

Diabetes numeracy and diabetes management

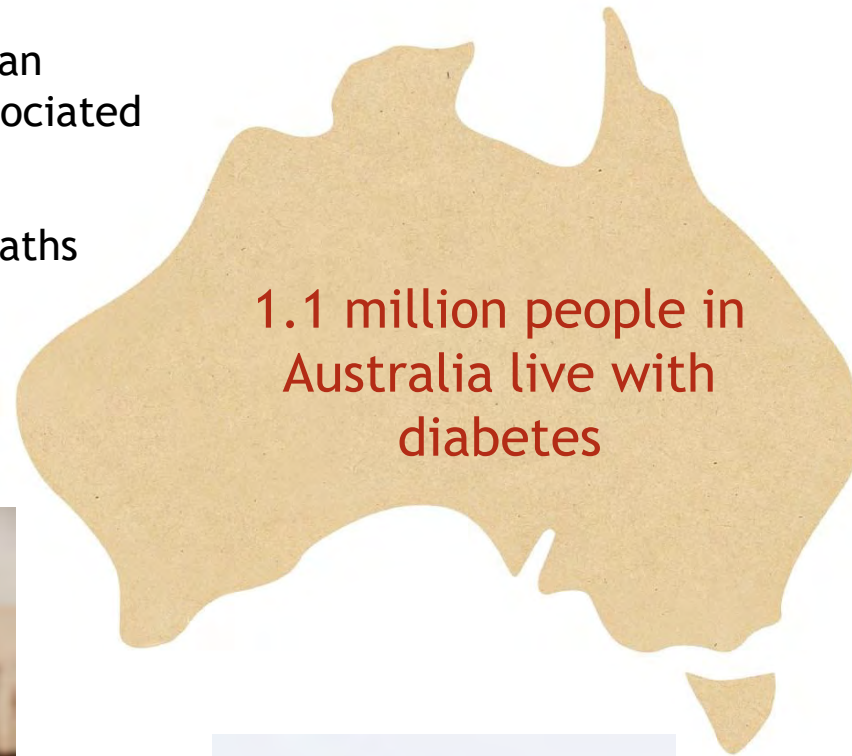
Presented by Tina Berghella, Director, Oggi Consulting



02 DAFNE
Dose Adjustment For Normal Eating
in Australia

Diabetes is an underlying or associated cause in

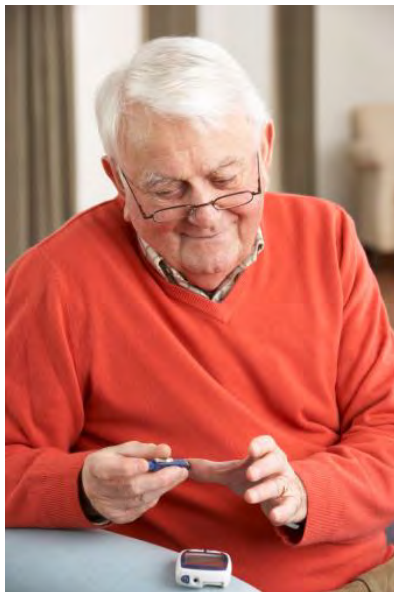
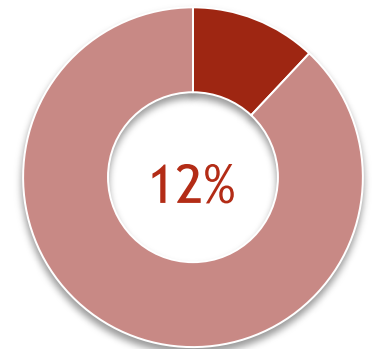
1 in **10** deaths



Diabetes health care costs

\$14b

Prevalence of type 1 diabetes



Source: Australian Department of Health

Level	Literacy		Numeracy	
	%	millions	%	millions
1	14.1	2.3	21.7	3.5
2	30.3	5.0	32.9	5.4
3	39.0	6.4	32.3	5.3
4 & 5	16.6	2.7	13.1	2.1



The numeracy skills of the adult population are:

- A. All the same if they have completed year 12
- B. Above the national average
- C. Dependent on the type of materials and the situation
- D. Sufficient to understand most health information

Health literacy



Health literacy is the knowledge and skills needed to understand and use information relating to health issues such as drugs and alcohol, disease prevention and treatment, safety and accident prevention, first aid, emergencies and staying healthy.

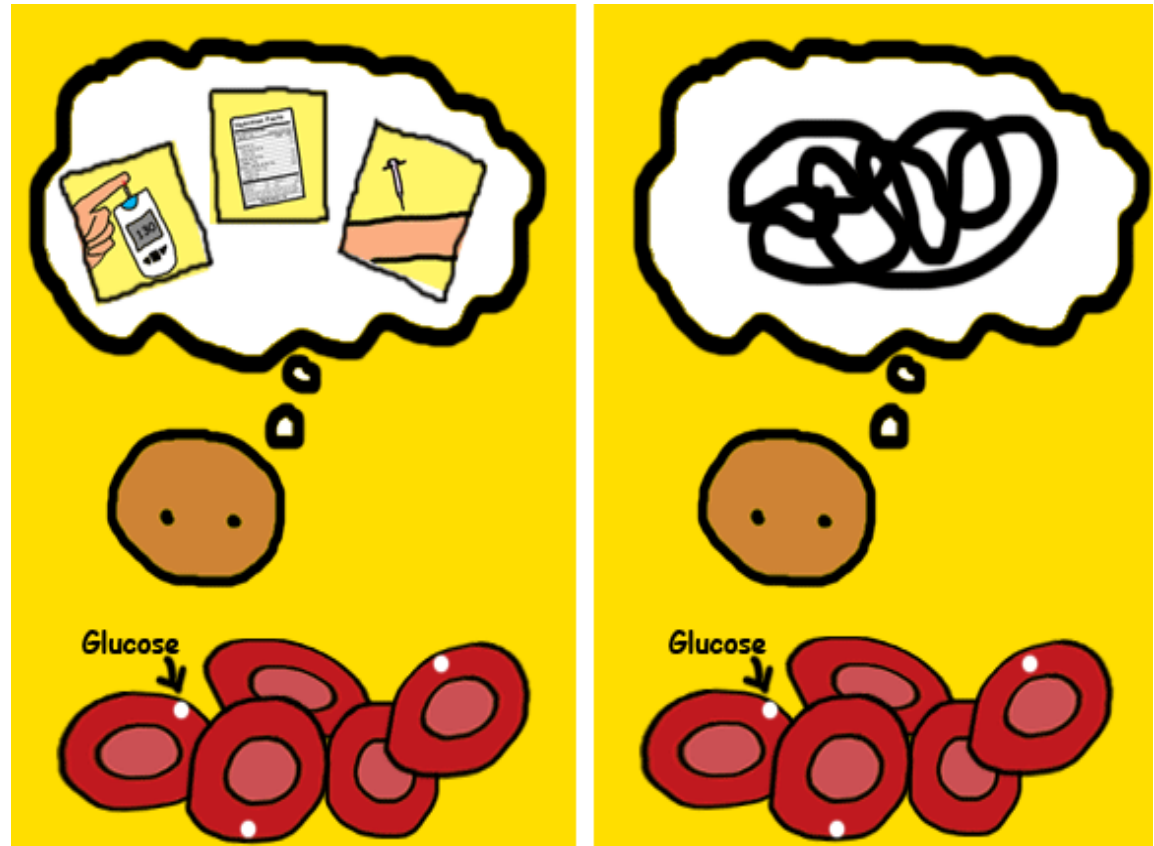
(ABS 2006)



1. If you eat the entire container, how many calories will you eat?
2. If you are allowed to eat 60 grams of carbohydrates as a snack, how much ice cream could you have?
3. Your doctor advises you to reduce the amount of saturated fat in your diet. You usually have 42 g of saturated fat each day, which includes one serving of ice cream. If you stop eating ice cream, how many grams of saturated fat would you be consuming each day?
4. If you usually eat 2,500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?
5. Pretend that you are allergic to the following substances: penicillin, peanuts, latex gloves, and bee stings. Is it safe for you to eat this ice cream?

There is no difference in the health status of people with strong and weak numeracy skills.

- A. True
- B. False



Reading and understanding complex texts such as food labels and insulin profiles

Understanding and using rates, ratios, percentages and decimals

Performing multi-step calculations to determine insulin adjustments

Using measurement tools to take measurements such as weight and volume of food and blood glucose levels

Interpreting measurement results and identifying trends in blood glucose levels

Using estimation for predicting measurement and calculation results, rounding to whole and half numbers, adjusting measured or calculated values

Reflecting on the reasonableness of measurements, calculations and estimations

Using knowledge of probability to reflect on risk

Reflecting on the implications for short and long term personal health

Using specialised language to discuss diabetes related information

Your doctor tells you:

“You have a **1** in **10** chance of having Disease A, and a **1** in **20** chance of having Disease B in the next 10 years.”

Which disease are you at highest risk for?

Source: Peters E, Hibbard J, Slovic P, Dieckmann N. Numeracy skill and the communication, comprehension, and use of risk-benefit information. Health Aff (Millwood) 2007;26:741-748

- Before breakfast 5.5 – 7.5 mmol/L
- Before other meals 4.5 – 7.5 mmol/L
- Before bed 6.5 – 8.0 mmol/L
- At 3am 4.5 mmol/L or above
- Before driving Above 5 mmol/L

Time of BGL check	Standard BGL targets
Before meals	4.0 to 8.0 mmol/L
Before bed	6.0 to 8.0 mmol/L
At 3am	5.0 mmol/L or more
Before driving	5.0 mmol/L or more
Before exercise	7.0 mmol/L or more



Activity: BGL targets – above target, below target or hypo

Let's do some practice working out if BGLs are above target, below target or hypo using a BGL target range.

Kim's BGL target range before bed is 6.0 to 8.0 mmol/L.

The 'BGL' column lists Kim's BGLs before bed over the last 10 days.

Work out whether Kim's BGLs are above target, below target or hypo. Circle your answer in the 'Above target, below target or hypo' column. The first two have been done for you.

BGL	Above target, below target or hypo?			
8.5 mmol/L	Above target	or	below target	or hypo
3.3 mmol/L	Above target	or	below target	or hypo
4.5 mmol/L	Above target	or	below target	or hypo
9.6 mmol/L	Above target	or	below target	or hypo
5.2 mmol/L	Above target	or	below target	or hypo
12.6 mmol/L	Above target	or	below target	or hypo
2.9 mmol/L	Above target	or	below target	or hypo
10.1 mmol/L	Above target	or	below target	or hypo
8.1 mmol/L	Above target	or	below target	or hypo
5.9 mmol/L	Above target	or	below target	or hypo

E**Example: How to work out the number of CPs in an orange**

Let's look at an example using an orange and the OzDAFNE Carbohydrate Portion List.

An orange is on page 17. It looks like this:

Item	Reference amount	Carb g	CPs
Orange, peeled	1 medium, 130 g	10	1

You want to eat 1 medium peeled orange.

The 'Carb g' column tells you that there are 10 g of carbohydrate in 1 medium peeled orange.

To work out the number of CPs in 1 medium peeled orange, divide the amount of carbohydrate by 10.

On a calculator, this looks like:

$$\boxed{1} \boxed{0} \boxed{\div} \boxed{1} \boxed{0} \boxed{=}$$

The answer is 1. This means that there is 1 CP in 1 medium peeled orange.



Activity: Working out CPs

Let's do an activity to practice working out CPs.

There are 4 food items in the table below.

Work out the number of CPs in each of the food items by dividing the amount of carbohydrate in the 'Carb g' column by 10.

Write your answers in the shaded boxes. The first two have been done for you.

Item	Reference amount	Carb g	CPs
Orange – peeled	1 medium, 130 g	10	1
Dates – pitted	5 dates, 30 g	20	2
All Bran cereal	1 cup, 65 g	30	
Hot chips	1 average bucket, 150 g	40	

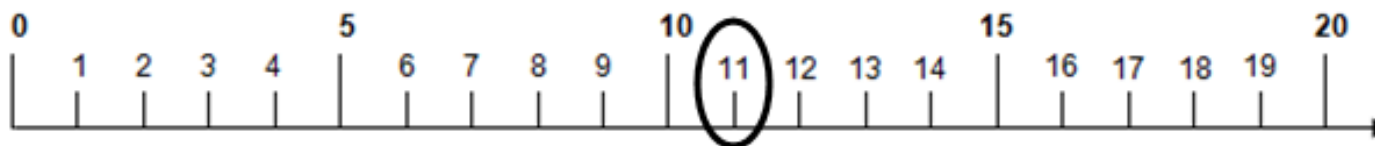
The answers to this activity can be found on page 305.

E Example: Rounding with a shortbread biscuit

Let's look at an example using a shortbread biscuit and the number line.

A shortbread biscuit contains 11 g of carbohydrate.

This is what 11 looks like on a number line:



The number 11 is in between 10 and 15 but is closest to 10.

This means there are close to 10 g of carbohydrate in 1 shortbread biscuit.

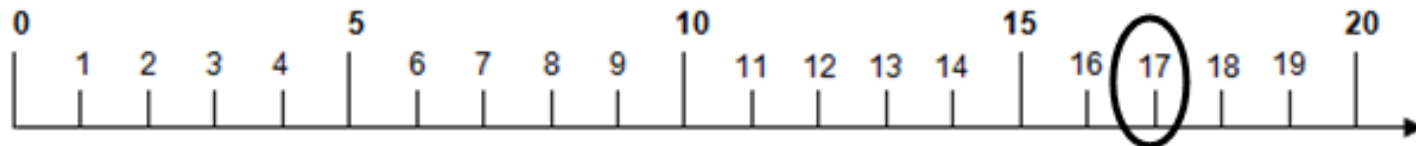
10 g of carbohydrate is the same as 1 CP. This means that there is close to 1 CP in a shortbread biscuit.

E**Example: Rounding with a thick slice of bread**

Let's look at another example using a thick slice of bread and the number line.

A thick slice of bread contains 17 g of carbohydrate.

This is what 17 looks like on a number line:



The number 17 is in between 15 and 20 but is closest to 15.

This means there are close to 15 g of carbohydrate in 1 thick slice of bread.

15 g of carbohydrate is the same as $1\frac{1}{2}$ CPs. This means that there are close to $1\frac{1}{2}$ CPs in 1 thick slice of bread.

#D. BB
 Targets: B(5.5-7.5) L(4.5-7.5) D(6.5-8.0)

MON		3am	BF			L		D	BB	Comments
Date	Time	10:45	7:50	10:36	11:36	12:37	3:25	7:46	9:00	Had milkshake BA bed with NR. (no exercise)
7/7/14	CP		3			4.5		7.1	-	
	BG	N/A	11.9	7.1	6.8	7.3	15.7	13.2	8.9	
	QA		213-5			4		7	-	
	BI	13	-			-		-	6	
	KET		-			-		-	-	

TUES		3am	BF			L		D	BB	Comments		
Date	Time		7:55	8:57	11:38	12:53	2:45	4:18	7:14	9:02	9:37	Struggled to get out of bed. Had an apple 4BF - kicking 18. lunch carbs were guessed.
8/7/14	CP		3	-	-	6.5		-	-	-	NB JB	
	BG		12.9	13.4	9.1	6.9	11.1	17.2	17.8	6.1	3.1	
	QA		3	-	-	6		4(0)	-	-		
	BI		-	7	-	-		-	6	-		
	KET		-	-	-	-		-	-	-		

WED		3am	BF			L		D	BB	Comments	
Date	Time	3:06	8:54	10:04		12:43	2:13	2:41	8:02	8:58	2:41pm - mandatory 3bf coffee. 4:18pm = 7.9 went out 4 Din 5:34 = 7.3 no exercise
9/7/14	CP		2.5-3	-		est 6	-	1	3.5(0)	-	
	BG	8.4	7.8	11.8		8.9	6.4	5.8	6.4	7.7	
	QA		3	-		6+1	-	-	3.5	-	
	BI		7	-		-	-	-	-	6	
	KET		-	-		-	-	-	-	-	

THURS		3am	BF			L		D	BB	Comments		
Date	Time		7:55	9:09	9:47	12:35	3:11	4:19	8:32	9:49	Briskly ran down the top floor carpa stairs. feel a cold coming, sachy body + real dehydrated.	
10/7/14	CP		3.5	-	-	4.5(0)	-	-	8.5	1		
	BG		6.8	9.7	9.7	6.7	13.1	17.3	9.5	7.7		3.7
	QA		5.5	-	-	4.5	-	-	8.5+1	-		
	BI		-	7	-	-	-	-	-	6		
	KET		-	-	-	-	-	-	-	-		

BB = 10.1 = 12:09am est lunch of gorgonzola



"Diabetes has increased dramatically over the past 10 years. That proves that diabetes is caused by global warming!"

Tina Berghella
www.oggiconsulting.com.au
tina@oggiconsulting.com.au
(03) 9774 3938

