

Health informatics

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Today's seminar

- Introduction
- What is Health Informatics?
- Information to Support Clinical Care
- Chronic Conditions Self Management
- Information to Support Medical Research
- Research and Disease Surveillance
- Health Service Support
- Protecting the Right to Privacy and Duty of Confidentiality
- Concerns
- Complexity
- Research into Information Governance
- Conclusion



What is health informatics?

- Multidisciplinary field
- Improve patient care using available data, presented as information
- Establish good data capture and reuse mechanisms
- Use IT and digital information about patients and their care to support this
- Education and training for professionals



Information to support clinical care

- Design and Deployment of Electronic Healthcare Records (EHR)
- Share information consistently and correctly across care teams

| Users | Anticoagulation Patient Summary report | | | | | | |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------|----------------------------|---------------------------------------------------|--------------------|--|
| Logout | This report summarises a recent anticoagulant history for a patient. You may Create a Printable Form which will appear in a new window. | | | | | | |
| Patients | Therapy Plan Summary | | | | | | |
| Nota Bene Select Patient | Target INR Range (Target INR) 2.0 - 3.5 (2.5) | | Planned En Lifelong Pat | | Reason For Anticoagulation ATRIAL_FIBRILLATION | | |
| Administration Accounts | Most Recent Clinic Contact Detail | | | | | | |
| Important Dates | Date 04-Feb-2011 | | INR Test Result Dose | | Next Appointment | | |
| Summaries | | | 2.0 | 3.0 mg | | 26-Feb-2011 08:00 | |
| Medical Summary | | | | | | (CHIME) | |
| Service Delivery | | | | | | | |
| Anticoagulant | Recent Past Readings | | | | | | |
| Control | | | | Date | Prescribed Dose | Monitoring Interv | |
| Plan Clinic Contact | 4.5 | | | 25-Oct-2010 25-Oct-2010 | 2.5 mg 2.5 mg | 102 days 0 days | |
| Clinic Contact | 3.5 | | | 18-Oct-2010 | 2.5 mg | 7 days | |
| Patient Summary | 2.5 2.5 2.5 2.5 2.5 | | | | | | |
| Ilinician Summary | 2 10 | 2.5 | 2.5 | | | | |
| Clinical Governance | 2 | | Therapeutic Range | | | | |
| Mithdrawal Letter | ₹ 1.5 | | | | | | |
| Discharge Letter | 00001 | | | | | | |
| Off Warfarin Letter | 1.0 | | | | | | |
| Patient DNA Letter | 0.5 | | | | | | |
| Clinician DNA Letter | 0.0 | 18-Oct-2010 | 25-Oct-2010 | | | | |
| Deceased Letter | Historic INFI Test Results | | | | | | |
| leart Failure | | | | | | | |
| | | | | | | | |
| Diagnosis Prompt | | | | | | | |
| Presenting Complaint | | | | | | | |
| Examinations | | | | | | | |
| Investigations | | | | | | | |
| Plans | | | | | | | |

- Example Heart Failure Clinics based at Whittington Hospital and shared across four PCTs in North London
- Summary Care Record



Chronic conditions and selfmanagement

- Example diabetes
- Relies on sharing of information with clinicians, blood glucose levels, blood pressure etc.
- Self management essential
- Good practice, healthy lifestyle, self monitoring and management
- Availability and integrity of correct information essential



Information to support medical research

- ▼ F CLEF EHR
 - ▼ F Demographics
 - C Demographic
 - ▼ F LaboratoryResults
 - C Haematology
 - ▶ C Electrolytes
 - C Cytology
 - C Histopathology
 - ▼ F ImagingStudies
 - Radiology
 - ▼ F OriginalDocuments
 - F LettersandSummaries
 - ▼ F Treatments
 - PrescribedDrug
 - C IVChemotherapy
 - C ChemotherapyProtocol
 - C Procedure
 - Radiotherapy
 - ▼ F Diagnoses
 - C DeathCertificate
 - CancerDiagnosis
 - F LanguageExtraction
 - F Chronicles
 - F LangaugeGeneration

- Information collected at point of care can be shared for research
- This is helped by having a consistent information structure in the EHR, and / or well configured IT resources
- e-Science Initiative
 - Clinical e-Science Framework
 - eDiamond



Research and disease surveillance

- Information to help statistical results and analyses
- Disease surveillance
- ONS and HPA
- Health Informatics expertise DHICE Initiative
- Support HIV research, data integration and surveillance



Service support

- Improved care guidelines based on availability of more information
- Improved techniques
- Management and Commissioning



Ongoing challenges

- Data provenance
- Shared understanding across more experts
- More information sharing is important, but is it
 - Legal?
 - o Ethical?
- Safeguarding individual privacy rights and professional duty of confidentiality?



Protection of privacy and assuring confidentiality

- The individual's right to privacy and professional duty of confidentiality is upheld in UK law
- Anonymity when data is reused is significant
- There are international equivalents
- Guidelines on how to proceed and behave exist (NIGB / NPSA)
- Further safeguards in the form of ethics committees
- ISO standards for information security policy enactment



Complexity – The Times, Letters to the Editor, 20th January 2006

- Over interpretation of legislation
- Misunderstanding of the problem at hand
- Stifled research
- People suffering as a result



Concerns

- There have been concerns over civil liberties
- Fears over unauthorised surveillance
- Doubt over further uses of personal information
- Misuse / misunderstanding of information
- Case of P against Finland at ECHR
- Assurance is essential



Shared EHR and information governance research

- Modelling of analysis of data release and requests for data
- Establishment of available control mechanisms
- Design of a reusable knowledge management formalism like the EHR Archetype - the Security Archetype or Secutype
- Advisory system for data managers



In conclusion

- IT, hardware, software, better networking support more rapid, consistent and complete data sharing in healthcare
- Compelling for clinical care, self management
- Host of further uses, most notably research and service improvement
- Protecting patients rights and professional duty is complex
- There are many guidelines and legal interpretations
- Research is ongoing, and techniques are becoming more sophisticated



DON'T PANIC! (and thank you)