2021/22

Annual Report

Pelvic Exenteration Program

ROYAL PRINCE ALFRED HOSPITAL

Sydney Local Health District

CONTENTS

1. Executive Summary

The purpose of this report is to provide a summary of the provision of the pelvic exenteration program at Royal Prince Alfred (RPA) Hospital within Sydney Local Health District (SLHD) for the financial year period 2021/22.

During 2021/22, the pelvic exenteration program at RPA reviewed details of 242 patients referred for potential treatment through the multidisciplinary team (MDT) meeting. Over the 12 month reporting period, 80 pelvic exenteration procedures were undertaken, which included two patients who underwent redo surgery and two patients who underwent a combined pelvic exenteration and cytoreductive surgery (CRS) with or without hyperthermic intraperitoneal chemotherapy (HIPEC). The pelvic exenteration program continues to evolve, with a further growth of 5% in activity anticipated for the next financial year.

From 1994 to June 2022, 996 pelvic exenteration procedures have been performed at RPA on 954 patients in total, which is the largest cohort of patients treated by a single institution worldwide. This has led to international recognition of RPA hospital being highly regarded for its novel multidisciplinary approach, expertise, innovation in surgical techniques, outstanding patient outcomes, and high-quality scientific output.

Indeed the pelvic exenteration research program continues to progress with 37 studies (32 in advanced stage and 5 in conceptual stage) currently being conducted incorporating topics of surgical techniques, surgical outcomes, survival, prognosis, decision-making, quality of life, patient experience, nutrition, depression, anxiety, stress, exercise, 3D printing, pain management and treatment cost. In addition, the pelvic exenteration team published 19 peer-reviewed research manuscripts in national and international journals during this reporting period.

Despite the ongoing challenges of the COVID-19 global pandemic on delivery of health care, the impact on this time critical patient cohort has been minimal due to the implementation of modified models of care that has been supported by the SLHD and RPA senior management. The impacts on the delivery of outpatient services and the availability of intensive care and inpatient beds, along with small reductions in the availability of theatre lists has been sustained. Overall everyone involved is to be commended for pulling together to ensure ongoing delivery of the pelvic exenteration service for these highly complex patients during this difficult time.

The pelvic exenteration program at RPA continues to be one of the most internationally renowned surgical programs pioneered within Australia, and its strength and success over more than 28 years are a testament to the support of NSW Health, the SLHD and RPA senior management and to all of the many highly talented and dedicated medical, nursing, allied health and research teams who contribute to the program.

The development and future expansion of the service requires additional capacity and funding support. This will need to be taken into consideration in the new RPA Redevelopment, with the current patient demand continuing to appropriately climb annually as a result of the enhanced recognition, both regionally and interstate, regarding the considerable patient benefits achieved by referring to a dedicated complex surgical centre. With patient outcomes remaining excellent, the development of novel decision making and risk stratifying tools will be a new focus of the program, to continue advancing the delivery of care within this critical surgical oncological service.

2. Introduction

2.1 Purpose of report

The purpose of this report is to provide a summary of the provision of the pelvic exenteration program at Royal Prince Alfred (RPA) Hospital within Sydney Local Health District (SLHD) for the financial year period 2021/22.

The first pelvic exenteration case was undertaken in RPA in 1994, this report covers the 28th year of operation for the program.

2.2 Funding arrangements

Due to the highly complex and specialised nature of the pelvic exenteration program at RPA, including the number of interstate patients treated, support was granted by NSW Health in 2010 for RPA to apply for a federal National Funded Centre (NFC). Although this went to a full review including a site inspection at RPA in early 2011, the program was ultimately not successful in the application due to the heterogeneous nature and volume of the tumour types able to be treated by this surgical procedure.

Despite this, NSW Health strongly supported the program and agreed to provide specialised program funding, which formally commenced in 2014. Overseen by the Highly Specialised Services Committee of NSW Health, the original funding agreement was set at 60 pelvic exenteration cases per financial year, which was increased to 75 cases annually in 2016/17. This activity is covered by a combination of activity based funding (ABF) allocated through the National Weighted Activity Units (NWAU) per case and additional enhancement funding in recognition of the complexity of the program.

In 2021/22, the specialised funding provided by NSW Health was based on the in-scope episodes completed within 2019/20 (excluding those patients not discharged on 30 June 2020), which was 72 patients.

3. Governance

3.1 Advanced GI Surgical Program

The Advanced GI Surgical Program (AGISP) is overseen by the RPA Institute of Academic Surgery (IAS) as one of the key programs within its Innovation, Value and Thought portfolio. This incorporates the management of the pelvic exenteration, along with the peritonectomy, retroperitoneal sarcoma and advanced upper GI malignancy programs.

The overarching committee responsible for this program is the 'AGISP Steering Committee' which commenced in November 2016 and is co-chaired by Dr Teresa Anderson, Chief Executive SLHD, and Professor Michael Solomon, Advanced GI Surgical Program Director and Co-Chair of the IAS. The committee meets bi-monthly and has representation from Heads of Department and key staff across all clinical departments and all areas involved in the delivery of the pelvic exenteration, peritonectomy, retroperitoneal sarcoma and advanced upper GI malignancy programs.

The governance structure is outlined in **Figure 1** and the clinical departments involved in the program are outlined in **Figure 2**.

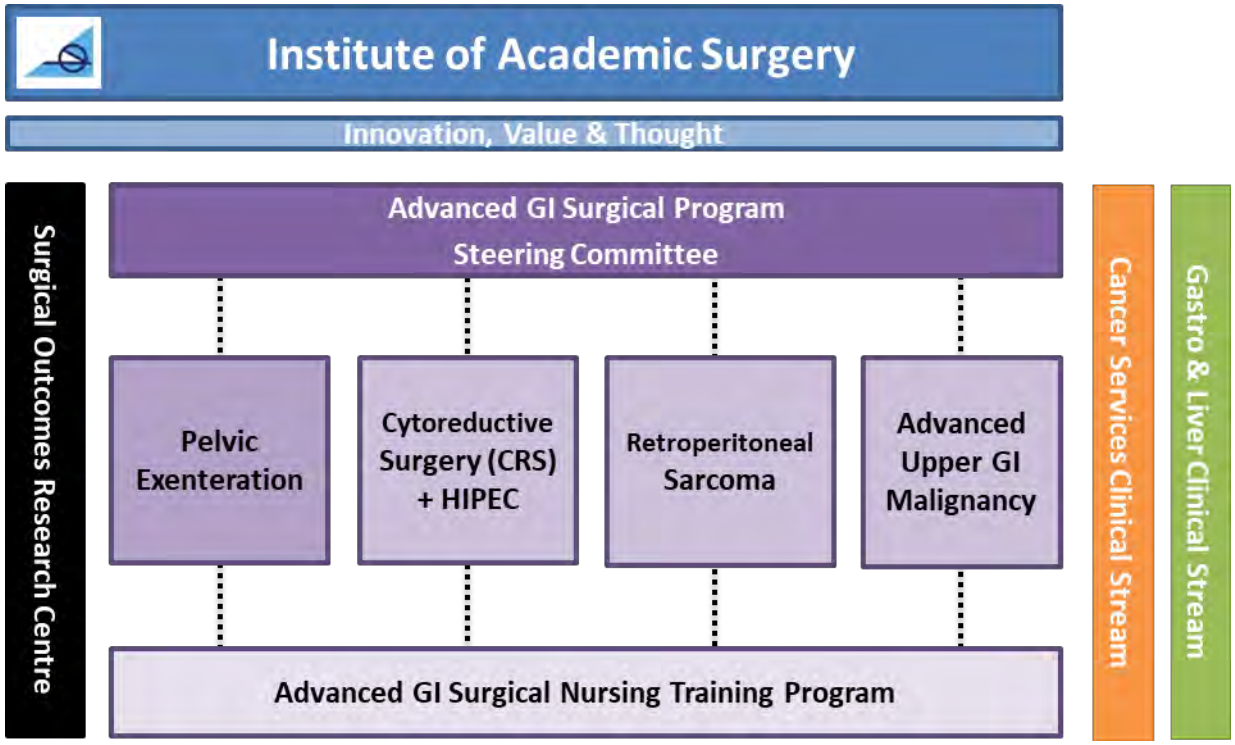


Figure 1. Advanced GI Surgical Program governance structure

The AGISP Steering Committee is also used as an educational and communication platform whereby clinical departments are given the opportunity to present on their involvement with the complex group of advanced GI surgical patients including the challenges they face, the research being undertaken, new models of care or treatments being implemented and future requirements.

The presentations made at the Committee in 2021/22 are outlined in **Table 1**. Due to the impact of COVID-19, the committee meetings were required to be moved onto the online Zoom platform from June 2020.

Table 1. Presentations at the AGISP Steering Committee in 2021/22.

Meeting Date	Presentation Topic	Presenter
4 August 2021	Stomal Therapy Update	Ms Colleen Mendes
6 October 2021	Collaborative Care at COBLH	Ms Sarah O'Shannassy
	COVID Impact on Advanced GI Surgery	Ms Sarah O'Shannassy
		Dr Sophie Hogan
		A/Prof Daniel Steffens
1 December 2022	Collaborative Care at COBLH	Dr Nabila Ansari
2 February 2022	Ongoing Impact of COVID – Current Plans	Dr Peter Lee
2 March 2022	Peritonectomy Service at SLHD	Dr Nabila Ansari
6 April 2022	Upper GI Malignancy	Dr David Yeo
29 June 2022	Morbidity and Mortality Findings	Dr Nabila Ansari Dr Kirk Austin

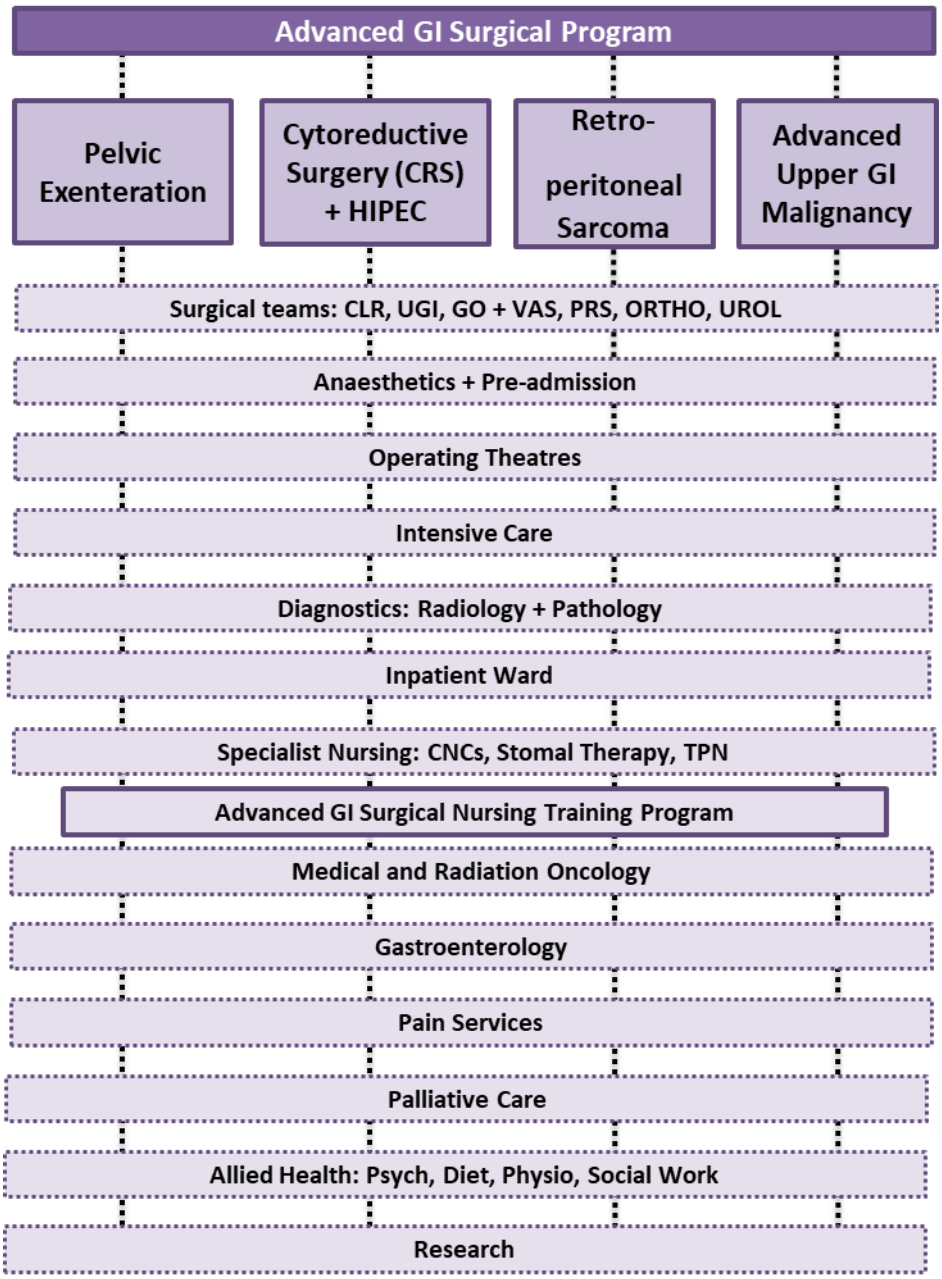


Figure 2. Clinical departments involved in the Advanced GI Surgical Program at RPA

The Pelvic Exenteration Surgical Research Program is governed by the Surgical Outcomes Research Centre (SOuRCe) in partnership with the IAS. SOuRCe is responsible for the collection of clinical data of all patients undergoing Pelvic Exenteration at RPA, including the consent of patient to a historical quality of life cohort study, collecting patient reported outcomes at 11 distinct time points from the preoperative period to five years post Pelvic Exenteration.

Pelvic exenteration research projects, new ideas and research collaborations are discussed on the Pelvic Exenteration Research Meeting. This collaborative meetings include several multidisciplinary clinical and academic personnel and is held bimonthly

3.2 Staffing

The delivery of the pelvic exenteration program at RPA would not be possible without the ongoing commitment and dedication of the many clinical teams and individual staff involved. Their contribution to ensuring the highest level of care is provided to our patients is greatly appreciated.

The list of key staff involved in the program are outlined in **Table 2**.

Table 2. Staff involved in the pelvic exenteration program at RPA in 2021/22

Management	
Professor Michael Solomon	Co-Chair IAS and AGISP Program Director
Dr Kirk Austin	Pelvic Exenteration Program Lead
A/Prof Chris Byrne	Head of Department, Colorectal
Dr Kate McBride	Director, IAS
Ms Sarah O'Shannassy	AGISP Program Manager and Clinical Manager, Cancer Services Clinical Stream
Dr Vicki Patton	AGISP Program Manager
Ms Gaynor Beardsworth	AGISP Program Manager
A/Prof Daniel Steffens	Director SOuRCe
Prof Geoff McCaughan	Clinical Director, Gastro & Liver Clinical Stream
Dr Judith Dixon	Clinical Manager, Respiratory, Critical Care, Gastro & Liver Clinical Stream
Ms Skye Cooke	Clinical Manager, Respiratory, Critical Care, Gastro & Liver Clinical Stream
A/Prof Ilona Cunningham	Clinical Director, Cancer Services Clinical Stream
Ms Anne Lofaro	Clinical Manager, Cancer Services Clinical Stream
A/Prof Paul Stalley	Program Director Surgery, SLHD
Dr Martin McGee-Collett	Program Director Surgery, SLHD
Dr Peter Lee	Director of Surgery, RPA
Consultant Surgeons	
Prof Michael Solomon	Colorectal surgeon and MDT Chair
Dr Peter Lee	Colorectal surgeon and Director of Surgery, RPA
Dr Kirk Austin	Colorectal surgeon and Program Lead
A/Prof Chris Byrne	Colorectal surgeon and Head of Department
Dr David Eisinger	Urological surgeon and Head of Department
Dr Scott Leslie	Urological surgeon
Dr Arthur Vasilaras	Urological surgeon
A/Prof Paul Sved	Urological surgeon
Dr Nicola Jeffrey	Urological surgeon
A/Prof Paul Stalley	Orthopaedic surgeon
Dr Maurice Guzman	Orthopaedic surgeon
Dr Daniel Franks	Orthopaedic surgeon
Dr Steven Dubenec	Vascular surgeon

Dr Jacky Loa	Vascular surgeon
Dr David Robinson	Vascular surgeon
Dr Alex Phoon	Plastics and Reconstructive surgeon
Dr Roger Haddad	Plastics and Reconstructive surgeon
Dr Ilias Kotronakis	Plastics and Reconstructive surgeon
Dr David Yeo	Upper Gastrointestinal surgeon
Consultant Anaesthetists	
Dr Michael Paleologos	Anaesthetist and Head of Department
Dr John Wynter	Anaesthetist
Dr Rebecca McNamara	Anaesthetist
Dr Jonathan Byrne	Anaesthetist
Dr Jacques Van Westing	Anaesthetist
Dr Priya Kumaradeva	Anaesthetist
Dr Ian Sherratt	Anaesthetist
Dr Gordon Fowler	Anaesthetist
Dr Wilson Huynh	Anaesthetist
Dr Jessica Lim	Anaesthetist
Dr Paul Drakeford	Anaesthetist
Dr Benjamin McAlpin	Anaesthetist
Medical Consultants and Fellows	
Dr Sarah Sutherland	Medical Oncology
Dr Kate Mahon	Medical Oncology
Dr Regina Tse	Radiation Oncology
Dr Raymond Wu	Radiation Oncology
Dr Wendy Brown	Radiology
Dr Richard Totaro	Intensive Care and Head of Department
Dr Heike Koelzow	Intensive Care
Dr Paul Phipps	Intensive Care
Dr Charlotte Johnstone	Pain Specialist
Dr Anthoulla Mohamudally	Palliative Care and Pain Specialist, Head of Department
Dr Alix Dumitrescu	Palliative Care and Pain Specialist
Dr Lynn Lim	Palliative Care
Dr Corey Lau	Palliative Care
Prof James Kench	Pathologist and Head of Department
A/Prof Joo-Shik Shin	Pathologist
Dr Fran Orr	Psychiatry
Specialist Nursing	
Ms Sophie Hatcher	Pelvic Exenteration Care Coordinator
Ms Lucy O'Connor	Nursing Unit Manager 7E1
Ms Katherine Wolfe	Nursing Unit Manager 7E1
Ms Ciara Rowntree	Nursing Unit Manager 7E2
Ms Lily Whitehead	Nursing Unit Manager 7E2
Ms Stella Pillai	Nurse Manager JL Theatres

Ms Melanie Robson	Nursing Unit Manager POD 3 JL Theatres
Ms Rosemarie Gregor	Nurse Manager Intensive Care
Ms Liz Beyer	Total Parenteral Nutrition Clinical Nurse Consultant
Ms Colleen Mendes	Stomal Therapy Clinical Nurse Consultant
Ms Maria Bongat	Stomal Therapy Nurse Specialist
Ms Hilary Myers	AGIS Nurse Trainee (rotational)
Ms Aycan Gonkur	AGIS Nurse Trainee (rotational)
Ms Lucy Stevens	AGIS Nurse Trainee (rotational)
Ms Anne Jeong	AGIS Nurse Trainee (rotational)
Mr Simon O'Toole	AGIS Nurse Trainee (rotational)
Ms Sheena Sims	AGIS Nurse Trainee (rotational)
Allied Health	
Ms Susan Seif	Clinical Psychologist
Ms Marine Salter	Clinical Psychologist
Dr Sharon Carey	Dietitian and Head of Department
Dr Sophie Hogan	Dietitian and A/Head of Department
Ms Lauren Reece	Dietitian
Ms Kimberley Bostock	Dietitian
Ms Samiha Elkheir	Dietitian
Ms Claire Jennings	Physiotherapist
Ms Molly Hibbert	Social Worker
Ms Belinda Mestric	Social Worker
Research Team	
A/Prof Daniel Steffens	Director, SOuRCe
A/Prof Cherry Koh	Associate Professor Surgical Outcomes, SOuRCe
Mr Sascha Karunaratne	Research Manager, SOuRCe
Ms Kiera Taylor	Pelvic Exenteration Research Officer, SOuRCe
Ms Kadja Benicio	Pelvic Exenteration Research Officer, SOuRCe
Ms Jenna Bartyn	PRIORITY Research Officer, SOuRCe

4. Patient Care Pathway and Review

4.1 Multidisciplinary team (MDT) meeting

The pelvic exenteration program at RPA holds a fortnightly MDT meeting. The MDT meeting is a critical step in the patient care pathway. The meeting is chaired by Prof Michael Solomon and coordinated by Dr Kirk Austin, Program Lead and Ms Sophie Hatcher, Care Coordinator (CNC). All patients referred to RPA for consideration of pelvic exenteration are discussed at this meeting. Referrals are received from specialists all over NSW, interstate and overseas. Information is collated and prioritised by the CNC and Program Lead. Cases are presented with a range of clinical information including clinical presentation and history, radiology (MRI, PET & CT scanning) and histopathology reports. The radiologist then outlines the findings on the relevant imaging and a discussion takes

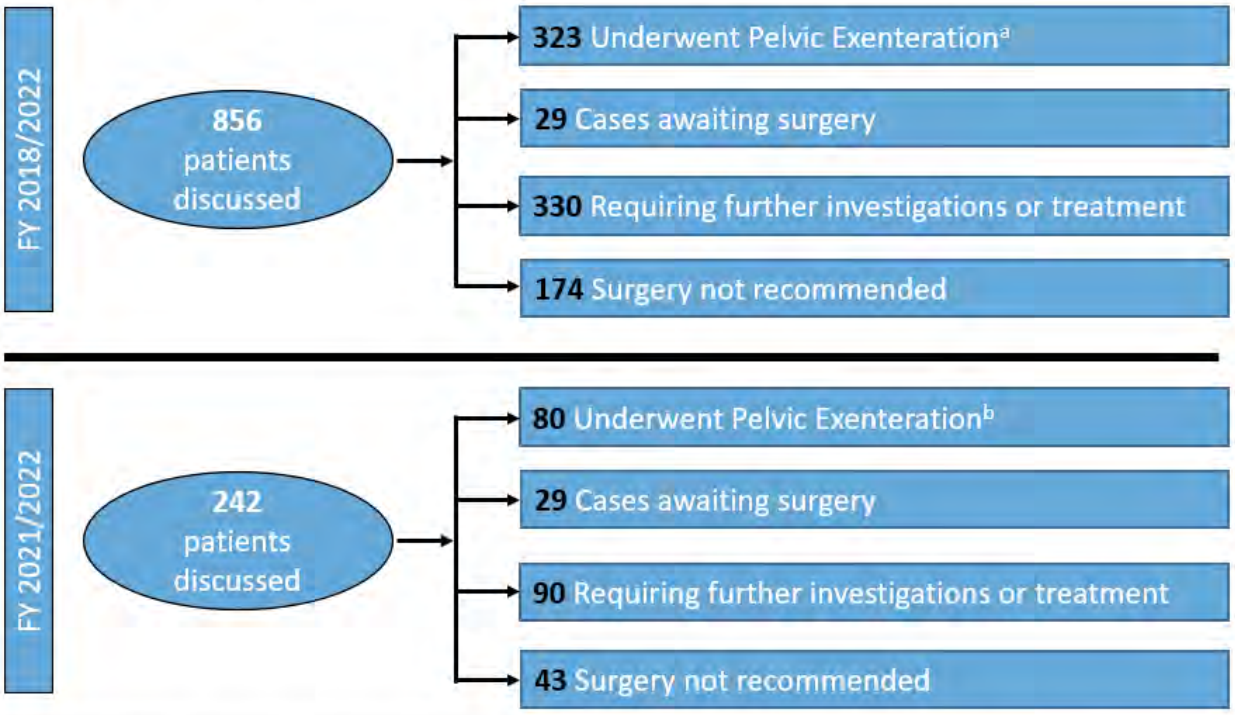
place to determine patient suitability for pelvic exenteration. Decisions made at the MDT meeting are based on indications outlined in national and international publications.

The discussion and decisions relating to the proposed treatment plan for the patient are documented in the form of an MDT letter, signed by the Program Lead and CNC and sent back to the referring clinician.

During the 2021/22 financial year, 242 patients were discussed at the RPA pelvic exenteration MDT, with 80 (33%) patients undergoing surgery, 90 (37%) requiring further investigation, 29 (12%) awaiting surgery and for 43 (18%) patients, pelvic exenteration was not recommended (**Figure 3**).

As the pelvic exenteration MDT data only commenced being formally collected in line with the requirements of the overall AGISP, there is only four years of MDT outcome data for trending purposes. As such, over the last four years, 856 patients were referred and discussed at the RPA pelvic exenteration MDT meeting. Of these, 323 (38%) patients underwent pelvic exenteration, 330 (39%) required further investigations, 29 (3%) are awaiting surgery and for 174 (20%) patients, surgery was not recommended. On average, 18 new patients were referred and reviewed each month at the RPA pelvic exenteration MDT meeting.

Figure 3. Outcomes of the Pelvic Exenteration MDT meeting



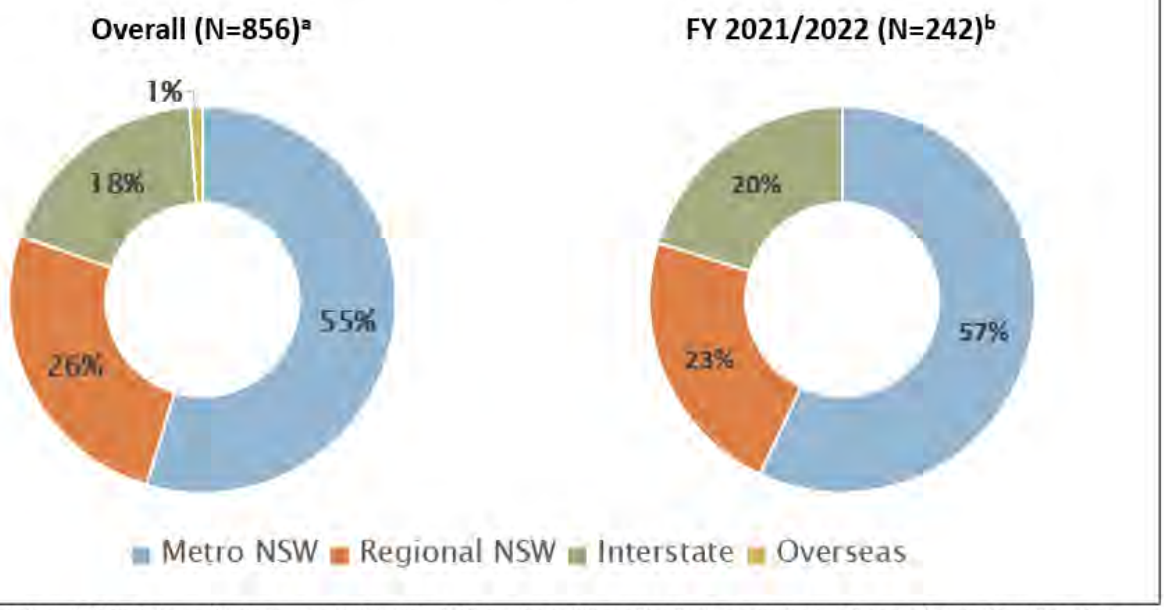
Pelvic Exenteration MDT data collection started in July 2018. [a]Includes patients that underwent redo Pelvic Exenteration (N=7) and combined Pelvic Exenteration and CRS±HIPEC (N=14). [b]Includes patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2).

4.2 Patient geographical location

Overall, most patients referred and discussed at the pelvic exenteration MDT were from metro NSW (55%), with 26% from Regional NSW and 19% from interstate or overseas. During the 2021/22 financial year, and despite the

impacts of COVID-19, similar patterns were observed with 57% of the patients from metro NSW, 23% from Regional NSW and 20% were living interstate or overseas (**Figure 4**).

Figure 4. Number of patients discussed at the Pelvic Exenteration MDT



Pelvic Exenteration MDT data collection started in July 2018. [a]Includes patients that underwent redo Pelvic Exenteration (N=7) and combined Pelvic Exenteration and CRS±HIPEC (N=14). [b]Includes patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2).

5. Program Activity and Patient Outcomes

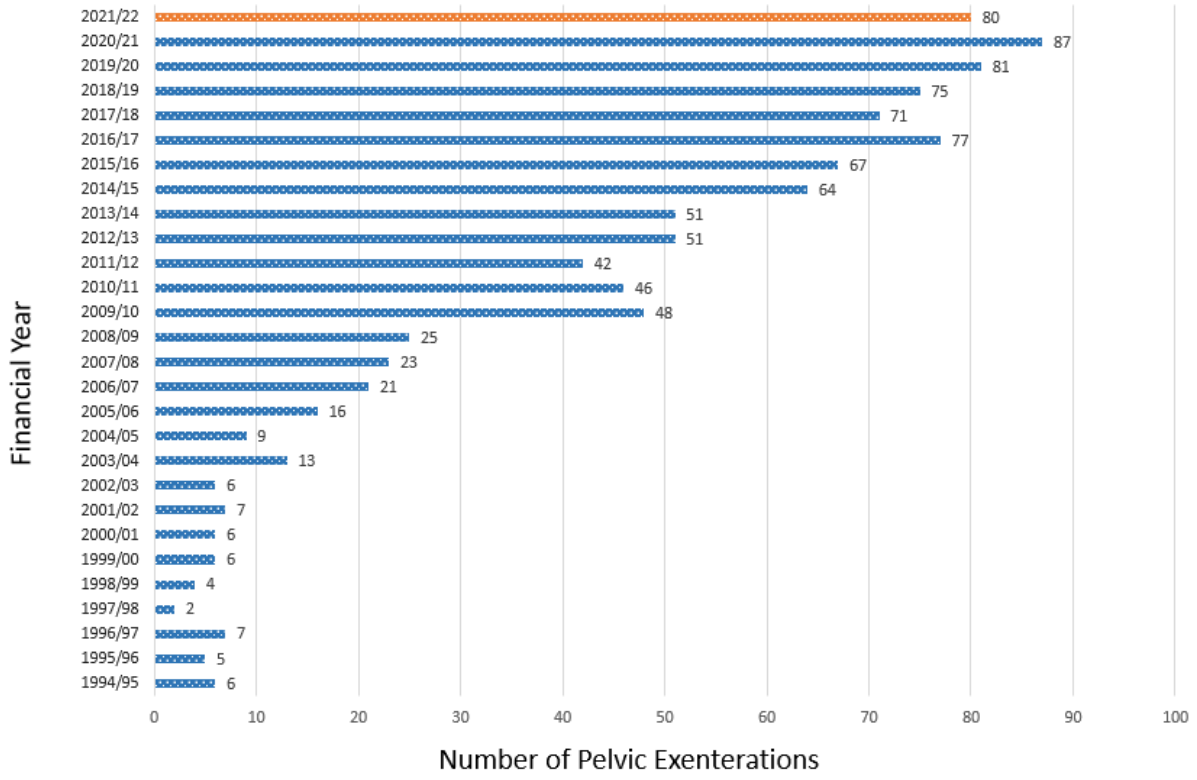
5.1 Program activity

From 1994 to 2022, 996 pelvic exenteration procedures have been performed at RPA out of 954 patients in total (i.e. n=42 underwent a redo pelvic exenteration). Of these 954 patients, 17 underwent a combined pelvic exenteration and cytoreductive surgery (CRS) with or without hyperthermic intraperitoneal chemotherapy (HIPEC).

During 2021/22, 80 cases were performed with two re-operations on a patient who had previous pelvic exenteration at RPA and two combined pelvic exenteration and CRS with or without HIPEC, resulting in an average of approximately 7 cases per month (**Figure 5**). This is one of the highest productivity outputs performed in a financial year period, particularly in the context of the COVID-19 pandemic.

To overcome the impact of the COVID-19 pandemic on patient care, a Collaborative Care Agreement (CCA) between Chris O'Brien Lifehouse (COBLH) and RPA was established. Within the pelvic exenteration program this involved post-operative ward care, inclusive of Intensive Care Unit stays for 15 patients over the 2021/22 financial year.

Figure 5. RPA Pelvic Exenteration Program case load - 1994 to June 2022 (N=996)[a]



[a]Includes patients that underwent redo Pelvic Exenteration (N=42) and combined Pelvic Exenteration and CRS±HIPEC (N=17).

5.2 Patient characteristics

Overall, 53.5% of the patients undergoing pelvic exenteration at RPA were male with a median age of 61.0 years. The most common tumours were recurrent rectal (32.3%), primary rectal (29.5%) and recurrent other (20.2%). Only 3.1% of the patients underwent pelvic exenteration due to non-cancer conditions.

In 2021/22, a slight shift was seen where the most common tumour was primary rectal (38.2%), followed by recurrent rectal (31.6%) and recurrent other (14.5%) (**Table 3**).

Table 3. Characteristics of Patients Undergoing Pelvic Exenteration

Characteristics	Overall (N=937)[a]	FY 2021/2022 (N=76)[b]
Age, years	61.0 (52.0 to 69.0)	61.0 (54.0 to 71.0)
Sex, male	501 (53.5%)	38 (50.0%)
Neoadjuvant therapy	494 (54.7%)[c]	35 (46.1%)
Tumour Type		
Primary Rectal	276 (29.5%)	29 (38.2%)
Recurrent Rectal	303 (32.3%)	24 (31.6%)
Primary Other	140 (14.9%)	10 (13.1%)
Recurrent Other	189 (20.2%)	11 (14.5%)
Non-Cancer	29 (3.1%)	2 (2.6%)

Data presented as frequency (percentage) or median (Interquartile range).[a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis. [b]Patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2) were excluded from analysis. [c]N=903 due to unstated values.

5.3 Surgical outcomes

The surgical outcomes for the overall cohort and for the 2021/22 financial year period are presented in **Table 4**. Overall, pelvic exenteration was performed in 9.1 hours, and patients stayed in the intensive care unit for 3.0 days and in hospital for 21.0 days (total stay period including intensive care unit stay). When compared to the overall cohort, there was a slight increase in length of intensive care unit stay and blood transfusion required, and a slight decrease in surgery time and overall length of hospital stay required in the 2021/22 cohort. It should be noted there were significant impacts to the overall hospital facilities including theatres, intensive care and the wards, and as such running of the service as a result of the COVID-19 pandemic.

Table 4. Surgical Outcomes Following Pelvic Exenteration

Surgical Outcomes	Overall (N=937)[a]	FY 2021/2022 (N=76)[b]
Surgery time, hours	9.1 (6.6 to 11.3)	9.0 (7.3 to 12.1)
Length of ICU stay, days	3.0 (2.0 to 5.0)	3.9 (2.7 to 5.0)
RPA	-	3.0 (2.3 to 5.0)[c]
COBLH	-	4.0 (3.5 to 5.5)[d]
Length of hospital stay, days	21.0 (14.0 to 31.0)	18.0 (14.0 to 28.0)
RPA	-	19.0 (15.0 to 28.3)[c]
COBLH	-	14.0 (10.0 to 30.5)[d]
Blood loss, mL	2000.0 (1100.0 to 4275.0)	2000.0 (1150.0 to 5000.0)
Blood transfusion required	663 (72.6%)[e]	57 (83.8%)[f]

Data presented as frequency (percentage) or median (Interquartile range). [a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis. [b]Patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2) were excluded from analysis. [c]N=63 Royal Prince Alfred (RPA) only; [d]N=13 Collaborative Care Agreement (CCA), post operative stay at Chris O'Brien Lifehouse (COBLH). [e]N=913 due to unstated date. [f]N=68 due to unstated data.

5.4 Extent of pelvic exenteration

The extent of pelvic exenteration is presented in **Table 5.1**. Overall, slightly more patients underwent partial pelvic exenteation (52.8%). In the 2021/22 financial year, most patients underwent partial pelvic exenteration (53.9%) (**Table 5.1**).

Table 5.1. Extent of Pelvic Exenteration

Tumour type	Overall (N=932)[a,b]		FY 2021/2022 (N=76)[c]	
	Partial (N=493)	Complete (N=439)	Partial (N=41)	Complete (N=35)
Primary Rectal	145 (52.5%)	131 (47.5%)	16 (55.2%)	13 (44.8%)
Recurrent Rectal	147 (48.7%)	155 (51.3%)	11 (45.8%)	13 (54.2%)
Primary Other	89 (65.0%)	48 (35.0%)	5 (50.0%)	5 (50.0%)
Recurrent Other	92 (48.9%)	96 (51.1%)	7 (63.6%)	4 (36.4%)
Non-cancer	20 (69.0%)	9 (31.0%)	2 (100.0%)	0 (0.0%)

Data presented as frequency (percentage). [a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis. [b]N=932 due to unstated values. [c]Patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2) were excluded from analysis.

Overall, 48.2% of patients had bony pelvis, 27.2% major nerve and 10.6% major vascular resection. A sacrectomy was performed in 50.0% of the patients and an ileal conduit reconstruction was performed in 48.7% in 2021/22 (**Table 5.2**).

Table 5.2. Number of Major Bone, Vascular and Nerve Resections

Resections	Overall (N=937)[a]	FY 2021/2022 (N=76)[b]
Pubic Bone	90 (9.6%)	8 (10.5%)
Ischial Bone	113 (12.1%)	11 (14.5%)
Sacrectomy	406 (43.3%)	38 (50.0%)
L4	1 (0.2%)	0 (0.0%)
L5	8 (2.0%)	2 (5.3%)
S1	51 (12.6%)	6 (15.8%)
S2	68 (16.7%)	14 (36.8%)
S3	135 (33.3%)	7 (18.4%)
S4	99 (24.4%)	7 (18.4%)
S5	11 (2.7%)	2 (5.3%)
Unstated	33 (8.1%)	-
Bony Pelvis	452 (48.2%)	37 (48.7%)
Major Nerve Resection	255 (27.2%)	26 (34.2%)
Major Vascular Resection	99 (10.6%)	6 (7.9%)
Lateral Compartment Excision	608 (64.6%)	59 (77.6%)
Ileal conduit Reconstruction	398 (42.5%)	37 (48.7%)

Data presented as frequency (percentage). [a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis. [b]Patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2) were excluded from analysis.

5.5 Surgical margins

Surgical margin rates are presented in **Table 6**. Overall, a clear surgical margin (R0) was achieved in most pelvic exenterations performed at RPA (76.9%), with patients undergoing pelvic exenteration due to primary rectal cancer presenting a higher likelihood of R0 surgical margin (89.1%). In 2021/22, the rate of clear margin increased to 81.1%.

Table 6. Surgical Margin following Pelvic Exenteration

Tumour type	Overall (N=907)[a,b]		FY 2021/2022 (N=74)[c,d]	
	R0 (N=697)	R1-2 (N=210)	R0 (N=60)	R1-2 (N=14)
Primary Rectal	246 (89.1%)	30 (10.9%)	28 (96.6%)	1 (3.4%)
Recurrent Rectal	221 (72.9%)	82 (27.1%)	18 (75.0%)	6 (25.0%)
Primary Other	100 (71.9%)	39 (28.1%)	7 (70.0%)	3 (30.0%)
Recurrent Other	130 (68.8%)	59 (31.2%)	7 (63.6%)	4 (36.4%)

Data presented as frequency (percentage). [a]Patients that underwent a redo pelvic exenteration (N=42), a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis. [b]N=907 due to exclusion of non-cancer patients and unstated values. [c]Patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2) were excluded from analysis. [d]N=74 due to exclusion of non-cancer patients.

5.6 Postoperative complications

In-hospital postoperative complications and mortality outcomes are presented in **Table 7**. Overall, 85.5% of the patients undergoing pelvic exenteration had at least one postoperative complication. The most common complications were sepsis (47.0%), gastrointestinal (46.2%) and other complications (66.8%). No intraoperative mortality was observed and less than 1% of the patients died within 30 days postoperatively.

In 2021/22 specifically, 75.7% of the patients presented at least one postoperative complication, a decrease on last financial year. While there was no intraoperative mortality, there was one 30-day mortality reported.

Table 7. Postoperative Complications Following Pelvic Exenteration

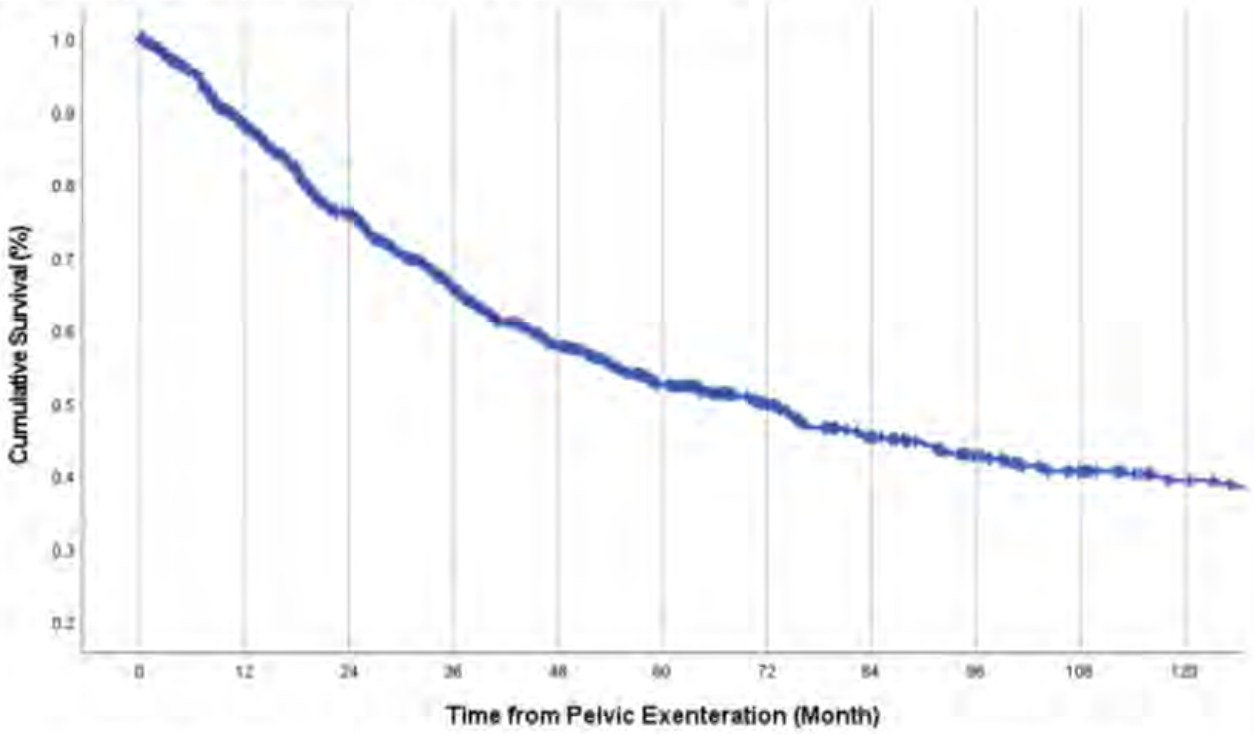
Complications	Overall (N=931)[a,b]	FY 2021/2022 (N=70)[c,d]
Postoperative complication rate	796 (85.5%)	53 (75.7%)
Wound	249 (31.3%)	16 (30.2%)
Gastrointestinal	368 (46.2%)	22 (41.5%)
Stoma	218 (27.4%)	8 (15.1%)
Neurological	139 (17.5%)	12 (22.6%)
Cardiovascular	183 (23.0%)	6 (11.3%)
Urological	201 (25.3%)	15 (28.3%)
Respiratory	217 (27.3%)	5 (9.4%)
Sepsis	374 (47.0%)	26 (49.1%)
Other	532 (66.8%)	15 (28.3%)
Intraoperative mortality	0 (0.0%)	0 (0.0%)
30-day mortality	7 (0.8%)	1 (1.4%)

Data presented as frequency (percentage). [a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis. [b]N=931 due to inpatients at time of reporting. [c]Patients that underwent redo Pelvic Exenteration (N=2) and combined Pelvic Exenteration and CRS±HIPEC (N=2) were excluded from analysis. [d]N=70 due to inpatients at time of reporting.

5.7 Survival outcomes

Survival outcomes following pelvic exenteration are presented in **Figure 6** and **Figure 7**. The median overall survival is 71.0 months, with overall survival rate of 52.4% at 5-years and 39.2% at 10-years postoperatively (**Figure 6**).

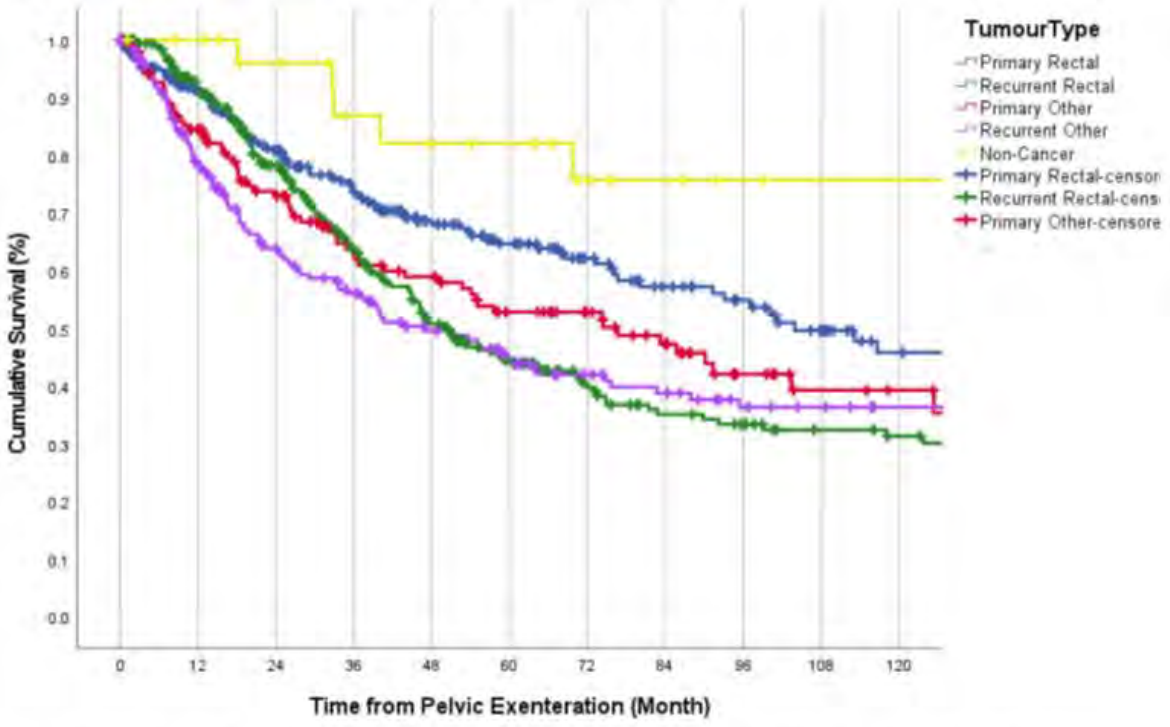
Figure 6. Overall survival following Pelvic Exenteration (N=937)[a]



[a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis

Patients presenting with advanced primary rectal cancer reported the best 5-years overall survival rates (64.7%), followed by primary other (52.8%), recurrent other (44.7%), and recurrent rectal (43.9%). Patients undergoing pelvic exenteration due to non-cancer conditions presented a 5-years overall survival of 82.0% (**Figure 7**).

Figure 7. Overall survival following Pelvic Exenteration (N=937)[a]



[a]Patients that underwent a redo pelvic exenteration (N=42) or a combined pelvic exenteration and CRS±HIPEC (N=17) were excluded from the analysis

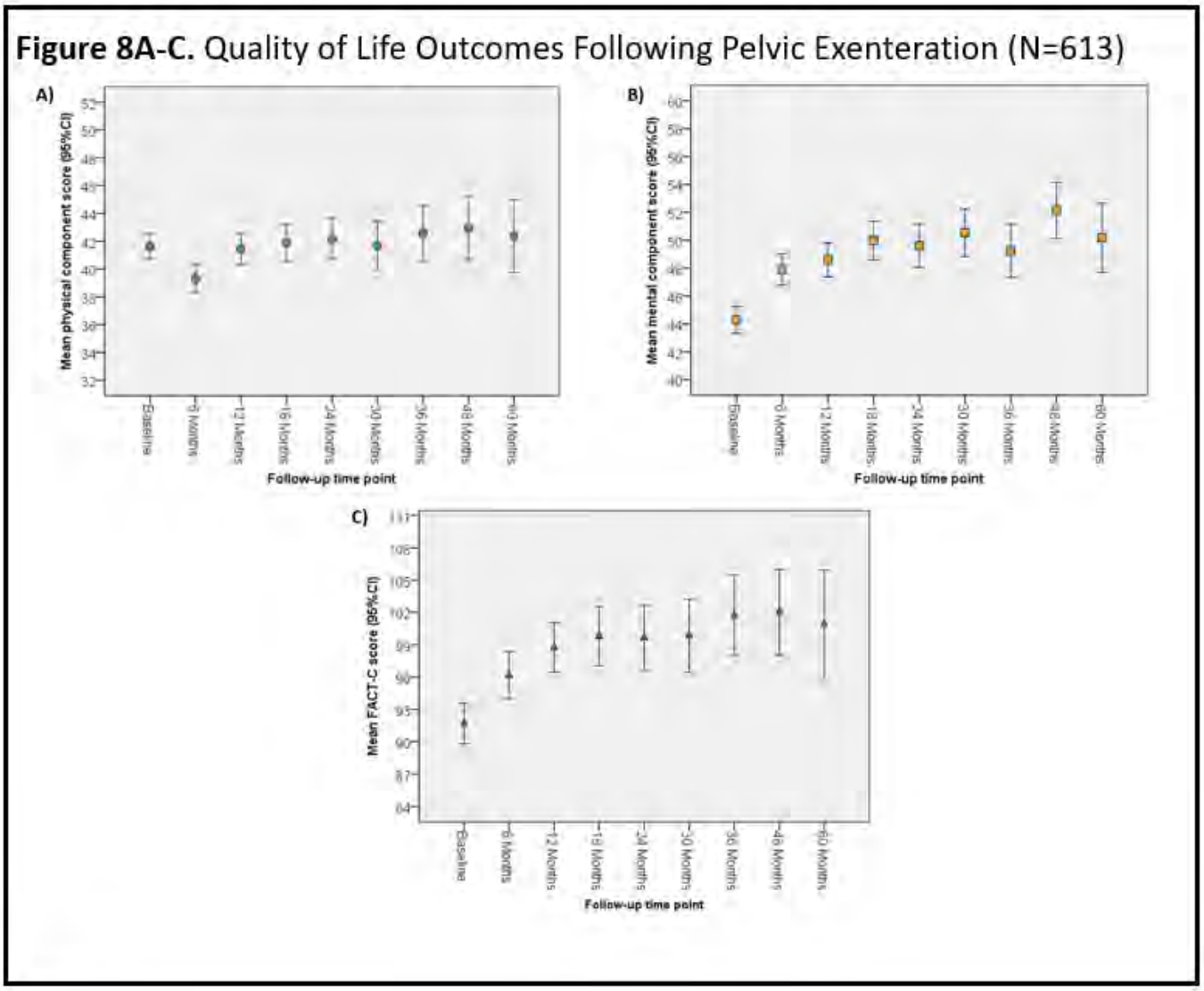
5.8 Quality of life outcomes

Quality of life measures are collected at nine different time points including preoperative, 6, 12, 18, 24, 30, 36, 48 and 60 months postoperatively. This information is being collected since the start of the prospective quality of life cohort study in 2008.

To date, 656 patients consented to report their quality of life outcomes, with 613 returning at least one of the surveys. Of the 80 patients that underwent pelvic exenteration during the 2021/22 financial year, 55 (68.8%) consented to the quality of life study.

Overall, there is a decline in the physical component scores within the early postoperative period, with scores returning to baseline levels at 12 months follow-up, and increasing slightly thereafter (**Figure 8A**). The mental component score increases within the first 18 months postoperative, maintaining stable thereafter (**Figure 8B**). Similarly, the disease specific quality of life score (FACT-C total) increases within the first 18 months postoperative, maintaining stable thereafter (**Figure 8C**).

Figure 8A-C. Quality of Life Outcomes Following Pelvic Exenteration (N=613)



6. Research

6.1 Current research studies

The pelvic exenteration research program lead by Professor Michael Solomon is one of the busiest surgical research programs within the SLHD and is well recognised nationally and internationally for its high scientific output.

A number of research studies are currently being conducted in a wide range of areas including surgical techniques, surgical outcomes, survival, decision making, quality of life, nutrition, depression, anxiety, stress, physical activity, 3D printing and cost. Currently the program has 32 research studies that are either recruiting participants or in final write-up stage, and there are another 5 in a conceptual phase. In 2021, the PRIORITY Trial started recruitment – this trial is a randomised controlled trial that will investigate the effectiveness and cost-effectiveness of a preoperative exercise program on reducing postoperative complications, received competitive external funding from the National Health and Medical Research Council.

Within 2021/22, the pelvic exenteration research program published 19 articles in peer reviewed journals and presented in nine national and international conferences.

Highlights of the studies being conducted are:

- **Pelvic exenteration surgical database**: This is the largest prospective surgical database in the world. Has collected surgical outcomes from over 954 consecutive individual patients and has contributed to RPA quality improvement and several peer-reviewed publications. This database has information from all pelvic exenteration performed at RPA for the last 28 years.
- **Quality of life outcomes following pelvic exenteration**: A large prospective cohort study collecting quality of life at preoperative to five years post pelvic exenteration, which was initially funded by a peer reviewed grant from NSW Cancer Institute. Currently recruited over 656 participants and have generated several peer-reviewed publications.
- **PRIORITY Trial**: A multicentre randomised controlled trial investigating the effectiveness and cost effectiveness of a preoperative exercise program and education for patients undergoing major gastrointestinal cancer surgery. This trial received external funds from the National Health and Medical Research Council and started recruitment in June 2021, with over 50 patients recruited to date.

6.2 Publications

1. Solomon M, Däster S, Loizides S, Sutton P, Brown K, Austin K, Lee P. Access to the anterior pelvic compartment in pelvic exenteration in women-the interlabial approach: Video vignette. The British Journal of Surgery, 2021. 108(8), p268-269. DOI: 10.1093/bjs/znab127.
2. Däster S, Shin J, Loizides S, Steffens D, Koh C, Solomon M. Pathology reporting of pelvic exenteration specimens for locally recurrent rectal cancer. European Journal of Surgery Oncology, 2021. 47(8), p2100-2107. DOI: 10.1016/j.ejso.2021.03.258.
3. Alahmadi R, Steffens D, Solomon M, Lee P, Austin K, Koh C. Elderly patients have better quality of life but worse survival following pelvic exenteration: A 25-year single-center experience. Annals of Surgical Oncology, 2021. 28(9), p5226-5235. DOI: 10.1245/s10434-021-09685-6.
4. Alahmadi R, Solomon M, Steffens D. ASO author reflections: Quality of life and survival outcomes in elderly patients undergoing pelvic exenteration. Annals of Surgical Oncology, 2021. 9, p5236-5237. DOI: 10.1245/s10434-021-09759-5.
5. Makker P, Koh C, Solomon M, Ratcliffe J, Steffens D. Functional outcomes following pelvic exenteration: Results from a prospective cohort study. Colorectal Disease, 2021. 23(10), p2647-2658. DOI: 10.1111/codi.15834.
6. Solomon M, Sutton P, Lee P, Austin K. Perineal urethrectomy in the anterior compartment for pelvic exenteration. The British Journal of Surgery, 2021. 108(11), e364. DOI: 10.1093/bjs/znab286.
7. Yu X, Goldsbury D, Feletto E, Koh C, Canfell K, O'Connell D. Socioeconomic disparities in colorectal cancer survival: Contributions of prognostic factors in a large Australian cohort. Journal of Cancer Research and Clinical Oncology, 2021. 25, p1–14. DOI: 10.1007/s00432-021-03856-4.
8. Vuong K, Alchin L, Solomon M, Koh C, Steffens D. A prospective investigation of pain and fatigue following pelvic exenteration. European Journal of Surgery Oncology, 2021. 47(12), p3137-3143. DOI: 10.1016/j.ejso.2021.07.022.

9. Huang Y, Steffens D, Solomon M, Koh C. Differences in surgical outcomes and quality of life outcomes in pelvic exenteration between locally advanced versus locally recurrent rectal cancer. Diseases of the Colon & Rectum, 2022. 24(S1). p101. DOI: 10.1111/codi.16050
10. Koh C, Brown K, Steffens D, Young J, Salkeld G, Solomon M. What constitutes a clear margin in patients with locally recurrent rectal cancer undergoing pelvic exenteration? Annals of Surgery, 2022. 275(1), p157-165. DOI: 10.1097/SLA.0000000000003834.
11. Chang K, Solomon M. The role of surgery in the palliation of advanced pelvic malignancy. European Journal of Surgery Oncology, 2022. S0748-7983(22), e00045-2. DOI: 10.1016/j.ejso.2022.01.019.
12. Hogan S, Reece L, Solomon M, Rangan A, Carey S. Early enteral feeding is beneficial for patients after pelvic exenteration surgery: A randomized controlled trial. Journal of Parenteral and Enteral Nutrition, 2022. 46(2), p411-421. DOI: 10.1002/jpen.2120.
13. Hogan S, Steffens D, Vuong K, Rangan A, Solomon M, Carey S. Preoperative nutritional status impacts clinical outcome and hospital length of stay in pelvic exenteration patients: A retrospective study. Nutrition and Health, 2022. 28(1), p41-48. DOI: 10.1177/02601060211009067.
14. Steffens D, Young J, Riedel B, Morton R, Denehy L, Heriot A, Koh C, Li Q, Bauman A, Sandroussi C, Ismail H, Dieng M, Ansari N, Pillinger N, O'Shannassy S, McKeown S, Cunningham D, Sheehan K, Iori G, Bartyn J, Solomon M. PRehabIlitatiOn with pReoperatIve exercise and educaTion for patients undergoing major abdominal cancer surgerY: Protocol for a multicentre randomised controlled TRIAL (PRIORITY TRIAL). BMC Cancer, 2022. 22(1), e443. DOI: 10.1186/s12885-022-09492-6.
15. Lee P, Meshkat B, Sasidharan P, Zahid A, Coker D, Solomon M. Survival and morbidity outcomes after pelvic exenteration for pelvic sarcoma: an institutional series. ANZ Journal of Surgery, 2022. 92(5), p1038-1043. DOI: 10.1111/ans.17275.
16. Solomon M, Alahmadi R, Lee P, Austin K. En bloc partial pubic bone excision with complete soft tissue pelvic exenteration. The British Journal of Surgery, 2022. 109(7), p640-641. DOI: 10.1093/bjs/znac122.
17. Lim C, Laidsaar-Powell R, Young J, Solomon M, Steffens D, Yeo D, Blinman P, Koczwara B, Joshy G, Advanced-CRC Survivorship Authorship Group, Butow P. The long haul: Lived experiences of survivors following different treatments for advanced colorectal cancer: A qualitative study. European Journal of Oncology Nursing, 2022. 58, e102123. DOI: 10.1016/j.ejon.2022.102123.
18. Huang Y, Wang X, Steffens D, Young J, Solomon M, Koh C. Grading complications in pelvic exenteration: Limitations of current classification systems. Diseases of the Colon & Rectum, 2022. Online ahead of print. DOI: 10.1097/DCR.0000000000002396.
19. Sutton P, Brown K, Ebrahimi N, Solomon M, Austin K, Lee P. Long term surgical complications following pelvic exenteration: Operative management of the empty pelvis syndrome. Colorectal Disease, 2022. Online ahead of print. DOI: 10.1111/codi.16238.

6.3 Conference presentations/posters

1. Solomon M. Decisional conflict and bias in the interpretation of trial evidence in minimally invasive colorectal cancer surgery. Asian Pacific Digestive Week, Virtual, 19-22 August 2021.
2. Solomon MJ. Decisional conflict: Bias, equipoise and the interpretation of trial results in colorectal cancer surgery. Henry Windsor Lecture 2021, Royal Australian College of Surgeons Australian Capital Territory Annual Scientific Meeting 2021, Virtual, 27 August 2021.

3. Lim C, Laidsaar-Powell R, Young J, Solomon M, Steffens D, Koh C, Ansari N, Yeo D, Blinman P, Koczwara B, Phyllis Butow P. Psychosocial outcomes and QoL in advanced colorectal cancer survivors: A qualitative exploration. Sydney Cancer Conference, Sydney, Australia, 9-10 September 2021.
4. Lim C, Young J, Solomon M, Steffens D, Koh C, Ansari N, Yeo D, Blinman P, Butow P, Laidsaar-Powell R. Quality of life and survivorship experiences of advanced colorectal cancer: A large qualitative study. International Psycho-Oncology Society (IPOS) World Congress, Toronto, Canada, 29 August - 1 September 2021.
5. Koh C. Unforgettable cases. Invited presentation. The Sydney University Surgical Society, Sydney, Australia, 13 October 2021.
6. McCarthy A, Coker D, Steffens D, Solomon M, Lee P. Abdominopelvic sarcoma: A 10-year quaternary centre experience. Australia and New Zealand Sarcoma Association Annual Scientific Meeting 2021, Virtual Webinar, 5-6 November 2021.
7. Koh C. Decision making with the patient for difficult pelvic surgeries. Invited presentation. Bulkley-Barry-Cooper Lecture, Guy's and St Thomas' Hospital, London, United Kingdom, 25 November 2021.
8. McCarthy A, Coker D, Steffens D, Solomon M, Lee P. Abdominopelvic sarcoma: A 10-year quaternary centre experience. Tripartite Colorectal Meeting, Auckland, New Zealand, 22-24 February 2022.
9. Solomon M. Ruthven Blackburn Medal Lecture, The University of Sydney, Sydney, Australia, 6 June 2022.

6.4 Current higher degree by research candidates

6.4.1. Doctor of Philosophy (PhD)

Dr Kilian Brown: Addressing treatment decision-making variation in patients with locally advanced and recurrent rectal cancer

6.4.2. Master of Philosophy (MPhil)

Dr Celine Garrett: Early onset colorectal cancer epidemiology surgical outcomes survival and quality of life after surgery.

Dr Jacob Waller: Outcomes following pelvic exenteration with sacrectomy for recurrent rectal cancer

Mr Nehemias de la Cruz: Patient-reported importance of pre-operative education regarding post-operative erectile function in men undergoing pelvic exenteration surgery

Dr Charlotte Johnstone: The management of pain for patients undergoing pelvic exenteration

6.4.3. Doctor of Medicine (MD)

Ms Mathilde Mairin O'Dell: Chronic use of opiates following pelvic exenteration surgery

7. Education and Training

7.1 Advanced GI Surgical Nursing Training Program

The Advanced GI Surgical Nursing Training Program has been operational since August 2017. It is a clinically focused, rotational based program where participants rotate through seven different specialties within the AGISP over a two-year period whilst being mentored by a clinical nurse consultant. To date, seven nurses have successfully completed the program, with three of the nurses acting or in permanent roles in the AGISP and another three nurses obtaining specialist nursing roles at RPA.

During the 2021/22 period, the AGISP nursing program was disrupted with the participating nurses being deployed to various COVID-19 assignments within the SLHD. To compensate for this, the contracts of the participating nurses were extended to ensure they were able to complete the program in its entirety.

Both the AGIS Nursing Program mentors and participants have shown immense adaptability and flexibility in these challenging times and should be commended on their work over the past 12 months.

Protected education time has been reestablished after disruptions from COVID-19, focusing on the development of clinical research skills and education sessions. The trainees are supported by the IAS and SOuRCe.

All the participants are undertaking post graduate studies in the form of graduate certificate of acute care through the University of Tasmania and undertaking an independent research project.

Their research topics include:

1. Bowel anxiety in patients attending the anorectal facility
2. Infection rates in home parental nutrition patients
3. Nursing assessment of postoperative laparoscopic cholecystectomy patients
4. Survey of home parenteral nutrition patients and knowledge of central venous access devices infection
5. Barriers to pain management in the sub-acute Emergency Department

Nursing staff in the Program continue to provide in-services to departments and groups of staff.

7.2 RPA International Exenteration Centres Webinar Collective

Over the years, many national and almost 30 international surgeons have been trained under the supervision of the pelvic exenteration team. Many of these RPA trained surgeons are now working at high volume international exenteration centres. The aim of the *RPA International Exenteration Centres Webinar Collective* is to strengthen the collaboration amongst the RPA trained surgeons and alumni by having monthly case and technical presentations. The presentations given in 2021/22 are outlined in **Table 8**.

Table 8. RPA International Exenteration Centres Webinar Collective presentations

Date	Presenter	Institution
24 September 2021	Dr Kirk Austin	Royal Prince Alfred Hospital, Australia
29 October 2021	Prof Quentin Denost	Bordeaux, France
26 November 2021	A/Prof Aaron Quyn	Leeds, England
28 January 2021	Dr Elaine Burns	St Mark's, London, England
25 February 2022	Dr Paul Sutton	Christie, Manchester, England
25 March 2022	Dr Michael Duff	Edinburgh, Scotland

29 April 2022	Dr Martha Quinn	Glasgow, Scotland
27 May 2022	Dr Miranda Kusters	Amsterdam, The Netherlands

7.3 AGISP Webinars

Although planned to be held in 2021, sadly due to the impacts of COVID-19 pandemic, the Pelvic Exenteration Education Day had to be postponed. As an alternative, a series of AGISP webinars, including an overview of the latest patient outcomes, research and education being undertaken within the pelvic exenteration program with invitations being extended to all referring medical centres including nurses, specialists and interested general practitioners across Australia. The presentations given in 2021/22 are outlined in **Table 9**.

Table 9. Advanced GI Surgical Program Webinars

Date	Program	Program Teams
1 November 2021	Pelvic Exenteration	Dr Kirk Austin, Dr Peter Lee CNC Sophie Hatcher
8 November 2021	Upper GI Malignancy	Dr David Yeo, A/Prof Charbel Sandroussi CNC Susan Murray
15 November 2021	Cytoreductive Surgery & HIPEC	Dr Nabila Ansari, A/Prof Cherry Koh CNC Annie Tang
22 November 2021	Retroperitoneal Sarcoma	Dr Peter Lee, A/Prof Peter Grimison, A/Prof Angela Hong CNC Sunny Wu

8. Service Development and Future Plans

8.1 AGISP Nursing Training Program

Future candidates will be offered a flexible rotation length of the Program, for 1 or 2 years, 2 or 4 rotations through the sub-specialties.

The plan to continue to engage The University of Sydney to explore options for recognition of prior learning is being pursued. This is so that participants successfully completing the course may apply for credits towards a post graduate qualification. This will allow formal recognition of the program from tertiary institutions and encourage nurses to continue their professional development.

The Nurse Consultants/ Mentors will be attending a communication and mentoring workshop facilitated by CEWD, in September 2022, to further develop their skills in mentorship, in support of the trainees.

8.2 1000th Pelvic Exenteration

The 1000th Pelvic Exenteration surgery is planned for July 13th 2022. RPA has become the first hospital in the world to reach this milestone, which is by far the largest number of cases performed by a single institution worldwide. A morning tea followed by a presentation by Dr Kirk Austin is planned for 18th July 2022 in order to mark this achievement. Due to COVID-19 restrictions, the event will be held over zoom and so attendees are able to join in for a “virtual cake cutting” which will be delivered to various departments.

To further commemorate this milestone, there will be a function held in early 2023 attended by those involved in the pelvic exenteration program at RPA. This will include surgeons, nursing and allied health, patients, external partners and key stakeholders. There will be presentations from surgeons, patients and executive which will focus on the evolution and future plans for the service. This will also provide an opportunity to acknowledge the hard work and dedication of the team in providing high quality care to the patients that undergo surgery at RPA.

8.3 RPA Surgical Medihotel Pilot

The Surgical Medihotel will be piloted from Monday 8th August, 2022. The program will aim to enhance the post-operative transition from RPA to a home-like environment. Patients will remain supported by specialist community nursing teams and a virtual multi-disciplinary team. Exenteration patients, many of whom are from rural, regional or interstate areas, are expected to benefit from this innovative mode of care in terms of easing their transition back home, and reducing hospital length of stay.

The pilot has been developed in collaboration with the Special Health Accommodation, RPA Virtual Hospital, IAS, Digital Health and Innovation, the Criteria Led Discharge Team and the Surgical and Pharmacy Departments at RPA .

8.4 Evidence Based Surgical Tool (EviSurg)

Unwarranted variation in treatment decision making have drastic implications for the outcomes of patients undergoing pelvic exenteration. To address this, the RPA team is working on an innovative project that will develop a risk prediction and evidence-based surgical decision-making (EviSurg) tool, using individual patient data collected from the Pelvic Exenteration Research Program, to standardise treatment decision-making and improve patient outcomes. EviSurg will empower clinicians, patients and carers with timely access to evidence-based information, which incorporates patient views and preferences, guiding informed discussions about whether to pursue radical surgery. This work is expected to start over the 2022/23 financial year, with Dr Kilian Brown undertaking a PhD in this subject.

8.5 RPA Redevelopment Grant

The NSW Government has committed $750 million to redevelop the RPA Hospital. The scope of the project includes expanded and enhanced Emergency Department and Intensive Care Units, state of the art operating theatres, expanded and improved adult inpatient accommodation, increased interventional and imaging services, facilities and capabilities for integrated research, education and training, and additional adult inpatient beds.

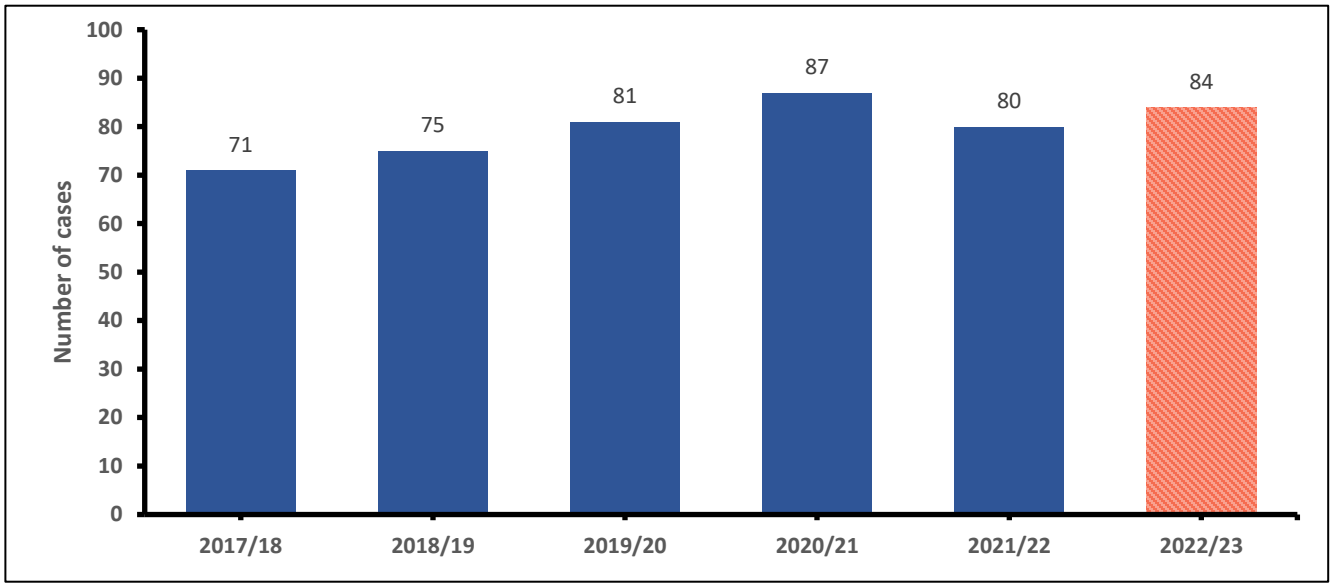
The redevelopment will ensure larger operating theatre sizes to accommodate the surgical teams involved for pelvic exenteration procedures. It is anticipated the program's capacity will increase with the redevelopments.

8.6 Program activity projections

The number of pelvic exenteration surgeries at RPA are progressively increasing each financial year. This is in line with the growing recognition from both regional and interstate clinicians that considerable patient benefits can be achieved by referring complex cancer patients to dedicated surgical centres, along with other factors including population growth and the reputation of the service at RPA allowing equity of access to complex cancer treatment. Based on the number of cases performed in the previous five financial years, it is anticipated a 5% increase in the number of pelvic exenteration cases will occur in 2022/23 bringing the total to approximately 84

cases, which is an average of 7 cases per month (**Figure 9**). It is also anticipated the effect of the pandemic with delays in the diagnosis of cancers including pelvic malignancy will see a shift in the presentation of more advanced disease which will likely have an added 5-10% increase in referrals per year for the next 2 years.

Figure 9. Predicted number of pelvic exenteration cases at RPA for 2022/23 financial year



9. Conclusion

The pelvic exenteration program at RPA continues to be one of the most internationally renowned surgical programs pioneered within Australia, and its strength and success over more than 28 years are a testament to the support of NSW Health, the SLHD and RPA senior management and to all of the many highly talented and dedicated medical, nursing, allied health and research teams who contribute to the program.

Despite the ongoing challenges of the COVID-19 global pandemic, due to the time critical nature of the patient cohort, provision of the program was largely able to continue by implementing new models of care, namely the establishment of the post-operative partnership with COBLHAs a result, RPA has continued to maintain a very high standard of care by actively engaging in, and fostering these multidisciplinary models of care for pelvic exenteration patients, having close collaborative ties with other departments such as medical and radiation oncology, radiology, pathology, intensive care, anaesthetics, psychiatry, and allied health (nursing, physiotherapy, dietetics, psychology). Regular MDT meetings, allied health service meetings, quality assurance activities (M+M, Case discussions, and education seminars) have all provided the platforms where such models of care can be discussed. The impacts on the delivery of outpatient services and the initial availability of intensive care and inpatient beds, along with small reductions in the availability of theatre lists have been minimal due to the pulling together of all services involved to ensure the ongoing delivery of complex cancer care during this difficult time.

The development and future expansion of the service requires additional capacity and funding support. This will need to be taken into consideration in the new RPA Redevelopment, with the current patient demand continuing

to appropriately climb annually as a result of the enhanced recognition, both regionally and interstate, regarding the considerable patient benefits achieved by referring patients to a dedicated complex surgical centre. With patient outcomes remaining excellent, the development of novel decision making and risk stratifying tools will be a new focus of the program, to continue advancing the delivery of care within this critical surgical oncological service. The AGISP, supported by the IAS and SOuRCe, provides the ideal platform to meet these future demands through education programs, development of clinical pathways, research, and through collaboration with national and international centres also involved in pelvic exenteration surgery.

10. Appendix

Appendix 1. RPA Pelvic Exenteration Program Timeline