The Medical Technology Group

Improving patient access to medical technology

MTG Manifesto – *MedTech the Solution*

Improving patient access to medical technology

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Contents

Executive Summary 3

Recommendations 4

Foreword 5

Introduction 6

Then & Now – Medical technology in breaking down barriers 7

The future opportunity 12

The MTG Five Year Forward View:
MedTech the solution to UKs biggest health challenges 17

Barriers to uptake 25

Recommendations 26

MTG Call to Action 27

References 28

Executive Summary

On the Medical Technology Group's twenty-year anniversary, the MTG has launched a Call to Action:

Medical technology can help people live healthier, happier lives and can reduce pressure, clinician time and costly interventions in the NHS.

The MTG is calling for:

1. Improved patient access to medical technology.

2. For the uptake of medical technology to be seen and embraced as a solution to help the NHS.

In this manifesto the MTG reviews progress over the last twenty years in the development of medical technology and patient access to this technology. The manifesto covers how medical technology has helped save lives, how medical technology has helped people live healthier and happier lives, how medical technology has helped improve patient safety and finally how medical technology has helped level-up care to date.

The group heard from a range of stakeholders regarding the future opportunity of medical technology, and how medical technology can help provide a solution to some of the NHS's most urgent challenges in the next five years. Medical technology was highlighted by contributors as a key tool to help the NHS and patients moving forwards.

In the final section of the manifesto, the MTG explores some of the key challenges that the government and NHS face over the next five years, and how medical technology can contribute towards a solution. The key areas identified where medical technology can provide a solution are on the increasing NHS backlog, an ageing population and stretched workforce and the need to improve health inequalities and reduce regional variation in access to care.

With change needed to help people get the care they need, medical technology is a uniquely placed area which can streamline care, reduce the time clinicians need to spend with patients, and provide a cure and effective urgent treatment that is lifesaving.

To reap the benefits that medical technology can provide, the MTG outlined the key barriers currently in place to patient access. These are divided into four categories: poor awareness and patient engagement, commissioning and funding barriers to existing, proven technology, poor uptake of new life changing technology and a silo mentality within the NHS.

To address these barriers and improve patient access, the MTG has made a series of more detailed recommendations centring on:

1. **Prioritisation of the patient voice**
2. **Accelerated access for patients to medical technology**
3. **Equitable and timely commissioning**

In recent years, great progress has been made but to harness the solutions that medical technology can bring, and to change the lives of patients, the MTG is calling for action now.

Recommendations

1. **Prioritisation of the patient voice**
   - Patients should be consulted when decisions around commissioning and funding are made by NHS England, NICE, the Accelerated Access Collaborative or Government.
   - The patient voice should be a necessary consideration when decisions around access or prioritisation are made, rather than a tick box exercise.
   - Patients should be considered by multi-disciplinary teams and offered all available diagnosis and treatment options so they can make an informed choice.
2. **Accelerated access for patients to medical technology**
   - Technology recommended by NICE, through either Technology Appraisal or Guidance, should be taken up at pace and scale across the country.
   - This should be implemented by Integrated Care Systems and ICSs should be held accountable for uptake of technology.
   - Tracking and reporting of the use of technology should be improved, so NHS organisations that are resistant to technology are highlighted.
   - Awareness of NICE guidance and new procedures should be a priority for NHS and all working within the NHS.
3. **Equitable and timely commissioning**
   - Commissioning decisions made by NHS England should be linked to funding.
   - Proven technology recommended by NICE, Accelerated Access Collaborative or local bodies should be linked to funding.
   - NICE should include wider societal value within decisions around medical technology.
   - Reward long-term decision making to improve health outcomes.

Foreword

Barbara Harpham

The last twenty years have been pivotal for medical technology.

From the introduction and development of robotic assisted surgery to the widespread adoption of life saving heart technology, many lives have been changed for the better and, in many cases, medical technology is what we must thank.

The Medical Technology Group is extremely proud to have successfully campaigned for the increase uptake of medical technology over the past twenty years, I am proud to have chaired the group and, on this, the 20th year anniversary of the group I am looking forward to seeing where the next 20 years will take us.

Patients are at the heart of all MTG campaigns and it is the difference that medical technology has made to individuals that drives our work and will continue to be the focus of our efforts.

Despite progress over the last twenty years, the last 22 months have been like none other. With the NHS stretched, and waiting lists growing at rates never seen before, we must continue to look at the possibilities presented by medical technology as the solution to many of the pressures the NHS faces.

The NHS will face huge pressures in the immediate future. It is vital that the potential of medical technology is realised and that we do not leave patients untreated and the NHS under pressure for years to come.

Medical technology is a solution to helping reduce the backlog; improve patient pathways; and speed up access to treatment, whilst improving care. Our manifesto focuses on ensuring all patients can access the medical technology that they need to help manage their condition, speed up diagnosis and have all the treatment options available to them.

We are calling for uptake of medical technology to be seen, and embraced, as a solution to help the NHS solve the problems it faces.

The MTG will continue to push for a system where all patients are able to access the proven and life changing technology they need.

Barbara Harpham,

Chair, Medical Technology Group

Introduction

Medical technology plays an important role in today's society, transforming the lives of individuals and families, and providing solutions to some of our biggest challenges.

Medical technology's contribution to the UK is both significant and meaningful, influencing society at both a macro and micro level.

At a micro level, it helps improve the lives of individuals, allowing patients to manage a condition better, enabling them to live a full and active life. It impacts families too, protecting people from ill health and speeding up recovery from illness, allowing loved ones to spend more time together.

At a macro level, it helps improve the health and happiness of society, reducing the impact on communities from devastating diseases such as cancer and cardiovascular disease. In recent years it has helped to dramatically improve the outcomes of patients with these conditions, either through innovative diagnostic technology that can detect the disease early, or through cutting-edge medical implants, keeping people fit and healthy for longer.

As the MTG celebrates twenty years since its formation, it provides an opportunity to reflect on the role medical technology plays in society, improving the lives of thousands of people and helping prevent many unnecessary deaths.

The past twenty years has witnessed dramatic changes to the daily lives of billions of people across the globe, with new technologies embedded into our way of living that were unrecognisable at the turn of the Century. Smart phones, social media and super-fast broadband have changed the way we live, putting information at our fingertips and connecting people thousands of miles apart.

The benefits of advances in medical technology are not as widely recognised, but its effects on the lives of thousands of people in the UK have been as equally meaningful, allowing loved ones to spend more time together and enabling people to live healthier, happier lives.

The COVID-19 pandemic has been a stark reminder of the damage harmful diseases can have on society, killing millions of people across the globe and forcing whole countries to lockdown to stop the spread of the disease. Never before has the importance of protecting the health of our communities been so widely recognised and understood by so many.

Looking ahead to the next twenty years, it is clear that medical technology can continue to play an important role in our lives. As we look at some of the Government's and NHS's biggest challenges in the coming years, it is notable that medical technology can be a key enabler in helping the Government overcome each of them.

Ground breaking technologies will assist the NHS to clear the elective backlog and reduce record waiting lists caused by the pandemic. Cutting edge diagnostic equipment will help to detect and diagnose diseases sooner, allowing the NHS to fulfil the ambition of the Long Term Plan in creating a preventative healthcare model. While innovative new technology's will continue to find new and more cost-efficient ways of treating common conditions, helping to ensure all members of society, no matter their background have access to life-saving and life-enhancing treatments.

Then & Now – Medical technology in breaking down barriers

This chapter looks back over the past twenty years, celebrating the success of medical technology during that time, highlighting areas where improvements in healthcare have been underpinned by medical technology.

This section will explore the following four key areas, looking at how medical technology has helped transform the quality of care in the NHS by advances in these areas.

- **How medical technology helped save lives**
- **How medical technology has helped people live healthier happier lives**
- **How medical technology has helped improve patient safety**
- **How medical technology has helped level-up care and reduce postcode lotteries**

How has medical technology helped save lives?

Medical technology saves lives. Every year thousands of people are prevented from dying because of an intervention from medical technology. This can happen in many forms, from medical technology being used to diagnose and detect a condition, allowing a patient to be treated early, through to a medical device being implanted into a patient, such as a heart valve, ensuring the patient's heart continues to function properly. Or as was seen in the COVID-19 pandemic, enabling the mass-testing of society, helping to slow down and prevent the spread of deadly diseases.

It is almost impossible to calculate the exact number of lives saved by advances in medical technology over the past twenty years, however, during that period enormous advancements in medical technology have been seen, helping to keep patients alive and well where they would previously been untreatable.

Case Study: Mechanical Thrombectomy

One area of advancement in recent years has been the introduction of minimally invasive procedures, which has been one of the most transformative advances in medical technology in the past twenty years. They have enabled patients who were previously considered too high risk for traditional treatments to receive care and recover from the disease. Minimally invasive therapies have many applications and can be used to treat a range of diseases from cancer to cardiovascular disease.

Ischemic stroke accounts for approximately 87% of all strokes and occurs when a vessel supplying blood to the brain is obstructed[1]. There are more than 100,000 strokes in the UK each year causing 38,000 deaths[2].

Mechanical thrombectomy is an innovative new type of minimally invasive procedure in which an interventional radiologist uses specialised equipment to remove a clot from a patient's artery.

A small metal stent (like a basket) and / or a small suction catheter is passed to the clot which is blocking the artery to the brain and is used to remove the obstruction, allowing the brain to recover its blood supply.

When used with other medical treatments such as clot-busting drugs, and care on a specialist stroke unit/rehabilitation, mechanical thrombectomy significantly improves outcomes in patients who have undergone the surgery, helping them recover sooner and reducing the risk of complications caused by a stroke.

Case Study: Drug-eluting stent technology

Another technology that has evolved considerably in the past twenty years and saved the lives of thousands of patients is stent technology, which has enabled surgeons to intervene in patients at risk of a heart attack.

Coronary Heart Disease is the most common type of heart disease, killing approximately 64,000 people in the UK each year[3].

The disease is caused by a build-up of plaque, which narrows the coronary arteries and interrupts the flow of blood to the heart. This interruption of blood flow can cause pain and discomfort for patients, and if a blockage occurs can cause a myocardial infarction (heart attack).

A stent is a small tube made of a metal mesh that is designed to support the artery walls and prevent plaque from blocking a patient's blood flow. The procedure is called coronary angioplasty and can usually be undertaken using only local anaesthetic and can take as little as 30 minutes to complete[4].

Drug-eluting stents have enormously increased the effectiveness of coronary angioplasty, reducing the risk of patients' arteries narrowing again after surgery, when compared to other more basic stent technologies. A drug-eluting stent is coated with a time-release medicine that is gradually released into the patient's blood vessels to prevent scarring and a re-blocking of the artery.

This means that patients have better outcomes, less chance of re-admission and can live healthier lives with a reduced risk of heart attack.

How medical technology has helped people live healthier happier lives?

One of medical technology's greatest impacts is the ability to help people live healthier, happier lives. Medical technology does this through a variety of forms, such as:

- **Remote technology can help the NHS monitor patients' conditions, reducing the impact of hospital visits on their life.**
- **Devices such as pacemakers can be implanted into patients enabling them to continue living full and active lives.**
- **And devices such as insulin pumps help patients to monitor and manage conditions with greater accuracy and care.**

One of the biggest challenges to the health system in the UK is the growing and ageing society. One of the impacts of people living longer is the increase in the number of people living with long-term conditions and comorbidities[5]. As the age of the society continues to grow, so too will the need for people to manage long term health conditions. Medical technology will be key to this, helping to play an important role in keeping people healthier, fitter and happier longer.

Case Study: Insulin pumps

One area that has seen a significant improvement in the past twenty years has been in the treatment of diabetes, where advances in technology have improved quality of life and clinical outcomes for people living with the condition.

Diabetes is a life-long condition that causes a person's blood sugar level to become too high[6], it is estimated that one in 16 people in the UK has either Type 1 or Type 2 diabetes[7]. The total cost (direct care and indirect) associated with diabetes in the UK currently stands at £23.7 billion and is predicted to rise to £39.8 billion by 2035/6[8].

Much of the current cost related to diabetes comes from the devastating complications of living with the condition, including stroke, blindness and amputation.

Insulin pumps are small devices, about the size of a small mobile phone. They deliver a steady flow of short-acting insulin around the clock.

Insulin pumps are evidenced to improve glycaemic control and therefore reduce the risk of developing diabetes complications. Over the years, growth in access to this technology has improved the lives of many people with type 1 diabetes. However, recent data shows 70,000 people living with type 1 diabetes meet the criteria for access to an insulin pump but just 20,000 actually use one.

Insulin pumps have helped empower patients to better manage their diabetes and significantly reduce the long-term health risks associated with the condition. This life-changing technology continues to improve, with pumps getting smaller and increasingly integrating with continuous glucose monitors to create hybrid closed-loop artificial pancreas systems.

Case Study: Deep Brain Stimulation

Around 145,000 people are living with Parkinson's in the UK, and it is estimated that one in 37 people alive today will be diagnosed with Parkinson's in their lifetime[9].

Parkinson's is the fastest growing neurological condition in the world[10] and is progressive. It leaves people battling with movement difficulties, stiffness and tremor.

Deep brain stimulation is the main type of surgery used to treat Parkinson's. Usually, it is most effective at improving motor (movement) symptoms.

A pulse generator (a device like a heart pacemaker) is placed under the skin around the chest or stomach area. It is connected to one or two fine wires that are inserted into specific areas of your brain.

When the pulse generator is switched on, the electrodes deliver high frequency stimulation to the targeted area. This stimulation changes some of the electrical signals in the brain that cause the symptoms of Parkinson's.

Between 2000 and 2006 Parkinson's UK, the Medical Research Council and the Department of Health funded one of the largest trials to prove the benefits of DBS for Parkinson's. The results showed that DBS improved the quality of life and mobility in patients with advanced Parkinson's compared to medication alone, helping to reduce the impact of the degenerative progressive disorder on patients, enabling them to continue to work and enjoy life[11].

How medical technology has helped improve patient safety

Patient safety has risen up both the Government and NHS's agenda in the past twenty years, as an understanding of the size and scale of the issue has grown. It is estimated that one in ten patients is harmed while receiving hospital care, and that nearly 50% of these incidents are preventable[12].

Former Health and Social Care Secretary, Jeremy Hunt MP, who held the position between 2012 – 2018 made patient safety a key theme of his tenure, aiming to highlight the number of preventable deaths or injury in hospitals and deliver safer environments for patients across the UK.

There have been several differing interventions to help improve standards of safety in care in the past twenty years, including changes in processes and the culture to help address some of the system failures. However, medical technology has had its part to play too, particularly in the field of Healthcare Associated Infections (HAIs), as it is estimated that 300,000 patients a year in England acquire a healthcare-associated infection as a result of care within the NHS[13].

As the awareness of patient safety incidents has grown, so too has the number of available technologies aimed at reducing their prevalence. These have helped to play an important role in reducing the risk of a patient coming to harm when receiving treatment in the NHS.

Case Study: Antibacterial sutures

Superbugs, like methicillin-resistant Staphylococcus aureus (MRSA) and Clostridium difficile were major challenges for the NHS twenty years ago, with many hospitals struggling to contain the bacterial infections in hospitals and many patients suffering from HAI's.

At the time, the problem garnered a lot of media interest, with public concern growing about the cleanliness of hospitals and the government of the day coming under increasing pressure to reduce the prevalence of these harmful bacterial infections in hospitals.

It is estimated that 37% of HAIs in surgical patients are surgical site infections. Patients with an SSI are twice as likely to spend time in an intensive care unit and five times more likely to be readmitted after discharge[14].

Antibacterial sutures are a range of synthetic, absorbable stitches that are either impregnated with or coated with triclosan, a purified medical grade antimicrobial, depending on the type of stitch being used. Absorbable stitches are absorbed by tissue over a period of time and do not need to be removed.

Studies have shown that they can reduce the risk of SSI by up to 28%, in addition to this it is estimated that the sutures save the NHS on average £13.62 per patient, by reducing the number of HAIs in patients[15].

Case Study: Oral cleansing and suctioning systems

NICE has found that hospital-acquired pneumonia (HAP) is estimated to increase hospital stays by 7–9 days and has a mortality of between 30 and 70%. In a 2011 survey of 52,443 patients in 99 NHS trusts in England, the prevalence of hospital associated pneumonia or lower respiratory tract infection was 1.5%[16].

HAP often starts in the oral cavity. Bacteria, including dental plaque, can colonise in the oropharyngeal area, and these pathogens can be aspirated into the lungs, causing infection.

Effective oral care can help reduce the number of hospital acquired pneumonia (HAP) cases[17]. However, achieving the high levels of oral cleanliness has proven to be a challenge for healthcare professionals when using traditional brushing equipment, meaning that many patients receiving treatment have been at an increased risk of contracting HAP.

Oral cleansing and suctioning systems help reduce this risk, offering front line staff a comprehensive approach based on cleaning, debriding, suctioning, and moisturising the entire oral cavity, helping to improve patient outcomes and reduce length of stay through avoiding pneumonia.

The systems typically contain a series of tools, helping to speed up the process of providing oral care for patients and increasing the efficiency of cleaning compared to traditional oral health products. The systems usually include a suction toothbrush with a cleansing solution, and a suction swab to remove oral debris and secretions.

How medical technology has helped level-up care and reduce postcode lotteries

Health inequalities in the UK are stark and there is a proven systematic relationship between deprivation and life expectancy. Recent data showed that women in the most deprived areas in England, are expected to live nearly 7 years fewer than those in the least deprived areas. Men in the same areas can expect to live 10 years fewer[18].

Much still needs to be done to reduce the disparities in health seen throughout the country, with the Government's levelling up agenda aimed at tackling this. However, advances have been made in the past twenty years, with medical technology helping to give millions of patients access to treatments that would not have previously been possible.

Case Study: Robotic-Arm assisted systems

One area that has seen a dramatic improvement in health outcomes is joint replacement surgery. The past 20 years have witnessed a pronounced increase in both the availability and effectiveness of both hip and knee replacements - making them one of the most effective interventions offered by the NHS[19]. Joint replacements are now routinely offered by the NHS throughout the UK, meaning thousands of people have access to the treatment and do not have to live in pain and discomfort.

Robotic-Arm assisted systems have played an important role in helping both increase the accuracy of the joint replacement surgery, as well as relieving pressures on the system.

Robotic-Arm assisted systems work through CT-based 3D modelling of bone anatomy. Surgeons can use the technology to create a personalised surgical plan and identify the implant size, orientation and alignment based on each patient's unique anatomy. The system also enables surgeons to virtually modify the surgical plan intra-operatively and assists the surgeon in executing bone resections.

This technology has dramatically increased the accuracy of joint replacements, ensuring better outcomes for patients from the surgery and reducing the number of complications following the operation.

Case Study: Robotic-assisted surgery (RAS)

Robotic-assisted surgery (RAS) is a form of minimally-invasive surgery performed by a surgeon using a computer-assisted system to operate through small incisions. RAS aims to enhance a surgeon's capabilities to allow for more precise, repeatable, and wide-spread minimally invasive care.

RAS systems used for "soft-tissue" surgical procedures have been in use for more than 25 years, with millions of procedures performed worldwide. Today, specialty areas that use these systems include urology, gynecology, and coloproctology, in addition to other specialties outside of the pelvic area.

A growing body of research suggests that minimally invasive, robotic-assisted surgery may offer patient benefits including less blood loss, fewer complications, less time in the hospital, and less chance of readmission compared with open surgery. These benefits of robotic-assisted surgery can confer associated cost savings, thus helping to reduce the total cost to treat.

Looking forward, RAS systems provide the opportunity to bring information and communication technologies, robotics, digital features and data together to help improve surgical training, performance, and patient outcomes.

Case Study: Endobronchial Ultrasound-guided Transbronchial Needle Aspiration

There are approximately 35,000 deaths from lung cancer in the UK every year[20]. Early lung cancer does not alert obvious physical changes. Moreover, patients can live with lung cancer for many years before they show any signs or symptoms, meaning that the disease can offer develop to a late stage before it is detected[21]. The disease is considerably more common in more deprived communities due to their association with smoking and the poor air pollution of urban areas[22].

An Endobronchial Ultrasound-guided Transbronchial Needle Aspiration (EBUS TBNA) is a procedure that allows the doctor to look into the lungs, enabling doctors to take samples of the glands in the centre of your chest (mediastinum) using the aid of an ultrasound scan, as these glands lie outside the normal breathing tubes (bronchi).

One of the main uses for EBUS TBNA is in the staging of cancer. The stage of a cancer is a measure of how much the cancer has grown and spread. Depending on the type of cancer, there may be several different tests used to 'stage' the cancer. The procedure has helped revolutionise the lung cancer pathway, enabling clinicians to detect and stage lung cancer sooner than previously possible, allowing patients to receive the most appropriate treatment earlier.

The future opportunity

This section of the manifesto highlights the solutions that medical technology can bring to the NHS. Both in the perspective of the current challenges facing the NHS, and challenges and opportunities in the future.

The MTG has listened to partners within the NHS, political stakeholders, and policy leaders to gauge where their vision for the future of healthcare is, and how medical technology can play a role.

Essays from:

- **Rachel Power**
- **Professor Gary Ford**
- **Paul Blakeley**
- **Dean Russell MP**

Rachel Power, Chief Executive, the Patients Association

The role medical technology can play in helping patients over the next 20 years

The purpose of the Patients Association is to ensure that everybody can access and benefit from the health and care they need to live well.

Medical technology has a role to play in this ambition, whether it is through innovative new technologies that offer life changing treatments or through digital technologies that have the potential make access to care easier, diagnosis of conditions speeder, or lift the standard of care offered to patients across the country.

However, to fully maximise the benefits to patients over the next 20 years, the NHS must work in partnership with patients when introducing new technologies. This partnership approach should be adopted for technology used to deliver treatment and also for technology introduced to help improve the running of the system. We believe that if both patients and the health system are to benefit from technology, then partnering with patients in the design, development and deployment of technologies is the way to ensure benefit flows to all – patients and system.

Professor Gary Ford, Chair of the AHSN Network and Chief Executive Officer of the Oxford Academic Health Science Network

The role medical technology can play over the next 20 years

In our role as the innovation arm of the NHS, the Academic Health Science Networks (AHSNs) work regionally and nationally with the NHS, industry and academia to support the health and social care system discover, develop and deploy high value innovation. We connect with innovators to help them develop their product or idea into a value proposition that aligns with the needs of the health and care system, from early evaluation to wider spread and adoption across the NHS. Our connections between industry innovators and academia, alongside understanding the needs of our health and care systems at the level of the 42 Integrated Care Systems (ICSs) across England, means we are uniquely placed to identify and spread ground-breaking innovation at pace and scale across our 15 regional footprints of populations of 3-5 million people.

Medical technology will play an increasingly important role in transforming the healthcare system to meet the challenges of elective recovery, by enhancing patient self-management and workforce productivity. This technology also has a role in supporting the movement towards a more environmentally sustainable NHS, with net zero carbon emissions. As a clinical academic and stroke care specialist, discussion of medical technology in this area typically evokes images of clot retrieval systems used by interventional neuroradiologists that have transformed outcomes from stroke due to blockages of major arteries in the brain. However, many of the benefits of medical technology arise from developing diagnostic and digital solutions that change the pathways of care through more rapid diagnosis, moving care out of hospital to community settings or enabling patients to monitor and self-manage their condition. The pandemic has increased the need and appetite for such solutions.

An example of a new diagnostic test transforming a care pathway is the Placental Growth Factor (PlGF) test which enables early confirmation or ruling out of pre-eclampsia in pregnancy. Prior to developing this test many women with elevated blood pressure in pregnancy were admitted to hospital for close monitoring to make a diagnosis. Early evaluation of the test demonstrated many women could avoid admission, reducing demands on maternity service beds and improving the experience of these women. With support from AHSNs and the Accelerated Access Collaborative (AAC), maternity units have rapidly adopted this test across the NHS. Developments in diagnostic testing using DNA and proteomic markers will facilitate earlier diagnosis of life-threatening diseases. As an example, the Galleri test detects abnormal DNA from cancer cells and is being trialled across the NHS with community-based testing. Community Diagnostic Hubs will replace much testing that has until now required patients to attend an acute hospital. Ambulance services will use point-of-care tests and imaging to make accurate pre-hospital diagnosis of conditions such as acute stroke, evolving into mobile diagnostic units linked to specialists via video telemedicine technologies.

Simple technologies such as blood pressure (BP) monitors, if supported with clear guidance for patients with hypertension and primary care teams, are enabling people to manage their BP with fewer visits to primary care. This also demonstrates better BP control though patient empowerment. To reduce health inequalities, free BP monitors have been provided to Clinical Commissioning Groups (CCGs) in socio-economically deprived areas.

During the pandemic, the rapid development and spread of COVID Oximetry @home services and virtual wards, enabled patients with COVID-19 at risk of deterioration to be monitored at home. This was only possible because of the development of inexpensive pulse oximeters that were provided to patients to use in their own homes. Similar remote monitoring approaches for other conditions will be developed using existing and new technologies.

Digital technology will increasingly offer care that traditionally would have been provided by consultation with healthcare staff and enable patients to self-manage their condition. For example, many mental health problems will be supported by digital therapeutics providing individualised care based on cognitive behavioural therapy and other support to patients. New digital solutions need to respond to the key demands of health services, such as anxiety and depression in children and young people, through co-production with the relevant service users, harnessing the expertise of patient champions and clinical leaders to enhance the patient experience.

Digital and artificial intelligence (AI) approaches will increasingly support rapid interpretation of radiology imaging and individual patient characteristics to assist healthcare professionals in making rapid and accurate diagnosis. This will address workforce challenges in many areas of clinical care.

The NHS is a highly complex environment, traditionally resistant to rapid adoption of new products and ways of working. However, the pandemic has shown the NHS can adapt and change rapidly when priority needs of patients and services are clear, and change is supported by alignment of health and care system structures. Advances in medical technology have transformed the practice of medicine in the 40 years I have worked in the NHS. That pace of change will continue to accelerate.

Paul Blakeley, Health Innovation Policy Expert

The role medical technology can play over the next 20 years

New medical technologies are critical for the future of healthcare and the UK is uniquely placed to capitalise on their potential

Healthcare systems around the world are facing rising demands which are putting increasing pressure on service delivery. The UK is no different and, whilst productivity within the NHS continues to rise, there is a growing gap between service demands and available resources[i,ii]. The need for innovation in care delivery processes and pathways has therefore never been greater.

At the same time, cutting-edge new technologies are coming to the fore, which offer innovative and transformative solutions to some of the major healthcare challenges faced by patients across the UK and around the world.

As a result, there is a pressing need to adapt existing care models and embed new technologies into delivery to manage growing service demand, improve patient outcomes and reduce health inequalities. The UK is uniquely placed to harness the power of medtech innovation.

The Life Sciences Vision[iii] sets out the UK government's ambition to capitalize on these strengths and to make the UK the best place in the world to discover, develop, test, trial, launch and adopt new technologies.

Central to this vision is the commitment to increase access and uptake of proven innovations across the NHS – with partners from across industry, the NHS and UK regulators working together to make this ambition a reality.

There are four key opportunities for the future of medical technologies over the coming years

1. Supporting a shift from acute intervention to early-diagnosis and prevention.

Around the world, too many people are experiencing undue delays accessing healthcare, being diagnosed too late and spending too many years in poor health. Most worryingly, these burdens are not felt equally across society.

Much of ill health can be prevented, and the Long-Term Plan sets out the NHS's commitment to move towards a prevention and early-diagnosis model, which improves lives and helps tackle health inequalities[iv].

Medical technologies will be at the heart of delivering this agenda and rebalancing healthcare delivery away from chronic and acute intervention.

We are already seeing this agenda in action, with the NHS working alongside GRAIL to trial the innovative Galleri blood test with over 165,000 patients. This cutting-edge diagnostic technology has the potential to support early-detection of up to 50 different cancers[v]. By introducing new early diagnosis and intervention technologies which prevent late-stage cancer the NHS can help to save and improve lives for thousands of patients across the country and beyond.

2. Transforming current care pathways, improving patient engagement and enabling self-management

Alongside the well-publicised success of the vaccines rollout, the NHS response to COVID-19 has included the rapid adoption and spread of remote monitoring technology. The widespread use of these technology platforms offers a vital new means for patients to engage with their primary physician and will help to bolster the future resilience of our healthcare service.

But the success of medical technologies isn't limited to the pandemic response. We are seeing new technologies transform the way we treat some of the most difficult conditions patients face.

In addition, Freestyle Libre is a flash glucose monitor recommended for use by patients with type 1 diabetes. By focussing on national incentives and clinical leadership to drive adoption, the NHS and Accelerated Access Collaborative have increased the level of use amongst patients from 8% in March 2019 to over 30% by July 2020. These technologies are life-changing for patients and help them to take greater control of their own healthcare.

"FreeStyle Libre has given me more freedom and confidence and helped me to manage my condition far more effectively. It's been life-changing." A patient with Type 1 diabetes.

We must now embed these individual successes and learnings from the pandemic into business as usual and deliver on the commitments set out in the Life Sciences Vision. This means medtech innovators continuing to work closely with the NHS, researchers and regulators to ensure the best new technologies get into the hands of patients and clinicians faster than ever before.

3. Creating new solutions for healthcare services to manage ever increasing patient demands

Meeting the challenges of a modern healthcare service requires a change in care pathway delivery alongside the advent of new treatments. Innovative technologies offer a means to create more effective operating models which can help to increase efficiency and reduce waste.

Innovation in care pathway delivery is particularly pressing given current acute pressures – with over 5 million patients waiting for elective care[vi]. In addition, as the Government set out during recent Comprehensive Spending Review, the ambition goes well beyond simply addressing the current backlog, with the NHS aiming to undertake around 30% more elective activity by 2024-25. This is being supported by a £5.9 billion capital investment for the NHS.

Medical, diagnostic and digital technologies will be at heart of plans to deliver on these ambitions. From digital tools to help run 'virtual wards' to help relieve pressure on frontline services, to new AI and imaging technology to improve diagnosis and increase capacity in high volume specialities.

4. Help the NHS and UK to deliver cross-sector and global priorities, including Net Zero

As the largest employer in Britain, the NHS is responsible for around 4% of the nation's carbon emissions. If the UK is to succeed in achieving its overarching commitment to Net Zero by 2050, the NHS therefore must be a major part of the solution.

Building on the success of COP26, this is the perfect time to demonstrate how medical technologies can support this agenda.

Dean Russell, Member of Parliament for Watford and Member of the Health and Social Care Select Committee

The role medical technology can play over the next 20 years

The NHS is not only our most beloved institution but one of the worlds biggest employers with over a million staff tasked with healing the nation every hour of every day. Given the sheer size and scale of the NHS means achieving the optimal patient experience cannot just be put on the shoulders of our heroic NHS staff but requires systems, processes and technology to work effectively, and efficiently.

Sadly, when used in the same sentence as the NHS, the word 'efficiency' often comes with negative connotations. In fact, the phrase 'improving NHS efficiency' can often be mistaken as a synonym for 'cuts' or criticism. But this doesn't have to be the case, and as the Chair of the All Party Parliamentary Group on Digital Health, I see technology as a solution to delivering efficiency which drives exemplary patient outcomes AND optimal working environments for staff.

To illustrate how inefficiency can impact both patients and staff, consider the fact that currently 10% of a clinician's time within the NHS is spent on paperwork or notes? This is not just a waste of their time and expertise but can be frustrating for clinicians who want to focus on their patients not on paperwork and takes them away from doing what they do best: diagnosing patients.

The good news is the NHS and Department for Health and Social Care are making a concerted effort to look at driving efficiency through technology. Over the past decade we have seen the introduction of NHS Digital, NHSX and all of these frameworks looking to integrate digital technology into the health service. However, one of the things I never quite hear is that there is a programme to say, "we are going to fully digitise the NHS," and that in 10 years' time a patient will not have to repeatedly put in the same information, and the GP will not have to give the same information to a pharmacist that they have done 10 times over.

Maybe in the past, transformation and technological innovations were not seen as a necessity, but in an ever-changing system, this view has to be seen as outdated. In 2021, when efficiency is critical, paper referrals and telephone calls will not make the cut. From new frontiers in cardiac diagnostics and minimally invasive cancer therapies, to new patient information software and Artificial Intelligence, medical technology not only means patients can be seen quicker, but there is an accurate and efficient outcome the human hand cannot replicate.

There is no doubt that data and the use of technologies can be a significant driving force in shaping today's society and economy. The take-up of such solutions in response to the COVID pandemic has further demonstrated this, proving the benefit of shifting from cure to prevention.

Over the coming years as, if used correctly, technology can ensure that we create a health service that's efficient, that's effective, that has patient outcomes and the heart of it, but ultimately, creates a superior patient experience that helps everybody and is free at the point of use.

Moving forward and looking to the next 20 years of developments, I feel it is imperative that technology is seen on the same level as capital investment in bricks and mortar. Without embracing the very latest technology, the NHS will not be able to keep up with the very best treatments for patients, or the ever-growing backlog of care.

Movement from an 'if it isn't broke, don't fix it' perspective to procedures, to one of efficiency, durability and precision creates potentially unbounded opportunities to improve patient experience and health outcomes.

Over the past few months, the Government has made both verbal and financial commitments to medical technology, and I believe with this, that collectively, we can shape a safe and trustworthy landscape that will benefit patients and establish the UK as a home for digital health excellence.

As these contributions highlight, there are huge benefits to medical technology, and the role of medical technology in the future of the NHS has great potential. Now is the time to embrace medical technology, taking advantage of the rapid advances made in recent years. Patients deserve the opportunities that medical technology brings, and the future that these stakeholders have outlined.

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The MTG Five Year Forward View:
MedTech the solution to UKs biggest health challenges

Significant progress has been made in medical technology advances over the last 20 years, with millions more benefitting and able to live healthier and happier lives. However, as we look forward, it is vital that we continue to harness opportunities that medical technology provides to help patients and the NHS.

In this chapter the MTG explores some of the key challenges that the government and NHS face over the next five years, and how medical technology can contribute towards a solution. All too often medical technology uptake can be seen as an additional check or burden for the NHS, whereas it should be seen as a solution and help.

The key areas that this chapter focuses on are:

1. The increasing NHS backlog: tackling waiting lists in the elective restart and beyond is a top priority for both NHS and government.
2. An ageing population and stretched workforce: there is a clear focus on prevention, keeping people well and out of hospital.
3. 'Levelling up': this is both a government priority, but also a focus for the NHS in terms of improving health inequalities and reducing regional variation in access to care.

Clearing the NHS elective backlog

COVID-19 has led to record waiting times with over 5.6 million people on NHS waiting lists[23]. The Government has announced that the backlog and waiting lists are a key priority moving forwards. Given the growing attention the issue is receiving from the wider public, this is likely to be a focus point for years to come. The next election will likely focus on the NHS, and waiting lists, as a key political sticking point, meaning this issue will remain at the top of the political agenda for some time to come.

Likewise, in the NHS, the growing waiting list and backlog of care is an increasing concern, balanced against COVID-19 management and infection prevention control methods which means capacity to increase procedures is a challenge. This is resulting in increasing pressure on the system to increase capacity and the number of procedures that are taking place, against a growing waiting list and an under-pressure workforce.

Medical technology can be a key enabler in helping to overcome this challenge and support the NHS to tackle waiting lists.

Day case procedures and minimally invasive procedures are examples of how procedures and treatments can be sped up to enable more people to be treated. Minimally invasive procedures result in treating people with interventions which require a less complex recovery, and often less time in theatre. This means patients can be discharged more quickly from hospitals, freeing up beds within hospitals to enable more procedures to take place. Day case surgery has a similar impact, enabling patients to move quickly through the system. Often minimally invasive procedures and day case procedures result in patients having a quicker recovery. This reduces time required in the community caring for those who are recovering from high-impact surgery.

Case Study: Uterine Fibroid Embolisation

Fibroids are non-cancerous tumours on the muscle layers of the womb. They can vary in size from a bean to melon. Excessive menstrual bleeding is one of the most common symptoms for fibroids. People suffering with fibroids will often pass blood clots and see longer bleeding and monthly periods. If left untreated it can lead to fatigue and anaemia – potentially requiring blood transfusions.

The technology

Uterine Fibroid Embolisation (UFE), is an image-guided, minimally invasive procedure used to treat patients with symptomatic uterine fibroids.

A high-definition x-ray camera is used to guide a catheter with a diameter of about 2 mm into the uterine arteries to deliver particles of an embolic material. These particles stop the supply of blood and cause fibroids to shrink.

Uterine embolisation is carried out under conscious sedation; no general anaesthetic or surgery is involved therefore:

- There is no surgical wound to heal and muscles are not cut - only a tiny incision site that heals completely and leaves no scar
- Only the fibroids are affected
- The uterus and all reproductive organs remain intact
- Hospital stay is normally overnight compared with 5-10 days for surgery
- The recovery time is much shorter than surgery 2-5 weeks compared with 2-3 months
- Return to work and normal life is much quicker 1-3 weeks
- There is no restriction on lifting or driving after embolisation[24]

Embolisation is a far less invasive procedure than many alternatives, allowing women to return to normal life much quicker and does not leave them infertile.

Case Study: Transcatheter Aortic Valve Implantation (TAVI)

Aortic stenosis is a common form of heart valve disease in which the aortic valve - the main valve through which the heart pumps blood to the body, becomes narrowed and restricted, obstructing the flow of blood. If left untreated, aortic stenosis can be fatal with a two-year survival rate of around 50 per cent, worse than many common cancers. Epidemiological studies have determined that more than one in eight people aged 75 and older have moderate or severe aortic stenosis. Fortunately, aortic stenosis can be safely and effectively treated by a procedure to replace the narrowed valve, either by open-heart surgery (surgical aortic valve replacement (SAVR), or by a much less invasive technique known as transcatheter aortic valve implantation (TAVI).

TAVI is a minimally invasive treatment for aortic stenosis, which allows the aortic valve to be replaced without the need for open-heart surgery. Since it was performed in the UK in 2007, TAVI has grown exponentially to become a routine treatment for millions of patients across the world. TAVI is performed under local anaesthetic, and patients can usually be discharged just one or two days after the procedure. Patients usually enjoy immediate benefit from the procedure and experience a much more rapid recovery than they would from a traditional, open-heart valve replacement.[25,26]

Another way to reduce pressure at Trust level is to increase the adoption of remote monitoring tools. These can enable patients to monitor their conditions more independently, and often enable clinicians to feel more confident in discharging a patient more quickly. They can also support rehabilitation at home, meaning patients can leave hospital at an earlier time.

Alongside enabling a quicker discharge from hospitals, remote monitoring provides additional benefits within the community, for example in heart failure monitors. These devices enable clinicians and patients to monitor long term conditions, and be able to intervene at the appropriate time, without multiple check-up appointments which can be frustrating for the patient and time consuming for clinicians.

Case Study: INR digital monitoring in Darlington and Durham

The remote testing of the INR (international normalised ratio) service was set up at Durham and Darlington NHS Foundation Trust in 2014 and has supported over 2,500 patients taking warfarin and other anticoagulants.

The digital solutions enable INR levels to be remotely monitored. This involves reducing the requirement to attend a GP practice or hospital in person for face-to-face appointments; decreasing the risk of infections but also providing patients with the assurances that their health care professionals are monitoring their health and providing the correct treatment.

Take-aways from the testing included:

- In an audit of 77 patients by Durham and Darlington, 100% of those on the home INR self-testing service said they'd recommend the service to others.
- Patients who monitor their own blood levels in this way have better levels of control and spend much longer in the therapeutic range, significantly reducing their chance of a stroke.
- 70% of patients in the service experienced sustainable clinically significant improvements in their INR management.[27]

Case Study: Remote Monitoring of CIED

Heart failure (HF) is the leading cause of hospital admission for patients aged over 65. Spending on HF accounts are 2% of the total NHS budget and 70% of these costs are attributable to hospitalisation.

Patients with HF often have a cardiac implantable electronic device (CIED, pacemaker or defibrillator), but the opportunity has never been seized to leverage health-related data collected by the device to optimise HF care.

There is a nurse-led, patient centric, remote monitoring clinical care pathway, designed to leverage routinely collected health-related data (derived from existing implanted devices) to complement clinical care - with a specific focus on HF management available.

Central to the pathway is the calculation of risk. A medical algorithm uses health-related data from implanted devices. This data allows patients to be stratified by risk of hospitalisation.

Patients scoring 'high-risk' have a 10-fold increased risk of being hospitalised within 30-days. Whenever a high-risk score is calculated, an alert is automatically generated and sent to the clinical team notifying them of abnormal health-related data. High-risk alerts prompt a telephone consultation with the patient by the HF nurse, based upon which appropriate clinical action is instigated.

Often patients are managed entirely remotely without any need for face-to-face contact, thereby facilitating end-to-end remote management (monitoring, intervention and follow-up) a distinct advantage during and beyond the COVID era.

Benefits:

- Patients are constantly monitored and get rapid assistance based on clinical need. This helps prevent deterioration and improves the interactions patients have with clinicians.
- Since COVID, many clinical services have defaulted to over-the-phone or virtual assessments. The rich real-time health-data monitored by the device can be used to complement virtual review, replacing the paucity of clinical data
- Low risk patients can be deescalated and moved to a less intense pathway and the focus can then be placed on high risk patients.

Tackling the backlog requires working in a different way, making best use of resources and workforce available. Medical technologies can provide opportunities around treating people more quickly, with less intervention and can move patients through a pathway more quickly. Medical technology can disrupt pathways and enable patients to be treated in a different way. Now is the time to embrace medical technology to help more people in a timely manner.

The NHS prevention agenda

In the Long Term Plan[28], the NHS set out an objective of pivoting towards a more preventative healthcare model. With the current pressures on the NHS, combined with the backlog and workforce challenges, keeping people healthy and out of hospital has never been more important.

As seen in recent announcements and speeches, this focus on prevention is something that is being embraced by both government and NHS leaders. At the launch of the Office for Health Promotion, Boris Johnson highlighted the need to focus on preventing illnesses and keeping people healthier[29]. Whilst challenges remain around funding for public health, particularly in the community, there is clear appetite to keep people well.

This can be seen as keeping people healthier in their day to day lives alongside reducing the impact and poor management of long-term conditions to reduce pressure on emergency departments and other NHS services.

Case study: Continuous glucose monitors

A continuous glucose monitor (CGM) is a small device for people living with diabetes that is worn just under the skin. It measures glucose (sugar) levels continuously throughout the day and night, allowing people to see trends in levels and alerts the individual to highs and lows.

The information collected about blood sugar levels can be accessed instantly and shared with the person's healthcare team so that they can review and adjust treatment appropriately. It also means that the information can be shared easily during virtual appointments with the individual's healthcare team – something that has been particularly beneficial during the COVID-19 pandemic

CGM is evidenced to improve both glycaemic control and quality of life in people with diabetes who us the technology. The actionable data from the technology means people can be proactive rather than reactive, with trend arrows helping them to prevent hypo- or hyperglycaemia. The data generated from CGMs also help people to better understand how exercise, certain types of food or even stress affect their blood glucose levels.

All of this information means people are able to better self-manage their diabetes and, in turn, reduce the risk of developing the devastating complications associated with the condition like stroke, blindness and amputation.

This focus on keeping people living with long term conditions well will significantly reduce pressure on other NHS services, where more significant interventions are required.

Alongside this, improving diagnostics in the NHS feeds into the agenda of prevention and early intervention. A focus on diagnostics will enable earlier diagnosis, save lives and reduce pressure on the NHS by reducing the need for late stage, expensive and time-consuming interventions.

Medical technology can provide a range of support in this area. Diagnostic technology can help the NHS to detect and diagnose conditions early and offer patients the opportunity to take preventative measures and stop the worsening of conditions.

Case Study: Early Diagnosis for Cancer

The current demand for upper and lower gastro-intestinal endoscopy services alongside pathology, which provides key diagnostic tests for cancer, is incredibly high and continues to increase. This is also coupled with a serious lack of capacity to match the need both in infrastructure and staffing, leading to a knock-on effect on waiting times.

Many patients are currently waiting too long between being referred and undergoing diagnostic testing. Imminent adoption of the faecal immunochemical test (FIT) test in England has the potential to detect more early-stage cancers than the current screening test and will likely place additional demands on endoscopy services when introduced throughout the rest of the UK.

One way to help ease the burden on endoscopy services is through the introduction of a Transnasal endoscopy service. An alternative to conventional oral gastroscopy, Transnasal endoscopy utilises a super slim scope which can be inserted through the nose, avoiding the gag reflex and making the procedure more comfortable for patients.

A Transnasal procedure requires minimal, or in the majority of cases, no sedation, enabling quicker patient recovery and reducing personal inconvenience. This also leads to an increase in throughput, allowing the hospital to carry out more gastroscopies per session, reducing cancer waiting lists and freeing-up procedural time and resource for more complex procedures.

Transnasal service can be delivered in an outpatient setting; this presents an opportunity to free-up vital clinical space within the dedicated endoscopy unit and involves no significant infrastructural changes. A further benefit associated with outpatient Transnasal services is the potential to upskill and champion the role of Nurse Endoscopists.

The increased investment in community diagnostic hubs, recently announced in the Spending Review[30], and the associated funding is welcome to see. However, the NHS now needs to work effectively with these hubs to ensure a smooth pathway for patients, and that people can be seen in a timely and efficient manner.

The earlier issues are picked up by individuals or clinical professionals, the more effectively they can be treated. Encouraging checks whenever an individual is within a healthcare setting is an opportunity to pick up on undiagnosed conditions at a time convenient to the patient and healthcare professional. Intelligent screening is also linked to this focus on early diagnosis and is key to improving patient outcomes. The MTG welcomes the focus on blood pressure checks, announced by the government, and is calling for wider community checks for other easily measurable warning signs.

Blood pressure checks – Press Release

Thousands of lives will be saved thanks to more blood pressure checks in high street pharmacies, the NHS said today.

Every NHS pharmacy in England will be able to provide the lifesaving checks to people aged 40 and over from October thanks to a new deal between pharmacies and the NHS.

Over the next five years estimates show that 3,700 strokes and 2,500 heart attacks could be prevented as a result of the tests and around 2,000 lives could be saved.

Predictions also show that if 2.5 million people get their blood pressure checked in this way, an additional 250,000 people could receive lifesaving treatment for hypertension.

The NHS began piloting the checks in autumn 2019 with full rollout now starting from October this year.

This action is the latest step to find thousands more people living with cardiovascular disease earlier and to prevent over 150,000 heart attacks, strokes and dementia cases – a key part of the NHS Long Term Plan.

Pharmacists will case-find and offer blood pressure tests to people showing symptoms, provide clinical and lifestyle advice or referral, and record the data, joining up services and treatment with GPs and other local services, to speed up access to care.

As part of the new contract, local chemists will also play a part in NHS smoking cessation services by offering advice and care to smokers who have recently been discharged from hospital. Patients will be able to receive support sessions over 12 weeks with a trained member of the pharmacy team.[31]

Technology has the potential to not just repeatedly manage a patient, but in some cases treat the condition entirely. This is more important than ever as by reducing healthcare management time, it can free up clinician time and money used within the service, whilst delivering improved patient outcomes.

Effective diagnostic use can also help with wider challenges to the NHS and global health challenges, such as antimicrobial resistance. Effective, timely diagnosis results in reduced unnecessary prescribing and will improve patient outcomes as well as helping reduce antimicrobial resistance.

The levelling up agenda

The 2019 Conservative Party Government has repeatedly focused on messaging around the 'levelling up' agenda, with Boris Johnson focusing on this theme in his speech at the 2021 Conservative Party Conference[32]. Whilst there may be a debate around what the government actually means by the levelling up agenda, in terms of healthcare, there are several challenges.

COVID-19 has shone a light on the disparities that exist across the country, and the worse outcomes that are linked to specific geographical locations or different populations/socio-economic areas[33]. When the new Office for Health Improvement and Disparities launched, it was acknowledged that health disparities across the UK mean life expectancy varies significantly across the country[34]. The discrepancy in life expectancy across the country highlights how more can be done to provide best care and access to life saving and life changing treatments.

Medical technology can help reduce health inequalities, offering treatments for prevalent conditions, including those most affected in deprived socio-economic areas. To reduce variation and bring care up to the best standard across the NHS, best practice needs to be shared and practices limiting access to certain treatments and technologies should be eradicated.

This can be seen in technology that can help manage conditions effectively, such as insulin pumps, but also in technology that reduces complications, such as catheters which improve patient experience and reduce the risk of infection.

Case Study: Foley Catheterisation Tray

Many people will require a catheter in their lifetime, whether following a particular procedure or for certain conditions. Infection caused by catheters are common, however they can be easily prevented. Patients experience repeat admissions and discomfort with potential complications and the need for broad spectrum antibiotics. Avoiding infection is important across the whole system.

The Foley Catheterisation Tray contains the essential items to either catheterise or re-catheterise, it is designed to simplify the urinary catheterisation procedure. The Tray aligns with national guidelines, helping to reduce the risk of infection, improve patient safety and lower costs. The pre-connected catheter and collection system in the Tray has a removable tamper evident seal at the catheter/ drainage tube junction. Preventing accidental bag disconnection and misguided breakage of the sterile closed system reinforces good clinical practice.

The Association for Safe Aseptic Practice (ASAP) has evaluated the Foley Catheterisation Tray as a device that promotes safe and effective aseptic technique according to ANTT® principles and practice. It is recognised by the Infection Prevention Society (IPS) as part of the Industry Insights initiative.

Given such technology exists, more needs to be done to ensure patient safety and appropriate infection prevention measures are taken across the NHS to improve patient outcomes.

Variation in access and outcomes across the NHS is an acknowledged issue which the MTG has campaign on repeatedly in recent years. The MTG Ration Watch campaign has highlighted over recent years how commissioning policies vary across the country, resulting in patient access being limited to proven devices.

This feeds directly into a system that will result in different outcomes across the country, with some being able to access the best available care, and others denied based purely on where they live.

Ration Watch data

Hernia

A hernia occurs when an internal part of the body pushes through a weakness in the muscle or surrounding tissue wall. Several surgical techniques exist to fix hernia. Hernia repair is one of the most common procedures performed in the UK, with around 80,000 taking place each year[35]. There is guidance on hernia repair from NICE[36] and the Royal College of Surgeons[37].

The National Institute for Health and Care Excellence (NICE) guidance states that surgical repair should be undertaken in most individuals with an inguinal hernia to close the defect, alleviate symptoms of discomfort and/or prevent serious complications, such as obstruction or strangulation of the hernia[38]. The Royal College of Surgeon's guidance is clear on the impact of delaying treatment, 'CCGs should not set criteria for referral and treatment for inguinal hernias outside that recommended in this guidance, as this approach produces worse clinical outcomes and has not been shown to be cost effective'. There is a strong evidence base and proven record of successful outcomes following hernia repair operations.

Despite this, Ration Watch found that 95 CCGs, almost 50%, include hernia repair on their PoLCV lists or lists of Threshold Policies. The type of policies related to hernia repair commissioning are often described as a 'watchful waiting' approach. Whilst this type of approach may be appropriate for some patients, using this approach more widely could mean more and more patients will only receive treatment when their condition deteriorates, and they require an emergency intervention.

Cataract Removal

Cataract surgery involves replacing the cloudy lens inside your eye with an artificial one. It's the most common operation performed in the UK, with a high success rate in improving your eyesight[39]. The Royal College of Ophthalmology has clear guidance for commissioners on the commissioning of cataracts[40]. There is also a NICE guideline in relation to cataract management[41].

The Royal College of Ophthalmology are clear on the need to treat patients early stating that the 'presence of cataract causes disability and increases the likelihood that individuals will suffer adverse events such as falls' and that '…Cataract surgery is the only effective intervention to treat cataracts and is cost effective.[42]' Both NICE and Royal College of Ophthalmology say that access to cataract removal should not be restricted on the basis of visual acuity.

Despite this guidance and associated evidence, Ration Watch found that 104, more than 50% of CCGs include cataract removal on the PoLCV or threshold lists. Alongside this, 76 CCGs include a visual acuity threshold in their commissioning policy.

Hip and Knee Replacement

Total hip replacement and total knee replacement are proven orthopaedic interventions that have been supporting people for many years. In total around 200,000 hip and knee replacements take place each year in England[43].

There is clear evidence supporting hip and knee replacement. The National Joint Registry has highlighted the results of a patient satisfaction assessment which shows that 92% of patients describe themselves as feeling either 'excellent', 'very good' or 'good' six months after treatment[44]. The British Hip Society has guidelines for the commissioning of total hip replacement, which sets out the benefits – 'Total Hip Replacement (THR) is cost effective, returning 90% of patients to their previous job, and enabling the elderly to keep independent. The National Tariff for THR is cheaper than long-term conservative treatment for osteoarthritis of the hip'[45].

The Royal College of Surgeons have spoken out against the use of blanket bans on access to treatment, stating that 'blanket bans do not best serve patient care.[46]'

Despite this guidance and the evidence supporting access to treatment, Ration Watch found 78 CCGs currently include hip and knee replacement surgery on their PoLCV or threshold lists. Often the policy includes a BMI threshold, something not supported by the Royal College of Surgeons.

As these findings from Ration Watch highlight, there is huge variation in access to proven technologies across the country.

The NHS needs to invest and improve its commissioning policies, with appropriate accountability over local areas, to enable quicker and more widespread adoption of medical technology so medical technology can reach patients who need it most. This is especially pressing with Integrated Care Systems (ICSs) where, if there is not appropriate accountability, there is the risk that best-in-class ICS's leave behind those poorly performing areas resulting in increased variation in patient outcomes across the country. The MTG is calling for appropriate accountability of ICSs to reduce this behaviour in commissioning.

Patchy uptake of innovative technology is also driving healthcare inequalities. If there is variation in which Trusts or individual regions encourage access to life changing technology, many will miss out. This can be seen in access to SIRT technology and Left Atrial Appendage Occlusion.

Case Study: Selective internal radiation therapy

NICE approved Selective internal radiation therapy in February 2021.

SIRT is a way of giving radiation treatment for cancer via tiny radioactive beads (called microspheres) that are injected into the artery supplying blood to the tumour via a catheter from the femoral artery.

The beads lodge permanently in the small blood vessels in and around the tumour, giving off radiation, causing damage to the cancer cells. The radioactivity of each bead only affects tissue that is very nearby, limiting the damage to surrounding areas of healthy liver.

The guidance recommends the use for treating advanced liver cancer that cannot be surgically removed and when a procedure to cut off the blood supply to the tumour is not appropriate.

Although the clinical trial data for SIRT compared with other treatment options are limited, the committee concluded that, compared with systemic therapy sorafenib, they may have fewer and more manageable side-effects, which can improve quality of life.

Despite this there are only 10 centres currently commissioned by NHS England, meaning that the number of patients that NICE suggested could be treated per year will not be able to access treatment due to a lack of sites offering the procedure. This is resulting in regional variation, with patients unable to access this life saving, innovative treatment across the country.

The MTG is calling for uptake at pace and scale of proven technology, alongside eliminating barriers to technology already available on the NHS, to improve patient access and level up the country.

Barriers to uptake

The most significant barriers to uptake of medical technology which prevent patient access are categorised below:

1. **Awareness and patient engagement**
   - Poor awareness of the full range of treatment options from patients and clinicians, resulting in patients not being offered access to all options.
   - Patients not being properly consulted when prioritisation and access decisions are being made.
   - A lack of informed choice for patients.
2. **Commissioning and funding barriers to existing, proven technology**
   - Commissioning barriers at local CCG, and in the future ICS, level results in postcode variation. Often this is through using barriers based on non-clinical evidence reducing patient access in an attempt to limit waiting lists and referral costs.
   - Lack of funding streams for technologies that have undergone a Health Technology Assessment and are proven to deliver value.
   - NICE guidance and Technology Appraisals not implemented across the country.
   - Wider societal value that medical technology brings can be overlooked with no incentives for areas to drive uptake and make wider savings and improve lives.
3. **Poor uptake of new life changing technology**
   - The current system of choosing 'winners' results in only a few technologies being adopted at pace and scale across the NHS. Often based on an unclear criteria for selection.
   - The system can be slow, with poor communication, resulting in technology not being made available for patients.
   - A confusing system with multiple different paths to uptake of new technology with a transformative agenda. With limited funding streams to support uptake.
4. **Silo mentality**
   - Siloed budgets across patient pathways deter investment in improved treatments, as the benefits of implementing a technology fall into a different budget.
   - Annual budget cycles limit the capacity for healthcare organisations to make long term investment decisions.
   - Patients often funnelled down a treatment pathway that might not be best for them, the lack of joined up, multi-discipline working means they don't get the best care.

Recommendations

The recommendations in this chapter are focused on improving patient access to medical technology. If implemented, these would ensure patient access across the country, saving lives and helping people live healthier, happier lives with their loved ones.

1. **Prioritisation of the patient voice**
    - Patients should be consulted when decisions around commissioning and funding are made by NHS England, NICE, the Accelerated Access Collaborative or Government.
    - The patient voice should be a necessary consideration when decisions around access or prioritisation are made, rather than a tick box exercise.
    - Patients should be considered by multi-disciplinary teams and offered all available diagnosis and treatment options so they can make an informed choice.
2. **Accelerated access for patients to medical technology**
    - Technology recommended by NICE, through either Technology Appraisal or Guidance, should be taken up at pace and scale across the country.
    - This should be implemented by Integrated Care Systems and ICSs should be held accountable for uptake of technology.
    - Tracking and reporting of the use of technology should be improved, so NHS organisations that are resistant to technology are highlighted.
    - Awareness of NICE guidance and new procedures should be a priority for NHS and all working within the NHS.
3. **Equitable and timely commissioning**
    - Commissioning decisions made by NHS England should be linked to funding.
    - Proven technology recommended by NICE, Accelerated Access Collaborative or local bodies should be linked to funding.
    - NICE should include wider societal value within decisions around medical technology.
    - Reward long-term decision making to improve health outcomes.

All too often MTG members hear of patients denied access to treatment or to medical technology because it is not available in their area, or not prioritised. Medical technology can be seen as disruptive or too difficult to embed within systems at pace and scale. The MTG is calling for the NHS and government to welcome the contribution that medical technology has made to date and embrace the opportunities that medical technology provides.

MTG Call to Action:

Medical technology can help people live healthier, happier lives and can reduce pressure, clinician time and costly interventions in the NHS.

The MTG is calling for:

1. Improved patient access to medical technology.

2. For the uptake of medical technology to be seen and embraced as a solution to help the NHS.

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