The Use of a Multidisciplinary Team in the Management of Tracheostomy Patients, With Specific Attention to the Role of a Physiotherapist.

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2015 Report
Background:

This report will not detail the complete history of tracheostomy origin and care to date. It will outline the current problems I have identified in tracheostomy care and how these are being approached and resolved globally with the use of multi-disciplinary teams (MDT’s). The basis for this report comes from my Winston Churchill Memorial Trust (WCMT) Fellowship in 2015 where I visited hospitals with established / establishing tracheostomy ‘team’ programmes, with the view to understand how these teams were: formed, managed and work day to day. I also looked at whether physiotherapists have a role within the team and tracheostomy care.

I hope to add my observations and work, to the current research in this area and further develop the understanding and knowledge behind MDT tracheostomy care.

This report also aims to elaborate on the role of a physiotherapist within tracheostomy care and as part of a tracheostomy MDT.

Acknowledgements:

My greatest thanks goes to the Winston Churchill Memorial Trust for believing my ideas and providing me the support I needed to succeed. They provide the best opportunity for those with passion to improve the UK, through their traveling Fellowships and continue that support long after. Thank you for trusting me and giving me the resources to make my project a reality.

Large thanks goes to all the Hospitals and institutions that took the time to accommodate me on my travels (below in order of visit) and congratulations for all the fantastic work you do. You made me feel at home and your hospitality was boundless.

- Boston Children’s Hospital
- The John Hopkins Hospital (Baltimore)
- Joe DiMaggio Children’s hospital (Florida)
- The TRAMS Project at Austin Health (Melbourne)
- Melbourne Children’s Hospital
- Royal Melbourne Hospital
- The Alfred (Melbourne)
- Agency of Clinical Innovation (ACI) (Sydney)
- St Vincent’s Hospital (Sydney)
- The Royal Prince of Wales (Sydney)
- The Westmead (Sydney)

The support from my own hospital and colleagues has also been fantastic and an underpinning reason to why I was successful in gaining the Fellowship.

Finally, my family and partner Emma have supported me from the very start of this project and in everything I do. They have helped me and listened to me talk, almost non-stop, about tracheostomies for the last few years and kept me going though 9 weeks of traveling. Thank you.
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Personal and Professional Background:

I work as a physiotherapist on the adult general inpatient rotation at Nottingham University Hospital (NUH) in the United Kingdom.

I first became interested in tracheostomy care as a junior physiotherapist at NUH. Working at a large acute teaching hospital, the exposure to this patient group is large in comparison to other hospitals. At this stage I enjoyed learning about tracheostomy care and how it complimented my existing respiratory skill set and knowledge. I enjoyed helping these patients who are often very vulnerable and initially extremely unwell by providing them support each day. Watching their progression in gaining control over their airway and voice is highly rewarding. Seeing the resilience and gratitude of these patients and families is a highly satisfying part of my job, especially when I feel I have been instrumental in providing support to make it happen.

I started my first senior physiotherapy role in the summer of 2013. This was when I initially became interested in improving tracheostomy care and began to take a greater interest in the research and practices behind tracheostomies.

The reason for my enhanced interest was directly due to this new role. My job on the acute adult inpatient rotation allowed me to see the full scope of management of these patients through working in many different areas: Critical Care, Major Trauma, Neurosciences, Health Care of the Elderly, Spines and Acute admissions. Very few other health care professionals have the opportunity to cover this many areas within adult care.

Along with my personal observations and research into this area I wondered why NUH, along with so many others, did not have robust management pathways and plans for this patient group. I was shocked to see the disparity of knowledge and as a result, care, given under the same roof.

I saw varying levels of education on how to manage these patients, at the most basic level, plus a lack of understanding of safety procedures alongside poor ownership in care for the tracheostomy. All of this observed by someone who at the time was by no means an expert in this field. In a hospital which regularly provides a very good standard of care and is recognised for its achievements in many areas.

My interest continued to increase as safety algorithms were developed by the NTSP and more papers were published discussing the work being done by MDT’s in other hospitals to combat the problems that many were seeing and reporting.

By 2014 when I applied for my Fellowship there were large changes occurring in the UK and the world with regard to tracheostomy. The NCEPOD report was published and the Global Tracheostomy Collaborative was formed, having their European launch in London, which I was able to attend, adding further inspiration and empowerment.

Sometimes things are all about timing. For me this forward momentum in the field of tracheostomy care and its effect on my personal interests and passions to improve care, I believe, attributed greatly to my success in receiving a Winston Churchill Fellowship.
The publication of the NCEPOD report and its suggested guidelines showed hospitals the need to improve in a way that they could no longer ignore, acting as a catalyst to change. This necessity to change prompted an implementation group at my hospital, charged with the responsibility to improve our care of tracheostomies and tracheostomy patients. Fortunately I was allowed to attend these meetings, which, considering my position within our trust and my professional profile at the time, was very generous. They supported my project and this support, when it came to the interview process, was key.

**Formulation of my project:**

The foundation of my project was born out of the above, but the actual project title and area of study was established for a few reasons:

1) My personal experiences had shown me that collaborative MDT care of these complex patients provided the best examples of care. In areas where this care was undertaken, staff understood the care plan and who to contact regarding tracheostomy care. Due to this the patient’s experience was also much improved. In areas where this did not take place, care was fragmented, delayed and of a poor quality. Therefore through my work I had personal experience of how an MDT could improve many aspects of tracheostomy care.

2) The research provided me with a basis of reasoning and further questions as to why this area of patient care was still so poorly managed. As, if it has been shown to improve care, why are so few hospitals adopting this approach?

3) The physiotherapy role within the MDT has not been clarified. I wanted to observe other exemplar hospitals to see if physiotherapy has a role in tracheostomy care and how vital a role that this would be.

**Tracheostomy care:**

A tracheostomy is a procedure where an airway is created in a patient's Trachea (Wind-Pipe). This procedure could be done for a number of reasons:

1. To bypass an obstruction in the upper airway;
2. To clean and remove secretions from the airway;
3. To enable artificial ventilation and to facilitate weaning from artificial ventilation;

**Prevalence:**

It has been suggested that 12,000 tracheostomies are performed in our hospitals every year\(^1\), however other research states this number could be as high as 15,000 just in England’s critical care units alone, and a further 5000 in theatres\(^2\).

In addition to these figures are the unknown total of the population who live with a ‘long term’ tracheostomy or laryngecetomy.
Historically tracheostomy care has been a poorly studied and managed area of health care. Only recently in the UK has this begun to change. I still struggle to grasp how an airway (pivotal to sustaining life) has been so minimally researched in regards to its management. Especially when you consider how advanced our research and management is of many other areas in health care and medicine.

**UK and global incidences:**

Documentation and coding at individual hospitals varies drastically. Making it unknown how many tracheostomies are inserted in the UK yearly although informed estimates have been made (see prevalence). Due to this the total number of tracheostomy related incidences are also not known. Not all hospitals have a recording code specifically for tracheostomies, and those that do still have the same reporting problems as when reporting any incidences e.g. those that are not recorded and those that are recorded badly. Due to this most individual hospitals are unable to establish their current level of care, which has the potential to mask hospitals problems and could be a cause for the poor uptake of implementing the described documented benefits (see, MDT research background).

Many hospitals do not have the data to examine their practice in this area therefore the UK data of incidences is also poor. This means we do not fully know the extent of the problems we face in this area in the UK.

Nationally McGrath and Thomas studied those incidences reported to the UK National Patient Safety Agency (NPSA), finding that over a two year period 968 incidences involving tracheostomies were reported, 453 of which directly affected patients. They then categorised these into level of harm. Of the 453 incidents 338(75%) were associated with identifiable patient harm, 83 (18%) with more than temporary harm. In 29 (6%) of cases intervention was required to maintain life and in 15 cases the incident may have contributed to the patient’s death.

Although there was only 453 incidences reported over a 2 year period, they also acknowledge not all incidences will have been reported due to a number of potential reasons. Therefore again we are unable to estimate the total number of incidences.

Some individual studies do share their incidence rates, and are often more accurate as they have audited their service prior to implementation of change or to view a particular identified problem, however these are specific individual sites and do not give an overall national picture.

‘An airway, (A) on our initial medical assessment of any patient, in this case is still poorly understood by many, something that must change’.

NCEPOD 2014, hopes for this too and acknowledges that the ‘ABC’ approach should be universal whether the airway is the patients or a tracheostomy. This comes after the alarming finding that a quarter of the hospitals involved in their study received no training on the management of blocked or displaced tubes.

But the UK is not alone, many other countries have also audited and acknowledged that there is a large gap in the understanding and management of these patients.
Over the past few years the UK has provided several documents and research outlining the need to improve the management of tracheostomy patients within our hospitals.

Most notably this has been highlighted by the National Tracheostomy Safety Project (NTSP) starting in 2010 and NAP4 2011 ‘Major complications of airway management in the United Kingdom’.

Both of these studies mention inadequate care in the management and education of tracheostomy patients. Stating that incidences as great as death were caused by poor understanding and management of these patients3,4.

**NTSP:**

The NTSP, founded by four intensivists from Manchester, identified the national gap in understanding tracheostomies and high clinical incidences, and have worked to improve safety since 2010. They have most notably developed safety algorithms and a comprehensive manual aimed to ‘promote and facilitate the safe management’ of these patients. (All of their resources are available online [http://www.tracheostomy.org.uk/](http://www.tracheostomy.org.uk/)). Their work has been praised and nominated for national safety awards, however even after showing their success and the necessity to change time and time again, the NHS has been slow to respond. These are only recommendations to support and enable best practice and were not mandatory or implemented at a governance level, therefore many hospitals have changed their practice minimally since 2011.

**NAP 4:**

The report into ‘major complications of airway management in the UK’4, highlighted and discussed the poor practice in the procedure to insert the tracheostomy, poor strategies to combat clinical incidences and poor education which when incidences occur can exacerbate the problem. These are many of the same findings as NTSP previous and NCEPOD more recently, as well as several research studies within the UK5,6.

**Recommendations:**

Their recommendations came out in 2011 and those for tracheostomies stated:

- The need for improved training for emergency (ENT + intensivist),
- The use of capnography, during all percutaneous tracheostomy procedures and whilst ventilated,
- Algorithms for all staff regarding the management of a compromised airway,
- Clear lines of communication for escalation of airway events between teams, allowing senior staff to be available and involved when incidences occur,
- Staff training. All staff require training in maintaining the airway and the safe movement of the patient,
- Difficult airway trolleys must be available on all ICUs and the contents familiar to staff.

Once again it appears very few hospitals and trusts worked towards implementing these tracheostomy recommendations from NAP4.
NCEPOD ‘On The Right Trach?’

In 2014 NCEPOD, in addition to very similar findings, acknowledged the current pressures on NHS funds and feels that one of the first casualties of increasing workload and reduced funds will be training. As recommended by most, training is key for the care of tracheostomy patients. With greater staff turnover and the increased pressure discussed, NCEPOD state that to continue safe practice hospitals must recognise training as a continuous process.

All three of these large documents spanning the last 5 years, added to the below studies, identify similar problems and provide similar recommendations to combat them. These particular studies and initiatives were all preformed at a national level and therefore reach a large audience base. So why in the last 5 years, with all this knowledge, has so little improved? Why are very few health care services making positive changes?

Finally in 2014, the launch of the Global Tracheostomy Collaborative (GTC) further identified the need to improve care across the world.

I do not believe it is all doom and gloom however as I have seen changes in the standardisation of safety equipment at patient bedsides. I am pleased to say this approach, if not the infrastructure around it, has been adopted by all the hospitals I have visited both in the UK and abroad.

So how have MDT’s shown their ability to combat the above problems?

Multidisciplinary care Vs a Multidisciplinary Team:

A multidisciplinary ‘care’ approach differs greatly from a multidisciplinary ‘team’ approach in tracheostomy care.

TEAM definitions include the mention of cohesiveness: ‘one side’, ‘come together’, ‘match’, and ‘coordinate’ all to achieve the same goal.

Many hospitals provide a multidisciplinary CARE approach, where the patient is seen by many different professions at separate times with separate goals. But there are very few which provide a multidisciplinary TEAM approach.

MDT Research background:

Within the poor depth of research into tracheostomies, one area which does have a base for support is the use of an MDT.

It has been shown that an MDT approach to tracheostomy care can provide significant benefits on many fronts:

- Reduce time to decanulation, reduce stay on critical care units, lowering tracheostomy related clinical incidences and all with significant financial savings.

Or though coordinated care changes.
Literature review of documented MDT Benefits:

Tanis C et al 2009, showed a decrease in length of stay of 19.5 days, reduced decannulation time by 6 days, increased the use of speaking valves by 47% and the time to trial of a speaking valve fell by 16 days. After the implementation of TRAMS (http://tracheostomyteam.org/). In addition the cost savings were eight times greater than the cost of the service provision.

Mestral et al 2010, showed a 19.5% reduction in tube blockage, 20.8% reduction in calls for respiratory distress, 48% increase in the use of speaking valves and a reduced time to decannulation of 22 days.

Berney et al 2014, found that decannulation following admission to the NRA unit was reduced by 6.38 days and weaning failure reduced by 18.2%.

Cetto et al 2011, found that their MDT significantly improved decanulation time by 9 days, and reduced critical incidents from 58-7 in the second year after intervention.

Tobin and Santamaria 2008, Found that after implementation their length of stay after ICU decreased over time (30 to 19 days), and a higher proportion of decanulated patients were discharged under the upper DRG trim point of 43 days. Time to decanulation after ICU discharge decreased also (14 to 7 days).

My reason for listing these results is to show the impact that has been established by introducing care strategies to combat this problem. They all show how a change in the management of these patients through collaboration of care improves objective outcomes.

I hope that there are more programmes like this, which are having good results and providing excellent tracheostomy care, but unfortunately do not have the time and resources to publish their work.

Many of these articles do not discuss the specific MDT format, clinicians roles or patient pathway. This maybe another factor why other hospitals have not been able to replicate similar programmes or success.

Less well documented is the impact this coordinated care and improved education has on the patients quality of life, family understanding and improved methods of communication and education within our hospitals.

My project discussion does look at all these documented effects and benefits but I aim to focus also on the additional benefits that I witnessed that, as stated, are rarely documented.
History of physiotherapy in respiratory care:

Early example of physiotherapy in the field of respiratory care.¹²

From my experience the physiotherapy role in respiratory care is still poorly understood by many. Not only from the public’s stereotypical view of what a physiotherapist does but also by many health care professionals.

Media coverage and perceptual role:

There are many reasons for this but one of the biggest is media exposure of physiotherapy. We are known throughout the media as the profession that helps with muscular skeletal rehab. Helping people to walk again, rehab of sports injuries, and to a lesser extent physiotherapy work in neurological rehab such as stroke. We do have our largest percentage of roles within these areas but as there is little coverage publicly about respiratory physiotherapy it is much less understood.

Even many physiotherapy students only realise, when they begin applying for university places, the education undergraduate physiotherapists receive in neurological and cardiovascular-respiratory (CVR) systems.

There is a lack of education to other health care staff about the skills physiotherapist can have in this area, and often patients and staff only gain an understanding of this if they are directly involved with a physiotherapist providing this care.

It is also not surprising that there is a lack of exposure to the literature which identifies physiotherapy in this area.

In researching to provide evidence for the base of physiotherapy and our role within respiratory care I first looked to the undergraduate curriculum. However finding an ingrained curriculum to show the underlying knowledge required to graduate as a physiotherapist is difficult.

Examples of CVR frameworks are and should be available from all universities but I could not find any specific required specifications by the CSP or HCPC for what is the minimum to include in a degree course regarding CVR knowledge.
The HCPC (2009) Standards of education and training\textsuperscript{13}, and the CSP (2013) Physiotherapy framework\textsuperscript{14} are generic and no specific underpinning knowledge is dictated.

When discussing this with several lecturers at my old university as well as others, the following consensus was reached. Universities create a programme that fulfils the criteria of producing competent practitioners for patients with complex needs, at graduate level. This is then interpreted and scrutinised by the CSP and HCPC as well as the universities quality boards before it is approved.

Therefore working off the premise that university must produce ‘competent physiotherapists’ with the ability (skills and knowledge) to treat patients across all areas, within the role which has become the physiotherapists of modern day, I aim to show how our role has developed to include respiratory assessment and treatment.

**The history of physiotherapy in respiratory care:**

The history of physiotherapy in cardio-pulmonary care is difficult, but not impossible, to track and therefore people are often unaware of its origins.

The stereotypical view discussed above is not without substance, as physiotherapy has evolved out of beginnings in massage therapy in the late 19\textsuperscript{th} century. The job profile has progressed significantly since then.

In comparison to other aspects of physiotherapy our work in respiratory care is fairly new, however you can see that there are elements of the formation of our role from very early in our profession. Our role here is also comparatively young because this area of medicine is also young, for example the introduction of ventilators and advance cardio-pulmonary surgery.

**So when did respiratory work become an element of the modern physiotherapists tool kit?**

A paper by Diana Innocenti (1995)\textsuperscript{15} describes, in depth, the ‘development of breathing exercises into the specialty of physiotherapy for heart and lung conditions’. She shows how it can be traced back to before physiotherapy was introduced as we know it today, to our origins as ‘Trained Masseuses’. Where lung anatomy and breathing exercises were published in text books, and practical hands on techniques such as supported breathing and percussion were also documented, all as early as 1898\textsuperscript{16}. Diana then describes a slow move to greater understanding of physiology and increased use of manual techniques to assist typical lung conditions such as asthma and TB. There is early discussion of how these techniques can improve chest clearance as well as promoting improved gaseous exchange.

Between 1920-1945 the profession of physiotherapy was born and adopted out of it original beginnings as Chartered Society of Massage and Medical Gymnastics.

Post 1945 many more papers where published regarding physiotherapy treatment for medical and surgical chest conditions\textsuperscript{17,18}.
Mechanical ventilation, again with advances in technology, understanding treatments and practice developed. Physiotherapists with their background and interest in respiratory, further developed their skills to incorporate technology to assist and compliment their practice.

Other early literature includes Brompton Hospital guide to chest physiotherapy, initially published in 1973 and in 1995 Paediatric respiratory care.

More recently cardio-respiratory papers, books and literature for physiotherapist continue to grow and encourage the new level of knowledge expected of our profession. Incorporating the use of new technology and evidence to support and enhance our practice.

In 2014, Pathmanathan et al., also highlighted the lack of supporting evidence for the role of physiotherapy in critical care, but showed how we are an integral part of the multidisciplinary team, which is consistent with previous research. They describe how physiotherapy treatments directly assist with critical care goals, concluding that the 'ultimate goal of intensive care is quality long term, rather than short term survival' and that 'physiotherapists play a valuable part in achieving this'.

The above shows how physiotherapy has developed as a core profession within the care of respiratory patients.

Physiotherapy is a profession which has grown with medical advances and used it’s origins and clinical skill set, to further enhance its understanding. "It is because of this that physiotherapy has a large role in respiratory care, and historically shows a larger background in this field within critical care than functional rehab for which we are now renowned".

**Further clinical and professional skills:**

A graduate level physiotherapist is now expected to have sound knowledge of muscular-skeletal, neurological, cardio-vascular and respiratory anatomy and function. With this they are expected to be able to treat basic conditions in all these areas, and more complex patients with the support of senior staff through clinical reasoning. More advanced skills are added to this base after qualification.

The difference to many other professions working in the hospital is the time physiotherapist spend working with patients. Because of this, physiotherapists that achieve well and graduate highly have fantastic communication skills. These are normally a base for students going onto the degree course but are improved and embedded over the years of training.

Physiotherapists need great communication. All members of health care staff should have great communication skills however this is of key importance in physiotherapy for a number of reasons. Firstly our job requires us to work very closely with patients, family and all members of the MDT. It is key that we are able to adapt our communication to each specific requirement. Patients will often discuss personal information with us as well as us asking it from them, we must build this professional relationship so we are able to understand what the patient’s aims are and help them set goals to achieve them.
Our job often requires us to have physical contact with our patients to deliver their treatment and facilitate their movements. Breaking down these physical barriers requires gaining trust with patients in a relatively short period of time. Gaining this trust is key to our role and also to the patient’s progression.

Although a physical job in many ways, a large percentage is communication, simply the ability to listen to a problem, gain trust and explain a treatment.

This shows that it is not only our clinical knowledge that forms our history in acute care but our skills in communication.

Due to our range of skills and often (in my role especially) working with a single patient for many different reasons, we develop a great understanding for how that patient is functioning on many levels. This is specifically important with complex patients as not only will the physiotherapist be aware of the cardio-respiratory capacity of the patient but their physical ability also. This has direct links to the rehab and management of many tracheostomy patients.
The Fellowship

Planning my project:

Luckily, for this project at least, the tracheostomy world is relatively small. When researching and planning my Fellowship I contacted several individuals and institutions regarding their work and my potential to visit should I be successful. The response was amazing and once I was awarded the Fellowship and began planning my trip, that support grew. As it is a relatively small network, in health care terms, professionals gave me further contacts and my trip itinerary grew. One of the major drivers here was the networking that professionals had done via the Global Tracheostomy Collaborative symposiums as well as inter-professional groups such as the Speech and Language Pathologists in NSW. Already showing how collaboration, not only in house but out, has positive outcomes.

Fellowship Itinerary:

I was awarded funding for an eight week Fellowship to the United States of America (U.S.A) and Australia.

My itinerary was formulated over an six month period. My trip was designed around visiting institutes and teams notorious for their excellent care for this patient group.

This provided me with a fantastic range of hospitals and institutions to visit, the only problem I then faced was how to get to visit them all within my time frame. A time frame not only set by the funding given (which was very generous) but by the time I could have away from work and when the visiting hospitals could accommodate me.

In the U.S.A I visited:

- Boston Children’s Hospital
- The John Hopkins Hospital (Baltimore)
- Joe DiMaggio Children’s hospital (Florida)

In Australia I visited:

- The TRAMS Project at Austin Health (Melbourne)
- Melbourne Children’s Hospital
- Royal Melbourne Hospital
- The Alfred (Melbourne)
- Agency of Clinical Innovation (ACI) (Sydney)
- St Vincent’s Hospital (Sydney)
- The Royal Prince of Wales (Sydney)
- The Westmead (Sydney)
Project Aims:

To understand the role and benefit of a multidisciplinary team (MDT) in the care of tracheostomy patients, with a specific interest in the use of physiotherapists.

Though this aim, I will be able to achieve an understanding of:

The structure required for an effective MDT, how each discipline functions within the MDT, their specific roles and the impact both on the patient and the hospital.

I wanted to improve upon my pre-existing knowledge of how these patients are weaned back to managing their own airway as well as seeing how the teams continue to manage 'neck breathers' within the community.

I wished to achieve the above aims so I can, not only improve my personal care towards this patient group but begin to work alongside my colleagues in helping improve the way we manage tracheostomy care. Ideally replicating some of the success of other hospitals.

Fellowship feedback and findings:

Armed with this base of knowledge in research and literature regarding several factors around the care of tracheostomy patients, most notably the positive effects of MDT’s, why did I need to travel and study this area further to achieve my aims?

There were several reasons:

Firstly, my project is based on a full understanding of how the MDT manages this patient group. Most of the studies into this area give brief layouts of how their MDT worked e.g. who was involved, how many sessions of treatment the patients received etc. Some gave more information about how many times the MDT carried out ward rounds, who lead the round and the roles of their staff. However what I wanted to know, and what I feel is key, is understanding the structure behind the MDT on a day to day basis, how the team interacts not only with each other but which professions interact together (if any) in assessing and treating the patient.

I also wanted to gain historical knowledge of how these teams were formed, this is important as change in a hospital is often a very delicate and intricate process, especially when it is something as integral and wide spread as tracheostomy care. I wanted to know the reasons behind why they were formed and their plans for the future.

Most crucially I also wanted to see the different roles each profession took within the MDT and the role the MDT had within the hospital. Interestingly I also had the chance to visit both adult and paediatric hospitals to see if there is any differences between the two.

This all allowed me to expand my own knowledge of tracheostomy care, by seeing how, not only hospitals in the same country (within a similar NHS system), but those aboard manage different aspects of patients care. This created a fantastic learning opportunity, not only by giving me time to study, but exposure to new clinical areas and practices that challenged my
current clinical practice. I would have undoubtedly not have gained as much knowledge from visiting many different hospitals in the UK as I did traveling to other countries.

Attending hospitals and institutions that have produced findings and studies showing improved and/or exemplary care allowed me to see the underlying features for success.

My Fellowship observations below are complimented by my travel blog, [https://mytrachetravels.wordpress.com/](https://mytrachetravels.wordpress.com/). Which I hope to expand as my tracheostomy travels continue.

In the following section the orange example boxes are supporting evidence directly from my Fellowship to accompany my observations and discussion.

**Additional MDT Benefits:**

In addition to the established documented benefits of tracheostomy MDT’s, I observed many additional benefits that have rarely been documented or discussed. This is often because they are difficult to quantify and they may be considered less important in comparison to the other documented benefits e.g. reduction in patient incidences.

1. **Continuity of care**

When a formalised MDT approach is given to care, such as the examples I have seen, plus those described in studies, it improves the continuity of care\(^{27}\). This consistency allows many benefits, first and foremost this means there is a continual approach to the patient’s tracheostomy care. For the patient this provides reassurance and allows them to build trust in their clinician as well as feeling this area of their care is being acknowledged. I have unfortunately seen many examples of care plans and ward rounds which discuss nothing of a patient’s tracheostomy. Patients have said that health care staff simply acknowledging that they are aware of the tracheostomy and what is being done about it, improves their care experience. Having a set of professionals charged with the responsibility of managing a patient’s tracheostomy complimenting the day to day care required, allows for not only continuity of care but continuity of care plans. By having a highly skilled MDT reviewing these often complex patients, allows for formulation of an agreed care plan, be that progression in weaning the patient back to their own airway, or towards discharge with the tracheostomy.

Therefore this continuity of care is not only beneficial to the patient and their family but also to the ward staff who will be executing the treatment and care plan.

The ACI in Australia (NSW) have recorded this very thought provoking example of a patient’s experience which is available at this link for the public. [https://vimeo.com/125744432](https://vimeo.com/125744432)

This video highlights the above point that with continuity of care, the care of a patient’s tracheostomy is explained and this improves the patients care experience.
2. Creating an environment for increased knowledge

A. Building blocks

Outside of the MDT rounds, having a team which is charged with the management of tracheostomy care promotes an increased knowledge base, improves expertise and allows a greater overall understanding of this specialty. I witnessed how this can benefit not only those in the same hospital but those around you as well. (See Example 1)

An MDT enables a hospital to form a base and then build on that structure, for example first formulating best practice guidelines by looking at the current literature. The best examples of this have been done with the collaboration of the MDT, the greater the MDT collaboration the more comprehensive the guidelines. Also this allows shared work load, greater compliance with the guidelines and improved cohesion within your team.

Another way the MDT helps is through improved education content and delivery. Having specific people from different clinical areas means that the education your Trust is delivering is diverse and delivered by experienced staff in that field. Education being delivered by different professions allows staff to understand which clinicians have a role within tracheostomy care and whom to potentially ask for help in the future. Critically with a specific programme, education becomes uniform.

If a working group like this can establish an education programme, this then, has a catalytic effect. As more staff become ‘competent’ and improve their knowledge, they will be able to share this with new staff outside of formal education and competency sessions. By creating a base of knowledge you can then build and it may not be as relentless as you first thought.

Example 1: Education

Different hospitals are working on their education in different ways. Again this is dependent on their resources: time, financial and equipment. It is also dependent on the level of knowledge wanting to be delivered and to what audience.

At Joe DiMaggio Children’s Hospital, Diane Randell, Respiratory Nurse Specialist, is taking the helm in education. Not only for Joe DiMaggio but for the surrounding hospitals as well. I was fortunate enough to assist with Diane’s education programme which had both theoretical and practical elements. This is an example of building a base of knowledge within a group of professionals. Diane commonly states that she “does not want people to be scared of the tracheostomy but wants people to respect it”. Many of the professionals she educates were scared of what they did not know. Safety procedures and practical skills allowed staff to become more familiar with tracheostomies as well as learning the basics of what to do in an emergency situation.

This method is used also by the community work at TRAMS, where staff go out to educate care homes for specific patients who require tracheostomy care. This education is even more specific as it is aimed for a specific staff group for a specific patient and their needs.

Boston Children’s and Joe DiMaggio also have extensive literature and education sessions for patient’s families and carers. I feel that the care of adult tracheostomy patients can learn a lot from those in paediatrics when it comes to family education and family supportive care.

I was fortunate enough to have a discussion with a parent who had been through this education programme with her child at Joe DiMaggio hospital and describes her experience. A full recount of this can be found here, https://mytrachetravels.wordpress.com/2015/08/23/education-jdch/

Royal Melbourne Hospital discussed how they once ran a simulated teaching programme with highly
technical electronic mannequins. The programme was very well received by staff, but due to expense of the training resources and the difficult in gaining large numbers of staff to make the training worthwhile the programme has been put on hold.

Example 2: MDT creating practice changes
Collaboration has enabled some fantastic new ideas in tracheostomy care and often some simple ones. Problem solving as an MDT has given some great examples of solutions to simple problems. One of these was seen at Boston children's hospital, who have developed a bedside chart which details the child's tracheostomy and its suction length, with an addition of a measured ruler at the bottom of the document to make it quicker and easier for staff to gain the correct suction depth. This document acts not only as a safety reminder but has simple practical applications also, showing that it’s not always the big ideas that are the best.

B. Education (staff and patient)
By having a rounding MDT, to whatever degree, has shown me that it too can be used as a training opportunity and help build knowledge. Not only to those directly in the MDT but to those incorporated on the ward.
Many teams that 'round' bring in their colleges from the ward who work with the patient throughout the day. They are going to be the staff that carry out the care and often know most about the patient's current state. They may however be less experienced in how to interpret their findings and how to ultimately progress the patient forwards. Therefore by joining the team for the review of their patient they too will pick up valuable skills in the management of tracheostomy patients.
This emphasises the importance of a TEAM, as this education would not occur in a CARE approach due to the different professions not directly communicating with each other, also ward staff would not be able to take the time out of their day to review the patient with several different professionals.

Example 3: Ward round education:
The established TRAMS team at Austin Health Melbourne is the best example I have seen of this, not only does their format have the structure to enable staff to rotate onto the team (see example 13), creating an opportunity for learning but their service is designed to support the ward staff with tracheostomy care and weening. Both from ventilation and an airway management perspective. Their full team rounds twice weekly to those patients that are able to progress or need input. At the time of rounding they discuss the case and are able to bring in the ward team (physio, SALT, Nurse) to aid this discussion giving the most up to date knowledge, as well as being the team who understands the patient the best e.g. current condition, reactions to treatments, goals, exercise tolerance. Then at the bedside they assess the patient as necessary and then with the patient and family if present, reason and formulate a plan moving forwards. This is particularly helpful with complex patients.
This bedside forum gives the opportunity for all the professionals to ask questions, once again showing its applications to education. Even with very competent staff on the ward they can still learn lots from the team in terms of ongoing care and new techniques or protocols that are enhancing patients care. E.g. stoma wound management, community support, weaning using speaking valves, face mask CPAP trials prior to decanulation.
3. Understanding roles:

In many cases individual team members do not know the expertise of each profession, therefore by collaborating they are able to learn more about each other’s profession. This is not only at the bedside and in formal education but in treatments. Through gaining greater understanding of roles, I witnessed improved collaboration in patient’s treatments. Most often this was established between allied health and nursing staff.

4. Tracking patients

Tracking tracheostomy patients has proven difficult for most of the areas and hospitals I have visited. Tracking in this sense is the knowledge of where every tracheostomy/laryngectomy patient is within your hospital, incorporating any new admissions; those arriving in the emergency department and those coming for outpatient visits. This ideally would also extend to acknowledging all patients with tracheostomies within the community.

This is a huge task and one which teams have tried to combat in many ways.

**Example 4: Patient Tracking**


One hospital spoke of improvements in their electronic alert systems, allowing them to log into a computer and see a full list of everyone with a tracheostomy currently in the hospital and their location.

Many hospitals I visited agreed they needed to improve their work in this area, and that by doing so it would improve their patient’s safety and make sure they received the care services available.

Having a designated team or member of staff, a hospitals ability to track their tracheostomy patients improves. Not only as the team should keep track of their own internal population but because of their existence, staff know who to contact when a tracheostomy patient enters the hospital.

With greater service exposure comes an improved uptake and therefore an improved knowledge of your tracheostomy population.

How different hospitals might track their patients is dependent on the hospital demographics which I will discuss later.

**Establishing an MDT:**

One of my main reasons for traveling to other hospitals and visiting their programmes was to see how they have established and how they operate on a day to day basis. One of my criticisms of the research in this area is the failure to identify the processes undertaken to establish their approach, and how they implement it. From clinical results and my direct observations it is clear to me that these MDT’s can give drastic improvements to tracheostomy care, but how is one established?
1. Understanding MDT’s importance in this patient group:

So why do we need an MDT approach for this patient group and what are the reasons for its apparent success on many levels?

Tracheostomy patients cover the breadth and depth of the hospital, from ED to discharge planning, from paediatric to geriatric and can be encountered across all medical and surgical specialties. On my travels somebody, unfortunately I’ve forgotten who, stated to me that tracheostomy care is like a hospitals barometer for how well they are doing. For good tracheostomy care you need to have great staff education, fantastic communication skills, clinical experts in all fields (surgical, medical, nursing, allied health), plus great implementation. So if your hospital is doing well in tracheostomy care, it is most likely doing well in most areas, as many of the skills and formats required are transferable. This patient group is commonly a complex one. Many of the tracheostomy patients we treat have complex medical histories or are currently in need of gross medical support. Even relatively simple cases in tracheostomy terms, require lots of education, planning and ongoing care. Therefore to meet the needs of all these complex issues it helps greatly to have a specialist team with a full skill set, providing the patient with all the care they require, being able to tackle any challenges you face for each individual patient. These patients routinely require the support of a large volume of core MDT members, it is best to have these members reviewing the patient collectively rather than when individually referred. This leads to a coordinated care plan which reassures both the patient and the clinicians involved. With those patients who often have above average lengths of stay in respect to the hospital average, it is important that their care plan is understood by a team rather than individuals.

Example 5: Linking of programmes and MDT members

MDTs have the ability to unite separate programmes also. Once a hospital has formed a foundation for the management of their tracheostomy patients, some have then shown expansion by either linking or developing services to improve their programme.

One example of this is from Boston Children’s hospital. Their tracheostomy programme has linked with their Critical Care, Anesthesia Perioperative Extension (CAPE) and Home Ventilation Program, to improve the services in the community and transition to these services. They have also formed links with their Complex Discharge Team who are able to assist with complex cases of care, improving access to services and if needed transition to ongoing care. This collaboration was best observed within Boston Children’s newly established tracheostomy review clinic.

From a clinical base in managing and reviewing patients, often teams identify an unmet need within their hospital or region. This is the main way in which new services are developed. By having an MDT already in place makes developing new services easier, as communication channels and interdisciplinary working already exists.

At Joe DiMaggio Children’s Hospital they found an unmet need within their community follow up. They had many cases of children’s tracheostomies not being reviewed which was only discovered when the child turned up for other appointments. Even though Joe DiMaggio do not have a fully developed MDT (at the time of writing) because of good communication between involved members they were able to start triaging these patients and help them to get consultant reviews. I believe within the first months they identified around 200 cases.
This shows how an MDT in tracheostomy care can develop services and provide a greater standard of care.

2. The MDT Role:

One of the most important and first things for your hospital to establish is the role of your MDT within the clinical setting as well as its role within the hospital. I have discussed both the benefits of the MDT from a clinical and non-clinical point of view. By setting out the role of the MDT it allows those working within the team to know their aim and the hospital to understand and recognise its purpose. Ideally by auditing your hospitals tracheostomy care first, you will establish what your unmet need is and use the MDT to combat these areas e.g. large number of clinical incidences caused due to poor education of staff members, or large length of time to decanulation, with the potential causes of communication and poor planning. This then allows a specific role to be formed by the team. Having set goals and an understood role within the hospital cements your identity and allows for improved uptake by clinicians.

For the clinical side it is key to establish what the role of your MDT will be within the clinical setting, new teams need to be understood.

From the hospitals I have visited MDT roles have varied drastically.

<table>
<thead>
<tr>
<th>Example 6: MDT Roles</th>
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<tbody>
<tr>
<td>Some teams have taken full ownership of the tracheostomy pathway from the insertion though to discharge. One example of this is The John Hopkins Hospital, whose team plan the insertion, coordinate the procedure and then follow up and provide the management of the tracheostomy for the rest of the admission.</td>
</tr>
<tr>
<td>Many other hospital teams only begin to support the care of the patient once they are out of critical care. At this point some teams take an advisory role, rounding once-weekly or monthly (South Manchester (UK) and Royal Prince Of Wales (Sydney)) and others act as an advisory role but continue to support the team throughout the week and monitor the patient daily. The TRAMS project is a good example of the latter.</td>
</tr>
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Your planned role may affect how your model of care looks and is established. See Models of care section.

3. Coordinators Role

Additionally to the core members and roles outlined later, I feel an important role to discuss, is the coordinator’s role. Key to the challenge of implementing a large change in practice is appointing a person to coordinate that change. At hospitals where I have witnessed an identified coordinators role, I have seen a greater understanding of interdisciplinary roles, improved structure and greater hospital exposure.
Example 7: Coordinators Role

Vinciya Pandian (John Hopkins), Tanis Cameron (Austin Health) and Katrina Mastello (Westmead) have all taken on this role as a coordinator. One of the reasons these sites have identifiable coordinators is that they are funded teams. They all have different approaches and work within different hospital demographics however what is key in all three cases is their focus and the identifiable role the MDT has within the hospital. By having an identifiable and funded position in these care programmes allows for structured planning, correct application of resources and ongoing development (education and research).

Tanis’s work in Breaking down barriers (example 8), is one example of how this coordinator role assists the flow of the MDT in a way that is not available in other care models. These three individuals liaise extremely well with all the hospital staff and are acknowledged for the work they do, they are recognisable as the ‘go to’ people in discussing the tracheostomy care within their respective hospitals and therefore all ideas and discussions are channelled appropriately.

This is a huge role in coordination of care, and there is always more to be done, but I feel these three examples show how the need to coordinate a team well is as vital as the MDT itself.

4. Historical Barriers

Having an MDT of this kind, builds bridges and breaks down historical barriers between professions that are unfortunately still evident in today’s hospitals.

When discussing the origins of the teams at all the hospitals I have visited, they all said the same thing, whether they were funded or not funded, hospital wide or just departmental, “it takes time”. When I say this takes time to establish teams and change in hospital tracheostomy management I am referring to multiple years. I was keen to establish why it takes such a long time to not only embed practice but to even start this positive change.

There are obviously many factors to consider in terms of what needs to alter, and depending on your hospitals start point that may be more or less than others.

For example in the UK the NCEPOD report proposes 25 recommendations, so instantly if you need to alter your practice to come in line with all 25 you will have a lot more work than a trust that only has to work on 15. Additionally hospitals that update their guidelines to meet with best standards of practice and research, re-writing these is a necessary but lengthy task. Changing such a large aspect of care in this way requires multiple members of staff from varying professions, all who need to be sourced and then arrange time to meet between their work schedules. As there are very few funded teams globally (and even fewer, if any, that were funded prior to establishing a model in which they can show change) all this work would be done outside of professional’s clinical duties. These are unavoidable necessities that all teams, no matter what their project, seem to go though. But in tracheostomies, which has the breadth and depth it does, this is exacerbated.

On top of the project formation, design and implementation, many themes appeared throughout of other questionably, preventable road blocks to change.

One of the biggest categories here is resistance to change. Again it seems that all the hospitals I visited and the people I spoke to have experienced this to some degree, including myself. Whilst not exploring the reasons in depth, I believe there are several factors involved in why some do not wish to alter.
Education:

Some staff may feel that the current practice has no problems and feel change is unnecessary. This I believe is one of the largest reasons, as with poor monitoring, audit and updates of service, this creates difficulty in identifying problems. Many staff do not and have not seen the variety of service that their hospital provides. So it is our role within building a service to show both staff and management the need for change in our current care practices, showing that what you aim to implement is going to be the right change.

Lack of research:

Linking from the above, it is not only local research and audit that will create a change, but the global body of research as well. The NCEPOD research is a great example of this. Prior to this being undertaken and published some hospitals will not have been collecting data on tracheostomies, and therefore many hospitals didn’t and still don’t know their current provision of service for these patients.

Before recent research and published literature, little drive existed to act upon or look into this area, subsequently little understanding of how we may improve our care.

If this is due to staff feeling there is nothing to improve or they do not have the ability to improve care then should staff be content with that, or should we always seek to improve our care even if we think it is 100% already.

Past and current roles causing ingrained practice:

Another large barrier I have identified is the current individual roles for staff, and the understanding of their roles in practice. I have already discussed how the respiratory role of a physiotherapist is poorly understood by many and I believe understanding each other’s roles is key to developing and improving working relationships and as a result, practice.

Within any company, staff have been employed for varying lengths of time. During this time staff learn and understand their role and develop specific patterns of practice, therefore when change occurs there is often resistance to that change because of ingrained practice. I am unsure whether this is due to a concern that there will be loss of purpose and position by staff or whether it is just disagreement with specific changes, either way this causes friction and often delays in service progression.

Again having set aims, based on clinical data, for the need to change and by implementing that change in collaboration with hospital staff, I have seen that this can be improved and that staff can change their attitudes and support the initiative.

Hospitals hierarchy:

Another barrier is within the hierarchal structure of the hospital. I have not only had personal experience of this but noticed this as a road block for many organisations.

Personally it was initially difficult for me to be heard within my hospital, as a band 6 staff member with little comparative experience in this field I had little influence in the way our care operates outside of my own teams practice. With persistence and time this changed and as I have said when the NCEPOD implementation group was started at NUH I was
fortunate enough to be asked to join. This show of support in my interest and project idea, from consultants and team leads, was not only great as a boost to my confidence and rewarded my work, but was a key step to gaining my Fellowship. Without this support I believe the WCMT may not have granted me a fellowship. The challenge of supporting change in practice and dissemination would have been very difficult for me individually and therefore hard for me to justify at interview. Since gaining the support of the group at NUH and the Fellowship it is now easier for me to get my thoughts heard and help towards making a positive change.

Others have also described this poor uptake and struggling to get their voice heard at a Trust level. This is not always due to work grades and status as mine was, but due to the volume of staff behind the idea. Fewer staff supporting a project has proven hard to get it off the ground or sustain that work. The Royal Prince of Wales in Melbourne NSW, described this problem, when they first started improvement to their tracheostomy management 2-3 years ago, with a change in guidelines and attempts at changing practice, little was implemented due to only a small number of staff being involved and reduced support from management. Since the ACI’s work in discovering a significant unmet need in this area, the RPOW have had more support, as have many of the hospitals in NSW.

For others this hierarchical barrier comes in the form of legislation and management. Overseeing governance can cause unavoidable time additions when it comes to implementing change. Gaining Trust approval not only for new documentation and clinical forms but for a change in clinical practice is not a quick process. Many of these are unavoidable, but they do add additional time to projects. Due to this I have noted a loss of momentum in hospital projects which sometimes lead to failure, there are a number of potential factors. Staff motivation and morale is damaged as their programmes are put on hold, most clinicians do not get paid for their additional work to improve the tracheostomy service, so with reduced motivation sometimes the incentives are very low to continue with projects. Finally with long absences in projects while approval is pending, projects lose the attention of hospital staff and therefore become less publicised. In projects such as this it is important to keep the global staff understanding high, keeping interest and support flowing.

Ways to combat these barriers:

Firstly one of the ways to combat this specific barrier is to educate teams undertaking these projects about the potential road blocks and delays, some of which will be unavoidable. It may have just been my ignorance on these matters but by being aware of the challenges that other, if not all, teams have faced, my own personal motivation has not been as damaged when these incidences happen. Another way to keep momentum within the project, is to plan which elements may cause delays and to keep other elements of the project going whilst these are being processed. This keeps flow to the implementation of a project, and with these projects there is always lots of additional work to be done!
Example 8: Breaking down barriers

One of the ways many hospitals and established teams have changed perception and gained support is through auditing and collecting data to show the need for change. In one respect this is also what I did, by reviewing the literature and showing those around me and the WCMT the need and the ability to improve this area of health care I gained a much improved response.

By researching and presenting the facts and figures behind your hospital’s current care of these patients, you can build a case to show the need for change. Linking this with the knowledge that specific tracheostomy MDT’s improve care for this patient group, and many hospitals have found this gives them the opportunity to change practice.

By proving not only a need but the impact that change can have for the hospital, Austin Health Melbourne were able to formulate TRAMS, John Hopkins Baltimore could establish a specific team and more recently the University of South Manchester Hospital has been able to gain funding to provide regular support to their team. Many teams I spoke to however are unable to get the time to analyse any audited data so this again adds further unpaid workload to passionate clinicians.

I have mentioned Tanis Cameron’s work as a coordinator in Example 7. She has worked hard to establish the TRAMS team not only within the clinical setting but within the overall network at Austin Health. Whilst describing her integration of the TRAMS she reiterates the importance of having exposure at all levels creating an identity and function within the hospital. The work the TRAMS team have done in this area is the reason they are one of the few fully funded teams and have established such great work and results.

The GTC also provide support in how to approach these problems and have created several documents to aid hospitals in their endeavour to change.

5. Clinicians and individuals involved:

One of the differences in studying elements of tracheostomy care from papers and books, compared to in person, is the ability to see how the group dynamics work and how implementation takes place. For my project and area of research this was key. Some studies state how many MDT rounds they did and the team members involved, but when hospitals look to develop their own teams and progress their care, it is often the more complex questions they need answering.

I do not aim to give simple ‘one rule for all’ answers here, but by sharing my observations I hope that there are many techniques that can be applied to practice (either directly or through alteration) to improve care moving forwards.

- Not only who they are, but HOW they are.

It is understandable that if you are creating a specific MDT for the purpose of tracheostomy care, you want to have a group of individuals with a large base of clinical knowledge and experience, to make your team the most effective. I do agree with this to an extent, however, from my experience of visiting many different teams I feel there is more to it than that.

Firstly do the members have the same goals/ambitions/idea of roles as each other? Plus can they commit to this new role on top of and in addition to their current job. If the collective
team are not able to work together as a unit then this form of collaborative care will not work. There needs to be mutual respect and more importantly an understanding of each other’s roles.

- **Skills and Experience**

I do agree that having clinical experts within your team is necessary, but which ones? An understanding of what services your hospital has to offer is very helpful in giving your patients the full complement of care they may require. In addition to having individual clinicians for multiple professions in which to assist the MDT, some hospitals are lucky enough to have a greater depth of resources and teams. It is programmes like this which can link teams and provide fantastic example of consistent, holistic and collaborative care.

**Example 9: Skills in your surroundings**

The augmentative communication team at Boston Children’s Hospital, [http://www.childrenshospital.org/centers-and-services/augmentative-communication-program](http://www.childrenshospital.org/centers-and-services/augmentative-communication-program)

It is very rare for a hospital to have this kind of service but a great example of how hospitals will differ in their MDT make up. There is core building blocks in which to establish a foundation but this can be developed by looking at the further services and professionals available in your hospital. In this case Boston Children’s Hospital team can contact people on their augmentative communication team, such as Rachel Santiago who I was very fortunate to meet and shadow for a morning, who can assist with your patient’s needs.

Some may call this a luxury service, especially when looking at the financial pressures in many health care services today, however the acknowledgement of these needs for the patient, means that teams may adapt to incorporate elements of this in their practice depending on their resources.

This is a great example of linking programs within a hospital, and the need to understand what existing skills and services you have locally, and utilise them.

As well as additional services a hospital might have, I have also seen some fantastic examples of advanced practice and how clinical specialists are further advancing their skills.

**Example 10: Professions and Roles**

Another reason why giving set instructions on how to set up an MDT is difficult is due to the workforce at your disposal. I have mentioned looking in house to identify what expertise you have within your trust (see example 9) but there are also large variances between the way countries use different professions. The best example of this is the use of respiratory therapists in the USA. **Described on Page 31.**

Another example is the increased expertise some staff have in other countries. It seems from my travels that other countries are far ahead of us in substantiating advance practitioner roles. This is one way in which the UK is already looking to expand its NHS. Not only when looking at advanced roles in tracheostomy care, such as Vincya Pandian at John Hopkins, but the ability to expand our own practice and develop competencies to do so within our
own hospitals.
Examples of this are:
Respiratory therapists training to assist set up and monitoring of ECHMO patients.
ICU physiotherapists at The Alfred in Melbourne training to practice bronchoscopy.
Speech and language therapists training in tracheal suctioning.

This clinical advancement not only benefits the individual clinician but helps to support their colleagues. Advanced practice roles like this have been shown to help hospitals financially as well as developing highly skilled clinicians.

So by understanding what skill set you have under your own roof you can begin to establish a set of, in some cases, very highly qualified and experienced individuals.

6. Your Hospital (Tool Box and Demographics)

The main question I was asked towards the end of my Fellowship and since returning was ‘what is the best way to make / start a tracheostomy MDT?’

Most people, understandably, want the recipe to make things happen quickly and implement at their hospital. But is it that simple? Is there one recipe that should be globally used to coordinate and manage tracheostomies? I hope that you can see by now that my answer would be NO.

Apart from several of the reasons I have discussed above, another large reason is the hospital itself. There can be many similarities between hospitals MDT’s and functions however because hospitals differ so greatly, so to must their approach to tracheostomy care.

Very rarely are hospitals the same, even when looking at something as uniform as the NHS. All hospitals provide a varying level of services and expertise, ranging from a local community service to a large regional tertiary service.

So if very few things are uniform and can be directly applied between hospitals, then what were the gains of flying around the world to look at varying services?

In doing so I have seen how many services have adapted the idea of tracheostomy MDT care to fit their hospital. This knowledge is key in enabling others to do the same. There are lots of factors to consider but the first is establishing an understanding of the current practice of tracheostomy care within your hospital.

By doing this hospitals will gain a greater understanding of their patient population.

Hospital specific variations:
- Hospital demographics
  - Size of hospital
  - Number and complexity of patients
- Resources
  - Financial
  - Equipment
  - Staff
  - Community support
- Hospital agenda and annual plan
All of this will affect how specific teams look and function and their role within the hospital. For example not every hospital has a ENT consultant who can assist with a tracheostomy team, so to make that a prerequisite is unrealistic. Saying every MDT needs to do a twice weekly ward round is also unrealistic and unnecessary for hospitals who average 5 tracheostomy patients every two months. There must be fluidity and room to adapt this care design to fit your hospital and its needs.

With all of the knowledge you gain about your hospital you can then establish a model of care tailored your needs.

**Example 11: Establishing a team**

Teams who have audited their individual practice and then implemented a change based on that, but still in the form of an MDT, have shown success. Within NSW the ACI have attempted this on a much larger scale. They have audited NSW finding large volumes of clinical incidences for patients with tracheostomies. To combat this (knowing the benefits of tracheostomy MDT’s) they have attempted to implement tracheostomy teams in 15 of the hospitals in NSW. They are providing support for these hospitals and implementation guidance, however as stated above will that be relevant for all hospitals, and will adaptation still take place? Plus the study is for the state of NSW not for individual hospitals, could it be that some of these hospitals actually manage tracheostomies well or have no need to formulate an MDT due to their small population size. The ACI seem to be having good results however this mass implementation cannot be easy and I believe hospitals will have to adapt the programme to fit their own need.

Whereas safety procedures and guidelines can often be uniform and adopted by all hospitals especially within the NHS, adding an MDT of this kind into a hospital just because the literature states it has created positive changes, without adapting it to fit to your clinical requirements I do not believe is appropriate.

**Example 12: MDT patient group.**

The Scope of the tracheostomy team is also another thing to consider. Most tracheostomy review teams do not see the patients on the intensive care unit (ICU), however John Hopkins Hospital in Baltimore does.

The John Hopkins is a great example of adapting to your hospital environment. There are many ICU’s at John Hopkins (eight if I remember rightly) and therefore potential for multiple practices across many different medical specialities. By extending the scope of the MDT onto ICU has allowed for standardisation of care and also has the potential to remove some workload from the intensivist and medical staff. The justification of the role here links directly to the need to adapt your team for your service.
Models of Care:

I believe that you must tailor your team to your service need and provision, adapting the format of a tracheostomy team to fit your hospital.

That said the GTC have identified 3 models of care most commonly utilised. Tracheostomy Teams, Co-location of tracheostomy patients and specialist clinician led care, all with their own particular benefits and challenges.

From my observations however it is clear that models are based around planning and resources, and some have the potential to develop from clinician lead examples to tracheostomy teams. During the formation of many of the now established teams they had to build momentum from a few clinicians leading the way, to forming a full MDT compliment with a hospital agenda.

Example 13: MDT models

Both John Hopkins Hospital and Westmead Hospital are to me examples of ‘clinician lead care’. There is one main coordinator to which the service is pivotal. The rest of the MDT function in conjunction with this clinician but this is very much their singular role. This has the benefits of giving great continuity of care and understanding of patient’s population and progression, there are also less variations in hospital practice and plans. The downside to this approach however is the longevity of the service and the capacity of that individual. I also wonder if it does limit the training of other hospital staff as there is less involvement from multiple clinicians.

The TRAMS project is a pure example of a tracheostomy team. This team provides the longevity that I worry about with the above designs. The team at Austin Health is not only larger but actually works as a rotational clinical area for nursing staff. This allows more staff the opportunity to join and work with the team to improve their knowledge, and the hospitals provision of care. This set up however relies on many funded positions and large amounts of administrative work.

Some hospitals give examples of linking approaches and shows my point as regards to evolving models of care. The Alfred in Melbourne has an established ICU round off, of critical care which follows up any patients who have stepped down from critical care in the last 24 hours and any tracheostomy patients. In addition to this medical round the team at The Alfred have identified the additional need for an MDT round on the neurology and neurosurgical wards, due to the complexity of this patient group. Therefore they have an individual clinical lead approach in most of the hospital and a more conventional MDT approach on Neurology, due to the observation of a clinical need in this area for greater collaborative care.

In a discussion with Rachelle Robinson (Speech and Language Pathologist) at the Prince of Wales Hospital, she also described how MDT approaches could be recognised as ‘Bottom up’ or ‘Top down’. This describes how the formulation of the team has occurred; both have their challenges as in a ‘bottom up’ approach change may happen slowly without the initial support of management but will have passionate staff willing to make a change. In the ‘top down’ approach the managerial support is there but is the idea forced upon clinicians who are not very enthused and therefore not fully committed to the task.
Tracheostomy teams do have the greatest body of evidence in this area of care and have been shown to make significant improvements. I have been lucky enough to witness these teams at work discussing not only the long term documented benefits but seeing the direct benefits to the patient, staff, families and care providers. I believe in tracheostomy MDT’s and feel they provide countless benefits however if there is not the correct infrastructure around it, it will not succeed.

The Physiotherapy Role

As stated in the background there is poor global knowledge about the role of physiotherapy in respiratory care and greater still in the care of tracheostomy patients. I am still surprised about the lack of knowledge within the hospital about our role in tracheostomy care and even more so about the lack of understanding between professions with regard to what each member can bring to the MDT table.

There are already many articles cementing the roles of Nurses and SLP in tracheostomy care, and the role of doctors I believe is also secure. On my fellowship all of these professions were visible in every tracheostomy team. Articles that do mention physiotherapy involvement often do not describe for what reasons and what the role is.

Even within the very comprehensive NCEPOD report ‘On The right Trach?’ this is the only statement as regards to physiotherapy involvement:

"Where a physiotherapy service was present, 85.4% (175/205) provided daily physiotherapy input (24 hours a day 7 days a week) for patients with a tracheostomy on a general ward, and 93.3% (196/210) provided input (24 hours a day 7 days a week) for patients with a tracheostomy on the critical care unit. Seventy-five percent of hospitals (150/199) had a planned escalation policy if physiotherapists had concerns regarding a patient. This was not present in 49/199 hospitals, and was not answered in 18 hospitals."¹

I believe the lack of documentation and discussion is largely responsible for our role often being misunderstood, not only by the patient and other health care staff but by physiotherapists themselves. This has led to our profession being ‘miss’ or ‘under’ represented within tracheostomy care.

As described the background of physiotherapy is one that gives us a very large skill base in treating complex patients across the full spectrum of disciplines, and it is clear to me from my observations that the role of the physiotherapist within the tracheostomy MDT is a core and vital one.

The knowledge physiotherapists have with regard not only to the respiratory support required but the physical support also, is key. Liaising with physiotherapy as part of the tracheostomy MDT allows for a much greater picture and understanding of the patient’s needs.

Our understanding of the patients physiological responses to movement and exercise directly link to the patient’s ability in withstanding tracheostomy weaning. This coupled with our active management and use of both manual and mechanical techniques to support breathing and secretion clearance give us a great overall picture of how the patient is

¹ NCEPOD report ‘On The right Trach?’
managing. In addition it is normally the same team of physiotherapists daily treating the patient therefore we can give great continuity of care and are able to notice changes in the patient (positive or negative) quickly.

On top of our independent work, physiotherapist’s collaboration with other team members is also important. Within tracheostomy MDT’s we work closely alongside nursing staff and speech and language therapists daily to provide tracheostomy care and treatments.

We not only have the ability to manage a tracheostomy and a patient’s respiratory function but also to treat it. This is an ability that sets us apart from most nursing care.

Part of our role alongside our active physical and respiratory management is the planning of a patients discharge or transfer of care. We work alongside our occupational therapist colleagues to support patients moving forwards, helping provide the level of care they require outside of the hospital, allowing them to return to their homes and back to their families. Complex long-term patients may require very complex discharges e.g. spinal patients with a long term tracheostomy / ventilation need.

Although in the USA they do not have physiotherapists in the custom role seen in the UK and Australia, the role we provide is divided between a number of professions. In the care of tracheostomy patients the greatest proportion is done by respiratory therapists and to a lesser degree the physical therapists, who will do some respiratory management and clearance. All physical rehab is done by the physical therapists.

Initially for me this split was highly irregular and took a lot of getting used to, but when learning about the role of a respiratory therapist this made much more sense, as their role encompasses much more with regards to setting and regulating ventilation as well as extended scope roles ([https://mytrachetravels.wordpress.com/2015/08/03/bch-3-8-15-blog-1-respiratory-therapists/](https://mytrachetravels.wordpress.com/2015/08/03/bch-3-8-15-blog-1-respiratory-therapists/)). Within the care of tracheostomies the respiratory therapist and the nursing staff will be able to discuss the current support the patient is requiring regarding ventilation and secretion management, roles which the physiotherapists would assist with in the UK and Australia.

I found the use of respiratory therapists in the USA as strange as they found the roles of physiotherapist and nurses in the UK. We have both developed to cover the same necessary roles with different staff components or percentages. Personally I feel a physiotherapist offers more to a tracheostomy team due to our work physically with the patients on top of our knowledge and treatment of respiratory problems. However you can easily argue that the respiratory therapist’s knowledge of ventilators and weaning is far more advanced and their role in home ventilation is also highly valued. So overall there is little to separate the two examples of care provision.

These are all examples of how I’ve seen physiotherapists utilised and the specific roles they conduct within tracheostomy care. In addition, within a tracheostomy MDT’s the utilisation of physiotherapy is greater because of the understanding of the role each other have within the team. Through working closely together and understanding each other’s specific skill set, the physiotherapy role is more recognised and valued.

By understanding each role within the team you improve your team working and establish great mutual respect for each other’s skills.
Example 14: The use of physiotherapists

I have seen some fantastic and very encouraging roles for physiotherapy and our respective respiratory therapist role in both the US and Australia. Many roles are much the same clinically, as ours in the UK, but it was really encouraging to see not only how valued we are within tracheostomy and respiratory care but the roles we are taking in management and changing practice in positive ways.

At Austin Health physiotherapists have a large role for tracheostomy management in both the spinal and the Victorian Respiratory Support Service (VRSS) [http://www.austin.org.au/vrss](http://www.austin.org.au/vrss). The physiotherapists are recognised not only for their treatment and management of ventilated patients but for their functional rehabilitation also. I saw a great example of how physiotherapists, with their occupational therapists colleagues, had been able to give large amounts of independence back to a patient with a high spinal cord injury who required a long term tracheostomy and ventilation. Their individual approach on this case shows how working closely with your patient and knowing their ability and reactions to treatment can have fantastic results.

I have already discussed the extended scope opportunities for physiotherapists at The Alfred in bronchoscopy. This type of diversification of practice allows physiotherapists to further evolve our role in respiratory care and gain greater recognition for it.

Finally seeing physiotherapy represented in the area of tracheostomy management at such a high level e.g. Jack Ross (TRAMS), assisting in the coordination of care, promotion of physiotherapy and research, is inspiring and I hope there are more examples soon. I hope my work in this area may show others, currently not fully utilising physiotherapists, the value of our profession and provide opportunities for interested physiotherapists in this area.

However it is not all positive:
The use of physiotherapists in respiratory care in some ICU’s is very restricted and in others we are highly involved and valued. Again this is an example of the historical barriers with providing an MDT tracheostomy service.

At the Royal Melbourne Hospital there is little allied health cover within critical care. Within the last few years physiotherapists have become more valued for their role in early ICU rehabilitation, however they are still not allowed to undertake any respiratory treatments. This is the consensus of the ICU consultants. To me this was very strange as we are highly valued at NUH for our work on critical care, I would personally find it very frustrating to be limited in this way if I thought a patient may benefit from respiratory physiotherapy treatment.

At Melbourne Children’s Hospital the physiotherapist have a role in treatment of tracheostomy patients but other than that they have no role within the MDT or care planning for these patients. This was due to a couple of reasons; historically the nursing staff in advanced roles have taken the helm and also it was felt that they do not have the volume of tracheostomy patients to make it viable to have a specific role here. They do however feel they are valued within the care of these patients.
The future in tracheostomy care:

The future looks brighter than ever for the care of tracheostomy patients globally. Within the UK many changes are occurring with the recognition of the need to improve care within this area.

One of the NTSP founders Dr Brenden McGrath was, in August 2015, appointed ‘National Tracheostomy Lead Clinician’ by NHS England. This recognition of his work and the area of tracheostomy care is fantastic and I hope helps the UK to work towards improving its care nationally and not just in a select few exemplar hospitals.

Obviously there is more research required in many areas of tracheostomy care, and although research for MDT’s is some of the most substantial and high quality, it to, could do with further expansion and more global examples. I feel further examples of how MDT’s have shown benefits will only add greater weight to this momentum and the change we are currently seeing.

In the immediate future however I hope for local change to begin to develop in all hospitals, promoting greater patient safety and reducing overall clinical incidences.

Currently few hospitals are fully aware of their overall management of these patients. Through internal audit I hope hospitals will create a baseline in which to assess and progress their care of these patients. I have seen that hospitals which have achieved this have been successful in gaining funding to further improve the care of these patients.

I have seen on my Fellowship the benefits of tracheostomy MDT’s at many sites and services, however studies only give findings based on relatively small sample sizes which some doubt are applicable to their cohort, a discussion which has been had in other research.

One way to improve this is to expand the quantity of research, something which the GTC are hoping to establish. The GTC database, for its members, I hope will be the first large data collection and hopefully will establish significant findings, not only to further promote the use of MDT’s but in all areas of tracheostomy care. Speed and Harding, 2013, show how it is possible to combine underpowered studies to increase their strength.

Without this research base or even a local research base, hospitals have to work on a case by case basis and collective experience as well as review meetings.

If we are to learn more about tracheostomy teams and tracheostomy progression, what might the outcomes be?

I do not feel we will be able to establish global protocols for anything other than safety around tracheostomy as weaning principles are so intricate and case dependent. I hope however that we can develop greater global guidelines and understanding within elements of tracheostomy care e.g.:

- Granulation,
- ETT effect on vocal cords,
- Depth of suctioning,
- Size and choice of tracheostomy,
- Effects of early Vs late trache placement and changes,
- Cuff inflation and tracheostomy type,
- Humidification choices with the tracheostomy and after decanulation,
- Dressings post ‘routine’ decanulation.

Gavin Straffon WCMT Fellow 2015
By developing a well-functioning integrated service that is able to provide your hospital with educational programmes and a complement of clinical care, this template can then be adapted to improve many areas within the hospital. Once a system has been formulated it would be easily transferable to other organisational needs as there would be a template to follow and staff would understand the processes as they are in line with existing programmes.

I have found that collaboration and sharing of information whilst on my Fellowship has expanded my knowledge greatly. The sharing of information within tracheostomy care and the creation of networks between clinicians and hospitals allows for a greater body of knowledge and improved education throughout countries and globally. Again the GTC hopes to link many institutions across the world creating a large special interest group which can work together to share knowledge and examples, learning from each other, ultimately progressing this area of healthcare forwards and improving our care to our patients.

**My future:**

Since my Fellowship I am more enthused than ever to continue my work in promoting excellent tracheostomy care as well as continuing my own education. I continue to work alongside my colleagues at NUH to improve care in addition to my clinical role.

I will continue to promote the improvements in tracheostomy care that are needed, not only though my work at NUH but though dissemination to regional hospitals and specific professions.

Hopefully after the publishing of my report on the WCMT website I can gain a further interest and the ability to disseminate to a wider audience in the future.

**Conclusion:**

I hope from the observations and evidence produced in this report that there will be a larger and better understanding, not only of how physiotherapists can assist in respiratory care, but the vital role they play within the care of tracheostomy patients and within the tracheostomy MDT.

Tracheostomy safety protocols and, with hope, MDT management are the start and form a great base from which to expand. I do believe however that it is just that, A START. With safety protocols, and a solid foundation formed by the workings of a multidisciplinary effort, establishing core educational programmes and delivery coupled with the improved management of the patients pathway and care, we are showing fantastic improvements in the quality and safety of care we are providing.

For the UK, where the NHS is being forced to make savings and yet still expected to deliver better and better care to our patients, projects and strategies like this are key to sustaining our health care system and hospitals for the future.
**My Blog:** Be part of my trip and learn what other hospitals are doing, as well as seeing how my trache travels continue. [www.mytrachetravels.wordpress.com](http://www.mytrachetravels.wordpress.com)

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