

Report of SIMTEGR8 Project

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Glossary

SIMTEGR8	Simulation to Evaluate Great Care
LCC	Leicestershire County Council
BCT	Better Care Together initiative
SIMUL8	The SIMUL8 Corporation – a global computer simulation software company
SimLean	A method of analysis using computer simulation and Lean principles
Lean	The principle of reducing waste in a system to provide good value for the end user
Computer simulation	A computer program that attempts to simulate an abstract model of a particular system
Process map	A diagram of a system that identifies all the steps through the system
Model	A computer program that attempts to simulate a real-life system
EMAS	East Midlands Ambulance Service
CCG	Clinical Commissioning Group
LPT	Leicester Partnership Trust
UHL	University of Leicester Hospitals
ELRCCG	East Leicestershire and Rutland Clinical Commissioning Group
WLCCG	West Leicestershire Clinical Commissioning Group
GP	General Practitioner
Step up/ Step down dashboard	The tables containing performance figures of the interventions set against pre-selected targets
OPU	Older Persons' Unit
Falls	The Falls Service
NHS 111	The free telephone helpline that provides urgent medical help and advice
BCF	Better Care Fund. A Government fund which provides financial support for councils and NHS organisations to jointly plan and deliver local services
ED	Emergency Department. Also known as also known as an accident & emergency department, emergency room or casualty department of a hospital.
PPG	Patient participation group
NHS	National Health Service

Summary

Context and background

The Simulation to Evaluate Great Care (SIMTEGR8) project came about because Leicestershire County Council (LCC)¹ and Healthwatch Leicestershire² approached Loughborough University³ to evaluate four patient centric integrated service interventions being piloted in the county. The interventions are a response to Leicestershire's Better Care Together⁴ (BCT) five year strategic plan, which overall is working towards breaking down barriers between health and social services and providing fully integrated service provision ensuring that people are at the centre of the services delivered by Leicestershire. The Better Care Together (BCT) five year Strategic Plan was launched in late June 2014 setting out changes for the integration of health and social care for Leicester, Leicestershire and Rutland.

This five year plan maps to key quality improvement metrics for sustainable care as set out in the Better Care Fund (BCF), such as reduction in avoidable emergency admissions. The four interventions that were selected for evaluation are aimed at reducing the overall number of emergency hospital admissions due to falls, frailty and short term care crises. At the beginning of the SIMTEGR8 project the interventions were already implemented as pilot schemes in two Clinical Commissioning Groups: West Leicestershire Clinical Commissioning Group and East Leicestershire and Rutland Clinical Commissioning Group and are as follows:

- Integrated Crisis Response Service (ICRS)
- Older Persons Unit
- Urgent Response Falls Service
- 7-day Services in Primary Care

The purpose of the evaluation was to test their impact, effectiveness and to ensure that patient/service-user metrics provide an adequate test of the integrated service care experience.

Healthwatch Leicestershire is a local consumer organisation which represents the people of Leicestershire within the wider Healthwatch England network. It has independent statutory powers to act on behalf of adults and children with the remit to report the public's views to health service providers and can hold them to account. Their involvement with the SIMTEGR8 project stemmed from a local public concern that health, social service and General Practitioner services were not fully co-ordinated and that elderly and frail people are a Healthwatch key priority patient group.

Loughborough University was approached to carry out the evaluation because Professors Stewart Robinson and Zoe Radnor of Loughborough University had previously developed a successful methodology which used simulation modelling together with Lean principles to investigate potential system improvements. They had collaborated with four hospital trusts who were working towards implementing a "lean programme" (SimLean). The methodology that was

¹ www.leicestershire.gov.uk

² <http://www.healthwatchleicestershire.co.uk>

³ www.lboro.ac.uk

⁴ www.bettercareleicester.nhs.uk

used for SimLean was purposefully adapted to suit the criteria and context of the four LCC interventions.

The SIMTEGR8 project was designed to evaluate the ways that emergency admissions can be reduced and to help improve the patient journey through the four selected interventions. The project aim was to:

Generate understanding and discussion around the impact of the current alternative pathways on reducing ED admissions and improving user experience.

The objectives of this study were as follows:

1. Evaluation of the current interventions to build a dynamic process map that will identify the critical points for the patient journey
2. Recommend a dashboard of two to three meaningful metrics that could be implemented to align transformation of health and social care related to patient journey experience
3. Influence policy nationally through Healthwatch and Council networks by building an evidence base and online handbook to inform the design of future service delivery

Methodology

The methodology used to evaluate the interventions was based on the SimLean technique of using computer simulation and the concepts of “Lean” business principles. That is, improving a system without generating waste. In this case, the system is the path that the patient takes from initial contact with the health service because they have a specific health crisis, to the satisfactory resolution of their problem – the patient pathway. “Waste” can be interpreted as the length of time the patient has to wait for treatment, or the number of people he has to see to receive treatment.

The SIMTEGR8 project developed that methodology and adapted it for the analysis of the intervention pilot as will be detailed below. The aims of the methodology were to:

Generate discussion about the model, the patient pathway, the reality of the situation and the veracity of the metrics being gathered as evaluations of the patient pathway

Identify and resolve issues in order to improve the efficiency and effectiveness of the pathway with focus on good patient care

The methodology followed a set of specific steps.

- Data were collected about the particular patient pathway, including nursing hours, travel times, phones calls
- The data were then interpreted as a process map, a diagram of the way that the patient travels through the system
- The resulting process map was used to produce an approximate model of the system; not detailed or perfect but it is good enough to show the basic process at work

- Workshops were held to display the approximate model with relevant health, LCC and Social Services staff (stakeholders) or with users of the patient pathway in order to identify the way that the process works and suggest ways that it could be developed

Our experience

Because the methodology had been adapted from other similar research projects we noted that the main challenges for SIMTEGR8 were different to those of previous work. For example:

- The SIMTEGR8 interventions modelled the patient pathway through a multi-service process, which was complex to map
- Because SIMTEGR8 workshops with key stakeholders were of half a day in duration the models were prepared in advance and then compared against the reality of system. Attempting to verify the process and data in workshops where some people had little knowledge of the pathway was therefore challenging
- Access to patients and users of the individual pathways was more difficult to obtain than anticipated

However, we found that the stakeholder workshops enabled people with operational interest in the patient pathway to meet, learn and discuss its merits. Although the “user” workshops were attended by general health and care service users and their representatives rather than direct users of each patient pathway information about the interventions was spread and each intervention was analysed thoroughly. The level of participant engagement in the workshops was generally high but we found that discussion was better enabled when an intervention project leader was available to provide detailed, first hand, information. We discovered that in order to gather opinions about the pathways from people who had direct experience of one of the new interventions we should have tracked patients through the intervention from the beginning of the project and collected contact data from consenting participants as they were undergoing their experience.

Issues with the patient pathways and the interventions that were identified in the workshops were:

- What specific data needed to be gathered to analyse the performance of the interventions
- The lack of knowledge about the interventions amongst healthcare staff in general
- Understanding of Social Services and Physiotherapy roles within the interventions
- Mental Health staff should be more involved
- Revision of the process maps could reflect other existing shortcuts to care
- Geographic differences, both physically and organisationally between the two CCGs

There was a strong feeling amongst the stakeholder workshops that there should, and will, be greater collaboration across the services in order to solve these issues. Action points were taken away by the participants and the reports of the stakeholder workshops were presented to Leicestershire’s integration board and action plans for the interventions were updated to reflect the workshop findings.

In Conclusion

We concluded that an approximate computer simulation of each intervention, used in a workshop situation, did provoke sufficient discussion about the interventions to evaluate their effectiveness and that due to reports from the workshops being presented to the Better Care Together project board, the implementation of the next phase of operation was directly influenced by the SIMTEGR8 methodology. Therefore the pathways were effectively evaluated by using a computer simulation model of the patient pathway as a dynamic process map and in consequence the pathways are being improved.

Project Outcomes

- Direct influence on the next phase of the four interventions
- Simulation modelling training for LCC staff
- Project website which includes:
 - Four interactive simulation models for each intervention
 - Four online handbooks for each intervention
- Conference attendance and at least one academic article

Introduction

The SIMTEGR8 project is collaboration between Loughborough University, Healthwatch Leicestershire and Leicestershire County Council. The project uses computer modelling and simulation techniques in order to assess how the patient journey can be improved in four healthcare interventions through which Leicestershire are trying to reduce emergency admissions to hospital. They are:

Falls Service– support from East Midlands Ambulance Service for people who fall at home or in the community.

Integrated crisis response (including the night nurses unit) – health and social care support given at home for up to 72 hours.

Rapid assessment service for frail older people – a geriatric specialist outpatient clinic situated in Loughborough for a comprehensive assessment of individuals that are referred by their GPs.

Seven day services in primary care - pilot schemes in both Clinical Commissioning Groups to test how their localities can offer services and support on a seven day basis to patients with complex needs.

These four interventions are part of the Better Care Together initiative and are performed across multi services.

The SIMTEGR8 project investigated whether the four interventions reduced unnecessary emergency hospital admissions and could a SimLean methodology provide a good way of analysing a patient pathway. The results of the project will support the ongoing work to co-ordinate patient centred integrated service provision and reduce emergency admissions to hospital.

A crucial part of the evaluation process are a set of workshops which look in detail at the patient journey and use a computer simulation as a dynamic process map, in order to stimulate discussion about the patient journey and improvements to the interventions. Eight workshops were planned as a partnership between staff of SIMUL8, Loughborough University, Leicestershire County Council and Healthwatch Leicestershire; four with stakeholders of the interventions and four with users of the healthcare services. This report summarises and reflects on the outcomes of those workshops.

Method

The methodology for the project is based on the SimLean approach that was developed by Professor Zoe Radnor and Professor Stewart Robinson of Loughborough University. It uses computer simulation and the concepts of “Lean” business principles; improving a system without generating waste. In this case, the system is the path that the patient takes from initial contact with the health service because of a specific problem, to the satisfactory resolution of that problem – the patient pathway. “Waste” would be the length of time the patient has to wait for treatment, or the number of people he has to see to receive treatment.

The SIMTEGR8 project developed that methodology and adapted it for the analysis of the intervention pilot schemes in order to discover their effectiveness and to develop their efficiency both for the patient and for the delivery of the service. The methodology had two aims – to:

- Generate discussion about the model, the patient pathway, the reality of the situation and the veracity of the metrics being gathered as evaluations of the patient pathway
- Identify and resolve issues in order to improve the efficiency and effectiveness of the pathway with focus on good patient care

It follows a set of specific steps (*Appendix 1*).

1. Data are collected about the particular patient pathway, including nursing hours, travel times, phone calls
2. The data are then interpreted as a process map, a diagram of the way that the patient travels through the system
3. This process map is used to produce an approximate model of the system, it is not detailed or perfect, but it is good enough to show the basic process at work
4. Workshops are held to display the approximate model with the health staff involved so that they can identify the way that the process works and suggest ways that it could be developed
5. The model is updated with data gathered from the workshops and refined so that it can be used as a tool by project leaders

The workshops are conducted with a similar framework to the modelling process as explained above but with slight differences of emphasis between the stakeholder workshops and the user workshops. The stakeholder workshops are 2 ½ hours in duration and concentrate on actions that could be performed by the participants to improve the intervention and are conducted as seen below:

- First, a process map of each intervention is presented and verified as a reasonable depiction of the patient pathway. Then an approximate model is run to illustrate the agreed process (Model Understanding)
- This is used as the basis of a discussion of whether the model represents what happens in reality (Face Validation)
- The discussion then moves on to issues that have been revealed by running the model (Problem Scoping)
- Finally ways of resolving the issues are suggested (Improvements)

The user workshops are shorter, just 2 hours in duration, and follow a similar pattern to that of the stakeholder workshops but with a greater input of patient experience:

- The intervention is described to the participants, the model is explained and the simulation run showing the movement of patients around the system (Model Understanding)
- The discussion then moves on to issues that have been revealed by running the model and their own issues and concerns (Problem Scoping)
- The discussion turns to methods of improving the pathway and finding ways of measuring patient satisfaction (Improvements)

Workshops

Stakeholder workshops

The stakeholder workshops were conducted in the county offices of Leicestershire County Council. The workshops were attended by either eight or nine participants from the case study organisations. In each case participants were invited by Leicestershire County Council who sought to ensure that representatives from each intervention, from Healthwatch Leicestershire, from the step up/step down integration programme team, and from the organisations involved with better care together such as: East Midlands Ambulance Service (EMAS), East and West Leicestershire Clinical Commissioning Groups (CCGs), Leicester Partnership Trust (LPT), University of Leicester Hospitals (UHL), Leicestershire Social Services.

This cross organisation approach was intended to provide a range of views on each patient pathway, as they cut through many services, and would enable a rich, informed discussion at each workshop. This approach unfortunately had some drawbacks as it was dependant on the representatives of those organisations being available during the time of the relevant workshop. For example, there was a vibrant and engaged discussion during the Night Nurses workshop, where the functional details of the patient pathway and the night nursing service in general was described by the clinical lead of the service. This led to a greater understanding of the reality of the service by all participants and useful information to refine the model. However, at the Falls service workshop the representatives of organisations directly involved with the patient pathway were not able attend, which meant that the participants could not verify the reality of the situation, although they commented about the wider context and patient care before and after the patient pathway.

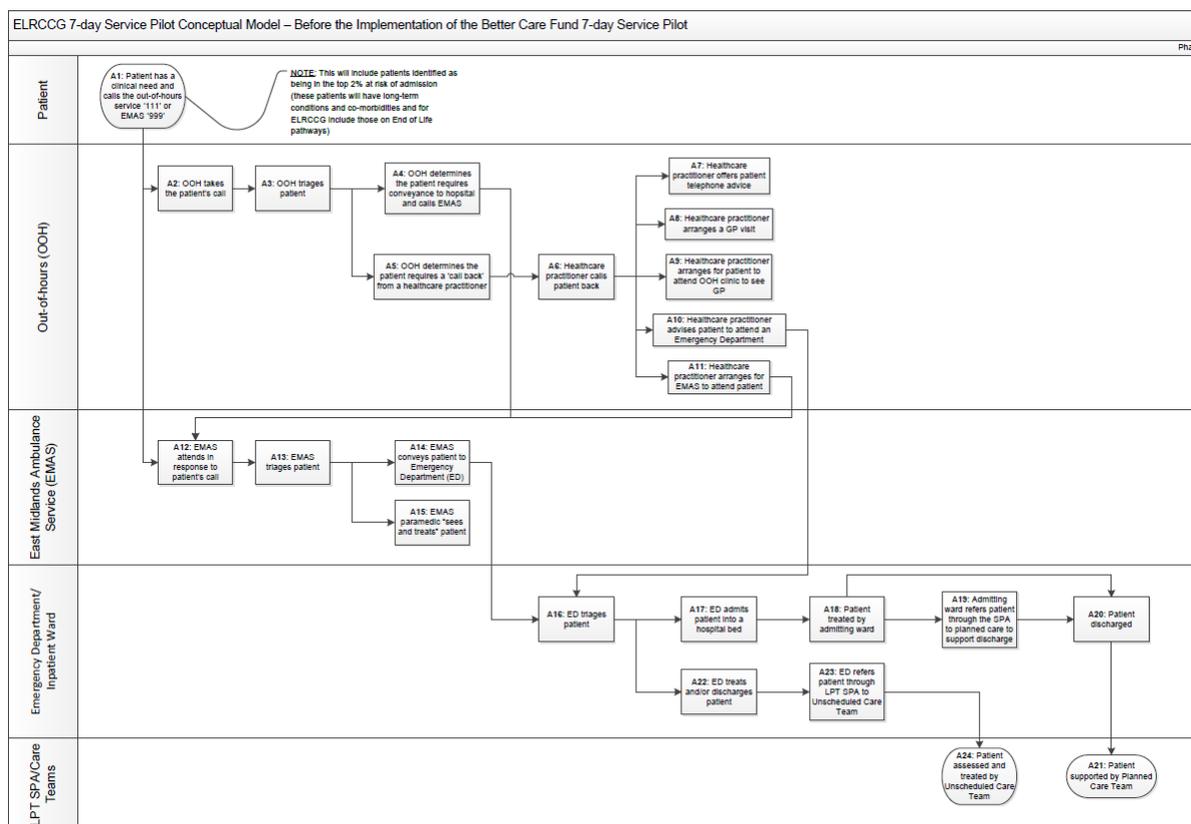
Each workshop started with participants stating what they wanted to gain from participation. These aims included the following issues:

- To discover ways that health and social care can reduce admission and ensure that preventative services are targeted
- To find ways of working collaboratively between health and social care, day shifts and night shifts
- To achieve a multi-agency, patient centred service that is “seamless and barrier free?”
- For information about the patient pathway, the services and their effectiveness
- Actions that can be taken to evaluate and improve the services
- To gain a better understanding of the model, data and the reality of the pathway
- Finding out how computer simulations can help to assess the patient pathways
- To discover feasible methods of operating the services cost effectively
- To clearly understand the evaluation of the service and patient pathway

The first phase of each workshop commenced by the presentation of patient pathway process maps for “before” and “after” implementation of the interventions on which the model for each of the simulations was based. This was in order to verify that the simulated model was built from

valid data and aligned with the reality of the service in action. Discussing the process maps provided an opportunity to confirm that the participants understood the method by which the process map had been transferred into the simulation software. The participants were keen to question, debate and clarify at this early stage in each of the four workshops either verifying the accuracy of a process map or suggesting ways where either a “before” or “after” map did not show the full journey or describe the complete picture. For example, although the 7-day service for East Leicestershire and Rutland Clinical Commissioning Group (ELRCCG) “before” map was considered accurate, the project lead for 7-day services emphasised that much of the service was built around unquantifiable data that could not easily be expressed in the after map (Figure 1 and Figure 2).

Figure 1: ELRCCG 7 day service patient pathway before intervention



The West Leicestershire Clinical Commissioning Group (WLCCG) data for the model had not been available for the Simulation Modeller prior to the workshop, therefore the process maps for their slightly different pathway was not presented. The WLCCG pathway is similar to that of ELRCCG, with the difference being that patient’s phone calls in WLCCG can be triaged by Emergency Care Paramedics as well as GPs (Figure 3) whereas in ELRCCG patient calls are triaged by GP only.

Figure 2: ELRCCG 7 day service patient pathway after intervention

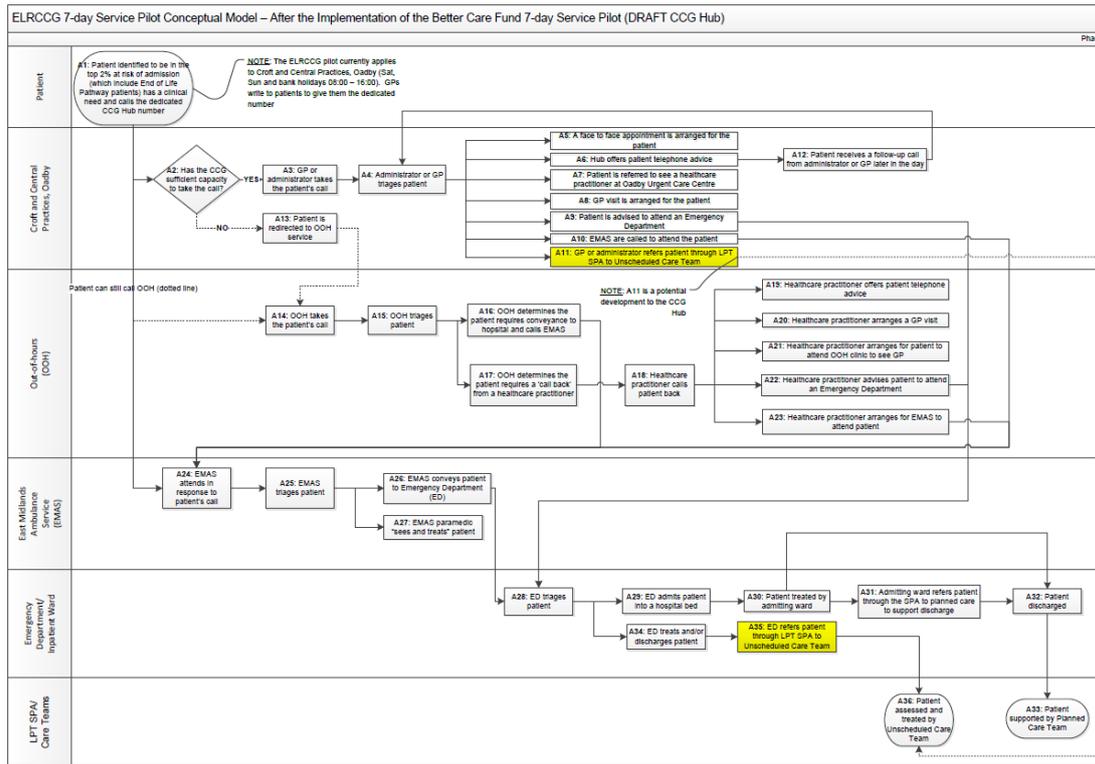
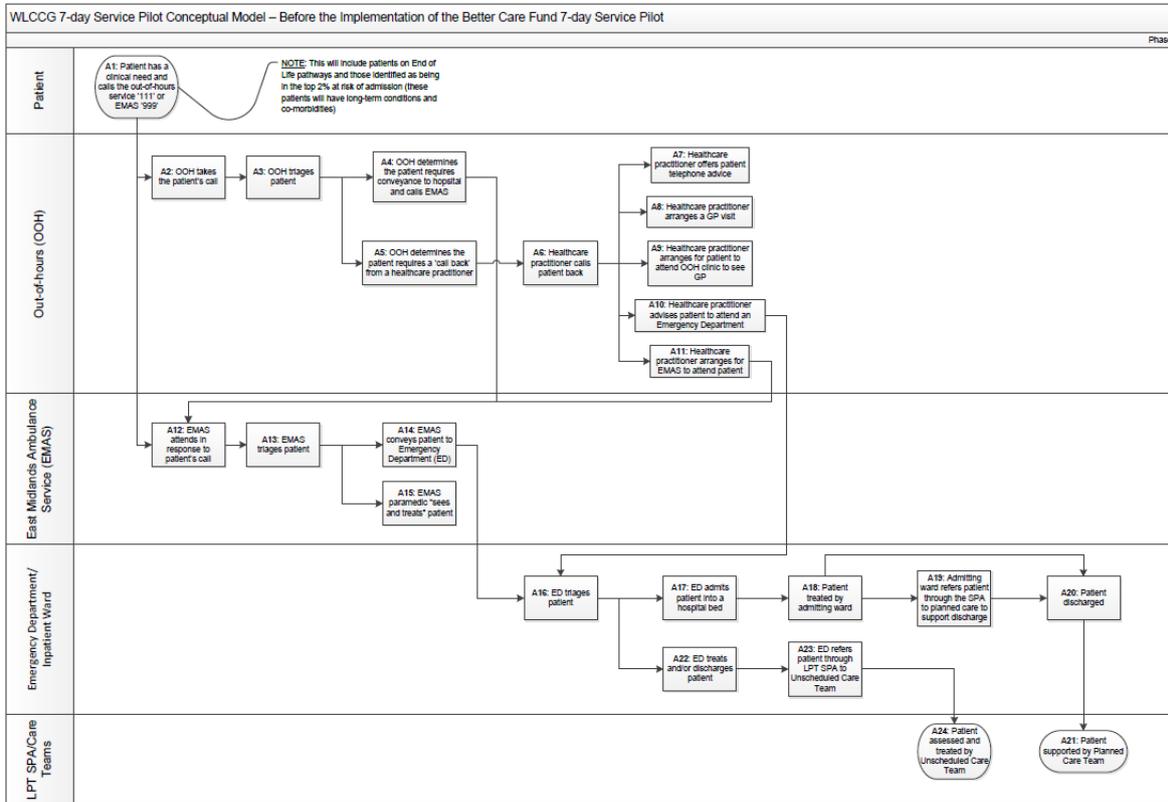
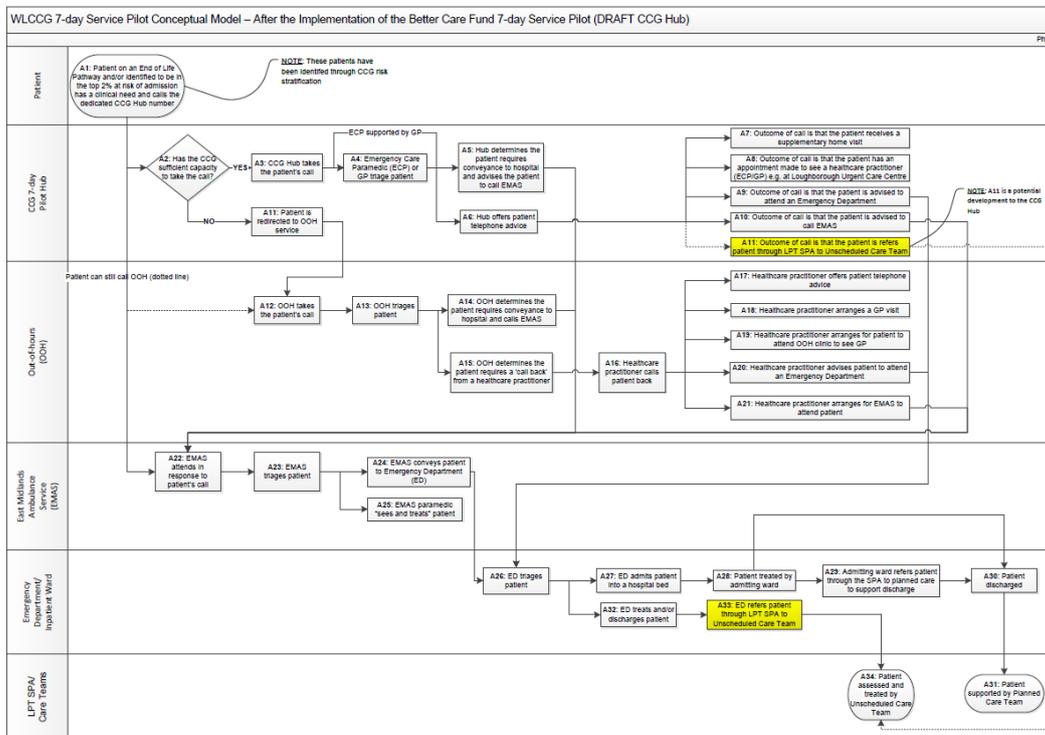


Figure 3: WLCCG 7 day service patient pathway before intervention



Later in the discussion it was found that the two CCGs operated their 7 day interventions with differing ethos. ELRCCG wanted to provide in-depth quality care for patients, whereas WLCCG considered that a broad range of care which used the skills of a number of practitioners reaching out to patients was more appropriate (Figure 4).

Figure 4: WLCCG 7 day service patient pathway before intervention



Similarly, the participants felt that the OPU maps (Figure 5 and Figure 6) did not fully represent the patients' arrival onto the pathway. Data for both "before" and "after" process maps for the OPU were not available prior to the building of the model, therefore not only were the accuracy of the process maps questioned, but also the validity of the dummy data used for the model.

Figure 5: Older Persons' Unit patient pathway before intervention

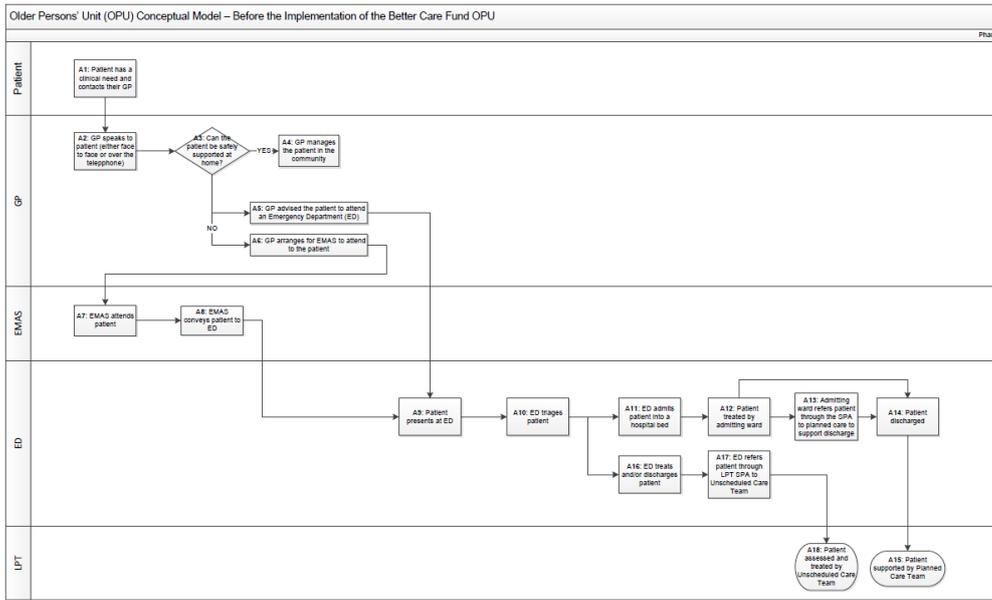
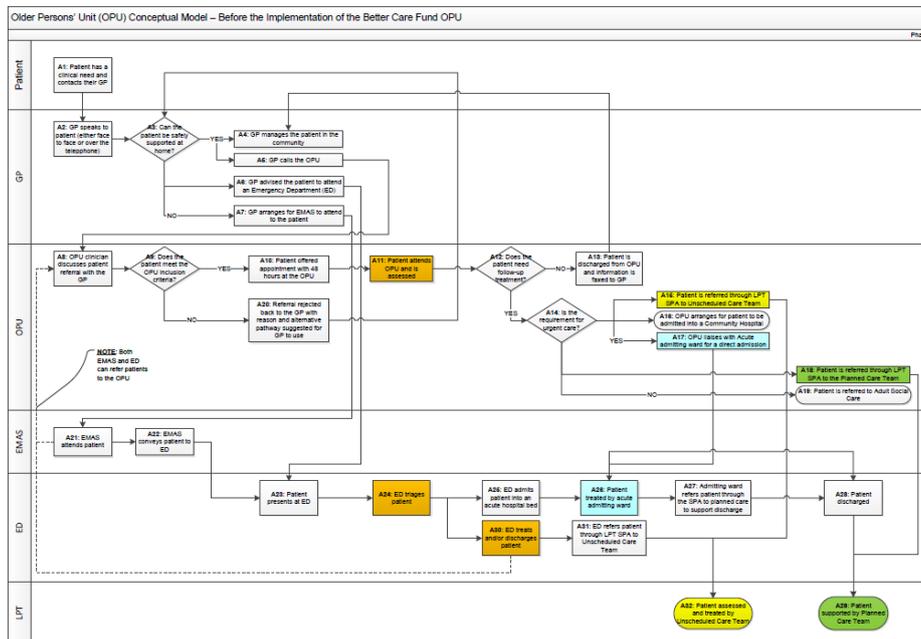


Figure 6: Older persons' patient pathway after the intervention



Participants of the Falls service workshop considered that although the Falls process maps were generally a correct reflection of the patient pathway they did not show enough detail about the periphery of the patient pathway. For example, there were other routes that could be taken post discharge: they need not lead to the unscheduled care team and referral could be through means other than 999. (Figure 7 and Figure 8)

Figure 7: Falls patient pathway before the intervention

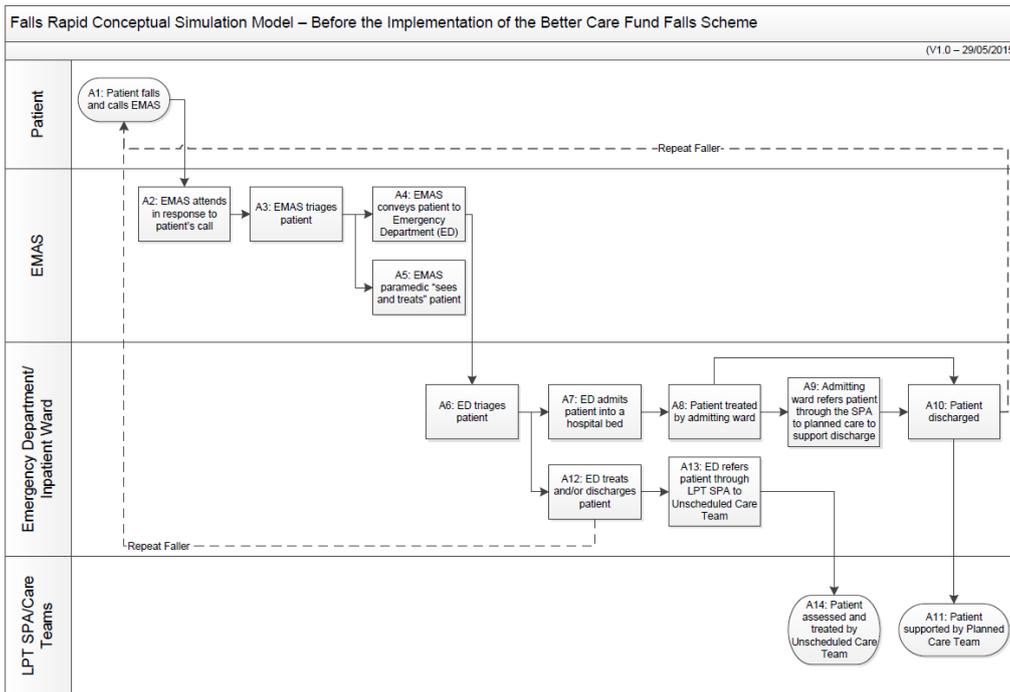
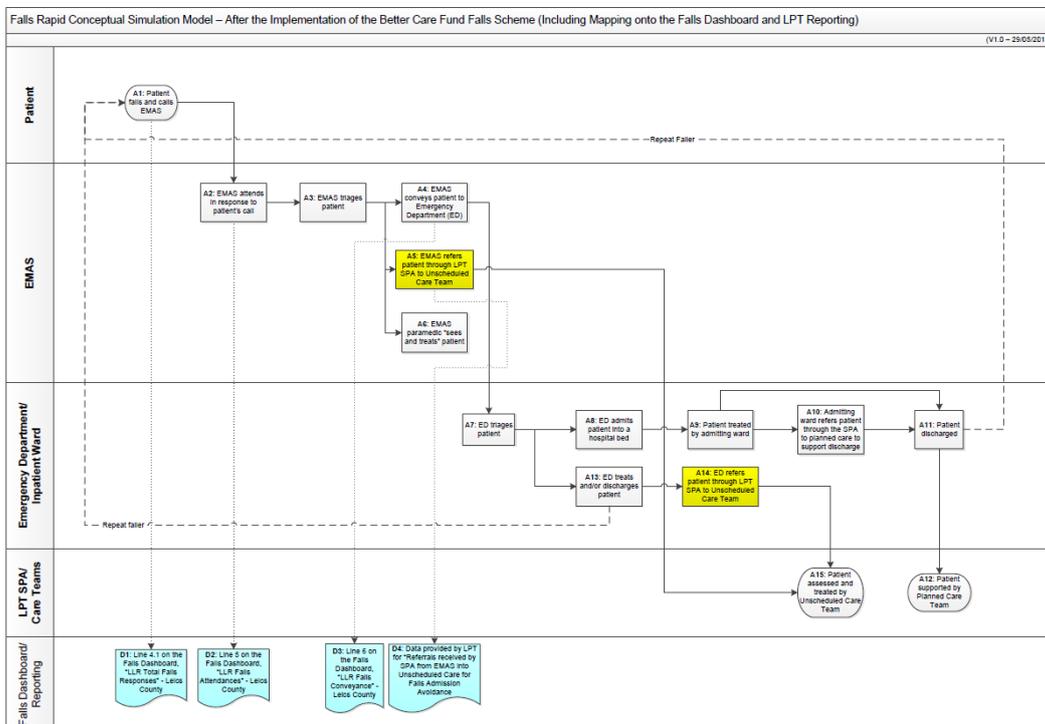


Figure 8: Falls patient pathway after the intervention



The process maps for the Night Nursing service were generally considered to be accurate and were verified by the clinical lead of the service who was present

Figure 9 and Figure 10).

Figure 9: Rapid response, Night Nursing service before the intervention

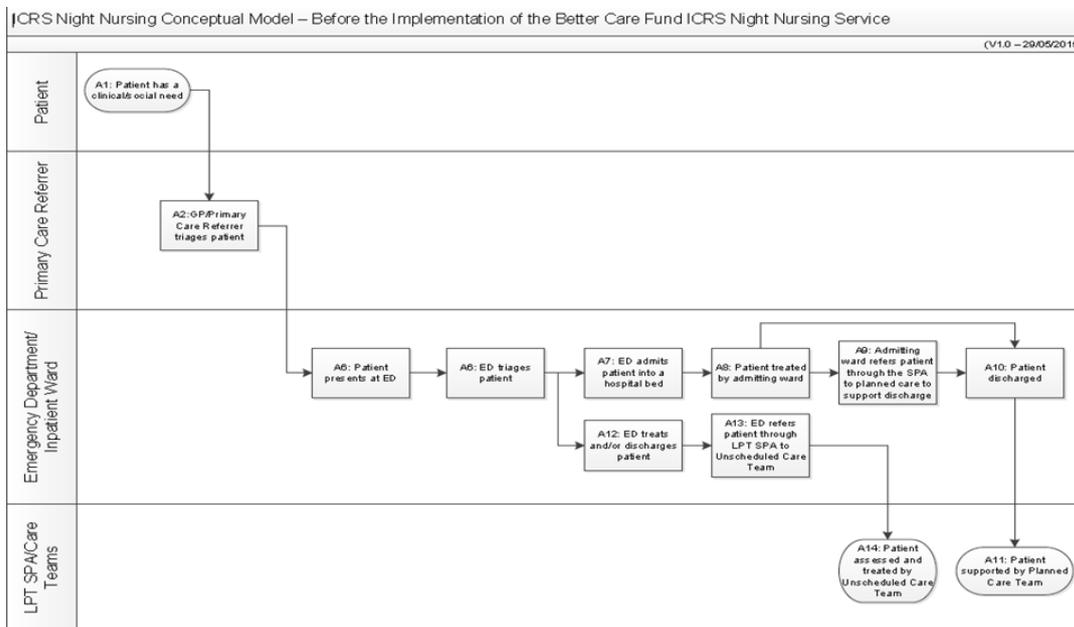
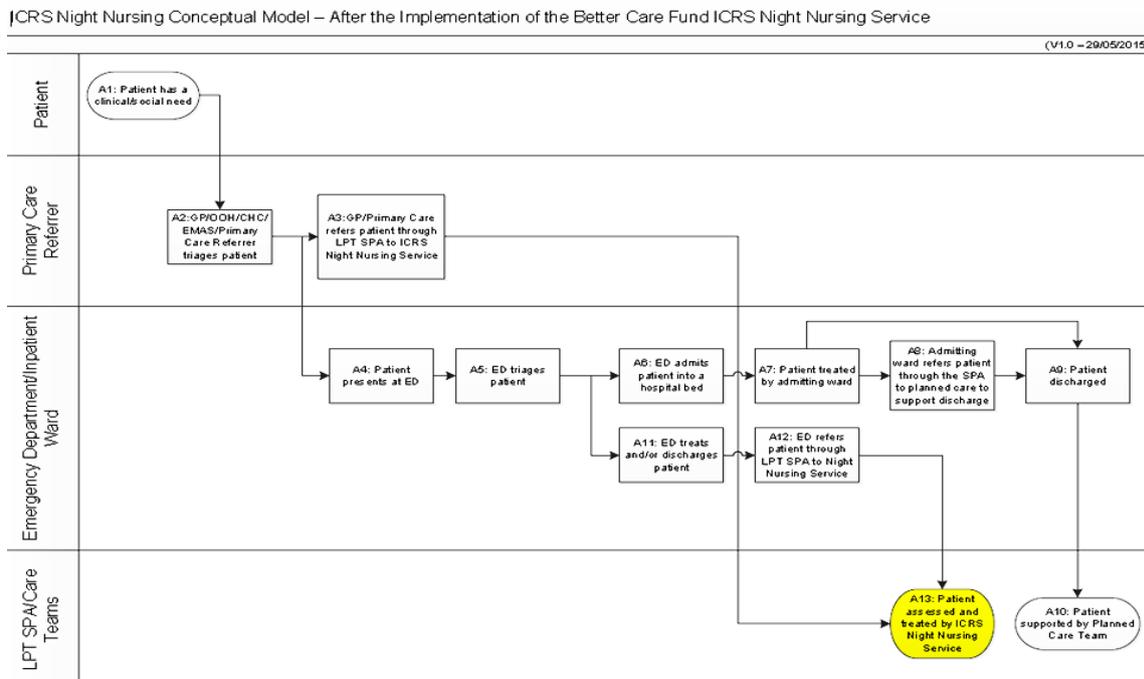


Figure 10: Rapid response Night Nursing after the intervention



The next step was to run the computer simulations and validate them as being representative of the service in reality. This was not intended to be a detailed validation to assess statistical accuracy, but to gain the participants trust that the model was performing in a manner that could

be expected. Running the simulations not only highlighted any discrepancies between the model and actual operation of the service, but also whether data taken from the Step up/ Step down dashboard were accurate and adequate to track the performance of the interventions. The visual presentation of the simulations changed throughout the workshops to participant's comments into account and to make them easier to understand.

Each workshop had its own synergy with differing levels of engagement and major points of discussion despite many of the participants being present at more than one workshop. Participant concentration and engagement with discussion was generally high for the workshops, apart from the Falls service workshop where those attending did not understand the relevance of the patient pathway to their role. This was reflected in the amount of discussion that occurred, the Falls participants being reluctant to contribute. Discussion points in the Night Nursing, OPU and 7-day workshops included:

- The patient pathway with suggestions for resolving problems that had been detected during the discussion, including gathering more data
- The intervention in general, the reality of the situation and the operation of the service
- Services related to the intervention
- The simulation model, including verification of the process map and information to improve the model

The Night Nursing workshop was the first in the series and it may have been that factor which gave an air of excitement to the participants who discovered that they could collaborate to benefit the uptake of the service and that they could experiment with alternative scenarios which may affect the capacity of the service. For example:

- The significant impact and variability of travel time, to and from the patient's home
- Varying scenarios of how patients move through the system
- "Re-referral" required for patients needing the service for more than three nights
- The critical influence of the number of nurses working exclusively on ICRS (as distinct from roaming) on the capacity of the service overall
- Management of referrals during the day

Figure 11 is a screen shot of the Night Nursing simulation which was arranged to show the simplified process maps of "before" and "after" together as a comparison. The numbers above the rectangular process map boxes denote the numbers of people flowing through the pathway. For example, in the section marked "Without Night Nursing Service" it can be seen that 75 patients saw their GP or called NHS 111, 75 patients attended ED, then 70 were admitted whereas 5 were discharged. As the simulation was run the numbers changed simulating the arrival of patients into the system and tracking them to eventual discharge. The graph in the bottom right hand corner was generated as the participants watched. The blue line on the graph denotes emergency admissions for the patient pathway before the intervention and the red line represents the emergency admissions after the intervention. It shows that there are less emergency admissions over a two month period according the data that was supplied from the Step-up/ Step-down dashboard.

Figure 11: Screenshot of Night Nursing Simulation

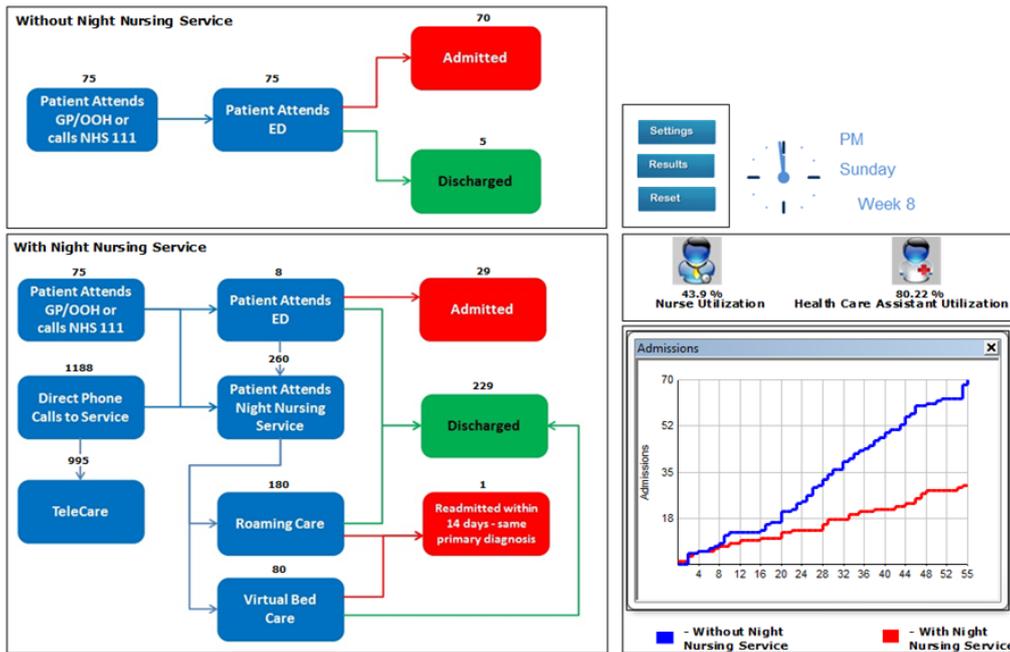
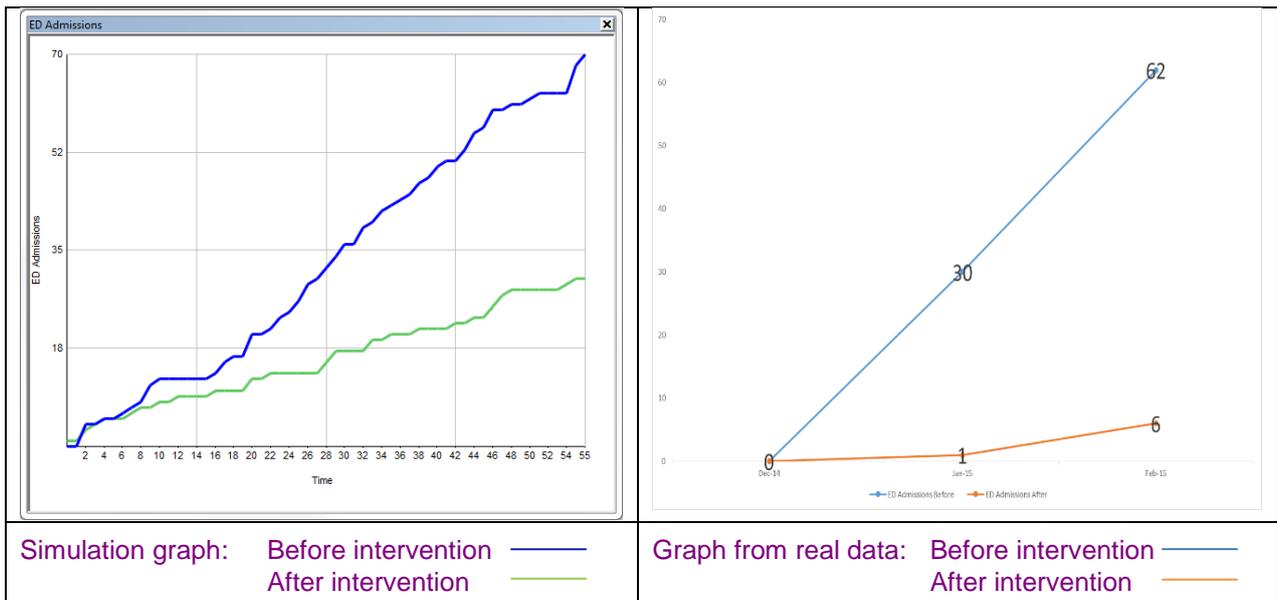


Figure 12 compares the graph generated from the simulation against that of the real data gathered by the Better Care Fund (BCF) over a two month period. It can be seen from the real data that before the intervention there were 62 emergency admissions whereas after the implementation of the intervention this was reduced to six giving 56 avoided admissions. The computer simulation, using data from the Step up/ Step down dashboard calculated that before the intervention there were 70 admissions which reduced to around 31 after the implantation of the intervention giving a Figure of 49 avoided admissions producing a discrepancy of around 25 fewer avoided admissions due to the over prediction of admissions to the service.

Figure 12: Comparison of NN simulation results against real data



Although the Older Persons' Unit workshop was held on the same day as the Night Nurses workshop, with a certain proportion of the same participants, the atmosphere was calmer. There

had been no real data available for the simulation at the time it was built therefore dummy data had been used. This meant that the attention of a group of the participants turned to providing the modeller with relevant data. The similarity of the workshop to that of the Night Nurses workshop was that it included key participants who worked on or managed the intervention. This led to:

- Misconceptions about the intervention held by other participants being dispelled, such as geographical area covered and the extent of diagnostic services available at OPU
- Greater discussion about the intervention and improvement to the simulation
- Participants suggested ideas to increase intervention usage
- Participants stating that they could see the service in a different way

The same visual layout was used for the OPU simulation (*Figure 13*). In this case dummy data was used for illustrative purposes, but real data was supplied during the workshop.

Figure 13: Screenshot of OPU simulation

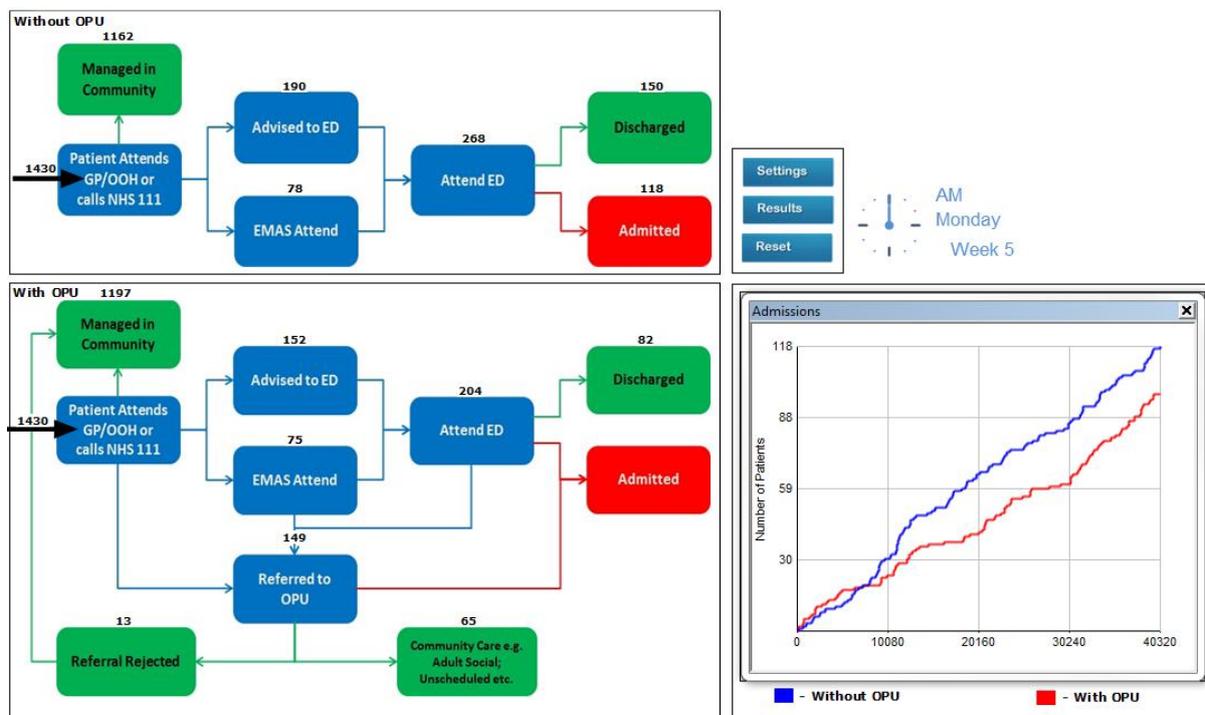
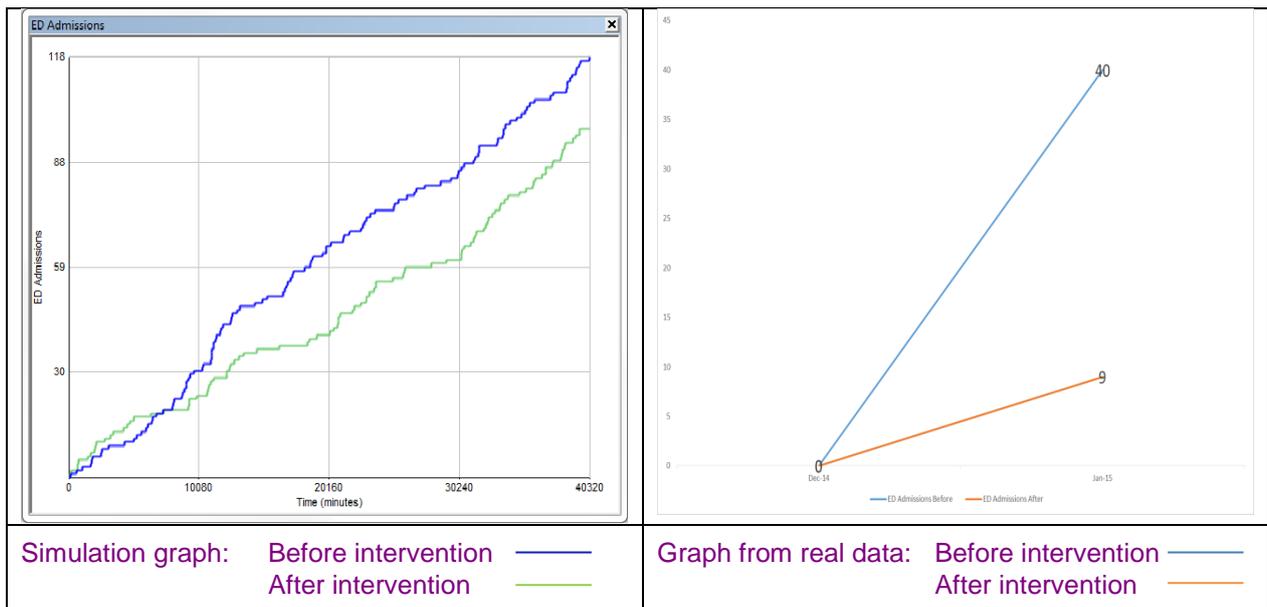


Figure 14 is a comparison of the graph generated by the simulation using dummy data against the data that has been gathered by BCF over a one month period. It can be seen from the real data that before the intervention there were 40 emergency admissions whereas after the implementation of the intervention this was reduced to nine giving 31 avoided admissions. The computer simulation, using data from the Step up step down dashboard calculated that before the intervention there were 118 admissions which reduced to around 98 after the implantation of the intervention giving a Figure of 21 avoided admissions producing a discrepancy of around 10 fewer avoided admissions.

Figure 14: Comparison of OPU simulation results against real data



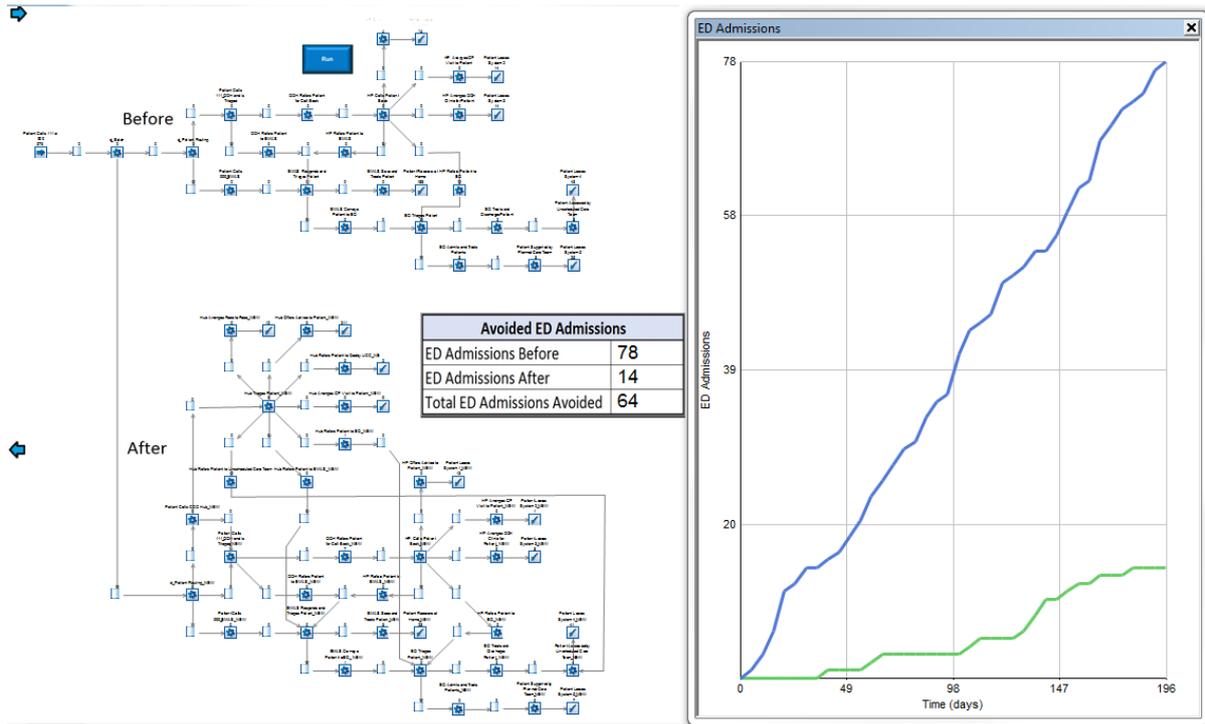
The 7-day service and Falls interventions workshops were conducted in a more structured way due to a change of both facilitator and simulation consultant. As in both the previous workshops a project lead for the intervention was present at the 7-day service and provided information about the service during the workshop. As noted above, the model which was presented represented half of the county, ELRCCG. The pilot had finished and therefore the simulation was built using limited data. The discussion included:

- The wider context of the intervention, as it is a GP service which could overlap with the other interventions
- The potential of gathering data about users who had not been able to access the service, for instance, monitoring missed calls
- Comparison with WLCCG 7-day service

On this occasion the project lead showed great interest in using the developed simulation model as a predictive tool.

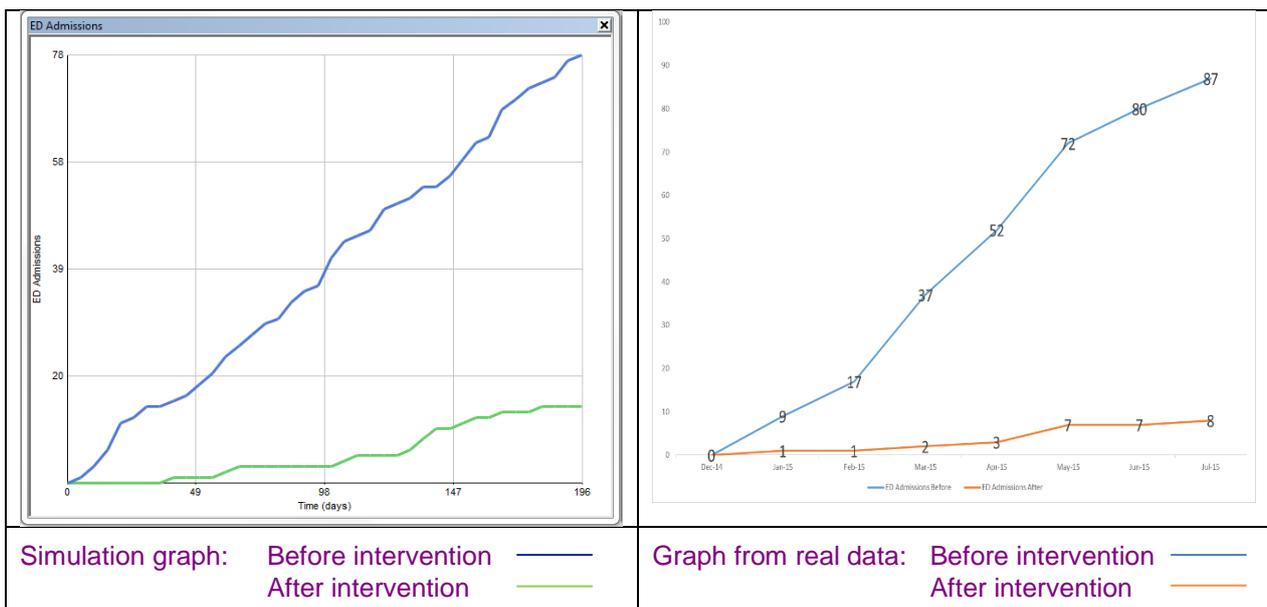
The visual presentation of the simulation model was changed for the 7-day service workshop in order to depict the flow of patients through the pathway in a clearer manner, as can be seen in [Figure 15](#). The simulation compares the “before” and “after” situations as in the previous models, with each process map drawn as a series of interconnecting nodes. As the simulation is run the patients are tracked through the system depicted by small red dots and the numbers in the counters change. The graph on the right hand side is compiled in the same manner as previously, measuring admissions prior to the intervention on the blue line and during the new intervention on the green line.

Figure 15: Screen shot of 7-day simulation



When comparing the results generated by the 7-day service with the data gathered by ELRCCG over the seven months of their trial period (Figure 16) it can be seen from the real data that before the intervention there were 87 emergency admissions whereas after the implementation of the intervention this was reduced to eight giving 79 avoided admissions. The computer simulation, using data from the Step up step down dashboard calculated that before the intervention there were 78 admissions which reduced to around 15 after the implantation of the intervention giving a Figure of 63 avoided admissions producing a discrepancy of around 16 more admissions than the simulation predicted.

Figure 16: Comparison of 7-day simulation results and graph of real data



The Falls workshop occurred on the same day as the 7-day services workshop, and a small number of participants were the same, however, others had not attended any previous workshop but some had been participants of the Night Nursing workshop. The discussion featured the patient pathway but with a greater emphasis on setting the intervention into the wider context of health and social service provision. Participants considered that they could neither offer suggestions for solutions to any issues nor comment on the reality of the situation as no-one present had any first-hand knowledge of the intervention.

Their workshop aims showed that some participants had come along to find out more about it and it was unfortunate that the service practitioner who had been invited to the workshop could not attend. Overall the participants considered that the process map which had been initially provided for the simulation model may not have been extensive enough and it was identified that it was not up to date. However, the simulation presented at the workshop was used to test the effect of a higher percentage of trained ambulance staff. The visual layout of the simulation was similar to that of the 7-day simulation (*Figure 17*).

It can be noted that a reduction of emergency admissions because of people falling is perhaps the most important result that can be achieved by these interventions. The numbers of patients who are admitted to hospital due to falling are considerably larger than seen in the three other interventions (*Figure 18*). A comparison of the simulation results and the real data over a nine month period shows that before the intervention there were 3942 emergency admissions whereas after the implementation of the intervention this was reduced to 3505 giving 437 avoided admissions. The computer simulation, using data from the step up/ step down dashboard calculated that before the intervention there were 3669 admissions which reduced to around 3125 after the implantation of the intervention giving a Figure of 545 avoided admissions producing a discrepancy of around 108 avoided admissions.

Figure 17: Screen shot of Falls simulation

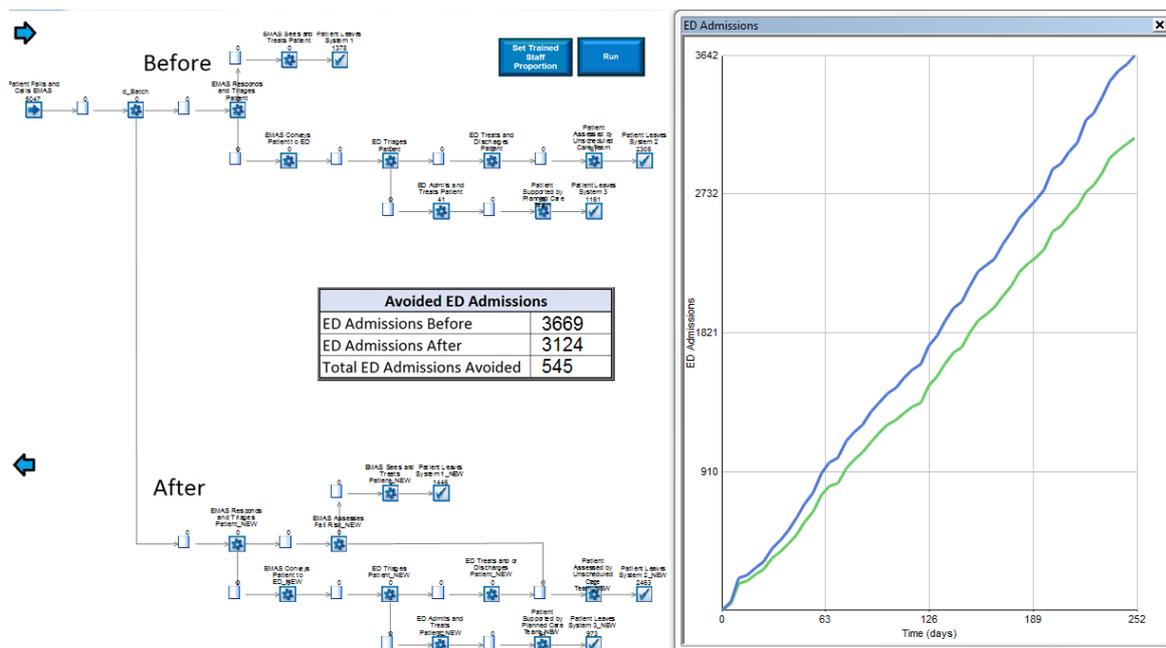
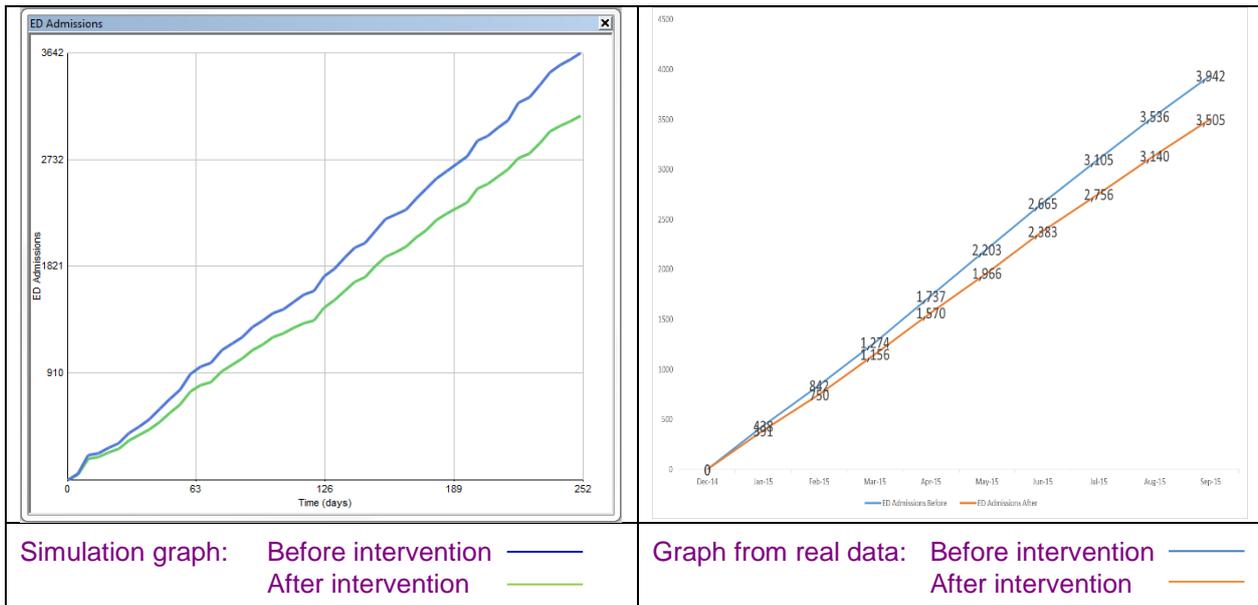


Figure 18: Comparison of results generated from Falls simulation against real data



The final phase in the workshops was for each participant to consider what sort of actions (*Appendix 2*) that they could personally take to achieve a more efficient patient pathway and improve the four interventions.

The most common actions coming out of the workshops were as follows:

- To work together, or seeking ways of working together, with colleagues and partners
- Gather new data
- Promotion of the services
- To increase understanding of the services better

The anticipated aims of each participant was also measured against their personal outcomes in order to assess whether the workshop sessions were useful and meeting their aims in informing participants about the usefulness of computer modelling in the analysis of patient pathways.

The most common personal outcomes of the workshops (*Appendix 3*) are listed below:

- Interesting
- Useful
- Meeting other people
- Understanding and awareness of the service
- Understanding and awareness of the simulation

User workshops

The stakeholder workshops were conducted at the conference rooms of Voluntary Action LeicesterShire near Leicester city centre. Invitations to participate in the workshops were sent out widely to patient organisations from Healthwatch Leicestershire who also sought to recruit patients through contact with the project leads. It was found to be difficult to identify direct users of each intervention and it was eventually realised that many of the individuals who had experienced the patient pathways did not realise that they were part of an intervention and that many of them would have been too frail to participate (*Appendix 13*). Due to the difficulty of recruiting relevant participants only three user workshops were conducted, for the Older Person's Unit, for Night Nursing and for Falls. No-one was available for 7-day services and although alternative arrangements were considered it was discovered that there was not an adequate record of the low number of users for the service it was decided that a 7-day service workshop could not be held in the time limits of this project. Seven participants attended both the OPU and the Night Nursing workshops and four attended the Falls workshop.

The seven participants for the OPU and Night Nursing workshops were Healthwatch Leicestershire members who had the relevant experience and perspectives to inform our work on capturing patient and carers' views about the effectiveness of the new interventions. Their past experiences covered a range of aspects within the health service from nursing, health service and practice management, caring for relatives and patient groups. Together they offered an insight into patient concerns and highlighted possible issues. The four participants for the Falls workshop included two people with previous experience of emergency and urgent care, one representative of Leicestershire County Council and the community engagement officer for East Midlands Ambulance Service. Two people who had used the patient pathway had hoped to be present, but ultimately could not attend.

Each workshop commenced with the participants writing down what they wanted to learn or achieve during the session. These included:

- Understanding of simulation modelling
- Gaining knowledge of patient pathway and its monitoring
- Improvement of system and patient pathway
- Contributing to the reduction of emergency admissions
- Patient perspective, experience and satisfaction
- Information on current practice
- Access to essential services
- Benefits of home care over hospital admission
- Efficiency and cost effectiveness of services

The next phase of each workshop familiarised the participants with the relevant intervention. Although a representative of the OPU was not able to attend the OPU workshop, the project researcher talked through a presentation sent by the project lead which explained the aims and operation of the OPU. Similarly, no representative of Night Nursing could attend the Night Nursing workshop therefore the researcher and simulation consultant provided a brief overview. This was challenging as the participants asked questions about the detail of the service that was beyond our knowledge. The questions were recorded and later put to the project lead. Her answers were sent to the participants (*Appendix 10*). Fortunately the Community Engagement Officer for East Midlands Ambulance Service was able to attend the Falls workshop and was

able to answer the participants' questions after they had watched a brief animation about a patient's journey through the intervention.

At all three workshops the simulation consultant explained how the models are built from "before" and "after" process maps before running the simulations. At the OPU and Night Nursing workshops he emphasised that the simulations are data driven and written from a technical point of view; they are a representation of reality designed for illustrating a system. As each simulation was running, it paused at various points as it tracked named patients and displayed text that told the story of their journey through the system.

As in the case of the stakeholder workshops, the visual presentation of the model was refined for each set of workshops. As can be seen in *Figure 19* the graph of admissions was made smaller in order to feature the movement of patients through the system, symbolised as red dots.

The data used for the OPU user workshop simulation had been updated from that given at the stakeholder's workshop, and through contact with the project leads and was therefore closer to the reality of the situation.

Figure 19: Screenshot of OPU simulation for user workshop

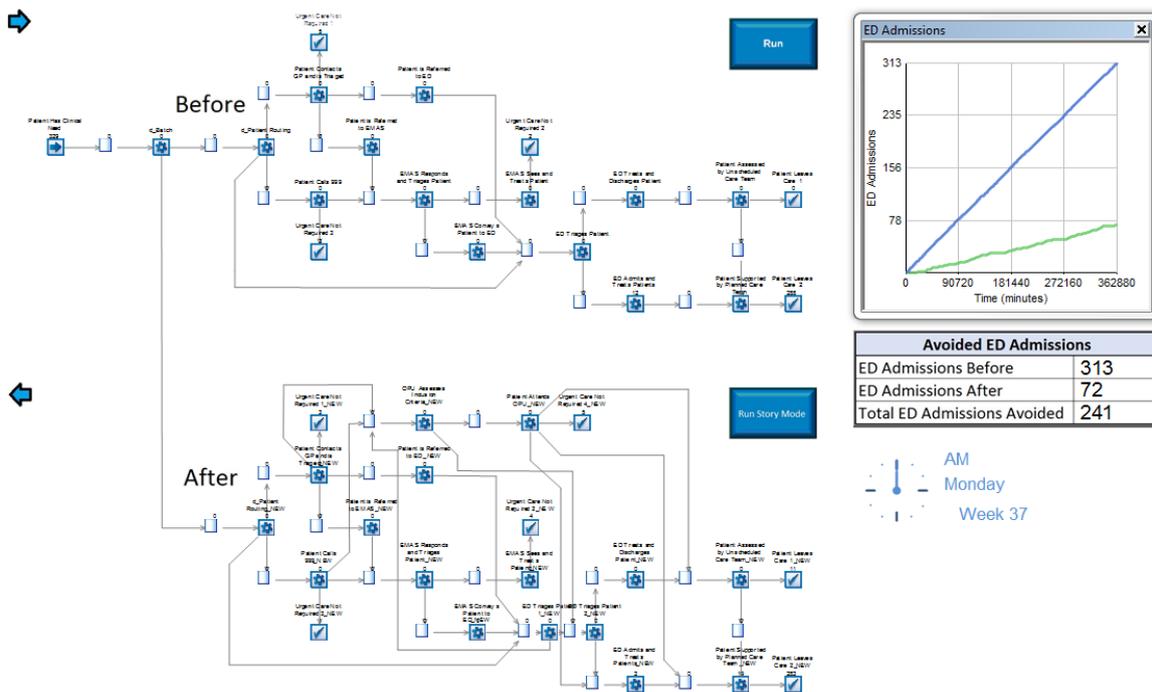
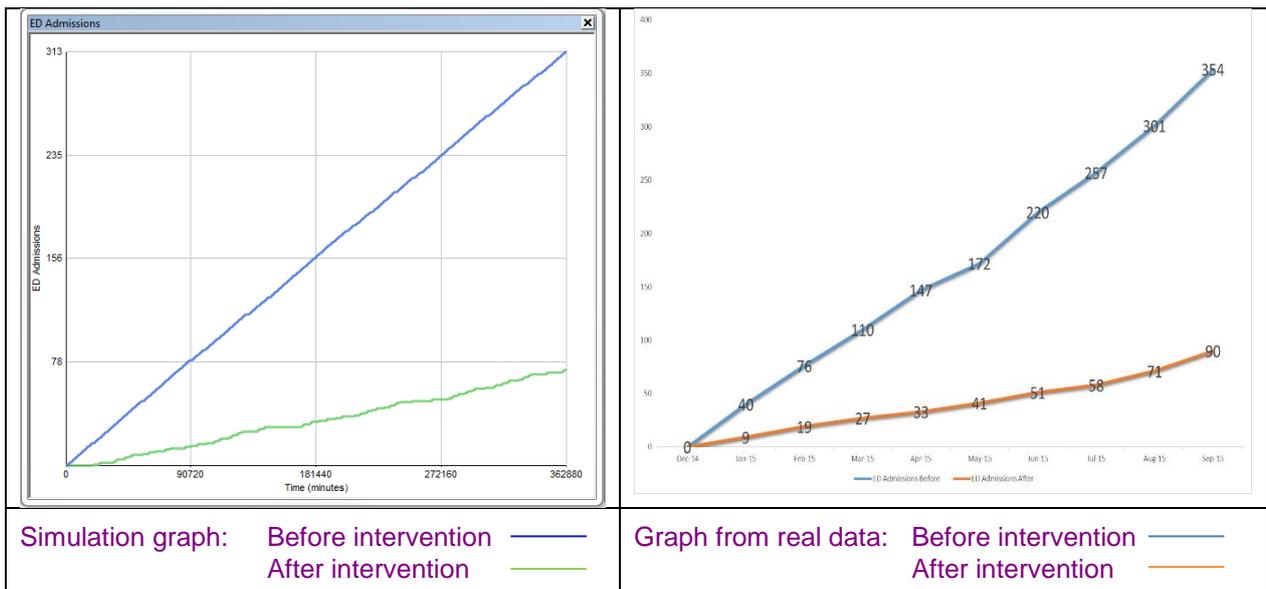


Figure 20 shows over a nine month period from the real data that before the intervention there were 364 emergency admissions whereas after the implementation of the intervention this was reduced to 90 giving 244 avoided admissions. The computer simulation, using data from the Step up step down dashboard calculated that before the intervention there were 313 admissions which reduced to around 72 after the implantation of the intervention giving a figure of 241 avoided admissions. This compares favourably with only a discrepancy of 3 avoided admissions.

Figure 20: Comparison of simulation graph against real data

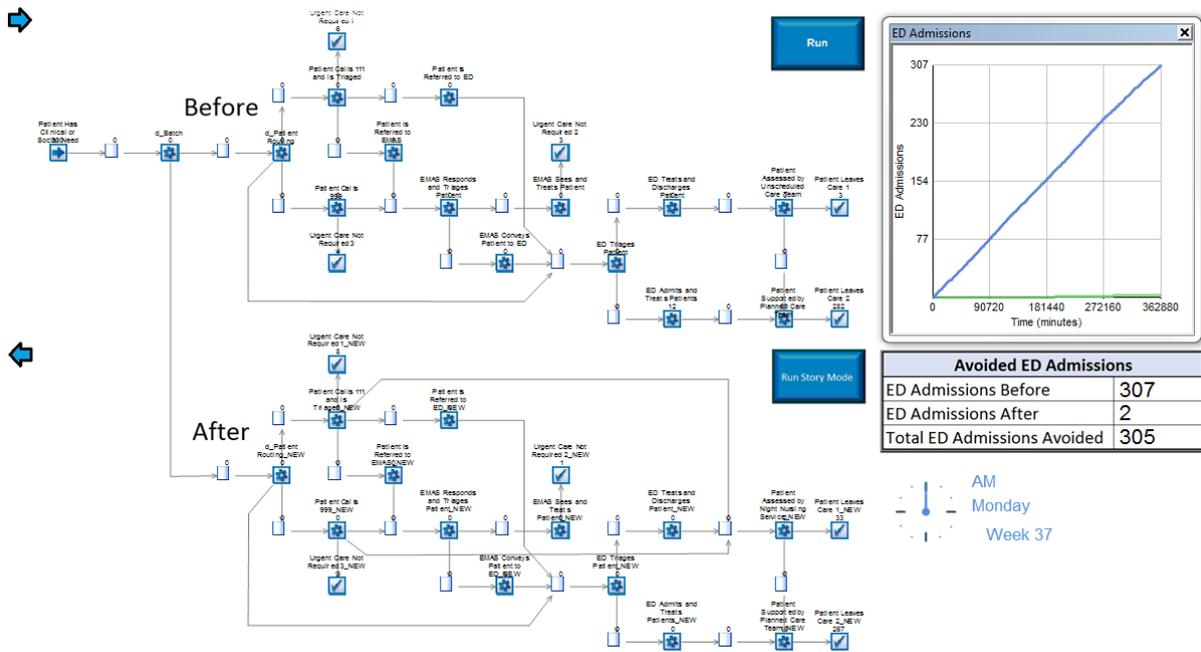


The participants in all the user workshops were highly engaged and discursive. Discussion points from the OPU user workshop are listed below:

- Concern about the underuse of facilities/staff/resources – this reflects the same concern made at the OPU stakeholder workshop
- Geographic location was considered to be a disadvantage as a representational pilot service
- The need for GPs to be informed that OPU is a diagnostic option
- How OPU deals with the Mental Health of users – holistic care was considered very important
- Greater use of the unit would be made should the admittance criteria be widened, self-referral allowed and becoming an out of hours service
- As a diagnostic unit the service may only be deferring admission of the patient
- Prompt service at the OPU is better than queueing ED
- It is a good way to short cut the system and get test results quicker
- Data collection for entire journey should be done, for example the previous and future treatments, to fully appreciate the total patient pathway
- The impact of the intervention on the carers should be considered

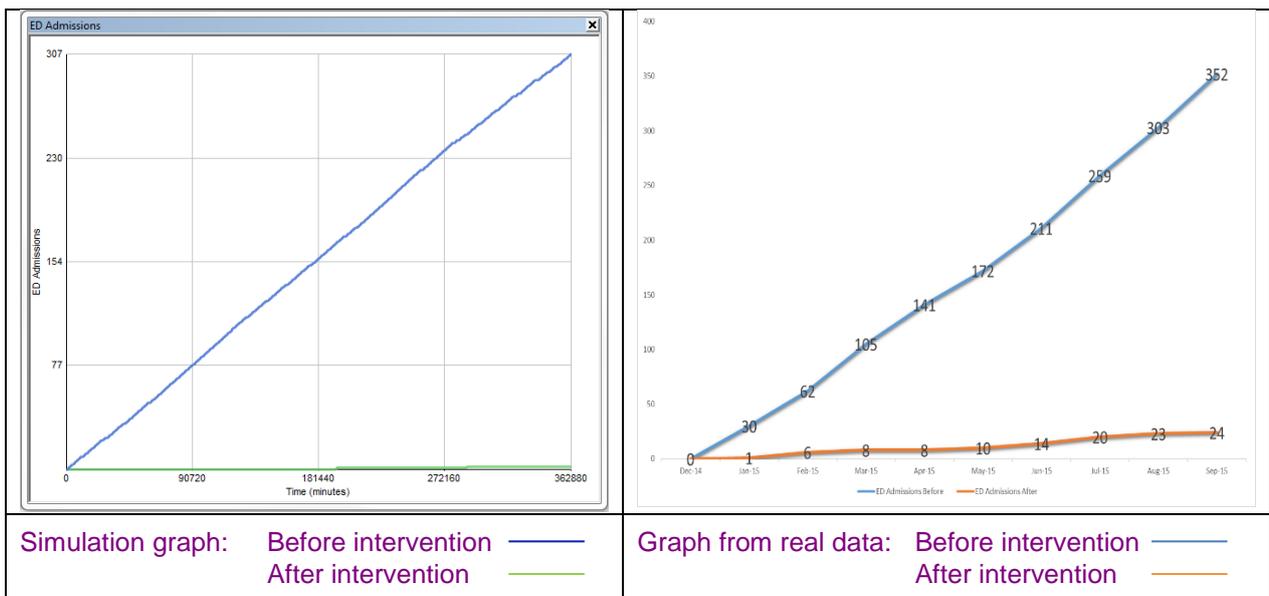
Figure 21 shows a screenshot of the Night Nursing intervention built for the user workshop. It is in the same visual layout as that for the OPU user workshop and it uses the revised data gathered from or after the stakeholder workshop. Once again, attention is focused on the animated process map rather than the graph, so that the users can see the patients moving through the system, symbolised by a red dot.

Figure 21: Screenshot of NN simulation for user workshop



It can be seen in *Figure 22* from the real data that before the intervention there were 352 emergency admissions over a nine month period whereas after the implementation of the intervention this was reduced to 24 giving 328 avoided admissions. The computer simulation, using data from the Step/ up Step down dashboard calculated that before the intervention there were 307 admissions which reduced to two after the implementation of the intervention giving a Figure of 305 avoided admissions producing a discrepancy of around 10 fewer avoided admissions, a discrepancy of 23 avoided admissions.

Figure 22: Comparison of NN simulated graph against real data



The participants of the NN user workshop were similarly analytic of the NN service to that of the OPU, generating many questions about the intervention. Although they watched the simulation closely some participants said that they did not understand it and that it did not help them to

understand the patient pathway. One participant found it hard to understand the intervention itself; therefore a participant with a long background in nursing explained the concept of a peripatetic nursing team running a virtual ward containing virtual beds. The participants made the following points about the intervention:

- It is simple and straight forward
- They believe that it works
- Importance of gaining access to patient homes and sensitivity of nurses/ carers to patients cultural needs
 - This was subsequently answered by the Night Nursing manager
- Continuity of staffing considered to important
- Patient wishes should be taken into consideration, whether they wish to be treated at home or in hospital, or if in end of life care, whether they have a “living will”
- Does the extent of the geographical area covered by the intervention affect the efficiency of the service?
- Concern was expressed about that the quality of care should be equal to that given in hospital

Near the close of the session the participants were asked to share their feedback on the simulation models and whether they thought it worked. Their responses are listed below:

“I thought it would be more like real life and simulation would be more like seeing a patient going through the system”

“It did not make much sense to me”

“Patient stories would be a good accompaniment with simulation to bring it to life”

“Data and simulation can be geared to just about anything – there was missing data from patients and carers”

“We don’t know if the pathway has made any difference at all - I do not think you can evaluate it without looking at the outcome for the patient”

Overall the participants felt they needed to have more understanding of the models and the whole data to make a conclusion about admission avoidance. In their view patients did not necessarily need to see the models but it was important to have information on case histories and to hear patient stories.

The user workshop for Falls took place several weeks following the Night Nursing and OPU user workshops which allowed for further development of the Falls simulation model which was refined after using an up to date process map and gathering more accurate data. The visual presentation of the model was also improved after considering participant comments in order to show the patient pathway in a more pictorial form ([Figure 23](#) and [Figure 24](#)). As can be seen, the graph is no longer visible; however the calculations were seen changing in the bottom right hand corner as the simulation runs. In this case the patient journey was depicted by small person shaped icons moving between the relevant service icons. At intervals the simulation paused as a selected patient reached a decisive point and displayed text that told the story of

their journey through the system. The simulation switched at that point to compare the “before” and “after” scenarios.

Figure 23: Screenshot of user workshop Falls simulation "before" scenario

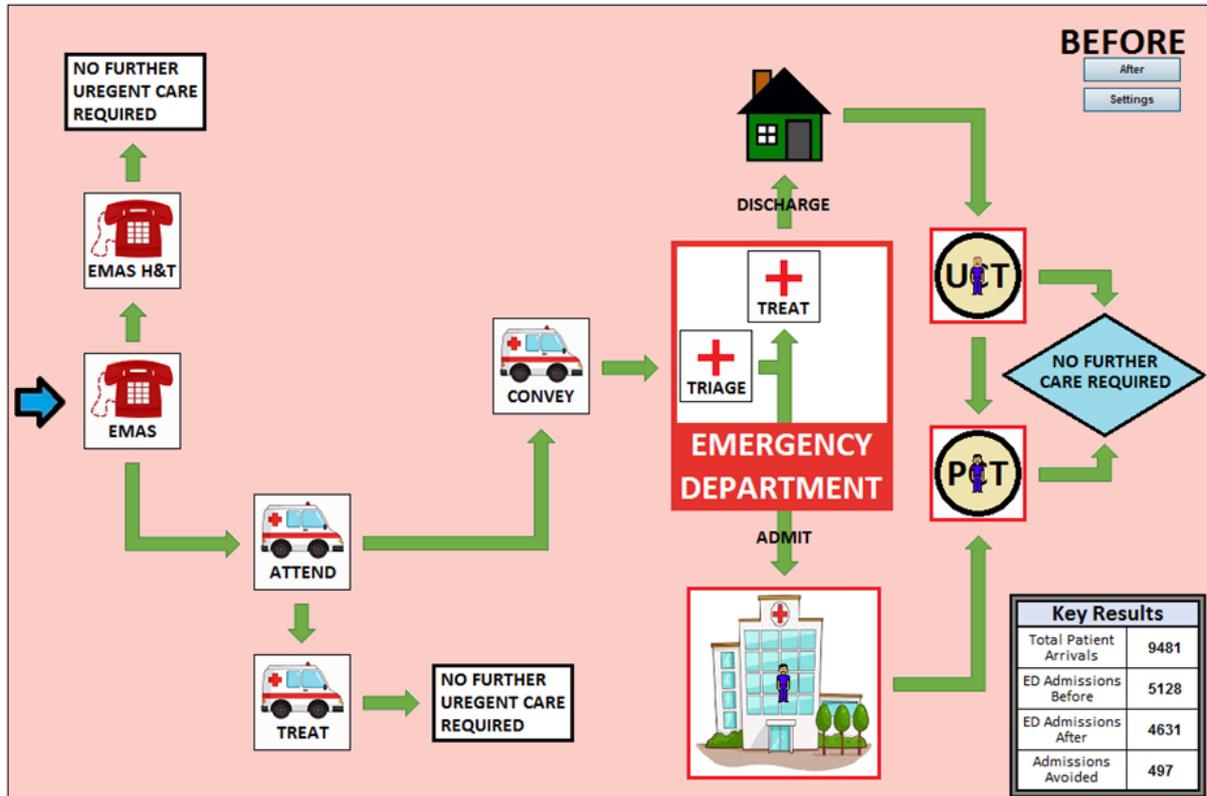
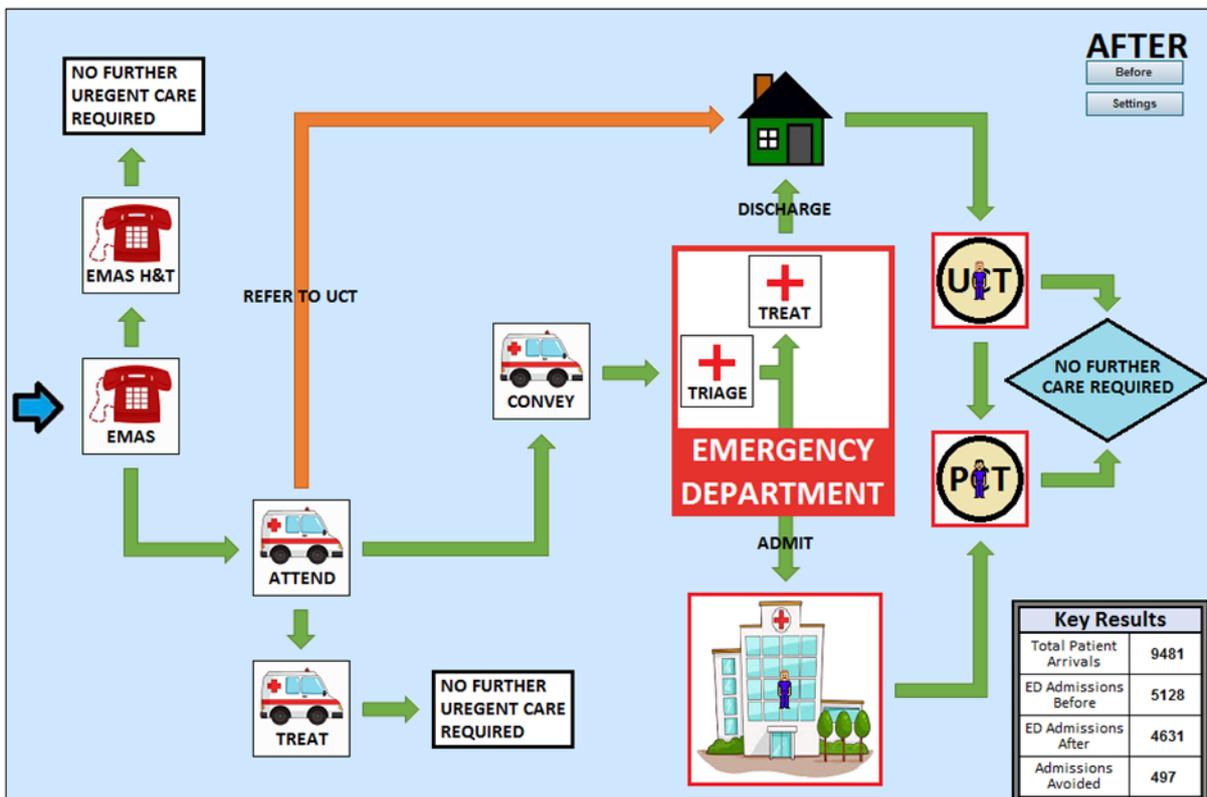


Figure 24: Screenshot of user workshop Falls simulation "after" scenario

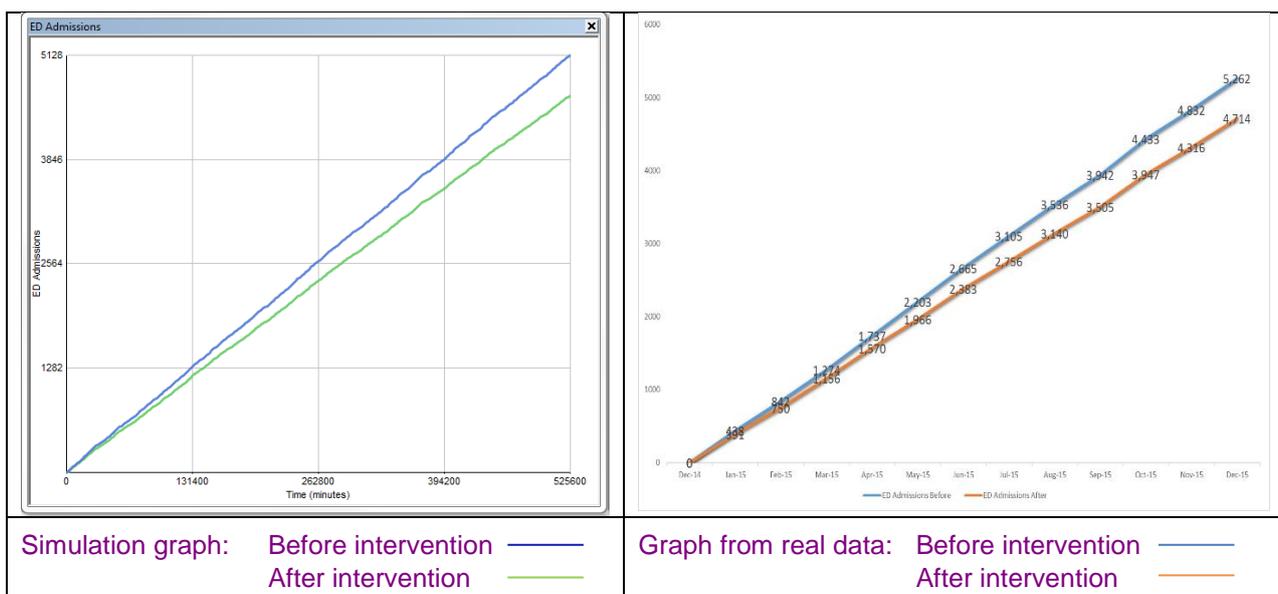


A comparison of the results generated by the refined Falls simulation and the real data, both over a one year period, shows that in reality 448 admissions were avoided as opposed to the simulation predicting around 497 (Figure 25). Although this is a discrepancy of 49 avoided admissions, the comparison of the initial Falls model with real data showed a discrepancy of 108. This demonstrated that the information and data that was forthcoming at the stakeholder's workshop improved the accuracy of the Falls simulation model.

Although there were fewer participants for the Falls user workshop than for the OPU and Night Nursing user workshops, the discussion was nevertheless vibrant and informative. By talking to the EMAS representative the two users who were present considered that the current overloading of ED at Leicester Royal Infirmary and the influx of self-referring patients had a substantial effect on the Falls patient pathway, as ambulance to hospital changeover times delay response time and availability of paramedics. The following points were made:

- The concept of the Falls service is very good
- LCC should give further consideration to the operational model of the Falls service
 - Is the model achieving its aims and working for the patient and EMAS?– Northampton has chosen a different operational model
- Is it possible that anyone other than paramedics be trained to perform the assessments?
- The geography of the county can have a bearing on the entry point to the pathway
- Although the Falls pathway is short and simple it is effected by the entire rapid response and ED admission system.
- Queue management systems and stages of triaging should improve ED overload and ambulance stacking

Figure 25: Comparison of graph generated by Falls Simulation against real data



The participants strongly believed that treatment at home is as good as, if not better than, being cared for at hospital, especially for elderly people. They made the following comments:

- Any non-admission is a good thing
- Personally I think you get more care as you get immediate one to one attention for EMAS paramedics
- Saves a lot of time for patients if they can be treated at home
- Elderly patients would prefer to be treated at home
- Some people may feel that home care is not as good

Patient Satisfaction

It was the intention that the user workshops would be an appropriate venue to explore ongoing methods that LCC could use to gather user feedback on the four patient pathways. As none of the participants of the user workshops had direct experience of the interventions, it was difficult to discuss patient satisfaction focused only on the four pathways. Therefore a more generic approach was taken, discussing ways of gathering and analysing feedback from patients in healthcare, but holding in mind the circumstances of the interventions. *Figure 26* shows a summarised list of the criteria that participants suggested that should be measured to show patient satisfaction.

The discussion was approached in slightly different ways for the OPU and NN workshops to the Falls workshop, because of the difference in the number of participants. However, on each occasion the participants were given the opportunity to consider the measurement criteria and collection method personally before sharing their ideas. They were asked to consider: Speed; Dependability; Flexibility and Quality (*Appendix 4*).

Figure 26: A summary of participants' suggested measurement criteria



At the OPU and Night Nursing session the participants considered that the criteria to be measured in order to assess speed are:

- One pathway from admission to discharge
- Time taken from referral to intervention or discharge with no A&E admission or readmission
- Speed should be tested “versus quality”.

The suggestions for gathering the data did not offer a practical method: the participants were concerned that there should be full involvement of the patient, collecting “good feedback” or simply noting that it was a “successful outcome”. The participants from the Falls workshop also thought that satisfaction can be measured by successful end results.

In order to measure dependability the OPU and Night Nursing participants suggested that:

- The “number of failed visits” of healthcare staff to patient’s homes should be counted
- “prompt response time” of healthcare staff should be measured
- Care should be “delivered as promised”, that is, the time the intervention has taken and the quality of the service or staff arriving at the right place on time
- There should be analysis of “complaints”, “commendations” and “praise” on a quarterly basis.

The suggestions for gathering the data were as follows:

- Scales of good/less good/bad or 1-10
- Use of smiley faces, although certain age groups may not understand their significance
- Open ended questions
- Interviews with patients
- Questionnaires and surveys

Some participants considered that using qualitative methods to gather the data are time consuming and will use a lot of staff time. One participant at the OPU and NN workshops commented “All comprehensive surveys... may bring up interesting answers but [they are] not easily comparable or measured in bulk”. Participants at the Falls workshop thought that paper based surveys were not a good method of gathering patient feedback because individuals are “checkbox overloaded”. Participants at all the workshops considered that any method should be “simple and quick”.

Finding ways to measure flexibility proved to be a tricky concept. Participants listed their concerns around the awareness of the interventions amongst GP’s and thought that the number of referrals to the pilot schemes should be measured or the policies and procedure could be examined. However, one participant suggested that the “number of ways that a service can be accessed” and “how quickly their needs are met” would provide a measure of flexibility another considered that removing time constraints from the services would give greater flexibility. Choice of service appeared to be important to the participants and equality of service to different ethnicities. The means of gathering data were similar to above:

- “Use a smiley face or line chart” – “easy and easily comparable visual indication”
- “Use two questions” – “easy to obtain a variety of answers”
 - How easy was it to access this service?
 - How difficult was this?
- “Use 5 open ended questions” – “labour intensive”

Measuring quality produced a longer list of criteria at the OPU and Night Nursing workshops. These were:

- Personal attention
- Being comfortable, physically and with the surroundings
- Dignity and respect
- Confidence in clinicians
- Being given clear information to “understand why?” and choices given
- Satisfaction with outcomes
- Continuous assessment of patient care and admissions and re-referrals

The Falls participants stated that staff training is vital for good quality of patient care.

The suggested ways of gathering data to assess the quality of a service included qualitative methods of collection, such as feedback from patient or carer, Patient Participation Groups and other stakeholders, and quantitative methods such as use of graphs or a continuous rating scale.

The Falls workshop participants strongly believed that verbal conversations with staff at the time of their treatment would provide immediate, accurate and timely patient perspectives, although they realised that healthcare staff have little spare time. They were of the opinion that when asked a direct question a patient will answer. They also considered that negative patient experiences should be shared as learning points for healthcare staff.

Reflections

The methodology was developed from other research projects which also used simulation modelling in healthcare situations to examine and experiment with patient pathways in a workshop situation. On this occasion it was adapted to suit the context of the four interventions and as such faced different challenges to those of previous work. The main challenges for the SIMTERG8 project were:

- To map and model patient pathways thorough a multi-service process
- Only a half day workshop with key stakeholders to compare the model against the system
- Access to observe or interview patients
- Attempting to verify the process and data in workshops where some people had little knowledge of the pathway

As previously mentioned, the aims of this methodology were to:

- Generate discussion about the model the patient pathway, the reality of the situation and the veracity of the metrics being gathered as evaluations of the patient pathway
- Identify and resolve issues in order to improve the efficiency and effectiveness of the pathway with focus on good patient care

The stakeholder workshops certainly allowed a group of people with a direct or indirect operational interest in the patient pathway, and who may not have otherwise had the opportunity to meet in such a way, to learn about the system and discuss its merits. The running and re-running of a model with different scenarios gave participants insight into the intervention and its potential as well as promoted the use of the model as a tool to aid and inform decisions. Similarly, the user workshops brought the patient pathways to wider attention and the participants were vocal in their analysis of the interventions and in their opinions.

The level of participant engagement, that is, interest shown by the participants through their body language, and the amount discussion about topic areas were observed and quantified throughout the workshops. Engagement with the stakeholder workshops was high, apart from the Falls workshop, which was low. The participants in all three user workshops demonstrated very high engagement. It was found that participants were more engaged with discussion when a project lead was available to talk about the reality of the situation.

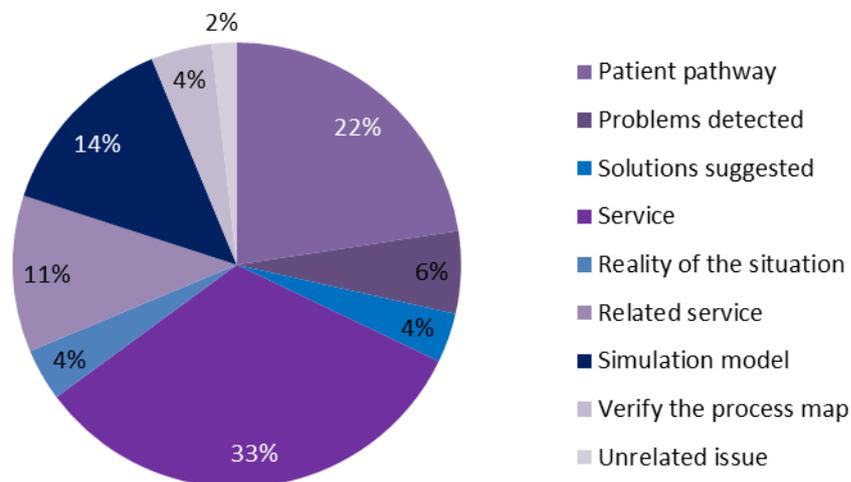
The four phases of the workshop discussions blended together which produced a flow of ideas than an examination of separate concepts. Using qualitative coding methods the discussion from the workshops was analysed to calculate what topics arose and the amount of times each topic was discussed. It was found that the following issues featured in each workshop:

- Patient pathway
- Problems detected with pathway
- Solutions suggested for pathway
- The intervention service as a whole
- The reality of the service in operation
- A related service
- The simulation model
- Verifying the process map

- Any unrelated issues

Figure 27 shows the percentage of the discussion topics across all of the workshops. It can be seen that the intervention as a service was discussed more than the patient pathway or the simulation model. There was very little mention of unrelated issues and discussion of related services, setting the intervention in to the wider context, was discussed more frequently than problems with the patient pathway and solutions to problems. There was no deviation onto other subjects, although in certain workshops, for instance the stakeholder 7-days workshop, the wider context of the intervention formed a prominent part of the discussion. A key observation from one participant was that these emergency admission avoidance schemes do not operate in isolation from each other. Although the cohorts of eligible patients for Night Nursing and OPU are defined, a change in one variable e.g. in OPU can impact upon another service such as the Night Nursing Service.

Figure 27: The percentages of topics of discussion across all workshops



Therefore, running the simulation did stimulate discussion about patient pathways and the interventions. Unknown unknowns become known unknowns and ways of collecting the data were suggested. The reality of the situation was described and discussed (to a greater or lesser degree depending on the individual workshop). Real and potential issues affecting the interventions and related services were discussed with solutions to some these issues being offered. Actions to improve these services were stated by participants and ideas were contributed for patient satisfaction.

Issues with the patient pathways and the interventions that were identified in the workshops were:

- Unknown unknowns became clear. It was identified that there were more data that needed to be gathered to analyse the performance of the interventions for the metrics of the step-up step-down dashboard, and to improve the simulation model
- Referrals to the interventions. The lack of knowledge about the interventions amongst healthcare staff became apparent, despite attempts to publicise the new routes. It was generally felt by the participants that sending people to ED is seen by healthcare staff as a safe and easy option

- Inclusion of other services. Staff from Social Services and Physiotherapy did not fully understand their roles in the interventions and the participants of the user workshops considered that Mental Health staff should be more involved
- The process maps and therefore the simulations did not take other existing shortcuts into account, for example patient care plans which give certain patients a direct point of contact for the care that they need.
- The geography of Leicestershire and Rutland. The two CCG areas that make up the Better Care Together partnership are geographically different, with the eastern part of the county being thinly populated, rural and not so close to health care facilities. There was concern about the difference in need, the time for intervention staff to reach those communities and their access to healthcare services.

The solutions to the identified issues that were suggested are as follows. The Single Point of Access telephone service has the ability to collect some of the missing data, and has already been provided with a new dashboard to improve their service. Other routes to missing data, that is, organisations that are already collecting that data, were identified.

It was considered that further publicity about the interventions should be conducted, by leaflets, presentations about the interventions at meetings and simplifying the information given by training healthcare staff. It was appreciated that many healthcare staff are working in stressful conditions and that sometimes regulatory practices prevent use of the interventions. For example, GPs are given large volumes of information which is time consuming to read and assimilate. Similarly, staff in nursing homes are required to phone an ambulance if a client falls, although they may have the training to deal with the situation. Easier access routes to the services were considered, for example, the participants of the OPU user workshop believed that self-referral to the unit would increase its usage.

There was a strong feeling amongst the stakeholder workshops that there should, and will, be greater collaboration across the services in order to solve these issues. The topic that was not discussed in length or detail was the technical aspect of computer simulation in general, although certain individual participants expressed an interest in finding out more. The simulations illustrating the patient pathway in the user workshops were mentioned only briefly and were not central to the discussion and understanding of the patient pathway. It was also noticed that key individuals that would have informed the debate and offered another perception did not attend workshops or were not invited, for instance, General Practitioners and EMAS front line staff.

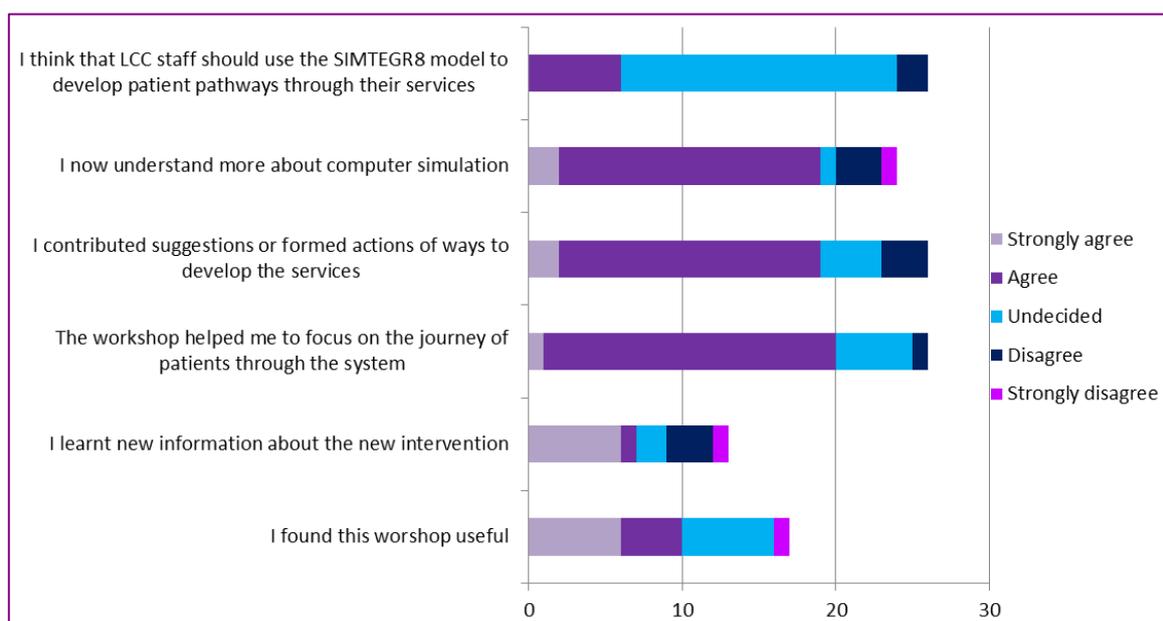
The major problem of workshop attendance was found to be the unanticipated difficulty to recruit users of the patient pathways for the user workshops (*Appendix 13*). In previous research projects using the SimLean methodology, the patient pathway used to build the simulation was derived by “shadowing” an individual who was going through the process. This process provided a patient view point of the service. Direct contact with an individual going through any of the four interventions being studied and going through the intervention with them would have been very difficult for the following reasons. The ethical clearance from the university and the NHS for researching vulnerable people would have been time consuming; the patient pathways started with a frail, elderly or vulnerable people having a health crisis, therefore the practical aspect of knowing when the crisis would occur, the permission from the patient to be followed and then getting their perspective on the care that they had received would have been extremely difficult to achieve. The decision was therefore taken at the start of

the study that users of the interventions would be voluntarily invited to give their views at workshops when they had experienced the pathway and recovered from their health crisis.

Unfortunately, locating the individuals proved to be harder than anticipated; the data collection of the interventions did not necessarily identify individuals; the individuals themselves may not have realised that they had been through a “patient pathway” and therefore did not respond to calls for participation and they were still frail, elderly and vulnerable and not necessarily in good enough health to attend a workshop. In consequence, although the participants of the user workshops looked at the pathways and interventions through analytical eyes it was not from the eyes of the patient. Therefore the patient experience in direct relationship to the patient pathways could not be gathered. In retrospect, other solutions to gathering this data should have been considered, for example electronically tracking a patient through the pathway or conducting interviews using Healthwatch volunteers who have the right to speak to patients directly.

The participants’ views on the workshops themselves were gathered at the end of the stakeholder 7-day service and Falls workshops as well as the user workshops (Figure 28). It can be seen that overall most participants considered that the workshops helped them focus on the patient journey although only 10 participants considered that the workshops were useful to their own work. Most of them also felt that they had made a contribution to the development of the service, either by taking actions themselves or by contributing suggestions for improvement that LCC can take forward into future action plans for the interventions. Most participants increased their understanding of computer simulations, despite the technical aspects of computer simulation not being a major topic of discussion. However, only a minority of participants considered that the use of the SIMTER8 simulations should be used by LCC staff as part of the patient pathway planning process. All the workshops raised awareness of the services and informed participants about them.

Figure 28: Participants' opinion of the workshops



Conclusions

The aims of the workshops were not only to investigate whether the four interventions actually reduce unnecessary emergency hospital admissions but also whether a computer simulation as a dynamic process map used in a workshop situations could provide an effective means of analysing and improving a patient pathway. The three overall objects of the project were to:

1. Build a dynamic process map identifying critical points for the patient journey
2. Recommend a dashboard of metrics
3. Influence policy by building an evidence base, online handbooks and a tool for evaluating future service delivery

Therefore we need to ask did the computer simulation generate discussion about the simulation model, the patient pathway, the day to day reality of the interventions in practise and to test the veracity of the metrics being gathered by the Better Care Together team in the Step up, Step down dashboard, and what changes have been made to the interventions in consequence.

It has been shown in that the patient pathway for each of the four interventions was discussed in the workshops with issues being identified and solutions suggested for some of those issues. Participants generally considered that the use of the simulation enabled them to focus on the patient journey. Discussing the process maps and correcting errors and misconceptions in comparison to the reality of the intervention in order to improve the computer simulation meant that participants had to think clearly about the intervention, and allowed them the opportunity to consider their effectiveness. The user participants felt that their suggestions were being taken seriously.

Metrics that were being gathered as part of the Step up /Step down dashboard were validated through the workshop sessions and other metrics were identified that should be collected with the method of collection being discussed. The interventions were set into the wider context, bringing them to the attention of participants who were not directly involved with the patient pathway, but who felt that they could collaborate in certain ways. For example, informing staff in order to improve the uptake of the pathways or to contribute data gathered by their service. Collaboration between the health and social care services is vital for the success of the interventions as the patient pathway cuts across many services.

The use of workshops to find out the views of people who had specifically used the four interventions was found not to be successful and in hindsight the users of the four interventions are difficult to access. However, the patient representatives who did attend the user workshops put forward useful contributions to the improvement of the interventions and put forward criteria that should be considered when measuring patient satisfaction. It is certain that the computer simulation used in a workshop situation did provoke discussion about the interventions. After the round of workshops, the simulation models were refined and LCC staff were trained to use computer simulation.

In consequence the study as a whole has positively influenced the work of Leicestershire's Better Care Together team and the way that they allocate the Better Care Fund. The case study reports from the workshops and findings from the SIMTEGR8 project were presented to the Better Care Together project board and have been used to inform the implementation of interventions in their next phase of operation. The findings of the project have been recorded in an internal BCT report and the project has given service commissioners and providers:

valuable insights into the operational effectiveness of the 4 pathways; additional actions and opportunities to consider in order to:

- Improve the pathways in 2016/17
- Achieve a greater understanding of their potential impact on emergency admissions avoidance
- Take account of patient experience findings

The findings from the evaluation study were adopted into the action plans for each intervention. The work has also resulted in each pathway having its own dynamic SIMUL8 model which can be used locally in the future.

The outcomes and dissemination of the work will include regional and national channels so that the SIMTEGR8 methodology and lessons learned can be shared with other parts of the country including Vanguard. In the short term, various members of the project team are attending the following conferences in order to give workshops or presentations about the project:

Annual Healthwatch Conference, 9th-10th June, 2016, Nottingham

LGC & HSJ Integration Summit, 23rd-24th June, 2016, Marlow

Operational Research Society conference, OR58, 6th-8th September, 2016, Portsmouth

In addition to this, the project will be presented at the Better Care Fund leads Regional Seminar and the Healthwatch team have entered the project for Healthwatch awards.

Longer lasting outcomes from the project include a website which explains the context of the project and which will host SIMTEGR8 tools; the dynamic simulation models, and handbooks which outline their use. This means that commissioners and project leads of other BCF regions can use the simulations in order to input their own figures for the patient pathways for the four interventions and test whether the interventions would be suitable for their area. The resource is to be launched at a National BCF webinar. Finally, the learning experiences which confronted the team and the development of shaping the simulations in such as form to present the patient journey will be written up as an academic paper intended for publication.

In conclusion, the workshops met their aims of using the computer simulations to demonstrate that emergency admissions were being avoided and to stimulate discussion about improvements to patient pathways. The project objectives were reached: dynamic process maps were built and refined to show the critical points for the patient journey; metrics were validated and new metrics identified. Local policy has been influenced and the final step of building an evidence base, online handbooks and a tool for evaluating future service delivery has been completed.

Next Steps:

- Launch website, online tools and handbooks and monitor for enquiries
- Publish academic paper
- Develop methodology

Appendix 1: Methodological basis for the project

Using Simulation in a facilitated workshop environment

Introduction

This document explains the methodology that will be followed to evaluate how emergency admissions can be reduced and improve user experience. The *SimLean Facilitate* approach described by Robinson et al (2014) has been adopted and modified to be used for the purpose of this study.

Simple models will be used in a facilitated workshop environment to generate understanding and discussion around the impact of the current alternative pathways on reducing the emergency hospital admissions and improving user experience, and to identify potential improvements.

Methodology

In order to understand the methodology that will be followed, each stage of this study is described.

Stage 1: Conceptual Modelling

The first step is to develop a shared understanding of what the Better Care Fund (BCF) has changed and reflect participants' thoughts on how each alternative pathway operates. An initial workshop will be set up for developing the process map of each intervention separately. The participants in this stage will be the facilitator (Gogi) and the Business Analyst of LCC (Reed). If an intervention has been recently changed, the Project Leads (eg. CCGs, LPT, EMAS Leads) will be also involved in this workshop. The outcome of this process is to develop a conceptual diagram (i.e. process map) before and after the implementation of the Better Care Fund scheme. A number of iterations may be required before an accommodation of views is reached as to the nature of the process. This diagram is a simplification and abstraction of the system description. The diagram will be drawn by the participants on a paper. The analyst will try to use the SIMUL8 software at the same time to build a 'quick-and-dirty' model (Pidd and Robinson 2007).

Having drawn the process map the discussion centres on the availability of data requirements. The data that are currently available will be provided to the facilitator after the completion of this session. Project Leads will be asked to provide estimations for the activities that data are not available.

Stage 2: Rapid Model Development

Based on the process map developed in the first stage and the data provided, a simple model will be developed for each intervention. This is a quantitative representation of the qualitative conceptual diagram. Data in the model may be adjusted to generate representative behaviour of the system. A model that will join all the alternative pathways will be also created. The detailed complexity of the model will be deliberately kept to a minimum.

Stage 3: Facilitation: Project Leads Perspective

A workshop will be carried out using the model to help facilitate a discussion on how each intervention can be improved. The participants in this stage will be the facilitator (Gogi), the Business Analyst of LCC (Reed) and the Project Leads for each intervention (eg. CCGs, LPT, EMAS Leads). The discussion around the model then will go through four phases, each taking roughly 30 minutes, as follows.

- **Model Understanding:** what is the model doing? The model will be briefly explained to the participants and the simulation run with the animation at a speed where the movement and queuing of patients could easily be seen. The participants then will proceed to ask a series of more detailed questions which centred on understanding the workings of simulation generally and of the intervention simulation in particular.
- **Face Validation:** does this look like what happens in the real system? The participants then will move onto thinking about whether what they are observing in the simulation model is what actually happens. This will not be a detailed validation of the model (Robinson, 2014). Instead, it will focus on the animation and watching the flow of patients and on comparing the results of the simulation model against the dashboard metrics.
- **Problem Scoping:** what is the impact of the intervention on the emergency admissions? Do we use the right metrics to capture impact/user experience? Do we record/report avoided admissions appropriately? Do we use the available resources effectively? Is the monthly trajectory valid? Does the intervention provide more appropriate treatment than an admission to ED? Does the cost of an avoided admission is less than the cost of an ED admission? In this phase the discussion largely will move away from the simulation itself and start to focus on the specific issues/concerns they may have about the effectiveness of the alternative pathway to hospital admissions. Seeing, for the first time, a helicopter view of their process working will enable the participants to identify issues that have previously remained hidden because they are normally involved in the detail of only their part of the process.
- **Improvement:** what could we do about it? The participants then will start to think about how they could improve upon the current situation. The aim will be to change the model on the fly to reflect the key ideas that have been produced during the discussion. If this is not possible, the changes will be made to the model after the workshop and the findings reported back. Given the nature of the model, the results of the model could only be taken as an indicative change and not as an accurate result.

Stage 4: Facilitation: The Patient Perspective

A workshop will be carried out using the model to help facilitate a discussion with patients and carers on how emergency admissions can be reduced. The participants in this stage are the facilitator (Gogi), the Office Developer of Healthwatch (Hammond), and volunteers (frail and older people, and carers). The discussion around the model then will go through three phases, each taking roughly 30 minutes, as follows.

- **Model Understanding:** what is the model doing? The model will be briefly explained to the participants and the simulation run with the animation at a speed where the movement and queuing of patients could easily be seen. This has been proved to be an effective way to engage participants in the discussion.
- **Problem Scoping:** What do they think about the effectiveness of the alternative pathways to emergency admissions? In this phase the discussion largely will move away from the simulation itself and start to focus on the specific issues/concerns they may have about the alternative pathways.
- **Improvement:** what needs to happen to support frail and older people? How do they think satisfaction can be measured (e.g. Quality, Speed, Dependability, Flexibility)? The participants

then will start to think about how these pathways can be improved based on their own experience of care and needs.

References

Robinson, S. (2014). *Simulation: The Practice of Model Development and Use*, 2nd edition. Palgrave, London.

Robinson, S., Worthington, C., Burgess, N. and Radnor, Z.J. (2014). Facilitated Modelling with Discrete-Event Simulation: Reality or Myth? *European Journal of Operational Research*, 234(1): 231–240.

Appendix 2: Actions stated at stakeholder workshops

	ACTIONS			
	Workshop 1 NN	Workshop 2 OPU	Workshop 3 7 day	Workshop 4 Falls
1	Work together to capture more data about the people who phone in during the day. Automated count needed.	Will make social services aware of this intervention	Definition of 7 day services	Look at quality checking data
2	Capture reasons for patient rejection	Will explore avenues of promoting OPU	Map 4 models together	My interest is in fixing patients at the front door to [al??]
3	Try to understand the demand? Increase referrals, increase capacity.	Will help colleague with the promotion	Include a method of capturing patient experience in the new 7 day working	Also working nursing at residential homes to share the falls and [newton] programme and teach others to deliver in terms of balance training and environmental assessment. Happy to discuss further if there is opportunity
4	Gather evidence to support what is needed	Assessment to be made of how the older peoples and night nursing models fit together, in terms of possible double counting of admissions avoided	Discussion around where therapy can contribute to this as at present therapy is a Monday to Friday service	Run the patient workshops to help improve the process map
5	Work together to gather data	Agreed changes to the model would be summarised and forwarded	Expansion of therapy services –integrated working –crisis response	Understand better the SPA service and links to the falls pathway
6	Provide KPI's for "declines"	ED representative will challenge ambulance crews to take suitable patients to Older Person's Unit instead of ED.	Ensure that 7 day model is an accurate reflection of all available services to prevent hospital admission	Work with the partners as part of the project
7	Travel Times – need a sample of actual travel times so these can be represented more accurately	Will inform community nurses that transport to the OPU can be provided by St John's ambulance	Discuss in CCG the new model for 7 day working and find out which GP services are involved	Work with my colleagues on the patient user workshops. What promotion is needed internally?
8	capture number of re- referrals (triggered after the three-day maximum stay in virtual beds reached)	Will advertise the service	Need to look at how therapy services extend across a 7 day week – impact on health outcomes and admissions to hospital	Understand the data from all sources
9	Once issues of capacity within the system have been addressed, consider (with UHL) raising	Possibility to be explored for forward-booking of patients into OPU by GPs; would require development of a protocol	[link] west re care plan models for high npk(?) groups	Provide timely intelligence to inform further development and commissioning

	ACTIONS			
	Workshop 1 NN	Workshop 2 OPU	Workshop 3 7 day	Workshop 4 Falls
	awareness of the service	but offers possibilities of avoiding unplanned attendances at ED		
10	Need to capture referrals onwards-e.g. for end of life care and those instances where referrals were potentially avoidable		Link east re MOT(?) pilots and therapy/ nurse involvement	Feed actions back to the project manager and into BCF wider action plan
11	Conduct audit of ED attendances who could have been referred		Find out about set of standards	Brief the falls project manager and develop a new action plan
12	Get end of life care team to audit their notes to discover relevant data		Look at five year plan for unscheduled urgent to prevent care	Consider how CSC may be able to consider preventing falls, eg mini FRAT
13	Work with GPs as the main referrers to ensure they can make best use of the service		Look at 7 day community therapy service	
14	Consider investigating discharges from hospital within 48 hours of admission and End of Life Discharges-could these have been referred to night nursing?		Computer simulation of the model and how [ows] can be used to inform future planning	
15	Simplify messages to referring agencies of which people can be referred		Links to wider community services about opps support	
16	Invite colleagues to relevant meetings		Understand gaps	
17			Review phone process. Does this need to be more robust?	
18			Promote SC care sources – 7 day response	
19			AIM Support best pathways/ actions for patients	

Appendix 3: Personal outcomes from the workshops

Stakeholder workshops

	Workshop 1	Workshop 2	Workshop 3	Workshop 4
1	Was useful	Interesting and useful	Understand that the model has some gaps but overall captures process	Useful overview of the patient pathways
2	Valuable, Learnt so much about the Night Nurse service	A eye opener	I understand how modelling can test assumptions	Interesting data problems
3	Not convinced about the model [simulation]	An understanding of the service and how to overcome the difficulties	An awareness of the differing flows of east and west CCGs	I think there are more issues to consider regarding the project
4	Helpful things to think about	Meeting people and gaining awareness of routes	The need to look at bigger pictures regarding [HeSC] and how SC can support admission avoidance on a greater level	Lots of actions
5	Argument [for] day and night provision virtual beds		To look at the simulation for planning future modelling	
6	Great care and outcomes, thank you		Better understanding of the pilots	
7	Useful food for thought		Lots of actions to take away	
8	Positive, interactive meeting, the best		Found out about the project as I didn't know anything about it!	
9	Helpful for non-clinicians		Found out about the project!	
10	Will share information at a team meeting		Hopefully influenced that only "together" we can make a difference	
11	Great to meet everyone		Therapy hopefully need[s] to be involved, 7 day schemes and services	
12	The data modelling was fascinating		First I have become aware of the GP hub project for the 7 months	
13	Will do what I can to help		Good to see the 2 different models across the CCGs	
14	Loves the figures and seeing the service in black and white			
15	As a manager, I consider that the model is invaluable			
16	Meeting other people			

User workshops

	Workshops 1 and 2	Workshop 3
1	A better understanding of SIMUL8	Some of the reasons things don't work
2	Gained information on proposed changes to current practice	How much behind the scenes activities are going on and [tested]
3	Looked at making a better pathway for frail older people	Insights from EMAS
4	Will hopefully see that unnecessary Journeys to A&E are minimised	More understanding of the system as a whole
5	Understand that our insight might have an influence within the pilots	Some general experience of patients, not specific to the tool
6	Understanding of how services are conducted	User input useful
		Interesting to hear feedback from the paramedic
7		Found the model excellent
8		Didn't realise all the factors that EMAS has to deal with
9		Felt possibly good practice and improvement will be achieved

Appendix 4: Patient satisfaction criteria

Measure	Speed	Dependability	Flexibility	Quality
Criteria	<ul style="list-style-type: none"> Only one pathway from admission to discharge Time taken from referral to intervention Time taken from referral to discharge No admission to A&E No readmission 	<ul style="list-style-type: none"> Number failed visits Prompt response time Delivered as promised (right place right time) Complaints/commendations/praise 	<ul style="list-style-type: none"> Number of referrals to pilot schemes Policies and procedures Number of ways service can be accessed How quickly needs are met No time constraints 	<ul style="list-style-type: none"> Personal attention Physical comfort Comfort with surroundings Dignity preserved Respect shown Confidence in clinicians Clear information and reasoning Choices Satisfaction with outcomes Continuous assessment patient care
Measuring instrument	<ul style="list-style-type: none"> Collect "good feedback" Note successful outcome 	<ul style="list-style-type: none"> Scale good/less good/bad Scale 1-10 Smiley face chart Open ended questions Interviews with patients Questionnaires and surveys 	<ul style="list-style-type: none"> Smiley face chart Line chart Two questions on ease of access Open ended questions 	<ul style="list-style-type: none"> Feedback from patient Feedback from carer Feedback from stakeholders Continuous rating scale graphs

Appendix 5: Case Study Report of SIMTEGR8 Workshop 1: Integrated Crisis Response, Night Nurses

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicester and Leicestershire County Council
Structure/Format of Event	2 ½ hour workshop
Aim of Event	To review a computer simulation model of the Integrated Crisis Response, Night Nurses patient journey; test scenario's about future improvements to the intervention; make recommendations for future actions to the Step Up Step Down Programme Board.
Date of Event	11 th September 2015 9.30am – 12.00
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology to stimulate debate and action to improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, HealthWatch Leicestershire and Leicestershire County Council. The project uses computer modelling and simulation techniques (developed by the SIMUL8 Corporation) in order to analyse the patient journey in four healthcare interventions that Leicestershire are piloting in order to reduce emergency admissions to hospital. This case study report deals with the first workshop in a series of 4, one for each of the interventions which was conducted as a partnership between staff of SIMUL8, Loughborough University and Leicestershire County Council. The workshop participants were staff of Leicestershire County Council and NHS clinical leads for the individual service. The service investigated at this workshop is:

Integrated Crisis Response (Night Nurses Unit) – health and social care support given at home for up to 72 hours.

This workshop was facilitated by two consultants because of the project's original Research Associate's departure from the project. Her two replacements attended in order to observe and become familiar with the process. The consultants were from SIMUL8, accompanied by a simulation developer who had taken over the development of the model and an independent facilitator frequently used by Leicestershire County Council.

The workshop was structured using the following SimLean methodology:

First the approximate model is run to illustrate the previously agreed process (Model Understanding).

This is used as a the basis of a discussion of whether the model represents what happens in reality (Face Validation)

The discussion them moves on to issues that have been revealed by running the model (Problem Scoping)

Finally ways of resolving the issues are suggested by the participants (Improvements)

Description and account of workshop

There were 14 people present, 8 from the case study organisations, 3 representatives of SIMUL8, 2 from Loughborough University and the independent facilitator. The Health and Care Integration Team took care to ensure that the workshop was attended by a varied selection of clinicians and leaders across the relevant organisations. This was essential for the success of the workshop and contributed to an environment where productive conversations could take place. The sessions were managed within a tight timeframe of 2 ½ hours so as to impact minimally on service delivery. The active participation of all attendees and their willingness to commit to action plans was very encouraging. Attendees included nurses delivering the service as well as service leaders and senior operational managers from emergency services at UHL. Additionally, there was Commissioner (CCG) representation and programme input from the Step Up/Step Down integration programme group. This provided a rich mix of perspectives to inform the debate. Appendix 1 lists the attendees of the workshop.

At the beginning of the session all participants shared what they wanted to achieve from the simulation event:

- Improving their part of the overall service
- To find ways of increasing the number of beds
- How daytime services can work with night-time services
- To achieve a “seamless, barrier free service”
- What will “offer success seamless, with patient at the centre”

The first section of the workshop was concerned with validating the model and its fit with the current situation on the ground. This was aimed at checking both that the basis for the building of the simulation models was considered accurate and that the participants understood how it had been transferred into the simulation software. This approach first “walked” the participants through the “before” process maps of each intervention, which had been provided to the simulation modeller. It continued by demonstrating how this was built into a SIMUL8-based model and then into a results output in the form of a simplified version of the initial process map, so as to be familiar to the participants. The same process was undertaken to achieve a communal understanding of the system after the implementation of the intervention. Having confirmed the understanding of the processes within the system the simulation was run through to allow the participants to view a top-down perspective and to study the results being output from it. The data output from the simulation models were intended to match metrics used in the reporting of the intervention services.

The process maps were agreed to be accurate and the conversion of these process maps into a simulation model appeared to be understood by all participants. A recent audit of the Night Nursing intervention had been conducted and the Simul8 facilitators were keen to understand whether the audit findings offered insights that might require a change in the simulation model. Earlier discussions on the model understanding and face validation of the model had revealed possible variations in the flow of patients through the model.

Factors considered were:

- Number of admissions avoided
- Night nursing service capacity
- Other “what if” scenarios
- Insights
- Further actions

Having introduced the model the session then turned to the stage which was intended to validate that the representative but simplistic simulation was acting along the same lines of the real system. This wasn't intended to be a detailed validation to assess statistical accuracy, but instead to gain the participants trust that the model was performing in a manner that could be expected.

The participants aided in supplying professional knowledge regarding input data for the simulation that increased the accuracy of the model. Overall, though, it was agreed that this model was performing as could be expected, and any irregularities could be explained through the participants input.

The group agreed overall that the simulation was a good representation of the service, though not in sufficient detail to highlight some of the barriers or capacity blocks to smooth running, for example time of day of notifying potential patients for night services and ability or inability to divert from ED once patients have been presented there. The group discussed in great detail how the flow represented in the simulation reflected the day-to-day reality of delivering services.

A number of issues affect the capacity of the service. The mix of attendees in this session allowed a wide-ranging debate about deployment of staff, limitations in the capacity of the night nursing service and the interaction between the night nurses and the "roaming" staff. There was a detailed discussion around effective rostering.

Having the key individuals responsible either for managing or delivering night nursing services together was a significant opportunity to discuss possible improvements. Participants identified changes and day-to-day barriers to service delivery, assisted by the insights from the simulation. This is evidenced by the action plan described in the next section on improvement.

Discussions on assumptions within the model, for example, around the number of calls per night and travel time elicited subtleties in the service not identified in the model as presented:

- The significant impact and variability of travel time, to and from the patient's home
- Varying scenarios of how patients move through the system
- "Re-referral" required for patients needing the service for more than three nights
- The critical influence of the number of nurses working exclusively on ICRS (as distinct from roaming) on the capacity of the service overall
- Management of referrals during the day

Possible alternate scenarios were discussed and the Simul8 team agreed to incorporate these in the next development phase of the model.

The simulation was received with such enthusiasm that a long and detailed discussion about the service was sparked off as soon as the animation ended. The facilitator needed to interrupt the discussion in order to move on and explore further scenarios. Participants were very keen to explore the different outcomes and effect on their targets that would be produced by changing in reality such variables as time spent with the patients or employing less care assistants. They showed surprise and interest in the results as the simulation re-ran with new figures and asked questions such as "can the model predict the number of patients that can be treated when capacity is increased?" Many suggestions of possible scenarios were forthcoming and gaps in the original data were identified through running the simulation a number of times.

Comments about the model at the close of the session were:

- *“I got more out of what people were saying than the model itself”*
- *“I was not convinced about the model”*
- *“The model is fascinating”*
- *“As a manager I think that the model is invaluable”*

Improvement

The final section of the workshop focused on action planning, a summary of next steps and a discussion around access to the simulation product for future use, including any modifications needed to the model. The workshop was interactive with the delegates demonstrating considerable engagement. They were readily able to identify practical actions to take away and expressed satisfaction in the final round-up and participant feedback discussion. The action plans resulting from the workshops (Appendix 1) were produced immediately following the event and incorporated into the admission avoidance programme reporting mechanisms for the Better Care Fund. These in turn are being fed into monitoring processes such as Key Performance Indicators.

Potential “what if” scenarios were debated at length and can be taken forward, especially as the pressure points within the service are now better understood. The participants appear to leave with the intention to work together to improve the service as some of their comments illustrate:

- We will work together to capture more data about people who phone in during the day
- I will try to understand the demand
- I will look at end of life care

Now that the key staff have been exposed to the model, and have had the opportunity to input into its development this could be considered as a model to assist in future service planning.

Reflection

It has already been mentioned above that the participants expressed their desired outcomes for the workshop and for the project at the start of each session. Hopes that were stated at the Night Nurses workshop showed that participants generally understood that the simulation could help them to improve the service. Areas of concern were:

- Routes to referrals
- Single point of access centre
- A safe Night Nurse service with more beds
- Co-operation with day time services
- Making a patient centred, seamless, barrier free service

The discussion during the workshop was lively with many contributors and engagement with the simulation was high. The participants focused their discussion around the model and its ability to show different outcomes from changing variables. However, the patient pathway featured prominently in the discussions as well as the service as a whole. At the close of the workshop the participants generally thought that it was useful, informative, thought provoking and a helpful way to consider certain issues. One participant considered the model “invaluable”.

The specific outcomes voiced by the participants at the start of the session were not directly answered. However, the means to those ends were identified. For example, the manager who wanted to improve their part of the overall service found three of colleagues to assist her in gathering the relevant data to improve the service. The solution to the ideal of a patient centred,

seamless, barrier free service was not one of the direct outcomes of the workshop, but the participants realised that they had the tools and links to attempt to achieve that goal.

It was found that:

- The cross-section and attitudes of the participants led to high engagement with the workshop and a meaningful discussion about the patient pathways
- Ways to improve the services were identified
- The potential for simulation modelling of patient pathways was noted
- The workshop stimulated collaboration between participants for future work on the interventions

The concept of using a computer simulation of a patient pathway in order to stimulate discussion on ways for developing the service was successful in this case because the running and re-running of the model with different scenarios gave the delegates insight into the service and its potential as well as promoted the use of the model as a tool to aid and inform decisions.

However, at times the delegates were so closely engaged in discussion that it was hard to keep them on track and to time. In future a firmer explanation of the structure of the workshop could ensure that the delegates have a more focused approach.

The participants generally found the experience useful, informative and a rare chance to meet each other. Certainly in the links were forged between delegates that would lead to further collaboration and the development of the patient pathway. Actions that were prompted by the discussion have already been used to inform future key performance indicators. Therefore it can be concluded that in these cases, using a computer model of a patient pathway as a vehicle of change and development has been successful.

Next steps

- Develop the computer simulation to incorporate the changes identified during the workshop
- Consider the firm management of discussion during the workshops
- Follow up the delegates to discover
 - Their general opinion of the workshops
 - Whether they have completed their actions

Appendix 1

Questions identified by participants at the commencement of the workshop

- How many referrals can the night nursing service take?
- How many more appropriate referrals could be made?
- When will the service run out of capacity if more referrals are made?
- How much extra capacity is needed?

Actions agreed by participants as the simulation took place

	ACTION
1.	<p>Quantify unmet demand, and better understand patterns of demand</p> <ul style="list-style-type: none"> • no of calls to the team per night – (stated 32-50) – and whether this varies by day of the week • proportion of demand that ends up as a “roaming” or virtual bed for the night nursing team • characteristics of patients whose referrals are accepted e.g. multi-morbidities, exacerbations (so that these patient types can be identified in the ED – emergency admission cohort) • referrals lost to the system once beds are full (unknown demand because presumably these patients attend ED and are unseen to night nursing) note: this issue not covered by the audit ; The model will assume that patients will go to ED when no capacity available • referrals received during the daytime • commence collection immediately, on system one as follows: <ol style="list-style-type: none"> 1. Referral declined because beds are full, split by source of referral 2. referral declined because inappropriate 3. Referral refused by? Patient 4. 4 time and day of referral 5. ? Other reasons • Assume that 38% of referrals are end of life.
2.	Provide KPI's for “declines”
3.	Travel Times – need a sample of actual travel times so these can be represented more accurately
4.	<ul style="list-style-type: none"> • capture number of re- referrals (triggered after the three-day maximum stay in virtual beds reached); • to be flagged on handover and the outcome of these captured; what are the circumstances around re-referrals and would upstream packages of care have helped?
5.	<p>Once issues of capacity within the system have been addressed, consider (with UHL) raising awareness of the service e.g.</p> <ul style="list-style-type: none"> • via information to key staff e.g. new doctors at induction (? Prompts on lanyards), patient trackers and primary care coordinators, • promotional leaflets • links with SPA
6.	Need to capture referrals onwards-e.g. for end of life care and those instances where referrals were potentially avoidable
7.	Conduct audit of ED attendances who could have been referred
8.	A/B to link with UHL and LPT colleagues; invite C & D to a step up/stepdown meeting
9.	Work with GPs as the main referrers to ensure they can make best use of the service
10.	Consider investigating discharges from hospital within 48 hours of admission and End of Life Discharges-could these have been referred to night nursing?
11.	Simplify messages to referring agencies of which people can be referred
12.	NHS organisations to find / create opportunities for joint discussions

Other points raised

- Useful to be able to run and rerun scenarios on changing patient referrals with updated data as time goes on – make model available for use
- SPA would like to have this information in real time
- Once the patient cohort is better understood, it should be possible to search ED/Admission data to find the same patient cohort and see whether, over time, admissions of this type are being reduced and the potential for increasing referrals.

Appendix 6: Case Study Report of SIMTEGR8 Workshop 2: Older Persons' Unit

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicestershire and Leicestershire County Council
Structure/Format of Event	2 ½ hour workshop
Aim of Event	To review the computer simulation of the patient pathway to the Older Persons Unit; test scenario's about future improvements to the schemes; make recommendations of future actions to the Step Up Step Down Programme Board.
Date of Event	11 th September 2015, 13.00 -15.30
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology to stimulate debate and action that will improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, Healthwatch Leicestershire and Leicestershire County Council. The project uses computer modelling and simulation techniques in order to assess how the patient journey can be improved in four healthcare interventions through which Leicestershire are trying to reduce emergency admissions to hospital. A crucial part of the assessment process are a set of workshops which look in detail at the patient journey and use a computer simulation on order to stimulate discussion about the best way to ensure that patient care is efficient, of good quality and compassionate. This report is the outcome of the second of those workshops which focused on one pilot intervention:

Rapid assessment service for frail older people; Older Persons Unit – This is a geriatric specialist outpatient clinic situated in Loughborough which provides a comprehensive assessment of individuals that are referred by their GPs.

This workshop was facilitated by two consultants due to the project's research associate departure from the project. One was from SIMUL8, accompanied by the simulation developer who had taken over the development of the model. The other was a consultant facilitator frequently used by Leicestershire County Council. The workshop participants were staff of Leicestershire County Council, NHS clinical leads for the service and representatives of services linked to OPU in some way. The workshop was structured using a SimLean methodology:

- First the approximate model is run to illustrate the agreed process (Model Understanding).
- This is used as a the basis of a discussion of whether the model represents what happens in reality (Face Validation)
- The discussion them moves on to issues that have been revealed by running the model (Problem Scoping)
- Finally ways of resolving the issues are suggested (Improvements)

Description and account of workshop

Considerable effort on the part of the Health and Care Integration Team went into ensuring that the workshops were attended by the right mix of clinicians and leaders across the relevant organisations. This was key to success and contributed to an environment where productive conversations could take place. The sessions were managed within a tight timeframe of 2 ½ hours so as to impact minimally on service delivery. The active participation of all attendees and their willingness to commit to action plans was very encouraging. Attendees included nurses delivering the service as well as service leaders and senior operational managers from emergency services at UHL. Additionally, there was Commissioner (CCG) representation and programme input from the Step Up/Step Down integration programme group. This provided a rich mix of perspectives to inform the debate.

There were 9 delegates attending from the study organisations, 3 representatives of SIMUL8 1 representative of Loughborough University and the consultant facilitator. Appendix 1 lists all the attendees of the workshop. As with the Night Nursing Service, attendees represented a broad spectrum of front-line clinicians and operational managers. There was also a Healthwatch Leicestershire representative in the group.

In both of the sessions the same approach was taken to addressing the model understanding. The participants were “walked” through the “before” process maps of each intervention. It continued by demonstrating how this was built into a SIMUL8-based model and then into a results output in the form of a simplified version of the initial process map, so as to be familiar to the participants. The same process was undertaken to achieve a communal understanding of the system after the implementation of the intervention. Having confirmed the understanding of the processes within the system the simulation was run through to allow the participants to view a top-down perspective and to study the results being output from it. The data output from the simulation models were intended to match metrics used in the reporting of the intervention services.

Unfortunately, in spite of attempts to obtain this, data on service usage was not available for the simulation event, though it was provided immediately following the workshop. It was identified that full knowledge of how arrivals entered the system was not represented in the process maps. The participants questioned both the process maps used to build the simulation as well as the ‘dummy data’ that was needed in the absence of any real data. Between the two areas of concern enough trust in the simulation was lost that it wasn’t considered valid for testing scenarios or changes to the system. Instead, discussion ranged more broadly around how the service is delivered in practice. Inevitably, this led to a more generic discussion around the service model. The general conversion of these process maps into a simulation model appeared to be understood by all participants.

The situation did lead to a more in depth conversation of the service and this then entered the Problem Scoping and Improvement sections of the workshop.

As was seen with the Night Nursing Service, the opportunity presented by having the key players in the room was itself valuable in deepening understanding of how the service is run on a day-to-day basis. There was considerable discussion initially about how the service is accessed and by whom. The Advanced Nurse Practitioner and Consultant Nurse both working within the OPU offered in-depth information on the services offered and how they are used in practice. A discussion around capacity (both physical and diagnostic) and potential lack of understanding of this proved very useful in generating potential actions to improve uptake.

A key observation from one participant was that these emergency admission avoidance schemes do not operate in isolation from each other. Although the cohorts of eligible patients for Night Nursing and OPU are defined, a change in one variable in one service such as OPU can impact upon another such as the Night Nursing Service.

The significance of diagnostics as a major part of the care offered in OPU was thought not to be well understood, particularly by GPs. From the discussion it appeared that there is a sense of a general lack of understanding of the services on offer which is perhaps contributing to underuse of the service. These discussions led to a very productive action planning session as is shown in the section on improvement.

Because of the lack of data and inaccurate representation of the model throughout the session certain individuals quietly talked to the simulation developer in order to improve the model. The simulation was run once more with new data. One of the delegates appeared to be disappointed that it was not an accurate representation of the process. However, another delegate who had been quiet until that point commented that “we have never seen it like that”. One of the delegates became interested in the modelling process and wanted to know how the figures were derived. Two other delegates became actively involved in changing the process map to reflect the reality of the patient pathway.

Improvement

In both workshops, the final session focused on action planning, a summary of next steps and a discussion around access to the simulation product for future use, including any modifications needed to the model. Although the Night Nursing workshop benefited from real data, whereas the OPU used dummy data, participants in both workshops were readily able to identify practical actions to take away. Both workshops were interactive and attendees expressed satisfaction in the final round-up and participant feedback discussion. The action plan resulting from the workshop (Appendix 2) was produced immediately following the event and incorporated into the admission avoidance programme reporting mechanisms for the Better Care Fund. These in turn are being fed into monitoring processes such as KPI's.

Potential “what if” scenarios were explored and debated during the Night Nurses workshop but due to the lack of data for OUP the same level of variables and their effect could not be discussed. However, “what if” scenarios can now be generated for that service, alongside the practical actions around increasing uptake. Now that the key staff involved in both services have been exposed to the model, and have had the opportunity to input into its development this could be considered as a model to assist in future service planning.

Reflection

The Older Person's Unit workshop had a different synergy to the Night Nurses workshop, with the participants being generally quieter, although quite a number of people attended both sessions. The areas of concern that participants hoped to resolve through the workshop were:

- To find ways to make the unit “busier”
- To prevent hospital admission

There was considerable quiet discussion about the service and the patient pathway, possibly because, as previously mentioned, there had been no data for the model. The model itself was not so prominent in the discussion. Related services were mentioned more frequently than in the Night Nurses workshop, for example General Practitioners were discussed because they automatically refer patients to the Emergency Department (ED) due to lack of other information.

As in the Night Nurses workshop the participants thought that the session had been interesting and useful. One participant described the workshop as “an Eye-opener”.

Because of the lack of previous data and the incorrect assumptions that had been made in the process map the Nurse Practitioner of the Older Persons Unit explained the service in detail. The information that he gave to the workshop was not previously known by the representatives of other services, for example, the Unit is situated in Loughborough which is some distance from many possible patients. The representative from ED was not aware that transport to the OPU was provided, by the ambulance service or St John’s Ambulance. The method of referrals to the service was also discussed, which could be from any health professional including:

- General Practitioners
- SAFA acute visiting service
- Paramedic Army Service

Therefore others gained an increased awareness of routes to the service. The ED representative stated that she would in future “challenge ambulance crews to take [suitable patients] to OPU instead of us”. This means that there is now the potential that the service will become “busier”.

On a negative note, the one delegate who thought that she would see a completed and accurate computer simulation of the service on which she could base her action plan demonstrated that communication about the purpose of the workshops and the nature of the model had not been sufficiently clear.

The participants appreciated the chance to meet each other and discuss aspects of their contributions to the service as a whole and to find out more about the Older Persons Unit.

- It was found that:
- The selection of the participants led to meaningful discussion about the patient pathways
- Ways to improve the services were identified

The delegates interacted to improve the process map and model, thereby informing their colleagues of the reality of the patient pathway

The concept of using a computer simulation of a patient pathway in order to stimulate discussion on ways for developing the service was therefore effective despite having no data for the OPU model. It could be argued that the lack of data contributed to the detailed description and resulting discussion about the patient pathway. The discussion led to the delegates who represented different services not only understanding the OPU unit but also to their promises to send patients that way.

The participants generally found the experience useful, informative and a rare chance to meet each other. As in the Night Nurses workshop links were forged between delegates that could lead to further collaboration and the development of the patient pathway. Actions that were prompted by the discussion have already been used to inform future key performance indicators. Therefore it can be concluded that in this case, using a computer model of a patient pathway as a vehicle of change and development has been successful.

Next steps

Use the data that has now been provided to improve the process model and simulation

Ensure that the nature of the model and purpose of the workshops is clearly communicated for the remaining sessions

Follow up the delegates to discover:

- Their general opinion of the workshops
- Whether they have completed their actions

Appendix 2

Questions identified by participants at the commencement of the workshop

- Is the OPU reducing emergency admissions?
- Does it have the potential to work to capacity?
- What would that mean for emergency admissions?

Actions agreed by participants as the simulation took place

Note that as no data had been received ahead of the workshop, the simulation focused more upon a general discussion around how the unit is used and could be optimised in the future. Data has now been received following the workshop. The model demonstrated at the workshop was built on the process map and a set of assumptions using dummy data. This now needs to be updated with real data. The notes below therefore include general discussion.

	ACTION / OBSERVATIONS
	<p>Some patients referred are not necessarily an alternative to ED at the moment. The OPU is taking lower acuity referrals because capacity allows them to do so.</p> <p>Equally, Some GP practices that could refer are not doing so. (Some have diagnostics on site anyway so wouldn't refer)</p> <p>The location of the OPU is considered to be a limiting factor in some parts of Leicestershire</p> <p>Services include diagnostics and a comprehensive geriatric assessment</p>
1.	<p>Estimates of potential demand requested. Some information on this contained in the business case for the OPU. (Attached)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Leicestershire Frail Older Persons_Outline</p> </div> <div style="text-align: center;">  <p>Current pathway flow for OPU - Dec 2014.d</p> </div> </div> <p>Also noted that X captures data weekly on how many patients potentially could have attended the OPU are you-queried how this is being acted upon</p>
2.	Need a direct contact with social services for OPU
3.	Breakthrough moment : community nursing teams who had been unaware of the service. They felt that they would definitely be able to refer patients as an alternative to ED.
4.	<p>Questions to be explored to help understand impact:</p> <ul style="list-style-type: none"> • Catchment population • Over 65s • Not fracture or head injury or seizure • Deterioration not sufficiently acute that could not wait 48 hours for a service <p>Can this group be identified, how many people would it be and how many of those would have gone to</p>

	ACTION / OBSERVATIONS
	ED?
5.	Need to explore data to understand potential demand for this service and that information is disseminated to the services that need to know about it.
6.	Queries about time of referrals – many of these are between 5-7pm, (ie later than a same day referral could be accepted) but the OPU offers a next day service so this should not be an issue-this needs to be more widely publicised
7.	Possibility to be explored for forward-booking of patients into OPU by GPs; would require development of a protocol but offers possibilities of avoiding unplanned attendances at ED
8.	OPU has diagnostic facilities but? not widely known-potentially patients attending ED for diagnostics; original planning for the unit based on comprehensive geriatric assessment-needs wider promotion
9.	Greater understanding of barriers to attendance needed to inform discussion regarding why uptake of services is so low. ? Misinformation regarding who may refer
10.	Potential to also target out of hours GP referrals service-currently no referrals received from this source
11.	The availability of transport on site was not widely known and should be publicised
12.	How patients are expected to be referred, how many, when and likely outcomes in terms of hospital attendances reduced needs to be clarified and explained.
13.	Upon receipt of data, this is to be processed
14.	Assessment to be made of how the older peoples and night nursing models fit together, in terms of possible double counting of admissions avoided
15.	Agreed changes to the model would be summarised and forwarded
16.	Possibility of asking EMAS to direct suitable patients to the OPU in place of ED

Appendix 7: Case Study Report of SIMTEGR8 Workshop 3: 7-Day Services in Primary Care

Marianne Bamkin and Edward Ostler

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicestershire and Leicestershire County Council
Structure/Format of Event	2 ½ hour workshop
Aim of Event	To review the computer simulation of the patient pathway to the 7-day services intervention; test scenario's about future improvements to the scheme; make recommendations of future actions to the Step Up Step Down Programme Board
Date of Event	29 th September 2015, 9.30 -12.00
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology to stimulate debate and action that will improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, Healthwatch Leicestershire and Leicestershire County Council. The project uses computer modelling and simulation techniques in order to assess ways that the patient journey can be improved for four selected healthcare interventions which Leicestershire County Council anticipate will reduce emergency admissions to hospital. A crucial part of the assessment process is a set of workshops which look in detail at the patient journey and use a computer simulation to stimulate discussion about the best way to ensure that the patient is treated not only with good care but also with the utmost efficiency. This report is the outcome of the third of those workshops:

Seven-day services in primary care - pilot schemes in both Clinical Commissioning Groups to test how their localities can offer services and support on a seven day basis to patients with complex needs.

This workshop was facilitated by the simulation consultant from SIMUL8 Corporation and the Loughborough University Research Associate attached to the project. The workshop participants were staff of Leicestershire County Council, NHS clinical leads for the service and representative of services linked to 7-Day Services. The workshop was structured using a SimLean methodology:

- First the approximate model is explained and run to illustrate the agreed process (Model Understanding)
- This is used as a the basis of a discussion of whether the model represents what happens in reality (Face Validation)
- The discussion then moves on to issues that have been revealed by running the model (Problem Scoping)
- Finally ways of resolving the issues are suggested (Improvements)

In order to capture their thoughts and actions, cards (Appendix 1) and paper were given to the delegates for them to write down their personal aims and outcomes for the workshop, and to

record the inaccuracies or points of interest that they found with the model. At the close of the session delegates were asked to fill in cards about the actions that they would take after being at this meeting and to rank their experience on a Likert scale.

Description and account of workshop

There were 13 people attending the workshop, 3 from Loughborough University, 1 from SIMUL8 Corporation and 9 from the case study organisations. These included representatives from both East and West Leicestershire Clinical Commissioning Groups (CCGs) which had taken slightly different approaches to the 7-Day Services intervention. Representatives from East Midlands Ambulance Service (EMAS), Leicestershire Social Services, Leicestershire Partnership Trust (LPT) and University of Leicester Hospitals (UHL) had also been invited in order to provide a wide range of skills, experience and knowledge to draw upon. No-one from EMAS or UHL attended. A full list of the attendees can be seen in Appendix 2.

At the start of the workshop delegates listed the information that they hoped to gain from attending. The hopes are summarised below:

- To discover what has been done so far
- To find ways of collaborative working
- To gain a better understanding of the model, data and the reality of the pathway
- To discover feasible methods of operating a 7-day service within budget and with current resources
- Better insight into the effectiveness of commissioned services and how SIMUL8 can help
- To understand the contribution and integration of Health and Social Care and Community Therapy service to 7-days service
- To find what clear actions can be taken to improve and evaluate the service

The process maps of the pathways “Before” and “After” the intervention that had been drawn up by the LCC systems analyst were then presented to the delegates. This was in order to verify that the simulated model was based on valid data and the reality of the service in action. The process map used and therefore the simulation shown at the workshop was built using data from East Leicestershire Clinical Commissioning Group (CCG) because data from West Leicestershire had not been available to the modeller at the time. East Leicestershire had chosen to pilot the 7-day services scheme for 7 months only and was currently assessing their findings. However, the West Leicestershire CCG has decided to continue their pilot of 7-Day Services using a slightly different strategy. This provides an interesting comparison between the two parts of the county.

The process maps were overlaid with a simplified and clearer version to ensure that there was an agreed understanding between the modeller and the delegates of the progress of the patient through the intervention. A delegate asked whether the percentage of the population which was taken for the simulation was based on the 2% of individuals most at risk of admission or the population as a whole. The modeller informed the workshop that it was based on the 2% of individuals most at risk; as captured by the Step Up Step Down Dashboard. The delegates asked questions about the operational hours of the service, the referral points (such as self-referral) and the condition of the patient. These questions were amply answered by the project lead of East Leicestershire 7-day service, who then provided a comprehensive description of the service.

The “Before” pathway was considered to be generally right, however, the “After” pathway was thought to be not so accurate. The 7-day service project lead from East Leicestershire emphasised that much of the service was built around unquantifiable soft systems, which the modeller agreed was not possible to express in the simulation. The workshop passed to the second stage when the simulation was run. The participants were interested in the source of the data used for the model - it had been gathered from the GP practices that had participated in the East Leicestershire 7-day service. The discussions surrounding the presentation of the model revolved around the exact definition of an avoided admission, comparison with real admission data, metrics collected through SPA and trying to piece together the bigger picture. For example, the model does not show the effect of patient care plans: a patient may have a direct route to a consultant.

Improvement

The delegates were judging the process map and the short patient pathway against the entirety of the health and social care services available in Leicestershire. Their concern may be justified by the overlap of each of the interventions being analysed (Integrated Response: Night Nursing, Older People’s Unit and Rapid Response Service: Falls). For example, East Midlands Ambulance Service has an involvement with each intervention. The suggestion of an integrated model that combines the 4 interventions was greeted with enthusiasm by the delegates.

Another topic of discussion was the differences in approach between East and West Leicestershire. The representative of West Leicestershire CCG explained the difference of approach. West Leicestershire has chosen to continue the service at a certain level focusing on a breadth of patient care with other health practitioners as well as GPs being involved and the best way to join services together. East Leicestershire decided to focus on depth of knowledge for their response team, that is, GPs only, and the cost effectiveness of that service.

As the simulated model was considered to be broadly right for the East Leicestershire system the workshop turned to discussing ways of capturing metrics and the patient experience.

Suggestions included:

- Would you recommend us to a friend?
- How often do patients not manage to access the service?
- Monitoring of missed calls
- Questionnaires of user experience

At the close of the workshop, delegates were asked to read their initial comments on their personal hopes for the workshop and then reflect on what they had learnt. A summary of their answers can be seen below.

- An understanding of the value of simulation modelling
- The need to look at bigger pictures regarding health and social care and how Social Care can support admission avoidance on a greater level
- An awareness, appreciation and understanding of both East and West 7-Days Service Pilots
- Lots of actions to take away
- Hopefully influenced that only “together” we can make a difference
- Therapy needs to be involved in the 7-day working schemes/services

Delegates were then asked to state what actions that they intended to take to improve the service and to write down these actions on postcards. The resulting list and an example of the card used can be seen in Appendix 3. The postcards will be sent to the delegates at a point in

the future to remind them of their intended actions. It is expected that they will then send the card back to the researcher with the actions that they have managed to achieve.

Reflection

The participants arrived at the workshop with preconceived ideas of what they could gain from attending. Certain of the delegates had already attended one or more of the previous workshops, for the Integrated Response: Night Nursing, or the Older Person's Unit. On the other hand, there were other delegates who knew very little about the interventions being analysed and who wanted to find out more information. Areas of concern were:

- Gaining knowledge of the intervention
- Co-operative working
- The use of computer simulation
- Cost effectiveness of intervention
- Service improvement

There was a certain amount of engagement with the simulated model, but it was not as sustained or intensive as for the Night Nursing or Older People's Unit. The delegates were quiet and attentive as the process map was being presented; however, some of them looked puzzled. In contrast, all the delegates paid their full attention to the East Leicestershire 7-day service project leader as he gave details about the reality of the operation of the service. Discussion was good but it was mainly focused on the patient pathway and the East Leicestershire 7-Day Service. There was interest shown in the difference of approaches taken by each of the Leicestershire CCGs and that generated some interesting discussion. It was noted that, as in the previous workshops, one or two delegates remained quiet and contributed little to the conversation.

The simulated model was discussed less frequently, but still featured as an important topic. The wider context of the intervention, for example alternative routes or what happens to the patient before or after the intervention, was clearly important to the delegates because it was difficult to steer them away from talking about such details. The simulation was re-run twice to investigate the effect of changing some of the variables, but this did not provoke a great deal of discussion. However, the project lead showed interest in the diagnostic power of simulation as a tool.

When the workshop was drawing to a close the delegates re-read the cards on which they had written their anticipated outcomes for the workshop to assess whether their aims had been met. They appeared satisfied that this was the case. For example those who wanted to know more about the simulated model considered that it "had some gaps but overall captures process"; "I understand how modelling can test assumptions" and "to look at the simulation for planning future modelling". Similarly, the delegates who arrived wanting to know more about the interventions stated that they now had "An awareness of the differing flows of East and West CCGs", "An initial awareness of the GP hub service East" and even "Found out about the project as I didn't know anything about it!" The delegates who hoped to find ways of working collaboratively to achieve the optimum patient experience along the pathway thought: that they had discovered "the need to look at bigger pictures regarding Health and Social Care and how Social Care can support admission avoidance on a greater level", that "Therapy hopefully need[s] to be involved, 7-day working schemes/services" and that they had "Hopefully influenced that only 'together' we can make a difference". The only issue that could not be solved at the workshop was cost effectiveness, as that is not part of the aims of the SIMTEGR8 project.

It was found that:

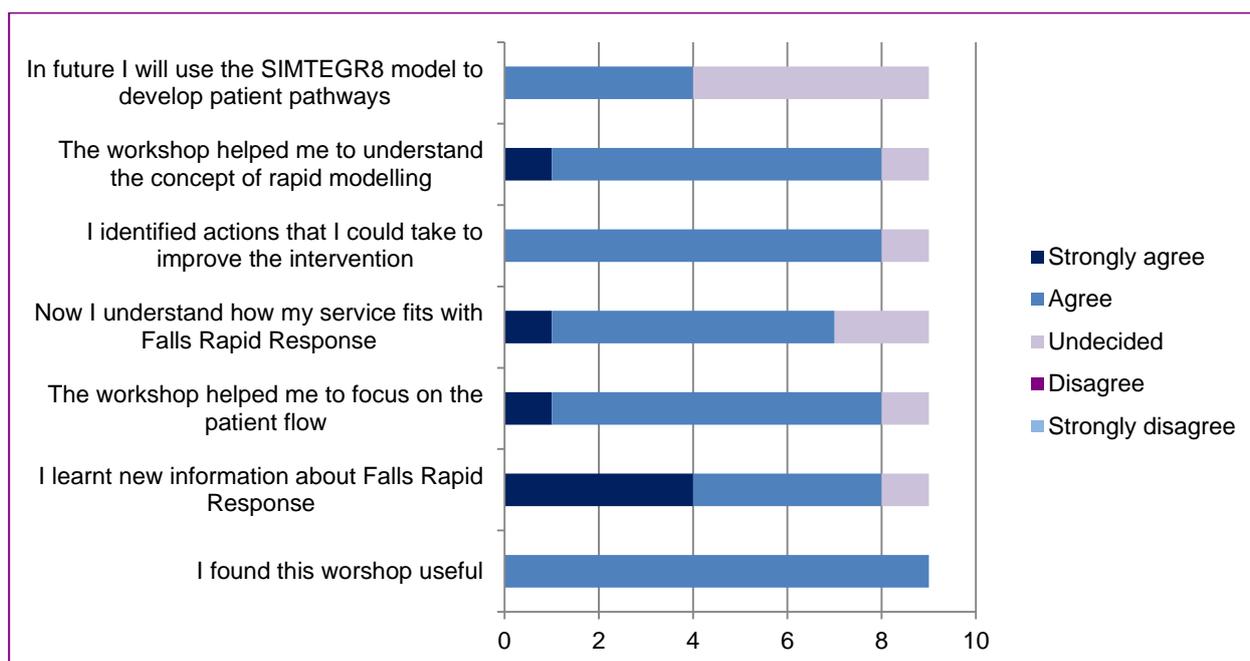
- Delegates were more engaged with discussion when a project lead is there to talk about the reality of the situation
- Key individuals did not attend or were not invited, e.g. General Practitioners, EMAS
- The delegates did not engage with or discuss the computer simulation as much as they had done in the previous workshops
- The four phases of the workshop discussions blended together which produced a flow of ideas rather than an examination of separate concepts

The use of a computer simulation of a patient pathway in this case did lead to discussion about the pathway itself. However, the delegates were not sceptical enough about the simulation to ask provocative questions or to try out a number of various scenarios. They interpreted the concept of filling in the gaps in the pathway as the peripheral routes to and from this particular pathway. They concentrated on “The bigger picture” rather than defining and refining the patient journey as it currently stands. In order to stimulate discussion on ways to develop the simulation and service we should consider the following points:

- Tell the delegates that together we are conducting a system analysis with the simulation as a tool
- Ask delegates whether we have presented and explained the simulation adequately
- Emphasise the “what if?” scenario
- Each step of the process could be questioned, not only confirming that this is what happens, but is this the right way? Is there a better way?
- Ensure that the visual impact of the model draws their attention

Judging by the positive remarks that the participants made at the end of the workshop and the result of the Likert scale (Figure 29) they found the experience useful and informative and an opportunity to meet others. Four out of the nine people who completed the scale were interested in using the SIMTEGR8 model as a decision making tool and only one person was not certain that they understood the concept of rapid modelling. Therefore it can be concluded that in this case, using a computer model of a patient pathway as a vehicle of change and development has been successful.

Figure 29: Delegate's Opinion of Workshop



Next steps

Use the data that has now been provided to improve the process model and simulation

Ensure that the workshop attendees include key individuals who have in depth knowledge of the intervention being analysed

Consider refining the methodology of the workshop sessions to be appropriate for patients and to focus discussion on the specified patient pathway

Follow up the delegates to discover

- Their general opinion of the workshops
- Whether they have completed their actions

Appendix 1

Sample of card given to delegates to record personal aims

<p>This is what I hope to gain from this workshop</p>	<p>This is what I did gain from this workshop</p> <p>I consent to a follow up phone call: Phone no</p>
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Appendix 2

Actions noted by participants

- Definition of 7-day services
- Map 4 models together
- Include a method of capturing patient experience in the new 7-day working
- Discussion around where therapy can contribute to this as at present therapy is a Monday to Friday service
- Expansion of therapy services –integrated working –crisis response
- Ensure that 7-day model is an accurate reflection of all available services to prevent hospital admission
- Discuss in CCG the new model for 7-day working and find out which GP services are involved
- Need to look at how therapy services extend across a 7-day week –impact on health outcomes and admissions to hospital
- [link] west re care plan models for high npk(?) groups
- Link East re MOT(?) pilots and therapy/ nurse involvement
- Find out about set of standards
- Look at five year plan for unscheduled urgent to prevent care
- Look at 7-day community therapy service
- Computer simulation of the model and how [ows] can be used to inform future planning
- Links to wider community services about opps support
- Understand gaps
- Review phone process. Does this need to be more robust?
- Promote SC care sources – 7-day response
- AIM Support best pathways/ actions for patients

Appendix 3

Sample of card given to delegates to record actions

I will take this action to improve 7 day services

This is what I have achieved to improve 7 day services

Appendix 8: Case Study Report of SIMTEGR8 Workshop 4: Rapid Response - Falls

Marianne Bamkin and Edward Ostler

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicestershire and Leicestershire County Council
Structure/Format of Event	2 ½ hour workshop
Aim of Event	To review the computer simulation of the patient pathway to the Rapid Response – Falls intervention; test scenario's about future improvements to the scheme; make recommendations of future actions to the Step Up Step Down Programme Board
Date of Event	29 th September 2015, 13.00 -15.30
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology to stimulate debate and action that will improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, Healthwatch Leicestershire and Leicestershire County Council. The project uses computer modelling and simulation techniques as an analysis tool of the patient journey through four selected healthcare interventions by which Leicestershire County Council hope to reduce emergency hospital admissions, especially for frail and older people. The assessment process uses a set of workshops in which a computer simulation of the patient journey is shown to delegates in order to stimulate discussion and use as an exploration tool to test the effect of different variables in the journey. The primary concern is to develop a healthcare service that ensures a high level of care as well as good efficiency. This report is the outcome of the fourth of those workshops:

Falls – support from East Midlands Ambulance Service for people who fall at home or in the community.

This workshop was facilitated by the Loughborough University Research Associate and the simulation consultant from SIMUL8 Corporation who are attached to the project. The participants invited to the workshop were staff of Leicestershire County Council, NHS clinical leads for the service and representative of services linked to Falls in order to provide a wide range of skills, experience and knowledge to inform the debate. The workshop was structured using a SimLean methodology:

- First the approximate model is explained and run to illustrate the agreed process (Model Understanding)
- This is used as a the basis of a discussion of whether the model represents what happens in reality (Face Validation)
- The discussion then moves on to issues that have been revealed by running the model (Problem Scoping)
- Finally ways of resolving the issues are suggested (Improvements)

In order to capture their thoughts and actions, cards (Appendix 1) were given to the delegates for them to write down their personal aims and outcomes for the workshop. Similarly, coloured paper was distributed to record the inaccuracies or points of interest that they found with the model. At the close of the session delegates were asked to complete the “aims” cards; to fill in other about the actions that they would take after the workshop and to rank their experience on a Likert scale.

Description and account of workshop

There were 12 people attending the workshop, 2 from Loughborough University, 1 from SIMUL8 Corporation and 8 from the case study organisations. These included representatives from Leicestershire Healthwatch, Leicestershire Social Services, Leicestershire Partnership Trust (LPT) and University of Leicester Hospitals (UHL). No-one from East Midlands Ambulance Service (EMAS) attended. Many of the delegates to this workshop had either attended the morning workshop (7-Day Services) or one of the previous workshops (Night Nursing or OPU). A full list of the attendees can be seen in Appendix 2.

At the start of the workshop delegates listed the information that they hoped to gain from attending. The hopes are summarised below:

- To be informed
- To clearly understand the evaluation of the service and patient pathway
- To discover ways that health and social care can reduce admission and ensure that preventative services are targeted
- To produce actions that will improve the scheme

The process maps of the pathways “Before” and “After” the intervention that had been drawn up by the LCC systems analyst were then presented to the delegates. These were then overlaid with a simplified and clearer version to ensure that there was an agreed understanding between the modeller and the delegates of the progress of the patient journey through the intervention. This was in order to verify that the simulated model was based on valid data, although approximate, and the reality of the service in action. The process maps were considered to be a correct reflection of patient pathway by the delegates.

However, it was noted that the process map did not show certain details about the periphery of the patient pathway. For example, there were other routes that could be pursued post discharge; they need not lead to the unscheduled care team and referral could be through means other than 999. A flaw in the process map was identified as it did not include any mechanism to define or identify frequent fallers. It was found that some of this information is gathered at Single Point of Access (SPA) but sometimes the GP is contacted directly therefore that piece of information is not recorded.

The computer simulation was then run and considered to be a reasonable depiction of the patient pathway. The modeller asked the delegates whether they considered that the data used for the model was correct and they believed that it was. This could not be verified as a certainty because none of the delegates attending had direct experience of providing the Falls service. The discussion which occurred after the presentation of the model featured the training for EMAS staff, as the Falls service is dependent on the ambulance crew attending a call being able to correctly administer and interpret a diagnostic test. It was stated by one of the delegates that the number of avoided admissions appears to have plateaued despite more staff being trained. The model was then run again in order to test different percentages of fully trained ambulance staff.

Improvement

The discussion about the process map revealed that although the patient journey that we had analysed was not incorrect, it may have been only part of the pathway for the intervention. This could have been due to the use of an outdated process map; an updated version is now available which can be used to improve the current model. Prevention of falls was an important issue to many of the delegates, and they considered that falls prevention should somehow figure in the model because support is being given at an earlier stage. Similarly, at the end of the patient pathway, it was suggested that the journey could end with the social care that the patient may receive, for example the number of individuals that are admitted to care homes.

Delegates returned to the theme of repeat fallers, stating a concern that falls may not be properly recorded. However there is the potential to measure repeat fallers through a new dashboard for quality of data which will soon be installed at SPA. This could be a source of more comprehensive data. As in the workshop for the 7-Day service the delegates were keen to see an integrated simulation model for the four interventions being analysed as part of the SIMTEGR8 project and were interested in the cost benefits of the service.

Reflection

The participants were primarily asked to write down the expectations they had for the workshop in order that the workshop and methodology could be measured against these aims. As stated above, certain of the delegates had attended more than one previous workshop; however it was a new experience for a few people. The issues that they hope to be dealt with in the workshop included:

- Information and a basic understanding of the project
- To find out the current situation in Health and Social Care
- To have a clear understanding of the Falls service
- To gain actions that will improve the Falls service

In this workshop the delegates showed little engagement or an interest in discussing the model. Although they identified what they considered to be gaps in the process map, for example different routes that could be taken if an individual has fallen and requires help, or the type of care that can be offered once the patient has been discharged. It seems that the delegates considered that they were seeing a very small part of the patient pathway for Falls and felt that it could be extended.

However, when the simulation was presented they verified what they saw and did not dispute the data that was used to compile the model. They did not offer their thoughts but did answer direct questions that the modeller asked. The discussion turned to the capture of data, although they could not dispute the accuracy and source of the data that was used, the delegates felt that many more people are falling but the data is not currently being captured. The patient pathway was talked about more frequently than the model and related services were mentioned more times than the Falls service.

When the workshop was drawing to a close the delegates re-read the cards on which they had written their anticipated outcomes for the workshop to assess whether their aims had been met. It was at this point that a delegate who had been quiet throughout the discussion stated that she felt that she could not comment on the service because she was from one of the alternative fall prevention pathways. This was a missed opportunity to compare the benefits and disadvantages of both pathways. However, returning to the delegates' initial aims in order to ensure that the workshop had met those aims had a positive outcome. For example one

delegate found a way to complete an action from a previous meeting. The delegates' reflections on what they had learnt are summarised below:

- More informed about the patient pathways
- Discovering more issues about the project
- Actions to take away

Delegates were then asked to state what actions that they intended to take to improve the service and to write down these actions on postcards. The resulting list and an example of the card used can be seen in Appendix 3. The postcards will be sent to the delegates at a point in the future to remind them of their intended actions. It is expected that they will then send the card back to the researcher with the actions that they have managed to achieve. The actions covered the issues of:

- Data quality
- Fall prevention
- Improvement of process map
- Putting actions into reality
- Collaborative working

It was found that:

- Delegates did not easily engage with the simulation or the discussion
- Key individuals did not attend who could have given a more informed view of the service
- The delegates did not engage with or discuss the computer simulation as much as they had done in the previous workshops
- The scope of the service may not have been properly reflected in the process model or the simulation.

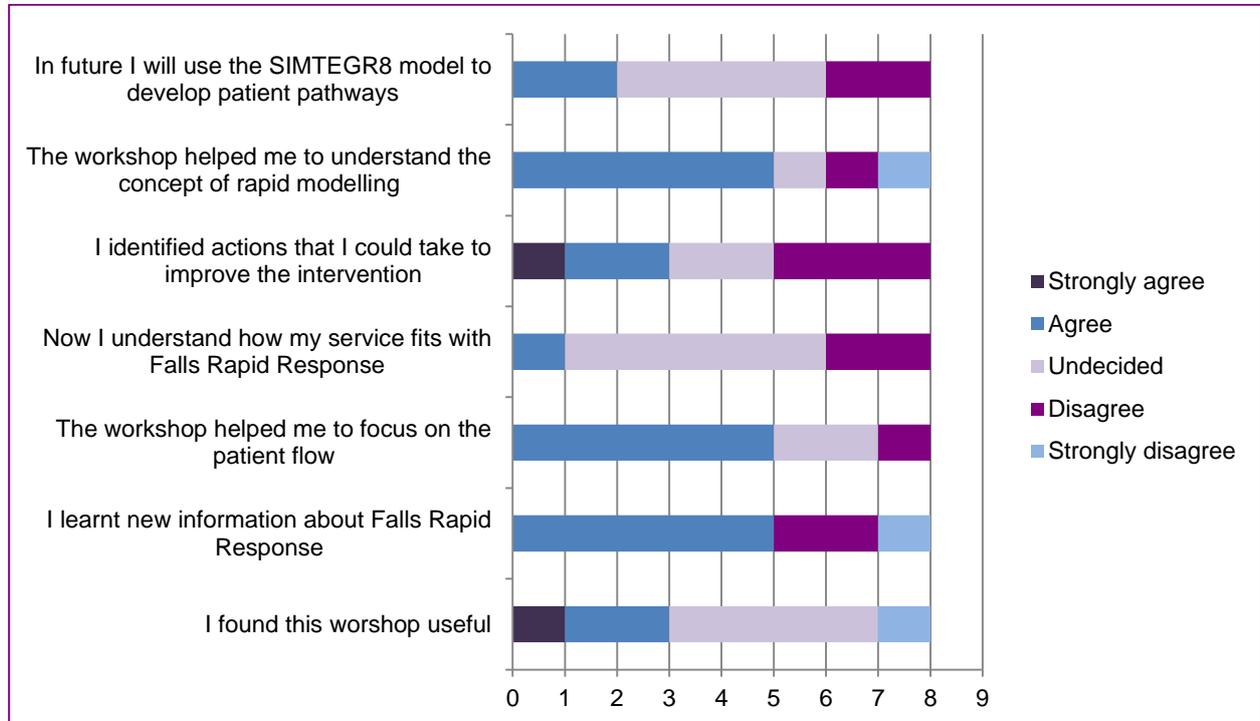
The patient pathway and issues relevant to the pathway was discussed but this was centred more on the inaccurate process map rather than the computer simulation, which seemed incidental to the workshop. However, the delegates were not sceptical enough about the simulation to ask provocative questions or to try out a number of various scenarios. It appeared that some of the delegates did not feel an involvement with the workshop because they considered that they had little to contribute. As for the 7-Day services, the delegates wanted to see the full context of the small part of the service we were analysing. Learning points to consider are:

- Ask delegates whether we have presented and explained the simulation adequately
- Each step of the process could be questioned, not only confirming that this is what happens, but is this the right way? Is there a better way?
- Ask the delegates who are quiet what is their involvement or attachment to the service
- Ensure that the visual impact of the model draws their attention
- Have a back-up plan of discussion topics should there be no dispute over the accuracy of the model

The Likert scale (Figure 29) that the delegates completed at the close of the workshop showed that many of them were undecided about the relevance of the workshop to their own posts, although 5 out of 8 delegates found that it helped them to understand the concept of rapid modelling and 2 thought that they would use the SIMTEGR8 model as a development tool. As the level of disengagement at the workshop was high, 3 delegates could not identify actions and

only 1 delegate understood how their service fitted with Falls, the question should be asked whether the right delegates had been invited. In this case, using a computer model of a patient pathway as a vehicle of change and development was not successful. However, the patient pathway was examined and actions to improve the service were gathered.

Figure 30: Delegate's Opinion of Workshop



Next steps

Use the data that has since been provided to improve the process model and simulation

Ensure that the workshop attendees include key individuals who have in depth knowledge of the intervention being analysed

Consider refining the methodology of the workshop sessions to be appropriate for patients and to focus discussion on the specified patient pathway

Follow up the delegates to discover

- Their general opinion of the workshops
- Whether they have completed their actions

Appendix 1

Sample of card given to delegates to record personal aims

This is what I hope to gain from this workshop	This is what I did gain from this workshop
I consent to a follow up phone call: Phone no	

Appendix 2

Actions noted by participants

- Look at quality checking data
- My interest is in fixing patients at the front door to [al??]
- Also working nursing at residential homes to share the falls and [newton] programme and teach others to deliver in terms of balance training and environmental assessment. Happy to discuss further if there is opportunity
- Run the patient workshops to help improve the process map
- Understand better the SPA service and links to the falls pathway
- Work with the partners as part of the project
- Work with my colleagues on the patient user workshops. What promotion is needed internally?
- Understand the data from all sources
- Provide timely intelligence to inform further development and commissioning
- Feed actions back to the project manager and into BCF wider action plan
- Brief the falls project manager and develop a new action plan
- Consider how csc may be able to consider preventing falls, e.g. mini FRAT

Appendix3

Sample of card given to delegates to record actions

I will take this action to improve 7 day services

This is what I have achieved to improve 7 day services

Appendix 9: Case Study Report of SIMTEGR8 User Workshop 1: Older Persons' Unit

Marianne Bamkin, Gemma Barrow and Ed Ostler

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicestershire and Leicestershire County Council
Structure/Format of Event	2 hour workshop
Aim of Event	To review a computer simulation model of Older Persons' Unit; to engage patients with the process of avoiding emergency admissions; to explore ways of measuring patient satisfaction and therefore make recommendations of ways to measure user satisfaction to the Step Up Step Down Programme Board
Date of Event	10 th November 2015 10.00am – 12.00
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology to stimulate debate and recommend actions in order to improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, Healthwatch Leicestershire and Leicestershire County Council. The project uses computer modelling and simulation techniques developed by SIMUL8 Corporation in order to analyse and assess methods of improving the patient journey. The project is focusing on four healthcare interventions through which Leicestershire County Council hopes to reduce emergency admissions to hospital. The project is conducting a series of workshops to examine the pathway of each intervention; one set for stakeholders of each intervention and one set where users of the interventions (patients and carers) are invited to give their views.

This case study report deals with the first of the 4 user workshops which were conducted as a partnership between staff of SIMUL8 Corporation, Loughborough University and Healthwatch Leicestershire. The workshops were held on 2 separate days, user workshops 1 and 2 being morning and afternoon sessions and similarly, user workshops 3 and 4 morning and afternoon sessions on a subsequent day. This is the case study report of the workshop for:

Rapid assessment service for frail older people: Older Persons' Unit – a geriatric specialist outpatient clinic situated in Loughborough for a comprehensive assessment of individuals that are referred by their GPs.

This workshop was facilitated by the project Research Associate from Loughborough University and the simulation consultant from SIMUL8 Corporation attached to the project, aided by the Healthwatch representative. It took place at Voluntary Action LeicesterShire, a central location in Leicester.

The workshop was structured using a facilitated workshop environment:

- **Model Understanding:** The model is explained to the participants and the simulation run showing the movement of patients around the system
- **Problem Scoping:** The discussion then moves on to issues that have been revealed by running the model and their own issues and concerns

- **Improvements:** The discussion turns to methods of improving the pathway and finding ways measuring patient satisfaction

In order to capture their thoughts and actions, cards (Appendix 1) were given to the delegates for them to write down their personal aims and outcomes for the workshop. Similarly, sticky notes were supplied for the participants to record their thoughts and questions about the model or the patient pathway. At the close of the session delegates were asked to complete the “aims” cards; and to rank their experience on a Likert scale.

Description and account of workshop

There were 11 people present, 1 from the case study organisations, 1 representative of SIMUL8 Corporation, 2 from Loughborough University and 7 participants. A full list can be seen in Appendix 2. It was found to be very difficult to invite individuals who had used the Older Persons’ Unit (OPU) as they are frail older people often with complex needs. It had been suggested that we could visit them in their own homes, but that would have entailed lengthy ethical clearance procedures, and would not have constituted a workshop. Therefore, the participants were Healthwatch Leicestershire members who have relevant experience and insights to inform our work on capturing patient and carers’ views about the effectiveness of the alternative pathways to emergency admissions. Their past experiences covered a range of aspects within the health service, ranging from nursing, health service and practice management, caring for relatives and representation of patient groups. Together, they offered insights into patient concerns and highlighted possible issues.

On this occasion, apart from two individuals, the participants attended both the workshop for the Older Persons’ Unit and the following afternoon workshop for Night Nursing. In order to avoid repetition the workshops were structured slightly differently. At the beginning of the morning session all participants shared what they hoped to achieve during the day. In the afternoon session patient satisfaction was discussed. The initial aims stated by the participants were centred on the following issues:

- Understanding of simulation modelling
- Systems and patient pathway improvement
- Patient perspective and satisfaction
- Information on current practice
- Access to essential services
- Benefits of home care over hospital admission
- Efficiency and cost effectiveness of services

The workshop commenced by familiarising the participants with the intervention and the concept of simulation modelling. It was hoped that a representative of the Older Persons’ Unit could attend the workshop in order to give an overview of the patient journey so that participants had a more informed picture before the simulation model was shown and to provide contextual information. Unfortunately no-one was available; therefore, the researcher talked through a presentation of the intervention to the participants, which had been supplied by the intervention lead. The simulation consultant went on to explain that the simulation models are built from process maps. He informed the participants that models are data driven and built from a technical point of view; they are a representation of reality designed for illustrating a system. The model used in the workshop reflects real people using the system by using rapid modelling development.

The simulation model was then run, but stopped at two intervals to show the routes taken by two fictitious patients according to the severity of their condition. The simulation indicated that whereas one patient referred to the OPU would undergo diagnostic tests and return home, another could be tested and then admitted directly to a ward. The participants then posed some rigorous questions about the intervention.

Feedback from participants

Participants asked questions about where the patients are coming from. As the OPU is located in Loughborough there were issues raised about transport arrangements, which GPs are making referrals to the OPU and whether the location of the OPU is right. It was explained that on average there were three patients per day using the OPU during January 2015 – September 2015. The capacity of the OPU is 10 patients per day. In light of this information, the participants felt that the pilot is not a true pilot as insufficient patients are referred to the OPU, therefore, it is not being used to its full capacity. The participants were keen to know from which location in the county the patients were being referred. There were concerns that without more patients the OPU was not utilizing staff effectively and this could be seen as wasted resources.

There were comments made that the GPs may not have the information about the OPU and therefore practitioners needed to be re-educated about the service. Those who had been a carer felt that carer involvement should be looked as part of the process. For example, the view of a participant who had daily care of a close relative was overlooked, the relative admitted to A&E and then the carer was unable to take the relative out of hospital. Participants suggested that a possible reason why patients are not being referred to the OPU was because they had more than one condition (i.e. Dementia, Mental health) that the OPU does not deal with. As older patients have more complex health needs, the participants advised that the OPU could be better utilised if some of the factors that exclude patients from this particular pathway become factors for inclusion turning the OPU into a hub.

Participants wanted to know if there was any way of knowing how many patients who used the OPU had to be taken to A&E at a later date. Was there any readmission data available and were patients tracked through the different services? Participants felt that this data was important to assess whether the intervention is avoiding admissions to A&E or whether it is merely deferring admission. Concerns were raised about the timescales between interventions and the pressure on a carer if they have to wait for further interventions once a patient has been seen at the OPU and then returned home. The participants agreed that whole patient care needs should be taken into account but sometimes they are too many to deal with in one go.

Improvement

The discussion then turned to a more formal format. The participants split into two groups and were asked to spend a 10 minutes discussing their opinion of the service, considering whether they understood the pathway, that it made sense and what changes are needed. A spokesperson from each group then reported on their discussion. The points made from both groups

The OPU is a very good concept

- OPU can provide more timely investigation, care and reassurance
- The speed of diagnostic results from OPU to GP would lead to better home care
- OPU does not apparently cover psychiatric care
- OPU currently underused
- The geographic location may be impeding its effectiveness as a pilot service
- Possibly biased towards the West Leicestershire Care Commissioning Group
- Promotion of the service to possible referrers, e.g. GPs and 111
- Concern that 111 staff are competent to decide on the appropriateness of their referral

- Model does not reflect the impact of carers
- Extension of the pathway to post discharge
- Model should include figures for A&E readmission

The groups were then asked to consider three specific questions and discuss them in a similar manner to above. The questions were:

Do you think that the intervention is reducing admissions?

Does the intervention really provide more appropriate treatment than admission?

Are the resources being used effectively?

All the participants felt that they could not give a definitive answer as they did not have enough evidence to show that A&E admissions are being reduced. The participants would have liked to know; how many patients of this type (frail, elderly and over 65 years old) have been to A&E within the date period captured by the model that would otherwise have gone to the OPU. Their discussion points are summarised below:

- Only when running at full capacity can the OPU provide the correct evidence for a pilot scheme
- The OPU is better and less disruptive than waiting at A&E, could it increase the number of conditions dealt with there?
- The visit should include mental health assessment
- The service is not out of hours
- The capacity of care teams and carers should be considered to provide home support
- Self-referral could “make better use of facilities”
- Patient Care Plans and their wishes for A&E admission should be taken into account.

Overall they considered that: the system may actually be deferring admission to A&E rather than avoid it completely. On the other hand the comment was made that the “Value of OUP is to speed up diagnostic tests which otherwise would take months, during which a crisis A&E incident might occur”. In that case the OPU would certainly be avoiding an admission.

Methods of collecting and measuring patient satisfaction was discussed in the afternoon session, but will be reported here as well as in the case study report for User Workshop 2: Night Nursing.

Measuring Patient Satisfaction

At this latter point in the workshop various methods of gathering customer views were suggested to the participants as examples, such as star rating, using images on electronic devices (smile, frown) and questionnaires. Participants were then given an A3 sheet of paper headed with the terms Speed; Dependability; Flexibility and Quality and divided into two columns. They were asked to work individually, writing down in the left hand column as many ideas as possible on measurement criteria and ways of gathering it. After a few minutes they were asked to exchange their list with another person, assess the ideas written on the paper that they had received and add other ideas. The papers were circulated in this manner a few times, gathering many comments.

The participants considered that the criteria for measuring speed are: One pathway from admission to discharge and time taken from referral to intervention or discharge with no A&E admission or readmission. The methods suggested for gathering the data were by full

involvement of the patient, collecting “good feedback” or simply noting that it was a “successful outcome”. It was noted, however, that speed should be tested “versus quality”. These suggestions did not offer a practical method of gathering the data.

The criteria for measuring dependability included: The “number of failed visits”; “prompt response time”; “delivered as promised”, that is, the time the intervention has taken and the quality of the service or staff arriving at the right place on time; analysis of “complaints”, “commendations” and “praise” on a quarterly basis. The suggestions for gathering the data were as follows:

- Scales of good/less good/bad or 1-10
- Use of smiley faces, although certain age groups may not understand their significance
- Open ended questions
- Interviews with patients
- Questionnaires and surveys

Some participants considered that using qualitative methods to gather the data are time consuming and will use a lot of staff time. One participant commented “All comprehensive surveys... may bring up interesting answers but [they are] not easily comparable or measured in bulk”. Another commented that he felt “the need for something simple and quick”.

Finding ways to measure flexibility proved to be a tricky concept. Participants listed their concerns around the awareness of the interventions amongst GP’s and thought that the number of referrals to the pilot schemes should be measured or the policies and procedure could be examined. However, one participant suggested that the “number of ways that a service can be accessed” and “how quickly their needs are met” would provide a measure of flexibility and other considered that removing time constraints from the services would give greater flexibility. Choice of service appeared to be important to the participants and equality of service to different ethnicities. The means of gathering data were similar to above:

- “Use a smiley face or line chart” – “easy and easily comparable visual indication”
- “Use two questions” – “easy to obtain a variety of answers”
- How easy was it to access this service?
- How difficult was this?
- “Use 5 open ended questions” – “labour intensive”

Measuring quality produced a longer list of criteria. These were: Personal attention; being comfortable, physically and with the surroundings; dignity and respect; confidence in clinicians; being given clear information to “understand why?” and choices given; satisfaction with outcomes; continuous assessment of patient care and admissions and re-referrals. Suggested ways of gathering the data to assess the quality of a service focused on more qualitative methods of collection, such as feedback from patient or carer, PPGs and other stakeholders and the quantitative use of graphs or continuous rating scale.

Near the close of the session the participants were asked to share their feedback on the simulation models and whether they thought it worked. Their responses are listed below:

“I thought it would be more like real life and simulation would be more like seeing a patient going through the system”

“It did not make much sense to me”

“Patient stories would be a good accompaniment with simulation to bring it to life”

“Data and simulation can be geared to just about anything – there was missing data from patients and carers”

“We don’t know if the pathway has made any difference at all - I do not think you can evaluate it without looking at the outcome for the patient”

Overall the participants felt they needed to have more understanding of the models and the whole data to make a conclusion about admission avoidance. In their view patients did not necessarily need to see the models but it was important to have information on case histories and to hear patient stories.

Reflection

Despite the failure to reach any individuals who had first-hand experience of the OPU either as a carer or a patient to come to the workshop, the participants who had accepted the invitation from Healthwatch provided a variety of experience and expertise either as a patient and voice of patients, as a carer for frail patients with complex and unusual needs or as retired health professionals who put forward a patient perspective. They were lively and engaged participants that analysed the intervention with critical scrutiny. Discussion during the simulation demonstration was free and unstructured. However, the participant’s thoughts were guided during the “Improvement” and “user satisfaction” phases of the workshop. All discussions during the workshop were searching and each individual contributed their thoughts.

The major topic of discussion was the service of the OPU with the concern that it appeared to be a beneficial service which was being underused. The patient pathway to the service was discussed much less frequently although it was the second most mentioned topic. This could reflect the background of many of the participants as they have been responsible for services and they therefore took a managerial viewpoint rather than putting themselves into the shoes of the patient.

The wider context was considered a little but the model itself only featured four times in the discussion. However, the participants had concentrated on the simulation when it was run and became noticeably engaged as soon as the pictures appeared in the story telling mode of the model. This lack of analysis of the simulation could be explained by the expectation of computer simulation being more like computer animation rather than the visual outcome of underlying mathematical and statistical analysis, for example the comment “I thought it would be more like real life”. On this occasion the process map had not been shown beforehand which may have given the participants a better understanding of the modelling process.

The critical analysis led to many questions about the OPU being posed including some that could not be answered in certainty by someone who was not actively involved on an operational level, for example was the patient cared for by OPU staff in a holistic way? Or, what level of mental health problems formed part of patient diagnosis? It was unfortunate that no-one from OPU had been available to attend. Questions were written down on sticky notes and those that could not be answered were put to the relevant staff after the workshop (Appendix 3). The replies have since been distributed to the participants.

At the end of the workshop, participants were invited to comment on the points that they hoped to achieve which they identified at the start of the session. The comments included the following points:

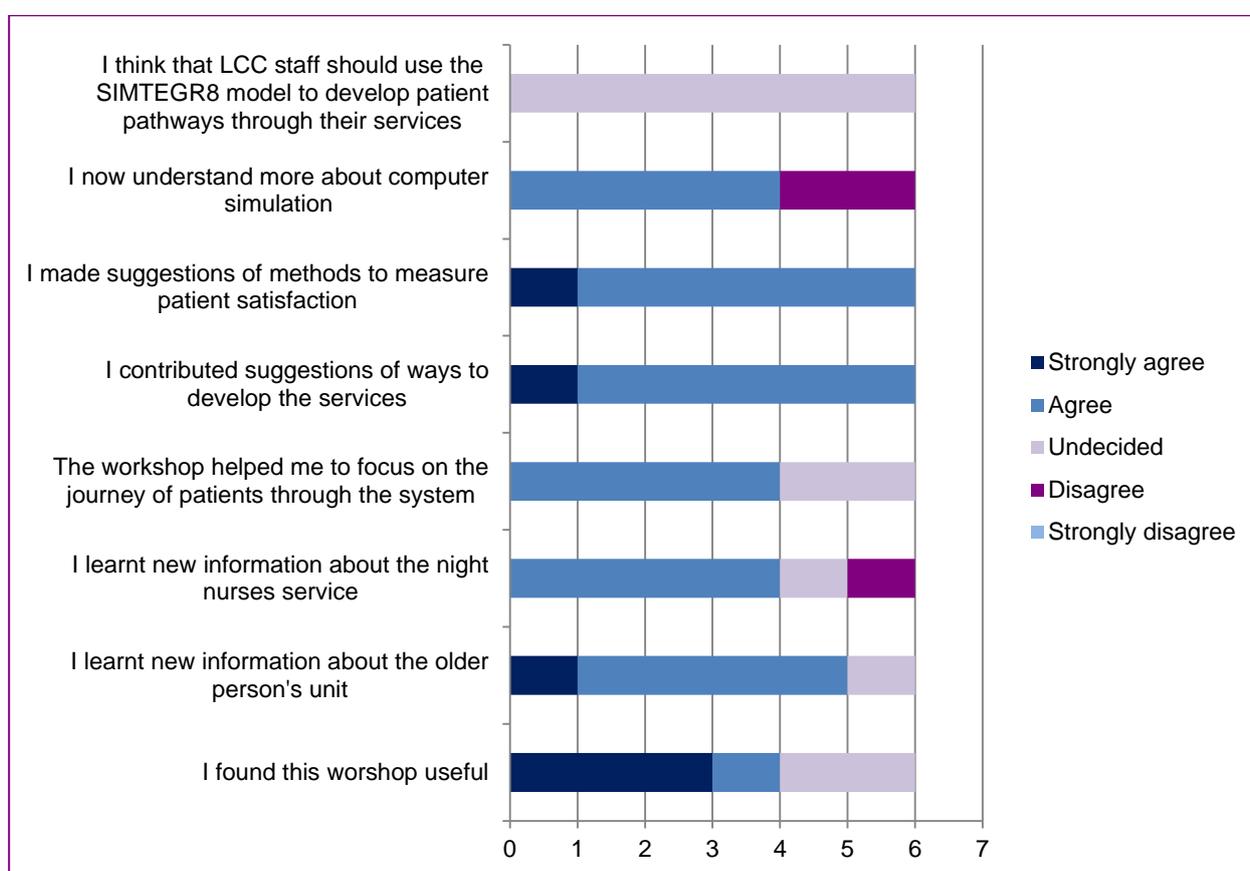
- A better understanding of SIMUL8
- Information gathered on changes to current practice

- Contributed to making a better pathway for frail older people
- Hopefully contributed to minimising unnecessary journeys to A&E
- Understand that our insight might have an influence within the pilots

The participants were most concerned that their voices were heard and that their suggestions were seriously considered for incorporation into the intervention.

Finally, the Likert scales that 6 of the participants completed indicated that they had had a positive experience at the workshop (**Figure 31**). Three strongly agreed that the workshop was useful, 1 agreed and 2 were undecided. Four participants thought that workshop helped them focus on the patient pathway and although 4 thought that they had increased their understanding of computer simulation, 2 did not and all were undecided whether LCC staff should use computer simulation to plan patient pathways.

Figure 31: Participants' Opinion of Workshop



It was found that:

- Participants were so engaged with discussion about the service that it would have been useful to have a representative present
- Details of the service and their implications for patients were rigorously considered
- The participants engaged with the computer simulation better when the story mode was activated
- Participants were concerned that their comments would help to improve the OPU service
- The patient perspective could have formed a greater part of the discussion

The use of a computer simulation of a patient pathway in this case appeared to incidental to the greater discussion of the service provided by the OPU, its value for money and under use. Some of the more forceful participants demonstrated that they did not really understand the principal of computer modelling because they did not believe that we had presented all the data available to them. However, the workshop was certainly a focus for in-depth consideration of the OPU.

Next steps

- Develop the story mode aspect of the computer simulation to show to patients
- Make a greater effort to capture the perspective of the patient pathway, for example invite users of the specific intervention to the next workshop
- Follow up the delegates to discover
 - Their general opinion of the workshops

Appendix 1

Sample of card given to delegates to record personal aims

This is what I hope to gain from this workshop	This is what I did gain from this workshop
I consent to a follow up phone call: Phone no	

Appendix 3

Questions sent to OPU staff after the workshop, with the replies

Where do those who have been ill in the system come from, East or West CCG areas?

- 90% West (483)
- 9.3% East (50)
- 0.7% Other (4 – 3 city, 1 from Rushcliffe CCG)

Are East Leicestershire CCG area GPs using the OPU?

- Not as much as we had initially hoped, however we have an excellent East GP advocate who is based at The County Practice in Syston. It is appreciated that distance is a barrier for some EL&R CCG Practices; however patient transport is available through St John Ambulance who will collect and return patients wherever they reside in West

Leicestershire or East Leicestershire and Rutland localities. Work is ongoing with EL&R CCG colleagues to raise awareness and promote the service. Currently myself and the Programme Lead are attending GP locality meetings to give an overview of the service and answer any queries GPs may have.

What are the statistics for the medium term outcomes of OPU versus A&E/Hospital after discharge?

- I don't have that data but the OPU is currently being evaluated along with other emergency avoidance schemes so that will give us an insight into this.

How confident are OPU that care is available at home?

- Unless the GP notifies the OPU at the point of referral then the OPU staff won't be aware of this. Maybe this is something we need to highlight as they see many patients with long-term conditions that may have a care plan in place. This will be fed into the overall work on care planning which is being progressed. As for referring onwards from the unit and any care that the patient may need going forward, they ensure that all patients have a discharge letter completed and this is sent to the GP.

Appendix 10: Case Study Report of SIMTEGR8 User Workshop 2: Integrated Crisis Response, Night Nursing

Marianne Bamkin, Gemma Barrow and Ed Ostler

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicestershire and Leicestershire County Council
Structure/Format of Event	2 hour workshop
Aim of Event	To review a computer simulation model of Integrated Crisis Response, Night Nursing; to engage patients with the process of avoiding emergency admissions; to explore ways of measuring patient satisfaction and therefore make recommendations to Leicestershire County Council
Date of Event	10 th November 2015 13.00 – 15.00
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology in order to stimulate debate and recommend actions in order to improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, Leicestershire County Council and Healthwatch Leicestershire. Leicestershire County Council is piloting four healthcare interventions to reduce emergency admissions to hospital so this project is using computer modelling and simulation techniques developed by SIMUL8 Corporation to analyse the effectiveness of the pilots. The project is conducting a series of workshops which examines the patient pathway of each intervention; one set for stakeholders of each intervention and one set where users of the interventions (patients and carers) are invited to give their views.

This case study report deals with the second of the 4 user workshops which were conducted as a partnership between staff of SIMUL8 Corporation, Loughborough University and Healthwatch Leicestershire. The workshops were held on 2 separate days, user workshops 1 and 2 being morning and afternoon sessions and similarly, user workshops 3 and 4 morning and afternoon sessions on a subsequent day. This is the case study report of the workshop for:

Integrated Crisis Response (Night Nursing Unit) – health and social care support given at home for up to 72 hours.

The workshop was hosted at Voluntary Action LeicesterShire by Healthwatch Leicestershire and facilitated by the Research Associate from Loughborough University, the simulation consultant from SIMUL8 Corporation and the Healthwatch representative all of whom were attached to the project.

The workshop was structured using a facilitated workshop environment.

- **Model Understanding:** The model is explained to the participants and the simulation run showing the movement of patients around the system
- **Problem Scoping:** The discussion then moves on to issues that have been revealed by running the model and their own issues and concerns
- **Improvements:** The discussion turns to methods of improving the pathway and finding ways measuring patient satisfaction

In order to capture their thoughts and actions, cards (Appendix 1) were given to the delegates for them to write down their personal aims and outcomes for the workshop. Similarly, sticky notes were supplied for the participants to record their thoughts and questions about the model or the patient pathway. At the close of the session delegates were asked to complete the “aims” cards; and to rank their experience on a Likert scale.

Description and account of workshop

There were 10 people present, 1 from the case study organisations, 1 representative of SIMUL8 Corporation, 1 from Loughborough University and 7 participants. A full list can be seen in Appendix 2. It was found to be difficult to identify and invite users of the Night Nursing service as they are generally individuals with an underlying condition who use the service at a crisis point in their condition. Therefore, the participants were Healthwatch Leicestershire members who have relevant experience and insights to inform the work on capturing patient and carers’ views about the effectiveness of the alternative pathways to emergency admissions. Their past experiences covered a range of aspects within the health service from nursing, health service and practice management, caring for relatives and representation of patient groups. Together, they offered insights into patient concerns and highlighted possible issues.

On this occasion, apart from one in the morning and one in the afternoon, the participants attended both the workshops for the Older Persons’ Unit and Night Nursing. In order to avoid repetition the workshops were structured slightly differently. At the beginning of the morning session all participants shared what they hoped to achieve during the day, then examined the Older Persons’ Unit. In the afternoon session Integrated Crisis Response, Night Nursing was examined and patient satisfaction was discussed. The initial aims stated by the participants were centred on the following issues:

- Understanding of simulation modelling
- Systems and patient pathway improvement
- Patient perspective and satisfaction
- Information on current practice
- Access to essential services
- Benefits of home care over hospital admission
- Efficiency and cost effectiveness of services

The workshop commenced by familiarising the participants with the intervention and the concept of simulation modelling. It was hoped that a representative of Night Nursing could attend the workshop in order to give an overview of the patient journey to provide participants with a more informed picture before the simulation model was shown. This would provide contextual information. Unfortunately no-one was available; therefore, the researcher and simulation consultant provided a very brief overview of the intervention to the participants. This part of the workshop was quite challenging as the participants had questions about the service that we were unable to fully answer.

The simulation model was then run, but stopped at two intervals to show the routes taken by two fictitious patients according to the severity of their condition.

Feedback from participants

After the simulation was shown the participants asked for more information about the service, the patient pathway and the effect of the intervention. For example, when people are nursed at home rather than at a community hospital how does this constitute a reduced admission to A&E. Similarly, does the service cover people who have been discharged from hospital?

Questions were raised about the End of Life (EOL) care pathway and participants were curious about the way which that service interlinked and worked together with the night nursing team. They also questioned the triaging competence of 111 operators, were they adequately trained, or should it be more appropriate for the GP or East Midlands Ambulance Service (EMAS) to refer patients to the night nursing team.

Some participants did not understand the practical working of the virtual bed system such as the number of staff and their deployment. Fortunately a participant with a strong nursing background was able to inform the group about the details of running a virtual ward. The participants spoke positively about the pathway and felt that the data showed a huge number of successes for such a small team. Participants commented that the simplicity of the pathway might be the reason that it is working well.

Improvement

The discussion then turned to a more formal format. The participants split into two groups and were asked to spend a 10 minutes discussing their opinion of the service, considering whether they understood the pathway, that it made sense and what changes are needed. A spokesperson from each group then reported on their discussion. The points made from both groups are summarised below:

- Principles of the pathway understood
- Concept is good but more data and evidence of wider context needed to make more sense
- It is better than no care at all
- Nursing staff should be able to understand cultural aspects in the community e.g. gender specific (male/ female carer) or cultural specific needs
- Recognising the problems of people coming into your home e.g. patients with dementia
- Continuity in Care, will the same person visit?
- Will lack of sleep disturb the elderly person
- Is there access to equality of services?

Concerns were raised about medical professionals being able to gain access to patients' homes in the night, for example would a carer, doctor or neighbour be present to unlock doors as a vulnerable person may not give consent for a stranger to enter their home, especially if they are "suffering from mild cognitive impairment or dementia".

The groups were then asked to consider three specific questions and discuss them in a similar manner to above. The questions were:

Do you think that the intervention is reducing admissions?

Does the intervention really provide more appropriate treatment than admission?

Are the resources being used effectively?

As the simulation showed that the number of unnecessary admissions had reduced once this intervention was put into practice, the participants agreed that overall the service was avoiding individuals being rushed into Accident and Emergency during the night. The discussion points are listed below:

- Admissions appear to be avoided
- Uncertain whether the care given is social or medical, more data needed
- Uncertain whether the patient would be better off admitted to hospital

- Patient wishes should be taken into consideration, e.g. if an individual receiving end of life care has a “living will”, or that their wellbeing depends on their surroundings
- Cost and resource effectiveness could be impaired by low number of patients and geographical spread of virtual beds
- Are the patients satisfied with the service?

Participants were concerned that the medical care that the patients received would be equal to that which they would have received in hospital. They also considered that gathering information on patient satisfaction for this service was very important. Methods of collecting and measuring patient satisfaction was then discussed and has been reported in the case study report for User Workshop 2: Night Nursing as well as here.

Measuring Patient Satisfaction

At this point in the workshop various methods of gathering customer views were suggested to the participants as examples, such as star rating, using images on electronic devices (smile, frown) and questionnaires. Participants were then given an A3 sheet of paper headed with the terms Speed; Dependability; Flexibility and Quality and divided into two columns. They were asked to work individually, writing down in the left hand column as many ideas as possible on measurement criteria and ways of gathering it. After a few minutes they were asked to swap their list, and assess the ideas written on the paper that they had received. The papers were circulated in this manner a few times, gathering many comments.

The participants considered that the criteria for measuring speed are: One pathway from admission to discharge and time taken from referral to intervention or discharge with no A&E admission or readmission. The methods suggested for gathering the data were by full involvement of the patient, collecting “good feedback” or simply noting that it was a “successful outcome”. It was noted, however, that speed should be tested “versus quality”. These suggestions did not offer a practical method of gathering the data.

The criteria for measuring dependability included: The “number of failed visits”; “prompt response time”; “delivered as promised”, that is, the time the intervention has taken and the quality of the service or staff arriving at the right place on time; analysis of “complaints”, “commendations” and “praise” on a quarterly basis. The suggestions for gathering the data were as follows:

- Scales of good/less good/bad or 1-10
- Use of smiley faces, although “certain age groups may not understand their significance”
- Open ended questions
- Interviews with patients
- Questionnaires and surveys

Some participants considered that using qualitative methods to gather the data are time consuming and will use a lot of staff time. One participant commented “All comprehensive surveys... may bring up interesting answers but [they are] not easily comparable or measured in bulk”. Another commented that he felt “the need for something simple and quick”.

Finding ways to measure flexibility proved to be a tricky concept. Participants listed their concerns around the awareness of the interventions amongst GPs and thought that the number of referrals to the pilot schemes should be measured or the policies and procedure could be examined. However, one participant suggested that the “number of ways that a service can be accessed” and “how quickly their needs are met” would provide a measure of flexibility and other considered that removing time constraints from the services would give greater flexibility.

Choice of service appeared to be important to the participants and equality of service to different ethnicities. The means of gathering data were similar to above:

- “Use a smiley face or line chart” – “easy and easily comparable visual indication”
- “Use two questions” – “easy to obtain a variety of answers”
 - How easy was it to access this service?
 - How difficult was this?
- “Use 5 open ended questions” – “labour intensive”

Measuring quality produced a longer list of criteria. These were: Personal attention; being comfortable, physically and with surroundings; dignity and respect; confidence in clinicians; being given clear information to “understand why?” and choices given; satisfaction with outcomes; continuous assessment of patient care and admissions and re-referrals. Suggested ways of gathering the data to assess the quality of a service focused on more qualitative methods of collection, such as feedback from patient or carer, PPGs and other stakeholders and the quantitative use of graphs or continuous rating scale.

Feedback on Simulation

Near the close of the session the participants were asked to share their feedback on the simulation models and whether they thought it worked. Their responses are listed below:

“I thought it would be more like real life and simulation would be more like seeing a patient going through the system”

“It did not make much sense to me”

“Patient stories would be a good accompaniment with simulation to bring it to life”

“Data and simulation can be geared to just about anything – there was missing data from patients and carers”

“We don’t know if the pathway has made any difference at all - I do not think you can evaluate it without looking at the outcome for the patient”

Overall the participants felt they needed to have more understanding of the models and the whole data to make a conclusion about admission avoidance. In their view patients did not necessarily need to see the models but it was important to have information on case histories and to hear patient stories.

Reflection

As in the previous workshop session that concentrated on the Older Persons’ Unit (OPU) all participants were highly engaged with discussion throughout and critically analysed the process of the intervention. The mix of experience within the group provided for lively discussion with individuals being able to provide information to the group. However, the workshop would have benefited from an experienced staff member or user of the Night Nursing service to provide detailed knowledge. It was noticeable that more detailed questions about the implementation of the service and its effect on the patient were asked than at the earlier session for the OPU. This could have been due to a more detailed overview of the OPU being given than that of Night Nursing.

On this occasion the patient pathway was mentioned an equal number of times to the overall service, with brief mention of related services, the most relevant being the End of Life team. The

model was only discussed on one occasion. It had been agreed early in the discussion that it showed the patient pathway and its simplicity. The participants watched the story mode of the computer simulation quietly and with interest. The participants showed more concern about patient satisfaction for this service than in any of the preceding workshops. This meant that the discussion about patient satisfaction became relevant to the workshop.

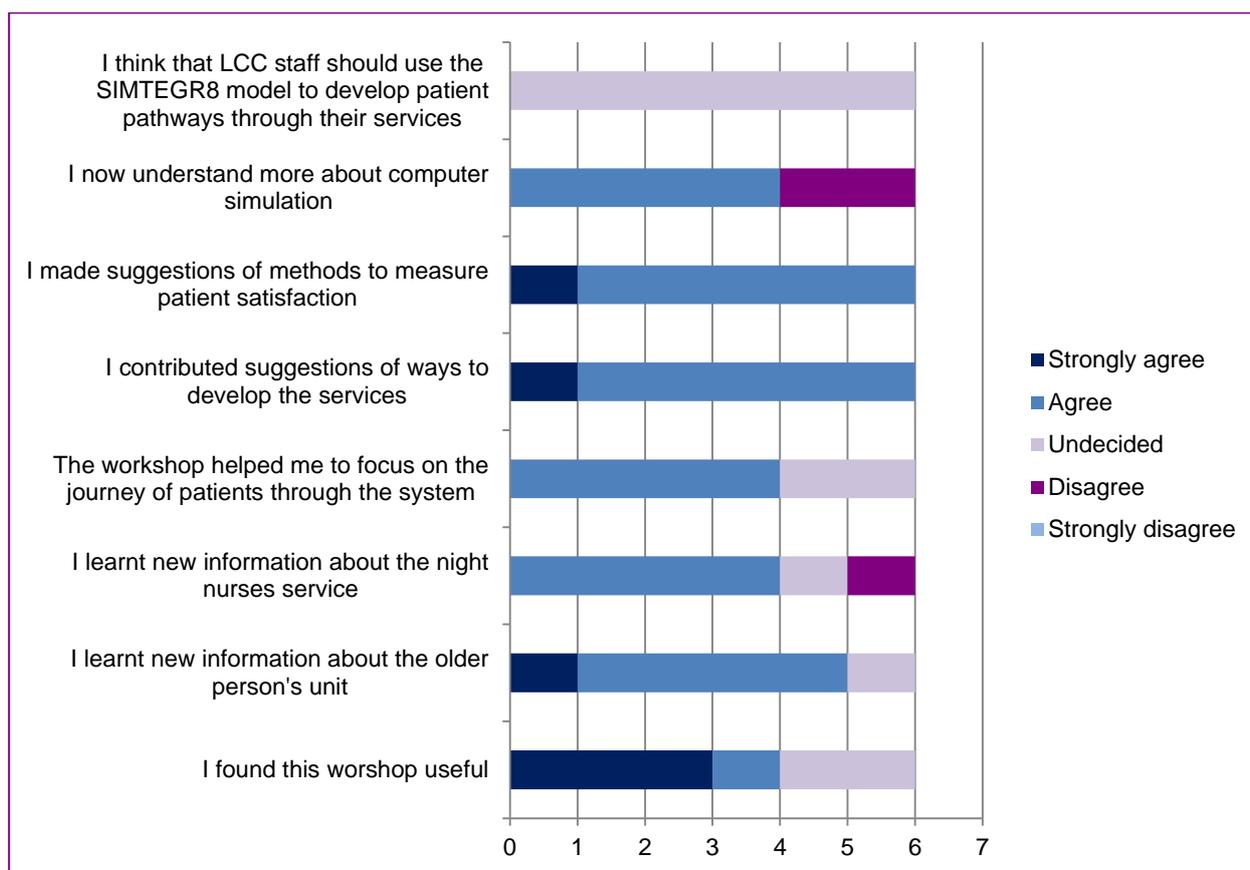
The paper exercise for devising measurable criteria for patient satisfaction successfully recorded participant suggestions. It seems that it is easier to measure certain aspects of a service than others. Speed of delivery can be timed, although participants felt that faster speed could compromise quality. Dependability could be assessed through measuring accurate and timely arrivals at patient's homes. Working out a measurable aspect of flexibility proved a problem, but there was no problem in identifying measurable aspects of quality. The measuring instruments that participants suggested included quantitative and qualitative methods but the overall agreement was that the method should be quick and easy for the patient or their carer to complete and quick easy for staff to administer and analyse. A table of the criteria and measuring instruments suggested can be seen in Appendix 3.

Questions were written down on sticky notes and those that could not be answered were put to the relevant staff after the workshop (Appendix 4). The replies have since been distributed to the participants. At the end of the workshop, participants were invited to comment on the points that they hoped to achieve which they identified at the start of the session. The comments included the following points:

- A better understanding of SIMUL8
- Information gathered on changes to current practice
- Contributed to making a better pathway for frail older people
- Hopefully contributed to minimising unnecessary journeys to A&E
- Understand that our insight might have an influence within the pilots

The participants were most concerned that their voices were heard and that their suggestions were seriously considered for incorporation into the intervention.

Finally, the Likert scales that 6 of the participants completed indicated that they had had a positive experience at the workshop (**Figure 31**). Three strongly agreed that the workshop was useful, 1 agreed and 2 were undecided. Four participants thought that workshop helped them focus on the patient pathway and although 4 thought that they had increased their understanding of computer simulation, 2 did not and all were undecided whether LCC staff should use computer simulation to plan patient pathways.

Figure 32: Participants' Opinion of Workshop

It was found that:

- Participants were so engaged with discussion about the service that it would have been useful to have a representative present
- Details of the service and their implications for patients were rigorously considered
- The participants engaged with the computer simulation better when the story mode was activated
- Participants were pleased and hopeful that their comments would help to improve the OPU service
- The patient perspective could have formed a greater part of the discussion

The use of a computer simulation of a patient pathway in this case appeared to be incidental to the greater discussion of the patient pathway and the Night Nursing service. One participant did not understand the process despite explanations by other participants and the facilitators. On this occasion, although there was little discussion about the simulation it was accepted that it demonstrated a clear picture of the reality of the patient pathway, which led to a very detailed and searching analysis of the patient journey and experience.

Next steps

- Develop the story mode aspect of the computer simulation to show to patients
- Make a greater effort to include users of the intervention to provide a more informed debate of the patient pathway and patient satisfaction

- Follow up the delegates to discover
 - Their general opinion of the workshops

Appendix 1

Sample of card given to delegates to record personal aims

<p>This is what I hope to gain from this workshop</p>	<p>This is what I did gain from this workshop</p> <p>I consent to a follow up phone call: Phone no</p>
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Appendix 3

Participant's suggestions for measuring patient satisfaction

<i>Measure</i>	Speed	Dependability	Flexibility	Quality
<i>Criteria</i>	<ul style="list-style-type: none"> • Only one pathway from admission to discharge • Time taken from referral to intervention • Time taken from referral to discharge • No admission to A&E • No readmission 	<ul style="list-style-type: none"> • Number failed visits • Prompt response time • Delivered as promised (right place right time) • Complaints/commendations/praise 	<ul style="list-style-type: none"> • Number of referrals to pilot schemes • Policies and procedures • Number of ways service can be accessed • How quickly needs are met • No time constraints 	<ul style="list-style-type: none"> • Personal attention • Physical comfort • Comfort with surroundings • Dignity preserved • Respect shown • Confidence in clinicians • Clear information and reasoning • Choices • Satisfaction with outcomes • Continuous assessment patient care
<i>Measuring instrument</i>	<ul style="list-style-type: none"> • Collect "good feedback" • Note successful outcome 	<ul style="list-style-type: none"> • Scale good/less good/bad • Scale 1-10 • Smiley face chart • Open ended questions • Interviews with patients • Questionnaires and surveys 	<ul style="list-style-type: none"> • Smiley face chart • Line chart • Two questions on ease of access • Open ended questions 	<ul style="list-style-type: none"> • Feedback from patient • Feedback from carer • Feedback from stakeholders • Continuous rating scale • graphs

Appendix 4

Questions sent to Night Nursing Project Lead after the workshop, with the replies

Night Nursing

How do nurses gain access to patient's home?

- Access to the patient's home is directed by the individual patient and can be by the use of key safe, relatives and neighbours etc.

Are any of the patients in home nursing pilot suffering from mild cognitive impairment or dementia?

- Yes many of the referrals we have responded to have been because of mild cognitive impairment and dementia and this was the patient group we hoped to capture.

Do the patients see the same staff each visit?

- We are very mindful of continuity of care and aim to enable this, however, it is not always possible but due to our handover process all the staff are very familiar with the patients' journey and needs before they visit

Are the staff trained to be aware of cultural issues?

- All the staff are trained and very mindful of patients being individual with expressed beliefs and preferences, this includes culture and again any issues are covered in our handover process to ensure the best experience for all.

Appendix 11: Case Study Report of SIMTEGR8 User Workshop 3: Rapid response, Falls

Marianne Bamkin, Gemma Barrow and Ed Ostler

Purpose of report	To document and reflect upon the process of using a computer simulation model in order to promote debate and make changes to patient pathways
Organisations involved in Case Study	Healthwatch Leicestershire and Leicestershire County Council
Structure/Format of Event	2 hour workshop
Aim of Event	To review a computer simulation model of Rapid Response – Falls in order to engage patients with the process of avoiding emergency admissions; to explore ways of measuring patient satisfaction and therefore make recommendations to Leicestershire County Council
Date of Event	2nd February 2016 10.15 – 12.15
Aim of SIMTEGR8	To assess the effectiveness of using a SimLean methodology in order to stimulate debate and recommend actions in order to improve patient pathways

Context of Event

The SIMTEGR8 project is collaboration between Loughborough University, Leicestershire County Council and Healthwatch Leicestershire. This project is using computer modelling and simulation techniques developed by SIMUL8 Corporation to analyse the effectiveness of four healthcare interventions to reduce emergency admissions to hospital that Leicestershire County Council is trialling. The project uses a series of workshops to examine the patient pathway of each intervention; one set for stakeholders of each intervention and one set where users of the interventions (patients and carers) are invited to give their views.

This case study report deals with the third of the user workshops which were conducted as a partnership between staff of SIMUL8 Corporation, Loughborough University and Healthwatch Leicestershire. This is the case study report of the workshop for:

Rapid Response - Falls – Support from East Midlands Ambulance Service for people who fall at home or in the community

The workshop was hosted at Voluntary Action LeicesterShire by Healthwatch Leicestershire and facilitated by the Research Associate from Loughborough University, the simulation consultant from SIMUL8 Corporation and the Healthwatch representative all of whom were attached to the project.

The workshop was structured using a facilitated workshop environment.

- **Model Understanding:** The model is explained to the participants and the simulation run showing the movement of patients around the system
- **Problem Scoping:** The discussion then moves on to issues that have been revealed by running the model and their own issues and concerns
- **Improvements:** The discussion turns to methods of improving the pathway and finding ways measuring patient satisfaction

In order to capture their thoughts and actions, cards (Appendix 1) were given to the delegates for them to write down their personal aims and outcomes for the workshop. Similarly, sticky notes were supplied for the participants to record their thoughts and questions about the model or the patient pathway. At the close of the session delegates were asked to complete the “aims” cards; and to rank their experience on a Likert scale.

Description and account of workshop

There were 8 people present, 2 from the case study organisations, 1 representative of SIMUL8 Corporation, 2 from Loughborough University and 3 participants. A full list can be seen in Appendix 2. It was found to be difficult to identify and invite anyone with first-hand experience of the falls service. Two people had hoped to be available but ultimately were not able to attend due to other commitments. Therefore, the participants were 2 patients who had experience of urgent or emergency healthcare and the community engagement officer for East Midlands Ambulance Service (EMAS). However, they offered insights into patient concerns and highlighted possible issues with the patient pathway and the computer simulation.

The aims stated by the participants before the session started were as follows:

- Information and contribution into present processes of thought and good practice for combating full emergency admissions
- User experience of the service; did it help? Was there a follow-up and what happened afterwards
- User perspective and what we think it is like from a patient perspective
- Knowledge on how the system works and is monitored

The workshop commenced by familiarising the participants with the intervention and the concept of simulation modelling. The researcher gave an overview of the background to the SIMTEGR8 Project and the EMAS Representative explained that each county covered by the ambulance service has a specific falls pathway. For example, Northamptonshire has their own pathway and offers specialist falls assessments and treatment for people who are aged 65 years and over. She explained that they are dealing with issues quite holistically and has a dedicated ambulance car to respond to “falls” calls.

Leicestershire County Council considered the Northamptonshire model but it was thought that the County was too rural for such a model to be effective. Therefore, in Leicestershire, 104 of the 160 paramedics have received specialist falls training. This means that the paramedic will assess the patients in order to decide whether they should be transported to hospital or can be cared for at home thereby referring the patient to community teams. It was also explained that falling is the major reason for calls to 999 and the volume of the calls, linked to the demographics of Rutland provides a challenge to EMAS.

In order to explain the patient pathway further an animated video of the falls pathway was shown. The simulation consultant explained how the “before” and “after” process maps of the patient pathway were used to build the computer simulation. The computer simulation was then run pausing at intervals while the journey of a named patient was demonstrated, comparing his experience prior to the intervention, and afterwards.

Feedback from participants

Comments were raised about entering the patient pathway. For example, it was noted that although residential care homes may have clinical and nursing staff suitably qualified to treat a fallen resident the protocol is to always call 999. Similarly, participants were curious about calls to 111, and it was revealed that when contacted by the 111 team EMAS has to attend a fall

without the option to “Hear and Treat”, that is to decide whether a visit is really necessary or whether the caller can be referred on to community care. The participants agreed that it would be interesting to see EMAS data on what calls come from NHS 111.

Questions were raised about the effect on the pathway of people who make their own way to A&E. It was speculated that the large quantity of patients in A&E impeded staff in the hand over from ambulance to hospital. This in turn slows ambulance availability and response time. For example, 40 ambulances available over an 8 hour shift with 10 stacking at Leicester Royal Infirmary produces a knock on effect to the system.

It was also discovered that EMAS can triage people to go Urgent Care Centres. Equally, EMAS will transport patients to A&E if they insist on going there and refuse alternative treatment.

Improvement

The discussion then turned to a more formal format. The participants considered whether they understood the pathway, that it made sense and what changes may be needed to improve the experience for patients. The following points were made:

- Concept of the service is very good
- More analysis should be done on the reasons for this pathway to be chosen for the county
- Whether the model is really achieving what it is aiming to do?
- Is it working for the patient and EMAS?
- Could anyone other than the paramedics do the assessments?
- The geography of the county can have a bearing on the entry point into the pathway
- Although the falls pathway is short and simple it is affected by the entire rapid response and A&E admissions system
 - Queue management systems and stages of triaging should improve A&E overload and ambulance stacking

The participants were then asked whether they consider that the falls pathway is reducing A&E admissions, does it provide home care that is as good as being in hospital and are the resources being used effectively? One of the patient representatives commented that although an admission to emergency care is deferred and an individual may be admitted on a subsequent occasion “any non-admission is a good thing,” The other participants agreed with that sentiment.

Participants felt that the Falls Risk Assessment Tool (FRAT) training that the paramedics have had is making improvements in patients being treated in their own homes and then being referred to other teams. For example; EMAS would be called to a patient’s home for a patient who had fallen out of bed. Before the tool came in, EMAS may be called to attend the same patient on repeated occasions. However, using FRAT, the patient can be referred to another team and appropriate care put into place. Participants were concerned about adding FRAT training to the paramedic workload. This was answered by a phone call to a paramedic who stated that that from the perspective of the front line the pathway is successful as having it in place enables EMAS to make the referral. Being trained to use FRAT reassures the paramedic that they are doing a safe assessment and knowledge that the patient will receive on-going treatment is important. The LCC representative reported that of all the interventions in place this is the most cost effective.

The participants strongly believed that treatment at home is as good as, if not better than being cared for at hospital, especially for elderly people. They made the following comments:

- Personally I think you get more care as you get immediate one to one attention from EMAS paramedics
- Saves a lot of time for patients if they can be treated at home
- Elderly patients would prefer to be treated at home
- Some people may feel that the home care is not as good

Some concern was expressed about multiple conditions limiting the patient choice of pathway and the availability and quality of community care – some individuals may prefer A&E rather than paying for private care.

Measuring Patient Satisfaction

Due to the small number of participants the exercise to gather user opinions of patient satisfaction criteria and measurement tools was adapted. Each of the patients sat with a non-patient participant and together they considered ways of measuring quality, speed, dependability and flexibility of healthcare. Their thoughts were then shared with the group. Overall, it was considered that paper based surveys were not a good way of gathering patient feedback, individuals are “tick box overloaded”. Similarly any electronic method of gathering data would need to be quick and simple. The participants thought that verbal conversations with staff would provide immediate accurate and timely patient perspectives although it was realised that healthcare staff are limited for time. It was noted that:

- Negative experience should be shared as learning points
- Patients answer direct questions
- Staff training is vital for patient quality
- Satisfaction can be measured by successful end results

Reflection

Although this workshop session had a small number of attendees all participants were highly engaged with discussion throughout. It was noted that the patients were eager to talk, especially about their personal experiences. The only point of disengagement was noticed during the simulation, when requests for exploring different scenarios were not forthcoming. As in previous workshops where there were participants with direct experience of the intervention it was evident that their first-hand knowledge contributed to the success of the debate. Direct answers to participant questions and explanations of the reality of the patient pathway provided useful data to further improve the model. Similarly, having the representative of LCC at hand to put forward their viewpoint helped the participants and the facilitators to understand the context and importance of the intervention. The experience of the patients, although they had not experienced FRAT, gave insight into the concerns of patients and put the intervention into context with the wider emergency service.

During this workshop the patient pathway was mentioned an equal number of times to the computer simulation. The increased iconography used for the simulation this time, with identifiable people moving across the screen appeared to capture the attention of the participants. The service in general was the topic that was discussed the most frequently, highlighting such issues as:

- Frequent fallers
- Entry points to the pathway
- How EMAS works
- Personal experience of emergency care
- Quality of service

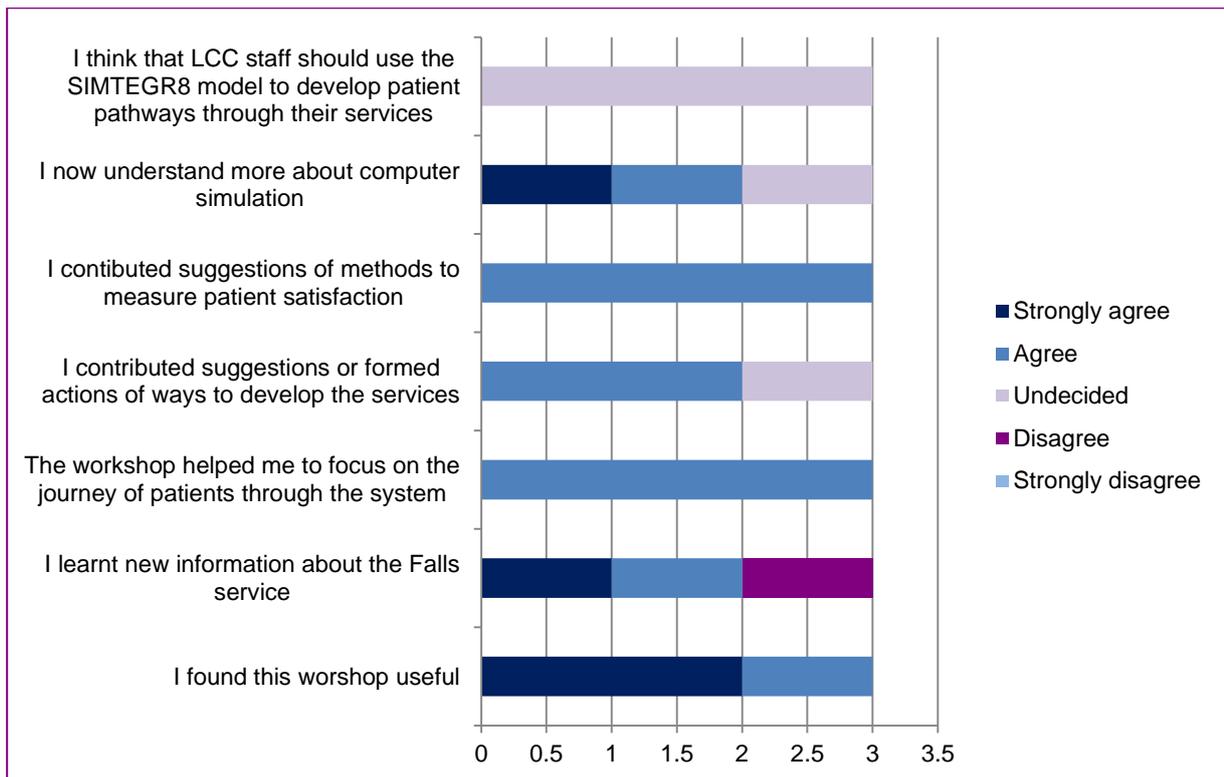
It is perhaps indicative of the close integration of the services involved with this particular intervention, that the wider context was discussed more times than either the patient pathway or the simulation. Such a concern with the effect of the wider context reflects the thoughts expressed during the Stakeholder workshop for the Falls intervention. In this workshop, however, participants pin pointed the issues, such as queues, reasons for falls occurring, the cost of the service and homecare.

Other issues expressed were:

- Paramedic training
- Ways leading to the patient pathway including 111 calls
- Additions to the simulation

Finally, the Likert scales that 3 of the participants completed indicated that they had had a positive experience at the workshop (Figure 31). Two strongly agreed that the workshop was useful and 1 agreed. They all thought that workshop helped them focus on the patient pathway and 2 thought that they had increased their understanding of computer simulation. All were undecided whether LCC staff should use computer simulation to plan patient pathways.

Figure 33: Participants' Opinion of Workshop



It was found that:

- Participants were engaged with discussion
- It was useful to have representatives of patient groups, LCC and EMAS present
- Details of the service and the effect of A&E overload were considered
- The participants engaged with the computer simulation well
- Patients are tired of paper based evaluations

The use of a computer simulation of a patient pathway in this case appeared to be an essential part greater discussion of the patient pathway and the Falls service. Including the viewpoints from EMAS, patients and LCC provided detail and data to improve the simulation.

Next steps

- Use the information gleaned to improve the simulation
- Include thoughts on patient satisfaction to summarised report
- Follow up the delegates to discover their general opinion of the workshops

Appendix 1

Sample of card given to delegates to record personal aims

<p>This is what I hope to gain from this workshop</p>	<p>This is what I did gain from this workshop</p> <p>I consent to a follow up phone call: Phone no</p>
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Appendix 12: Project Information Flyer



Simulation to Evaluate Great Care

What is the project about?

BACKGROUND

As part of the Leicestershire Better Care Fund programme, there is a need to test the impact and effectiveness of new integrated care interventions on the health and care system. There is also a need to ensure that patient / service-user metrics provide an adequate test of the integrated service care experience.

The Research Centre of Service Management at Loughborough University, partnering with Healthwatch Leicestershire and Leicestershire County Council, have been awarded an Enterprise Project Grant (EPG) worth £100,000 by the University's Enterprise Office for a major new study evaluating how emergency admissions to hospitals can be reduced. The objective of this study is to reflect the patient flow across an integrated journey and user experience, using modelling and simulation techniques.

The one-year project will form an important piece of work that will contribute to the ongoing evaluation of the impact of the Better Care Fund programme. A robust evaluation of the impact of new integrated care interventions on admissions to hospital will provide important evidence to inform the future health and care commissioning plans.



PROJECT DESCRIPTION

Exploiting the SimLean methodology, a computer modelling and simulation program developed by Loughborough University (www.simlean.org), the project will evaluate four current interventions aimed at reducing emergency hospital admissions:

- Falls
- Integrated Crisis Response
- Rapid Assessment Service for frail older people
- 7-day services in primary care



Appendix 13: Capturing Service User Experience Lessons Learned for the SIMTEGR8 Project



Capturing Service User Experience Lessons Learned for the SIMTEGR8 Project

Overview

Healthwatch Leicestershire (HWL) faced challenges with the four workshops that focussed on a presentation of the simulation model, alternatives and improvements in relation to engagement of named Scheme Lead, access to patient data and service user experience at the facilitated workshop.

Background & Context

The service user perspective formed part of stage four of the original project plan (see below).

The initial plans were that four user workshops would be carried out using the model to help facilitate a discussion with patients and carers on how emergency admissions can be reduced.

The discussion around the model would then go through three phases, as follows:

- **Model Understanding:** what is the model doing? The model will be briefly explained to the participants and the simulation run with the animation at a speed where the movement and queuing of patients could easily be seen. This has been proved to be an effective way to engage participants in the discussion.
- **Problem Scoping:** What do they think about the effectiveness of the alternative pathways to emergency admissions? In this phase the discussion largely will move away from the simulation itself and start to focus on the specific issues/concerns they may have about the alternative pathways.
- **Improvement:** what needs to happen to support frail and older people? How do they think satisfaction can be measured (e.g. Quality, Speed, Dependability, Flexibility)? The participants then will start to think about how these pathways can be improved based on their own experience of care and needs.

Following replacement of the original researcher, changes were made to bring this stage forward to run in parallel to the stakeholder workshop sessions.

Service User Workshops

The aims of the workshops were that simple models would be used in a facilitated workshop environment to generate understanding and discussion around the impact of the current alternative pathways on reducing the emergency hospital admissions and improving user experience, and to identify potential improvements.

Loughborough University (LU) and SIMUL8 were to facilitate the workshops with inputs from HWL. LU would then compile the report from workshop feedback with inputs from SIMUL8 and HWL.

Target Groups

For the interventions/ schemes HWL's aim was to engage with:

- Services Users and Patients
- HWL Member network
- PPG Members
- Care Home residents/ staff

For each of the target groups, HWL would contact the Scheme Leads and develop communications for making contact with service users, carers and patients.

What Happened With Each Scheme

The following is an overview for how HWL engaged with each scheme.

Older Persons Unit (OPU) Scheme

Initially, the Scheme Lead (Donna Brewer) advised that the OPU staff were going to try and locate patients to speak to.

HWL were told that when this cohort of patients present at the OPU they are often confused, frail and poorly and it would be inappropriate to speak to them at the OPU and that a visit to the patient's home would be necessary.

This was deemed to be inappropriate and outside the scope of the project as the aim was to bring service users together to show the simulation model and discuss the alternative pathways.

HWL were given information about the OPU that was subsequently used at the workshop (10 November 2015).

Night Nursing Scheme

HWL made contact with the Scheme Lead (Jo Beeching). The Scheme Lead was unable to attend the workshop and asked colleagues to liaise with HWL to attend but no one was able to step in.

HWL did not hear from the night nursing team prior to the workshop (10 November 2015) therefore HWL did not manage to find service users/ patients or carers who have had direct experience of the Integrated Response (night nursing) intervention.

Post workshop, the Scheme Lead provided answers to the patient questions about the service.

Falls Service Scheme

HWL met with the Scheme Lead (Suzanne Dean) who advised that HWL would struggle to find patients as most fallers are over 75, have complications and it is difficult to get them to agree to talk about it.

Many patients are treated at home by East Midlands Ambulance Service (EMAS) and therefore it is difficult for the schemes to follow up with the patients, as they do not have their contact details.

The Scheme Lead and HWL contacted Leicestershire Partnership Trust (LPT) about a known faller who has been involved in patient feedback but HWL had no response.

HWL spoke to the LPT Service Lead for the Falls Service who had not been invited to the previous stakeholder workshop. The service lead was going to speak to their team and see if anyone could attend and the workshop invitation was shared with their service users.

EMAS as a key partner were invited by HWL to attend the service users' workshop (2 February 2016) as they were not present at the stakeholder workshop (29 November 2015).

HWL received communications from three patients who were unable to attend the workshop but were willing to share their experiences about the Falls Service. Their contact details were shared with LU for possible telephone interviews.

ELRCCG 7 Day Services in Primary Care scheme

The Scheme Lead (Jamie Barrett) sent HWL email addresses for the lead GP and Practice Manager of Croft Medical Centre who have been involved in the 7 days services in primary care pilot schemes.

The Practice Manager forwarded HWL request to their partners to see if they could suggest any patients/ carers to participate.

After several reminders to the practice, HWL was advised that there was one patient on their Patient Participation Group (PPG) who had a relative benefit from the service. The Practice Manager was going to contact the patient to see if she/ he was happy for HWL to contact them. The Practice Manager put this forward to their PPG and no one responded.

WLCCG 7 Day Services in Primary Care scheme

HWL contacted the Scheme Lead (Ian Potter) for WLCCG, and heard nothing back

even after several reminders. At the meeting with Suzanne Dean (30 November 2015), to discuss the four schemes she informed HWL that there was a new Scheme Lead (Soyuz Shrestha) at WLCCG.

After several reminders to the Scheme Lead, HWL did not receive any patient data from the CCGs. The CCG promoted the workshops in their patient e-newsletter, which was sent to their 1,800 members.

Due to the lack of interest, it was agreed to cancel this workshop.

HWL Reflections

HWL have distilled our experience from our journey engaging with service user and patient experience for this project outlined below:

1. There was a collective assumption by all partners from the outset that service users would be readily available to HWL and HWL would be able to access these (as the independent body).
2. Throughout the project HWL struggled to obtain service user/ patient contact details from any of the Scheme Leads.
3. HWL have contacted the Scheme Leads and their colleagues on numerous occasions to provide advice, guidance and support so that HWL can capture the experience of patients of the integrated service.
4. HWL have an expert pool of patients that we can draw on for insights. For the OPU and Night Nursing workshops, HWL Board members and representatives were able to attend to give their informed views and opinions of the services.
5. For the Falls Service and 7 Days in Primary Care Services workshops, HWL extended the timescales for the user workshops to give more time to contact patients who have used the services to attend the workshop.
6. The workshops were advertised far and wide in; stakeholder publications, websites, direct mailings etc. There was interest from individuals and organisations but HWL were unable to attract known service users/ patients to the workshops.
7. In emails to the CCGs, HWL were explicit in asking for patient contact details. As HWL were aware that it might be difficult to reach the small cohort of patients involved in the intervention, HWL provided the option of contacting PPG Group members for the GP Practices involved and care homes where they have residents who have used the service.

Five Lessons

Our reflections on what could have been done differently for capturing service user experience include the following:

1. Early engagement and buy in by Scheme Leads from the outset of the project - this would introduce the project and provide face-to-face contact to enable communications and transactions to run smoother and better.
2. Different approaches to engage frail, elderly patients with complex needs using each of the schemes - cohort of patients difficult to engage as outlined in the methodology and this proved to be an insurmountable barrier given timescales.
3. The definition of the patient perspective in this project to include both service user and expert patient voice as equally valid - independent and informed patient insight is valuable.
4. The four schemes were not fully developed and changes were taking place in *real time* making it difficult to keep abreast of developments- perhaps it would have been better to select schemes that were more embedded.
5. Expectation that all project partners had equal understanding of the four schemes - unrealistic assumption given respective roles responsibilities and dedicated resources in the project.

Vandna Gohil and Gemma Barrow - 16 March 2016