Week 2: Stakeholders and gathering System Requirements

Overview

- In this programme we often talk about data and methods, but equally interesting (and tricky) are the people. **Identifying stakeholders across the pathway** and **eliciting their requirements** is a crucial step in any system development or procurement process.
- It involves a **creative** and **iterative process** that at first may appear simple and common sense. But **one of the most common reasons for systems to fail is a lack of understanding of the stakeholders**, and the impact of the system on them and their wider organisation. This highlights the importance of having well-planned procedures in place for this phase of the system development process.

Learning outcomes.
After completing week 2, you should
(1) be able to explore, capture and communicate system requirements related to patient pathways and stakeholder needs;
(2) have improved your skills to produce **visual** and **textual documentation** to **communicate patient pathways** and stakeholders and their needs in a formal and structured way.

How this week relates to your assignment
For your written assignment, you will need to:

- describe the relevant patient pathway(s) in your clinical area;
- who the stakeholders are across that pathway;
- and what their needs and expectations are.

This week, you will start thinking about these aspects. You will also learn about techniques and tools to systematically capture and formally present information about patient pathways and stakeholder requirements.

Materials and activities

Required material and activities are numbered to indicate the order in which you should ideally progress through them. For each activity, we have provided a recommended (but approximate) amount of time for you to spend on it.

2.1 Introduction to the APFT case study [60 mins]. This week, we would like to introduce our case study. It is called the “APFT Wound care management system dossier”. We will use it throughout the module to illustrate how to apply methods and techniques relevant to all the things you will learn – from identifying stakeholder requirements and modelling system

architecture, to testing and implementing a health information system. Using the same case study throughout will create coherence across the different topics and hopefully help you to connect 'the dots'.

2.2 Stage 1 in capturing stakeholder requirements [120 mins].
Capturing stakeholder requirements often happens shortly after the project initiation once the green light has been given, and can support the scoping of the project and the system. There are three stages. For each of them, there are a range of approaches, some of which we will introduce you this week. Activity 2.2 describes stage 1, which includes identifying stakeholders and consulting with them to understand the healthcare context in which you are introducing your system.

2.3 Stage 2 in capturing stakeholder requirements [60 mins]. Stage 2 regards analysing the requirements and ensuring that all requirements are clear and unambiguous.

2.4 Stage 3 in capturing stakeholder requirements [90 mins].
Stage 3 comprises of recording and presenting the requirements in a way that everybody understands and interprets in the same way.

2.5 Patient pathways [60 mins].
Patient pathways are a way of getting you to think about the whole system, rather than in organisational silos. It will help you to check whether you have identified all stakeholders.

2.6 Drawing the patient pathway diagram for your assignment [150 mins].
There are many ways in which you can draw a patient pathway, but for your assignment we recommend you use a *swimlane diagram*. Swimlane diagrams will help you to visualise the complex interactions between various parts of the healthcare system involved in the patient pathway.

Further resources.

- **APFT Wound care management system dossier**: Any Place Foundation Trust (APFT) is a healthcare organisation that provides community care. One of their services is focused on managing complex wounds. APFT would like to buy and implement a new health information system to better support patient and wound care management within that service. In this dossier, you will find information that is relevant for the procurement, testing and implementation of the new system. The dossier is a living document, which means new things will be added over the course of the module, including worked examples for the exercises we ask you to complete.

2.1 Introduction to the APFT case study

This week, we would like to introduce our case study. It is called the “APFT Wound care management system dossier”. We will use it throughout the module to illustrate how to apply methods and techniques relevant to all the things you will learn – from identifying stakeholder

requirements and modelling system architecture, to testing and implementing a health information system. Using the same case study throughout will create coherence across the different topics and hopefully help you to connect 'the dots'.

The dossier on the case study (see under 'Further resources') will grow over the next few weeks. The first parts will focus on giving you insight in the current context of the new system: the patient population, what care is delivered and who is involved, what information is recorded and where, and APFT's rationale for procurement. Subsequent parts of the dossier (to be released later) will present information on the future situation, including the vision for how the new health information system will work, and plans for implementing it.

How we will use the case study.
In each week, there will be exercises related to the case study. These are individual exercises that aim to give you hands-on experience of a specific method, tool or technique. When you have completed an exercise, we ask you to post your results in an exercise-specific discussion forum. In the week after an exercise has been released, the worked example will be available in the dossier. You can use this example to compare your own result with.

Start by reading the dossier under 'Further resources'. There is some overlap with the information that Dr Ross Atkinson provides in the first part of his interview as part of activity 2.2, so you could consider watching the interview first and then read the dossier. But we leave that up to you.

Back to summary

2.2 Stage 1 in capturing stakeholder requirements

Capturing stakeholder requirements often happens shortly after the project initiation once the green light has been given, and can support the scoping of the project and the system. There are three stages. For each of them, there are a range of approaches, some of which we will introduce you this week. Activity 2.2 describes stage 1, which includes **identifying stakeholders and consulting with them to understand the healthcare context in which you are introducing your system**.

Stage 1: Identification of stakeholders and gathering requirements

- Before we can elicit stakeholder needs, we first need to **identify who the various stakeholders are**. Start by reading the 2005 paper by Ian Alexander about classifying stakeholders (see Reading list). It will give you insight into the types of stakeholders and provide an introduction to the **Onion model**, a very popular method for visualising stakeholder types and their importance to and impact on the project.
- Once you have identified the stakeholders of your system, you need to start thinking about how to **gather their requirements**. There are various methods you could consider, from **interviews** and **observation** to **brainstorming** or **surveys**. Each has advantages and

disadvantages. Often what you find is that people use a **combination of two or three** to ensure a broad perspective and reduce the risk of a biased sample (e.g. only people who were available for an interview during office hours).

- Now watch the interview with Dr. Ross Atkinson, a Research Fellow in the Wounds Research Group at University of Manchester. We interviewed him about how he and his team gathered stakeholder requirements for a new health information system in community wound care, and how they turned the requirements into system functionalities. This interview is a real-world example and links directly to our case study.

Back to summary

2.3 Stage 2 in capturing stakeholder requirements

Stage 2 regards **analysing the requirements** and ensuring that all requirements are **clear** and **unambiguous**.

Stage 2: Analysing the requirements

There are different types of requirements depending on which area of the system you are focusing on. Requirements can be focused around:

1. The **organisation** and the **business**: these requirements focus on how the system will assist the organisation with resolving specific problems and reaching its vision. They are often quite high level and frame the business case;
2. The **stakeholders** and **their needs** related to the system and how they would like to interact with it;
3. The **system** itself: requirements related to the system's architecture, e.g. what information does it need to hold; how it will integrate with other systems; or compliance with security or legal regulations;
4. **Non-functional aspects**: requirements that focus on, for example, system reliability, maintenance and testability.

Good requirements must have the following characteristics:

- **Cohesive**: The requirement defines a single aspect of the desired process
- **Complete**: The individual requirement is not missing necessary or relevant information.
- **Consistent**: The requirement does not contradict another requirement.
- **Modifiable**: Similar requirements should be grouped together to allow them to be modified together in order to maintain consistency.
- **Correct**: The requirement meets the actual health (business) or system need. An incorrect requirement can still be implemented resulting in a business process or system that does not meet the business needs.
- **Observable**: The requirement defines an aspect of the system that can be noticed or observed by a user. This is often referred to as "Implementation Agnostic" as the

requirement should not specify aspects of system architecture, physical design or implementation decisions. These aspects of a system should be defined separately as constraints.

- **Feasible**: The requirement can be implemented within the constraints of the project including the agreed upon system architecture or other physical design or implementation decisions.
- **Unambiguous**: The requirement is written objectively such that there is only a single interpretation of the meaning of the requirement.
- **Verifiable**: It can be shown that the requirement has been met by the final solution via inspection, demonstration, test, or analysis.

Now read the 2007 article by Ian Alexander on What are Requirements Made of? (see Reading list). Alexander provides a helpful overview of the different components that make up a requirement.

If you are interested in learning more about the use of requirements in the context of managing the relationship with an external (or internal) supplier, read See You In Court by Karl Wiegers (see reading list). Reading this article is optional.

Back to summary

2.4 Stage 3 in capturing stakeholder requirements

Stage 3 comprises of **recording** and **presenting the requirements** in a way that everybody understands and interprets in the same way.

Stage 3: Recording and presenting requirements

Requirements need to be presented such that they can be interpreted consistently and that we can ultimately translate them into a formally-expressed specification. There are lots of ways to do this, but we will just focus on two: **formally-expressed requirements** and **user stories**.

- **Formally-expressed requirements** are:
    - **Terse**: they say only what they need to say
    - **Atomic**: each requirement is specified separately
    - **Testable**: a candidate system can be evaluated as passing or failing to satisfy any given requirement.

  Formal requirements typically take the form of specifying either what the system must do directly, or what it must enable its users to do, under a variety of circumstances. For example, a mobile phone might be required to detect and make initial connection with a phone network when one is available, but would only be required to allow the user to make calls, not to make calls itself.

It's also important to specify the other conditions that must be true at the same time. To continue the mobile phone analogy, what should the phone do when there is no network available? It could turn itself off completely to save maximum power, or it could check periodically to see if a network is available. Whether it meets requirements depends on having specified what it should do and being able to test whether it does actually do that. You will learn more about the link between requirements and testing in a later topic.

- **User Stories**: Another way to record and present requirements is to create user stories. These are -quite literally- the stories that stakeholders tell in their own words about how they would (like to) use the system.

  A user story is different to a formally-expressed requirement in that it is not necessarily atomic and testable. It is intended to be more **holistic**, and requires **further analysis** to distill from it the precise definition of the feature(s) it captures.

  A user story typically consists of three elements based on a **"who, what, why" template**:

  - a **persona** (the user);
  - the **feature**;
  - and the **requirement**.

  It is often structured as: *As a (user) I want a (feature/goal) so that I can (satisfy a need/requirement/benefit)*.

  A benefit of this way of presenting user requirements is that it helps to **understand the requirement from the stakeholder's point of view**, from project managers to clinicians to the software engineers.

  User stories can be written in larger (so called **epics**) or smaller chunks. The smaller and more detailed a user story is, the easier it will be to turn it into a simple action that can be completed in one iteration by the software developers. In contrast, epics usually need breaking up into smaller user stories at some point to inform system development.

  User stories are used in combination with the agile method. Watch the short video (6:50) under 'Further resources' for a simple explanation of user stories, and their importance in agile development processes.

APFT Wound care management system dossier - exercise 1

Based on the information in the dossier for the APFT wound care management system (under 'Further resources'), identify 1 or 2 stakeholders. For each of them, think about a specific need they may have related to the system's functionality or set-up. Formulate that need in the form of a user story and post it on your group forum. Within your group, try to come up with at least five different stakeholders and their stories.

Next week, there are some worked examples of user stories in the dossier, which you can then compare to your own ideas. If you want feedback from the tutors or have any questions, please post your request/question in the forum.

Back to summary

2.5 Patient pathways

- Patient pathways are a way of getting you to think about the whole system, rather than in organisational silos. It will help you to check whether you have identified all stakeholders.
- A patient pathway can be defined as "*the route followed by a patient through and out of health and social care services. It begins with their first contact with the health service or local council, takes in all the different stages of their treatment or care, and ends when the treatment is completed*."
- So, a patient's pathway starts when they first contact a healthcare professional –often their GP—but then also covers the period from entry into a hospital or a treatment centre until discharge. You can also think about the patient pathway –or "patient journey" as it is sometimes called—as a **timeline that shows all interactions of the person with the healthcare service**. This may include events such as routine check-ups, diagnosis, treatment decisions, medication prescriptions, dietary advice, assessments and tests, patient information/education, or preparing for admission to or discharge from hospital.
- The patient pathway can be viewed at different levels, but for this course, we will use it to create an overview of who (or what) the patient sees or has contact with. This will help you to get thinking about the healthcare system as a whole, rather than in organisational silos.
- APFT Wound care management system dossier - exercise 2 Based on the information in the dossier for the APFT wound care management system, we created a first version of a patient pathway diagram for a patient's referral to a tissue viability nurse (see under 'Further resources'). However, as you will remember from what you have learned about agile development, it is important to iteratively refine your understanding of the context and requirements with input from the users to ensure it is both correct and as complete as possible. So, when we shared our Version 1 of the pathway diagram with the clinical team, they gave us the following feedback:

    1. Tissue viability nurses (TVNs) are located both within the community and in secondary care. So referral could be within the community or from community to secondary care.
    2. It looks like the patient starts off in the hospital, which isn't always the case: they might present to their GP initially.
    3. ABPI measurement is only usually needed for leg ulcer assessment.
    4. The care plan is necessarily always discussed with the GP.

- Now consider how you would update our version of the pathway diagram to incorporate these comments. For each of the points, think how the diagram should be changed and post your suggestions to the activity-specific forum (under 'Further resources'). A revised

version of the diagram will be available in next week's version of the dossier. Do your suggestions match the changes we made to the diagram? Are there any differences?

Back to summary

2.6 Drawing the patient pathway diagram for your assignment

- There are many ways in which you can draw a patient pathway, but for your assignment we recommend you use a swimlane diagram. Swimlane diagrams will help you to visualise the complex interactions between various parts of the healthcare system involved in the patient pathway.
- In order to create a patient pathway diagram that adequately reflects how patients actually travel through the healthcare system, you need to have a basic understanding of the condition itself and of the healthcare services that are available for diagnosing and managing the condition. In week 1, we recommended you would start searching for trusted information sources, including those that would help you explore the patient pathway(s) involved. For example, for COPD examples of relevant resources would include:
    - https://www.blf.org.uk/support-for-you/copd
    - https://www.nhs.uk/conditions/chronic-obstructive-pulmonary-disease-copd/
    - https://pathways.nice.org.uk/pathways/chronic-obstructive-pulmonary-disease
    - https://www.england.nhs.uk/rightcare/wp-content/uploads/sites/40/2017/12/nhs-rightcare-copd-pathway-v18.pdf
- This week, go through the resources you identified for your disease area/patient group in week 1 and start creating an overview of the interactions between a patient and the people and information systems involved in managing the disease/patient group.

Swimlane diagrams for mapping patient pathways.

- There are many ways in which you can draw a patient pathway, but for your assignment we recommend you to use a swimlane diagram. Swimlane diagrams help visualise the complex interactions between various parts of the healthcare system involved in the patient pathway. Have a look at this online resource that explains what swimlane diagrams are.
- You will have noted that the online resource did not have a patient's journey in mind, but instead talked about business departments, materials and customers. Think about how this translates to the context of the disease area/patient group you selected. What would make up the swim lanes in your patient pathway diagram? And what would arrows between lanes represent? Have another look at the worked example of the patient pathway

in the APFT dossier: this is also a swimlane diagram and may provide you with further suggestions for the patient pathway diagram for your assignment.

- Now draw the patient pathway diagram for your disease area/patient group - you can include the diagram in the Background section of your assignment. As a tool for drawing your patient pathway and other diagrams, we suggest you have a look at draw.io, an online tool that is easy to use. You can find further guidance on how to draw swimlane diagrams in draw.io here. Please note that you don't have to use draw.io if you don't want to: you are free to use any tool you find useful.

If you have any questions or would like some formative feedback from the tutors on your diagram, post your request/question in the forum.

APFT Wound care management system dossier

Any Place Foundation Trust (APFT) is a healthcare organisation that provides community care. One of their services is focused on managing complex wounds. APFT would like to buy and implement a new health information system to better support patient and wound care management within that service. In this dossier, you will find information that is relevant for the procurement, testing and implementation of the new system. The dossier is a living document, which means new things will be added over the course of the module, including worked examples for the exercises we ask you to complete.

1. Clinical context

The size of the problem

Complex wounds are defined as wounds with superficial, partial or full-thickness skin loss healing by secondary intention (i.e. healing of an open wound, from the base upwards, by laying down new tissue). In the UK, community point prevalence of complex wounds is estimated at approximately 16 per 10,000 people. There are nearly 260,000 people in APFT's coverage area, with approximately 680 of them being treated by the APFT community wound care service at any given time.

Patient population

The most common types of complex wound are venous leg ulcers (VLU), diabetic foot ulcers (DFU), traumatic wounds and pressure ulcers (PU). Complex wounds are often a result of underlying disease. Patients tend to be elderly with at least one comorbidity, most commonly cardiovascular disease, diabetes and arthritis. Complex wounds have a negative impact on health-related quality of life.

Available treatment options

Treatment options available for complex wound care include a wide range of interventions: dressings, compression for venous leg ulcers, surgery for venous leg ulcers, pressure relief and redistribution mattresses and cushions for treating and preventing pressure ulcers, and removal of damaged or devitalized tissue. Treatment is guided by local procedures which take into account national guidelines for specific wound types, for example:

- Diabetic foot ulcers: https://www.nice.org.uk/guidance/ng19/chapter/Recommendations
- Pressure ulcers: https://www.nice.org.uk/guidance/cg179
- Venous leg ulcers: https://www.sign.ac.uk/sign-120-management-of-chronic-venous-leg-ulcers

2. Who is involved in delivering the service?

A person with a complex wound typically tries to self-manage for a while, before visiting the GP for management. Often, the GP then refers the patient to APFT's community wound care service. People can also be referred from secondary care, e.g. if they require care for a pressure ulcer or surgical wound following a hospital admission.

Complex wounds are largely treated in the community by nurses (mostly NHS Band 5 and 6), either in community clinic settings or in people's own homes. Community nurses form the main group of clinical staff who perform hands-on wound care, and a high proportion of their case load involves caring for people with complex wounds. A typical borough in APFT's coverage area is served by a team of 15-20 community nurses on average. The community matrons manage a number of community nursing teams, each of which are managed locally by a clinical lead (patch leads). Matrons oversee the community nurses on a management level, and undertake quality audits and service improvement projects.

If needed, community nurses refer patients to a tissue viability nurse (TVN); see Chapter 4 for a referral example. TVNs are part of a senior nursing team and have a multi-faceted role. As well as providing wound care, advice and guidance, they deliver education and develop practice.

In addition, community nurses may also refer patients to GPs (e.g. for prescription of medications), as well as to other specialised services, such as podiatry, vascular services, continence teams, physiotherapy, dermatology, dietetics and nutrition.

Lastly, informal carers are also often involved in providing care for people with complex wounds, e.g. family members.

Here is a highly simplified overview of who is involved at what point in the pathway:

2.1. User stories (examples)

As part of topic 2, we asked you to think about stakeholders of APFT's new health information system, and for each of them, formulate a user story to reflect a specific need they might have related to the system (exercise 1). Below we have provided some examples. Are they similar to what you came up with?

- As a **community nurse**, I want to have access to the system via a mobile app that is quick to use, so that I can focus on the patient during home visits.
- As a **GP**, I want to have a system that integrates the wound information collected by community nurses into my electronic patient record system, so that I have a complete picture of how my patients are doing.
- As a **tissue viability nurse**, I want a system that helps community nurses to collect complete data on the status of the wound and past and current treatment plans, so that I can decide whether or not to accept the referral.
- As a **matron**, I want to have a system that provides me with an overview of the number of home visits at the individual nurse and nursing team level, so I that I can monitor case loads.
- As an **informal carer**, I want a system that where I can access clear instructions on what to do in case there is a problem with the wound, so that I can assist in making sure my loved one gets the care they need.

3. What information is recorded and where?

APFT community nurses use a mixture of paper and electronic systems to record clinical information about the care they provide to people with complex wounds. However, much of the information collected is as free text which makes it difficult to use both clinically (e.g. it is often difficult to review previous consultations) and for reporting purposes (e.g. clinical audit, CQUIN targets).

Paper forms

Paper forms are often used to collect information about the wound itself. One example is a wound assessment chart which records type of wound and its location, depth, stage (if applicable), size, exudate, odour, wound edges, surrounding skin, infection signs, and treatment plan. Nurses have to conduct a wound assessment every week. Another example within the paper-based system is the leg ulcer pathway documentation. These documents are often left in the patient’s home. They contain information regarding quality of life, wound information, the treatment plan, etc., and are completed by nurses weekly, with some sections being filled in by patients. Chapter 3.1 has some examples of paper forms that the community nurses currently use.

Electronic system

APFT currently uses an electronic system that is an adapted version of a primary care record system. It includes basic information for all their patients, such as name, gender, height, date of birth, contact details, name of GP, and known comorbidities. The electronic system has a simple wound assessment template built in, but at the moment much of the actual data collection still occurs on paper. There are some examples of screenshots in chapter 3.2.

In some, but not all boroughs, community nurses can access the electronic system at the point of care using tablet computers. They use the tablets to record every home visit by writing a rudimentary summary of the treatment given, in addition to completing the weekly paper-based wound assessment charts. They copy the information from these paper charts into the electronic system at the end of their shifts, using desktop computers available at their base clinic location.

4. Referral example: venous leg ulcer referral to a tissue viability nurse

Referrals are often made by fax, email, phone or letter/form from community nursing to the tissue viability nurse (TVN). Referrals do not routinely include an image of the wound with other clinical information, although it is widely acknowledged that an image would be extremely valuable, as “a photo says more than a thousand words”.

Before accepting a referral, the TVN needs to know about the severity of the wound; this may include information on, for example, the duration of the wound; the size; and signs and symptoms of infection. Preferably, the TVN also wants to know whether an ankle-brachial pressure index (ABPI) assessment has been undertaken using a Doppler machine.

This assessment gives some guidance as to whether compression therapy (the gold standard treatment for venous leg ulceration) is appropriate; if the ABPI reading is outside of a given range (i.e. less than 0.8), this may indicate that the ulcer is of arterial aetiology, thereby meaning that compression could cause further damage. Not all community nurses are able to do an ABPI as they may not have been trained; also there is often a lack of Doppler machines which means that many wounds may deteriorate further whilst they are waiting for the test and therefore without compression.

If appropriate for compression, the patient should be offered compression therapy that is supported by evidence. Currently four-layer bandaging or two-layer hosiery are the main types of compression supported by trial evidence. Compression therapy can, however, be uncomfortable (and often painful) for patients. It can also negatively affect their quality of life due to restrictions on their ability to wear their normal clothing/footwear. Not all community nurses are trained to apply four-layer bandaging, so even after the ABPI, a properly trained nurse needs to attend to do the bandages.

The TVN is likely to want to know what types of compression have been offered, whether the patient can tolerate it, whether they have adhered to the treatment and how long it has been

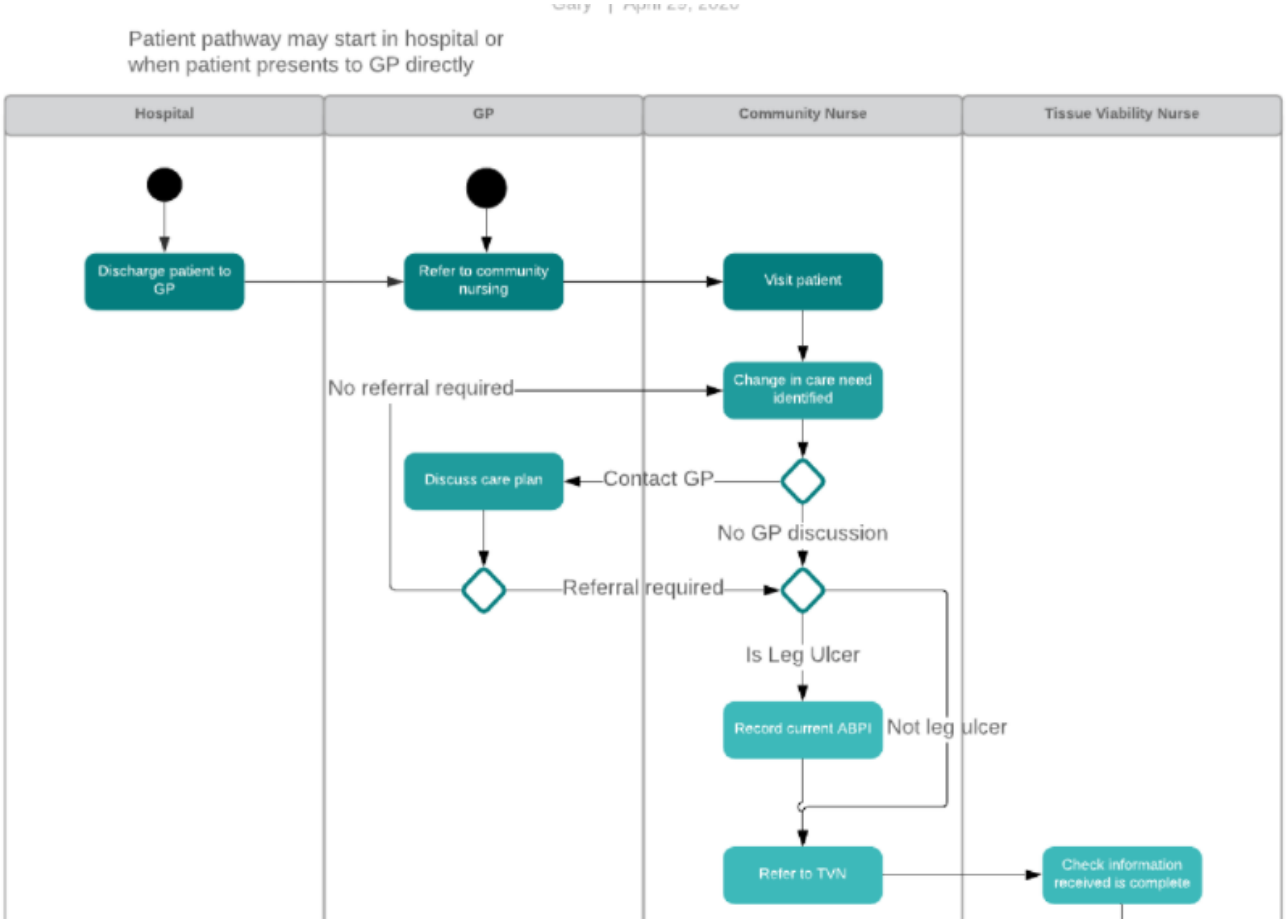
attempted for. Additionally, the TVN needs to know which types of dressing have been used on the wound up until now. Ideally, all of this information should be available for the TVN before making a decision (e.g. on which treatment to offer, or on whether the patient should be admitted to hospital), and many patients end up receiving sub-optimal care in the meantime.

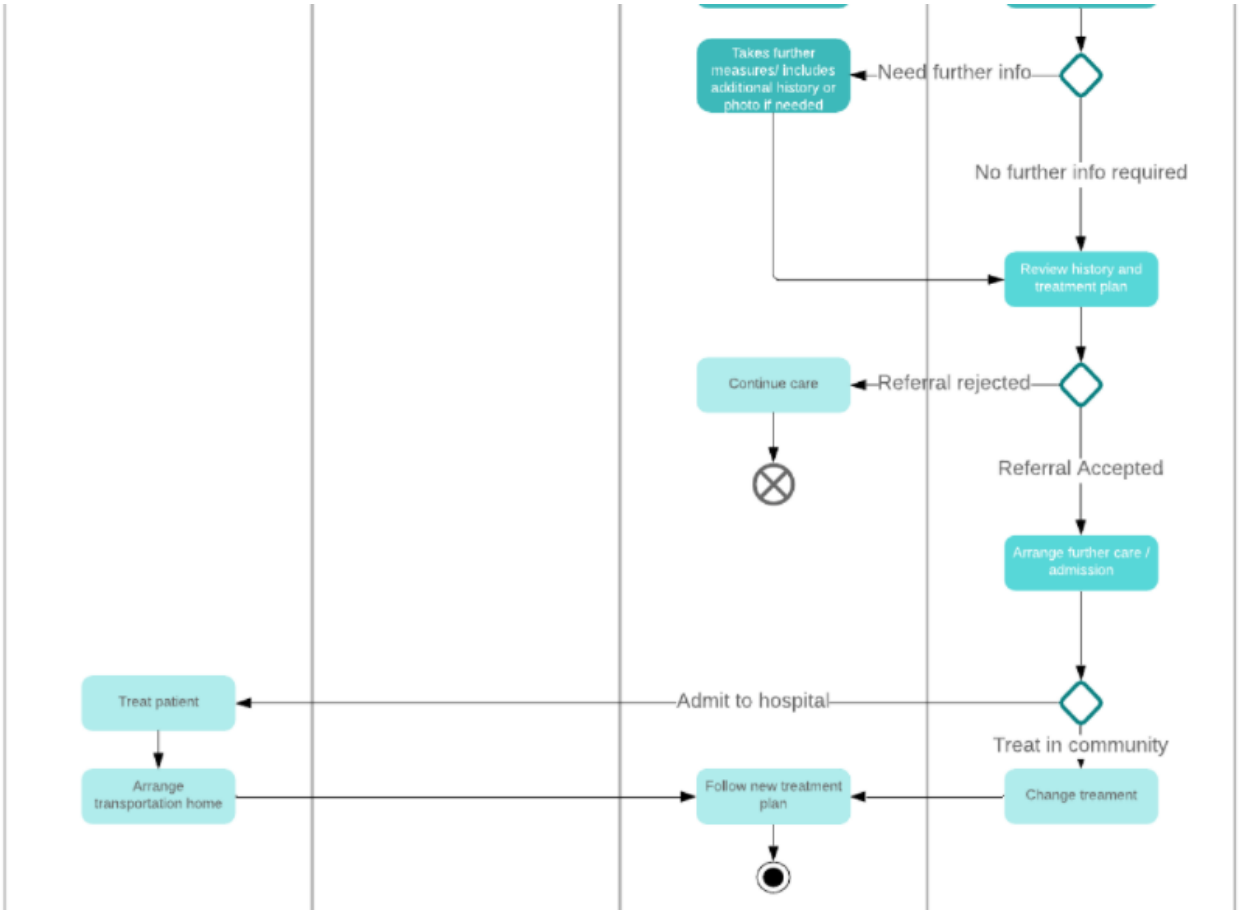
4.2. Final patient pathway diagram (example)

In topic 2, we presented you with a first version of a patient pathway diagram based on the initial description of the referral example, which you can find at the beginning of this chapter. However, as feedback on that first version, the clinical team provided us with the following additional information:

- Tissue viability nurses are located both within the community and in secondary care. So referral could be within the community or from community to secondary care.
- Patients with wounds start off in the hospital OR present to their GP initially.
- ABPI measurement is usually only needed for leg ulcer assessment.
- The care plan is always discussed with the GP.

Below we have included our updated version based on this feedback. Compare it to your suggestions for amending the diagram for exercise 2. Are there any differences?





5. Rationale for system procurement by APFT

Nurses have to duplicate wound data entry from paper into the electronic system. The point of care access to the electronic system (using tablets) has been implemented within the last five years, but with little input from end users, and with little training and support for nurses to use it. The data entry into the electronic system relies heavily on free-text information and does not include features such as image capture or the ability to seamlessly refer patients to other specialties. Therefore, referrals via fax, email or phone often leads to insufficient information for those receiving the referral to make a decision about whether to accept or reject it. Community nurses are moreover worried that spending time documenting on a tablet takes away face-to-face time from the patient, and that it compromises the trust and confidentiality they need to care for their patients.

The current situation (as described in chapters 1-5) has been causing concerns among the entire care team, particularly matrons and GPs, that this highly unstructured way of gathering, storing and sharing information impedes getting the right information to the right person at the right time, resulting in important information being lost or not passed on. There are also concerns that the current system does not facilitate the continuity of care that wound care management requires. Combined with the massive shortage of staff, lack of time when working in a patient's home, and under-funding in community nursing, it means that many patients may receive sub-optimal care. In addition, there is a wish to embed photographic evidence of the

wound alongside clinical information with the hope of a more rapid diagnosis and better care planning.

In summary

The APFT leadership see numerous advantages of procuring and implementing a more streamlined set of electronic documentation. Making the correct and up-to-date patient information electronically available to the right person in a timely manner, enables more informed care and treatment decisions. It supports the health care professionals to work more efficiently as an interconnected team, overcoming fragmentation and duplication of service delivery. It assists the team to electronically communicate and exchange information; facilitates more coordinated health care across the continuum of care; enhances access to clinical evidence and clinical decision support tools; and, finally and most importantly, it has the potential to improve the quality, safety and efficiency of current clinical practices.

6. System design

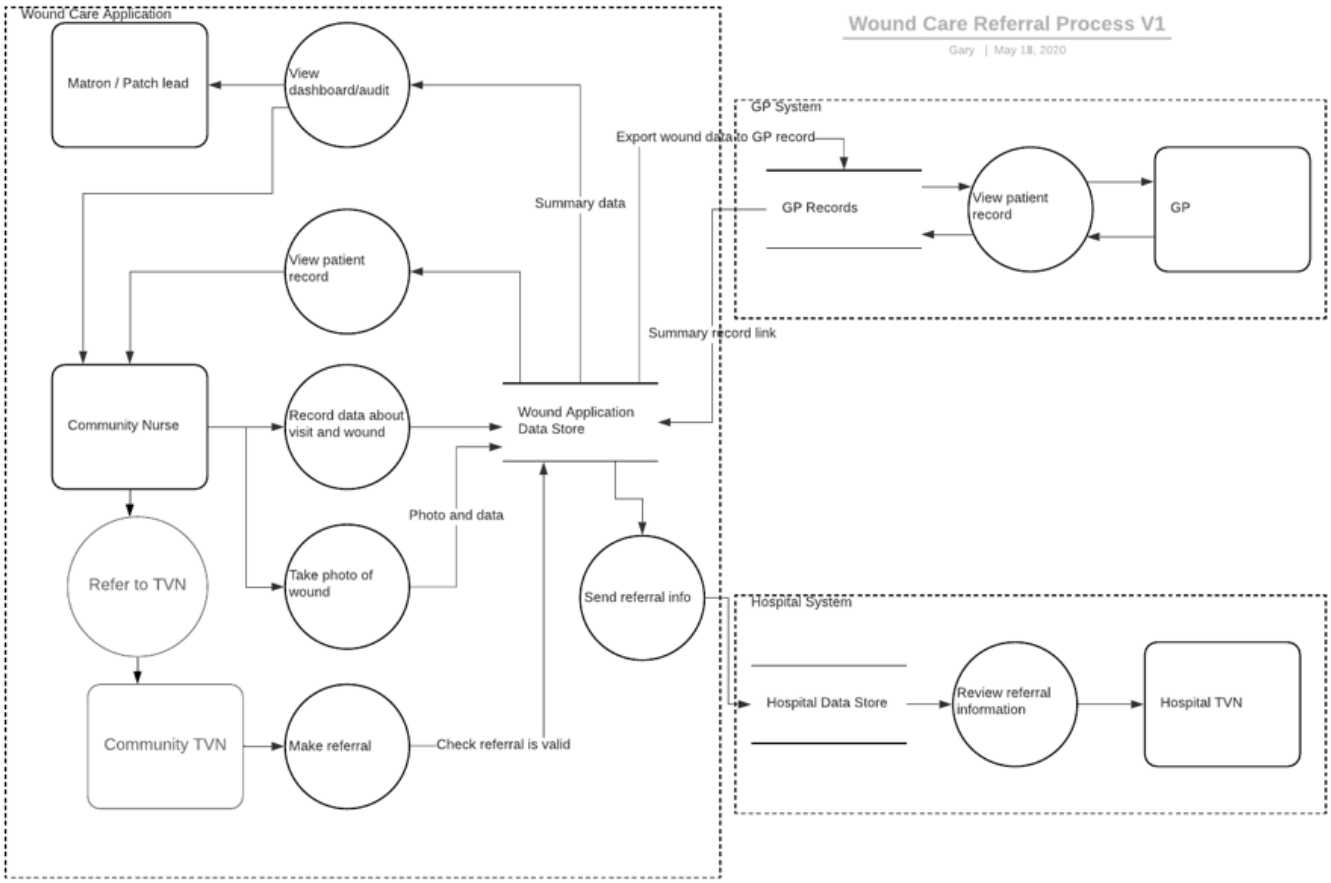
Based on the description of the clinical context, the current APFT information systems and stakeholder requirements, the APFT senior leadership have identified a new wound care management system that seems to address most their needs.

In this chapter, you will find a range of diagrams that formally present the design of that new system, including:

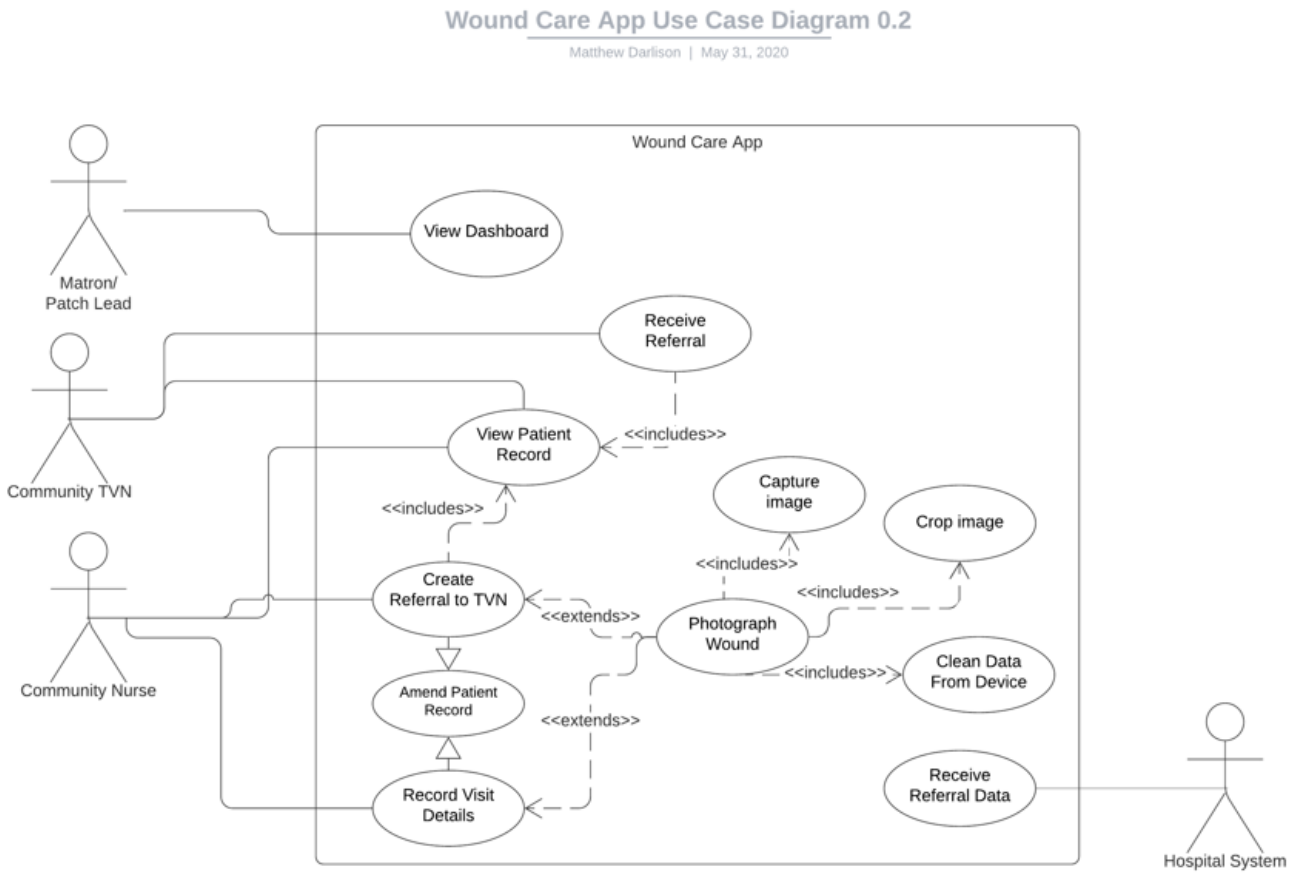
- Data flow diagram
- Use case diagram
- Class diagram, specifically related to uploading a picture of a wound as part of a referral to the tissue viability nurse

Seeing the diagrams alongside each other should contribute to your understanding of how you can formally visualise the different aspects of a system's design.

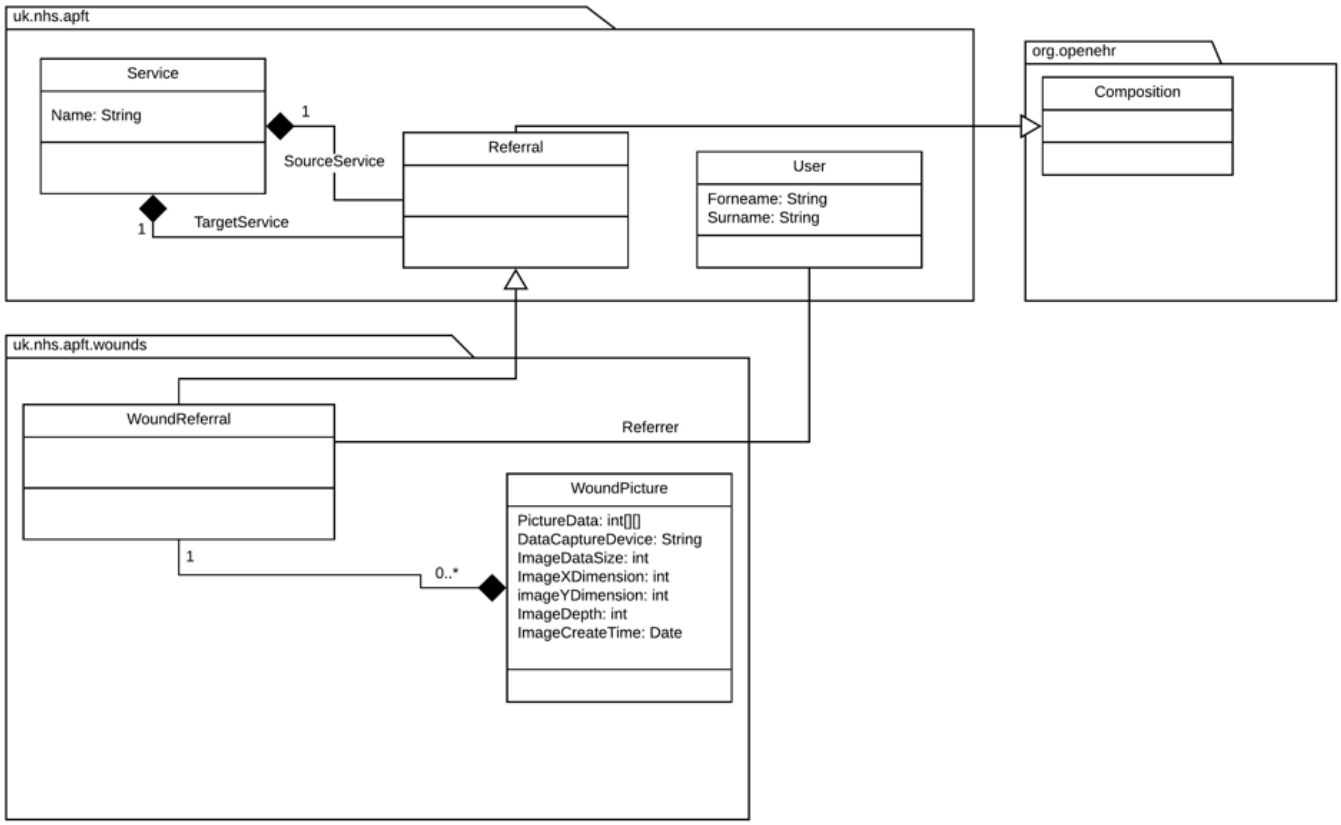
Data flow diagram



Use case diagram



Class diagram (uploading wound picture as part of TVN referral)



Back to summary