Introduction to the NIMIS Project
Neil O’Hare
Once upon a time....
A brief history of PACS in Ireland

- PACS first developed in the late ’80s / early ’90s.
- First system installed in Ireland in AMNCH in 1998.
- Since then a number of hospitals have installed PACS or integrated PACS/RIS solutions.
- August 2007 – NIMIS Project initiated.
# RIS/PACS Status within Health Service Executive

*(as of Jan 2008)*

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Hospital</th>
<th>PACS</th>
<th>Manufacturer</th>
<th>Installed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AMNCH, Tallaght</td>
<td>Yes</td>
<td>Siemens</td>
<td>1998</td>
</tr>
<tr>
<td>9</td>
<td>Cork University Hospital</td>
<td>Yes</td>
<td>AGFA</td>
<td>2007</td>
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<td>11</td>
<td>Letterkenny General Hospital</td>
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<td>AGFA</td>
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<td>Mercy University Hospital Cork</td>
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<td>AGFA</td>
<td>2008</td>
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<td>Merlin Park Hospital</td>
<td>Yes</td>
<td>AGFA</td>
<td>2005</td>
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<td>Mid Western Reg Ortho Hospital, Croom</td>
<td>Yes</td>
<td>Siemens</td>
<td>1999</td>
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<td>Mid Western Regional Hospital, Dooradoyle</td>
<td>Yes</td>
<td>Siemens</td>
<td>1999</td>
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<tr>
<td>24</td>
<td>MRH Mullingar (Longford Westmeath)</td>
<td>Yes</td>
<td>Carestream</td>
<td>2007</td>
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<td>Carestream</td>
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<td>GE</td>
<td>2003</td>
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<td>Carestream</td>
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<td>South Infirmary Victoria University, Cork (SIVUH)</td>
<td>Yes</td>
<td>GE</td>
<td>2005</td>
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<td>Cerner</td>
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<td>2006</td>
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<td>48</td>
<td>University College Hospital, Galway</td>
<td>Yes</td>
<td>Agfa</td>
<td>2005</td>
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</table>
Project Aims / Objectives

- To become Filmless in Radiology
- To improve efficiency in Radiology
- To improve on Patient Safety
The bits that make up NIMIS.

- Picture, Archive and Communication System (PACS)
- Radiology Information System (RIS)
- High End Image Processing Functionality (3D, Ortho Templating, etc)
- Voice Recognition (VR)
- Electronic Ordering / Results Viewing (Order Comms)
- Hardware (Servers, Monitors, Storage, etc)
What is NIMIS hoping to achieve?

1. To Install an fully and closely integrated PACS/RIS solution into all hospitals that do not currently have systems.
2. To deploy Speech Recognition Systems.
3. To become filmless within Radiology
4. To deliver on a large range of identified benefits
5. To promote and act as a facilitator to the HSE Transformation Programme.
What is NIMIS hoping to achieve?

6. Provide **seamless data flow** of patient images between hospitals;

7. Provide a level of centralised system management;

8. Provide a rapid roll-out;

9. Integrate with existing IT systems.

10. Integrate existing PACS systems / installs.
Radiology Centric View of PACS.

- PET/CT
- CT
- Plain Film
- MRI
- Ultrasound
- Nuclear Medicine

Radiology
PACS as a Medical Image Archive.
Benefits / Objectives

- Reduction in Report “Turn-Around” time
- Filmless Hospitals
- Paperless for all Radiology Requests and Results
- Remote Reporting
- Improved Access & Availability of Patient Information
- Fewer repeat examinations
- Cost savings related to X-Ray film usage and management
- Reduction in Unreported and Lost film
- Improved Patient Data Security
- Facilitates Clinical Audit
- Reduced Travel Time
- Images follow patient through Care Pathway
- Aiding Development within Primary Care
- Integration with Radiation Oncology Centres
Procurement Process

- Advert placed in OJEU on 31\textsuperscript{st} July 2008
- 1\textsuperscript{st} Phase Shortlisting resulted in 5 companies being admitted.
  - AGFA
  - Cerner
  - GE
  - McKesson
  - Philips
- Full Tender Documentation issued in April ’09.
- Preferred vendor selected at end July ’09.
Scenarios

1. Patient has multiple imaging events over the course of a number of years in the same institution.

2. **Patient has imaging performed in Primary Care Centre / Satellite Hospital, but the images are reported at a larger, connected hospital.**

3. Patient is imaged in one acute hospital (A), but reported on from another hospital (B).

4. **Patients are imaged in any one of a number of hospitals within a hospital group but reporting may take place from different hospitals at different times.**

5. Patient is imaged in Hospital A, but has known prior images in Hospitals A and B.

6. Patient is imaged in Hospital A, has prior images but the locations are unknown to Hospital A

7. Patient is imaged in Hospital A but needs an urgent consult from Hospital B.

8. Patient is imaged in Hospital A but is referred to Hospital B for further treatment.

9. Patient attends local GP who requests a radiology investigation.

10. Patient attends an “Out-of-Hours” GP service who requires access to radiology report previously obtained by the patient’s own GP.

11. An image order is received in any one of a number of hospitals within a hospital group but the order is placed and imaging performed in a different hospital.

12. **All imaging acquired in hospitals related to a specific sub-specialty is reported on at one specific hospital, i.e. paediatric radiology.**
Outcome of Procurement Process

- Selected vendor for NIMIS – McKesson
- Highest Scoring Tender in the following areas:
  - Functionality
  - Technical Architecture
  - Scenarios
  - Cost
  - User Impact
Standard PACS/RIS Implementation Process

PACS/RIS Standard Implementation Process

- Project Planning & Management
  - Assess & Design
  - Build
  - Test
  - Training
  - Go-Live
  - Transition to Support

- Infrastructure Upgrades

- Communication Process

9-12 Month Duration
NIMIS Implementation Process

Overall Project Planning & Management

National Communication Process

Central Assess & Design → Central Build → Central Test

Hospital 1
- Local Configuration → Local Testing → Training → Go-Live → Transition to Support
- Infrastructure Upgrades
- Local Communication Process

Hospital 2
- Local Configuration → Local Testing → Training → Go-Live → Transition to Support
- Infrastructure Upgrades
- Local Communication Process

Time
Roll-Out Strategy

- All hospitals completed self-assessment questionnaires on
  - Technical Site Readiness
  - Corporate Site Readiness
- These were scored and the top hospitals visited to review scores.
- Other aspects were also incorporated into the overall scoring process.
Roll-Out Strategy

**Phase 1:**
- Academic Hospital: Beaumont
- Stand-Alone Hospital: Sligo General
- Specialty Referral Hospital: St. Luke’s Hospital, Rathgar
- Region: Mid-West (Starting with Dooradoyle)

**Phase 2:**
- Academic Hospital: Mater Hospital
- Stand-Alone Hospital: Waterford Regional General
- Specialty Referral Hospital: OLHSC, Crumlin
- Region: North-East (Starting with Drogheda)
Thank You