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The aging surgeon: mandatory annual competency testing for surgeons aged 65 and older

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RESEARCH REPORT:

THE AGING SURGEON:

MANDATORY ANNUAL COMPETENCY TESTING

FOR SURGEONS AGED 65 AND OLDER

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Submitted to the Faculty of Health Sciences, University of Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree Masters of Science in Medicine in Bioethics and Health Law.

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4 March 2021

PLAGIARISM DECLARATION

I, Anita Justine Bloemink (Student number: 1940397) am a student registered for MSc Medicine (Bioethics & Health Law) in the year 2019/20.

I hereby declare the following:

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- I have followed the required conventions in referencing the thoughts and ideas of others.
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Signature:  Date: 4 March 2021

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Abstract

In South Africa, there is currently no law which dictates when surgeons should 'put down their scalpel'. A self-evaluation of skills is considered a reliable measure of the surgeon's capabilities, allowing surgeons who work in private practice to retire when they deem themselves no longer fit to practise. The typical retirement age of 65 correlates with the onset of a decline in certain cognitive capacities and fine motor skills that are necessary for the practise of surgery, and this therefore poses a risk to patients if it is not monitored. The media continues to investigate and highlight cases where patients suffer damages, and occasionally death, at the hands of elderly surgeons.

This research report aims to defend the thesis that there should be mandatory annual competency testing for surgeons aged 65 and older. I employed the typical research methods and standards applicable to philosophical research. This primarily involved the interpretation and critical analysis of salient texts and the posting and defence of new arguments. My critical analysis of relevant texts involved the definition and clarification of concepts, the identification and criticism of assumptions, the analysis and evaluation of theoretical frameworks, the development and defence of arguments, the use of counter-examples, and the articulation of the most plausible interpretation of significant concepts found in the sources. A critical analysis of the void in law relating to competency testing of surgeons has been conducted in light of moral theories, ethical principles and frameworks.

Should elderly surgeons be deemed fit to operate following the competency testing, no accusations can be made regarding their abilities nor age-related deficits. This is in the best interest of both the surgeon and the patient. It is, therefore, an ethical and legal responsibility to legislate mandatory competency testing for surgeons who wish to continue operating at age 65 and beyond.

Whilst 'age' and 'competence' are independent variables, no one should be discriminated against solely because of his/her age. Real life experience and exposure gained by the mature person is invaluable and should be fully utilised as long as the individual remains competent. This privilege should be extended to the currently over regulated professions such as airline pilots. In reality, tests will expose both competent 65 year olds and so too incompetent 65 year olds who are unfit to

practice. Let competence determine the right to continue one's profession, and not age.

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List of abbreviations and symbols

Continuing Education Units (CEUs)

Continuous Professional Development (CPD)

Federal Aviation Administration (FAA)

Health Professions Council of South Africa (HPCSA)

Medical Protection Society (MPS)

National Health Service (NHS)

South African Civil Aviation Authority (SACAA)

South African Medical Association (SAMA)

Surgical Leadership Inventory (SLI)

Operating Room (OR)

United Kingdom (UK)

World Health Organisation (WHO)

Chapter 1: Introduction

In South Africa many surgeons[1] working in the private sector continue to operate well beyond the 'standard' retirement age of 65. Currently there is no law which dictates when surgeons should 'put down their scalpel'. A self-evaluation of skills is considered a reliable measure of the surgeon's capabilities, allowing surgeons to retire when they deem themselves no longer fit to practise. The lack of continuous competency testing is part of a more pervasive gap in the regulation of surgical practice. Surgeons who enter the practice of surgery are assumed to remain competent throughout their career.

In this research report I will argue that there should be mandatory annual competency testing for surgeons who wish to operate beyond the age of 65. I will not attempt to address, in depth, the wider problem, the lack of regulation in the field of surgery, or attempt to resolve it.

Thesis Statement: Surgeons who wish to operate beyond the age of 65 should be subjected to mandatory annual competency testing.

Many other professions do not allow one's own discretion to determine retirement age. Airline pilots and air traffic controllers, for example, are compelled to a mandatory retirement age as well as regular competency testing throughout their career. I will compare surgeons and airline pilots in terms of their risks, responsibilities and regulations. I will also examine the reasons behind the regulation of airline pilots in order to emphasise the importance of competence and monitoring of abilities (SACAA). These two professions appear on opposite ends of a continuum in terms of the regulations imposed. While surgeons have freedom in terms of retirement age, airline pilots are strictly regulated. This vast difference in regulation is evidence of the inadequate consideration of the risks or implications posed by self-assessment and the ethical problem that this creates.

The media occasionally highlights cases where patients suffer harm, and sometimes death, at the hands of elderly surgeons. It has been suggested that elderly surgeons

[1] A surgeon is a physician who performs surgery, an invasive technique with the fundamental principle of physical intervention on organs/organ systems/tissues for diagnostic or therapeutic reasons. For the scope of this research report, the act of performing surgery may be called a surgical procedure or an operation.

pose a higher risk in terms of the outcomes of surgery as a direct result of their age-related deficits. While this might be true of some elderly surgeons, certainly not all elderly surgeons are no longer competent and many do not pose a risk to their patients. In a recent case, Dr Peter Beale, a 73 year old paediatric surgeon, was accused of culpable homicide when a ten year old boy died during a routine surgical procedure in October 2019. Following Dr Beale's retirement days after the arrest, the father of the deceased child responded "It's too little too late; in my opinion, he should have quit 10 years ago and many kids' lives would have been saved. It doesn't absolve him of paying for the crimes he's committed over the years" (Karrim, 2019). It could be argued that this is the view of an angry father, but had competency testing have been in place, such accusations could not be made as any elderly surgeon in practice would have proven his/her competence and, therefore, earned the right to practice free of scrutiny.

Despite the many claims of this nature, legislation remains unchanged. Ample literature exists on the topic of surgical competence when entering the profession (AMEE), however very little seems available on the topic of competency testing of surgeons later in their careers (CanMEDS). Research relating to a mandatory retirement age of surgeons has resulted in mixed findings, with strong arguments both in favour of (Babu, 2018) and against the implementation of mandatory retirement of surgeons (Buccimazza, 2016). In order to add value and contribute to this debate, I will critically examine the existing arguments. By understanding the arguments made, I will show why the alternative: mandatory annual competency testing of surgeons aged 65 and older, will ultimately result in the most ideal scenario.

While "a mandatory retirement age could be discriminatory and take many competent physicians out of practice and risk a physician shortage" (Palmer, 2019), mandatory annual competency testing would keep these surgeons in practice and ensure that they are, in fact, fit to operate. Should the surgeon be deemed no longer fit to operate, s/he will need to retire from surgery or fulfil the criteria required to continue practising. However, should s/he be deemed fit to operate, the surgeon may continue to do so free of guilt or scrutiny.

My normative study aims to indicate clearly that surgeons should be subjected to mandatory annual competency testing should they wish to operate beyond the age of

65. When elderly surgeons are deemed fit to operate following the competency testing, no accusations of incompetency can be made regarding their abilities or age related deficits. This is in the best interest of both the surgeon and the patient.

Aim: To defend the thesis that there should be mandatory annual competency testing for surgeons who wish to operate beyond the age of 65.

In this research report I aim to defend the thesis that there should be mandatory annual competency testing for surgeons aged 65 and older. The purpose is twofold, firstly to protect patients by ensuring incompetent surgeons are not able to practice, and secondly to defend the competent surgeon from unfitting allegations. As mentioned above, should elderly surgeons be deemed fit to operate following the competency testing, there is less of a chance that accusations will be made regarding their abilities or purported age-related deficits.

I will introduce the topic of competency testing of surgeons by providing a comprehensive appraisal of current legislation. A starting point will be the Labour Relations Act 66 of 1995, specifically the Basic Conditions of Employment Act 75 of 1997. Thereafter, I will examine the Health Professions Amendment Act 29 of 2007 to highlight the lack of legislation in this regard. The Health Professions Council of South Africa (HPCSA), as a statutory regulator of healthcare professions in South Africa, gives guidelines in terms of private practice. These are in place in order to protect the public. I will examine these guidelines and highlight the void relating to mandatory retirement and competency testing of surgeons. I will argue why this absence of law is an ethical problem.

After I have drawn a full and clear description of the status quo, I will examine the ethical concerns regarding the self-evaluation of skills as the measure to determine retirement of surgeons. I will discuss the personal implications, ranging from the doctors' self-esteem to the financial planning for loss of income due to discontinuing work. At this point, I will explore arguments both for and against mandatory retirement. Some authors take the position that there should be an absolute cut-off age for retirement and mandatory skills testing is unnecessary (Babu, 2018). Other authors argue that a mandatory retirement age is discriminatory and that many competent surgeons will be taken out of practice leaving a shortage of skilled surgeons. "Until there is conclusive proof that increasing age correlates with a decline in performance

and becomes a risk factor for poor outcomes, retirement of surgeons should be a choice and not an age-related imposition" (Buccimazza, 2016). I will defend the alternative supporting annual mandatory competency testing of elderly surgeons. Surgeons must keep up to date with new technologies and advancements in medical research. Surgeons should proactively engage in continuous professional development to remain competent. Caring for their own physical and mental health will also assist in maintaining their competencies. A surgeon aged 65 and beyond must show that he/she is competent in order to continue to operate. This is in the best interest of the patient.

I will examine previous research relating to the decline of both physical and cognitive skills to justify why I have chosen 65 as the age at which competency testing should commence. Many authors believe that "abilities, such as conceptual reasoning, memory, and processing speed, decline gradually over time" and "cognitive change is a normal process of aging" (Harada et al. 2013). The mean age at which such decline begins is at age 65 (Harada et al. 2013).

The competency assessment will not only be based on speciality specific knowledge, but also on communication skills, technical skills and clinical judgement. I will also examine the feasibility of continual competency testing throughout a surgeon's career, highlighting the lack of resources currently available within the HPCSA to make this happen.

I will apply various moral theories to this discussion. I have chosen to use utilitarian theory and deontology theory as these are regarded as most suitable for addressing the problem at hand, because it requires balancing risks and benefits and the solution can be supported by appealing to role-related duties.

I will use Utilitarian theory to argue that for the greatest number of both patients and surgeons, it will be better to implement mandatory competency testing for surgeons wanting to operate beyond the age of 65. Patients will be protected from increased risk of harm. I will use deontological theory to argue that is it the duty of the surgeon to not harm their patients. Surgeons need to be completely objective in their decision to continue operating and this is not always the case since various personal and social implications are at play.

The experience and real life exposure gained by elderly surgeons is invaluable and should not be lost to the world for as long as the surgeon remains competent. There will be competent 65 year old surgeons and there will be those no longer fit to operate. It is our ethical and legal responsibility to legislate mandatory competency testing for surgeons who wish to continue operating at age 65 and beyond.

Research Design & Methods

I will be applying standard normative/ philosophical methods in this ethico-legal normative study. The government has an ethical and legal responsibility to legislate mandatory competency testing for surgeons who wish to continue operating at age 65 and beyond. Whilst 'age' and 'competence' are independent variables, no one should be discriminated against solely because of his/her age. So too, no patient should be placed in harm's way should an elderly, no longer competent surgeon choose to delay retirement.

Ethics

As this is a purely normative project, no ethics clearance or waiver is required. No primary data will be collected and no persons will be required to participate.

Chapter 2: Arguments for why there is an ethical problem

In this section, I will show why the absence of law relating to retirement age and competency testing of surgeons is an ethical problem. As with any employment, the practice of surgery is governed by various rules and regulations. Analysis of these overarching laws reveals a surprising permissiveness or leniency in terms of the retirement age of surgeons who are in private practice. The status quo could allow surgeons, who are no longer competent, to continue to practice. This raises concerns for the safety of the patients which is an ethical problem.

The Labour Relations Act 66 of 1995, and more specifically, the Basic Conditions of Employment Act 75 of 1997, does not prescribe an age at which employees must retire. This act refers to any employee, and not specifically a surgeon, and since the labour legislation is silent on this issue, it is up to the employers to prescribe the retirement age of their employees. The 'normal' retirement age is determined by the employer and agreed to by the employee in either a contract of employment or a policy linked to such a contract. If there is no such agreement in place, the employer and employee must agree on the retirement age. This agreement should be placed in writing in order to rebut possible claims of discrimination at the time of termination of the employment relationship. Many surgeons are self-employed and are therefore free to determine their own retirement age (Gill, 2018). It is precisely this freedom which poses an ethical problem.

On closer observation of section 6 of the Employment Equity Act, "the dismissal of an employee based on his or her age may be seen as discrimination if the employer cannot prove that there was an inherent requirement in terms of age for the particular function that the employee fulfilled" (du Toit, 2020). Unless an employment contract exists which specifically addresses the age issue, surgeons are still free to retire when they like, which is an ethical problem. The Employment Equity Act, therefore, is insignificant in mandating retirement of surgeons since many surgeons are self-employed.

Section 187 (1) (f) of the Labour Relations Act states that "the dismissal of an employee based on his or her age will be automatically unfair. Such a dispute will be dealt with by the Labour Court and up to 24 months of the employee's remuneration may be awarded as compensation." However, "a dismissal based on age is fair if the

employee reached the normal or agreed retirement for persons employed in that capacity" (du Toit). Again, many surgeons will not have an employment contract or policy document since they are self-employed, placing the decision making power in their own hands. It is thus clear that the requirements of the Labour Relations Act do little to protect the patient from potential harm at the hands of surgeons whose advanced age could have rendered them incompetent.

An employee of the government of South Africa, in any sector, is expected to retire at age 65, but if otherwise requested they may retire from age 60 without being penalised in terms of their pension options (Graham, 2018). A surgeon working in a state facility would therefore be expected to retire from such work at age 65, but this does not prevent him/her from continuing to work in a private practice.

According to the South African Labour Guide (2020), it is the employer's responsibility to provide the employee with opportunities for skills development and continuous professional development. This is usually done by means of regular staff development sessions or by allowing the employee to attend seminars and workshops aimed at growing their skills and thus improving their ability to perform their tasks at work. The primary purpose is always to enhance and enrich each member of staff by providing learning opportunities so that they can perform their jobs effectively and contribute to the efficient running of the organisation (Stout, 1996). According to the SA Labour Guide, the employee's competencies should be monitored and this too must be set out clearly in the terms of employment contract and policy documents. Should the employee not maintain the level of competence required, he/she should be subjected to the disciplinary procedures as defined by the employment contract (The South African labour Guide, 2020).

It is important to note that the above-mentioned regulations only apply to those employed by an organisation or the state, but all professionals are also bound by a different set of guidelines usually determined by the regulatory body for that specific profession. It is a prerequisite that certain health professionals be registered with the Health Professions Council of South Africa (HPCSA)[2]. Surgeons are required to belong to the HPCSA and must abide by their guidelines.

[2] Pharmacists and nurses fall under their own councils

The HPCSA was established in 1974 under the Health Professions Act No. 56 of 1974. Its purpose is to guide the health professionals by acting as a regulatory board and in so doing, protect the public. "The HPCSA is responsible for ensuring that healthcare practitioners are fit to practice their profession free from any physical or mental impairment" (HPCSA website). This applies to those employed by a third party as well as those who are self-employed and in private practice. The majority of surgeons, approximately 60%, are self-employed in the private sector (Dell, 2018). This implies that the vast majority of surgeons are free to retire when they like and their competence is not under scrutiny in terms of the requirements of the Labour Relations Act. The only protection for patients of these surgeons against potential harm due to the incompetence of an elderly surgeon is that which is provided for in the guidelines of the HPCSA. As I will show, this protection is inadequate.

The HPCSA has a Continuing Professional Development (CPD) programme requiring practitioners to accumulate Continuing Education Units (CEUs) per twelve-month period. This training embraces aspects of ethics, human rights and medical law. Mandatory random audits are conducted to ensure compliancy. Once a practitioner's name has been selected, he/she is required to submit a CPD portfolio to the Council within 21 days. Non-compliant practitioners will be given six months in order to comply. After the period of 6 months a practitioner will again be audited and if he/she is still non-compliant, the Professional Board will consider appropriate action. Practitioners are only required to submit their CPD portfolios when their names are drawn from a random sample audit (HPCSA website). The aim of this programme is to encourage health professions to keep up to date with developments in their field and to maintain the appropriate level of competence (SAMA website).

This attempt at ensuring competence has many lacunas, making it possible for surgeons who are no longer competent to continue to practice. Firstly, not all practitioners are selected to complete the audit. A surgeon might not be selected for many years. And even if they are selected and found to be non-compliant in terms of their required CPD points, they have a long time (6 months) in order to get the necessary points. During this time they will continue to practice, potentially at a risk to their patients. Secondly, CPD points can be attained fairly easily by attending webinars or seminars which might bear no relevance to the scope of practice of the surgeon. Although the aim is to keep practitioners up to date with new

knowledge, skills and current trends, in reality the points can be attained by paying attention to irrelevant information. I believe that the CPD requirements are insufficient for both ensuring continuous competence throughout a surgeons career as well as for insuring competence in older surgeons. CPD events won't identify, for example, loss of cognitive function, impaired eye-sight, or loss of manual dexterity.

A further strategy in which the HPCSA attempts to ensure competence is through its Health Committee. In order to manage impaired practitioners, the non-punitive Health Committee advises those who "suffer from a mental or physical condition, or the abuse of or dependence on chemical substances, which affects the competence, attitude, judgment or performance of a person registered in terms of the Health Professions Act, (Act 56 of 1974) section 51". This committee relies on self-evaluation by the practitioners, peer reporting by colleagues and at times, grievances and complaints lodged by patients. Based on such feedback, the HPCSA has the power to suspend the practitioner until the matter has been investigated and resolved, which occasionally requires the intervention of the courts. Whilst under suspension, the practitioner may not continue to practice (HPCSA website).

While these methods attempt to ensure competence, they are insufficient in their endeavour, highlighting the need for stringent, relevant and clear mandatory competency testing for surgeons who wish to practice beyond the age of 65. Bluntly put, competence is crucial for any surgeon, but so too is knowing when to retire. The HPCSA's suggestion that the practitioner should continually self-evaluate his/her skills to determine when he/she is unfit to practice and when to retire remains highly contentious. A self-evaluation of skills is considered a reliable measure of the practitioner's capabilities, allowing surgeons to retire when they believe that they are no longer fit to operate. The mere fact that the Dr Beale incident, and similar incidents occurred is evidence that this is insufficient.

There are many reasons why self-reporting does not work well. So too are there a plethora of reasons why doctors are reluctant to report on their colleagues. I will discuss these reasons in Chapter 4. The void in current legislation and the freedom given to surgeons in terms of retirement does create an ethical problem.

The issue of mandatory retirement and competency testing has been a global topic of debate for some time and has received much attention from various authors. In

the United Kingdom, surgeons must stop performing surgery in the Public Health Service at age 65. And, at age 70 a surgeon must retire from private practice, ending his or her surgical career. The same applies in India. This too is similar to Canada and Ireland where 65 is the imposed retirement age. In China and Russia, male doctors should retire at 60 and females at 55 (Bhatt, Morris et al, 2015). In these countries the mandatory retirement age at least protects the patients. In South Africa, patients are left in danger and unprotected, which is an ethical problem.

There remain discrepancies across the globe on the issue of competency testing. According to Bhat, Morris et al. (2015), in 2012 the UK introduced a compulsory 5-yearly revalidation in order to hold a licence to practise (Federation of Surgical Specialty Associations, 2014). So too, in the USA there has been increased screening of older doctors in individual healthcare associations. In 2012, Stanford University Medical Centre introduced compulsory 2-yearly physical examination, cognitive screening and peer assessment of clinical performance for all physicians aged 75 years. "Age 75 years was chosen owing to the well documented increase in the incidence of Alzheimer's disease from that point" (Bhatt, Morris et al, 2015). The University of Virginia also has intermittent assessment of doctors after 70 years of age. The Aging Surgeon Programme was introduced at Sinai Hospital of Baltimore in 2014. It is a 2-day confidential evaluation of the physical and cognitive functions of surgeons. A 2–3-yearly evaluation (depending on the hospital's reaccreditation cycle) for all surgeons aged 70 years or more is suggested. However, "poor performance at any of these tests does not result in dismissal of the surgeon. The matter is initially discussed between the surgeon and their hospital, at which stage the decision to retire would still be with the surgeon, unless there has been gross negligence. This requires substantial insight on the part of the surgeon" (Bhatt, Morris et al, 2015). These competency regulations again demonstrate the protection of patients by countries other than South Africa, expanding on the ethical problem at hand.

The potential risks presented by 'older', less competent surgeons, have significant implications when it comes to safeguarding patient care and upholding the principal of non-maleficence. This said, it is true that there are many elderly surgeons who are brilliant and the ethical dilemma here is concerned with keeping good elderly surgeons in practice and filtering those who are no longer competent yet unwilling to retire. However, the current legislation creates opportunities for no longer competent elderly

surgeons to keep practising. It is crucial that a solution to this ethical problem be found in order to protect the public.

Chapter 3: Argument by analogy: Pilots

While surgeons have relative leniency in terms of their retirement age, this privilege of determining oneself fit or unfit to work is unlike that of numerous other professions. Pilots, for example, are on the opposite end of the continuum in terms of the regulations imposed. Despite certain similarities in terms of their risks and responsibilities, surgeons and pilots are managed very differently with regards their retirement and competency. Pilots are strictly regulated; some say that they are over-regulated (Zimmerman, 2012).

If it is ethically justifiable to subject pilots to stringent retirement and competency regulation, it is reasonable to claim that surgeons can also justifiably be subjected to similar regulation, albeit somewhat less stringent. In the coming paragraphs I will show the similarities of these two professions in terms of the high risks involved, and unpack the differences with regard to the regulations imposed.

The Basic Conditions of Employment Act does not prescribe an age at which any employee must retire. Pilots too are therefore regulated by a governing body. The South African Civil Aviation Authority (SACAA or CAA) is the South African "national aviation authority overseeing civil aviation and governing investigations of aviation accidents and incidents". According to the regulations enforced by SACAA, pilots must meet certain medical standards, competence standards and retirement deadlines. Regular retesting is essential to assure retention of a safe level of skills. A pilot aged 60 or older may not be the first in command of the aircraft, and, at least, either the pilot or co-pilot must be under age 60. All pilots must retire at age 65 (SACAA website). These regulations are in place in order to protect the public.

Additional complexities arise when South African pilots fly into international air space. For example, when flying into American air space, the South African pilots need to meet the requirements of American regulation standards (FAA website). While there is an International Civil Aviation Organisation, a specialised agency of the United Nations, each country in the world adopts its own fairly unique set of rules (ICAO website). The common purpose of these regulations is to do what is necessary to protect the public from incompetent pilots which could result in accidents, causing harm and death to many people.

According to the Guide for Aviation Medical Examiners (DAMES guide), “Flying is a highly skilled job that involves a complex interaction between the aviator and the machine in an environment that is full of stressors.” Although the flying machine may fail occasionally, more than 70% of the time it is the human component that is the cause of aviation accidents. The aircraft environment differs from other occupational environments with respect to altitude stressors such as: hypoxia, noise and vibration, low humidity leading to dehydration, fatigue, decompression syndrome, acceleration and spatial disorientation. Because of these stressors, the aircrew are required to maintain a high level of physical and mental fitness, and are legally required to assess their medical fitness in order to carry out their professional duties. (DAMES guide)

The International Civil Aviation Organisation sets the maximum retirement age for pilots at 65, which the SACAA has adopted. The reasons given for this age limit relate to the mental strain and physical drain of the profession (ICAO website). Typically, the mandatory retirement age for airline pilots is justified by the reality that this profession requires high levels of skill and composure, and embraces an element of potential life threatening scenarios. Pilots have the responsibility of maintaining a high level of skill in order to safely transport themselves and their passengers (DAMES guide). One mistake can result in a catastrophe. An error by a pilot can cause harm and death to many people in one single incident. The risks and responsibilities are high, mitigating the stringent regulations.

Similarly, the high level of skill demanded by surgeons is evident. “Surgeons need a blend of skills and personal qualities which include: a high degree of manual dexterity, good hand-eye co-ordination, excellent vision and visuo-spatial awareness” (NHS website). Consider severing blood vessels, cutting out tumours or stitching wounds. A surgeon requires exceptional coordination, dexterity, attention to detail and a very steady hand under pressure. One mistake could be life threatening for that one patient. However, an incompetent surgeon can cause harm and death to many patients over a period of time.

Surgeons are often in theatre for very long hours; this requires intense focus and concentration. A common and extremely long surgery is spinal cord surgery which can take more than 10 hours (Rovit, 2004). Many other procedures regularly take more than five or six hours to complete. These long surgeries require physical stamina

to stand and work as well as mental stamina to be able to stay focused throughout and avoid making fatal errors.

Effective and quick problem solving is essential when plans in theatre do not go as intended. Surgeons need to be decisive and confident in their own surgical ability. They need to be able to take charge and make smart decisions and astute choices under pressure. Hesitation can put lives at serious risk. Surgeons must maintain a calm temperament and communicate clearly to their team (Crebbin, 2013), in order to ensure the most favourable outcome for the patient.

The onus and responsibility of a surgeon to maintain a high level of skill and minimise potential risk can be compared to that of a pilot. Irrespective of whether the surgeon is competent or not, the high risk scenario to which they, like pilots, are exposed can result in life threatening consequences.

The similarities in terms of risks and responsibilities of pilots and surgeons are clear. Both pilots and surgeons have people's lives in their hands, yet the difference in regulation of these two professions, at the very least, highlights the need for some kind of intervention regarding surgeons. It is ethically concerning that the public is placed at risk as a result of possible incompetent surgeons free to operate until they themselves acknowledge when it is time to retire. Protecting patients from unsafe surgeons is of significant interest to the public which is why the current regulations must be reviewed and adjusted.

Chapter 4: Why self-evaluation is insufficient

As a mechanism for protecting patients from possible harms caused by incompetent, elderly surgeons who continue to practice, self-evaluation as a measure of skills is insufficient. I argue here that too many opportunities exist for surgeons who are no longer competent to delay retirement.

Self-evaluation is the process in which a person continues to monitor his/her strengths, capabilities and attitudes in order to determine how much growth or progress he/she has made. This skill of self-diagnosis is necessary for all professionals in order to determine and develop any abilities and skills which may require attention and upskilling. The HPCSA guidelines for surgeons currently require surgeons to practice self-evaluation in order determine whether they are fit to practise (HPCSA website). However convenient self-evaluation is, it does not solve the key problem and reality that many elderly surgeons continue to practice despite their loss of competence.

In this section, I will argue that the self-evaluation of skill as the determining factor of competence, and ultimately retirement, is unethical and poses potential risk to the patient. In a perfect world even the most honest people will be somewhat subjective and biased when asked to self-evaluate, especially when the implications to the self are defining. A few authors have sought to establish the reasons why some surgeons choose to delay retirement despite the reality that they may be aware of the dire consequences for their patients and themselves.

The following three reasons as to why surgeons delay retirement, suggested by Rovit (2004), show that self-evaluation is an inaccurate determinant of competence and therefore creates an ethical problem. Firstly, Rovit proposes that a surgeon's own sense of value lies in his/her ability to perform surgeries. If the surgeon stops performing surgeries, he/she runs the risk of devaluing him/herself and his/her ability to operate and practice. According to Rovit, many surgeons display an external persona of being confident, but this is mostly a show for patients and family members. In reality, Rovit (2004) believes that surgeons are often introspective and self-critical, albeit inaccurately so. Whilst this may be a generalisation and not necessarily true of all surgeons, it could be a relevant explanation as to why some surgeons delay retirement. Ultimately, surgeons are poor at evaluating their skills realistically because their self-worth is so closely tied to their belief in their own competence. The

implications of this lack of insight, coupled with other factors, make this is an ethical problem.

The second reason which Rovit (2004) proposes as a factor delaying surgeons' retirement is the surgeons fear of illness and their own impending death which makes them reluctant to realistically assess their competence. "When a surgeon stops doing surgery, he or she becomes more like a patient, susceptible to death and disease" (Rovit, 2004). This fear is exacerbated around the time when physical and cognitive abilities decline. The decision to retire might mean that death is what follows this decision. "So, the decision to retire resembles the decision to die" (Rovit, 2004). Avoiding this decision would be another reason why some surgeons delay retirement.

Thirdly, the resistance to change is another reason which Rovit (2004) proposes could delay retirement. Life of a retiree is undeniably different to that of a surgeon. How frightening it must be "to embark on such a large change not knowing if one can tolerate the new circumstances and knowing that the decision to retire is, for all practical purposes, irrevocable" (Rovit, 2004). A surgeon's resistance to change makes their self-evaluation poor. Poor self-evaluation leads to delayed retirement, which is an ethical problem as it put patients at risk of harm and possibly even death.

Conn & Wright (2018) conducted a qualitative study to "explore the drivers of and barriers to surgeon retirement". A key finding was that logistical barriers often prevent surgeons from slowing down their practice in their preferred manner. "Most surgeons wish to establish retirement plans that allow for the gradual reduction of surgical patient care and the creation of job opportunities for younger colleagues balanced by a continued contribution to the profession" (Conn & Wright, 2018). Many surgeons are "challenged to implement plans to reduce their practices and scale back their call schedules but still have sufficient access to elective operating room time to maintain their skills and generate income" (Conn & Wright, 2018). In reality, the common experience described by the surgeons was an all-or-none phenomenon. This may contribute to the delayed initiation of retirement. Retirement would be irrevocable for themselves, their surgical partners and their own practices.

In a study by Silver & Hamilton et al. (2016), the reasons for surgeons delaying retirement included "being satisfied with their career, institutional flexibility, a feeling of responsibility for their patients, a desire to be healthy and keep being active, financial

reasons, and a lack of interests outside of medicine". Institutional flexibility in particular was a positive influence on work satisfaction since they were provided with "reasonable access to sabbaticals, flexible working hours, and control over their job and career development" (Silver et al, 2016). This again highlights the ethical problem of relying on self-evaluation of skill to determine competence.

Retirement concerns in a study by Austrom et al. (2003) also stemmed from personal issues such as "a fear of potential changes in the relationship with their spouse following retirement." However, these surgeons reported high levels of life satisfaction following retirement. The level of life satisfaction was directly proportionate to the time since retirement.

However, despite the viability of numerous theories around delayed surgeon retirement, concern for financial security is probably the most discussed reason for surgeons delaying retirement. In Conn & Wright's (2005) study, those "who had experienced financial setbacks through divorce or illness felt the need to work longer to catch up financially to maintain their lifestyle, however modest it may be". Financial security, it appears, could be the major factor in the decision on whether a surgeon will retire or continue working. When a surgeon's concern for financial security supersedes his/her concern with their own level of skill, there is an ethical problem.

An overview of the above influences and the consequences of retirement gives insight into why surgeons do poorly when it comes to accurate self-evaluation of their competency. The implications and consequences of their self-evaluations are likely to limit and blur their ability to recognise when it is appropriate to retire since such a decision has so many wide-ranging personal, professional and system-level effects. On a personal level, the fear of losing self-respect and value contributes to the delay in retirement for some surgeons. For others, the fear of death and illness, or the fear of change alone, results in a delayed retirement. On a professional level, institutional flexibility, access to sabbaticals, financial rewards, and job satisfaction would all influence the decision to retire. System level effects such as the responsibility to their patients causes some surgeons to delay their retirement. This is especially true in the South African context where there is a shortage of surgeons. Retirement from surgery is both a deeply personal matter, as well as a public matter. The subjectivity of this decision should not be underestimated.

The HPCSA suggest that surgeons request peer evaluation in order to assist them with the task of self-evaluation (HPCSA website). This suggestion of peer evaluation is equally unsuitable because “knowledge, experience and reputation can compensate for a long time in the face of declining technical skill and cognitive resources” (Blasier, 2009). And, by the time peers comment on a colleague’s competency, “it is likely to have been already lost” (Conn & Wright, 2018). Doctors are reluctant to report on colleagues and, as such, this method of determining competence is flawed and does not protect patients from possible harms caused by no longer competent, elderly surgeons who choose to delay retirement.

The welfare of the patient should always surpass the best interest of the surgeon. It is therefore ethically concerning to rely on a surgeon’s self-evaluation of his/her competency as a determinant for retirement. A peer evaluation too would be of ethical concern since peers may also feel loathe to provide a negative evaluation for fear of a potential backlash from the criticised surgeon and fellow colleague. Furthermore, a peer evaluation is merely a subjective analysis and may therefore lack credibility. Clearly, the guidelines prescribed by the HPCSA in this regard are not protecting the public. Too many opportunities for dangerously delayed retirement exist when surgeons are free to retire at their own discretion. This puts the public in jeopardy.

In the following sections I will discuss various alternatives. I will argue that mandatory retirement is not the answer, but rather mandatory annual competency testing should take place for surgeons who wish to practise beyond the age of 65.

Chapter 5: Why mandatory retirement is not the answer

Mandatory retirement is not the best means of protecting patients. There are strong arguments both in favour of and against the implementation of mandatory retirement of surgeons. I argue here that a deeper understanding of these arguments show clearly that the alternative, competency testing of surgeons aged 65 and older, will ultimately result in an ideal scenario.

Some authors take the position that there should be an absolute cut-off age for retirement. In a study by Babu (2018), numerous retired surgeons were interviewed in an attempt to understand their experience of 'taking the step' to retirement. Dr George F. Rapp retired at age 65 and stated "I wanted to quit before someone told me I ought to quit and I thought I was competent enough to the end" (Babu, 2018). In a similar case, Dr Douglas A. Garland retired at age 70 and shared his thoughts on retirement of colleagues in general, "You just know there is no fire in the belly. You just know they are going through the motions and they maybe like making money and they just do not want to give it up. I think when that happens, then the group has an obligation to do what we did with one of our senior partners. We helped show him the door, but we did it in a gentleman-like way" (Babu, 2018). Dr Kerry D. Olsen added, "Many surgeons have their entire identity and waking hours almost completely consumed by their practice. Some can just walk away, but stopping too early or too late or making a decision based on ill planning can be highly detrimental to both the patient and the surgeon" (Babu, 2018). Having a mandatory retirement age in place would make these sorts of decisions easier. When an absolute cut-off is in place, the decision is taken out of the hands of the surgeon. This actually makes retirement planning easier because the point at which the surgeon stops working and stops earning is clear. Surgeons can mentally prepare for the transition. Their financial plans will be clear from the start of their careers. There will be no grey areas. At first glance this logic makes sense to some extent, however on deeper thought, it is unfair and can lead to a grave scarcity of surgeons. Arguing that surgeons should be subjected to a mandatory retirement age misses a number of credible points which counter this notion as indicated in the following arguments.

A mandatory retirement age takes many competent surgeons out of practice, leaving a shortage of skilled surgeons (Palmer, 2019). South Africa has a shortage of doctors

and nurses, according to health minister Dr Zweli Mkhize. In reality, there is a global shortage of healthcare professionals and this is mostly the result for an increased demand for healthcare (Duncan, 2019). People are living longer and older people generally require medical assistance, more so than younger people (US National Research Council website). Creating a pool of new healthcare professionals takes time and money, and as such the demand grows faster than the supply (Duncan, 2019). According to Duncan (2019), “This is a long-term problem that requires a concerted, global effort to increase supply. It is not a uniquely South African issue.” Enforcing a mandatory retirement age on surgeons will amplify the shortage of surgeons in South Africa specifically.

Another potential issue with mandatory retirement is that it does not consider the unique impact that social and genetic differences play in the aging process of individuals. Those surgeons who are competent at age 65, perhaps because they have consciously made an effort to look after their own health and well-being, should not be unfairly made to stop working because other colleagues are no longer fit. “Until there is conclusive proof that increasing age correlates with a decline in performance and becomes a risk factor for poor outcomes, retirement of surgeons should be a choice and not an age-related imposition” (Buccimazza, 2016). The journey to becoming a good surgeon is a lifelong process. Intelligence, professionalism, conscientiousness, creativity, courage, and perseverance are critical factors of a good surgeon, and they should outweigh the negligible differences in dexterity found among their younger colleagues and aspirant medical students.

Across the world there are many surgeons in their 70’s, 80’s and even 90’s who have retained their skills and mental acuity and who have made huge contributions in their field, clearly indicating that there are many elderly surgeons who are highly lucid and competent. It would be a travesty if these surgeons were removed from their profession as a result of a policy invoking mandatory retirement. In 2009, the U.S. Army Reserves called up a 70 year old surgeon to Iraq. Col. Hector Henry reported a strong sense of obligation to his work, saying "I am the grandfather here for these soldiers” (Rose, 2009). In India, a well renowned 80 year old Dr Aeron Yogi works as a plastic surgeon. The local and government hospitals in the area redirect the most complicated cases to be under his expertise (Khandelwal, 2017). An Australian surgeon, Dr Catherine Hamlin, worked in Ethiopia for over 50 years. She helped

develop reconstructive surgery techniques to treat tens of thousands of women in Ethiopia with a condition called obstetric fistula, operating well into her 90's[3] (Ciardullo, 2015). These are just a few examples, of the many competent elderly surgeons saving lives across the globe. Mandatory retirement would take these competent surgeons out of practice which would be unethical considering the global shortage of surgeons.

While there certainly are competent elderly surgeons, so too are there elderly surgeons who are no longer competent. The status quo of leaving surgeons to retire at their own discretion brings valid ethical concerns as discussed above. Considering the struggle that many surgeons experience when having to decide when to retire, along with the shortage of surgeons in the world and strong evidence of competent elderly surgeons, a unique solution is necessary. An alternative to mandatory retirement, annual mandatory competency testing of elderly surgeons is the logical answer. Competency testing for surgeons wishing to operate beyond the age of 65 is a viable solution.

[3] Dr Hamlin passed away on 18 March 2020 at 96 years of age.

Chapter 6: Why competency testing is the answer

Mandatory competency testing for surgeons over a certain age is, all things considered, the best way to protect patients from possible harms caused by no longer competent, elderly surgeons continuing to practice.

Competency tests are viewed as valid and reliable assessment tools for establishing whether a person has the required knowledge and skills to successfully perform a designated job (Athanasou, 2008). For most occupations, competency tests are conducted after training and before a person begins a career. By assessing the critical functions of the occupations, the individual can then enter the field with confidence. From the outset, therefore, competent and aspirant surgeons who are fresh from medical school can be viewed with trust and confidence by colleagues and patients.

In order to become a member of the HPCSA and register to practise, surgeons must present their qualification and pass the relevant board exam, this is an assessment of the competence required in their speciality. This will ensure that they possess the required abilities and qualities to perform effectively in their scope of practice, while adhering to ethical standards. Once registered, it is presumed that the surgeon will remain competent throughout his/her career (Saravia, 2017).

This unfortunately, is not always necessarily the case and, irrespective of their age, there are typical scenarios which should raise red flags and indicate that certain surgeons could be incompetent. Most of these cases are brought to the attention of the HPCSA by a colleague or disgruntled patient. Any surgeon displaying inferior skills or deficiencies in knowledge would give rise to serious consternation, and questions regarding the practitioner's ability to meet specialised standards would have to be asked.

It is important to note that "error alone cannot be used to determine incompetence, because all surgeons err occasionally" (Trunkey, 2001). An error could be a failure of the treatment system and not necessarily the result of a single person (Trunkey, 2001).

Assessing competence effectively requires a thorough process. According to Thomas (2006), "there are four basic aims and objectives underpinning surgical education and competence: (i) a sound knowledge base; (ii) good communication skills; (iii) proficient

technical skills; and (iv) excellent clinical judgement." Competency testing should effectively assess all of these components.

Firstly, a sound knowledge base is obviously key to competency. Knowledge is learned both through studies and experience. That which is studied is generally applied in practice and so the knowledge grows. If we consider the elderly surgeon, Blasier (2008) believes that we can determine the remoteness of a surgeon's education by subtracting 31 from their current age. 31 was the typical age at which surgeons qualified as specialists at the time when most elderly surgeons attended medical school. The content of education just 25 years ago differs to that which is taught today. If we consider orthopaedic surgery as an example, almost all treatment methods have been abandoned and replaced. "Twenty-five years ago, all fractures of the femoral shaft were treated by 6 weeks in the hospital in traction followed by at least another 6 weeks in a plaster cast. Twenty years ago, there was a brief period when fractures of the shaft of the femur were treated with plate fixation. Now, almost all femoral shaft fractures are treated with locked intramedullary nailing", (Blasier, 2008).

Based on this reasoning, it can be argued that an orthopaedic surgeon who is now 56 years old would be oblivious to current techniques being taught at contemporary medical school (Blasier, 2008). These doctors will need to learn these updated techniques outside of their formal education if they are to stay abreast in their field. Treatment methods in all surgical specialities have changed dramatically with time and so all surgeons would need to engage in life-long learning in order to remain competent (Blasier, 2008). This component of competency is fairly easy to assess since it simply involves the knowledge and understanding of the latest treatment methods.

A second criteria of competency assessment that needs to be evaluated is the ability of a surgeon to communicate effectively since all surgeons at some time lead a team of medical professionals in theatre (Sfantou, D.F. et al, 2017). The surgeon must be able to relate to the members of the team so that information is conveyed clearly and each person can effectively do their part. Team skills and leadership are vital. The surgeon must also communicate effectively with the patient. According to Ojuka et al. (2018), "60% of serious adverse events [in theatre] are caused by the lack of physician-patient communication." Communication must be clear, understandable, culturally sensitive, contextually relevant and patient-centred. According to

Longnecker (2010), “doctor-patient communication has evolved over time, from that of paternalistic, to a collaboration that is more patient-centred.” He adds that any form of “authoritarian style of communication leads to increased medical errors” (Longnecker, 2010).

There are many publications which recognise leadership styles as being a key element for quality of healthcare. Leadership styles play an integral role in enhancing quality measures in health care and have an impact on health-related outcomes. According to Sfantou (2017), “transformational (team-oriented) leadership style is characterized by creating relationships and motivation among staff members. Transformational leaders typically have the ability to inspire confidence, staff respect and they communicate loyalty through a shared vision, resulting in increased productivity, strengthened employee morale, and job satisfaction.” In a study by Hu (2017), surgeon’s leadership styles and team behaviour in the operating room was analysed. The outcomes concluded that “teams led by transformational surgeons demonstrate a statistically significant increase in information sharing and voice behaviours, which may improve both safety and efficiency in the operating room” (Hu, 2017).

In order to assess this component of competency, the Surgical Leadership Inventory (SLI) may be used. “The SLI is a taxonomy of surgeons' intraoperative leadership skills based on 1) the surgical and psychological literature about leadership, 2) observations of surgeons, and 3) Operation room focus groups queried about intraoperative leadership behaviours. Only behaviours expected to impact patient safety and team performance are included. The SLI has eight domains: communicating, coping with pressure, maintaining standards, decision making, managing resources, directing, training, and supporting others” (Hu et al., 2015).

Thirdly, proficient technical skills “make up 75% of a skilfully performed operation” (Spencer, 1978). Over 500 years ago Thomas Morstede stated that surgeons should “be dextrous, have steady untrembling hands, and clear sight.” Surgeons need to have the technical skill to safely put into practice the knowledge they have acquired while at medical school. The psychomotor domain or ‘a good pair of hands’ are vital to the competence of surgeons, yet it is the most difficult component to objectively assess. Technical performance can be influenced by adverse environmental conditions, such as sleep deprivation, and distractions, such as noise in the operating

theatre. The use of virtual reality simulators cannot possibly create a realistic environment since there are so many variables which influence the surgeon (Memon, 2010). The most objective assessment of technical skills would be to video analyse the surgeon after a real surgery. This would be the most feasible, valid, and reliable method of objective assessment.

A fourth criteria, excellent clinical judgement, is also an important component of competence. While "surgical decision-making is a semi-exact scientific process, and it is unreasonable to expect exact answers to clinical problems", we would expect some consistency between surgeons (Rutkow, 1979). Therapeutic decisions differ from surgeon to surgeon and even individual physicians alter their decisions over time, especially for common elective procedures. A competent surgeon requires the ability to manage the unexpected. According to Clarke (1989), "the surgeon determines whether the characteristics of the patient match those of the typical patient with the condition. If so, the standard solution is recommended. If not, the surgeon concentrates on assessing or revising the specific probabilities or utilities that are different." In a study by Wilson et al. (2013), the determinants of surgical decision making are investigated. Wilson believes that since the turn of the century there has been a wide variation in the way that medicine and surgery are practiced. This particular study concludes that "surgical specialisation based on the number of cases performed is associated with less frequent recommendations to operate and could provide an argument to concentrate surgeries in the hands of surgeons who perform mainly those surgeries in an effort to reduce unnecessary variation" (Wilson et al., 2013). This study did not find that "financial incentives, fee-for-service practices, or malpractice fears influence the decision to operate" (Wilson et al., 2013).

Clinical decision making involves two distinct types of mental process best considered as the ends of a continuum, ranging from intuitive and subconscious to analytical and conscious. Crebbin (2013) describes how a surgeon's use of these functions change as they gain experience. "At one end of this continuum, there is a subconscious, intuitive, automatic type of decision making based on pattern recognition, which is continuously matched to the clinical or operative context. With increasing experience and ability to recognize patterns that are familiar, this approach is fast, frugal and consumes little mental energy. At the other end of the spectrum, there is a conscious, analytical, logical and deductive approach, which tends to be slower, thoughtful and

which consumes a large proportion of one's mental capacity. Doctors may move along this continuum a number of times during any clinical decision making process. Inexperienced clinicians rely most heavily on an analytical and deductive approach because of their limited previous experience." Experienced surgeons are not always good at articulating their exact steps in the decision making process, since much of it is subconscious, which makes clinical decision making difficult to assess. Crebbin (2013) believes that self-assessment is the 'glue' that holds all other cognitive processes together.

A surgeon who lacks insight into his/her own level of ability is problematic. Crebbin's study indicates that when surgeons reflect poor self-assessment, "they don't know that they don't know; they are ignorant of their ignorance, so their decision making is error-prone" (Crebbin, 2013). He added that "this lack of insight into the limits of their own ability poses a significant risk to the patient, predisposes to poor operative judgement and results in delayed acceptance of variance. That leads to poor patient outcomes" (Crebbin, 2013).

A close analysis of these four components illustrates clearly that the elderly surgeon who does not practise insight and monitor his/her own abilities, is likely to be incompetent. Surgeons who expect to face competency tests could be more likely to be purposeful about staying abreast in their field, working on their communication skills, improving their technical skills and continually self-assessing their clinical decision making.

The medical profession has been wary about competency assessment. However, the assessment of surgical competency is becoming more and more important. It should be a professional priority. Thomas (2006) believes that "if operative competency could be accurately measured, it may well be delineated by a normal distribution bell curve. On the far left would be the mavericks and on the far right would be the surgical geniuses" (Thomas, 2006). Thomas adds that "the aim of good, sound, competency assessment should be to eradicate the mavericks, to emulate the geniuses and thus move the whole bell curve to the right by the spreading of good practice." The medical profession should see competency testing as a tool for improving surgical standards and providing evidence of good practice.

I have illustrated in the above description that competency testing would proactively remove no longer competent elderly surgeons from practice and keep competent elderly surgeons in practice and free of scrutiny. I have shown that competency testing will motivate and ensure that surgeons who wish to remain in practice, continually and purposefully exercise insight into their own competence and engage in life-long learning. This is therefore the most viable solution to the ethical problem presented.

Chapter 7: Why 65 is an appropriate age for starting competence testing

The arguments presented show that mandatory retirement is not an effective solution pertaining to elderly surgeons, but that mandatory competency testing is preferable and viable. In this section, I will argue that 65 is an appropriate age at which mandatory annual competency testing should take place.

It is a harsh fact that health declines with age. Anyone, who is lucky enough to live a long life, will experience the unfortunate ageing process. This is a natural progression of life's course. The aging process will inevitably affect surgical skills and judgement at some point. Although people experience the effects of aging at different times, the touted average age when physical and cognitive skills appear to decline seems to be post age 65 (Appold, 2018). I therefore argue that 65 is an appropriate age for competency testing to take place.

Dr Jamie S. Ullman, professor of neurosurgery and director of neurotrauma, is not in favour of mandatory retirement but agrees that age is a concern. "Age is a consideration in terms of how well a surgeon functions, and we know that, over time, there is some decline in skills. However, at the same time, I know a lot of surgeons who are operating well into their 70s and are doing just fine. It is all based upon the individual" (Ullman, 2018). The competency testing process will allow these surgeons to continue to operate free of scrutiny.

There are many authors who believe that cognitive change is a normal process of aging and that "abilities, such as conceptual reasoning, memory, and processing speed, decline gradually over time" (Harada et al. 2013). "Vision, hearing, motion, and dexterity are physical attributes of a surgeon that inevitably decline with age" (Greenfield, 1999).

The decline, both physically and cognitively, occurs fairly rapidly in some individuals and very slowly for others. Year on year the decline is evident in some people yet others appear to show no signs of decline (Harada et al., 2013). According to Salthouse (2003), the average trajectory of cognitive ability over the last three to four decades of life is said to be one of accelerating decline. In their study "a substantial minority of older adults experience a faster decline" which is seen in cross-sectional cohort comparisons and averages of longitudinal trajectories. This research confirms that there are definitely individual differences in the rate at which the decline takes

place. There are numerous lifestyle factors which could play a role and affect the way people experience aging. Extraneous stress and availability of occupational health support are two factors identified by Felice (2016) as being a cause of the large variation in the way that individuals experience the aging process.

The relationship between age and performance is complex. “Stamina, cognition, and fine-motor skills decrease with age, but not uniformly across populations, and some learned tasks and physical memory are remarkably preserved over time” (Blasier, 2009). Neuropsychological testing indicates that there is evidence of “decreases in cognitive processing efficiency as well as skills related to attention span, reaction time, and visual learning with age, as well as a decline in memory, particularly recall” (Drag, et.al. 2010). However, in this same study, “most practicing surgeons older than age 60 performed comparably to younger colleagues in all areas of cognitive testing”. The decline was evident only after age 65. Another study, by Schaie (1994) showed that although cognitive decline was certainly present, “the cognitive functions required by surgeons, such as verbal ability, spatial orientation and inductive reasoning (the ability to develop novel concepts or relationships) are remarkably preserved over time, and well beyond the age of 70 years.” This, again, highlights the individual differences in which people experience the aging process and how important it is to keep competent surgeons in practice while filtering out those who are no longer competent.

As discussed in chapter 3, it is undeniable that the skills required of a surgeon are complex and of an exceptionally high level. Irrespective of whether the surgeon is competent or not, the outcomes of a surgeon’s work can result in the potential for loss of life. A surgeon must be competent to minimise risk and fulfil responsibility to the patient.

An important point to consider is that experience can often supersede skill. An experienced surgeon may have seen many patients with a certain diagnosis and will know, from experience, what to expect from surgical outcomes (Blasier, 2008). The novice surgeon will have to rely on theory as a frame of reference. The experienced surgeon will be far better equipped to more readily recognise and effectively treat the problem, since theory and practice don’t always coincide (Blasier, 2008). Assessing competence is extremely complex and must take place at the right time and in the right way in order to be effective.

Newhouse et al. (2017) conducted a study to investigate whether outcomes of patients who were admitted to hospital showed a difference between those treated by younger surgeons as opposed to those treated by older physicians. The study concluded that "within the same hospital, patients treated by older physicians had higher mortality than patients cared for by younger physicians, except those physicians treating high volumes of patients" (Newhouse et al., 2017). Although experienced physicians accumulate knowledge and clinical skills which can lead to improved quality of care, physicians' skills can become outdated as scientific knowledge, technology, and clinical guidelines change. The researchers added that "older physicians might have decreased clinical knowledge, adhere less often to standards of appropriate treatment, and perform worse on process measures of quality with respect to diagnosis, screening, and preventive care" (Newhouse et al., 2017). In this study, "physician age was defined as the age on the date of admission of patients. Physician age was modelled both as a continuous linear variable and as a categorical variable (in categories of <40, 40-49, 50-59, and ≥60) to allow for a potential non-linear relation with patient outcomes" (Newhouse et al., 2017). A linear spline model was also used. The results showed the increase in mortality of patients at the physician age of 60. Technically speaking, surgeons are physicians and hence this study is relevant.

"The link between advancing age and deteriorating health may lead to increased medical errors, putting patient health at risk" (Loboprahbu, 2009). Ultimately, it is the patients' interests which should be the priority of the system. "A surgeon may lose skills and other markers of competence at 60 years, while another may have these perfectly preserved at 70 years" (Buccimazza). Competency testing from age 65 will separate the competent surgeons who wish to continue to operate from the no longer competent surgeons who wish to delay retirement.

It is relevant to note that surgeons caring for their own physical and mental health will also assist in maintaining their competencies (Harada et al., 2013). People, particularly surgeons, are encouraged to engage in self-care, intrapersonal insight, and lifelong learning in a conscious effort to 'stay on top of their game'. Surgeons must maintain their own physical health while also keeping abreast of updated technologies and advancements in medical research. Surgeons should proactively engage in continuous professional development to remain competent.

While age is just a number, and a ‘one-size-fits-all’ rule is never completely fair, the evidence suggests that competency testing should commence at age 65 in order to safeguard quality patient care. Individual differences in the rate at which people experience the aging process suggest that this testing and retesting process should occur annually. Legislating mandatory annual competency testing from the age of 65, and annually thereafter, would be in the best interest of the patient and a solution to the ethical problem presented here.

Chapter 8: Dealing with objections and other alternatives

The relevance of competency testing in general has been criticized for various reasons. The main objections to competency testing are that it only assesses that which is trivial, it is inherently unreliable as it involves inference, it focuses on outcomes and neglects processes, it relies on subjective professional judgement, and it vainly tries to assess attitudes (Athanasou, 2006). An accurately constructed competency assessment will completely dissipate these concerns. By employing the integrated approach to conceptualising competence, these tests will be regarded as a reliable and valid measures.

More so, numerous alternative variables, often overlooked, should also be subject to evaluation. Surgeons, for example, who continue practising well into their 'retirement years', also present challenges and give rise to ethical questions regarding their ability to perform exceptionally. By continuing to practice and avoid retirement, it is possible that these older surgeons may keep younger surgeons unemployed, or at least underemployed. In South Africa this is certainly not the case. In reality, South Africa has for many years had a shortage of surgeons, with a persistent ratio of one doctor per 1000 population, and at the current rate of emigration and 'brain drain', this is not likely to improve any time soon (George & Blaauw et al., 2019). Therefore, in the context of South Africa, allowing competent surgeons to continue to practice, despite their age, would be in the best interests of the community. Utilitarian theorists would advocate in favour of keeping competent surgeons in practice irrespective of their age, and consequently, more competent surgeons in practice will improve the doctor to patient ratio.

Deontologists believe that it is our duty to do what is right irrespective of the consequences. This duty-based nature of the framework, which is informed by the fundamental tenet of human moral worth, that one should always treat others as an end rather than simply a means, would then translate into a duty to not harm by continuing to practice once one is no longer competent. Furthermore, each person should be valued for who they are, and not for what they can do. They argue that a young surgeon and an older surgeon are equally significant. However, since duty-based ethics is not interested in the outcomes, it can lead to courses of action that produce a reduction in the overall happiness of the world.

Irrespective of what the moral theorists believe, all surgeons take the Hippocratic Oath which is a rite of professional passage and makes explicit their ethical responsibilities (Edelstein, 1943). The Hippocratic Oath represents a commitment to medical ethics such as confidentiality and non-maleficence which inform and guide the practice of the medical profession. Crawshaw (2019) indicates that "the act of ending an active practice lacks an explicit moral marker." He suggests "a physician's oath on retirement to address the moral, psychological, social, and cultural responsibilities that a physician assumes when voluntarily relinquishing the responsibilities of active medical practice." In other words, the responsibility of leaving the medical profession timeously is as important as on entering the profession initially. It appears that greater emphasis needs to be placed on highlighting this ethical responsibility.

Another alternative, this time suggested by Olsen (2018), is that "all surgeons older than 60 years should select a younger colleague they trust and ask him or her to honestly assess and inform them if there are concerns raised by staff or others related to their surgical performance or decision making". She believes that irrespective of age, all surgeons should periodically review their outcomes and decisions about surgical intervention and planning. When surgeons near the end of their careers, they should "seek help with retirement planning beyond finances and benefits" (Olsen, 2018).

In an ideal world, this would improve the integrity of a surgeon's self-analysis and retirement decision, however, in reality it is unlikely that all surgeons will embrace this suggestion. The grey areas need to be minimised. Surgeons should certainly periodically review their competence, however, a solution that is absolute needs to be defined and regulated so as to minimise bias and subjectivity. The limits need to be clear: the surgeon is either competent or not competent. And the consequences need to be prescriptive and clear.

A plausible suggestion which completely disregards age as a factor, is to revalidate by means of competence assessment throughout a surgeon's career. In other words, surgeons need to undergo competency testing periodically throughout their careers. This arrangement would ensure that all surgeons continue to renew their skills and knowledge in their area of speciality, sifting and guiding incompetent surgeons as early as possible.

This process may sound flawless and logical, but, in reality its implementation would be time consuming and require resources beyond that which are available. The HPCSA, as the regulatory body for surgeons, is already experiencing challenging times coping with current tasks and responsibilities. The additional responsibilities of an undertaking of this nature is not realistically possible at this stage since “the failure of the HPCSA to perform its functions properly puts the health care of the entire nation at risk”, Doodnath (2016). It is therefore evident that assessing competence of surgeons aged 65 and beyond will be difficult to accomplish, yet a task far more viable if conducted by the HPCSA, as opposed to the competency assessment of all surgeons on a continuous basis.

It is therefore safe to state that a competency test which has been accurately constructed by means of an integrated approach to conceptualising competence will nullify the criticisms and prove to be effective, reliable and valid. This process of assessing the competence of surgeons aged 65 and beyond is an effective solution to the ethical problem of elderly incompetent surgeons choosing to delay retirement.

Chapter 9: Implementation

As discussed in chapter 6, the goal of competence assessment is to determine how well a surgeon carries out his/her work in relation to performance standards. This chapter focuses on the implementation as well as the positive implications of competency testing.

The competency testing process should provide direction and motivation for surgeons wanting to continue practising beyond the age of 65. If there is a gap between the desired performance and the actual performance, the surgeon should be given the opportunity to close this gap and be re-assessed, all the while receiving the relevant assistance, guidance and support required.

From the outset, a team of experts within each speciality would be appointed with the aim of defining the standards to be assessed since the scope of practice within each surgical speciality differs. College regulations will be used as a guideline to formulate the specific criteria to be assessed. An ophthalmologist and a cardiothoracic surgeon, for example, will be assessed on very different criteria. Although both will be assessed on their ability, for example, to work within a multidisciplinary team, provide patient-centred care and employ evidence based practice, their knowledge and technical skills will be vastly different.

The presumed physical and cognitive decline will also need to be assessed. Basic assessment of eyesight, strength, dexterity and reaction time are fairly straightforward to gauge, however, cognitive decline is more complex and not as easy to measure (Blasier, 2009). A further challenge is that cognitive function fluctuates, therefore capacities may not be consistent, which may have implications for how a surgeon is assessed and the trustworthiness of the assessment. It is important to also acknowledge that whilst processing speed and working memory are important, knowledge and experience can compensate for a long time (Felice, 2016).

Any assessment must obviously be accurate in that it must be a valid measure of the surgeon's performance while also measuring that which it is intended to measure. The reproducibility and consistency of the results must display both consistency of ratings by different assessors (inter-rater reliability) as well as from task to task (inter-case reliability). The assessment must have sound predictive value and meet the requirements of psychometric analysis (Mohajan, 2017). Those surgeons who

undergo competence assessment should feel confident that the assessment is fair and a true indicator of their competence. For many surgeons who are obligated to mandatory competency testing, their dignity may be impinged upon. It is vital therefore that the process is clear and professionally managed.

Some suggested methods of assessing competence of technical skills and decision-making involve the use of clinical skills laboratories which are used during the training of surgeons (Abdulmohsen, 2007). These laboratories allow for live animal surgery or cadavers, computer generated simulation or robotic systems. These proposed methods are not always practical or logistically available but should be investigated as possible assessment tools. The advancement of technology will continually improve the replication of realistic surgical environments. The cost of these methods, however, could prove to be too expensive (Abdulmohsen, 2007).

Surgeons who are aware that they will be required to undergo mandatory competency testing from the age of 65 will hopefully engage in life-long learning. The intention is that surgeons of all ages will be self-motivated in their pursuit of knowledge for both personal and professional reasons. This should be voluntary and on-going from the beginning of their careers until the end of their careers. The unintended effects of competency testing would be to induce cramming and superficial learning instead of reflection (Felice, 2016).

Life-long learning for surgeons means that they will continually improve their understanding of diseases and the evolution of diseases, learn about new technologies, establish new benchmarks by implementing and analysing electronic medical records, and staying abreast with developments in their field. Life-long learning ensures patient safety.

Although the process of competency testing involves a collaboration of various role players, the HPCSA will ultimately be responsible for ensuring that these assessments take place. A panel of assessors can be appointed by the HPCSA. The surgeon will need to arrange an assessment during a designated time allocation. The assessment must take place in a feasible, safe and reliable manner. Feedback must be constructive. Those surgeons who are deemed fit to practice may continue to do so free of scrutiny. Surgeons who are deemed no longer fit will not be allowed to operate but may opt for remedial training to upskill their weaknesses rather than end their

careers. “Barring gross negligence or criminal behaviour, the decision to retire still rests in the hands of the surgeon,” (Felice, 2016).

Real life experience and exposure gained by the mature person is invaluable and should be fully utilised as long as the individual remains competent. But the fact remains that some surgeons become incompetent as a result of loss of capabilities due to aging. The gaps in current legislation, as discussed above, is ethically concerning, and rather than imposing a mandatory retirement age, methods aimed at ensuring and developing competence in the aging surgeons would be more appropriate.

The social implications of legislating annual competency testing for elderly surgeons will ultimately produce the most ideal scenario possible, protecting both the patient and the surgeon. Should the surgeon be deemed no longer fit to operate, s/he will need to retire from surgery or fulfil the criteria required to continue practising. However, should s/he be deemed fit to operate, the surgeon may continue to do so free of scrutiny.

The balancing of harms and benefits while minimising risks and creating the greatest good for the greatest number suggests that the utilitarian theorists would be pleased with this scenario. The predicted outcomes are favourable for both the patients and the surgeons. The patients are reassured that the treatment which they receive will be provided by competent surgeons. The competent surgeons’ themselves can confidently continue to practice. The no longer competent surgeon may feel that this scenario is not in his/her best interest, however, it ultimately will save that surgeon from possible mishaps, with potentially disastrous consequences. This too is therefore a favourable outcome for the consequentialist utilitarian theorists.

The research by Babu (2018) suggests that all surgeons should begin to think about ‘when to hang up the scalpel’. Surgeons should be planning for retirement and not ignoring retirement. Surgeons should seek professional guidance at the start of, and throughout, their clinical practice to plan financially for retirement. As with any profession or career, planning for retirement needs to be carefully taken into account and the various possible scenarios should be considered as conservatively as possible. In making the decision to retire, a surgeon “may decide not to operate out of wisdom gained from a long career”, they may wish to retire “while still on top of their

game" or from an inner voice that "seeks to avoid a lengthy, potentially complicated procedure with a possible unfavourable outcome" (Babu, 2018). There will be individual differences in the reasoning behind choices made to either retire or face the competency testing process.

The alternative to retirement, remaining in practice, will require that the surgeon keep up to date with scientific knowledge, technology, and clinical guidelines. For many surgeons who have spent a lifetime acquiring knowledge and skills, facing competency testing should not be as daunting and threatening an exercise. Ironically, however, facing competency testing will encourage surgeons to take care of their own physical and mental wellbeing throughout their lives, which would likely keep them healthy, fit, competent, and focused for a longer period of time. In such cases, choosing to enjoy an extended career in the world of surgery would benefit the public greatly, particularly in South Africa where surgeons are in demand.

The current global average life expectancy of the human being is 72 years (WHO website). In South Africa, the current life expectancy is 64 years (The World Bank website). The next generation is predicted to live a 100-year-life which poses interesting retirement challenges for a person in any career (Bolin, 2017). Individuals should be proactive and "start planning for a multi-stage life – one in which they may initially be educated and follow a certain career for a few years, but then go on to pursue additional training and new careers, while also taking breaks to start a family, pursue hobbies or travel the world – or all of these". In this way, individuals can maximise the benefits of increased longevity (Bolin, 2017).

A surgeon is a multi-faceted individual and at varying times he/she could play the role of a diagnostician, technician, a teacher, mentor, coach, or an administrator. It is prudent to conclude then, that after retiring from surgical practice, surgeons can continue to contribute in many ways. "We need to remove the stigma associated with retirement and construct ways for productive members of our society…to retain their self-esteem as they enter the final chapters of their career" (Greenfield, 1994). A surgeon who has lost his/her manual dexterity or eye sight will still hold a wealth of knowledge. Such surgeons can contribute by sharing their knowledge and expertise with younger surgeons. Furthermore, as a teacher and mentor, they can guide and assist in surgery without actually performing the surgery. Their wisdom will continue

to keep them well respected in their profession; a respect which would have been earned over many years of competence.

Deontologists would concur that it is the moral duty of a surgeon to ensure that he/she is competent, in the best interests of the patients. To ensure competence, he/she ought to undergo competence testing. All surgeons, having taken the Hippocratic Oath, would want to be competent so as to avoid doing harm. However, if a surgeon's diminished cognition does not allow him/her the insight to make an accurate judgment of his/her abilities, then he/she will continue to practice despite his/her incompetence. Therefore, the importance of competency testing becomes clear. It is the surgeon's duty to do what is right.

Forrai (2019) explains that "if epistemic duties are regulated by cognitive competence, and epistemic justification is analysed in terms of epistemic duties, then epistemic justification gets tied to personal qualities. The resulting conception of epistemic justification is thus person-dependent, which does not only yield highly counter-intuitive judgments in certain situations, but also renders the concept of justification incapable of doing the sort of work the concept is supposed to do in epistemology." Rather, the duty needs to be to undergo the competence testing to avoid the various influencing variables so that decisions are accurate and absolute.

The current South African legislation puts patients at risk of harm because many surgeons continue to operate while being incompetent due to age related deficits. There is an ethical obligation to change legislation regarding competency of elderly surgeons. The law, therefore, ought to change so that the best interests of the patients are prioritised. The profession of surgery must respond proactively in developing the initiatives which will lead to the changing of the legislation and thus the protection of the patients' interests.

Credentialing bodies should apply annual competence testing to all practising surgeons from the age of 65 years as a requisite for them to continue to practice (Garrett, 2014). The competence required is complex and diverse, and as such, competency testing should involve focused psychomotor assessment, physical examinations and eye checks as well as knowledge of latest treatment methods in their area of speciality. This should be mandated in both labour law as well as the HPCSA guidelines.

Age is just a number; competence is what does the job, saves lives and is what counts. Provided the assessment of competence is accurate, complete and absolute, we can have confidence in those who are competent.

Despite counter arguments by numerous physicians lamenting the discussions advocating mandatory competency testing for surgeons older than 65, many in the house of medicine are now demanding that this situation be discussed and that the time has come to “address the issue more systematically, perhaps with formal guidelines for timing and the methods of competency testing of older doctors who wish to keep staff privileges” (Clark, 2015).

Chapter 10: Conclusion

A full and clear description of the status quo in terms of legislation highlights both the void regarding competence of surgeons, as well as the ethical concerns pertaining to the self-evaluation of skills as a method to determine retirement age. Personal implications, ranging from the doctors' self-esteem to the financial planning for loss of income due to discontinuing work show clearly that self-evaluation of skill is open to subjectivity and bias and is therefore ethically unsound.

There are arguments both for and against mandatory retirement. Some authors take the position that there should be an absolute cut-off age for retirement and mandatory skills testing is unnecessary (Babu, 2018). Other authors argue that a mandatory retirement age is discriminatory and that many competent surgeons will be taken out of practice leaving a shortage of skilled surgeons. I have defended the alternative: supporting annual mandatory competency testing of elderly surgeons.

Surgeons must keep up to date with new technologies and advancements in medical research. Surgeons should proactively engage in continuous professional development to remain competent. Caring for their own physical and mental health will also assist in maintaining their competencies. A surgeon aged 65 and beyond must show that he/she is competent in order to continue to operate. This is in the best interest of the patient.

Research relating to the decline of both physical and cognitive skills justifies why I have chosen 65 as the age at which competency testing should commence. Many authors believe that "abilities, such as conceptual reasoning, memory, and processing speed, decline gradually over time" and "cognitive change is a normal process of aging" (Harada et al. 2013). The mean age at which such decline begins is at age 65.

The competency assessment will not only be based on speciality specific knowledge, but also on communication skills, technical skills and clinical judgement. The feasibility of continual competency testing throughout a surgeon's career is an unrealistic expectation considering the lack of resources currently available within the HPCSA to make this happen.

Utilitarian theory argues that for the greatest number of both patients and surgeons, it will be better to implement mandatory competency testing for surgeons wanting to operate beyond the age of 65. Patients will be protected from increased risk of harm. I have used deontological theory to argue that is it the duty of the surgeon to do right. Surgeons need to be completely objective in their decision to continue operating and this is not always the case since various personal and social implications are at play.

The experience and real life exposure gained by elderly surgeons is invaluable and should not be lost to the world for as long as the surgeon remains competent. However, the point at which the next generation takes over should occur before there is a risk of harm to the patient. There will be competent 65 year old surgeons and there will be those no longer fit to operate. It is our ethical and legal responsibility to legislate mandatory competency testing for surgeons who wish to continue operating at age 65 and beyond.

“Competence is an individual trait that is task specific and inconstant” (Felice, 2016). Let competence determine the right to continue ones profession, and not age. This is fair, non-discriminatory, and ethically sound. The joy of being allowed to work for as long as one is competent is a motivating influence in keeping surgeons proficient.

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