

Learning Area: 1

**Develop a Clinical Improvement Project to improve the way in which the
Welsh Ambulance Services NHS Trust manages Health Care
Professional requests for Ambulance Transport.
(Community Paramedic Scheme).**

Amount of credit claimed: **60.**

Credit Level: **7**

Introduction:

I am the Clinical Improvement Manager for the Welsh Ambulance Services NHS Trust (WAST). A copy of my job description is contained within this portfolio. I have elected to claim credit for the learning contained within this document due to the amount of learning, skills and experience I achieved whilst undertaking the work. The learning has been both in action and on action, providing me with a much wider breadth of skills, knowledge and above all, understanding. The work and experience described in this Learning Area has shaped and developed my professional standing within my organisation.

Background:

The Welsh Ambulance Services NHS Trust (WAST) provides Emergency Medical Services (EMS) to the whole of Wales. This is an area of approximately 8,000² miles with a population of over 3 million people. The Trust receives approximately 450,000 emergency 999 calls per year but has a maximum of only 90 emergency ambulances on duty at any given time pan-Wales.

Given the ever-increasing demand on WAST's services and the finite number of resources available, there is a need to ensure that the most appropriate level of care

and treatment is delivered to the patient in the most appropriate place, by the most appropriate clinician, at the most appropriate time.

Of the 450,00 calls received by WAST each year, over 98,000 of them originate from Health Care Professionals (HCPs). These are mainly General Practitioners (GPs) but can also include registered nurses and other allied healthcare professionals. Data suggests that the majority of the patients within this category are routinely admitted to the Emergency Department (ED) by ambulance but discharged shortly afterwards with minimal clinical intervention, other than a clinical assessment to establish baseline observations. Not only does this place a significant demand on WAST's finite resources, but it also falls outside the Principles of Prudent Healthcare and most importantly, provides a poor patient experience for the people of Wales. As a Clinical Improvement Manager for WAST, I was tasked with developing an improvement project that would in some way address these issues.

Learning Outcomes:

- 1. Design and develop a Community Paramedic scheme proposal.**
- 2. Implement the scheme within my organisation.**
- 3. Analyse and evaluate the project to identify lessons learned, outcome measures and overall success of the project.**

Within this Learning Area, I will endeavour to critically analyse the way in which I designed and developed the Community Paramedic scheme, my role as an improvement lead for the project, and how I evaluated the project. I will reflect upon skills and learning that I have achieved, not only as a result of undertaking the project, but also the key learning and skills achieved from the Institute for Healthcare

Improvement (IHI) Improvement Advisor (IA) Professional Development Program.

This will also highlight the knowledge and skills I have developed along the way that have enabled me to achieve my professional goals.

The IHI IA Programme:

A substantial amount of the skills and knowledge I gained during my improvement journey was acquired as part of this learning program. The IA program is a 10-month professional development programme that includes an initial virtual workshop, three four-day face to face workshops and a series of 13 Action Period WebEx sessions that take place between the face-to-face sessions. These online WebEx sessions allow participants to receive feedback and support on their projects not only from the teaching faculty, but also from fellow participants.

The aim of the IA Professional Development Program is to develop health care Improvement Advisors to be effective facilitators to accomplish the improvement strategies of their organisation. The curriculum is designed for health care professionals who expect to have a major portion of their future work focused on improvement.

Program Objectives are:

- To further develop individuals in health care organizations to be more fully competent Improvement Advisors leading to organizational success.
- To have a successful outcome on the IA's selected improvement project(s).
- To enhance the value and results of participant organization's improvement activities by increasing their ability to have a "results focus" in improvement projects.

Student N°: 0650091

My learning from this extensive programme will be reflected upon and linked to my personal journey.

The full course program which includes aims, objectives and a full curriculum is presented as Evidence 1 in this portfolio.

Learning Outcome 1:

Design and develop a Community Paramedic scheme proposal:

Prior to my current role as a Clinical Improvement Manager, my role within my organisation has been predominantly focussed on clinical practice as an operational paramedic, and also within education and development, as a paramedic tutor. My experience in service improvement delivery and methodology was very limited and I had not previously led on any significant improvement projects within my organisation. I was comfortable with my organisational and communication skills that I had developed during my time as a tutor but was cognisant of the fact that my quality improvement skills were as yet, undeveloped and requiring additional work and experience.

Background:

Demand for healthcare services is increasing year on year, not only in Wales, but across the whole of the UK and globally. This is mainly, but not exclusively a result of an ageing population, increased prevalence of chronic and complex health conditions and a marked growth in patient and public expectation driving such demands on the NHS and other healthcare systems. Extended life expectancy and an ageing population poses significant problems when balancing supply and demand, particularly when providing services within budgets that have not grown as quickly as the demand. The NHS in Wales are not exempt from these challenges and is constantly faced with the need to provide high quality health care in a timely and cost-effective manner. Many professions, particularly within the Welsh NHS are experiencing severe stress as existing models of care do not fit current

requirements. This inevitably results in such models being challenged or described as 'not fit for purpose'.

At the forefront of these NHS services is WAST. Although considered primarily as an emergency medical service, WAST is fast becoming an initial point of contact for patients with conditions that do not pose an immediate threat to life, and therefore not necessarily requiring the attendance of an emergency ambulance with a paramedic crew. But with services such as Primary Care becoming more and more overwhelmed by demand, a significant amount spills over into unscheduled care services such as WAST.

Bevan Commission (2015) states that most organisations in Wales do not have a prudent workforce and need to develop new models of care and alternatives to models that are ineffective. In an attempt to introduce more prudent ways of working, WAST has worked to design and implement models of care that fit with the principles of prudent healthcare. This assignment will outline the implementation of one such model. It will also explore and analyse the learning that the author has attained along this improvement journey that has provided skills, knowledge, and empowerment to achieve corporate goals.

What is the Problem?

Before any improvement programme or test of change can commence, it is imperative that 'The Problem' is clearly identified. Just as clear objectives are required to achieve a learning outcome, a clear understanding of the system is essential when attempting to identify any problems and potential improvements. Many projects fail simply because they attempt to go straight to 'solution', often concentrating on a symptom of the problem rather than the real issue. When

confronted with a need for change, many organisations will respond by attempting more and more of the same thing. However, if there is one key thing, I have learned on my improvement journey, it is that if you keep on doing what you have always done, you will keep on getting what you have always got.

There are many methodologies for Quality / Service Improvement available, all with their own claims and advantages. This became apparent as I began to delve into the world of Service Improvement delivery. A common theme amongst them all is that 'Identifying the Problem' is key. In order to fully identify a problem, one must first fully understand the system in which the problem exists. Langley et al support this when they state that:

“The more knowledge one has about how the particular system under consideration functions or could function, the better the prediction and the greater the likelihood the change will result in an improvement”.

(Langley et al. 2009 p.81)

It became apparent very quickly that a specific set of skills and knowledge was required to lead on any improvement project. There is a need for knowledgeable leadership to carry out an improvement strategy and make it successful. This does not mean leadership as in a manager, but more as a leader. “The job of a leader is to accomplish transformation in their organisation.” (Deming, 1993, p.119).

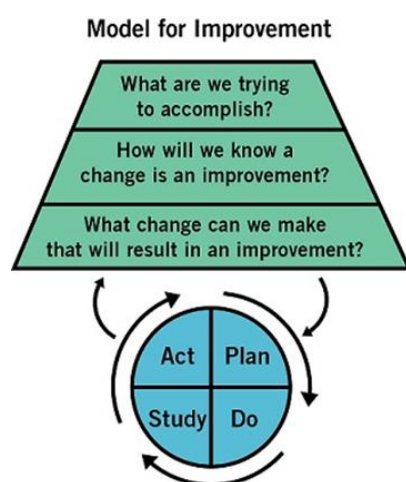
This simple quote resonated strongly with me and ignited the realisation that I was not only embarking on an organisational improvement journey, but a significant personal development journey.

The Improvement Journey:

As part of my new role as a Clinical Improvement Manager within my organisation, I had been successful in securing a place on the Institute for Healthcare Improvement (IHI) Improvement Advisor (IA) Professional Development Program. This nine-month development program will inform a large part of this assignment as it provided extensive learning and support to my improvement journey. It has also provided extensive development in my professional practice.

One important thing I have learned is that for improvement to work across an organisation, it must follow a common method for improvement. For a system of improvement to be successful, it must be built on basic theories, concepts and methodologies using a common language. This is supported by the IHI IA programme, which is based on the 'Model for Improvement'. The Model for Improvement (figure 1) uses a common strategy for teams working on improvement projects, ensuring that all involved follow and adhere to common methodologies and language.

Figure 1:



The Model for Improvement is a plan or guide for improvement which is based on the Shewart Cycle (or Deming's Plan Do Study Act (PDSA) cycle). It asks specific questions and has three main components: The aim, the current knowledge and the cycle for learning and improvement. Although illustrated in a simple diagram, the model for improvement

encompasses a suite of tools and methodologies, all designed to assist the user

identify, and solve issues and problems. The model is built around three fundamental questions that must be answered in order to be successful:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in an improvement?

This is then followed by a cycle of learning and improvement, known as the PDSA cycle. Often, improvement projects are erroneously called PDSA trials, whereas in fact, the PDSA cycle forms the latter part of the Model for Improvement.

I learned that these questions, define the endpoint we are aiming for. Aim being one of the key words. Without an Aim, we have no destination point. Any attempts at improving anything should ultimately result in tangible answers to these three questions. I took some time to comprehend these key principles, which paid dividends as I embarked on my improvement journey. My introduction to, and subsequent use of these tools has been a huge learning curve for me professionally.

Designing and developing the scheme:

Some of my initial learning was that there are five basic approaches to improvement:

- Design of a new product or service.
- Redesign of an existing product or service.
- Design of a new process.
- Redesign of an existing process.
- Improvement of the system as a whole.

In this, my first endeavour into improvement management, I recall the sheer horror I felt as I was introduced as the 'Leader' of the project. It was a sudden realisation that all eyes were on me, and the expectation was upon me to provide knowledgeable

leadership to deliver the programme. I needed to delve into the literature of improvement to identify exactly what improvement leadership required. Deming (1993) suggests that leaders should possess three sources of power:

1. Authority of Office
2. Knowledge
3. Persuasive Power

Whilst these terms now appear dated or old fashioned, I was able to interpret them into a more personal and contemporary description. I felt that points one and two went hand in hand. By this, I felt that my detailed knowledge of the system we were trying to improve provided me with credibility, and therefore had the confidence and trust of other stakeholders. Persuasive power was drawn from my ability to communicate well and explain complex issues in an easy-to-understand manner, skills which I had developed during my time as a tutor.

The Team:

I was aware from an early stage that I would need to form a team in order to be successful in this project. Teamwork can be described as a group of likeminded people working together toward a common goal, or in this case, a common aim. Based on the work of Lewin, Weisbord (1987) describes the following four conditions that should be present for any team to be effective:

1. **Interdependence** – The team must be working on a project that is important to the members. Complimentary skills are noted and leveraged by the team.
2. **Leadership** – the responsible leadership has the desire to improve and is in learning mode. With this desire also comes risk; the team could fail.
3. **Joint Decision** – All members of the team want to participate.

4. **Equal Influence** – Each person associated with the team has an opportunity to influence the agenda.

La Monica suggests that: “Once people are motivated to change, they are primed to accept new forms of behaviour”. (La Monica,1994 p.193).

Above all else, a key driving factor when recruiting members of a team, is that person’s ability to make a meaningful contribution in achieving the aim. In addition to this, there would need to be an appropriate selection of skills and knowledge.

Handy states that:

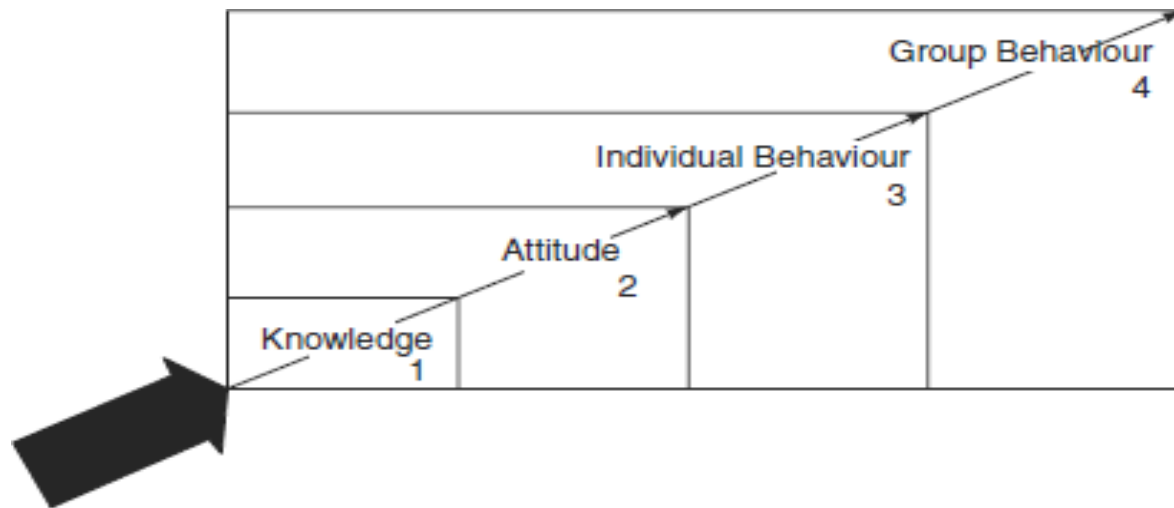
“When people put groups together, they select individuals mostly on the basis of their official function within the organisation (e.g., someone from finance, personnel, operations etc). Seldom do they think in advance of other functions such as, the way we behave, personal issues that individuals bring etc”.

(Handy, 1993, p.165).

I learned very quickly that human factors play a vital part in the dynamics of any team, and that a person’s position within an organisation, or their qualifications automatically make them a suitable team member. As part of my learning, I was introduced the Participative Change Cycle. La Monica explains that:

“A participative change cycle occurs when change proceeds from knowledge to group behaviour. Followers are first provided with knowledge, with the intent that they will develop a positive attitude towards the subject”. (La Monica,1994 p.190).

The Participative Change Cycle is illustrated below:



My learning of the model was that by changing or influencing the behaviour of individuals, they will become the advocates and therefore influence others to embrace the change. I learned that employing this methodology could often result in a change of group behaviour. Hersey and Blanchard explain that because followers generally believe in what they are doing, change is intrinsically imposed rather than extrinsically demanded. (Cited in La Monica 1994 p. 191).

As will be discussed later in this document, data plays a vital part in any improvement project. With this in mind, it was imperative that I enlisted the help of a WAST data analyst to not only provide data, but also help use it constructively to inform the project. Although at this point, I had not realised it, I would soon learn that without data, identifying problems and improving them is very difficult. In some cases, nigh on impossible. The Team will be named in its entirety later in this assignment.

Tools for Improvement:

In a fortuitous event of timing, I was accepted to attend the IHI IA programme. The course is run biannually and offers two positions for each Health Board in Wales.

Evidence 2 is the application process I had to undertake to secure a position on the

course. Evidence 1 illustrates the course curriculum. What this meant, was that I was able to utilise newly acquired skills and knowledge in real time, whilst undertaking the improvement project. As well as the face-to-face elements of the course, there were regular Action Period WebEx Sessions. These allowed the group to meet virtually and share progress with each other and the teaching faculty, many of whom were located in America. Evidence 3 is a timetable of the WebEx sessions with expected objectives and outcomes. During these sessions, I was introduced to the MUSIQ methodology. Based on the work of Kaplan et al (2011), the MUSIQ methodology singles out 24 contextual factors across six domains that may have a positive or negative influence on the success of a Quality Improvement (QI) project. Evidence 4 is a copy of the paper which gives context on the use of MUSIQ, whilst Evidence 5 is a copy of the score achieved by my project proposal. This methodology has proved invaluable in subsequent QI work, as it can be utilised to accurately predict the likelihood of success prior to the commitment of time and resources. It can also highlight where more effort may be required to achieve buy in and take advantage of support within my organisation. I am now able to give an informed reason as to why a QI project may not be appropriate, rather than just a subjective opinion.

Having completed the MUSIQ score, it was apparent that my proposed QI project had a reasonable chance of success. With this in mind, I was confident that my first endeavour into QI was going to be a successful one.

Before any improvement project can commence, it is vital that all involved fully understand the system. I had been introduced the concept of a Driver Diagram. Also known as a Flow Diagram, this is a graphic representation of a series of activities that make up a process. This diagram affords a unique knowledge of the process to

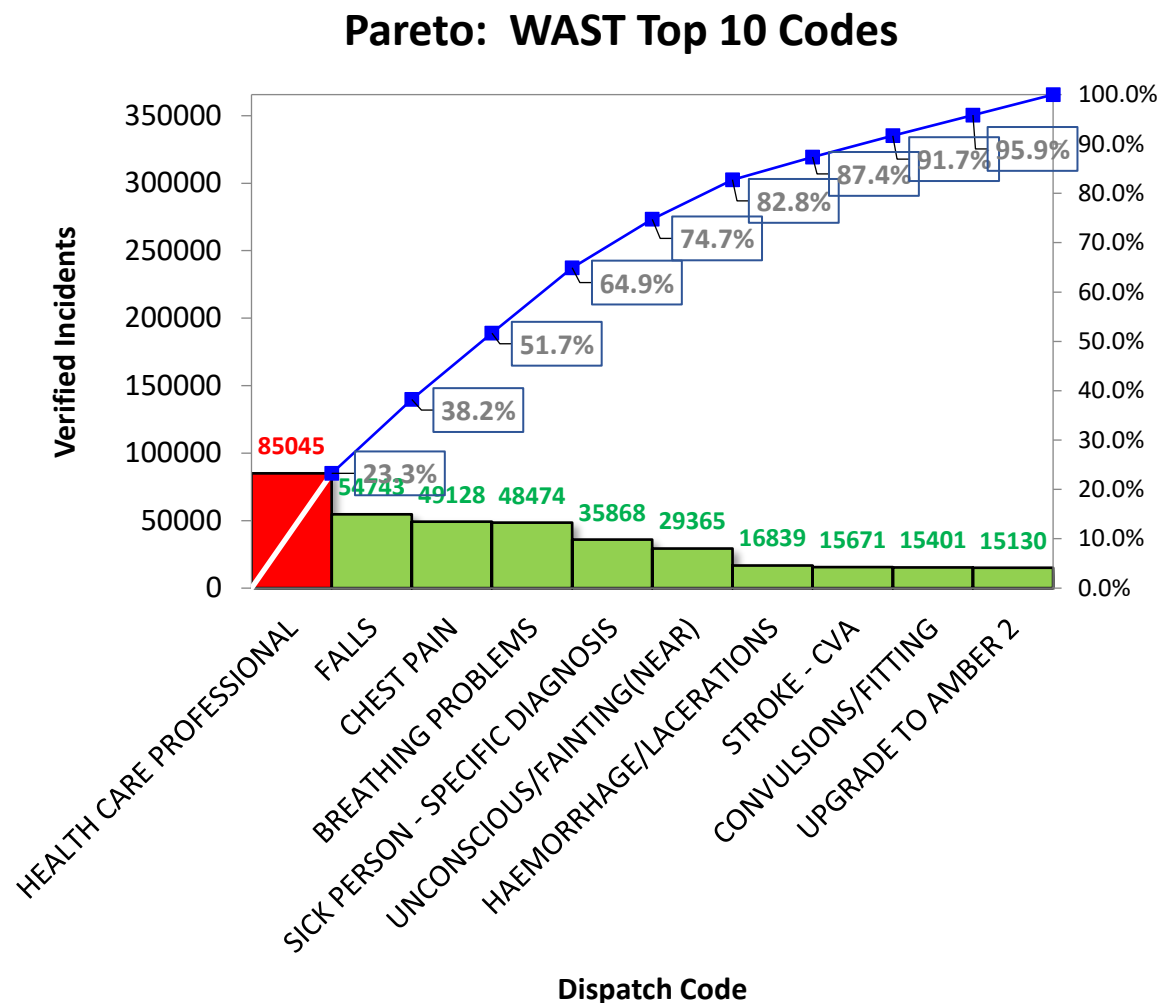
be presented visually so that it may be studied by all members of the QI team.

Evidence 6 is a photograph of a process map we undertook to ensure that everyone involved could visualise and understand the process. Shostock (1984) explains that these diagrams help us understand a process that cannot be seen in the same way as maybe a manufacturing process. Undertaking this exercise was a vital part in us all understanding the process and identifying potential areas for improvement.

Addressing the Problem:

As previously stated, the WAST receives approximately 450,000 calls per year to its emergency 999 system. Figure 1 below illustrates a pareto analysis of the top 10 codes received: -

Figure 1: -

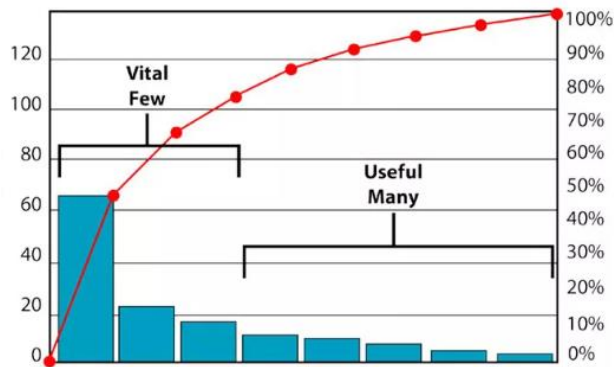


Prior to my embarking on the IHI IA course, I had no knowledge of a Pareto Chart. So, my learning around this method of data presentation and analysis was of great use when attempting to illustrate the issue.

A Pareto Chart is a tool that assists in focussing on quality improvement projects.

Sometimes referred to as the 80 / 20 principle, the Pareto Chart not only illustrates

specific data values, but also calculates a continuous percentage of the data. Joseph Juran came up the term 'Pareto Chart' in the late 1930s (Juran, 1951). The work originates from the work of Vilfredo Pareto, who pioneered the effort to illustrate a law of income distribution.



He found that 80% of the wealth was concentrated on 20% of the population. Often, the tallest pillars at the left of the chart will be referred to as the vital few, the remaining pillars are then referred to as the useful many. Often the vital

few pillars will dominate while the rest of the useful many may contribute a smaller proportion of the overall data. By utilising this method, I was able to identify that, surprisingly, the highest demand to WAST on a daily basis was generated by Health Care Professionals (HCPs) in the community, predominantly General Practitioners (GPs). This came as somewhat of a surprise, as this data had never been analysed in this way before. This data sparked significant interest within WAST, and therefore on the project I was working on.

Armed with this initial data, I was able to use the Pareto Analysis to justify concentrating effort on the HCP call demand to WAST, as this was the highest presenting demand. My knowledge around Pareto Charts was further consolidated in the second face to face workshop of the IHI programme day 5 (Evidence 1), together with various other data analysis tools, some of which will be explained later in this portfolio.

Armed with some data and a team of colleagues, it was time to plan our strategy for the project. As part of the IHI course, I was introduced to the driver diagram. This

was a timely session as it occurred exactly when it provided me with most benefit.

Also known as a tree diagram, the driver diagram is a tool used to visualise the structure of a plan. It is almost like a roadmap of the project that helps guide the team visually. Evidence 7 is a copy of the driver diagram I developed for the QI project alluded to in this portfolio. I found this methodology invaluable, and the completed diagram was a constant source of reference as we developed the work.

The three main advantages I took from the driver diagram were that: -

- It provided a methodology for problem solving and achieving objectives systematically and logically. Having all the elements illustrated makes it less likely that the team will not omit essential items.
- It became a conversation piece, encouraging dialogue amongst team members.
- Functioned as a template for meetings and presentations because it clearly articulates details of issues that might otherwise be considered as complex by team members or stakeholders.

I have used this methodology in all my subsequent QI projects and will strongly advise its utilisation to anyone wishing to undertake this type of work.

Armed with a plan, it was time to prepare our project charter. As previously mentioned, the model for improvement consists of several elements, all of which must be applied if a QI project is to be successful. My introduction to driver diagrams and process maps has ignited a desire for order and planning. I have continued to employ these methodologies in all my work since.

Evidence 8 is the original Project Charter I developed to illustrate the intention and direction of the project. I presented this to the senior management team for consideration. Whilst the plan was well received by team, I learned a key lesson that

day. To quote one of the godfathers of improvement methodology, Mr W. Edwards Demming, “without data, you’re just another person with an opinion.” I learned that very quickly, any statements or hunches one has must be backed up by credible data. Whilst a small amount of data had been provided, it did not provide a comprehensive analysis of the problem.

All emergency calls to the WAST are processed using a system called ‘Medical Priority Dispatch System (MPDS)’. MPDS is an internationally validated system, in widespread use across the UK, Western Europe and North America. Each call will generate an MPDS code. This code is then mapped against the locally determined Dispatch Cross Reference table, the output of which is a priority reflected in WAST as a colour (Table 1) and a suggested Pre-Determined Attendance (PDA) code. This determines the type of resource / response the call will get, for example Emergency Ambulance, RRV, APP or Clinical Telephone Assessment.

Table 1:

WAST Call Categories
RED
AMBER1
AMBER2
GREEN2
GREEN3

MPDS has separate protocols for different medical conditions, each with its own identifying number. The protocol utilised to process calls from Primary Care is Protocol 35.

Separating each protocol into individual numbers enables data to be collected from our Computer Aided Dispatch (CAD) system. The detailed knowledge of our CAD systems was new to me but was a key enabler in me being able to get answers to many technical questions.

I commissioned a piece of work from our Health Informatics team in which we focussed on the activity generated by Primary Care in Wales. Evidence 9 is a PowerPoint presentation in which I attempted to summarise the data in visual and informative manner. Entitled 'Focus on Card 35' it was my first attempt at analysing and presenting complicated data into a format that would not only support my theory but be easily digestible to my audience. In another first, I was invited to present my work to the Trust Board. The key lesson I learned that day was that when presenting to the Board, less is more. I had rehearsed a very detailed presentation based on the data, which upon finishing I was asked "but what is that telling us?" In all subsequent presentations, I have endeavoured to make my presentations brief, succinct and visual. But above all, I have learned that too much detail will lose the room. My new mantra; keep it simple. My key learning thus far was that data helps answer all three of the fundamental questions for improvement. There are, however, many ways to display and analyse data. Graphs, charts, and diagrams are certainly the most preferred method of presenting data within my organisation. I have learned very quickly that for improvement efforts, visual displays of data are the best way to learn from statistical analysis. My learning has enabled me to appreciate and utilise visual data in a meaningful way. The main advantages of employing this method of data presentation are: -

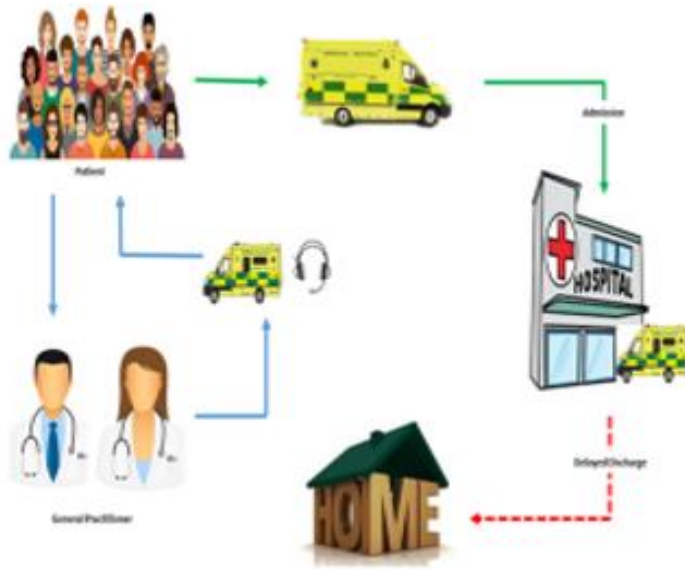
- Almost all the potential learning from the data is available through graphical illustrations.
- Infographics and data displays are often easy to produce.
- Everyone can benefit from the learning and analysis. A knowledge of data analysis is not required to understand visual displays.
- Diagrams tend to lead to a more systemic view of problems and opportunities.

- Pictures can help to identify small, but important details that may not be so obvious in raw data or summary statistics.

The data I produced within Evidence 9 was true to the principles described above. It clearly illustrated that the majority of HCP calls (63%) were in the GREEN category. This means that the patient's condition is neither urgent nor immediately life threatening. Calls in this GREEN category are predominantly requests for routine transportation to hospital for a clinical assessment. Patients in this category do not require advanced life support (ALS) from a paramedic, nor do they require transportation in an emergency ambulance. It was this data that prompted the need to test new systems of working with primary care to better manage this demand. As a result of stakeholder engagement, WAST was approached by a GP Practice in the Vale of Glamorgan, who expressed an interest in testing a new way of working. The aim of the trial would be to test a new system design that would promote the principles of Prudent Healthcare, whilst delivering clinically safe patient care, in the most appropriate place, by the most appropriate clinician. The idea was to introduce a new care pathway that would allow GPs to utilise a dedicated paramedic, who would be based at the surgery, to provide a home visiting service.

System Design:

Having analysed and presented the data, we were able to come up with a design proposal to help address the issues identified. I developed a basic infographic that



illustrated the then current pathway that patients were navigated through. As can be clearly seen, many patients would be admitted to hospital following a call to their local surgery. This would often be down to the capacity of the

surgery, meaning that GPs were unable to see patients on the same day. I had learned that any successful project needs a specific focus to drive it forward. I have learned that within the NHS, the key focus must always be the patient. So, with this in mind, our new system was designed with the patient at the centre of all elements. The system change took the form of a 'dependant model' of care, where, following initial triage by the GP, the paramedic would attend at the patient's home to conduct a clinical assessment. If no priority symptoms necessitated the admission to hospital, the paramedic would conduct a clinician-to-clinician discussion with the GP. This meant that the decision on the episode of care would be made by the GP. This can be described as an 'assess and initiate' model, and required two new systems of working to be designed:

Evidence 10 is a flowchart developed by me for the GPs at the practice, outlining the process for the newly developed way of working. As with data, I have learned that visual information is easier to digest and understand. Flowcharts and infographics

allow complex and difficult processes to be visually presented, making them not only aesthetically more pleasing, but easier to understand and execute. To compliment this, a similarly branded aide memoire, Evidence 11, was developed for the Community Paramedics who would be the patient facing clinicians.

Learning Outcome 2:

Implement the scheme within my organisation.

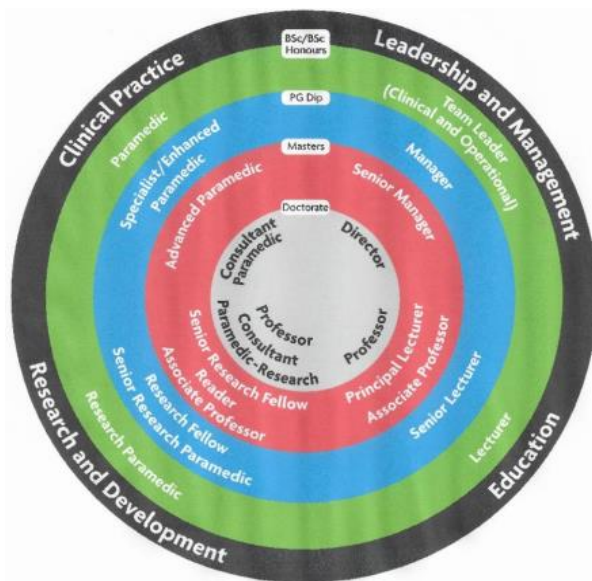
Having established the problem and identified potential solutions using Quality Improvement methodology, it was time to start the process of implementation. I learned very quickly that ideas, hunches, and plans may look great on paper, but when attempting to operationalise ideas and concepts, there are many hurdles to overcome. As previously stated, the aim of the trial was to test a new system design



that would promote the principles of Prudent Healthcare, whilst delivering clinically safe patient care. The trial involved the introduction of a care pathway

that would allow GPs to utilise a dedicated paramedic, who would be based at the surgery, to provide a home visiting service. The project was set within the recognised College of Paramedics Career framework. This framework has been developed over several years to provide guidance to paramedics when considering career opportunities. I was learning very quickly that any documents, proposals, or practice documents needed to be developed within this framework. This framework, together with clinical practice guidelines, organisational policies, and contractual obligations

shape the clinical practice of paramedics across all ambulance services in the UK.



The current framework (College of Paramedics 2023) illustrates the pillars of paramedic practice, and the levels of education required to practice at these levels. Whilst the entry level of paramedics is now a BSc degree, at the time of this trial, most paramedics were trained ‘in house’ by their respective

ambulance service training departments. The qualification was certified by Edexcel the Institute of Health and Care Development (IHCD). This qualification is still valid, but all paramedics must maintain a current portfolio of Continuing Professional Development (CPD) to remain registered with the Health and Care Professions



Council (HCPC). These were the guiding principles when we published an expression of interest notice for interested paramedics to apply to be part of the programme. An internal selection process was undertaken, and two paramedics were assigned to the trial. We had also, as a result of successful

engagement and collaboration, enlisted the support of the Western Vale Primary Care cluster, who had agreed to facilitate the trial. Primary Care Clusters (PCC) were a relatively new concept at the time. The purpose of Clusters was to bring together all local services involved in health and care across a geographical area, typically serving a population between 25,000 and 100,000. Working as a cluster ensures care is better co-ordinated to promote the wellbeing of individuals and

communities. This meant that our trial would span a large geographical area of the Vale of Glamorgan, serving the patients of three GP Practices. Those being Cowbridge North, Cowbridge South and Llantwit Major. Having worked with our Health Informatics colleagues, this area was the perfect location for such a trial. It has historically been a very difficult geographical area for WAST to maintain operational performance. Mainly due to its large area, its rurality and travelling distance to a District General Hospital. Many patients having to travel to Cardiff for hospital treatment. So, any intervention that would assist ambulance performance and reduce admissions to hospital from this area was most welcome by all organisations and stakeholders.

As with many initiatives, cost was an issue. With the ever increasing need to save money, there was little scope within the budget of WAST to support new projects such as this. I was learning very quickly that in order to gain approval from the Trust Board to implement our trial, we would need to demonstrate value for money, and in most cases, bring it in at cost neutral. With the lack of any spare fleet or equipment within the organisation to support our trial, it was looking like we would be unable to implement the trial due to financial constraints. To mitigate this, one of the Locality Managers working with us on this project, alerted us to the potential funding opportunities from Welsh Government (WG). The Intermediate Care Fund (ICF) was a fund set up WG that had a particular focus on integrated working between organisations to help avoid unnecessary hospital admissions. I was unaware of such funding opportunities and was curious as to whether an organisation the size of ours would qualify for such funding. I very quickly had to familiarise myself with both internal and external policy and procedure pertaining to the acquisition of funding.

My experience in writing board papers was rapidly expanding, as I became familiar with the reporting mechanisms within organisations. Key to my learning was the Intermediate Care Fund Guidance document (Welsh Government 2016). This document guided us through the process and, to our utmost pleasure, reassured us that our project fell well within the scope of the funding criteria. Evidence 12 is a copy of the ICF Proposal for Consideration document. This key document epitomises some of my steepest learning curves from this QI project. As can be seen from the document, I was collaborating with Directors, Senior Managers, Senior Clinicians, and representatives from WG. The total monies applied for was £80,000 to fund the three-month trial. A breakdown of the costs is contained within the document Evidence 12. After careful consideration, our application was successful, and the money was awarded to us by WG. In support of this, I quickly had to develop a brief Operational Protocol to which the Community Paramedics would operate. Evidence 13 the protocol that I developed in collaboration with the Lead GP within the Western Vale practice. As part of this collaboration, it was agreed that the paramedics would be afforded some additional training to assist in the new clinical role into which they were venturing. These new skills would be more aligned to lower acuity patients, as opposed to the high acuity illness and injury that paramedics are more used to dealing with. This would ensure that the paramedics undertook a clinical assessment and a set of clinical observations that would meet the needs of the GP. This meant that the GP could make a more clinically safe and informed decision on what the patients' needs were. Effectively, the paramedic was the eyes and ears of the GP reporting back. The benefits of this new way of working were immediately apparent. As the evaluation will demonstrate, all stakeholders, including patients, were able to see the benefits of this new service.

Learning Outcome 3:

Analyse and evaluate the project to identify lessons learned, outcome measures and overall success of the project.

If clinical need is less than the need for admission to hospital and a hospital bed, then the question must be, what services can be offered closer to the patient's home, and what skills are needed to do so? This is the fundamental question that proved to be the driver behind this project.

The trial was designed with the patient at the centre of all elements. The system change took the form of a 'dependant model' of care, where, following initial triage by the GP, the paramedic would attend at the patient's home to conduct a clinical assessment. If no priority symptoms necessitated the admission to hospital, the paramedic would conduct a clinician-to-clinician discussion with the GP. This meant that the decision on the episode of care would be made by the GP. This can be described as an 'assess and initiate' model and required two new systems of working to be designed.

The system design not only adhered to the four principles of Prudent Healthcare but was also clinically and operationally safe. The design team included primary care colleagues, WAST Operational Managers, CCC, Informatics, Service Improvement, and was ratified by the Executive Medical Director. The project gained much interest across Wales, including the Bevan Commission who have awarded the project an Exemplar Status (Bevan Commission). Evidence 14 is the Bevan Commission Exemplar publication that was produced to showcase my improvement project. The trial was implemented initially as a six-month pilot. Throughout the trial, the following were continuously conducted:

- Clinical Supervision.

- Monitoring of patient outcome.
- Monitoring of process and real time feedback.
- Amendment of process if required.
- Close monitoring of Risk Log.
- Analysis of activity and data.
- Monitoring of any clinical or adverse incidents.

One key learning point I also took from this process was the need for robust data collection processes. This will ensure that the quality and integrity of the data is of the required standard. To support this function, I developed an Audit Criteria to inform the data collection for this trial. Evidence 15 is a document I presented to Trust Board to illustrate the audit process I had put in place to fulfil the requirements of our data requirements, whilst Evidence 16 provides a more operational overview of how the process will work. My communication skills had been well developed by now, which meant I was able to write documents that could be presented to Executives and Board Members, but also present information in a way that all members of staff can understand.

Data Analysis:

My learning has identified the significance of data and how it is presented. Data helps answer the three fundamental questions of improvement. There is a plethora of ways to display and analyse data such as summary statistics, tables of numbers, Excel spreadsheets, tables of numbers and visual displays. My endeavours had shown me that for improvement projects, visual displays of data are the most effective method. If we evaluate the advantages of using visual displays of data, we can see that: -

- Almost all the potential learning from the data is available through graphical displays.
- Graphical displays are usually easy and quick to prepare.
- Everyone can participate in the learning process and analysis of the data. There is no requirement for technical knowledge to understand visual data.
- Interpretation of graphical data fully utilises current knowledge.
- Pictures can lead to a more systemic overview of issues and opportunities.
- Pictures can draw out minute, but important details that might otherwise be missed in the numbers alone.

My learning around data analysis and presentation was that numbers alone do not provide tangible data analysis. This principle can be traced back many years. Tufte stated that:

“The theory of visual displays consists of principles that generate design options. The principles should not be applied rigidly; they are not logically or mathematically certain. It is better to violate any principles than to put graceless or inelegant marks on a paper. (Tufte, 1983, p. 191)

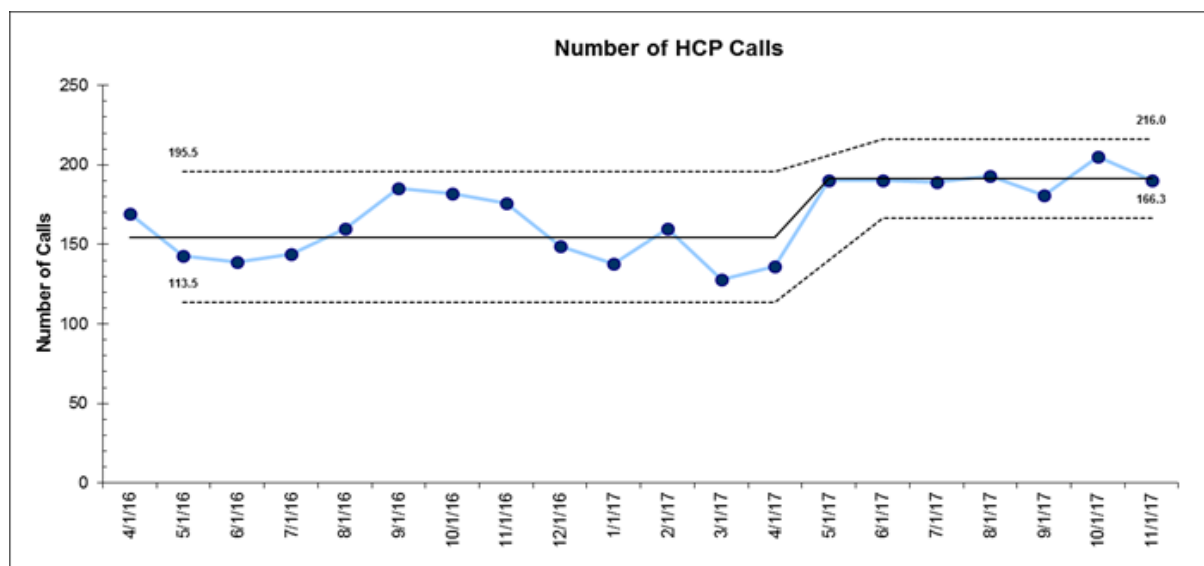
The use of graphical method of presenting data was first popularised by (Tukey 1977). I learned that graphical data can be utilised for a number of purposes, for example: -

- Description – What does the data say?
- Exploration – What is the data trying to tell us?
- Tabulation – How should the data be summarised?
- Decoration – Can we use the data to motivate or entertain while we learn?

I embraced these principles and used each of them to inform my presentation skills for data relating to the project. My understanding of data was furthermore developed as part of the IHI IA course. I learned that good data analysis begins with clarifying what the is the question being asked of the data. Is it to predict future performance, determine the extent of a problem, identify where efforts should be focussed, determine relationships etc? My knowledge now informed me that the question we wish to answer not only guides us to the most appropriate data, but also informs the most appropriate and effective way in which to display it. This skill has enhanced my ability to not only analyse, but also effectively present data.

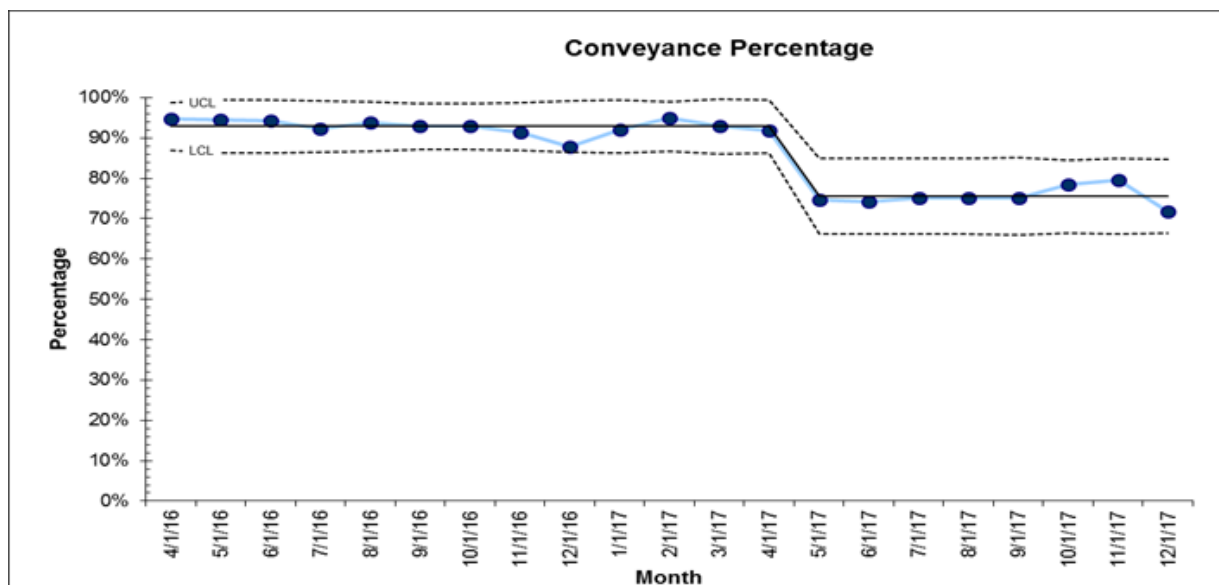
Initial data illustrated that throughout the trial, calls to the WAST HCPs had remained within the expected demand levels, but as can be seen in Table 2 below, the numbers were more consistent with less variance: -

Table 2:



However, what was significant about the data we were analysing, was that the number of patients requiring admission to hospital had reduced. This is illustrated in Table 3 below, which shows an approximate reduction of 20% in the conveyance rate of HCP calls within the Cardiff & Vale Locality. What must be considered is that this reduction was achieved with only one Community Paramedic operating in one GP cluster. At the time of the trial, there were 60 Primary Care Clusters operating pan-Wales, each with varying numbers of practices and patient numbers. Therefore, the implications for spread and scale of the trial were significant. Evidence 17 is a map of the PCCs in Wales.

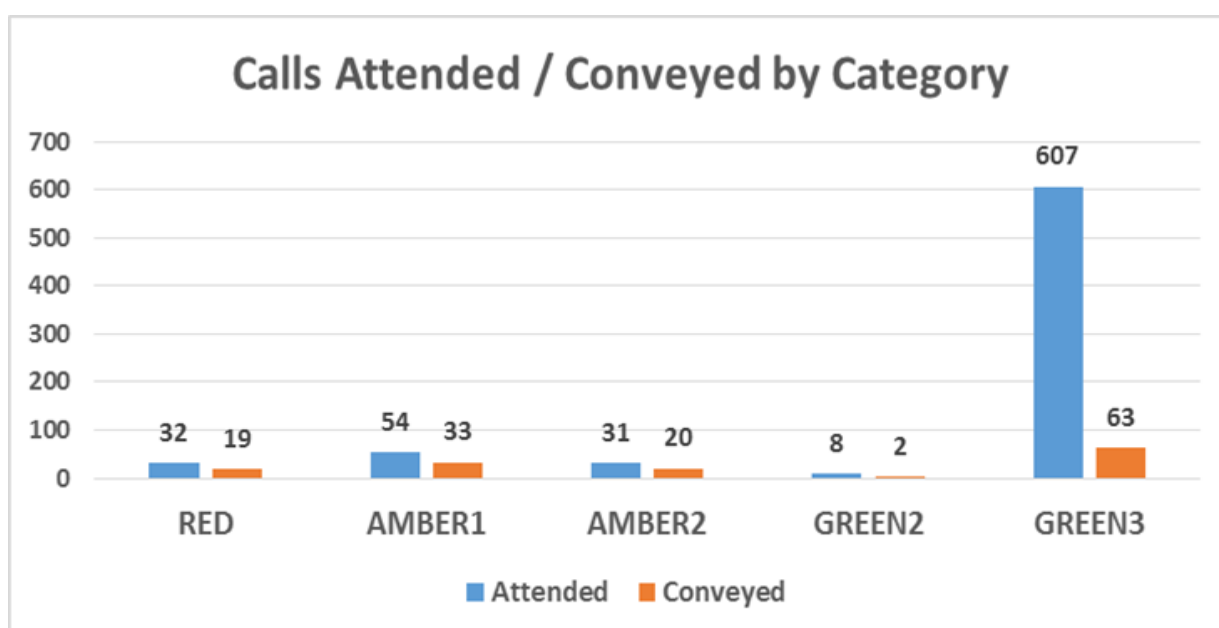
Table 3:



Regular data was collected and reviewed by the project team. Regular meetings were held with GPs and the paramedics working at the cluster to ensure any issues or concerns were dealt with in a timely manner.

Such was the success of the trial, it was extended for a further six months (twelve months in total), and the following data illustrated in Table 4 provides a summary of the key outcomes: -

Table 4:



This graph categorises the calls attended by the Community Paramedic Scheme during the trial period. All RED, AMBER1, AMBER2 and GREEN2 calls originated from WAST's 999 system and were allocated via the CCC. The GREEN3 codes were incidents that were tasked by the GP cluster. Table 5 below illustrates the percentage of conveyance for each of the call categories.

Table 5:

Cardiff & Vale Community Paramedic Scheme (<i>Western Vale Practice</i>)			
<i>Call Category</i>	<i>N^o Attended</i>	<i>N^o Conveyed</i>	<i>Percentage Conveyed</i>
RED	32	19	59.3%
AMBER1	54	33	61.1%
AMBER 2	31	20	64.5%
GREEN 2	8	2	25%
GREEN 3	607	63	10.3%
TOTALS	732	137	

The key focus for this trial was to address the number of GREEN3 calls, the majority of which originate from Primary Care settings. As can be seen from Table 5 above, just under 90% of the patients attended by the Community Paramedic in this patient cohort were managed at home, with no unnecessary admission to hospital.

Evaluation of the Trial:

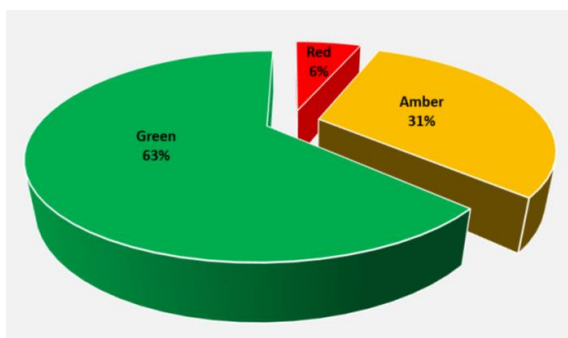
The trial was undertaken to address one of the key principles identified in the Trust's Integrated Medium-Term Plan (IMTP), which was to deliver care that was aligned to the principles of Prudent Healthcare. The aims were: -

- To deliver the best possible patient outcomes and experience.
- To have an engaged and skilled workforce.

- To be a highly effective organisation.
- To reduce unnecessary variation.
- To have strong partnerships
- To effectively manage capacity and demand.

A key enabler to this was the development of close working relationships with PCCs within Wales to work collaboratively and integrate services. The purpose of this work was to increase the number of clinically appropriate patients managed in the community by partnership working with Primary Care providers to:

- Reduce the number of patients admitted to ED.
- Increased use of Community Services, Clinical Pathways, and alternative Points of Care.
- Reduce HCP Card 35 requests for Hospital admission.
- Build strong clinical working relationships with Primary Care.
- Reduction in the use of Emergency Ambulances conveying GP admissions.
- Increased utilisation of clinically appropriate transport methods based on patient acuity and clinical need.
- Increased availability of EAs to respond to 999 calls within the community.



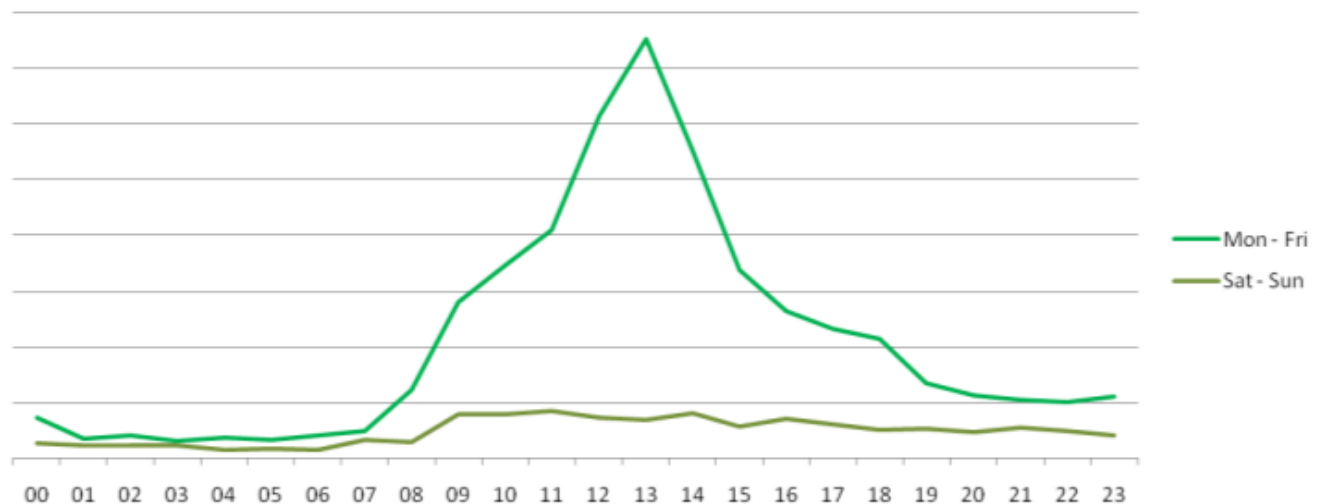
The rationale for undertaking the trial was the fact that GP admissions were the highest presenting call demand to WAST.

As can be seen, over 60% of these calls fall into the GREEN category which by

definition are neither life threatening nor emergency in nature. This clearly illustrates that the majority of calls from HCPs are requests for transport for lower acuity patients. These patients, therefore, do not require an Emergency Ambulance to

convey them to hospital. What was also evident was the demand pattern. As Table 6 illustrates, the peak in demand is predictable and occurs Monday – Friday between 08:00 and 18:00, peaking at 13:00 each weekday.

Table 6:



Therefore, the development of a cohesive Multi-Disciplinary Team (MDT working in collaboration with GP was able to: -

- Avoid Admission to ED following a thorough assessment of the patient and a clinical discussion with a GP.
- Ensure most appropriate resource could be utilised based on clinical need where admission is required.
- Reduce unnecessary admissions to ED as alternative points of care may be utilised.
- Deliver Prudent Healthcare.

WAST and the Western Vale Primary Care Cluster Group tested a community-based model, of joint working which commenced on the 31st of January 2017. This developed and tested a new pathway, which linked a local Paramedic in a Rapid Response Vehicle (RRV) directly to the three Primary Care Practices within the Western Vale Cluster, which covers Cowbridge, Llantwit Major and surrounding

area. The Community Paramedic attended patients on behalf of the GP that may otherwise have entered the 999 system. Following a full clinical assessment, the Community Paramedic is had a clinician-to-clinician discussion with the GP. The outcome / disposition of the patient is agreed by the GP who maintains duty of care for the patient.

Throughout the trial, the following exercises were continuously conducted:

- Clinical supervision.
- Monitoring of Patient Outcome.
- Ongoing monitoring of process and real time feedback.
- Amendment of process as required.
- Close management of process in conjunction with risk log.
- Gathering data.
- Monitoring of any Datix reports. (Datix is the system that WAST utilises to report adverse events and adverse clinical incidents).

In addition to this, I was quickly becoming well versed in medical law and litigation as I had to ensure that all WAST clinicians were adequately covered to undertake this work as it fell outside of their normal scope of practice. To ensure that the relevant assurances were in place, I attended regular meetings with Welsh Risk Pool Services and the Trust Solicitor. Whilst my knowledge was greatly increased, I am overwhelmed at the level of knowledge our legal colleagues have and the number of legal requirements there are for organisations. Thankfully, for this trial, there were no indemnity issues as the paramedics were employed by WAST and continued to provide their clinical scope of practice. The main difference was that they were assigned to patients by GPs but would communicate directly with the GP who would make the senior clinical decisions.

Performance Measures:

The five agreed key areas that formed the evaluation and success of the trial were: -

- Effectiveness.
- Patient Safety.
- Patient experience.
- Staff experience.
- Costs.

Effectiveness:

For the period of the trial, the paramedic attended 732 patients. Not all were assigned by the GP as they would also respond to emergency RED calls if they were available. As previously illustrated in Table 5, only 137 of the calls attended were conveyed to hospital. It should be noted that the majority of the patients conveyed fell within the RED and AMBER categories, which include emergency and life-threatening calls, and by definition would require transport to hospital. If we concentrate on the GREEN3 GP calls that the paramedics were assigned to, only 63 of the 607 patients were taken to hospital, a conveyance rate of approximately 10%.

Patient Safety:

There were no patient safety incidents or adverse clinical incidents reported as part of the trial.

Patient Experience:

Patient surveys were conducted where patients were asked to share their experience of episodes of care delivered by the paramedics. Evidence 18 is an extract from a presentation we gave to the Bevan Commission where we had collated some of the responses from the survey. Table 7 below is an illustration of the Qualitative feedback we received from patients: -

Table 7:

Question to patients	Responses from patients
Were you told about different options available to you in a way you could understand?	96.8% said yes
Were you happy with the care you received and decisions about your care?	96.8% said yes
Did this service meet your needs?	96.7% said yes
How do you rate the service - on a scale of 1(bad) -10 (excellent)?	87.3% ranked the service at 10
Have you been to A&E in the last 12 months?	53.2% said yes

Staff Experience:

In addition to the patient information, further feedback from the staff involved in the schemes includes statements such as:

- A partnership approach which recognises the need to work across organisational boundaries to deliver patient focused care, which is founded by the principles of prudent health care.
- This approach facilitates system wide professional development sharing skills and good practice, promoting Wales as a great place to work, aiding staff retention.
- Through best use of resources there is potential to increase capacity in areas where there are system wide pressures.
- Above all this is a new way of working together to ensure patients see the *‘right clinician at the right time, and in the most appropriate setting’*.

Costs:

As previously discussed, funding was made available to WAST from the ICF, a copy of which is provided as Evidence 12. This was mainly utilised to cover: -

- One off equipment (e.g., defibrillator) £20,000
- Vehicle costs £5,000
- IT (e.g., radio equipment) £2,000
- Staff costs £40,000

Early analysis of the outcomes suggested that the recurring costs per Community Paramedic response / home visits were around £150. The cost of a full year of cover was in the region of £90,000, but it should be noted that subsequent years would not always include the equipment procurement costs. Table 8 below illustrates the direct revenue costs per annum of the trial should it continue: -

Table 8: -

Cost	Note	£000, s PA	£ per contact (732)
1 WTE Band 6 paramedic	Midpoint	£38.800	
Cover for AL/Sickness/Training	30%	£11.600	
Total direct pay costs		£50.400	£69
Fuel and vehicle costs	75 miles per day	£4.700	£6
Other (consumables etc.)	£5 per contact	£5.000	£5
Total		£ 60,100	£ 82

However, these costs compare favourably with the costs per response that would have been incurred should an emergency ambulance have been deployed to the 544 patients the community paramedic were able to treat in the community.

Comparative costs show the full costs of: -

- Attendance at Emergency Departments = £182
- Average episode of care costs of a medical patient = £1,853 per day with an average stay of approximately five days once they enter the hospital system.

A total of 544 GP calls that would have attended hospital were kept at home, with an indicative financial value of £100,000. It should be noted however that this would also have had a positive impact on hospital handover delays, and also patient admissions. The number of saved bed days was estimated to be around 700. The data reveals that patient outcomes have been improved, in terms of receiving care closer to their home. It also reduces patient conveyance to hospital rates by 90% in the trial cluster and 20% for the health board area. Early financial modelling has indicated that the annual cost for maintaining this service is approximately £90,000 per year, however, these costs need to be discussed and agreed as a whole system approach. Primary Care, WAST, local hospitals and the whole health care system benefits from this type of service, therefore, the cost should be shared.

Conclusion:

This community paramedic model has been an excellent illustration of collaborative working between Primary Care and WAST. The trial attracted interest from multiple agencies.

The Bevan Commission awarded the trial Exemplar Status, and the author was made a Bevan Exemplar. Evidence 19 is a copy of the poster that was produced by

the Bevan Commission, highlighting the project, which I presented at a special event held at the Senedd. Evidence 20 is a flyer produced as part of an information pack for this event.

As a result of my nine-month learning journey with the IHI, I was awarded Improvement Advisor status. Evidence 21 is a copy of my profile that exists within the IHI website hall of fame for IA graduates. A graduation day was arranged where I was presented with my Improvement Advisors certificate. This qualification allows me to advise on improvement projects across the whole of the Welsh NHS, not just the ambulance service. Evidence 22 is a copy of the certificate I received. And finally, I was awarded a WAST Staff Award, presented by the Chief Executive, in recognition of my completion of the IHI IA course, and the successful project I had delivered during the course. Evidence 23 is a copy of the certificate I was awarded. Evidence 24 is the graduation report issued from the IHI.

My learning journey has been extensive, exciting, and very rewarding. My hope is that summary showcases the extent of my learning, the level of my knowledge and skill acquisition, and the professional progress it has afforded me.

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Evidence:

1. IHI Course Curriculum
2. IHI Application Process
3. Action Period WebEx Sessions
4. MUSIQ Paper
5. MUSIQ Score for the project
6. Process Map
7. Driver Diagram
8. Project Charter
9. Data Analysis Card 35
10. Paramedic Process Aide Memoire
11. GP Process Aide Memoire
12. Intermediate Care Fund Application
13. Operational Protocol
14. Bevan Commission Poster
15. Audit Criteria Paper
16. Audit Process
17. GP Cluster Map (Wales)
18. Patient Feedback
19. Project Poster
20. Senedd Event Poster
21. IHI Profile
22. IHI Improvement Advisor Certificate
23. WAST Staff Award
24. Graduation Report