Informatics for Healthcare Systems

Improving Informatics Skills for Patient Driven Healthcare

MANCHESTER 1824
The University of Manchester

Health e-Research Centre

NWEH NorthWest EHealth

NHS North West

foreword

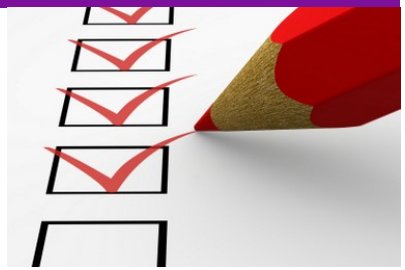
Informatics for Healthcare Systems is an established short blended-learning course that introduces the key health informatics issues along the patient pathway.

The course has been developed by a team of experienced practitioners who work in the field of health informatics in academia and work closely with colleagues from industry and the healthcare system. It delivers up-to-date, relevant material with underlying theoretical principles in order to solve problems and work in the field. The course emphasises a self-directed learning approach, and encourages group discussion through problem-based learning workshops. It has been designed so that it can to be completed alongside other work and home commitments.

In previous years, we have seen future leaders in health informatics for the NHS attend the course, and this year we are to open this course up to other academics and industry professionals also. Each participant will bring their own personal experience and knowledge to the course, and we encourage you to share this with other participants and tutors. This not only provides a unique chance to learn about the field, but also to understand how each of the sectors function.

The course is the foundation for other courses to be offered from the Health eResearch Centre hosted at the University of Manchester. Information about other courses being developed at Manchester will be available soon at: http://www.herc.ac.uk/training-events/. Watch this space! We pride ourselves on delivering innovative courses that meet the needs of the community.

Dr. Georgina Moulton
Education Lead, Health eResearch Centre (HeRC)
University of Manchester



application **checklist**

- ☐ Online application form
- ☐ Personal Statement
- ☐ Letter from sponsor
- ☐ You are available on key dates

The deadline for applications is **7 November 2014.**

find out **more**

further **questions**

If you have any further questions, please contact us at:

Health e-Research Centre
Institute of Population Health
Vaughan House
Portsmouth Street
Manchester
M13 9PL

kieran.omalley@manchester.ac.uk
Kieran O'Malley
Education and Training Officer, HeRC
0161 275 7675

http://www.population-health.manchester.ac.uk/healthinformatics/

Or contact the NHS Informatics Skills Development Network:

alison.singleton@whh.nhs.uk
Alison Singleton
NHS NW Education and Development Lead

what others have said about the course

Paul Lucock
Assistant Director ICT Delivery
North West Ambulance Service NHS Trust

"The course has enabled me to interact with the rest of the health economy on a more informed basis. This benefits both the health economy as a whole and influencing better patient care through the delivery of cohesive systems."

Matthew Barker-Hewitt
Head of Information
The Christie NHS Foundation Trust

"The biggest benefit to me personally was reinvigorating my own techniques, assimilating thoughts and presenting them in an academic format.

It has assisted me in gaining wider knowledge with the confidence of academic achievement in the subject matter. To be able to utilise our work and contribute to health informatics research, which in turn enables our organisation to achieve a higher level of e-health maturity."

Martin Sheridan
Programme Manager
Heywood, Middleton and Rochdale PCT

"The course has provided me with an opportunity to network with other Informatics professional from other health care settings. It has enabled me to see that other areas face the same issues and problems as mine and to discuss possible solutions to address them."

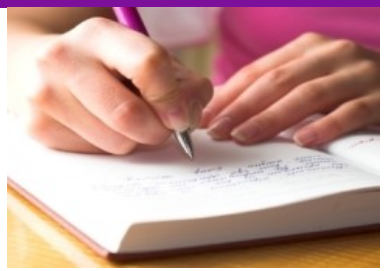
Nick Wright
Head of IT Support
East Lancashire Hospitals NHS Trust

"The greatest benefit to me from the course has been to gain a greater understanding of the context in which the IT Support Service sits in relation to the core clinical services of the organisation and a greater appreciation of how we can develop and change services to better meet the demands of delivering modern clinical services."

Erica Fairweather
System Support Manager
Pennine Care NHS Foundation Trust

"My areas of responsibility are Application Support, System Configuration, ICT Training, Registration Authority and Clinical Coding. I provide systems guidance and processes for trust projects and work closely with Mental Health and Community services, performance and information and other relevant corporate services.

The course has been beneficial to me in a number of areas, in particular it has forced me to investigate above and beyond NHS and DoH literature and see things from a different perspective. I always have good intentions of investigating and reading to improve knowledge and understanding for my work area but find time restricting and seldom have chance to read beyond the high priority documents. I have found the course and networking with NHS staff of a similar level and responsibilities, in this environment, extremely useful in challenging existing knowledge and forcing me to stretch myself. I have retained many useful documents and shared them with my team, at all levels, to read and present back a précised version to the rest of the team at our fortnightly team meetings. This has proved both informative and developmental for all. As we are currently moving into the implementation of a new clinical information system, I have shared my knowledge of the topics and documentation read with senior colleagues to assist the project and general understanding, particularly interoperability."



application **process**

The application process will be two stages: (1) an online application form; and (2) a short interview.

The online application form can be accessed from the University of Manchester website:

http://www.manchester.ac.uk/postgraduate/taughtdegrees/courses/distancelearning/09170/informatics-for-healthcare-systems-improving-skills-for-patient-driven-healthcare/application-and-selection/

The application form must include a **personal statement** that will **describe a recent piece of work** that you have had responsibility for in relation to your area of health informatics (for example, implementing a new system or process, managing a project, working as part of a multi-disciplinary team). You will be required to include a **description of the work** and any **direct links to improving clinical care**, the **major learning** from this work and how you might have **done things differently on reflection**, and what you are **most proud of** in terms of this work.

During the short panel interview we will discuss with you your application form, in particular, the personal statement. In addition, you will be asked to complete an individual evaluation that will frame the conversation about health informatics and your views about it.

note to **sponsors**

a guide for choosing candidates

We are looking for the stars of the future in health informatics. The qualities below are a guide to help in the decision of choosing the most appropriate person for the programme from your organisation.

Candidates should:

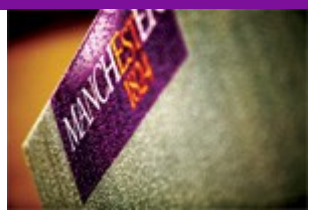
- be able to demonstrate an ability to think strategically across different informatics work streams and influence those same work streams
- have significant opportunities to interact with clinicians and ensure that some of their learning links in to clinical pathways
- demonstrate a desire to become a senior leader in informatics and be given opportunities to get involved in strategic decision making
- be able to explain how the informatics service may change as a result of the Government's Reform agenda

key **dates for your diary**

Online Application Available	15 September 2014
Application Deadline	7 November 2014
Interviews	27 November 2014
Induction Day	7 January 2015
Block 1 Face-to-Face	2/3/4 February 2015
Block 2 Face-to-Face	10/11 March 2015
Block 3 Face-to-Face	22/23 April 2015

key course **facts**

- This **bespoke** programme has been designed to meet the **needs** of the **health informatics** community, and to facilitate the **professionalism** of the field.
- It has been developed in a partnership between the **University of Manchester** and the **North West NHS** as part of the **Informatics Skills Development Network.**
- The programme is based on experiential learning: it will provide a learning framework to allow the community to learn from each other.
- The programme comprises **six modules**: each focussing on a specific issue in health informatics.
- It will be delivered in a **blended-learning format**: e-Learning and Face-to-Face.
- It is masters accredited: in total it is worth 30 credits*.



role of the **university**

University of Manchester will:

- support the participant wherever possible to ensure that the programme is meeting both their objectives and expected outcomes.
- provide feedback in a timely manner that helps students understand their allocated mark and how it can be improved.
- continually work with NHS NW to ensure that the programme content, coverage and curriculum is relevant for health informaticians in the current climate.
- evaluate the programme at the most appropriate stages in the delivery cycle to review and measure the impact and expected outcomes.
- consider future development interventions to further enhance learning as the future landscape unfolds.

The programme will follow the standard ordinances and regulations set out by the university and will be outlined in documentation.

Roles, responsibilities and **expectations**

Sponsors

- Participants must be able to demonstrate sponsorship and support from the sponsor as appropriate. This is vital in ensuring that the participant is able to attend all components of the programme and in securing ongoing development and support back in the organisation.
- Sponsors will be expected to monitor participants progress towards achievement of objectives, and through regular meetings offer continuous support, feedback and observation of changes in the individual's skills.
- Sponsors are asked to seek out opportunities for participants to gain exposure within the organisation to assist in the application of learning in the workplace.

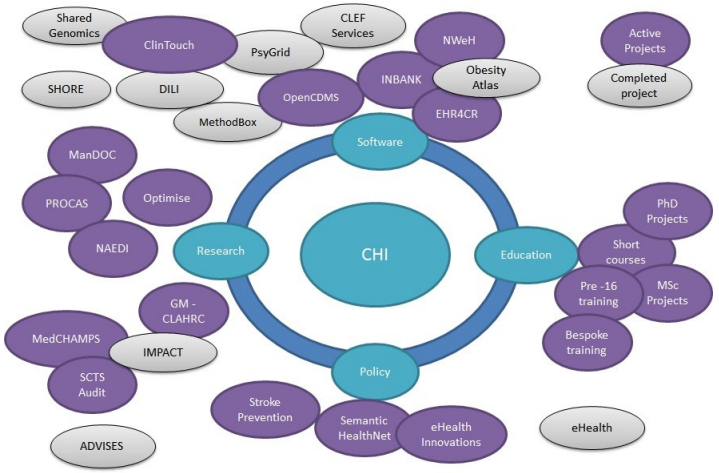
Participants will be expected to:

- attend all elements of the programme.
- meet regularly with their sponsor to ensure that they are making progress and to gain feedback on their knowledge
- explore opportunities within their organisation to implement their learning.
- be able to work effectively and manage deadlines
- be willing to learn using social networking tools
- adopt new ways of working by introducing new knowledge and thinking gained on the programme
- be expected to participate in group work
- provide evidence of how learning will be implemented in practice by use of case studies and other reflective learning tools
- take responsibility to consider feedback, and act on it.

health informatics **@manchester**

The University of Manchester has a long history of world-leading Computer Science, and runs Europe's largest medical school. These strengths are combined in the University's strategic commitment to Informatics scholarship and technical innovation in eHealth for society. The approach to Health Informatics at Manchester is truly inter- and trans-disciplinary: reaching across all four Faculties of the University – in addition to Medical & Human Sciences and Computer Science, incorporating the largest concentration of Quantitative Social Science in the UK, a major Business School and a renowned Faculty of Life Sciences.

The Centre for Health Informatics (CHI), based in the Faculty of Medical and Human Sciences, coordinates the Health Informatics activities across different disciplines and groups within the University. The education and research in the CHI is actively translated into products and services for patient and public benefit in a partnership with the NHS known as Northwest e-Health. This is a critical part of the wider Manchester Academic Health Sciences partnership between the University of Manchester and the NHS. In August 2012, the MRC and other funding bodies awarded Manchester in collaboration with the Universities of Liverpool, Lancaster and York funding for the establishment of a UK Health Informatics Research Institute known as the Health e-Research Centre (HeRC).



A snapshot of activities at the University of Manchester in the Centre for Health Informatics

key people @manchester

Professor Iain Buchan

Director of HeRC and Clinical Professor of Public Health Informatics

Iain is a Clinical Professor of Public Health Informatics at the University of Manchester and a Consultant in Public Health working with the NHS, Department of Health and local authorities. He is Lead for the Centre for Health Informatics (CHI) and Director of the Health Research Centre (HeRC). He also has advisory roles in Health Informatics and Public Health with UK, EU and global research and policy organisations, and industry. Iain has a background in Medicine although he has worked extensively in Statistics and Computer Software Engineering.

John Ainsworth

Deputy Director of HeRC and Senior Research Fellow

John is a Senior Research Fellow with over 12 years commercial experience in the software industry, and has driven forward many of our flagship projects across all of our sectors. He is also Deputy Director of the Health eResearch Centre (HeRC). John has a background in Physics and Computation and is applying this knowledge to the field of mobile Health. John is a leader in the Manchester m-health ecosystem[1].

Gary Leeming

Chief Operating Officer, NWeH

Gary leads the software development of NWeH, a joint NHS and University of Manchester project, providing innovative eScience solutions for improving healthcare in the NorthWest. Recent projects Gary has ben involved include Salford Lung Study[2] and FARSITE.

audience

This course is open anyone in an organisation below Board level and working in Health Informatics*, who is aspiring to be future leader in health informatics.

The programme is designed to attract people who wish to take the next significant step in their career. As such, it is an excellent development tool in managing the talent within Health Informatics.

Those attending must be able to demonstrate an ability to think strategically across different work streams and influence across those same work streams.

Students must appreciate how their learning is directly applicable to clinical outcomes and have opportunities to interact with clinicians in their own organisations to apply some of their learning practically.

It is important that those applying have permission to practice what they learn back in the work place and see this programme as a significant element of their own personal development.

*As defined by DH through the Health Informatics Careers Framework-identifies 7 related job families: a) Information Management b) Knowledge Management c) HI Educators and Trainers 4) Clinical Informatics staff 5) Project and Programme Management 6) Health Records and Patient Admin 7) ICT staff

module 6

Emerging Innovations and Trends in Health

The problems in current healthcare systems are well documented and current solutions are falling short of providing a healthcare system that delivers complete patient driven care. Through the introduction of new technologies and ways of thinking, steps to realizing this vision can be made. This module will consider innovations and trends in technologies in conjunction with the requirements and implementation of health information systems at each stage in the citizen healthcare pathway in order to co-ordinate healthcare delivery. In particular, there will be a focus on the emergence of mobile health technologies and the use of social networking tools.

At the end of this module you will be able to:

- understand how innovations and new technologies can improve healthcare decisions and management
- apply knowledge of technologies, innovations and other core issues in the design of a healthcare information system
- skills in introducing new technologies/systems into the healthcare system

key course **people**

Dr. Georgina Moulton

Head of Education and Development, HeRC

Georgina is an Education and Development Fellow with over 7 years experience delivering education and development programmes in the bio-and health informatics sectors. During her time at Manchester, she has developed a portfolio of courses and set up the first Masters in BioHealth Informatics. Her most recent work involves developing a NW public health development programme centred around an e-Lab.

Alison Singleton LL.B, MCIPD

NHS NW Education and Development Lead

Alison has worked in the health service since 1985, initially in HR and since the mid 90's in Learning and Development. She has had great involvement with the development of a new Learning and Development Network for Informatics staff across the North West. Alison also specialises in Leadership Development and has worked extensively with clinical teams across organisations in the North West.

Professor Andy Brass

Professor of BioHealth Informatics

Andy is based in the BioHealth Informatics Group in the School of Computer Science. He has been a pioneer of both bioinformatics, and informatics education and development. His current research work focuses on the analysis of data at the interface between the life sciences and health sectors.

course **details**

This **masters accredited**, **blended, enquiry based learning** course will enhance health informatics skills in preparation for the Information Revolution.

The course will explore the role of informatics in managing healthcare systems, with an emphasis on current issues and future innovations and trends. The course is led by health problems rather than technologies or organisations, setting the direction of translational thinking that healthcare managers need to take when dealing with information and communications technologies.

The course sets core issues surrounding the data, technologies, information and people in the context of the journey from the maintenance of wellbeing to specialist healthcare for an individual, and the creation of a population-wide picture of health to enable well-informed management of a whole system. Each course module will examine a core issue in detail at every stage of the patient pathway in context with other core issues and skills, and will consider its impact on the information usage.

module 5

Human and Organisational Factors in Health

The challenges in developing information systems to capture healthcare information are not purely technical. Issues around organisational and human factors are at least as difficult to develop as effective solutions for developing appropriate IT infrastructure. Here we will introduce methodologies to support qualitative research to understand what some of these issues are, and provide insights into strategies that might allow a more effective deployment of electronic patient records and other systems within healthcare.

The module will introduce concepts of: organisational and human factors in e-Health; qualitative research methodologies; usability in healthcare; and organisational change in the health service.

You will be able to:

- understand the organisational and human factor challenges to effective use of electronic patient records
- explain knowledge of current research in this area
- critically evaluate health care literature around organisational and human factors in electronic patient records
- use qualitative research methodologies to evaluate a healthcare system

module 4

Information and Clinical Governance

Information Governance is used to describe the processes, which ensure the quality, security and appropriate use of health information. It encompasses many areas including the accessibility, consistency and completeness of information, management of recording of information, processes to ensure information is collected fairly with relation to professional ethics and law; and the appropriate security of information.

This module will look at the framework for handling patient data in a confidential and secure manner to ethical and quality standards that are appropriate for a modern health service. In particular, we will look at how already implemented services follows these guidelines and discuss how they are interpreted when patients have access to their information; when electronic records are shared for clinical purposes; and when data is required for other reasons such as, clinical audit and health care resource planning.

At the end of this module you will be able to:

- understand information governance guidelines
- understand the ethical and privacy issues surrounding medical data governance
- critically analyse the theoretical knowledge of health informatics/information governance applied to workplace environments
- apply health informatics/information governance knowledge and understanding to information collection and use in healthcare systems

course **aims**

- Look at each of the core issues in relation to the requirements of the information systems and the use of information at each stage in the patient pathway together with its impact on the remainder of the pathway.
- Provide the attendees with the key skills required to develop and manage healthcare systems in the new and changing health economy. It will address the agenda of the Information Revolution, where the patient is at the centre of the healthcare system.
- Emphasise the importance and role of information in patient-driven healthcare.
- Embed key principles and concepts whilst developing their practical application.

course **learning outcomes**

- Have knowledge and understand the uses of information in the healthcare system to drive improved quality of healthcare
- Have knowledge of historical information systems, current issues and future trends and innovation
- Understand the particular opportunities and hazards in health informatics
- Understand how the design and use of health informatics systems has an impact on clinical care
- Awareness of the wider healthcare framework, strategies and policies
- Understand the theoretical underpinnings of identified health informatics key issues.
- Critically think, analyse and evaluate healthcare systems, in relation to the identified core issues
- Recognise problems and devise appropriate solutions
- Justify principles and methods used in health informatics work
- Apply theories and concepts to research-driven case-studies and own work
- Identify and access appropriate bibliographical resources, archives and other sources of relevant information to investigate a topic
- Prepare, present and effectively communicate and defend complex ideas in documents and oral presentations
- Write reports to a professional standard
- Work collaboratively in an inter/multi-disciplinary team
- Reflect upon learning and apply to work

module 3

Interoperability in Health Information Systems

This module will focus on the core issue of interoperability. Information is captured in many parts of the health system from GP surgeries, hospital labs and clinical teams. All this data and information needs to be brought together and shared – whether that be to build a record for a single patient, or to provide an overview of activity across the region. This module provides and introduction to some of the systems used to do this and the problems which need to be addressed.

The module will cover basic concepts of interoperability in healthcare; messaging concepts, in particular HL7; issues and problems surrounding data/information interoperability; and strategies for data integration.

On completion of this module you will have an:

- understanding of medical messaging schemes
- understanding of the complexities and problems in sharing clinical data
- understanding of the ethical and privacy issues surrounding medical data integration and sharing
- understanding of the theoretical underpinning of messaging schemes
- critical evaluation of health care literature around medical messaging and interoperability

module 2

Significance of Recording and Coding Information

The core activity central to capturing information around patient diagnosis and medical treatment, is the development of the electronic patient record. For electronic patient records we have to have systematic and unambiguous tools for recording the health state of a patient, and the treatments they receive.

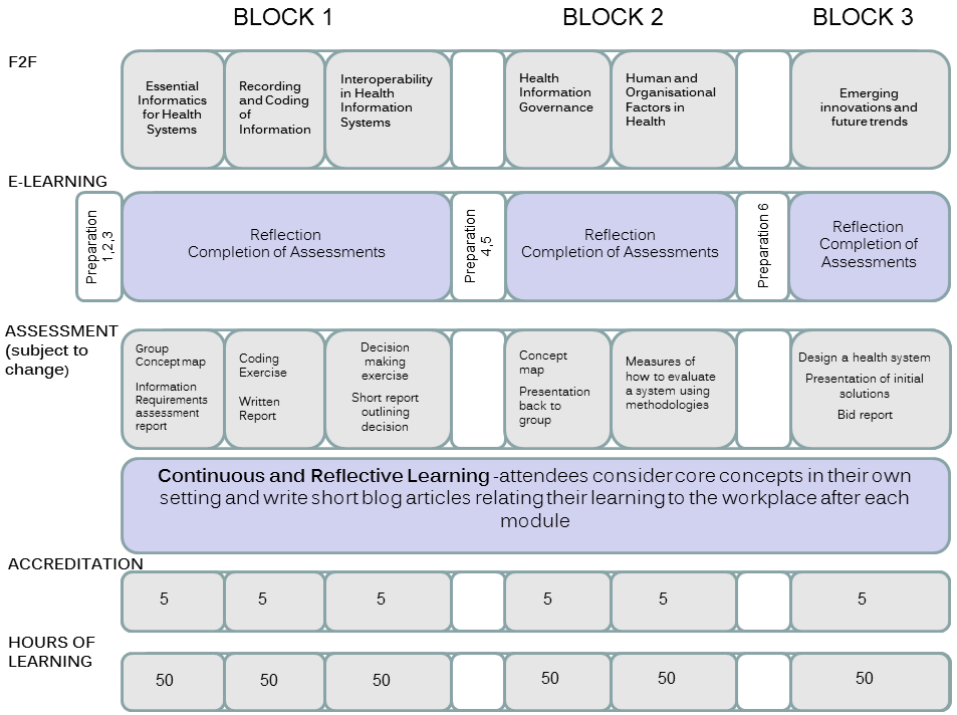
This module will focus on recording and coding of health information. It will provide a basic introduction to coding; its long history, some of the theoretical underpinnings of coding schemes, and the challenges it currently faces. In particular, we will consider why coding is so important and why it is difficult to do well.

At the end of this module you will have:

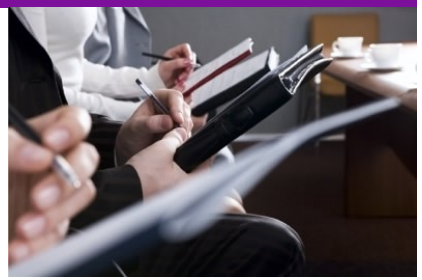
- a basic understanding of medical coding schemes
- an understanding of the complexities and problems in capturing clinical data
- an understanding of the theoretical underpinning of coding schemes
- the ability to critically evaluate health care literature around medical coding
- a basic familiarity with the process of medical coding
- the ability to understand the processes involved in mapping between different coding schemes.

course **delivery**

The course is **blended**: delivered across **seven face to face** contact days, divided into **one block of three days** and **two blocks of two days**. Each block is then interspersed with **eLearning content** for reflection and preparation.



Please note that the hours of learning stated are indicative only. They are the maximum stated hours and include opportunities for reflection and conversations.



course **time**

The course will require the participant to dedicate a **maximum** of **300 hours** including:

Activity	Number of hours
Face-to-face	42
e-Learning	120
Assessment	90
Private Study	48

course **credits**

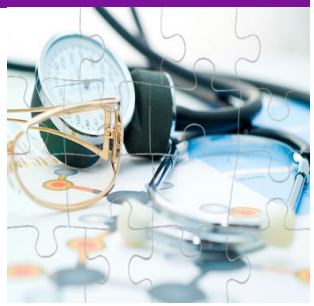
The programme is accredited by the University of Manchester and is worth **30 credits**; each module is worth 5 credits*.

In order for an attendee to gain all the credits, they must complete all elements of the programme. Participants must complete the assessments for each module to gain the attributed credits. A participant would need to achieve a pass mark of 40% or more for each module.

The programme credits can contribute to further study at the University. Should they wish to contribute this learning to further study a pass mark of 50% or more would be needed for a postgraduate masters.

*A typical Masters course is worth 180 credits: 120 credits of taught modules; and a dissertation of 60 credits. Therefore the health informatics programme is equivalent to 2 masters' modules.

course **content**



module 1

Essential Informatics in Healthcare Systems

This module provides an essential foundation needed to complete other modules in the course. In order to deploy health information systems a health informatician or healthcare manager needs to be aware of the core issues in deploying and managing a healthcare system, and the impact in the wider context. To be able to have a full understanding of the issues, it is important to have an insight into how the healthcare has arrived to its present day situation and how this impacts on current and future work.

At the end of this module, you will:

- understand the changing landscape of the healthcare system
- understand the importance of the electronic patient record and how it evolves over the patient care pathway
- understand the uses of information at each stage of the Pathway
- appreciate what factors have determined whether a healthcare system has been successful
- have familiarity with core issues in deployment and management of healthcare systems to real-life examples and own work