



Association for Peri-operative Practitioners in South Africa

Journal



Vol 8 Issue 4 November 2022



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- APPSA is a non-profit organisation which exists for the benefit of its members. This is accomplished by way of congresses, local meetings and travel grants, with the express goal of raising the standard of peri-operative practice in South Africa
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Contents

- 5 **THE REVITALISATION**
Of Nursing Education
In South Africa
By Sarona Mahlasedi Matlala
- 13 **LESSONS FROM HUMAN FACTORS**
To Help The Progress
Of Surgical Backlog
By Kate Woodhead, RGN, DMS
- 20 **THE INCIDENCE OF PHERIPHERAL NERVE INJURIES**
An Evidence Summary
By Tina Oblak and Brigid M Gillespie
- 26 **HORSESHOE LUNG IN A YOUNG CHILD**
A Case Report
By L Mfingwana (MB ChB, Cert Paeds Pulm); P Goussard (PhD); S Andronikou (PhD); J Morrison (MB ChB, Cert Paeds Pulm)
- 30 **COVID-19:**
The Long Shadow On Staff
Mental Issues
By Kate Woodhead, RGN, DMS
- 40 **MEDHOLD ADVERTORIAL**
Sterilisation And
Decontamination Processes
- 45 **SOUTH AFRICAN HEALTHCARE NEWS**

REGULAR FEATURES

- 3 From The President's Desk
- 4 From The Editor's Desk

SAVE THE DATE APPSA Congress 2023



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From The PRESIDENT



Dear APPSA Journal reader

Can you believe 2022 has finally run its course and we are at the end of the year ... Christmas is just around the corner. For many of us - myself included - it has been a particularly stressful year. Thank you for the incredible support I received from the National Executive Board and APPSA members after the sudden passing of my husband earlier this year. It was greatly appreciated - not only be me, but by the entire family.

APPSA Gauteng really enjoyed the return to normal with two incredibly busy study days that were exceptionally well attended. It seems clear that not only were we eager to return to interacting with our members and delegates, but everyone was eager to get back to the pre-COVID days of interaction and communication. Thank you to everyone who took the time to join us - it was just a taste of things to come, so watch this space!

APPSA Free State also held two very successful study days, but its third study day had to be postponed due to heavy and unprecedented rain. Well done, Free State. Keep the *gees* and spirit growing - we need that in the build-up to our 2023 Congress in May. Similarly, APPSA KwaZulu-Natal also reported that their two study days were exceptionally well attended. This signifies a much-needed boost to APPSA KwaZulu-Natal and we are all gearing up for APPSA Congress 2023 in May.

Despite our enthusiasm to return to the heady days of the pre-COVID era, we can only accommodate 200 people at our Congress. ATTENDANCE WILL ONLY BE OPEN TO THOSE WHO HAVE PAID APPSA MEMBERSHIP, SO ENSURE THAT YOUR MEMBERSHIP IS PAID UP BEFORE REGISTERING. APPSA Congress Registration is only R300.00, and the full fee is R1 800.00. This is our first Congress in three years and will take place at the Premier Hotel near OR Tambo Airport in Johannesburg. I can't wait to see those of you from outside of Joburg, so please ensure you BOOK EARLY TO AVOID DISAPPOINTMENT.

Many of our Chapter Presidents are updating the APPSA Guidelines and we hope to have some updated versions ready for sale at the Congress. We are all aware of the new qualification framework that could cause a backlog of training for post-basic students because of the need for Midwifery as a pre-requisite to further training. This is explained further in the Journal as our editor, Madeleine Hicklin, has included the lecture in full in the Journal.

In closing, I would like to thank all the peri-operative practitioners for their hard work and commitment during 2022. On behalf of the National Executive Board, I would like to wish you a blessed Christmas and a prosperous 2023. To those of you going away, please travel safely. We want you all back relaxed and refreshed in 2023.

Marilyn de Meyer



From The EDITOR'S DESK

Mrs Hicklin please ask your colleagues to come and see me know. We are killing patients and crippling families. We need help, and we need it NOW.

These are the desperate words that greeted me on one of the most painful calls I had to take in my life. I was talking to a Head of Department in a State Hospital in the Eastern Cape. He was not alone. Healthcare in public or State Hospitals nearly every province in the country are broken, to a greater or lesser degree.

I know I am singing to the choir when I talk to readers of this Journal when I say Universal Healthcare is desperately needed in South Africa, especially by the most vulnerable in our country. But allied to this is an even more desperate need for an emergency resuscitation plan for the healthcare system itself. COVID did not cripple South Africa's healthcare system - it merely laid bare the extent of the dysfunctionality of this broken system. Every single day we read horror stories of billions of rands being flushed down a toilet of corruption, theft and maladministration that cripples the system even further.

Babita Deokaran paid for her whistleblowing efforts with her life, and yet the alleged perpetrators of the fraud have yet to be prosecuted. Tembisa Hospital management carries on regardless. I can list endless examples of other broken hospitals across the length and breadth of this country: desperate scores of healthcare professionals - doctors, nurses, peri-operative practitioners, and ancillary staff - battling to function in the Charlotte Maxeke in Johannesburg, Philadelphia Hospital in Ephraim Mogale municipality, Leratong and Helen Joseph Hospitals in Johannesburg, Dora Nginza and Livingstone Hospital in Gqeberha to name just a few.

The problems we face in terms of corruption, maladministration - coupled with an ever-growing number of staff shortages, decreasing numbers of students entering the profession - demands that a re-evaluation of the intended introduction of NHI must be undertaken. We cannot overburden our already broken system with the additional pressure of trying to cope with millions of patients when the current system cannot cope with the load it currently has.

As we end the year, let me take this opportunity of thanking the APPSA leadership for its guidance during the year, and our wonderful Treasurer, Marianne Oosthuizen and her team who have been phenomenal in their support. Thanks must also go to the members of healthcare industry who have continued to join us on our journey during 2022. Remember our Congress in May 2023 and have a Blessed Festive Season.

Madeleine Hicklin

THE REVITALISATION

Of Nursing Education In South Africa

By Sarona Mahlasedi Matlala

INTRODUCTION

The nursing profession in South Africa is faced with multiple challenges - one being the critical shortage of clinical specialist nurses. Other challenges are related to skills imbalances, the burden of disease, injuries, violence, and high-profile mortality and morbidity. This has necessitated the revitalisation of nursing education in the country in response to these challenges.

The shortage of clinical specialist nurses indicates the need for education and training of the specialist nurse with competencies to tackle the high disease burden and provide greater access to specialist care for vulnerable populations. This includes maternal and child health, physical and social trauma related to violence, child abuse and road accidents. The country needs to educate and train nurses with practical skills and personal resilience to deal with all the different health challenges and threats as reiterated by the National Strategic Direction for Nursing and Midwifery Education and Practice 2020/2021.

The number of experienced and skilled clinical specialist nurse educators is declining due to retirement and insufficient numbers of new educators entering academia in the Nursing Education Institutions (NEI). This trend puts the future development of the nursing profession in this country at risk - especially in terms of the clinical specialists. In addition, the increasing expectations placed upon the existing educators in the education and training and practice arena as a result of these shortage, limits both the time and energy of senior educators who are most qualified to advance the profession as reiterated by Emerson and Records (2005:9-15). The NEI, therefore, requires new and advanced recruitment and selection strategies to attract and retain the appropriate nurse educators. These strategies should ensure wider access to the under-graduate and post-graduate programmes to meet the identified challenges.

In April 2011, in recognition of the magnitude of the nursing challenges, the then Minister of Health, invited all nurses in South Africa - together with other key stakeholders - to a National Nursing Summit aimed at the reconstruction and revitalisation of the clinical nursing profession including the field of nursing education. Major challenges facing the nursing profession were identified by the Summit as summarised in the following categories:

- i Nursing Education and Training
- ii Resources in Nursing
- iii Professional Ethos and Ethics
- iv Governance, Leadership, Legislation and Policy
- v Positive Practice Environments

- vi Compensation, Benefits and Conditions of Employment
- vii Nursing Human Resources for Health

This article will focus on Nursing Education and Training as being one of the identified challenges. The primary role of every NEI is to produce a critical mass of appropriately trained nurses to enter into the nursing workforce. This required a strategy of the revitalisation according to the Nursing Strategy 2011. Revitalisation involves collaboration of the different stakeholders and the regulatory bodies. There is a need for curriculum development for the new programmes for Under-graduate and Post-graduate students, and calls for active participation of all categories of nurses in the NEI and in the Work-Integrated Learning (WIL) areas. The WIL and NEI partners should have a co-operative relationship that includes continuous communication to meet the required standards for accreditation of the different programmes.

Nursing required major attention to address the disparities identified in the alignment of the qualifications on the National Qualification Framework (NQF). The curriculum quality and relevance, quality of the nurse educator, educational resources and governance of nursing education must be addressed to ensure that there is no major crisis as reiterated by Rispel and Bruce (2015:119). According to Emerson and Records (2005:9-15) nursing as a profession is grounded in its affiliation with institutions of higher education that provided the support and opportunities for nursing scholarship as part of historical development. The viability of any profession is dependent upon the on-going generation and dissemination of knowledge. In the current and predicted environments, nursing academic institutions and individual faculty must acknowledge the fundamental role of research and scholarship in the advancement of the profession, and seek methods by which they can provide support. Strategies for institutional and individual action should be offered so that the knowledge base of the profession will continue to develop.

According to Mabelebele (2020:24) the nursing colleges were previously affiliated to the universities to offer post-secondary school nursing education. The provincial departments of health in the respective provinces and the university of affiliation signed a memorandum of agreement (MOA) under the prescripts of the National Policy on Nursing Education and Training. The nursing education departments within the universities had to provide oversight and mentorship on the quality and standards of the diploma programmes from the nursing colleges. Currently, with the revitalisation process the public NEIs will function as independent institutions.

The National Strategic Plan for Nursing Education, Training and Practice (2012/2013 to 2016/2017) recommended that a National Nursing Education Policy be developed to locate the NEIs within the Higher Education System for alignment. However in 2010, SAQA had already classified the first Higher Education Qualification Sub-Framework (HEQSF) aligned qualification for nursing professionals.

1. Stakeholders

Many stakeholders are involved in the revitalisation processes of the Nursing Education. According to the National Strategic Direction for Nursing Education and Practice (2020/2021) the nursing education reforms in South Africa have been influenced by ordinances from the

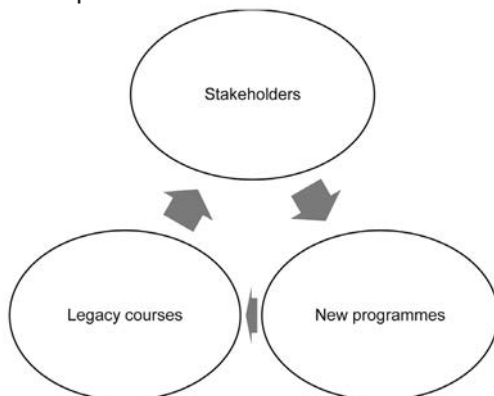
Provincial Health Department and the Department of Higher Education. The demand imposed by the reforms of the post-school education landscape driven by the recent changes to the post-school legislation introduced by the Department of Higher Education and Training (DHET) as well as an anticipated re-organisation of the health services towards Universal Healthcare has required revitalisation of the Nursing Education Institutions (NEI).

Various sections of the Nursing Act (Act No. 33 of 2005) provided the requisite regulatory framework for bringing into effect reforms in nursing education and training which resulted in the creation of new categories of nurses. It became mandatory for the South African Nursing Council (SANC) to redefine the competency framework for these categories of nurses. The Scope of Practice and related regulations for every category of nurse has been revised and updated. These determined the educational requirements for access for registration of the new categories. Of concern especially for the Post-graduate programmes, all applicants must have NQF Level 7 qualification including a qualification in Midwifery - regardless of the speciality being applied for. On completion of training, these students will enroll with the SANC for a licensure examination as stipulated in the Education and Training guidelines.

The Minister of Higher Education and Training designated ten (10) public nursing colleges to offer Certificates, Diplomas and Degrees in nursing which are accredited and registered under the Higher Education Qualifications Sub-Framework (HEQSF) from January 2020. SANC and Council on Higher Education (CHE) established a collaborative approach for the accreditation process, thus streamlining the accreditation process for higher education programmes leading to professional registration.

The Provision of Guidelines for Nursing Clinical Education and Training Units (CETU) in South Africa were also developed to assist the Work-Integrated Learning (WIL) facilities that have complied with the requirements to offer new programmes in establishing and maintaining well-resourced CETU within the clinical training platforms across the continuum of care. According to the SANC education and training guidelines, the clinical facilitators and the preceptors responsible for accompaniment should have three (3) years of experience in the speciality units. It is compulsory for clinical facilitators to have a qualification in nursing education and an additional qualification in the relevant speciality area. The preceptors should have the assessor course or a facilitators or preceptorship course - including an additional qualification in the relevant speciality.

The points included on the process of revitalisation



2. Legacy Programmes

All Legacy Nursing Qualifications have been phased out and the SANC resolved to extend the period of offering the following Legacy Nursing Education and Training Programmes according to Circular 7 of 2016:

- Learners who are currently enrolled in Auxillary and Enrolled Nursing programmes who fail more than three times **will have their status terminated**, and will not be able to resume their studies towards these programmes, as 30 June 2015 was the final enrolment date
- The last examination and repeat dates for the course leading to enrolment as a Nursing Auxillary was May 2017
- A course leading to enrolment as a Nurse was May 2017, with a repeat in November 2017 and May 2018 as the last examination
- A course leading to registration as Midwife (Regulation No. 254 as amended)
- A course leading to registration as Psychiatric Nurse (Regulation No. 880 as amended)
- A clinical Nursing Science leading to registration in Clinical Health Assessment Treatment and Care (Regulation No. 48 as amended) and the last intake was in 2019, and end of the qualification was in 2021
- A clinical Nursing Science leading to registration as additional qualification in Medical-Surgical (Regulation No. 212 as amended) and the last intake was in 2019 and end of the qualification was in 2021
- A special concession has been given for the Bridging Course for Enrolled Nurses leading to Registration as a general Nurse or Psychiatric Nurse (Regulation No. 683 as amended) and the end date for this qualification was the 31 December 2020
- A course leading to registration as a Nurse (General, Psychiatry, Community) and Midwifery (Regulation No. 425 as amended) and the last enrolment was January 2018 and end date for the qualification is 31 December 2023

Legacy Programmes were on a lower level of the National Qualifications Framework (NQF). The new programmes will start from Level Five of the NQF band, and some of the under-graduate programmes have been implemented since 2020, while the Post-graduate programmes are still in the process of curriculum development and/or accreditation.

3. The New Programmes

South African Nursing Council (SANC) had to create new categories of nurses and the new programmes. They are categorised as follows:

3.1 Under-graduate programmes

- Bachelor's degree in Nursing and Midwifery
- Diploma in Nursing: Staff Nurse
- Higher certificate: Auxillary Nurse
- Advanced Diploma in Midwifery

3.2 Post-graduate programmes

- Child Nursing
- Emergency Nursing
- Midwifery

- Mental Health Nursing
- Nephrology Nursing
- Oncology and Palliative Nursing
- Orthopaedic Nursing
- Ophthalmic Nursing
- Peri-operative Nursing
- Primary Care Nursing
- Occupational Health Nursing

DEVELOPMENT OF THE NEW CURRICULUM

The new curriculum aims to qualify nursing education within the prescripts of the NQF Act, 2008 (Act 67 of 2008). The purpose of this is to align the nursing education and training to the relevant legislative framework imposed by the developments of the Departments of Health and Department of Higher Education.

INFORMATION TECHNOLOGY

Digital teaching should be included as one of the teaching and learning strategies of the new curriculum to ensure that education and training enables Evidence-Based Practice (EBP), scholarly activities, and to meet the needs associated with the evolving technology required for health management strategies. Technology is of critical value as the lecturers should learn how to conduct lectures digitally. Lecturers should be provided with tools to facilitate learning and be encouraged to improve their skills on regular basis.

Nursing Strategic Direction for Nursing and Midwifery education and Practice 2020/2021 to 2025/2026 stated that the Council on Higher education prescribed a new requirement for accreditation of the NEIs regarding learner and academic management and administration. All NEIs are required to use Learner Management System (LMS) to capture data for students in all the programmes, and most departments will be expected to participate in the implementation of this technology.

CLINICAL FACILITIES

The clinical facilities should be equipped with facilitators and Clinical Education and Training Units (CETU) to accommodate the learners from all programmes. The Clinical Facilitators should be trained as Assessors to equip them with the knowledge and skills to be implemented during student assessments MOAs (add information) and facilities to meet the programme objectives.

RECOMMENDATIONS

Resolving and effectively managing the nursing education crisis needs to be regarded as a national healthcare priority as stated by *Barfay et al (2005)*. The following should be regarded:

- The stakeholders should actively participate during curriculum development to familiarise themselves with all the processes
- The NEI needs to give support to the WIL partners in preparation of the clinical facilities for

accreditation thus inviting them for capacitation sessions. Regular support visits should be done by the NEIs to give guidance and respond to clarity seeking questions from the CETU staff members. Standardization of the procedures that will be implemented by the students in the clinical areas during placement should also involve the CETU staff members according to the different programmes to ensure uniformity. The NEI should have regular meetings to inform the stakeholders with regards to curriculum development and accreditation processes. The clinical facilities should develop a five-year plan of staff members who should be prepared for training, and the plan should be presented during stakeholder placement meetings. There is a need to harness health workforce data to match supply and demand and alignment of the workforce flow as highlighted by the Nursing Strategic Direction for Nursing and Midwifery education and Practice 202/2021 to 2025/2026.

CONCLUSION

The NEIs should work diligently towards accreditation of the new programmes and be ready for an acceptance of the influx of students. Aggressive recruitment drives should be in place with the clear selection criteria in mind for the different programmes. In addition, the infrastructure, resources and staff should be relevant to the proposed programmes and staff should be capacitated on the processes of curriculum development, and then provided with the necessary skills to render services within the nursing education institutions.

The implementation of active mentoring programmes are important factors in the recruitment and retention of newly-recruited staff members. Expected retirements of the current workforce (76% of the current workforce were over 45 years of age when the study was conducted) without an increase in replacements will deepen the shortage in the coming decades. *Leonard, B.J., Fulkerson, J.A., Rose, D., & Christy: (2008:184).*

NEIs should be equipped to leverage digital content, technology and practices to engage and interact with students, expand theory and clinical platforms, and to assess the progress towards meeting the programme expectations. This includes elements such as student attraction and enrollment, retention, throughput and graduation rates. Digital technology can link multiple LMSs that relays accurate student data directly to the stakeholders for clinical co-ordination and nursing workforce. Students will be able to access literature for evidence-based practice or research articles. In short, in harnessing technology appropriately, we can address our nursing shortages and make a dent in the serious challenges facing healthcare in this country. I thank you.

Sarona Mahlasedi Matlala is a Nurse Educator at the Raheema Moosa School of Nursing. She presented this paper at an APPSA Gauteng Chapter Study Day on 30 July 2022 and it appears in this APPSA Journal with her permission.

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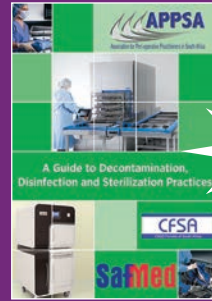
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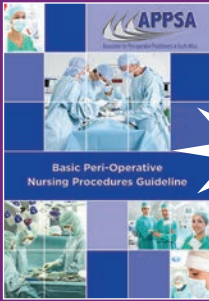
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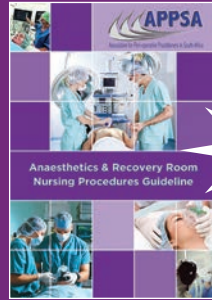
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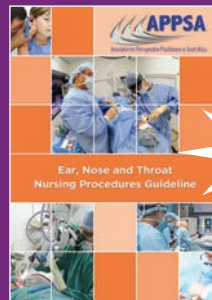
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LESSONS FROM HUMAN FACTORS

To Help The Progress Of Surgical Backlog



By Kate Woodhead, RGN, DMS

INTRODUCTION

What we are striving for in healthcare are safe, efficient and timely activities for patients and staff particularly in the post-COVID era where there is so much catching up to do. There are never ending challenges to providing this, not least the complex care needs of an increasingly-elderly population, a staffing crisis both as vacancies mount and burnout means many more leave the professions.

Responding to these challenges requires the focus of everyone involved in the recovery from COVID-19 and the backlog of care and surgery which needs to be done. It is understood that more than 6.4-million people are waiting for treatment and that demand has recently 'skyrocketed'¹. It has also been reported recently that ambulance pick-up times have lengthened considerably and waits for triage in emergency departments are long. We have heard and felt that there are more than 100 000 vacancies among the professions, increasing the stress experienced by those left behind. This is perhaps the greatest set of challenges that the NHS has ever faced.

SURGICAL STRESSES

It is estimated that 82% of benign surgery and 38% of cancer surgery was delayed or cancelled during the peak of the pandemic². It is also suspected that some of the patients presenting after many months on the waiting list will require surgery that is more complex and demanding than it would have been, if seen earlier. This adds to the pressure exerted on the surgical team by patients, the hospital and the NHS to keep moving along and seeing as many patients as possible. The link to patient safety with this much pressure is clear to see, with workload exceeding capacity, the risk of making errors is likely to be higher.

Some surgeons, hospitals and wider surgical teams will be encouraged by the divergence between elective and emergency care which is planned for the recovery. Surgical hubs will enable routine surgery to take place without the need to use beds for emergency patients or interrupt elective lists. Many hospitals have already undertaken this separation well before the pandemic but the NHS executive is planning for this to occur on a greater scale. Examples such as in Box 1 litter the recovery plan. Working at such a pace may well have repercussions for all the team who are already exhausted, and on the verge of burnout. Backlog surgery, already underway, should only be planned for short bursts of time so that individual balance can be achieved, and holidays taken. It might be helpful, too, to optimise surgical team performance by developing knowledge of, and skills, in enhanced non-technical human factors.

HUMAN FACTORS

Human Factors skills are defined as the 'cognitive, social and personal resource skills which complement technical skills and contribute to safe and efficient task performance including situational awareness, decision making, communication, teamwork, leadership and management of stress, fatigue and disturbances.'¹³ It is essential that the entire surgical team works at its very best capability and effectiveness as the government expects that the additional funding which has been allocated equates to an additional 30% extra elective care than before the pandemic, by 2024/2025. The working systems to aid teams to be their very best might be applied from the human factors and ergonomics toolbox and have been used for 20 years to improve patient safety and the quality of care. It is a broad science which has had a slightly chequered history in healthcare, although other high-risk industries have embraced it fully (such as aviation, defence and nuclear).

In healthcare, clinical autonomy and professional accountability are often relied upon to manage all aspects of systemic risks. The sustainability of a workforce and their ability to perform reliably and consistently is intrinsically linked to the context where work occurs and are inextricably attached to and part of patient safety and the performance and efficiency of a healthcare organisation. There are some useful tools and kit developed during the expansion of human factors science, which may be of interest to peri-operative teams as they face a busy time ahead.

TEAMWORK

Moorfields Eye Hospital has successfully used surgical hubs to reduce the time cataract patients spend in hospital to around 90 minutes and carried out 725 operations in one week, while Nottingham NHS Trust launched 'Super Saturdays' where NHS staff perform that same procedure all day to reduce changeover times for equipment and staff

- <https://www.gov.uk/government/news/innovation-and-new-technology-to-help-reduce-nhs-waiting-lists>

Teams are essential to peri-operative practice and may be constituted by the practitioners employed within the operating department, or a broader team composed of the surgeons and anaesthetists. More often than not, nowadays the team is consistent, having all its members well versed in the surgical specialities that are practised each week in that environment.

There may be different specialities day-to-day, according to the schedule, but the same surgeon works in the space each week at the same time with the same staff. Equally, the theatre may all be undertaking a specific speciality with a variety of different surgeons visiting during the week. There are other operating departments where to keep the skill set of all the members of staff in all specialities up to scratch, many different staff comprise the team for a speciality each day and move around. Dependent on the team leaders, the teams' hierarchies, shared organisational

goals and methods of working will vary. Equally, the team may function effectively, depending on the specific needs of the individual patient. There are many powerful status hierarchies within the teams, not least in the surgical environment, and which have a direct impact on the teams' behaviour. There is also a group culture which may dictate how formal or informal the relationships in the wider team, the work rate and ethic as well as acceptable means of communication. Team members behaviours can be identified using observational tools which were developed at the University of Aberdeen and are known as ANTs (Anaesthetists Non-Technical Skills), NOTTS system (Non-Technical Skills for Surgeons) and Nurses NOTECHs (Non-Technical Skills for Theatre Nurses). They are well researched tools and have been widely used, to great benefit with peri-operative teams.

WORKFORCE

Any healthcare worker reading this will be aware of the high number of vacancies currently in the workplace. This is having a dramatic effect on teams and their ability to complete the work with colleagues 'missing'. The impact of having a high number of vacancies is further extra work on those that remain, and causing additional stress and tiredness across the board.

COMMUNICATION

It is said that more than 70% of all sentinel events reported to the Joint Commission in USA healthcare, have communication errors at their heart. It therefore behoves all of us to sharpen our skills in this area to reduce the chance of a tired worker causing misunderstanding by not communicating clearly. Effective communication needs to be ensured between different healthcare staff with different roles, training, experience and perspectives on care.

We widely use the pre-surgical huddles, team briefing or whatever it may be called in your department, which gives an opportunity to exchange information about the patients on today's list so that everyone has the same picture at the start of the operating list. It gives team members a chance to speak up and to have a voice, thus potentially flattening the hierarchy. It pre-empts the use of, and clinical checking, of the patient using the WHO safe surgery checklist. This has been proven to reduce the risk of errors throughout the surgical patient journey. SBAR is a communication model which helps communications between different professionals. It comprises **Situation, Background, Assessment and Recommendation** and has helped a great deal for succinct and effective communications, in many hospitals.

TEAM LEADERSHIP

The definition of clinical leadership is elusive although the literature tends to define the characteristics such as value driven, situational, and skill driven as collective, co-produced involving exchange relationships and as boundary spanning. Effective clinical leaders have been characterised as having advocacy skills and the ability to affect change⁴. Human Factors literature tends to focus on strategic management level and middle managers rather than clinical leaders, and it is recognised by many that unless there is support from top management leadership, then clinical leaders have less flexibility to make change and effect a proficient service. Excellence in clinical leadership is required to ensure that re-configuration of clinical services ensures that the backlog of surgery is as effective and efficient as possible.

SITUATION AWARENESS

Situation awareness is the human factors philosophy that appeals most. It is particularly apposite to peri-operative care where knowledge of 'where we are' in the surgical progress is essential and should something go wrong, that the cues are picked up and anticipation of what may have to happen to deal with the change. It is the challenge of peri-operative care, of anaesthesia, of surgery and of patient care. Endsley defined situational awareness as referring to an 'individual's perception of the elements in the environment within the volume of time and space, the comprehension of their meaning, and the projection of their status in the near future'⁵.

There are some useful lessons to be learnt from human factors science-based research. There are three stages in a process to design a system for speedy delivery, lessons that have been learned from aspects of the covid experience.

The stages are **Identify** with subsections of:-

- Understanding people's needs and capabilities
- Consider tools and equipment
- Assess the physical environment
- Describe the tasks people do
- Evaluate potential vulnerabilities

The second stage is **Improve** with three subsections

- Re-design physical spaces, tools and tasks to enhance performance and reduce risk
- Develop useable work instructions
- Design and deliver suitable training

And finally, the **Adapt** stage

- Monitor work-as-done and adapt to achieve sustainable change
- Record and learn from incidents⁶

PATIENT ELEMENTS

Identifying how patients can get ready for their surgery despite the fact that they do not know how long they will have to wait for their surgery. It has been suggested that we should transform how they are supported to wait. The backlog has prompted the NHS to state that "things should be done differently", it has been retitled to 'preparation time' rather than 'waiting time'.

What this might mean includes changing the narrative of the waiting time. We need to support patients better who are waiting for their surgery. There is a growing population of older, multi-morbid and frail patients waiting, many of whom may need an element of pre-surgery optimisation - also known as pre-habilitation. This means working on the patients' mobility and general health status while they wait. Pre-habilitation has been shown to reduce post-operative complications by 30% to 80% and reduce hospital stays by one or two days - thus alleviating both hospital capacities and surgical waiting lists.

However, this can only be planned and effected where there is some capacity in primary care. Problems cannot just be passed out of hospital care unless there is good communication and a clear assessment of the correct patients to discharge early.

CONCLUSION

Peri-operative care is complex at the best of times, the challenges set by the backlog enhance the speed, jeopardy and overview from hospital bosses for all surgical team members. In order to provide a safe and effective service, some of the human factors lessons are useful, as shown by research to provide a range of helpful tools to enhance teamwork and individual effectiveness.

In the current environment, teams would be wise to undertake some human factors training or re-emphasise the useful tools in their everyday work ensuring they and their patients can be as safe and productive as possible to reduce the patients' wait.

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This article first appeared in the Operating Theatre Supplement in July 2022. It appears here, courtesy of the author. Kate Woodhead qualified in 1978. She has worked in peri-operative care since then and runs her own business as an Operating Theatre Consultant. Kate was Chairman of NATN from 1998 to 2001. She is the former President of the IFPN (2002 to 2006) and now works as an Advisor to WHO on the Safe Surgery Saves Lives Campaign. She is the Chairman of Trustees at Friends of African Nursing. For more information on FoAN please go to www.foan.org.uk

WHEN IT COMES TO CHOOSING YOUR NEXT SET OF SCRUBS...

It is important to first consider your options. What fabrics are there to choose from? And how knowing the difference could help you make an informed decision. We have to agree that reading an article on fabric types for medical uniforms, is probably not the first thing to do on your bucket list. However, we hope that the following short, informative summary, will assist you in deciding which scrubs fabric is best suited for you.

KNOWING WHAT IS OUT THERE

There are a variety of scrub suit fabric options in our healthcare market such as cotton, polyester and blends. The choices can be very confusing if you are not a textile guru, but for the sake of keeping things simple, let's take a closer look at 100% cotton scrubs vs 100% polyester scrubs.

100% COTTON SCRUBS

Cotton is a soft, fluffy, natural fiber that grows in a protective case, around the seeds of the cotton plant. The fiber is almost pure cellulose. The fluffy white fibers are then harvested, spun into yarn, and woven into fabric.

It is important to point out that the market also offers different types of cotton, ranging in quality, texture and price. You may have received a high-quality organic cotton piece of clothing as a gift at some point in time, yet it doesn't mean every piece of cotton clothing will compare equally.

Generally, cotton is lightweight, breathable and freely available. As a natural fiber it has limitations.

Being in a profession where you are required to wear scrubs for long hours with lots of movement and daily washing, the disadvantages of cotton scrubs may become clear.

THE COTTON DOWNSIDE



Keep in mind, cotton shrinks! Caring for your cotton scrubs will require special care.

Unfortunately, any natural fiber will wear down faster than its synthetic fiber counterparts. Your cotton scrubs will not be as durable, and sooner or later may have holes, especially when the same set of scrubs are worn day after day.

Cotton fabric is absorbent, but not in a good way. If you require barrier protection, cotton when wet creates a pathway for bacteria and possible infectious agents. Unforeseen spills will take longer to dry and sweat stains are inevitable. Because it is very absorbent, cotton requires more water for washing than most synthetic alternatives.

Cotton releases fluff, sometimes referred to as lint. These particles can become airborne and are a potential carrier of bacteria. Lint should be avoided in a healthcare environment.

100% POLYESTER SCRUBS

Cotton and polyester are worlds apart. Let's compare them quickly. Polyester is man-made or synthetic fiber created in a laboratory. The process of manufacturing polyester fabric involves melting down small polyester pellets, which are then forced through tiny-tiny holes and then stretched.

Once the process of cooling and solidifying is complete, it produces a very strong fiber. These synthetic fibers are then spun and woven into the polyester fabric.

Polyester fabric date back to the 1940's and technology has played a great role in its development. Today, we have high-quality performance polyester fabrics, with amazing touch-and-feel properties.



THE POLYESTER UPSIDE



Polyester is a very strong fiber that will withstand heavy washing. Polyester scrubs are colourfast, lightweight, and durable. Your polyester scrubs will look newer for longer.

Polyester scrubs will offer very low linting compared to cotton scrubs - a key factor for consideration in the operating theatre environment.

Polyester is hydrophobic. In other words, polyester scrubs will dry faster, wicking moisture away from your skin, and leaving you cool and comfortable for longer periods of time.

Polyester fabric is naturally wrinkle-resistant and will not shrink. A professional look is easily achieved with polyester scrubs.

So, the next time you are considering buying a set of scrubs, think of them as your endurance uniform. They need to withstand far more wear and tear than your average dress or shirt. Just like an athlete needs the very best garment for optimal performance, so do you!

As a leading manufacturer of performance medical textiles, PrionTex recommends scrubs that are manufactured from a high quality 100% polyester microfiber fabric.

Choose your scrubs, demand the best.

PrionTex 

**SUPPORTING FRONTLINE
SUPERHEROES**

THE INCIDENCE OF PERIPHERAL NERVE INJURIES RELATED TO PATIENT POSITIONING DURING ROBOTIC-ASSISTED SURGERY: An Evidence Summary

By Tina Oblak and Brigid M Gillespie

BACKGROUND

To provide optimal intra-operative exposure and visualisation, patient positioning during urologic, gynaecologic and colorectal robotic-assisted surgery (RAS) often requires the lithotomy positioning with steep Trendelenburg (up to 45°)¹⁻⁶. Incorrect patient positioning or even extended operative time in this position places the patient at potential risk of several complications⁴. As expected, due to steeper angles of Trendelenburg positioning, patients have a greater tendency of cephalad migration (sliding down toward the direction of the head)⁵. The most observed complications are peripheral nerve injuries (PNIs) discovered in the upper and lower extremities^{2, 7}. Researchers, however, also report central nervous system complications haemodynamic and respiratory disturbances, ocular injuries and complications in the urinary and gastro-intestinal systems^{2, 8, 9}.

Sub-optimal positioning of extremities and lack of assistive devices increases the risk of nerve injury from stretch and compression, generalised ischaemia and metabolic disorders^{1, 2, 7}. PNIs may have profound impacts on patients, as they can culminate in loss of limb function and thus compromise quality of life^{7, 10}. To ensure that patients are not exposed to injury, knowledge of injury mechanisms, anatomy and physiology and appropriate patient positioning as well as intra-operative attention to vital signs and assessment of specific risk factors (for example, obesity, pre-existing neurological conditions, >240 minutes operative time) are essential^{1, 2, 11-14}.

RESEARCH QUESTION

Systematic reviews following rigorous methodological approaches, can take a substantial amount of time to complete, and they may not meet the specific needs of the end-user¹⁵. Evidence summaries are short, easily read documents that provide a succinct presentation of the available evidence in a particular clinical area. While they are not as comprehensive as literature reviews, evidence summaries are less time consuming to undertake. Further, evidence summaries have emerged to synthesise the evidence on defined questions and assist policy makers and practitioners in using the best available evidence to decide on clinical interventions¹⁵⁻¹⁷.

The purpose of this evidence summary is to identify clinical considerations in relation to patient positioning during urologic, gynaecologic and colorectal RAS procedures. Thus, we aimed to describe the related incidence and anatomical locations of PNI as well as patient risk factors. Our research was underpinned by the research question: 'What is the incidence of PNI related to steep Trendelenburg patient positioning during RAS?'. This question was framed based on the **PIO (Population, Issue, Outcome)** framework:

- P Patients undergoing RAS
- I Steep (up to 45°) Trendelenburg patient positioning
- O PNI

SEARCH STRATEGY

This evidence summary is based on a structured search of recent systematic reviews^{3, 6, 11} published between January 2019 and August 2021 in the Cochrane Library, PubMed, ProQuest and Google Scholar databases. Search terms ‘patient positioning’, ‘robotic-assisted surgery’, ‘Trendelenburg’, ‘complication’ and ‘injury’ with medical subject headings (MeSH) were used to execute searches.

A summary of selected studies

The characteristics and key findings of the systematic reviews are summarised in Table 1.

Table 1: The characteristics and key findings of the systematic reviews

Author (year)	Types of included studies, time period	Review question	Findings	Limitations	Implications for practice and research
Bjoro et al. (2020)	11 quantitative studies, including 6 registry-based, 3 longitudinal prospective, 1 RCT and 1 combined register-based with survey design. Articles published Jan 2000 to Feb 2019.	To determine: <ul style="list-style-type: none"> • the incidence of IPNI • risk factors for IPNI • pain and symptoms of IPNI in patients undergoing RAS laparoscopic urologic, gynaecologic and colorectal procedures in lithotomy positioning with steep Trendelenburg • the impact of IPNI on patients’ function and quality of life 	The overall incidence of IPNI ranges from 0.16% to 10.0%. The incidence of upper extremity injury ranges from 0.1% to 3.6%, and lower extremity injury ranges from 0.2% to 10%. Risk factors for IPNI related to positioning were prolonged operative time, patients’ comorbidities and high ASA and BMI scores.	Most data were retrieved from registry-based studies, as retrospective reviews. Recording of IPNI was dependent on the reporting of symptoms, prospective standardised tools for reporting complications were not used in the studies. Studies were not designed to systematically record IPNI due to positioning or evaluate IPNI at the time of incidence.	Knowledge of mechanisms for injury, positioning, anatomy/physiology and evaluation of risk factors to ensure that patients are not exposed to IPNI is crucial. Further research should focus on: <ul style="list-style-type: none"> • reduction of IPNI associated with positioning in RAS • how IPNI affects patients’ function and quality of life • the physiological consequences of IPNI related to the patients’ positioning in RAS.
Comelius et al. (2021)	6 studies, including 1 prospective RCT and 5 retrospective cohort studies. Articles published Jan 1990 to Mar 2020.	To review: <ul style="list-style-type: none"> • the frequency of IPNI • the impact of positioning related post-operative PNI in patients undergoing RARP 	The incidence of PN associated with RARP varies from 1.3% to 10.8% for lower extremities and from 1.1% to 1.9% for upper extremities. Increased intraoperative time, ASA score, patients’ comorbidities and positioning correlate with the incidence of post-operative PN.	Techniques for detecting and reporting PN and a detailed description of patient positioning were not standardised. Due to the low number of eligible studies and heterogeneity of study designs, it was impossible to draw recommendations regarding favourable patient positioning.	Further research should focus on: <ul style="list-style-type: none"> • prevention of PN after RARP • the impact of BMI • comparison between standardised Trendelenburg versus steep Trendelenburg position.
Das et al. (2019)	7 studies, including 3 RCT and 4 case studies. Articles published Jan 2003 to Mar 2018.	To evaluate: <ul style="list-style-type: none"> • techniques, devices and equipment for patient positioning • the cephalad patient slide and neuropathy on patient outcomes in laparoscopic and RA gynaecologic surgery 	The mean cephalad patient slide ranged from 1.07 ± 1.93 cm to 4.5 ± 4.0 cm. The overall incidence of neuropathy was 0.16%. The duration of surgery and BMI did not correlate with an increase in position-related injuries.	Due to the heterogeneity of the studies, a meta-analysis across studies could not be undertaken, limiting any definitive conclusions regarding the best technique and devices to prevent cephalad slide and neuropathy in RA laparoscopic gynaecologic procedures.	Further research should focus on: <ul style="list-style-type: none"> • head-to-head comparisons of anti-slide devices and techniques that also evaluate patient displacement • degree of Trendelenburg position and transient or permanent neuropathy • other relevant information – time to position the patient, cost of devices, impact of BMI, operative time.

Abbreviations: RCT – randomised control trial, IPNI – intraoperative peripheral nerve injury, PN – peripheral neuropathy, RA – robot-assisted, RAS – robot-assisted surgery, RARP – robot-assisted laparoscopic radical prostatectomy, ASA – American Society of Anaesthesiologists physical status classification system, BMI – body mass index.

QUALITY OF SELECTED STUDIES

We did not undertake a formal quality appraisal of the included systematic reviews. Rather, our intention was to present a concise summary of the evidence in this area, that is user-friendly for busy clinicians. For a more detailed evidence synthesis such as a review of reviews (that is to say an ‘umbrella review’), the AMSTAR 2 (A MeaSurement Tool to Assess systematic Reviews 2)¹⁸ has been designed to evaluate different aspects of reviews.

A summary of the evidence

The incidence of PNI associated with patient positioning during RAS was reported in all reviewed studies^{3,6,11} (Table 2). Overall incidence rates varied from 0.16% to 10.8%. The cephalad patient migration was reported in one study³; the mean migration/slide distance using various devices ranged from 1.07cm ± 1.93cm to 4.5cm ± 4.0cm.

Table 2: The incidence of PNI associated with patient positioning during RAS

Author (year)	Number of studies in the review	Number of patients	The incidence of PNI		
			Overall	Upper extremities	Lower extremities
Bjøro et al. (2020) ¹¹	11	179,802	0.16% – 10.0%	0.1% – 3.6%	0.2% – 10.0%
Cornelius et al. (2021) ⁶	6	63,667	1.1% – 10.8%	1.1% – 1.9%	1.3% – 10.8%
Das et al. (2019) ³	7	2,024	0.16%	NR	NR

Abbreviations: PNI – peripheral nerve injury, NR – not reported.

The most common anatomical positions of injuries in extremities related to patient positioning during RAS, as identified in systematic reviews by Bjøro *et al.*¹¹ and Cornelius *et al.*⁶, are displayed in Table 3.

Table 3: Common anatomical positions of injuries in extremities related to patient positioning during RAS

Upper extremities	Lower extremities
<ul style="list-style-type: none"> • brachial plexus¹¹ • ulnar nerve⁶ • median nerve⁶ • radial nerve⁶ • humeral nerve⁶ 	<ul style="list-style-type: none"> • sciatic nerve¹¹ • femoral nerve⁶ • obturator nerve⁶ • femoral cutaneous nerves¹¹ • common peroneal nerve⁶

PNIs associated with patient positioning during RAS were related to patient risk factors such as high BMI (body mass index) and ASA (American Society of Anaesthesiologists physical status classification system), prolonged procedure time and multiple comorbidities (Table 4).

Table 4. Relation of patient risk factors and positioning during RAS

Author (year)	Patient risk factors			
	Higher BMI	Higher ASA score	Increased intraoperative time	Patient comorbidities
Bjøro et al. (2020) ¹¹	related	related	related	related
Cornelius et al. (2021) ⁶	NR	related	related	related
Das et al. (2019) ³	not related	NR	not related	NR

Abbreviations: BMI – body mass index, ASA – American Society of Anaesthesiology physical status classification system, NR – not reported.

What can operating room (OR) teams do to minimise the incidence of PNI related to patient positioning during RAS?

- Develop institutional policies based on the best available evidence to guide practice
- Cautiously select suitable patients and evaluate their risk factors⁴
- Formulate a dedicated robotic OR team introduced by skilled preceptors⁴
- Increase knowledge of anatomy/physiology and extend understanding of the mechanisms of injuries¹¹
- Where appropriate, use a modest angle for Trendelenburg positioning⁵
- Constantly observe the patient's position throughout the operating procedure and implement regular routine checks

IMPLICATIONS AND RECOMMENDATIONS

Due to the heterogeneity of study designs, techniques and combinations of devices used, it is impossible to determine the best approach and assistive devices to prevent PNI. However, to minimise the incidence of PNI during RAS with steep Trendelenburg patient positioning, this evidence summary supports the need for increased attention to frequent checks and monitoring of patients during the RAS procedure. All the actions taken should be precisely documented using the surgical safety checklist for RAS19. Moreover, patients need to be fully informed about the potential risk of RAS-related complications.

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HORSESHOE LUNG IN A YOUNG CHILD AT TYGERBERG HOSPITAL, SOUTH AFRICA: A Case Report

By L Mfingwana (MB ChB, Cert Paeds Pulm); P Goussard (PhD);
S Andronikou (PhD); J Morrison (MB ChB, Cert Paeds Pulm)

ABSTRACT

Horseshoe lung is a very rare congenital malformation in which the bases of the right and left lung are fused to each other by a narrow isthmus. Although rare, a hyperlucent area in the lower left lung, close to the vertebral column, may represent a horseshoe lung. Horseshoe lung is often associated with scimitar syndrome. Here, we present a case of a two-year-old girl who presented with recurrent chest infections and wheezing associated with horseshoe lung. The right lung appeared to be hypoplastic.

INTRODUCTION

Horseshoe lung is a very rare congenital malformation in which the bases of the right and left lungs are fused to each other by a narrow isthmus posterior to the pericardial reflection but anterior to the aorta and oesophagus. The isthmus originates from the hypoplastic lung¹. The embryological mechanism for horseshoe lung is not known but non-separation of splanchnic mesodermal mass has been suggested². Hyperlucent area in the lower left lung, close to the vertebral column, may represent a horseshoe lung. Parenchymal, airway and vascular abnormalities are associated with horseshoe lung. Horseshoe lung is most seen in association with scimitar syndrome or other hypoplastic conditions of the right lung. The scimitar syndrome was first described in 1836 by Chassinat³. It is also referred to as congenital venolobar syndrome, as a constellation of cardio-pulmonary anomalies. The characteristic abnormality is anomalous pulmonary venous return from a part of or the entire right lung to the inferior vena cava⁴. The anomalous venous connection is seen as curvilinear shadow close to the right heart border and resembles a curved Turkish sword. Less than 50 cases have been reported in the literature⁵.

CASE

A two-year-old girl presented with a history of recurrent chest infections and persistent wheezing that were not responding to treatment. She was HIV-negative, there was no history of contact with tuberculosis and all tuberculosis testing including Gene Xpert MTB/RIF was negative. Plain frontal chest radiograph demonstrated a well-defined lucency in the left lower lobe medially, with a curvilinear outline resembling an inferior accessory lobe and fissure. The right lung appeared smaller than the left, but the heart was normally positioned (Fig. 1).



Fig. 1. Plain frontal chest radiograph demonstrates a well-defined lucency in the left lower lobe medially with a curvilinear outline resembling an inferior accessory lobe and fissure. The right lung appears smaller than the left, but the heart is normally positioned.

A bronchoscopy was performed and demonstrated anterior midtracheal compression with pulsation. There was also narrowing of the opening of the left main bronchus with medial and lateral compression with pulsation. The bronchial configuration was abnormal on the right side with an absent bronchus intermedius. A contrasted chest computed tomography (CT) scan showed an 'isthmus' of the lung in continuity with the right lung, extending from the right hemithorax across the midline (between the heart and descending aorta) into the left hemithorax, consistent with a horseshoe lung (Fig. 2).



Fig. 2. Axial multidetector computed tomography (MDCT) on lung window demonstrates an isthmus of basal lung in continuity with the right lung, extending across the midline between the heart anteriorly and the aorta and vertebral body posteriorly. There is a distinct pleural interface between the isthmus and the left lung.

The arterial supply was from the right lung branches (Fig. 3A) and there was a clearly defined pleural separation from the left lung (the presumed 'isthmus fissure'). Arterial supply to the isthmus was via the right lower lobe vessels and venous drainage appeared to be directly into the right atrium. A small bronchial branch of the left lower lobe bronchial tree was noted to supply the isthmus, but this appeared attenuated across the vertebral body and descending aorta, resulting in selective air-trapping of the isthmic segment (Fig. 3B). Even though the plain radiograph demonstrated a possible smaller right lung, there were no CT features of right (or left) pulmonary hypoplasia. The pulmonary arteries were of adequate size, if not slightly plump. The

heart was normally positioned on the left. There were, however, some significant associated venous abnormalities in the form of a scimitar-type vessel, which ascended from the right lung base peripherally to join another scimitar-type vessel descending from union of two superior segmental intervertebral veins, to enter the superior vena cava as it feeds into the right atrium (Fig. 3C). The right atrium was noted to be prominent.

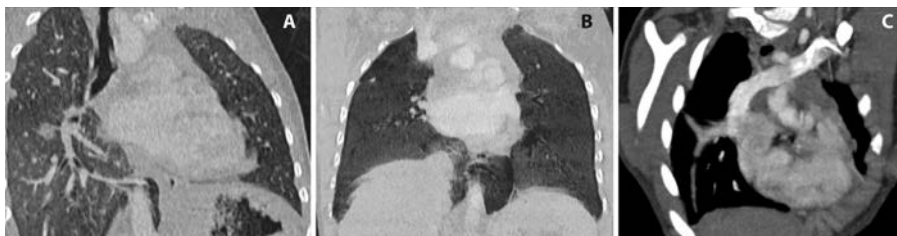


Fig. 3. Coronal oblique reconstructions demonstrating vascular supply, bronchial supply, and the scimitar vessel.

- (A)** Coronal oblique reconstruction using maximum intensity projection (MIP) with a slab thickness of 7mm, demonstrating the arterial origin of the vessels arising from the right inferior pulmonary artery branches extending across the midline to supply the isthmus of lung.
- (B)** Coronal oblique reconstruction using minimum intensity projection (MinIP) with a slab of 5mm, demonstrating a small attenuated bronchial branch from the right lung extending across the midline to supply the isthmus which has air-trapping.
- (C)** A contrast-enhanced coronal oblique maximum intensity projection (MIP) reconstruction on mediastinal window demonstrates the enhancing curvilinear structure ascending from the right lung base (scimitar vein) joining a second peripheral venous structure before entering the superior vena cava at its entry into the right atrium.

Other CT scan findings included an absent minor fissure and a bovine variant of the aortic arch with the left common carotid artery arising together with the brachio-cephalic trunk from the aortic arch, a common variant. This appeared to cause some anterior impression on the trachea superiorly.

DISCUSSION

Horseshoe lung is a very rare congenital malformation in which the bases of the right and left lungs are fused to each other by a narrow isthmus posterior to the peri-cardial reflection. Fusion occurs via the parietal pleural defect that allows communication of pleural cavities either directly without a fissure, or indirectly through intervening visceral pleura (isthmic fissure). Very few cases have been described in the literature, with the first case report appearing in the textbook by Spencer⁶ in 1962. Most cases involve lung hypoplasia and/or vascular anomalies. The most common associated abnormality is scimitar syndrome, which may be seen in up to 85% of cases⁷. A few reported cases have been associated with other cardiovascular anomalies including atrial septal defect (ASD), ventricular septal defect (VSD), tetralogy of Fallot, and hypoplastic left ventricle⁸. Right lung hypoplasia is much more common than left lung hypoplasia, which is seldom reported⁹. When there is a pneumothorax in a child with horseshoe lung, it may affect both lungs due to the band of parenchymal tissue, which causes communication between the two lungs.

Plain chest X-rays may be suggestive due to the air trapping in the parenchyma of the horseshoe lung, which has a lower density on X-Ray.

CONCLUSION

A hyperlucent area in the lower left lung is a clue to the diagnosis of horseshoe lung.

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COVID-19:

The Long Shadow On Staff Mental Issues Affects Elective Surgery Catch-Up Battles

By Kate Woodhead, RGN, DMS

INTRODUCTION

The Courage of Compassion, reported on here^{1, 2} identified a level of disquiet, stress and unhappiness within the workforce in the NHS with data from before and during the early stages of the COVID-19 crisis. Due to the high level of nursing and midwifery and related vacancies even before COVID-19 struck, there are examples of staff being 'broken' and 'exhausted'. It is difficult to imagine how those staff are managing with the current caseload and with their own mental well-being.

This article intends to look at the context of the present workload with COVID-19 rampaging through healthcare and at the mental resilience and well-being of the staff supporting those patients. It will also highlight some of the options for staff to develop their self care and raise awareness of available resources, even if they do not feel they need them now.

Healthcare staff for the most part, work in cultures where it does not 'do' to admit that we are not coping – so there is a great deal of hiding of the reality of mental disturbance and distress at work. One element that exacerbates the reluctance to disclose feelings and stress, is the external view of healthcare staff being heroes. It is hard for a hero to show 'weakness' and they will continue to deny their symptoms and this may prevent them from seeking help. There is a high degree of reluctance to admit to the stress and it is frequently taken home. This stigma needs to be addressed by healthcare organisations, professional associations and individual team leaders and staff, enabling open disclosure and a forum where they may safely display their feelings and get some help.

A report by the Society for Occupational Health Medicine³ earlier this year speaks of the high levels of work-related stress, burnout and mental health problems identified in spring 2020; those will have risen significantly due to the exceptional pressure being experienced in 2021.

The pandemic can be described as a traumatic event of exceptional magnitude, greater than the usual range of normal human experience, together with the real fear of death. Post traumatic stress disorder (PTSD), anxiety, depression and other psychopathologies can result from the extreme demand faced by the health workforce. At the beginning they were dealing with a disease with unclear characteristics, no cure, no vaccine and a high mortality rate. It is no wonder that personally and professionally, staff have been stressed, and now they are weary and very tired. It has been said that this crisis is a marathon and not a sprint, but the evidence suggests that this is a continuous world of exhaustion.

Staff strive to ensure that the care which they deliver is of the highest quality however, chronic fatigue and poor mental health and well being among the staff diminishes the quality of care and increases the chance of patient safety incidents which causes further stress to others in the team.

WHAT DOES THE LITERATURE SAY?

There has not been a great deal of time for specific COVID-19 data to appear in the research although some⁴ cite experience from previous epidemics such as SARS and Ebola. A total of 55 studies in a systematic review found that the psychological implications to healthcare workers (HCWs) are variable with several studies demonstrating an increased risk of acquiring trauma or stress-related disorders, depression and anxiety. Fear of the unknown or becoming infected were at the forefront of the mental challenges faced. Being a nurse and being female appeared to confer greater risk. The perceived stigma from family members and society heightened negative implications; predominantly stress and isolation. Coping strategies varied among the contrasting socio-cultural settings and appeared to differ among doctors, nurses and other HCWs. Implemented changes, and suggestions for prevention in the future consistently highlighted the need for greater psychosocial support and clearer dissemination of disease-related information.

MEASURES IDENTIFIED TO ADDRESS PSYCHOLOGICAL RISKS

From the literature it appears that self coping strategies such as acceptance, resilience, active coping and positive framing were useful. Some doctors used planning as a strategy. Other staff used exercise to help reduce the burden. Support from supervisors was found to be a significant negative predictor for psychiatric symptoms and PTSD. Self-directed learning on psychological materials had helped some staff to manage their condition, together with support from team members or colleagues. Several studies cited in the systematic review suggested that greater support would be supplied through collaboration, training and education. This appeared to strengthen teams and reduce HCW stress. Additionally, clear communication was seen to be a positive factor in reducing psychiatric symptoms⁵.

To enhance recovery and well being, a range of support methods and psychological measures should be in place in the workplace. Furthermore, they should not be merely present for the duration of COVID-19, this disease will have a long shadow with the impact beginning to show in our healthcare workforce.

MEASURES EMPLOYERS CAN TAKE TO SUPPORT THE WELL-BEING OF THEIR EMPLOYEES.

In 2017, the government commissioned a review by Lord Dennis Stevenson and Paul Farmer, CEO of the mental health charity, Mind. The subsequent report⁶ identified a number of core standards for employers to have in place.

- Produce, implement and communicate a mental health at work plan
- Develop mental health awareness among employees
- Encourage open conversations about mental health and the support available when employees are struggling
- Provide your employees with good working conditions
- Promote effective people management
- Routinely monitor employee mental health and well-being

Whether work is causing the stress or exacerbation of an existing mental health condition, employers have a legal responsibility to help their employees. Where a risk to work-related mental health issues is identified at assessment, steps must be taken to remove it or reduce it as far as possible⁷. Obviously in the current situation, that cannot occur, but employers can - if they have the motivation - provide extensive assistance to their employees on their intranets or by occupational health.

ADVICE AND SUPPORT

Many Trusts have their own services which they have set up over the year with well-being and mindfulness moments. I believe that many staff will not have time in their working day to review these resources, welcome as they are. A BMJ blog written in May has some simple advice which is worth repeating⁸.

Top tips for surviving this phase of fatigue and keeping well for the long haul:

- Take regular breaks during your working shifts, even if you have work to do - breaks make us more efficient and productive and they help us to avoid burnout
- Remember this is a long-game and none of us are indispensable - handover to your team or another colleague so you can properly switch off during your rest period
- Consider a three-minute ritual at the end of each shift - take three deep breaths and list three things that were tough and three things that went well

Some advice from the Royal College of Nursing on a short exercise to do in a crisis⁹

Six steps to mindfulness:

1. Connect to your senses to bring you into the moment - notice what you can see, hear, smell and feel
2. Take three mindful breaths, focusing on how it feels when you breathe in and out deeply
3. Be aware of your body, how it feels and any movements you're making
4. Notice the emotions you're feeling. Pause to name them, without judging or criticising yourself
5. Notice the type of thoughts in your mind, rather than specific thoughts. Name the types - are they memories, worries, past conversations or future plans?
6. Find somewhere to sit or stand to do a three-step breathing practice:
 - Awareness: notice how your body feels and what you're thinking
 - Your breath: become aware of which parts of your body move when you breathe in and out and how this feels.
 - Expanding: breathe deeply so it feels like each breath fills your whole body

In addition, the Royal College have produced mindfulness videos which can easily be accessed. Each of the six videos cover a different part of each day and are designed for nurses but probably suit many other healthcare workers as well.

Silvercloud Health¹⁰ has provided free access for NHS healthcare workers to help themselves by education and many different aspects of self care. Some top tips are repeated here, as they seem remarkably helpful.

Pay attention to, and notice, how you are feeling:

1. Be aware of your stress levels: stress can accumulate and become overwhelming and chronic unless managed. Keep an eye and monitor how you're doing
2. Remind yourself that feeling stressed is normal under the exceptional circumstances we are living through. It is okay not to be okay
3. You may feel like you are not doing enough and that you're not up to the task. Remember that becoming stressed or overwhelmed simply shows you are human and is in no way a reflection of your abilities
4. Some stress is helpful in energising you to keep going in the current situation, but it is important to manage it so that it does not become excessive and overwhelms you
5. You may also experience a range of unpleasant and unwelcome emotions, maybe also towards patients, on top of dealing with a lot of uncertainty on a daily basis. You may feel anger for non-compliance with social distancing restrictions, you may feel powerless at times and you may find it hard to feel compassionate towards patients at other times. This is normal and to be expected. However, it is important that you reach out for support if these feelings start becoming unsettling.

Once you recognise that things are impacting on you, you can find new ways to cope with your situation. Remember, even doing something small to look after yourself can make a big difference to your stress levels.

WHAT YOU NEED TO DO:

Self-care is hardest when you need it most. You may not feel like it is a priority when you have so much to do, but it is and cannot be negotiable at this time. You need to make sure you look after your basic physical and mental health needs or you won't be able to look after others.

- Eat well and look after your body. Don't skip meals or breaks, take some exercise as it is the single most helpful tool to help you manage your mental health
- Beware of unhelpful coping strategies. Alcohol and tobacco fall into this bracket although they may well have a negative effect overall
- Get enough sleep - it can be a challenge at this time but is essential to making sound decisions
- Find ways to care for yourself. It may be flowers it may be chocolate. Get creative!
- Connect. Keep in touch with your nearest and dearest to reduce your isolation. They are often your best support and they will want to help
- Watch out for excessive stress, fatigue and sudden exhaustion. You may need to go further than the self help strategies and refer yourself to GP, hospital occupational health or other available support services. Many Trusts have set up new services to support staff at this time of need.

There are many apps, videos and self-help learning programmes available which may give you the support and help you need. They do not take too much looking for, use self-care, mindfulness and other key words to search for the support you need.

Sadly this mental health strain on healthcare workers comes at the same time as the reports roll in of the 6,1-million people who are waiting for a letter to tell them they have an appointment to discuss their immediate elective healthcare needs. The recently published Delivery Plan for

tackling the COVID-19 backlog of elective care¹¹ details how people who are waiting for care, especially those who have waited the longest are suffering in pain and disability and are becoming increasingly desperate to receive their surgery or their treatment. Elective care covers a broad swathe of non-urgent services often delivered in the acute sector, from diagnostic tests, scans, cancer treatments and surgical procedures. Hospitals are already working extremely hard to reduce the long waiting lists which have occurred as a result of many of those services closing or reducing throughput during the pandemic. Together with COVID patients, it was as much as many hospitals could manage to deal with urgent and emergency patients.

A recent report from the Nuffield Trust¹² set out an interesting review of how the UK performed relative to 16 other countries with developed health systems, providing some lessons for us to review and consider as part of preparation for another pandemic and recovery. It suggests that other well equipped health systems have been left in vulnerable positions and many countries are now facing the very same catch-up imperatives as the NHS.

The struggle that the NHS will have in completing the ambitious plans which are set out in the delivery plan are based on the parlous state of the workforce, in terms of professional vacancies and the added difficulties of exhaustion and burnout. Not only this key element but also that the whole focus is placed onto the acute care sector, when far more emphasis needs to be placed on community and primary care and enabling discharge from hospitals into the social care service. This is not only a huge missed opportunity, but may well provide many barriers to success.

ENGLAND'S DELIVERY PLAN

The Plan commits the NHS to using a funding add-on for Elective Care that is designed to deliver around 30% more elective activity than it was doing before the pandemic by 2024/25, after accounting for the impact of an improved care offer through system transformation and advice and guidance. The NHS will continue to work to return to pre-pandemic performance as soon as possible.

In addition:

- The plan sets out to reduce maximum waiting times, so that waits of longer than a year for elective care are eliminated by March 2025. Within this, no one will wait longer than two years by July 2022, or longer than 65 weeks by March 2024. By March 2024, 99% of people on the waiting list will be waiting less than a year
- Diagnostic tests are a key part of many elective care pathways. By March 2025, 95% of patients needing a diagnostic test will receive it within six weeks
- The plan aims to return the number of people waiting more than 62 days to start treatment after being urgently referred due to suspected cancer back to pre-pandemic levels by March 2023. By the following year, 75% of patients who have been urgently referred by their GP for suspected cancer symptoms will have been diagnosed or have cancer ruled out within 28 days.

The Plan says that it will be able to deliver these ambitious targets by:-

- Increasing capacity, not least by expanding workforce capacity by identifying gaps across key staff groups and sectors. Part of the expansion will be by enlisting reservists, 75 000

are planned, to assist in different areas of the hospital including wards and departments who have shortages and need a 'helping hand'. At the launch it was claimed that full training will be given and continuing support will be managed by existing full time staff on a buddy system. They will be paid.

- Retaining current staff will also be a focus for the hospitals facing huge workloads to tackle the backlog. Supporting staff needs equal focus, to look after their mental and physical health through up to 40 planned mental health hubs and free access to a range of self-help apps and helplines
- Diagnostic centres will form part of the separation of different areas of the service, reducing the need for patients always to attend hospitals. This is extended by urgent and emergency care being delivered in different places from elective care. They will be known as elective hubs and will focus on providing high volume, low complexity surgery such as cataract surgery, and hip and knee replacements
- Further aspects of the Delivery Plan include providing better information to patients with a new digital platform entitled My Planned Care which will provide transparency on waiting times and clinical support information for patients in the run-up to their care episode.

In addition, there is an element of levelling up being proposed in that areas of deprivation in the UK tend to have longer waiting lists and in order to provide more equality, NHS systems will be required to analyse their waiting lists by looking at age, deprivation, and ethnicity characteristics by speciality. What ever happened to clinical need?

There will be a new national network for long waiters which will be managed by the national NHS team. It appears that patients may be sent some distance from where they live in order to prioritise their treatment. This may be provided by either the independent sector or the NHS. In addition, there is a promise to provide more use of digital technology in order to continue the use of telemedicine for out-patient consultations and the concept of virtual wards, so that more care can be delivered at home.

WORKFORCE ISSUES

None of the above will be able to be delivered comprehensively or safely unless the reported 100 000 vacancies are managed. **There is a desire to recruit 10 000 more nurses from other countries this year**, which is a very big number considering that the same shortages are affecting other developed nations healthcare systems, post COVID - so we will all be recruiting from the same pool. We had better not be relying on the developing world to provide for us, that would be immoral. In the past, Nelson Mandela urged the developed world not to recruit too many nurses from Africa or other developing nations and this stemmed the tide, for a while. Proposals in the Delivery Plan include 5 000 healthcare support workers together with the reservists, but the training and supervision of them will be left to the dwindling number of qualified staff. The workforce plan which we have been waiting for has not yet emerged and is critical to the success of the Delivery Plan.

LESSONS LEARNED

The Nuffield Trust report highlights some challenges which COVID-19 has created; identifying that none of the healthcare systems was prepared for the disruption that COVID-19 caused. There

are a number of different and common strategies that are being faced by them all including catch-up on care backlogs and reform to the services to be better prepared for future difficulties. The pandemic has served as a catalyst to move system reforms further, so that long standing structural weaknesses and priorities are addressed. There is a move towards greater virtual care delivery together with flexible staffing models. It is also apparent that there is focus, not just on the acute sector, but also many systems are prioritising primary, community and long-term care capacity. The emphasis on non-acute health services identifies the interconnected nature of the health system recovery, and how efforts to catch up on elective care will be futile if primary care, community care, and long-term care are not also strengthened¹³.

The health and economic consequences that must now be addressed by many countries are variable depending on the waiting lists which countries had going into the pandemic, how effectively they managed to contain COVID-19 infections as well as how well systems protected access to routine and planned activity. All these variables will impact on how quickly countries are able to catch up with the backlogs and what is needed to increase resilience and rebuild service strength. Workforce challenges are one of the most intractable constraints to recovery across all countries, and there is recognition that reducing backlogs and waiting times must not cause increased burnout and further healthcare staff leaving the professions.

While the NHS is implementing similar strategies to other countries to clear care backlogs, its path to recovery may be longer than many other systems. We entered the crisis with higher bed occupancy rates and fewer doctors, nurses, beds and capital assets than most other high-income health systems, while experiencing higher rates of excess deaths during the pandemic relative to many countries. Waiting lists were rising in the NHS before the pandemic started, indicative of the challenges health services already faced in keeping pace with the demands placed on them. Countries with greater pre-existing capacity and that have more effectively contained coronavirus are likely to be in a better position to cope with care backlogs arising from the pandemic and recover from its consequences¹⁴.

For highly efficient systems like the NHS, the pandemic has shown how it is not possible to run services at more than 90% capacity and expect them to rise to the challenge when there is a surge in demand. But the NHS has also demonstrated other significant strengths that are foundational to system resilience. These include the ability to rapidly collect and share information across the systems, centralised mechanisms for co-ordinating services and redistributing capacity, and the ability to inject funds where needed and ensure financial solvency during periods of great uncertainty. All of these will be important assets to the NHS as it seeks to recover elective backlogs and deal with unforeseen shocks.

CONCLUSION

One of the great ironies of this plan for recovery is that it seeks to free up space for additional capacity by separating services such as urgent and emergency care, and elective care. This is a very short-term gain particularly when the current trend in healthcare efficiency and development is by integrating systems recognising that patient pathways are co-dependent on other parts of the system. Integrated care systems are currently getting to know each other and developing plans to deliver services in a more effective way, by taking out barriers. Separating elective care away from the hospital sets up opportunities for barriers to be re-instated.

Patients do not play to standardised plans, and elective patients need to be able to access ICU as well as professionals who are experienced in advanced care, should they need it. It would not be good for care quality to be shipping patients across cities by ambulance in order to get the appropriate care in the appropriate place. There are a vast number of challenges implicit in the recovery programme and it needs to be delivered to reduce pain and suffering to patients who have already waited way beyond the best time for their clinical condition. However it must also be done with care for the staff who are still suffering the after effects of COVID-19.

We will not get through this pandemic intact without looking after key workers. As surges occur but we have not yet got to a state where vaccination is helping to reduce people being infected, we have to be able to manage ourselves for the long haul. Many aspects of the current mental health crisis can be mitigated; we can reduce fear by the correct dissemination of information and the provision of training and education. With a dynamic disease, we all need to keep up with developments and new treatments. Education of healthcare workers, their families and the wider public can lessen stigma and discrimination. Trusts must provide suitable rest and care facilities as well as taking a proactive approach to supporting their overstretched and exhausted staff.

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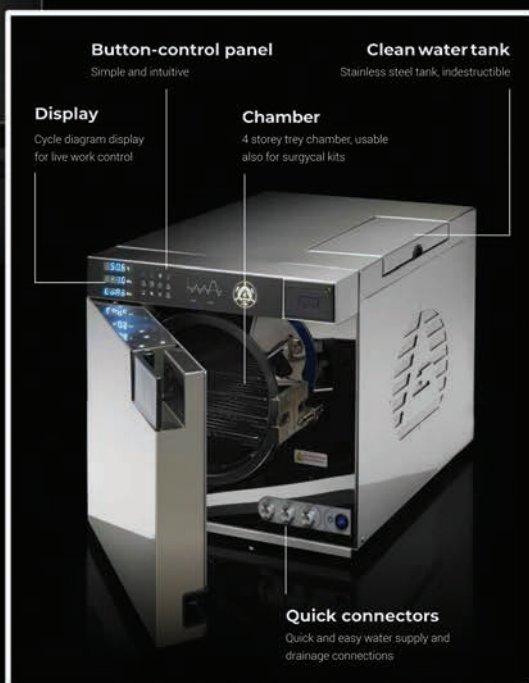


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All items introduced into human tissue, cavities or the bloodstream must be sterile, this includes surgical instruments used in a hospital. To sterilise an object means to kill all forms of microbial life, including bacteria, viruses and spores on that object. The process of doing this is known as sterilisation.

Risk assessment of contaminated instruments

Sterilisation involves the complete destruction of all forms of microbial life, including bacteria, viruses, and spores. To be effective, sterilisation must be preceded by meticulous cleaning (mechanical or manual) to remove all foreign material from objects prior to undergoing sterilisation (the five-second rule **does not** apply in this case). All items introduced into normally sterile tissue, sterile cavities or the bloodstream ('critical' sites) must be sterile. Sterility is also preferred for items used in 'semi-critical' sites (refer to 'Spaulding's classification').

Cleaning is considered the most important step in the reprocessing process of an instrument or of any piece of equipment. The purpose of cleaning is to remove visible particulate or soil, and reduce biological matter while preparing it for the disinfection process.

Preparing for re-use

Reprocessing refers to infection control procedures for the removal and inactivation of micro-organisms on re-usable patient-care equipment. Reprocessing of re-usable patient-care equipment includes cleaning, disinfection, and sterilisation. The choice of reprocessing method must consider the instrument manufacturer's recommendations. Factors that need to be considered are compatibility among equipment components and materials, chemicals to be used, heat and pressure tolerance of the equipment, and time and temperature requirements of the reprocessing methods.

There are three suggested levels of decontamination:

(Spaulding Classification of infection control - guidelines on selection of cleaning - decontamination process)

Which steps form part of the decontamination process?

Decontamination includes some, or all, of the following steps:

- Cleaning (physical removal of organic material including micro-organisms)
- Disinfection (killing or destruction of most, but not all, disease-producing micro-organisms)
- Sterilisation (destruction of all micro-organisms)

The decontamination process involves cleaning, disinfection and/or sterilisation

- **Low risk -** When the instrument only comes into contact with normal and intact skin
= **Cleaning and drying are usually adequate**

- **Intermediate risk** - When the instrument comes into contact with intact mucous membranes or non-intact skin
= **Cleaning followed by disinfection is usually adequate**
- **High risk** - When the instrument penetrates sterile tissues, including body cavities and the vascular system
= **Cleaning and disinfection followed by sterilisation is required**

Classification	Definition	Level of Processing/Reprocessing	Examples
Critical Device	Device that enters sterile tissues, including the vascular system	Cleaning followed by Sterilization	<ul style="list-style-type: none"> ▪ Surgical instruments ▪ Biopsy instruments ▪ Foot care equipment ▪ Cystoscopes
Semi-critical Device	Device that comes in contact with non-intact skin or mucous membranes but do not penetrate them	Cleaning followed by High-Level Disinfection (as a minimum) Sterilization is preferred	<ul style="list-style-type: none"> ▪ Respiratory therapy equipment ▪ Anaesthesia equipment ▪ Tonometer ▪ Cystoscopes
Noncritical Device	Device that touches only intact skin and not mucous membranes, or does not directly touch the client/patient/resident	Cleaning followed by Low-Level Disinfection (in some cases, cleaning alone is acceptable)	<ul style="list-style-type: none"> ▪ ECG machines ▪ Oximeters ▪ Bedpans, urinals, commodes

Steam Sterilization Cycle criteria

Important step:

Clean disinfected and dry instrument only for Sterilisation

A steriliser is equipped with a set of pre-programmed cycles. The cycle time mentioned in all documentation is only an approximate time, with factory-set values and dependant on the load. The heavier the load, the longer the process. The material in the load also affects the processing time. All weight indications of the load include the goods to be sterilised as well as the weight of racks, trays, and containers, for example. The lighter the trays, the more goods or the greater the weight that can be sterilised at a time. Steam sterilisation involves the use of steam under pressure, delivered at a particular temperature, for an appropriate time. Sterilisation occurs as the latent heat of condensation is transferred to the load causing, it to heat up rapidly. Heating denatures (takes away or removes) any micro-organisms remaining following the cleaning process. Wrapped and packaged items must be thoroughly dry prior to their removal from the autoclave, and procedures must be in place to monitor the sterilisation process.

Pre-treatment phase:

- Air is removed and replaced by steam
- Air is not allowed in the chamber as this can block the steam from coming into contact with some surfaces of the instruments, preventing sterilisation
- Negative vacuum pulses are repeated three times
- After all the air is removed, the instruments in the chamber are heated up to the sterilisation temperature by forcing more steam into the chamber
- Small positive vacuum pulses are added to help heat up the load

Sterilisation phase:

- Instruments are kept in the steam environment, at a prescribed temperature, for a certain, predetermined time. This is normally 121°C for 16 minutes, or flash sterilisation which is 134°C for four minutes
- Why is there a four minute sterilisation holding time?
 - This is the time that the micro-organisms - bacterial endospores *geobacillus stearothermophilus* - requires to be killed or deactivated
 - The bacterial endospore have a highly-resistant outer membrane that is resistant to most sterilisation mediums

Post-treatment phase:

The load needs to be dried and cooled down before it can be released from the chamber. Moisture is removed by creating a vacuum. At the end of the cycle, pressure is equalised through air inlet via a sterile filter. A full process typically takes around 45 to 60 minutes, depending on the chamber size, programme and temperature selection.

In a nutshell, a very short and very basic description, version of the sterilisation process is:

"Air are removed from the chamber - to be replaced by steam. This ensure full surface covering of the instruments. The steam softens the outer membrane of the spore. The high temperature penetrates the outer membrane. This way the spores are destroyed. The instrument must be dry after the cycle to prevent decontamination."

Most important reason for the processing of a biological indicator in a full chamber especially with implant sets is to gain information on whether necessary conditions were met to kill a specified number of micro-organisms for a given sterilisation process. This will provide a level of confidence in the process. Endospores, or bacterial spores, are the micro-organisms primarily used in BIs. They are considered some of the toughest ones to kill.

Additionally, bacterial spores are chosen for a specific sterilisation process based on their known resistance to that process. For example, *Geobacillus stearothermophilus* spores demonstrate a high resistance towards steam and vaporised hydrogen peroxide and are therefore used in BIs that monitor these sterilisation processes.

This is why the cycle time cannot be compromised due to the requirements of any department: it will have a major impact on patient care and 'If the processed goods are wet they cannot be Sterile'

Flash Sterilisation (Sterilisation cycles undertaken at 134 °C)

This is a rapid process that is used for single, non-wrapped solid instruments. Here, the vacuum is not adequate to remove all air from lumen/hollow instruments and is just surface sterilisation. The cycle is also used to warm up the steriliser before daily use for Bowie & Dick and leak tests.

What happens inside the steam steriliser?

- Pre-treatment - remove all air, push in steam
- Follow by sterilisation holding time at four minutes - this is the actual sterilisation time
- Post-treatment - remove all steam to ensure a dry outcome

Immediate-use sterilisation system, or 'flash' sterilization

An immediate-use sterilisation system, or 'flash' sterilization is a common term that describes the fast sterilisation of non-porous and/or no cannulated sterilisation methods. Surgical instruments in an unwrapped condition in downward displacement steam. Instrument sterilisers located close to the point where the instruments will be used immediately.

In the past, 'flash' sterilisation was the main means of providing sterile instruments for surgery. Special, high-speed sterilisers are usually located in the OR in order to process unwrapped instruments and instruments for urgent use. For example, the only available hand piece is dropped on the floor in the middle of the procedure and this single instrument needs to be sterilised in a rush. These sterilisers operate at 134°C for 10 plus minutes. 'Flash' sterilisation delivers the instruments wet and very hot into the OR environment.

NOTA BENE: 'Flash' sterilisation should never replace the lack of material or instruments for a programmed surgical procedure.

If an immediate-use sterilisation system must be used, it should be used only after all of the following conditions have been met:

- Work practices should ensure proper cleaning, inspection and arrangement of instruments before sterilisation
- The physical layout of the area ensures direct delivery of sterilised items to the point of use
- Procedures are developed, followed and audited to ensure aseptic handling and staff safety during transfer of the sterilised items from the steriliser to the point of use

A sterilisation cycle cannot be manipulated at any point in time to suite the requirements of the end user. Compliance on the complete sterilisation process should be followed and recorded to ensure patient safety and prevent litigation as a result of a hospital-acquired infection (HAI).

Cycle criteria for table top sterilisers

Six factors are particularly critical to assure successful sterilisation:

1. Time
2. Temperature
3. Moisture
4. Direct steam contact
5. Air removal
6. Drying

1. Time

The exposure (sterilisation) time is a critical factor simply because all the organisms do not die at the same time. A minimum amount of time at sterilisation temperature is required to kill all the organisms. *Geobacillus Stearothermophilus* (Bst) spores are generally used to test steam steriliser cycles because they are extremely resistant to moist-heat sterilisation.

2. Temperature

The second critical factor in steam sterilisation is the temperature of the saturated steam controlled in the chamber of the steriliser. Increasing the temperature dramatically reduces the time needed to achieve sterilisation. The temperature of saturated steam is directly related to the pressure at which it is controlled.

3. Moisture

Moisture in the steam has a major impact on its ability to denature, or coagulate proteins; hence the importance of using saturated steam. Saturated steam is at equilibrium with heated water at the same pressure. This means it contains the maximum amount of moisture without liquid condensate present. Saturated steam is recommended for steam sterilisation.

4. Direct Steam Contact

Direct steam contact with the surface of the object to be sterilised is required for the steam to transfer its stored energy to the object. Without direct steam contact to all surfaces, the item will not be sterilised.

5. Air Removal

Air is the biggest deterrent to steam sterilisation. Air must be removed from the chamber and the load before direct steam contact and sterilisation can occur. This is accomplished in a steam steriliser by a series of vacuum pulses prior to sterilisation (pre-conditioning phase). A small amount of air will always be present in the autoclave chamber, but it must be minimised. Insufficient air removal, steriliser chamber vacuum leaks and poor steam quality are the most common causes of sterilisation failures.

6. Drying

Wrapped items must be dry before they can be aseptically removed from the steriliser. Condensation is the natural result of steam contact with the cooler surfaces of the load during the heating and exposure phases. The presence of condensation (wet packs or pouches) can cause recontamination of the load when they are removed from the steriliser. A steam steriliser dries the load after sterilisation by drawing a deep vacuum in the chamber (post-conditioning phase).

Conclusion

Steam sterilisation is a process that is dependent on basic principles that are sometimes unknown or disregarded by the steriliser user. A large percentage of steam steriliser failures can be solved by logical and practical application of these basic principles. It should be noted that proper training for steriliser users should include this education.

Proper wrapping and loading techniques are critical for safe and successful instrument sterilisation. As with any critical process, equipment, proper maintenance and calibration is essential.

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DEATH BY MEDICO LEGAL CLAIMS

On Thursday 10 November, 2022 the Freedom Front Plus called for a debate in Parliament in Cape Town on the current state of the healthcare industry in South Africa. All political parties had a chance to debate. Below is one of the inserts from the Democratic Alliance's Shadow Deputy Minister, Honourable Lindy Wilson:

"We are killing people and crippling families." "When we cannot treat children in the ICU, we send them to a general ward, and warn the parents that they are going to die"

These are just two of the statements we heard in the recent oversight of hospitals in Nelson Mandela Bay. Apart from corruption and maladministration, the leading cause of the collapse of Health in the Eastern Cape and indeed the country, is Medico Legal Claims. The Eastern Cape, in just 45 claims of the thousands of claims going to court, have been sued for R500-million in negligence claims. Of these 45 claims, they have just won two cases and one is pending.

In 42 cases they have lost, the Eastern Cape Health Department has been told that they must settle on merit as the Department has no legal basis to defend the matter, and in several, the hospital records of the complainants cannot be found. They are now bankrupt. For every case legal case that is lodged against them, the Health Department is forking out R1,5 million in legal fees, not included in the sums listed above. The end result, is appalling conditions we saw in hospitals which are underfunded, understaffed, and under equipped. It is little wonder the hospitals are referred to as 'hospitals of death', words we also heard over and over this past weekend while we conducted oversight in the Eastern Cape.

However, it appears no one is dealing with one critical reality. Medico-legal claims are leading to more medico-legal claims. Orthopaedics who cannot operate because they have no implants; ENT surgeons who are forced to operate theatres without a light; children die because they cannot be treated in an ICU because of their is no staff. All of this WILL lead to further misery of countless numbers of families - and millions more in very costly medico-legal claims. With every legal claim lost in a court, further staffing cuts are experienced, less equipment is made available, no infrastructure maintenance is undertaken, and more sick and vulnerable people suffer.

Every corrupt lawyer is jumping on the claim band wagon. They know that the records are unlikely to be found. They know that the hospitals are understaffed and that they are physically unable to cope. We are facing another State Capture at a completely different level. The country has a total now of R125-billion medico-legal claims as a result of the cadre deployment, corruption and maladministration of an ANC Government, that does not care about the people of this country. The vulnerable people of this country who have to make use of public and state hospitals because they do not have access to private, expensive medical aid.

NHI is not the answer. Millions have been wasted on a Bill not yet passed. R30-million has been taken to employ people in the NHI directorate while our poor South Africans are dying

and lay maimed in our hospitals. Medico-legal claims will not go away. They will escalate killing healthcare. You cannot tax the people of the country to fund your total incompetence. Shame on you. South Africans deserve better.

VACCINES STILL VITAL AS COVID-19 CHANGES – PROFESSOR ABDOOL KARIM

09 November: The fundamental reality of COVID-19 is that ‘No one is safe until everyone is safe’, says epidemiologist and former head of the COVID-19 ministerial advisory committee Prof Salim Abdool Karim, who warns that the pandemic’s nature has changed, with it no longer coming in waves but in small spikes and outbreaks, and that jabs are still crucial. Prof Karim was speaking about the status of the pandemic after the release of a new global collaborative study, which makes recommendations on how to end the public health threat without worsening socio-economic burdens. *TimesLIVE* reports that the study, published in the journal *Nature*, says specific efforts and resources are still required to save lives. Six main themes for action were identified by a panel of experts, including Abdool Karim, from different disciplines and more than 100 countries to develop global consensus on how to tackle these issues head-on.

In South Africa, Prof Karim said there had been an increase in COVID-19 cases in recent weeks. “But the pandemic is not behaving in the usual waves any more. It’s different, going through small outbreaks and continually spreading at a low level. Every now and then you get a little spike and then it comes down. In the past, where we saw these waves was from a completely new variant, that we are not seeing now. Each wave is driven by a variant. But we don’t have a new variant as yet, we still have Omicron. The new variant is going to be called Pi, the next letter in the Greek alphabet, which is not yet with us. We are not seeing (a) significant increase in hospitalisation. It reflects a combination of vaccines and past infections, which is keeping people out of hospital,” said Karim.

The latest COVID-19 wastewater data from the National Institute for Communicable Diseases (NICD) showed “all samples across South Africa have mutations characteristic of the Omicron sub-lineages of BA.4 and BA.5, circulating in Johannesburg, Ekurhuleni and City of Tshwane, eThekweni, Eastern Cape and the Free State with evidence of XAY/XBA (lineages first detected in South Africa) circulating in all provinces”. Prof Karim said six areas were identified in the study to help end the threat posed by the virus.

“First, we must recognise we are still living in the midst of a pandemic and SARS-COV-2 is probably going to be with us for a long time. We live under a long-term threat from this virus. The difference is we are not in an emergency mode anymore. We are in that chronic phase. There are several new variants being generated but not a single, dominant variant as we had previously. The second is that in the midst of all the misinformation, vaccines remain our primary tool against the pandemic. In South Africa we have a long way to go because only about 50% of adults are vaccinated. We can’t lift the foot off the pedal in terms of vaccines; we need to ensure we continue making better vaccines; that people take the vaccines, get at least three doses and get booster shots as and when recommended.”

He said the study also identified that COVID-19 could not be solved only by the Health Department and scientists. “You need a whole of government approach, which has also been implemented in South Africa. Fourth, you have to have a health system ready to respond. South

Africa’s healthcare system is in such deep trouble, largely because of poor management.” Prof Karim said the study also found that disinformation about the virus poses a ‘deep threat to society, science and truth through unregulated media such as social media’. ‘This disinformation has become quite rabid in our society and people have lost touch with what the scientific evidence and truth is.’ The sixth key area identified in the study is mutual interdependence, ‘meaning what I do affects the next person. That’s a fundamental component of the response. People don’t understand that the fundamental reality of COVID is that no one is safe until everyone is safe.’

PROFESSOR CHRIS BARNARD’S CENTENARY BIRTHDAY A REMINDER OF SOUTH AFRICA’S CURRENT CARDIO-VASCULAR BURDEN – PROFESSOR GLENDA GRAY

09 November: Tuesday marked what would have been the 100th birthday of the late cardio-vascular trailblazer, Professor Christiaan Barnard, who performed the first human-to-human heart transplant at Groote Schuur Hospital in Cape Town in 1967 – and who also completed the country’s first kidney transplant in October the same year.

South African Medical Research Council (SAMRC) CEO and president, Professor Glenda Gray, said the milestone provided a time for the country to reflect on whether or not it had made strides in reducing cardio-vascular disease and its subsequent deaths. “His contribution reminds us that cardio-vascular disease is still a big problem in South Africa and that we must continue to find solutions to non-communicable diseases,” she said.

While famous for pioneering heart transplant surgery, Prof Barnard also made several other key contributions to medicine, reports *News24*. He introduced open-heart surgery and intensive care nursing for patients after major surgery, and developed the UCT heart valves used for replacing damaged heart valves. He also developed new surgical techniques for correcting congenital and other heart defects. He completed South Africa’s first successful kidney transplant in October 1967, and a few months later, on 03 December, made world history by performing the first human heart transplant. He was nominated for the 1968 Nobel Prize for medicine, but did not win. He performed 53 transplants before retiring in 1983. Prof Barnard died on 02 September 2001, from a severe asthma attack while on holiday in Cyprus. He was 78.

Cindi Lategan, manager of the Heart of Cape Town Museum at Groote Schuur Hospital, said: “It is important for to keep alive the legacy a man who played a major role in the surgical feat that pushed the boundaries of science into the dawn of a new medical era. The first successful human-to-human heart transplant performed ... is one of the greatest moments in medical history and was made possible by his extraordinary interplay of scientific dedication and human courage.” Prof Tim Pennel, UCT’s Christiaan Barnard chair of cardio-thoracic surgery at Groote Schuur Hospital, said Prof Barnard’s contribution to the field of cardio-thoracic surgery and medicine in general extended far beyond his historic achievement.

“As a young doctor, Prof Barnard completed his MD dissertation on the effect of steroids as an adjunct to the treatment of tuberculous meningitis, which remains the contemporary management for this disease. Not long after, he was the first to describe intestinal atresia (complete obstruction of the intestines) as a lack of in-utero blood flow to the small bowel. This discovery led to his PhD and his introduction to heart surgery and the technique for heart transplantation.”

Pennel added that Prof Barnard worked to keep improving transplant surgery and invented the heterotopic heart transplant, which is also known as a piggyback transplant, to overcome the difficulties with immuno-suppression and rejection. He also devised the definition of brain death. "Prof Barnard's celebrity status was fashioned around an event that was only surpassed by the Apollo 11 moon landing two years later. It is important to reflect on an achievement of a South African who came from humble means to the most publicised event in medical history."

FORMER BARA CFO FACES DISCIPLINARY HEARING, THREATS, FOR WHISTLE-BLOWING

09 November: A former CFO of Chris Hani Baragwanath Hospital, who was credited with turning around the finances of the hospital before being poached by the City of Johannesburg for these very skills, now faces a disciplinary hearing for blowing the whistle on dodgy contracts worth R8,2-billion at the Department of Public Safety.

Sarika Lakraj-Naidoo, Director of Finance and Supply Chain Management in Public Safety, submitted numerous protected disclosures on fruitless, wasteful and irregular expenditure regarding 12 matters within the department. In response, according to a charge sheet, the city has alleged 'gross misconduct' against Lakraj-Naidoo, including harassment, bullying and racism, reports *News24*. The South African Municipal Workers' Union (Samwu), which is representing Lakraj-Naidoo in the matter, has described the charges as 'vexatious', with employee representative Jack Mokalapa saying she has been intimidated, including having threats to her life, receiving threatening phone calls, being followed and having vehicles parked outside her residence taking pictures of her at her home.

The manner of intimidation is remarkably similar to that received by Gauteng Health whistleblower, Babita Deokaran, before her assassination. Lakraj-Naidoo uncovered illicit transactions and graft within the department, and made several protected disclosures to the city, reporting these matters to the Hawks and the Special Investigating Unit (SIU), which are still investigating.

'Lakraj-Naidoo ... has been fighting unauthorised expenditure, dodgy tenders and corruption,' said Mokalapa. 'You have somebody who is experienced, has turned around Chris Hani Baragwanath Hospital as a CFO and was appointed to public safety for that reason ... when she raised these concerns, people implicated in the wrongdoing formulated these dodgy charges against her. It is in the public interest that the more than R2-billion budget with which she deals is appropriated for the correct use and not misappropriated by criminal elements in public safety,' he added. It is 'her job to stem irregular and unauthorised expenditure as director of finance in the city's department'.

The charge sheet dated 12 October 2022 accuses Lakraj-Naidoo of 'gross misconduct' for spreading unfounded allegations of corruption against her subordinate, alleging her employee received an R800 000 bribe from a service provider. She has also been accused of 'conduct unbecoming of a senior manager', creating 'disharmony in the workplace'.

The disciplinary matter was postponed to December.

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