Clinical Stream Position Paper
Endocrinology, Metabolism and Andrology

2013-2018
Foreword by Clinical Director

Endocrinology was the first significant clinical service to develop a major, ambulatory model of chronic care. Endocrinology is proud of its initiatives and leadership in this service type which is continually being strengthened and refined. Ambulatory care ensures that patients are enabled and empowered to manage their chronic disorder, are given appropriate advice and treatment without the need for admission to hospital, and facilitates community general practitioners and allied health professionals’ involvement in care. This is widely acknowledged as best practice care and fewer patients now need be admitted, with admissions limited to acute crises or the administration of intravenous antibiotics. With the future development of Hospital in the Home it may be possible to further reduce the length of stay and the need for admission.

Aspects which need to be developed further include improved communication with the Inner West Sydney Medicare Local, general practitioners and allied health professionals and the development of a “greater team” so that there is a stronger and more robust continuum of care and, therefore, better care.

Endocrinology is not without major challenges brought on by the ageing of the population, increasing obesity and inactivity, people spending more time indoors and reduced sun exposure. Consequently, diabetes, obesity and osteoporosis are increasing. Gestational diabetes is a major issue. Thyroid dysfunction affects 2-3% of pregnancies and thyroid cancer incidence is increasing worldwide. Furthermore, people with obesity have a higher risk of a range of co-morbidities including cardiovascular disease, diabetes, osteoporosis and certain malignancies such as colon, liver and breast cancer; thus this is a group who are at increased risk of premature mortality. These disorders are major contributors to the burden of disease in Australia and all require chronic care. The presence of diabetes as a co-morbidity also results in increasing inpatient consultative demand from other health services managing these conditions. At any one time at least 30% of inpatients have known diabetes and while this is usually not the primary reason for admission, their diabetes must be managed appropriately to address length of stay. The total of these disorders impacts inequitably on the most socially disadvantaged in our community, challenging the way in which we deliver prevention initiatives and services. The increasing incidence and prevalence of these disorders will stretch clinical resources, necessitating even better, more innovative and integrated care.

In Sydney Local Health District there are overlapping interests between Endocrinology departments and streams. New developments in chronic care, even for specific diseases, will need to be developed which involve other collaboration across services and streams, for example Aged Care, Cardiology Nephrology and Psychiatry. In this way, Endocrinology will be required to build on its strong collaborative background, which in the past has resulted in successful outcomes such as the High Risk Foot Service.

The overall challenges for Endocrinology are:
1. The increasing prevalence of the major disorders of diabetes, obesity, osteoporosis, thyroid disorders and neuro-endocrine disorders.
2. The need to develop innovative and better integrated care models.
3. The need to develop the workforce to respond to these demands.

Approaches include:

- Multidisciplinary teamwork involving dieticians, nurses, nurse consultants, specialised educators, nurse practitioners in diabetes and osteoporosis, physiotherapists, podiatrists, psychologists and physicians.
- The development of diabetes services with integrated care, and new specialty services for those with type 1 diabetes. These services will utilise new blood sugar monitoring devices, newer treatments and better information technology.
- Innovative services to cope with the significant increase in prevalence of diabetes in pregnancy
- Diabetes prevention programs in the workplace.
- Integrating bariatric surgery into a chronic care service as part of a comprehensive disease control and prevention strategy.
- Development of dedicated osteoporosis services / Fracture Liaison Programmes across the area for the prevention of osteoporotic fractures and prevention of readmissions.
- Integrated care of physical health in those with mental illness.
- Strengthening the current multi-disciplinary approach to thyroid cancer management.
- New clinical approaches to providing chronic ambulatory care with lifestyle interventions and support underpinning much of the basic work in Endocrinology.
- Newer services for the secondary prevention of osteoporotic fractures and prevention of readmission.
- New clinical approaches to providing chronic ambulatory care with lifestyle interventions and support underpinning much of the basic work in Endocrinology. The opening of the Charles Perkins Centre will allow the development of newer "lifestyle clinics" for prevention and early management. In addition new models of chronic care can be trialled with different workforce mixes and emphases. These initiatives will need to be coupled with the development of information technology to allow better transfer of care from the clinic to carers in the community and in other health institutions.
- All activities must be underpinned by research and evaluation to determine new, cost-effective models of care that maximise patient outcomes.

**Royal Prince Alfred Hospital Endocrinology Service Overview**

The Department of Endocrinology at Royal Prince Alfred Hospital delivers a comprehensive clinical Endocrinology service. It has three main centres:

**Diabetes Centre**

- Diabetes – integrated model of clinical care and patient self-care education
- Diabetes in pregnancy
- Foot disease in diabetes
- Type 1 diabetes care
- Shared care and complex type 2 diabetes

**Endocrinology and Metabolism Centre**

- All aspects of general Endocrinology (pituitary, thyroid, adrenal, calcium and metabolic disorders and gonadal disease, osteoporosis and metabolic bone disease)
• Endocrine disorders in pregnancy
• Endocrine disorders associated with Cystic fibrosis, thalassaemia, and Turner’s syndrome
• Thyroid cancer management
• Medical management of eating disorders

**Metabolism and Obesity Services**
• Adult obesity management
• Bariatric surgery pre and post follow-up
• Prader Willi Syndrome Clinic
• Mental Health Metabolic Screening and Treatment Service

**Outreach Service Provision**
The Service conducts Endocrinology and diabetes services at Griffith NSW three times per year, and Broken Hill and surrounds four times per year. Ongoing clinical support services are provided in telemedicine.

**Concord Repatriation General Hospital Endocrinology Service Overview**

The Department of Endocrinology at Concord Repatriation General Hospital (CRGH) offers a referral service across all areas in Endocrinology. The focus of the department’s patient care is the diagnosis and management of acute and chronic endocrine conditions. While services are predominately outpatient-based there is a significant inpatient consultation load. The outpatient services fall into the following major categories:

• **General Endocrinology**
  o All aspects of general Endocrinology (pituitary, thyroid, adrenal, calcium and metabolic disorders and gonadal disease, osteoporosis and metabolic bone disease)
  o Women’s health and the menopause
  o Adrenal Endocrinology (new focus)

• **Bone and Mineral Disorders**
  o Osteoporosis Assessment Clinics
  o Fracture Liaison Service
  o Treatment centre

• **Diabetes**
  o Acute and chronic care and disease education
  o Type I diabetes and transition clinic
  o Diabetes in pregnancy (incl. Canterbury Hospital)
  o Foot disease in diabetes
  o Diabetes education services

• **Cardio-metabolic Health in Psychosis**

• **Obesity Services**
  o Obesity and metabolic rehabilitation
  o Bariatric surgery program
Outreach Service Provision
Within our Fracture Liaison Service for DVA members Concord Endocrinology is establishing an outreach FLS at Gosford and Port Macquarie, which include provision of telemedicine services.

Concord Repatriation General Hospital Andrology Service Overview
The CRGH Andrology Department provides specialist medical services relating to male reproductive health including both reproductive and non-reproductive disorders. The Department comprises a co-located and highly integrated clinical service and laboratory in a single building (Building 22) which includes both clinical ambulatory care and day-stay type facilities together with an adjacent laboratory and sperm cryostorage facility.

Canterbury Hospital Endocrinology Service Overview
A substantial outpatient diabetes service and a high risk foot clinic are provided at Canterbury Hospital. VMO Endocrinologists run these clinics at the hospital with an arrangement for both Concord and RPA to alternate Endocrinology cover provision every six months.

Our Services

Royal Prince Alfred Hospital Endocrinology Service

The RPA Diabetes Centre

The RPA Diabetes Centre provides high quality, specialised and integrated clinical services including:

- Initiation of insulin therapy and stabilisation of glycaemic control
- Insulin pump therapy and ongoing management
- Management of diabetes in pregnancy
- Intensive multidisciplinary management of foot ulceration and other diabetic foot diseases,
- Assessment and management of complications.
- Diabetes specialty clinics including new patient clinics, complications clinic (such as renal), Asian diabetes, and transplant and oncology support especially related to corticosteroid usage and diabetes.

The RPA Diabetes Centre is the specialised interface between primary care and hospital-based care, providing complementary care and education in a variety of settings.

The Ambulatory Acute Care Service prevents hospital admissions. It provides in-hours services to
those who might otherwise present to emergency and require hospital admission, such as in diabetic foot problems, DKA in evolution, and newly diagnosed type 1 diabetes.

The Diabetes Centre service delivery format is based on the key elements of the Chronic Care Model: multidisciplinary team management, self-management education, and organisation of healthcare that facilitates the collection, documentation and evaluation of clinical outcomes. In 2012 the Diabetes Centre provided 10,596 occasions of service to 3,624 individual people with diabetes.

Demonstrating excellence in regional leadership in diabetes, the RPA Diabetes Centre is a recognised International Diabetes Federation (IDF) Centre for Health Professional Education Excellence and a IDF Western Pacific Region Centre in Diabetic Foot Disease.

**Department of Endocrinology – Endocrinology & Metabolism Centre (EMC)**

The Endocrinology Metabolism Centre provides ambulatory care for people with a broad range of endocrine and related conditions, including thyroid, adrenal, pituitary and metabolic bone disease. It undertakes intensive investigative dynamic hormonal stimulation and suppression testing, and other investigations such as bone mineral densitometry, calorimetry and ultrasound guided fine needle aspiration biopsy. Therapeutic protocols include infusions of bisphosphonate for osteoporosis and Paget's disease of bone and parenteral injections of androgens, and growth hormone suppressing protocols. Endocrine cancers managed in the Centre include neuroendocrine tumours, thyroid cancer and phaeochromocytoma.

A major educational role for people with endocrine conditions includes safe use of corticosteroids and their replacement in endocrine disease.

Per calendar year the Clinic provides services for over 6,500 patients - over 3,000 patients for clinical procedures and the remainder seen by the clinicians. The Thyroid Antenatal Clinic sees approximately 10-15 patients weekly and in total 10-20 cases are triaged and advice given by phone on a weekly basis.

The Multidisciplinary Thyroid Cancer Group, recently established, delivers specialist care with endocrinologists and thyroid (Head and Neck) surgeons.

**Metabolism & Obesity Services**

Metabolism and Obesity Services (MOS) provides comprehensive multidisciplinary care for people with morbid obesity and integrates within hospital, community and bariatric surgery services.

The increasing prevalence of overweight and obesity is a global public health problem. The Australian National Health Survey (2012) reported that 35% of the Australian population were overweight and 28.3% obese. It is estimated that more than half of the adult SLHD population are either overweight or obese. MOS also provides services to all patients across NSW and the ACT for medical assessment, medically supervised weight loss programmes or publicly funded bariatric surgery. MOS is increasingly receiving referrals from across NSW to assist in the management of patients who are housebound because of their obesity and medical-co morbidities.

MOS' primary focus is lifestyle intervention for patients with a BMI ≥ 35kg/m². Patients regularly
have multiple and complex co-morbidities related to their obesity such as T2DM, heart disease, obstructive sleep apnoea, osteoporosis, mood disorders and chronic pain.

In addition, multidisciplinary obesity services are required for the management of obesity-related syndromes such as Prader-Willi syndrome, Bardet Biedl syndrome and MC4 receptor defects, as well as obesity resulting from medical conditions or psychiatric diseases.

MOS is part of the SLHD bariatric surgery program which receives referrals from all of NSW. MOS provides pre surgical assessment including medical, lifestyle and psychological aspects, pre-surgical education and work up, and intensive post-surgical review, follow up and ongoing lifestyle coaching.

People with obesity have a higher rate of certain malignancies such as colon, liver and breast cancer and thus this is a group who are at increased risk of premature mortality from cardiovascular related disease, diabetes and cancer related conditions. Thus prevention and early intervention of obesity-related complications plays an important role in MOS’ care delivery.

Across 2009 and 2010, MOS attended on average 254 occasions of service per month, allied health and nursing provided 42 hours of individual consultations per week in 2011, and group sessions times vary from 8-16hrs per month. MOS has the facility to provide educational groups to other government departments and health services as requested.
Concord Hospital Endocrinology Service

The Department of Endocrinology at Concord Repatriation General Hospital (CRGH) offers a tertiary referral service for general practitioners and other health professionals across all areas in Endocrinology. The focus of the Department’s patient care is the diagnosis and management of acute and chronic endocrine conditions. While services are predominately ambulatory, there is a significant inpatient consultation load from both the general hospital and the Concord Centre for Mental Health. The Department has close links with the Andrology Unit at Concord Hospital. The Department provides a senior medical registrar to the gestational diabetes and endocrine-obstetric clinics at Canterbury Hospital.

The Department of Endocrinology at Concord Repatriation General Hospital has five main clinical areas – general Endocrinology, bone and mineral disorders, diabetes, cardiometabolic health in psychosis, and obesity-metabolic rehabilitation. With the recent appointment of Professor Mark Cooper, an additional focus in adrenal diseases is under development (Clinical and Research Centre).

General Endocrinology

- General Endocrinology and endocrine emergencies
- Thyroid diseases and thyroid cancer management (in collaboration with the Department of Nuclear Medicine at Concord Hospital)
- Pituitary disorders
- Gonadal disease (in collaboration with Andrology, see below)
- A nurse-led women’s health clinic provided by an accredited Women’s Health Nurse. This service provides a preventative health intervention strategy aimed at keeping post-menopausal women healthy and active.

The Endocrine Investigation Centre performs a full complement of dynamic endocrine testing. The endocrine nurses routinely administer intravenous bisphosphonate therapy for osteoporosis and Paget’s disease, oestrogen implants, testosterone depot injections, subcutaneous injections for osteoporosis as well as for the treatment of acromegaly. Telephone support and advice is also provided by the Endocrine Nurses, who take the majority of calls of a clinical nature.
Bone and Mineral Disorders

- Osteoporosis assessment and management. This outpatient service includes several medical and nursing assessment clinics, and the Concord Program for Secondary Fracture Prevention. In 2012 the Program was awarded both the NSW Health and the NSW Premier’s Award.
- Metabolic bone disease outpatient medical assessment and management for metabolic bone diseases, secondary osteoporosis, genetic bone and mineral disorders and rare bone diseases.
- Paget’s Disease and Metastatic Bone Disease Clinic, which is run in collaboration with the Concord Cancer Centre.

These services are supported by Osteodensitometry. The Department runs two DEXA machines, with all endocrine nurses trained as Certified Densitometry Technologists and have a role in the provision of the bone densitometry service for diagnosis and treatment responses.

Diabetes

- Acute intervention and chronic care clinics, diabetes education, insulin pump therapy and continuous blood glucose monitoring services. These are multidisciplinary diabetes clinics including endocrinologist, dietician, diabetes educator and exercise physiologist.
- High Risk Foot Service run by the podiatry department where patients with diabetes with foot ulcers, cellulitis or Charcot’s Joints are managed to prevent amputation and other complications.
- Potency Enhancement Clinic (for erectile dysfunction)
- Multidisciplinary clinics in Concord Centre for Mental Health focusing on metabolic health
- Transition Clinic for young patients from 16 years of age who previously have been managed through paediatric Endocrinology services. This clinic provides an essential bridge for the care of young patients with type 1 diabetes in the inner west of Sydney.

The Diabetes Service at CRGH encompasses general diabetes inpatient and outpatient services including a weekly acute intervention or “crisis management” clinic, multidisciplinary diabetes assessment clinics and also a potency enhancement clinic (specifically for patients with erectile dysfunction and related disorders). The integrated multidisciplinary assessment clinics include review by allied health professionals: dietitian, credentialed diabetes educator and exercise physiologist. In particular, the expertise of the exercise physiologist is instrumental in providing patients with an individualized exercise programme, taking into account, problems such as osteoarthritis or other co-morbidities which might prevent optimal physical activity.

The Service also provides inpatient diabetes education for those with newly diagnosed diabetes, diabetic emergencies including hypoglycaemia, and where there has been a change in diabetes medication, and outpatient education. Nursing support is provided for the Metabolic Rehabilitation Clinic, Concord Mental Health and for initiation and support of insulin pump therapy and continuous glucose monitoring. The Service coordinates the gestational diabetes and obstetric endocrine clinics at The Canterbury Hospital. The advanced trainees from the Department attend this weekly clinic.
Concord Centre for Cardiometabolic Health in Psychosis (CCCHP)

The life expectancy for patients with severe mental illness, especially schizophrenia, is approximately 20-30 years less than the general population, predominantly due to premature cardiovascular disease. The prevalence of diabetes and pre-diabetes in the inpatient population at Concord Mental Health is 50%. In association with Concord Mental Health and the University of Sydney, the Department runs a unique integrated endocrine-psychiatry clinical and research centre. This Centre provides a weekly metabolic assessment clinic for patients with severe mental illness where traditional risk factors such as smoking, lack of exercise, dyslipidaemia and hypertension are addressed. Lifestyle factors are managed by a dietician and exercise physiologist. In addition, research in areas such as disorders of circadian rhythms and sleep (in association with the Chronobiology Unit at Central Queensland University), exercise interventions (with the Australian Diabetes Council) as well as abnormal health behaviour are conducted.

Obesity:  Metabolic Rehabilitation Diabetes Program and Bariatric Surgery Interdisciplinary Clinic

The Metabolic Rehabilitation Diabetes Program is a multidisciplinary clinical service involving endocrinologists, a psychologist, a diabetes educator, a dietician, an exercise physiologist and a compulsory on-site intensive exercise program offered to patients with a BMI > 40kg/m2 with diabetes.

The Bariatric Surgery Interdisciplinary Clinic is a tertiary referral Bariatric Surgery Outpatient Clinic which assesses and prepares patients for bariatric surgery and manages these patients post-operatively. It is staffed by bariatric surgeons, an endocrinologist, a nurse practitioner, a dietician, and a psychologist. Patients are also offered access to supervised on-site exercise classes by an exercise physiologist.

Inpatient services include consultation services to severely obese patients and patients post-operatively in the publically funded bariatric surgery program.

Concord Hospital Andrology Service

The Andrology\(^1\) Department at Concord Hospital is the first and only department of its type in Australia. The Department provides specialist medical services relating to Male Reproductive Health including both reproductive and non-reproductive disorders. The Department comprises a co-located and highly integrated clinical service and laboratory in a single building (Building 22) which includes both clinical ambulatory care and day-stay type facilities together with an adjacent laboratory and sperm cryostorage facility. As a leader in clinical practice and research in Andrology, the Department has strong international and interstate linkages and provides services on a state-wide, regional as well as local basis.

\(^1\) Andrology is Male Reproductive Health, Medicine and Biology
Achievements

- World leader in Andrology and in the physiology, pharmacology and toxicology of androgens
- >20 published RCTs in testosterone pharmacology and clinical androgen replacement therapy
- Largest study of long-term outcomes of elective autologous sperm cryostorage program
- Largest, most detailed analysis of gonadotrophin replacement therapy for male infertility
- Proof of principle study proving feasibility and efficacy of depot, combination hormones for male contraception
- Integrated sperm cryostorage facility with uniquely effective follow-up program to prevent open-ended accumulation of stored sperm
- Sports doping consultancy to Australian Sports Drug Medical Advisory Committee (ASDMAC) and Australia Sports Anti-Doping Agency (ASADA)

Overview

The Andrology Department provides an ambulatory care service with an integrated focus on male reproductive health and medicine which is unique in Australia. The Department operates clinical service closely integrated and co-located with the SLHD’s semen laboratory & sperm cryostorage facility.

The Departmental services include the following categories:

- Evaluation of androgen deficiency
- Management of androgen replacement therapy
- Gonadotrophin induction of spermatogenesis
- Sperm cryostorage & follow-up
- Assessment of male fertility and infertility
- Male contraception
- Male sexual dysfunction

Services

Primarily ambulatory care including consultation services to inpatients of other departments for:

- Investigation and management of androgen replacement therapy
- Gonadotrophin treatment for male infertility
- Sperm bank facility including clinical management and screening for autologous sperm cryostorage and sperm donation
- Semen analysis for diagnosis and management of male infertility including IVF
- Medical consultation for disorders of male reproductive health such as male ageing, male infertility, gender dysphoria, sexual dysfunction

The Department averages 2000 patient service contacts, 120 new and 200 follow-up sperm cryostorage patients, perform 1500 semen analyses and 350 sperm antibody tests per year.

Projections for the Future

The Department expects a steady increase in clinical and laboratory demand.

Best Practice Model of Care

Having evolved a distinctive model of care, unique in Australia, it represents best practice.
Current Concerns & Issues

- Inflexibility of medical staff employment arrangements
- Maintenance of non-automatable, expertise-dependent laboratory service with minimal staff
- Safe and effective maintenance of liquid nitrogen cryostorage facility

Canterbury Hospital Endocrinology Service

Two endocrinologists provide consultative services to inpatients of Canterbury Hospital during working hours, including assistance in managing acute emergencies and assisting with 4 sessions of diabetes and general Endocrinology private Medicare-billed clinics each week.

The after-hours and weekend on call is provided by RPA from January to June, and by CRGH on-call endocrinologists from July-December.

There are two sessions of gestational diabetes and endocrine-obstetrics clinics each week. There were 3,708 episodes of services in these clinics in one year between June 2011 and June 2012. The Gestational Diabetes and Antenatal Obstetrics Service has expanded very rapidly over the past 5-10 years. There is a high incidence of gestational diabetes and pre-existing diabetes in pregnancy due to the socioeconomic makeup of the catchment area. The numbers are predicted to increase significantly with new criteria for the diagnoses of gestational diabetes. Due to the current limited space constraints, the delivery of this Service is becoming increasingly difficult and requires enhanced technological support. This group of patients also includes a significant proportion of women with thyroid disorders in pregnancy. Women with iodine deficiency and vitamin D deficiency in pregnancy are also managed. The majority of the patients are from ethnically diverse, non-English speaking backgrounds.

Canterbury Hospital has one full time credentialed diabetes educator. Monthly diabetes group education is provided to people with newly diagnosed type 2 diabetes as well as re-education for people with existing diabetes, especially at the time of intensification of control and insulin commencement. There is one session weekly for one-on-one diabetes education for people from non-English speaking backgrounds for whom group education is less effective. A weekly education session is conducted for women diagnosed with gestational diabetes. A podiatry service is offered for high-risk individuals, and patients are transferred to the high-risk foot clinics at RPA or Concord as required.

Forecast of Future Need

The contemporary model of care in endocrine diseases is mainly focused on an efficient and multidisciplinary ambulatory care paradigm. This has successfully decreased the need for inpatient care, resulting in significant savings in avoiding unnecessary admission. Inpatient treatment only occurs in the minority due to complications of disease such as acute hypo- or hyperglycaemic emergencies, diabetic foot ulceration usually with increasing sepsis, or for diabetes complications of heart failure or kidney disease, or for endocrine related surgery such as adrenal or pituitary or
bariatric surgery.

**Diabetes**

Best estimates indicate that there are currently approximately 37,000 people with diabetes in SLHD and approximately 4,500 people will develop diabetes each year in SLHD. The numbers who know they have diabetes is predicted to be only half of the population who actually have it. With the ageing of the population, it is expected that demand for Diabetes Centre services will continue to rise by about 8-10% per year.

Health care needs of people with diabetes are directly linked to the nature of their diabetes. Demand for the core multidisciplinary services offered by the Diabetes Centre in diabetes in pregnancy care, diabetes high risk foot care, complex type 2 diabetes and type 1 diabetes, including insulin pump related services, will predictably each rise by at least the same rate of 8-10% per year.

Medicare Locals provide opportunities for the development of more community-based, intermediate care diabetes services, especially in type 2 diabetes. These service sites could focus on activities such as diabetes complications screening, therapy commencement and up titration in less complex type 2 diabetes, and also allied health support of such services. Leadership in education for these services could occur at least partly from the tertiary Diabetes Centres especially as the RPA Centre is an International Diabetes Federation Health Professional Centre of Education Excellence. The diabetes service at Concord already has an established track record for providing a high level of education to health professionals.

Discussions are planned to address how an integrated ‘hub and spoke’ model of diabetes care can be established and nurtured, which would involve a continuum of care depending upon the needs of the person with diabetes, from the inpatient setting, to the Diabetes Centre, then the Medicare Locals and the broader primary care setting, merging with community institutionalised care and ambulatory care services in the home.

SLHD has established the Sydney Diabetes Prevention Program for the prevention of diabetes in those at high risk. This three year program has been completed with successful results and the plan is to roll this out in workplaces around SLHD as well as to continue it for high risk groups in the community.

**Obesity**

With the recent Australian National Health Survey figures showing that 28.3% of Australian adults are obese, this translates to approximately 5.5 million Australian adults. The multidisciplinary Metabolism and Obesity Services can therefore only focus on health care delivery to the morbidly obese, especially those with complications related to obesity, such as type 2 diabetes, sleep apnoea, chronic back pain, osteoarthritis, heart disease, asthma, type 2 diabetes, obesity related to mental health conditions and for predominant genetic obesity disorders. Finally, specialist preparation and support before and after for bariatric surgical procedures is required across the SLHD catchment.

**Metabolic Bone Disease**

The Bone & Mineral Service has a focus on the prevention and management of osteoporosis. As of
2010, over 2.2 million Australians have osteoporosis. This number will increase to approximately 3 million in 2025. Given the current demographic changes and developments in Australia, and the fact that osteoporosis and osteoporotic fractures are strongly related to ageing, it is expected that the incidence and health impact of osteoporosis will continuously rise over the next 10 years. Concurrently the demand for Bone & Mineral services is anticipated to increase, including diagnostic services (bone density, laboratory) and the provision of continuous high level medical care (pharmacological and non-pharmacological therapy, nursing, exercise programs, dietetics, orthopaedic and geriatric services).

The Agency for Clinical Innovation (ACI) has identified the urgent need for more secondary fracture prevention clinics. Identification of individuals who have had previous fractures and effective treatment has been demonstrated to reduce future fractures and hospitalisations. Setting up such a clinic will require liaison with the orthopaedics and geriatrics teams and the development of a pathway for the identification of these patients. The model developed by Concord Endocrinology could be applied across the area and, indeed, across the nation as it has been shown to be effective in reducing fractures and cost to the health system.

**General Endocrinology**

Thyroid disease affects at least 5% of the adult population and as it is more common in the elderly. It is expected to remain a common condition requiring medical specialist and nursing support into the future, as will the conditions of chronic adrenal and pituitary disease. Thyroid cancer incidence is increasing and it is now the second most common cancer in females aged 15-29 years in New South Wales. A Multidisciplinary Thyroid Cancer Group involving endocrinologists, endocrine nurse, thyroid surgeons, nuclear physicians & pathologists was established a few years ago. Thyroid dysfunction affects 2-3% of pregnancies. The current more stringent international guidelines have increased workload as more patients are referred and reviewed in the clinic. A regular post-partum follow-up clinic is yet to be set up once staff is available.

Specialised clinics for endocrine complications of other medical conditions such as cystic fibrosis, thalassaemia, Turner syndrome, Congenital Adrenal Hyperplasia need ongoing support for medical and nursing staff.

**Future Models of Care and Opportunities for Health Improvement**

Most endocrine patients require lifelong management of their condition. SLHD has therefore developed a number of services that focus on secondary prevention and/or improvement of specific health outcomes. While Endocrinology will remain a largely outpatient-based and hence low-cost service, failure to support such out-patient services invariably results in increased costs for hospital admissions for essentially preventable complications. Diabetes and its complications can be prevented and properly managed by specialized services preventing hospital admissions.

Future models of care in osteoporosis will have to focus on secondary fracture prevention to close the unacceptable management gap (Seibel, 2011). Services such as the Concord Fracture Liaison Service (FLS) are run by a dedicated team of doctors, nurses and allied health care professionals,
and have been shown to be cost-effective.

SLHD nursing staff are in a unique position to provide patients with the knowledge and tools to manage their condition more effectively. Investing in additional health promotional activities such as seminars, patient forums and working closely with patient support groups is an ideal way to educate and reduce the incidence of complications. Such support enables patients to more effectively manage their condition and the cost benefit to have the time and resources to pursue these activities more frequently would be shown.

Opportunities for Improving Equity

Osteoporosis

Patients with osteoporosis are consistently under-diagnosed and under-treated. This glaring management gap increases further with advancing patient age, where up to 90% of patients go untreated despite the presence of clear osteoporotic fractures. In addition, men are greatly under-represented, despite the fact that the impact of osteoporotic fractures on health and life expectancy is greater in men than in women. Multiple barriers exist that prevent adequate care of patients with osteoporosis, e.g. lack of doctor/patient awareness and education, low prestige of the disease and its sufferers, lack of access to adequate services, and lack of co-ordinated, multi-disciplinary services. With the ageing of the Australian population we will witness a significant increase in the prevalence of osteoporosis and osteoporotic fractures, with the prospect of one in three hospital beds being occupied by a fracture patient in 2020. Hence, adequate medical and nursing resources are required to achieve equity in care for older patients with osteoporosis.

Diabetes

Not everyone with diabetes requires the same level of intensity or the same type of diabetes care. There continues to be major opportunities and needs to deliver the particular care required for the person with diabetes, specifically through integrating diabetes health care in the hub and spoke model and defining mutually agreed referral criteria and referral pathways with primary care, private endocrine and allied health care specialists. The Medicare Locals will require major clinical and continuing medical and health professional education support from the Diabetes Centre, the latter of which will need to be enhanced to mainly manage the high risk and complex patients. It is envisaged that such will occur in the next 5-10 years. The Aboriginal Medical Service at Redfern continues to refer appropriate patients with diabetes to the RPA Diabetes Centre, usually for intensified care of patients with type 2 diabetes. More than half of the people with Diabetes seen at RPA Diabetes Centre speak a language other than English at home, and the service provision as well as the cultural diversity of the staff and interpreter services available will ensure appropriate service provision continues. Most at Canterbury have English as a second language. Concord Diabetes has a unique role in managing the most challenging group of individuals with diabetes: as many as 50% of inpatients at Concord Centre for Mental Health have diabetes or abnormal glucose levels. Triage systems are well established at RPA Diabetes Centre to aid in setting timeliness of care and reviews related to individual patient needs.
**Obesity**

Systems need to be matured that enable the people with the greatest morbidity and obesity-related disease to access the RPA Metabolism and Obesity Service and Concord Metabolic Rehabilitation Diabetes Program. GP education and integration of care into Medicare Locals as well as other non-government organisations will help to achieve this. Multidisciplinary specialist care in obesity has also enabled integrated clinics in obesity and mental health, and obesity and sleep disorders to be developed, to streamline patient care so that more complex patients who do not achieve suitable outcomes with the traditional model of care are seen in these services hence freeing up resources in these traditional services.

With limited resources for publically funded bariatric surgery (20 cases per annum) it is difficult to provide an equitable programme to patients across both SLHD and NSW. Additional funding would assist the current programme to increase the provision of this evidence based management procedure. Obesity has been identified as a major health issue for the District, bariatric surgery is the most effective treatment modality for those with Grade III obesity and co-morbidities. Unfortunately as there is only minimal funding for such surgery in public hospitals, equity of access is a major issue.

**Mental Health and Metabolism**

Patients with mental illness have been consistently shown to be marginalised where physical health care is concerned with poor access to primary health care. There are multiple barriers to achieving a minimal standard of health care which are related to current health care systems, including the current ‘silo’ style models of care separating physical and mental health care, as well as the education and training of those involved in the care of the mentally ill. There needs to be a significant shift in care from one which is fragmented to that which includes multidisciplinary care.

The ageing of the population will also see a substantial increase in the elderly with diabetes. Current community resources are not able to provide support to those who are unable to self-manage diabetes, i.e. administer insulin injections and monitor blood glucose. Adequate medical and nursing resources are needed to ensure that this can occur. MOS now provides an inpatient psychiatric metabolic round, identifying metabolic at risk patients as a secondary issue to their mental health condition. In addition, monthly metabolic education groups have been established to act as an ongoing lifestyle support service post-discharge from hospital and to those attending the Camperdown Clozapine Clinic Group.

MOS has introduced a weekly drop-in clinic. This service is to improve access for marginalised groups who struggle to access primary health care or to meet appointment deadlines. This clinic is available to all patients but is specifically targeted to those with a recognised mental health condition or who identify as being of Aboriginal or Torres Strait Islander.

**General Endocrinology**

Systems have been developed to ensure that endocrine ambulatory care services (for example, in thyroid, adrenal and pituitary disease) are readily accessible to people with these conditions and triaging is undertaken to prioritise care. Improved nursing to patient ratio and doctor to patient ratio is crucial.
Opportunities for Health Improvement

Diabetes

Although the mortality and morbidity rate for people with diabetes is improving overall, data indicates that adverse outcomes remain higher than for the general community, especially for adults diagnosed in early and middle life in both type 1 and type 2 diabetes. Utilising the integrated hub and spoke model described above, including Diabetes Centre-based multidisciplinary health care delivery where indicated, it is expected the mortality and morbidity rates for people with diabetes will decline towards those rates of the general community.

An important issue is the delivery of diabetes care to indigenous and CALD communities. Lifestyle-based preventive approaches to type 2 diabetes in the community in high risk individuals could help to halve the rate of diabetes.

Diabetes has the potential to cause numerous associated complications. Investing in health promotional activities (e.g. metabolic rehabilitation and weight loss, targeting ‘pre-diabetes’, providing education and health coaching for those with diabetes) can help reduce the prevalence of diabetes and improve diabetes control, hence reducing the impact of diabetes complications. Diabetes management entails helping people understand the risks and benefits of lifestyle choices and treatment options and helping them change behaviour. Intervention with pharmacological therapy will be necessary in the majority and needs to be introduced timely to prevent complications, e.g. with antihypertensives.

Obesity

Integration of obesity services into the community, including through utilisation of allied health care, is a major opportunity to aid lifestyle change to help prevent onset and progression of obesity and its complications.

At present a number of services are available in the community with little to no communication between SLHD services and programmes. Referral pathways could be clearer for patients and doctors so that patients may access local services which meet their individual needs. There is also the ability to provide the use of facilities so that some programs can be run from hospital sites hence improving integration.

Extremely obese patients report difficulties accessing the current services due to location and their individual mobility issues. Their poor mobility then excludes them from accessing bariatric surgery despite their obvious increased need for this type of service. Despite working with hospital services such as transport and manual handing this remains a major issue in regards to equity. MOS is unable to provide adequate service to patients who are housebound if community services and a GP are not involved. Improving communication and referral pathways between community and MOS would see better opportunities for equitable access to services for this patient group.
Osteoporosis

Recognition of high risk individuals for osteoporotic fracture and re-fracture through appropriate primary screening as well as follow-up from hospital fracture clinics, and ensuring medical therapy, are high priorities to optimise care. The Fracture Prevention Model developed at Concord Hospital has been recognised both in Australia and internationally and should be implemented across the LSHD and NSW.

General Endocrinology

Managing thyroid conditions in pregnancy by the appropriate high risk pregnancy clinics in thyroid disease is also an ongoing requirement.

Nursing support and up-skilling are essential for both inpatient and outpatient education sessions such as sick day management for adrenal insufficiency (Addison's, iatrogenic or hypopituitarism). This would also upskill staff to continue to be at the forefront of Patient Support Group Meetings and Community Workshops.

Technological Developments

Diabetes

It is expected that with the rapid improvements in technology, increased demand will be placed on the RPA ambulatory care services. More demanding and time-consuming work practices are already evident that relate to transfer of blood glucose data to the health care professional and modes of electronic communication, including email, that reply upon electronic means rather than direct face-to-face consultation. At present, the increase in work load due to such communication methods is most clear in the patients with type 1 diabetes on insulin subcutaneous pump technology, and such pump therapy in pregnant women. IT usage is expected to increase at least 20% annually. Telehealth will increasingly be utilised especially for rural and regional services undertaken by RPA Endocrinology in the services described below.

Technological impacts on current service operations include sophisticated blood glucose monitoring systems (multiple daily injection/insulin-to-carbohydrate/insulin sensitivity calculators) and computer downloads requiring extremely time consuming detailed analysis and interpretation by medical and highly experienced nursing staff working in the Diabetes Centre. In addition, insulin pumps and continuous glucose monitoring are labour intensive. Adolescents transitioning from children’s services into the adult hospital system will increase the demand for these services significantly. In addition, the expanding role of injectable agents such as GLP analogues for control of type 2 diabetes is anticipated to increase the demand for credentialed diabetes educators.

Computer downloads for blood glucose meters, insulin pumps and continuous glucose monitoring are effective but are labour-intensive. Activity Based Funding has meant that the nursing staff in the Diabetes Centre, who have no clerical support, have had to increase clerical or non-clinical time significantly to enter data, such as outpatient appointments that take approximately 30 ‘mouse clicks’ per patient appointment. The Electronic Health Record may have a negative impact in terms
of time taken to complete documentation. Adequate IT support and hardware is required to keep up with these increasing demands.

**Obesity**

New methods for bariatric surgery have been developed that have shown in the short term to create less morbidity than previously used surgical procedures, such as gastric bypass, and have shown to lead to similar outcomes with ongoing multidisciplinary review and support. It is expected that as technology advances and the techniques become more popular, accessibility for morbidly obese individuals will increase, and as a consequence the need for human resources to manage the patients post-operatively will also increase. Unlike traditional surgical management where patients may choose to discontinue treatment at any time at low risk to themselves, patients who undergo bariatric surgery face risks of ongoing surgical complications if they do not adhere to long term behavioural change and restrictive eating for the rest of their lives.

**Bone and mineral services**

The past decade has seen new diagnostic and therapeutic tools for the management of osteoporosis and other bone diseases. For example, bone density scans can now be performed faster with greater precision. Also, the increasing use of long-acting parental agents that reduce the risk of fracture has increased patient compliance and clinical outcomes. New agents are underway and curing this chronic disease may be close.

**General Endocrinology**

Setting up of the Endocrinology and Metabolism Centre website will outline the services provided to guide more appropriate referrals. Online reporting for BMD/ Dynamic study would facilitate reports being available to the requesting doctors.

**Opportunities for Leadership - State, National and International**

The NSW Agency for Clinical Innovation (ACI) provides a forum for clinicians to engage in innovative health care delivery in Endocrinology. Currently, the Head of RPA Endocrinology Department co-chairs ACI in Endocrinology. In addition, the District Head of RPA Podiatry co-chairs the ACI Diabetes Podiatry Working Group, and the allied health Deputy Head of the RPA Metabolism and Obesity Services co-chairs the ACI Obesity Working Group. The Diabetes in Pregnancy Group in ACI is chaired by the head of RPA Diabetes High Risk Pregnancy services. The senior MOS dietician co-chairs the ACI Obesity Working Group. The Head of Concord Endocrinology has chaired the ACI Working Group for Secondary Fracture Prevention and has been actively involved in the development of the ACI Model of Care for Osteoporosis.

It is expected that over the subsequent two years, a series of costed health care delivery models will be implemented across the state. These models are set to include diabetes health care delivery, such as high risk foot care services, inpatient insulin therapy charts, ambulatory models of diabetes care and models for the prevention of osteoporotic fractures. RPA Diabetes Centre is being used as
a model and for developing a business case in many aspects of this care. In addition, the Activity Based Funding model in diabetes health care delivery is being costed at RPA Diabetes Centre and this may well become the model for ambulatory diabetes centre care across NSW. Finally, national and international opportunities exist and are being developed in health care delivery guidelines in type 1 and type 2 diabetes and obesity where RPA Endocrinology Department staff have taken a lead role in international and obesity international delegates and task forces (including in Prader Willi Syndrome), and in the health care professional centres of education excellence that is RPA Diabetes Centre.

Members of the Bone & Mineral Service at CRGH are active in their specialty on a national and international level, providing education, performing research and developing and testing models of improved clinical care. The Concord Fracture Liaison Service ranks amongst the best published care models worldwide, and has recently been nominated a finalist in two major NSW Health Awards. Members of the team provide ongoing input into the activities of the ACI, with the Head of Endocrinology at CRGH being the Chair of the ACI's Secondary Fracture Prevention Working Group. Prof Seibel is also the President-Elect of the Australia New Zealand Bone and Mineral Society, and a member of numerous committees active in the field. A member of the Nursing Team is currently the President of ENSA and all three nursing staff have active roles in the society. Service attendance of ENSA meetings has always been well supported by Concord Hospital and the Head of Department.

The Concord diabetes service and CCCHiP are involved at state, national and international levels not only in providing education but also serving as a model of physical health care in the mentally ill, as well as providing research collaborative opportunities nationally. There is ongoing input into NSW ACI initiatives as well as into working groups of Diabetes Australia, Australian Diabetes Society, NSW Ministry of Health and the Royal Australian and New Zealand College of Psychiatrists (RANZCP). Education has been provide by half to one day workshops to virtually all hospitals in the Sydney Metropolitan Area, and also to Newcastle, Dubbo, Orange, Perth and beyond. There has been international interest in the service.

The continued viability of these services and leadership roles must be contingent on adequate resources being injected. Currently, two of the diabetes educators in the Diabetes Education Centre have input at a state level. This occurs during non-hospital time and is unpaid.

**Opportunities for Providing Support and/or Linkages to Rural and Regional Districts**

RPA Endocrinology Department continues at this time in its teams of outreach services to Griffith three times yearly and Broken Hill and surrounds four times yearly. Teleconferences and other phone and IT support contacts are held in between the face-to-face consultations. With the increased focus on Telehealth as means to support health care in rural and regional areas, it is envisaged that this method of service will increase and facilitate patient care.

Concord Hospital Endocrinology is currently developing an outreach service for patients with osteoporosis. To this aim, negotiations with regional and rural hospitals are underway. With videoconferencing, medical support could be provided in the areas of general diabetes and diabetes
and mental health. The Department co-ordinates the CRGH General Practice Seminars and also the Cutting Edge Seminars for advanced trainees in Endocrinology. The role in providing education of Primary Health Care Professionals and those specifically training in diabetes and Endocrinology is a well regarded educational initiative of the Department. With appropriate funding and resources, it is anticipated that Endocrinology could play a larger role in providing these educational opportunities to regional and rural areas, for example via telemedicine and videoconferencing.

## Major Issues, Gaps, Deficiencies and Concerns

Consideration of each of the main ambulatory care services in Endocrinology indicates that demand for each of them is likely to grow annually in the order of 5-10%, specifically in diabetes, obesity and in conditions such as thyroid disease including cancer and metabolic bone disease.

A major challenge will be to best define how the ambulatory services in these conditions can be best utilised to integrate with care in the community, and to clearly define and enact referral pathways that make the most appropriate use of the Endocrinology multidisciplinary care. Achieving this outcome will require the development of a close working relationship with area general practice and Medicare Locals to integrate Endocrinology care from primary care through to secondary and tertiary care.

Due to an increase in diabetes, obesity, thyroid and bone disease in the general community, it is clear that staff number needs will increase in Endocrinology inpatient or ambulatory care. The challenge will be to utilise new technologies and community services to streamline Endocrinology care so that the people with conditions that require in-hospital and ambulatory care in diabetes centres and metabolic units will receive those services as required, delivered by a multidisciplinary team and that these services are integrated in turn with primary care.

Due to the growth and ageing of the population as well as changes in lifestyle, a significant increase is expected for osteoporosis, osteoporotic fractures and re-fractures. The cost of treating patients with these diseases will be exorbitant unless we begin thinking in preventative terms.

The technology to diagnose and treat osteoporosis is available and still growing. With the arrival of new treatments, curing osteoporosis is anticipated in the medium term. Despite these achievements, the overwhelming majority (>70%) of patients with osteoporosis goes undiagnosed and untreated. This is a particular problem in the elderly and in men.

Specific programs targeting the secondary prevention of osteoporotic fractures have been shown to be clinically and cost-effective. Still, there are too few of these services and the existing service at Concord Hospital is likely to be overwhelmed in the near future.

With the changing criteria for diagnosing gestational diabetes (GDM), prevalence will rise markedly and this will impact heavily on staffing resources, as will the increasing numbers with complex type 2 diabetes in young adults. The number of patients transitioning from Childrens’ hospitals with type 1 diabetes on insulin pump therapy, plus adults with diabetic foot ulcers requiring multidisciplinary care will also rise. None of these situations can be principally managed in primary care settings and as a result SLHD demand for specialist multidisciplinary specialist services in diabetes will increase,
requiring further innovative methods to address the high volume of care demanded, and yet delivering this as necessary at an individualised patient care level ensuring equity of access.

**Our Staff**

Research and educational activities are undertaken in addition to clinical service requirements, as time and opportunity allow. The Endocrinology Department have wide-ranging research interests from audits in care to molecular studies, with a series of links to the University of Sydney through the ANZAC Institute, the Boden Institute, the Bosch Institute, Endocrine Research Facility Translational Program and also the forthcoming Charles Perkins Centre. Many staff hold dual conjoint and honorary appointments, and several staff are also studying to complete their PhD, Masters and Honours awards. All research and teaching activities require time and effort not factored into FTE for many of the non-university staff.

**Forecast of the future service needs**

Ambulatory management and prevention of costly admissions for diabetes-related illness and diabetes complications (e.g. foot ulcers, amputations, cellulitis, hyperosmolar states, diabetic ketoacidosis and hypoglycaemia) is a necessity and will grow.

In terms of optimal management of cardiometabolic risk factors in the mentally ill, there needs to be a translation of inpatient intervention to the outpatient setting which is currently non-existent. There has been to date negligible support of any services in this important area. Future service needs must take into account not only the need to screen and treat patients but also provide sustained systemic solutions in the outpatient setting. As in diabetes, a multidisciplinary team is essential and funding will need to include allied health care professionals.

With diabetes reaching epidemic proportions in Australia and globally with no indication that the growth will plateau or decrease, technology (i.e. insulin pumps, continuous glucose monitoring, sophisticated blood glucose monitors, computer programs) is driving labour-intensive service demands. The new diagnostic criteria for gestational diabetes will also see an increase in the demand for medical, nursing and dietetic services.

Up to 50% of those with serious mental illness have diabetes or pre-diabetes, meaning that this group will have a particular demand for services to achieve a minimal standard of physical health care. The focus for diabetes education is acute care intervention, preventing hospital admissions (Hospital Avoidance Model) through patient self-care education, outpatient service, and telephone support and advice. The other focus is on chronic disease self-management where knowledge is central to making informed choices and health coaching facilitates action planning and goal achievement. With the establishment of Medicare Locals, there will be an increasing role for community support.
Obesity co-morbidities such as obesity hypoventilation syndrome and arthritis are leading to prolonged hospitalisation and increased need for joint replacements. By providing increased integrated multidisciplinary services targeted to these patient groups, which are accessed equitably by being patient centred, admissions to hospital as well as length of admission can be significantly reduced.

Increasing numbers of patients are being referred to Endocrinology services throughout the District for emerging endocrine problems requiring specialist advice and treatment. The increased use of brain and abdominal imaging has resulted in the detection of large numbers of previously unrecognised pituitary and adrenal lesions. The rational evaluation of these lesions is important to identify patients at risk of harm but also to avoid excessive investigation. It is also being increasingly recognised that a significant proportion of individuals diagnosed with essential hypertension have an underlying endocrine cause. If identified early, these patients can often be cured of their hypertension or their treatment rationalised such that their risk of long-term harm and the personal and economic cost of their management are considerably reduced. To address the needs of these patients across the District an Adrenal Endocrine service is being set up by a recently appointed specialist (Prof Mark Cooper, a conjoint appointment with the University of Sydney). Prof Cooper has a high profile background in the evaluation of the stress response during acute medical illness, a controversial and difficult area which will involve collaboration with a range of other specialties throughout the District as these services are developed.

Our Priorities

The following is an outline of the recommended service priorities for the next 5 years (2013-2018).

Royal Prince Alfred Hospital Endocrinology

Delivering high quality services in Endocrinology care in an accessible and equitable manner remains the focus for the next five or more years in RPA Endocrinology Department. Optimising quality and quantity of life for people with Endocrinology conditions by delivering upon their particular health care needs is the top priority of such health care delivery. Collaborating closely with the Inner West Sydney Medicare Local will be vital to future models of care. It is envisaged that the following approaches will aid in these outcomes. Resolving current shortfalls in staffing in medical and nursing and general administration is also a top priority to realise prospective supportive patient care.

Diabetes

- Seeking funding for the rapidly expanding area of need of diabetes in pregnancy.
- Consolidating the inpatient diabetes care in those people on insulin therapy to the approved basal bolus insulin (BBB) protocol developed by RPA Endocrinology.
- Developing sustainable health care delivery systems in diabetes; specifically in diabetes and pregnancy, high risk foot care, type 1 diabetes and pumps, and complex type 2 diabetes, streamlined to patient needs, and integrated with diabetes care through Medicare Locals and primary care, as well as in endocrine private
specialist care as required for quality and access.
- Providing leadership in diabetes multidisciplinary care models across the SLHD.
- Nurturing RPA Diabetes Centre as an IDF Health Professional Education Centre of Excellence and a centre of research excellence in diabetes and its complications.
- Refining rural and regional diabetes care services including in Telehealth, such as diabetes high risk foot care services.
- Current Diabetes Centre funding will need to be maintained to continue current services, which are running very efficiently; currently the Diabetes Centre requires recruitment to 1.0FTE senior diabetes nurse, a 0.8 FTE podiatrist, and 1.0 FTE medical support positions as this staff shortfall is placing much pressure on staff. We would work for an increase in nursing staff by 2 FTE to deliver inpatient services to an increasing percentage of people with comorbidities or pre-existing diabetes in pregnancy admitted to RPA.
- Addressing the severe shortage of access to highly specialised dietetic management required for the complex patients seen

**Obesity**

- Further developing multidisciplinary ambulatory obesity services across psychiatry, sleep, diabetes, rheumatology and chronic pain services.
- Developing support services for bariatric care across the area.
- Integrating obesity prevention and therapy with primary care, allied health and Medicare Locals.
- Increasing the number of multidisciplinary clinics and programs to manage obesity and its co-morbidities in an integrated fashion

**General Endocrinology**

- Optimising triaging of Endocrinology care in thyroid, adrenal and pituitary to aid patient access to ambulatory specialist services;
- One 1.0 FTE medical support for general Endocrinology and one 1.0 FTE administrative officer have to be added for the Service to maintain the current ongoing and forthcoming increasing demand.
- Providing leadership in general endocrine care
- Leading local research in clinical Endocrinology
- Enhancing diagnostic capacity with integration of laboratory support
- Promoting public health messages in general Endocrinology, i.e. iodine deficiency in pregnancy, adrenal insufficiency and pituitary disorders.
- Further integrating multidisciplinary endocrine care with obstetrics, thyroid surgery, pituitary neurosurgery, adrenal surgery and bone fracture clinics.

**Concord Hospital Endocrinology**

**General Endocrinology**

- Securing funding for an increase in medical and nursing staff is required to match increasing demand.
o Maintaining focus on patient care by streamlining administration.

o Maintaining focus on high quality research with appropriate high-level output. Maintaining the current high standard of research training both at the clinical and basic research levels (PhD students).

o Maintaining high standard of medical and nursing training. Increase number of advanced trainees from currently 3.5 to 5.0 by 2018.

o Maintain high level of BPT training at CRGH by participating in BPT education (SCORPIOs etc.)

Bone and Mineral Disorders and Endocrine Nursing

o Providing leadership in osteoporosis multidisciplinary care models across the SLHD and NSW. This includes developing specific programs targeting the secondary prevention of osteoporotic fractures, both here in Concord and in NSW (outreach services). Secure funding for the existing service at Concord Hospital (a 1.0FTE medical position is required in 2-3 years).

o Maintaining high level diagnostic facilities (osteodensitometry; laboratory investigations).

Diabetes

o Increase in medical and nursing staff to address the increased number of those with diabetes and advances in technology and to co-ordinate clinics such as diabetes lifestyle intervention clinics, transition/insulin pump clinics, community and hospital psychiatry-cardiometabolic intervention clinics and combined circadian-metabolic disease clinics.

o With the move of Rozelle Hospital physically to the Concord Hospital site there is a need for funding for staff specialist (0.4 FTE) and registrar (1 FTE) to provide a combined endocrine-psychiatry clinical service.. Data indicates that up to 50% may have diabetes or pre-diabetes, the majority smoke and are obese. Mortality and morbidity rates are unacceptably high. This integrated service has and needs to provide leadership in the care of the mental health population, not only across SLHD but also statewide and nationally.

o Securing funding and support to achieve appropriate number of dietitians, exercise physiologists, psychologists and podiatrists to enable referral to the multidisciplinary team and equity of access.

o Developing linkages with psychiatric services to provide clinical management, recognising the potential difficulties and unique needs in managing this group.

o Establishing linkages with psychiatric training programmes to provide appropriate training to doctors, nurses and other health professionals. Currently this is still at an ad hoc level and not part of the curriculum required by the RANZCP.

o Sourcing financial support for purchase of new technologies.

o Supporting educational opportunities for staff to upskill in advanced technology.

o Investigating further clerical support to keep pace with the new demands of Activity Based Funding.

o Advocating via current site master-planning activities for future proofing by extending...
the diabetes nursing service needs to be considered as space is extremely limited – including demands on patient consultation areas, and staff accommodation.

**Obesity Services – Metabolic Rehabilitation Diabetes Program and Bariatric Surgery Program**

- Increasing the number of clinics as well as the type of programs, e.g. Metabolic Rehabilitation Obesity Nocturnal Hypoventilation Program and Metabolic Rehabilitation Arthritis Program.
- Expanding on-site supervised exercise classes within an ambulatory care centre.
- Increasing the number of bariatric surgery interdisciplinary clinics as well as the number of publically funded operations performed.

**Concord Hospital Andrology**

- Providing leadership in Andrology care models across the SLHD.
- Appointing additional, younger medical staff for succession planning and continuity of clinical expertise.
- Extending opportunities for training Andrology fellows for selected advanced speciality trainees in Endocrinology, Gynaecology &/or Urology.
- Accrediting an Andrology nurse practitioner
- Extending the sperm cryostorage program to form the basis of a state-wide service

**Canterbury Hospital Endocrinology**

- Enhancing communication lines between current staff at Canterbury and the endocrine specialist staff at the other hospitals. Transition to an on-call service in Endocrinology sited at Canterbury Hospital.
- As at the other hospitals, the increased demand which will be produced by diabetes, osteoporosis and obesity will be felt at Canterbury Hospital. Plans will need to be made for specialised diabetes services, osteoporosis care, diabetes prevention and obesity management to be based at Canterbury Hospital. This is detailed below.

**Diabetes**

- Re-evaluating of multidisciplinary diabetes care is required, including the need for public clinics, increasing staff (medical, diabetes educators, trained nurses and exercise physiologists) to provide equitable high quality care. Basic and advanced trainees form RPA and Concord could attend to provide further training opportunities.
- As advanced blood glucose monitoring systems and Insulin pumps have become available better technology is required for downloading blood glucose levels and continuous blood glucose monitoring systems data for interpretation and patient care.
- Addressing the severe shortage of dietetic services. Currently there are no lifestyle interventions clinics.
o Allocation of more time to diabetes and Endocrinology services in the general outpatient clinics at the hospital to meet with the increased demands on the diabetes and Endocrinology services.

**Gestational Diabetes**

o Advocating for increased clinical space and upgrading technology support via site masterplanning activities.

**General Endocrinology and Osteoporosis**

o Exploring the development of a secondary fracture prevention clinic as per ACI’s recommendations. Setting up such a clinic will require liaison with the orthopaedics and geriatrics teams and a pathway for identification of such patients.