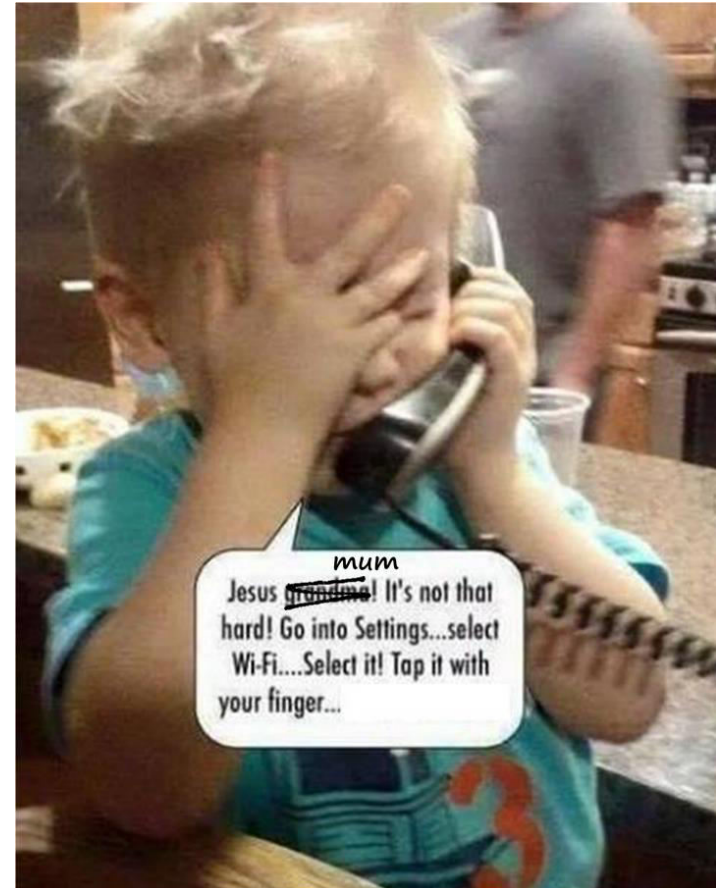

Hybrid Closed Loop – a Dietitian's Perspective

Kerryn Roem - Accredited Practising Dietitian



Summary

- Accurate carbohydrate counting a pre-requisite for accurate boluses
- Patients required to see a dietitian prior to commencing the HCL
- Importance of follow up post commencement

Why is carb counting still important?

- Bolus quantities directly correlated to meal / carb entries
 - Bolus doses not automated (hybrid)
 - Users are still required to enter their carb information into bolus wizard calculator prior to eating as well as BGL for accurate dose delivery

Accurate carb counting essential for optimal performance of the hybrid closed loop



Why is carb counting still important?



- Many will never have carb counted before
 - 9 x MDI (45% had no previous cc experience)
 - Most will need at least two visits

Many MDI patients will have never carb counted

Why is carb counting still important?

- Carbohydrate counting accuracy can decline over time
 - Knowledge decreases with time (Brutomesso et al 2010)
 - Inaccurate CC frequent (Brazeau et al 2012)
 - 63% of meal CHOs were underestimated (448 meals analysed)
 - Underestimation more common with larger meals (lunch and dinner biggest challenges)
 - Average score for all patients 59% (Meade et al 2016)
 - Most patients overestimated (82%) carb content of items on survey by 40%
- Informal feedback from participants indicated that some felt they were guessing carb values



Never assume a pump wearer is always accurate or confident with carb counting

Why is carb counting still important?

- Many previously carb counting will need a carb counting refresher
 - 15 participants had carb counting experience (10 x pre existing pumpers/5 MDI)
 - 9 requested a refresher

Notable improvement in BGL's after refresher



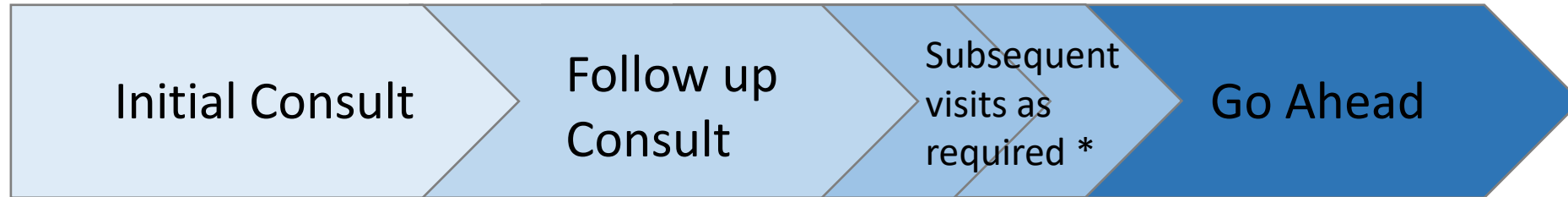
Building participants skills in carb counting

Snap shot of visits with Dietitian

Visit 1	Visit 2*	Visits 3-5	Visit 6	Visit 7†	Visit 8	Visits 9 & 10	Visit 11	Visits 12-14	Visit 16	Visit 17
<ul style="list-style-type: none"> • Information provided • Consent • Eligibility • MDI or CSII 	<ul style="list-style-type: none"> • Confirm eligibility • CHO-counting MDI (+ CSII) participants* 	Visits 3, 4 & 5: Sensor insertion for 1 st , 2 nd & 3 rd masked CGM, respectively	<ul style="list-style-type: none"> • Check CGM (≥70% data required to randomise) • Baseline measures 	1 week: HCL group receive pump/CGM education, device training†	7 weeks: Clinical review	11 and 12 weeks: Sensor insertion for masked CGM	13 weeks: Glycaemic and psychological measures	23, 24 and 25 weeks: Sensor insertion for masked CGM	26 weeks: End of study visit	39 weeks: Post study visit

* Number of CHO-counting visits required may vary according to individual needs of participants

Visits with Dietitian prior to commencing HCL



- Determine level of carb counting knowledge
- Initial Education: Carbohydrate counting
- Explain why carb counting is required
- Give information accordingly
 - Carb containing foods
 - Using carb counters
 - Reading food labels

- Assess carb counting skills
- Discuss visual apps
- Strategies to make easier
- Explain no dual or square wave in automode

- Give go ahead to team once assessed as accurate

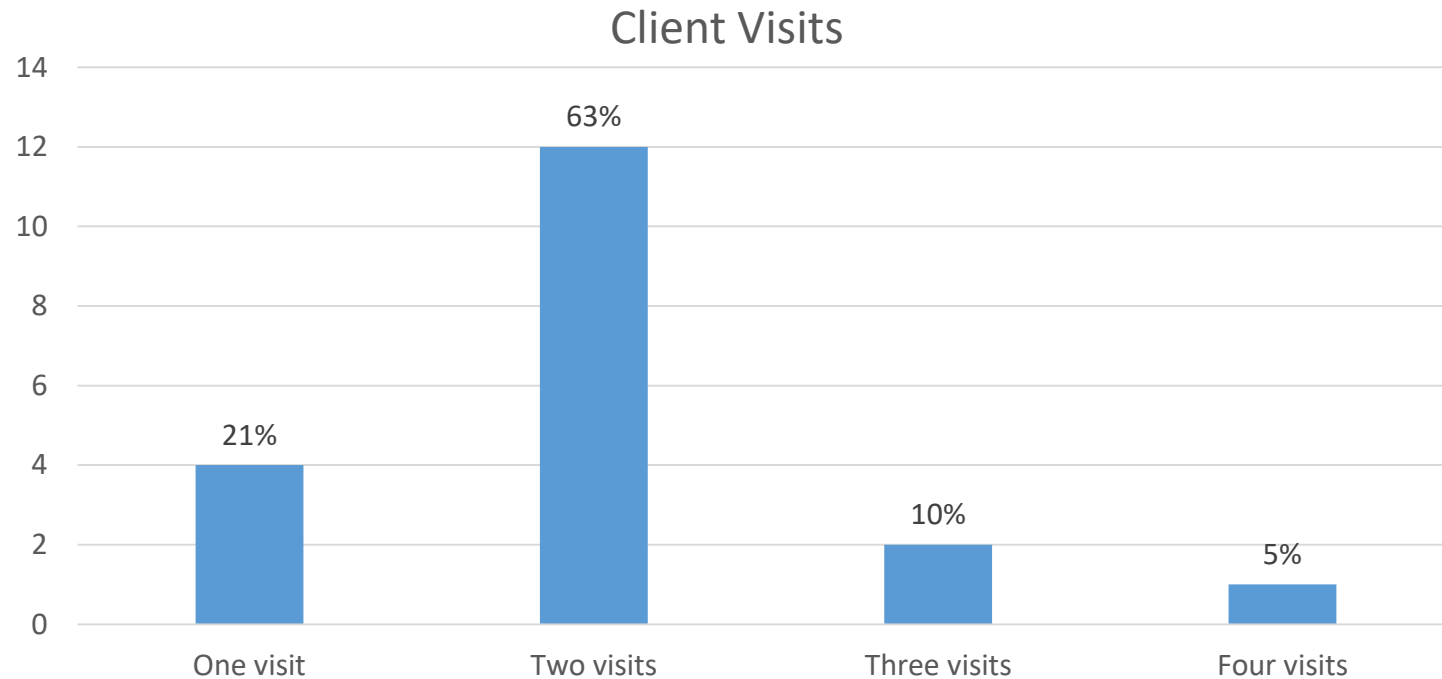
** Number of CHO-counting visits required may vary according to individual participant learning*

Carb counting ability impacts on dietitians time and required initial visits

19 patients

	CSII	MDI
No of patients	10	9
Carb counting experience	10	5
Confident in carb counting	4 (40%)	2
	60% requested refresher	77% required full education or fresher

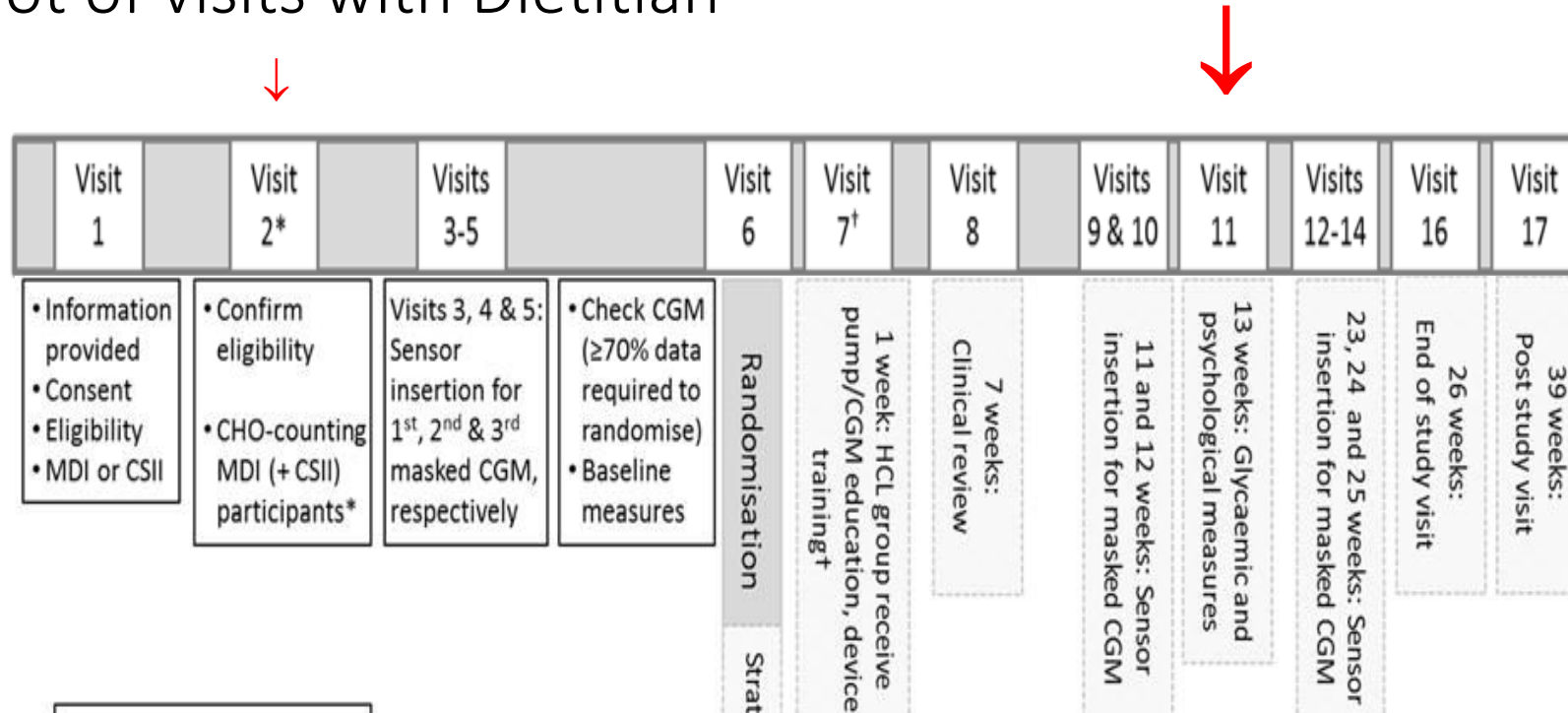
Number of Visits Required for Dietitian



Initial visit = 1 hour on average
Follow up visits = 30 minutes on average

Follow up visits post commencement of HCL

Snap shot of visits with Dietitian



* Number of CHO-counting visits required may vary according to individual participant learning

Follow up visits post commencement of HCL

- Assess carbohydrate counting
 - Ensure correct information has been retained / maintain accuracy
 - Go through any difficulties / perceived barriers
- Check upload
 - Look for any dietary / behavioural factors requiring addressing



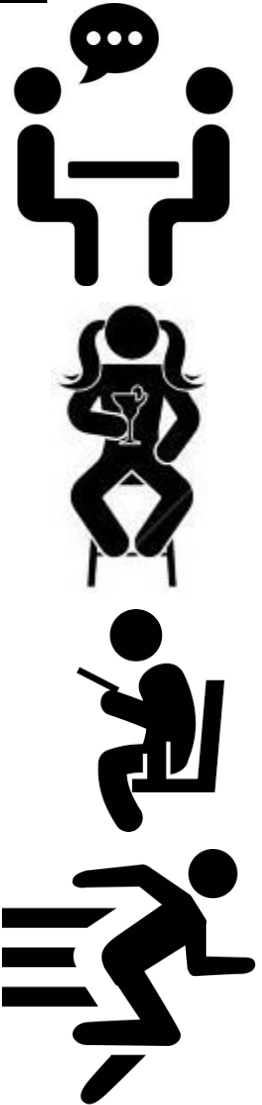
Feedback to team



Source: Vision personal training

Dietary and behavioural issues to consider

- Bolusing prior to meals
- Timing of meal bolus
- Carb load – reduce if high
- Fat intakes
- Low carb diets – is protein having an effect
- Grazing vs snacking... are they bolusing for snacks
- Exercise – eat just prior to exercise or during if extended



Clinical Practice Considerations

Patients

- Pick patients
- Intense process to start with - time commitment
- Set expectations early on patients need to see a dietitian
- Exchanges to grams
- Can't use square or dual wave in automode



Source: John Comstock Bloom cloudes app

Clinical Practice Considerations



Dietitian

- Experienced in carb counting
- Formalised dietitian program
- Tools – apps / visual aids / scales
- Engagement with health care team
- Understanding of & interpreting uploads
- Expect an increase in workload

My Conclusions

- Carb counting remains important
 - Users need a knowledge of carb counting and bolus before eating
 - Dietitians are positioned and trained to deliver this skill
- Set expectations early ..patients will be required to see a dietitian
- Health professionals role will change rather than be diminished as patients still require ongoing clinical guidance and education from providers
- As with every technological advance.... there is a need to up-skill

Together **E**veryone **A**chieves **M**ore



Thank you to the amazing and supportive team I work with