Chapter 21
Knowledge Networks in Nursing

Anne Spencer and Pamela Hussey

Education is not the filling of a pail ..... but the lighting of a fire.
W B Yeats

Abstract In the final chapter of this fourth edition Knowledge Networks in Nursing are discussed and presented. Building on discussions in Chap. 16 examples from various nursing practice domains are included using specific cases. This chapter demonstrates how nursing as a profession is tackling specific societal challenges by using communities of practice as a potential solution. Participants in the communities of practice are using their knowledge to collectively construct online resources that hold potential to positively impact on citizens' outcomes in society whilst concurrently advancing the profession of nursing.

Keywords Communities of Practice • Web 2.0 Technology • Knowledge networks in nursing • Health and social care • Education

Key Concepts
Communities of Practice
Web 2.0 Technology
Knowledge Networks in Nursing
Health and Social Care

In Chap. 15 of this text the use of information and communications technology within nurse education was explored. Questions relating to nurse education and the role of nurse educationalists in the use of information and communications technology to advance the profession in meeting societal challenges were considered.

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A. Spencer, RN, BA (Hons), MSc
PETAL (Partners in Education, Teaching and Learning), Educational Technologist, Dublin, Ireland
e-mail: aspencer@petal.ie

P. Hussey, RN, RCN, MEd, MSc, PhD (✉)
Lecturer in Health Informatics and Nursing, School of Nursing and Human Sciences, Dublin City University, Dublin, Ireland
e-mail: pamela.hussey@dcu.ie

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In this chapter it is suggested that the answer for advancing the profession of nursing lies in education particularly in the use of emerging technologies in nurse education. Such an approach can advance nursing's' adoption and use of information and communications technology within the broader context of health and social care. This chapter focusses on 'real life' examples of how education is supporting nursing practitioners to become leaders, innovators and educators. It presents a brief summary of four established communities of practice that are successfully evolving whilst educating various stakeholders on specific health related topics.

Communities of Practice are increasingly demonstrating their effectiveness as educational frameworks. As an organic structure, Communities of Practice present opportunities for informal knowledge exchange and development of social networks [1]. Formally recognised by WHO as effective network and partnership activities, communities of practice also afford a collaborative approach, which in the current economic downturn is pragmatic and purposeful. From a nursing informatics perspective perhaps one of the most significant COP which has evolved in recent years is TIGER [2]. The TIGER community which is discussed in detail in Chap. 14 has created a number of COP's which are using the TIGER VLE to inform and educate nurses globally on topics relating to nursing informatics. A core attribute of COP's is to use software platforms for social networks whilst harnessing the potential of enabling technologies. Cloud computing for example, can be used by nursing communities to come together to share expertise, experience and knowledge in both a synchronous and asynchronous manner. This sharing of expertise offers a greater potential for knowledge innovations to be cultivated to address society's health and social care needs across and between services on local, national and international platforms.

The Communities of Practice (COP) discussed in this Chapter have been selected as they offer a variety of differing approaches in design and are quite distinct in their subject areas. They relate to nursing informatics (PARTNERS) [3], Electronic Health Record education and training (EHRInsight) [4], mental health service user involvement and health promotion activity (Mental Health Trialogue) [5], and bone health education and falls prevention (Bone Health in the Park) [6]. The nursing leads for each of the COP's are from differing clinical and academic backgrounds.

An English philosopher Herbert Spencer (1820–1903), many years ago suggested that the great aim of education is not knowledge but action. One form of action that is formally recognised within the World Health Organisation Strategic Directions Plan for Nursing and Midwifery for 2011–15 is the development of Communities of Practice (COP) [7]. Identified as an innovative approach for the uptake of new knowledge, Communities of Practice are increasingly demonstrating their effectiveness as agents of change.

The 4th edition of this text is an eBook and this chapter also includes a number of resources on the supporting website entitled www.intro2nursinginformatics.com. The material on the website can be classified into two groupings. Firstly *educational resources* to support the book as a space for supporting resources for the various chapters in this 4th edition, and secondly an *educational toolkit* which will help the reader to develop and present work in a professional portfolio for future continuing educational opportunities as they arise. Both of these resources are expanded upon in the associated website www.intro2nursinginformatics.com [8].

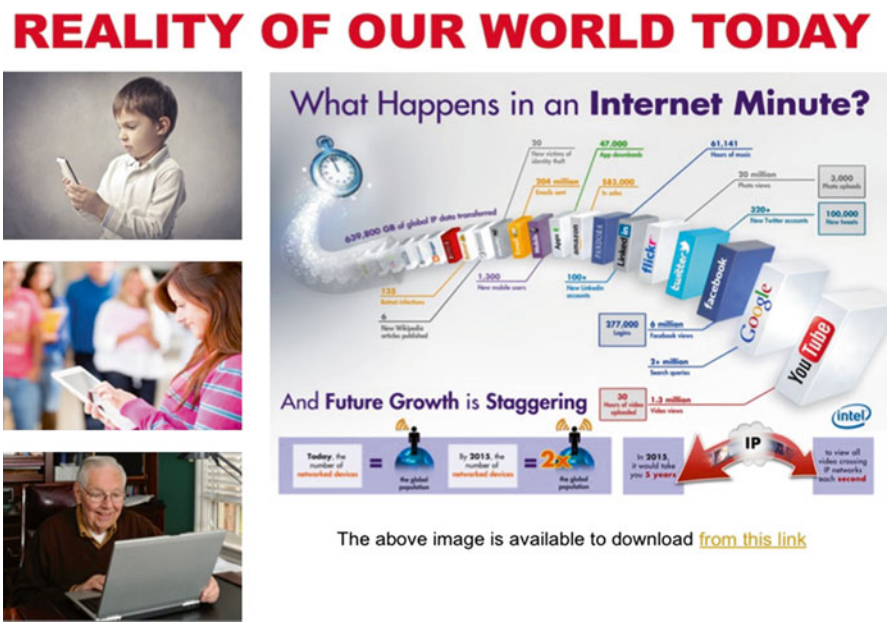

Fig. 21.1 Digital uptake in reality 2 (http://www.intel.com/content/www/us/en/communications/internet-minute-infographic.html) [9]

The Reality of Learning in the Twenty-First Century

Web 2.0 technologies offer practitioners a vehicle to develop and sustain Communities of Practice and increasingly can act as an enabler for the delivery of education and training of nurses. Earlier chapters in this edition explained the generations of computing developed since the 1940s and how fourth and fifth generation computing is increasingly shaping how we communicate and how we deliver health and social care. Nurse education is no exception to this approach as lecturers delivering nursing and midwifery undergraduate and postgraduate programmes exploit emerging technology to move beyond traditional didactic teaching modes to more constructivist learning approaches [9]. Learning is increasingly becoming a participatory process and Web 2.0 technologies can positively influence how we teach, communicate, collaborate, learn and create knowledge. A critical success factor that influences communities of practice development within the profession of nursing is the opportunity to co-construct and share knowledge in both formal and informal ways (Fig. 21.1).

Health as an Ecosystem

New terms to describe the impact of the global economic downturn include the creation of health ecosystems which can be linked in structure and form to communities of practice – a common denominator being sharing of expertise and action

We need to effectively use our environment, and our skills and professional 'know how' to navigate through the current global 'climate change' to strengthen our future.

Fig. 21.2 Nursing - An Eco System

to address current health issues, such as chronic illness. There is an increasing realisation that action must be taken to ensure provision of robust structures to protect the healthcare system, which as a consequence of increasing fiscal costs and an increasing and aging population is under threat. Chapter 15 noted that nurses hold a unique function as they are the only healthcare professionals to interact with individuals, carers and families on a 24 h, 7 days a week basis. When one considers the scale of skill hours and the overall projected costs of nursing skill mix within healthcare, it is reasonable to suggest that within this emerging health ecosystem nursing as a profession is potentially vulnerable and so too are recipients of health care. The profession as it is today faces a global challenge, similar in nature to bees. The deliberate analogy to bees is drawn as there are distinct similarities to nursing 'communities' as both possess certain attributes as social groups. Nurses are excellent communicators, structurally they are highly organised and can offer front line resilience to defend their specific community and respective populations. How can nursing adopt and adapt to use informatics to ensure sustainability for the future of the profession is now a question that requires careful consideration.

The remainder of this chapter offers some examples of differing communities of practice which strive to address this question (Fig. 21.2). Figure 21.3 offers an illustrative overview of some of the communities of practice which are discussed in the following sections.

Partners CT Community of Practice

PARTNERSCT is a community of practice devised as part of a nursing informatics study completed in Ireland in 2010. The purpose of this study was to develop, with nurses, a shared assessment tool for older persons for use across and between six differing health service providers. The project was entitled PARTNERSCT. The term was adopted as an acronym for *Participatory Action Research To develop Nursing Electronic Resources* and the initials *CT* related to *Concepts and Terms*.

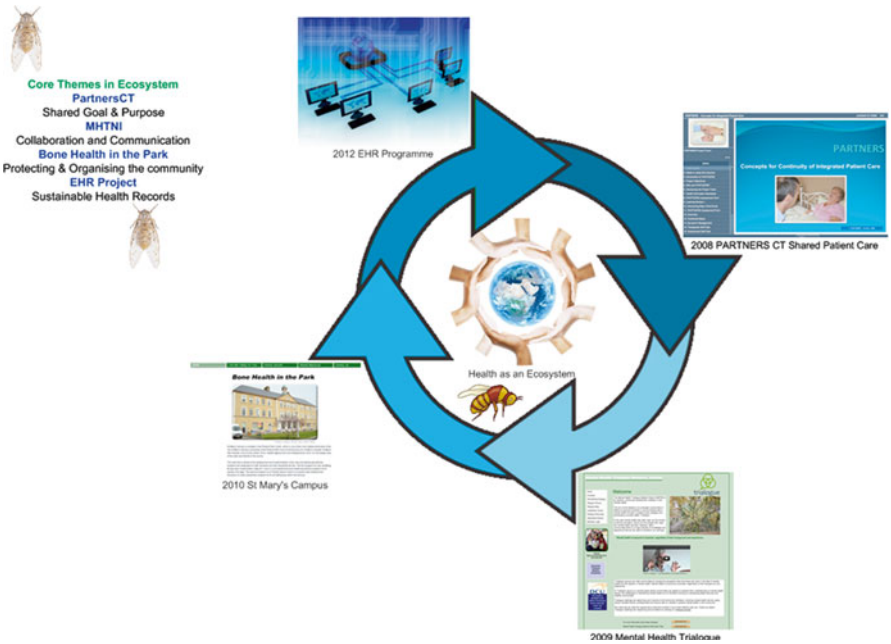

Fig. 21.3 Communities of practice in action

The community of practice has evolved since this date and is now entitled PARTNERS. The PARTNERSCT study sought to examine the complex process of patient referral across acute, primary and continuing care sectors as well as ongoing assessment data collection processes on individual patients over an extended time interval. The process involved six health service providers and 18 patients over a 6 month time frame, and the tool was devised from a patient centred perspective. A key output from the study was to understand the complexity of connected health from a nursing practice perspective i.e. sharing nursing records across more than one health service provider. To achieve interoperability health informatics standards were used to guide the development process. Interoperability in this context is described as achieving communication between different technologies and software applications for efficient, accurate, and sound sharing and of data. This communication process included two components (1) the data is understood at a computing level and can be transmitted across different service providers – computer science (2) Once data is received it is legible and fit for purpose – information science. To deliver on both of these components health informatics standards are required.

Health informatics standards which are discussed in detail in Chap. 7 offer a set of rules, regulations, guidelines, and definitions with technical specifications to make the integrated management of health systems viable at the computer and information science levels [10].

Health informatics standards were therefore viewed within the PARTNERS study as a set of guidelines to direct the development work. The PARTNERS team

considered the standards as *Models of Thought* created by health informatics experts to assist practitioners engaged in such studies to steer through the development process in an incremental and co-ordinated fashion. These Models of Thought offered the practitioners a set of labels to reference their ideas, increase understanding whilst informing the discussion. As this project was part of a PhD study, an action research design was adopted. Dymek's Action and Sense Making Model (2008) was used to assist the group to develop a shared *Model of Meaning*. This resulted in a set of agreed concepts and terms to be used by the nurses in the prototype patient assessment and referral tool which was agreed to be piloted over a 6-month duration [11], argues that adapting existing frames with new emerging work practices is the first step of an action cycle. In many instances this approach requires a fundamental change in organisation's thinking and the implementation process requires change at a schemata level. By linking this course of action with informatics, Dymek (2008), provides a key component for the development and implementation of information systems [11; p. 576].

In this study, the participating nurses from different services agreed upon a set of specific concepts and terms to enable shared care of elderly patients using a shared assessment which was evaluated as fit for purpose. Using a mixed methods approach the study integrated a Community of Practice to address local challenges which were experienced by the participating nurses. The resources were published on a dedicated website and subsequently used within nursing informatics education in Ireland. Examples of this project are available to view from PARTNERSCOP website [3].

The process of developing the PARTNERs tool included capturing practice workflow activities with group participants, and mapping the process for similarities and differences in the existing respective health service providers to each other. A detailed analysis of the existing assessment documentation in each service was carried out. Early recognition that there was a great deal of overlap in the concepts and terms collected across the service was evident, however the order in which data was collected and the qualifiers used in the measurement of concepts were dissimilar, and a revised structure was agreed and piloted by all participants.

Specific educational sessions were offered on language construction using Ogden and Richards Semiotic Triangle [12], and consideration was given to using language that was referenced and standardised. The semiotic triangle which was originally conceived by Ogden and Richards in 1923 is considered a seminal thesis which has influenced the development of language upon thought particularly in regard to the science of symbolism [12]. The semiotic triangle and Freirks semantic stack [13] offered the team clarity on decision making and were used to make sense, locate, and build the assessment tool within the context of the participant's clinical practice. Figure 21.4 offers a summary of the PARTNER's activity as a process.

A key finding from the study in regard to data analysis was identifying potential health issues (Level 3 data) and one health issue identified as significant by participants was in relation to medication management. It emerged that in one specific case a number of hospital readmissions could be avoided if communications across and between services could be timelier using specific data on patient transfer. Other

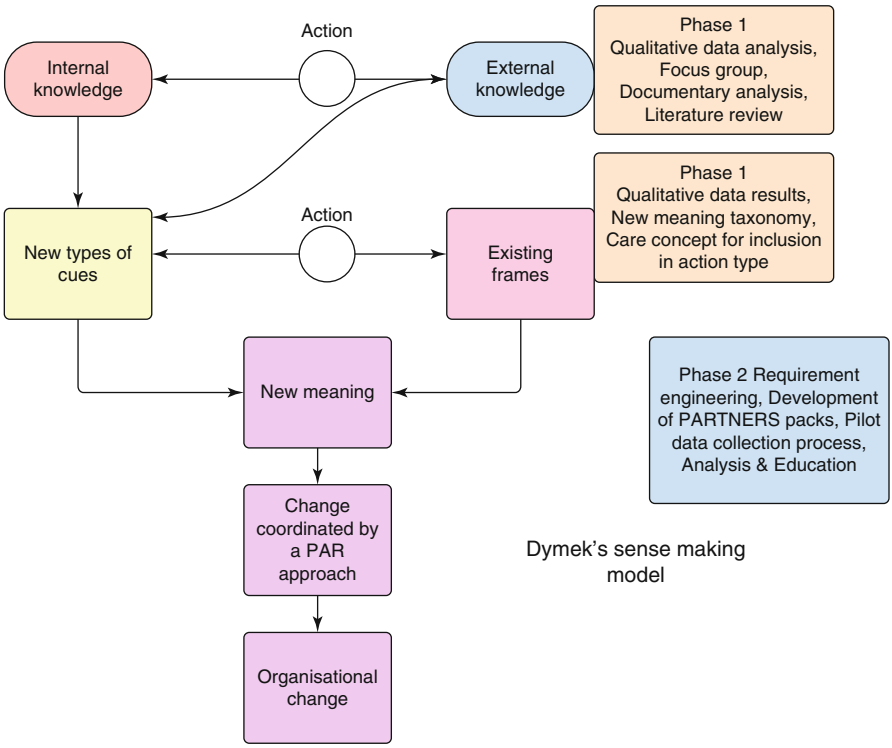

Fig. 21.4 Dymeks sense making model [11]

issues that arose related to the importance of documenting social care needs and the direct bearing such data can have on maintaining outcomes at their current status as opposed to individuals deteriorating on discharge home to the community. Figure 21.5 offers a summary illustration of the devised conceptual framework created by the participants.

Mental Health Trialogue Network

The notion of Trialogue COP is a difficult to define or gain consensus on; however, within the Mental Health Trialogue Programme (Fig. 21.6) Ireland it is described as:

> A conversation between three or more people or groups using a form of open communication known as Open Dialogue. The Trialogue uses open dialogue as a means to allow everyone to participate in the conversation [14]. Open Dialogue enables the creation of a common language and a mutual understanding around the given topic. There is no exclusivity or expert knowledge or power, with the diverse experiences and expressions carrying equal weight. The combined expertise is taken on board by all in the Trialogue and together they create a shared reality that is mutually acceptable and accessible to all.

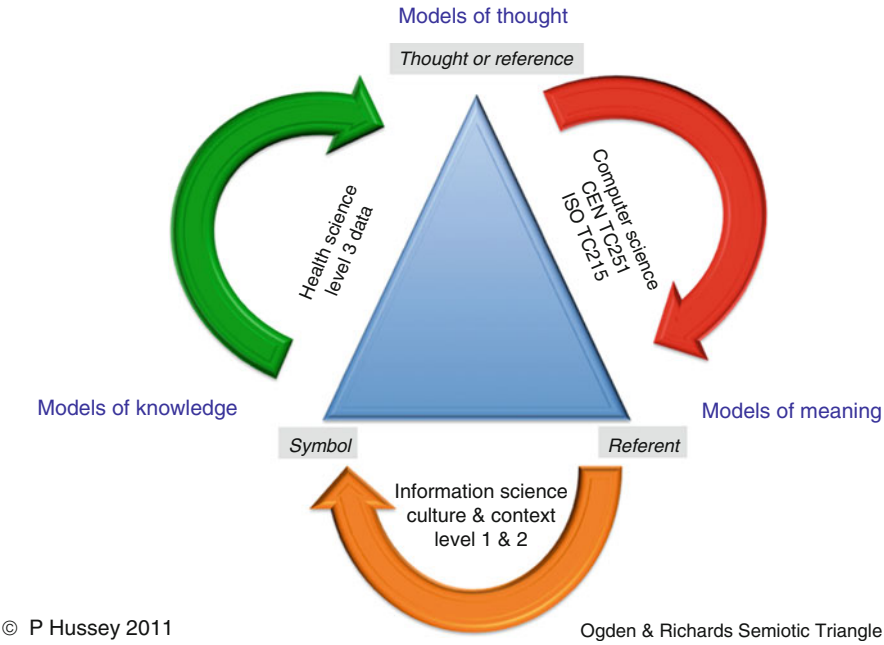

Fig. 21.5 PARTNERS conceptual framework

Fig. 21.6 Mental Health Trialogue

Led by Dr Liam MacGabhann, a practicing mental health nurse and lecturer from Dublin City University, Ireland, the core purpose of this community of practice is to empower local communities within Ireland to become more proactive in Open Dialogue and a participatory process. The focus to date has been to examine national policy in relation to mental health service delivery and to discuss the issues that impact directly on local communities within Ireland. Trialogue relates to three differing perspectives in this instance the perspectives of the service user, the community and the health care professional. Since its inception this community of practice has evolved to have a number of European and International partners. The web site URL is accessible from http://www.trialogue.co [5]. Recent statistics from the website indicate over 35,000 hits since February 2012.

Bone Health in the Park

The second community of practice is Bone Health in the Park (http://www.bonehealth.co) [6] and is situated in St Mary's Campus, Dublin, Ireland – this care facility is the largest care provider for older persons in Ireland (Fig. 21.7). This COP is led by Daragh Rodger an Advanced Nurse Practitioner in care of the older adult and health promotion. There are currently two care initiatives emanating

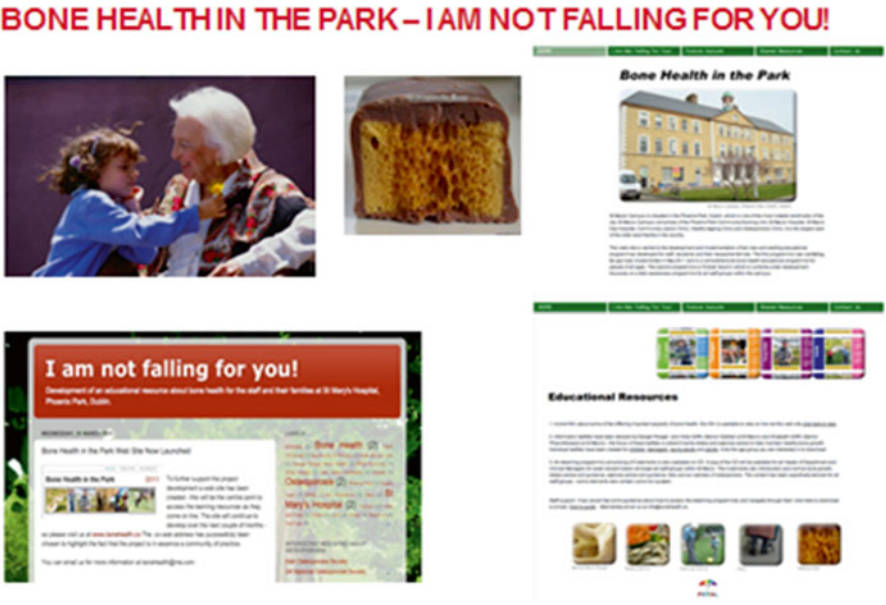

Fig. 21.7 Bone Health in the Park

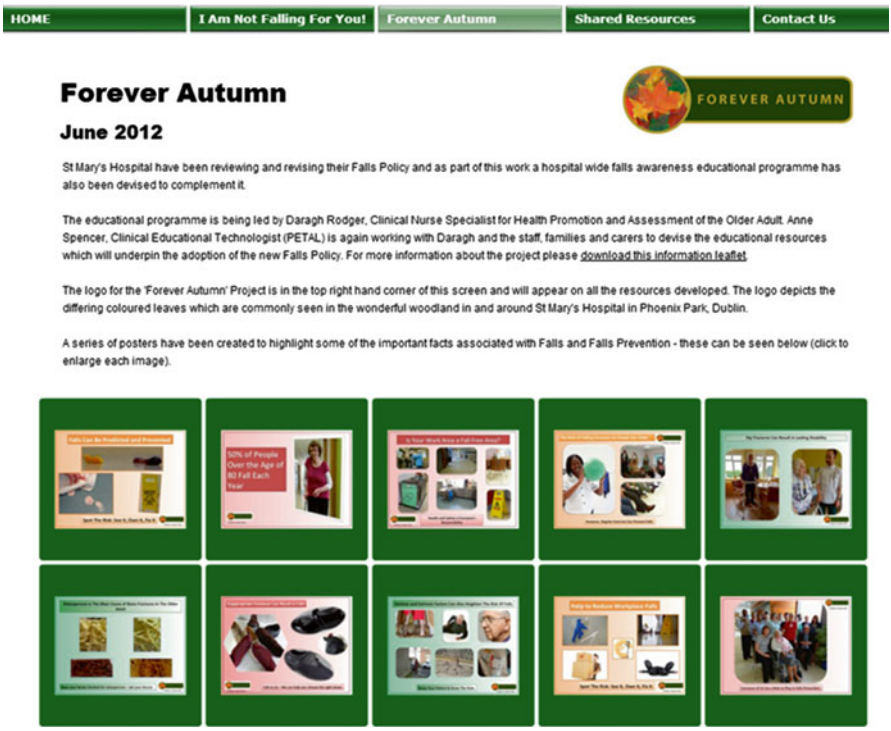

Fig. 21.8 Forever autumn

from this COP. The first is entitled 'I am not falling for you!' and is a proactive approach involving key stakeholders to advocate and promote the importance of maintaining bone health throughout life (with a particular focus on osteoporosis). The principle objective is to ensure that all patients, caregivers, staff, and their families are better informed about the importance of maintaining general bone health throughout life from a toddler to old age; this includes differing lifestyle choices in relation to both diet and exercise. It is envisaged that an understanding and appreciation of these will contribute to a reduction in the number of falls related bone injuries.

The second element to Bone Health in the Park is 'Forever Autumn' an initiative to increase falls risk awareness amongst all clinical and non-clinical staff in St Mary's and to introduce a new falls risk assessment tool whilst informing staff about the revised Hospital Falls Policy.

In the last year the web site has received 28,000 hits (Fig. 21.8). In March 2014, both I am not falling for you! and Forever Autumn have been recommended for deployment nationally.

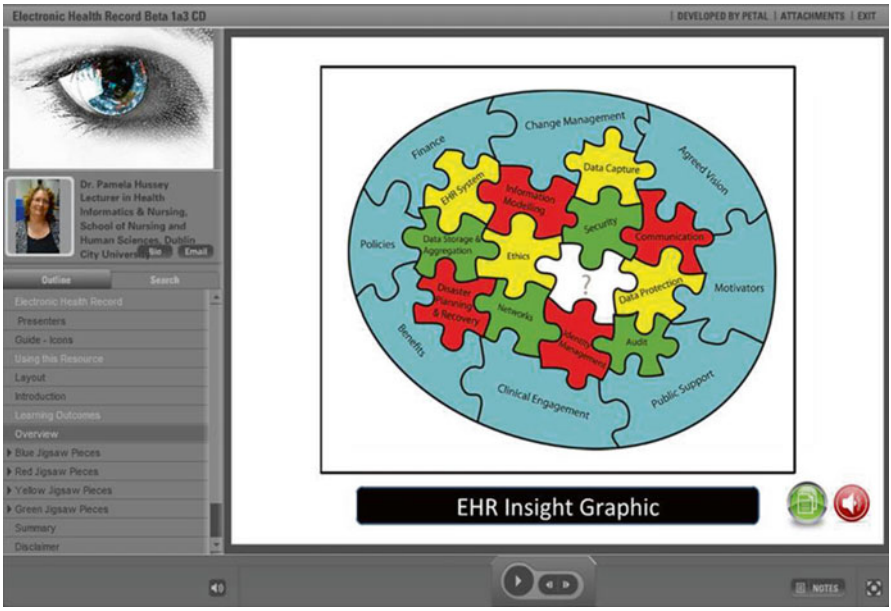

Fig. 21.9 EHRInsight

EHRInsight

The EHRInsight Community of Practice (more information about this COP is available at http://www.petal.ie [4] was devised in 2013 by academics across a number of institutions in Dublin. This open source resource has been designed specifically for the education and training of student nurses, engineers and computer science students and is intended to be used as a primer for understanding electronic health records in context (Fig. 21.9).

The Electronic Health Record often described as the heart of any health ecosystem is at varying degrees of implementation globally. In many OECD countries significant investment has been made on national deployment of electronic health records but the vision for clinicians has yet to be fully understood or indeed embedded into the practice setting. Recent evidence suggests that there is a move away from large monolithic centralised EHR delivery to a more localised development approach. Localised development programmes can be implemented in an incremental way with more focussed clinical engagement based on service needs to achieve meaningful use.

In 2012 a group of academics from Dublin Institute of Technology in Kevin Street (Dublin), Trinity College Dublin and Dublin City University opted to create a resource for students on electronic health record. The resource was designed

specifically for use with both undergraduate and postgraduate students from across a number of disciplines including health informatics, nursing and computer science and engineering. Key design principles were to devise an introduction to EHR and its variants and to make evident to the viewer EHR scope purpose and function. The resource is intended as an introductory piece and includes critical factors identified from the literature, which are considered important for future national or regional implementation of EHR. Some of the sections of this resource are at differing stages of development as is the knowledge base on EHR implementation nationally and internationally.

Discussion

Nursing and its future use of technology within the scope of healthcare needs to be managed carefully and strong leadership is now required. In this edition Chaps. 16 and 17 have identified the importance of education on informatics, and the training of nurses on information and communication skills. Delivery of such skills and understanding will enable nurses to protect not only the profession of nursing but also the health Ecosystem which is increasingly under threat and the individuals who use this ecosystem. Much is written reporting nurses as knowledge workers in eHealth care who through a process of assimilation convert data to information – information to knowledge and with experience, convert knowledge in context to progress the profession [15]. By considering health as an ecosystem and comparing health to the natural ecosystems of bees offers for instance presents us with a space to reflect and consider ourselves as knowledge workers in a dynamic global environment. Experiences discussed in this chapter and the evidence reviewed would suggest that communities of practice are a sensible approach to adopt [17].

Education, particularly in nursing informatics is a key requirement and should underpin all undergraduate and postgraduate programmes. It is for this reason that this chapter and other chapters in this book have integrated differing multimedia and interactive resources including screen casts and web sites that may be used as a springboard for further education and training in informatics competencies.

Two other emerging communities of practice for 2014 which are still within their relative infancy are firstly ENS4Care – this European project is a thematic network comprising of six work packages with the main aim of developing evidence based guidelines for the implementation of ehealth services in nursing and social care (http://www.ens4care.eu/) [18]. Secondly ISHCA is being developed by a team of practitioners in St Mary's Hospital, Dublin this is an acronym for Implementing and Supporting Holistic Continence Awareness and more information is available from the web site at http://www.ishca.net [19].

Downloads

Available from extras.springer.com:

Educational Template (PDF 90 kb)
Educational Template (PPTX 127 kb)

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