

Integrated Care Pathway (ICP) for Discharge Preparation of Patients with Diabetes (PWD)



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Background

Counties Manukau Health (CMH) is located in South Auckland with a single hospital, serving a region with a population of 520,000. The community has the largest population of PWD in New Zealand (42,000) of whom over 8,000 have poor control (HbA1c >75mmol/mol or 9%). 20-25% of Middlemore Hospital's inpatients have known diabetes. As part of an earlier quality improvement project, we have identified that inpatients are often not well prepared for discharge and ongoing self-management of their diabetes after an acute admission. CMH embarked on a clinical health improvement project with the primary aims to reduce length of inpatient stay (LOS), enhance care and reduce readmissions to hospital. As part of this clinical quality improvement process we have implemented a new integrated care pathway (ICP) for PWD, which is user-friendly for general clinical ward staff.

Aims

- Guide health professionals to prepare the inpatient PWD for safe discharge, with a plan of ongoing care to manage health and patient self-management
- Provide the best possible co-ordinated service for PWD during their inpatient stay
- Reduce hospital length of stay (LOS) and 30 day readmission rates
- Reduce HbA1c at 3 months followup

Method

Type of study: Quality improvement project, in-patient care by Whitiara Diabetes Service

- Phase one:** Study of Standard care (SC). Development of clinical and patient questionnaires to assess knowledge and confidence of diabetes management. Development of ICP (Figure 1 & 2). Health professionals and patients completed a pre-trial knowledge questionnaire in medical ward (SC). Assessment of current care (SC).
- Phase two:** ICP piloted by a limited selection of nursing staff with inpatient PWD.
- Phase three:** ICP used for PWD by nursing staff in 2 medical wards. Nursing staff and participant PWD completed a post-trial knowledge and confidence questionnaire.
- Phase four:** Assess HbA1c at 3 months post discharge. Audit patient follow-up care, re-admissions, LOS.

Fig 1

Integrated Care Pathway Checklist		Tick Indicates Completion	Not Applicable	Date	Sign	Print Name
Patient Label:						
Basic education given about healthy lifestyle including:						
Healthy Diet						
Exercise						
Weight Management						
Education given about medications:						
If patient started on insulin, the following has been discussed/demonstrated:						
Storage of insulin						
When to inject & rotation of sites						
How to inject						
When to inject						
Which insulin						
Insulin doses						
Needle change & disposal						
Vial Change & Disposal						
Insulin Types						
Insulin Pen						
Insulin Syringe						
Insulin Logbook						
If on subcutaneous or insulin patient has & knows how to use:						
Insulin						
Insulin Pen						
Insulin Syringe						
Insulin Logbook						
Patient understands signs, symptoms and treatments of hypoglycaemia:						
Recognises signs of hypoglycaemia						
Recognises signs in appropriate language						
Patient understands Sick Day Advice						
Foot exam completed						
Education for care of feet at home given						
If needed, patients have been seen by specialist Outpatient						
GP						
Diabetic Nurse						
Podiatrist						
Health Psychologist						
Outpatient care has been arranged with:						
GP						
DNS						
Diabetic Nurse						
Podiatrist						
Health Psychologist						
Patient has consented to discharge plan (Yes / No)						
Yes						
No						
Patient has copy of discharge summary & discussed with patient						
Yes						
No						
Patient has been given a prescription which includes:						
Oral tablets						
Insulin						
Insulin pen needles						
Glucose testing strips						

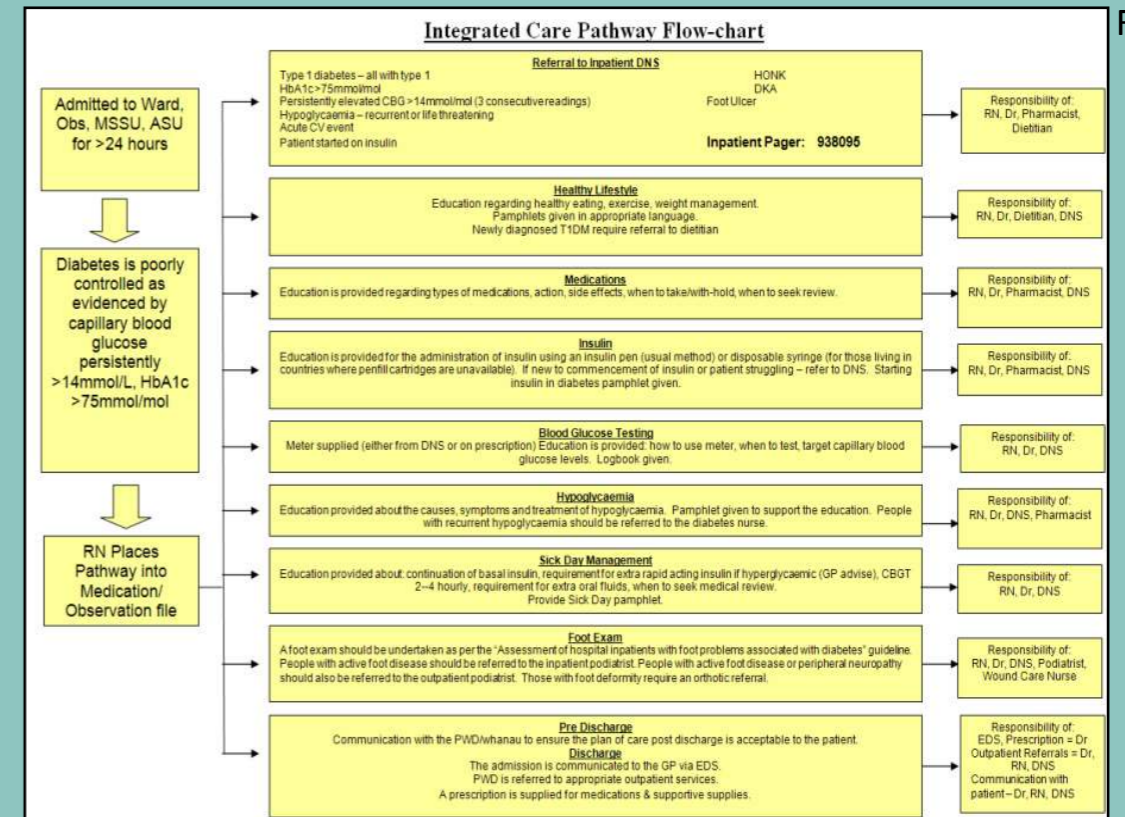
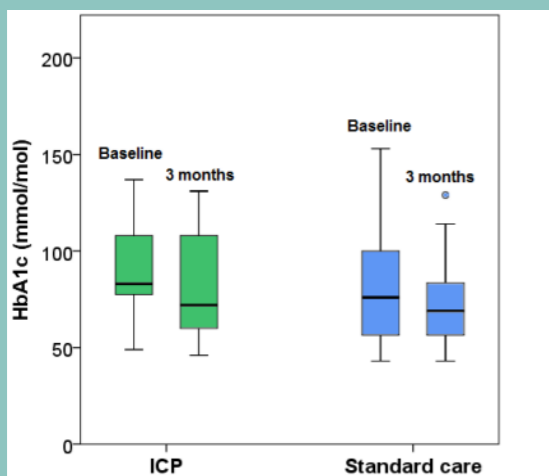


Fig 2

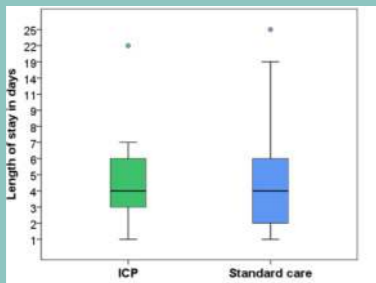
Results – (expressed as mean for normal distribution or median & interquartile ranges for non-normal distribution)

HbA1c (mmol/mol)



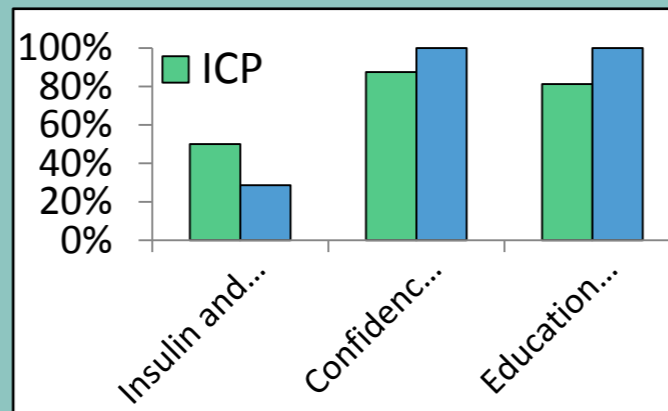
- There was improvement of HbA1c after discharge, with a more favourable trend in the ICP group, although not statistically significant. Average HbA1c decreased in ICP by 21% (from 90.3 (21.2) to 81.2 (28.6)) at 3 months compared to SC 15% (81 (28.1) to 73.1 (20.5))
- No PWD had deterioration of HbA1c after discharge in ICP compared to 1 in SC (expressed as an outlier)

Length of Stay (days)



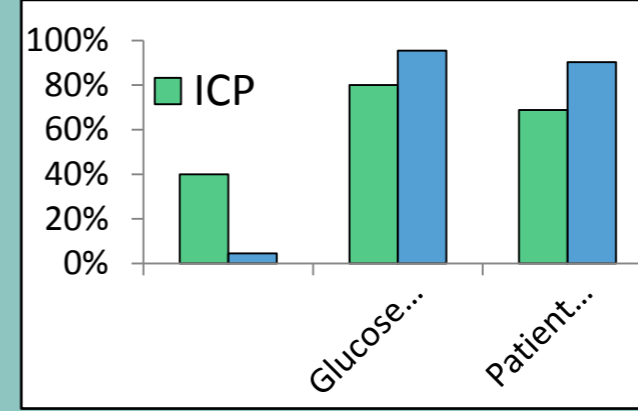
- The length of stay was log transformed to remove skewness. There was no difference in the log length of stay with SD for ICP vs. SC [0.31] vs 0.59 (0.36)], i.e. the average geometric length of stay with SD was 1.86 (1.36) vs 1.80 (1.43) respectively.
- 30 Day readmissions showed no difference.

Staff Knowledge & Confidence



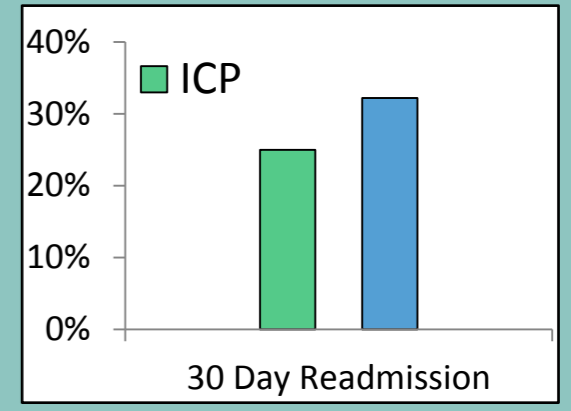
- Staff ability to name 2 drugs (insulin & sulphonylurea) requiring self-monitoring showed a favourable trend in the ICP group (50.0% vs 28.6%, P=0.18)
- There was a trend towards lower self-reported confidence caring for people with diabetes in the ICP group (87.5% vs 100.0%, P=0.096)
- Self-reported confidence to provide patients with education about their glycaemic medications was reduced in the ICP group (81.3% vs 100%, p<0.04).

Patient Knowledge & Management



- For patients treated with insulin, ICP patients were more likely to have insulin, needles, and testing strips prescribed and dispensed at/following discharge compared to SC (40% vs. 4.5%, P= 0.01). However self reported use of these was similar (72.2% vs 85.1%)(data not shown)
- The proportion of those discharged with glucose meters were similar in the two groups (80% vs. 95.5%)
- Patient self-confidence of their self-care was lower in the ICP group (68.8% vs. 90.3%, P=0.062)
- Patient knowledge of self-care and hypoglycaemia symptoms were similar in both groups (Role of diet (75% vs 71%, P=0.77) Role of exercise (62.5% vs 41.9%, P=0.18), hypoglycaemic symptom identification (87.5% vs 83.9%, P=0.74)) (data not shown here)

Readmission



- There was a trend towards lower 30 day readmission rates in ICP, (25.0% vs. 32.2%, p=0.6)

Conclusions

- ICP showed a trend towards improved HbA1c post discharge, and lower 30 day readmissions.
- The outlier may have been poorly prepared for discharge.
- There was no difference in LOS between the two groups.
- ICP was associated with increased dispensing of insulin and self-management resources after discharge for those in whom it is clinically indicated. This is a marker of enhanced transition management.
- Staff nurses indicated that they had more knowledge prior to the ICP pathway but after interaction with the ICP they felt that they gained a lot of new information and skill.
- There was evidence of decreased staff self-reported confidence in ICP due to staff appreciating their knowledge/ability deficits after partaking in ICP. A similar phenomenon occurred with patient self-confidence, which appeared lower in ICP. Again this is likely due to overconfident self-assessment prior to the intervention, and suggests unrecognised practical knowledge gaps in patients.
- There was no evidence of enhanced patient knowledge of self-management with the ICP.
- In summary, ICP may be an effective way to promote shared responsibility by health professionals caring for PWD in partnership with patients who acquire knowledge and resources for self-management. However brief structured careplanning may not result in early improvements in interval management. Gaps in knowledge and self-care ability show further education is required. Education plans need to be developed to manage these gaps.

Future plan

- Currently we have implemented education to all RNs as they completed annual update training.
- An insulin e-learning has been developed.
- Implement the ICP as a guideline for inpatient PWD at CMH, to guide staff to appropriately prepare patients for self-management post discharge.