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PRESIDENTIAL ADDRESS

ISPN presidential address 2018. Paediatric neurosurgery: Africa is our future

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Introduction

It is the greatest honour of my career to stand before you in the presidential poncho for this, the 46th Annual Meeting of the International Society for Paediatric Neurosurgery. I would like to start by thanking you all for being here, and thank our host and Annual Meeting Chair, Professor Shlomi Constantini and the local organizing committee, as well as our Scientific Chair, Professor Anthony Figaji (Tony) and the ISPN scientific committee. It is a big enough task to put together a meeting such as this, made even more challenging by the record number of abstracts received this year, but they have given us a program that showcases our specialty at its finest, so please join me in congratulating them for a job very well done.

A special thank you to Tony for his warm and generous introduction, it has been a joy to transition from your teacher to mentor and friend and watch your career develop, and I cannot tell you how much it meant to hear your words today. As you said, there is special poignancy in having to introduce me immediately after paying tribute to someone we both respected and loved as much as the late Professor Jonathan Peter. It was a special treat for me to take the ISPN poncho home and show him last year. As his health failed, he asked me to promise we would ensure he was able to watch today's proceedings online—well Jonathan, that's no longer possible, but you are foremost in our thoughts right now.

Founded nearly 50 years ago, the ISPN is truly a global organization which at present has 389 members from 60 countries— with so much in common, but also facing specific challenges in their own countries. As Tony has told you, I have a deep and abiding love for Africa, home for my family since my ancestors landed on the southern tip almost 200 years ago, and it will not surprise you that today I will focus our attention on Africa.

An address such as this is always a personal story, with the bias and perspective that brings. I want to start by paying tribute to a few of the many people who have helped me in my career, acknowledging mentors and colleagues, and then take a look at Africa, the current status of neurosurgery, and the role of the ISPN. Two aspects I would like to highlight are the importance of having a vision for your career and being mindful of the wonderful opportunities we all enjoy as paediatric neurosurgeons.

People: mentors and colleagues

> *Like Apollinaire, my son was wounded on a dark and lonely battlefield that I have never seen, and he has arrived with his head in bandages. I'll have to bury him like a soldier who died at war.*
>
> Kenzaburo Oe *A Personal Matter* [1].

Sadly, both my predecessors in the Chair of Neurosurgery at the University of Cape Town (UCT), under whom I was privileged to train, died this year. JC Kay de Villiers was the first academic head of Neurosurgery at UCT [2], appointed in 1976 to the newly established Helen and Morris Mauerberger Chair. Prior to 1980 when Warwick Peacock returned from training as a paediatric neurosurgeon in Toronto, Kay de Villiers ran the neurosurgical service for children in Cape Town. One of his lasting contributions was establishing a multidisciplinary spina bifida clinic which continues to this day—but no longer on a Saturday!

Jonathan C Peter, who ran the paediatric neurosurgery service after Warwick's departure for the USA in 1986, followed

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Kay de Villiers as the Mauerberger Chair in 1994. This, the only endowed Chair of Neurosurgery in South Africa, has contributed greatly to the strength of Neurosurgery at UCT (Fig. 1), and I would like to warmly acknowledge Dianna Yach, Executive Director of the Mauerberger Foundation Fund, who has travelled to Israel to be here today.

Tony has captured the essence of the wise and gracious gentleman that Jonathan was, and the impact he had on many of us [3]. He served as President at the memorable 30th Annual Meeting in Kyoto (Fig. 2), the ISPN was his favourite organisation and he gained lifelong friends among the members, many of whom wrote to us following his death. In paying tribute to him, I would like to quote from one of these letters, where Martina Messing-Junger describes her first encounter with him at an international meeting in 1999:

> *All of them were telling big stories of themselves, a woman like me would say: typical male talk, but one of them remained silent- Jonathan. And so it happened that we started a conversation about literature and how interesting it is to read at least one book by each Nobel laureate.* [4]

One such writer was the Japanese Nobel laureate Kenzaburo Oe, whose book *A Personal Matter* is a poignant account of the birth of a son with an encephalocele, which Jonathan drew on when discussing congenital malformations [5].

Running through my story is the man who first ignited my own interest in neurosurgery, Warwick J. Peacock (Fig. 3). When I arrived at UCT as a medical student in 1981, I was fortunate to be assigned to the residence of which he was warden—my father's old residence, Driekoppen, now known as Kopano. Warwick was a newly appointed consultant and his passion for his work knew no bounds. In addition to his work in refining selective dorsal rhizotomy (SDR) as a safe and durable treatment option for children with spasticity, he made important contributions to epilepsy surgery and the development of paediatric neurosurgery generally at UCT (1980–1985), at UCLA (1986–1997) and at UCSF (1997–2009). Warwick is an inspirational teacher and a brilliant role model for any aspiring paediatric neurosurgeon. Having retired from neurosurgery, he now pursues his love of anatomy in running the acclaimed UCLA Surgical Science Laboratory, and he and Ann remain close friends and mentors.

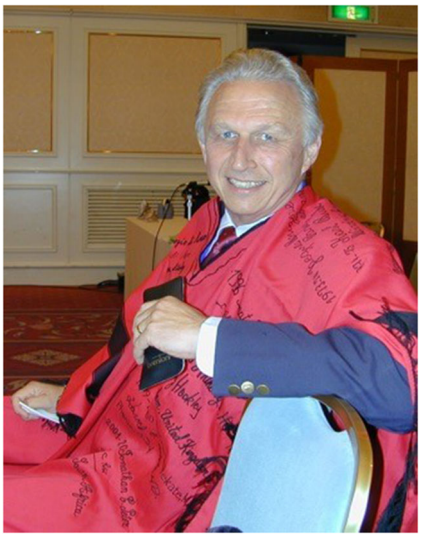

Fig. 2 Jonathan C Peter in the presidential poncho, ISPN 30th Annual Meeting Kyoto 2002

Places: University of Cape Town, Groote Schuur Hospital and Red Cross War Memorial Children's Hospital

"*UCT is an inclusive and engaged research-intensive African university that inspires creativity through outstanding achievements in learning, discovery and citizenship;*

Fig. 1 The Division of Neurosurgery, University of Cape Town (2017)

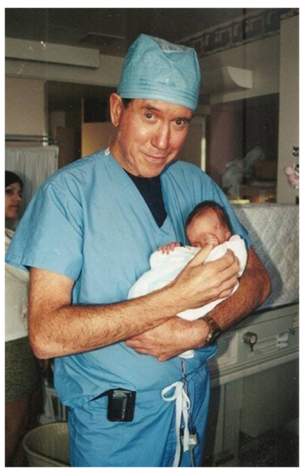

Fig. 3 Warwick J. Peacock

enhancing the lives of its students and staff; advancing a more equitable and sustainable social order and influencing the global higher education landscape." University of Cape Town mission statement [6].

In 2012, we celebrated the centenary of the Faculty of Health Sciences at UCT, currently the only clinical school from a low- or middle-income country placed in the top hundred in world according to the Times Higher Education (THE) rankings [7]. We are fortunate to have two outstanding teaching hospitals—Groote Schuur Hospital (GSH), established in 1938, and Red Cross War Memorial Children's Hospital (RCWMCH), one of very few dedicated children's hospitals in Africa. There is a rich history of innovation, especially in surgery with the first human heart transplant having been performed at GSH by Christiaan Barnard in 1967 [8]. Perhaps more important for a neurosurgeon was the genesis of the concept of computerised tomography, first proposed by Alan Cormack a decade earlier, for which he shared the 1979 Nobel Prize with Godfrey Hounsfield. Kit Vaughan has chronicled the story of how Cormack, a physicist with no interest in medical science but compelled to work at the hospital due to a staffing crisis, had this paradigm-changing insight while performing routine clinical work [9]. This is a great example of how fate can take your career in an unexpected direction, with wonderful results if you recognise the opportunities that present themselves.

RCWMCH was placed firmly on the paediatric neurosurgical map by Warwick Peacock's pioneering work on selective dorsal rhizotomy (SDR) for spasticity, a procedure first introduced by Foerster in 1913 and subsequently modified by Gros and Fasano. While effective in reducing spasticity, the operation carried a high risk of complications such as incontinence, and encouraged by developmental specialist Leila Arens and assisted by neurologist Roland Eastman, Warwick set about simplifying the procedure through exposing the entire cauda equina and refining the use of intraoperative neurophysiology [10].

With remarkable foresight, Warwick initiated a long-term prospective study of the impact of SDR with biomedical engineer Kit Vaughan, establishing a unique cohort of patients who were carefully characterised preoperatively and evaluated postoperatively in a series of studies continued by Nelleke Langerak. This has shown indisputably that the benefits of SDR are not only real, but sustained over decades [11]. Our spasticity service has been taken to new heights by Nico Enslin who has an unrivalled appreciation of function and I look forward to seeing his contributions in the years ahead [12].

It is a source of great pride that two of our alumni have been recipients of the Anthony J. Raimondi Prize, the highest honour the ISPN bestows on young investigators. I'm sure that Anthony Figaji's work on multimodality monitoring in traumatic brain injury is well known to everyone in this room [13], but Tony has also made significant contributions in intraoperative neurophysiology and more recently neuro-oncology, and our paediatric neurosurgery service has continued to grow under his leadership. The quality of his work as a surgeon-scientist was recognised with a South African National Research Foundation Research Chair in Clinical Neuroscience in 2015—the only surgeon and one of very few clinicians to be awarded a Research Chair in our country.

Llewellyn Padayachy's interest in ultrasound led to an outstanding doctoral study of the use of transorbital ultrasound in evaluating intracranial pressure, in collaboration with engineers in Trondheim, Norway, [14] and an ensuing patent is being taken to market by Nisonic, a great example of neurosurgical innovation through interdisciplinary collaboration. In addition to Tony, Llewellyn and Nico, other RCWMCH paediatric neurosurgery fellows include Ncedile Mankahla and Nqobile Thango, Peter Ssenyonga and Emmanuel Wegoye (Uganda) and Luxwell Jokonya (Zimbabwe), who are all developing impressive careers of their own (Fig. 4).

My career as a paediatric neurosurgeon has been immensely fulfilling, not only in the satisfaction of seeing trainees of such high calibre go on to make their own contributions but also in making a difference in patients' lives, something we should never take for granted. Paediatric neurosurgery has so much to offer a young neurosurgeon setting out in their career:

- We treat a wide array of pathologies with an extensive repertoire of interventions; in some respects, paediatric neurosurgeons are the last of the *general* neurosurgeons
- Inevitably, we are now experiencing rapid growth in *subspecialty* areas such as functional paediatric neurosurgery
- Meeting the supreme *technical* challenges presented by cerebrovascular and skull base neurosurgery was an important part of the growth of our specialty, but as other interventions emerge, greater surgical attention is being

Fig. 4 Farewell for Emmauel Wegoye prior to returning to Uganda. From right to left Nico Enslin, Llewellyn Padayachy, Tony Figaji, Emmanuel Wegoye, Graham Fieggen and Jonathan Peter

paid to paediatric brain tumours that are potentially amenable to radical operative approaches
- There is no question that multidisciplinary *teamwork* is essential in order to ensure the best possible outcome for our patients

The democratic transition in South Africa, led by Nelson Mandela, was one of the epic events of the last decade of the twentieth century. Regrettably, the economic potential of this political transition has not yet been fulfilled, which has led to rising dissatisfaction. As in most countries, students have been at the vanguard of calls for change and this culminated in nationwide protests between 2015 and 2017, starting with the *Rhodes Must Fall* decolonisation movement at UCT, and later *Fees Must Fall*—a demand for free, decolonized tertiary education [15]. There were positive aspects in that the protests pushed the government to provide greater access to university education and raised many thought-provoking questions concerning the content of the curriculum (you may consider what "decolonized" neurosurgery would look like), but there were also some devastating consequences.

Professor Bongani Mayosi, a cardiologist, A-rated scientist and former Chair of Medicine (Fig. 5), stepped into the role of Dean of our Faculty in September 2016, just as the student protests took hold on our campus. He faced an impossible situation, caught between the demands of students and the capacity of staff to cope with this onslaught, with the future of the Faculty in the balance. This took a toll on his health, tragically leading to his death on 27th July 2018 [16]. One of the most outstanding professionals of his generation, his loss has been incalculable. Without speculating about the circumstances which led to this tragedy (there is currently an expert panel investigating this), his death has placed the spotlight on mental health and how well we care for each other.

Stress is an inevitable concomitant of a career as a neurosurgeon, but distress and burnout should not be. It is important for us to be aware of the manifestations of burnout, understand the contributing factors and take steps to promote personal well-being, as well as those we work with every day [17]. It is all too easy to overlook the mental health struggles of a colleague, and there are various practical steps we can take which may make us more vigilant and deal better with the risk of depression and suicide among doctors [18].

Fig. 5 Bongani Mayosi

Africa rising: the context

> ***Ubuntu-*** *I couldn't be able to think, to speak, indeed to be human, unless I leant it from other human beings.*
>
> Archbishop Emeritus Desmond Tutu [19].

The African concept *Ubuntu* as described at the 2008 ISPN Annual Meeting by one of its most eloquent adherents, Archbishop Emeritus Despond Tutu, stresses our interconnectedness as people, surely one of the highest aspirations of humanity (Fig. 6). Ubuntu may be defined as African humanism [20] and has also been referred to by the Archbishop as *the essence of being human*, *and that it is part of the gift that Africa will give the world*. This noble ideal seems far removed from the popular image many have of the everyday lives of the people of our continent.

As recently as May 2000, *The Economist* featured Africa on the cover with the byline *The hopeless continent*, chronicling corruption, mismanagement and despair. Little more than a decade later, the same newspaper reported on the continent as *Africa rising* followed in quick succession

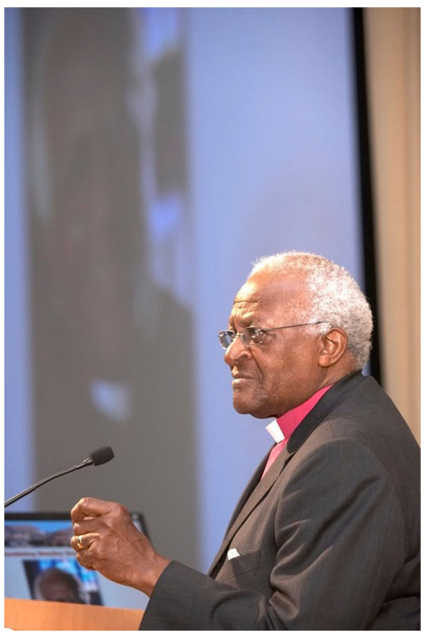

Fig. 6 Archbishop Emeritus Desmond Tutu delivering the opening address at the 36th ISPN Annual Meeting, Cape Town 2008

by *A hopeful continent* (March 2013) and *Making Africa work* (March 2016).

What induced as sober a publication as *The Economist* to change their view so profoundly? The *Africa rising* narrative that has taken hold over the past decade reflects real progress with improving child mortality, increasing access to education and more representative government, although admittedly many of these countries are coming off a low base and still face enormous challenges.

In a comprehensive but readable analysis, former journalist and academic Keith Somerville has reviewed the fortunes of African countries following independence, starting with Ghana in 1958 [21]. Modern-day Africa faces many structural problems that can be traced back to the Berlin conference which took place in 1884–1885, where an entire continent (with the exception of present-day Ethiopia and Liberia) was arbitrarily divided into colonies by various European leaders—many of whom had never set foot on African soil. While the long-term impact of this has been compounded by other external factors such as the Cold War and structural adjustment programs, some of the drivers have been internal, resulting in a complex web of problems summarized in Table 1.

How is this relevant to neurosurgery?

Africa rising: implications for neurosurgery

I am an African.

Thabo Mbeki [22].

Twenty years ago, Abdeslam El Khamlichi, then WFNS 2nd Vice President for Africa, published a detailed analysis of the status of neurosurgery in Africa, finding countries fell into one of 4 different categories. Group 1 comprised North and South Africa which were considered well-endowed with neurosurgeons, Group 2 comprised 7 countries with 52 neurosurgeons serving a total population of 188 million, Group 3 comprised 17 countries with 27 neurosurgeons serving a total population of 250 million, while Group 4 comprised 11 countries with no neurosurgeons at all despite a population of 46 million people [23].

Table 1 Core problems that African states inherited from colonialism (adapted from Somerville [20])

1. Arbitrary borders—illogical, divided communities leading to conflict
2. Weak states and institutions—uncontrolled hinterland
3. Weak links between state and society—unaccountable state and disengaged society
4. Formation of dominant elites—neglected provision of basic services
5. Extraverted economies—dependent on world markets

I am happy to tell you that the picture looks very different today, with virtually every country now having access to neurosurgery. While we are still far short of the number of neurosurgeons required [24], and there remains a serious maldistribution, on the upside—neurosurgeons working in Africa are almost invariably properly trained and highly capable.

Faced with this massive disparity in resources and the ravages of the diseases of poverty, one may question the need for specialties such as neurosurgery in Africa, but I believe there is a strong value proposition based on 5 key areas where neurosurgeons can contribute to society (Fig. 7). Firstly, the burden of disease treated by neurosurgeons is extensive, especially in developing countries with high rates of trauma, infectious disease (with complications such as hydrocephalus) and undiagnosed congenital disorders, as well as tumours, cerebrovascular and spinal disorders in rapidly urbanising communities. Few would argue that providing cost-effective care for these patients is as important as for patients anywhere else in the world.

Conducting research into the conditions we encounter in Africa is another way we can make an important contribution, especially important given the genomic diversity of African populations. Together with clinical and basic neuroscience, we need to foster translation into practice, and encourage innovation—introducing locally relevant technologies [25]. Equally, we have a responsibility to educate the neurosurgeons of the future, as well as colleagues in related specialties, and perhaps more importantly, other health workers such as nurses and rehabilitation professionals who are essential in building health services in communities.

Care of patients, research and teaching are fundamental to practice wherever one works, but the two areas where I think neurosurgeons can really add value is in public health and advocacy and contributing to leadership in building healthcare systems. If we are to fulfill our potential as a specialty, this must not simply be a provision of care for the elite who can afford private care.

What kind of training is required? Although strategies such as task shifting have an important role to play in dealing with current realities, the real value lies in long-term sustainable provision of care through properly trained neurosurgeons developing services in their own countries. While it is possible to do excellent neurosurgery with simple tools, as emphasized by Jonathan Peter in his ISPN presidential address [26], neurosurgeons working in resource-limited settings must be adequately trained—perhaps better-trained than in developed countries where there is easier access to technology which can keep you out of trouble.

It is also important to think beyond the operating room—one of the compelling studies of surgery in Africa is the African Surgical Outcomes Study (ASOS), led by Bruce

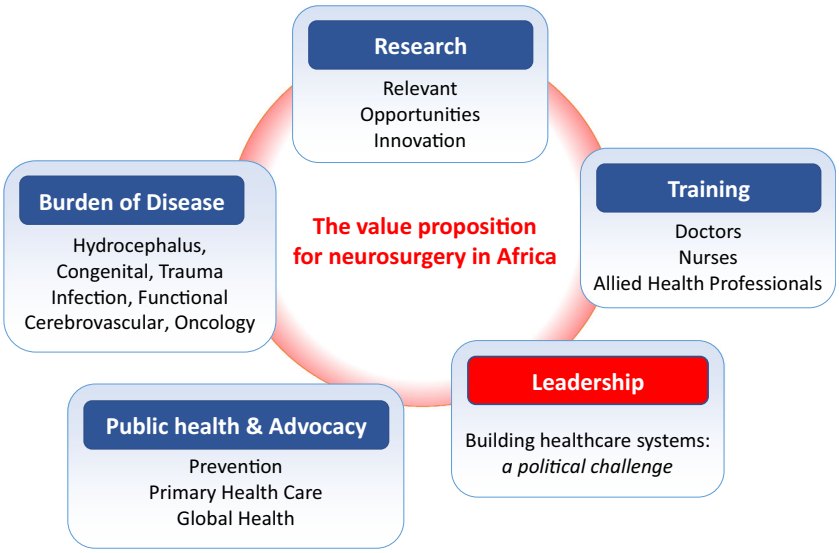

Fig. 7 The value proposition for neurosurgery in Africa

Biccard. [27]. Despite a mere 2.2% of the 11,422 patients in this 247-centre study being neurosurgical, they accounted for 4.3% of the major complications and 8.8% of deaths, reflecting the complexity of managing neurosurgical patients. While further study is required to elucidate the reasons for this disproportionate mortality, there is no doubt that improving neurosurgical outcomes requires system-wide strategies.

One of the greatest problems confronting Africa has been the brain drain, with those who have been educated abroad seldom returning home. While there are many good reasons for individuals to make decisions to pursue opportunities elsewhere, the loss of skills to their own countries is devastating. Happily, this African diaspora showing signs of slowing and strategies such as providing training in a relevant context on African soil have a much better retention rate [28].

This has been our experience in training neurosurgeons from Uganda, Zambia, Kenya, Nigeria, Zimbabwe, Libya and Botswana. Uganda is a particularly good example of what can be achieved—we have partnered with a faith-based organisation CURE International who has funded training for Ugandans who have returned home to work at CURE Children's Hospital (CCHU) in Mbale. Essential to the success of this program has been the ongoing support provided to these colleagues once they return home [29]. Training individual neurosurgeons takes many years, but this is rapidly multiplied by their ability to go on and train others, as has

Fig. 8 Faculty and delegates at the ISPN Paediatric Neurosurgery Course, Dakar, Senegal September 2018

Fig. 9 Faculty and delegates at the 1st module of the African Paediatric Neurosurgery Course, South Africa 2014–2017

been well-demonstrated by the growth of neurosurgery in a country such as Ethiopia [30].

Organisations such as the World Federation of Neurosurgical Societies (WFNS) and Foundation for International Education in Neurological Surgery (FIENS) provide valuable support for neurosurgeons in under-resourced countries [31]. With the growing interest in global surgery and global neurosurgery in particular, various leading institutions in the north have established links with institutions in the Global South, with many focussed on building local capacity, which is essential for this work to be sustainable and not simply a new form of academic colonialism. This requires true partnerships with African neurosurgeons [32].

Happily, African neurosurgery is finding its voice—matching the growth of our specialty in various African countries, neurosurgery is getting organized across the continent. CAANS, the Continental Association of African Neurosurgical Societies, was established in Cape Town in 2013 to provide a forum for neurosurgeons from across Africa and has held vibrant and successful meetings in Algiers (2014), Cape Town (2016) and Abuja (2018) with the 4th continental congress due to take place in Nairobi in 2020.

Africa rising: implications for paediatric neurosurgery

The youth of today are the leaders of tomorrow.

Nelson R. Mandela.

The importance of Africa for the future of disciplines such as paediatric neurosurgery is underscored by global population growth projections, with Africa's share of the world's

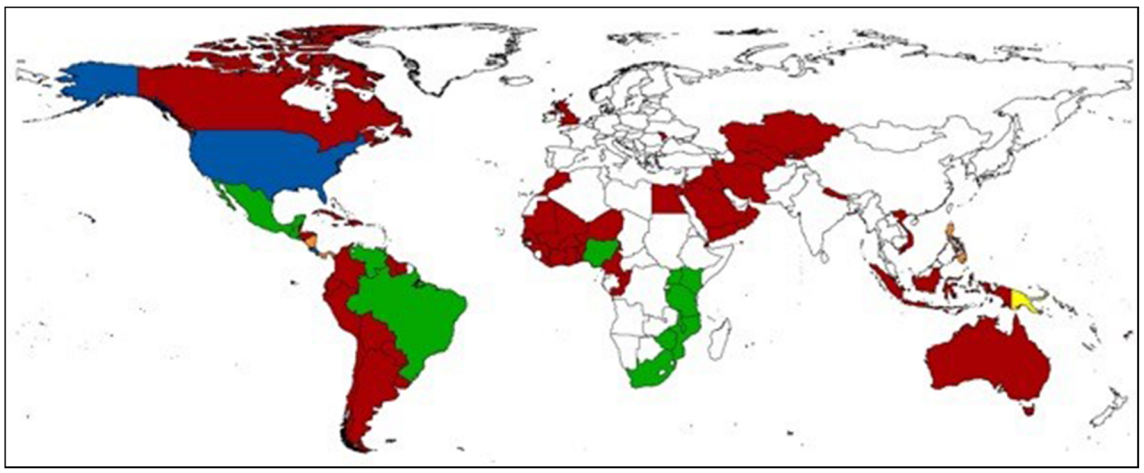

Fig. 10 Global status of folic acid food fortification IF

Fig. 11 The author with Graciela Zuccaro at the offices of the Argentine Paediatric Neurosurgery Association in Buenos Aires where the original ISPN poncho is on display

population rising from 16% currently to a remarkable 39% by 2100 [33].

The projected growth of urban populations is also staggering. While no African city featured among the world's largest cities (urban areas) in 2006, Lagos is projected to be the 6th most populous city in the world by 2050 with 32.6 million inhabitants, reaching 88.3 million by 2100, making it the largest city in the world (and perhaps the first to reach a population of 100 million). Furthermore, 4 other African cities will feature among the 7 most populated urban areas in the world—Kinshasa (2nd), Dar es Salaam (3rd), Khartoum (6th) and Niamey (7th). For completeness, 3 Indian cities feature in the top 10 (Mumbai, Delhi and Kolkata), while the group is rounded out by Dhaka and Kabul [34].

Jonathan Peter quoted Tony Raimondi's injunction that paediatric neurosurgeons must go where the children are [26], and by the turn of the next century, half the children in the world will be African. Results of a recent survey underscored the mismatch between the paediatric neurosurgery workforce and the burden of disease [35]. Although there are very few dedicated children's hospitals in Africa at the present time, strategies such as those adopted by the Global Initiative for Children's Surgery (GICS), focusing on the pillars of infrastructure, service delivery, training and research will help to change this picture [36].

The implications for paediatric neurosurgery are clear. If one looks at the worldwide distribution of paediatric neurosurgeons and compares this to the likely distribution of conditions such as hydrocephalus, spina bifida and traumatic brain injury, I would estimate that 80% of neurosurgical operations on children are done by general neurosurgeons or general surgeons, or in some cases medical officers or non-medical clinical officers.

In reality, almost every neurosurgeon in Africa practices as a paediatric neurosurgeon, with children comprising a large percentage of their case load. The need to train more paediatric neurosurgeons for Africa is obvious, and the ISPN can play a crucial role here. Africa simply is where paediatric neurosurgery has to go.

What is the ISPN doing about this?

The International Society for Pediatric Neurosurgery (ISPN) seeks to promote the health of children throughout the world by encouraging the ethical transmission and exchange of neuroscientific information and techniques related to Pediatric Neurosurgery.

Fig. 12 ISPN Executive Board 2017–2018

Fig. 13 Paediatric Neurosurgery team outside Red Cross War Memorial Children's Hospital, October 2018

ISPN mission statement [37].

The ISPN Annual Meeting is a wonderful opportunity to come together and share experience, and with each meeting the program becomes more diverse. The sad reality though is very few neurosurgeons from low-income countries can afford to attend without financial support, despite our efforts to attract membership through reduced fees, championed by former ISPN presidents Chandrashekhar Deopujari and Graciela Zuccaro.

Perhaps the most effective vehicle for spreading the mission of the ISPN education is the growing number of educational courses held around the world; I think the ISPN deserves a great deal of credit for the generous funding that is made available for courses—in the past year alone, we ran courses in 8 countries, such as Senegal (Fig. 8). In developing countries, very few of the attendees will be *paediatric* neurosurgeons, so the challenge for us is to focus on the needs of a well-trained general neurosurgeon treating children, as well as encourage the growth of paediatric neurosurgery—such as the African Paediatric Neurosurgery Course (AfPNS) (Fig. 9).

Another important development has been the increased focus on the multiprofessional team, with an expectation that each course also include a nursing component. We are fortunate to have a well-established journal in *Child's Nervous System*, in the capable hands of Ezio di Rocco as Editor-in-Chief, and the ISPN is also investing in newer educational ventures such as *The Guide*, which has been driven by Rick Abbott since his visionary 2008 presidential address [38], and more recently the ISPN App which you have all used at this meeting.

Our most recent venture is *InterSurgeon*, which has been led by William Harkness and Jim Johnson. Funded initially by grants from ISPN and the University of Alabama in Birmingham (UAB), this is now attracting interest from major players such as the G4 Alliance. InterSurgeon has enormous potential to connect neurosurgeons (and other disciplines) in a way that gives powerful effect to the global surgery vision for the ISPN, championed by William Harkness [39].

Other opportunities for the ISPN to have a greater impact include building links with related specialty organisations, such as the International Child Neurology Association (ICNA), and participating in multispecialty events such as the International Symposium on Paediatric Neuro-oncology (ISPNO). Perhaps our least recognised opportunity lies in advocacy. Public health interventions have dramatically reduced the incidence of diseases such as *Haemophilus influenzae*

Fig. 14 Impression of Neuroscience Centre under construction at Groote Schuur Hospital, Cape Town

meningitis, and it is a disgrace that we continue to see devastating complications of preventable conditions such as cysticercosis and echinococcosis. Despite overwhelming evidence for spina bifida prevention through food fortification with folate, many countries have yet to implement this (Fig. 10) [40], and organized neurosurgery may have a powerful voice alongside civil society in pressurising governments to do so [41].

The future

> *If I had been able to forsee all that has since happened, I would certainly have made the same decision, so I believe at least. But that decision would certainly have been far more daunting, and some of the tragedies that followed would have melted whatever traces of steel were inside me.*

Nelson R. Mandela, in a letter to Joy Motsieloa, his friend [42].

Although our specialty faces challenges such as subspecialisation, medicolegal risks and increasing cost of technology, this remains an exciting and dynamic career. Our practice has changed unrecognisably over the two decades that I've been a paediatric neurosurgeon with advances in imaging, endoscopy, neurophysiology and monitoring techniques, molecular biology and genomics enabling unprecedented progress. The challenge for the next generation will be to ensure that these advances are available to as many as possible of the world's children.

The ISPN will play an important role in this—not only in allowing us to come together to share experiences but also in every way that international societies foster progress [43]. Like many of you, I have made many lifelong friends through the ISPN, an organisation with a rich history (Fig. 11), and have been exceptionally fortunate as a president to work with a wonderful group of colleagues, to whom I extend my appreciation (Fig. 12).

I have been able to build my career on the contributions of teachers and mentors such as Warwick and Jonathan and share in their joy at the strength of paediatric neurosurgery in Cape Town (Fig. 13); I hope to see an African paediatric neurosurgery society join those of all the other continents in the not-too-distant future!

Considering the breadth of therapeutic options we now have to offer our patients, from the operating room to the cath lab, radiosurgery suite and beyond, the modern neurosurgeon is fast becoming an *interventional neuroscientist*. Looking further ahead, if we are going to continue making progress as a speciality, I believe it must be in collaboration with our colleagues across the neurosciences, as we hope to do with the UCT Neuroscience Institute (Fig. 14).

Numerous lines of evidence, including some remarkable fossil discoveries in South Africa [44], point to the likely emergence of modern humans in Africa, and in that sense we are all Africans. We share a common African history and must embrace Africa as part of our future.

This is a great time to be a paediatric neurosurgeon!

Acknowledgements I would like to thank the members of the ISPN for the honour of serving as your president, and my colleagues on the Executive Board for their contributions over the past year. Thank you to Dr. David Roytowski for introducing me to the concept of the value proposition, to Dr. Nelleke Langerak for the assistance with Fig. 8, and to Professor Matthew Wood for his thought-provoking discussions. I would like to acknowledge my colleagues in Cape Town and above all, Karen for your faith in Africa and setting the example as the finest children's doctor I know, and my family for your constant support.

This address is dedicated to the memory of my colleague and friend, the late Professor Bongani Mayosi, Dean of the Faculty of Health Sciences, who devoted his life to improving the lives of all Africans through science.

Compliance with ethical standards

Conflict of interest The author declares no conflict of interest.

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