Team T2D: Empowering people living with Type 2 Diabetes

Implementation and Evaluation of the Combined RBWH and QUT Health Clinics Model of Care for Patients with Type 2 Diabetes

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What is the clinical problem?

T2DM

- **Highly prevalent**: One million (4.4%) Australians with T2DM [1]
- **Costly:** $1.5 billion - T2DM accounts for 60% of expenditure[2].
- **High demand for health services**
  Long wait lists[3,4] → associated with ↓ glycaemic control[5,6]

Local problem

- Long wait lists: Only 54% of Category 2 patients seen within recommended timeframes[7])
- No regular input from exercise physiologist, optometry or podiatry.

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What is the Evidence?

Guideline and standard

NHMRC 'National Evidence Based Guidelines for Patient Education in T2DM' (2009) [10]
•All patients with T2DM should be referred for diabetes education (Grade A)
•Education should be structured, interactive and delivered in either groups or individually (Grade A)

ADA "Standards of Medical Care in Diabetes' (2017) [11]
•All patients receive diabetes self-management education (Grade B)
•Lifestyle education include nutrition therapy and physical activity (Grade B)
•All patients should have an annual foot and eye examination (Grade B)

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What is the evidence?

Group based diabetes self-management education compared to routine treatment for people with type 2 diabetes mellitus. A systematic review with meta-analysis

Aslak Steinsbekk[1*], Lisbeth Ø Rygg[1], Monde Lisulo[1], Marit B Rise[1] and Atle Fretheim[2,3]

Randomised controlled trials meeting below criteria:

- Participants: adults with T2DM
- Intervention: group-based T2DM education; at least 1 x 1hr session
- Control: routine treatment, waiting list, or no intervention
- Outcomes: @ 6 months, 12 months and 2+ years
  - Clinical: HbA1c, fasting blood glucose
  - Lifestyle: knowledge, self management skills
  - Psychosocial: QoL, empowerment/self-efficacy

What is the evidence?

✓ Comprehensive search: five databases, reference lists, experts

✓ Quality assessed using Cochrane Risk of Bias checklist

Mostly moderate risk of bias

✓ Undertaken independently by two reviewers

✓ Test for heterogeneity, sensitivity analysis where results inconsistent

✓ Sub-group analyses

incl. who delivered group, how many sessions/duration, follow-up etc

attendance rates less than 70%

baseline HbA1c 7% or higher

✓Sensitivity analysis

incl. sample size, risk of bias, drop-out

What is the evidence?

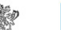
- Total of 21 studies (n=2833) included in the review

Table 3 Meta-analysis of primary and secondary outcomes of group-based diabetes self-management education programme with comparison for intervention (Int) and control (contr) groups and the heterogeneity (measured by I^2) of the analyses

Analysis number / Outcome	Effect measure	N studies	N participants (Int/contr)	Difference (95%CI)	P-value[A]	Hetero-geneity (I2)
3.1 Glycated haemoglobin (6 months)	Mean Diff	13	977/850	-0.44 (-0.69 to -0.19)	0.001	55.8
3.2 Glycated haemoglobin (12 months)	Mean Diff	11	750/753	-0.46 (-0.74 to -0.18)	0.001	64.6
3.3 Glycated haemoglobin (2 years)	Mean Diff	3	199/198	-0.87 (-1.25 to -0.49)	0.000	0.0
3.4 Fasting blood glucose (6 months)	Mean Diff	3	206/195	-0.73 (-2.22 to 0.76)	0.336	68.1
3.5 Fasting blood glucose (12 months)	Mean Diff	5	344/346	-1.26 (-1.69 to -0.83)	0.000	0.0
3.6 Diabetes knowledge (6 months)	Std Mean Diff	6	390/378	0.69 (0.43 to 0.96)	0.000	63.5
3.7 Diabetes knowledge (12 months)	Std Mean Diff	5	477/478	0.85 (0.48 to 1.22)	0.000	85.5
3.8 Self management skills (6 months)	Std Mean Diff	4	295/239	0.55 (0.11 to 0.99)	0.015	79.1
3.9 Quality of life (6 months)	Std Mean Diff	3	242/231	0.31 (-0.15 to 0.78)	0.186	77.1
3.10 Self efficacy/Empowerment (6 months)	Std Mean Diff	2	167/159	0.28 (0.06 to 0.50)	0.012	0.0

What is the evidence?

- Can results be applied to the local population?
  - Most studies done in developed countries in US and Europe
  - Average age 60 years, 40% male, diagnosis 7 years, HbA1c 8%
- Are the benefits worth the harms and costs?
  - Cost of delivering intervention – expensive, finite hospital resources
  - Benefits – improved patient and health service outcomes



Proposed Innovation

A new multidisciplinary diabetes outpatient model of care, the '*Combined RBWH-QUT Health Clinics Diabetes Model of Care*', was developed and implemented as a pilot at QUT Health Clinics in 2016

- 10 week multidisciplinary program for patients referred to RBWH Diabetes Service to be delivered at QUT Health Clinics by RBWH and QUT staff and QUT students
- New partnership between RBWH and Queensland University of Technology (QUT) Health Clinics.

Implementation Phase

Assess current services & problem

- Wait list data
- Other alternative pathways for outpatient models
- Existing services mapped and wide investigation of models of care for T2DM
- Literature
- Patient surveys

Consultation and planning

- QUT consulted
- Steering Committee established
- Model of care designed
- Memorandum of Understanding between RBWH and QUT for pilot

Pilot program

- 10 patients invited
- Delivered by RBWH and QUT staff and students: dietitian, exercise phys, diabetes educator, psychology, optometry, podiatry.
- 10 week group program
  - 1: Individual assessments
  - 2-8: 1hr exercise class + 1hr education
  - 9: Individual assessments
  - 10: MDT case conference to determine follow-up

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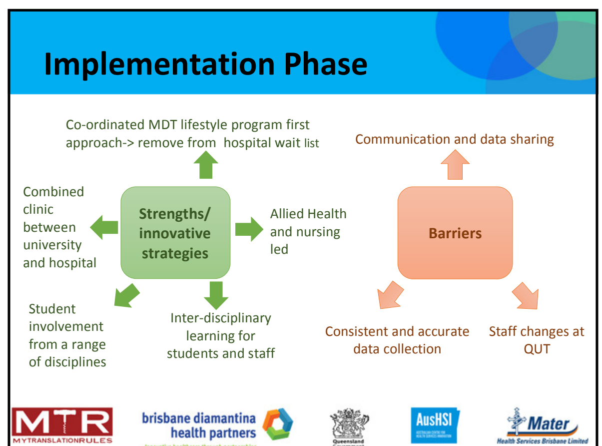
Implementation Phase
Co-ordinated MDT lifestyle program first approach-> remove from hospital wait list
Combined clinic between university and hospital
Strengths/ innovative strategies
Allied Health and nursing led
Student involvement from a range of disciplines
Inter-disciplinary learning for students and staff
Communication and data sharing
Barriers
Consistent and accurate data collection
Staff changes at QUT
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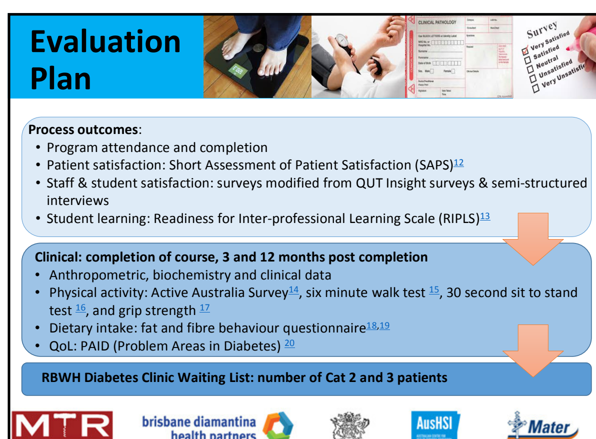
Evaluation Plan
Survey
Very Satisfied
Satisfied
Neutral
Unsatisfied
Very Unsatisfied
Process outcomes:
• Program attendance and completion
• Patient satisfaction: Short Assessment of Patient Satisfaction (SAPS)12
• Staff & student satisfaction: surveys modified from QUT Insight surveys & semi-structured interviews
• Student learning: Readiness for Inter-professional Learning Scale (RIPLS)13
Clinical: completion of course, 3 and 12 months post completion
• Anthropometric, biochemistry and clinical data
• Physical activity: Active Australia Survey14, six minute walk test 15, 30 second sit to stand test 16, and grip strength 17
• Dietary intake: fat and fibre behaviour questionnaire18,19
• QoL: PAID (Problem Areas in Diabetes) 20
RBWH Diabetes Clinic Waiting List: number of Cat 2 and 3 patients
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Outcomes of Pilot Program

Process outcomes:

Patients (n=9):

- 13 patients approached; with three declined and one dropped out
- High attendance and completion: 90% completed the program (attended ≥ 7 sessions)
- High satisfaction (n=9)
  - mean score = 22.8 out of 28, range = 20 – 26
  - lower "access and facilities" scores suggested patients want longer program duration

Outcomes of Pilot Program

Process outcomes:

Staff

- Survey (n=6):
  - High satisfaction; all sub-scores > 4 (out of 5)
- Interviews (n=4):
  - Effective inter-professional learning opportunity
  - Improved partnership with the teaching hospital
  - Effective multidisciplinary patient care.

Students (n=19):

- Survey:
  - High satisfaction; all mean score >4 (out of 5)
- Interviews:
  - Effective multidisciplinary patient care
  - Good opportunity to observe other allied health members
  - Increased clinical knowledge
- Inter-professional Learning Scale (RIPLS)
  - Improved 'teamwork & collaboration' (p=0.04) and 'roles & responsibilities' (p=0.037)

Outcomes of Pilot Program

Clinical: completion of course

Improvements in:

- Weight: all patients lost weight; mean weight loss -2.0kg (SD 1.3)
- Blood pressure: 6/8 had reduced diastolic and systolic BP
- Lipids: 4/8 had reduced total cholesterol and triglycerides
- Physical activity: all increased distance on 6 min walk test; median = 60m (range 60)
- Diet quality: 7/8 had improved fat and fibre scores; mean total index = 0.43 (SD 0.54)

RBWH Diabetes Clinic Waiting List:

All patients were removed from the RBWH diabetes dietitian wait list

2 patients required future appointments with the RBWH endocrinologist, others removed from RBWH wait list clinic.

Outcomes of Pilot Program

- New partnership between RBWH & QUT Health Clinics
- Enhanced student experience with inter-disciplinary practical and learning opportunities.
- Effective strategy to address long wait lists for patients with T2DM
- Improved clinical outcomes
- Outcomes consistent with the literature

Where to from here?

- MOU signed between RBWH ad QUT for ongoing programs
- Three programs planned for 2017
- Ongoing evaluation (utilising QUT research students)
- Need to explore alternative referral and funding options to enhance sustainability e.g. direct GP referrals, Medicare rebates
- Dissemination of results: presentations at DAA conference, plan to write up for peer-reviewed journal

The Light & The Dark

- **Light: What we learnt**
  - Good evidence in the literature for the model → support , enthusiasm and confidence
  - Be patient
  - Plan thoroughly
  - Good communication is vital
  - MOU early, ethics even earlier- be clear what you are asking for
  - Ring patients
  - Clear role clarification and expectations
  - Use validated tools-> increased credibility
- **Dark: What we would never do again**
  - Collect so much data?

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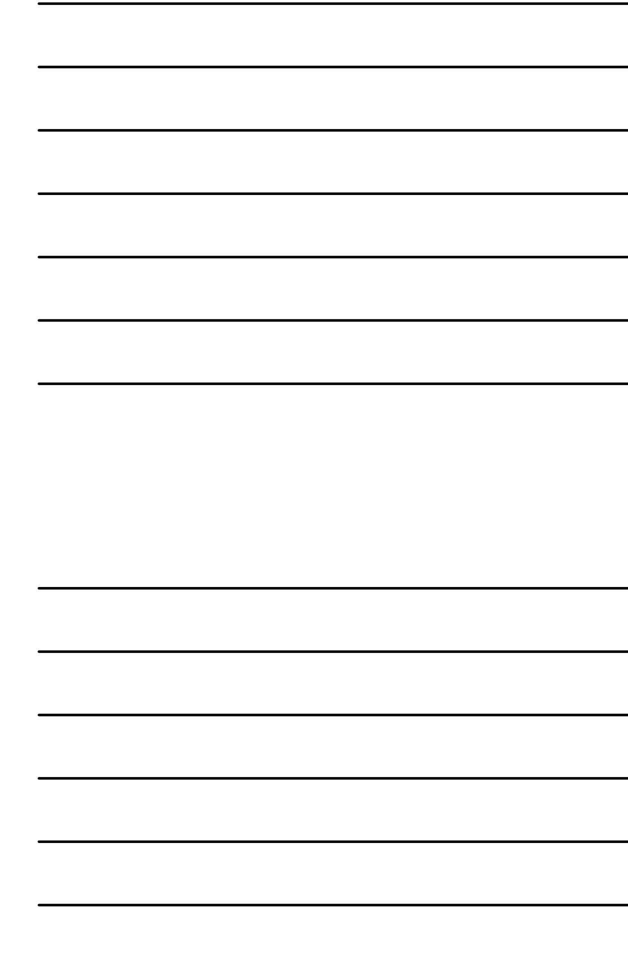

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