INTRODUCTION

For the treatment of bladder outlet obstruction due to benign prostatic hyperplasia (BPH) there are, broadly speaking, three options: drugs, minimally invasive surgery (MIS) or definitive surgery such as TURP, bladder neck incision for small prostates, and laser prostatectomy either by vaporisation or enucleation. Currently there is a plethora of minimally invasive procedures for BPH including new stents, Rezum steam thermotherapy, Urolift (mechanical retraction of the prostatic lobes), and prostatic artery embolisation (PAE). Treatments abandoned because of failure or lack of long term benefit include balloon dilatation, stenting, intraprostatic injections, freezing, and heating (with microwave, radio frequency, high intensity ultrasound, and various lasers).

The rationale of MIS is to provide relief of symptoms while avoiding the side effects of medical therapy and the complications of definitive surgery. Regarding surgery the main focus is on reducing sexual dysfunction including erectile dysfunction (ED) and ejaculatory dysfunction (EjD). Contrary to popular belief there is little data indicating that erectile dysfunction is common following TURP or equivalent procedures. The estimated incidence varies but has been reported to be 6.5% after TURP, 2% after laser enucleation, and rare after green light laser prostatectomy (GLL). In a systematic review of TURP and laser enucleation (HoLep), ED occurred in 0-17% of cases. The same review also reported an improvement in erectile function in 0-20% of cases after TURP and laser enucleation as do a number of other studies. In my experience, de novo erectile dysfunction is rare after TURP or green light laser prostatectomy.

On the other hand ejaculatory dysfunction is very common. In most cases it is manifested by dry orgasm (often referred to as retrograde ejaculation although there is debate about the mechanism). Reduced satisfaction or failure to reach orgasm can also occur but few studies adequately address these variations. Ejaculatory dysfunction is reported in 50-86% of cases after TURP and in 35-96% of cases after laser enucleation. Modifications to surgical technique have been shown to reduce the risk of EjD after TURP and green light laser prostatectomy, without compromising the relief of obstruction. Minimally invasive procedures typically have a zero or very low chance of ejaculatory dysfunction, so it stands to reason that MIS options (such as Urolift, Rezum, and PAE) have the greatest potential benefit in sexually active patients who are concerned about ejaculatory dysfunction. Many patients undergoing surgery for prostatic obstruction have pre-existing ED and EjD so definitive surgery (e.g. TURP, BNI, GLL) with excellent relief of symptoms becomes an attractive treatment option in this cohort. The trade-off for MIS is the increased need for retreatment. At one year in the UK-ROPE study, retreatment for PAE was 20% compared to 4% for TURP.

A full analysis of Rezum, Urolift and PAE is beyond the scope of this article but is available in an excellent review by Magistro et al.

POSSIBLE FUTURE DIRECTIONS

Aquablation (AqB) is an innovative treatment for BPH using a high pressure water jet through a micro nozzle to remove tissue. The amount of tissue to be removed is mapped accurately on ultrasound. The procedure is then performed robotically while the surgeon watches.

Advantages:
* Rapid non-thermal removal of tissue, faster than TURP
* Accurate preservation of tissue at the bladder neck and near ejaculatory ducts may reduce the risk of EjD
* Less heating may reduce postoperative discomfort
* Potential to treat very large prostates.

Disadvantages:
* Initial setup is complex and quite “daunting”
* Not widely available.

TAKE HOME MESSAGE

Surgical treatment is appropriate for patients who don’t respond to, or do not tolerate medical therapy, or do not wish to be on lifelong medications. Sexual function status should be determined prior to counselling on the advantages and disadvantages of MIS and definitive surgery.

Figure 1: Ejaculatory dysfunction post-surgery (%)
Breast cancer oncoplastic reduction mammoplasty

Dr Nicholas Ngui
MBBS (Hons, UNSW), FRACS
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PRINCIPLES OF ONCOPLASTIC REDUCTION MAMMOPLASTY (ORM)

Breast cancer is the most common cancer in women with 1 in 8 Australian women affected in their lifetime. The goals of breast cancer surgery are to remove the cancer with clear margins, with a secondary aim of maintaining or recreating the breast shape and aesthetic appearance. The majority of early breast cancers are managed with breast conserving surgery often known as a wide local excision or “lumpectomy” followed by radiotherapy to the remaining breast. The benefits include being less invasive than a mastectomy whilst delivering equivalent oncologic outcomes. In many situations, a simple lumpectomy may not achieve the best outcome such as in women whom are large breasted (macromastia) or have breast cancers located in difficult to manage locations, such as the inner and lower quadrants of the breast where a simple resection may lead to an obvious defect or deformity.

ORM is a type of oncoplastic surgical technique that involves utilising and adapting the traditional breast reduction operation together with a breast cancer lumpectomy.

WHO IS SUITABLE FOR AN ORM?

Breast cancer patients who are large breasted are particularly suitable. Larger volumes and therefore larger tumours can be resected with wider margins whilst achieving an excellent cosmetic result over a simple lumpectomy. Diabetes and smoking is not a contraindication, but may increase the risk of wound breakdown as it is a more complex operation compared to a simple lumpectomy. Following an ORM, the patient will receive radiotherapy to the breast, and so newly diagnosed breast cancer patients considering a breast reduction are encouraged to have an ORM before radiotherapy. Breast reduction surgery following radiotherapy is relatively contraindicated due to wound healing issues associated with radiotheraped breast tissue.

WHAT DOES THIS PROCEDURE INVOLVE?

Preoperative planning and mark up is crucial to achieving an adequate tumour margin whilst achieving excellent cosmesis. Most standard breast reduction mammoplasties performed for non-cancer patients utilise a Wise pattern (typically shaped like an anchor) with a reliable superomedial or inferior nipple pedicle, meaning the nipple areolar vascular pedicle originates superomedially or inferiorly in the breast.

Breast cancers can occur anywhere in the breast and so the internal pattern of the ORM needs to “adapt” to the position of the lumpectomy. If the cancer is located in a position where the breast is normally removed during a breast reduction, then a standard reduction is performed, with the cancer conveniently located inside a standard breast reduction specimen. If the cancer is located outside a standard breast reduction specimen, such as within a standard pedicle or breast parenchyma that needs to be preserved during a standard breast reduction, then an alternate pedicle such as a lateral pedicle or even a secondary pedicle is used. A secondary pedicle is where another pedicle is used to fill in the lumpectomy defect, most often from an area that would have been resected during a breast reduction. ORM can be performed for cancers located anywhere in the breast, including retroareolar cancers.

The nipple areolar complex is preserved and moved superiorly, giving a breast lift. In rare situations the nipple areolar complex may need to be sacrificed if the cancer involves it, or if there is excessive ptosis where nipple ischaemia may be a risk.

Almost all patients elect to have a bilateral procedure during the same anaesthetic, achieving excellent long term symmetry. A bilateral breast reduction mammoplasty when combined with a breast cancer lumpectomy and sentinel node biopsy takes about 3-4 hours to perform. The final breast size is determined by patient preference and also the cancer resection volume. Patients typically stay in hospital for 2-3 nights and are discharged home with no drains.

WHAT ARE THE MAIN BENEFITS OF ORM?

1. Superior oncocologic margins. This is due to being able to resect much larger volumes compared to a simple lumpectomy.
2. Superior cosmetic result. The breast is reshaped as opposed to a simple lumpectomy where the breast parenchyma is re-approximated. This also corrects breast ptosis. The final breast often looks better than the original breast.
3. Improved quality of life such as less neck, shoulder and back pain associated with macromastia
4. Less complications from radiotherapy e.g. chronic breast lymphoedema and pain. The final breast is much smaller and therefore less prone to long term side effects compared to a large breast treated without an ORM.
5. Greater patient satisfaction. The vast majority of patients are extremely happy with their breasts after an ORM.

WHAT ARE SOME COMPLICATIONS?

Complications are uncommon, however there can be wound healing issues such as skin necrosis which may require wound dressings, and very rarely nipple necrosis. Some women may experience less nipple sensation.

References available on request.

Figure 1a, 1b & 1c: Patient with a multifocal right upper inner quadrant cancer. A secondary pedicle is used to fill in the tumour bed and the nipple pedicle is originating inferriorly. Photos before surgery, during mark up with hookwire localisation, and after surgery (2 weeks post op).

Figure 2a, 2b & 2c: Patient with a breast cancer at 12 o'clock in the right breast and significant ptosis. An inferior nipple pedicle was used. Before surgery, during mark up, and after surgery followed by radiotherapy (1 year post op).
The San – a digital hospital

Australia spends $170 billion per year on health, with $66 billion going to hospitals and $59 billion to primary care. Of the hospital expenditure, public hospitals account for $51 billion and private hospitals $15 billion (Australia’s Health 2018, AIHW). Cost containment, particularly increasing efficiency, is always on the agenda. Digital health, using technology to facilitate rapid accurate information transfer, has the potential to drive efficiency, along with improved quality of care, but there are many obstacles – technical, cultural and financial – which have led to Australian hospitals lagging behind much of the rest of the world.

DIGITAL HOSPITALS

According to the Healthcare Information and Management Systems Society (HIMSS) rankings, Australia has just one fully digital inpatient hospital. St Stephen’s at Hervey Bay, a 96-bed private hospital, opened in 2014 after being part-funded by a $47 million Federal Government grant to be a pilot digital healthcare model. This model, however, has so far not proved transferable to other private facilities due to its high costs. Nevertheless, several Australian public hospitals are now approaching the top level in the HIMSS rankings, and the San is not far behind.

The HIMSS rankings focus primarily on the capabilities of a hospital’s electronic medical record (EMR), but there is more to a digital hospital than an EMR. According to Standards Australia’s new Digital Hospitals Handbook, a digital hospital “leverages comprehensive, pervasive information management and information communications technology to support clinical and administrative workflows, and safety and quality improvement”. The digitisation must also extend into the hospital’s building and infrastructure systems.

SAN EMR ACCESSIBLE ANYWHERE

Among Australian private hospitals, the San is recognised as a leader for its extensive and innovative use of digital technologies (see box). Few other Australian private hospitals have an electronic medical record, yet the San has had one since 2010, with electronic administrative systems for a decade before that. Developed in-house, the San’s “SanCare” EMR has a patient-centric view and is acknowledged by our doctors as easy to use. It has evolved by building it around the user experience, with an agile and iterative approach to enable modifications according to users’ behaviour and workflows. Mobility has always been a priority at the San, and remote access to the EMR was initially via a VPN, but has transitioned to a cloud-based Virtual Desktop Infrastructure, known as Virtual Desktop Infrastructure, known as VPN, but has transitioned to a cloud-based remote access to the EMR was initially via a

The SanCare Mobile App has been a game-changer, and 55% of doctor activity on our systems is now via the app. Some San specialists have confessed to using the app when they’re in bed at night to check on patients, or to doing a “ward round” at home over breakfast before they arrive at the hospital!

Continuing the mobile strategy, the San also has apps for radiographers and wardsmen to maximise efficiency in attending to patients, and a patient app is in development. The strategy is now extending to “mobile first”, in which there is functionality in the mobile apps that is not available in the desktop applications.

References available on request.
INTRODUCTION
Severe symptomatic aortic stenosis (AS) is a major risk factor for non-cardiac surgery such as vascular repairs of abdominal aortic aneurysms (AAA).

In these patients where surgical aortic valve replacement is considered high risk, transcatheter aortic valve implantation (TAVI) is a reasonable alternative.

In this article we describe a case of a frail elderly patient with severe symptomatic AS and a AAA who underwent simultaneous TAVI and endovascular aneurysm repair (EVAR). Whilst TAVI and EVAR procedures are routinely performed, we believe this is the first time it has been performed simultaneously.

CASE REPORT
Here is a case of an 83-year-old man who presented to the vascular surgeon initially with a 5.9cm AAA requiring potential repair. He had a background history of previous coronary bypass surgery, chronic atrial fibrillation, and a previous ischaemic stroke. He was found to have severe aortic stenosis with a peak gradient of 96mmHg and mean gradient of 66mmHg.

His symptoms on presentation were progressive exertional dyspnoea, consistent with his worsening aortic stenosis. This man therefore required an AVR based on his symptoms and severity of his AS, as his prognosis was poor if left untreated. Symptomatic severe AS left untreated can carry a mortality rate of up to 50% at 2 years. He was offered a TAVI due to his high surgical risk for an open AVR.

The decision to perform both the TAVI and EVAR simultaneously had many advantages including a single anaesthesia, single vascular access and a shortened procedural time.

The procedure was performed under general anaesthesia in our Hybrid Cardiac Catheterisation Lab. Both femoral arteries were percutaneously accessed, with the insertion of a 20F sheath in the right and an 8F sheath in the left femoral artery. Both sides were pre-closed with two Proglide vascular closure devices.

The TAVI procedure was performed first, followed by the EVAR.

The aortic valve was crossed with a slippery wire, then exchanged for a safari wire. This was followed by a balloon aortic valvuloplasty (BAV) with a 22mm Numed balloon. This initial predilatation of the valve is often necessary in very severe calcific AS, to allow easier passage of the new valve and to ensure adequate and full expansion of the valve.

After the BAV, we inserted a 34mm Medtronic Evolut R valve, at a depth of 5-6mm at the non and left coronary cusps which is the ideal position for this valve. There was no residual aortic valve gradient or aortic regurgitation, hence the valve was successfully deployed.

After valve deployment, the vascular surgeon Dr Tae Cho stepped in and performed the EVAR. The main body was inserted up the right groin after removing the sheath that was used for the TAVI.

The endovascular surgical neck, which is in essence the seal zone was 27mm long and adequate.

The main body diameter was 32mm, which is within the usual oversizing of 15-20% and deployed just below the left renal artery. The contra lateral gate was cannulated and the contra lateral limb deployed and sealed at the common iliac artery. The ipsilateral limb was deployed and sealed at the same level without any evidence of a leak.

This additional procedure took less than 1 hour and required 5 additional acquisition runs totalling 75mls of contrast. The groins were satisfactorily closed with the Proglide vascular closure devices.

DISCUSSION
Severe aortic stenosis is a major risk factor for non-cardiac surgery. Surgical stress and anaesthesia can lead to tachycardia and hypotension and impaired haemodynamic response due to the fixed cardiac output from aortic stenosis. This can lead to myocardial ischaemia, infarction and death.

EVAR as the treatment choice is considered more suitable for patients with severe aortic stenosis and other co-morbidities, therefore AVR would need to be considered prior to non-cardiac surgery. TAVI is an excellent alternative to open surgical AVR (SAVR) in high risk patients.

The combined TAVI and EVAR offers many advantages for the patient. Systemic blood pressure can rise after TAVI, after removing the aortic valve pressure gradient, increasing the risk of rupture of a AAA, thus combining the procedure reduces the risk of AAA rupture.

Vascular access complications and bleeding are a major morbidity for both EVAR and TAVI. For EVAR, the rate of vascular complications is around 8%. For TAVI, the rate of major vascular complications and life-threatening bleeds is around 5.9% and 13.6%. Accessing the femoral vessels once for both procedures significantly reduces the vascular complication risk.

The other advantages relate to having a single anaesthesia, reduced procedural time and overall a shortened length of stay for a patient.

In conclusion, a patient with both severe symptomatic aortic stenosis and an abdominal aortic aneurysm can be successfully treated with a combined TAVI and EVAR procedure, offering many advantages to the patient and leading to a better outcome.
There is a paradigm shift in the management of large hiatus hernia

**Associate Professor Gregory Falk**
MBBS, FRACS, FACS

Clinical A/Prof Gregory Falk is a senior VMO at Sydney Adventist Hospital and at the Repatriation General Hospital Concord where he is Head of Department of upper gastrointestinal surgery. His primary interest is in the upper gastrointestinal area of oesophago-gastric diagnosis, physiology and surgery dealing with carcinoma, large hiatus hernia, anti-reflux surgery and oesophageal motility diseases. He is the Director of the surgical oesophageal physiology laboratory at RGHC, and runs a private innovative diagnostic oesophageal physiology laboratory at Lindfield. He has been a pioneer of advanced laparoscopic surgical techniques with multiple publications in these areas.  

**INTRODUCTION**

The frequency and importance of large hiatus hernia is underestimated in the general medical and gastroenterological community currently. Although it may cause heartburn and regurgitation these are not the most problematic symptoms and recognition of the associated entrapment symptoms is vital in protecting patients against catastrophe. Endoscopy is not the best diagnostic test for the size and nature of hiatus hernia and any potential for strangulation is better evaluated by well performed barium meal using double contrast.

**PRESENTATION**

As the hernia increases in size kinking of the cardio-oesophageal junction reduces reflux events (Figure 1) and dysphagia increases.

![Dysphagia - kinked and compressed oesophagus](image)

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**Diagnosis**

Diagnosis is mainly by symptoms with a strong index of suspicion. Chest x-ray is useful, barium meal is preferred to endoscopy, but does require an experienced radiology practitioner. Findings are variably reported as large hiatus hernia, type 2, 3, 4 hiatus hernia, incarcerated hiatus hernia, para-oesophageal or rolling or mixed hiatus hernia. Any of these descriptions are a cause for concern and the necessity for seeking expert upper gastrointestinal surgical oesophago-gastric advice. Hernias greater than 4 cm in size at endoscopy would also benefit from a barium study, as they are frequently partly ‘rolling’ and likely to be a future problem (Figure 3).

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**Natural History of the Large Hiatus Hernia**

Obviously the problem is structural and mechanical and if it is to be fixed it will require surgery. Sequela of nonsurgical treatment include the onset of partial obstruction, incarceration, inanition in the elderly with that inability to take enough food for sustenance, increasing dyspnoea, ulceration leading to anaemia in the more chronic sense. Catastrophe may ensue with acute gastric volvulus causing ischaemia bleeding or perforation and is a surgical emergency with a high mortality. Cameron’s ulcers may occur in the chronic entrapped stomach and are due to ischaemia and whilst may heal on PPI they have a great tendency to recur. Anaemia is frequent (30% percent), and hiatus hernia is frequently missed as the apparent cause of occult blood loss.

![Barium meal – gastric volvulus (MHH) with entrapment](image)

Indeed, non-treatment has been evaluated in Finland using the national database and a 16% hiatus hernia related mortality was identified over a four-year period in symptomatic patients (Shivo et al 2011).

**Dyspnoea**

Dyspnoea has not been recognised as caused by massive hiatus hernia but of pulmonary aspiration (70% of patients) and diminished cardiac return secondary to the mediastinal mass effect of the incarcerated stomach (Naoum et al JACC 2011). This was first systematically described by the Concord surgical and cardiology group in 2011. Dyspnoea is not a contraindication to surgery but a reason for surgery, provided cardiac disease has been excluded.

**Surgical Management**

Personal experience indicates almost all patients can have keyhole laparoscopic surgery with a 2-3 day hospital stay with low recurrence rates despite the relatively elderly status. All patients are carefully evaluated, for cardiac and respiratory disease and the series now extends to more than 900 patients with very large hiatus hernia. Elective mortality has been one patient who suffered a stroke. Over the years following surgery, small hernias may recur but in multiple studies they do not seem to be greatly symptomatic and do not affect quality of life scores. It is quite evident that results are better if the hernia is operated before it becomes very large, with lower recurrence rate (Le Page et al 2015). There have been no acute hernia related events in the operated group so surgery appears to reduce the risk of catastrophe. Symptoms are greatly improved and the quality of life of patients before and after surgery is greatly improved. Surgery is technically difficult and requires much experience to achieve excellent results (Figure 4).

![Giant diaphragmatic defect technically problematic](image)

**References available on request.**
Robotic anterior total hip replacement

Dr John Limbers
MBBS (HONS 1), BSC (MED), FRACS (ORTH), FAORTHA

Dr John Limbers is an orthopaedic surgeon who specialises in hip and knee replacement surgery as well as reconstructive foot and ankle surgery. He has particular expertise in Mako robotic anterior hip replacement and knee replacement surgery.


Total hip replacement has been a highly successful procedure for over 50 years, with numerous new approaches and techniques developed over that time. Over the last 10 years the direct anterior approach has become popular with many surgeons throughout the world. In the last few years this has been combined with Mako assisted robotic technology, with the aim of using robotic technology to increase accuracy.

A number of studies have documented potential benefits of anterior hip replacement in the first six weeks following surgery. These include less pain in the post-operative period, quicker return to function and shorter hospital stays. This is due to the approach sparing all muscle envelopes, utilising an internervous plane. There has been no long term functional or implant survivorship benefit demonstrated with this. However, MRI studies have demonstrated less residual muscle damage and atrophy after the anterior approach.

When the direct anterior approach is combined with Mako robotic technology, a pre-operative CT scan is performed. This is segmented and loaded onto the Mako system software, to provide a patient specific 3D CT model of the total hip replacement (Figure 1). This virtual total hip replacement is then reviewed by the surgeon and modified as necessary before the initial skin incision.

The surgeon then performs the anterior approach to the hip joint. Navigation pins are inserted into the pelvic bone. This is followed by mapping the anatomy of the hip joint utilising a specialised probe. This information is detected by a specialised camera and passed to the Mako robotic unit. This allows the patient’s hip joint to be matched to the individualised plan. The surgeon then reams the acetabulum (Figures 2 & 3) and inserts the acetabular component under robotic control. The tactile, auditory and visual feedback of the robotic arm limits the bone preparation to the diseased areas and allows real time adjustments. The robotic technology ensures that the acetabular component is inserted with the same anteversion and inclination angles as the pre-operative plan. The femur is then broached and the hip reduced with a trial femoral stem and head in place. Further measurements are then taken with the specialised probe to check the leg length and offset. If these are correct then the definitive femoral stem and head are inserted. This technique provides highly accurate placement of the components of the total hip replacement, in terms of acetabular component inclination and version as well as leg length and hip offset. These are parameters that are critical to having a high long term hip implant survivorship rate and a very low dislocation rate. This potentially results in a lower incidence of leg length inequality and a reduced chance of post-operative hip dislocation. It has the potential to improve long term results of total hip replacement surgery, by ensuring optimal implant position.

IS ROBOTIC ANTERIOR TOTAL HIP REPLACEMENT OF BENEFIT TO PATIENTS?

Direct anterior approach total hip replacement has been shown to have functional benefits in the first six weeks. One issue raised with direct anterior hip replacement is the learning curve, with the potential for complications if the surgery is not performed properly.

However, increasing numbers of surgeons experienced in the technique are training registrars and surgeons learning the technique. There are also many training workshops and courses available. This has allowed adoption of the technique by many surgeons, with excellent results.

With regard to the robotic assisted technique, the acetabular cup placement was examined in robotically assisted and conventional total hip replacement surgery in a comparative study. A statistically significantly higher number (30% higher) of acetabular cups were positioned within the desired range of anteversion and inclination in the robotically assisted cases. Whether this translates into lower revision rates and increased patient satisfaction remains to be proven.

References available on request.
CRITICAL REUSABLE MEDICAL DEVICES

The technological advances in medical and surgical procedures have evolved significantly in the last decade. Critical Reusable Medical Devices (RMD’s) used in these interventions require sterilisation prior to patient use. In Australia, health service organisations (HSO) comply with AS 4187:2014 – reprocessing of reusable medical devices as required by the Australian Council on Health Standards Accreditation. One of the requirements of compliance is to ensure RMD’s are reprocessed correctly following manufacturer’s instructions for use (IFU) as per ISO 17664.

Each HSO must have a sterile processing department tasked with the responsibility to sterilise all RMD’s (including critical items) and must be compliant with the requirements of AS 4187:2014.

STEAM STERILISATION FOR CRITICAL RMD’S

The most common process of sterilisation of critical RMD is achieved through exposure to thermal energy delivered via generated moist heat (steam) of high water (Reverse Osmosis) quality under pressurised conditions. These steam sterilisers are commonly used in Australia for RMD that can withstand exposure to high heat and pressure to attain sterility of the critical item prior to use. The steam sterilisation (referenced compliance with ISO 17665/EN 285) process is annually validated (performance requalification), to ascertain the quality of RMD’s reprocessed.

RMD PRODUCT FAMILIES

RMD’s vary significantly in material construction and geometric configuration; ISO 17665-3 provides information to group RMD’s into families fit for a steam sterilisation process. This underpins the need to establish penetration time at equilibrium throughout the RMD surfaces based on delegated product families, a data necessary to ensure sufficient exposure to steam sterilisation process is delivered throughout the RMD. All RMD item/s are grouped according to designation of product family based on ISO 17665-3. Specific attributes are tabulated presenting products that can be grouped together as a product family identified for a particular steam sterilisation process.

PERFORMANCE QUALIFICATION

Performance Qualification (PQ) is performed to test steriliser efficacy to attain physical parameters including temperature, pressure and time. These 3 parameters must be met within acceptable limits to ascertain that a successful process has been achieved and delivers a lethal process. During PQ a reference load (master product) identified as the most complex possible load on any given operational day is used to challenge the sterilisation process.

This process was verified during a study conducted at the Macquarie University Hospital Sterile Processing Department. To conduct the study the most difficult to sterilise item/s in each product was chosen as a master product. This master product was then used as part of the reference load during PQ of the steam steriliser. The most challenging item with identified resistance (based on ISO 17665-3) in the master product was chosen for the study of penetration time. A thermometric measuring device attached to a software reader was strategically located on the chosen RMD. This method provided live information of penetration time until equilibrium with the time lapse to attain plateau of identified lethal temperature.

RESULTS

Based on data gathered, the material construction and complexity of RMD surface is directly related to resistance of heat transfer. This means RMD’s with complex configuration and/or mixed material construction provided a longer time to reach the innermost parts and render the RMD surface exposed to lethal temperature. Hollow constructs with mixed material composition posed to be the most challenging items to reach a temperature plateau. Heavier and more complex designed trays utilised during this investigation also contributed to heat transfer challenges. Similar sterile barrier systems were used on all items being investigated. The results of this confirm that the ISO 17665-3 approach grouping RMD’s into family of similar penetration resistance is necessary in order to attain lethality of moist heat sterilisation process.

CONCLUSION

In conclusion it is beneficial to utilise ISO 17665-3 and establish penetration time in situ on RMD’s during annual PQ. This will address the RMD’s individual reprocessing requirements to ensure sterilisation lethality is achieved. This effectively affirms requirement of multiple cycle types of steam sterilisation to cater to the demands of critical RMD inventory and comply with applicable standards.

REFERENCES

References available on request.

Figure 1: Sample RMD tested

Figure 2: Individual RMD’s vary in penetration time to attain 134 degrees Celsius at equilibrium

Shared with permission from Macquarie University Hospital.
The recent appointments of GP Liaison Ben Lewis and Clinician Engagement Manager Melissa Miller now completes the new Clinician Engagement and Development Team for AHCL. Contact Monday-Friday: Ben 0448 164 844 or Melissa 0418 650 537

San interventional cardiologist Dr Jason Sharp has been appointed Director of the San Cardiac Catheterisation Lab and will work closely with management to promote professional standards and the delivery of high quality patient care, education and research.

Neurologist Clinical Associate Professor Geoffrey Herkes has been appointed as the AHCL Director of Research to provide academic leadership and strategic direction, promote the growth of research activity and the maintenance of academic standards across AHCL’s research active departments E: Geoffrey.Herkes@sahealth.sa.gov.au

A mass casualty training exercise held in the San’s onsite Clinical Education Centre exposed San Emergency Care medical registrars, nurses, and students from the onsite Clinical School of The University of Sydney and the Avondale College of Nursing to a real-life disaster training scenario. See: www.sah.org.au/news-masscasualty

The San Alumni Association for San retired medical staff allows former colleagues to keep up-to-date with hospital news. Contact Secretary Dr Bob Wines: P: 9974 1095 or M: 0419 622 653 E: r.wines281@gmail.com

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24 San Cyclists rode in the March Bobbin Head Cycle Classic raising over $5,000 for Lifeline and supporting local Rotary clubs.

The San Alumni Association for San retired medical staff allows former colleagues to keep up-to-date with hospital news. Contact Secretary Dr Bob Wines: P: 9974 1095 or M: 0419 622 653 E: r.wines281@gmail.com

A recent San Grand Rounds hosted by the SAH Clinical School featured renowned international speaker on Cancer, Professor Markus Graefen from Martini-Klinik Prostate Cancer Centre at the University Medical Centre in Hamburg-Eppendorf. All welcome at all Grand Rounds.

San Cyclist team members

GP & AMO Liaison – Ben Lewis and Melissa Miller

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