For over 30 years, metastatic melanoma carried a very grave prognosis with overall survival of up to 8 months while on standard Dacarbazine chemotherapy. Numerous trials looking at different therapeutic agents failed to show any added survival benefit over Dacarbazine chemotherapy which had response rates (RR) of 10 – 15% at best.

Early phase trials, incorporating oral targeted BRAF inhibitor treatments (Dabrafenib/ Vemurafenib) in patients harbouring the BRAF mutation, resulted in a dramatic and rapid response in tumour regression with response rates of around 48% to 59%, progression free survival (PFS) of 6.9 months and overall survival (OS) of up to 18 months with treatment. BRAF inhibitors have also demonstrated promising responses intracranially with RR of up to 39%, PFS of 3.7 months and median OS of 7.6 months. As such, this has allowed for a delayed need of initiating local treatment to intracranial disease which had previously been the only standard of care.

Whilst BRAF inhibitors demonstrated good clinical efficacy through its focus on the Mitogen Activated Protein Kinase (MAPK) pathway, subsequent trials looking at other drugs targeting the same pathway were undertaken. This included the single agent MEK inhibitor (Trametinib) which demonstrated RR of up to 25% and PFS of up to 4 months.

The combination of BRAF and MEK inhibitors were later investigated aiming to provide dual point inhibition of the MAPK pathway resulting in improvement in PFS from 8.5 to 9.3 months and RR from 51% to 67% compared to the single agent BRAF inhibitor.

These agents in general have been well tolerated across a broad age group with a unique side effect profile including fevers, skin toxicity, GI upset, arthralgias and visual disturbances.

For BRAF wild type patients who harboured no BRAF mutations, treatment options were initially limited to chemotherapy including the use of Abraxane chemotherapy which later showed an OS benefit over Dacarbazine of 12.8 vs 10.7 months and PFS benefit of 4.8 vs 2.5 months in favour of Abraxane.

In 2010, intravenous CTLA4 inhibitors in the form of Ipilimumab were studied resulting in RR of 28%, OS of 10.1 months and 2 year survival rates of 23% given the potential long lasting effects of this immunotherapy agent.

Further to this, trials commenced on other immune-checkpoint inhibitors incorporating the PD1 inhibitors, Pembrolizumab and Nivolumab looked at enhancing the immune system and overcoming the host tolerance to the tumour in patients refractory to Ipilimumab. For Pembrolizumab, dramatic RR of up to 38%, PFS of 7 months and 81% 1 yr survival rates were reported. For Nivolumab, RR of up to 32%, median OS of 16.8 months, 62% 1 year survival rates and 43% 2 year survival rates were reported.

These agents are quite well tolerated, but immune mediated side effects have been associated with these newer immunotherapies which can mostly be managed with corticosteroids and hormone replacement therapy.

Trials looking at a combination of the PD-1 inhibitor, Nivolumab and Ipilimumab showed further improved response rates of up to 53% (all with 80% tumour reduction), 1 year survival rates of 85% and 2 year survival rates of 79% compared to either single agent alone, but increased the risk of immune related toxicity.

Ongoing trials are looking at combination BRAF and immunotherapy and different combinations of PD-1 and Iplilimumab, anti PD-L1 antibodies and looking at the efficacy of the immunotherapy agents like PD-L1 in the adjuvant setting, given recent reports of Iplilimumab improving recurrence free survival when trialled in the adjuvant setting.

Melanoma patients whose prognosis was previously measured in months can now realistically be measured in years with the advent of these newer therapies. I have been very fortunate to be part of this dramatic change in treatment paradigm for melanoma, moving from the era of chemotherapy to the era of targeted treatments and immunotherapies and, being an investigator in countless Phase I to III trials of targeted and immunotherapy agents over the last 5 years. I plan to continue this work through the San Clinical Trials Unit, as part of providing a comprehensive melanoma service which aims to promote and ensure ongoing availability of these effective treatment options for melanoma patients.

References available on request.
FREEZING ALL IVF EMBRYOS, THE NEW PARADIGM SHIFT

Dr. Jeffrey Persson

Dr. Jeffrey Persson is the Clinical Director at IVF Australia based at Sydney Adventist Hospital. He has over 20 years' experience in both male and female fertility issues. He trained and worked in Amsterdam before obtaining his MD. In 1995 he received his Fellowship of the Royal Australian and New Zealand College of Obstetricians and Gynaecologists and his Certificate in Reproductive Endocrinology and Infertility. P: 8488 9918 W: www.ivf.com.au

IVF is a good investment from a couple's perspective as well as that of society. IVF is now a mature medical treatment for infertility and has been available since 1978. One should however always consider whether current practice is ideal and isn't open to question and there is now good evidence that we can do better.

We should of course consider the convenience and benefits to the patient foremost, and patients are keen to conceive as quickly as possible especially during the stressful processes of infertility treatment, but is that always good?

During the last 35 years a woman using IVF had the first chance to know whether she was pregnant around 16 days after the eggs had been retrieved. This process for the purposes of efficiency generates a multiplier effect through controlled ovarian hyperstimulation and results often in the order of 10 eggs being collected.

The number-one danger with this has been ovarian hyperstimulation syndrome (OHSS) but using hyperstimulation has the highest overall chance of pregnancy.

As best practice, one now uses a GnRH antagonist to control the timing of ovulation and then triggers ovulation with a GnRH agonist. This produces a short LH surge avoiding hCG with a long half-life. This comes however with the cost of luteolysis (failure of progesterone development) and one must therefore freeze the embryos, but with the new paradigm shift, this doesn’t form a problem and merely delays implantation less than 4 weeks to the following physiological natural cycle. Embryo freezing with the advent of vitrification achieves nearly 100% successful thawing.

Vitrification is relatively simple and a programmed freezing machine is not required. A blastocyst stage embryo is rapidly dehydrated by reverse osmosis and then placed into liquid nitrogen with no ice crystal formation to damage the embryo. Freezing embryos has been the mainstay of avoiding multiple pregnancy risks. Enhancing frozen embryo outcomes has also been shown with natural cycle IVF. Another advantage of the natural frozen embryo transfer cycle appears to be fewer ectopic pregnancies.

Possibly more than 20% of repeated embryo implantation failure is due to uterine hostility through asynchronous embryo transfer with respect to the 2 day window of implantation and this is more likely to be avoided in the natural cycle that has undergone investigation.

New techniques such as the genomic endometrial receptor assay and light microscope nucleolar channel assay potentially offer a new way forward with this problem.

Delaying the single blastocyst embryo transfer to a more physiological environment of a natural ovulatory cycle by freezing embryos is likely more successful as well as safer for the patient and the baby.

The classical approach of fresh embryo transfer needs reconsidering and when a couple is advised of the increased chance of having a baby they may accept this change.

References available on request.
THORACIC AORTIC ANEURYSM
– MINI-BENTALL PROCEDURE

Professor Tristan D. Yan

PROF TRISTAN D. YAN  BSC(MED) MBBS MS MD PHD FRACS

Professor Tristan Yan is a consultant cardiovascular and thoracic surgeon who has strong clinical and research interests in thoracic aortic aneurysms. He completed advanced fellowships in aortic surgery (England), minimally invasive thoracic surgery (Scotland) and minimally invasive cardiac surgery (Germany). He is the Editor-in-Chief of the Annals of Cardiothoracic Surgery.

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WE SHOULD MAINTAIN A HIGH INDEX OF CLINICAL SUSPICION

Aortic aneurysm is a common aortic pathology requiring prompt surgical intervention. The symptoms associated with an aortic aneurysm can often be subtle, including those related to aneurysm expansion (e.g., chest pain or breathlessness) and compression of adjacent structures (e.g., hoarseness or stridor). Unfortunately, many of our patients may be undiagnosed or even misdiagnosed, until they present with catastrophic complications, such as acute aortic dissection, aortic rupture, cardiovascular collapse, malperfusion and/or death. This is why historically ‘aneurysm’ has been perceived as the ‘old demon’ up and down the aorta in the surgical literature. We, as clinicians, ought to maintain a high index of clinical suspicion for patients with a possible aortic aneurysm.

BICUSPID AORTIC VALVE ASSOCIATED THORACIC AORTIC ANEURYSM

Bicuspid aortic valve (BAV) is the most common congenital heart condition, affecting 2% of the general population. BAV is a clinically heterogeneous disorder with a high rate of surgically relevant aortic valve and ascending aortic complications, which occur in over 35% of those affected1. As such, BAV confers a greater burden of disease than all other congenital heart diseases combined. Familial clustering and genetic studies have established that BAV has a heritable trait, with approximately 10% prevalence amongst first-degree relatives, and up to 25% in families with more than one affected family member1. Thoracic aortic aneurysm (TAA) is common in BAV, reported in up to 50 – 60% of affected individuals1,2.

predisposing to aortic dissection/rupture, the most feared complication in this relatively young population. Indeed, BAV conveys an 8-fold increased risk of aortic dissection and over a 25-year period, the risk for aneurysm formation is 26% and for aortic surgery is 25%, further highlighting its clinical importance.

According to the Class I recommendation by the American College of Cardiology Foundation (ACCF) and the American Heart Association (AHA) guidelines3:

1. First-degree relatives of patients with a BAV and/or a familial form of TAA and dissection should be evaluated for the presence of a BAV and asymptomatic thoracic aortic disease.
2. All patients with a BAV should have both the aortic root and ascending thoracic aorta evaluated for evidence of aneurysm.

HOW TO DIAGNOSE THORACIC AORTIC ANEURYSM?

Computed tomography (CT) Thoracic Aortogram is the most commonly used imaging modality for the diagnosis of TAA. It provides information regarding the size, location, and extent of the disease. The other imaging techniques include: CXR, MRI, TOE and aortography.

WHAT ARE THE INDICATIONS FOR SURGERY?

The timing for surgery is largely based on symptoms and the size of the aneurysm. In addition, surgery should be considered earlier if patients have a connective tissue disorder.

CLASS I RECOMMENDATIONS

1. Patients with symptoms suggestive of expansion of a TAA should be evaluated for prompt surgical intervention unless life expectancy from comorbid conditions is limited or quality of life is substantially impaired
2. Asymptomatic patients with TAA, who are otherwise suitable candidates and for whom the ascending aortic aneurysm is ≥ 5.5 cm should be evaluated for surgical repair
3. Patients with connective tissue disorders (Marfan syndrome, BAV, vascular Ehlers-Danlos syndrome, Turner syndrome, or familial thoracic aortic aneurysm and dissection) should undergo elective operation at smaller diameters (4.0 to 5.0 cm) to avoid acute dissection or rupture
4. Patients with a growth rate of > 0.5 cm/year in an aorta that is < 5.5 cm in diameter should be considered for operation

THORACIC AORTIC SURGERY

A ‘Mini-Bentall’ procedure is an aortic root and ascending aortic replacement, performed via a minimally invasive approach (Figure 1). Professor Yan specialises in performing aortic valve replacement, aortic root replacement and aortic arch replacement via a 5 – 7 cm midline incision. A typical patient with a bicuspid aortic valve and thoracic aortic aneurysm would expect no blood transfusion, early extubation, less than one week of hospital stay and better cosmesis (Figure 2).

References available on request.
AN INCIDENTAL FINDING OF CEREBRAL ANEURYSM

Dr Gordon Dandie

With the increased utilisation of high resolution CT and MRI scans to investigate patients presenting with trauma and neurological symptoms in recent years, there has been a significant increase in the number of incidental cerebral (or berry) aneurysms being detected. The question then arises as to whether the aneurysm needs to be treated or not. If treatment is necessary, should it be surgical or endovascular? Then the question of screening of relatives of the patient is also relevant. Helping patients and their families answer these questions requires careful explanation of the natural history of cerebral aneurysms and weighing this risk against the risk of treating the aneurysm.

Cerebral aneurysms occur in approximately 2% of the general population. In 20% of patients there are multiple aneurysms and females are three more times likely to have an un-ruptured aneurysm detected than males. Modifiable risk factors for aneurysm detection are cigarette smoking and hypertension. There also a number of disorders with an increased risk of cerebral aneurysm such as Adult Polycystic Kidney Disease.

Around 10% of patients have Familial Cerebral Aneurysm Disease. This is defined as two or more first degree relatives with a history of cerebral aneurysm or aneurysmal subarachnoid haemorrhage (aSAH). These aneurysms generally behave in a more aggressive manner; they cause SAH at an earlier age, are more likely to be associated with a poor outcome, and are more likely to be multiple.

Management of an incidentally detected aneurysm is determined by considering the risk of SAH if it is left untreated versus the risk of treatment either by endovascular techniques or open surgery. Unfortunately there remains a significant debate about the natural history of unruptured aneurysms despite a number of large international studies having been completed. The risk of rupture is affected by multiple factors including aneurysm size, location, morphology (multi-lobed, daughter aneurysms), and patient age, medical history, history of previous SAH and family history of SAH. Collating multiple sources of data suggest the risk of rupture of aneurysms <10mm in diameter is around 1% per annum and the risk is cumulative, so after a decade the risk is 10%. If a patient has an aSAH, there is a 40% risk of death or significant neurological deficit. Aneurysms 10 – 25mm in diameter have an approximately 3 – 6% per annum risk of rupture and >25mm a 10% per annum risk. Posterior circulation and Posterior Communicating Artery aneurysms carry a greater risk of rupture. Aneurysms under 4 mm diameter carry a lower risk of rupture. In a majority of cases the risk of treatment is far less than the cumulative risk of not treating, although aneurysms 1 – 3mm in size will often be observed with serial imaging.

Currently endovascular treatment is the first line choice. This involves filling the aneurysm with coils of platinum wire via an angiographic catheter (figure 1a and 1b). The anatomy of the aneurysm determines if this is possible, and newer techniques including stent assisted coiling and flow diversion stents have increased the range of aneurysms that can be treated this way. The downside of coiling is an initial increased need for surveillance angiography and a 5% chance of requiring further treatment if the aneurysm re-canalises as a result of coil compaction.

Open microsurgical repair of an aneurysm is required if its anatomy is unsuitable for coiling, such as a branching vessel arising from the fundus of the aneurysm (figure 2a and 2b). Newer techniques including minimally invasive craniotomies and the use of intra-operative ultrasonic microflow probes and indocyanine green video-angiography have made neurosurgical treatment less invasive and safer, with a cure rate of 99%. Less angiographic surveillance is required post procedure. The risk of coiling and open surgery are similar for mortality (1%) and major morbidity (4%). Both require a general anaesthetic.

The Sydney Adventist Hospital has recently expanded its cerebrovascular service with the appointment of two experienced interventional neuroradiologists and can now offer a wide range of endovascular treatment for cerebral aneurysms.

References available on request.
Recently, there has been increased incidental radiologic detection of small renal tumours. Historically their biologic nature is 60–70% malignant (renal cell carcinoma) and 30–40% benign (angiomyolipoma, oncocytoma). Their nature may be further elucidated by MRI scan, or renal biopsy. In a medically well patient the gold standard would be surgical excision. Otherwise observation and surveillance is initially suitable with intervention dependent on growth rate. The traditional open flank incision is morbid in that there can be chronic wound pain from nerve injury or wound bulge, notwithstanding the inpatient stay of at least 7–10 days for analgesic reasons.

Laparoscopic partial nephrectomy is technically demanding because laparoscopic suturing is difficult. Also, visualisation via the assistant holding the camera, which is not completely still, and who may also be required to use suction at the same time through a separate port – makes the procedure less than satisfactory. It has been shown that for pT1a lesions (<4cm in diameter), long term oncologic outcomes for partial nephrectomy are comparable to radical nephrectomy, with the added benefit of renal mass/glomerular preservation.

Robotic-assisted partial nephrectomy has the key advantage of improved dexterity for suturing during renorraphy. Other advantages are improved vision with camera stillness, and tremor filtration. Possible disadvantages include lack of tactile feedback, and a psychological sense of surgeon discomfort given he is not operating at the patient’s bedside, and is removed from the patient whilst inside the robotic viewing console. This is most concerning during renal hilar dissection of the renal vein and artery. This is why the bedside assistant surgeon must be familiar and experienced with the procedure.

Experienced robotic teams are able to produce good outcomes. These outcomes include; median warm ischaemic time (WIT) <30 min. (should be closer to 20 min.), positive surgical margin rate <5 – 8%, estimated blood loss <300 ml., total operative time <120 – 180 min., Clavien grade III overall complication rate <15% (which includes angio-embolisation for post-operative renal bleeding or urine leak). The medium to long term post-operative serum creatinine and eGFR should not change by much more than a slight deterioration.

Surgeon and team inexperience leads to complications. This also applies to cases performed within the learning curve, which is around 20 – 25 cases. In these instances it is necessary that sound proctoring and surgical assistance is available to maintain standards. It is felt that previously experienced laparoscopic surgeons have fewer learning curve problems. The use of the da Vinci surgical skills simulator has been shown to shorten the learning curve.

Warm ischaemic time (WIT) relates to the period of time the renal artery is clamped during tumour excision, followed by suture reconstruction of the kidney. Longer than 30 min. is associated with long term renal filtration injury. Various renorraphy methods are described, but the overall aim is to limit WIT to 20 – 25min. Haemostatic agents play a role here. These include Tisseel and/or FloSeal. However the most important technique is deep followed by cortical, tamponade closure of the kidney. This includes en-mass closure of any collecting system defect. Failure to achieve tight closure will result in either or both post-operative renal bleeding or urine leak from an open collecting system.

My feeling is that at the current stage of the evolution of robotic-assisted partial nephrectomy in Sydney, patient and tumour selection is pivotal. The ideal case would be a female, not thin, even slightly overweight, with a T1a less than 4cm tumour, located either laterally or off the renal lower pole and quite exophytic, not endophytic or central, not near the hilum, not upper pole or medial, and not posterior. The reason that an overweight female is better is that the abdominal wall muscles are more pliable, and the intra-abdominal working space during pneumoperitoneum tends to be best. The lean and muscular male will tend not to distend as well and so the working space for the robotic arms can be limited. The bed side assistant should be a colleague surgeon with almost the same level of experience as the primary operator. Intra-operative ultrasound can be used in more endophytic tumours to help define surgical planes.

More complex cases can be attempted, with the understanding that the risk of bleeding and or urine leak are higher.

References available on request.
COLOURED FRUIT & VEGETABLES MAY REDUCE DAMAGE IN THE OLDER PERSON’S BRAIN

Associate Professor Ross Grant

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A/Prof Grant is CEO of the Australasian Research Institute at Sydney Adventist Hospital and Clinical Associate Professor, University of Sydney Medical School. His research interests include nutritional effects on adolescent vascular and neurobiological health and lifestyle choices on the induction of oxidative stress in the young and older population and its relationship to disease.
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Neuroinflammation and oxidative stress are established features mediating the complex interplay between environmental and biological factors involved in the development of neurodegenerative disease. Under normal conditions both immune and oxidative activity are largely transitory due to inherent negative feedback mechanisms involving increased production of anti-inflammatory cytokines and enhanced endogenous antioxidants (e.g. glutathione peroxidase, catalase or superoxide dismutase). However during periods of chronic disease, these processes can be continuously activated often amplifying each other in a positive feed forward cycle, causing cell damage, and if left unchecked, neuronal dysfunction and degenerative disease. Increased secretion of inflammatory cytokines such as TNF and IL-6 appear to be key moderators in this process.

If this cumulative, subclinical damage to the CNS is to be halted it is important to know what the primary activators are. While age is the major risk factor for the development of most neurodegenerative disorders, a number of lifestyle choices have been linked to either promotion or prevention of pathogenesis most likely through either increasing or decreasing oxidative stress and inflammation. In particular Mediterranean style diets, which are highly plant based, are associated with a reduced risk of neurodegenerative disease. It is not known however which of the many plant chemicals provides this benefit. A recent study carried out at the Australasian Research Institute (ARI) at Sydney Adventist Hospital has been able to shed some light on this important question.

The study aimed to answer two questions:
1) Is oxidative stress and inflammatory activity increased in brains of healthy older people; and 2) Is the level of oxidative or inflammatory activity in the brain associated with any dietary derived components.

Using a cross section design of healthy individuals aged 24-91 years the team found that markers of inflammation (in particular IL-6) and oxidative damage (F2-isoprostanes, 8-OhdG, total antioxidant capacity) increased significantly in the cerebrospinal fluid (CSF) of healthy adults over the age of 45. These results suggest that the brains of older adults may be more susceptible to initiating causes of oxidative and inflammatory activity. Importantly the investigators also observed that lower levels of both inflammation and oxidative stress were associated with higher plasma levels of the class of plant derived phytochemicals called carotenoids. Carotenoids are responsible for the red, orange, and yellow pigments of fruit and vegetables and in previous studies have been shown to have potent antioxidant and anti-inflammatory properties. In particular the ARI research team found that carotenoids lycopene and β-cryptoxanthin were both associated with reduced levels of the inflammatory cytokine IL-6 (p<0.02). In addition higher levels of lycopene also helped preserve NAD+ levels in both the plasma (p<0.001) and CSF (p<0.01).

Because of its role in DNA repair NAD+ (Figure 1 A,B,C) can be quickly used up when cells are damaged during oxidative and inflammatory activity. The importance of maintaining optimum NAD+ levels is a growing area of interest in medical research as NAD+ is critical to cell health. Decreased NAD+ levels constrain essential biochemical pathways such as energy (ATP) production, DNA repair, and activation of the sirtuins, a novel class of enzymes linked to longevity.

So what are the practical implications of these findings? Neurodegenerative dementias (e.g. Alzheimer’s disease), are recognised as one of the top three causes of death in Australia after ischemic heart disease and cerebrovascular disease. The risk of neurodegenerative disease, leading to dementia increases with age, affecting 1% of 65 – 69 year olds and increasing to 28% of centenarians. Based on projections of population ageing and growth, the number of people with dementia is predicted to reach 400,000 by 2020. With the total direct health and aged care system expenditure for people with dementia estimated at > $4.9 billion in 2009–10, any effective intervention will result in substantial personal as well as public health savings. If damage to the brain, particularly in older people, can be reduced by increasing carotenoid intake potentially delaying onset of dementia it certainly seems worthwhile, even if proved effective only in a subset of the population. In addition to the potential benefits in the brain, some of the carotenoid class of molecules such as β-carotene can also be converted into vitamin A with its well-known benefit to eye health. Other carotenoids such as lutein and zeaxanthin may also be protective to the macular of the eye where they are selectively concentrated, and effectively absorb damaging blue light that enters the eye.

How much carotenoids are needed? The recommended intake of fruit and vegetables is two serves of fruit and five serves of vegetable per day. As the carotenoids are contained in the coloured fruits and vegetables (red, orange, purple, green), including predominantly coloured vegetable or fruit at every meal should provide adequate intake.

So what is becoming increasingly clear, as for other diseases of the body (e.g. heart disease), choices about diet can positively assist in maintaining brain health. The right choices, particularly after mid-life can set the body and brain up for a healthier older age.

References available on request

Figure 1. Carotenoid effects on [NAD+] & inflammation.
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To find a San Specialist visit www.sah.org.au.
**NEWS FROM SYDNEY ADVENTIST HOSPITAL**

- Sydney Adventist Hospital’s (SAH) $200 million Redevelopment was officially opened by Prime Minister Tony Abbott in October. Broadcaster Tim Webster acted as master of ceremonies at the event which was attended by more than 500 guests and various dignitaries including Federal Health Minister Peter Dutton and State Health Minister Jillian Skinner.

- The expansion increases the Hospital’s capacity to a total of over 550 inpatient beds, another 300 plus day beds and up to 24 operating theatres. See www.sah.org.au/devt.

- Sydney Interventional Radiology at SAH provides a 5 day week routine IR service, and after-hour on-call service for medically urgent cases. The team of IRs include Dr Eisen Liang, Dr Murthy Chennapragada, Dr Chris Ragan, Dr Rajiv Rattan, Dr David Boshell, Dr Richard Maher, Dr Nick Rippen and Dr Murali Gundaguntla. Contact 9487 9845.

- SAH Anaesthetist Dr Paul Stewart presented research undertaken at SAH – on the comparison of Kinemyography and Electromyography spontaneous recovery from non-depolarising neuromuscular blockade – at the Australian Society of Anaesthetists 73rd National Scientific Gold Coast meeting. The research was awarded the Gilbert Troup Award and Medal – the highest anaesthetic research award.

- San Ultrasound for Women’s Dr Philippa Ramsay co-authored ‘Clinical implementation of cell-free DNA based aneuploidy screening: perspectives from a national audit’, published in the journal of Ultrasound Obstetrics and Gynaecology.


- SAH ENT A/Prof Catherine Birman performed the 200th Cochlear implant at SAH in October.

- The Wound Clinic at SAH is celebrating 25 years of service to the community. It is Australia’s longest running nurse-led outpatient chronic wound management service.

- SAH won Medline’s 2014 Pink Glove Dance competition for breast cancer awareness. The $10,000 prize money was donated to Breast Cancer Network Australia. See www.pinkglovedance.com.au

- Former SAH Anaesthetist Dr Patrick Kelly was awarded the title of ‘Emeritus Consultant’ in Anaesthesia by the Adventist HealthCare Board of Directors in recognition of his contribution to the Hospital over the last 47 years.

- IVF Australia is now on-site at SAH offering consultations with Dr Rob Lahoud and Dr Jeffrey Persson complementing existing fertility specialist services. Contact 9425 1780.

- From February 2015 Dalcross Adventist Hospital Killara will offer rehabilitation services for orthopaedic, spinal and other patients. As a previous provider of rehabilitation services, with expert rehabilitation consultants (Drs Lam, Mackie and Kennedy) and clinical staff with extensive rehabilitation expertise, 11 beds are expected to be available with the capacity to expand to more than 30 beds.

- The Radiation Oncology Institute at SAH has purchased Australia’s first TomotherapyEdge machine; the most advanced radiation treatment machine available in the world today. TomoEdge reduces treatment time to seven minutes, greatly minimises side effects, treats multiple tumours at the same time and can retreat patients who otherwise could not have further radiation treatment on standard equipment. Contact 9487 9300.

- The new 30-chair Day Infusion Centre dedicated for chemotherapy and day infusion treatments at SAH is now open. When at full capacity the Centre can treat approx. 90 – 100 patients per day. Open Mon – Fri 7:30am – 7pm, & Saturday 7:30am – 3:30pm. Contact 9487 9591.

- SAH’s Dr Emily Granger and Dr Kumid Dhital performed world-first heart transplant surgery alongside another surgeon at St Vincent’s Hospital. The operation, dubbed ‘Heart in a box’ saw three hearts that had stopped beating transplanted.