

Why RMH Diabetes and Endocrinology is a Centre of Excellence

Peter Colman, on behalf of the whole team

Diabetes and Endocrinology
Royal Melbourne Hospital

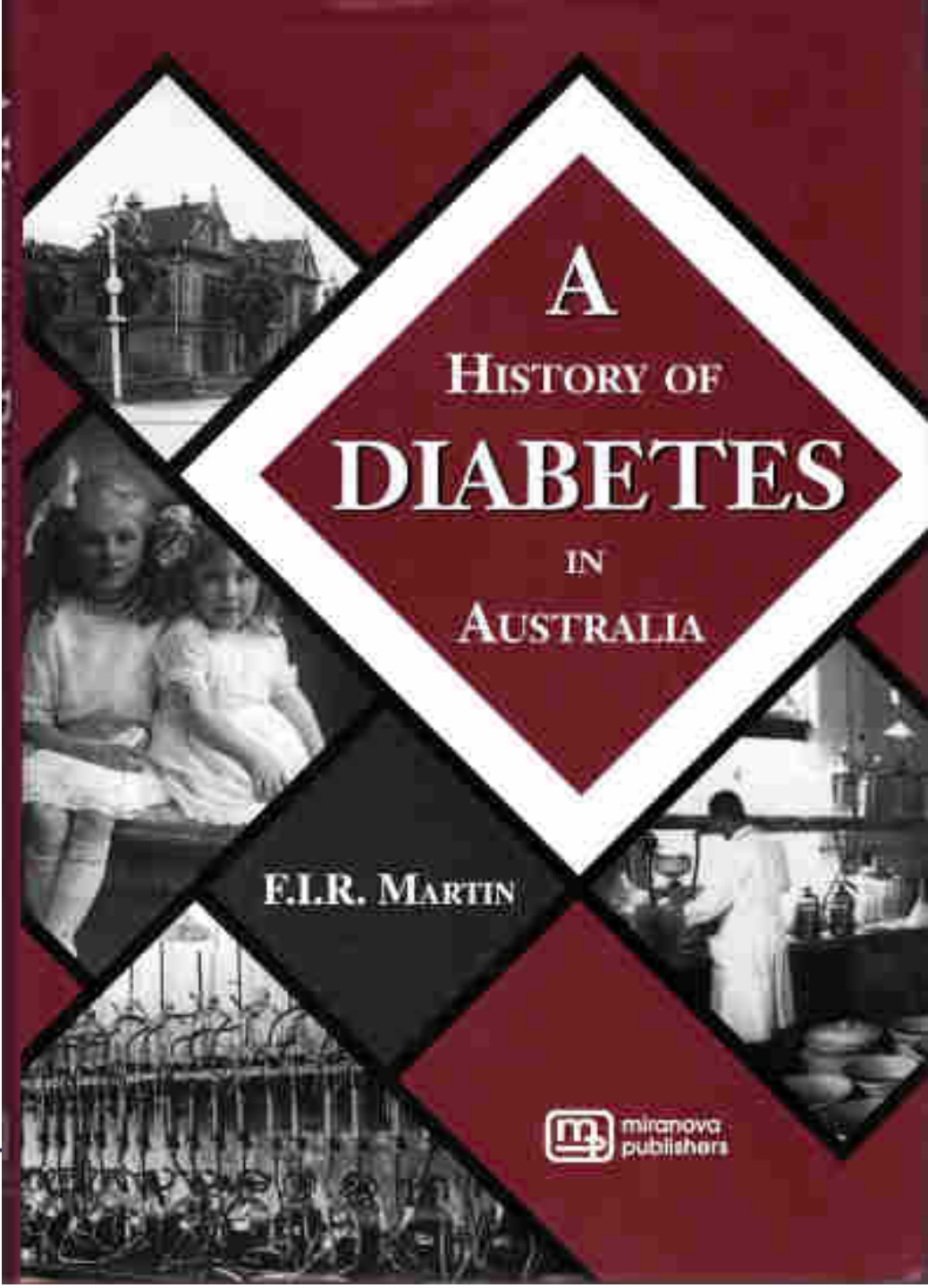


The Royal
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Frank Ian Russell Martin
'Skip'
15-4-1929 - 16-9-2008



First in Care,
Research and
Learning



E HEALTH



History

- 1926 Nurses instruction clinic established to help people with diabetes give injections and cope with condition
- 1927 Dr John Williams – Honorary Physician to the diabetes clinic
- 1929 Dietician appointed and Diet Kitchen
- 1951 Pincus Taft appointed
- 1961 FIR Martin appointed
- 1978 Sue North appointed as first Diabetes Nurse Educator
- 1980 Len Harrison appointed Director of Endocrine Laboratory
- 1985 Diabetes Education Centre opened in Wreckyn Street

RMH History – who – Registrars

Stocks

Perry-Keene

Cohen

Colman

Nolan

Sinha

Wright

Alford

De Luise

Lillioja

Kay

Leedman

Conn

Fourlanos

Larkins

Hoffman

Proietto

D'Emden

Harmelin

Bate

Wentworth

The Diabetes Centre (1980's to 2015)



Patient Centred Care In Action

A patient survey form titled "Patient Survey". It includes a header with the Melbourne University logo and the text "We listen. We learn. We improve." Below the title, there are several sections with checkboxes and text, including "I feel safe in my care", "I feel respected", and "I feel involved in my care". There are also some handwritten notes at the bottom.A patient information leaflet (PIL) with a blue header. It contains several paragraphs of text, likely providing information about a medical procedure or treatment. The text is small and difficult to read.



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Areas in which we Excel



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Diabetes Education Services



Inpatient Service



Specialist Outpatient
Clinic Consultations



Individual Outpatient
Consultations



Ambulatory Insulin
Stabilisation Program



Pump and Diabetes
Technology



Continuous Glucose
Monitoring

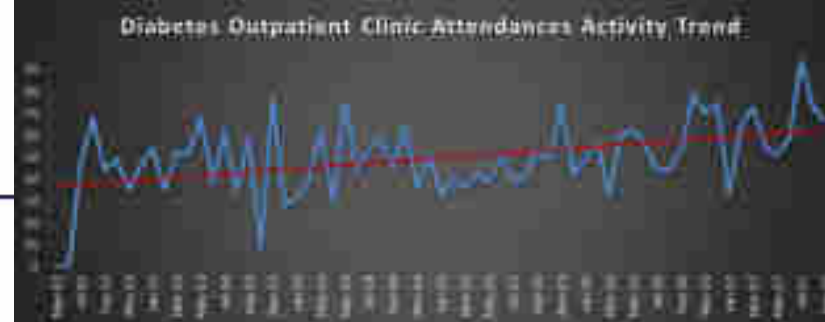
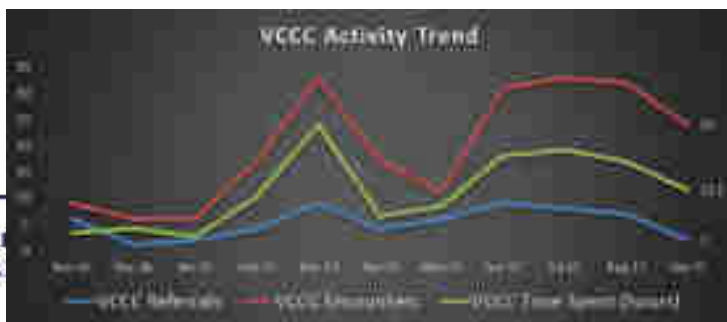
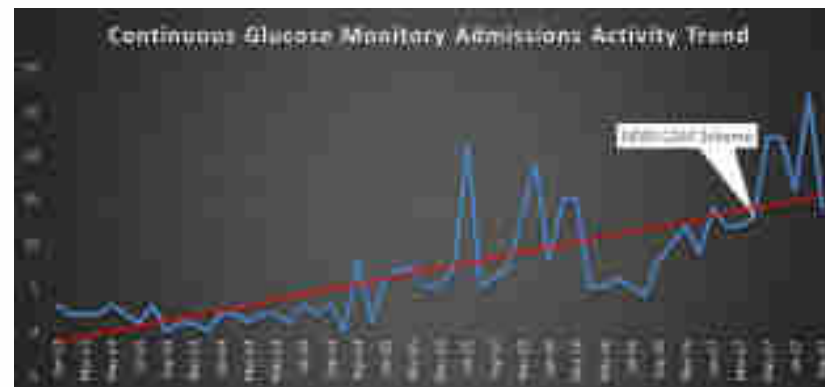
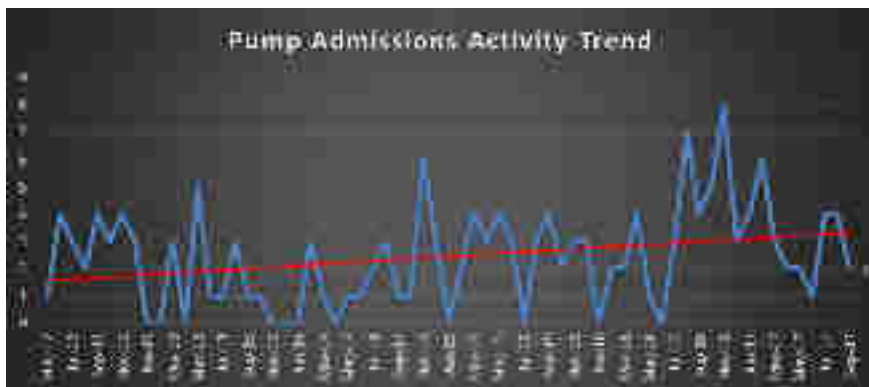
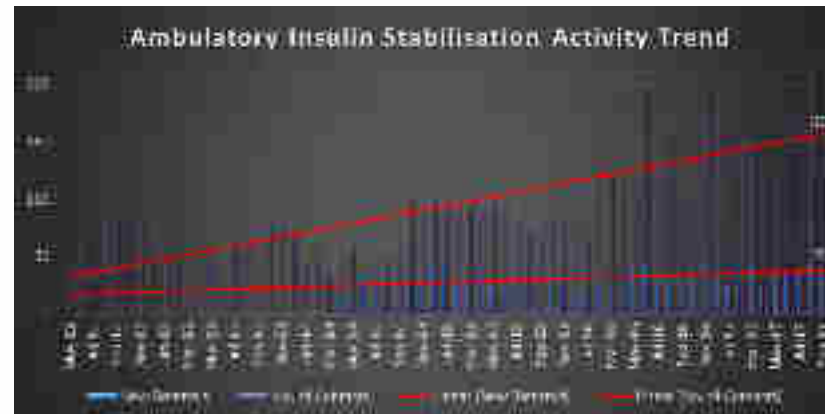
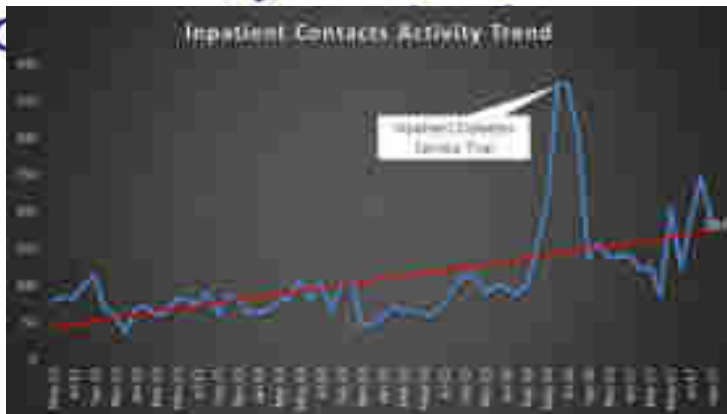


Quality Improvement
and Research

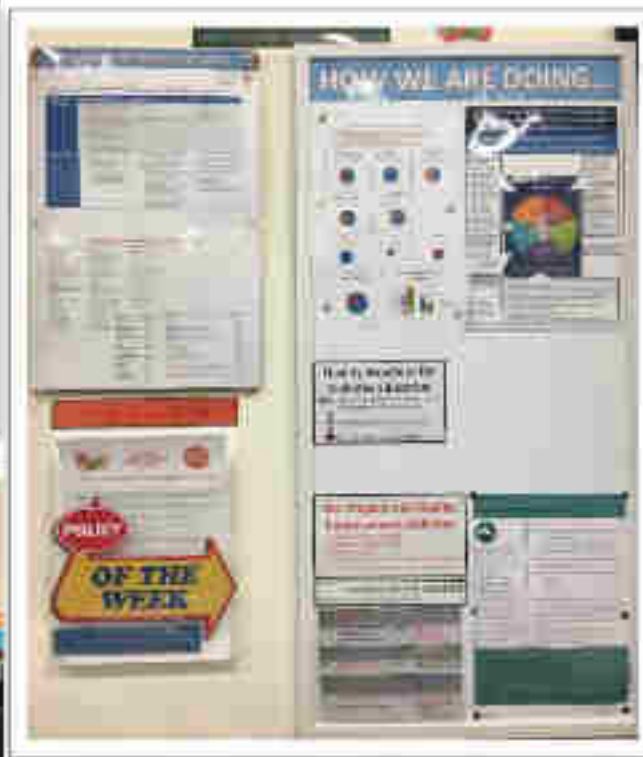
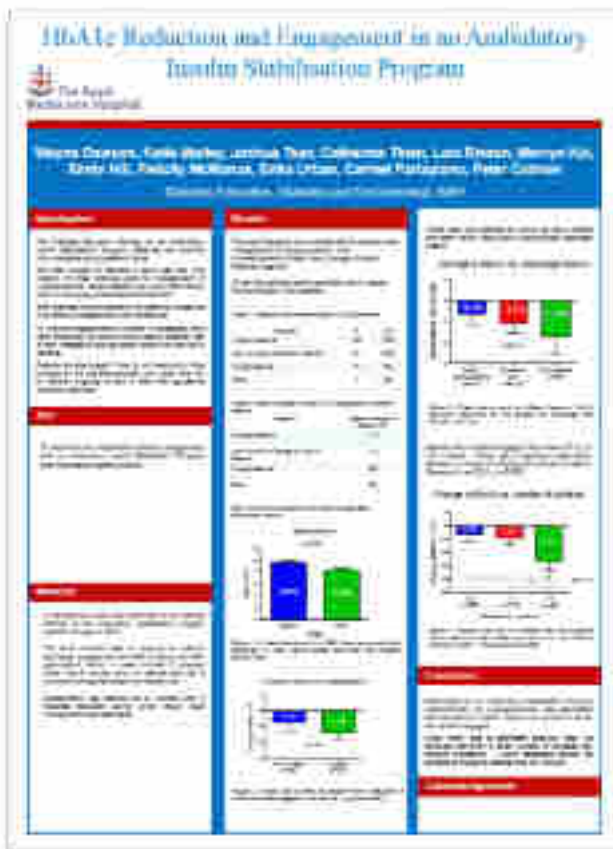


Health Professional
Education and Training

Diabetes Education Activity



Evidence based practice and quality improvement





Community Engagement, Collaboration and Education



Summary	Lead	Owner	Start	End	Project Lead
Public Engagement	Development of a public engagement strategy for the University of Melbourne's research and education activities.	Public Engagement	2018	2020	Dr. Jane Mangan
Public Health	Public Health Strategy for the University of Melbourne, including a focus on community engagement and education.	Public Health	2018	2020	Dr. Jane Mangan
Public Health	Public Health Strategy for the University of Melbourne, including a focus on community engagement and education.	Public Health	2018	2020	Dr. Jane Mangan



Pathways Program

- 1. **Public Health**
- 2. **Community Engagement**
- 3. **Education**
- 4. **Research**
- 5. **Leadership**
- 6. **Global Health**
- 7. **Health Equity**
- 8. **Health Systems**
- 9. **Health Services**
- 10. **Healthcare Delivery**
- 11. **Healthcare Quality**
- 12. **Healthcare Safety**
- 13. **Healthcare Innovation**
- 14. **Healthcare Policy**
- 15. **Healthcare Regulation**
- 16. **Healthcare Economics**
- 17. **Healthcare Law**
- 18. **Healthcare Ethics**
- 19. **Healthcare Communication**
- 20. **Healthcare Management**
- 21. **Healthcare Administration**
- 22. **Healthcare Finance**
- 23. **Healthcare Information Systems**
- 24. **Healthcare Research**
- 25. **Healthcare Education**
- 26. **Healthcare Training**
- 27. **Healthcare Professional Development**
- 28. **Healthcare Leadership Development**
- 29. **Healthcare Innovation Development**
- 30. **Healthcare Policy Development**
- 31. **Healthcare Regulation Development**
- 32. **Healthcare Economics Development**
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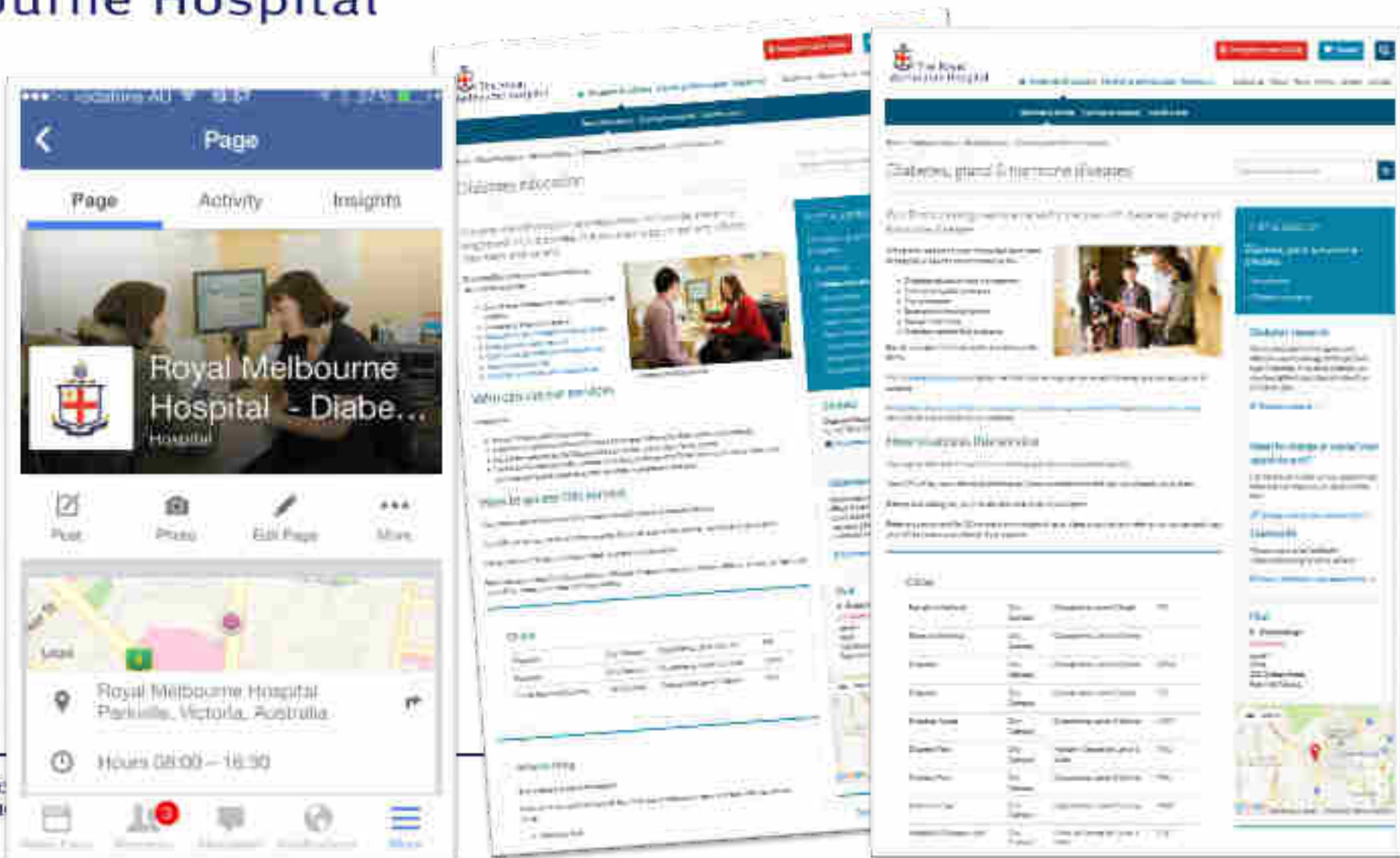
Team Spirit and Staff Recognition





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Diabetes Website





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Diabetic Foot Unit



- 25% of inpatients have diabetes
- 20% of these patients have active foot problems
- Patients with primary diagnosis of diabetes and foot problems admitted under multiple units
- No standardised assessment or management



Shan Lawrence

Internal Medicine Journal 2004; 34: 229–233

ORIGINAL ARTICLE

Assessment and management of inpatients with acute diabetes-related foot complications: room for improvement

S. M. LAWRENCE,¹ P. R. WRAIGHT,¹ D. A. CAMPBELL² and P. G. COLMAN¹

¹*The Department of Diabetes and Endocrinology and* ²*Clinical Epidemiology and Health Services Evaluation Unit, The Royal Melbourne Hospital, Melbourne, Victoria, Australia*

Diabetes and Foot Management 1999- 2000

- Ugly
- Assessment, investigation and clinical management highly variable
- Average length of stay 17 days
- Minor amputation 36%; major amputation 11%



Paul Wright, MBBS, FRACP, PhD

IDM

DOI: 10.1111/j.1464-5491.2004.01362.x

Creation of a multidisciplinary, evidence based, clinical guideline for the assessment, investigation and management of acute diabetes related foot complications

P. R. Wright*, S. M. Lawrence*†, D. A. Campbell† and P. G. Colman*

Diabetic Medicine 22: 127-136, 2004



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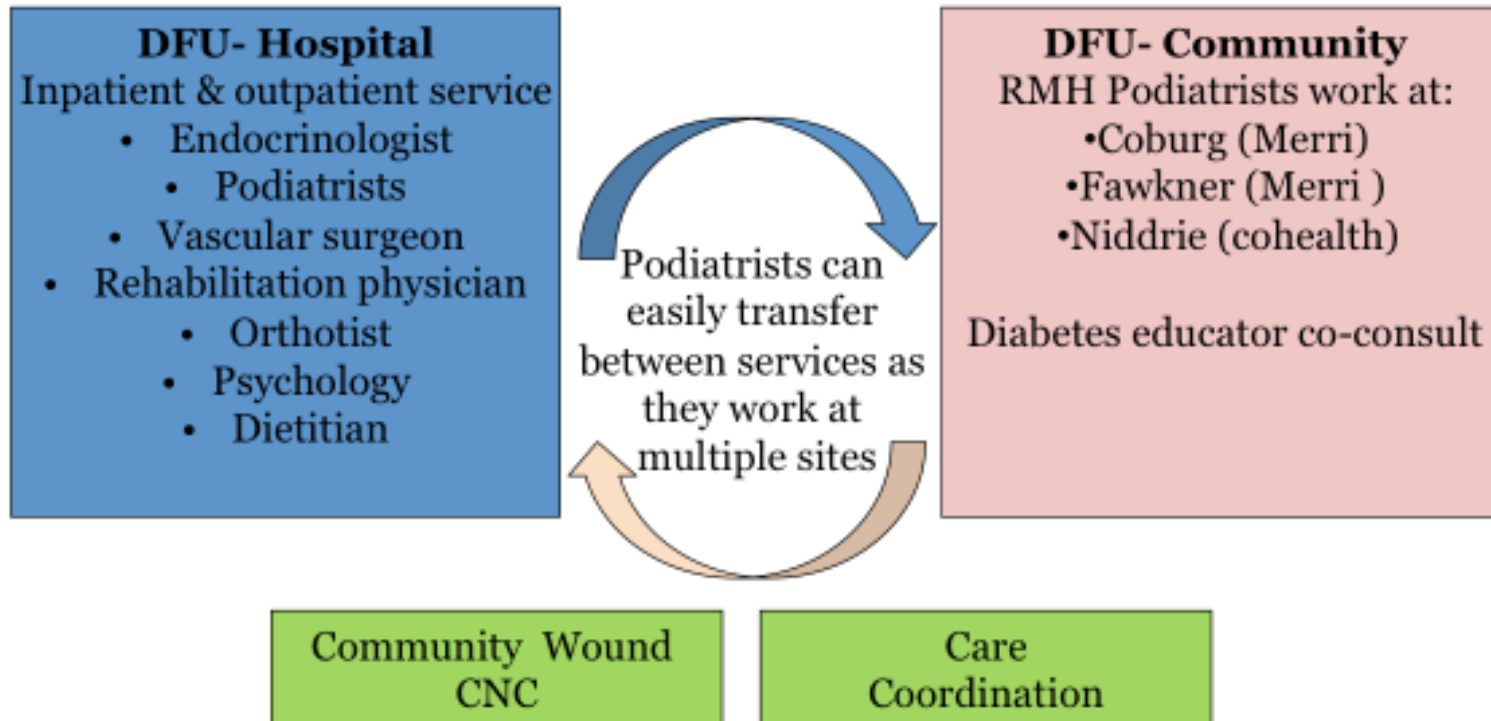
Diabetic Foot Unit

Head of Unit
A/Prof Paul Wraight
Endocrinologist

Team Leader
Eva Staunton
Podiatrist

First in Care

- Interdisciplinary service for diabetes related foot complications, a leading cause for hospital admission for people with diabetes.



Diabetic Foot Unit

Head of Unit
A/Prof Paul Wraight
Endocrinologist

Team Leader
Eva Staunton
Podiatrist

First in Research

- Charcot Neuroarthropathy's treatment research (Multisite VIC/NSW/QLD)
- Advanced Practice Podiatry endorsement program (DHHS Grant)
- Silver dressing Randomised control Trial

First in Learning

- A/Prof Paul Wraight- Diabetic Foot Australia co-chair
 - Empowering Australia to become a leading nation in DFU management
- Australian Diabetes Society
 - NDSS foot video project

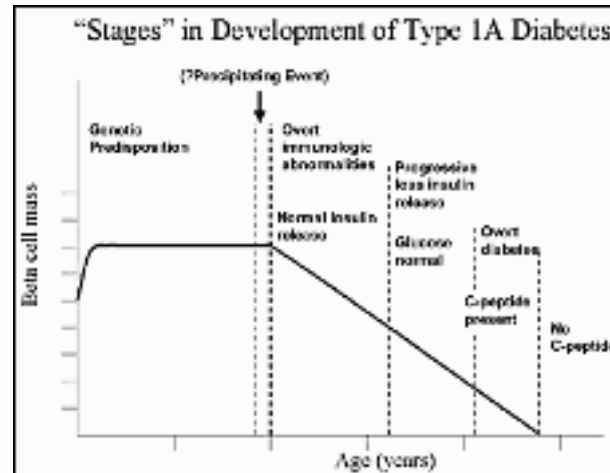


Clinical and Basic Research

- Preclinical type 1 diabetes prediction and prevention
- Inpatient Diabetes Research
- Clinical Trials/Multicentre Research



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Eisenbarth, 1986





A Clinical Screening Tool Identifies Autoimmune Diabetes in Adults

STEFOS FOURLANOS, MD^{1,2}
CHRISTINE PERRY, MD¹
MARK S. STEIN, MD²

JIN STANKOVICH, MD³
LEONARD C. HARRISON, MD¹
PETER G. COLMAN, MD^{1,2}

Research

The Melbourne Pre-Diabetes Study: prediction of type 1 diabetes mellitus using antibody and metabolic testing

Peter G. Colman, Peter McNair, Heather Margells, Robert B. Schmidl, George A. Werther, Frank F. Allford, Glenn M. Ward, Brian D. Tait, Margo C. Honeyman and Leonard C. Harrison

Islet autoimmunity in infants with a Type 1 diabetic relative is common but is frequently restricted to one autoantibody

P. G. Colman¹, C. Steele², J. J. Couper³, S. J. Beresford¹, T. Powell¹, K. Kewming⁴, A. Pollard⁵, S. Gellert⁴, B. Tait⁴, M. Honeyman², L. C. Harrison³

Diabetologia (2004) 47:1661–1667
DOI 10.1007/s00125-004-1507-3

Diabetologia

Articles

Insulin resistance is a risk factor for progression to Type 1 diabetes

S. Fourlanos¹ · P. Narendran^{1,2} · G. B. Byrnes³ · P. G. Colman² · L. C. Harrison¹



Make it a family affair.
Get screened for risk of type 1 diabetes today.

Type 1
Diabetes
TrialNet

[Learn More >>](#)

Type 1
Diabetes
TrialNet

Investigators - Peter Colman and John Wentworth
Coordinators - Felicity Healy and Leanne Redl



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TrialNet ANZ sites



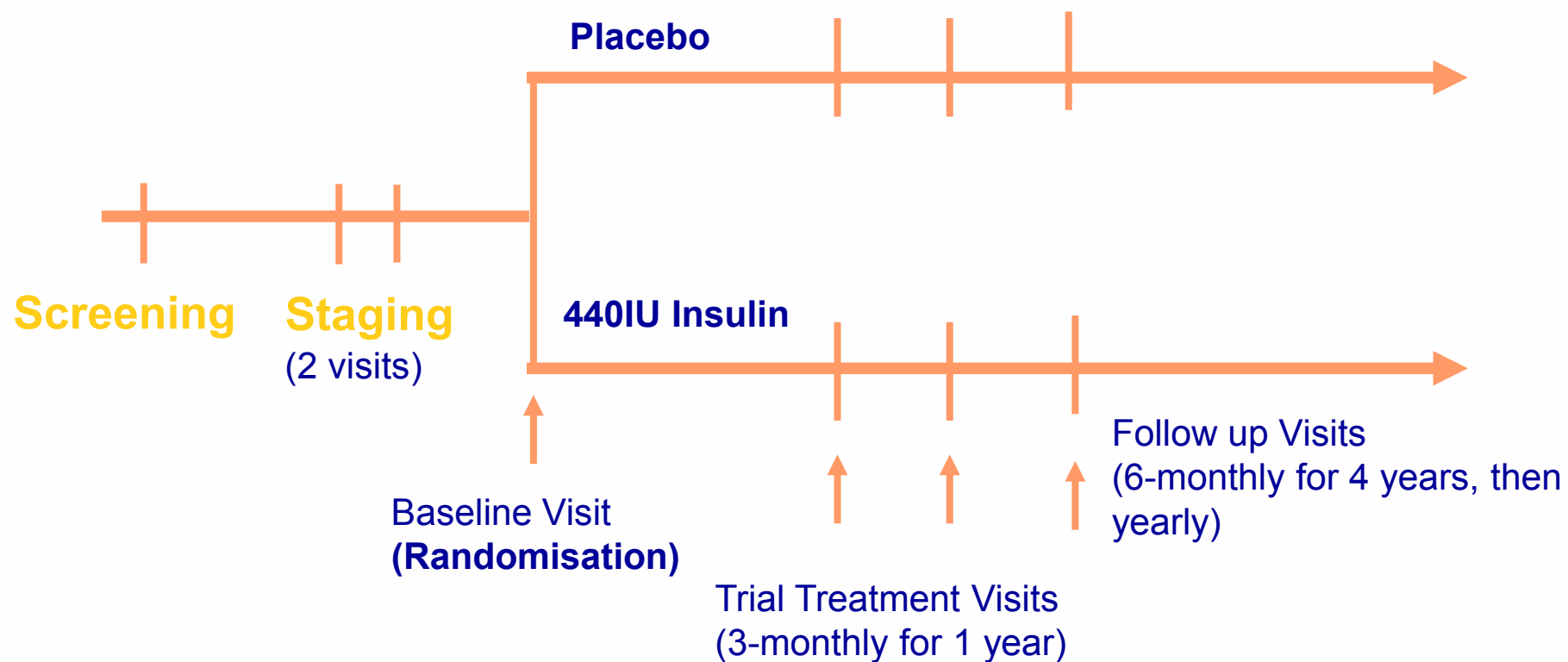


Environmental determinants of islet autoimmunity (ENDIA)

Why are more children getting
Type 1 Diabetes?

Investigators – Len Harrison, Peter Colman and John Wentworth

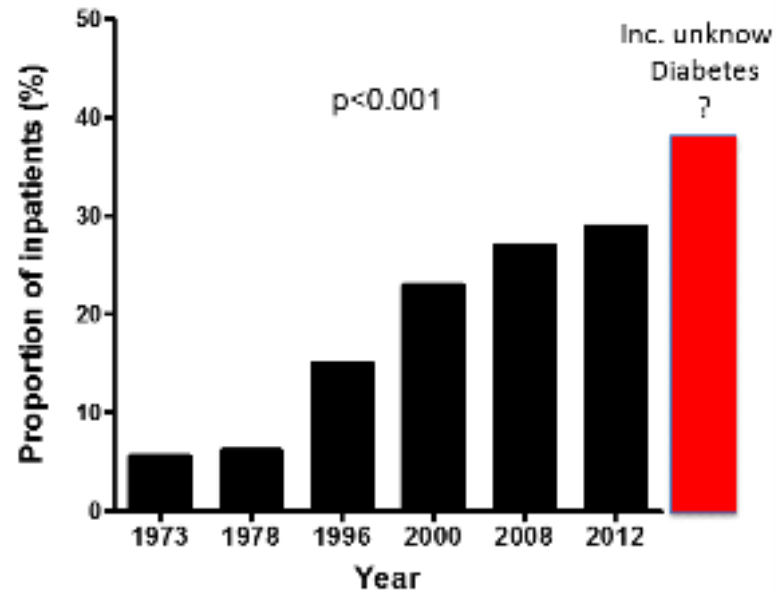
Coordinators – Jane French, Sheryl Curran, Azita Keytash and Megan Poth





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Hospital Diabetes

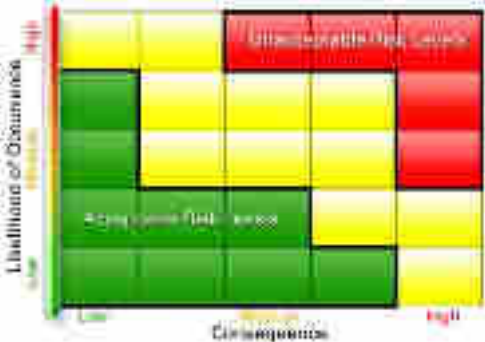


Hospital Diabetes – the consequences



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Adverse Glycaemia



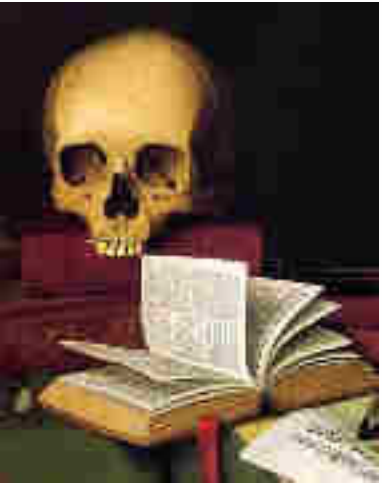
Patient dissatisfaction



Staff dissatisfaction



Wound infection



Mortality



Increased LOS



Increased Cost



Diabetes in RMH inpatients: progress summary

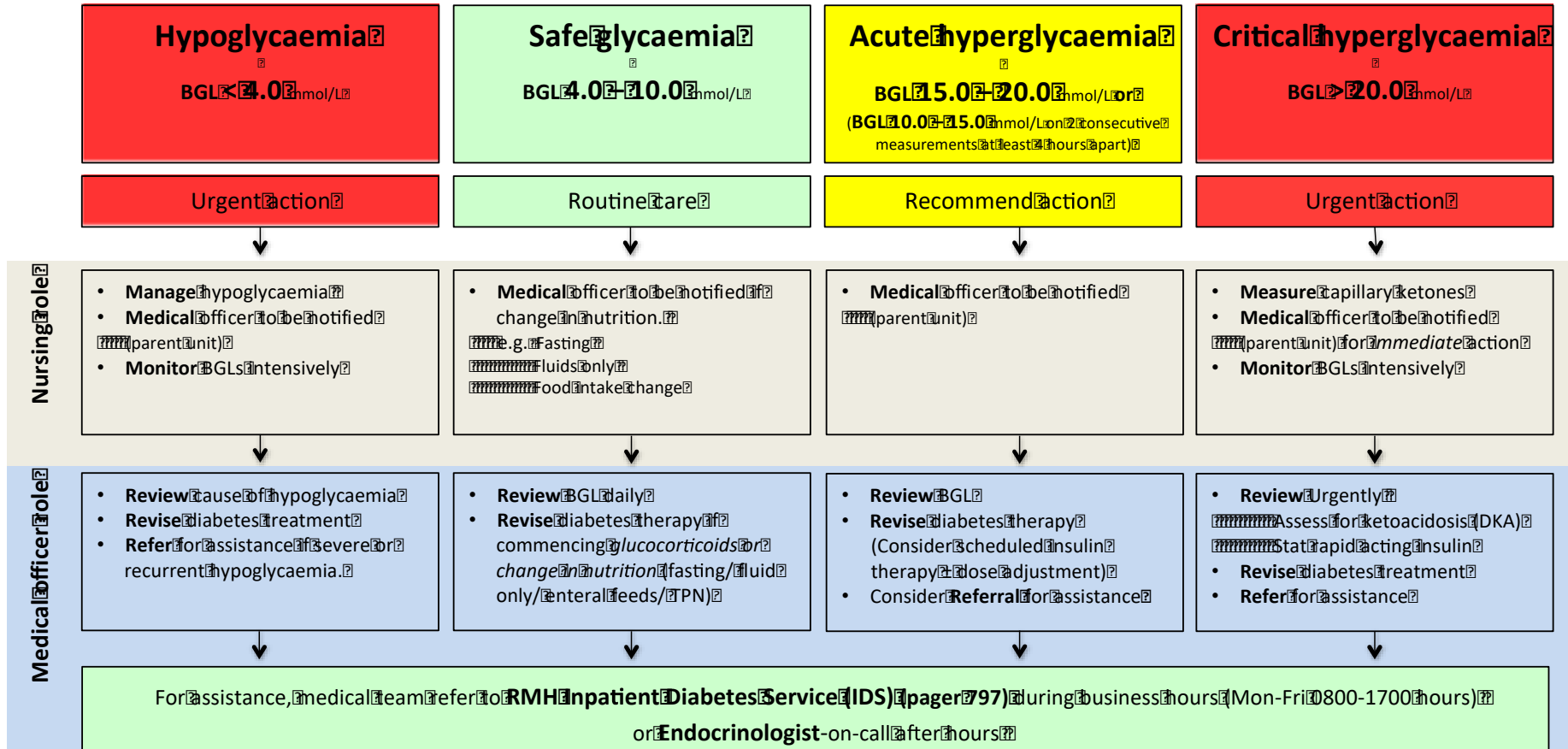
Year	Activity
2012	High diabetes prevalence at RMH (>30% inpatients)
2013-14	Adverse glycaemia & increased LOS identified
2015	Networked BG meters (NBGM) and glucose alert pathway (GAP) trial
2016	Proactive inpatient diabetes service randomised trial (RAPIDS)
2017	Perioperative diabetes management plan (PDMP) observational trial
2018	Pro-Diab Cardiology observational trial to be completed



RMH Inpatient Diabetes Service (IDS) Glucose Alert Pathway

Target BGL: 4.0-10.0 mmol/L*

*Recommended target blood glucose level (BGL) for general inpatient with diabetes. In special situations (e.g. patients with delirium, recurrent hypoglycaemia or under palliative care) different targets may apply. In these situations, consult the parent team for target BGL range.



Proactive care: bundle of interventions

1. Networked Blood Glucose Meters (NBGM)
2. Guidelines for treating teams (Glucose Alert Pathway)
3. Proactive Inpatient Diabetes Team

Team	Endocrinology fellow + Diabetes nurse practitioner (Endocrinologist oversight)
Patient Identification	Remote & electronic identification
Consult service	Without referral & early (aim within 24h of admission)
Response	Direct prescription of medications and insulin Individualised approach



Large RCT of inpatient diabetes care in non-critical care

Proactive care:

- Decreased Adverse Glycaemic Days by 24%
- Decreased Hyperglycaemia
- No increase in hypoglycaemia
- Decrease in hospital acquired infection

Diabetes Clinical Research

- New insulins
- New insulin pumps
- New tablets for type 2 diabetes
- New treatments for complications of diabetes
- New treatments for foot complications
- Prevention of type 2 diabetes



Melbo

removal

TYPE 1 DIABETES



DIRECT

Sotagliflozin LX4211-312
(inTandem3)

ADJUNCT ONE™

DREAM

ORIGIN

EXSCEL



Carolina – Linagliptin v
Glimepiride CV safety

TECOS



TRIAL EVALUATING CANNOVASDUAL
OUTCOMES WITH SITA...

CANVAS

CANagliptin cardioVascular
Assessment Study

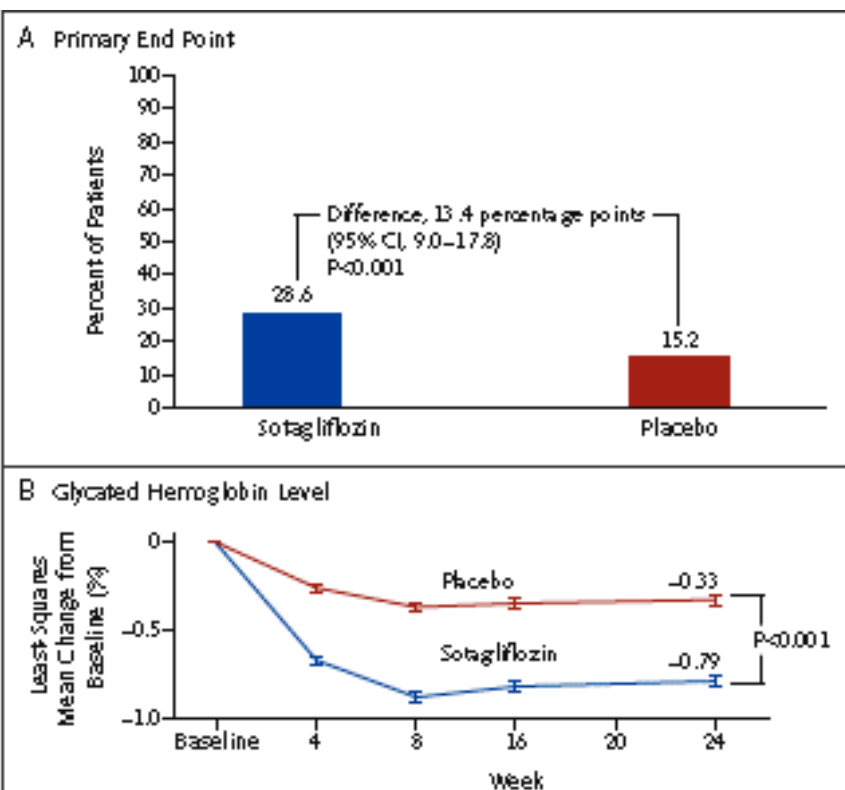
aerx

 IDMS

Effects of Sotagliflozin Added to Insulin in Patients with Type 1 Diabetes

Satish K. Garg, M.D., Robert R. Henry, M.D., Phillip Banks, M.S., John B. Buse, M.D., Ph.D., Melanie J. Davies, M.D., Gregory R. Fulcher, M.D., Paolo Pozzilli, M.D., Diane Gesty-Palmer, M.D., Ph.D., Pablo Lapuerta, M.D., Rafael Simó, M.D., Ph.D., Thomas Danne, M.D., Darren K. McGuire, M.D., M.H.Sc., Jake A. Kushner, M.D., Anne Peters, M.D., and Paul Strumph, M.D.

NEJM, Sept 13th, 2017



Effects of Once-Weekly Exenatide on Cardiovascular Outcomes in Type 2 Diabetes

NEJM, Sept 27th, 2014

Rury R. Holman, F.Med.Sci., M. Angelyn Bethel, M.D., Robert J. Mentz, M.D., Vivian P. Thompson, M.P.H., Yuliya Lokhrygina, Ph.D., John B. Buse, M.D., Ph.D., Juliana C. Chan, M.D., Jasmine Choi, M.S., Stephanie M. Gustavson, Ph.D., Nayyar Iqbal, M.D., Aldo P. Maggioni, M.D., Steven P. Marso, M.D., Peter Ohman, M.D., Ph.D., Neha J. Pagidipati, M.D., M.P.H., Neil Poulter, F.Med.Sci., Ambady Ramachandran, M.D., Bernard Zinman, M.D., and Adrian F. Hernandez, M.D., M.H.S., for the EXSCEL Study Group*

Table 1. Rates of the Primary Composite Outcome and Key Secondary Outcomes.*

Outcome	Exenatide (N=7356)		Placebo (N=7396)		Hazard Ratio (95% CI)†
	Patients with Event	Incidence Rate of First Event	Patients with Event	Incidence Rate of First Event	
	no. (%)	no. of events/100 patient-yr	no. (%)	no. of events/100 patient-yr	
Primary composite outcome	839 (11.4)	3.7	905 (12.2)	4.0	0.91 (0.83–1.00)
Secondary outcomes					
Death from any cause	507 (6.9)	2.0	584 (7.9)	2.3	0.86 (0.77–0.97)
Death from cardiovascular causes‡	340 (4.6)	1.4	383 (5.2)	1.5	0.88 (0.76–1.02)
Fatal or nonfatal myocardial infarction	483 (6.6)	2.1	493 (6.7)	2.1	0.97 (0.85–1.10)
Fatal myocardial infarction§	17 (0.2)	—	13 (0.2)	—	1.29 (0.63–2.66)
Fatal or nonfatal stroke	187 (2.5)	0.8	218 (2.9)	0.9	0.85 (0.70–1.03)
Fatal stroke¶	18 (0.2)	—	25 (0.3)	—	0.71 (0.39–1.30)
Hospitalization for heart failure	219 (3.0)	0.9	231 (3.1)	1.0	0.94 (0.78–1.13)
Hospitalization for acute coronary syndrome	602 (8.2)	2.6	570 (7.7)	2.5	1.05 (0.94–1.18)



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News in Diabetes & Endocrinology Research at the RMH

RESEARCH NEWS

Speakers at the QIVM and RMCNA sites were recently presented at the ADS in San Diego.

Canagliflozin Cardiovascular Risk Study (CANVAS) - The key findings were a significant reduction in the primary composite cardiovascular outcome of cardiovascular death, hospitalisation for stroke, MI, or significant heart failure demonstrated in the secondary outcomes of all cause mortality and hospitalisation. In light of the data for overall mortality, the data for overall cardiovascular mortality suggest a benefit, particularly in the high risk and high degree. Canagliflozin was also shown to reduce the risk of lower limb amputation resulting in a potential for public attention.

Relating with Metformin for a better outcome in Type 2 Diabetes (REMOVAL) - The primary outcome of a reduction in cardiovascular morbidity and mortality was not significant and the results did not support the use of metformin to improve glycemic control in a cohort with long standing type 2 diabetes. Secondary outcomes were not significant. However, the authors suggest that long term use of metformin in type 2 diabetes might reduce the long-term risk of cardiovascular disease in people with sustained diabetes. In fact, weight and DL strategies.

NEW STUDIES

2 Year study of Metformin for Type 2 Diabetes Mellitus (Diabetes) -

2 Year study of Metformin for Type 2 Diabetes Mellitus (Diabetes) -



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Teaching and Training



ENHANCING YOUR CONSULTING SKILLS

Supporting self-management and optimising
mental health in people with type 1 diabetes

Presented by Dr. [Name] and Dr. [Name]



eds

www.royalmelbourne.edu.au

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Technology



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Pump clinic - 2001



Why we started doing pumps

- Patient desire
 - US experience
 - Internet, television and print media
 - Miss USA
 - Scientific literature
 - Significant difficulties despite trying everything with multidose insulin



Diabetes Education Services



Inpatient Service



Specialist Outpatient
Clinic Consultations



Individual Outpatient
Consultations



Ambulatory Insulin
Stabilisation Program



Pump and Diabetes
Technology



Continuous Glucose
Monitoring



Quality Improvement
and Research



Health Professional
Education and Training



The closed loop consortium



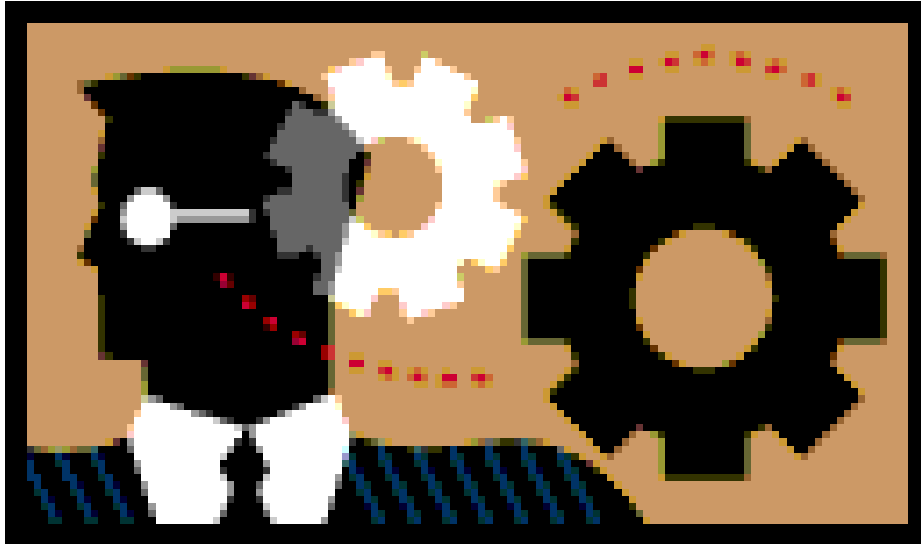
To evaluate the efficacy and cost-effectiveness of long-term hybrid closed loop (HCL) insulin delivery vs standard therapy (MDI/CSII) to improve glycaemia, psychosocial well-being, sleep quality, cognition, and biochemical markers of vascular risk in people with type 1 diabetes



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Data – clinical, research

1996 – while collecting data for Australian National Diabetes Information and Benchmarking



Wouldn't it be a good
idea if we collected
this information
constantly



Long term risk of severe retinopathy in childhood-onset type 1 diabetes: a data linkage study

Mary White^{1,2}, Matthew A Sabin^{1,3}, Costan G Magnusson^{4,5}, Michele A O'Connell¹, Peter G Colman^{1,6}, Fergus Cameron¹

The known Microvascular complications in people with type 1 diabetes mellitus are directly related to glycaemic control.

The new This is the first study to assess the risk of complications in people with type 1 diabetes according to their glycaemic control trajectory between childhood and adulthood. Severe diabetic retinopathy (SDR) was associated with higher paediatric HbA_{1c} levels, independent of glycaemic control during adulthood. Importantly, SDR was not documented in patients with a stable low glycaemic control trajectory.

The implications Target-based treatment from the time of diagnosis of type 1 diabetes in childhood is required to reduce the risk of SDR during adulthood.

MJA 206; 15th May 2016



**NATIONAL
ASSOCIATION
OF
DIABETES CENTRES**

Home

Membership

Projects

Member Benefits

Accreditation

ANDA

Newsletters and Resources

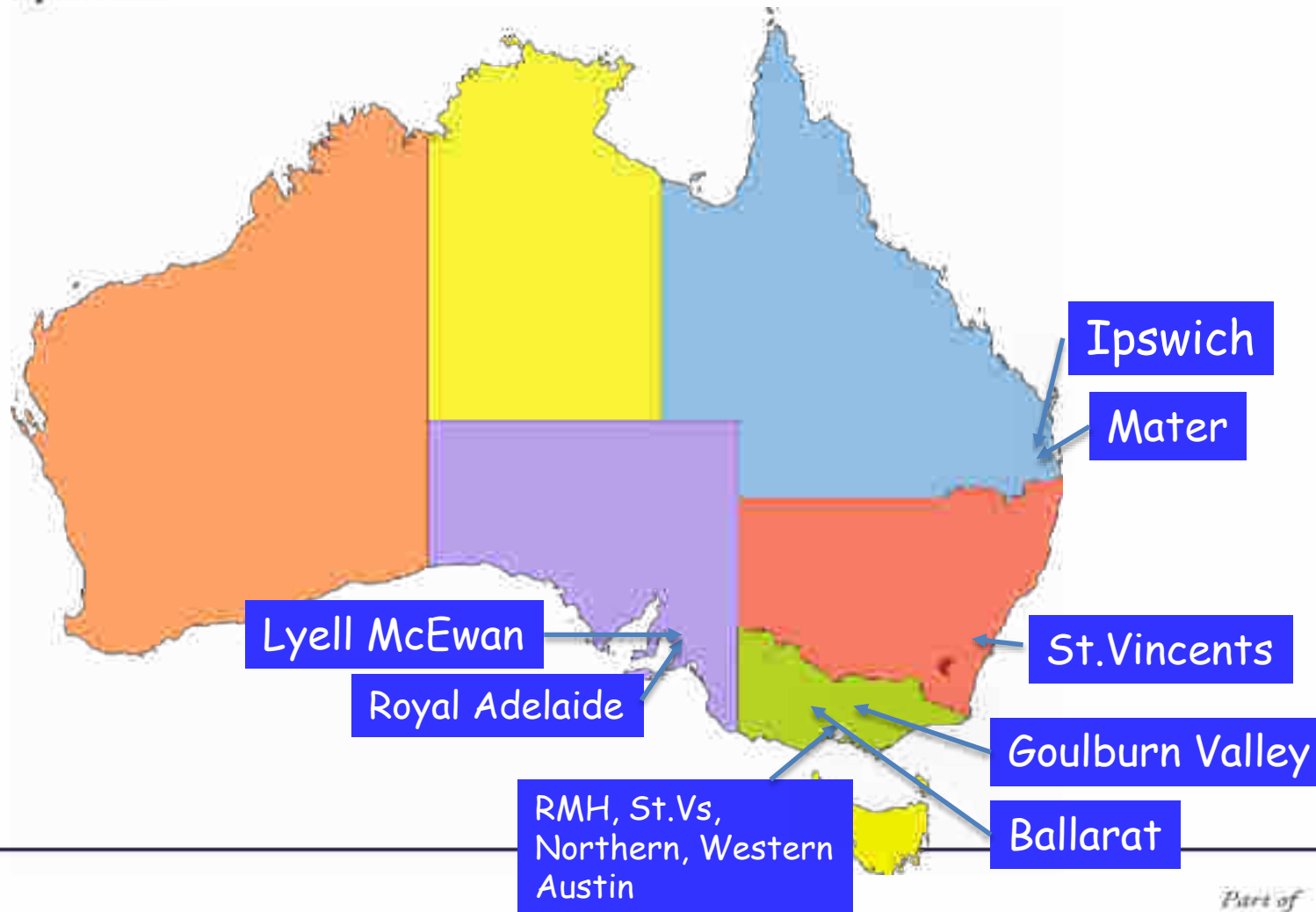
Diabetes Database

The NADC database is still in progress and we are just finalising the contract details and will notify all **financial** centres when this we are ready for launching via email. It is planned that we will be offering organisations the opportunity to apply for one off grants to purchase the database for their centres. Organisations will then have an agreement with the database vendors. BioGrid on the requirements of updates and ongoing costs.



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Biogrid Diabetes Sites





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Biogrid, NADC, ADDN and JDRF get together!!!



Australian Type 1 Diabetes
Clinical Research Network

(NADC), and the Australian Diabetes Society (ADS), both of which are peak bodies for research, medical practice and education in diabetes. Responses were received from over 30 diabetes centres. The NADC has been working on the deployment of a Clinical Database (Biogrid) for member organisations and are in the process of launching this program to interested member centres. Diabetes centres adopting the Clinical Database will have the opportunity to pool data nationally, audit and benchmark through the centralised Biogrid program. This provides an opportunity for ADDN to interface with Biogrid, thereby facilitating collaboration with a large number of adult centres. Using the responses to the online survey and discussions with potential collaborators a decision matrix has been constructed with weighting attributed to conditions which improve the feasibility of successful integration with ADDN. The following centres have been prioritised based on this matrix but further scoping work will be required to confirm this selection.

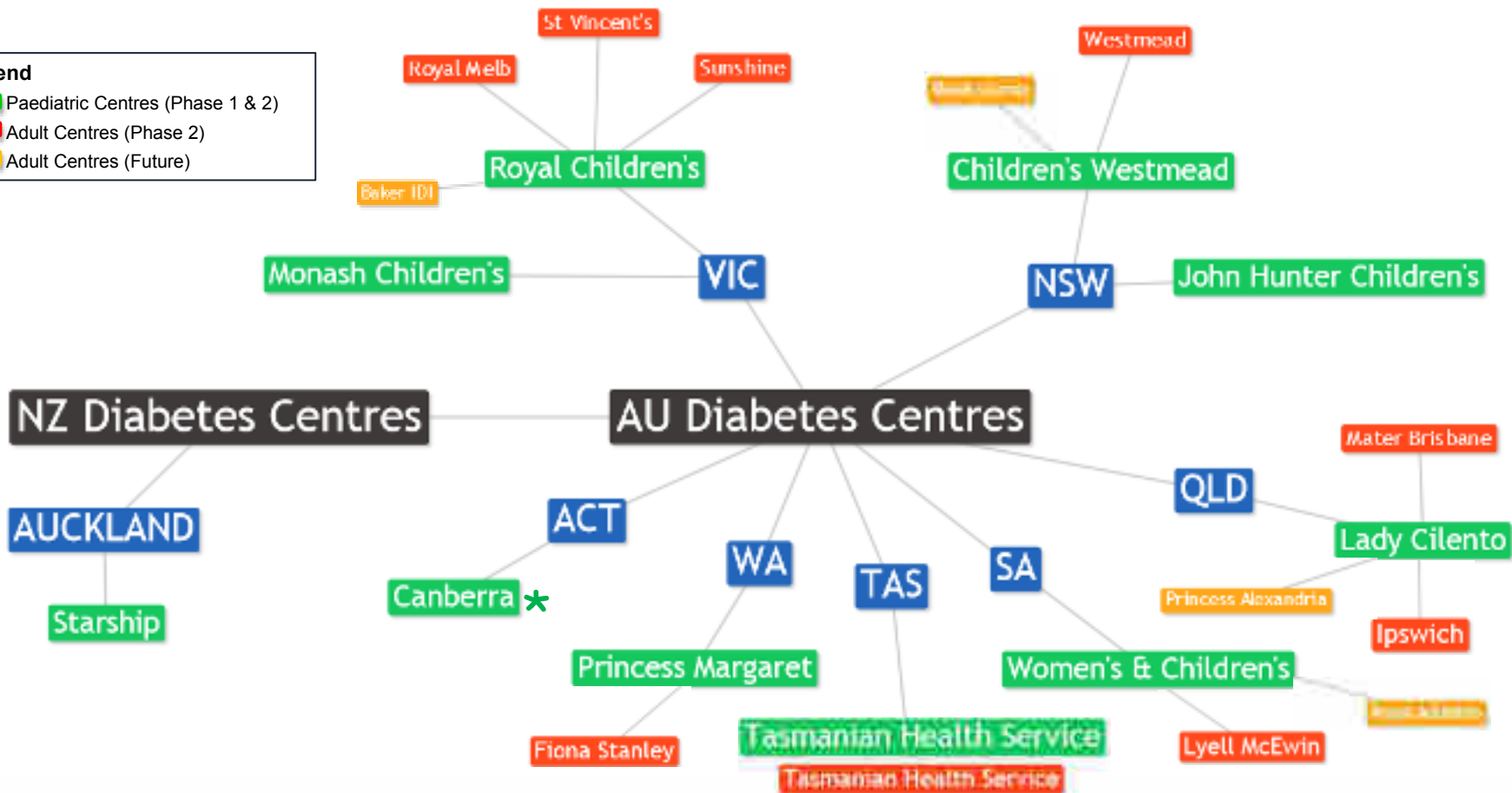


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ADDN Phase 2 Sites

Legend

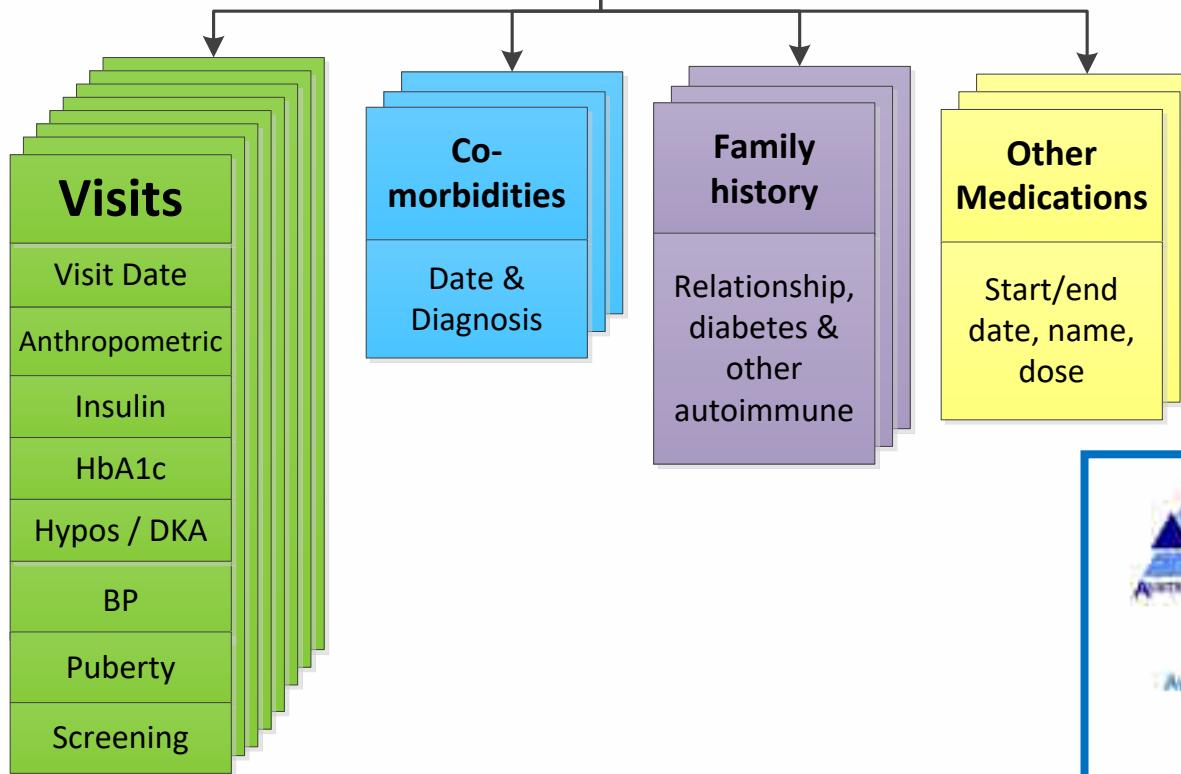
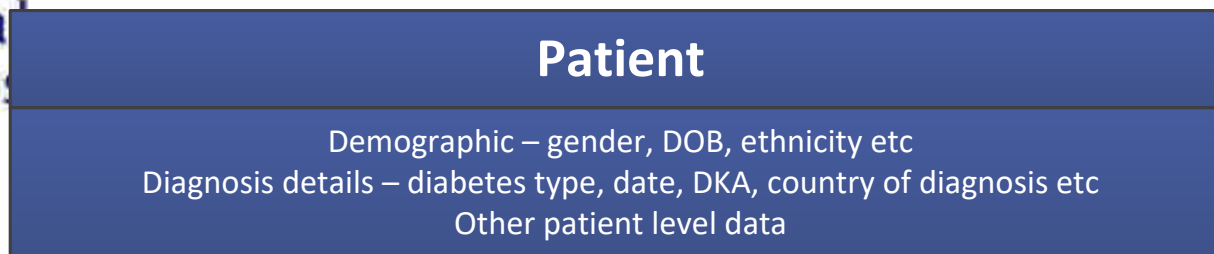
- Paediatric Centres (Phase 1 & 2)
- Adult Centres (Phase 2)
- Adult Centres (Future)





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Dataset





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ADDN Data

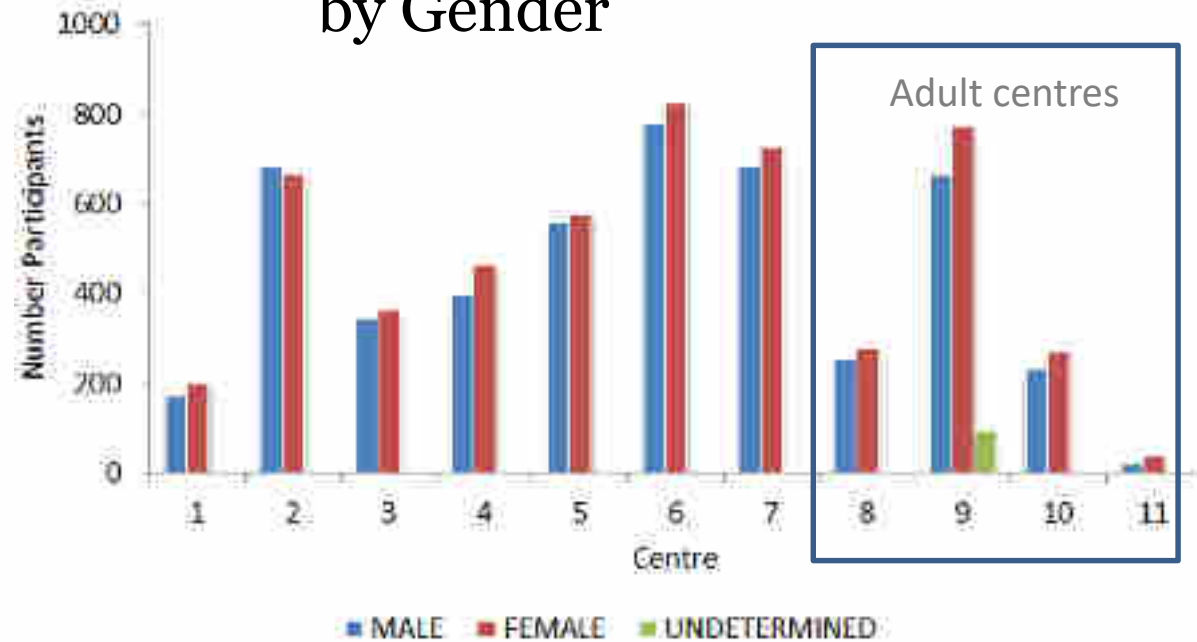
7 paed centres

- 7,452 patients with ≥ 1 visit
- 124,677 visits

4 adult centres

- 2,635 patients with ≥ 1 visit
- 31,608 visits

ADDN Participants by Gender





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Where we are





