insight 2020

THE RAMSAY HEALTH CARE TECHNOLOGY REPORT

Ramsay Health Care

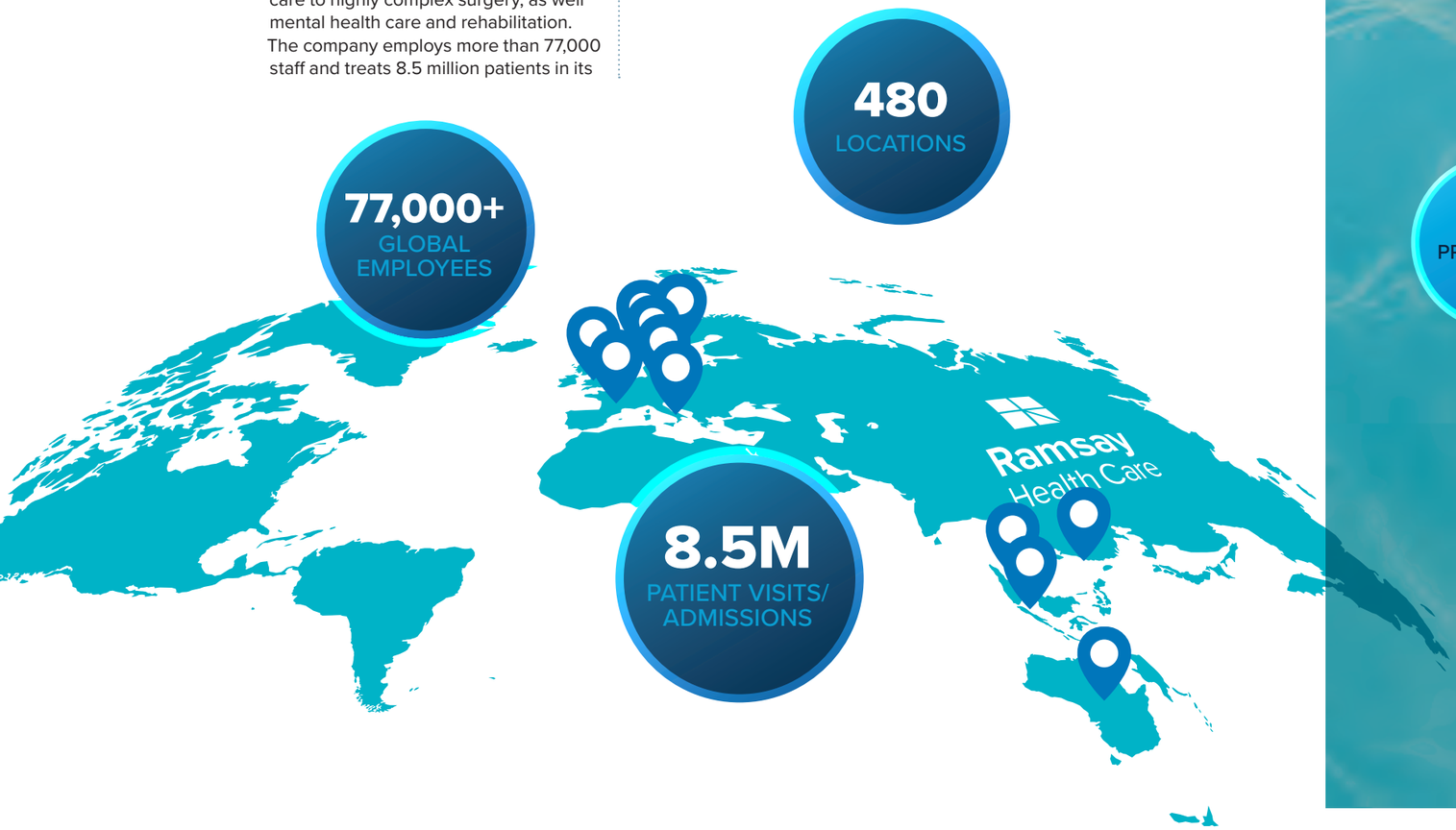
Ramsay Health Care: a global corporation

RAMSAY HEALTH CARE IS A GLOBAL HEALTH CARE COMPANY WITH A REPUTATION FOR OPERATING HIGH-QUALITY SERVICES AND DELIVERING EXCELLENT PATIENT CARE.

Established in Sydney, Australia, in 1964, by Paul Ramsay AO, Ramsay Health Care has more than 50 years of experience in providing acute health care services. Today, the company delivers a range of acute and primary healthcare services from 480 facilities across 11 countries, making it one of the largest and most diverse private healthcare companies in the world.

Ramsay facilities cater for a broad range of health care needs from primary care to highly complex surgery, as well mental health care and rehabilitation. The company employs more than 77,000 staff and treats 8.5 million patients in its hospitals and primary care clinics located in Australia, France, the United Kingdom, Sweden, Norway, Denmark, Germany, Italy, Malaysia, Indonesia and Hong Kong.

> *Ramsay focuses on maintaining the highest standards of quality & safety, being an employer of choice, & operating its business according to The Ramsay Way philosophy: "People Caring for People".*



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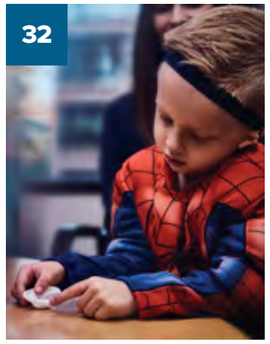
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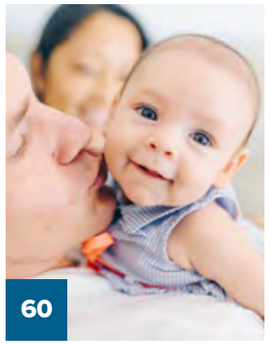
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The year that was...

WE HAD MANY TECHNOLOGY DRIVEN INNOVATIONS THIS YEAR – HERE ARE JUST A FEW EXAMPLES:

1 72% reduction in pre-operation waiting times.

2 Australian first use of 3D printed body part.

3 Ramsay remains cybersafe & has the highest cybersecurity compliance in the world.

4 Australia's largest & most comprehensive healthcare Wi-Fi solution.

5 Excelsius GPS Navigation surgery a first in the Southern Hemisphere for orthopaedic patients.

6 33% growth in adoption of the employee app, outlining news, staff benefits & job opportunities.

7 More than 98% of eWaste is recycled with 24 million plastic items per year to be removed by World Environment Day in June 2020.

8 The first private hospital group to introduce the new standard internal emergency number: 2222.

9 The world's busiest automated guided vehicles or TUGS, travel 350km a week & monitored in real-time, 24x7 from the US.

10 75% of IT Support calls answered within 10 seconds, with an average speed to answer of 18 seconds, 30% better than the prior year.

Introduction

Daniel Sims
Chief Executive Officer
Ramsay Australia

Innovating to improve patient care

WELCOME TO THE SECOND EDITION OF THE RAMSAY HEALTH CARE TECHNOLOGY REPORT. INTRODUCED IN 2019, THE REPORT WAS SO WELL RECEIVED THAT IT WILL NOW BE PRODUCED ANNUALLY AS A MEANS OF REVIEWING THE HIGHLIGHTS OF THE LAST YEAR, AS WELL AS PROVIDING INSIGHTS INTO THE DIRECTION OF RAMSAY'S ONGOING TECHNOLOGY JOURNEY.

Australia's health care system is a dynamic and ever-changing environment. In order to ensure that we continue to meet the changing needs of our patients and customers, technology remains one of the key factors to our success. Our technology agenda includes the modernisation of the workplace; the provision of better decision-making information; and making technology tools easier to access and use.

Technology will strengthen & secure Ramsay's position as a leader in private health care & ensure we deliver exceptional experiences for our patients & customers, now & into the future.

We are fortunate to partner with a large network of highly qualified and sought-after medical specialists who continually bring new expertise and surgical techniques to our facilities. This report highlights many examples of how patient safety and clinical outcomes have been improved using cutting-edge technology, several of which are an Australian first. This includes the Deep Brain Stimulation procedure using an intra-operative CT scanner, and the first use of the ExcelsuisGPS Robotic Navigation Platform in the Southern Hemisphere to improve spinal surgery outcomes.

2019 saw Ramsay implement two exciting initiatives. The first is Evolve, a continuous improvement program designed to simplify, standardise and share best practice across Ramsay Health Care Australia's network of hospitals. Ramsay has also pledged to ban a range of single use plastic items from our Australian hospitals, day surgeries and clinics and replace them with environmentally friendly options by World Environment Day in June 2020. Details of the Evolve and sustainability initiatives are outlined in this report.

One of the most rewarding aspects of working in health care is the ability to help others. Paul Ramsay AO, founder of Ramsay Health Care, wanted to ensure that his legacy of "people caring for people" would continue and for this reason, he created the Paul Ramsay Foundation that has now been ranked at the top of Australia's largest charitable donors list. **The Foundation recently pledged $30 million to help communities rebuild in the wake of the devasting bushfire season.** Paul would be proud to see the many ways in which Ramsay Health Care embraces technological advancements that allow us to provide the best possible care to our patients. This also supports a range of nationwide clinical registries and more than 100 world-class clinical trials, through the Ramsay Hospital Research Foundation.

In order to develop the technology journey upon which we have embarked, we will continue to grow our investment in cutting edge medical technology, support clinical research studies, upgrade our systems, and introduce new ways to help our employees and doctors in their daily work lives.

Using technology in as many and varied ways as possible will help to strengthen and secure Ramsay Health Care's position as a leader in private health care, and ensure we deliver exceptional experiences for our patients and customers - now and into the future.

John Sutherland
Chief Information Officer
Ramsay Australia

Technology, at its core, is about people

TO SEE HOW TECHNOLOGY CAN TRULY CHANGE LIVES, LOOK NO FURTHER THAN FOUR-YEAR-OLD MAXIM'S NEW EAR.

Born with a congenital deformity, Maxim Richter is the first patient in Australia to receive a new ear grown from his very own cells. The surgical team at Castlecrag Private used a 3D printer to make a mirrored copy of his functioning ear out of biodegradable material, then wrapped it with a living tissue to create the implant.

This low-risk procedure shows that technology is never for its own sake, especially when it comes to healthcare. Digital innovation must always be about the people it serves – namely, about harnessing technology's power to care for patients in the best way possible.

We see this priority play out in a multitude of ways across Ramsay, many of which you can read about in this report.

Firstly, it's embedded in the experience we provide for our consumers through technology. Hollywood Private's fleet of friendly autonomous robots, for example, dispenses more than 15,000 meals a week to patient bedsides, freeing up staff to better focus on their patients.

High tech wearables, like our post-surgical monitoring devices currently in clinical trial, are helping patients recover more effectively from knee surgery.

Our Tiny Car program is making our hospitals a more comfortable place for our youngest patients, allowing kids to drive themselves to the operating theatre in – yes – a tiny car.

We are also delivering real outcomes for people by empowering our clinicians and wider medical teams with technology.

High tech robots are rapidly changing the way we perform surgery, from giving surgeons access to deep brain tumours, to making spinal surgery safer and more precise. We are working with oncology teams to move from paper chemotherapy records to a safer, more efficient centralised digital system.

Our new Wi-Fi system – the most comprehensive of any health organisation in the country – keeps doctors connected to their patients as they move between our facilities.

And finally we are investing in the future, and the benefits digital innovation can bring for generations to come. Ramsay is proud to fund Australian medical start-ups like Harrison.ai, which is using technology to increase the success rate of IVF treatment.

Meanwhile, staff at Cairns Private are investing in the future of our planet, collecting hundreds of plastic bottle tops each week to convert them into eco-friendly prosthetic hands for children in developing countries.

It all goes to show that digital health shines at its brightest when it delivers tangible, meaningful benefits to consumers and the dedicated staff who meet their needs.

Steve Jobs once said, "it's not faith in technology, but faith in people" that counts. As we continue to move forward in our technology journey, this is a great reminder that innovation is all about empowering the doctors, allied health workers and support teams to deliver the excellent care that Ramsay is known for.

Maxim, 4, was the first patient in Australia, & one of only a handful in the world, to receive this remarkable surgery, at Ramsay's Castlecrag Private Hospital in Sydney.

We can think about Ramsay's technology journey in three steps.

1

CONSOLIDATION & SUPPORT

The first step was marked by rapid growth in Australia and our international expansion. Our technology agenda was largely based around the consolidation of our back office and supporting systems and processes. We standardised our patient administration, risk management, finance and other systems. It also saw the introduction of our first electronic payment systems and online patient portal - MyCare.

2

MEETING THE USERS' NEEDS

We are now coming to the end of the second step, where the system focus has shifted to the customers - our doctors, clinical staff, clinical support staff and patients. We are also continuing to drive benefits from our scale and diversifying our business. We started to introduce mobile apps for our employees and doctors and continue to grow our online presence to better support our network of clinicians in partnership with Ramsay.

3

INNOVATING FOR THE FUTURE

Through this third step, we are laying the foundation to create a more sustainable ecosystem of health services. This will become more and more visible over the course of the coming years. This is only possible through an innovative mindset, digitisation and innovations delivered by and for our stakeholders – people caring and innovating for people.

We are laying the foundation to create a more sustainable ecosystem of health services.

Engagement is the new blockbuster drug

OUR TECHNOLOGY JOURNEY HAS JUST BEGUN. WE ARE MAKING A DIFFERENCE TO OUR BUSINESS THROUGH THREE LENSES, WHILE REMAINING FOCUSED ON DELIVERING HIGH QUALITY, SAFE & EFFECTIVE CLINICAL CARE.

HELPING OUR DOCTORS BE MORE CONNECTED

Patient outcomes are better when a doctor is more connected. We are connecting doctors to their patients, their own clinical systems and to Ramsay's hospital systems. The easier it is for doctors to do business with us, the less likely they will be inclined to join the competition.

ENHANCING THE PATIENT EXPERIENCE

Consumer expectations continue to rise and we are committed to improving the patient experience. We are achieving this through a combination of new digital channels, smart buildings and continuous process improvements. As our portfolio of health services grow, we are placing the consumer at the centre of our health ecosystem.

HIGH QUALITY, SAFE & EFFECTIVE CLINICAL CARE

SUPPORTING BUSINESS PERFORMANCE

The majority of our activities in any given year is the day-to-day assistance, tasks and projects that support the operations of our hospitals, clinics, allied health and pharmacy businesses.

Introduction

The era of digital health

THE ERA OF DIGITAL HEALTH IS UPON US. IT IS FUNDAMENTALLY DIFFERENT FROM WHAT HAS COME BEFORE, WITH PROFOUND INFLUENCES ON HEALTH & HEALTHCARE.

INFORMATION COURTESY OF
DIGITAL HEALTH WORKFORCE AUSTRALASIA PTY LTD
& HEALTH INFORMATICS SOCIETY OF AUSTRALIA
**ICT: INFORMATION & COMMUNICATIONS TECHNOLOGY*

What has come before:

ICT* in Health 1950s – 1960s

1st WAVE

- Mainframe computers
- Focus on corporate support functions such as accounting & payroll
- Applications were function driven
- Industry agnostic (not health specific)

Health ICT 1960s – 2000s

- Practice management systems
- Big integrated systems
- Best of breed systems
- Focus was the healthcare organisation
- Corporate applications for logistics & performance management
- Health service provider centric

2nd WAVE

E-Health 2000s – 2020

- Enterprise & system-wide information flows begin
- Shared health records & health information exchanges
- Focus on whole of health system Health system centricity
- Patient following but still provider centric
- Governments as key players in and funders of e-health
- Healthcare as a process rather than health as an outcome
- Bulk of healthcare data provider-originated & controlled

3rd WAVE

THE FOURTH WAVE: DIGITAL HEALTH (2020+)

DIGITAL HEALTH =
HEALTH & HEALTHCARE IN THE DIGITAL SOCIETY

Digital Health is about HEALTH

- **The 4th wave** — A great leap forward along the evolutionary path of ICT in healthcare
- **Tech** — Enabled by exponential increases in the pervasion of ICT throughout society
- **Decentralised** — With service providers as participants, not controllers
- **Citizen centric** — Driven by citizens' demands that they control their health & wellbeing, & expectations that digital service delivery be embedded in their life patterns.
- **Knowledge** — Generated via sophisticated analytics
- **Data, data everywhere** — Harvests data in real time from sources within & outside of traditional health settings

THE DIGITAL HEALTH ERA IS CHARACTERISED BY 7 MAJOR SHIFTS

1. CITIZEN & CONSUMER CENTRICITY	2. NEW ENTRANTS	3. INDUSTRY CONVERGENCE	4. ROLE CONVERGENCE	5. ORIGIN OF DATA	6. ANALYTICS & ALGORITHMS	7. BROADER THAN HEALTH
Citizens choose where & how they store their data, who they share it with and expect service models to fit their life flows	Big tech disruption with non-healthcare companies becoming health data companies	The boundaries of health service delivery overlapping with other sectors & industries	Boundaries of clinical professional practice diverge and meld	Vast amounts of new health and health-relevant data captured outside of traditional clinical care settings	New analytical capabilities drive new models of care	Dissolving the arbitrary boundaries placed between health, aged care, mental health, social services and disability sectors

These shifts result in changes to

- Longstanding business & funding models
- Policy settings
- Professional structures
- The role of the citizen

DIGITAL HEALTH & ITS DISRUPTIVE IMPACT PROVIDES OPPORTUNITIES & CHALLENGES FOR

- Citizens
- Clinicians
- Policy makers and regulators
- Health executives
- Technology suppliers
- Media and influencers
- Universities / educators

Patient experience

Technology that engages, informs & reassures

Ramsay's first fleet of fully autonomous robots

HOLLYWOOD PRIVATE'S NEW HIGH TECH ROBOTS DELIVER MORE THAN 15,000 MEALS A WEEK, FREEING UP STAFF TO BETTER FOCUS ON THE NEEDS OF THEIR PATIENTS.

MOVE OVER R2-D2 & C-3PO: HERE COME PEACHES, JOHN DORY, HONEY, GINGER, OLIVE, ALFREDO & BASIL - HOLLYWOOD PRIVATE HOSPITAL'S FLEET OF SEVEN NEW FULLY AUTONOMOUS ROBOTS, THE FIRST OF THEIR KIND TO BE DEPLOYED IN WESTERN AUSTRALIA.

Collectively the robots will travel approximately 350 kilometres a week around the hospital's 10-hectare campus delivering more than 15,000 meals and transporting other food supplies to make up about 360 pantries.

To put it into context, their weekly mileage will be the equivalent of a trip from Perth to Bunbury and back.

Spending their days making deliveries, these high tech robots are freeing up Hollywood food services staff, who are now better able to focus on improving the patient experience.

With a detailed 3D-map of the hospital stored in their memory, the robots are monitored 24 hours, seven days a week by a control centre in Pennsylvania (USA) where they were first developed.

Lasers and scanning devices are used to detect obstacles and Wi-Fi ensures they maintain an accurate position on their journey. Hollywood Private Hospital Director of Workforce and Support Services, Jules Allan, said the 'TUGs', as they are technically known, are multi-talented.

"These four foot high TUGs are capable of carrying up to 545 kilograms, which increases efficiency and significantly reduces the amount of manual handling our staff have to do," Mrs. Allan said. "They can 'speak' some 70 phrases, ride in hospital lifts, open doors and they can even react to emergency alarms."

Mrs. Allan said the TUGs were already proving to be popular among patients and visitors. "People are interested in their names and the way they are decorated. Apparently John Dory is getting the biggest reaction, with staff and patients finding it amusing when he is transporting fish!"

Collectively the robots will travel approximately 350kms a week around the hospital's 10-hectare campus.

13,000+
total deliveries in last 8 months

Busiest
TUGs in the world!

9000+km
total distance travelled in last 8 months

Making connections

FOR MANY OF US, FINDING THE RIGHT PRODUCTS OR SERVICES STARTS ONLINE.

1

Our hospitals & doctors are easy to find online, with over 350,000 visits to the hospital websites per month.

2

Our services & specialties are discoverable via major search engines, & we saw an 11% increase in online insurance claims.

3

Book your admission online, as an extra 21% more Ramsay patients did last year.

4

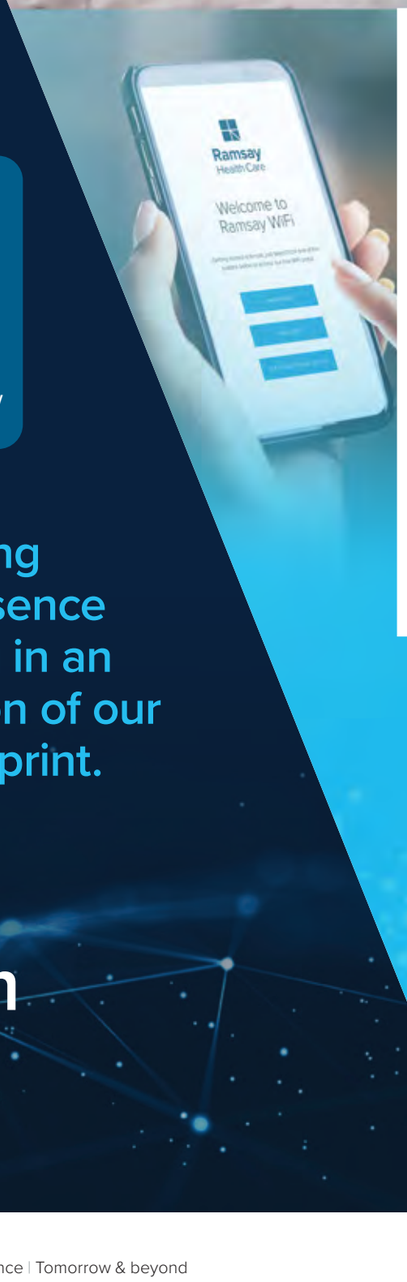
300,000 people engage with Ramsay via social media per month.

5

We are improving doctor digital presence, with 280,000 Ramsay Specialist Profile views per month.

Our evolving online presence is resulting in an acceleration of our digital footprint.

www.ramsayhealth.com

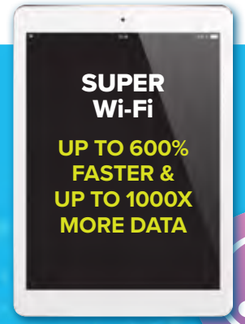


Faster, more secure internet at Ramsay

From Far North QLD, down to the Mornington Peninsula VIC and all the way across to the earth's most remote capital city, Perth, Ramsay now hosts the largest and most comprehensive Wi-Fi system of any health organisation in Australia.

The completion of this project paves the way for Ramsay to adopt more sophisticated services in the years to come. The new Wi-Fi network provides reliability for:

- Medical equipment
- Operation of new autonomous robots
- Patient Meal Ordering
- Doctors who can now seamlessly connect to their consulting rooms and practice management software as they move between Ramsay facilities
- Specialists as they view their clinical notes, results and images



1.5m
Wi-Fi connections in 2019

20k+
IoT medical devices connected to the Ramsay IT network

20%
Increase in Wi-Fi use by patients

Consumer engagement made easier online

JOONDALUP HEALTH CAMPUS HAS CREATED A WEB PAGE & ONLINE APPLICATION FORM THAT ALLOWS CONSUMERS TO PARTNER IN VARIOUS HOSPITAL PROJECTS.

This includes giving feedback on the design of the upcoming expansion of the hospital, offering their views and experiences on hospital workforce training and education, and helping shape new models of care and service delivery.

If selected, the applicant is guided through orientation, assigned a mentor and provided with support and training to enable them to fully participate as partners with the hospital.

"The Australian Commission on Safety and Quality in Health Care has put a much greater focus on the need for healthcare facilities to show how they are engaging consumers," JHC Quality and Risk Manager, Wendy Candy, said.

"We therefore intend to increase consumer representation on hospital committees and sub-committees, and seek input from consumers as we expand the hospital to inform the development of service delivery that is more consumer-centric."

"The online form also captures important information about what an applicant's lived experiences are, which will allow us to recruit a range of consumer representatives who reflect the diversity of the local community."

Four Ramsay hospitals trial free online news access

PATIENTS HAVE FREE ONLINE NEWS ACCESS AT FOUR RAMSAY HEALTH CARE SITES IN QUEENSLAND & NEW SOUTH WALES AS PART OF A NEW PILOT PROGRAM.

News Corp Australia papers will be available online via the Wi-Fi network at Pindara Private Hospital, John Flynn Private Hospital, St George Private Hospital and North Shore Private Hospital to improve the patient experience.

Patients can access local and interstate news through the Daily Telegraph, Herald Sun, The Courier Mail, Gold Coast Bulletin, The Advertiser, NT News and Mercury.

The catalyst for the new trial has been Ramsay Health Care's commitment to improving the patient experience at all of its hospitals.

Ramsay is also rolling out new digital channels and smart buildings, to ensure patient needs are at the forefront of care.

The trial has been made possible following a nationwide upgrade to the Wi-Fi network across all Ramsay's facilities.

Hard copy papers will still be provided to patients who prefer them.

Ramsay's online patient portal continues to grow in adoption

IN JANUARY 2015, RAMSAY INTRODUCED A SECURE PATIENT PORTAL CALLED *MYCARE* FOR OUR PATIENTS TO USE IN THE PRE-ADMISSION STAGE OF THEIR CARE.

Each year since its inception, use of the MyCare online portal has increased with the rate of online admissions typically being higher for maternity patients due to the well-planned nature of admissions and demographics.

At the end of each episode of care, Ramsay provides a secure digital copy of the patient's Discharge Summary report, back down the referral pathway.

The Discharge Summary is also uploaded to the patient's My Health Record if they have one and have not withdrawn consent.

> *In 2019, more than 220,000 Discharge Summary records were provided to the patient's personal* My Health Record *for their use & future reference, an increase of more than 300%.*

The My Health Record system is operated by the Federal Government. Today, 90.1% of Australians have a personally-controlled health record.

MYCARE.RAMSAYHEALTH.COM.AU

Enhancing patient experience

MyCare is our mobile-friendly, secure patient portal. Adoption rates are rapidly increasing, accounting for 40% of general admissions and 89% of maternity admissions.

Online emergency department wait times improve transparency and choice for consumers.

Real-time bedside meal ordering gives choice and improves the delivery of our meal services.

Fast and secure Wi-Fi services for patients, visitors and doctors allow them to remain connected with family and friends, and offer a choice of entertainment options.

Using digital tools for better mental health

WITH ALMOST ONE IN TWO AUSTRALIANS SUFFERING FROM A MENTAL HEALTH DISORDER AT SOME POINT IN THEIR LIVES, THE NEED FOR COMPREHENSIVE & EFFECTIVE TREATMENT OPTIONS IS GROWING.

Ramsay Health Care is taking a contemporary approach to mental health care, treatments and services by developing a comprehensive suite of standardised programs that draw on best practice across its 23 Australian mental health facilities.

MyRecovery and **MyStayWell** are patient-centred psychology programs and interventions that have been developed using the latest international research and current industry guidelines to effectively meet the needs of Ramsay patients.

The two programs have now been rolled out after extensive assessment and development, including internal and external review by leading Australian and international experts and a pilot phase where patients and clinicians provided feedback.

The MyStayWell program is a discharge planning tool, made available to patients while in care and after discharge, and is provided as both a workbook and a mobile app.

The app allows patients to access their individualised support materials when needed and can be particularly helpful when a patient is experiencing a crisis event, such as a panic attack.

Patients can even use the app to contact their support person/network quickly and easily, should they require assistance.

Taking a standardised approach to mental health programs delivers great benefits for Ramsay's patients and clinicians. It enables regular review of program content to ensure we align with the latest research and optimal outcomes.

> **MyRecovery** *&* **MyStayWell** *are patient-centred psychology programs & interventions that have been developed using the latest international research.*

MyStayWell

The MyStayWell app is free to download and is available to anyone who might find this tool useful. To access this app, please search 'MyStayWell' on your app store.

Search "MyStayWell" on your app store

Available on the App Store

ANDROID APP ON Google Play

90%
of Australians that have an eating disorder do not receive evidence based treatment.

As many as **1 in 5**
expecting or new mums will experience perinatal anxiety or depression.

Ramsay Health Care has more than **1,000 mental health beds** across **23 facilities.**

New less invasive depression treatment

TRANSCRANIAL MAGNETIC STIMULATION (TMS) IS A TREATMENT FOR DEPRESSION IN PATIENTS WHO HAVE NOT RESPONDED TO CONVENTIONAL MEDICINES, USING LOCALISED MAGNETIC FIELDS TO STIMULATE TARGETED PARTS OF THE PATIENT'S BRAIN.

Psychiatrist Dr Vijay Raj said: "We already offer a number of highly effective treatments for depression including medication and electroconvulsive therapy (ECT), but these can come with side effects that some patients find difficult to tolerate.

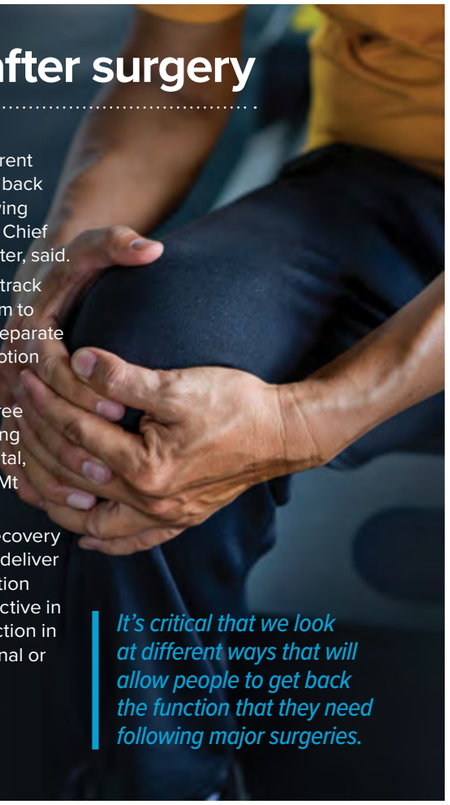
While we will still need to do a thorough psychiatric assessment to ensure TMS is suitable for individual patients, for many it will be a less invasive way of stimulating areas of the brain which regulate mood."

Ramsay already provides TMS at the following facilities: The Adelaide Clinic, Albert Road Clinic, Berkeley Vale Private Hospital, Caloundra Private Clinic, Dudley Private Hospital, The Hollywood Clinic, New Farm Clinic, Northside Group Cremorne Clinic, Northside Group St Leonards Clinic, Northside Group Macarthur Clinic, Northside Group Wentworthville Clinic, The Southport Private Hospital and Lakeside Clinic.

Lifeline

If you are experiencing a personal crisis, help is available. No one needs to face their problems alone.
TEXT 0477 13 11 14 or CALL 13 11 14

Digital technology eases pain after surgery



A NEW MEDICAL TRIAL, INVOLVING A FIT BIT & DIGITAL TECHNOLOGY, AIMS TO IMPROVE OUTCOMES FOR PATIENTS WHO HAVE HAD KNEE OR SPINAL SURGERY WITH STANDARDISED REHABILITATION.

An estimated 550,000 elective surgical procedures are performed each year in Australia for musculoskeletal conditions, and one in seven of these operations is for either osteoarthritis of the knee or lower back pain.

However, despite the prevalence of these surgeries, there is a lack of standardised remote care in the aftermath of surgery, which can significantly vary patient outcomes.

The PATHway trial, supported by the Ramsay Hospital Research Foundation, will use digital technology to monitor patient symptoms over a period of 12 months and provide health coaching, allowing patients to be treated remotely rather than inside a hospital.

"It's critical that we look at different ways that will allow people to get back the function that they need following those major surgeries," PATHway Chief Investigator, Professor David Hunter, said.

Researchers will use a fit bit to track activity levels and sleep, a program to help prescribe exercise and two separate devices which will assess knee motion and posture.

They will undergo testing at three Ramsay Health Care sites, including Lawrence Hargrave Private Hospital, Hunters Hill Private Hospital and Mt Wilga Private Hospital.

It is expected the proposed recovery pathway included in this trial will deliver a standardised remote rehabilitation program, which will be more effective in improving pain, mobility and function in people who have underdone spinal or knee surgery.

It's critical that we look at different ways that will allow people to get back the function that they need following major surgeries.

Simulator a breakthrough for stroke patients

STROKE PATIENTS AT NAMBOUR SELANGOR PRIVATE HOSPITAL WILL BENEFIT FROM A NEW REHABILITATION DEVICE, WHICH MIMICS UPPER LIMB MOVEMENTS.

The Saebo Rejoyce is a motor functional movement simulator that supports patients to perform high repetitions of motor skills.

The simulator is tailored to each individual patient's strengths and motor capacity, and is currently being used by stroke and neurological patients.

Users are guided through a wide range of programs by a therapist and an interactive screen, which sets a learning theme to improve motor skills.

Occupational therapist, Effie Sibson, said: "Our aim is to facilitate the relearning of everyday skills so that patients can regain their independence. This technology allows our patients to engage in intensive, targeted practice such as simulated jar opening, drinking/pouring and picking up small objects."

Evidence shows the best patient results come from 1000 repetitions per day.

A tiny car to take the stress out of children's surgery

PINDARA PRIVATE HOSPITAL HAS LAUNCHED A TINY CAR PROGRAM FOR PAEDIATRIC PATIENTS, WHICH ALLOWS CHILDREN TO DRIVE THEMSELVES BETWEEN THE PRE-OPERATIVE AREA & OPERATING THEATRE.

THE AIM OF THE PROGRAM IS TO REDUCE THE STRESS & FEAR AROUND SURGERY FOR CHILDREN & THEIR PARENTS. IT IS PART OF PINDARA PRIVATE'S ONGOING EFFORTS TO MAKE ANY HOSPITAL VISIT AS COMFORTABLE & STRESS-FREE AS POSSIBLE.

Tiny Car program coordinator and Assistant Director of Clinical Services, Tracey Clark, said the program demonstrates the commitment Ramsay Health Care has to all patients and customers who come through its doors.

"The Tiny Car program is the perfect addition to our repertoire of stress management tools to support our young patients and their parents at times when they need it most," Mrs Clark said.

"We want to be leaders in the space of patient care, and that involves maximising the comfort of our patients."

The Tiny Car program builds on Pindara's comprehensive private paediatric service, adding to its dedicated, purpose built paediatric ward and ability to accept and care for children through its private Emergency Department. The initiative is part of our future-focused approach to patient care.

We want to be leaders in the space of patient care & that involves maximising the comfort of our patients.

Ramsay Pharmacy: better advice, better care through technology

PHARMACY IS THE NEW GROWTH ARM OF RAMSAY HEALTH CARE, PROVIDING THE FULL CIRCLE OF PATIENT CARE FROM PRE-ADMISSION TO POST-OPERATIVE WELLNESS & BEYOND.

Ramsay Pharmacy has recently implemented a next generation cloud-based Fred NXT program across the group, which provides pharmacists real time data on customer and loyalty activity, online orders and inventory balances. Fred NXT benefits include: ePrescriptions, Faster PBS claiming, and Fred Pak, which allows pharmacists to print patient photos on medication foils, providing greater assurance the medication is administered correctly.

Ramsay Pharmacy also supports the delivery of over 100,000 specialised and patient-specific chemotherapy treatments across many of its hospitals in Australia, both at the bedside and within the pharmacy setting.

Other customer-centric services Ramsay Pharmacy provides in 2020 include:

- An in-pharmacy 'meds-check', which is a free one-on-one consultation in the pharmacy to help patients understand their medicines
- Home Medication Reviews
- Dose administration aids
- National Diabetes Services Scheme supply
- Blood Glucose Testing and Diabetes support programs
- Cholesterol testing and support programs
- Chronic pain management education and support programs
- Post discharge services and support
- Maternal Child Health Nurse consultations
- Allied Health consultations and services

Operating a multi-dimensional business model

A combination of organic growth, brownfield expansion, collaboration with governments in the construction of new hospitals and strategic acquisitions globally, has been a strategy that has proven very successful for the group over the past decades.

Momentum and a disciplined approach to expanding the franchised Pharmacy network continues to be a big focus, with more than 59 Ramsay branded community pharmacies in Australia - all aimed at improving patient engagement and outcomes during the patient journey.

Making chemotherapy safer with centralised treatment management

A COMMITTMENT TO PATIENT SAFETY WAS PIVOTAL IN RAMSAY'S DECISION TO MOVE PATIENT CHEMOTHERAPY JOURNEYS FROM PAPER-BASED RECORDS TO A CENTRALISED ELECTRONIC SYSTEM IN DAY & WARD ONCOLOGY UNITS.

As a result, Ramsay Pharmacy continues to work with oncology nursing & medical teams within Ramsay Hospitals to successfully deploy the CHARM™ software program.

This specialised medication management system replaces paper-based electronic records, and provides a single centralised source for chemotherapy team management with multiple safety checkpoints (known as 5 drug dose checks).

CHARM ™ also improves efficiencies by reducing the time taken to order and supply information, increasing the flexibility of managing and changing orders and providing real time information on external manufacturing status - available for all of the oncology pharmacy and nursing staff to view.

With one in two men and one in three women developing cancer in their lifetime, other CHARM software benefits include:

- Reduced patient wait times from 60 minutes to 5 minutes
- 94% improved communication with doctors
- 34% increase in pharmacist productivity

This is the largest implementation of CHARM™ in the private hospital sector in Australia.

How does TAVI work?

TRANSCATHETER AORTIC VALVE IMPLANTATION (TAVI) IS A MINIMALLY-INVASIVE ALTERNATIVE TO OPEN HEART SURGERY TO REPLACE A PATIENT'S AORTIC VALVE.

The procedure, which typically takes under an hour, allows surgeons to implant an artificial valve into the heart using a catheter, which is inserted through a small incision in the groin.

Aortic stenosis is the thickening and stiffening of the aortic valve, which plays a crucial role in controlling the flow of blood in and out of the heart. Aortic stenosis is the most common valvular heart disease in the world, affecting approximately 7 per cent of all people aged over 65 years.

TAVI: medicine's new frontier

FOR HUNDREDS OF THOUSANDS OF AUSTRALIANS WHOSE HEARTS ARE STRUGGLING TO PUMP DUE TO AORTIC VALVE STENOSIS, TAVI (TRANSCATHETER AROTIC VALVE IMPLANTATION) IS OFFERING A REAL SOLUTION.

Aortic stenosis, which causes distressing symptoms of breathlessness, fainting and dizziness, is the most common valvular heart disease in the world today.

Rolling Stones front man Mick Jagger's TAVI surgery in 2019 shone a huge spotlight on the procedure, which has now been rolled out in seven Ramsay Hospitals in Australia, with more set to follow in 2020.

Globally, the surgery is having an enormous impact on surgical practice because of its numerous advantages, and preliminary results suggest TAVI is as effective as open-heart surgery (minus the huge chest incisions, the heart-lung machine and long post-operative recovery).

Ramsay surgeons remain at the forefront of TAVI technology, which can be performed in the Cardiac Catheter operation room, with patients going home the next day rather than experiencing a long stint in hospital.

According to Interventional cardiologist from St George Private Hospital, Dr James Roy, Aortic stenosis is a common condition for people aged in their 70s and 80s, and is caused by wear and tear of the aortic valve over their lifetime.

"If the aortic valve is severely narrowed, there is often strain on the heart.

"The typical symptoms from this are shortness of breath, chest pain or fainting.

"Traditionally, patients with the condition have open heart surgery which is more invasive and often involves five to seven days of recovery in hospital, followed by a few weeks at home before returning to normal activities."

TAVI offers a different approach, allowing specialists to gain access through the groin and replace the valve through the femoral artery.

"There is a lower risk of stroke and a quicker recovery time. That is a huge advance for patients who are unable to be treated with traditional surgical techniques. The trade-off is a slightly higher risk of needing a pacemaker," says Dr Roy.

And it appears one is never too old to have a new valve unfurl inside their heart, with octogenarians regularly undergoing the procedure, including 83-year-old Norma Wilson at Sunshine Coast University Private Hospital, who was considered a high risk for surgery.

"Instead she was brought to the cardiac catheter operating room and we were able to perform a TAVI, and she went home the next day," says Interventional Cardiologist Dr Peter Larsen.

"The availability of the treatment represents a major win for Sunshine Coast patients who were previously required to travel to Brisbane or interstate for treatment, often with significant out-of-pocket expense."

Ramsay doctors are also implementing new techniques to keep TAVI patients safer, with North Shore Private the second hospital in Australia to use a stroke prevention device called the Sentinel Cerebral Protection System (CPS) during TAVI.

During a TAVI procedure, embolic debris such as calcium or tissue can break loose, travel through the bloodstream towards the brain and potentially cause neurological and neurocognitive damage, such as stroke. Sentinel CPS is used to filter, capture and remove this debris or tissue.

The system is delivered through the skin and at the completion of the procedure, the filters and debris are recaptured into the catheter and removed from the patient, significantly reducing the risk of stroke.

> *There is a lower risk of stroke & a quicker recovery time that is a huge advance for patients who are unable to be treated with traditional surgical techniques.*
>
> DR JAMES ROY

It put the swagger back in Mick Jagger last year & now thousands of ordinary Australians are undergoing the game-changing TAVI procedure, regarded as one of the greatest advances in cardiac surgery since the turn of the century.

Taking heart health seriously

RAMSAY HEALTH CARE HAS ENCOURAGED AUSTRALIANS TO TAKE THEIR HEART HEALTH SERIOUSLY & ENSURE THEY KNOW THEIR RISK FACTORS FOR HEART DISEASE.

National Manager of Clinical Quality and Patient Safety, Dr Bernadette Eather, said about 42,000 cardiology patients were admitted to Ramsay Australia's facilities each year and approximately 39,000 procedures were performed annually in cardiac catherisation laboratories.

> *As Australia's largest private hospital operator, we partner with the best clinicians to provide high-quality cardiac services through our facilities.*

Cardiovascular disease kills **one Australian every 12 minutes.**

42,000 cardiology admissions per year at **Ramsay hospitals**

3D printed sternum implantation in NSW first

A TRUCK DRIVER WITH A RARE FORM OF CANCER HAS BECOME THE FIRST PERSON IN NEW SOUTH WALES TO RECEIVE A 3D PRINTED STERNUM.

Walter Santos was driving when he felt severe chest pain that travelled upwards to his arm pits. Scans later revealed a small bulge had developed in his chest which turned out to be cancer.

North Shore Private Hospital cardiothoracic surgeon, Dr Michael Harden, examined the tumour and realised it could be removed, but it meant removing the sternum bone and tissue on which it was growing.

New technology meant the sternum could be replaced with a 3D printed custom-made prosthetic, which Dr Harden had only read about overseas. Dr Harden said: "We followed the rabbit down the hole and found 'Anatomic,' which is an Australian-based company manufacturing the implants."

> *The surgery involved two cardiothoracic surgeons, two plastic surgeons & an anaesthetist working together in theatre for 14 hours.*

New surgical software harnesses 3D imaging

NEW MEDICAL TECHNOLOGY HAS ARRIVED AT NORTH WEST PRIVATE HOSPITAL TO ENHANCE THE EXPANDING SURGICAL SERVICES AT THE SITE.

Olympus 4K imaging systems have been installed in the hospital's five operating theatres to assist surgeons during non-invasive keyhole procedures.

North West Private Hospital CEO, Chris Murphy, said: "The benefit is that all our key specialists are able to access the technology."

Surgeons will be able to apply greater precision during procedures, with the technology providing the ability to produce 3D images for some procedures.

It also has the capability to change the lighting within specific operating fields to give surgeons more defined images of blood vessels and nerves.

"It minimises the chance of potential nerve damage and/or accidental injury to blood vessels," Mr Murphy said.

The technology will benefit multiple specialties, including general surgery, ear, nose and throat, obstetrics and gynaecology, orthopaedics, head and neck surgery and urology. The imaging software will also be installed in two new operating theatres, which are being constructed at the hospital as part of a $50 million redevelopment.

Cairns Private supports initiative to turn bottle tops into prosthetic hands for children in need

3D PRINTERS ARE TURNING DONATED RECYCLED PLASTIC INTO PROSTHETIC HANDS AS PART OF A NOT-FOR-PROFIT ENVIRONMENTAL & HUMANITARIAN INITIATIVE CALLED 'ENVISION HANDS'.

Registered nurse, Michelle Thompson, said: "When I read what they did it was with such an overwhelming sense of joy. It is minimal to no effort to achieve something that is going to change a child's life."

Mrs Thompson initially emailed a request to her colleagues to collect the lids to help her son's school; by the end of the first week she had received more than 1000 lids.

Each unit at Cairns Private Hospital now has its own collection bin and Michelle has started donating directly to the charity.

"At the end of each week, I take the collections home, sort through them and give the staff feedback. It has been getting bigger and bigger every week," Mrs Thompson said.

The plastic tops are almost entirely made from high density polyethylene, which can be used to create functioning filler for 3D printers.

The filler is used to print all components that make up prosthetic hands, which are then distributed to children in need.

"It takes 370 lids to create one hand and, so far, Cairns Private Hospital staff have collected enough to make four hands," Michelle said.

The charity is fitting the prosthetic hands for free, for children from a couple of years old, right up to teenagers. So far, the prosthetics have been distributed to children in Australia and India.

Cairns Private Hospital, CEO Ben Tooth, said: "I am extremely proud of the way the staff has come together to support this initiative and it has been a testament to the positive culture and teamwork that I see on a daily basis."

Patients given easier access to Ramsay quality & safety data

RAMSAY HAS MADE IT EASIER FOR CONSUMERS TO LOCATE THE CLINICAL QUALITY & SAFETY WEB PAGES OF OUR HOSPITALS, DAY SURGERIES & CLINICS.

As Australia's largest private hospital operator, Ramsay undertook a major review and realignment of the Clinical Quality and Safety web pages of our hospitals, day surgeries and clinics.

The updated web pages contain information about each site's clinical quality and safety results, including infection rates, hand hygiene, unplanned readmissions, unplanned returns to theatre, patient falls, pressure injuries, blood transfusion reactions, and functional independence.

Group Chief Medical Officer, Professor John Horvath AO, said Ramsay had a long history of publishing extensive quality and safety data online for each of its sites. However, new research supported the need to display the data in a more relevant and consumer-friendly way.

"We sought feedback and input about the manner in which we displayed the clinical quality indicators online. As a result, we've made some changes so the data is much easier for all our stakeholders to locate and interpret. We are now linking the data to specific treatment types so patients can understand how the information applies to them," he said.

Professor Horvath said publishing information about clinical quality outcomes online helped consumers to better understand Ramsay's track record with delivering excellent health care services.

"We wanted to paint a meaningful picture of the quality of our health care services, while also creating a culture of transparency which centres on the consumer," Professor Horvath said.

The Clinical Quality and Safety page also contains information about accreditation, the national safety and quality framework, Net Promoter Score surveys to gauge patient satisfaction, and safety initiatives to improve patient care.

2020: international year of the nurse & midwife

2020 HAS BEEN NAMED THE INTERNATIONAL YEAR OF THE NURSE & MIDWIFE BY THE WORLD HEALTH ORGANISATION (WHO).

This year marks the 200th anniversary of the birth of Florence Nightingale - the world's most famous nurse. According to the WHO, nurses and midwives account for nearly 50 per cent of the global health workforce.

Ramsay Health Care is celebrating the significant contribution nurses and midwives make to our patients and to the health of the global population. We acknowledge and appreciate the crucial roles they play in the delivery of excellent health care services. Nurses and midwives make up more than two-fifths of our workforce: 39% in France, 54% in Australia, 37% in Asia, 25% in the UK, and 32% in the Nordics.

And what nursing has to do in either case, is to put the patient in the best condition for nature to act upon him.

FLORENCE NIGHTINGALE

Ramsay ranked 'World Class' by patients

Explaining the Net Promoter Score

Ramsay is now using the Net Promoter Score (NPS) to gauge customer sentiment – it is very likely you have provided NPS feedback to organisations you have personally used. NPS feedback is a simple question where you are asked to rate your experience on a scale of 1 to 10. The results are processed using the formula below to arrive at a score.

This provides hospital management real-time feedback from patients, with actionable insights on a live NPS dashboard. This is how a NPS is calculated:

AT RAMSAY, WE ASPIRE TO BE AN INTEGRAL PART OF OUR PATIENTS' LIVES, MAKING THEIR HEALTH CARE JOURNEYS AS COMFORTABLE & SMOOTH AS POSSIBLE.

Visiting hospital for a procedure is a daunting and often unplanned experience for many people. It is our goal to ensure they feel safe, secure, and treated with care and compassion at all times. One year after launching the Net Promoter Score (NPS) survey to better understand our customers' experiences, it is great to see the latest scores showing our team members are doing a great job of meeting the needs of our patients.

The NPS is an index ranging from -100 to 100 that measures customers' willingness to recommend products or services to others.

Patient satisfaction scores between 70 and 100 are considered world-class. Ramsay's latest quarterly score across all Australian hospitals was 75.

Since launching this patient satisfaction initiative, more than 260,000 surveys have been sent to people who received treatment in RHC's Australian facilities. This has led to more than 80,000 patient responses across 62 hospitals and day surgeries.

The results also provide us with valuable feedback on our performance so we can constantly seek new ways of improving. It's great to see hospital teams developing innovative ways to use the feedback to improve services.

Kind words can be short & easy to speak, but their echoes are endless.

MOTHER TERESA

So how did we score?

Our patients consider us to be WORLD-CLASS!

75 NPS

How do we compare?

NPS BENCHMARKING BY AU INDUSTRY PRODUCED BY CEMPLICITY

Connected healthcare

90.1%
Australians have a record

16,400
healthcare provider organisations registered

28 million
clinical documents uploaded

64 million
medication prescription & dispense records uploaded

Better care with My Health Record

Digital information is fast becoming the bedrock of high quality healthcare. When put to good use, it can help save lives, improve health and wellbeing, and support a sustainable health system that delivers safe and effective health services to all Australians.

THE MY HEALTH RECORD COMPONENT OF THE NATIONAL DIGITAL HEALTH STRATEGY WILL BENEFIT AUSTRALIANS BY HELPING TO:

- Prevent adverse drug events, reduce medical errors, increase vaccination rates, improve care coordination and better inform treatment decisions
- Sustain a more efficient health system by reducing: the time spent searching for patient data, avoidable hospitalisations and duplicated pathology tests and x-rays - all of which inconveniences patients and increases the cost of healthcare
- Improve patient experience by putting the patient at the centre of their healthcare and keeping people out of hospital
- Provide greater access for people living in rural and remote areas of Australia, and
- Protect the national digital health infrastructure and secure the personal health information of Australians.

My Health Record improving clinical connections. Since its rollout:

100%
Ramsay hospitals are connected to My Health Record

85%
community pharmacies are registered, 65% are connected to My Health Record

55%
pathology labs are connected to My Health Record

30%
diagnostic imaging practices are connected to My Health Record

Fact sheets
for patients & carers can be accessed via your GP:

My Health Record Benefits:
Already changing clinical practice

AN INDEPENDENT STUDY WAS COMMISSIONED ON MULTIFACETED EFFORTS TO CHANGE CLINICAL PRACTICE USING MY HEALTH RECORD IN PRIMARY CARE. THE STUDY FOUND THAT:

- 25% of medications were de-prescribed, saving $160 to $408.86 per year per medication.
- 19% of pathology orders were changed, amounting to a reduction of 9% of all GP pathology orders overall.

> *Since March of 2019, there has been an increase of MHR Provider views by 90% & a 300% increase in 'unique' records being accessed.*

Case study:
Emergency Departments

EARLIER THIS YEAR A PATIENT PRESENTED AT THE EMERGENCY DEPARTMENT OF THE ROYAL PERTH HOSPITAL & COLLAPSED AT THE TRIAGE DESK.

'The patient had a fluctuating conscious state, was profoundly hypotensive with a sporadic heart beat and was not able to give any medical information,' said Tiffany Graham, clinical nurse in the ED. 'Staff were able to view the patient's My Health Record and find a discharge summary from another hospital, as well as access the patient's most recent Pharmaceutical Benefits Scheme (PBS), which showed he had recently been dispensed quite a large volume of one particular drug. Staff suspected the patient may have overdosed on this medicine and after consultation with on-call toxicologists, they were able to commence treatment based on this information.

> *We wouldn't have been able to access that information without My Health Record. It's such an important resource to us.*

Australian Government
Australian Digital Health Agency

My Health Record

My Health Record: improvements to drive future use

IN 2018 THE MEDICATIONS INFORMATION VIEW IN MY HEALTH RECORD WAS INTRODUCED – A DOCUMENT WHICH COLLATES ALL THE MEDICATIONS INFORMATION INTO ONE PLACE. THIS IS NOW THE MOST VIEWED DOCUMENT TYPE IN THE SYSTEM.

In 2019, co-designed with clinicians, Pathology and Diagnostic Imaging Information Views was added to My Health Record.

The next phase is introducing the Pharmacy Structured Medications List (PSML) to improve medications safety. New document types will also be added in 2020 to further support coordination of care.

> *My Health Record is an incredibly valuable tool. It allows 24/7 access to patient records & allows us to work together as a team to deliver high-quality & cost-effective medical outcomes.*
>
> DR ELIZABETH JACKSON
> OBSTETRICIAN & GYNAECOLOGIST

Improving medicine safety through digital records

EACH YEAR, 250,000 HOSPITAL ADMISSIONS OCCUR DUE TO MEDICATION-RELATED PROBLEMS. THE ANNUAL COST FOR AUSTRALIA IS $1.4 BILLION.

My Health Record

- 90% of Community Pharmacies are registered for MHR
- Now approaching true widescale uptake & use by community pharmacy sector
- Medicines information is driving key clinical use scenarios & benefits realisation targets
- First PSML document uploads are due to commence November 2019 from Webstercare pharmacy sites

Electronic Prescribing

- Preliminary technical specifications have been co-developed with industry & published
- Contract has been executed with the Department of Health to:
  - Develop a national change and adoption programme
  - Support software developers to implement technical changes enabling electronic prescribing
  - Operate a software conformance scheme

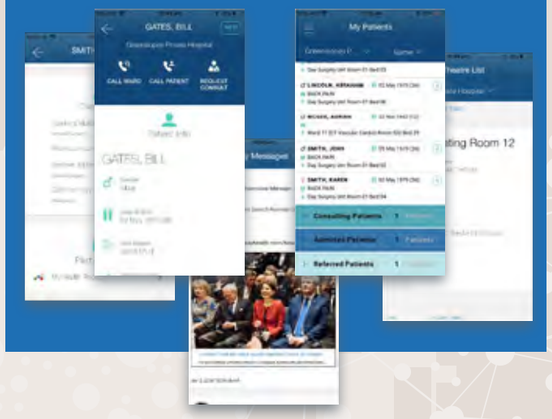
Medicines Safety Blueprint

- Blueprint released for targeted public consultation

Helping our doctors be more connected

Real-time patient information

My Patient+ provides doctor-centric, real-time patient information to clinicians via popular mobile devices, anywhere, anytime.



> *The MyPatient+ app has changed specialists' workflow & helped make their planning more efficient. It includes useful My Health Record data with the patient's past medical records. This helps inform pre-surgical risk assessments.*
>
> ANTHONY WANG – CHIEF TECHNOLOGY OFFICER, RAMSAY HEALTH CARE

Stronger referral pathways

Practice Suite will simplify and strengthen the referral pathway for doctors, making it easier to do business with Ramsay.

Cloud to Cloud integration with Practice Suite is a first for Ramsay and possibly all private hospitals.

Working with specialist software provider, Clinic to Cloud, we have developed a direct referral into Ramsay systems, initially referring into Practice Suite, but also to be retrofitted into Salesforce when available.

Clinic to Cloud is the largest cloud-based practice management vendor in Australia

Comprehensive reporting

Ramsay closes the clinical care loop by providing comprehensive and timely hospital discharge reports securely back down the referral pathway.

Medical innovation

Technology that connects, empowers & facilitates

4-year-old Maxim receives Australia's first custom 3D printed ear

A FOUR-YEAR-OLD BOY HAS BECOME THE FIRST PATIENT IN AUSTRALIA TO RECEIVE A CUSTOM 3D PRINTED EAR IMPLANT.

Maxim was born with Microtia, a condition which caused one of his ears to be underdeveloped. Microtia is known to affect one in every 6,000 births in Australia and can often cause hearing and psychosocial issues.

Sydney plastic surgeons, Dr Joe Dusseldorp and Dr Nicholas Lotz, performed the milestone procedure on Maxim Richter at Castlecrag Private Hospital.

The surgery has only been completed 16 times across the world.

Dr Dusseldorp said: "He is really quite advanced for his age and he was asking his mum, 'Do you think you could get me a big ear?' and that is what inspired his mum to go looking for new treatments."

"It is not that uncommon, but it is still on the rare end of the spectrum. A lot of kids have psychosocial concerns about it and that is something we try to alleviate by reconstructing them a new ear," Dr Dusseldorp said.

An optical 3D scan of Maxim's other ear was entered in to the 3D printing software and flipped to create a model for the ear implant.

It was then 3D printed using a biocompatible material known as porous polyethylene, wrapped in a living tissue overlay and covered with skin grafts.

Traditionally, ear reconstruction has been performed using rib cartilage, which is harvested from the chest wall and then sculpted in to the shape of the other ear.

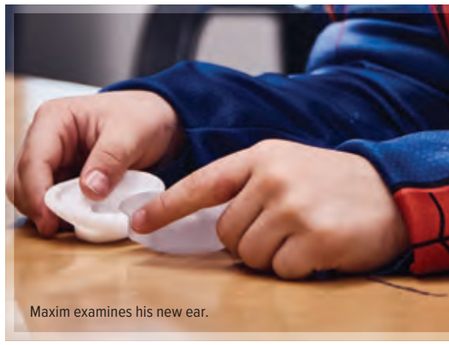
This sometimes-painful method is performed after the age of 10, requires at least two surgical stages and can fail to resemble the delicate features of an outer ear.

"I was quite amazed by the difference between this new technique – where the patients have minimal pain when they wake up and are home the next day – compared to the rib technique which requires several days in hospital with drains and pain killers and takes at least two surgeries," Dr Dusseldorp said.

Both surgeons involved in the procedure have undergone post-fellowship training in ear reconstruction overseas and collaborated with leading surgeons in the USA, Dr John Reinisch and Dr Sheryl Lewin.

The procedure is considered low risk and also offers better outcomes for children, including a more realistic looking ear, less pain, less time in hospital and completion at a younger age.

Dr Dusseldorp said: "His mum told me the other day that Maxim asked her to print out a photo of his new ear and put it up on his bedroom wall because he's so proud of it."



Maxim examines his new ear.

It's not faith in technology, but faith in people.

STEVE JOBS

Deep Brain stimulation improves symptoms for Parkinson's patients

FIFTY PATIENTS WITH PARKINSON'S DISEASE HAVE UNDERGONE DEEP BRAIN STIMULATION (DBS) AT HOLLYWOOD PRIVATE HOSPITAL SINCE IT BECAME THE FIRST HOSPITAL IN AUSTRALIA TO CARRY OUT THE PROCEDURE USING AN INTRA-OPERATIVE CT SCANNER & DIRECTIONAL LEAD TECHNOLOGY.

DBS is a delicate procedure in which tiny electrodes are implanted into the patient's skull, sending electric pulses that regulate abnormal impulses caused by Parkinson's disease, a progressive nervous system disorder that affects movement.

The amount of stimulation in DBS is controlled by a pacemaker-like device placed under the patient's skin in their upper chest. A wire that travels under the skin connects this device to the electrodes in the patient's brain.

Hollywood Private Hospital neurologist, Dr Julian Rodrigues, said although doctors had been performing DBS for about 25 years, the intra-operative CT scanner being used at Hollywood had revolutionised DBS in Australia.

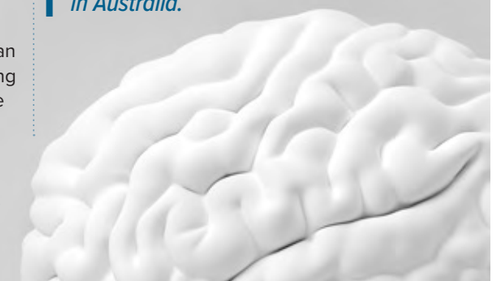
"It enhances accuracy, which in turn, has led to better outcomes," Dr Rodrigues said.

"It also means patients can undergo the procedure in one session rather than breaking it into two sessions and moving patients between the operating theatre and radiology."

Dr Rodrigues said that while only select patients were suitable to undergo DBS, the hospital had achieved excellent results.

"All patients who have undergone deep brain stimulation at Hollywood have seen improvements to their dexterity, stiffness, slowness of movement and tremor giving them greater independence," Dr Rodrigues said.

An estimated 100,000 people are living with Parkinson's in Australia.



World-class radiation therapy improves secondary brain tumour treatment

RADIATION ONCOLOGY CENTRES (ROC) IN GREENSLOPES PRIVATE ARE NOW OFFERING VARIAN'S HYPERARC™ TECHNOLOGY, A NEW ADVANCEMENT IN CANCER TREATMENT TECHNOLOGY FOR MULTIPLE BRAIN METASTASES.

HyperArc technology utilises the features of the Varian machine that delivers radiation therapy (TrueBeam linear accelerator) to accurately deliver precise radiation therapy and enables a patient's cancer treatment to be delivered with greater efficiency, accuracy and comfort.

HyperArc's automation capabilities mean patients are on the bed for shorter periods of time. Each treatment lasts only a few minutes and the process is completed in the safest way possible from start to finish.

ROC Radiation Oncologist, A/Prof Matthew Foote, said the HyperArcTM technology places Greenslopes at the forefront of exceptional cancer care, both in Australia and in the world. "With an increase in new cancer diagnoses each year, providing the latest technology is vital to give people the best possible treatment outcomes."

"HyperArc enables us to accurately target up to eight tumours in the brain at once, which previously could not be achieved and would have previously required whole brain radiation. The automation and precision of this type of treatment means patients can also have fewer side effects, allowing them to continue on with their day to day lives."

HyperArc enables us to accurately target up to eight tumours in the brain at once.

Surgery live-streamed around the world in an Australian first

RAMSAY IS PROUD TO EMBRACE REMOTE LEARNING OPPORTUNITIES FOR DOCTORS & NURSES WITH NEW REMOTE CONFERENCING INNOVATIONS SET TO CHANGE THE FACE OF MEDICAL EDUCATION AS WE KNOW IT.

In an international first for the Ramsay Health Care group, North Shore Private Hospital surgeons recently streamed live case gynaecology surgery to the 47th American Association of Gynaecological Laparascopists (AAGL) Annual Global Congress.

This was the first live transmission from Australia to the world's peak congress dedicated to minimally invasive gynaecological surgery, and also the first live transmission from a Ramsay hospital to an international conference.

In a subsequent North Shore Private remote learning session, interventional cardiologists performed a complex coronary interventional case, using the live case transmission technology, Medinbox, from the hospital's CathLab.

The cases were streamed to an audience of cardiologists, trainees and allied health staff with interactive education throughout.

This system adds a new dimension to teaching and education in cardiology with simultaneous transmission of video, angiography, haemodynamics and echocardiography.

This was the first live transmission from Australia to the world's peak congress dedicated to minimally invasive gynaecological surgery.

Beam me up doc!

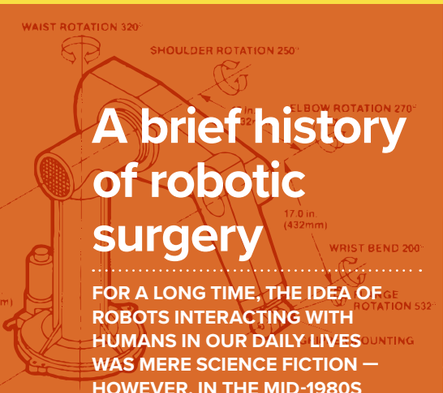
AS THE OLD ADAGE GOES, "TELL ME & I WILL FORGET, SHOW ME & I MIGHT REMEMBER, BUT INVOLVE ME & I'LL UNDERSTAND."

And it couldn't be more true in remote medical learning, which continues to improve patient outcomes and generate positive stakeholder feedback.

In the true spirit of multidisciplinary learning, a surgeon and physiotherapist at Westmead Private recently live-streamed a live knee surgery operation in real time to 85 GPs and physios.

Remote learning, remote case studies and remote simulation tasks can benefit trainees in many ways.

Firstly, it humanises the patient experience through other colleagues, patients and families, and remote simulation facilitates student learning without risk of harm. Simulation tasks also allow trainees and colleagues in remote areas to observe abnormal pathology not otherwise readily available through live patient encounters.



A brief history of robotic surgery

FOR A LONG TIME, THE IDEA OF ROBOTS INTERACTING WITH HUMANS IN OUR DAILY LIVES WAS MERE SCIENCE FICTION — HOWEVER, IN THE MID-1980S COMPUTER TECHNOLOGY BEGAN TO CATCH UP WITH ENGINEERING & THE FIELD OF SURGICAL ROBOTICS STARTED TO TRULY EVOLVE.

The PUMA (Programmable Universal Machine for Assembly, or Programmable Universal Manipulation Arm) was an industrial robotic arm developed in the early 1970s for General Motors and was intended for assembly line, paint, and welding work. In 1985, Dr. Yik San Kwoh successfully used a PUMA to place a needle for a human brain biopsy using Computed Tomography (CT) for guidance. This success effectively launched the Age of Medical Robotics.

This successful implementation of robot-assisted surgery led to the development of the PROBOT in London, UK, where, in 1992, Dr. Senthil Nathan completed the first entirely robotic surgery in history.

The US military and NASA took a keen interest in these breakthroughs and began funding private research companies to further investigate the capabilities of robots. The US Army's interest in telesurgery lay in its potential to lower wartime casualties by bringing a virtual surgeon to an injured soldier who may be located on the battlefield.

The technology used to develop these systems has grown exponentially since its introduction. Medical robots today are built to both aerospace and medical standards in order to guarantee quality control, with patient safety always being the top priority in the design.

Technology will never replace great teachers but technology in the hands of great teachers is transformational.

GEORGE COUROS,
EDUCATOR & AUTHOR OF
THE INNOVATOR'S MINDSET

How robotic surgery is changing medicine

IN THE PAST TWO YEARS, ROBOTIC APPLICATIONS IN MEDICINE HAVE BEEN RAPIDLY EXPANDING, WITH THE STEELY TECHNOLOGY ENTERING MORE & MORE SURGICAL STREAMS IN THE RAMSAY GROUP.

Wollongong Private recently performed robotic surgery for assisted head and neck surgeries – including removal of malignant or benign tumours of the throat, tongue and tonsils and complex tonsil cases.

Previously, some patients would have been required to undergo open surgery: a procedure which may require a large lip-to-neck incision to split the jaw and allow access to the mouth and throat.

Now, using the da Vinci Xi, surgeons can complete a far less invasive procedure through transoral robotic surgery (TORS) with no incisions necessary to remove tumours of the oropharynx.

Ramsay remains heavily invested in robotics, and surgical robots are now being used for prostate, kidney, colorectal, single site robotic gallbladder, knee surgery, brain and ENT surgeries in Ramsay facilities.

Moving to the future, we will see more and more robotic surgeries in healthcare. Robotics already on the horizon include:

- Infection control robots that can disinfect rooms
- Rehabilitation robots that help patients with gait, standing and balancing
- Medicine robots used in hospitals, with consumer models now available to help ensure medication timing and compliance
- Bionic limbs that can perform tasks such as grinding fresh pepper and opening cans

Safer spinal surgery a Southern Hemisphere first

A NEW PRECISION SURGERY THAT COMBINES A RIGID ROBOTIC ARM & FULL NAVIGATION CAPABILITIES FOR PRECISE TRAJECTORY ALIGNMENT IN SPINE SURGERY IS NOW BEING USED AT PENINSULA PRIVATE.

The Excelsius GPS robotic navigation platform is a first for the Southern Hemisphere, with orthopaedic surgeons delighted by the new technology.

Dr John Choi said the robot provided additional protection when navigating around the spinal cord and "had the most advanced capability among the commercially available robots."

The robot's navigation device allows accurate placement of spinal hardware by continuously displaying surgical instruments and implants on the screen for the surgeon and staff to monitor.

"It takes away the need for regular CT scans and X-rays during surgery, which reduces the radiation risk for all staff and patients. It makes the operating room safer," noted Dr John Choi.

The technology has the potential to decrease blood loss and muscle damage in patients, and can lead to smaller scars.

"It comes down to a few things: precision, accuracy and reproducibility of the outcomes, patient time in the operating room and reducing errors. It is great to be involved in leading the innovation in this space," Dr Choi said.

It takes away the need for regular CT scans & X-rays during surgery, which reduces the radiation risk for all staff & patients. It makes the operating room safer.

Breakthrough spinal procedure to improve recovery times

A GREENSLOPES PRIVATE HOSPITAL NEUROSURGEON HAS ASSISTED IN DEVELOPING A NEW TECHNIQUE TO IMPROVE OUTCOMES & REDUCE RECOVERY TIMES FOR PATIENTS WITH LUMBAR CANAL STENOSIS.

The condition causes the spinal canal to narrow, which compresses the nerves and can lead to back and leg pain. Traditionally, treatment options have been limited to invasive surgery which can cause complications, especially in elderly patients.

"Traditional techniques result in them recovering in hospital for many days which significantly increases their risk of medical complications, like DVT, PE, and musculoskeletal deconditioning," neurosurgeon Dr Alex Koefman said.

For the past three years, Dr Koefman has been working on the development of a new keyhole procedure to reduce lumbar canal stenosis and its symptoms.

The procedure was developed in conjunction with a technology company and involves using fibre optic and ultrasonic technology through one keyhole incision, avoiding the need for invasive techniques.

So far, Dr Koefman has performed the new procedure around 200 times and it has become a routine part of his practice.

It is the first of its kind in Australia and is expected to be used as a first-line treatment for patients suffering from lumbar canal stenosis.

"Most of my patients are going home the following day. The oldest person I've operated on was 91; all she wanted to do was just get back on the beach".

New technology provides minimally invasive surgery

A NEW ROBOT HAS JOINED THE RANKS AT PINDARA PRIVATE HOSPITAL TO ASSIST SURGEONS IN PROVIDING MINIMALLY-INVASIVE PROCEDURES FOR PATIENTS.

The **da Vinci Xi** robot allows surgeons to operate through a few small incisions with the use of a 3D visual system and tiny wristed instruments that bend and rotate.

Using this technology increases accuracy for the surgeon and is minimally invasive, which means less pain and decreased risk of infection for patients.

Pindara Private is among the first hospitals in Queensland to have invested in the latest da Vinci Xi software, giving patients on the Gold Coast access to the most advanced medical technology available.

Fighting deadly brain tumours thanks to latest scanning technology

NEW ROBOTIC TECHNOLOGY IS ALLOWING SURGEONS TO ACCESS DEEP-SEATED BRAIN TUMOURS, THANKS TO THE MEDTRONIC O-ARM & STEALTHSTATION S8 TECHNOLOGY.

Brain tumour survival remains a mixed bag in Australia today.

Survival rates are 74% for those diagnosed under than age of 15.

For adults, however, the outcomes remain dishearteningly glum, with the 5-year survival rate for a cancerous brain or central nervous system cancer at 36% and the 10-year survival rate just 31%.

Modern robots that can worm their way into deep seated and pervasive tumours are providing fresh hope for patients, and two new technologies at Sunshine Coast University Private Hospital are working in tandem to allow doctors to provide exceptional safety and accuracy.

The O-arm machine is used to take a scan of the patient during spine, cranial, orthopaedic and ear, nose and throat surgeries.

This scan provides a 'map' of the patient's anatomy which is then transferred to the StealthStation navigation system.

The system is then used as a guide for the surgeon by pinpointing the location and direction of the instruments they are using on a 3D scan.

Dr Stephen Byrne, Neurosurgeon at the Sunshine Coast University Private Hospital, said the new equipment has allowed doctors to perform the region's first craniotomy.

"In addition to that exciting milestone, we have also performed many brain tumour operations for primary and metastatic brain tumours, as well as pituitary tumours in conjunction with our ENT colleagues.

"We can also perform minimally invasive spine procedures for patients with severe degenerative spinal deformity, traumatic and neoplastic lesions.

"Brain tumour surgery is a stressful time for patients and families, and the community benefits by keeping families together on the Coast during surgical recovery."

Robot saves 93-year-old grandmother

A 93-YEAR-OLD BRISBANE WOMAN HAS BECOME ONE OF THE OLDEST PEOPLE IN THE WORLD TO UNDERGO MAJOR ROBOTIC BOWEL CANCER SURGERY AT GREENSLOPES PRIVATE HOSPITAL.

Earlier this year, a tumour was found on the right side of Jean Clark's bowel during a colonoscopy. Greenslopes Private Hospital colorectal surgeon, Dr Joy Chakraborty, was brought in to talk to her about her options.

COURTESY OF THE COURIER MAIL (L-R): DIRECTOR OF CLINICAL SERVICES TERRY MCLAREN, COLORECTAL SURGEON DR JOY CHAKRABORTY, & PATIENT MRS JEAN CLARK.

Dr Chakraborty said Mrs Clark was determined to have surgery. "She said, 'doc, I want to live for longer so I can spend more time with my children and grandchildren'," he said.

Dr Chakraborty said Jean was in good health for her age and considered suitable to be put under anaesthetic. "But we wanted to do something minimally invasive to lessen her pain, improve her recovery and reduce the risk for complications – so we decided to do it robotically," he said.

Dr Chakraborty said Greenslopes Private Hospital's robotic surgical system, which he is using for more and more procedures, enabled him to remove the cancer and stitch the bowel back together without exposing her to any major incisions.

The grandmother was walking around the ward within a day, eating and drinking normally, and had her bowel function return to normal.

Dr Chakraborty said although people of her age had undergone smaller robotic procedures before, bowel surgery was a big operation. "Robotic surgery is a game-changer for anyone who needs a major bowel operation as they typically experience less pain, their recovery is faster and because they leave hospital quicker, they have less exposure to infections," he said.

Medical innovation

Robotic revolution as knee surgeries set to increase by 276%

WITH AUSTRALIANS LIVING LONGER LIVES THAN EVER & KNEE REPLACEMENTS AT AN ALL-TIME HIGH – 57,000 IN 2018 ALONE - NEVER HAS THERE BEEN A GREATER NEED FOR ROSA THE 3D ROBOT.

ROSA is the latest robot to join Westmead's fleet of surgical robots, including the da Vinci and the Mazor.

"Our orthopaedic surgeons are always trying to improve patient outcomes and the survivorship of implants," says Westmead Private CEO, Michael Flatley.

"So we are extremely excited to bring this new technology to our patients."

Robotic surgery is set to become more prevalent in the sector, with demand for knee replacements set to jump 276% by 2030, according to projections in the peer-reviewed BMC *Musculoskeletal Journal*.

The projected cost for the health system would be $5.32 billion.

More than $3.5 billion of this will be private, while obesity alone will create an extra 24,707 knee surgeries a year, further costing $521 million.

Westmead is one of the first in Australia to bring ROSA to its theatres, and currently does not pass on any extra robotic fee to patients.

Westmead Orthopaedic Surgeon, Dr Edward Graham, who has recently performed 15 robotic knee procedures, has now opted to move all his surgeries to robotic.

"We don't have big data yet as the procedure is so new, but what I am seeing is improved range of motion in these early patients."

Dr Graham said that while patient expectations are high, people need to remember that knees are like vases.

"A knee is bit like a broken vase. You can put it back together, but the replacement knee – whether traditional or robotic - will realistically never be quite the same as your old biological knee.

"The joint replacement (metal on plastic) will generally remove the pain aspect for the patient.

"However, the soft tissue aspect of the surgery which relates to optimal functionality and patient satisfaction is also important, and this is where robotic surgery may make a difference," said Dr Graham.

"You can plan pre-operatively in 3D where you are going to make cuts and release tissue.

"The constant feedback during the procedure ensures better placement of components and tissue."

Dr Graham said whether traditional or robotic, there is little change in the lifespan of the implant, as 95% of traditional implants have a lifespan for 17 years.

"But this is what knee surgery is about, lots of little advances in the surgery over the years, that may together make a big difference in the decades to come.

"The hope of all surgeons and patients is that one day in the future, the 'vase' will not only last a lifetime but be as functional as the knees we are born with."

For an ageing population Dr Graham says knee replacement can be "life-changing".

"People who couldn't walk now can. People who couldn't pick up grandkids now can. And in the operating rooms of the future, through further doctor and nurse driven innovations, technology and better pain relief – one day people may do all those activities without feeling they ever had a knee replacement."

By 2030, Australia will be brought to its knees – literally – with the rise of the silver economy & a spiralling obesity epidemic. Knee replacements will experience exponential growth, & Ramsay is committed to a range of new technologies.

Beleura Private has introduced the MAKO into its operating theatres. The MAKO constructs a 3D model using a pre-operative CT scan and generates a plan around minute variations in patient anatomy.

It also ensures partial knee replacement surgery is available to more patients by selectively targeting the damaged parts of the knee, while avoiding surrounding healthy bone and soft tissues.

Currently fewer than 5% of patients who struggle with degenerative knee disease will undergo a partial knee replacement due to the procedure's technical difficulty.

At Linacre Private Hospital, an innovative hand-held robotic surgical device called the NAVIO is being used during uni-compartmental knee arthroplasty.

The NAVIO mitigates the challenge of traditional methods of knee surgery, and simplifies the surgical process without the extra steps required with existing robotic-assisted technology.

For instance, a CT scan is not needed – the device maps a patient's knee in real time. This ultimately results in reduced radiation exposure.

Business performance

Technology that clarifies, transforms & evolves

54 Lean KPIs tracked

72% Reduction in pre-op waiting times

40% reduction in operating theatre delays

20% increase in online admission forms

An evolution in our vision

OUR EVOLVE VISION IS TO ENABLE GROWTH & INNOVATION THROUGH THE CREATION OF A STANDARDISED NETWORK OF HOSPITALS THAT DELIVER EXCELLENCE FOR PATIENTS, CARERS, CLINICIANS & STAFF.

Evolve will enable us to better leverage our scale across Australia; position our organisation to continue to deliver excellent and more efficient services consistently across our group; and support the continued growth of the services we provide.

Projects being undertaken under the Evolve banner include the application of Lean methodology to our everyday activities, such as the establishment of Obeya rooms, and the introduction of Lean KPIs at our hospitals.

In 2019 we completed an important project to upgrade our fleet of over 9,000 workstations to Windows 10. This was required as Microsoft ceases support for Windows 7 in January 2020. In the spirit of Project Evolve, we have taken the opportunity to consolidate and standardise where possible, halving the number of models from over 90 and reducing the number of different applications from over 4000 to around 1000. We have also introduced disk-level encryption and other advanced security features to keep our data secure.

Technology – a key enabler of Evolve

TECHNOLOGY IS A KEY ENABLER OF RAMSAY'S BUSINESS TRANSFORMATION, AIMED AT DELIVERING ON OUR VISION TO BE THE LEADER IN COMPREHENSIVE, CONNECTED HEALTHCARE FOR ALL AUSTRALIANS.

WORKFORCE PLANNING

We are using technology solutions to optimise workforce planning through:

Implementation & roll-out of an eRecruitment system to improve the onboarding speed & experience of new employees.

Implementation & roll-out of Workplan, a new one-stop electronic rostering system allowing managers to develop activity-based rosters, see staff requests, review leave liability & support staff working across multiple sites.

REVENUE CYCLE

We are using technology to look for opportunities to reduce & eliminate poor documentation, coding & billing errors & optimise processes.

Partnering with leading local Artificial Intelligence (AI) innovators

STANDARDISED CARE

We are implementing the Digital Blueprint across the network to support the standardisation & growth of our clinical programs.

VisionTree portal for standardised rehabilitation outcome measures being piloted

SERVICE CENTRES

We are providing digital solutions to implement process consistency & continuity in key back of house & support services including:

Implementation of multiple process & system improvements in the financial systems area to support sites.

VALUE CREATION

We are using technology to improve critical hospital processes & embed a culture of continuous improvement. This involves:

Tracking key performance indicators (KPI) & gathering data insights to inform & support decision making.

DIGITALISATION

We are digitising and improving the admission to discharge process. This includes:

Digitalising inpatient medical records & remove paper from clinical processes

Consolidating customer interactions into a single record

Creating a single platform to store & manage all customer interaction data

PROCUREMENT & SUPPLY

We have leveraged technology to optimise the supply function & to gain data insights to improve processes & make other efficiencies.

This brings greater spend through our materials management system

The focus on 'Lean'

LEAN IS FOCUSED ON IMPROVING QUALITY & SAFETY, REDUCING UNNECESSARY WORK & IMPROVING THE CUSTOMER EXPERIENCE IN OUR HOSPITALS.

The purpose of Lean is to rapidly identify and remove 'waste' from any system or process. This is achieved by measuring lead performance indicators, increasing communication between departments and empowering staff to enact improvements swiftly.

Ramsay Health Care Australia's Chief Operating Officer, Kate Munnings, said, "I have seen Lean deliver significant performance improvements when fully embraced; and importantly, Lean aligns well with The Ramsay Way with its emphasis on respect for people and continuous improvement."

Intranet 2.0

A MODERN, USER CENTRED DESIGN WITH A CENTRAL REPOSITORY OF POLICIES, PROCEDURES & FORMS MAKES IT EASIER FOR EMPLOYEES TO FIND RELEVANT INFORMATION, WHEN THEY NEED IT.

The Intranet is an important source of information in every organisation, and none more so across Ramsay, due to the size and complexity of our business. The most common search terms used on our Intranet relate to staff benefits, training and entitlements and clinical topics such as medication and risk management. Our Intranet has grown significantly since its inception, mirroring the expansion of our health services and portfolio of hospitals and clinics.

A new Intranet is in the final stages of preparation, before its launch in the first half of 2020. Built with an emphasis on standardisation and consistency across all departments, it has a modern yet corporate look and feel. Consistent navigation is now a standard; news and communications are front and centre; live video training is easily accessed; and useful links are easily identifiable. All the policies, procedures and forms have been reviewed and will be housed in a central library, ratified by the National Clinical Governance Unit and other heads of department. This will make it easier to navigate and find the most relevant information, when it's needed.

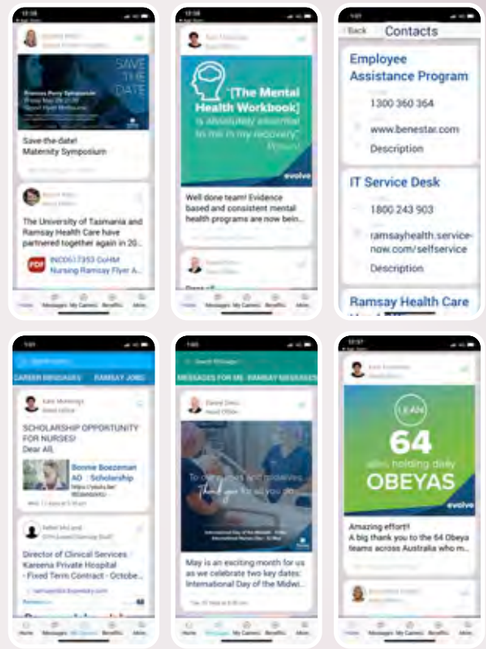
In line with the principles of Ramsay's Evolve program, the new Intranet has standardised the service, simplified the process and facilitates the sharing of best practice.

MyRamsay app

MYRAMSAY IS A REAL-TIME COMMUNICATION TOOL FOR HEALTH CARE PROFESSIONALS WORKING AT RAMSAY HEALTH CARE, THE LARGEST PRIVATE HEALTH CARE NETWORK IN AUSTRALIA.

The app aims to provide relevant workplace information to assist the delivery of high quality health care to patients. This information would include the latest news, announcements, change in government policies, team messages, training and career opportunities, and staff benefits.

MyRamsay aggregates and filters through all the information available in the private health network, and delivers an individualised set of information that is relevant and personalised to each user.



1 in 3

Employees use MyRamsay to stay in touch, see new opportunities & enjoy the app's benefits

Search "MyRamsay" on your app store

Available on the App Store

ANDROID APP ON Google Play

*The **MyRamsay** employee app & our SMS service were used to help communicate with staff in the bushfire affected regions of the country during the summer.*

Dial 2222 for an internal coded emergency

A NEW INTERNAL EMERGENCY PHONE NUMBER HAS SUCCESSFULLY BEEN INTRODUCED INTO HOSPITALS IN THE RAMSAY AUSTRALIA NETWORK.

2222 will be the number to use for coded emergencies and personal or hospital threats requiring immediate action.

The notification of a medical emergency through the nurse call system still remains the same.

Having one internal emergency number across all Ramsay Australia sites will provide consistency, reduce confusion and minimise risks, especially for doctors and staff who move between facilities.

The first sites to successfully implement the new 2222 number were:

- North Shore Private Hospital
- St George Private Hospital
- Westmead Private Hospital
- Wollongong Private Hospital

More than 50 different emergency phone numbers exist in Australia's hospital system. The Australian and New Zealand College of Anaesthetists and the Australian Resuscitation Council have urged state and federal governments to also implement 2222 in all public hospitals.

This change will create a more secure and safer environment for doctors, staff and patients.

Ramsay Health Care is the first Private hospital operator in Australia to introduce the new standard internal emergency number: 2222

Ramsay IT team saves e-waste from landfill

MORE THAN 98 PER CENT OF RAMSAY AUSTRALIA'S UNWANTED IT ASSETS - SUCH AS MOBILE PHONES, LAPTOPS, COMPUTERS AND PRINTERS – HAVE BEEN REMARKETED, RECYCLED OR PROCESSED.

The environmental initiative is part of a new national project to save thousands of items from landfill.

Ramsay's national IT services team identified 4,800 out-of-date devices during 'Project 10': a Windows upgrade project conducted in partnership with an e-recycling vendor to reduce the potential for wastage.

IT project manager, River Nygryn, said: "We looked for a vendor to either remarket it, in terms of wiping the device and reselling it for us, or if it was dead equipment, they would recycle the material."

So far, e-waste organisation Sims has processed more than 1,377 pieces of equipment for Ramsay, equating to 751 kilograms.

Items included PCs, monitors, printers, scanners, notebooks, tablets, mobile phones and networking equipment. Some teams have also started donating disused hospital equipment.

IT Service Delivery Manager, Andrew Chance, said: "Anything within the IT framework that is no longer useable and can be recycled has now started to flow through, as part of our de facto standard to recycle. We've also collected old TVs and nurse call screens which no longer work."

If an item can't be resold, it is shredded and sorted into various commodity streams, including copper and gold, which are then used create new base materials.

All 73 of Ramsay's hospitals and day surgery units are involved in the project.

"We have on-boarded Sims recycling as a permanent partner so that we can continue to recycle e-waste as part of a new process that we will always use."

98%
of eWaste is recycled at Ramsay

Ramsay to ban 24 million plastic items per year in Australia

RAMSAY AUSTRALIA HAS PLEDGED TO BAN A RANGE OF SINGLE-USE PLASTIC ITEMS FROM ALL ITS FACILITIES BY WORLD ENVIRONMENT DAY IN JUNE 2020.

These items – including drinking cups, plates, straws, kidney dishes and cutlery – make up more than 24 million plastic items that Ramsay will eliminate from the environment each year.

Single-use plastic waste is a global menace, with items such as straws, water bottles and bags accounting for more than 40 per cent of pollution.

About eight million tonnes of plastic reportedly ends up in the ocean every year – the equivalent of dumping the contents of a garbage truck every minute.

National Environment Manager, Sue Panuccio, said: "Rather than wait until legislation is enacted around single-use plastics in Australia, we wanted to take a proactive approach."

"We are serious about developing initiatives that advance the health and wellbeing of both current and future generations – and protecting the environment is a crucial part of this."

Ramsay is able to achieve this pledge thanks to the significant investment in technology, providing a standardised platform for our materials and supply chain management.

Business performance: Cybersecurity

Meeting the challenges of keeping patient data safe, Ramsay has made a record investment in cybersecurity

EACH YEAR, RAMSAY IS ENTRUSTED WITH HANDLING & STORING EXTREMELY SENSITIVE INFORMATION FOR OVER ONE MILLION AUSTRALIANS.

We continually face risks to the security and integrity of this digital data. Last year, 89% of Australian businesses reported a cybersecurity breach, while ransomware targeted at businesses increased by 365 percent and the cost of managing cybersecurity incidents rose to an estimated $29 billion.

This risk is heightened as we further digitise our business. Connected medical devices are fast becoming an essential part of the care journey, with around twice as many devices as personal computers currently in our network. These devices bring many benefits but also additional risks, as they cannot always be secured in the same way as traditional computers.

Ramsay is meeting this challenge, and cybersecurity controls are an essential part of our overall risk management strategy. In the past year, we have improved our anti-malware protections and email security to help fight the never-ending threat of cyber-crime and ransomware. This includes applying 3.3 million security updates to our network, blocking over a million malicious web requests, investigating 3,000 security incidents, and deploying additional tools to help us monitor and control the devices in our network.

We also continue to run our staff cybersecurity Influence program, which ensures frontline staff at Ramsay understand their role in keeping patient information safe.

Although Ramsay's systems have never been more secure, to stay vigilant and alert, we have expanded our cyber security control framework so we can better review the risks we face and how we respond to them. This will keep cybersecurity and data privacy as one of our priorities – for the sake of our patients, the specialists we work with, and the wider Australian community.

STAY CYBER SAFE

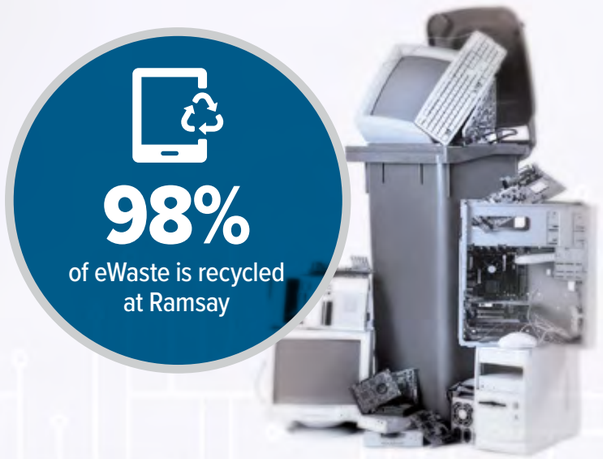
Business performance: Support

Support is our priority

OPERATIONAL SUPPORT TO OUR 30,000-STRONG STAFF IS ONE OF THE IT TEAM'S KEY RESPONSIBILITIES.

We have extended our manned support to commence from 7am local time and increased the frequency of on-site visits, clocking up more than 280,000 kilometres of travel to support our facilities in 2019. This has been fundamental to building a closer working relationship with the workforce.

Through a combination of talent management, process standardisation, centralisation and re-tooling, the responsiveness of IT has never been better.



98%
of eWaste is recycled at Ramsay

Improvements across the support KPIs are:

158k
helpdesk tickets received

88k
phone calls for assistance

68%
of IT tickets resolved on the day

9000+
workstations

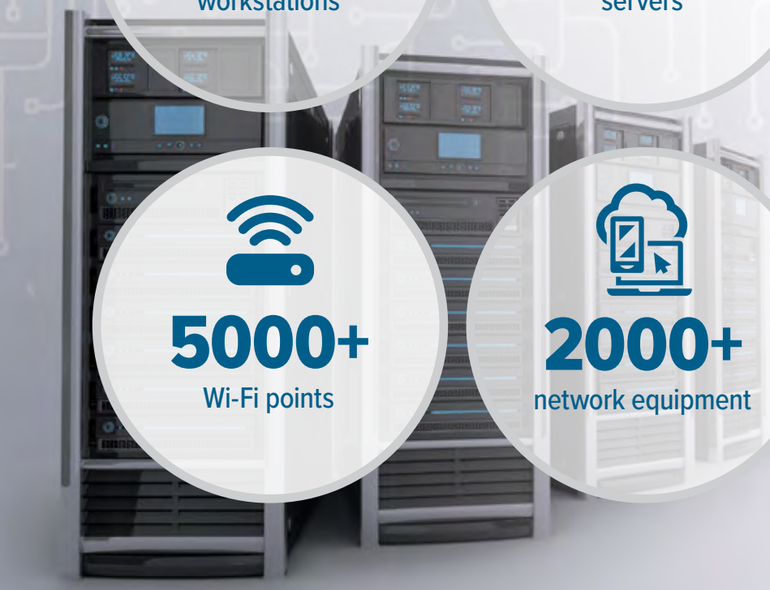
1700+
servers

18000+
phones

1.5 days
average resolution time, 44% faster in 2019

4.4%
average call abandonment rate, 29% lower in 2019

75%
of calls answered within 10 seconds



5000+
Wi-Fi points

2000+
network equipment

4000+
printers

18 sec
average speed of answer a call, 30% better in 2019

Tomorrow & beyond

Ramsay is about to embark on a new era of technological sophistication, where we place the consumer at the centre of our ever-growing ecosystem of health services. What does this look like in practice?

Technology that innovates, advances, is agile, considered & effective

HERE IS A SNAPSHOT OF HOW TECHNOLOGY IS ENHANCING THE CONSUMER EXPERIENCE, WITH MORE INNOVATIONS TO FOLLOW IN THE COMING YEARS.

As Australians increasingly use the Internet to find the healthcare services they require, we will personalise the content they see, so promoting our clinical partners. We will provide concierge-like services to direct them to the most appropriate care, spanning both our hospital and out-of-hospital healthcare services.

Patients admitted to our day surgery centres will experience a seamless and integrated referral process for them, their families and the admitting doctor.

Gone will be the days of having to repeat the same information prior to admission, at admission and during the hospital stay. Informed consent and online payments will be simplified. Scheduling for admission, surgical procedures and discharge planning will be optimised, removing some of the uncertainty associated with hospital stays. The patient's family will be able to follow their loved one's progress online and stay connected with them over high-speed, secure and reliable Wi-Fi. This technology provides entertainment options for patients, as well as helping better connect our doctors to their clinical systems.

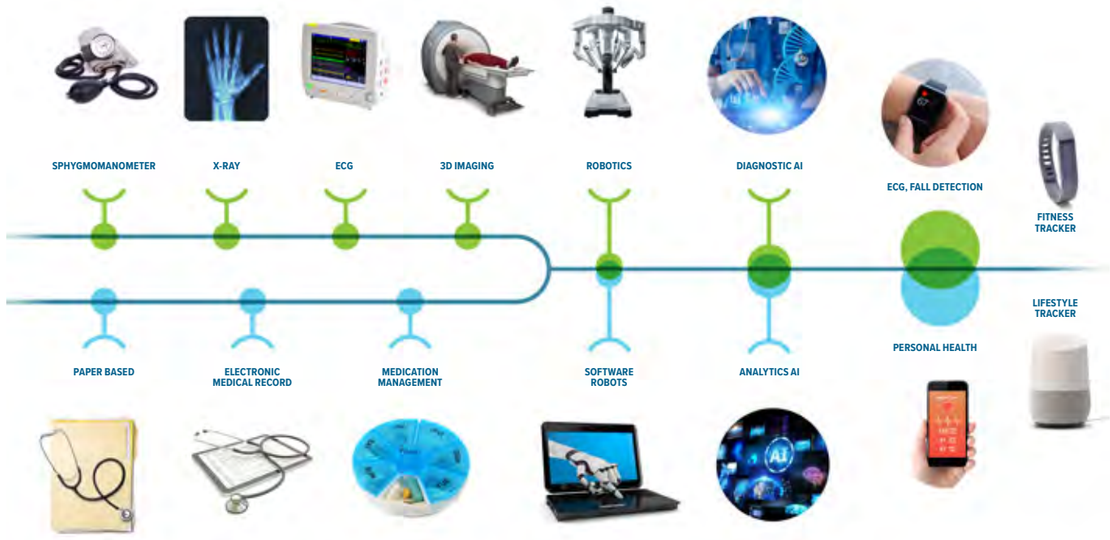
The care loop from the hospital to the admitting and referring doctors will continue to be digitally closed. With more than 90% of Australians now having a My Health Record they control, it is even more important we play our part in providing accurate information on patient hospitalisations. Ramsay was one of the earliest of the large hospital networks to work with the Australian Digital Health Agency and supports greater transparency for all healthcare consumers.

Our clinical and administrative support staff will move from paper admission and medical forms to standardised digital records. This will provide clearer insights into our clinical performance, with safeguards to ensure that the complexities associated with funding arrangements are better managed for the patient, doctors and hospital staff. We will commence weaving together our ever-growing rehabilitation, retail pharmacy and allied health services, offering consumers choice and benefits if they choose to use our services.

Ultimately, the future for Ramsay is one where the consumer is at the centre of everything we do. As we become more technologically advanced, we will ensure the growing information entrusted to us remains safe and secure. We will continue to strive to make their healthcare experience as convenient, seamless, safe and effective as it can be.

In our CEO Danny Sims' own words, technology is a journey, a 'long game', and we thank all of our employees, doctors and other stakeholders for your ongoing support of our efforts to become more digitally advanced in Ramsay Australia.

ONE OF THE MOST IMPORTANT TRENDS WE SEE IN RELATION TO HEALTHCARE TECHNOLOGY IS THE CONVERGENCE OF TECHNOLOGIES: TRADITIONAL IT SYSTEMS, DIGITAL MEDICAL SOLUTIONS & CONSUMER ELECTRONICS.



Tomorrow & beyond: New services & projects

New services & projects:

2020

Digital innovation complements & enhances our delivery of world class healthcare. Here are a few important examples for 2020 as well as new services that are due to be launched this year.

AUSTRALIAN FIRST HEART STEM

The new device works by expanding & opening up major branch blockage & features a small opening midway to avoid dangerous side effects to smaller vessels

NEW KRONOS TIME & ATTENDANCE SYSTEM

This system is faster & works with the Chrome browser. A platform for the future & improved workforce planning

MORE SURGICAL ROBOTS

New ROSA & Mazor X robots & Australia's first Pacemaker Interactive ECG Training Simulator replicates the behaviour of real-life patients

DAWNING OF THE NEW INTRANET

A modern, multimedia-rich user centred design with central repository of policies, procedures & forms making it easier to find what you need

PERSONALISED WEB EXPERIENCE

Dynamic, personalised web experience for prospective patients with a traditional digital marketing communication channel

SMART CONNECTED INFUSION PUMPS

Australia's first national drug library for our new fleet of smart connected pumps will help nursing care and improve patient safety

MOVE TO OPTUS & FASTER, MORE RELIABLE NETWORK

A better streaming service with 20% more capacity and improvement management control over network performance

ARTIFICIAL INTELLIGENCE

Software robots employed to answer questions & automate repetitive back-office transactions, helping free staff for better patient care

$2b+
Invested over a 10yr period

PENINSULA

72 beds
6 day oncology chairs
2 theatres
Car park expansion

HOLLYWOOD CONSULTING CENTRE

37 specialist consulting suites
Relocation of 4 gastroenterology procedure rooms
Radiology
Radiation oncology
Multi-deck car park

SOUTHPORT PRIVATE

24 mental health beds
Space developed for future additional 12 beds

JOHN FLYNN

Carparking deck

NORTH WEST PRIVATE

14 specialist consulting suites
Car park expansion

HOLLYWOOD

Mental Health Day Hospital
30 Mental Health beds
Car park expansion

DUDLEY

Private Room conversion
Extra 7 rehab/ med/surg beds

NORTH WEST PRIVATE

69 extra beds
2 new operating theatres
Upgrades to Oncology, Dermatology, Intensive Care Unit, High Dependency Unit & other support areas

JOHN FLYNN

Emergency Department expansion
29 extra beds
2 new theatres
PET/Radiology

NOWRA

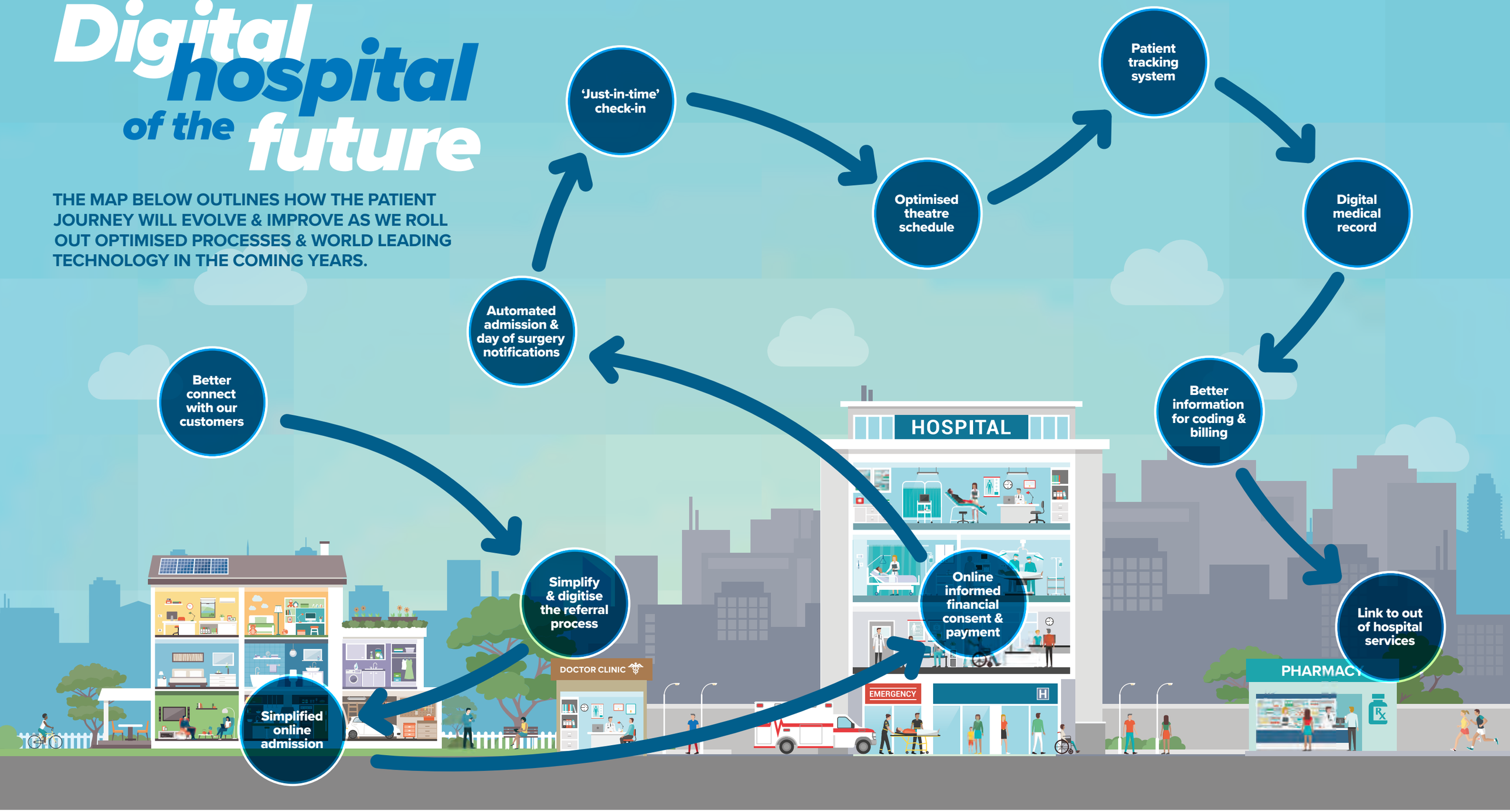
An extra operating theatre
New Day of Surgery Admission Unit
Private Room conversion

Tomorrow & beyond: Digital Hospital of The Future

Digital Hospital of The Future:

Digital hospital of the future

THE MAP BELOW OUTLINES HOW THE PATIENT JOURNEY WILL EVOLVE & IMPROVE AS WE ROLL OUT OPTIMISED PROCESSES & WORLD LEADING TECHNOLOGY IN THE COMING YEARS.



Research:

Ramsay Hospital Research Foundation

A year of exploration

THE RAMSAY HOSPITAL RESEARCH FOUNDATION (RHRF) HAS NOW BEEN OPERATIONAL FOR THREE YEARS &, IN THAT TIME, HAS ESTABLISHED A REPUTATION FOR FUNDING HIGH QUALITY RESEARCH WITH THE POTENTIAL TO IMPROVE PATIENT OUTCOMES.

RHRF has committed over $13M to fund 19 research projects in key areas of mental health, rehabilitation and health services, with some of these projects well underway and others due to commence in 2020. All of the research projects funded by RHRF share a common objective – to establish research in multiple Ramsay Hospitals to improve patient outcomes.

The research grants provided by RHRF are used to develop and support strategic research projects that have been developed by both internal and external investigators within Ramsay. Projects that have received funding to date include 'Testing Risk Genes in Depression', CNS Dose, & PVFrailty .

'Testing Risk Genes in Depression' is one of the first studies in the world attempting to link polygenic risk profiling to patient outcomes in mental illness. If the genetic risk profile of a patient can be linked to an outcome, particularly in mental health, it will result in quicker and easier diagnosis for patients and ultimately more accurate treatment. Led by Professor Phil Mitchell, this project received $678,994 and commenced recruitment at Northside Clinic in early 2019 after receiving ethics approvals. The project has now recruited over 130 patients and will be expanding to other sites in Ramsay Health Care in 2020.

The CNS Dose study was awarded $762,216 in 2019 and will use a genetic test provided by CNSDose to determine which antidepressant medication will be the most effective for a patient. The test examines how quickly a patient will metabolise a drug, and aims to help clinicians to select optimal first-time treatment options for anti-depressant medication to give patients better results and reduce the risks of adverse medical reactions. Led by Professor Mal Hopwood, this project will commence at Albert Road Clinic in 2020 and will subsequently expand to other sites within Ramsay Health Care.

PainChek® and Volunteer Support: Frailty Trial (PVFrailty) is a project that seeks to determine if technology and volunteer support can improve care outcomes for hospitalised frail older patients. Using a pain assessment app, PainChek® and adapted Hospital Elder Life Program, this randomised control trial will be undertaken at Hollywood Private Hospital in 2020, led by Dr Rosemary Saunders and a highly regarded research team.

RHRF has also committed $70,000 of funding per year for the next three years to the Digital Health CRC. The Digital Health CRC is a government, industry and academic collaboration looking at how digital health can be actively embedded in the health system. As a result of this partnership, Ramsay has the opportunity to participate in significant research projects that run across multiple organisations.

Ramsay Research Data Platform

IN 2018, RHRF ESTABLISHED A RESEARCH PARTNERSHIP WITH VISION TREE, A US BASED COMPANY THAT IS USING TECHNOLOGY TO ESTABLISH PATIENT CENTRED CLINICAL PATHWAYS.

Through the partnership with Vision Tree, RHRF has been able to develop and deploy a research platform that enables the collection of clinical data and patient reported outcomes at regular times while a patient is admitted in a Ramsay facility and when they are sent home.

In 2019, RHRF extended the capabilities of the platform to include the randomisation of patients when they are enrolled in a randomised clinical trial which offers two or more treatment options. These types of clinical trials compare the outcomes of different treatments and are critical to demonstrate the differences between one type of treatment versus another.

In 2020, RHRF is exploring the potential use of AI solutions in cancer care. The use of a robust and versatile data platform is a key element in all projects that RHRF develops. Through the use of this platform we are able to support all research projects that we fund.

World-first milestones achieved as clinical trials ramp up

MORE THAN 190 POTENTIALLY LIFE-CHANGING CLINICAL TRIALS ARE NOW UNDERWAY AT 14 RAMSAY SITES ACROSS AUSTRALIA IN AREAS SUCH AS ONCOLOGY, HAEMATOLOGY, MENTAL HEALTH & CARDIOLOGY.

Ramsay Hospital Research Foundation (RHRF) CEO, Nicola Ware, said the Ramsay Clinical Trial Network has continued to grow from strength to strength – reaching many exciting world-first milestones along the way.

"In 2019 four new facilities joined the network: Albert Road Clinic, Sunshine Coast University Private Hospital, Wollongong Private Hospital and North Shore Private Hospital. Trial activities have also resumed at Warringal Private Hospital following the recruitment of a new coordinator," Ms Ware said.

All of the sites within the Ramsay Clinical Trial Network continue to develop new trials, attract patients and achieve many world firsts. We are fortunate to have a group of high calibre clinicians, clinical trial coordinators and other support staff who support the development of the Network." Ms Ware said.

Clinical trials highlights

Albert Road Clinic
- Involved in an Australian-first trial for a completely novel drug treatment for severe depression (Praxis).

St George Private Hospital
- First site in the world to recruit patients to six different Phase 1 oncology clinical trials, and is the highest recruiting site for four of those trials.

Lake Macquarie Private Hospital
- Highest recruiting site in Australia and New Zealand for the SPAR rectal cancer study.

Peninsula Private
- Highest recruiting site in the world for a trial in chronic lymphocytic leukemia (CLL) or small Lymphocytic Lymphoma (SLL).

Gallipoli Medical Research Foundation (based at Greenslopes Private Hospital)
- First in Australia to recruit a patient to the MK3475-641 mCRPC prostate trial.
- First site in the world to recruit to a phase 2 study in haemochromatosis; had the first patient recruited in Australia and was the equal second highest recruiting site in the world.

ECT – CARE Network

IN 2019 RHRF COMMENCED THE ESTABLISHMENT OF THE CLINICAL ALLIANCE & RESEARCH IN ELECTROCONVULSIVE THERAPY (ECT) & RELATED TREATMENTS (ECT-CARE) WITHIN RAMSAY MENTAL HEALTH FACILITIES.

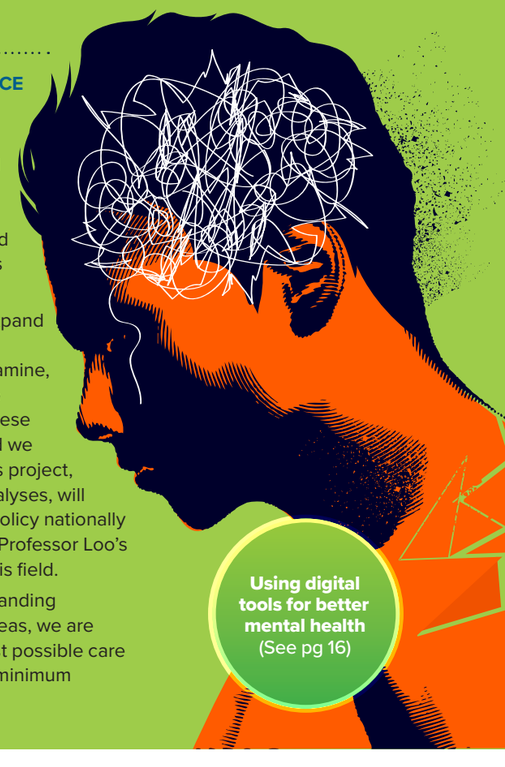
Led by Professor Colleen Loo, this project is building upon work that commenced in 2015 in consultation with over 40 hospitals around Australia and Internationally. ECT-CARE will launch in Ramsay Health Care in 2020 and will eventually expand to include datasets for ketamine, rTMS and tDCS.

Depression confers a large burden of disease because of its early onset, high prevalence, and the profound disability involved. It is the second highest cause of disability globally and is the highest ranked amongst mental disorders in Australia in the areas of severity, disability and service use. Treatment resistance is a key factor in the illness burden in addition to high economic cost, with a third of depressed patients not attaining remission despite trials of up to four different treatments.

The aim of the project is to develop a standardised framework for collection of quality clinical data on patient characteristics, treatment approach and clinical outcomes in ECT. This will lead to the development of standardised care pathways and improved outcomes for patients undergoing this treatment.

The project will eventually expand to include other models of neurostimulation, including ketamine, rTMS and tDCS treatments. The collection of this data in all of these services will be a world first and we anticipate that findings from this project, including cost effectiveness analyses, will influence clinical practice and policy nationally and internationally, building on Professor Loo's established track record in in this field.

Ultimately, by better understanding outcomes in these treatment areas, we are better equipped to give the best possible care to our patients and ensure our minimum standards are exemplary.



Using digital tools for better mental health (See pg 16)

Medtech Investment:

Investing in medical technology startups

RAMSAY HEALTH CARE IS INVESTING IN START-UPS AS THEY DRIVE BETTER HEALTH & WELLBEING OUTCOMES THROUGH NEW TECHNOLOGY.

As a global corporation, Ramsay Health Care is challenging itself to reinvent its business operating model, with the aim of becoming a healthcare organisation rather than a hospital-centric business.

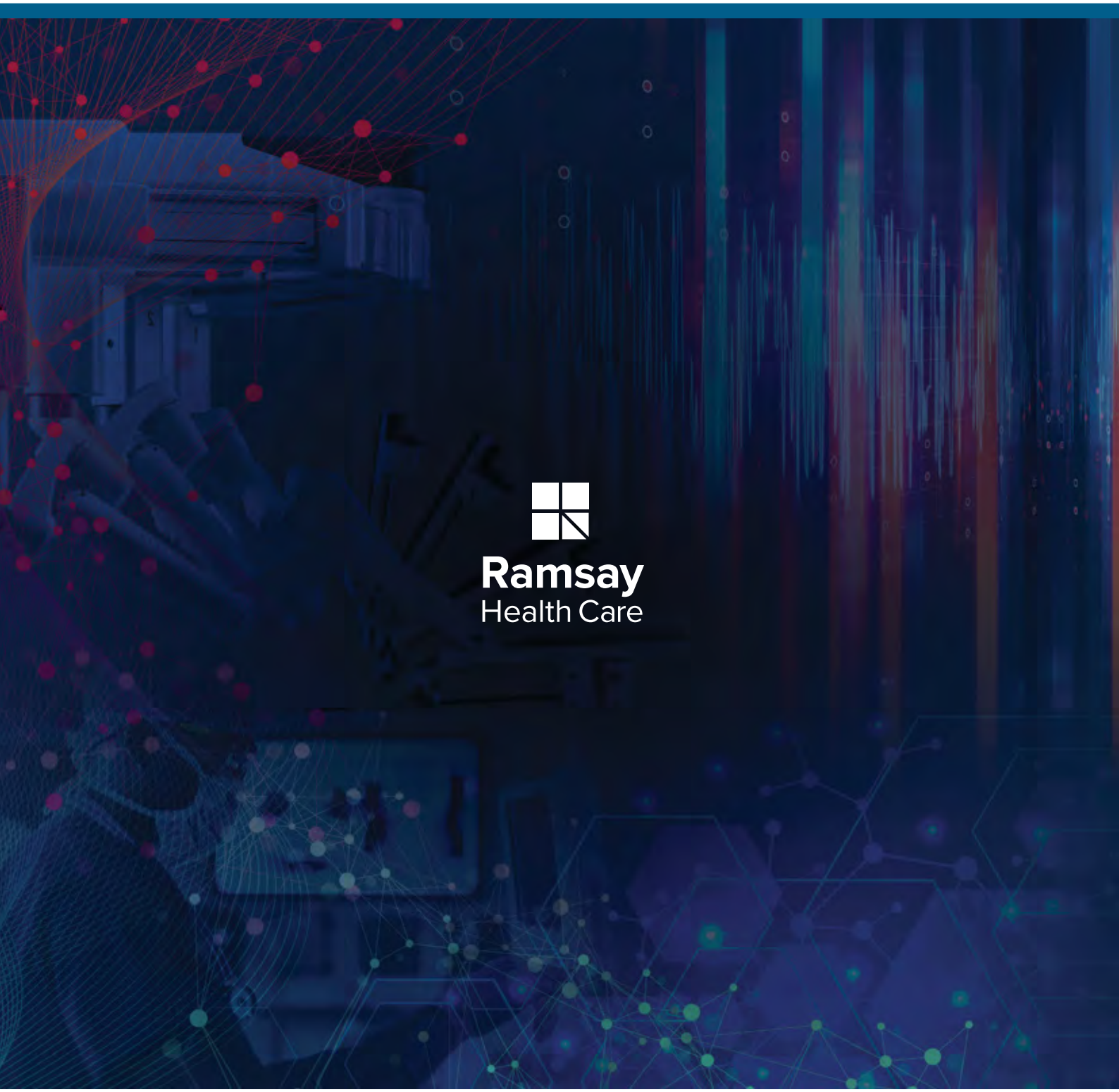
Critical to the success of this strategy is digital health and investment in technology. We have been supporting and investing in the Australian start-up community as they trial new medical technology, with the identification of potential investment opportunities being facilitated by MedTech Actuator.

Harrison.ai is an example of an industry technology company supported by early investment from Ramsay Health Care. A clinician-led healthcare artificial intelligence company, Harrison.ai empowers doctors and healthcare providers with customised AI-enabled tools that integrate into existing clinical workflows which ultimately lead to improved patient outcomes. They have successfully, developed, validated and deployed Ivy, a deep learning model for predicting the likelihood of pregnancy from analysing time-lapse incubation videos. Ivy is a patent-pending technology that has increased the clinical pregnancy success rate in IVF-treatment by over 30%.

Launching in Australia and scaling globally, the start-ups identified by MedTech Actuator drive better health and wellbeing outcomes for communities; provide technological solutions for management of chronic disease, aged care and disability cohorts; directly invest in health technology for the Australian community; and foster the jobs, ventures, technologies and sectors that will define Australia's future economic prosperity.

Ivy is a patent-pending technology that has increased the clinical pregnancy success rate in IVF-treatment by over 30%.

Tomorrow & beyond: Medtech Investment


Ramsay
Health Care