The science of Assisted Reproductive Technologies (ART) is an incredibly important part of the process. Over the years the science has expanded and to keep up with it requires a very large team of dedicated personnel.

In the time I have been practising fertility and reproductive medicine we have gone from transferring three embryos at the day two cleavage stage with no better than a 20 per cent pregnancy rate per transfer, to single embryo transfers at the day five blastocyst stage with a 40-50 per cent pregnancy rate in women less than 38 years of age, depending on the medical reasons required for fertility treatment. This resulted in the large number of twin pregnancies that were seen in the late 1990s and early 2000 but thankfully this is no longer the case and single embryo transfer has been the normal practice in Australia for many years. These advances were largely achieved with attention to the components of the media in which the embryos develop, strict temperature control with the use of individual small incubators for each patient and minimising the manipulation and checking of the embryos during their development in vitro by only looking at their progress at certain limited times. Add to this the facility to be able to test the genetics of the embryo prior to transfer (preimplantation genetic screening or PGS) and this has further reduced the miscarriage rate and increased success rates per embryo transfer, particularly in the older age group where aneuploidy is more frequently seen in the embryo cohort, although this is not a necessary tool for everyone undergoing treatment.

There have been many other scientific tools that have come and gone during the 30 years that IVF has been available and it behoves the team to assess and evaluate those which prove to be beneficial and those which should be abandoned. One such tool was the use of assisted hatching, which was thought to help the older women’s embryos hatch by using a laser to make a small hole in the zona pellucida on day three, but was then shown to adversely
effect frozen embryo outcomes. However, a modified technique is still used to enable embryo biopsy on day five for PGS and currently the role of sperm selection for microinjection is being reassessed as to its role and validity.

We are now able to achieve pregnancies with very few sperm present due to advances in microsurgery allowing our colleagues who specialise in this area to pinpoint the seminiferous tubules most likely to be producing sperm, thereby giving our scientists access to these sperm for the process of microinjection into the oocyte. Even when sperm is plentiful, changes have also been made to how and where we ask our patients to collect to ensure we have the sperm processed quickly to allow for maximal fertilisation rates. Originally, we used to ask our partners to abstain for about seven days prior to oocyte collection but we have more recently reduced the number of days of abstinence so that sperm is not sitting in the genital tract for too long and is therefore not exposed to oxidative stresses for too long. Indeed when increased DNA fragmentation is seen we increase the frequency of ejaculation to minimise this issue and this can help to improve embryo quality and reduce miscarriage risk.

However, it has also been my experience that there is an ART to fertility management that requires more than the science. The importance of teamwork and caring for the couple as they embark on a fertility journey is paramount. We are aware that every interaction can have an impact on the couples experience and that this can influence both the outcome and the persistence of a couple in order to achieve their much desired pregnancy. This starts from the first phone call to the pregnancy scan and every interaction in between. The role of the team including administration staff, clinicians, fertility nurses, scientists, operating staff, managerial staff, donor coordinators and counsellors cannot be underestimated.

As a clinician, I am always discussing options with my patients and prefer them to feel part of the decision making process. Our couples are as individual as we are and require many differing pathways. Numerous treatment options are possible from simply helping time intercourse, inducing ovulation with tablets or injections or intrauterine insemination, through to the complex process of In Vitro Fertilisation (IVF). Even then there are several different types of IVF, including IVF, microinjection (ICSI), surgical sperm collection and preimplantation genetic screening (PGS) and preimplantation genetic diagnosis (PGD) for single gene disorders.

Tailoring the treatment protocols to try and achieve the best response from the ovary and development of the oocytes is an art form like no other and requires careful thought and management of each cycle. Even then, the quality of the oocytes can vary from cycle to cycle even with the same message being given to the ovaries. The use of donor gametes is another possible treatment option and we have a team dedicated to this service due to its complex nature and legal requirements. Surrogacy is considered alongside donor gametes as a complex process and requires a lot of time and effort to support but is another important treatment option for a few select indications.

A pregnancy is not always possible and so it is equally important that these couples are well supported and this outcome is also recognised as a possibility.

Indeed, there are many ways to create a family and it takes a village to raise a child. The art of fertility treatment aims to help as many couples as possible. Whilst recognising that it is not always achievable and nothing in the fertility world (as with much of medicine) is 100 per cent, the HSS and Monash IVF teams always strive to do their best.

This article is dedicated to Prof Geoffrey Driscoll.
As an RACGP accredited provider of Continuing Professional Development (CPD) training, HSS is committed to supporting GPs to provide the best possible care for their patients. We are delighted to invite you to the next free-of-charge event at our world-class facility.

Join us for All About ENT and Ophthalmology facilitated by leading HSS surgeons and physicians. This full day Category 1 event enables you to engage with the specialists in topical interactive sessions and gain practical experience in the skills sessions. Attending GPs will receive 40 points towards their individual and vocational CPD requirements.

Register now!

Register at: www.hssaustralia.com.au/training

Event sponsors:

Shaw and Partners  migALERT

Sponsors have no input into the content of materials and presentations of this event.
Sydney Norwest Gastroenterology, located at Hospital for Specialist Surgery, has acquired a FibroScan 530 – the latest liver elastography device that in many cases replaces invasive liver biopsies and gives the most reliable and up-to-date liver stiffness (fibrosis) and CAP (steatosis) readings.

Associate Professor David van der Poorten, said “We are thrilled to have this advanced piece of technology for our patients to determine the extent of scarring or fattiness in a liver. Compared to biopsies the FibroScan is non-invasive, risk-free, painless, accurate and the results are immediate. Importantly, our patients no longer have to wait up to three months for this procedure in the public system.”

The FibroScan measures liver stiffness and CAP simultaneously in the same liver volume. Liver stiffness correlates with the extent of fibrosis (scarring) in the liver – the result of inflammation and damage from a range of causes such as viral hepatitis, alcohol and fatty liver to name a few. The FibroScan can very accurately determine if there is cirrhosis or a serious liver problem. CAP values correlate with the overall fat content of the liver (steatosis) and combined with liver stiffness, CAP is the only way to fully assess fatty liver disease.

Liver biopsies can have complications: the main ones being haemorrhaging and pain. For this reason biopsies can’t be done on an annual basis which makes it difficult to monitor treatment or disease progress. Additionally, a liver biopsy only evaluates 1/5000th of the liver where the FibroScan evaluates 1/500th of the liver – 100 times more liver tissue.

FibroScan has been validated for assessment of severity and long term monitoring in most liver diseases including alcohol related liver disease, non-alcoholic fatty liver disease and NASH, hepatitis B and C, autoimmune hepatitis, cholestatic liver disease (PBC and PSC), and drug related diseases (e.g. methotrexate).

Patients are asked to fast for two hours prior to the scan for the most accurate reading. The only details required are the reason for the scan, any known underlying liver disease and previous fibroscan/liver biopsy results (if relevant). For a standalone FibroScan procedure the cost is $250. The cost for a scan as a part of a specialist consultation (110/116 - referral required) is $100, which is in addition to the cost of the consultation.

When should GPs refer for a FibroScan?
- Patients known to have liver disease,
- Where liver function tests (LFTs) are abnormal,
- Patients with moderate to high alcohol consumption levels,
- Patient on medications that might affect the liver, and/or
- Patients with known fatty liver.

A/Prof. David van der Poorten
BSc (Med) MBBS (Hons) FRACP PhD
Referrals are preferred but not required.
Ph: 02 8711 0160 | www.sydneynwgastro.com.au

Fibroscan 530 with LSM and CAP benefits for patients
- Fast exam – only five minutes
- Avoid long wait with public hospital
- Immediate results
- Non-invasive
- Quantitative
ADVANCES IN TECHNOLOGY AND EARLY REHABILITATION ENHANCE RECOVERY FOR TOTAL HIP REPLACEMENT PATIENTS

Patients can recover from surgery more rapidly and are able to resume their normal lifestyle sooner thanks to advances in implant technology and early mobilisation according to Dr Roger Brighton, HSS Orthopaedic Surgeon.

“Improvements with techniques and implants mean joint replacements now withstand more stress enabling patients to get moving earlier. It also means that the implants, particularly the bearing surfaces, are lasting longer,” said Dr Brighton.

A recent patient at Hospital for Specialist Surgery (HSS) to have hip replacement surgery and rehabilitation was 36-year-old Sarah Geracitano. Sarah was diagnosed with rheumatoid arthritis at the age of 11 and lived with debilitating hip pain for over 25 years. “My pain was chronic. I would take pain medication daily just to be able to function,” said Sarah.

Sarah underwent a bilateral total hip replacement with Dr Brighton as it was felt that both hips were equally diseased and rehabilitation for one side only would be problematic until the other could be treated. The damaged cartilage and bone was removed from the hip joint and replaced with artificial components.

“So-called third generation cementing techniques including vacuum mixing of cement and pressurisation improve the strength of the reconstruction and long-term durability. The patient can fully weight bear from Day One.”

In terms of the implants, Sarah received a ceramic head on highly cross-linked polyethylene bearing. “This combination has wear properties rivalling ceramic-on-ceramic or metal-on-metal bearings, particularly important at just 36 years of age, as well as avoiding the potential complications of breakage, squeaking or reaction to metal debris.”

“These considerations are of the utmost importance in a young patient, anxious to be active again,” said Dr Brighton.

Sarah was transferred to HSS Rehabilitation and early mobilisation was commenced under the care of Dr Joanna Murray, Consultant Physician in Rehabilitation Medicine, and the multidisciplinary team of allied health professionals.

Mutually agreed rehabilitation goals were set focusing on the short, medium and longer term. Targeted physiotherapy exercises initially focused on improving Sarah’s quality of movement, strength and endurance, combined with occupational therapy which worked on improving her daily living tasks. Accurate implant positioning meant Sarah and her therapists could have great confidence in restoring hip range of movement and gluteal strength. Quadriceps, hamstring and calf strengthening exercises were also important to improve the control of the hip joint during weight-bearing activities.

By the six week mark, Sarah no longer relied on her crutches to walk and was well on the way to achieving her goals. “It was such a thrill to be independent and to do ‘normal activities’ without relying on pain medication or other people,” she said.

Sarah continued to receive treatment as an outpatient at HSS to further build endurance, strength and control of her muscles surrounding her hip joint, however she only needed a handful of sessions. “The team set me up so well, that I was able to do my exercises at home with ease and comfort, alleviating the need to come in more frequently,” said Sarah.

At the time of writing, Sarah had signed up to an eight week yoga course. Sarah reflects, “My life before (the surgery) was all about supporting my limitations. But now my outlook is different. I feel normal. And at this stage, it’s almost hard to believe I put up with the pain for so long.”

Dr Roger Brighton, Orthopaedic Surgeon
Ph: 02 8711 0110
www.rogerbrighton.com
Rectal cancers are more complex than standard colon cancers. The rectum is within the pelvis and its anatomy and different lymphatic drainage make the risk of local recurrence as well as systemic recurrence higher. Also rectal cancers are much more likely to need a temporary or even permanent stoma.

The treatment of rectal cancers is therefore more complex. The surgery is more difficult due to the surrounding anatomical structures and the pelvic cavity is a restricted space within which to operate. Adjuvant treatment is also different, with the use of radiotherapy as well as chemotherapy in treatment algorithms.

**Standard Treatment of rectal cancer**

The treatment of rectal cancers is based on the preoperative staging of the cancer. Rectal cancers are staged with an MRI scan. An endoanal ultrasound can be used in patients who cannot have an MRI. These tests give the T and, to an extent, the N stage of the cancer. CT scanning of the chest and abdomen give the M stage.

Early cancers (<T3) can proceed straight to surgery. Larger more advanced cancers are treated with radiotherapy and chemotherapy as well as surgery. In Australia, the adjuvant treatment is usually given preoperatively (neoadjuvant). This treatment is individualised and all patients should be discussed in a Multidisciplinary Team.

The surgery has evolved over the years. The key is an anatomical dissection of the rectum so that the mesorectum is removed as part of the specimen. This is known as a Total Mesorectal Excision (TME). This standard dissection has improved the survival and local recurrence rates as a single measure. The other treatment modalities add even more benefit but good surgery is paramount.

The surgery for rectal cancer is either an anterior resection or an abdominoperineal resection (APR). Anterior resection is now called, as historically there were other approaches to the rectum. Anterior resection is performed via the abdomen. With anterior resection there is an anastomosis, which can be to part of the rectum (high or low depending on where) or to the anorectal junction (ultralow). Some patients will require a temporary loop ileostomy to defunction the anastomosis. Abdominoperineal resection means an anterior resection plus excision of the anus. These patients will need a permanent colostomy.

**Advances in Chemotherapy and Radiotherapy**

There have been enormous improvements in adjuvant therapy. Several new drugs have been introduced that have improved survival even in patients with metastatic disease. Radiotherapy techniques are now more accurate and associated with much less side effects as well as much improved efficacy.

Up to 20 percent of patients who receive preoperative chemoradiotherapy for advanced rectal cancer have a complete clinical and pathological response to the treatment. In Australia, at present, these patients will still undergo surgery, but there are now several ongoing trials that adopt a “watch and wait” policy for some patients, with surgery only after recurrence. Early results suggest that this is a viable treatment option. The next stage of this non-operative approach is to target earlier stage cancers with chemoradiotherapy as well. These patients will presumably have a similar if not better response to treatment and surgery may be avoided entirely.

**Advances in Surgical Techniques**

A primary stoma (abdominoperineal resection) is now only very rarely performed. The rate of APR is a benchmark for a colorectal surgeon. Other techniques not only allow more restorative (no permanent stoma) procedures but also laparoscopic approaches instead of open or robotic.

**Robotic surgery** is an expensive option but it does have excellent manouevrability and vision. It is not readily available and its uptake for rectal cancer has been slow. As less expensive machines become available, there may be more scope for this technique but the robot does not make rectal transection any easier. It is simply another technique for the dissection only.

At HSS we have commenced a new technique of rectal dissection that facilitates rectal transection in a safer manner to allow laparoscopic surgery. A specialised transrectal device is used whereby the cancer is visualised per rectum and the rectum is then directly divided from the perineal aspect. The surgeon then performs a rectal dissection in the same TME plane from below the tumour. This dissection plane then meets the same dissection performed laparoscopically from above the tumour as previously. The transanal TME (TaTME) procedure allows dissection of very low cancers and surgery in a narrow (male) pelvis. The technique will not only allow more restorative (no permanent stoma) procedures but also laparoscopic approaches instead of open or robotic.

**The Specialist Colorectal Group at HSS**

Colorectal surgery requires specialised training for a minimum of two years after general surgical training. Colorectal surgeons are recognised and trained by the Colorectal Surgical Society of Australia and New Zealand (CSSANZ). All colorectal surgeons are fully trained General Surgeons (FRACS) and endoscopists (GESA).

I operate as part of a colorectal group practice with rooms at HSS. All the surgeons in the group have both public and private appointments and all are part of the Western Sydney Colorectal Multidisciplinary Group. I am the Chairman of this group. We are one of the largest and busiest MDTs in Sydney.

---

**HSS WELCOMES SPECIALISTS FROM CASTLE HILL DAY SURGERY**

Medical specialists from Castle Hill Day Surgery (CHDS) have transferred to Hospital for Specialist Surgery (HSS) following the closure of the highly regarded facility in November 2016.

“CHDS was an outstanding facility that served the community with quality specialist care for over sixteen years,” said Rosemary McDonald, HSS General Manager. “We are proud to be welcoming many of the specialist doctors to HSS, and providing continuity of care to the GPs and their patients in the Norwest region of Sydney.”

CHDS was a private, multi-speciality surgery which opened in 2000 and later became a fully accredited hospital. Like HSS, the original CHDS concept was conceived, designed and built by specialists; many of whom went on to found HSS to meet the increasing demand for elective day surgery in the region.

Some of the many specialists transferring to HSS include:

- Dr Rebecca Eggers, Specialist Paediatric Dentist;
- Dr Ross Fitzsimons, General Ophthalmology, Strabismus and Cataract surgeon;
- Dr Sami Haddad, Oral & Maxillofacial Surgeon;
- Dr Mark Irving, Oral & Maxillofacial Surgeon;
- Dr Jake Lim, Plastic Surgeon;
- Dr George Malouf, General Surgery and Varicose Vein Surgeon;
- Dr Jason Michael, Specialist Paediatric Dentist;
- Dr Anthony Niam, Oral & Maxillofacial Surgeon, and
- Dr Max Pagni, Periodontist.

Additionally, Monash IVF has transferred its egg collection procedures and eight scientists to HSS (see cover story).
INTRODUCING NEWLY ACCREDITED DOCTORS AT HSS

Dr Warren Chan
BSc(Med) (Hons I) MBBS (Hons I) FRANZCOG MRMed CREI

Dr Warren Chan is a Fertility Specialist & Gynaecologist with a special interest in endometriosis. He performs IVF procedures at Monash IVF and Westmead Fertility Centre. He is accredited at Hospital for Specialist Surgery and has a public VMO appointment at Westmead Hospital.

Ph: 1300 724 380  www.aevafem.com.au

Dr Ross Fitzsimons
M.B. ChB. FRANZCO

Dr Fitzsimons is a well-established surgeon in Sydney having been in private practice for over 25 years. He is a member of Royal Australian College of Ophthalmologists, The American Academy of Ophthalmology, The International Strabismus Association, The Australian Society of Cataract and Refractive Surgery and The American Society of Cataract and Refractive Surgery. He began refractive surgery in Australia in 1990 with the delivery of the first refractive lasers. Dr Fitzsimons consults at Marsden Eye Specialists in Parramatta, Penrith and Castle Hill rooms.

Ph: 02 9635 7077  www.marsdeneye.com.au

Dr Saurabh Gupta
BSc (Med), MBBS (Hons), FRACP

Dr Saurabh Gupta is an Interventional Gastroenterologist specialising in advanced diagnostic and therapeutic endoscopic procedures. He has a special interest in pancreatic and biliary disease including therapeutic EUS and ERCP as well as endoscopic resection of advanced neoplasia (including Barrett’s endotherapy), capsule endoscopy and balloon enteroscopy for small bowel disorders. Dr Gupta is accredited at HSS and Concord Hospital, and is chairman of the EUS special interest group within the Gastroenterological Society of Australia.

Ph: (02) 9480 6210  http://nsgastro.com.au

Dr Kevin Ho
M.B.,B.S.,F.R.A.C.S. (Plast.)

Dr Kevin Ho is a specialist plastic surgeon dedicated to delivering excellent results in a caring environment. He is a Consultant Plastic Surgeon at Prince of Wales Hospital, Sydney Children’s Hospital and The Royal Hospital for Women. Dr Ho’s practice in Bella Vista encompasses all aspects of plastic and aesthetic surgery.

Ph: 02 9630 4900  www.drkevinho.com.au

Looking for a specialist? Head over to our new look website to view our Specialist Directory

www.hssaustralia.com.au
DR JAKE LIM
MBBS (Syd) FRCSed FRACS

Dr Jake Lim is a fully qualified Sydney trained Plastic Surgeon specialising in cosmetic and reconstructive surgery procedures including cosmetic surgery, facial surgery and body contouring surgery post weight loss. His comprehensive background in reconstructive surgery lays an important foundation for Dr Lim’s expertise in cosmetic surgical procedures. Dr Lim is a member of the Australian Society of Plastic Surgeons (ASPS), the Australian Society of Aesthetic Plastic Surgeons (ASAPS) and a Fellow of the Royal Australasian College of Surgeons (FRACS).
Ph: 02 9893 9388 www.hssaustralia.com.au

DR ANTHONY NAIM
BDS Hons (Syd) MBBS (Syd) AFCHSE FRACDS FRACDS (OMS) FICD

Dr Anthony Naim graduated BDS Honours from the University of Sydney, then after general practice for two years, was accepted in the NSW Oral and Maxillofacial Surgery training program. He subsequently graduated MBBS from the University of Sydney in 2003 and then completed the advanced training in Oral and Maxillofacial Surgery. He obtained by examination his FRACDS in 2001 and FRACDS (OMS) in 2006.
Dr Naim is a Senior Lecturer in the Faculty of Dentistry, University of Sydney and is also in private specialist practice in Norwest and Westmead. He has a special interest in facial trauma, dentoalveolar surgery, oral pathology and complex implant surgery and bone grafting.
Ph: 02 8814 7474 www.dranthonynaim.com.au

DR STEPHEN OH
MBBS BSc(Med) FRACP

Dr Stephen Oh is a gastroenterologist with a particular interest in gastrointestinal cancer screening and endoscopic ultrasound (EUS). He is a consultant at Hospital for Specialist Surgery and Nepean Hospital. Dr Oh is highly skilled in gastroscopy, colonoscopy, EUS, endoscopic mucosal resection and capsule endoscopy. Dr Oh is dedicated to delivering high quality patient care and effective communication with his patients.
Ph: 1300755075 www.drstephenoh.com

DR KWAN YEOH
M.B.B.S (Hons) (Syd), F.R.A.C.S. (Orth), F.A. Ortho. A.

Dr Yeoh is a fellowship-trained hand, wrist and upper limb surgeon. He is skilled in the management of bone and soft tissue conditions and proficient in open, arthroscopic and micro surgery. Interests include: carpal tunnel syndrome, tendon and ligament injuries, arthritis, rotator cuff tears, shoulder instability, nerve/tendon injuries, and sport and work-related injuries.
Ph: 02 9744 2666 www.orthosports.com.au