SIMTEGR8

SIMTEGR8 user handbook

Older Persons Unit

Foreword

SIMTEGR8 (Simulation to Evaluate Great Care) uses computer simulation and Lean business principles to analyse and enhance the patient pathway. In doing so it aims to help healthcare providers deliver a patient-centred, cost-effective, high-quality service.

One of the key attractions of the SIMTEGR8 approach is that it is genuinely dynamic. It is designed to respond and adapt to ongoing shifts, suggestions and ideas. It acknowledges that improvement is an iterative process and that the pursuit of perfection is continuous.

Such an attribute is likely to prove notably useful at a time when the quest for greater efficiency in healthcare is increasingly tied to growing organisational complexity. Understanding how the various components of the patient pathway interact and integrate helps not only to reduce waste but to guard against the risks that flourish in the absence of effective knowledge-sharing.

SIMTEGR8 was first used to evaluate several pilot initiatives implemented by a partnership of NHS organisations and local authorities in Leicestershire. This handbook focuses on one of those interventions, the Older Persons Unit, to explain how the SIMTEGR8 method works, how it facilitates improvements and, crucially, how you can use it yourself.

Loughborough University

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Contents

I. Bringing clarity to complexity

The origins of SIMTEGR8

The inherent complexities of patient pathways are often overlooked. In part this is because the various providers whose interventions make up the overall journey are focused on their own contributions and frequently have only a limited appreciation of how these interact with others. A "component" view is commonplace. What is needed is a holistic or "architectural" view that makes clear how the wider system works, how it all fits together and, if necessary, where its deficiencies lie.

SIMTEGR8 was conceived with this ideal in mind. It was adapted from SimLean, an earlier simulation methodology used to evaluate the application of Lean business principles in healthcare settings. Professors Zoe Radnor and Stewart Robinson, then both of Loughborough University's School of Business and Economics, developed SIMTEGR8 to analyse patient-centric integrated service interventions.

The trigger for its development was a request to evaluate a number of initiatives implemented through the Better Care Fund pooled budget, part of a five-year strategic plan launched in 2014. Better Care Together (BCT) is a partnership of NHS organisations and local authorities in Leicester, Leicestershire and Rutland.

Healthwatch Leicestershire, a local consumer body with independent statutory powers, and Leicestershire County Council, one of BCT's key partners, asked Professors Radnor and Robinson to assist in determining the effectiveness of four interventions:

- **Rapid Response Falls Service** – ambulance and community services support for people who fall at their place of residence
- **Seven-Day Services in Primary Care** – services and support, provided into weekends, for patients with complex needs
- **Integrated Crisis Response Service** – home-based health and social care support, including night nursing, for up to 72 hours
- **Older Persons Unit** – a geriatric specialist outpatient clinic for the rapid and comprehensive assessment of GP-referred patients

Each of these is in keeping with BCT's overarching objective of fully integrated health and social care provision. More specifically, in common with national Better Care Fund priorities, each is intended to reduce the number of unnecessary emergency admissions to hospital as a consequence of issues such as falls, frailty and short-term care crises.

SIMTEGR8 was used to enhance understanding of the patient pathways at the heart of these interventions. Significantly, it was also used to facilitate discussion between providers and with service users around how these pathways might be improved so as to reduce waste, optimise essential resources and, above all, deliver a better experience for patients.

> **What is needed is a holistic or 'architectural' view that makes clear how the wider system works, how it all fits together and, if necessary, where its deficiencies lie.**

The Older Persons Unit

This handbook uses as its case study the Older Persons Unit, which was originally piloted across Leicestershire by the county's two Clinical Commissioning Groups (CCGs): West Leicestershire CCG and East Leicestershire and Rutland CCG.

A geriatric outpatient clinic in Loughborough, Leicestershire, the service offers comprehensive assessment of patients referred by their GPs or nursing homes. Such an assessment, including blood-testing and X-rays, would most likely otherwise be available only after emergency admission to hospital.

Support is initially provided by an advanced nurse practitioner specialising in older people and a consultant geriatrician. The service is available from Monday to Friday, 9am to 5pm.

A brief history of SimLean

Since it served as the basis for SIMTEGR8, we should first quickly explain the workings and objectives of SimLean.

SimLean brings together computer simulation modelling and Lean business principles. The former employs mathematical data and algorithms to build a virtual version of a system. The latter represent a method of eliminating waste and delivering value and benefits to customers or service users.

Using approximate data, SimLean constructs a dynamic model of a system and identifies the points at which waste can be minimised and benefits maximised. In short, it reveals where a system's shortcomings are to be found and helps to pinpoint where actions need to be taken to deliver a better customer/user experience.

Professors Radnor and Robinson originally devised SimLean for use in a project at four hospital trusts. It seems safe to suggest it constituted a significant innovation. The preferred method of analysis in these organisations before SimLean's introduction was to hand-draw process maps on Post-It notes.

The SimLean methodology can be split into three phases:

- **Educate** – introducing stakeholders to Lean thinking and using a generalised model to encourage them to reflect on and challenge existing practice
- **Facilitate** – using process maps and dynamic simulation software to demonstrate the likely effects of potential changes within a system
- **Evaluate** – drawing on all available data to produce a detailed model that allows the thorough evaluation of improvements and future options

A key feature of this methodology is that it brings clarity to complexity. As stated previously, the interactions between different procedures and providers are inherently complicated. The issues at stake cannot be fully grasped without first being easily visualised.

Another important aspect is that stakeholders are able to see the effects of changes within a system in a simulated environment. In other words, there is no need for real-world trial and error and the associated costs and risks. Daily routine can proceed as normal while various scenarios are assessed via the medium of SimLean.

These same advantages are to be found in SIMTEGR8, which we will discuss in more detail now.

II. In search of real-world integration

Building on the SimLean methodology, SIMTEGR8 was developed to focus specifically on the patient pathway – that is, the service user's journey from initial contact to satisfactory resolution – in integrated service initiatives in Leicestershire.

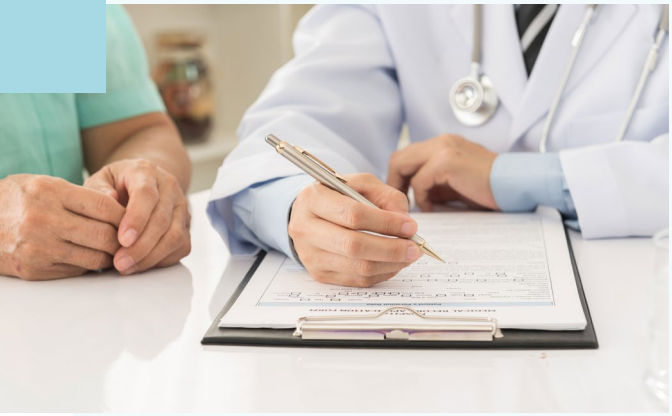
As with SimLean, the intention was to enhance understanding of a system, facilitate discussion about how processes might be improved and demonstrate the likely effects of potential changes. Also as with SimLean, the ultimate aim was to reduce waste and deliver user benefits.

What might we mean by "waste" for the purposes of such an exercise? One definition might be the length of time a patient has to wait for treatment; another might be the number of providers involved in the patient's journey. By extension, benefits would take the form of greater efficiency, cost savings and improvements from the patient perspective.

The methodology employed to evaluate the pilot interventions involved five distinct steps. Together, these enabled us to test the impact and effectiveness of the interventions and to assess the ability of patient/user metrics to provide an adequate measure of integrated service care.

1. **Data collection** – gathering information about a pathway, including details such as nursing hours, travel times, administrative demands etc
2. **Data interpretation** – drawing on this information to produce a process map showing the patient's journey through the care-provision system
3. **Simulation modelling** – using the process map to create an approximate model of how the system works
4. **Workshops** – holding interactive sessions with stakeholders and service users to enhance understanding of the system, compare the model with real-world experiences and identify potential improvements
5. **Re-modelling** – applying the information gleaned from the workshops to produce an updated model for project leaders to use going forward

Let us take a closer look at each of these steps in turn, with particular reference to how they were applied in the case of the Older Persons Unit.



1. Data collection

Generally speaking, data collection is best achieved by working with the relevant local authorities and staff. It is essential to consider who might be ideally placed to provide information about each component of the overall patient pathway.

In the case of the Older Persons Unit we were able to collect data about the flow of the pathway, but performance data was not available prior to the workshop. Fortunately, process maps could still be constructed.

We later realised this step could have been improved yet further by tracking and logging the experiences of individual patients in parallel to normal performance figures.

> In each instance it was vital to consider how patients moved through the system, their 'activities' en route and the resources needed to make their journeys happen.

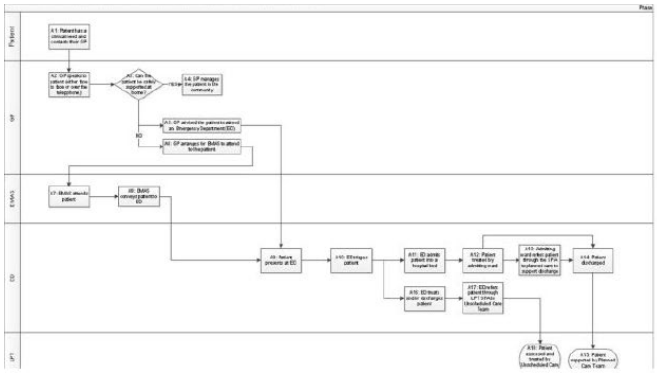
2. Data interpretation

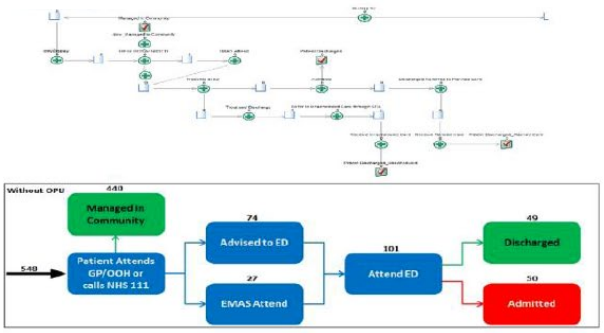
The next step is to interpret the data in the form of a process map — not one scribbled on Post-It notes but one that neatly distils all the available information into an easy-to-understand diagram that plots a patient's journey through the system.

Two such maps were produced for the Older Persons Unit. The first illustrated the patient pathway *before* the intervention's introduction, showing the various routes by which a patient might reach or avoid the point of emergency hospital admission. The second illustrated the patient pathway *after* the intervention's introduction, showing the numerous additional means by which unnecessary emergency hospital admission might be avoided.

In each instance it was vital to consider how patients moved through the system, their "activities" en route and the resources needed to make their journeys happen. In tandem, it was essential to examine how patients eventually left the system – in effect, the point at which it was no longer necessary to model their progress. Finally, it was important to give careful thought to the key performance indicators that would validate the real-world accuracy of not just the maps but the simulation models that would be built from them.

Before





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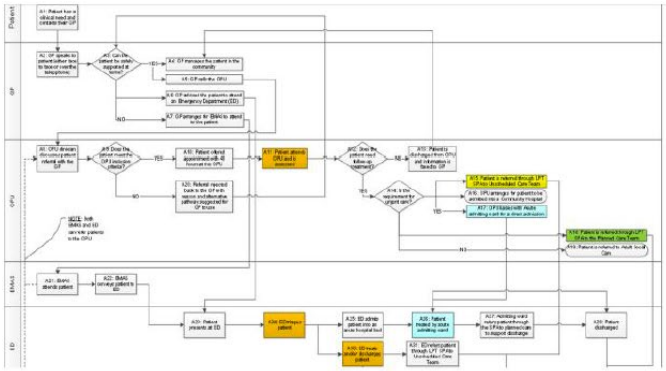
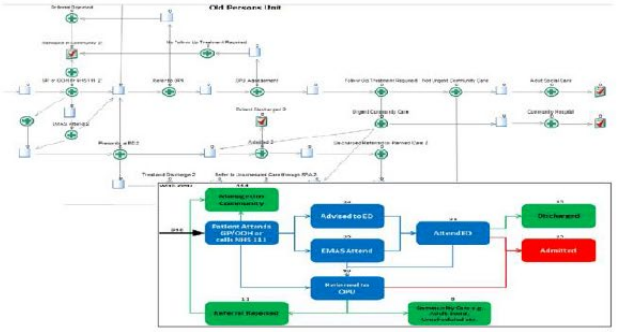




Here we see the patient pathway before and after the introduction of the Older Persons Unit intervention. On the left are the traditional process maps; on the right are the simplified process maps used to build a dynamic simulation.

3. Simulation modelling

With a conceptualised model of the patient pathway established through process mapping, it is time to move into the more sophisticated domain of dynamic simulation.

The principal advantage of simulation is that it actually shows patients moving through the system. This reflects the earlier point about the value of visualising the patient journey. Here it is possible to witness the actual "flow" of the pathway. As we will see in due course, this is crucial to encouraging the sort of understanding and discussion needed to bring about improvements.

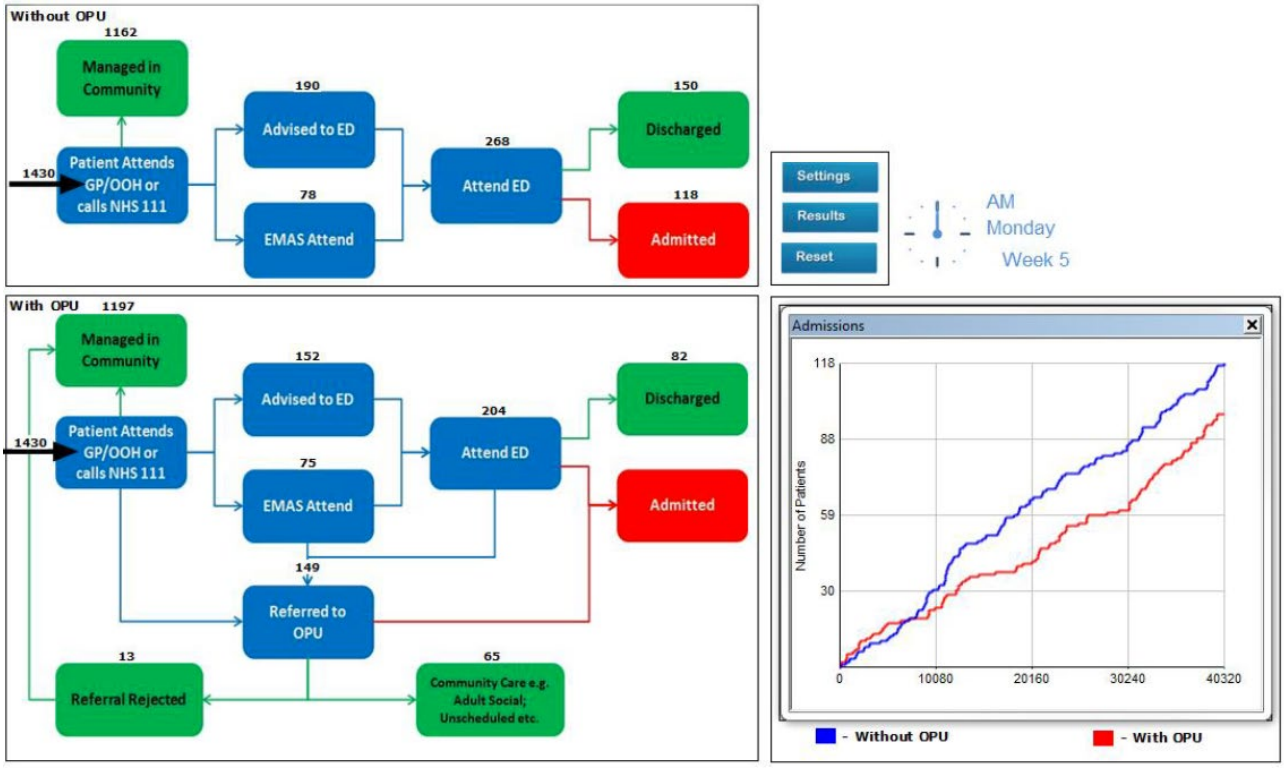
The model for the Older Persons Unit was by no means perfect, but it did not need to be. Indeed, this was the case for all four pilot interventions. Remember that improvement is an iterative process, which is why such simulations need only be good enough to show a basic process at work and to enable further investigation and refinement.

Getting the fundamentals right

An essential early task for evaluating all of the BCT interventions was to establish the criteria for an avoided emergency admission to hospital. We reasoned one of the following scenarios should apply:

- A patient would have been admitted before the intervention's introduction but was not admitted after the intervention's introduction
- A patient was not readmitted within 14 days of initial admission

The patients tracked were those considered frail, elderly or vulnerable within the geographic area covered by West Leicestershire CCG and East Leicestershire and Rutland CCG.



Here we see a dynamic simulation of the patient pathway before and after the introduction of the Older Persons Unit intervention.

4. Workshops

So how are further investigation and refinement most effectively enabled? The answer is to present the process maps and simulations to those people who most need to understand the system more fully, who are best placed to improve it and who are most likely to benefit from its enhancement: service practitioners and service users. This phase, which revolves around facilitated workshops, is in many ways the most important step of all and merits especially close attention.

The service practitioners group should be made up of a range of stakeholders. In the case of the Older Persons Unit the attendees included CCG commissioners, clinical leads and representatives of hospital trusts, social services and physiotherapy teams.

In the methodology used for SIMTEGR8, service users were accommodated in a separate workshop. The rationale for this was that their perspective should be different and less technical. In the case of the Older Persons Unit the attendees included general health and care service users, along with their representatives, rather than direct users of the relevant patient pathway.

Both workshops were led by a member of the research team and a simulation consultant. The former facilitated the discussion. The latter demonstrated and refined the models. We also found the presence of a designated note-taker extremely useful.

The general format for the stakeholder workshop was as follows:

- **Understanding** – presenting the "before" and "after" process maps to introduce participants to the concept of simulation modelling and to confirm the maps' accuracy
- **Validation** – running the approximate dynamic simulation to demonstrate the agreed process
- **Problem scoping** – identifying and discussing the issues revealed by the simulation
- **Improvement** – discussing ways of resolving those issues

For the user workshop the validation stage was omitted. In addition, the improvement stage was more focused on how to bring about (and measure) greater patient satisfaction.

Although we used PowerPoint slides in an attempt to guide the problem-scoping and improvement stages, it quickly became clear that a rigid pattern of discussion might be an unrealistic expectation. Insights, suggestions and other thoughts were offered as and when they occurred to participants. Accordingly, the questions below ultimately represented only a basic framework/checklist for prompting discussion and encouraging feedback.

- What is your opinion of the existing service?
- Do you understand the patient pathway?
- Do the process maps make sense?
- Are changes needed?
- Do you believe the service is reducing emergency admissions?
- Do you believe the service provides more appropriate treatment than emergency admission?
- Are resources being used effectively?

Having considered these and other questions, participants at the stakeholder workshop were also asked to give thought to how they might help bring about improvements in the patient pathway within the constraints of their own professional roles. Participants at the user workshop were asked to give thought to how patient satisfaction should be measured.

It was clear from all the workshops used to evaluate BCT's pilot interventions that many stakeholders had never before had an opportunity to meet up and learn about the merits and failings of the system to which they all contributed. The running and re-running of different scenarios enabled participants to grasp the overall workings of an intervention in which they had a common interest and to propose and debate possible enhancements.

A number of issues were consistently identified and discussed. Almost all of them underlined the value of fully appreciating the

increasingly interconnected nature of care provision. They included:

- Lack of knowledge about the interventions among healthcare staff in general
- The importance of understanding the role of social services
- The need to increase the involvement of mental health specialists
- The scope to further refine the process maps to incorporate existing shortcuts to effective treatment
- The potential role of additional data in improving performance analysis

Many participants remarked that emergency admission to hospital has come to be viewed as a safe and easy option, in large part because staff have limited awareness of how the overall patient pathway might function more efficiently. With this in mind, there emerged from each workshop a strong conviction that there should be greater cross-service collaboration to address the issues highlighted by the simulations.

For all the workshops, whether for stakeholders or service users, the vast majority of those who took part agreed that SIMTEGR8 helped them to "focus on the journey of patients through the system". Most also felt that by attending they personally contributed to developing the effective provision of services.

All responses were collected and subsequently used to inform further evaluation and refinement of the patient pathway. This brings us to the final stage of the methodology.

> **Many stakeholders had never before had an opportunity to meet up and learn about the merits and failings of the system to which they all contributed.**

5. Re-modelling

The last step is to use the refinements suggested during the workshop discussions to re-model the dynamic simulation. This, in turn, should reveal improvements in the patient pathway. Once again, don't forget that this is an iterative process and that the pursuit of perfection is continuous.

Even where Lean principles are applied, there will always be some waste, some inefficiency, some potential benefit that remains to be identified. This underlines a vital attraction of SIMTEGR8: it is genuinely dynamic, designed to respond and adapt to ongoing shifts, suggestions and ideas.

The Older Persons Unit and the three other BCT pilot interventions have benefited from this flexibility. Each now has its own dynamic model, which project leaders can use to investigate and test refinements.

III. Now it's your turn

The example of how SIMTEGR8 was used to evaluate and refine BCT's Older Persons Unit should give you a good idea of how you might employ a similar approach to assess and improve your own integrated service interventions.

You may wish to use our finished model to input data relevant to your own scenario. Alternatively, you may wish to use the SIMTEGR8 methodology in its entirety to analyse a different patient pathway in your health and care system.

In this chapter we take a closer look at each of these options, beginning with an easy-to-understand explanation of how to use the existing SIMTEGR8 model for the Older Persons Unit.

The SIMUL8 Corporation

We use software from the SIMUL8 Corporation, a specialist in developing simulation modelling for healthcare. The following instructions are the property of the SIMUL8 Corporation and are not be reproduced without its express written consent.

Using the SIMTEGR8 Older Persons Unit simulation

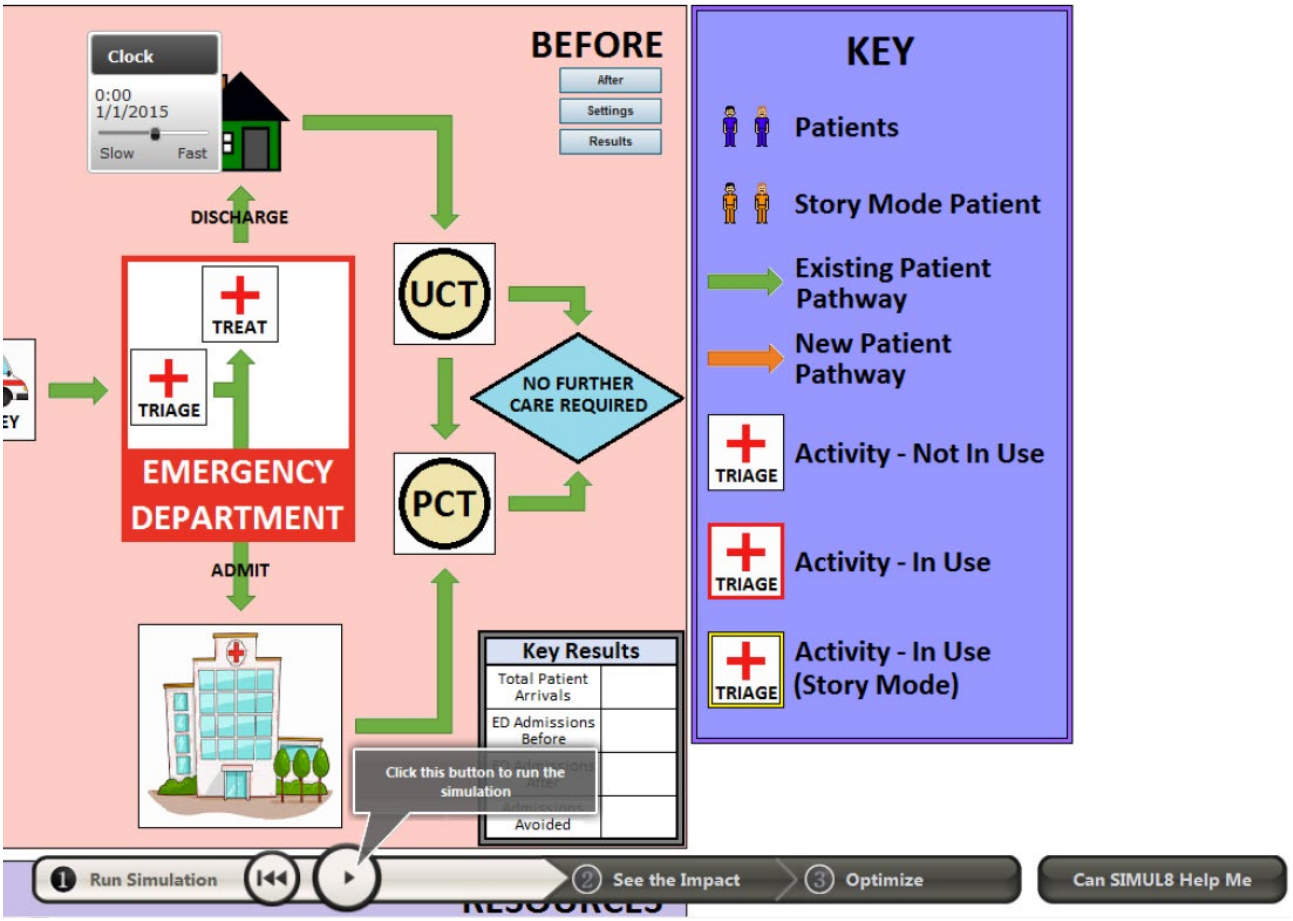
i. The basics

You can access the finished SIMTEGR8 Older Persons Unit simulation by clicking on the following link:

www.yousimul8.com/watch.php?x=572237fecc107

When you open the model you will see a welcome message that summarises the simulation. Click 'OK' in the dialogue box to continue.

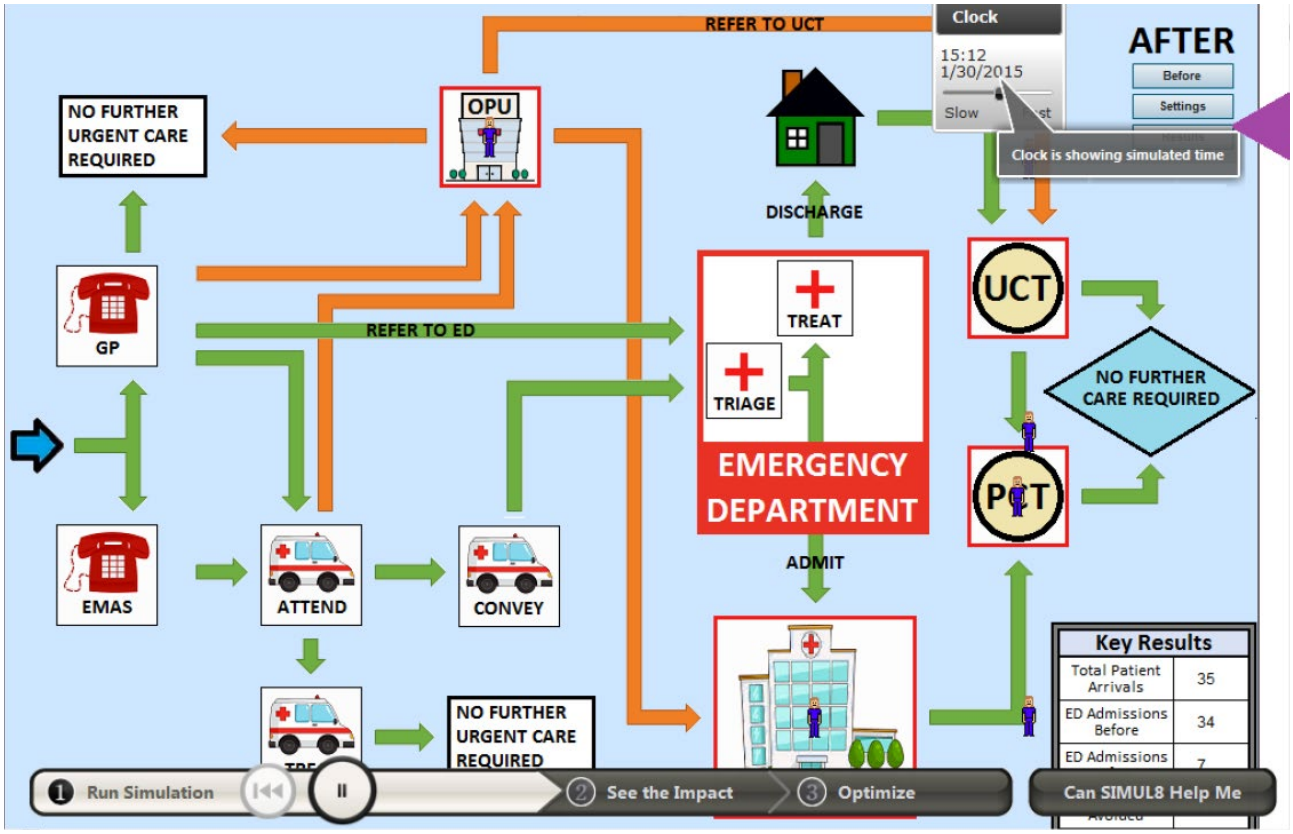
You will next see a representation of the patient pathway before the intervention's introduction. This is indicated by the red background and the 'Before' title in the screen's upper right corner. All the activities associated with this pathway, as well as the user interface menu and the key results panel, are contained within the red background. On the far right of the screen you will find a key to the images used in the simulation.



Here we see the 'Before' screen. Moving to the far right displays the key to the images used in the simulation. The button that runs the simulation is indicated at the bottom of the screen.

Clicking ‘After’ in the user interface menu will switch to a view of the patient pathway after the intervention’s introduction. The background will now be blue, with elements of the new pathway indicated by orange arrows. You can switch back again by clicking ‘Before’.

You can run the simulation on its default setting by clicking the button indicated in the illustration on the previous page. Alternatively, you can speed up or slow down the pace at which the simulation runs by using the ‘Clock’ slider, as indicated in the illustration below.



Here we see the ‘After’ screen. Note the ‘Clock’ and ‘Results’ buttons, as indicated in the upper right corner.

ii. Data set-up

Suppose you wish to learn more about whether this or a similar pathway would be suitable for your own scenario. This would require you to enter your own data. Click 'Settings' and you will see a dialogue box that allows you to vary a number of options.

- **Patient arrivals** – used to change the number of patients entering the system on a weekly basis each month of the year

  Using the options menu, select the month for which you wish to alter the number of arrivals. Click 'OK'. Enter the number of expected weekly arrivals in the next dialogue box and click 'OK' again. A pop-up window will confirm your entry.

  In the initial 'Patient arrivals' dialogue box you can also view a spreadsheet showing all arrivals data. In addition, you can also reset the data to the pre-set default.

- **Patient pathways** – used to change the percentage of patients being routed out of any activities, with multiple options for where a patient goes next

  Select the activity for which you would like to change the percentage of patients being routed out. Use the dialogue box to enter the percentage being directed from that activity to each of the listed activities. All the entered percentages should total 100%.

  From the initial 'Patient pathways' dialogue box you can also view a spreadsheet showing all pathways data. In addition, you can reset the data to the pre-set default. There is also an option to change the distribution of the new service's length of stay ('LOS').

- **Activity distributions and timings** – used to change the data relating to the time taken in each of the processes within the intervention, as well as the underlying distribution used when sampling the variation in this activity time

  Select the activity for which you would like to change the distribution and timing data. Use the dialogue box to choose from 'Fixed', 'Average' and 'Triangular'. 'Fixed' removes the variation and sets the activity's timing to the exact value entered. For 'Average' you can input a value roughly typical of the process, allowing for variation of this timing. For 'Triangular' you can input minimum and maximum values, bounding a modal (or most common) value and allowing for variation of this timing.

  You can learn more about this function by visiting the following link:

  https://simul8.com/support/help/doku.php?id=features:distributions

- **Resources** – used to change the number of staff available for each of the processes within the intervention

  Simply enter a value for each staff type used within the simulation and press 'OK'.

  Here you can also access the ability to set and customise the inbuilt 'Story mode' scenario, which we will discuss in further detail in the next sub-section.

iii. Running a simulation

Having inputted your own data, you will now be in a position to run the simulation. This can be done in two ways: 'Simulation run' and 'Story mode'.

Simulation run

Click the 'Simulation run' button to start a general simulation. Since 'Story mode' is switched off by default, this will allow an uninterrupted simulation of one year's activity.

You will see patients (in blue) moving along the pathway. They will queue for a particular activity if resources are not available and then enter the activity for a sample period of time before moving on. The key results panel will dynamically display the number of patients, the number of emergency admissions to hospital and the number of emergency admissions avoided.

It is still possible to switch between 'Before' and 'After' while the simulation is running. Depending on the level of animation detail you wish to see, you can also use the 'Clock' slider to alter the speed of the simulation.

The final results are displayed automatically at the end of the simulation. They can also be accessed by clicking 'Results' and 'System performance'. They show the average queue time, the maximum queue size, the total number of patients involved in each activity before and after the intervention's introduction and the average utilisation of each staff member.

Story mode

While 'Simulation run' allows you to inspect and evaluate services based solely on system performance, 'Story mode' offers insights from the perspective of patient experience. Click 'Settings' and toggle 'Story mode' on to activate this mode.

Note that there is an option to change how the simulation switches view in this mode. The default is to track the activity of a patient by switching a view to that patient when something of note occurs.

The characteristics of the patient being tracked are in keeping with those we mentioned earlier in outlining our criteria for an avoided emergency admission to hospital. The patient would have been admitted *before* the intervention's introduction but not *after* the intervention's introduction. You will see that pop-up dialogue boxes appear as the patient moves through the two systems, allowing an easy-to-follow comparative story to unfold.

A specific 'Story mode' set of results is displayed automatically at the end of the simulation. This can also be accessed by clicking 'Results' and 'Transaction log'. These results show the arrival and departure times for each activity within each patient's journey, as well as the duration of each activity.

Evaluating an integrated service

We covered in chapter II the methodology employed to evaluate BCT's pilot interventions. You can use the same five steps that enabled us to test the impact and effectiveness of the initiatives and to assess the ability of patient/user metrics to provide an adequate measure of integrated service care.

Let us quickly revisit those steps here, adding just a few further tips and insights where appropriate.

1. **Data collection** – gathering information about a pathway, including details such as nursing hours, travel times, administrative demands etc

   Decide which patients to track and define the parameters of their journey – that is, where they enter and leave the pathway. Don't forget, too, that you will need a set of benchmarking information about how the system worked prior to being changed.

2. **Data interpretation** – drawing on this information to produce a process map showing the patient's journey through the care-provision system

   Your local authority systems analyst and the project lead for the service you are analysing should be able to help you at this stage. Remember to produce two maps – one showing the pathway before the intervention's introduction, one showing it after the intervention's introduction – to facilitate a comparison of the number of emergency admissions avoided.

3. **Simulation modelling** – using the process map to create an approximate model of how the system works

   Remember that the model does not need to be detailed or perfect. It need only be sufficiently accurate to demonstrate the basic process at work. There are several software packages you could use for this stage; we favour those produced by the SIMUL8 Corporation.

4. **Workshops** – holding interactive sessions with stakeholders and service users to enhance understanding of the system, compare the model with real-world experiences and identify potential improvements

   This stage is discussed in more detail in the next section.

5. **Re-modelling** – applying the information gleaned from the workshops to produce an updated model for project leaders to use going forward

   Workshops provide the data needed for ongoing improvement. Take the information from each session and use it to adjust your model accordingly, in keeping with an iterative process of constant refinement.

Some final tips on running workshops

We remarked earlier that the workshop stage is in many ways the most important step of the SIMTEGR8 methodology. This being the case, let us conclude by taking a closer look at how you might go about deriving the maximum benefit from any workshops you hold.

i. Participants

- Invite CCG commissioners, clinical leads and representatives of hospital trusts, social services and physiotherapy teams. Eight or nine participants should be sufficient.
- Appoint a facilitator. You might use only a simulation consultant, but we found it was useful to also have someone to focus on leading the discussion.
- Appoint a note-taker to ensure nothing important is missed during the course of the discussion.

ii. Order of events

- Give thought to timing. The workshop should be long enough to encourage meaningful discussion but not so long as to invite a loss of focus among participants. Between two and two-and-a-half hours is about right.
- Present the “before” and “after” process maps to introduce participants to the concept of simulation modelling and to confirm the maps’ accuracy.
- Run the approximate dynamic simulation to demonstrate the agreed process.
- Identify and discuss the issues revealed by the simulation.
- Discuss ways of resolving those issues.

iii. A 10-point plan for discussion guidance

- Begin the session by asking participants to state their personal aims and expectations for the workshop. Invite them to write these down on cards. This ensures participants' goals are recorded not only at the earliest opportunity but for future reference.
- Use PowerPoint or similar presentation software to move from one element of the discussion to the next. Bear in mind, though, that a rigid pattern of discussion might be an unrealistic expectation: the use of structured prompts is considered a better approach.
- Split participants into equal-sized groups after the dynamic simulation has been screened. Ask each group to nominate a note-taker.
- Provide the groups with salient discussion points (e.g. their opinion of the intervention, their understanding of the pathway, their thoughts regarding possible changes etc).
- Allow 10 minutes and then introduce more focused discussion points (e.g. their thoughts regarding the effectiveness of the intervention in reducing emergency admissions).
- Allow another 10 minutes and then reconvene all the participants.
- Collect the written notes to help inform further evaluation of the patient pathway.
- User participants should be encouraged to provide feedback from a patient perspective. Equip them with sheets of paper divided into two columns and headlined "Speed", "Dependability", "Flexibility" and "Quality".
- Ask participants to write in the left-hand column their ideas regarding how to measure patient satisfaction and how to gather the required data.
- Ask groups or individuals to swap lists and to write in the right-hand column their thoughts on the ideas proposed. Use the ideas and responses as a basis for subsequent discussion.

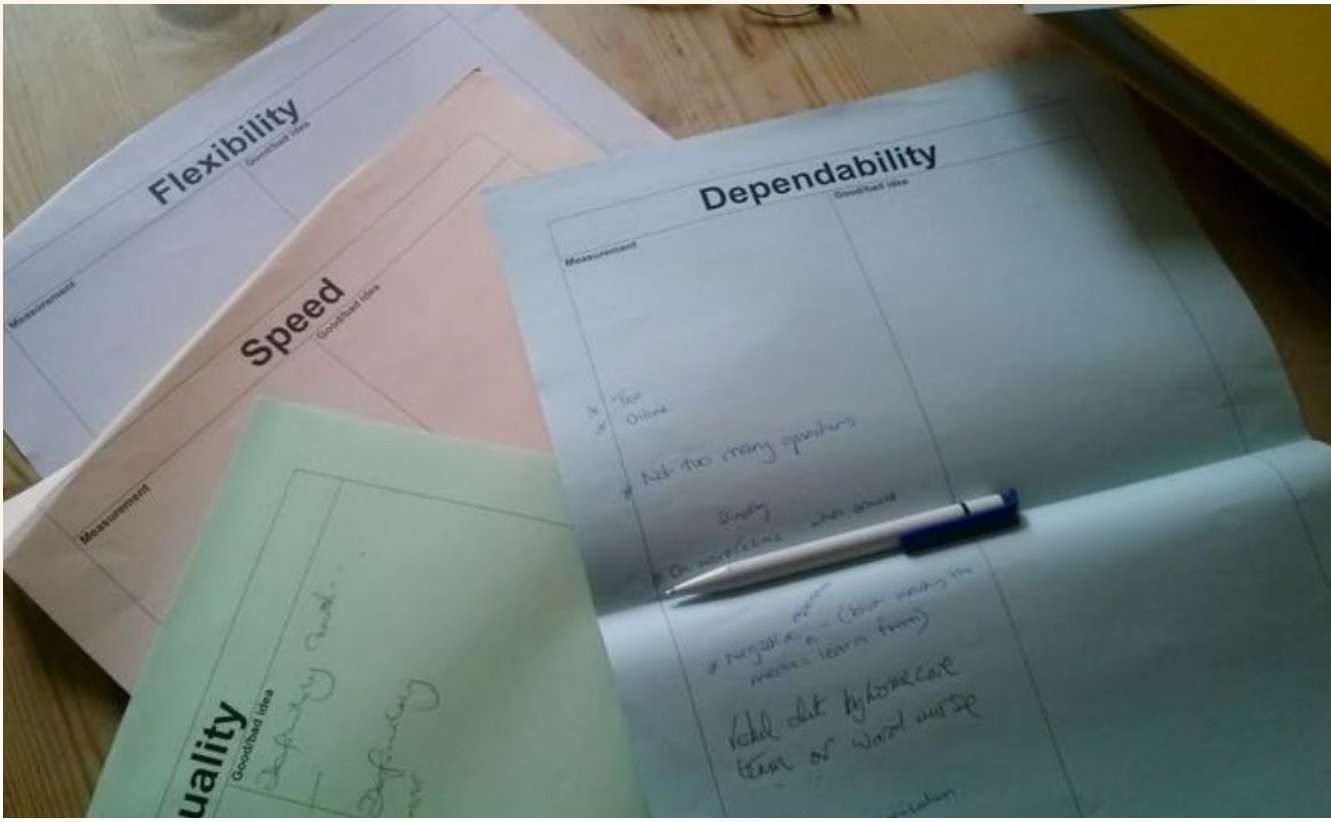
iv. What to do at the end

Participants should be handed back the cards on which their initial aims and expectations were written. These should be updated with what was actually achieved during the session. The completed cards should serve both as a vital record of the workshop's effectiveness and as an impetus for participants to carry out their stated actions.

v. What to do afterwards

Remember that the workshops are fundamental to the data-gathering that is needed for the continuous pursuit of perfection. After each workshop you should use the information gleaned to adjust your model accordingly. You might also consider capturing the proceedings and the results of the analysis in a case study for your integration board.

In short, you should aim to draw on the workshops to improve the model, improve the pathway and improve the method.



Here we see the feedback sheets distributed to user workshop participants.

IV. What you can do next

- **Explore**

  Follow the link below to discover further SIMTEGR8 simulations

  www.simtegr8.org

- **Experiment**

  Input your own data into the simulations to see how they relate to your local scenario

- **Evaluate**

  Run your own workshops, using our experience as a basis for analysing your own patient pathway

  Write your own simulation with the help of training and licensing from the SIMUL8 Corporation

  Contact the SIMTEGR8 project team at simtegr8@lboro.ac.uk

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V. Appendices

SIMTEGR8 project team

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Gemma Barrow, *Healthwatch Leicestershire* – project board member

Claire Cordeaux, *SIMUL8 Corporation* – project board member

Cheryl Davenport, *Leicestershire County Council* – project board member

Anastasia Gogi, *Loughborough University* – research associate

Vandna Gohil, *Healthwatch Leicestershire* – project board member

Edward Ostler, *SIMUL8* – simulation consultant

Professor Zoe Radnor, *Loughborough University* – principal investigator

Professor Stewart Robinson, *Loughborough University* – co-investigator

www.simtegr8.org

Partners and organisations

Loughborough University – www.lboro.ac.uk

Leicestershire County Council – www.leicestershire.gov.uk and www.healthandcareleicestershire.co.uk

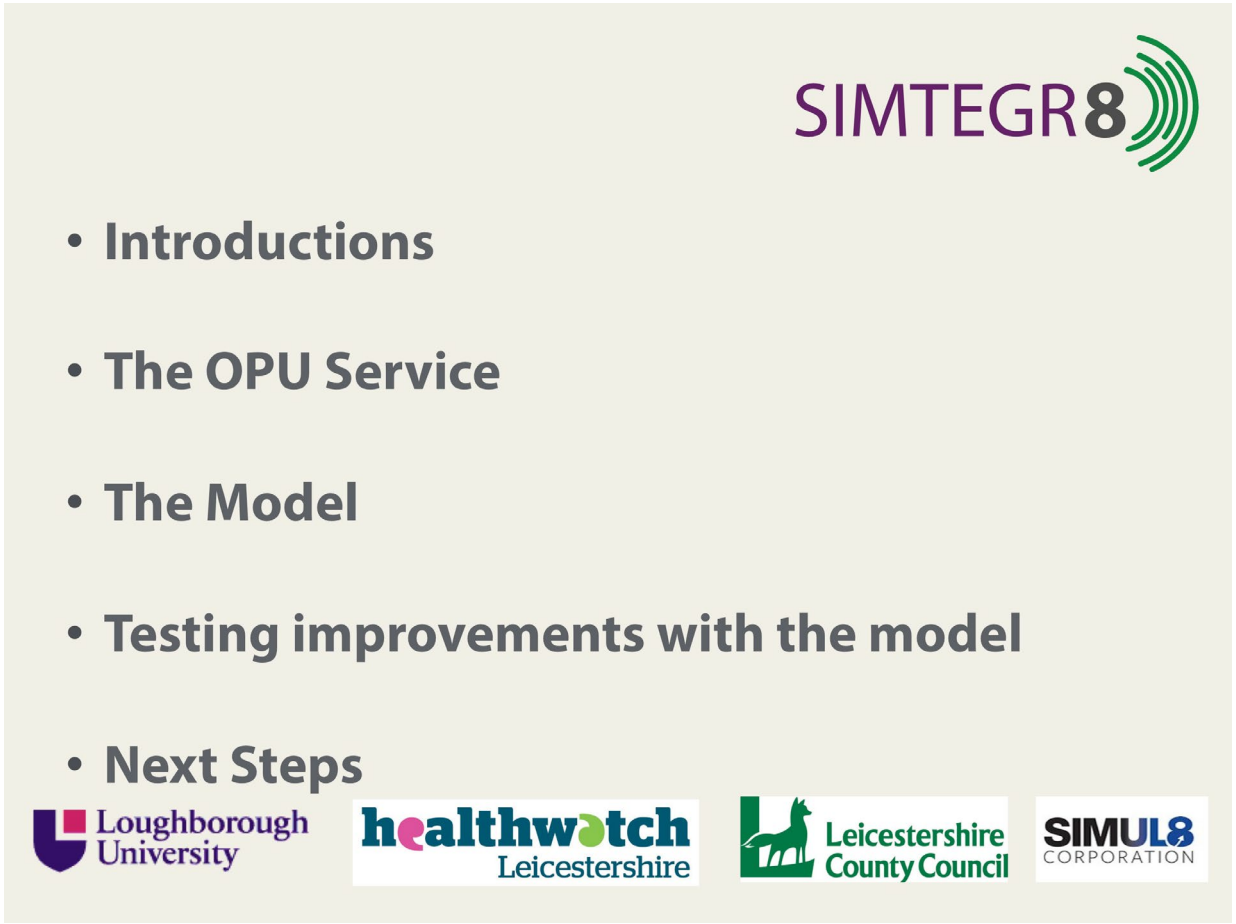
Healthwatch Leicestershire – www.healthwatchleicestershire.co.uk

SIMUL8 Corporation – www.simul8.com

Better Care Together – www.bettercareleicester.nhs.uk

Better Care Fund – https://www.england.nhs.uk/ourwork/part-rel/transformation-fund/bcf-plan/

Stakeholder workshop PowerPoint presentation



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Background

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SIMTEGR8

Purpose

- **Evaluate** how emergency admissions to hospitals can be reduced
- **Help Improve** the patient journey through new integrated interventions
- **Focus on** Older Person's Unit

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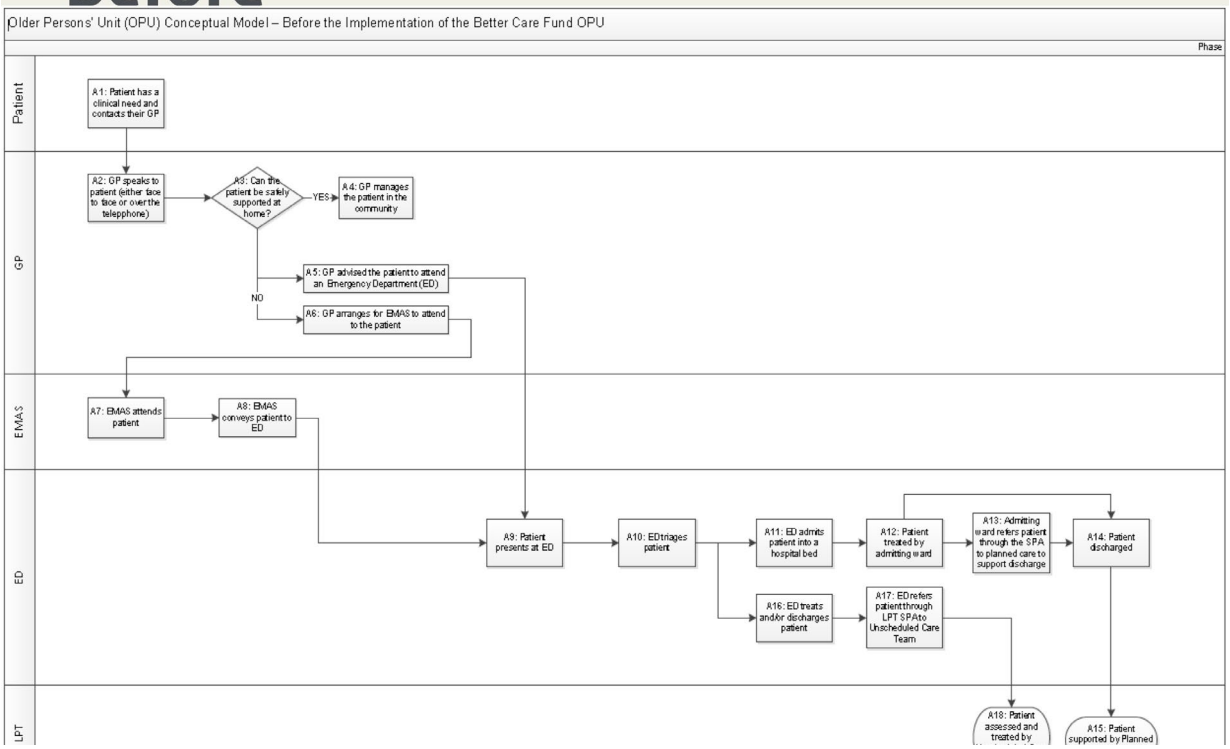
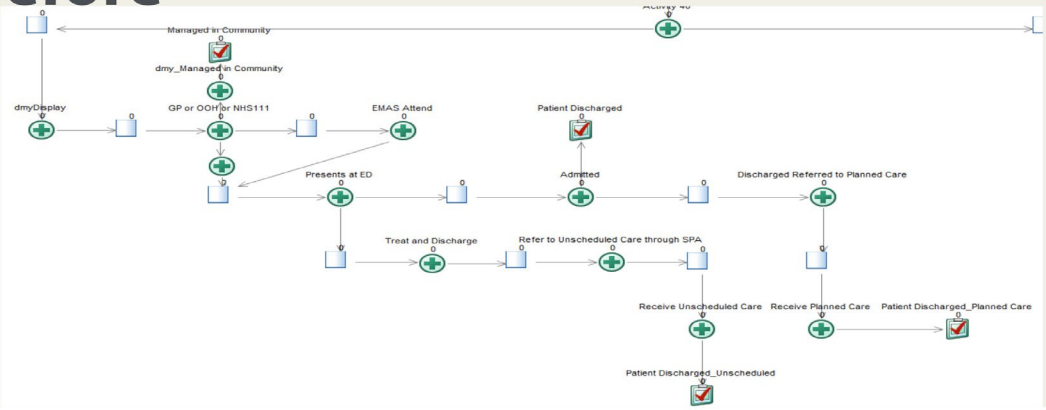
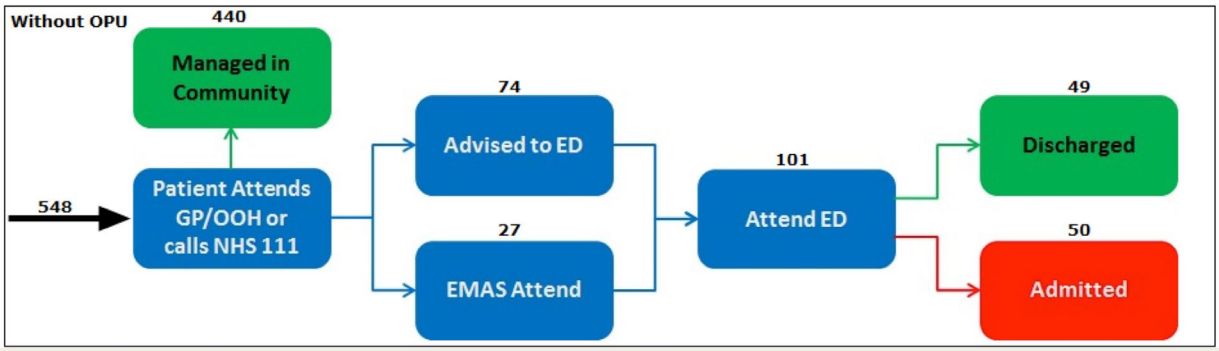
Before



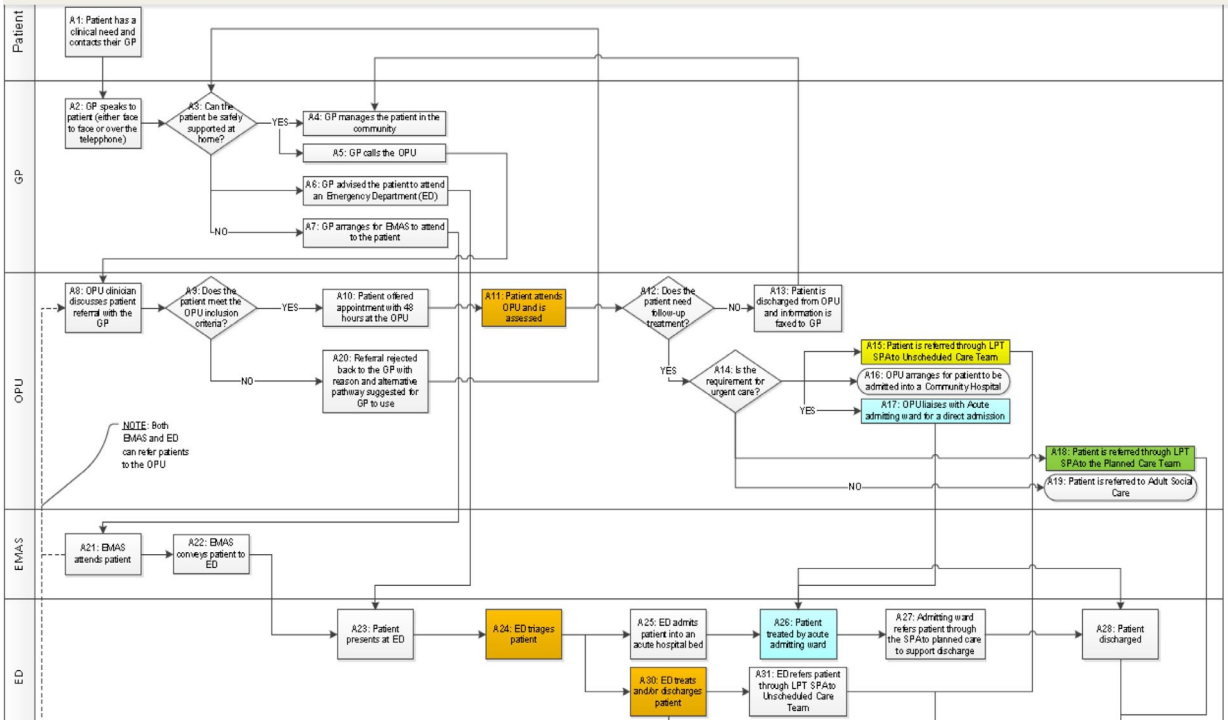
Before





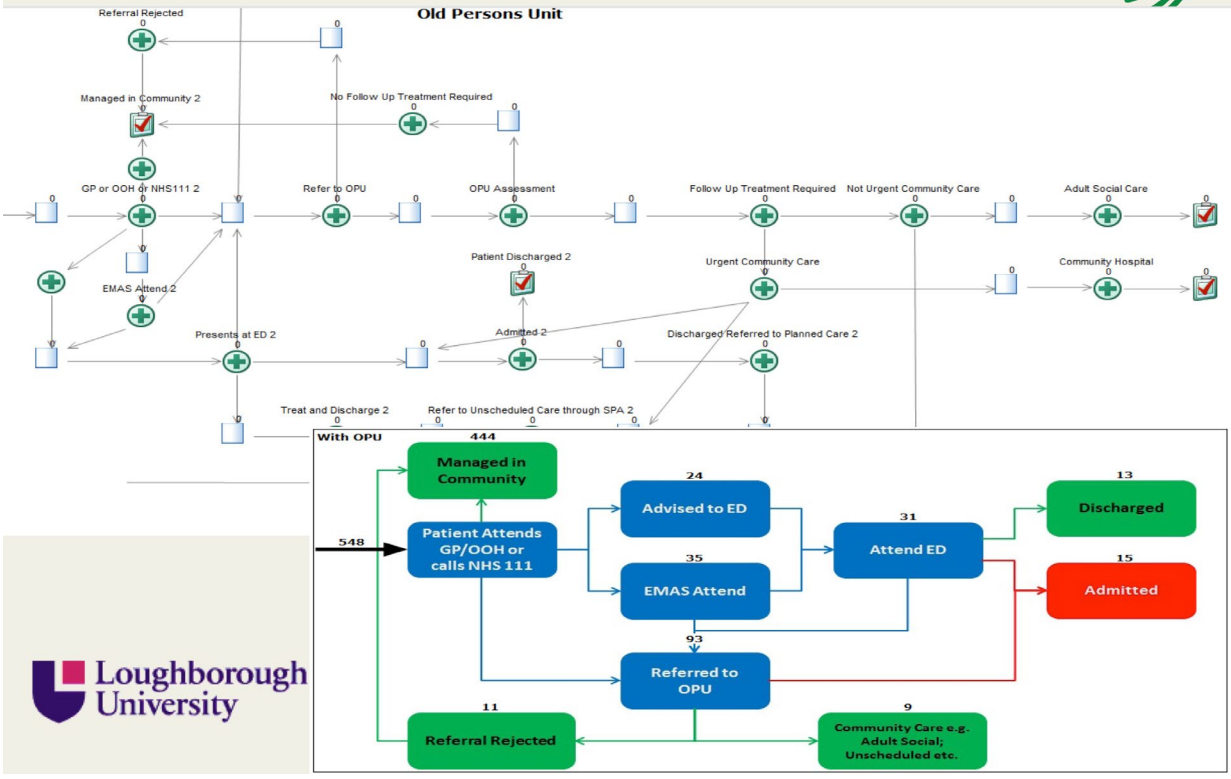
After

SIMTEGR8



After

SIMTEGR8

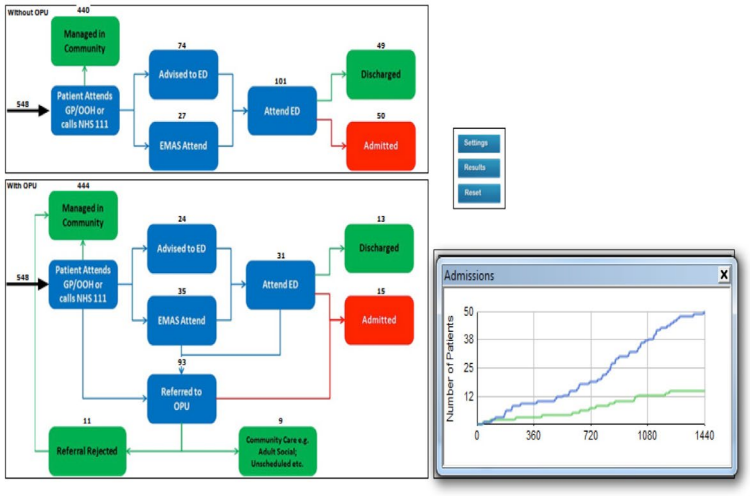


Loughborough University

Validation

- "Dummy data" for comparison only
- Test assumptions
- Update with actual data following the session and including insights

The Model



- Does it reflect the current situation?
- Any modifications?
- Other improvements?
- Likely constraints?
- Any learning points?

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Summarising Next Steps

Simulation to Evaluate Great Care (SIMTEGR8)

Dr Marianne Bamkin

Loughborough University

Ed Ostler

SIMUL8 Corporation

Background

SIMTEGR8

Loughborough University

healthwatch Leicestershire

Leicestershire County Council

SIMUL8 CORPORATION

SIMTEGR8

Purpose of Project

- **Understand** current patient pathway and develop approximate computer simulation
- **Evaluate** how emergency admissions to hospitals can be reduced
- **Help Improve** the patient journey through new integrated interventions

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Purpose of Workshop

- Work together to find ways of developing the system from a user perspective

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How?

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- Summary of the service
- Computer simulation
- Discuss patient journey
  - Group work
  - Discussion
  - Feed back
- Measuring patient satisfaction

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Leicestershire Partnership NHS Trust

OLDER PERSON'S UNIT

- Established in October 2014
- Based within a Community Hospital
  - Consultant Geriatrician
  - Advanced Nurse Practitioner
  - Health Care Assistant
  - Project Lead/Administration

Leicestershire Partnership NHS
NHS Trust

OLDER PEROSN'S UNIT

Opening Hours:

- Monday – Friday
- 09.00 – 17.00hrs
- Not open Bank Holidays
- Consultant Geriatrician – currently 3-4 sessions per week
  - telephone cover thereafter
- Nurse practitioner and healthcare assistant cover all sessions
- Physiotherapy and OT support
- Admin support staff

Leicestershire Partnership NHS
NHS Trust

OLDER PERSON'S UNIT

Referrals accepted from:

- GP's – East and West locality (not city)
- Ambulance Service
- District Nursing Team
- Intermediate Care Teams
- Specialist Nurses
- Acute Visiting Service (AVS)

Leicestershire Partnership NHS
NHS Trust

OLDER PERSON'S UNIT

Inclusion criteria:

- Over 65
- Registered with GP within Leicestershire County
- Sudden deterioration or "off legs"
- Long term Conditions
- Sudden Confusion
- Polypharmacy

Leicestershire Partnership NHS
NHS Trust

OLDER PERSON'S UNIT

Exclusion Criteria:

- Head Injury
- Acute Cardiac problem
- Suspected CVA
- Acute Psychiatric Issue
- Admission to hospital required as not safe to remain in home environment

Leicestershire Partnership NHS
NHS Trust

OLDER PERSON'S UNIT

Referral process:

- Telephone call to OPU
- Accept/decline/divert to another service

Once accepted:

- GP summary requested
- Contact made to patient/relative
- Transport

OPU:

- 2 hour comprehensive geriatric assessment process

Leicestershire Partnership NHS
NHS Trust

OLDER PERSON'S UNIT

Investigations:

- Height and Weight
- Observation
- ECG
- X-Ray
- Bladder Scan
- Bloods using I-Stat machine, using Chem 8+ cartridges
- Urine Dip
- Samples sent to labs if required.

OLDER PERSON'S UNIT

Following Assessment:

- Discharge Home
- Admit to Community Hospital
- Admit to secondary care
- Discharge home with Intensive Community Service (ICS)

Group discussion 1

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- Think about
  - Your opinion of service
  - Understanding of pathway
  - Does it make sense?
  - Are changes needed?

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Group discussion 2

Questions

- Do you think that it is reducing admissions?
- Does it really provide more appropriate treatment than admission?
- Are the resources being used effectively?

Measuring Patient Satisfaction

- Quality
- Speed
- Dependability
- Flexibility

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Acknowledgments

We would like to acknowledge the contributions of all the workshop participants, members of Healthwatch Leicestershire, the staff of Leicestershire County Council and the project leads and frontline workers for the Better Care Together interventions. All willingly gave their time and insights to help this project run smoothly. We are also grateful to Loughborough University's Enterprise Project Group, whose funding made this project possible.

SIMTEGR8

Contact the SIMTEGR8 project team at
simtegr8@lboro.ac.uk

Loughborough University

Leicestershire County Council

healthwatch Leicestershire

SIMUL8 CORPORATION