

Division of Neurosurgery
University of Cape Town
2010 Academic Report

2010 was a memorable year for our country and also saw us make significant progress on the clinical and academic fronts. The establishment of the Groote Schuur Neurosurgical High Care Unit in D13 and the opening of a newly renovated Ward D1 at Red Cross War Memorial Children's Hospital significantly boosted morale and enhanced our clinical service, while the new Operating Theatres at the Children's Hospital have been a real opportunity to develop new services, including high level intraoperative neurophysiological monitoring.

Professor Fieggen's Inaugural Lecture, "Brain Matters: neurosurgery in a developing country" was an opportunity to reflect on the many contributions made by members of our department over the years.

Newly appointed consultants Dr Sally Röthemeyer and Dr Llewellyn Padayachy continued to develop their careers, with Dr Röthemeyer spending a month with Professor Marwan Hariz at the Functional Neurosurgery Unit at Queen Square, London while Dr Padayachy travelled to Bangalore and Hong Kong to complete the first two modules of the ESPN Paediatric Neurosurgery Course.

The Department of Higher Education grant to the Faculty enabled us to introduce the new position of Chief Registrar and Dr Simon Sandler fulfilled this new position admirably.

The year ended on a high note with Professor Rick Abbott, a longtime friend of our department, participating in the 3rd Paediatric Brain Tumour Workshop and then operating with us on a number of complex spinal cord tumours.

Degrees conferred

MMed (Neurosurgery): **Dr Llewellyn Padayachy**

Prevalence of brain hypoxia/ischaemia in paediatric severe traumatic brain injury.

Postgraduate students

Ursula Rohlwink was the first student ever to register for the degree PhD (Neuroscience) in Neurosurgery at UCT, while the number of neurosurgical trainees grew to 10. SJ Röthemeyer, SJ Sandler, C Thompson, MD Gowen, PK Ssenyonga, N Mjoli, BJ Malan, E Mogere were registered for the degree MMed (Neurosurgery) and Drs D Roytowski and N Enslin were appointed as registrars during the course of the year.

Publications

1. Fieggen AG. World Cup 2010: a South African reflection. *World Neurosurgery* 2010;74(2-3)229-230
2. Figaji AA. Editorial: Brain tissue oxygen monitoring in children – A review. *US Neurology* 2010; 5(2): 43-46.
3. Figaji AA, Zwane E, Kogels M, Fieggen AG, Argent AC, Le Roux PD, Peter JC. The effect of blood transfusion on brain oxygenation in children with severe traumatic brain injury. *Ped Crit Care Med* 2010; 11(3): 325-331.
4. Figaji AA. Editorial: Why monitor the injured brain? *Child's Nerv Syst* 10; 26: 199-200.
5. Figaji AA. Practical aspects of bedside cerebral hemodynamic monitoring in pediatric TBI. *Child's Nerv Syst* 2010; 26(4): 431-439.
6. Figaji AA, Kent S. Brain tissue oxygenation in children diagnosed with brain death. *Neurocritical Care* 2010; 12(1): 56-61.
7. Figaji AA, Zwane E, Fieggen AG, Argent AC, Le Roux PD, Peter Siesjö Peter JC. The effect of increased inspired fraction of oxygen on brain tissue oxygen tension in children with severe traumatic brain injury. *Neurocritical Care* 2010; 12(3): 430-437.
8. Figaji AA, Fieggen AG. The neurosurgical and acute care management of tuberculous meningitis: Evidence and current practice. *Tuberculosis* 2010; 90(6): 393-400.
9. Figaji AA. targeted treatment of severe head injury. *Cont Med Educ* 2010; 28 (3): 104-107.
10. Harris T, Lubbe D, Semple P. Recurrent meningitis in a child secondary to a parasellar arachnoid cyst: a case report. *Int J Ped Otorhinolaryngology*. Extra DOI:10.106/J.pedex.2010.05.005
11. Padayachy L, Figaji AA, Bullock MR. Intracranial pressure monitoring in the modern world. *Child's Nerv Syst* 2010; 26(4): 441-52.
12. Rohlwick UK, Figaji AA. Methods of monitoring brain oxygenation. *Child's Nerv Syst* 2010; 26(4): 453-464.
13. Sandler SJI, Figaji AA, Adelson PD. Biomarkers in pediatric traumatic brain injury. *Child's Nerv Syst* 2010; 26: 205-213.
14. Semple PL. Transsphenoidal surgery for Cushing's Disease: pitfalls, results and long-term follow-up. In Laws ER, Lanzino G (eds) *Atlas of Transsphenoidal Surgery*, Elsevier.

Presentations at Conferences

International

Professor Fieggen was an invited speaker at the 11th International Child Neurology Association congress in Cairo, Egypt (*Impact of traumatic brain injury in South Africa*), the XXXVIII Annual Meeting of the International Society for Pediatric Neurosurgery in Jeju, Korea (*History and current status of Pediatric neurosurgery in Africa*) and the 21st annual conference of the Indian Society for Pediatric Neurosurgery (*When ETV, when shunt?*). He taught on the ESPN Course in Berlin (*Embryology of neural tube defects, Split cord malformations, The evolution of our surgical treatment of lumbosacral lipomas*) and the ISPN Courses in Hong Kong, China (*Hydrocephalus in brain tumours, Posterior fossa arachnoid cysts*) and Hyderabad, India (*Neurofibromatosis, Severe Head Injury, ETV in postinfectious hydrocephalus, Spasticity: surgical treatment and outcome*).

Associate Professor Figaji was invited to participate in a Neuromonitoring symposium in Verona, Italy (*How do you know you are getting enough oxygen to the brain?*) and was on the International Scientific Advisory Committee of the 14th International Conference on Intracranial Pressure and Brain Monitoring in Tübingen, Germany, where he delivered an Invited Lecture (*Monitoring and managing brain tissue oxygen in children*) as well as delivering papers with Dr Padayachy and Ms Rohlwink (*Physiological responses to autoregulation testing in children with traumatic brain injury; The relationship between ICP and brain tissue oxygen in pediatric traumatic brain injury; Cerebral perfusion pressure thresholds and brain tissue oxygen in children; Normobaric hyperoxia in children with traumatic brain injury*). He presented a paper at the ISPN meeting in Jeju, Korea (*Cerebral responses to changes in ventilation*) and taught on the ISPN Course in Hong Kong, China (*Neurocritical care brain monitoring*).

Associate Professor Taylor and Dr Le Feuvre delivered papers at the Symposium Radiologicum in Bologna, Italy (*Radiosurgically induced Cavernoma*) and presented cases at the ABC/WIN meeting in Val d'Isere, France, the Alumni Course in Chiang Mai, Thailand and the national Neurointerventional Peer-review meeting in Mpumalanga. Professor Taylor continues to serve on the international faculty of the benchmark Pierre Lasjaunias Neurovascular Educational Team (PLANET) course in Chiang Mai, Thailand (*Surgical treatment of berry aneurysms, Surgical treatment in BAVMs*).

National

A number of invited talks were delivered at local meetings, including 56th South African Orthopaedic Association Congress (*Long term outcome and complications of selective dorsal rhizotomy*) in Port Elizabeth (Fieggen), the South African Critical Care conference (*Neurocritical care brain monitoring*) in Cape Town (Figaji), the Paediatric Refresher Course (*Monitoring the brain- what's worthwhile?*) in Cape Town (Figaji), the annual meeting of the Clinical Neurophysiology Society of South Africa (*The value of intraoperative neurophysiological monitoring*) in Johannesburg (Figaji) and the combined meeting of the SA Spine Society and the Scoliosis Research Society (*Pseudoarthrosis: diagnosis and management*) in Johannesburg (Welsh).

The Division had a strong presence at the Biennial Congress of the Society of Neurosurgeons of South Africa in Johannesburg, with invited talks by Professors Fieggen (*Re-thinking neurosurgery training in South Africa*), Figaji (*Monitoring the injured brain*), Semple (*Endoscopic vs. microscopic removal of pituitary tumours; Transsphenoidal surgery for Cushing's Disease*) and Taylor (*The natural history and treatment of cranio-spinal dural fistulas*) and original research presented by Dr P Ssenyonga (*The endovascular treatment of craniocervical vascular trauma*) and Dr C Thompson (*Central cord syndrome*).

Local

Members of the Division presented at the Annual Research Days of the Department of Surgery and the School of Child and Adolescent Health, as well as the Grand Rounds of Groote Schuur Hospital and the UCT Students Surgical Society.

Policy documents

Professors Fieggen, Taylor and Figaji played a major role in updating the Head Injury Guidelines for the Western Cape.

Research Grants

Generous grants from the Mauerberger Foundation Fund, Wellcome Trust, the MRC, Integra Foundation, Baroque Medical, Boston Scientific, Karl Storz and the Department of Surgery are gratefully acknowledged.

- The long-term sequelae of Selective Dorsal Rhizotomy in Cerebral Palsy patients
MRC Self-initiated Research Grant (PI: Professor AG Fieggen: 2008-2010)
- Multimodality monitoring of Traumatic Brain Injury; a collaborative study between the University of Philadelphia and the University of Cape Town; Integra Foundation (PI: Assoc Prof AA Figaji (UCT) and Dr P le Roux (U Penn): 2008-2010)
- CIDRI grant from the Wellcome Trust for a study of biomarkers of brain injury in tuberculous meningitis (PI: Assoc Prof AA Figaji: 2010-2012)

Editorial activities

Members of the department serve on the editorial boards of *Neurosurgery* (Peter, Fieggen), *Child's Nervous System*, *Journal of Paediatric Neurosciences*, *African Journal of Neurological Sciences* and *World Neurosurgery* (Fieggen), *Interventional Neuroradiology* (Taylor) and *European Spine Journal* (Welsh). Professors Fieggen and Figaji were appointed Section Editors of the ISPN online textbook *The Guide to Pediatric Neurosurgery* and Professor Figaji also served as Section Editor for the *Handbook of Paediatrics* (7th edition).

Teaching

Undergraduate

Dr le Feuvre was appointed convener of the undergraduate curriculum in Neurosurgery, which is taught as a combined Clinical Neurosciences course with Neurology. Annual lectures are given to students in Physiotherapy, Occupational Therapy and Nursing and medical students are taught in the following areas:

- MBChB III: Videoconferencing on Spina Bifida and lectures on congenital anomalies and hydrocephalus
- MBChB V: four-week Neurosciences block
 - 6 tutorials on specific topics, with material on Vula
 - weekly teaching ward round
 - two mornings spent in ward/ theatre
- MBChB VI: weekly tutorial on Paediatric Neurosurgery as part of Paediatric Surgery

Postgraduate

The two-year curriculum of topics supervised by Emeritus Professor JC Peter continued; a monthly Journal Club was reintroduced. Associate Professor Figaji ran a brain monitoring symposium for registrars at Inkosi Albert Luthuli Hospital in Durban. Dr Welsh continues to serve as co-convener of the annual UCT Cadaver-based Spinal Approaches Course.

Professional activities

Professor Fieggen and Assoc Prof Semple continued to serve on the Council of the *College of Neurosurgeons of South Africa* for the triennium 2008-2011, with Assoc Prof Semple serving as Secretary of the College and also a Senator of the Colleges of Medicine of South Africa.

Assoc Prof Allan Taylor continued to serve as Secretary of the *Society of Neurosurgeons of South Africa* for 2008-2010 and Dr Norman Fisher-Jeffes (part-time Senior Lecturer) continued his term as President of the Society.

Dr David Welsh continued to serve as Treasurer and Membership Secretary of the *South African Spine Society*.

Dr Roger Melvill (part-time Senior Lecturer) was elected as Vice-President of the *World Society for Stereotactic and Functional Neurosurgery* (WSSFN). He and Professor Fieggen and Dr Rothemeyer are the Organizing Committee for the 2nd Interim Meeting of the WSSFN to be held in Cape Town from 20-23 November 2011.

Associate Professor Taylor and Dr Le Feuvre are respectively Congress Chair and Secretary for the 9th Biennial Meeting of the *World Federation for Interventional and Therapeutic Neuroangiography* (WFITN) to be held in Cape Town from 8-12 November 2011.

Associate Professor Figaji serves on the Executive Board of the International Neurotrauma Society and was invited to join the Pediatric Traumatic Brain Injury Consortium.

Press

Head Injury Awareness week was marked by a program featuring ComaCARE and members of the Division on *Carte Blanche* (15 March 2010). The opening of the High Care Unit was noted in the Cape Times and Cape Argus and Professor Fieggen's Inaugural Lecture was covered in the *Weekend Argus* (SA Neurosurgeons pushing the envelope: Sunday 26 September).