

# Swāsthya Health

HEALTHCARE JOURNAL FOR PROFESSIONALS **स्वास्थ्य**

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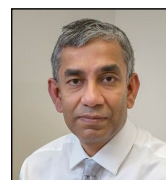
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Swasthya is an independent publication aimed at promoting debate on hot-topics and not for making profits.

**T**The year has been one of the most devastating period marred by the COVID-19 pandemic that shook the medical fraternity to its core. The global mortality is passing through the 1.48M mark as we approach the festive session with mounting anxiety that awaits one more pick in the spread of the viral infection.

The news that Pfizer vaccine is approved is a great relief. Let us hope that the new year brings a new era of rebuilding from chaos but an opportunity to learn valuable lessons for the entire NHS.

On behalf of all of us involved in the publication of Swasthya, we pay tribute to all those front-line staff who made the ultimate sacrifice while serving the victims of the virus.

An interesting article by Professor Riccardo A. Audisio, Dr Nicolò Matteo Luca Battisti and Anna Mislant have referred to the SIOG Recommendations in relation to Adjusting Care for Older Cancer Patients During the COVID-19 Outbreak.

The mental health supplement in the previous issue was well received and we have added a new section for surgery to facilitate specialties, giving more clinical colour to the publication.

Unfortunately, ever year tales of racial inequalities remind us of the devil that is being allowed to fester the environment in the NHS. I am grateful to Prof Kailash Chand OBE, as we were able to contribute an article under the title, Shout at the Devil. Dr A K Singh and Dr Shikhar Garg have provided a perspective on India's COVID and Challenges. So is the article -Corporate Mental Health - the new paradigm in mental health, Dr Avinash De Sousa from India. In the world of highly stressed environmental impact on our mental health, Dr Luke Solomons provided insight into the relationship between sleep and wellbeing.

We place emphasis on promoting innovation that has the potential to contribute to improving the quality of patient care. The article by Prof. A A Shetty and Dr Saseendar Shanmugasundaram has provided valuable exploration to the new frontiers in Regenerative medicine involving the Stem cells and Gene therapy for cartilage repair of the joint. It is very good news about an innovative breakthrough for breast cancer patients reported by Professor Jayant S Vaidya in a narrative.

The era of the robotic surgery is upon us and developing at a much faster pace beyond our imagination a few decades ago. Rohit Bhattar, Thiagrajan Nambirajan, Dr Santoshi J Nagaonkar and Mr Amit Sinha, all have given their views and glimpse of the importance of the robotic Surgery in their relevant articles. Dr Vadrevu Kama Raju from the USA has contributed a special feature on the Presbyopia Correction: Prof Joseph J Dias's article describes Fractures of the scaphoid: Why they matter and how should they be treated. Mr Ramana Dhannapuneni, a Cardiac surgeon, has kindly written about the work of a voluntary initiative- Healing Little Hearts.

Swasthya website is functional to view the articles and previous issues. All these contributions provide focus on the specialties and add value to the contents of the publication. I am grateful to Mr CR Chandrasekar and Mr Amit Sinha for their contribution and support in the production of this edition. Thank you to Dr Anand Ramkrishnan, Dr Satwinder S Basra, Dr Sridhar Kalyanasundaram and Dr Kishore Tewary for encouragement and support.

We would welcome contributions for the Spring edition of Swasthya.  
Keep safe and Best Wished for The New Year

Buddhdev Pandya MBE  
Managing Editor on behalf of the Editorial Team

# Shout at the Devil

## THE DEVIL EVIL IS RACIAL INEQUALITIES, ROAMING FREELY IN OUR SOCIETY



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A recent survey report - "Over-Exposed and Under-Protected The Devastating Impact of COVID-19 on Black and Minority Ethnic Communities in Great Britain", published by the Runnymede Trust and ICM Survey<sup>1</sup> has made a significant recommendation for the healthcare sector actively involved in promoting equality and fairness within the health care sector.

It highlighted that "There has been little, or no equality impact assessment of the emergency social and economic measures rolled out by the UK government during COVID-19." It has further suggested that it is a lost opportunity for understanding and assessing the impact of government measures to mitigate the impact of coronavirus on groups with protected characteristics.

Undoubtedly, the government has responded with the haste required to meet the unexpected challenge of the many groups that have been falling through the cracks. The COVID-19 pandemic has exposed huge weaknesses and gaps in the health and care services and the ability to cope with such a crisis.

### Pandemic impacts on minority groups

In many ways it is an uncharted territory, yet a familiar territory that the government should have recognised the potential impact of poverty and disadvantage on access to social care and healthcare, and on disease severity, for people in Black, Asian and Minority Ethnic (BAME) communities. It is time to revisit the provisions for providing a credible social or financial buffer to cope with the devastating impact of such disasters for the future. This is more relevant and urgent since the BAME communities make a significant and valuable contribution to the success story of the NHS and other many mainstream public lives.

The recent brutal killing of George Floyd, in the USA sparked global outrage adding one more number to the list of victims in a longstanding history of racial terror against black people in the USA. This act of violence, which exposed the level of brutality, was seen globally against the backdrop of a global pandemic. This wreaked havoc in Black communities as the death toll mounted, sparking a collective reckoning with the fact that racism, in all its forms, is deadly and has a devastating impact on Black lives.

In Britain the outcry from the medical fraternity forced Public Health England (PHE)<sup>3</sup>, a body entrusted with protecting and improving the nation's health and wellbeing and to reduce health inequalities, to publish a report: "Disparities in the risk and outcomes of COVID-19" (August 2020)<sup>2</sup>.

The PHE findings also found that those aged 80 or older were seventy times more likely to die than those under 40. It also concluded that the risk of dying among those diagnosed with COVID-19 was also higher in males than females; higher in those living in the more deprived areas than those living in the least deprived; and higher in those in BAME groups than in White ethnic groups.

It also concluded that these inequalities were largely replicating existing inequalities in mortality rates in previous years, except for BAME groups, as mortality was previously higher in White ethnic groups. Disclosing that, when compared to previous years, there was a particularly higher increase in all cause deaths among those born outside the UK and Ireland and those in a range of caring occupations including social care and nursing auxiliaries and assistants.

### Injustices faced by BAME staff in NHS

A survey report published on 21 Oct 2020 by the Royal College of Physicians (RCP) also confirmed the widespread racial discrimination in NHS job offers, saying that the ingrained "bias" in the NHS made it much harder for BAME doctors to become a consultant or progress in their career compared with their white counterparts.

The RCP examined eight years of data on the experience of doctors, typically in their 30s, who had recently gained their certificate of completion of training, which means they can then apply for their first post as a consultant in a hospital.

The RCP survey found 'consistent evidence' of trainees from BAME backgrounds being less successful at consultant interview. The report also says that the doctors from BAME backgrounds have been hindered in their search for senior roles because of widespread "racial discrimination" in the NHS. Dr Andrew Goddard, the RCP's president said, "It is clear from the results of this survey that racial discrimination is still a major issue within the NHS", Adding, "It's a travesty that any healthcare appointment would be based on anything other than ability."

Roger Kline, a research fellow at Middlesex University and an expert in racial discrimination in the NHS, said the findings proved BAME medics suffered from "systemic discrimination".

He commented, "These findings are appalling and confirm what many doctors across all medical specialities have long suspected has been occurring. These patterns of discrimination are really hard for individual doctors to challenge so the medical

profession as a whole, and their employers, need to finally accept systemic discrimination exists and take decisive action.”

In September 2018, a research exercise by NHS Digital, the service’s statistical arm, resulted in the biggest study of earnings by ethnicity based on analysis of 750,000 staff salaries in the NHS in England. It found that Black doctors in the NHS are paid on average almost £10,000 a year less and black nurses £2,700 less than their white counterparts. Black female doctors earned £9,612 a year less and black male doctors £9,492 a year less than white ones.

### Racism legislation

Britain introduced anti-race racial discrimination law in around 1965, which was subsequently amended following case law from many Industrial tribunals and the Courts. Who would have thought that in the era of minimum wages and equal pay, such disparities would still exist?

Ironically, the report by Sir William Macpherson into the death of the black teenager Stephen Lawrence on 22 April 1993 concluded that that the investigation of the killing had ‘been marred by a combination of professional incompetence, institutional racism and a failure of leadership’. How appropriate was his definition of institutional racism - ‘The collective failure of an organisation to provide an appropriate and professional service to people because of their colour, culture or ethnic origin. It can be detected in processes, attitudes and behaviour which amount to discrimination through unwitting prejudice, ignorance, thoughtlessness and racial stereotyping which disadvantages minority ethnic people”.

One of the outcomes from the Stephen Lawrence Inquiry was the amendment of the Race Relations Act 1976. In 2004 the then NHS Chief Executive and Permanent Secretary of the Department of Health, Sir Nigel Crisp (now Lord Crisp), published his Ten Point Race Equality Plan for the NHS. He also asked 500 Chief Executives of hospitals and primary care trusts at the time to mentor BME staff. A particular aim and objective were to address the under-representation of BAME staff in leadership positions in the NHS.

### Endemic racism in NHS

A report in October 2019 Organisation Diagnosis Report for the Services at NHS Blood and Transplant - by Mr Clive Lewis OBE revealed many issues pointing towards evidence of unconscious bias and/or other systemic constraints at most senior levels. The report indicates several hours were spent listening to a large group of BAME colleagues talk about their experiences which made for very difficult hearing. I am sure many colleagues will recognise similar situations in their own localities.

We often hear responses that say:

- It is unacceptable for anyone to be treated unfairly because of their race or any other protected characteristic.
- The NHS belongs to us all, and as part of the People Plan, NHS employers are committed to increasing BAME representation across their leadership teams as well as eliminating discrimination and inequality.
- All doctors should have the same opportunities to fulfil their potential and it is unacceptable if there are biases that prevent this from happening.
- Leaders are clear that there should be no room for discrimination of any kind within the NHS ... The NHS is making some progress on this issue but, clearly, there is much further to go.”

We take pride in quoting Mahatma Gandhi and Martin Luther King when it comes to poverty driven by deprivation and brutality of racial injustices to add some wisdom to the society, we live in. In addition, sporadic investigations into racial bias and recommendations became the flavour of the month with slogans and fancy taglines to go with equality campaigns. These exercises served a very clear purpose - to pacify the anti-racist lobbies, to serve political interests and to fill the agendas of busy management meetings. Then it goes quiet until another horrific incident comes to light.

In an article in The Lancet on addressing racial inequalities in a pandemic (The Lancet - Global Health section (Sept 2020)<sup>7</sup> the authors summed up eloquently by calling for critical analysis if racial inequalities in a pandemic were to be addressed. In its conclusion it says, “For an analysis of racial inequality to result in change, it must be accompanied by a deeper critique of structural racism and recommendations to address the issue. Racial inequality in health outcomes is a consequence of structural racism which, in a pandemic, results disproportionately in illness and deaths in Black people.”

The policies that perpetuate these inequalities have been described as necropolitics: the use of social and political power to dictate who should live and who should die. The COVID-19 pandemic adds one more burden to be shouldered by Black communities, alongside genocide of Black youth, incarceration, poverty, and other forms of systemic oppression. On top of these burdens, one must also ask: what might be the consequences on individual mental health and community organisation of knowing that you have a higher risk of dying from COVID-19 because of the colour of your skin?”

In recent years, the Workforce Race Equality Standard (WRES) has done some excellent work with the NHS Commissioners and NHS healthcare providers, including independent organisations, through the NHS standard contract. However, its effectiveness and role remain a significant constraint given that it is an integral part of the NHS structure, alas not an independent autonomous body! It needs additional powers to investigate, recommend changes and, if need be, able to seek resources to mount legal changes.

The former Commission for Racial Equality had investigative powers which have been watered down after its merger into the Equality and Human Rights Commission. Most BAME pressure groups feel that it has marginalised race equality and reduced much needed grass-roots relevance.

The NHS Equality and Diversity Council announced in July 2014 that it had agreed action to ensure employees from BAME backgrounds have equal access to career opportunities and receive fair treatment in the workplace.



within the medical fraternity, can still be claimed to be riddled with lace curtain racism hidden behind a veil of systemic failures in the management of implementation of anti-racist initiatives.

The lack of political willingness has weakened the potential for adequately monitoring 'hot-spots' with early interventions to douse the ever-expanding flames of hate engulfing the working environment in the NHS.

This has been exacerbated with the ever-expanding integration of the privatisation model under public and private partnership.

This is not an attempt to dampen down the enthusiasm of those seeking to better the world or well-meaning initiatives. Rather, it merely highlights the state of affairs over half the century since race relations legislation was introduced in 1965.

In other words, there is a need for a culture shift in values in the governance framework. From the highly publicised case of Dr Bawa-Garba to the disproportionate representation of BAME doctors in the referral processes to the GMC disciplinary regime, these all point to the failure of accountability structures within the NHS Trust Boards and indeed other regulatory or inspectorate agencies.

It is a wakeup call for the BAME voluntary and community sector, especially those involved in supporting the fraternity of BAME medical professionals, to build meaningful alliances.

With over 50,000 plus doctors of Indian origin working in the NHS, there is adequate mass if it chooses to be most influential group to impact policies and implementation. It is paramount that patchy responses are avoided when it comes to matters relating to racial equality and a safer working environment in the NHS. Source: <https://www.runnymedetrust.org/>

### Conclusion:

Over the decades there have been many investigations and reports with well-meaning recommendations. Also, many initiatives have shown that attempts have been made over time to be proactive, but this has largely been patchy across the country. For those affected by the foul culture of ill-equipped management that has failed to detect and tackle the root of racial discrimination, the buck should stop at the top of the management food chain.

Failure to recognise and act in time to produce a safer workplace costs the NHS dearly when resources are scarce. The victims pay through a damaged career and mental wellbeing, not to mention the suffering of their families.

It is easy for the NHS Trusts to engage in a process full of legal costs and eventually getting their knuckles wrapped by the judiciary. They seem to see their duty to provide redress which is often cosmetic. But then who cares, it's the taxpayer's money anyway? Then, it's all repeated in another Bawa-Garba type case which becomes another headline-grabbing attraction. The most sinister outcome of this all is the loss of confidence in management which has the potential to impact on the outcomes of patient care and safety.

A commonly shared consultation is that the time has come to introduce a credible strategic approach to tackle the inequalities and racial discrimination by placing the burden of implementation, accountability with rewards and punishment that can act as deterrent. □

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# An overview of lactose intolerance

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## Introduction:

The main sugar in both breast milk and other animal milks is lactose. The newborn babies have a surge in lactase enzyme levels to enable appropriate digestion of the lactose in milk, but over time, the enzyme level drops and a degree of lactose intolerance is very common. In this article, we will review some aspects of the role of lactose in milk, as well as an overview of lactose intolerance.

## Lactose and Lactase:

Lactose is a disaccharide formed by glucose and galactose linked via a  $\beta$ -1 $\rightarrow$ 4 glucosidic bond, and is hydrolyzed by  $\beta$ -galactosidase (lactase), an enzyme bound to the brush border membrane of mainly the upper small intestine of suckling mammals. This enzyme is upregulated in the immediate newborn period and over time, the levels reduce. Lactose is the most abundant carbohydrate of most mammalian milk types, and mammalian milk is the only known natural source of significant amounts of lactose. Human milk contains approximately 70 g/L of lactose, and in exclusively breast-fed infants lactose constitutes about 40% of the daily energy consumption; for comparison, bovine milk contains approximately 46 g/L of lactose. The monosaccharides, glucose and galactose, are both actively absorbed in the small intestine once lactose is broken down by lactase enzyme.

## Role of lactose in milk

Galactose is a major component of oligosaccharides, and via galactosylation it is incorporated in glycolipids and glycoproteins where it serves multiple roles in early human development. Galactose is incorporated into brain myelin lipids, and it has been suggested that lactose in mammalian milk might have a role as a substrate for the synthesis of these galactolipids. The stable concentration of lactose is important in maintaining a constant osmotic pressure in human milk. Lactose also aids the absorption of calcium. In breast milk, many carbohydrate-based bioactive compounds, such as oligosaccharides like human milk oligosaccharides (HMOs), are attached to lactose, and lactose by itself can act as a prebiotic when it passes undigested through the gut. Lactose does not stimulate the reward center in the brain, and so, unlike other sugars, does not provoke eating for taste (promoting need based feeding, not greed based!). It also has a much lower impact on dental caries risk compared to sucrose.

## Lactose intolerance:

In the newborn period and in the first 2-3 months of life, many parents are concerned about the watery stool pattern, diaper rash and colic in babies. Many physicians consider these as evidence of lactose intolerance and advice stool tests (including reducing sugars, stool pH etc.). There is also significant confusion due to the overlapping features of lactose intolerance and cow's milk protein intolerance. There is a normal range of lactase levels in babies, and as the enzyme upregulates with time (with consistent exposure to lactose in milk), this resolves. Appropriate and adequate skin care of the nappy area to avoid rash (avoiding pressure during cleaning, preventive use of barrier nappy cream) and avoiding overfeeding to avoid exposure to a high lactose load are the only measures needed in breast feeding babies.

Colic is a transitional phase in the infant's development, and though a degree of lactose intolerance could contribute, it is not justified to substitute breast milk for this reason.

The benefits of breast milk far outweigh any transient discomfort the baby faces and simple reassurance that the problem is transient and supporting the family should be adequate. If the baby is partly on infant formula feeds for any reason (difficulty in exclusive breast feeding, family choice etc.), a trial on low lactose infant formula could



Dr Sridhar Kalyanasundaram



be considered, with stress on not modifying the breast feeding (on the contrary, supporting to achieve more breast feeding) at the same time.

There is a pattern of transient and secondary lactase deficiency due to loss of the brush border cells of the small intestine following an acute gastroenteritis-this usually follows an episode of diarrhoea and leads to persistent loose stools, diaper rash etc. A brief period of low or lactose free infant formula can help in this setting. Once the stool pattern improves and the nappy rash has healed (zinc supplements could help too in this setting), gradual change back to the previous feeding pattern is usually well tolerated over a 10-14 day period.

Most mammalian species stop producing lactase enzyme after the breast feeding phase. However, after domestication of cow and intake of dairy products by humans, lactase persistence has been noted in varying proportions-largely related to proportion of milk intake in the population group (cultural and ethnic variations). Nearly 70% of adults in the world are lactase non persistent to a degree-this proportion is lower in Northern Europe (only around 2%) while in other regions like South America, Africa and parts of Asia, it is as high as 50%. Very few children under 6 years of age have lactase non-persistence leading to lactose intolerance-the incidence increases with age. When there is lactase deficiency, there is more lactose that passes undigested to the large bowel, and as mentioned above, there is more production of short chain fatty acids (SCFA) like acetic and butyric acids. This leads to flatulence, bloating, griping and in younger kids, frothy acidic stools which causes persistent diaper rash. In older kids, this can be overcome by reducing the dose of dairy products to a level that is tolerated. It has been suggested that lactose non-digesting adults and premature infants (with low and immature production of lactase) should not avoid lactose fully but rather consume smaller amounts frequently to obtain the beneficial effects and avoid lactose intolerance symptoms. In adults, it has been shown that long-term ingestion of lactose can lead to diminished lactose intolerance as measured by the breath

hydrogen test-this adaptation may be due to changes in the colonic microbiota or an upregulation of lactase. Most adults with lactase nonpersistence can tolerate 12 g of lactose (240 ml of cow's milk) in a single dose. As the dose of intake increases, the likelihood of symptoms will increase. The type and severity of the symptoms of lactose intolerance depend upon a range of conditions including the dose of ingested lactose, residual lactase activity, gastric emptying rate, intestinal transit time, presence of other food components together with lactose, the composition and metabolic activity of the colonic microbiota fermenting lactose, as well as psychological factors regarding perception of abdominal pain and discomfort. Most of these are self-resolving once we diagnose and reduce intake of lactose.

It is important to remember that milk protein intolerance has features that are mostly different from simple lactose intolerance-it needs more specific treatment, and if that diagnosis is considered, the management approach is different (not in the scope of this article).

#### Summary:

The composition of breast milk and the reason why nature has designed it this way is intriguing. Lactose in milk is one such factor and though majority of older kids and adults have relative lactase deficiency due to non-persistence of lactase enzyme, a simple approach to the management as dictated by common sense is adequate in majority of the situations. One very important message here is that breast feeding should not be disturbed for transient lactose intolerance-supporting breast feeding and helping the mother come out of this transient phase is very important.

#### Dr Sridhar Kalyanasundaram

Dr Sridhar Kalyanasundaram is a consultant Neonatologist trained in India and UK. He worked as Consultant in a level 3 unit in Scotland for 7 years before moving to Dubai, where he has been working since 2012. He is chairman of scientific committees in many international conferences in the region, and has his Youtube channel for education, Sridhar K



# One can't pour from an empty glass

**Dr Kamal Sidhu**  
GP in County Durham

Covid19 has transformed general practice in a way that was unimaginable only less than a year ago. Primary care responded to the challenge of continuing to be accessible in a way that reduced risk for patients as well as the staff.

General practice has also adapted its response based on experience resulting in an increase in the number of face-to-face appointments after an initial drop at the start of the pandemic.

This data suggests that general practice offered 1.5million more consultations in September 2020 compared to September 2019<sup>(1)</sup>. In the backdrop of a dwindling number of general practitioners<sup>(2)</sup> and reduced availability of some secondary care and community services, this is an extraordinary feat.

The mode of consultation has undergone a seismic change with a much higher uptake of digital consultations than ever before. Clinicians have amazingly adapted to the use of e-consultations, using video technology as well as the use of messages and pictures where appropriate. In September 2020, there were 56% face to face appointments, 25% less than the corresponding period in the year before.

The use of technology has helped practices manage access in a way that reduces the risk for all. It has also been convenient for many who did not have to take time off to attend their appointment and were able to seek medical opinion sitting in the comfort of their home. The digital switch also has benefits in helping NHS reach its aspiration of becoming carbon neutral with reduced reliance on transport and saving the cost of travel for many. On the other hand, this has been a rather sudden change in the way they have traditionally consulted their GP. Besides, digital modes of consulting may not be suitable for some vulnerable groups, some from BAME communities, elderly patients and those with learning difficulties etc.

The promise of the government for providing six thousand GPs needed in the NHS remains a distant dream. The NHS is drawing in pharmacists, physiotherapists, social prescribers, physician associates and others with additional role via primary care networks (PCNs)<sup>(3)</sup>. The extended multidisciplinary team is going to be the key in future primary care models and it will help to bring more efficiency. For instance, many GP consultations tend to be related to social issues, some of which our social prescriber colleagues may well be able to help with, freeing up precious clinical time. This also means that the consultations with GPs are becoming more complex and hence more demanding and exhausting.

We are seeing an increasing number of people whose mental health has been adversely impacted by Covid and the lockdown. Similar factors and changes in work pattern have also resulted in a detrimental impact on the psychological well-being of the medical workforce.

Besides, among mixed messages from our leaders, the misperception that practices have not been open during the pandemic has resulted in GPs vilified in the media with many GP surgeries facing abuse<sup>(4)</sup>. It has further eroded the morale of the general practice staff.

Understandably, many patients feel fed up due to not being able to access some community services with many secondary care services deprioritised, elective procedures cancelled, and, in many areas, referrals being suspended or triaged. It has resulted in a very toxic atmosphere which can be highly draining. There is also the likelihood of higher complaints from patients. Some regulatory bodies have already flagged up concerns.<sup>(5)</sup>

Latest BMA Covid 19 tracker survey<sup>(6,7)</sup> is a sombre read and reflects the impact of many of the above factors. Nearly 60% of GPs were suffering from anxiety, depression, burnout or other mental health disorder related to or made worse by work. The situation is unsustainable.



**What does the future hold?**

The technology will have a far bigger focus in the delivery of clinical care across the NHS. It was already a priority in the pre-pandemic era in the NHS long term plan <sup>(8)</sup>. It will require ongoing IT support from the commissioners as well as additional training for many. The interface with secondary care needs improving with technology and mutual recognition of workload. We also need to find the right balance between virtual and face to face consultations as well as involving and empowering patients in such decisions. Also, the practices need to find what works for their patients rather than a one size fit all approach.

As the primary care multidisciplinary team becomes a more extended group of professionals, the role of a GP is changing to a ‘consultant’ in primary care who supports the extended team and focuses on complex patients with multi-morbidities. GPs have always been specialists in generalism, and this evolving role demands a different approach. The ten-minute consultation mode will need to change for the sake of our patients and the well-being of the clinicians.

Continuity of care risks becoming the sacrificial lamb in the new world. We know that the relationship with is clinician is not only related to higher patient satisfaction but is also cost-effective <sup>(9)</sup>. It is instrumental in helping general practice manages to provide 90% of the patient contact across the NHS with less than 10% of NHS funding. It is also associated with higher job satisfaction for clinicians. We need to have conversations around how we can use technology to enhance continuity, building relationships with patients and still manage to provide ‘cradle to grave’ care.

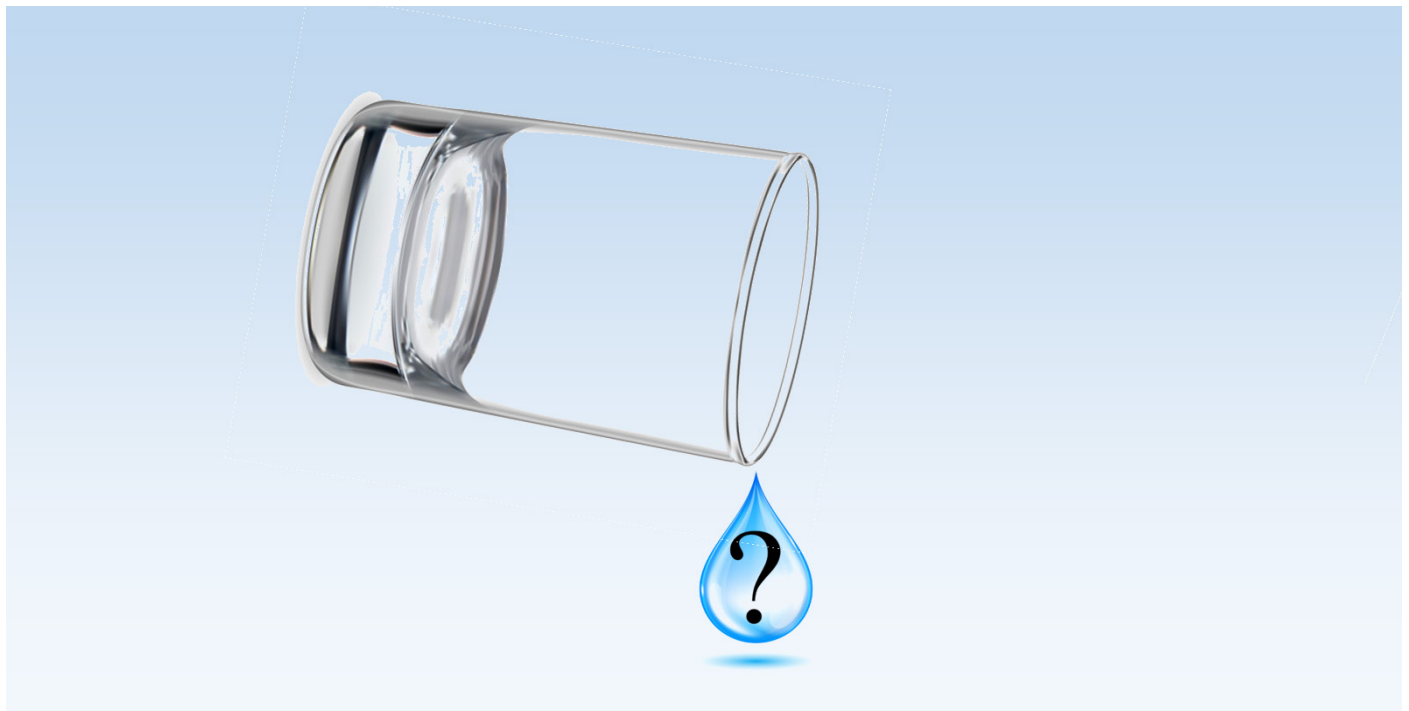
The dramatic changes that have happened need a period of stability and support. Hence, the well-being of the workforce needs to become an absolute priority. Health practitioner programme, locally commissioned occupational health services, support from Local Medical Committees (LMCs) along with formal or informal peer support will be the need of the hour.

*One cannot pour from an empty glass.*

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# SURGERY

Swasthya Health Journal for Professionals Winter Edition 2020



## IN THIS SECTION.....

- NEW FRONTIERS IN REGENERATIVE MEDICINE
- STEM CELLS AND GENE THERAPY FOR CARTILAGE REPAIR OF THE JOINT
- OUTLOOK OF PLASTIC SURGERY IN THE 21ST CENTURY
- ROLE OF ROBOTICS IN UROLOGY
- HISTORY OF ROBOTIC SURGERY AND CURRENT APPLICATIONS OF ROBOTICS
- BREAKTHROUGH FOR BREAST CANCER PATIENTS
- ROLE OF ROBOTICS IN ORTHOPAEDIC SURGERY: WILL THEY GIVE BETTER OUTCOMES?
- PRESBYOPIA CORRECTION: THE LAST FRONTIER IN REFRACTIVE SURGERY
- HEALING LITTLE HEARTS: VOLUNTARY OUTSOURCING OF NHS

## SURGERY FOCUS ISSUE –EDITORIAL

The current issue of Swasthya is a Surgery focus issue. Obviously, surgery is a broad speciality and there are many exciting developments in various surgical subspecialties. Though scalpel, forceps, haemostasis and wound closure form the essence of surgery, the way procedures are planned and performed is changing dramatically. Artificial Intelligence (AI), Virtual Reality (VR), Robotics, Navigation assistance, 3 D printing, minimally invasive surgery and other advances are making great strides. Hence it is important to keep abreast with recent technological advances in surgery along with the challenges posed by COVID19.

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I am thankful to eminent colleagues and surgeons who have spared their time and efforts to share their wisdom and research for the Surgery focus issue of Swasthya.

Robotics is becoming more popular and it's scope and indications are increasing. Mr Sinha reviews the role of robotics in Orthopaedics while Dr Nagaonkar reviews the scope, advantages and limitations of robotic surgery. Mr Bhattar and Mr Nambi Rajan provide broad overview of Robotics in Urology.

Prof Jayant Vaidya provides a commentary on breakthrough for breast cancer -benefits of IORT (Intraoperative Radiotherapy) based on his team's recent publication of a large clinical trial.

Mr Ramana Dhannapuneni introduces the concept of voluntary outsourcing of the NHS -paediatric cardiac surgery expertise worldwide and the noble work of Healing little hearts, performing over 2000 lifesaving cardiac surgeries for poor children.

Osteoarthritis is a common problem and Prof A A Shetty and Dr Shanmugasundaram discuss advances in joint preservation using stem cell and gene therapy -new frontiers in regenerative medicine.

Mr AK Tripathi discusses the outlook of plastic surgery in the 21st century including robotics, Artificial Intelligence, 3D printing etc.

Eminent US Ophthalmologist Dr Raju provides a short overview of presbyopia and treatment options.

Prof Joseph Dias, past President of the British Orthopaedic Association shares his expert overview on the evolution of Scaphoid fracture management and discusses the recent SWIFFT study published in Lancet

Prof. Audisio and colleagues from SIOG write about guidelines for cancer care for the elderly during the current COVID19 pandemic. This is timely and relevant as the collateral damage from COVID19 impact on cancer and other NCDs is becoming apparent.

I am thankful to the Managing editor Mr Buddhdev Pandya and Mr Amit Sinha for their time and help in getting quality authors to contribute to this surgery focus issue.

In summary we are delighted to edit and present the varied and interesting surgical topics. I hope that the wider readership of Swasthya will appreciate that, quality and sharing knowledge are our core value.

CR Chandrasekar

# New frontiers in Regenerative medicine

*Stem cells and Gene therapy  
for cartilage repair of the joint:*

**Prof. A A Shetty Phd. FRCS(Orth)**

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Canterbury Christ Church University

**Dr Saseendar Shanmugasundaram**

Specialist Arthroscopy and Arthroplasty Surgeon



Prof. A A Shetty



Dr Saseendar Shanmugasundaram

**O**steoarthritis (OA) is a common chronic degenerative joint disease, contributed by multiple factors that include aging, obesity, injury, trauma, joint congenital abnormalities and joint deformity. It primarily occurs after middle age and predominantly affects women. Most common presentation include joint pain and stiffness and impaired mobility, while pathological changes include cartilage destruction, subchondral cysts and sclerosis and synovial hyperplasia.

Being avascular and aneural, the regenerative potential of hyaline cartilage is poor. While medical management and physical therapy can provide symptomatic improvement especially in the early stages, they do not essentially alter, slow down or halt the disease process.

Continued research towards making true an old dream to rebuild "spare parts" to replace injured or diseased tissues led to advancements in regenerative medicine. Autologous chondrocyte transplantation has been used quite successfully in repairing damaged cartilage. However, the cultured chondrocytes have exhibited dedifferentiation and decreased chondrocyte-specific gene expression, raising concerns of senescence and poor outcomes. This redirected interests to consider mesenchymal stem cells (MSCs) for cartilage repair.

## Cultured MSCs

Mesenchymal Stem cells (MSCs) have the potential of self-renewal and directional differentiation, which are essential steps to repair cartilage tissue and suppress chondrocyte secretion of inflammatory factors. They also exhibit homing properties, which make them ideal seed cells for gradual OA treatment, and express enzymes and secrete growth factors, cytokines and chemokines that nourish cartilage by activating cellular and angiogenesis pathways. In addition, MSCs also have immunomodulatory function, which can suppress T cell proliferation and activation, proliferation and antibody secretion of B cells.

MSCs can be isolated from various sources: bone marrow, adipose tissue, tendon, periodontal tissue, umbilical cord blood and Wharton's jelly. However, bone marrow still remains the most common source of MSC harvest. Being the progenitors of the mesodermal cells, MSCs have the potential for multilineage differentiation into muscle, tendon, ligament, fat, bone, and cartilage, dermis and other connective tissues.

The international society for cell therapy (ISCT) defines MSCs with three criteria: (1) plastic-adherence, (2) expression of surface markers CD105, CD73 and CD90, and lack of expression of CD45, CD34, CD14 or CD11b, CD79α or CD19 and HLA-DR surface markers and (3) must be able to differentiate into osteoblasts, adipocytes and chondroblasts in vitro.

They can be delivered in the form of intra-articular injections or as MSC-laden scaffolds. The ease of injectable delivery of MSCs in

clinical practice provides an added advantage of avoiding surgery and its adverse effects. However, each patient should be assessed individually on a case-to-case basis to decide on the suitability of this treatment option and the best mode of MSC therapy.

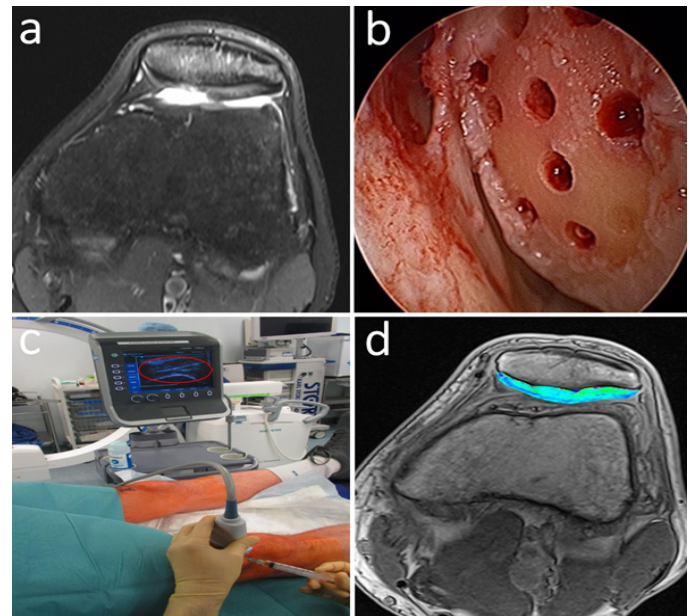


Figure 1:

Cultured MSCs being used by the author for treatment of a large patellar chondral lesion (a). In the first stage the lesion is debrided and microfractured (b) and MSCs are harvested for culture. In the second stage, the cultured MSCs are injected under ultrasound guidance into the knee joint (c). Follow-up dGEMRIC MRI at 18 months shows hyaline-like cartilage

## Concerns regarding use of MSCs:

1. While both methods have shown clinical improvement in patients with OA, further investigation is needed on the type of MSCs, the concentration of cells, the number of injections needed and the stage of osteoarthritis to address, to achieve optimal response.
2. It is also to be noted that autologous MSCs are best avoided for genetic disorders due to their genetic influence. Allogeneic MSCs are an option in these patients.
3. The quality of MSCs might be too low in older patients.
4. Though multiple safety studies have proven the safety of MSCs, the theoretical risk of uncontrolled cell division and disease transmission remain a concern.

Large quantitative studies with safety assessment would be needed rule this out.

**Mesenchymal cell induced chondrogenesis (MCIC, Shetty-Kim technique)**

One important limitation of autologous chondrocyte implantation and cultured MSCs is they are two-stage procedures, composed of an initial harvesting, in vitro culture that is expensive and subsequent transplantation into the joint. Traditional microfracture does not have this limitation but relies on a small volume of the bone marrow emerging from subchondral bone.

A technique that uses a large volume of bone marrow concentrate in addition to microfracture would logically lead to better results.

The molecular structural component applied to the treated lesion is also important. Improved outcomes have been shown with use of bio-scaffold after microfracture procedure whether combined with BMAC or not. Collagen based scaffolds enhance the fixation of the graft. Hyaluronic acid, a major component of articular cartilage has the ability to drive chondrotypic regeneration. MCIC is a hybridization of these techniques, delivering chondrogenic cells with a conductive biological matrix onto a surface prepared for regeneration. This single-staged, arthroscopic procedure is cost-effective, has low morbidity, and is a logical evolution of cartilage repair surgical techniques. Our comparative study of 42 patients who underwent Total Knee Replacement(TKA) vs 52 patients who underwent MCIC for Kellgren-Lawrence grade IV osteoarthritis revealed equivalent patient satisfaction in both the groups.

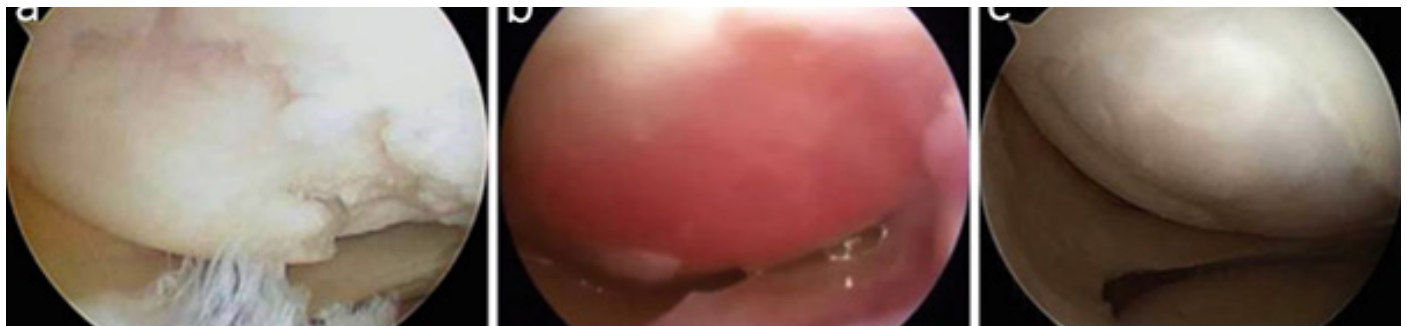


Figure 2: A medial femoral condyle lesion (a) being treated with MCIC (b) and relook arthroscopy at 18 months postoperatively

**Gene therapy**

The history of gene therapy dates to the 1970s when Roblin and Friedmann reported on gene therapy for human genetic disease. The year 1984 saw the designing of a retrovirus vector that could be used to insert foreign genes into chromosomes. The first clinical application of this technique in the US took place in 1990 to correct the genetic defect of ADA-SCID, a severe immune system deficiency. Gene therapy has been in clinical application since 1990, initially for severe combined immunodeficiency and later in the treatment of conditions of joints including rheumatoid arthritis and OA.

The technique consists of transfer of a therapeutic gene into chromosomes of injured tissue to cause synthesis of a therapeutic protein. The goal is to either increase expression of a good gene or inhibit the expression of a bad gene.

OA, being a localised pathology, is well suited for local, intra-articular gene therapy. The two most common targets are synovial tissue and the articular cartilage.

Interleukin-1 (IL-1) has a major role in the pathophysiology of OA. Hence gene transfer of its receptor antagonist (IL-1Ra) has shown promising future towards cure from OA. This is an anticatabolic approach. Similarly, stimulation of IGF-1 has been attempted in a proanabolic approach. Approaches combining both inhibition of cartilage breakdown and promotion of cartilage repair (eg, IGF-1/IL-1RA) have also produced attractive results.

**Vectors**

The gene is inserted into the cell with the help of a vector, which can be viral or non-viral. Retrovirus, lentivirus, adenovirus, adeno-associated virus (AAV) and herpes simplex virus (HSV) are some of the viral vectors. They are more efficient in transferring genes than non-viral agents. However, they also carry risk of inflammatory response, immunogenicity and mutagenesis. The problems with viral gene delivery can be solved by ex vivo gene delivery.

The nonviral approach uses various nonionic, physical (electromagnetic) and biochemical modes for gene transfer. These vectors are not immunogenic or mutagenic. However, they are less efficient than viral vectors.

Dual expression vectors harbour two genes and provide an opportunity to carry both proanabolic and anticatabolic genes to more effectively limit inflammation, apoptosis and also enhance matrix synthesis, joint lubrication and healing of chondral defects.

Gene transfer can be performed in two ways:

In, 'in vivo' gene therapy, the vector-transgene construct is delivered through an intra-articular injection. This method is used for infecting the synovial cells which are more easily accessible than the chondrocytes which are embedded in dense extracellular matrix.

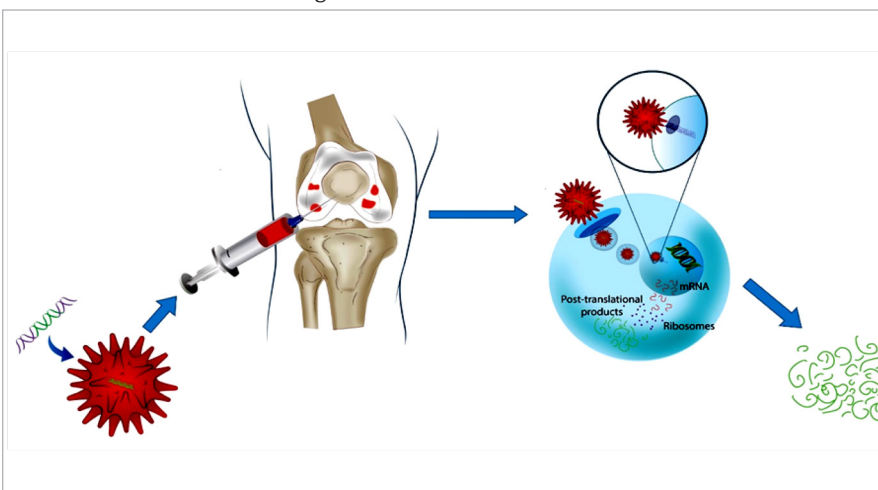


Figure 3: Principles of gene therapy in knee osteoarthritis

In, 'ex vivo' gene therapy, gene transfer is performed on cells that are harvested, cultured and are later reimplanted. This technique can be used to directly address the damaged tissue such as the cartilage. Chondrocytes or stem cells or progenitor cells are isolated, cultured, transduced using viral or transfected using non-viral approaches, and reimplanted at the site of the lesion. This technique has high transduction efficiency, precise targeting of the cells of interest and the ability to evaluate cells after transduction.

### Concerns and future directions

Safety, stability, cost-effectiveness are still concerns with gene therapy. Slowing down the progression of OA and delaying the need for a joint replacement for at least a decade can impact the patients' quality of life significantly and hence can be considered a success of therapy.

Combining gene therapy techniques with tissue engineering principles, and cell-based regenerative techniques (bone marrow-derived stem cells, adipose-derived stem cells, stromal vascular fraction) and also 3D bioprinting technology could result in new and effective therapies to enhance healing of the osteochondral unit.

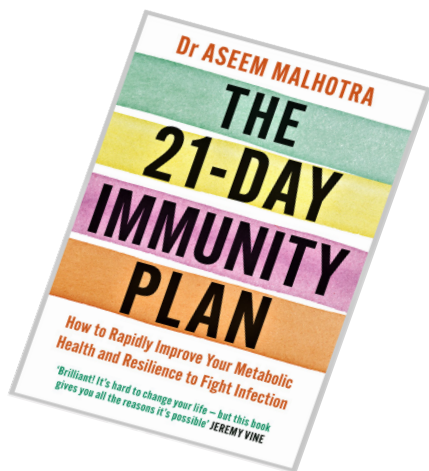
We hope that this article will provide a realistic image of the huge potential, promise and challenges facing the fantastic field of regenerative medicine in its quest to cure disease and prolong life.

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Dr Aseem Malhotra  
Renowned Cardiologist



## BOOK REVIEW

### THE 21-DAY IMMUNITY PLAN

The '21-Day Immunity Plan' book is written by Dr Aseem Malhotra who is a leading NHS-trained cardiologist and a pioneer of lifestyle medicine. This new book offers a "simple, evidence-based" plan to help improve metabolic health and normal immune function and reduce the risk of damaging effects from Covid-19.

The good news is that in just 21 days we can prevent many of the underlying risk factors that exacerbate how infections, including Covid-19, affect us and improve our ability to recover from them. Arguing for the huge benefits to global health of these highly effective lifestyle changes, he shows how just 21 days can help us to start the journey to lead a healthier and longer life.

Dr Aseem Malhotra has been championing an anti-obesity drive as a means to combat the severe effects of COVID-19. He has been at the forefront of citing the health conditions which make us vulnerable to the worst effects of Covid-19.

Obesity, Type 2 diabetes and heart disease are high among them - and are all indicators of poor metabolic health. Giving us the evidence-based science behind the plan, Dr Malhotra shares how simple changes to our diet as well as daily exercise and stress relief can have remarkable results in improving our markers for metabolic health, as well as helping to put Type 2 diabetes into remission, reducing risk factors for heart disease, decreasing weight and enhance vitality.

*'The 21-Day Immunity Plan' is an essential read for all of us who are conscious about our well being and I would whole heartedly commend this book.*

Prof JS Bamrah CBE

Prof Bamrah is a senior consultant psychiatrist at the Greater Manchester Mental Health Trust and an Honorary Reader at the University of Manchester. He is a member of the Synergi Collaborative Centre's Advisory Board, a national initiative to reframe, rethink and transform the realities of ethnic inequalities in severe mental illness. He is Deputy Chairman of the Board of Science, BMA. In 2020 he was appointed member of an Advisory Board member of ICMR-Centre for Innovation and Bio-Design (CIBiD) by the Govt. of India.



# Outlook of Plastic Surgery in the 21st Century

A.K. Tripathi  
Plastic, Hand & Aesthetic Surgeon

Plastic surgery has come a long way since it was first performed by Sushruta in 600BC in India. The revolution of plastic surgery started after WWII in the 20th Century, along with advancements in other medical fields.

By the end of the 20th Century, the computer and mobile phone revolution had opened up many avenues for innovation and use of new technologies in health sectors, from early diagnosis to radical treatment and management. A brief account for existing and future developments and upcoming innovations, particularly in plastic surgery are as follows:

## Robotics in Plastic Surgery:

Technical advances in field of surgery has shifted from large incision to minimally invasive surgery. In reconstructive plastic surgery, robotic techniques are increasingly being used to harvest muscle flaps for breast and head & neck reconstruction. This technique has also provided precision in microscopic nerve surgeries such as procedures on brachial plexus for harvesting fine nerves, grafting and repair. In the near future, robotics will be involved in more planning and will also measure performance of various surgical techniques. However, in the USA the most commonly used robotic system (Da Vinci) is still awaiting FDA approval for its use in plastic surgery.

## Artificial Intelligence (AI), Virtual Reality (VR) and 5G Internet:

Possibilities for AI and VR are increasingly being explored in other specialities for better and accurate investigations in imaging and diagnosis, however they are still in their infancy in plastic surgery. Presently, AI and VR are mainly aimed to be utilised as simulator in training to surgeons for robotic surgery.

The deployment of 5G has been delayed due to the ongoing Covid-19 pandemic. However, in the recent World Economic Forum, 5G is predicted to change the world in the way we never imagine. Its capacity for real time data transfer, would greatly enhance touch and tactile functions through wearable medical devices such as VR devices. Its use in conjunction with AI, mobile phones and robotics would enable surgeons to see, interact, and perform complicated tele-plastic surgeries in remote and underdeveloped areas of the world.

## 3D Printing for Implants and Prosthetics:

Several small and large prosthetics are used by Plastic Surgeons, for example in ear, nose and chin, as well as small bone and joint replacement procedures which are mainly used in reconstruction, hand and facial cosmetic surgery. In the next few years, computerised and customised prosthesis can be designed which can be precisely made-to-measure and tailored to individual needs. Myoelectric arms and hands are already becoming increasingly common for amputees, providing excellence in controlling functions as well as providing cosmesis. It has greatly improved patients' confidence and quality of life.

Customised 3D bioprinting modelling, mimicking the same facial features of patients, are being developed for facial transplant.

Similarly, replicas for hand transplants can be 3D bio-printed which can mimic hand functions and also improve cosmesis to increase patient satisfaction.

## Surgical and Non-Surgical Cosmetic Procedures:

In the last decade, perhaps the most technical and pharmaceutical advancement has happened in the field of surgical and non-surgical Cosmetic procedures. People are becoming more aware of the benefits of a healthy lifestyle and are more conscious of their body morphology and looks. Innovations and technological developments in health and medical sectors enable early diagnosis and the advancement of treatments have resulted in increased life expectancy.

Increasingly available information over the internet and media hype have also fuelled the image of eternal youth. As a result, the desire to look young and energetic for longer has caused a constant and global surge in innovations and improvements in cosmetic non-surgical and surgical procedures.



Cosmetic surgery is considered to be the forte of plastic surgeons until a decade ago. Advancements in cosmetic non-surgical procedures have opened up a vast market for not only for surgeons from other speciality like ENT and eye surgeons but also for dermatologists and medical practitioners. With lack of regulations from various health controlling bodies a various country, now a days it is also being practiced by paramedics like nurses and physiotherapists and even beauty specialist. The paradigm for these procedures has extended from hospitals and clinics to beauty salons and spa centres.

Advancement in minimal and non-invasive procedures with almost similar results to surgical procedures has popularised non-surgical trends. The minimal or no surgical intervention with minimal complications and recovery time has attracted more clientele. The procedures are becoming more cost effective due to increasing competition and innovations amongst the machine manufacturers and pharmaceutical products. Non-surgical cosmetic procedures generally require return visits in most cases due to the temporary nature of the treatments as compare to lasting effect by cosmetic surgery. Still, the non-surgical option is more attractive to clients as it is less costly and avoids scarring and other complications associated with surgical procedures. Botox and dermal fillers are still the most performed procedures for rejuvenation worldwide. Biochemical products, such as stem cell injections, platelet rich plasma, collagens, growth factors and injectable vitamins, are also be used in non-surgical procedures and are increasingly being used alone or as part of other cosmetic rejuvenation procedures.

Over the last decade, social media and smartphone-based applications have made online video consultations easier. With 3D photography software, patients can visualise and choose their future face or target organ before proceeding with procedures. The ongoing Covid-19 pandemic has pushed digital and online advancements by allowing online communications and consultations to take place. However, it is crucial to improve the online content and regulate the quality of the information available in order to protect clients from unrealistic expectations associated with cosmetic procedures.

#### **Autologous Breast Augmentation:**

For many decades, autologous fat grafting (or 'lipofilling') are being successfully used to fill the bony and soft tissue contour deformities resulted by various reasons. Now, latest nano fat grafting techniques are becoming more popular both as micro filler such as in fine wrinkles and rejuvenation but also as mega filler for breast and gluteal augmentations. Nano fat grafting has advantages over normal fat transfer by using ultra micro cell size, contain more stem cells to ensure longer survival and also reduce complications. However, they are still not FDA approved in the USA as an alternative to breast implants, but they currently are being used to improve breast size and shape.

#### **Minimal Invasive Face Lifts:**

Extensive scarring post-face lift is now a thing of the past. There is increasing trend among Cosmetic Surgeons to adapt non-surgical methods as an adjuvant to include in their armamentarium. Newly evolving suspension technique for face-lift with bioabsorbable sutures combined with minimal incision face lift is producing great results and patient satisfaction.

#### **Laser Procedures:**

Advancement in various laser techniques is becoming widespread. This is not only used in eye surgery, haemangiomas and birthmarks but also in cosmetic procedures such as facial rejuvenation, liposuction and tattoo and hair removal.



Traditional invasive liposuction is being phased out in favour of improved ultrasonic, laser or radiofrequency techniques, as this lowers recovery times with less complications.

#### **Conclusion:**

The majority of techniques and innovations explained are still in their infancy. The current innovations in plastic surgery are very expensive to set up and maintain. Currently they are being practiced in very few specialised centres in affluent countries with benefits limited to a small proportion of the population. As these technological advancements become more refined in the near future, this will enable plastic surgery to become more cost effective and therefore be accessible to a larger proportion of people in more remote areas of the world.

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# Role of Robotics in urology

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## Introduction:

Leonardo da Vinci is credited for the first drawn 'humanoid robot', known as Leonardo's Robot in 1495. This robot could do a number of activities and it was operated by pulleys and cables<sup>(1)</sup>. The term 'robot' comes from the Czech word 'robota', which translates as 'forced work'. It was introduced in 1920 by the Czech playwright; novelist and journalist Karel Capek in his hit play Rossum's Universal Robots<sup>(2)</sup>.

The first digitally programmed robot, the Unimate, was installed in New Jersey, in 1961 which worked on a General motor assembly line. Since then, Robots have been used in various industries such as manufacturing, packing, transport, space programs, laboratory research, surgery etc. By definition, a surgical robot has an artificial sensing that is manipulated and controlled by computer which can be reprogrammed to carry out a wide range of surgical tasks.

The field of urology has become progressively innovation driven and in this way has been on the cutting edge of careful advanced mechanics<sup>(3)</sup>. Modern robotic surgical systems can be categorized as master-slave systems, precise-path systems, or intern-replacement systems. On-line robotic systems, also known as Master slave systems, the most recognizable sort, were created from starting examinations in "telepresence" medical procedure financed by the US Department of Defence. Urology has grasped the utilization of robotic surgical systems in a developing number of clinical applications, which were intended to recreate the surgeon's movements continuously inside the operated field<sup>(4)</sup>. Year 1985 has witnessed the first recorded use of a robot-assisted surgical procedure when the PUMA 560 robotic surgical arm was used in a neurosurgical biopsy<sup>(5)</sup>. Since then, the most commonly utilized robotic gadget is the da Vinci which was release in 1997 and approved by Food and Drug Administration (FDA) in July 2000. This robot comprises of three or four arms, one of which is utilized to hold and control the laparoscopic camera while the others are utilized to control specific laparoscopic instruments with endo-wrist innovation that permits 7 degrees of movement<sup>(6)</sup>.

Since its introduction into surgical practice, Robot has become an integral part of urological practice. Subsequently, Robotics has been used to perform various urologic procedures including radical prostatectomies, cystectomies, nephrectomies, adrenalectomies and pelvic floor procedures. Like all advances there is a trade-off between the advantages and downsides. General drawbacks include the high costs and lack of haptic feedback. On the other hand, most eminent benefits are the manual dexterity of the instruments alongside movement scaling

and tremor-filtering ability. The robotic systems have better ergonomic control with less surgeon fatigue and strain along with stereo-optic vision and a three-dimensional image and are undeniably appropriate for surgeries in constrained spaces, for example, prostatectomies<sup>(1-6)</sup>.

Paediatric urologic surgeries and female urology have also noticed an increased adoption of robotic applications. In this article, we will endeavour to cover robotic surgical applications in urology and ongoing advances in these strategies.

## Robotic platforms:

### (A) Da Vinci Robotic system:

It is the most popular commercial robotic system. It has three components namely surgeon console, patient cart with robotic arms and vision cart. The first da Vinci system was launched in 1999. A fourth instrument arm was added in 2003. In 2006, the da Vinci S version, offering the high-definition vision to surgeons, was released. The da Vinci Si model was introduced in 2009 with an isocyanine green fluorescence (Fire-Fly™ technology) and finger-based clutch mechanism<sup>(7)</sup>. Dual console of the da Vinci Si representing an ideal training platform during surgery<sup>(8,9)</sup>. A new model of da Vinci named Xi was brought to market in 2014 with a peculiar feature of 8 mm camera that can be used at any of the four ports (camera hopping). Along with this table motion technology (surgical table can be moved without undocking the robotic arms) is also a part of this new robotic version<sup>(9)</sup>.

### (B) CMR

CMR Surgical is a Cambridge based British medical technology company that produces a robotic surgery system called Versius. It was known as Cambridge Medical Robotics but changed its name to CMR Surgical in March 2018<sup>(10)</sup>. On 30 september 2020, CMR Surgical has announced the introduction of Versius, at the Frimley Health, first hospital of UK to use Versius in Urology, as well as in Colorectal surgery<sup>(11)</sup>. CMR Surgical claims Versius to be more flexible and versatile, having independent modular arms which are "quick and easy to set up"<sup>(12)</sup>. However, well designed randomised trials are still needed to compare this robotic system with the gold standard da Vinci system.

(C) Medtronics

Medtronics Hugo RAS (Robotic assisted surgery) is still awaited to be launched in market. Key features claimed by Medtronics about this system are flexibility and universal use for both key hole and open surgeries<sup>(13)</sup>; apart from this an open console with the autofocusing monitor. The robotic arms are comparable to human arms having of seven joints with serial kinematics. Robotic arms are driven by micro-motors, with option of tactile feedback via potentiometers<sup>(9)</sup>

**Radical prostatectomy**

This is a well-known procedure for the treatment of localised prostate cancer and the number of surgical procedures is increasing because of increasing diagnosis of prostate cancer thanks to improved awareness and widespread availability of screening tests. Although, laparoscopic procedures have overcome the morbidity associated with the open procedures, the primary limitation was the limited spaces in pelvis which leads to difficulties in performing vesico-urethral anastomosis. Introduction of robotics has overcome the problems associated with restricted manoeuvrability.

With 3D perception and jointed laparoscopic instruments giving 7 degrees of articulation, the da Vinci framework gave the ideal combination of the magnified advantages and minimally invasive feature of laparoscopy with the dexterity of an open surgery<sup>(14)</sup>. The robotic radical prostatectomy is now a widely accepted and well established surgical procedure of choice and emerging as a frontrunner for radical prostatectomy in well-resourced nations<sup>(15, 16)</sup>. Undeniably, the main benefit is a shorter learning curve compared with laparoscopy is a boon to surgeons<sup>(17)</sup>.

The technique of robotic prostatectomy has undergone significant improvisation to accomplish superior oncological and functional results with a better understanding of the neurovascular anatomy<sup>(18)</sup>. Various studies have shown the benefits of preservation of neurovascular bundle on improved post-operative erectile and orgasmic function<sup>(19)</sup>. Gulvano et al has proposed the new technique of robotic radical prostatectomy approach named as Retzius-sparing robotic radical prostatectomy which has recently gained popularity<sup>(20)</sup>. In the Retzius (posterior) approach, continence and erectile function can be recovered early; however, higher positive surgical margin is the main concern with the posterior approach<sup>(20, 21)</sup>.

Apart from this, several other modifications has been proposed for robotic prostatectomy to achieve early continence which have been eased by robotic system namely- bladder neck preservation/reconstruction, preservation of urethral length, peri-urethral suspension and reconstruction, pubo-prostatic ligaments preservation and limited endopelvic-fascia dissection<sup>(22)</sup>. Despite this, Level 1 evidence comparing robotics surgery and laparoscopic/open surgeries has been limited. Asimakopoulos et al has compared laparoscopic and robotic prostatectomy and reported significantly better erectile function recovery in the robotic arm but no difference in perioperative and continence outcomes<sup>(23)</sup>.

Follow-up studies also shown similar results in these arms with some superiority of robotic arm, however, still a robust randomised study is required for level 1 evidences<sup>(24, 25)</sup>. Although controversial, some studies claim that risk of positive surgical margin is less after robotic assisted radical prostatectomy as compared to laparoscopic or open

approach<sup>(26)</sup>

**Partial nephrectomy**

Partial nephrectomy is the surgical modality of choice for small renal masses<sup>(27)</sup>. This procedure involves renal artery clamping; hence, time is a crucial factor in the procedure to minimise the warm ischemia time. Traditional open approach is more morbid because of large incision and can have longer hospital stays and delayed recovery and problem with the laparoscopic approach is longer warm ischemia. Robotic surgery is an ideal answer to mitigate these challenges with a shorter artery clamping time and early recovery<sup>(28, 29)</sup>. In fact, the learning curve for the robotic approach is significantly lower than its counterpart (15–25 cases compared with 100–150 for laparoscopic)<sup>(30)</sup>.

Several modifications have been proposed for robotic partial nephrectomy such as safely omitting cortical renorrhaphy<sup>(31)</sup>. Similarly, a new technique using a dye named Indocyanine green (ICG) is a potential aid to robotic partial nephrectomy as it helps in real-time identification of renal mass, renal vasculature and tumour margin<sup>(32)</sup>. By this it can help in minimizing the ischemia time by allowing selective clamping. Some provided evidence that it can be beneficial in improved perioperative and oncological outcomes<sup>(33)</sup>. It can be an adjunct especially in difficult cases with impaired renal function or challenging vascularization<sup>(34)</sup>.

Interestingly, the increased cost of the robotic approach is counter-balanced by the reduced hospitalisation and complication rates<sup>(35)</sup>.

**Radical cystectomy**

Radical cystectomy and urinary diversion with pelvic lymph node dissection is the standard of care for muscle-invasive and high-risk superficial bladder cancer. Traditionally, open surgeries remains a highly morbid procedure with a delayed recovery. Menon et al reported the initial series of nerve spare robotic radical cystectomy in 2003<sup>(36)</sup>. Since then, there are a number of studies have been published on robotic cystectomy but still level 1 evidence confirming the superiority over conventional approach remains unproven<sup>(37,38,39)</sup>. The current evidence states that although the robotic approach achieves better results in terms of blood loss and hospital stay, oncological outcomes and good quality lymphadenectomy are equivalent only as compared to open counterpart<sup>(40)</sup>

Although in the initial series of robotic approach, extracorporeal approach was used for the urinary diversion, modern surgeries involve the intra-corporeal approach with an equivalent outcome<sup>(36, 41)</sup>.

**Robot-assisted pyeloplasty**

The open dismembered pyeloplasty has been the standard of care for pelvi-ureteric junction obstruction, with a high success rate (>90 %) <sup>(42)</sup>. Minimally invasive alternatives have been tried to reduce the morbidity associated with open approach such as balloon dilatation and endopyelotomy but success rates of only 60-70%<sup>(43)</sup>. Laparoscopic pyeloplasty has been proven as a standard treatment for pelvi-ureteric junction obstruction with less morbidity and good outcome. Robotic technique has also been tried for that but the outcomes were statistically similar as with the laparoscopic approach although the learning curve is much shorter with the robotic technique<sup>(44)</sup>.

### Robot-assisted radical nephrectomy and nephroureterectomy

Gold standard treatment for large and locally advanced renal tumours is radical nephrectomy. Although number of radical nephrectomies done by robot-assisted is increasing, it still failed to prove benefits over its laparoscopic counterpart. Compared to open surgeries shorter hospitalization and reduced morbidity can be benefits but this can be achieved by laparoscopic approach as well. Randomized clinical studies with long-term follow-up are needed to obtain more definitive level 1 evidences.<sup>(45)</sup> Similar theory applies for nephron-ureterectomy patients and available studies are enough to prove superiority of robotic approach<sup>(46)</sup>.

### Female Urology

Application of robotic system in female uro-genital system is also emerging and predominantly used for repair of stress urinary incontinence and lower urinary tract fistula namely vesico-vaginal, vesico-uterine and utero-vaginal fistula<sup>(47, 48)</sup>. Robot assisted colpo-suspension and bladder neck AMS-800 artificial urinary sphincter implantation has been increasingly used to treat female stress urinary incontinence<sup>(48, 49)</sup>. However, Robotics in female urology is still in its primitive stage and robust trials are needed for its widespread use.

### Other robotic procedures

Although not routinely performed, ureteric reimplantation, stone surgery, cystoplasty, andrology such as varicocele, testicular sperm extraction, vasectomy reversal and spermatic cord denervation<sup>(50, 51, 52)</sup>. Some centres, routinely do robotic donor nephrectomy in renal transplantation<sup>(53)</sup>. Simple prostatectomy is also being done by this approach although HoLEP has superseded it and is being increasing used for larger glands; however randomised trials are still needed for definitive evidence<sup>(54)</sup>.

### Conclusion

Robotic surgeries have become an integral part of urology practice. Although, prostatectomy and partial nephrectomy has shown some clear advantages in randomised studies, rest of the robotic procedures still fail to show clear superiority in the randomised studies. The main prohibiting factor for extending the robotic surgery to all applications and surgical specialities is cost. The expansion of the platforms has been very slow, given there is a degree on monopoly in the industry. But in recent times, it is encouraging to see more alternatives coming in to the market. This competition will drive innovation and reduce the cost. The future generation will undoubtedly be benefitted by this and it is incumbent upon the current generation to allow the expansion of this technology.

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# History of Robotic Surgery and Current Applications of Robotics

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The revolutionary industrialisation took place after the end of II world war and the major turn-around was introduction of Robotics in engineering. However, it took another half century for medics to identify and explore its usage in the field of surgery.

Dr Cloud Abbou, a French urologist performed the first ever Robotic Prostatectomy. Dr Mani Menon, another urologist from Detroit pioneered and popularized this technique.

'Robota' is a Czech word which means "forced labour" coined by a playwright, Capek.

Asimov's three laws-

1. A robot may not injure a human being, or through inaction, allow a human being to come to harm (Zeroth Law).
2. A robot must obey the orders given to it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

Though Leonardo DaVinci has been credited in conceptualising and fine printing the first ever scientific sketch, the idea of having a mechanical labourer was thought well before that by Chinese and Indians.

Worldwide to-date, over 5000 daVinci systems have been installed and the total number of robot-assisted procedures performed worldwide are approaching over 2 million.

Current Scenario and Clinical Applications  
Advantages of surgical robots-

- Superior visualisation including 3-dimensional imaging of the operative field

- Stabilisation of instruments within the surgical field
- Mechanical advantages over traditional laparoscopy
- Improved ergonomics for the operating surgeon

Across multiple surgical specialties, robotic surgery was felt to offer the greatest advantage in complex reconstructive and oncological processes.

The potential advantages of robotic surgery extend across many different surgical subspecialties.

**Urology:** While the most mature outcomes data in the field of robotics are for radical prostatectomy, robotics may also offer advantages for cystectomy, pyeloplasty, nephrectomy (partial, complete and donor) and ureteral reimplantation. Robotic surgery may ultimately replace open surgery for some complex urological procedures.

**Gynecology:** Robotic surgery has shown promise in hysterectomy for both benign and malignant disease, as well as myomectomy. In myomectomy, the robot may provide substantial benefit by allowing minimally invasive fertility sparing options. It is also beneficial for tubal reconstruction. The robot may provide potential advantages for pelvic reconstructive surgery.

**General Surgery:** Procedures where it may be of particular value include Heller myotomy, paraesophageal hernia repair, gastric bypass, gastric resection for neoplasm, biliary reconstructive surgery, transthoracic esophagectomy, transthoracic esophageal surgery, distal pancreatectomy with splenic preservation, and selected colorectal procedures.

**Thoracic Surgery:** Robotic surgery offers clear benefits in the resection of solid thoracic tumors, particularly those located in the apex of the chest. Benign or malignant esophageal tumors may also be resected

robotically. Other surgeries which could be benefited in reducing the morbidity by using the daVinci system are thymectomy, LIMA/ RIMA retrieval, MVR etc.

## Otorhinolaryngology/Head and Neck Surgery:

Preliminary data of transoral robotic surgery indicate its utility for resections of benign and malignant lesions of the pharynx and larynx. Oncologic resections of the supraglottis, tonsil and tongue base have been shown to be feasible with potential advantages compared to traditional approaches. Preliminary evidence indicates that these advantages may include avoidance of mandibulotomy, avoidance of tracheostomy, decreased operative time, reduced requirements for complex reconstructions, and avoidance of external excisions. Transaxillary thyroidectomy has been proven to be an effective method in patients who remain conscious of having a neck scar.

**Pediatric Surgery:** Over 50 different types of abdominal and thoracic procedures have been performed in pediatric patients.



Leonardo da Vinci and Dissection

## Overall benefits to patients-

1. Minimal scarring
2. Less pain, requiring less analgesia
3. Less wound related issues
4. Less hospitalisation
5. Less blood loss
6. Early ambulation and return to work

## Benefits to Surgeons-

1. **Improved 3D vision-**
2. Magnified view- 10x HD magnified view
3. Superior **manoeuvrability** of instruments with "Endowrist"
4. **Ergonomically** far superior than standard laparoscopy
5. Excellent **educational tool-** Dual console allows the main surgeon to control the robotic arms of training console.
6. **Tile-pro imaging-** allows the surgeon to simultaneously visualise real time intraoperative USG whilst operating.
7. **Firefly technology-** Allows to identify vascularity or vascular territory of the feeding vessel. A built in infrared camera allows the tissue to discriminate the vascular territory after injecting ICG dye.
8. **Bipolar diathermy-** built in.
9. **Airseal technology-** keeps the intra-abdominal pressure maintained throughout the surgery without

impacting vision due to cautery smoke or risk of losing the pneumoperitoneum with constant suction.

**Airseal technology, especially during Covid time has been a boon to facilitate concealing potentially trapped Coronavirus contaminated plume and its safe discard through a dedicated suction system.**

## Future developments-

**Haptics in Robotics-** Ability to get the feel of the tissue

**Virtual reality Vs Augmented reality-** Such technology is already been used outside clinical trials.

**Remote (Tele) surgery-** inter-continental surgery has taken place, but due to potential medico-legal issues and some lag in instrument movement it has not gained acceptance.

**Single Port Surgery-** The new daVinci SP system has been launched recently.

**Surgical assist-** will enable the surgeon to get a roadmap and didactic guidance of surgery as he/she continues to operate

**Fusion imaging-** Superimposing the radiological images (CT/ MRI) with real time operative view.

**Micro-bots-** The crude example is "capsule endoscopy". Once we achieve technology to navigate such miniature/micro capsules to enter the body system, it would open another dimension to diagnose and treat several medical conditions.

The "Productivity Paradox" holds true - it takes on average 20 years for an innovation to reap its productivity benefits. First robotic surgery was performed in year 2000 and robotic surgery; in the last 20 years it has managed to establish its place in the field of surgery. It has been predicted that by year 2050, 90% of surgeries will be using a robot in some or other way either to diagnose or treat the ailments.

It is high time we embrace these technological advancements which complement medical field. □

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 Fellow European Board of Urology  
 Formally, Fellow, Minimal invasive urology at Port Macquarie and Repatriation hospitals, Adelaide,  
 Awarded Fellowship of Royal Australian college of surgeons (RACS), Membership of urological society of Australia and NZ (USANZ),  
 Publications- Over 50 publications in peer reviewed journals.



Image Credit: <http://nyulangone.org/files/da-vinci-xi-robotic-surgical-system.jpg>



## Breakthrough for breast cancer patients

A commentary by  
Professor Jayant S Vaidya



### “New treatment heralds breakthrough for breast cancer patients”

“A pioneering breast cancer therapy developed by UCL clinicians, which requires just one shot of radiotherapy rather than conventional weeks-long treatment, has proven to be as effective for most women in treating the disease.”<sup>1</sup>

*Professor Jayant Vaidya is a breast cancer expert and considered a leading consultant surgeon, and oncology expert in diagnosis and treatment of all breast conditions. He presents a commentary by behalf of all authors on A pioneering breast cancer therapy*

**B**reast cancer is one of the commonest forms of cancer and its treatment has been improving over the last century. These improvements have led to improved survival and far fewer women are now dying from breast cancer. Over the twenty-year period from 1987 to 2017 the number of women dying from breast cancer has nearly halved from 60 to 33 per 100,000 per year. As women with breast cancer are living longer, and the objectives of research in the last 2 to 3 decades has focussed on reducing the harmful side effects of treatments by optimising them to be targeted and personalised: optimum treatment for maximum benefit and minimum risk.

Radiotherapy is a necessary part of treatment of breast cancer especially when it is treated by removing only the cancerous lump and some surrounding normal tissue with an operation called lumpectomy. Traditionally, the lumpectomy operation is followed by a post-operative course of external beam radiotherapy (EBRT) which normally is delivered from outside the body via a radiotherapy machine, once every day for 3 to 6 weeks. Each of these treatments is given over a few minutes, but requires 15 to 30 hospital visits, which could be a significant distance from where the patient lives. Trying to reduce the number of days of therapy by giving larger doses (for example, larger doses every day given for just 5 days) can result in higher toxic side effects such as making the breast hardened.

Furthermore, giving radiotherapy to the whole breast also means that surrounding normal vital organs such as the heart, lung, the food pipe (oesophagus) all receive unnecessary and potentially harmful ‘scatter’ radiation. Such radiation has been shown to cause heart attacks and cancers. Unfortunately, cancer of the lung and oesophagus have poor outcomes. Moreover, smokers given radiotherapy for breast cancer face a 1 in 4 risk of dying from a heart attack or lung cancer over a 30-year period – a very unfortunate event when she is already cured of breast cancer!

Of course, the other option which breast cancer patients have is to have a mastectomy – i.e., remove the whole breast. Unfortunately, if it isn’t possible for the patient to commit the prolonged radiotherapy treatment then mastectomy is the only option, drastically altering their quality of life.

- Patients who are diagnosed with a small breast cancer are normally treated by surgically removing the lump followed by treatment of the whole breast with radiotherapy (WBRT)
- TARGeted Intraoperative radioTherapy (TARGIT-IORT) treatment developed by Professors J Vaidya, M Baum and JS Tobias is given during the cancer operation and gives radiotherapy to only the area around the tumour. It is completed at the same time as the cancer surgery.
- TARGIT-IORT avoids delays, has fewer side effects and leads to an improved quality of life.
- The results of the large international randomised clinical trial (TARGIT-A trial) show that WBRT can be effectively substituted by the single-dose TARGIT-IORT with similar long-term local and distant control of breast cancer, breast preservation and breast cancer survival.
- TARGIT-IORT avoids unnecessary harmful radiation to nearby organs such as the heart and the lungs that inevitably accompanies WBRT.
- With TARGIT-IORT, there are fewer deaths from causes such as cardiovascular and lung problems and other cancers.
- Following this research, TARGIT-IORT has been offered to patients with breast cancer in 38 countries and over 45,000 patients have been treated

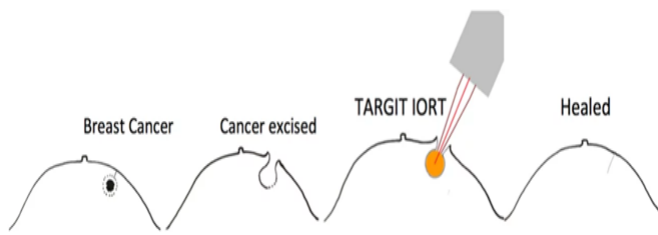
When I worked in India in the 1990, at the Tata Memorial Hospital in Mumbai, I faced this problem on a daily basis. Many of my patients had to have a mastectomy only because they could not stay in Mumbai for the 6 weeks of post-operative radiotherapy- it was a very sad situation.

Our laboratory work suggested that we may be able to focus radiotherapy only around the tumour. So, in the late 1990s, working with Professors Mike Baum and Jeff Tobias at University College London, in collaboration with Photoelectron Corp (USA) we developed a new machine to give radiotherapy during the lumpectomy operation, under the same anaesthetic. We called this new operation TARGeted Intraoperative radioTherapy, TARGIT-IORT in short.

Then, in collaboration with expert clinicians and scientists, we performed a very large clinical trial called the TARGIT-A trial.

TARGIT-A is not an industry sponsored trial. It was prompted by academic insight and run with foresight, enthusiasm, and hard work from each of the investigators, many of whom made significant contributions to different aspects of TARGIT-IORT. Such a large trial was only possible committed long-term international collaboration with open minded and dedicated colleagues all over the world.





TARGIT-IORT given during lumpectomy were comparable with the long-course of post-operative whole breast radiotherapy.

No difference was found between the two treatments for local or distant control of breast cancer, breast preservation and deaths from breast cancer.

An important finding was that women allocated to receive TARGIT-IORT had a substantial reduction in deaths from causes other than breast cancer (e.g. cardiovascular causes and lung problems and other cancers), a reduction from 9.85% to 5.41% by 12 years from the operation.

With TARGIT-IORT, women can have their surgery and radiation treatment for breast cancer all at the same time. This reduces the amount of time spent in hospital and enables women to recover more quickly, meaning they can get back to their lives more quickly. With TARGIT-IORT, a large proportion of patients with breast cancer will never need to make the repeated daily visits to the radiotherapy centre. They avoid side effects of whole breast radiotherapy. TARGIT-IORT also reduces the burden on overstretched radiotherapy departments.

During the past 20 years TARGIT-IORT has been used worldwide in over 260 medical health centres in 38 countries, helping to treat more than 45,000 patients. It is expected that this treatment will be made much more freely available.

Patients should ask about this treatment before their surgery for breast cancer is performed.

Funding for the trial was provided by the National Institute for Health Research (NIHR) Health Technology Assessment programme, <https://www.nihr.ac.uk/news/international-trial-shows-single-dose-radiotherapy-as-effective-for-treating-breast-cancer-as-conventional-treatment/25517> UCL Comprehensive Biomedical Research Centre, and Cancer Research UK.

- Written with some excerpts from <https://www.ucl.ac.uk/news/2020/aug/single-dose-radiotherapy-effective-treating-breast-cancer> and <https://blogs.bmj.com/bmj/2020/08/19/targeted-intraoperative-radiotherapy-for-early-breast-cancer-new-evidence>
- See the short video (<4min) that explains it all <https://youtu.be/5Xby04NBanY>
- The findings of the trial were published recently in the British Medical Journal (BMJ) <https://www.bmj.com/content/370/bmj.m2836.full.pdf>. The clinical trial confirmed the long-term effectiveness of Targeted Intraoperative Radiotherapy (TARGIT-IORT): a breast cancer treatment which is increasingly available throughout the world.

In addition, I cannot emphasise enough the remarkable contribution of so many patients with breast cancer.

They provided vital insight as members of our committees, as well as willingly participating in the trial itself.

In the TARGIT-A trial, we asked whether giving TARGIT-IORT targeted only to the tumour bed during the cancer operation, could completely avoid the whole breast radiotherapy course in a large proportion of women with breast cancer.<sup>2</sup>

TARGIT-IORT is delivered immediately after lumpectomy (tumour removal), via a small ball-shaped device placed inside the breast, directly where the cancer had been. The single-dose treatment lasts for around 20 to 30 minutes and replaces the need for extra hospital visits, benefiting both patient safety and well-being.

To establish TARGIT-IORT's long-term effectiveness, 2,298 women aged 45 or over with invasive ductal carcinoma (breast cancer) and a tumour of up to 3.5cm in size, were randomly assigned to receive either TARGIT-IORT or the traditional EBRT.

This large clinical trial, designed and run from UCL, involved 32 hospitals and medical centres in ten countries: the UK, France, Germany, Italy, Norway, Poland, Switzerland, United States, Canada and Australia.

The trial started in March 2000, which has enabled us to publish these long-term results. The findings show that with TARGIT-IORT therapy, eight out of every ten patients had no need for any further post-operative radiotherapy treatments. There was also no detriment to survival from breast cancer and no increase in the likelihood of the cancer returning.

In addition, with TARGIT-IORT, significantly fewer women died from causes other than breast cancer. Previous studies have shown that TARGIT-IORT has fewer radiation-related side effects compared with conventional whole breast radiotherapy, with less pain, better cosmetic outcome and a better quality of life.

Significantly, at long-term follow up (average 9 years, maximum 19 years) breast cancer outcomes with risk-adapted single-dose



Prof Jeffrey S Tobias Prof Jayant S Vaidya Prof Max Bulsara Prof Michael Baum

# Role of Robotics in Orthopaedic Surgery: *Will they give better outcomes?*

**A Sinha FRCS(Tr & Orth)**

Consultant Orthopaedic Surgeon



## Introduction

Robots have been in use since the late 1980s in different surgical specialties. The first use was PUMA (Programmable Universal Manipulation Arm) in 1985 for a neurosurgical biopsy<sup>1</sup>. Robotic technology in Orthopaedic surgery began in 1992, with the introduction of ROBODOC<sup>2</sup>. This was for the planning and performance of total hip replacement. The use of robotic systems has subsequently increased, with promising short-term radiological outcomes when compared with traditional orthopaedic procedures. The skeletal anatomy lends itself well to preoperative planning, intraoperative registration and navigation.

## Classification

Robotic systems can be classified into three categories: autonomous (active), semi-active and passive. The active system can independently perform tasks without the surgeon's intervention, as they are pre-programmed for bone resection. The first active system in use in Orthopaedics has been the ROBODOC<sup>2</sup>. Once programmed the surgeon could not interfere during the surgical procedure. The semi-active systems robots constraint surgical manipulation through feedback to restrict what can be done surgically. The MAKO Robotic-arm assisted surgery (Stryker) is in use in current times<sup>3</sup>. Passive surgery systems, which represent a third type of technology, have also been adopted recently by orthopaedic surgeons, in particular arthroscopic shoulder surgery. While autonomous systems have fallen out of favour, tactile systems with technological improvements have become widely used.

Robotic bone cutting can be designed into 3 types. The autonomous variety is independent and cuts bone without the human intervention (e.g. ROBODOC). In the haptic type, the surgeon allows the robot to move and cut, but the movement is constrained as soon as it reaches the border (e.g. MAKO system). In the boundary control variety, the surgeon's intervention is required to move the robot and then it remains free to move anywhere in space

but cutting is deactivated by some means if it travels beyond a boundary (NAVIO). The current robotic systems are designed and may be classified based on these features.

## Specific Indications

### Unicompartmental knee replacement

Specifically, the use of tactile and passive robotic systems in unicompartmental knee replacement (UKR) has addressed some of the historical mechanisms of failure of non-robotic UKR. These systems assist with increasing accuracy of the alignment of the components and produce more consistent ligament balance. Short-term improvements in clinical and radiological outcomes have increased the popularity of robot-assisted UKR<sup>4</sup>.

There are several studies, which endorse Robotic-assisted medial UKR results. In one recent study two hundred and six patients (232 knees) who underwent medial robotic-assisted UKR were retrospectively studied<sup>5</sup>. Femoral and tibial sagittal and coronal alignments were measured in the post-operative radiographs and were compared with the equivalent measurements collected during the intra-operative period by the robotic system. Mismatch between pre-planning and post-operative radiography was assessed against accuracy of the prosthesis insertion.

The results showed accurate prosthesis position. Inaccuracy may be attributed to suboptimal cementing technique.

### Total knee Replacement (TKR)

Clinical studies in total knee arthroplasty have demonstrated better gap balancing and implant alignment using the ROBODOC system compared with conventional techniques<sup>6,7</sup>. While the ROBODOC system is no longer in use, there are now new robotic systems in the market.

The MAKO system devised by Stryker is considered the leading system robot-assisted knee and hip surgery. This robot-assisted system develops a 3D model of the joint, which surgeons use to evaluate bone

structure, joint alignment and surrounding tissue. It provides real-time range-of-motion data during surgery and uses a robotic arm to remove the bone and cartilage from the knee and place the implant.

Smith & Nephew already has a hand-held robotic surgical system on the market. It recently introduced new software for that system, known as the Navio 7.0 for partial and total knee replacements.

Johnson & Johnson's DePuy Synthes acquired the Paris based Orthotaxy system in 2018. According to their brochure, "It's the size of a shoebox, attaches to an operating table and includes a saw, but does not do the sawing for the surgeon. Instead, the Orthotaxy platform will design the surgery plan and lock the saw into a plane, allowing the surgeon to do the cutting."

The ROSA knee platform (Zimmer Biomet) includes 3D pre-operative planning tools and real-time data on tissue and bone anatomy during procedures. This can improve bone cut accuracy and result in a more precise range of motion analysis, which can help knee replacements feel more natural.

Initial outcomes have been promising but we must await long-term results with respect to clinical outcomes and survivorship. The costs are an important factor, as the hardware may require regular updates. There is also increased radiation to patients with the need of imaging.

### Total Hip Replacement (THR)

Acetabular component placement in total hip arthroplasty is key to this surgery. The semi-active robotic systems allow the surgeon to control the robotic arm to ream the acetabulum to a specified depth and size, without having to sequentially ream larger acetabular sizes. Accurate acetabular component placement can reduce the likelihood of dislocation, leading to fewer revision procedures<sup>8</sup>. Long-term follow-up at 14 years demonstrated no stem-loosening failures, less pain, and lower Western Ontario and McMaster Universities

Osteoarthritis Index (WOMAC) scores in the robotic total hip arthroplasty group, with similar complications and reoperations for polyethylene wear as compared to the conventional methods<sup>9</sup>.

### Spine

Spinal surgery involves complex procedures and intricate placement of instruments and screws<sup>10</sup>. The Mazor X Stealth Robotic assisted spinal platform (Medtronic) uses software to plan a spinal procedure, helping surgeons visualize everything down to the trajectory of each screw<sup>11</sup>. During the surgery, a robotic arm guides implants and surgical instruments. Real-time imaging helps surgeons ensure the procedure is being carried out properly.

The ROSA One a surgical navigation system marketed by Zimmer Biomet helps surgeons perform minimally invasive and complex spine procedures<sup>12</sup>. This system expands the functionality of robotic systems previously approved for brain and knee surgeries, making Zimmer the first company in the world to offer all three procedures on one platform.

### Trauma

There have been experimental developments with robotic systems to assist with closed fracture reduction and reconstruction and in performing surgery remotely. There is still insufficient evidence for recommendation for or against use of the systems. Robotic techniques in the military sphere, either autonomously or in a telemedicine mode, can be used to perform critical acute surgical procedures and medical stabilization of soldiers on the battlefield, where immediate assistance may not be available<sup>13</sup>. We have to wait to find out whether these would be applicable

to the civilian hospitals or not.

### Shoulder

Robotic shoulder arthroscopy<sup>14</sup> and robot assisted shoulder girdle surgery for micro-neural repairs<sup>15</sup> seems feasible in a cadaveric model but has some significant limitations at this time.

### Limitations

Increased costs with need for updated software at regular intervals would remain a hurdling block until it becomes more popular. For clinical applications, there is requirement of imaging for preoperative templating, which may cause increased radiation for patients. The other initial limiting factors are surgeon's learning curve and increased operative time. These factors will eventually iron out with increased use of these systems and greater training opportunities.

### Conclusion

Robotic surgery shows great promise to transform Orthopaedics<sup>16</sup> and many other specialities, contributing to better outcomes and potential cost-savings for hospitals. However, more clinical trials and post-market data collection are needed to ensure that benefits outweigh the risks.

What is most important is to understand that robot-assisted surgery may not be appropriate for every application. Therefore, appropriate training of surgeons in the use and applications of these systems are vital. This would bring about a better understanding of their limitations as well.

*Acknowledgement:* The author wishes to state that he has no experience of using the robotic system. The documents for the article have been collated from a wide literature search.

The author has no conflict of interest to declare.

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NAVIO surgical system

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*The other day one of my dear patients asked me a question before getting into a procedure-*

### **DOCTOR WHY DO YOU CONSIDER SURGERY AS AN ART?**

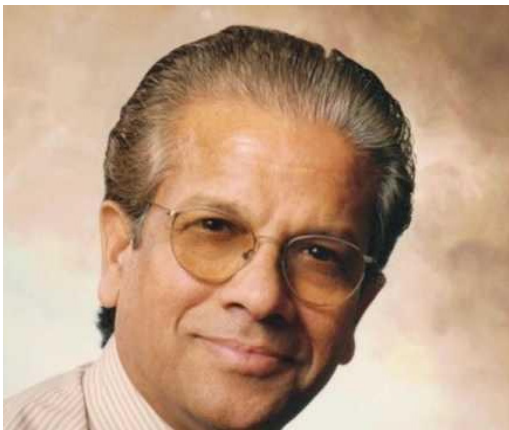
I guess,

- Because the smell of spirit is sweeter than perfume to me,
- Because my ot scrubs feel more fashionable to me than any designer clothes,
- Because the clicking sound of a needle holder is music to my ears,
- Because proportions and symmetry cannot be more important than in surgery,
- Because when I walk into a hospital I feel as calm as I would in a temple,
- Because when I operate I get into a zone deeper than meditation,
- Because I can convert discomfort into comfort with a few gentle strokes,
- Because I know that I can erase the lines of worry and make one smile,
- Because I can make a connection with my fellow beings on a much deeper level than any other profession,
- Because although I may strive for success every-time I have to accept failure too at times,

And that is why surgery is an art and not just a profession my friend!!

Dr. Aparna Govil Bhasker





# Presbyopia Correction

## The Last Frontier in Refractive Surgery

**Dr Vadrevu Kama Raju, M.D., F.R.C.S., F.A.C.S.**

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### Presbyopia:

- Literally means aging eye
- Is an age related eye condition that makes it more difficult to see very close.
- Happens naturally in people as they age.
- **Who is at Risk for presbyopia:** anyone close to the age of 40 is at risk for developing presbyopia.
- When you are young, the lens in your eye is soft and flexible. The lens of the eye changes its shape easily, allowing you to focus on objects both close and far. (Accommodation)



### Symptoms and detection:

- Some of the signs and symptoms of presbyopia include:
- Hard time reading small print
- Having to hold reading material farther than arm's distance
- Problems seeing objects that are close to you
- Headaches
- Eye fatigue

### Presbyopia Correction:

There is no best method for correcting presbyopia. The most appropriate correction depends on your eyes and your lifestyle.

**Reading glasses** are very common and easy way to correct presbyopia symptoms and typically worn during close work - such as reading, sewing, etc.

Readers are easily purchased at drugstores and other retail stores  
Eyeglasses with bifocals, trifocals or progressive lenses

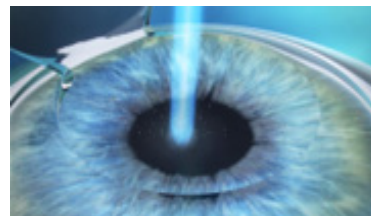


**Contact lenses:** another way to correct presbyopia is multifocal contact lenses.



Another way to correct presbyopia with contact lenses is blended vision, in which one eye is corrected for distance and the other one set for near vision. The brain learns to adopt.

- Surgical Options: (Refractive Surgery)
- Lasik: blended vision
- Multifocal vision



### Presbyopia lens exchange:

- Replace your rigid natural lens with an artificial lens that corrects presbyopia symptoms, providing multifocal vision.
- Many multifocal IOLs: Current hot topic
- Acrysof IQ Restor
- Tecnis Multifocal
- Many more
- Advantages: spectacle free?
- Disadvantages: Cost Visual aberrations



**Finally: Best Lens vs. Best Candidate... Is it for you?**

**Advice prior to contemplating cataract surgery**

We all experience cataracts as we age (though cataracts may be congenital, after trauma, or inflammation). When the cataracts affect our lifestyle (driving, reading, etc.) we may need cataract surgery. It involves removal of the cloudy lens and replacement with an artificial crystal-clear lens (Intraocular Implant or IOL).

Cataract Surgery with IOL is one of the most common surgical procedures on the planet. After surgery you will not need glasses for driving or watching T.V., but you may need glasses for close work. If you do not mind this, you do not need to read any further. But, if you would like to be independent of glasses, even for reading, you have a choice of having multifocal presbyopia correcting lenses. There are many kinds of lenses and the technology keeps on improving.

If you are a perfectionist; this may not be for you. The technology for these lenses is continually evolving, in fact, there are multiple lenses on the market. Discuss this with your Surgeon. Ask her/him questions. **This may be the best thing you could have done for your eyes.**



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**Ayurveda practitioners allowed to perform surgeries**

The Government of India has announced authorisation for the post-graduate practitioners in specified streams of Ayurveda to be trained to perform surgical procedures such as excisions of benign tumours, amputation of gangrene, nasal and cataract surgeries.

India's statutory regulatory body, the Central Council of Indian Medicine issued the notification listing 39 general surgery procedures and around 19 procedures involving the eye, ear, nose and throat by amending the Indian Medicine Central Council (Post Graduate Ayurveda Education) Regulations, 2016.

The instruction that the Indian Medicine Central Council (Post Graduate Ayurveda Education) Regulations, 2016, in regulation 10, after sub-regulation (8), the following sub-regulation shall be inserted, namely -- During the period of study, the PG scholar of Shalya and Shalakya shall be practically trained to acquaint with as well as to independently perform the following activities so that after completion of his PG degree, he is able to perform the following procedures independently.

According to the Chairman of the Board of Governors, CCIM, Vaidya Jayant Devpujari these surgical procedures are already being performed in Ayurveda institutes for over 20 years. It is claimed that the notification legalises these with

a purpose that helps set boundaries by specifying the list of procedures so that practitioners restrict themselves to the set of surgical procedures as mentioned in the regulation

According to the November 20 gazette notification, the procedures listed include removal of metallic and non-metallic foreign bodies from non-vital organs, excision of the simple cyst or benign tumours (lipoma, fibroma, schwannoma etc) of non-vital organs, amputation of gangrene, traumatic wound management, foreign body removal from the stomach, squint surgery, cataract surgery and functional endoscopic sinus surgery.

According to the INAS agency, the Indian Medical Association has been openly opposing such policy to mix modern medicine with the traditional systems of Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy (AYUSH) as advocated by the central government of India

Rajan Sharma, President, IMA, had earlier stated that an integrative system of medicine would create a "khichdi medical system" and would produce hybrid doctors. Many leading apex body of private practitioners of modern medicine had also condemned the Centre's ambitious 'one nation one system' policy in medical education and called it a 'cocktail of disaster'.

**Swasthya editorial team welcomes views and comments on this issue.**

**COVID-19 Vaccine gets official approval**

On 2nd December 2020, the UK government have authorised the Pfizer/BioNTech COVID-19 vaccine after receiving independent advice of medicines regulator.

The government has today accepted the recommendation from the Independent Medicines and Healthcare products Regulatory Agency (MHRA) to approve Pfizer/BioNTech's COVID-19 vaccine for use.

This has followed months of rigorous clinical trials and a thorough analysis of the data by experts at the MHRA who have concluded that the vaccine has met its strict standards of safety, quality and effectiveness.

The advice for the priority groups to receive the vaccine, include care home residents, health and care staff, the elderly and the clinically extremely vulnerable. □



# Fractures of the scaphoid:

## Why they matter and how should they be treated

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### 1. Introduction

The scaphoid is a small bone in the wrist that bridges the proximal and distal carpal row. It is the commonest (90%) carpal bone to be fractured<sup>1</sup> accounting for 2-7% of all fractures.<sup>2</sup> It occurs in young active individuals (mean age 29 years 3), mainly men, when they fall on to the palm of the hand or when the palm is stuck forcefully.

Most fractures (64%) affect the waist of the scaphoid but 5% affect the proximal pole of the scaphoid (Figure 1).

Once the scaphoid is broken the two parts can move away from their anatomical position and the fracture is “displaced”. This is seen as a step, a gap, angulation or rotation and occurs in 10-29% of scaphoid fractures.<sup>4</sup> A CT scan in the true longitudinal axis of the scaphoid shows the shape of the bone and displacement at the fracture better than do plain radiographs. (Figure 2)

### 2. Epidemiology

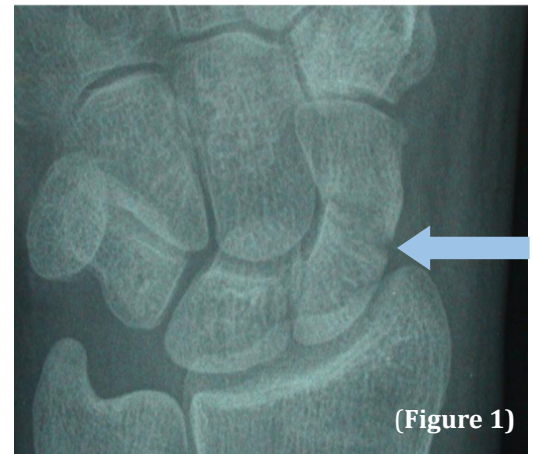
In the UK 12.4 in 100 000 of the population each year have a scaphoid fracture and the incidence is higher (18.6/100,000) in the lowest socioeconomic strata. The injury occurs more often in the summer (rate in June - 17/ 100 000) and is lowest in the winter (December 7.6/100 000).<sup>5</sup>

### 3. Consequence

The main concern of initial treatment is that the fracture will not unite.<sup>6</sup> This can happen in around 10-12% of scaphoid waist fractures treated in a cast alone<sup>7</sup> and causes immediate persistent pain and stiffness.<sup>8</sup> Fractures “displaced”  $\geq 1$ mm have a higher risk of non-union and malunion.<sup>8</sup> Mild malunion is well tolerated, but the long-term impact of a displaced fracture that healed in malalignment has not been established. When the fracture is very proximal the retrograde blood circulation<sup>9</sup> is disrupted and may explain the higher failure of union in proximal fractures.<sup>10</sup>

A fracture of the scaphoid changes the way the proximal carpal bones work; the distal scaphoid fragment bending under load and the resulting abnormal loading. This persists if the fracture remains ununited.<sup>11</sup> This leads to wrist arthritis which proceed in a particular pattern<sup>12-14</sup> named the “Scaphoid Non-union Advanced Collapse” or SNAC causing degenerative arthritis<sup>15</sup> first between the distal part of the scaphoid and the distal radius, and then progressively involving the midcarpal joint as the carpus collapses into the dorsal intercalated segment instability (DISI) pattern<sup>16</sup> where the lunate tilts dorsally changing the loading between the capitate and the proximal carpal row.

Although the association<sup>17,18</sup>, patterns and probable cause has been



(Figure 1)



(Figure 2)



observed by many there is much variation in the reported proportions from 24%<sup>19</sup> to 60%<sup>12</sup>, relationship to fracture attributes such as location<sup>17</sup>, and duration to onset of degenerative change. Much of the previous literature has been based on radiographs<sup>12-14,17,18</sup> and not CT scans.<sup>20</sup> Literature suggests that most non-unions will develop osteoarthritis within 5 years.

#### 4. The SWIFFT study (Scaphoid Waist Internal Fixation for Fractures Trial)

The treatment of an acute scaphoid fracture is to immobilise the wrist with a broken scaphoid in a plaster cast. (Figure 3)

The alternative is to fix the broken scaphoid with a headless screw. The rate of Immediate surgical fixation of this fracture has increased but the evidence to support this is poor. (Figure 4)

Displaced fractures can be treated in a plaster cast, accepting the risk of malunion and non-union. Surgically the displacement can be reduced, checked radiologically, arthroscopically or visually, and stabilised with headless screws or wires.

We have recently completed a UK wide NIHR study<sup>21</sup> to investigate whether of surgical fixation was superior to cast immobilization and early fixation only of those that fail to unite for  $\leq 2$ mm displaced scaphoid waist fractures in adults.

This study was commissioned by our National Institute for Health Research (NIHR) and the published this year in the Lancet<sup>22</sup> and the full report published by the NIHR<sup>23</sup>- both are openly available. The findings have been also reported and presented extensively nationally and internationally (USA, UK, Europe, India, Australia).

This study randomized 439 adult patients who presented to orthopaedic departments of 31 hospitals in England and Wales with a clear, bicortical scaphoid waist fracture on radiographs. Patients randomised to surgery had early fixation of the fracture with a headless compression screws (surgery group, n=219) and those randomised to cast had initial below-elbow cast immobilization for 6 to 10 weeks followed by urgent fixation of confirmed non-union (cast immobilization group, n=220).

We assessed their pain and function using the Patient Rated Wrist Evaluation but also assessed complications, return to work and failure of the fracture to unite.

We had data from 408(93%) participants for the primary analyses and found no difference at one year in pain or function, and non-union rate was low in both groups (surgery group (4, 2%) cast immobilization (9, 4%). Participants in the surgery group were more likely to experience a complication with a consequence (14%). Time off work was similar of around a fortnight in both groups. (Figure 4)

Based on this study Adult patients with  $\leq 2$ mm displaced scaphoid waist fracture should have initial cast immobilization and suspected non-unions immediately confirmed and urgently fixed. Early fixation could be restricted for very displaced fractures to reduce exposure to surgical risks.

#### 5. Costs

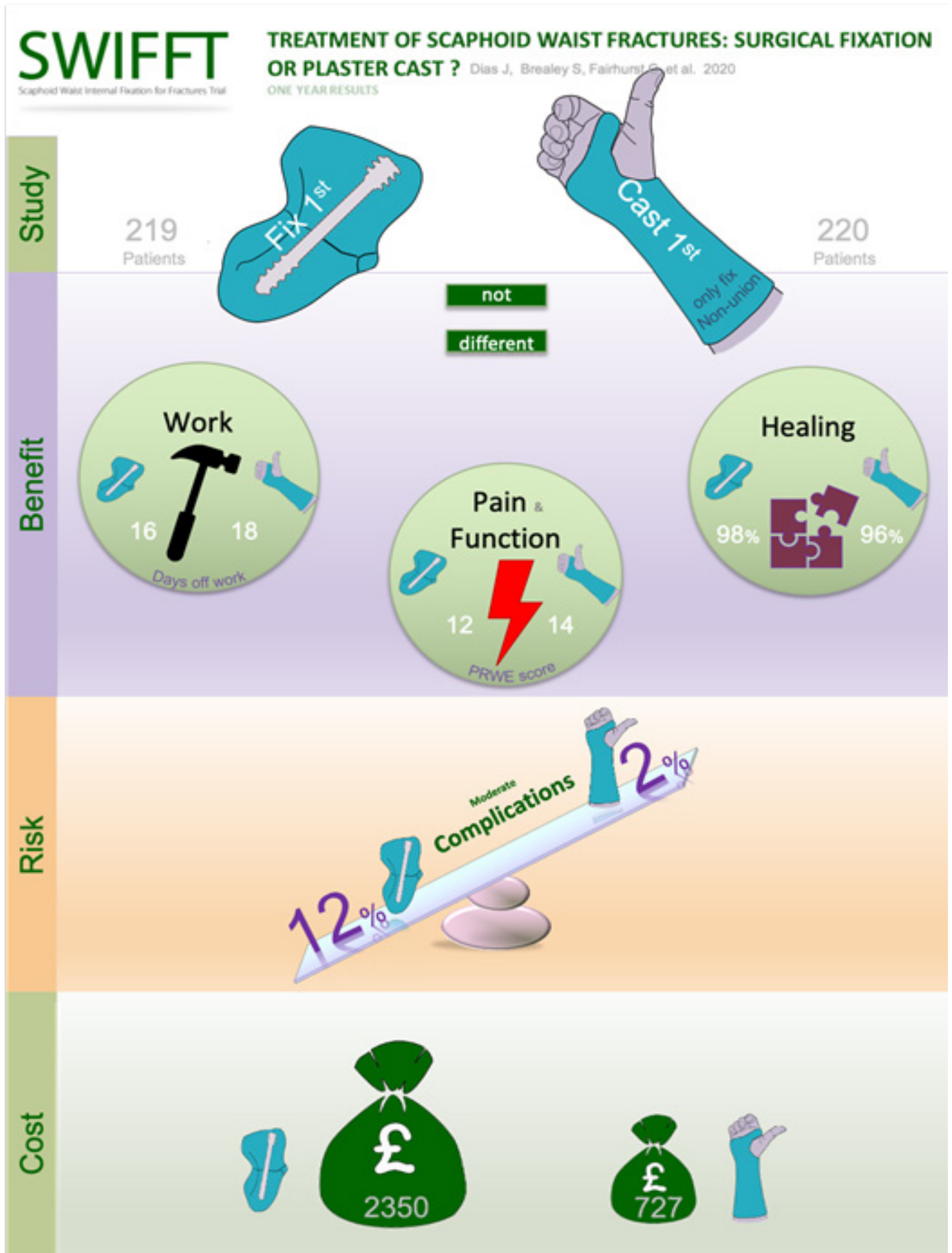
Patients completed a questionnaire about their general Quality of Life (QoL) that asked about their mobility, self-care, usual activities, pain/discomfort and anxiety/depression. The QoL score is a value between 0 to 1, where a higher score indicates better health. Over the year, patients in the surgery group and plaster group had a QoL score of 0.832 and 0.814, respectively. The cost of surgery to the NHS was £2,350 and cost of plaster cast treatment was £727. The significant extra cost of surgery for the tiny benefit in general QoL was not good value for money to the NHS.

We are currently reviewing these patients at five years investigating the consequences of arthritis and screw penetration and will report our findings in a couple of years.

#### 6. Conclusion

This is one of the few fractures where the consequence of non-union is known, causes arthritis in young people which is completely avoidable in almost all instances. However, with simple management in a cast the vast majority heal without the need for surgery. This, and other studies have shown that our systems, internationally, adopt surgical interventions with less scrutiny than new drugs.





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Joe Dias graduated from Bombay University in 1981 and obtaining accreditation in the UK 1987. He trained on the Leicester training programme under Paul Greig where he obtained his MD.

He has a special interest in epidemiology in hand and wrist disorders, Dupuytren's contracture, the outcome of interventions in upper limb and hand trauma and interventions in wrist disorders. His research has focused on clinically-based investigations of effectiveness of interventions for hand and upper limb disorders. He has a special interest in education.

He has published over 180 scientific articles, over 20 other publications and over 30 chapters in books most on hand surgery and epidemiology. He has 24 publications on scaphoid fractures. He has authored multiple national reports and NICE accredited clinical pathways. Professor Dias has received many substantial grants including from the Health Technology Assessment which is a part of the UK NIHR looking at scaphoid fractures (SWIFFT-published in Lancet,2020) and Dupuytren's contracture (DISC).

He has been editor and then Editor-in-Chief of the Journal of Hand Surgery (Europe edition) and has been on the Editorial Board for the Journal of Bone and Joint Surgery, British edition. Professor Dias was President of the British Society for Surgery of the Hand (BSSH) in 2008 and was President of the British Orthopaedic Association in 2012.

# Healing Little Hearts

## Voluntary outsourcing of NHS

### – giving and gaining

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Consultant Cardiac Surgeon

Alder Hey Childrens Hospital NHS Trust, Liverpool, UK

Lead Surgeon and Trustee, Healing Little Hearts charity, UK



**Mr Ramana (Ram) Dhannapuneni** MBBS, FRCS, FRCS (CTh), MBA (Health Executive). Ram is an alumnus of Rangaraya Medical College, Kakinada, India. His interests include neonatal and complex intraventricular cardiac surgery, pectus and chest wall surgery. He was a recipient of British Heart Foundations Healthcare Heart Hero in 2019.

Congenital heart defects (CHD) are the commonest cause of stillbirths, neonatal and infant mortality globally after infections. The global prevalence of CHD at birth in 2017 is estimated to be about 1.8 cases for 100 live births, a 4.2% increase since 1990.<sup>1</sup> The incidence of severe or moderate to severe CHD is about 6/1000 live births<sup>2</sup>. The higher the fertility rate and birth rate which usually is associated with poverty and illiteracy, the greater number of children born with CHD in those countries.<sup>3</sup> (Figure 1).

About half of these children would require lifesaving operation within the first year of life. About 20% all surgeries performed at Alder Hey are in new-borns, 40% in Infants under 1 year and 35% under 16 years. The advancements in medicine in general and cardiac surgery in particular along with investments in health care in the developed world led to early detection, effective & efficient care resulting in very low mortality.<sup>4</sup> (Figure2).

About 80% children with CHD in developed world lead good quality of life with normal life expectancy. However, the situation is contrastingly different in the developing,

underdeveloped and poorer countries of the world. It is estimated that over 1.3 million children are born with CHD each year and about ¼ of these die every year due to CHD in the world. In addition to CHD, most of these countries have the burden of rheumatic heart disease in children requiring heart valve surgery.<sup>5</sup> India provides a very good example of the incidence and treatments for the CHD.

#### CHD in India

With over 1.3 billion population and with high fertility and birth rates, more children with CHD are born in India than in any other country. Despite its rapid economic growth more poor people live in India than in any other country. The governmental and private health care expenditure is about 3.5% of GDP in India compared with about 9.7% in the UK, 11.2% in France and 11.2% in Germany (World Bank data). Though there are world class facilities available in private/corporate hospitals and a few premier governmental teaching institutes in major cities, vast majority of children and parents can neither access these facilities nor afford the costs as most come from rural areas and from poor background.

The ratio of cardiac surgeons to population is about 1 to 3.5 million in Europe and North America whilst it is 1 to 25 million in Asia and 1 to 35 million in Africa.<sup>3</sup> Paediatric cardiac surgery is a very highly specialised area with complexities in diagnosis, surgical correction and post-operative care. Though a highly rewarding speciality, the stresses and strains of the job and not having a similar financial incentive, paediatric cardiac surgery does not attract many trainees as

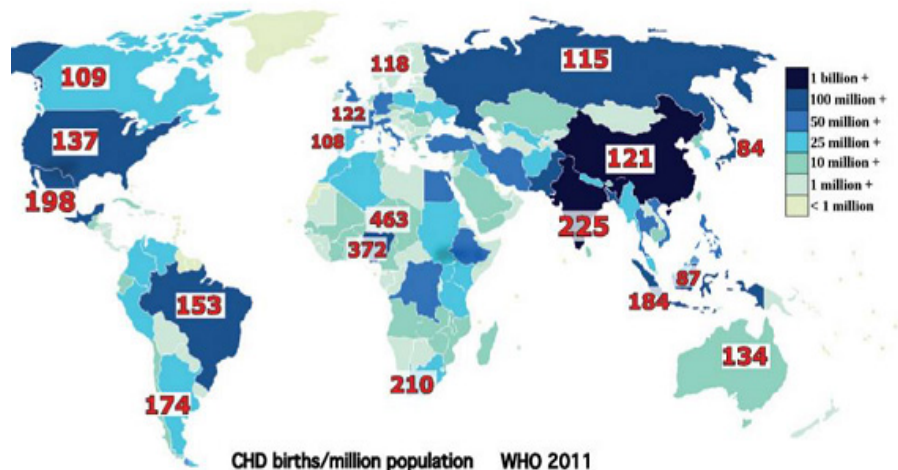


Figure 1 Number of children born with congenital heart disease per million population

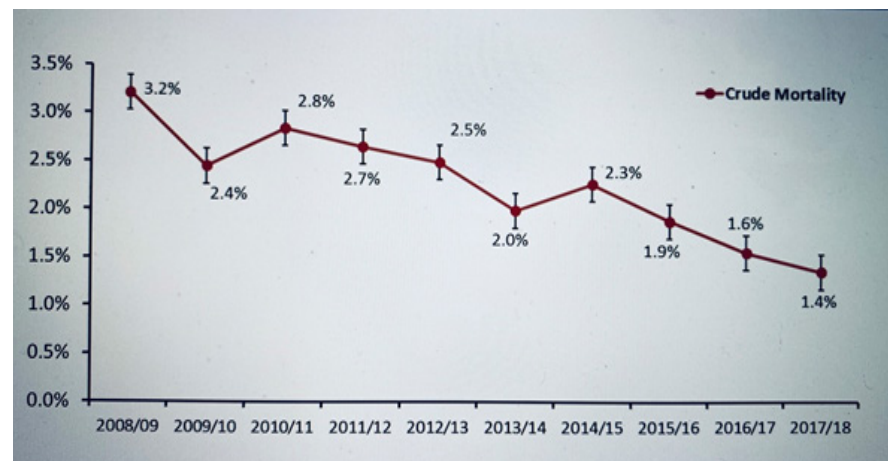


Figure 2 Trends in 30 days unadjusted mortality after surgery over 10 years in UK (2008/09 - 2017/18 financial years) in children (under 16 years)

compared to adult cardiac surgery in India. The interest in paediatric cardiac speciality in general is improving and the private hospitals are encouraging operations though they are expensive. Many state governments now fund childrens heart surgeries in private hospitals with schemes like "Arogyasree" which was first established in erstwhile combined Andhra Pradesh state in 2007.

### Healing Little Hearts

Healing Little Hearts (HLH charity) is a UK registered charity (1130194) founded in 2007 by Dr Sanjiv Nichani OBE, a consultant paediatric intensivist from Leicester with an aim to send out medical teams to those areas where childrens heart surgery is not available or not affordable. The charity has so far performed over 2000 heart surgeries in about 12 countries in 3 continents.<sup>6</sup> (figure 3). The value of these operations if performed in the NHS in UK is worth about £25 million.

The HLH charity raises funds through donations and from various fundraising activities in UK. Everyone involved with the charity volunteers their time resulting in 95% of donations directly reaching out for the cause. The charity organises and sends out teams of about 6 to 10 specialists including cardiac surgeon, cardiologist, anaesthetist, intensivists, perfusionist and nurses on camps organised in association with host hospitals. The volunteers come from many of the paediatric heart centres in UK and some from Europe and Australia.

The camps last for a week providing free heart surgeries. The host hospital might fund itself, seek governmental and other charities help to cover the local costs of operations. The HLH team not only involves in screening, diagnosis, treatment and operations but would spend time in teaching the local teams, residents, training the surgeons and anaesthetists. Often there would be CME programs aiming at the general paediatricians in the city and surroundings. Even after returning back, the HLH team continues to provide support in aftercare of not only the patients operated in the camps but helping the local teams to provide sustainable treatment and surgeries.

One fine example of HLH charity's long-term collaboration since 2015 resulted in establishing a full fledged paediatric cardiac surgical program at Andhra Hospital in Vijayawada in India as the local team now performs about 25 operations per month with continued help and support from HLH volunteers.

### Reverse benefits to the volunteers and the NHS

Apart from providing a sense of fulfilment, the camps provide a great opportunity for professional learning, aptitude development and teamwork. Advanced pathology, unfamiliar conditions and limited resources would provide a great opportunity to learn new things, innovate with new techniques and work efficiently under pressure, which would be a great skill to acquire and bring back to the normal job in the NHS. The teams bond well during these camps and also learn the value of working together within teams and across the teams. There is a great opportunity for professional networking and social friendships. The camps have been a source of attracting trainees to come and work in the NHS in related specialities of paediatric cardiac surgery, cardiology and intensive care by sponsorship through Medical Training Initiative. This was of mutual benefit not only served our hospitals where there is always a shortage of workforce in these areas but for the trainees and the developing countries as these would return and establish paediatric cardiac centres with continued support.



Healing Little Hearts Global Foundation

## HONOUR: OBE FOR DR SANJIV NICHANI



**Dr Sanjiv Nichani, Consultant Paediatrician at the Leicester Royal Infirmary and Glenfield General Hospital was awarded with an OBE in the Queen's Honours Lit Oct 2020. He is also founder of Healing Little Hearts.**

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# ADJUSTING CARE FOR OLDER CANCER PATIENTS DURING THE COVID-19 OUTBREAK: *the SIOG Recommendations*

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# SIOG

INTERNATIONAL SOCIETY  
OF GERIATRIC ONCOLOGY

## Short resume:

The COVID-19 pandemic poses several challenges and distresses primarily senior adults, the age-group predominantly affected by cancer.

A careful evaluation of each elderly patient by means of a Geriatric Assessment is mandatory, in order to avoid over-treating frail and vulnerable patients, while not under-treating fit individuals.

Several geriatric-focused issues have been recognized, which might affect the senior cancer patient beyond the malignant tumour: feeling of estrangement due to limited access to friends/family; decline in communication and comprehension from wearing masks and facial shield, more particularly so for hearing-impaired patients who rely on lip reading and non-verbal cues; increased dependency on others to provide basic needs such as drugs, food and home supplies.

An expert panel established by SIOG has been set in place to develop a consensus and make recommendations on aspects of cancer care in this age group.

## Key messages:

1. The senior adults are mostly distressed by the COVID-19 pandemic besides

bearing the highest burden of malignant disease (one in two cancer is detected after age 65).

2. It is possible to prioritise those patients demanding active oncological treatment by means of Geriatric Assessment tools.
3. Advantages and drawbacks of active cancer treatments should be tailored according to a holistic and patient-centred approach.

The COVID-19 outbreak has been posing numerous challenges, affecting people from all over the world, ethnicity, literacy, religious orientation, but there is no doubt that senior adults are the most severely affected group. Amongst them are numerous cancer patients, since more than one in two malignant tumours affect people aged 65-year and above.

COVID-19 represents another competing risk factor to take into account when undertaking therapeutic decisions for senior adults with cancer. The presence of chronic conditions such as cardiovascular disease, diabetes, chronic respiratory disease, chronic renal impairment, and cancer present worse outcomes, particularly for those patients with 3 or more comorbidities. In many older cancer patients where management could be challenging, the risks of morbidity and mortality from acquiring COVID-19 must be considered when assessing risks and

benefits of the decision to undertake cancer treatment. During the pandemic it becomes even more imperative that such approach is followed to avoid the risk of over- or under-treatment and minimise the risk of adopting an ageist approach.

To this purpose the International Society of Geriatric Oncology (SIOG) has established a panel of experts with the aim of developing a consensus and making recommendations on numerous aspects of cancer care specific to this age group <sup>(1)</sup>.

Older age and cancer diagnosis are predictors of negative outcomes of the COVID-19 infection. In this setting a careful Geriatric Assessment (GA) is particularly valuable to assist decision-making. GA may assist estimating physiologic reserve and adaptive capability, assessing risk-benefits of either providing or temporarily withholding treatments, and determining patient preference to help inform treatment decisions. In a resource-constraint setting during a pandemic, frailty screening tools may be administered remotely to identify patients requiring a more Comprehensive GA.

Therapeutic decisions should favour the most effective and less invasive approach with the lowest risk of side effects. In selected cases, this might require deferring or omitting surgery, radiotherapy or chemo/immunotherapy especially when

benefits are marginal and different therapeutic options are available, and may be safer.

Further research is needed to expand our knowledge on how best to manage cancer in older adults. The pandemic has produced barriers: efforts should be made to ensure prospective data is collected to elucidate the outcomes of COVID-19 in this age group. Local and national health organizations attempted to minimize viral transmissions and allocate resources for primary and secondary prevention, including home confinement and social distancing of cancer patients, limiting their hospital visits when the risk of acquiring COVID-19 is high, and reducing iatrogenic immunosuppression and treatment-related toxicities.

Several geriatric-focused issues have been identified as a result of an imposed quarantine and social distancing; these include (a) feeling of estrangement, loneliness and neglect due to limited access to news or information, friends and family, particularly when access to digital technology is lacking; (b) decline in communication and comprehension not only due to isolation but also from wearing masks and facial shield, more particularly so for hearing-impaired patients who rely on lip reading and non-verbal cues; (c) loss of autonomy and ensuing dependency on others to satisfy basic needs such as drugs supplying, food and other home provisions due to travel restrictions or lack of access to transportation. On the other hand, community support for seniors such as cleaning, shopping and home maintenance to aid them cope with daily life have also been disrupted. Therefore, several disabilities become a major handicap, which may lead to an increased risk of institutionalisation. Institutionalised patients, such as those in the nursing care facility are at higher risk of acquiring COVID-19 infection, increased feeling of abandonment, as well as mental health problems<sup>[2,3]</sup>.

The impact of social isolation as a result of recommendations on physical distancing, excessive risk of delirium with limitations in its management, and decisions regarding anticancer treatment, are important issues to assess and pro-actively address. The risk of delirium is high as well as underestimated: when the current status of hospitals and other healthcare settings are becoming more “deliriogenic” and visit times are restricted, staff members are required to wear personal protective equipment (PPEs); patient interaction is also minimized to avoid exposure<sup>[4]</sup>. In these times, it is paramount to evaluate and stratify the risk of delirium in patients who are candidates for chemotherapy and surgery since both treatments can become

high risk procedures.

Decision-making should be patient-centred, taking into account the potential risk of pursuing, delaying or omitting surgery, the most curative treatment strategy. It has been repeatedly proven how ASA and ECOG-Karnofsky are unsatisfactory in predicting treatment outcomes.

Aside patients’ fitness and the number/severity of comorbidities which may influence the postoperative course, health-careers should consider tumour related factors as well as the presence of cancer-related symptoms, besides risks associated to the operation itself.

Most elective surgical procedures can be delayed safely, in view of reducing the risk of COVID-19 infection. In the case of cancer surgery, the definition of “elective” is entirely dependent on the biology of the disease and the symptoms generated by the tumour. There is no doubt that those procedures aiming for a rapid relief of symptoms (e.g. obstructions of the GI tube) or to minimize neurological complications (e.g. spinal metastases and hip erosions due to secondarisms) should be prioritised. On the other hand, surgical treatment of non-invasive tumours (e.g. ductal in-situ carcinoma of the breast) can be delayed since these are unlikely to impact on survival. The risk of tumour progression with a delayed radical surgery should also be balanced against the availability of resources, including operating theatres that may have been converted in Intensive Care Units (ICUs), the local ICU capacity, the number of available anaesthetists, the risk of surgical complications and the expected time to recovery. There is evidence that operating older patients with a confirmed COVID-19 infection exposes them to a higher 30-day risk of death<sup>[5]</sup>.

On the other hand, there is a window of opportunity which allows considering neo-adjuvant and less toxic treatments such as endocrine therapy or radiotherapy, as a mean to delay surgery in selected cases: under certain circumstances, the omission of surgery may be appropriate in case the impact on symptoms and survival is minimal, or when a safe and effective alternative therapeutic option is available. This is the case of primary endocrine therapy for older patients with early-stage ER-positive, HER2-negative breast cancer. In a similar way, the use of radiation therapy in older patients should be prioritised according to the expected benefits and the tumour biology, within the context of patients’ fitness and preference. In the older age group, travelling constraints, daily hospital visits and patients’ concerns regarding exposure may represent

significant challenges.

Radiotherapy is a valid treatment however radiation dosage and fractionation should be optimised and adapted to the pandemic context. Hypofractionated regimens and shorter schedules may be preferable in the curative setting.

Conversely, a shorter course of adjuvant RT (26 Gy in 5 fractions) is also non-inferior to a standard regimen of 40 Gy in 15 fractions for patients with early-stage breast cancer<sup>[6]</sup> and could be considered as an alternative option in order to minimise the risk of exposing older patients to the viral infection. Modest hypofractionation could also be considered for early prostate cancer patients.

In the palliative setting, patients should be offered the smallest number of fractions to minimise the number of visits to hospital and consequently the risk of exposure<sup>[6]</sup>.

RT should be delayed in the absence of any significant impact on cancer outcomes. On the other hand, in case of curative intent or rapidly progressive disease, the risks of delaying RT will outweigh the risks of COVID-19 exposure and infection. Patients already undergoing RT should be offered a discussion about the risks and benefits of continuing it based on individual goals of care.

The potential tumour control offered by systemic treatment is unchanged during a pandemic, whereas risks may be increased, especially for those regimens causing myelosuppression or requiring frequent visits to hospital therefore increased infection exposure. The balance of harms and benefits remains uncertain as there is no evidence to suggest changing or withholding it. Therefore, decision-making should be individualised on the tumour biology, the type of therapy, the patients’ general health status and his/her very own preferences.

Geriatric Assessment has proven reliable in predicting toxicity in older patients; its implementation is particularly appropriate in the context of the ongoing COVID-19 pandemic. The Cancer and Aging Research Group (CARG) model takes into account age, type of cancer, the proposed chemotherapy regimen, renal and hematologic function, hearing, along with GA domains such as ability to take medications, physical activity and social activity<sup>[7]</sup>. The Chemotherapy Risk Assessment Scale for High age (CRASH) is based on the specific chemotherapy regimen being considered as well as laboratory values (creatinine, albumin, haemoglobin, lactate dehydrogenase, liver function tests) and assessments of

functional, mental, and nutritional status<sup>[8]</sup>.

In the curative setting, chemotherapy should be considered when appropriate and in the presence of a clear survival benefit. Whenever possible, a shorter schedule should be preferred. In the palliative setting, shared decision-making should take into account the hazards of worsening symptoms and functional status, which could lead to missing the opportunity to treat. After attaining ongoing disease remission, discontinuing chemotherapy may be an option, especially if alternative non-myelosuppressive agents are available, such as endocrine therapy for HR-positive breast cancer patients.

Chemotherapy regimens with less frequent dosing should be preferred to minimise the need for hospital visits. When available, oral agents should be favoured over intravenous treatments: capecitabine could replace fluorouracil in the management of colorectal malignancies without compromising outcomes. Primary prophylaxis with granulocyte colony-stimulating factors is also advisable for patients receiving cytotoxic drugs in view of an increased risk of myelosuppression in the older age group.

Adjuvant chemotherapy can be delayed within the accepted timing for each tumour type: patients with colorectal or lung cancer can have their chemotherapy safely postponed for up to 8 weeks<sup>[9,10]</sup> and for those with breast cancer for up to 12 weeks after surgery<sup>[11]</sup>.

Chronological age alone should not preclude any oncologic treatment in older adults. On the other hand, such decision should consider individual circumstances which are likely to influence their impact on survival or symptom control, including life expectancy, comorbidities and tumour biology, prioritizing the patients' preferences.

COVID-19 is an emerging and rapidly evolving condition that warrants personalised care as suggested by careful GA and depending on the disease prevalence together with the penetrance of the pandemic. SIOG has outlined the urgent need to protect vulnerable patients and mitigate the projected negative outcomes in this age group. This is unlikely to be the last pandemic that mankind will encounter; it is therefore imperative that we take this unique opportunity to learn and design tailored management for both present and future use. It should also be acknowledged that the previously mentioned recommendations may lead to scattered implementation, depending on the stage of the pandemic and the distribution of

the virus. Whilst data is still emerging and follow-up of ongoing trials is too short to allow robust conclusions, the SIOG Working Group has developed a number of recommendations on the management of older adults with cancer which are outlined in the full article recently published<sup>[1]</sup>.

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# Swasthya Health स्वास्थ्य

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## MENTAL HEALTH

### SPECIAL SUPPLEMENT





## Sleep and better physical and mental health

*“Sleep is my lover now, my forgetting, my opiate, my oblivion.” Audrey Niffenegger, The Time Traveler's Wife*

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The light bulb was transformative to human civilisation, enabling us to work and play long after dark, but have we gone too far by altering the ebb and flow of natural light and our body's natural rhythms?

A good night's sleep is a gift that we all desire. When we lay our weary heads on the pillow and allow Morpheus to enfold us in his embrace, we surrender, leaving behind the noise, lights, smells and cares of the world. Our bodies however do not 'switch off' when we sleep – the brain powers down, but continues working, replenishing and re-processing, and various other systems including our bones, muscles and skin replenish and regenerate. Sleep seems to be all the more topical in 2020, since the pandemic has disrupted our routines at home, study and work, and forced us to modify our lifestyles as individuals, families and society.

For a condition that is such a large and essential part of the day for every human, sleep has been surprisingly poorly studied until recently, and the field of sleep medicine is young. William Charles Dement, Emeritus Professor of Psychiatry at Stanford University who died at the age of 93 earlier this year, is considered the founder of sleep medicine. His interest in Sigmund Freud and dreams prompted him to study Rapid Eye Movement (REM) sleep with Nathaniel Kleitman in the 1950s. He proceeded to study other sleep disorders, develop polysomnography and the first sleep clinic in 1970. Sleep research and medicine has since grown rapidly, enabling a better understanding of the mysteries of sleep.

Normal human sleep comprises non-REM (non-dreaming, restorative sleep stage) and REM (dream sleep) in cycles of approximately 90 minutes through the night. The nightly pattern of sleep begins in the lighter stages of NREM sleep (N1 & N2) which progress to Slow Wave Sleep (SWS or N3) before the first episode of REM sleep about 80 minutes later. NREM dominates the first half of the night while REM episodes lengthen through the night. Electroencephalograms (EEG) during NREM show sleep spindles, K-complexes and slow waves accompanied by low muscle tone while in REM sleep the EEG is desynchronised and muscles are atonic (except for respiratory muscles).

The amount of time we spend in sleep declines over our lifetimes. New-borns spend between 16 and 20 hours of the day asleep, up to 50% of this is REM sleep, but REM decreases to 25% of total sleep by age two. The amount of time spent asleep decreases to about 12 hours by the age of four and this gradual decline continues through life, with the elderly requiring up to 8 hours<sup>(1)</sup>. The quality of our sleep seems to decline as we get older – it takes longer to fall asleep, experience more awakenings and as a result can feel less refreshed. Various factors can affect the quality of sleep, especially in the elderly, including anxiety, depression, congestive heart failure, gastric reflux, nocturia or the inability to find a comfortable position due to pain from arthritis or curvature of the spine. Quality

of sleep can be improved by better managing comorbid conditions.

Sleep has been found to be essential for several of our cognitive functions, including memory consolidation and reorganization, problem solving and creativity, emotional reactivity and regulation, empathy and management of interpersonal conflicts.

Polysomnography is considered the gold standard when investigating sleep and its disorders, and involves an overnight stay in a sleep clinic. However, rapid advances in technology have put smartphones in all our pockets and smartwatches on our wrists – almost all of these gadgets use accelerometers to track and mathematical algorithms to estimate and feedback our wake and sleep patterns. These can be useful objective adjuncts to sleep diaries.

There are over 100 disorders of sleep classified in the International Classification of Sleep Disorders (ICSD – 3), some are listed below.

Insomnia is by far the most common sleep disorder – with prevalence estimates of 10 – 30% in the general population depending on how it is diagnosed. Women seem to suffer more than men and the prevalence increases with age and the presence of comorbid physical and mental health problems – indeed there appears to be bidirectional relationship between insomnia and mental disorder. Research suggests that not only can insomnia lead to impaired quality of life and psychosocial functioning, but it can increase the risk of developing depression, type 2 diabetes and cardiovascular disease.

Cognitive Behaviour Therapy for insomnia (CBTi) is recommended by NICE as the best treatment for insomnia<sup>(2)</sup>. The Sleepio App provides digital CBTi, it has been appraised by NICE HTA in 2017<sup>(3)</sup> and is available free of cost in some areas of the UK. Short term non-benzodiazepine hypnotics can be useful adjuncts.

#### Sleep hygiene

- Use the bedroom for sleep and sex only (no television watching or phones/ipads in bed).
- Do not watch the clock while in bed.
- Avoid struggling to fall asleep in bed. Instead, get up and spend quiet time out of bed until sleep comes.
- Avoid caffeine, especially late in the day.
- Avoid activities that will get you stimulated or upset late in the day.
- Practice relaxation techniques before bedtime.
- Exercise each day.
- Maintain a regular schedule for bedtime and waking; avoid naps.

Obstructive sleep apnoea syndrome (OSAS) is also common, with estimated prevalence of 2 to 4% of the adult population, characterized by repetitive episodes of upper airway collapse during sleep. Patients present with daytime sleepiness, with sleep partners reporting loud snoring, witnessed breathing interruptions, or awakenings due to gasping or choking (hence the term 'disease of listeners!'). OSAS treatment can include medical, continuous positive airway pressure (CPAP) or intra-oral devices, psychological and surgical options.

Circadian Rhythm disorders are linked to desynchronization between internal sleep-wake rhythms and the light-darkness cycle – this can happen when we travel across time zones (jet lag), work shifts or consistently stay up late browsing the net or gaming, commonly seen in adolescents (delayed sleep phase syndrome). Melatonin and bright light therapy alongside behavioural interventions can help.

Restless legs syndrome, with estimated prevalence as high as 4% is characterised by an irresistible urge to move one's legs to relieve uncomfortable sensations, thereby disrupting sleep.

REM behaviour disorder (RBD) is a condition that has been increasingly identified over the last few years – patients appear to 'act out their dreams', and present with vivid dreams associated with simple or complex motor behaviour due to loss of normal skeletal muscle atonia during REM sleep (such as falling out of bed or attacking their bed partner). Management includes Clonazepam as the drug of choice. Evidence is growing that RBD might precede a diagnosis of a neurodegenerative condition such as Parkinson's disease.

Hypersomnia syndromes are relatively rare, but patients can present with dramatic symptoms. Patients report severe, irresistible daytime sleepiness and sudden loss of muscle tone (cataplexy), and can be associated with sleep-onset or sleep-offset paralysis and hallucinations (due to rapid entry into REM sleep), frequent movement and awakening during sleep. The cause had been unknown until recently - in type 1 narcolepsy (T1N) discrete pathophysiology has been described, the autoimmune destruction of hypocretin neurons in the hypothalamus associated with low CSF concentrations of the hypocretin-1 (orexin-A) neuropeptide. Animal models of narcolepsy have been extensively studied and picked up in the media, here is an example: <https://www.youtube.com/watch?v=X0h2nleWTwi&t=48s>

We are rediscovering the importance of sleep in our increasingly frantic '24/7' lifestyles with better scientific understanding of sleep. Meta-analyses seem to suggest that sleep is a key modifiable "lifestyle factor" alongside physical activity,

smoking and diet in the prevention and treatment of physical and mental disorders <sup>(4, 5)</sup>. We need to understand the importance of sleep and further insight will pave the way for higher-quality sleep and better overall health.

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Header Picture source [https://en.wikipedia.org/wiki/Nightmare\\_disorder](https://en.wikipedia.org/wiki/Nightmare_disorder). Original painting: Henry Fuseli, *The Nightmare*, 1781, oil on canvas, Detroit Institute of Arts)

**Commonwealth and UN Technology Bank join forces to support least developed countries**

A new Commonwealth and UN Technology Bank have been formed a new partnership to support least developed countries (LDCs).

This will facilitate through technology transfer, capacity building and knowledge sharing.

The Commonwealth and UN Technology Bank, the two organisations have signed a memorandum of understanding that would commit them to collaborate to build science, technology and innovation capacity for least developed countries in the Commonwealth.

The partnership will include joint research to assess the needs of least developed countries in the areas of science, technology and innovation. Capacity will

be built through training in innovation and technology policies, digital transformation and regulatory and intellectual property rights issues.

The strengthened cooperation will focus specifically on promoting structural transformation of LDC economies in an effort to help eradicate poverty, fostering long-term sustainable development.

Joshua Setipa, UN Technology Bank's Managing Director said: "I am delighted to formally strengthen the UN Technology Bank's institutional relationship with The Commonwealth Secretariat, especially at such a crucial time for the least developed countries, 14 of which are members of the Commonwealth.



# Corporate Mental Health

## – the new paradigm in mental health

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The World Health Organization defines positive mental health as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community.”

Positive mental health can be promoted and maintained by various ways. It requires a health living, supportive environment, good health, sound working environment and several other little things that are a part of our daily lives.

Similarly, positive mental health is also affected by several factors which belong to our daily living as well. Workplace is one of the crucial factors among many.

According to the National Alliance on Mental Illness, “Work is at the very core of contemporary life for most people, providing financial security, personal identity, and an opportunity to make a meaningful contribution to community life.”

The workplace of an individual has a significant impact on his or her mental well-being, and there is a growing awareness about this fact. In his book “Work, Unemployment, and Mental Health,” Peter Warr has stated that gainful employment provides five categories of psychological experience that promote mental well-being:

1. Promotion
2. Time structure (an absence of time structure can be a significant psychological burden)
3. Social contact
4. Collective effort and purpose (employment offers a social context outside the family)
5. Social identity (employment is an essential element in defining oneself)
6. Regular activity (organizing one’s daily life)

Even as we keep the above points in mind, it is important to note that mental health problems are among the most important contributors to the burden of disease and disability worldwide.

It is estimated that five of the ten leading causes of disability around the world are due to mental health issues. Unfortunately, the impact of mental health disorders on employee productivity has long been underestimated, even though the workplace is where one spends most of their professional life. We live in a world where

appraisals, feedback, competition, meeting deadlines and constant improvements are only some of the enormous pile of stressors that we encounter at the workplace. The working space, context of work, and interpersonal relationships are also unavoidable factors that impact the mental health of employees.

In today’s global economy, mental health is an essential driver for successful business, and there are many reasons why employers should make the promotion of mental health in the workplace, a priority. In the share of the cost of occupational and work-related diseases, mental illnesses have a share of 7% on a global level. Therefore, mental health is a pressing issue in its own right.

An oft-discussed topic is that of work-life balance. It emphasizes the need for individuals to create a healthy balance between work (career and ambition) and lifestyle (health, pleasure, leisure and family).

It is a fluid concept and a very individualized balance that one creates for themselves depending on a lot of factors like — personality, profession, family demands, along with other environmental factors. A sound health (physical and mental) plays a very crucial role in determining one.

Globalization and the advances in workplace technology have resulted in rapid changes in the nature of work across different fields. This affects the content, organization and intensity (quality and quantity) of the work of an employee, which increasingly requires more skills and competency regarding innovation, communication and social intelligence. While these changes are rewarding for employees, they can also mean that employees experience more pressure and stress. The increase in workload demands upon their cognitive, social and psychological skills which have a direct impact on their mental well-being.

Therefore, mental health is crucial: both for the formation of these skills and their efficient use in the workplace.

Mental health problems can affect anyone, of any age, culture, socio-economic status and background. However, with adequate support, most people can and do recover. By making changes to the workplace environment, and offering support to employees, the duration and severity of mental health issues can be

reduced and recovery can be accelerated. The well-being of employees ensures constant performance, less absenteeism, productivity and success for the employee and the organization, and in the larger picture, for an economy.

Unfortunately, it is not an issue that is addressed by the Mental Health Care Act 2017 and nor are there any policies that account for the same. Nevertheless, workplace mental health is an important aspect of a working individual’s life and overall well-being. With time larger number of companies are getting open to the idea of accommodating to address mental health within the working place. Although it is difficult to quantify the impact of work on personal, social and psychological well-being, it is agreed. Workplaces can offer several measures to promote psychological well-being and positive mental health, such as:

1. Flexibility in working hours and giving employees the option to work from home, as and when possible
2. Introducing and encouraging breaks from work that are conducive to social interactions
3. Making employer and employee relationships more open and friendly
4. Advancing career development and career mapping for freshers and old employees to keep steady growth
5. Offering in-house counselling for employees — addressing both personal and organizational problems
6. Involving employees in the process of decision-making
7. Recognizing and rewarding the contribution of employees

With the increasing prevalence of mental disorders, workplace mental health is an essential need in the time of increasing stress.

Additionally, the stigma around mental health can be reduced by employer support to employees that can start a discussion around mental health. Organizations have slowly taken up the responsibility to support individuals with mental disorders at the workplace. There have also been questions where the question of a ‘mental health leave’ (parallel to sick leave) has come in the picture. Though it does not form a uniform policy privilege, the debate around it has begun. The culture of talking about mental health is slowly taking place

and the momentum that needs to be maintained. We all play a critical role in the advocacy of mental health, including the workplace.

The Need for Mental Health in Corporate Wellness Programs

Incentives often include lowering healthcare premiums, reducing co-pays, and increasing costs for smokers. Often missing from corporate wellness programs, however, is a focus on mental health and emotional wellness. While mental health is not as easily measured as blood pressure or cholesterol, it deserves equal attention especially when considering the costs associated with poor mental and emotional health.

Productivity loss, absenteeism, job abandonment, and higher turnover are often directly linked to poor mental health. For example, research shows that people with symptoms of depression have a fivefold or greater increase in time lost from work compared to those without symptoms of depression.

Employers can begin to focus on mental health by ensuring that employees have access to mental health benefits including an employee assistance program (EAP). EAPs are useful in that they can provide referrals to mental health professionals and other services while maintaining strict standards of confidentiality.

Employers with mental health benefits are at a significant advantage over those who do not supply such benefits in that they are likely to have lower incidents of job burnout, onsite violence, and workplace injury. Employers should complete an assessment of their organizational culture before implementing any mental health programs. They need to acknowledge when there are cultural drivers that are influencing people's resiliency and their ability to be emotionally well at work.

At the onset, companies need to be certain that their culture and work practices can support the mental health and emotional needs of its employees. They must communicate that they care about each employee as a person and that they are committed to providing the best working environment possible. Employers can suggest that their employees complete a health risk assessment (HRA) which often includes questions pertaining to mental health.

Wellness leaders can launch awareness and education campaigns of these illnesses using the latest social media and other tools to help people find helpful resources. When employees experience symptoms such as the desire to isolate, withdrawal from normal activities, physical aches and pains, irritability, and low tolerance of others, having a resource to turn to for help can likely defuse a potentially serious situation.

By providing educational opportunities and enhancing awareness of mental illnesses through discussion, organizations

are de-stigmatizing those very illnesses which keep employees silent in their pain. Wellness programs may offer peer-to-peer support groups for mental health conditions. One recent study suggested that for lasting behavior change, people are best served to not only set attainable goals but to participate in small groups.

When people come together with similar experiences, they are less likely to feel so alone. In small groups, people are more likely to openly discuss topics such as how to cope with the pressures of work, how to improve job performance, or how to deal with a demanding boss. Peer support groups are not to be therapy sessions but they can be therapeutic for participants.

There are risks associated with corporate wellness programs giving equal attention to mental health. First, employees may not attend educational sessions or other such gatherings for fear of being "outed". Unfortunately, shame is often associated with mental illness in the workplace. Employees may be fearful that others will not perceive them to be competent, capable, or a solid performer.

The best way to mitigate the risk of low participation is regularly and visibly offer sessions which signals that the company is interested and open to the topic. Another way to mitigate risk is to ask organizational leaders to talk about mental health issues in public forums. Second, employees could find the discussions about mental health to be too intrusive. Mental health is an intensely personal topic for some people.

It can be even more private than some physical health topics. To mitigate the sensitivity risk, wellness leaders can set rules of engagement at events. For example, rules around not judging others, not interrupting when someone is speaking, and no cross-talk may help establish a feeling of "emotional safety" for the sensitive employee.

Third, there is a risk that once attention is paid to mental health, an organization will incur costs associated with the use of mental health services and pharmaceutical usage of psychotropic drugs increase. Employers need to be mindful that when people seek treatment, they are less likely to have more costly hospital stays, and are less likely to experience other chronic conditions that could drive increased costs in the long term.

Corporate wellness programs will continue to evolve. Our hope is that more attention will be paid to employee mental health and that the stigma associated with it will dissipate. By addressing mental health issues and emotional wellness, employers are addressing the total health of an employee when combined with programs for clinical measure achievement. That makes everyone stronger, more productive, and happier.

Some illnesses including depression, anxiety and stress disorders could

definitely be triggered at the workplace. They could stem from an unsupportive work environment with no space for voicing concerns, working with an uncooperative manager, or people practices/policies such as overworking employees, leading to exhaustion, and unfair distribution due to heavy workload. These triggers contribute to distress, giving rise to mental health issues. It is important that the managers balance the workload fairly, and that HR also has enough checks and balances to receive continuous feedback or monitoring.

Mental health issues are still perceived with a lot of stigma, not just at workplaces but also in common society and neighbourhoods. People are afraid to talk about it as they are scared they will be looked at differently by a lot of people who matter to them - their friends and colleagues may start avoiding them due to any conversations that may sound negative, depressing or critical. Therefore, they start getting into a shell to avoid being branded as negative or boring.

Empathy is a very essential and integral part of functioning at any conscientious workplace. It is the management team's responsibility to ensure that the welfare of the employees comes first, and they will respond by contributing with complete dedication, trusting that their welfare, reward and recognition are taken care of. This is the reason some companies have core values that make employees stick to the same workplace for their lifetime.

HR practices have a great role to play to ensure the mental health of the organization is good.

1. Having a transparent, open culture and allowing fearless communication between employees and management is critical.
2. Creating infrastructure including facilities for employees to relax, like recreational areas with various activities: physical and others like music, or those that unleash creativity/inspiration play a good role.
3. Providing space for a creche, to ensure childcare and other such responsibilities are taken care of (which could be a huge cause of concern/anxiety for young parents) and place for worship could be some things organisations could do to support employees.
4. A lot of good organisations also provide healthy and nutritious meals throughout the day and night to support employees, which is also a great way to ensure that the basic needs of eating right and on time are taken care of.
5. Besides this, creating recreational communities to support fitness campaigns, gym, zumba, yoga classes, adventure activities, etc. help build a healthy work environment and also work on the long term, cross-functional team building and community feeling throughout the company. □

# Repetitive Transcranial Magnetic (rTMS) - Neuromodulation treatment for Depression

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**Abstract:**

Repetitive Transcranial Magnetic stimulation (rTMS) is a non-invasive, medication free neuro-modulatory treatment which is providing a ray of hope for the patients suffering from depression and anxiety disorders. rTMS has proven successful in treating treatment resistant depression as well as drug naive cohort.

**Introduction:**

Repetitive Transcranial Magnetic (rTMS) is the cutting-edge treatment for depression and anxiety. NICE has approved rTMS for depression treatment in 2015. The Royal college of psychiatrists recommended it in 2017. rTMS has been used worldwide at least over a decade with good success results. FDA has recently approved rTMS for Obsessive Compulsive Disorder.

Until now, the traditional mode of treatment for depression was psychopharmacology mainly antidepressants, ECT in severe cases and psychological therapy. There was still a part of population who was failing to respond to all these treatment options.

To this disadvantaged group, neuromodulation therapies like rTMS can be offered now. Looking at various RCTs, rTMS has now a place in the treatment depression specially to treat treatment resistant depression (Dunner et al, 2014).

**Advantages:**

rTMS is quick to work. It's a medication free treatment. It is non-invasive and cost-effective treatment. This can be combined safely with antidepressants. Patients can come driving. Their routine is unchanged.

**How does rTMS works?**

Repetitive transcranial magnetic stimulation works on Faraday's law. A magnetic coil is placed on the head and magnetic pulses are delivered to the brain which creates electrical field which in turn stimulates nerve cells in that part of the brain. Magnetic impulses travel 2-3 cm wide and down the brain-targeted point. These impulses generate electric current which in turns stimulates under performing nerve cells in the localized areas.

rTMS works by stimulation of underperforming nerve cells which controls mood and emotions (Dorsolateral prefrontal

cortex). It enhances neuroplasticity of thalamocortical circuits. This is the area which is involved in depression and anxiety. rTMS enhances synaptic plasticity. It changes in blood flow and metabolism at the site of the stimulation. rTMS also increases grey matter volume. It also affects BDNF upregulation.

**Indications:**

Depression, Bipolar depression, Post-partum depression. Depression associated with Fibromyalgia, chronic pain etc., Generalised anxiety disorder, Obsessive compulsive disorder.

**Side effects:**

This treatment has minimal side effects most common being headache and facial twitches during the treatment being the most common. Other side effects are as follows-

- Discomfort at the site of stimulation and scalp discomfort,
- Transient hearing loss
- Neck pain,
- Occasional agitation or increased suicidal ideas
- Rare episode of hypomania especially in patients with Bipolar disorder.
- Rare side effect of seizure (1 in 30,000).

**Success rate:**

Our (Tranquil TMS clinic) recent audit showed that our clinic's remission rates for Depression with rTMS was high (37.03%) and comparable to a study done by Connolly et al in 2012 which showed a remission rate of 35.3%.

However, our response rate of 66.66% was higher than the response rate of 41.2% quoted in the same study and higher than the results of a meta-analysis done by Berlim et al in 2014.

**Discussion:**

In conclusion, this novel treatment has an important place in the management of depression and anxiety disorders. At present, this treatment is mainly available in private sectors though few NHS centers are offering rTMS on the NHS.

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Dr Nikhila Deshpande is the Founding Director and Senior Consultant Psychiatrist. She has been working in the field of psychiatry since 1993. She has extensive experience in managing various psychiatric conditions affecting adults over the age of 18. Dr Deshpande is particularly passionate about diagnosis and management of mental illnesses such as depression, anxiety and dementia. She has published several papers and has participated in research projects. She is an examiner for the MRCPsych exams for The Royal College of Psychiatrists. She founded Tranquil TMS to provide a safe and non-invasive treatment for depression and anxiety that works. She has completed rTMS training course successfully organised by Clinical TMS society which is an international organisation. Dr. Deshpande is also a member of clinical TMS society.



# COVID and Challenges

## *the Indian Medical Health Perspective*

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The world took a hard hit in the form of the COVID-19 pandemic, which started in late December 2019 and is still wreaking havoc across the globe. The virus spread rapidly throughout the world, leaving no country untouched, including India, which has also been adversely affected by this virus.

As COVID-19 is a recently discovered disease, not much was known about its pathogenesis or mode of spread. The lack of any specific treatment further added to the panic. Many of the masses were afraid to come forward with their symptoms due to a fear of being ostracized and this tendency to hide symptoms further complicated the scenario.

The fear and confusion caused was the foremost challenge faced by the Indian healthcare system. The authorities had the momentous task before them of answering incessant queries about this highly infectious disease as well as simultaneously trying to prepare safeguards against it.

The challenges were evident in statistics as well. India has a higher population density (464 people/Km<sup>2</sup>) and lower doctor-population ratio (0.8/1000) as well as hospital beds-population ratio (0.7/1000) than countries such as the USA, Italy and Spain.<sup>1</sup> The latest National Sample Survey Organization data from the Government reveals that approximately 160 million Indians do not have access to clean water for hand washing.<sup>2</sup> Poor etiquette of coughing, sneezing, spitting and nose blowing exacerbates the problem.<sup>3</sup>

Even before the exact mechanisms and routes of infection became clear, it was certain that the disease spreads from an infected person to those in close proximity to him/her. Thus, the need for facilities of isolation of infected persons arose. This required a huge infrastructure; something India, being a developing country, was not equipped for at the time. Furthermore, since a large number of patients remain either asymptomatic or exhibit only mild symptoms, it became very difficult to identify the cases.

The only test available for this disease was based on RT-PCR, but the Indian healthcare system had neither enough PCR labs at its disposal nor a sufficient supply of raw materials to carry out the required number of tests. This placed a huge burden on the health care sector since any suspicious patient along with any person that had been in close contact with him/her required quarantine until the PCR results were available, which sometimes took days.

The Indian healthcare system has adapted to handle a large number of patients at a time due to the highly dense population which often leads to crowding of patients. Furthermore, safety equipment for healthcare workers was in limited supply and thus had to be used judiciously. This again became a hurdle in controlling such a highly infectious disease. Also, since not much was known about the virus, a much more hardline approach had to be adopted to tackle the situation, with rigorous cleaning protocols being introduced and even the shutdown of entire hospitals due to one positive patient. As and when our knowledge evolved, new strategies were implemented and older ones modified, leading to a more robust and targeted handling of the pandemic.

Since the primary modality of control of the infection was breaking the chain of transmission, there was a great emphasis on the uses of masks, gloves, sanitizers etc. The demand for these skyrocketed overnight while the supply remained limited. This posed a monumental obstacle for health care workers in their battle against the virus. PPE kits were not commonplace back then and, given their pivotal role in the fight against SARS-COV-2, it was an enormous task for the government to procure and distribute an adequate number of kits to all places. However, the indigenous production of safety equipment soon increased manifold, increasing easy availability.

The mere procurement of safety equipment was, however, not enough. All healthcare staff had to be rigorously trained in the proper use of the equipment and other safety practices.

Not only the government but also other scientific bodies like IMA, API etc. ensured regular and repeated training sessions for all strata of healthcare workers through both hands-on training sessions and electronic media such as webinars. This training was of paramount importance since healthcare workers are at the highest level of exposure to the virus. Furthermore, they are a vital resource in this pandemic, without whom we cannot hope to control it. Not only the healthcare workers but also the masses had to be trained and educated regarding the general safety measures against the virus.

Active efforts regarding this were taken by the government through various audio-visual and print media to ensure the rapid dissemination of information. The medical fraternity also ensured the formulation of guidelines and protocols that allowed for the easy and rapid triaging of suspects from other patients attending the hospitals. All these measures ensured efficient control of the infection using minimal resources.

Another hurdle that stood tall was that of managing patients requiring intensive care. As more and more cases began occurring, the demand for oxygen supply and ICU beds followed suit. The initially predicted high mortality rates in the Indian subcontinent, primarily due to poor health infrastructure, lack of public awareness and overpopulation, added to the concern. Moreover, historically, India had been adversely affected by the Spanish flu pandemic of 1918, witnessing a very high mortality rate. Considering the dismal situation in western countries such as Italy, Spain and the USA added up to create an atmosphere of mass panic and hopelessness.

There was also a huge difference between the required number of mechanical ventilators and the available number, which was a cause of concern. Despite these seemingly insurmountable odds, the response from the country was very encouraging. The government deserves credit for

introducing measures such as complete lockdown, cessation of international and domestic travel as well as ensuring and other initiatives to cope with the pressures on the health system and controlling the spread of the virus.

As if the diagnostic and logistical challenges of COVID-19 were not enough, India also had to face many therapeutic challenges. Drug therapy for COVID-19 was not only costly, but many drugs also required the import of raw materials from other countries or were not manufactured in India. With international trade in complete shutdown, this was a major obstacle that required a quick solution. The demand for supportive therapy in the form of multivitamins, zinc etc. also saw a sudden upsurge during the pandemic. This was soon met by the increase in indigenous production by local pharmaceutical companies, which resulted in an uninterrupted supply nationwide.

COVID-19 has often been described as a “predictably unpredictable” disease due to its inconsistent clinical course. To date no reliable parameters have been established that can precisely predict the recovery or deterioration of a patient. This erratic behavior of the disease was another challenge for us since it resulted in prolonged ICU stays and an increased economic burden on the country. Also, monitoring patients required regular radiographic imaging through bedside X-rays and CT scans, which were not so freely available everywhere due to cost as well as infectious reasons.

COVID-19 requires isolation of the patient from his attendants too. This leads to both psychological and logistical problems. Both patients and attendants feel a general sense of anxiety and gloom that often manifests as uncooperative behavior, unnecessary complaints or even clinical depression.

Not being able to meet their loved ones also instills a general sense of mistrust among patients and their relatives. All of this leads to a corrupted doctor-patient relationship. Maintaining the trust and confidence of the patients as well as their attendants was another challenge for the Indian healthcare systems.

The absence of attendants also creates certain logistical problems. It became increasingly difficult to keep them abreast of the clinical course of the patient, to obtain consents for invasive procedures or to procure medicines for patients. Most importantly, it was an enormous task to obtain a reliable clinical history of the patient if he/she was disoriented or unconscious. These hurdles were overcome over time through change in clinical practice by an increased emphasis on objective laboratory parameters and physical examinations rather than history taking.

Though it is ranked much lower than Western countries in terms of health infrastructure, India has reported one of the lowest mortality rates in the world. Furthermore, even during the peak of the pandemic our recovery rates were among the highest in the world despite India being labeled as the diabetic capital of the world.

Many measures taken by the national and regional governments has helped to slow down the doubling rate of cases. It provided precious time for the healthcare infrastructure to respond to the demands across the country. The medical fraternity in the front line faced enormous challenge and it is undeniable that country's doctors and other healthcare staff have made huge contribution during these trying times. The early and aggressive response against the virus has led to reduction of cases to such an extent that in some places Level 1 Hospitals (for asymptomatic to mild disease

category patients) had to be shut down due to lack of patients.

However, the troubles are far from over. As we prepare for the second wave of the infection in winter, an unforeseen complication has arisen. Patients who had apparently recovered from the infection have begun experiencing what has been dubbed post-COVID sequelae. A persistent cough and breathlessness, associated with fibrotic changes in lung parenchyma, are occurring in a large number of previously recovered patients. Since the pathogenesis and exact treatment of post-COVID fibrosis is a matter of active research, management of these patients remains an onerous task. It has also not yet been reliably demonstrated whether infection with the virus provides lasting immunity. Hence, there can be no relaxation in safety protocols during the second wave, which will be a huge economic and psychological burden upon our country. The lack of an effective vaccine is another setback in our battle against this virus.

COVID-19 has wounded our country through its impact and has surely earned a place in history as one of the toughest battles India has had to fight. Despite the odds, we will continue to push forward and hope to one day overcome this notorious disease that has plagued our land.

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India: Authority's attempt to educate Public about the Corona Virus during pandemic

## Revolutionary cancer-detecting blood tests to be piloted

The NHS launched a pilot for an innovative pilot blood test that claims would help detecting the cancers, detect more than 50 types of cancer.

Announcing this initiative, health service Chief Executive Sir Simon Stevens said, "the New blood test would be capable of detecting the cancers".

The Galleri blood test can detect early stage cancers through a simple blood test.

Head of prevention and early detection research at Cancer Research UK, Dr David Crosby, said: "All too often, patients are being diagnosed at a late stage, where their cancer is deeply rooted and requires significant intervention, often with poor outcomes". Highlighting in the Lancet Oncology, the Cancer Research UK's, emphasised

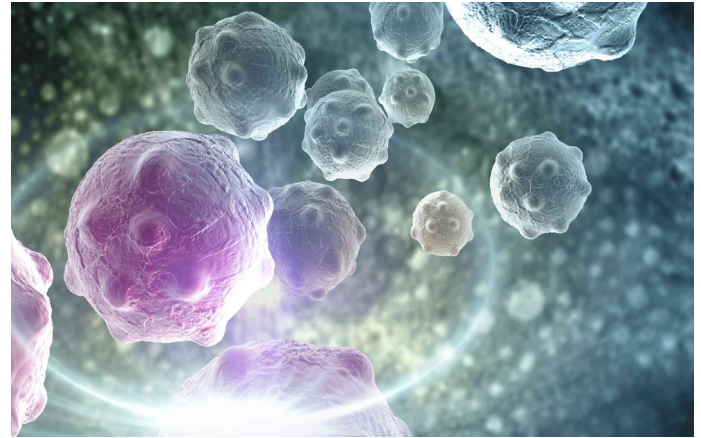
that the earlier detection offers arguably the single biggest opportunity to save lives from the disease.

Early detection of cancer can be key to reducing its mortality. Patients whose conditions are diagnosed at 'stage one' typically have between five and 10 times the chance of surviving compared with those found at 'stage four'.

The test works by checking for molecular changes which can serve as early warning signs of cancer. Research on patients with signs of cancer has already found this new test is capable of identifying many types of cancer which are more difficult to diagnose early, such as head and neck, ovarian, pancreatic, esophageal and some blood cancers.

One of the ambitions of the NHS Long Term Plan, to increase the proportion of cancers caught early, could be significantly boosted should the test be proven suitable for regular use.

The early detection – particularly for hard-to-treat conditions like ovarian and pancreatic cancer – has the



potential to save many lives. This promising blood test is expected to prove a game-changer in cancer care, helping thousands more people to get successful treatment. Patients with conditions diagnosed at 'stage one' typically have between five and 10 times the chance of surviving compared with those found at 'stage four'. NHS Chief Executive Sir Stevens said: "While the good news is that cancer survival is now at a record high, over a thousand people every day are newly diagnosed with cancer.

The trial is due to start in mid-2021, involving 165,000 patients as part of a world-first deal struck by NHS England with the test's developers. The 140,000 participants aged 50 to 79 who have no symptoms but will be tested annually for three years. People will be identified through NHS records and approached to take part, referring for investigation in the NHS. Another 25,000 people with possible cancer symptoms will also be offered testing to speed up their diagnosis after being referred to hospital in the normal way.

## New treatment recommended for difficult-to-treat cancer

National Institute for Health and Care Excellence (NICE) in the United Kingdom has approved the treatment – isatuximab for the people with difficult-to-treat multiple myeloma.

It is recommended the use of this drug through the Cancer Drugs Fund (CDF) which is a source of funding for cancer drugs in England. It provides patients with faster access to the most promising new cancer treatments.

The treatment – isatuximab, administered as an intravenous infusion, plus pomalidomide and dexamethasone – has been recommended for use as an option for treating relapsed and refractory multiple myeloma in adults. This is to be offered as a treatment

option for those whose disease has progressed from their last treatment if they have had three previous forms of treatment. Many of these patients are those where the disease has returned or become resistant to the treatments they've already had.

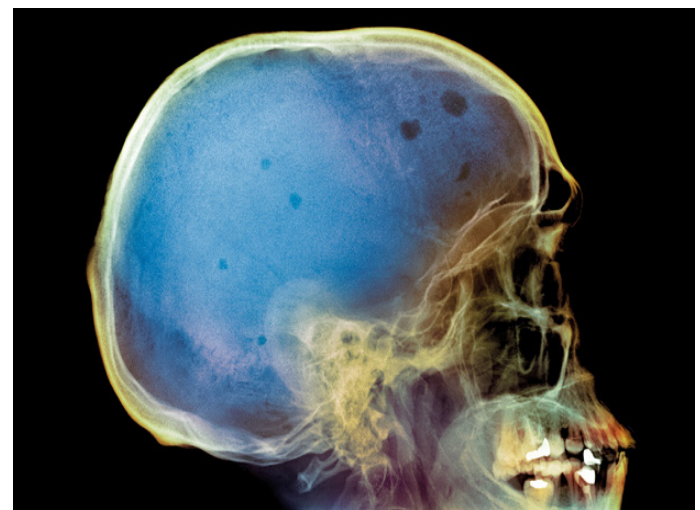
Meindert Boysen, Deputy Chief Executive and Director of the Centre for Health Technology Evaluation at NICE, said: "Our independent appraisal committee has recognised more treatment options are needed for those with difficult-to-treat multiple myeloma." Adding that "Some of the data has already shown promise that isatuximab plus pomalidomide and dexamethasone delays the disease from progressing and increases how long people live compared with

current treatment options. Approximately 5,700 new cases of multiple myeloma are diagnosed each year in the UK, making it the fifth most common cancer overall.

The treatment could not be recommended for routine

use on the NHS because of uncertainty within the cost-effectiveness estimates, as there are limitations in the clinical data.

Around 500 people a year are set to benefit from NICE's recommendation.





## Battle to find effective COVID-19 vaccine

**Dr Satwinder Basra**  
General Practitioner

The battle to stake the claim that 'we have found an effective COVID-19 Vaccine' is now reaching a climax as the politicians seek for a ray of hope in their quest for the final rescue.

International Pharmaceutical corporate giants are scrambling to be anointed as the one who got the vaccine first. Let us accept that it is going to be lucrative business and relief for the world health organisations struggling to cope with the spread of suffering and mortality.

The global death toll has reached the park of 1.44m with recorded infected cases passing the total 61.6m. The United Kingdom is bracing for the burst of the second wave and thereafter the post-Christmas spikes cases.

The death toll in the UK has passed 57,551 by the end of November 2020. The USA has reached to 2,65,000 deaths and France 52,000. India with 1,36,000 COVID19 mortality<sup>1</sup>.



Interestingly, China where the virus originated has recorded 4,634 deaths.

There are key stages involved in finding a vaccine.

**Sate One:** Preclinical Stage: Identifying the right antigen or antigen(s) can often take up to four years.

**Stage two:** Phases two is in two sections; Is it safe, and what's the right dose? Determining the most effective dose and expand the safety experience with the vaccine. Clinical trials normally last several months to even a year before proceeding to phase 3.

**Stage three:** Phase 3 is all about how effective is the vaccine. In this clinical trial, volunteers are involved who receive the vaccine to study whether it is effective.

**Stage fourth:** The fourth stage

is crucial in the pathway of producing the vaccine. The research outcome needs to be approved by the relevant Regulatory authorities and licensure. They need to be convinced, is it ready and safe for the use in the world.

**Final stage:** The challenge in the final phase is for these agencies to stay involved continuing to monitor production; inspecting manufacturing facilities; and testing vaccines for potency, safety and purity.

According to the report in CFRA Research's flagship newsletter, The Outlook, globally, there are more than 100 vaccines under development. 9 of these are already in the phase of human clinical trials.

The name that is being noted for leading the race is Johnson & Johnson JNJ, Pfizer (PFE) AstraZenca and Oxford. Many experts believe that they seemed to deploy massive resources for R&D and manufacturing to produce hundreds of millions of doses.

Since late January 2020, JNJ's Janssen unit has been working to develop a preventive vaccine against Covid19. They are known to have reached a strategic collaborative phase to provide an affordable vaccine on a massive scale.

JNJ estimates it could be ready in early 2021.

In the event when an approval is granted, the NHS is expected to trigger the vaccination programme. The NHS is expected to roll out its tried and tested plans built on the plans for influenza vaccine<sup>2</sup>.

This means the general practice, pharmacies and other providers will have an important role in this endeavour to ensure the coverage accesses all the localities in the country.

The approval of a vaccines is awaited, hoping it would be in December 2020 with mass vaccination more likely in the New Year. Some expect that two potential vaccines - from AstraZenca and from Pfizer, are the most likely to be the first available.

The Government has assured that it has secured enough of each to vaccinate those most vulnerable to COVID-19 and will set out the prioritisation of any vaccine based on advice from the JCVI.

1 <https://www.google.com/search?q=total+worlds+covid+cases&oq=total+worlds+covid+cases&aqs=chrome..69i57j0i13i457j0i13i2j0i22i>

2 Relevant guidance from NHS England and NHS Improvement can be found on: <https://www.england.nhs.uk/coronavirus/primary-care>

**"Pharmacists play a unique and valuable resource with hugely important role in reaching out to both patient and public, stretching out to a number of generation within one household," says Prof Patel.**



Professor Mahendra G Patel  
BPharm PhD Alumni  
Fellow NICE FHEA

Professor Mahendra G Patel, Honorary Visiting Professor, Academic Pharmacist, Pharmacy Research Champion NIHR (Yorks & Humber) has joined the PRINCIPLE team at Nuffield Dept of Primary Care Health Sciences University of OXFORD.

In placing the pharmacy on Oxford university platform, Prof Patel emphasised that the pharmacists play a unique and valuable resource with hugely important role in reaching out to both patient and public.

Adding, "To strengthen

community engagement to the Trial, especially the undeserved and BAME communities, and making greater use of the vast network of pharmacy across the various health care settings throughout the UK".

Professor Patel, a pharmacist and member of the Royal Pharmaceutical Society's English pharmacy board and C+D's clinical advisory board

A recent Public Health England review, Disparities in the risk and outcomes of COVID-19, published in June 2 and an Office

for National Statistics report released last month (May 7) both point to evidence suggesting that BAME people are "at greater risk" from COVID-19 than those of white ethnicity.

Professor Patel said he was "delighted and honoured to be joining the Principle trial for this very important work in the crusade against COVID-19".

**Well done Prof Patel.**

Prof Patel is a member of the the Advisory Board of Swasthya, a health journal for professionals.

## Royal College of Psychiatrists 2020 Dean elections

Four candidates are standing in 2020/21 elections



**Professor Subodh Dave**

FRCPsych MMed (Clinical Education); Consultant Psychiatrist Deputy Director of Undergraduate Medical Education, Derbyshire Healthcare Foundation Trust; Professor of Psychiatry, University of Bolton; Chair, Association of University Teachers of Psychiatry (AUTP); Imm. Past Asso Dean, Trainee Support, Royal College of Psychiatrists.; RCPsych Trainer of the Year 2017



**Prof Nandini Chakraborty**

MD, FRCPsych Consultant Psychiatrist in EIP, Leicestershire Partnership NHS Trust. Honorary Professor, University of Leicester, Dept. of Health Sciences.



**Dr Chris O'Loughlin**

BM BS BMedSci (Hons), MRCP, FRCPsych, Head of School of Psychiatry, Health Education England (East of England). Consultant Community Adult Psychiatrist, Cambridgeshire and Peterborough NHS Foundation Trust.



**Dr Johan Alastair**

MB ChB (Aberdeen), MRCP, FRCPsych Consultant Psychiatrist in Intellectual Disability, NHS Lothian and NHS Fife RCPsych Associate Dean for Curricula (2018)

Source:

<https://www.rcpsych.ac.uk/about-us/our-people-and-how-we-make-decisions/elections/our-2020-candidates-for-dean/dean-nominations>

## Royal College of Psychiatrists Election of its new Treasurer



**RAMAKRISHNAN, Dr Anand, BSc, MBBS, DPM, MMedSc, MSc, FRCPsych; Consultant Psychiatrist, Hertfordshire Partnership University NHS Foundation Trust.**

In 1926 receiving its Royal Charter to become the 'Royal Medico Psychological Association', and finally in 1971 receiving a Supplemental Charter to become the 'Royal College of Psychiatrists' we know today.

The key role of the College: (a) advance the science and practice of psychiatry and related subjects, (b) further public education in psychiatry and related subjects

(c) promote study and research work in psychiatry and all sciences and disciplines connected with the understanding and treatment of mental

disorder. in all its forms and aspects.

The position of a Dean in the College is most valuable since it contributes towards providing leadership to the work on training and education, as well as recruitment and retention.

The Dean also works very closely with the President and other officers at the core of the governance of the College.

The incumbent Dean, Dr Kate Lovett will be finishing her term of office in summer of 2011.

We thank Kate for her contribution and wish her all the best for her endeavors for the future. □

## Royal College of Psychiatrists Election of its new Treasurer

Royal College of Psychiatrists has announced the process for electing its next Treasurer and Dean. Current post holders, Dr Jan Falkowski and Dr Kate Lovett finish their terms of office in summer 2021.

All Members, Fellows and Specialist Associates can vote for the next Dean and Treasurer. Voting remains open from 16 December 2020 to 13 January 2021. Results will be announced on 14 January.

Hustings are planned on virtual platform for Treasurer and Dean elections where the president, Dr Adrian James will host the event. Members will have an opportunity to ask questions to each candidate.

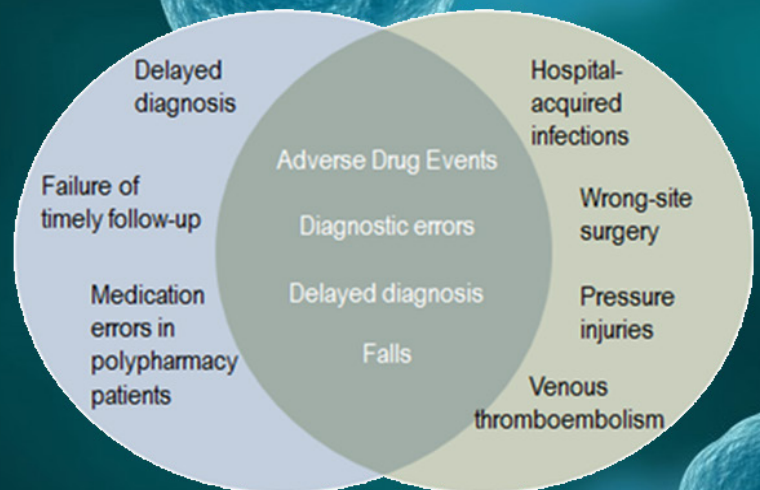
Details of elections are available at <https://www.rcpsych.ac.uk/about-us/our-people-and-how-we-make-decisions/elections>

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who made the ultimate sacrifice  
On Behalf of Swasthya Editorial Team*