



NCRI
INFORMATICS
INITIATIVE



NCRI
National
Cancer
Research
Institute

Linking Informatics to Cancer Intelligence

NCIN Launch: June 2008

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NCRI Informatics Coordination Unit

Today....

- Who we are (the NCRI Informatics Initiative)
- One aspect of what we do
 - ONIX – The NCRI ONcology Information eXchange
- Why we welcome NCIN

The NCRI Partnership



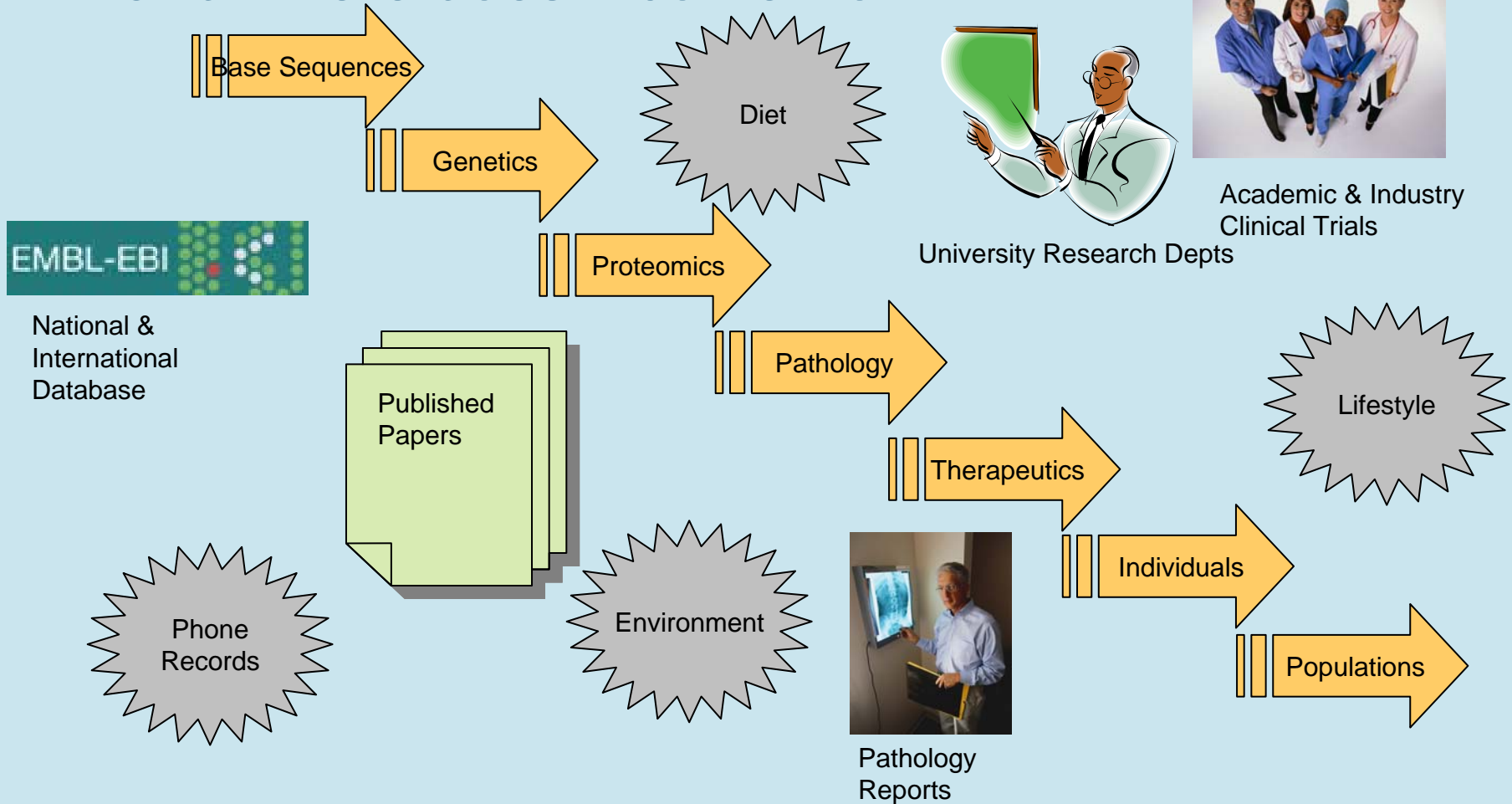
The major funders of cancer research in the UK

Beginning at the beginning: What is Cancer Informatics?



- General: Using technology to make use of information relating to cancer cause, prevention and cure
 - Example: Looking for occurrences of a DNA base sequence within 3 billion base pairs of the Human Genome
- NCRI Informatics: focus on using informatics to maximise the impact of cancer research
 - Coordination and guiding role
 - Primary concern is data sharing
 - How to promote that?
 - Cultural Change
 - Standards
 - New Sources
 - Enabling Infrastructure

What information is relevant to cancer research? ... and where does it come from?



The Informatics Challenge

A consequence of success



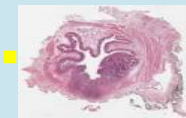
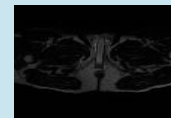
- Think of all the types of data relevant to cancer
 - Biology, Animal Models, Genetics, Epidemiology, Clinical etc
- Data Volumes
 - The sheer scale of data
 - Distribution
 - Indexing
- Data Standards
 - Not all data contains all the elements needed
 - Ontology, Format, Mapping
- Much research data isn't accessible

A crucial problem as many insights come from making connections

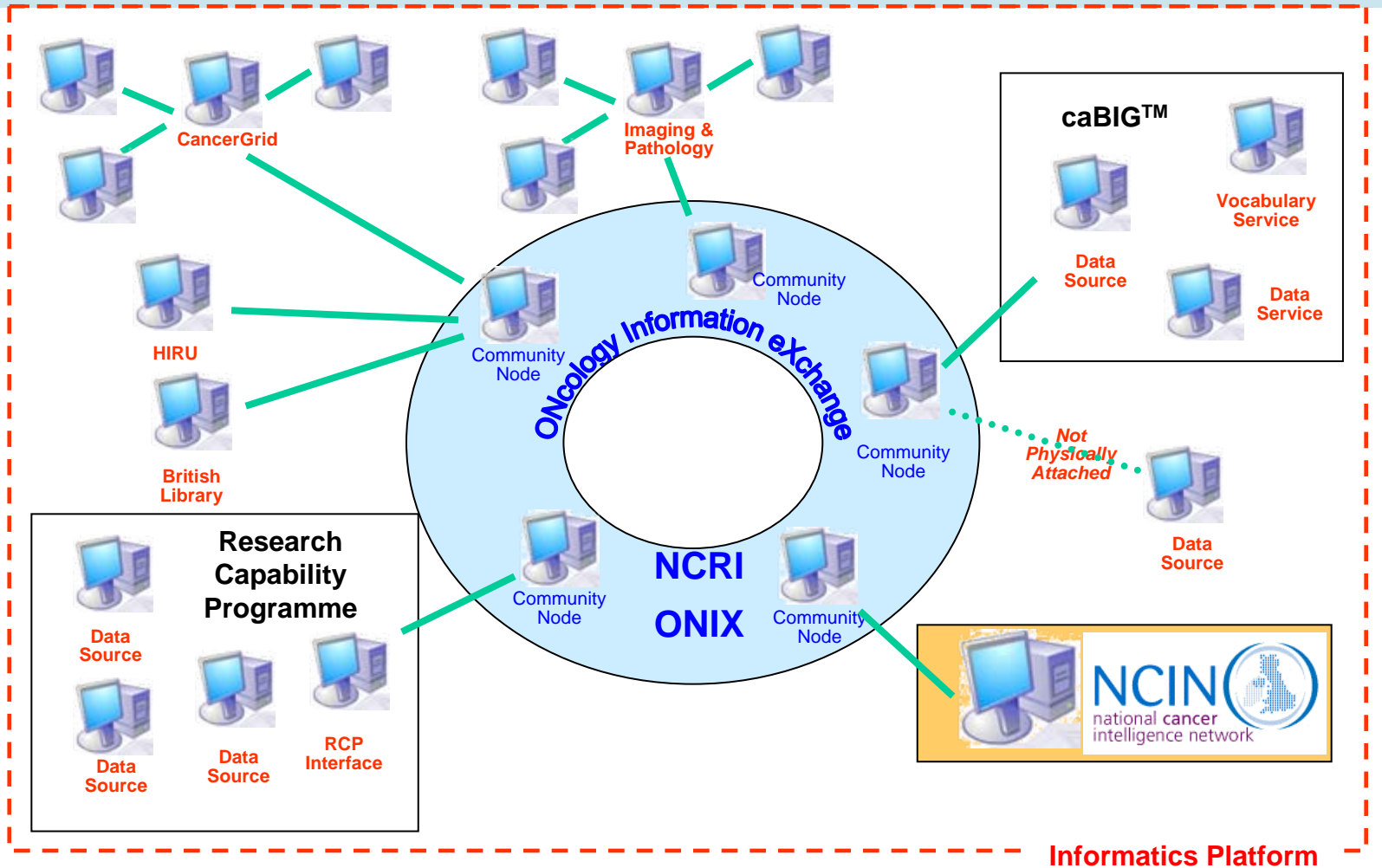
Cancer Informatics


Examples of what we can see today

- NCRI Data Sharing policy
 - Agreed to by all Partners
- US National Cancer Institute's caBIG™
 - Cancer Biomedical Informatics Grid now used in over 60 centres
- Mature EBI & Sanger services
 - Very widely used for molecular data
- PubMed Central (UK and US)
- NHS RCP
 - “Research Capability Programme” project initiated
- NCRI Initiative
 - Imaging & Pathology demonstrator
 - Publications and Conferences
 - Standards Matrix
 - Building an Informatics Platform



What is “The Informatics Platform” Vision?




 Oncology Information eXchange

Home
 News
 Events
 ONIX Standards Forum
 NCRI Online Planning Matrix
 ONIX Document Repository
 Training
 Links
 Investigation Tool
 Investigation Builder
 Investigations
 User Options

ONcology Information eXchange

Investigation Builder

Home : Investigation Builder

Investigation Builder (new investigation)

RESOURCES

Select All Resources
 Select Individual Resources

CancerGrid

Secondary Users Service

Select Research Area

Cancer Clinical Trials

Patient Data

ACTIONS

Undo

Reset

Search...

BUILDER

Keyword:

Operators:

Query:

Use Thesaurus

Use All All Primaries
 All Codes All Synonyms

THESAURUS LOOKUP

<input checked="" type="checkbox"/> C3771	<input checked="" type="checkbox"/> Lobular Breast Carcinoma <input checked="" type="checkbox"/> Lobular Breast Carcinoma <input checked="" type="checkbox"/> Lobular Adenocarcinoma <input checked="" type="checkbox"/> Lobular Carcinoma <input checked="" type="checkbox"/> Lobular Carcinoma of Breast <input checked="" type="checkbox"/> Lobular Carcinoma of the Breast
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SAVE INVESTIGATION

Name:

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ONcology Information eXchange



ONcology Information eXchange

- Home
- News
- Events
- ONIX Standards Forum
- NCRI Online Planning Matrix
- ONIX Document Repository
- Training
- Links
- Investigation Tool
- Investigation Builder
- Investigations
- User Options

STATUS: **Logged on**

User: USER2

Last Login: 25/09/2007:10:02

My Home Page || Log Off





ONIX Investigation Results

Home : ONIX : Investigation Results

Investigation Results

Query

FIND IN ALL RESOURCES

Resource	Description	Basis For Match	Select
 CancerGrid	CancerGrid is a consortium of UK researchers formed to develop open standards based solutions for clinical cancer informatics.	Breast Carcinoma T2	<input type="button" value="Contacts"/> <input type="button" value="Metadata"/> <input type="button" value="Data"/>
 NCIN national cancer intelligence network	The NCIN will coordinate the collection, analysis and publication of comparative national information on diagnosis, treatment and outcomes	Breast Carcinoma Lobular Breast Carcinoma	<input type="button" value="Contacts"/> <input type="button" value="Metadata"/> <input type="button" value="Data"/>
 European Bioinformatics Institute	The EBI is a centre for research and services in bioinformatics. The institute manages databases of biological data including nucleic acid, protein sequences and macromolecular structures.	Breast Carcinoma Q14127	<input type="button" value="Contacts"/> <input type="button" value="Metadata"/> <input type="button" value="Data"/>
 onCore UK	Serves as a national biosample and information resource to enable research towards the discovery and development of new interventions against cancer.	Breast Carcinoma Lobular Breast Carcinoma	<input type="button" value="Contacts"/> <input type="button" value="Metadata"/> <input type="button" value="Data"/>

Benefits of NCIN in the Platform



- **A valuable new research asset**
 - A welcome new national patient related resource
 - NHS has much operational data
 - Rather less on people!
 - Complement to emerging NHS Research Capability Program
 - International partners such as caBIG™ would, if permitted, welcome access to UK patient data

Synergistic value

- NCRI Informatics mission
 - Maximise impact of cancer research through better access to information and data integration
- Linking Genotype to Phenotype
 - Given a model of a type of cancer at a molecular level ...
 - .. NCIN links to the same disease at a clinical level
 - => **An asset to test hypotheses more rapidly**
- Clinical Trials
 - Given the wealth of data collected in a clinical trial ...
 - .. NCIN can show outcomes for the trial subjects, maybe years later
- Tomorrow's research environment
 - Given a network that includes NCIN data...
 - ... there is feedback on real life experience (eg episode profiles) to improve our understanding of cancer at a molecular level
 - Completing the cycle of translational research



NCIN will complement existing research resources and enhance their value

Summary

- The *NCRI Informatics Initiative* is helping
 - To work with the UK and international community to build re-usable infrastructure
 - To change culture to make the infra-structure usable
- The new *National Cancer Intelligence Network* is a key resource that we want to make easy for researchers to **find, understand and integrate** as a cornerstone asset



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Thank You

Information on Demonstrators, Platform Implementation,
ONIX etc is available on

<http://www.cancerinformatics.org.uk/>