

## **Training Programme: Ten Easy Steps on How to Improve Care Pathways using Health Informatics and Data**

### **Background**

Connected Health Cities (CHC) is the first programme in the UK that has implemented a series of Learning Health System projects over four Northern UK regions. CHC unites local health data and advanced technology to improve health services for patients across the North of England. By working with patients, health practitioners and experts in digital health, CHC delivers research that is relevant, effective and that has a real impact on public health.

### **Audience**

This programme is aimed at healthcare professionals, researchers and industry and charity professionals who to use digital health to enhance their practice.

### **Programme Description**

We will explore the role of data, methods and people in improving care pathways, with an emphasis on current issues defined through the CHC programme. The course is led by health problems rather than technologies or organisations, setting the direction of translational thinking that healthcare professionals and researchers need to take when turning data into knowledge and knowledge into practice.

Through our own Connected Health Cities programme examples and case-studies we will provide the attendees with a practical toolkit on how to improve care pathways starting with gaining access to the dataset to how to disseminate results in an impactful manner.

The programme aims are to:

- Look at each of the key steps in relation to data-driven improvement of a care pathway
- Provide attendees with the key skills required to improve the care pathways in the new and changing health economy.
- Emphasise the importance and role of data, technologies and people in patient-driven healthcare.
- Embed key principles and concepts whilst developing their practical application.

Programme Intended Learning Outcomes:

Category of outcome	<i>Attendees will be able to:</i>
<b>Knowledge and understanding</b>	<p><b>K1.</b> Have knowledge and understand the uses of data and information in the healthcare system to drive improved quality of healthcare</p> <p><b>K2.</b> Understand the particular opportunities and challenges in driving digital transformation to improve care pathways</p> <p><b>K4.</b> Understand how the design and use of health informatics systems has an impact on clinical care</p>
<b>Intellectual skills</b>	<p><b>I1.</b> Theoretical underpinnings of identified health informatics key issues for learning health systems and improving care pathways.</p> <p><b>I2.</b> Critically think, analyse and evaluate healthcare systems, in relation to the identified core issues</p> <p><b>I3.</b> Recognise problems and devise appropriate solutions</p> <p><b>I4.</b> Justify principles and methods used in health informatics work</p>
<b>Practical skills</b>	<b>P1.</b> Apply theories and concepts to case-studies.
<b>Transferable skills and personal qualities</b>	<b>T1:</b>

## **Topic 1: What does it take to get the data for care pathway improvement?**

### **Aims and Objectives:**

In this one day workshop we will take you through the first planning stage of the process of data-driven improvement of a care pathway. This will cover the process from the early stages of understanding the data landscape, designing a study, getting people involved and gaining access to the data. By the end of the day, you will have a clear understanding of how to design a data-driven project so that you begin with a realistic and workable proposal and design.

The objectives are:

- Look at how to identify a measurable and achievable data-driven improvement strategy
- To understand and map the processes involved in obtaining access to data sets across organisations
- To identify who will be involved and how to build up
- To identify barriers and facilitators that you can expect along the way

### **Content:**

1. What do you want to achieve?
  - a. Understanding your own aims and objectives
  - b. What type of project are you designing?
  - c. What data will you need to obtain?
  - d. Shrinking your dreams to fit reality
2. Identifying the stakeholders
  - a. Understanding their aims and objectives
  - b. What type of project are they expecting?
  - c. Negotiating their dreams to fit reality
3. Getting access to the data sets
  - a. An overview of the stages of the process:
  - b. Finding out what is out there
  - c. What does it take?
  - d. What is an AGILE approach?
  - e. How long does access take?

Potential contacts: Steve from SILVER

4. Building trust and networks to share data sets
  - a. How do you draw in and build trust and commitment?
  - b. Building links - e.g. CCGs, regional managers, NHSD

Potential contacts: John McGovern, Lancaster, AIMES

Clinicians who were involved in process

5. Information Governance

a. What's the process, timeline, hurdles and success strategies?

Contacts - Emily Griffiths What are the barriers to getting data and how do you overcome them?

6. Making your own plans

Potential Contacts: Mike Pearson (COPD lead)

## **Topic 2: The highs and lows of Information Governance in gaining access to health data**

### **Aims and Objectives:**

In this one day workshop we will introduce you to how information governance relates to each part of the process of using data for improvement of a care pathway. This will cover the process from the early stages of understanding the data landscape, designing a study, getting people involved and gaining access to the data.

The objectives are:

- Look at how to plan an information governance strategy from the beginning of the project
- To understand and map the processes involved
- To identify who will be involved and how to build up an IG relationship
- To identify a realistic timeline
- To identify barriers and facilitators that you can expect along the way
- To apply the knowledge to worked cases.

### **Content:**

**This workshop (led by Emily Griffiths and Clare Sanderson) will cover:**

1. Scoping and landscaping (1): Who and Why?
  - a. Who are your stakeholders? Which organisations will be processing data?
  - b. What are the risks? What are the benefits?
2. Scoping and landscaping (2): What and How?
  - a. What data needs to be collected and/or shared?
  - b. How will it be kept safe?
3. What exactly do people mean by
  - Consent
  - Pseudonymisation
  - Processing
  - Metadata
  - Disposal
4. What do different organisations have to do? e.g. NHS, university, private company
  - a. What approvals do I need?
  - b. Who is involved?
  - c. What are the special considerations for secondary usage of routinely collected health data?
5. Riding the rollercoaster of requirements:
  - a. How long does it take?
  - b. What does a realistic workflow look like?

- c. What are the barriers I won't expect?
  - d. Identifying useful templates for the process
- 6. Revisiting the management plan
  - a. What have I forgotten?
  - b. What do I need to adapt?
  - c. What if the goal posts have shifted?

### **Topic 3: The human element in building networks and maintaining involvement**

#### **Aims and Objectives:**

Your team and continued involvement is one of the key predictors of achievement or failure in a health improvement initiative. This one day workshop will take you through the skills and science of how to identify and work with the key players, from the planning stage of the process of data-driven improvement of a care pathway through to the running of the project. In a changing work force where staff are constantly leaving, the essential skills of resilience and team science will be discussed.

The objectives are:

- Look at how to identify the key individuals
- How to draw in and create buy in from individuals across organisations from health and technological disciplines
- To understand team science and how it applies to your multi professional team
- To identify barriers and facilitators that you can expect along the way

#### **Content:**

This workshop aims to show:

How do you draw in and build trust and commitment throughout the project?

Setting up the idea

Identifying stakeholders

Building links - e.g. CCGs, regional managers

Obtaining buy in

Team science – how do you build a team and run a team

Resilience to change

Co-design PPI – methods (BRIT, SILVER)

## **Topic 4: A clinician's guide to establishing a data set**

### **Aims and Objectives:**

This one data workshop looks at the processes you need to perform to be confident with a dataset. Aimed at health and social care professionals not usually involved in big data, this day gives a basic technological introduction to understand the process of what the technological and statistical experts will need to do with you to establish and produce the data in a palatable form.

The objectives are:

- Look at how to understand what is in or needs to be in a data set
- To map the processes involved in understanding the data sets across organisations
- To identify who needs to be involved and what information they will need from you
- To identify barriers and facilitators that you can expect along the way

### **Content:**

Cleaning data

Establishing clinical trust in data set

Establishing how clinical coding effects identification of cohort

Identifying specific clinical cohort - barriers, complications and strategies

Defining algorithms for each specialty

What does this involve?

How do you do it?

What can you build on/share? eg BMJ paper, other clinicians work

Keith B, Mike P, Tony M, Pete D (data analyst)



## **Topic 5: A health professional's guide to using data sets**

### **Aims and Objectives:**

This one data workshop looks at the processes you need to perform to be confident with understanding and using a dataset to achieve your improved care pathway. Aimed at health professionals not usually involved in data, this day gives a basic technological introduction to understand what the technological and statistical experts can and can't do with your data.

The objectives are:

To understand what you can understand from different data

To understand the potential and imitations of data sets

To explore different applications of how data can be used

### **Content:**

What can raw data tell you?

E.g. can you Link inpatients and outpatient data

How can you define care pathways?

Identifying "good" and "bad" journeys

Can you link to clinical notes?

Clinicians and Pete

## **Topic 6: From data to improvement: Deriving insights from your data**

### **Aims and Objectives:**

This one data workshop looks at moving forward from data to action. Aimed at health professionals not usually involved in big data, this day gives methodologies and examples of how to apply the results of your data analysis to generate action.

The objectives are:

1. To be able to understand how to interpret results from data analyses such that you generate action.
2. To compare a variety of different approaches to see the benefits and limitations
3. To discuss cases-studies to illustrate questions that arise when looking at health data
4. To patterns of data that will help define development of services

### **Content:**

We will use three key case-studies to illustrate three key questions that arise when looking at health data.

Three clinical case studies

Epilepsy - CPOD - Alcohol/liver

Using data to identify hotspots for admission

Looking at patterns that will help define development of services for eg better engagement of patients/better use of resources

## Topic 7 Evaluation Masterclass

### Aims and Objectives:

The aim of this session is to provide participants with a toolkit for embedding good evaluation practice through an entire project.

The learning outcomes are:

- Understand why evaluations take place
- Understand the differences between outcome and process evaluations
- Understand a range of approaches that can be used in an evaluation
- Design and plan an evaluation for a project from start to end
- Identify dissemination strategy

#### Why do we do an evaluation?

- Good time to reflect on the work produced to date.
- Often a funding requirement.
- Look at lesson learnt.
- Assess how well we have met everything we set out to do.

**Discussion:** what have been participants' experiences to date in conducting evaluations?

**Activity:** on post it notes, participants asked to write down key worries (one per post it) about designing and conducting an evaluation.

Summary of key issues fed back to class.

#### Process versus outcome evaluations

Overview of the two main types of evaluations that are used: process and outcome evaluations.

Explain the benefits and weaknesses of both types of evaluations.

Overview of how you can combine process and outcome evaluations together.

**Activity:** For each case study, which type of evaluation method would you use? Give a short explanation for your answer.

**Discussion:** group discussion of the case studies and answers from participants.

#### Data collection methods

Explain the different types of data collection methods, including the strengths and weaknesses of each one:

- Routinely collected patient/service user information
- Surveys
- Interviews
- Focus groups
- Documentary review

**Activity:** participants now build upon the last activity, adding in which methods they would use and why.

**Discussion:** group discussion of the case studies and answers from participants.

### **Logic Models and why they can be useful**

Explanation of logic models, including the benefits and weaknesses of using them.  
Walk through an example of putting a logic model together.

**Activity:** participants can work in small groups to create two logic model for a case study that will be provided.

Logic model 1. Based on the case study material

Logic model 2. Linking the methods employed to the outputs

Each group then presents their logic models to the rest of the group.

### **Embedding your evaluation from the start**

Explain where evaluations fit in in the project cycle i.e. from application stage, at the start, then throughout and finally at the end.

Walk through how this process is broken down and the use of gant charts to track progress.

**Activity:** participants work in groups to plan and design an evaluation based on a case study that will capture information throughout a project.

Participants then present their plan to the rest of the group.

### **Building in flexibility**

Hints and tips as to how to build in space to allow for unexpected

### **Q&A session: problem solving**

Opportunity for participants to ask questions based on their own experiences and/or projects.

## Topic 9: Evaluation SOS

### Aims and Objectives:

This workshop aims to equip participants with the knowledge to design and deliver a pragmatic evaluation of a project and will support you in designing and delivering an evaluation towards the end of a project. This event is designed for those who are already in the middle of a project, and realise it is time to take action. You will look at the different types of evaluation, including their pros and cons; how to select suitable methods and approaches for evaluating a project; and practical skills and tips in using evaluation methods and approaches.

By the end of each workshop, participants will be able to plan and implement monitoring and evaluation procedures in their own projects.

The learning outcomes are:

Go through the aim and learning outcomes of the session:

- Understand why evaluations are important
- Understand the difference between process and outcome evaluations
- Understand a range of approaches that can be used in an evaluation

Design and plan an evaluation for a project that has already started

### Why do we do an evaluation?

- Good time to reflect on the work produced to date.
- Often a funding requirement.
- Look at lesson learnt.
- Assess how well we have met everything we set out to do.

**Discussion:** what have been participants' experiences to date in conducting evaluations?

**Activity:** on post it notes, participants asked to write down key worries (one per post it) about designing and conducting an evaluation.

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Logic model 2. Linking the methods employed to the outputs

Each group then presents their logic models to the rest of the group.

### **Last minute evaluations: part 1**

Walk through an example of putting together an evaluation that is in the middle of a project.

Input from class: what are their suggestions?

### **Activity 1**

Participants use the skills they have learnt to plan an evaluation based on a given case study.

Each group presents their ideas back to the class.

### **Last minute evaluations: part 2**

Walk through an example of putting together an evaluation that is nearing the end of a project.

## **Topic 10: Communication for effective diffusion and dissemination of digital innovations**

### **Aims and Objectives:**

The objectives are:

- Present evidence of what makes for effective diffusion and dissemination of digital innovations
- Present case examples of improvement of a care pathway through digital innovation
- Identify skills needed for dissemination
- Identify process needed for a comms strategy

In this workshop....

Involving different trusts Adrian and Chris

Planning the dissemination from the beginning

Skills needed for dissemination

Permissions needed