Deliverable No. 16.1

Plan for education and training in p-medicine

Grant Agreement No.:   270089

Deliverable No.:   D16.1

Deliverable Name: Plan for education and training in p-medicine

Contractual Submission Date: 31/01/2012

Actual Submission Date: 31/01/2012

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

COVER AND CONTROL PAGE OF DOCUMENT	
Project Acronym:	*p-medicine*
Project Full Name:	From data sharing and integration via VPH models to personalized medicine
Deliverable No.:	D16.1
Document name:	Plan for education and training in p-medicine
Nature (R, P, D, O)[1]	R
Dissemination Level (PU, PP, RE, CO)[2]	PU
Version:	4
Actual Submission Date:	31/01/2012
Editor: Institution: E-Mail:	Danny Burke ecancer danny@ecancer.org

ABSTRACT:

This deliverable is a plan giving detail about the education and training resources and activities that will be provided to support the p-medicine project. These resources will be available for internal and external training and will take into account the learning outcomes expected for the different audiences involved. The plan details how the effectiveness of the learning resources will be ensured and how the project partners and other external organisations will be involved in this process.

KEYWORD LIST: Education, training,

---

[1] **R**=Report, **P**=Prototype, **D**=Demonstrator, **O**=Other

[2] **PU**=Public, **PP**=Restricted to other programme participants (including the Commission Services), **RE**=Restricted to a group specified by the consortium (including the Commission Services), **CO**=Confidential, only for members of the consortium (including the Commission Services)

MODIFICATION CONTROL			
Version	Date	Status	Author
1.0	12/01/12	Draft	Danny Burke
2.0	23/01/12	Draft	Danny Burke
3.0	30/01/12	Draft	Nickolas Forgo
4.0	31/01/12	Final	Danny Burke

List of contributors

- Danny Burke, ecancer
- Marie-Luise Christ-Neumann, Fraunhofer IAIS
- Anuj Sharma, Biovista
- Nickolas Forgo, LUH
- Eftychia Lekka, Biovista

Contents

1. Executive Summary

This document outlines the education and training strategy of the p-medicine project. It outlines the differing types of resources that will be provided and defines the overall educational ethos.

The plan contains details of the overall educational objectives and key educational principles of the project as well as discussing how these will change with the different audiences. The plan contains details of how to identify and develop the different educational resources needed including eLearning, internal workshops and an external summer school. Finally the plan lays out a plan for dissemination of these educational resources by using the existing audience of ecancer.org.

2. Introduction

The purpose of this document is to plan the educational strategy and delivery for the p-medicine project. Tools developed within p-medicine will only be useful in the real world if the appropriate educational resources are supplied alongside, ensuring that the tools are used appropriately and effectively to deliver maximum benefit for their users.

2.1 Educational objectives

All educational activity within p-medicine will be designed and executed to contribute to the overall educational objectives of the project. These objectives are to:

- Support the activities and tools of p-medicine

- Broaden the pool of competent users

- Ensure continued support for those users

- Create key educational partnerships to ensure the sustainable success of p-medicine

- Provide a framework to meet future educational needs as they evolve

2.2 Key educational principles

The educational resources supplied within p-medicine will follow the four principles of good continuing medical education (CME) practice as defined by the European Good CME Practice Group [1]:

- Appropriate education

- Balance

- Transparency

- Effectiveness.

To ensure that the education is appropriate, we will identify clear learning objectives which are communicated to the learner. Learning objectives will be tailored to each of the learner groups and the differing levels of existing knowledge within these groups. All content will be designed with the learning objectives in mind and to best effect sustained change in clinical practice or to reinforce good behaviour as appropriate.

Balance will be achieved by ensuring that all content reflects the full clinical picture, is fair and unbiased and that all legal and ethical issues are clarified and addressed. All content will be reviewed internally, by p-medicine reviewers, and externally, by an independent party, with user feedback actively encouraged and external accreditation will be sought where possible.

To achieve transparency there will be full disclosure of all funding sources, faculty and organisations involved in the design process and of any conflicts of interest. The p-medicine tools must be trusted resources for all the stakeholders therefore complete transparency is vital.

(1) http://www.gcmep.eu/

Effectiveness will be ensured through a comprehensive testing process carried out by ecancer as well as post activity evaluation of satisfaction, monitoring of knowledge uptake and behaviour change as appropriate with additional educational support and resources supplied as required. Post activity follow up will measure effectiveness against the learning objectives identified at the beginning of the learning activity and against the appropriate level in the CME outcomes framework as defined by Moore et al [2]. The p-medicine tools will be new within the medical community therefore levels 3A declarative knowledge, 3B procedural knowledge and 4 competence will be appropriate in the majority of situations. Demonstrating the effectiveness of the p-medicine tools to impact on higher levels would be desirable in the long term, but will be unachievable in the duration of this project.

2.3 Key audiences

The key external audiences of p-medicine as defined in D2.2 are:

- Healthcare providers
- Patients
- Researchers including lawyers, ethicists and IT professionals
- Clinical research organisations

An additional audience is included for education and training, that of

- Internal project members

Each of these audiences has differing educational needs that will be identified and fulfilled for each of the educational resources as appropriate.

(2) Journal of continuing education in health professionals – 29(1), 2009

3. eLearning

The p-medicine tools will be internet based and therefore it is appropriate that eLearning materials are produced to support the users of these tools. eLearning tools have many benefits for both the individual user as well as the educational supplier as resources can be self-paced, cost effective, consistent, easy to update and can be accessed from anywhere at any time.

3.1 Identification of required resources

eLearning tools will be developed for 'every tool and service developed in p-medicine'; as the project develops and tools amalgamate into each other and diversify from each other, this list will evolve. To ensure that all project partners' expectations are met, a survey will be distributed to all partners in month 15 to identify which tools and services will require educational tools, the expected target audience of the tools, how any tools will interact across the p-medicine environment and any existing educational resources.

3.2 eLearning content development

Process of eLearning content development[3]:

Analysis → Design → Develop → Implement → Evaluation
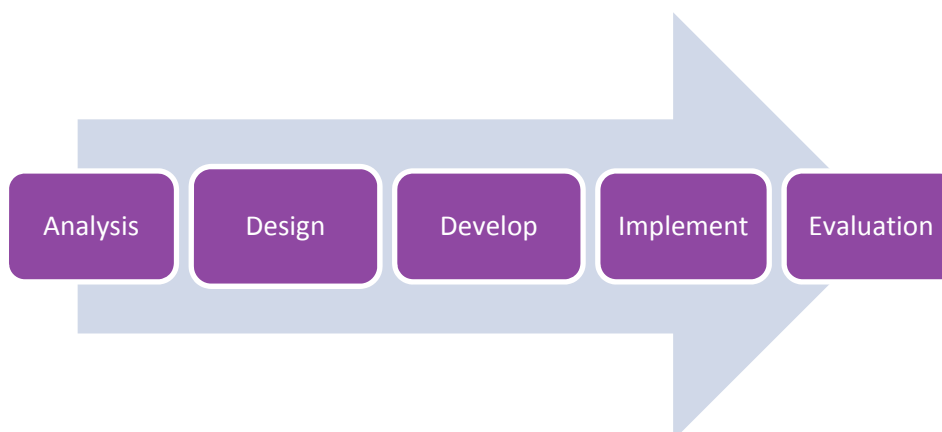
3.2.1 Analysis:

For each eLearning tool we will the tool developers to identify the learning problem for each user group, the audience's needs, existing knowledge, and any other relevant characteristics needed to define the learning objectives. We will also consider the learning environment, any constraints, the delivery options, and the longevity of the resources. Throughout this process we will work closely with WP2 as they progress through the process of identifying and finalising the EUN (end user needs) for each user group. We will ensure all eLearning tools comply with these needs.

3.2.2 Design:

From the learning objectives defined in the analysis stage, we will work in partnership with the tool developer to the most appropriate format, the overall structure and any key elements within that structure such as practice versions of the tool supplied with dummy data. Beta versions of the tools will be developed for internal review ensuring accuracy and consistency with the p-medicine environment for elements such as taxonomy, look and feel etc.

(3) ADDIE model (Systemic design of instruction) – Re-modeled by Dick and Carey (1996).

3.2.3 Develop:

During the development phase we will work closely with WP15 utilising the joint evaluation activities from task 15.3 where novice users from the respective user groups evaluate the p-medicine tools. Beta versions of the eLearning tools will be provided alongside the beta versions of the p-medicine tools, analysis of the user interactions as well as questionnaire results will allow us to identify improvement recommendations.

3.2.4 Implement:

During implementation the eLearning resources will be delivered for the p-medicine environment. The tools will be hosted on www.ecancer.org and will be signposted from within p-medicine. Targeted groups will be invited to use the tools in their natural environment to ensure usability needs are met and that effective knowledge transfer is achieved.

3.2.5 Evaluation:

This phase consists of (1) formative and (2) summative evaluation. Formative evaluation will take place at every stage of the ADDIE model giving internal partners as well as external user groups the opportunity to input to the development of the tools. Summative evaluation gives real life users opportunity to give feedback and will give the opportunity to monitor educational outcomes on a continuous basis. This process will identify any continued learner support that may be required and implement and signpost any additional learning resources as necessary. Revisions to the learning materials will be made as necessary.

4. Internal training workshops

Two training workshops will be held at appropriate points of the project and will be held in conjunction with consortium meetings. The first of these will be held after the initial version of the workflow integration tools is finalised, which is expected to be at the beginning of the third year of the project, the second workshop will be held at the final consortium meeting. These workshops will be internal training opportunities and will also be used as a forum for evaluation and validation of the p-medicine environment in collaboration with WP15. Active participation in these workshops will be encouraged for all partners.

In addition to these face-to-face workshops there will be a series of remote evaluation and progress discussions that will input to the planning and design of educational activities as well as the continuous education of project partners.

4.1 Workshop

4.1.1 Workshop objective

The rationale for these workshops is that partners require a focussed event to be trained on the p-medicine environment as a whole. Therefore the objective of these workshops is to:

> Ensure understanding and proficiency for all project partners in all the tools and services within p-medicine

> Help build a knowledge framework where partners are proficient 'p-medicine champions' in the wider scientific community

4.1.2 Key considerations

- **The external personalised medicine environment**: Partners will learn about the latest developments in personalised medicine and how the p-medicine project and its tools fit into this environment and the impact they can expect to make.

- **The tools and services of p-medicine**: All attendees will be trained on each of the tools and services provided within p-medicine. Learners will see the working tools, learn how they will support users in real world settings and know where to find additional educational support as required.

- **Peer to peer learning**: The partners attending these sessions will be the developers who have designed the tools therefore peer to peer learning will be encouraged and supported both at these workshops and beyond.

- **Sustainable learning**: The workshops are limited by time but teachings will be ensured longevity by creating a peer and expert support network which will be hosted on ecancer.org and will give students and experts the opportunity to communicate about any future needs.

4.1.3 Training methodology

Learning will be achieved through presentations from p-medicine experts as well as through smaller group work where learners are encouraged to interact

and learn from each other. Group work will involve case studies with dummy data, where participants will be able to work through key scenarios.

# 5. Training on the literature-based discovery platform

The literature based discovery platform consists of multiple tools which together are referred to as the COSS (Clinical Output Search Space) platform. Each tool provides different functionality, together allowing complex discoveries to be made. The tools forming a part of the COSS platform are built in the Java technology and use a service back end allowing them to be used anywhere once the frontend client has been downloaded. One or more training teleconferences will be held at during the project to explaining the basic concepts and usage of tools making up the platform. In the subsequent sections we present objectives and outlines of these teleconferences.

5.1 Introductory teleconference (M24-M36)

In order to effectively use the platform it is important the users have an understanding of the basic concepts of the platform. This involves explaining the following concepts

⚴ Literature mining can be used to extract relationships between biological concepts

⚴ Relationships between biological concepts stored in relational database can be used by build tools that allow predictions to be made about a patient

The objective is to establish in the mind of the users an understanding of the relationship represented by the following figure
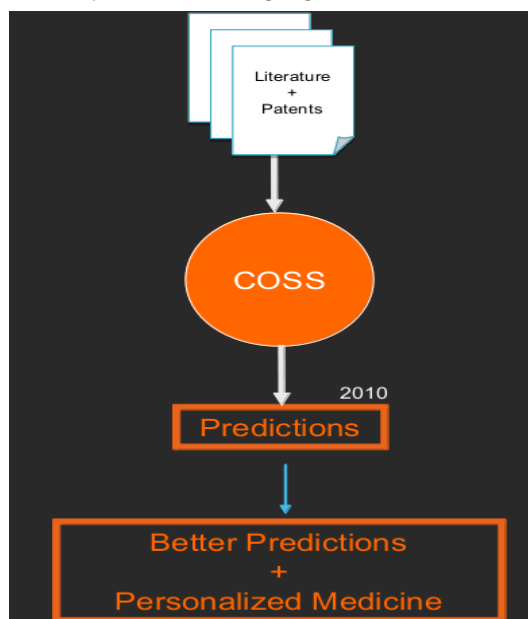
The second part of the teleconference would consist of explaining how to perform basic operations such as

⚴ Finding biological concepts related to a give biological concept using the tool

⚴ Finding & viewing literature evidence supporting relationships between biological concepts.

5.2 Advanced usage teleconference (M36-48)

The second teleconference will cover the tool in greater detail and provide the user with the ability to realize more advanced concepts of literature-based research. The material covered will include

- ⚑ Obtaining overview of literature supporting biological concepts and their relationships using different parts of the tools
- ⚑ Step-by-step usage of combination of actions supported by the tool for answering open ended questions about a biological concept of interest.
- ⚑ Usage of molecular docking simulations tools and how they can be used in conjunction with literature based data to uncover previously unknown relations between biological entities.

The conference will focus on detailing advanced actions possible with literature based tool but will also provide a preface into tools and methods that involve use of molecular docking simulations.

6. School for translational research

6.1 ecancer and Eurocanplatform

ecancer is a partner in another FP7 European project called EurocanPlatform[(4)] which has been set up in response to a call to improve collaboration between basic/preclinical and comprehensive cancer centres (CCCs), institutions in which care and prevention is integrated with research and education. Furthermore, the project will create a platform of interlinked cancer centres with shared infrastructures and collaborative projects to facilitate rapid advances in knowledge, and their translation into better cancer care. The CCCs involved in EurocanPlatform are all opinion leaders in their country or region and therefore, represent the perfect dissemination partners for the p-medicine tools. EurocanPlatform is unique in its nature and represents a commitment from cancer centres to join forces and resources in order to fight cancer.

6.2 School

A school will be set up alongside EurocanPlaform's annual meeting in December 2013.

6.2.1 School objective

The purpose of this school will be to introduce the p-medicine tools to key audiences, demonstrate their effectiveness and strengthen the capacity of attendees to train colleagues at their institutions and organisations

6.2.2 Key considerations

- **Top level science**: Presentations of the latest research and developments delivered by experts in their field.

- **Proactive**: Attendees will 'learn by doing' with support from the ecancer team and other key p-medicine team members as appropriate

- **Responding to individual needs**: Trainers should respond to the differing needs of each individual which will very across institutes and organisations

- **Sustainable**: The school is limited by time, however by creating a support network of trainers, a defined timetable of future support and signposting additional resources the impact of the training can be maintained.

(4) www.eurocanplatform.eu

6.2.3 Target audience

Key personnel from each of the 23 CCCs as well as from the other organisations involved in the EurocanPlatform project; ECCO (European CanCer Organisation), OECI (Organisation of European Cancer Institutes), ECPC (European cancer patient coalition) and EORTC (European organisation for research and treatment of cancer.

6.2.4 Training methodology

Learning will be achieved through presentations by experts as well as through smaller group work. The presentations will contain background information, expected medical benefits and demonstrate key effectiveness areas of the p-medicine tools. The group work will involve case studies with dummy data, where participants will be able to work through key scenarios, and 'train the trainer' sessions. During evaluation sessions participants will be encouraged to make recommendations for future sessions.

6.2.5 Continued learner support

Attendees at the school will become 'p-medicine champions' at their respective institutes and organisations. On-going support will be provided on ecancer.org with an online peer-to-peer support area, additional learning resources and additional 6-monthly webinars.

6.3 Additional target groups

*e*cancer will approach other appropriate organisations with the p-medicine school model. We have existing educational relationships with the European School of Molecular Medicine, the Young European Oncologists Society and the Joint Royal Colleges of Physicians Training Board who will be our first targets, further key approaches will be agreed in collaboration with WP17 (Exploitation and Dissemination).

7. Mount all materials on ecancer.org

*e*cancer is a leading oncology channel committed to improving cancer communication and education with the goal of improving patient care and outcomes. By using the latest technologies *e*cancer works closely with leading oncologists to inform and educate the global cancer community.

7.1 *e*cancer and OECI

*e*cancer is the official digital media partner of the OECI who represents 73 cancer Institutes across Europe. In terms of bed capacity, treated patients, research and medical staff the OECI is the biggest cancer organisation in Europe. The OECI encourages the transfer of knowledge and information across its members, to help support new and better cancer treatments, provide more comprehensive care and improve patients' quality of life. Availability of the tools will be promoted through this relationship to all OECI institutes.

7.2 *e*cancer audience

Mounting the teaching materials on ecancer.org will allow them to have as wide an audience as possible within the cancer community as the website receives 40,000 visitors per month from the various disciplines within the world of cancer. We have 7,000 subscribed users who will also be informed of the availability of the educational resources through our monthly newsletter.

Visitors by discipline

■ Medical Oncologist   ■ Surgeon   ■ Clinical Oncologist   ■ Research Scientist
■ Industry   ■ Radiation Oncologist   ■ Cancer Nurse
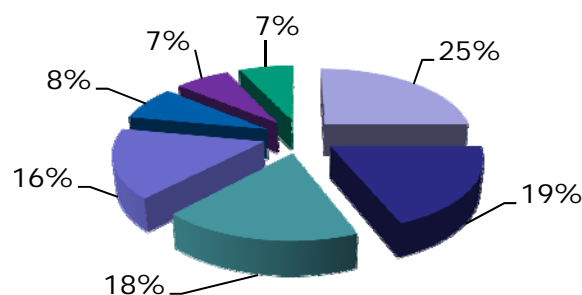
7.3 P-medicine within *e*cancer

All materials will be hosted within a dedicated area within the *e*cancer education section. The p-medicine area will have a specific and meaningful url to allow direct access to the tools.

8. Conclusion

By following the steps outlined in this plan the p-medicine project will have all of the education and training resources required to ensure all user groups are confident, competent and effective users of the p-medicine tools and services. All resources will be created with end learning objectives as the focus and will be delivered as appropriate through face to face workshops and summers schools as well as remotely through elearning. Training and education is a continuous exercise and all plans will be made with the on-going success of the p-medicine project in mind allowing for educational resources and support to be available to the wider cancer community after the project has ended.

Appendix 1 - Abbreviations and acronyms

SOA   Service Oriented Architecture

CME   Continuing Medical Education

EUN   End User Needs

CCC   Comprehensive Cancer Centres

ECCO   European CanCer Organisation

OECI   Organisation of European Cancer Institutes

ECPC   European Cancer Patients Coalition

EORTC   European Organisation for Research and Treatment of Cancer

COSS   Clinical Output Search Space