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Appendix 1: Activity ......................................................................... 30
The Gastroenterology and Liver Clinical Stream is a core area of health care service delivery. This Position Paper for the Sydney Local Health District has been devised to align with the SLHD Strategic Plan. It reflects on the current services, new and emerging models of care, challenges and issues in delivering gastroenterology and liver services to the communities; both local and referral who receive these services in SLHD.

This strategic plan has been developed with consultation and input from department managers and Heads of Departments across the district. The Gastroenterology and Liver Stream has services at Royal Prince Alfred Hospital (RPA), Concord Repatriation General Hospital (CGRH) and Canterbury Hospitals.

As Clinical Director of the Gastroenterology and Liver Service for Sydney Local Health District my role is to ensure that our patients receive timely and quality care and our highly skilled and highly valued staff reflect the core values of the district. Our services are provided at the highest role delineation levels and we are proud of our leading edge clinical care, research and academic teaching.

We are committed to maintaining and delivering excellent health care to our community and their families.

The plan provides a framework to support the ongoing development of the stream.

Our priorities are as follows:

**General**

1. Integrating and co-ordinating emergency surgical services.
2. Building our excellent clinical and basic research programs into centres of research excellence.

**Endoscopy & Gastroenterology**

- Developing and implementing new endoscopy procedures to treat GI tumours and biliary diseases.
- Meeting the increasing demand for colonoscopy procedures for Colorectal cancer screening
Implementing new and novel treatments for Inflammatory Bowel diseases.

Liver Transplantation

Meeting the increased demand for liver transplant referrals and liver transplant procedures following the establishment of The Australian Organ and Tissue Authority. There will also be a need for increased long term follow up of patients. This may have ambulatory care “space” implications.

Upper GIT Surgery

Meeting the increase demand for publicly funded bariatric surgery, for morbidly obese adults. Concord has a role in providing this service, with RPA providing for highly complex patients.

Establishing an Intestinal Failure service at RPA. Funding is being sought for a State / National specialty.

Colorectal Surgery

Supporting the newly established dedicated Pelvic Exenteration Unit at RPA. Commonwealth Government funding has now been received.

Supporting the new High Volume Short Stay Unit at Canterbury Hospital. This innovative service will need to be supported in its establishment and development. It will also need to be evaluated.

Hepatology

Addressing the many issues associated with increasing prevalence of Chronic Viral Hepatitis. This includes prevention, screening, early intervention, education, treatment and care, as well as increasing GP involvement and education.

Addressing issues associated with the increasing prevalence and incidence of liver cancer.

Maintaining and building new partnerships with services to improve liver disease outcomes.

Professor Geoff McCaughan

Clinical Director, Gastroenterology and Liver Stream
Head of Liver Immunobiology Program
Centenary Research Institute
A.W .Morrow Professor of Medicine
Director A.W Morrow GE/Liver Center
Director Australian Liver Transplant Unit
Royal Prince Alfred Hospital
University of Sydney
Introduction

Sydney Local Health District (SLHD) Gastroenterology and Liver Clinical Stream provides care and expertise across the district with services in RPA, CRGH and Canterbury Hospital.

In addition to consultation across the District the plan was informed by the following key strategic documents:

- SLHD Strategic Plan 2012-2017
- SLHD Asset Strategic Plan 2012-2017
- SLHD Education & Training Strategic Plan 2012-2017
- SLHD Research Strategic Plan 2012-2017
- Canterbury Hospital Strategic Plan 2012-2017
- Concord Repatriation General Hospital Strategic Plan 2012-2017
- RPAH Strategic Plan 2012-2017
- SSWAHS Aboriginal Health Plan 2010-2014
- Strategies to address the health burden of Chronic Viral hepatitis in the communities of Inner West and South West Sydney, 2010

The key objective of the G&L Service is to deliver high quality and accessible care for patients with gastroenterology disorders from the local district, regional areas and other referral centres.
Our Organisation:

Organisationally, the Stream comprises a Clinical Director, Clinical Manager and an Executive Assistant (shared with the Respiratory and Critical Care Stream). The Clinical Director provides strategic leadership across the facilities of the SLHD to ensure that services are appropriate and are meeting the needs of the catchment populations.

The Gastroenterology and Liver Stream provide the following services:

- Colorectal surgery
- Endoscopy
- General Gastroenterology
- Hepatobiliary surgery
- Hepatology
- Liver transplantation
- Upper gastro-intestinal surgery

The services within the Gastroenterology and Liver Stream provide medical and nursing care to patients that have acute and chronic conditions of the gastro-intestinal tract (GIT) such as liver disease, colorectal cancers, inflammatory bowel disease, minor ano-rectal disease, diverticular disease of the large bowel, faecal continence and large bowel dysfunction problems.

There are specialised endoscopy units that combined perform over 12,000 procedures a year. This includes such procedures as gastroscopies, colonoscopies, sigmoidoscopies and oesophageal dilatation. Colonoscopy screening and surveillance plays an important role in reducing colorectal cancers.

The Inflammatory Bowel Disease (IBD) services at CRGH and RPA are leading multidisciplinary services providing new treatments options for IBD patients.

Chronic hepatitis B (HBV) and C (HCV) viral infections are among the leading causes of preventable deaths worldwide and prevalence rates are high. At the national level, new strategies aimed at prevention and control were finalized in 2010 reflecting the importance of viral hepatitis as a health issue. There is a pressing need to address the issue of Chronic Viral Hepatitis (CVH) across SLHD to reduce the individual, economic and social impact of these diseases. Hepatology services provide clinics at RPA, CRG and Canterbury Hospitals. It is anticipated that new antiviral agents will lead to a major increase in treatment uptake for CVH that may impact heavily on these services.

Primary liver cancer is becoming more prevalent and our liver services offer screening, diagnosis, therapy and follow up services in a multidisciplinary setting for this complex group of patients.
In addition RPA is the referral centre in NSW for liver transplantation and one of the selected national sites for performing pelvic exenterations. It also provides a quaternary service for patients suffering from intestinal failure.

With the introduction of the National Bowel Screening initiative there is increasing demand for colonoscopy.

The following table shows the increasing inpatient activity in the Stream across the District since 2005. Activity has particularly increased at RPA and Canterbury. At RPA there has been a marked increase in Liver Transplants, Colorectal Surgery and Gastroenterology. At Concord, the increase has been in Gastroenterology and at Canterbury in Gastroenterology and Non-Sub specialty Surgery. The tables at Appendix 1 provide detailed breakdowns by SRG and ESRG and hospital.

Table 1: Gastroenterology and Liver Beddays 2005-2011 by Facility

Source: Flow-Info
The following provides an overview of the services in the Steam and their role delineation.

<table>
<thead>
<tr>
<th>Service</th>
<th>Service Type</th>
<th>Canterbury</th>
<th>Concord</th>
<th>RPAH</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Colorectal Surgery</strong></td>
<td>Inpatient</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√ (post-op only)</td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td>Level 4</td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
<tr>
<td><strong>Endoscopy</strong></td>
<td>Inpatient</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td></td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
<tr>
<td><strong>Gastroenterology</strong></td>
<td>Inpatient</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td>Level 4</td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
<tr>
<td><strong>Hepatobiliary Surgery</strong></td>
<td>Inpatient</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td>Level 6</td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
<tr>
<td><strong>Hepatology</strong></td>
<td>Inpatient</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>PRNIP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Outreach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td>Level 4</td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
<tr>
<td><strong>Liver Transplant Surgery</strong></td>
<td>Inpatient</td>
<td></td>
<td></td>
<td>Sole adult unit NSW</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td></td>
<td></td>
<td>Level 6</td>
</tr>
<tr>
<td><strong>Upper GIT Surgery</strong></td>
<td>Inpatient</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Outpatient Clinic</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Role delineation</td>
<td></td>
<td>Level 6</td>
<td>Level 6</td>
</tr>
</tbody>
</table>
The SLHD comprises the eight local government areas of Ashfield, Burwood, Canterbury, City of Sydney (part), Canada Bay, Leichhardt, Marrickville and Strathfield. The District currently has a population of 582,100 (2011 erp).

By 2021, the local SLHD population is expected to reach 642,000 and almost reach 670,000 five years later. Significant planned urban developments include the new Green Square Development in Zetland and Beaconsfield in the City of Sydney, urban consolidation along the Parramatta Road corridor and new developments in Rhodes, Breakfast Point, the former Carlton United Brewery site, Redfern/Waterloo and the former Harold Park site at Glebe.

2001-2011, the population of Sydney LHD has grown by 16.7%, with some LGAs having growth in excess of 50%. Over the last five year intercensural period, the District population has increased by over 50,000 people. The growth in the aged and the “old old” population of SLHD is especially important for health care delivery over the forthcoming decade, with an increase of 29.2% and 28% in the 70-84 age group and the 85+ age group respectively predicted by 2021. Of particular interest is the significant increase projected in the population of the City of Sydney, projected to exceed Canterbury LGA by 2031.

This population growth, together with its ageing is placing significant pressure on services across SLHD. The growth, since 2001, is shown in Table 2. Table 3 and Figure 2 show the projected population increases to 2036.

Table 2: Current Estimated Residential Population, SLHD by LGA and SLA, 30th June, 2012

<table>
<thead>
<tr>
<th>LGA</th>
<th>2011</th>
<th>Change 2001-2011</th>
<th>2001-11 %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2001-2011</td>
<td>2001-11 %</td>
</tr>
<tr>
<td></td>
<td>no.</td>
<td>%</td>
<td>no.</td>
</tr>
<tr>
<td>Ashfield</td>
<td>43,683</td>
<td>7.8</td>
<td>3,162</td>
</tr>
<tr>
<td>Burwood</td>
<td>34,305</td>
<td>12.2</td>
<td>3,725</td>
</tr>
<tr>
<td>Canada Bay</td>
<td>79,905</td>
<td>28.2</td>
<td>17,583</td>
</tr>
<tr>
<td>Canterbury</td>
<td>144,751</td>
<td>5.3</td>
<td>7,259</td>
</tr>
<tr>
<td>Leichhardt</td>
<td>55,651</td>
<td>10.3</td>
<td>5,195</td>
</tr>
<tr>
<td>Marrickville</td>
<td>81,489</td>
<td>6.2</td>
<td>4,746</td>
</tr>
<tr>
<td>Strathfield</td>
<td>37,141</td>
<td>26.2</td>
<td>7,708</td>
</tr>
<tr>
<td>Sydney South (SLA)</td>
<td>60,911</td>
<td>50.4</td>
<td>20,409</td>
</tr>
<tr>
<td>Sydney West (SLA)</td>
<td>44,264</td>
<td>44.4</td>
<td>13,610</td>
</tr>
<tr>
<td>TOTAL</td>
<td>582,100</td>
<td>16.7</td>
<td>83,397</td>
</tr>
</tbody>
</table>

Source: The Picture of Health. A SLHD Health Profile 2012

Table 4: Projected population SLHD 2006 – 2036
At the 2011 census, there were 4,875 people who identified as either Aboriginal or Torres Strait Islander living in SLHD. The Sydney (South and West Statistical Local Areas) and Marrickville LGAs have the highest number of Aboriginal residents (1,714 and 1,111 respectively). 16% of the SLHD indigenous population is aged over 50 years.

Across Sydney LHD, 43% of residents speak a language other than English at home. The proportion and numbers of people speaking another language ranged from 64% (87,793 people) in Canterbury LGA to 15% (7,892 people) in Leichhardt LGA. Across the LHD, 7% of the population described themselves as not speaking English well, or not at all. The main languages spoken were Mandarin (28,712 people), Arabic (26,665 people), Greek (24,654 people) and Cantonese (22,881 people).
Our Patients, Carers and Consumers

The safe, high quality, compassionate care of these patients and their families requires a strong commitment to the following:

**Safety**
A safe environment requires sufficient consultants, fellows, junior medical, nursing and ancillary staff, anaesthetic, critical care and high dependency resources, radiology and pathology infrastructure to meet the emergency and planned care needs based on clinical need and consistent with hospital roles.

**Equity**
In ensuring equity, the service must equitably meet the increasing demand from the local health district and the agreed quaternary and tertiary catchments. The service should minimize the need for patients to seek healthcare outside of the District and improve access to those highly vulnerable patients from outside of SLHD who require access to high level tertiary and quaternary care.

**Quality**
The service should ensure integrated service provision supported by common protocols, District-wide databases, peer audit and review, academic leadership, research and education, clinical governance and a positive, compassionate culture committed to patient-centred care. The analysis of data, clinical performance and evidence-based medicine are requirements.

Most SLHD residents receive inpatient gastroenterology and liver services within the SLHD, with the services being 71% self-sufficient overall (see Table 4). Outflows of SLHD residents for these services are predominately to the private healthcare sector. SLHD is also a net receiver of significant numbers of patients from across the state, interstate and overseas, with 47% of beddays being provided to patients from outside the SLHD. For example, only 13% of the liver transplant beddays are for residents of SLHD, reflecting the strong tertiary and quaternary roles of the Clinical Stream.

Table 4: Self-sufficiency of SLHD Gastroenterology and Liver Services 2010-11 by Beddays and ESRG.
Our Services

Overview

The key services in the Gastroenterology and Liver Stream will be outlined, with the preferred model of care, projected activity, service gaps and issues. The service priorities will be identified. The Inpatient Activity across the Stream is provided over the past 5 years in Appendix 1. Appendix 1 also provides a summary of the non-inpatient occasions of service.

Colorectal Surgery

The Department of Colorectal (CR) Surgery at RPAH and CRGH provides specialist CR surgical services within Sydney LHD, as well as accepting tertiary referrals from outside the area, including metropolitan Sydney, rural NSW and other states, territories and international. Canterbury Hospital has a number of surgical beds for colorectal patients, providing district-level services.

At RPAH the unit provides a 24 hour CR consultation service for inpatients, and participates in the provision of acute CR, general surgery and trauma services. RPA is nationally funded to perform 45 pelvic exenterations per annum.

Both colorectal units at RPAH and CRGH specialise in minimally invasive (laparoscopic) as well as maximally invasive CR surgery, with formal multidisciplinary care for colorectal cancer, inflammatory bowel disease, pelvic floor dysfunction and recurrent rectal cancer. Patients are admitted to the ward as both elective and acute admissions, via the Emergency Department, the Operating Theatre and the Critical Care Units. There are specialised wards at each facility.

The surgical teams and wards are supported by specialist nurses in stomal therapy, anorectal nursing and colorectal cancer care coordinators.

CRGH Colorectal data base has been running for over 40 years and this is one of the longest continually running electronic data bases of its kind in Australia.

Activity

Table 5 summarises the non-inpatient activity for 2011 in Concord and RPA Hospitals.

Almost 70% of SLHD residents requiring inpatient colorectal services receive them within the District. The Colorectal Service has significant inflows, reflecting the tertiary and quaternary nature of services. Major inflows come from South Western Sydney LHD (SWSLHD), Northern Sydney LHD (NSLHD), and Western Sydney LHD (WSLHD) (see Figure 3). Major outflows of SLHD residents are 15.9% to private hospitals and 7.3% to SESLHD.
Table 5: SLHD Gastroenterology and Liver Clinical Stream Non Inpatient Activity 2010 and 2011

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Concord 2010</th>
<th>Concord 2011</th>
<th>RPA 2010</th>
<th>RPA 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorectal</td>
<td>2368</td>
<td>2707</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper GIT</td>
<td>190</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>4747</td>
<td>6901</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td>5966</td>
<td>11681</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Hospital Data Management Departments, CRGH and RPA.
- Figures include all Privately Referred activity
- Also includes nursing consults

Figure 3: SLHD Colorectal Surgery Inflows x Beddays x LHD 2010-11

Models of Care

Enhanced Recovery After Surgery (ERAS) refers to a post-operative recovery program aimed at reducing post-operative complications, facilitating a quicker recovery after major abdominal surgery and expediting discharge from hospital. This program is used widely across the world and the first patients were recruited at RPA in June 2011. The program has been so successful in reducing the length of stay for colorectal patients, it is proposed that this model of care will be reviewed and implemented for upper GI patients.

There are plans to implement the ERAS at CRGH commencing February 2013.

Another trend is the specialisation of colorectal services and integration with other specialities and allied health to provide comprehensive and multidisciplinary care of patients with complex disorders, IBD and colorectal cancers.

CR surgery is pioneering new models of care to facilitate and streamline patient assessment and treatment pathways, incorporating modern perioperative protocols and improved holistic care. This includes psychological support and the establishment of a colorectal support group at CRGH.
Canterbury Hospital has a general surgery inpatient unit and undertakes minor colorectal procedures. A small number of more complex colorectal procedures are undertaken and the ward is supported by the CRGH Stomal Therapy unit.

**Priorities**

1. Secure appropriate funding for pelvic exenterations.
2. Train and ensure succession planning for specialist colorectal nurses to support the proposed volume of patients i.e. Stomal Therapists, ERAS Coordinators.
3. Re-establish a comprehensive service at CRGH for assessment and treatment of colorectal disease to meet the needs of the growing and ageing local population.
4. Continue to promote innovative colorectal care with the latest therapies and models of care.
5. Sub-specialisation of colorectal services and integration with other specialities in the areas of Irritable Bowel Disease, complex pelvic floor disorders and colorectal cancers.
6. Resolution of the acute roster at RPA given the Lifehouse developments.

**Endoscopy CRGH and RPA**

The Departments provide a major diagnostic and screening service. This is delivered via clinical consultation and through diagnostic and therapeutic endoscopy services.

The Departments are at the forefront of advanced diagnostic modalities for diagnosis and staging of gastro-intestinal cancers using sophisticated endoscopic techniques, such as fine needle biopsy using endoscopic ultrasound.

Therapeutic possibilities continue to increase with the application of advanced endoscopic techniques that include endoscopic mucosal resection and radiofrequency ablation. Gastroenterology also has a role to play in palliation of patients with incurable malignancy. An example would be endoscopic stenting of irresectable oesophageal or biliary tree malignancies.

The departments provide a comprehensive range of gastrointestinal endoscopic services which including for example:

- Diagnostic upper gastrointestinal endoscopy & colonoscopy
- Endoscopic retrograde cholangiopancreatography (ERCP)
- Enteroscopy
- Argon plasma and coagulation and laser therapy
- Endoscopic ultrasound
- Capsule endoscopy
- Ambulatory oesophageal pH monitoring
- Oesophageal manometry
- Breath Hydrogen
- C13 breath testing for helicobacter pylori and liver function testing
- Day procedures including liver biopsy, abdominal paracentesis
Activity

Diagnostic GI Endoscopy ESRGs include (152) Gastroscopy, (153) ERCP, (162) Other Gastroscopy and (161) Other Colonoscopy. For Gastroscopy Sydney Local Health District is 76.6% self-sufficient; the main outflows are 9.4% to SWSLHD and 7.1% to SESLHD. For ERCP, SLHD is 76.5% self-sufficient; the main outflow is 10.3% to SESLHD hospitals. For Other Gastroscopy, SLHD is 72.5% self-sufficient, with 10% of residents flowing to SESLHD hospitals and 6.8% to St Vincent’s Hospital. For Other Colonoscopy, SLHD is 75.1% self-sufficient; the major outflows are 10.6% to SESLHD hospitals and 6.8% to private hospitals.

In 2010 – 11, 63% of the patients using SLHD services for Diagnostic GI Endoscopic Services were SLHD residents. Major inflows come from WSLHD (9%) and NSLHD (8%). (See Figure 4).

![Figure 4: SLHD Diagnostic GI Endoscopy Inflows x Beddays x LHD 2010-11](source: Flow Info V11.0)

Table 6 outlines the Diagnostic GI Endoscopy outpatient occasions of service for 2010 and 2011.

<table>
<thead>
<tr>
<th>Activity</th>
<th>CRGH 2010</th>
<th>RPAH 2010</th>
<th>CRGH 2011</th>
<th>RPAH 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastroscopy</td>
<td>2544</td>
<td>3187</td>
<td>2699</td>
<td>3292</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>2663</td>
<td>2404</td>
<td>2784</td>
<td>3111</td>
</tr>
<tr>
<td>Flexi sig</td>
<td>400</td>
<td>112</td>
<td>348</td>
<td>75</td>
</tr>
<tr>
<td>ERCP</td>
<td>163</td>
<td>247</td>
<td>137</td>
<td>225</td>
</tr>
<tr>
<td>EUS</td>
<td>300</td>
<td>146</td>
<td>300</td>
<td>112</td>
</tr>
<tr>
<td>PEG</td>
<td>70</td>
<td>93</td>
<td>76</td>
<td>139</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6140</strong></td>
<td><strong>6189</strong></td>
<td><strong>6344</strong></td>
<td><strong>6954</strong></td>
</tr>
</tbody>
</table>

*Source: Gastroenterology and Liver Stream ACE Reports*
Priorities

1. Interventional endoscopy including ERCP and institution of an ERCP roster and an expansion of outpatient services to cope with rapidly increasing demand for colonoscopy created by the National Bowel Cancer Screening (NBCS) project and by increasing awareness of the role of screening and surveillance colonoscopy.

2. Broadening of Propofol and anaesthetist led sedation for endoscopy to improve the quality of sedation for these procedures

3. Expansion of the Inflammatory Bowel Disease (IBD) service at CRGH and development of a centre of excellence in IBD with a view to becoming the first state-wide IBD Centre.

4. Extension of outpatient Hepatitis clinics

5. Ensuring there is adequate equipment through purchase or leasing

6. Rolling out the NSW Endoscopy Information System at RPAH, based on the pilot program at CRGH in 2009.

Gastroenterology and Hepatology

The Gastroenterology and Liver Ambulatory Care Department (RPA) provides outpatient pre and post-transplant care, management of chronic viral hepatitis, other liver diseases, hepatocellular cancer (HCC) and a range of other gastrointestinal diseases.

CRGH Liver Clinic treats patients who are referred with Chronic Viral Hepatitis (CVH), drug induced hepatitis, fatty liver and alcoholic liver disease.

A weekly hepatitis clinic is conducted at Canterbury Hospital.

All 3 hospital based clinics and the outreach clinics are supported by a Dietician. Malnutrition is a major complication of advanced liver disease. Correct nutritional support can significantly improve outcomes.

Hepatitis C therapy is undergoing radical and rapid change. The predictions are that within five years there will be short-duration anti-hepatitis C therapy with minimal side-effects and cure rates above 90%.

The burden of hepatitis C (HCV) associated liver failure and liver cancer is rising so these new drugs are will positively impact patient care.

The next generation drugs telaprevir and boceprevir, approved by the Therapeutic Goods Administration (TGA) in 2011 for use by patients with the most common genotype 1 of the blood-borne viral infection, provide significantly improving outcomes for patients living with hepatitis C. These drugs, when used in conjunction with existing therapy, boost the percentage of patients who clear the virus from 45% to 70%.

Not only do the new drugs allow more patients to be cured, they also work much faster than conventional therapy. It is anticipated that by adding the drugs to conventional therapy, treatment
times can be halved, from 12 months to 6 months, for around half of the patients without impacting on outcomes.

**Activity**

Gastroenterology ESRGs include (151) Oesophagitis, Gastroenteritis and Miscellaneous Digestive System Disorders, (544) Digestive System Diagnoses including GI Obstruction and (159) Other Gastroenterology. For Oesophagitis, Gastroenteritis and Miscellaneous Digestive System Disorders, Sydney Local Health District is 77% self-sufficient; the main outflow is 6.6% to SWSLHD. For Digestive System Diagnoses including GI Obstruction, SLHD is 76% self-sufficient, with 9.8% of residents flowing to St Vincent’s Hospital. For Other Gastroenterology, SLHD is 78% self-sufficient and 7.6% of SLHD residents flow to SESLHD hospitals.

In 2010 – 11, 59% of the patients using SLHD services for Gastroenterology Services were SLHD residents. Major inflows come from NSLHD (9%), SWSLHD (7%), and WSLHD (6%).

![Figure 5: SLHD Gastroenterology Inflows x Beddays x LHD 2010-11](Image)

**Priorities:**

1. Meeting the needs related to the increasing prevalence of Liver Cancer, cirrhosis and chronic viral hepatitis
2. Development of novel therapies for Inflammatory Bowel Disease
3. Meeting the demands for Colorectal Cancer Screening
4. Meeting the demands of long term follow-up of liver transplant recipients
Liver Transplant

The transplant surgical team provides state wide service for retrieval of donor organs, together with transplant surgeons from Western Sydney LHD and a state wide service for the transplantation of livers.

The service has to strike a balance between successful transplant outcomes, patient deaths on the waiting list, and, the use of extended criteria donor organs.

There is a need to increase live donation rates, particularly for living liver transplantation, both for adult and paediatric recipients.

Promotion of the benefits of organ transplantation and in turn, promotion of the benefits of organ donation to the community is a key requirement.

Along with other areas of the service there is a generational change in the surgical and nursing workforce and there needs to be the ability to recruit talented and committed staff on a timely basis to replace those leaving. There is a need to identify opportunities for new surgeons that have other surgical roles within the SLHD, to join team the transplant team so as to ensure generational change.

Activity

RPA provides the only adult Liver Transplant Service in NSW. Figure 12 reflects the quaternary nature of the service, with inflows from all over NSW and 5% of patients coming from other States. The major LHDs of patient residence are SWSLHD (14%), SLHD (13%), ISLHD (12%), other NSW (12%) and HNELHD (10%). (See Figure 6).

![Figure 6: RPA Liver Transplant Inflows x Beddays x LHD 2010-11](Image)

Source: Flow Info V11.0
Liver Cancer

RPA

The Department is receiving an increasing number of liver cancer (HCC) referrals. The department receives quaternary referrals from within and outside the LHD. Many of these patients have hepatitis B or hepatitis C and come from a culturally and linguistically diverse background.

HCC has a poor prognosis with no intervention, and survival is around 8 months. Late detection of HCC also has a poor prognosis. Patients are only able to be treated with localised therapies or systemic chemotherapy. Survival is greatly improved with early detection, in which situation more treatment options are available and include either resection or transplantation with bridging local therapy.

The key to early detection is HCC screening / surveillance. HCC almost always develops on a background of chronic liver disease. 90% of people who develop HCC have cirrhosis. Everyone with cirrhosis should have 6 monthly HCC screening (ultra sound and AFP). All the SLHD hepatitis services and liver clinics play a major role in ensuring patients undergo HCC screening.

Patients are managed within multidisciplinary teams at both RPAH and Concord. The RPAH HCC CNC acts as a case manager/coordinator. Local therapies such as Radiofrequency Ablation, Chemoembolisation, and Microwave Ablation are delivered in radiology and have an extremely important role in management of HCC. The CNC is responsible for coordinating this complex care.

Table 7 shows RPA Liver Transplant Radiology procedure occasions of service, 2010 – 2011.

<table>
<thead>
<tr>
<th>Treatment Procedure</th>
<th>Occasions of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transarterial Chemoembolisation (TACE) Cisplatinin / Lipiodol</td>
<td>113</td>
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<td>TACE with DC Beads</td>
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<tr>
<td>Percutaneous Ethanol Injection (PIE)</td>
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</tr>
<tr>
<td>Radiofrequency Ablation (RFA)</td>
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</tr>
<tr>
<td>Microwave Ablation (MWA)</td>
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<tr>
<td>Iodine 131</td>
<td>11</td>
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<tr>
<td>(procedures at Concord)</td>
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<tr>
<td>Resection</td>
<td>20</td>
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Investigations

<table>
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<tr>
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<th>Occasions of Service</th>
</tr>
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<tbody>
<tr>
<td>Hepatic Angio CT</td>
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<tr>
<td>MRI</td>
<td>58</td>
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</table>

Note: Data collection has been 1 January, 2012 to 30 November, 2012.

Patients with HCC unsuitable for local therapies can be treated with systemic therapies. These oral treatments have major side-effects and close patient monitoring is required. This care is coordinated
by the HCC CNC. The HCC CNC also has a major role in educating nurses and GPs on HCC management.

### Upper GI Surgery

**RPA**

The Department provides for elective and 24 hour emergency care of patients within Sydney LHD with Upper GI surgical conditions, as well as emergency care of patients with general surgical and trauma conditions admitted through the emergency or other departments in accordance with the on-call general surgical roster. The majority of inpatients at any given time are cancer patients or those admitted through the Emergency Department with conditions such as cholecystitis, pancreatitis, appendicitis or trauma, or patients with significant co-morbidities.

The department also receives tertiary referrals for complex Upper GIT problems from within and outside the LHD. Special relationships with rural centres in Dubbo, Wagga Wagga, Coffs Harbour and Port Macquarie have been developed for some of these referrals.

Due to the particular skill mix of the surgeons involved, and the strong relationship with the liver transplant unit, the department has made a name for itself nationally as a quaternary referral centre for those cases requiring very complex Hepato-biliary (HPB) surgery.

Of special note, are the patients with intestinal failure requiring hospitalisation for Total Parenteral Nutrition (TPN) and/or surgical intervention. This group of patients do not usually have a cancer diagnosis, and stay in the hospital for weeks or even months and are frequently re-admitted within a year of discharge. Although they make-up a tiny fraction of the case mix they utilise approximately 2 beds at any one time, and the majority are from regional NSW. There is a genuine need to formalise the care of these patients through the establishment of an Intestinal Failure unit (either at RPAH or elsewhere in the SLHD), and to secure special funding for such a unit. This is particularly pertinent with activity based funding (ABF). These patients require ongoing support from the hospital when on home parenteral nutrition.

Table 8, below shows the total numbers of patients at RPA who received TPN in 2010 and 2011.

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
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</thead>
<tbody>
<tr>
<td>Patients</td>
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<td>296</td>
</tr>
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</table>

**CRGH**

The Upper Gastrointestinal Surgical Unit at Concord Hospital consists of five surgeons, who are supported by a team of senior doctors, nurses, a physiotherapist, dietician, social worker, acute pain service, pharmacists, occupational therapist and psychology.

There is a dedicated specialised surgical unit at CRGH with a highly skilled and experienced nursing
team. A nurse consultant is available to help patients before, during and after treatment.

Concord Hospital Upper Gastrointestinal Unit had 380 separations in 2010-11. It is now well established that most gastrointestinal cancers are best treated, and have the highest cure rates in high-volume centres, by surgeons who perform these operations regularly.

The model of care at CRGH ensures that all patients treated through Concord Hospital and the various affiliated private hospitals to the Concord Cancer Centre are managed through the multidisciplinary team approach. The multidisciplinary team meets once a week to discuss patients admitted to Concord and from the doctors’ private practice. This team involves surgeons, oncologists, radiation oncologist, interventional radiologist, gastroenterologist, specialist nursing consultant, nurse unit manager of the ward and dietician.

Activity

Upper GIT ESRGs include (441) Cholecystectomy and (449) Other Upper GIT surgery. For Cholecystectomy the Sydney Local Health District is 67% self-sufficient; the main outflows are to private hospitals. For Other Upper GIT surgery, SLHD is 55% self-sufficient, with 21.3% of residents flowing to private hospitals and 9.2% to SESLHD hospitals.

In 2010 – 11, 48% of the patients using SLHD services for Upper GIT surgery were SLHD residents. Major inflows come from SWSLHD (11%), WSLHD (10%), and NSLHD (7%). (See Figure 7).

Table: SLHD Upper GI Surgery Inflows x Beddays x LHD 2010-11

| Source: Flow info V11.0 |

Priorities

1. Establish Intestinal Failure Service at RPA.
2. Subspecialisation of UGI surgery at CRGH into:
   a. Hepatic, Biliary and Pancreas
   b. Gastro-oesophageal
   c. Bariatric
3. Improved data management to facilitate clinical audit and research
4. Plan for The Chris O’Brien Lifehouse at RPA
5. Develop ERAS for Upper GIT surgery at RPA
6. Plan for an interventionalist endoscopist at Concord
7. Improve ward capabilities for monitoring patients with sleep apnoea at Concord
8. Improve access to HDU beds to enable semi urgent cancer surgery
9. Establish a bariatric surgical outpatient department
10. Establish an Upper GI Cancer outpatient clinic with fast track model of care for high risk patients

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**High Volume Short Stay Model of Care for Canterbury Hospital (TCH)**

The development of the Canterbury Hospital High Volume Short Stay Surgery Service provides an opportunity for the consolidation of selected elective services across the District.

General Surgery at Canterbury will continue at a District level, with stronger subspecialties in the short stay surgeries. This will allow improvements in the current elective surgical operation model by introducing the use of a dedicated high volume short stay surgical (HVSSS) unit - a model of care where the planned surgical cases requiring admission up to 72 hours are managed efficiently. The dedicated HVSSS theatre sessions will not be interrupted with emergency cases in order to maximize patient throughput. The HVSS service will allow the provision of an additional 3 sessions per week across the year (48 week period) which equates to an additional 864 elective operations. There is evidence to suggest this model has a number of benefits.

Assisting improved access to planned surgical services decreases waiting times and improve service efficiency. Importantly, staff and patients have clearer understanding of the hospital stay and timeframe.
Our Staff

Our staff is specialist medical and nursing staff, both junior and senior.


<table>
<thead>
<tr>
<th>Clinical Staff</th>
<th>Canterbury</th>
<th>CRGH</th>
<th>RPAH</th>
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<tbody>
<tr>
<td>Nursing FTE</td>
<td>31.22</td>
<td>77.72</td>
<td>89.91</td>
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<tr>
<td>Medical FTE</td>
<td>8.97</td>
<td>23.45</td>
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<tr>
<td>Support FTE</td>
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<td>3.73</td>
<td>16.75</td>
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<tr>
<td>Total FTE</td>
<td>42.39</td>
<td>113.83</td>
<td>147.01</td>
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</tbody>
</table>

*Data from SLHD pay report 9 2012-13

The challenges over the next five years are:

- Ensuring appropriate support staff to assist clinicians as the health care system moves towards activity based funding.
- Ensuring strategies are in place to address succession planning including, specialised education and professional development.
- Ensuring timely recruitment of talented and qualified staff.
- Maintaining adequate nursing numbers and ensuring that succession plans are in place to address issues associated with an ageing workforce.
- Developing a group of nurses highly skilled in Advanced Liver Disease management.
Our Research and Education

Research

The Gastroenterology & Liver Stream has a strong and robust research base. Key research strengths include Hepatology, Liver Transplant, Colorectal Cancer, Liver Cancer, Intestinal Failure and Inflammatory Bowel Disease. These will remain the priorities into the future.

The following provides a selected summary of the major research activities of the stream and lists opportunities for the development of future research.

Colorectal (RPA)

Surgical Outcomes Research Centre (SOuRCe) & Colorectal Surgery

The Colorectal Research Department has multiple trials and research studies, with several research coordinators as well as the strong collaboration with SOuRCe as listed.

- Surgical outcomes, quality of life & supportive care needs
- Development and testing of new surgical techniques
- Development and testing of methods to evaluate patient outcomes
- Description of health service utilisation
- Cost-effectiveness of surgical procedures
- Patient treatment preferences
- Develop/evaluate decision tools
- Methods studies
- Clinical trials in surgery
- Generate evidence for surgical effectiveness
- Review of evidence about surgical effectiveness

Colorectal (CRG)

- The Colorectal Cancer Database established 1971 contains information from 5,000+ patients operated on for colorectal cancer by specialist colorectal surgeons
- Proteomics in colorectal cancer staging - Cancer Institute NSW Translational Program Grant
- Care and education for patients in managing their stoma
- Laparoscopic Surgery

Upper GIT (RPA)

- Outcome studies in upper gastrointestinal cancer (in collaboration with SOuRCe)
- Assessments of the limits of hepatic resection for hepatoma and colorectal cancer metastatic to the liver
- Systematic review of outcomes after neoadjuvant chemoradiation for pancreatic adenocarcinoma
- Laparoscopic hepatic resection
Gastroenterology and Endoscopy (RPA)

- Use of capsule endoscopy for the diagnosis of small bowel tumours
- Use of capsule endoscopy to diagnose patients on warfarin with obscure GI bleeding
- Maximising efficiencies in colonoscopy procedures
- Use of New biliary stents to treat biliary strictures in liver transplant patients
- New treatments for Inflammatory Bowel diseases

Gastroenterology and Endoscopy (CRG)

- Various clinical trials are undertaken to help identify new treatments to patients using scientifically robust methodologies in areas such as viral hepatitis, hepatocellular carcinoma, Helicobacter pylori eradication, Crohn’s disease, ulcerative colitis and iron deficiency anaemia.
- Applications of advanced endoscopic technology
- Use of confocal endomicroscopy in the detection of dysplasia in gastric intestinal metaplasia.
- Inflammatory Bowel Diseases (IBD) Service
- Participation in an international multicentre clinical drug trials offering Australians access to new generation of biological agents.
- Development of internationally-recognised consensus statements on Quality-Endoscopic reporting pertaining to Endoscopic Ultrasound.

Hepatology (RPA)

- Liver immunology
- Role of the Oligopeptidase DPIV genes
- Liver cell biology
- Hepatitis C Clinical Trials
- Hepatitis B Clinical Trials
- Hepatocellular Carcinoma Trials
- HCC Surveillance
- Increasing GP participation in Viral Hepatitis Screening, Treatment and Care
- Nutrition and Dietetic Studies to improve outcome in patients with Cirrhosis
- Advanced Liver Disease Nurse Education Needs
- Developing a mentoring program for Advanced Liver Disease Nurses
- Liver Transplant Outcomes
- Small Bowel Diseases
- Endoscopy efficacy and outcomes

Transplant Services (RPA)

- Basic Immunology of allograft tolerance and rejection: The Collaborative Transplantation Laboratory is funded by 3 current NHMRC Grants, a National Heart Association Grant and several others. These grants are currently used to fund further research in areas such as the role of Innate Immunity in rejection and tolerance and ischaemia-reperfusion injury in brain death using several model systems. These studies have enormous potential for translation
into the clinic. The teams have produced numerous publications in journals including JCI and American Journal of Transplantation.

Clinical Transplantation: multicentre international trials (currently n=5) examining immunosuppression in transplantation, plus local trials (n=4, diet and exercise to prevent diabetes after transplantation, diagnosis and monitoring of diabetes after transplantation, immunological monitoring after kidney transplantation).

Education

The clinical stream supports education to ensure that services provided are appropriate and our staff are trained to meet the needs of our catchment population.

Many of our staff are actively involved in passing on skills to staff from other areas and outreach to community groups. This includes ano-rectal nursing/stomal therapy/ cancer care coordinators, sharing of knowledge with overseas medical and nursing staff.

The Hepatitis nurses are currently recruiting Aboriginal peers to work within their communities to promote hepatitis awareness and encourage referral for testing and assessment. Peer program already working successfully in 2 private methadone clinics. Peers supported by RPA Hepatitis CNCs.

GP education is a priority of the Hepatologists and the CNCs. A strong relationship exists with the Medicare Local. At least 3 sessions are provided per year on viral hepatitis / liver disease management.

Outreach for Intestinal Failure Parenteral Nutrition is provided.

There is a Hepatology Nurses Master class every 6 months. It is attended by 60 – 100 hepatology and other nurses from services across NSW and the program is video recorded and uploaded on relevant websites.

Opportunities in education are to create courses to enable succession planning in key areas of clinical care.

Areas for development include Transplant Nursing, Colorectal and Upper GI Nursing
Our Priorities

General Comments

1. Integrating and co-ordinating emergency surgical services.
2. Building our excellent clinical and basic research programs into centres of research excellence.

Endoscopy & Gastroenterology

- Development and implementation of new endoscopy procedures to treat GI tumours and biliary diseases
- Meeting the increasing demand for colonoscopy procedures for Colorectal cancer screening
- Implementation of new and novel treatments for Inflammatory Bowel diseases

Liver Transplantation

- Meeting the increased demand for liver transplant referrals and liver transplant procedures following the establishment of The Australian Organ and Tissue Authority. There will also be a need for increased long term follow up of patients. This may have ambulatory care “space” implications.

Upper GIT Surgery

- Meeting the increase demand for publicly funded bariatric surgery, for morbidly obese adults. Concord has a role in providing this service, with RPA providing for highly complex patients.
- Establishing an Intestinal Failure service at RPA. Funding is being sought for a State / National specialty.

Colorectal Surgery

- Supporting the newly established dedicated Pelvic Exenteration unit at RPA. Commonwealth Government funding has now been received.
- Supporting the High Volume Short Stay Unit at Canterbury Hospital. The service will need to be supported in its development and evaluated.

Hepatology

- Addressing the many issues associated with increasing prevalence of Chronic Viral Hepatitis. This includes prevention, screening, early intervention, education, treatment and care, as well as increasing GP involvement and education.
- Addressing issues associated with the increasing prevalence and incidence of liver cancer.
- Maintaining and building new partnerships with services to improve liver disease outcomes.
References

SLHD Asset Strategic Plan 2012-2017
SLHD Education & Training Strategic Plan 2012-2017
SLHD Research Strategic Plan 2012-2017
Canterbury Hospital Strategic Plan 2012-2017
Concord Repatriation General Hospital Strategic Plan 2012-2017
RPAH Strategic Plan 2012-2017
SSWAHS Aboriginal Health Plan 2010-2014
Strategies to address the health burden of CVH in the communities of SLH
## Appendix 1: Activity in the Gastroenterology and Liver Stream

### Table 10: Concord Hospital Gastroenterology and Liver Clinical Stream Separations and Beddays by SRG and ESRG, 2005-2011

<table>
<thead>
<tr>
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<td>Table 12: Canterbury Hospital Gastroenterology and Liver Stream Separations and Beddays by SRG and ESRG 2005-2011</td>
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