS Trust
- Web based program
- Linked with hospital systems
- Due late Autumn 2011
- Extend to other disease markers
Welcome to the Tracking system

The application is a remote test monitoring system for patients risk stratified as suitable for supported self management pathways for prostate and colorectal cancer. This application will help manage :-

- Prostate Cancer - PSA blood test
- Colorectal Cancer - CEA blood test
- Colorectal Cancer - CT scanning (abdomen, chest)
- Colorectal Cancer - Endoscopy tests (Sigmoidoscopy, colonoscopy)
## Prostate Search

### Filter Section
- **Surname**
- **Postcode**
- **Hospital number**
- **Show By**:
  - All
  - Registered
  - Not Registered
  - Suspended
- **Order By**:
  - Surname
  - Forename
  - DOB
  - NHS Number
  - Postcode
  - Registered

### Client Name | NHS Number | HRN | DOB | Address | Cancer Site | ICD10Code | Registered
--- | --- | --- | --- | --- | --- | --- | ---
MR Peter Harris | 1111111 | AAAAAAAA | 23/05/1964 | 23, Bourside Drive, Cheltenham, Glos, GL23 5AP. | Prostate | C20X | ✔
Mr Richard Harris | 1234567891 | F987654 | 22/09/1963 | 46D, Montpellier Spa Road, Cheltenham, Glos, GL50 1UL. | Prostate | C20X | ✔
Mr Richard Burton | 88888888 | HHHHHHHH | 30/05/1969 | 30, Bourside Drive, Cheltenham, Glos, GL23 5AP. | Prostate | C20X | ✔
Mr Harry Ford | 99999999 | I I I I I I I | 01/06/1970 | 31, Bourside Drive, Cheltenham, Glos, GL23 5AP. | Prostate | C20X | ✔
Mary Jones | 6543210987 | S2345678 | 24/01/1956 | Flat 2, 44 Gloucester Road, Horfield, Bristol, Avon, BS8 2KD. | Prostate | C20X | ✔
Mr Richard Hadwin | 789456123 | 150753456 | 12/09/1967 | 21, Lansdown Road, Cheltenham, Glos, GL50 6UL. | Prostate | C20X | ✔
Mr Alan Gray | 66666666 | FFFFFFFF | 28/05/1967 | 28, Bourside Drive, Cheltenham, Glos, GL23 5AP. | Prostate | C20X | ✔
Mr Ray Jones | 77777777 | GGGGGGGG | 29/05/1968 | 29, Bourside Drive, Cheltenham, Glos, GL23 5AP. | Prostate | C20X | ✗
Miss Julia Magno | 456789123 | 789456123 | 04/07/1975 | 66, Hales Road, Cheltenham, Glos, GL62 6SS. | Prostate | C20X | ✗
Mrs Jane Perry | 111111110 | I I I I I I I | 02/06/1971 | 32, Bourside Drive, Cheltenham, Glos, GL23 5AP. | Prostate | C20X | ✔
# Prostate Tracking

**User Name - Test User**

## Client Details

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Number</td>
<td>11111111</td>
</tr>
<tr>
<td>Full Name</td>
<td>MR Peter Harris</td>
</tr>
<tr>
<td>Contact number</td>
<td>0111111111</td>
</tr>
<tr>
<td>Hospital number</td>
<td>AAAAAAAA</td>
</tr>
<tr>
<td>Date of birth</td>
<td>23/05/1964</td>
</tr>
</tbody>
</table>

## GP Details

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP Name</td>
<td>001 Peter Wells</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:simon@naidon.demon.co.uk">simon@naidon.demon.co.uk</a></td>
</tr>
<tr>
<td>Contact Number</td>
<td>12420609321</td>
</tr>
<tr>
<td>Practice</td>
<td>Wells Surgery</td>
</tr>
<tr>
<td>Address</td>
<td>Tewksbury Road, Cheltenham, Glos, GL52 6SS.</td>
</tr>
</tbody>
</table>
Initial tumour data:
- Initial PSA at Diagnosis: 23/05/2009 Value: 29.0
- Gleason: 3 + 4
- Clinical stage: T3
- Next due date: 1/7/2011
- Normal Higher Range in ng/ml: 45

History:
- 10/05/2011: Commenced hormones
- 13/10/2011: Radiotherapy 7/52

Add new history:
- History date: 11/5/2011
- Please add history: 

Please click here to hide/show Audit History.
### Prostate Tracking

#### PSA Values

<table>
<thead>
<tr>
<th>Date</th>
<th>PSA Value</th>
<th>Treatment</th>
<th>Diagnosis</th>
<th>Edit</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/05/2009</td>
<td>29.0</td>
<td>LHRHa + anti-androgen</td>
<td>✔</td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>23/08/2009</td>
<td>30.0</td>
<td>LHRHa + anti-androgen</td>
<td></td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>23/11/2009</td>
<td>31.0</td>
<td>LHRHa + anti-androgen</td>
<td></td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>23/02/2010</td>
<td>34.0</td>
<td>LHRHa + anti-androgen</td>
<td></td>
<td>Edit</td>
<td></td>
</tr>
</tbody>
</table>

### Add PSA Value

<table>
<thead>
<tr>
<th>PSA Value</th>
<th>PSA Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11 5 2011</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment</th>
<th>PSA at diagnosis?</th>
</tr>
</thead>
<tbody>
<tr>
<td>-- Select from list --</td>
<td></td>
</tr>
</tbody>
</table>
### Prostate Tracking

**User Name - Test User**

<table>
<thead>
<tr>
<th>Date Modified</th>
<th>Editor</th>
<th>Description</th>
<th>Open Letter</th>
<th>Open Template</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>GP Letter - High PSA Recall</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>High PSA - patient recall letter</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>High PSA recall letter</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>Overdue test</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>Patient Introductory letter</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>Patient letter</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
<tr>
<td>07/03/2011</td>
<td>Simon Webberley</td>
<td>Satisfactory PSA letter</td>
<td>![ ]</td>
<td>![ ]</td>
<td>![ ]</td>
</tr>
</tbody>
</table>

**Upload template**

This is used to upload templates to the server. Click browse to select a template on your local machine. Add a description (this is the text that will be shown in the table) then click submit.

- **Click browse button to select file**: ![Browse...](image)
- **Description of content of file**: ![ ]
<table>
<thead>
<tr>
<th>Client Name</th>
<th>NHS Number</th>
<th>Hospital number</th>
<th>DOB</th>
<th>Range</th>
<th>Due Date</th>
<th>Alert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Richard Hadwin</td>
<td>789456123</td>
<td>159753456</td>
<td>12/09/1987</td>
<td>8</td>
<td>02/02/2011</td>
<td>19/04/2011 Client has died</td>
</tr>
<tr>
<td>Mary Jones</td>
<td>664321087</td>
<td>S2345678</td>
<td>24/01/1856</td>
<td>10</td>
<td>03/03/2011</td>
<td>11/05/2011 Due date exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>02/05/2011 PSA range exceeded</td>
</tr>
<tr>
<td>Mr Richard Harris</td>
<td>1234567891</td>
<td>F887054</td>
<td>22/09/1963</td>
<td>0</td>
<td>10/03/2011</td>
<td>08/05/2011 Due date exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>08/05/2011 PSA test late</td>
</tr>
<tr>
<td>Mr Harry Ford</td>
<td>999999999</td>
<td></td>
<td>01/08/1970</td>
<td>8</td>
<td>10/06/2011</td>
<td>05/05/2011 PSA range exceeded</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10/05/2011 Due date exceeded</td>
</tr>
</tbody>
</table>
### Prostate Tracking Combined

**User Name - Test User**

**Alerts**
- [ ] Due date exceeded
- [ ] PSA test late
- [ ] Completed

**Client Details**
- **NHS Number**: 1234567891
- **Full Name**: Mr. Richard Harris
- **Contact number**: 01234567890
- **Hospital number**: F987654
- **Date of birth**: 22/09/1963

**Initial tumour data**
- [ ]

**GP details**
- [ ]

<table>
<thead>
<tr>
<th>Date</th>
<th>History</th>
<th>Editor</th>
<th>Modified</th>
<th>Edit</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>02/05/2011</td>
<td>Client has been suspended</td>
<td>Simon Webberley</td>
<td>02/05/2011</td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>02/05/2011</td>
<td>Client has been reinstated</td>
<td>Simon Webberley</td>
<td>02/05/2011</td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>08/05/2011</td>
<td>Reminder letter sent</td>
<td>Test User</td>
<td>08/05/2011</td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>09/05/2011</td>
<td>Client has been suspended</td>
<td>Test User</td>
<td>08/05/2011</td>
<td>Edit</td>
<td></td>
</tr>
<tr>
<td>09/05/2011</td>
<td>Client has been reinstated</td>
<td>Test User</td>
<td>08/05/2011</td>
<td>Edit</td>
<td></td>
</tr>
</tbody>
</table>
Conclusions

• Safe
• Effective
• Popular
• Efficient
• Cheap
• Environmentally friendly
Thank you

miranda.benney@ruh.nhs.uk
01225 821784
jonathan.mcfarlane@ruh.nhs.uk
01225 824575
DRE does not influence management in prostate cancer

Obek C, Neulander E, Sadek S, Soloway MS. Is there a role for digital rectal examination in the follow up of patients after radical prostatectomy. 
*J Urol* 1999, **162**:762-4

Pound CR, Christens-Barry OW, Gurganus RT, Partin AW, Walsh PC. Digital rectal examination and imaging studies are unnecessary in men with undetectable prostate specific antigen following radical prostatectomy. 
*J Urol* 1999, **162**:1337-40

Johnstone PA, McFarland JT, Riffenburgh RH, Amling CL. Efficacy of digital rectal examination after radiotherapy for prostate cancer. 
*J Urol* 2001, **166**:1684-7

Lattouf JB, Saad F. Digital Rectal Examination Following Prostatectomy: Is it still necessary with the use of PSA? 
*Eur Urol* 2003, **43**:333-4

Ragavan et al. Is DRE essential for the follow up of prostate cancer patients? A prospective audit of 194 patients. 
*BMC Urology* 2005, **5**:1