

Lifestyle Medicine, Self Management and Type 2 Diabetes

**Garry Egger
Professor; Health and Applied Sciences
Southern Cross University**

Outline

- **Changes in disease epidemiology**
- **‘Lifestyle medicine’, self-management and chronic disease**
- **A structure (and evidence-base) for diabetes self-management (DSM) in clinical practice**

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- **Changes in disease epidemiology**
- 'Lifestyle medicine', self-management and chronic disease
- A structure (and evidence-base) for diabetes self-management (DSM) in clinical practice

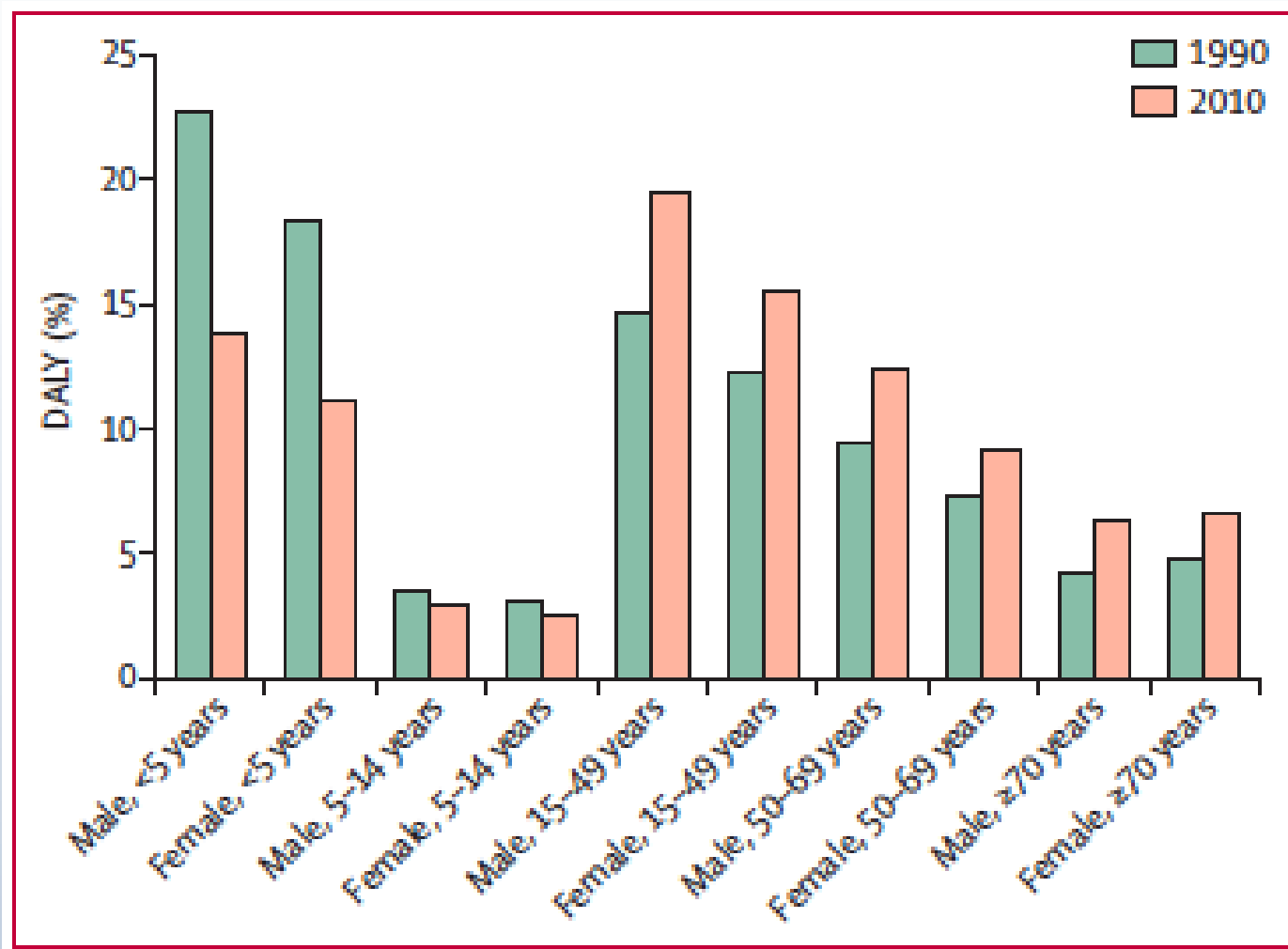
1990



2008

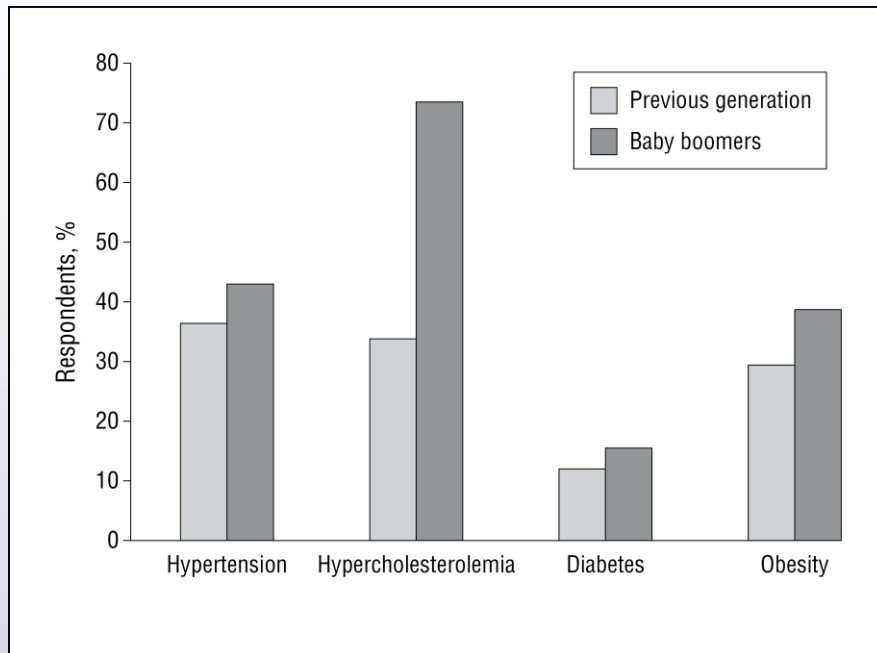


Proportion of disability-adjusted life years (DALYs) by age and sex, 1990 and 2010 (World)



Health Status of Baby Boomers vs Parents in the US

(NHANES 1988-1994 vs 2007-2010)



% of each cohort with disease/risks

Boomers
(46-64 Mean 54 yrs)

'Excellent' health	13.2%	32%**
Use walk device	6.9%	3.3%**
Functional limitation	13.5%	8.8%**
% Obese	38.7%	29.4%**
Get regular exercise	35%	50%**
No regular phys activity	52.2%	17.4%**
Hypertension	43%	36.4%**
Hypercholesterolemia	73.5%	33.8%**
Diabetes	15.5%	12%**
Smokers	21.3%	27.6%*
Moderate drinking	67.3%	37.2%**
Emphysema	2.3%	3.5%*
Have had MI	3.6%	5.3%**

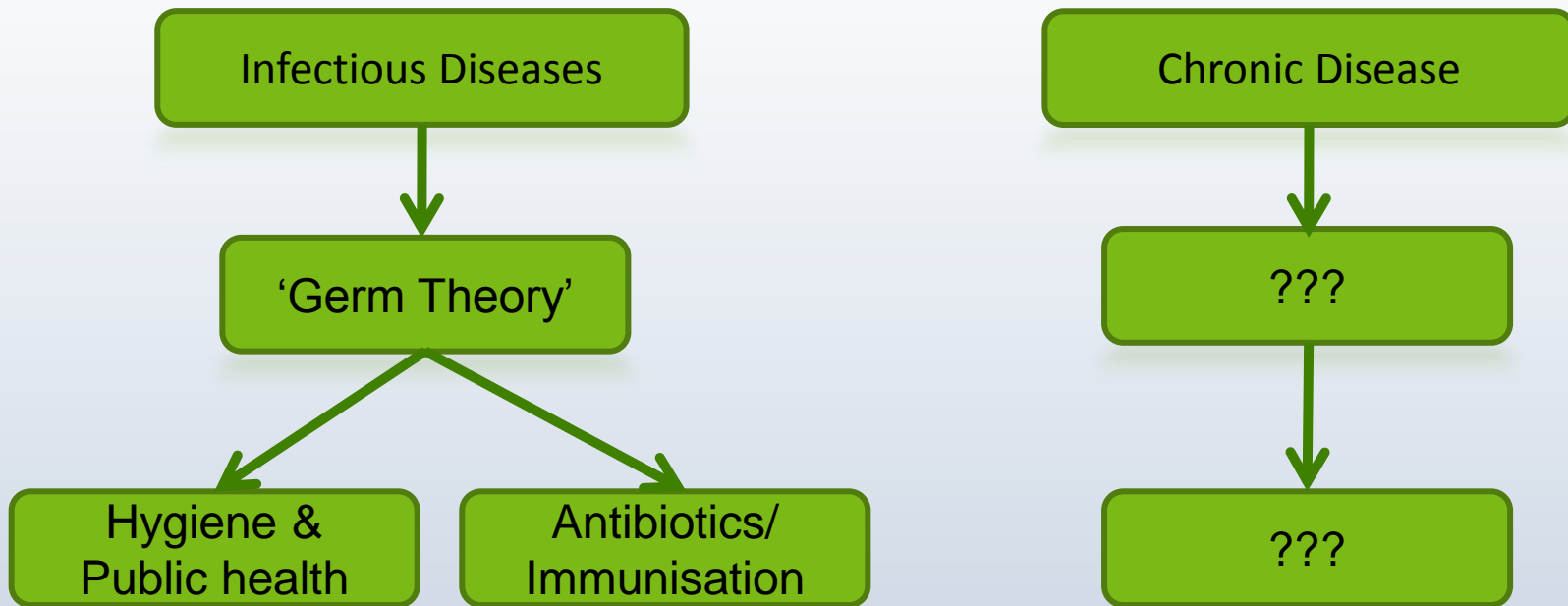
* = $p < .05$ ** = $P < .01$ * = in +tive direction

US Life expectancy at birth

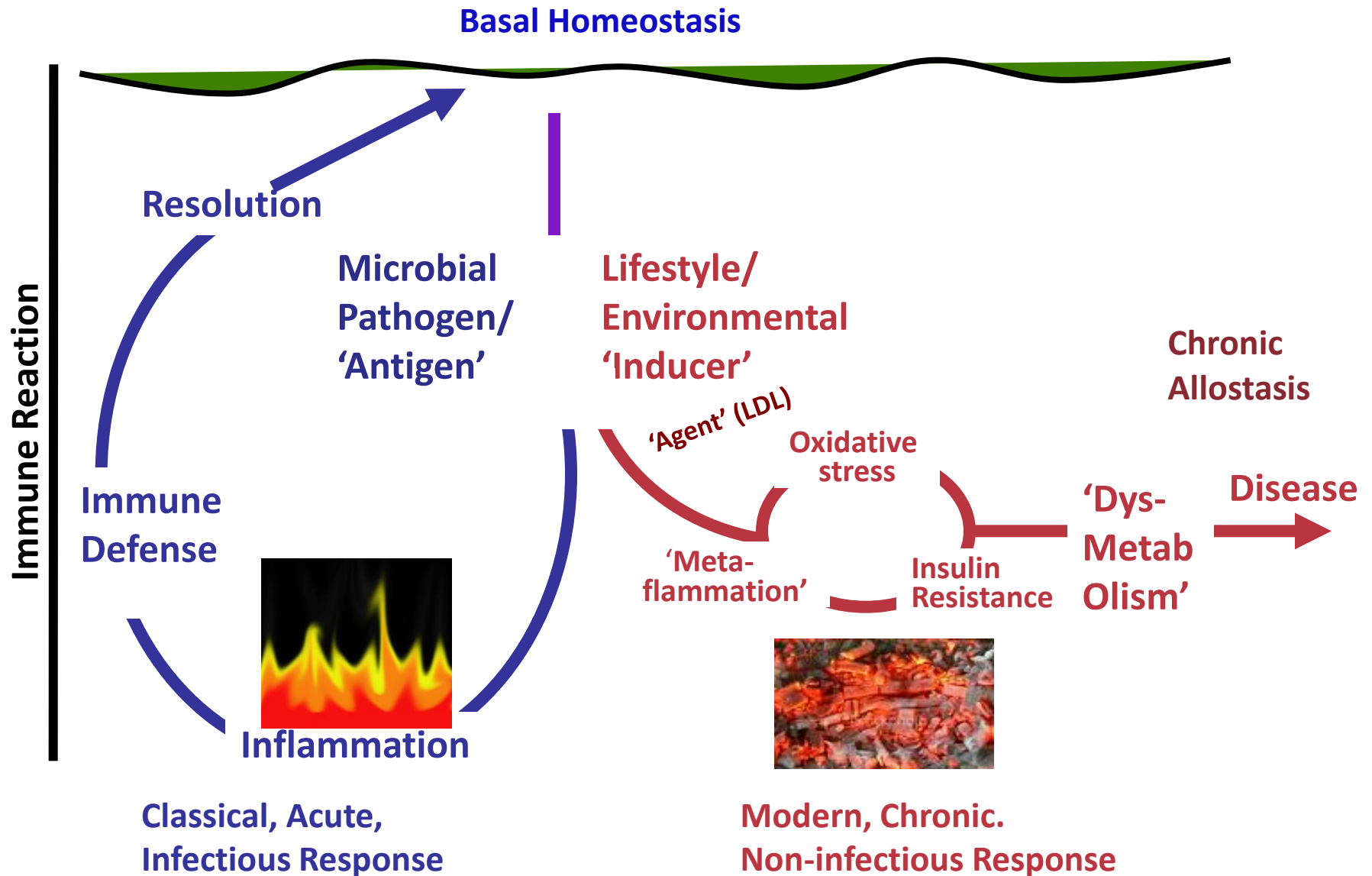
M			F		
1990	2010		1990	2010	
71.7	75.9	(+4.2)	78.6	80.5	(+1.9)

Two categories of disease: multiple causes

TIMELINE 100,000 BP 200BP Present



Classical Inflammation vs 'Metaflammation'



Inflammatory effects of various stimuli and their historical timeline of introduction into the human environment

Anti-Inflammatory

- Breast milk
- MUFA meat
- Fish
- Fibre
- Low EI/EE ratio
- Activity
- Fruit/Veg
- Nuts/seeds/soy
- Low N6/NS ratio

- Alcohol (moderate)
- Wine
- Beer
- Vinegar
- Olive oil

• Tea

• Cocoa

• Herbs/spices

• Mediterranean diet



Pro-Inflammatory

'Anthropogens'

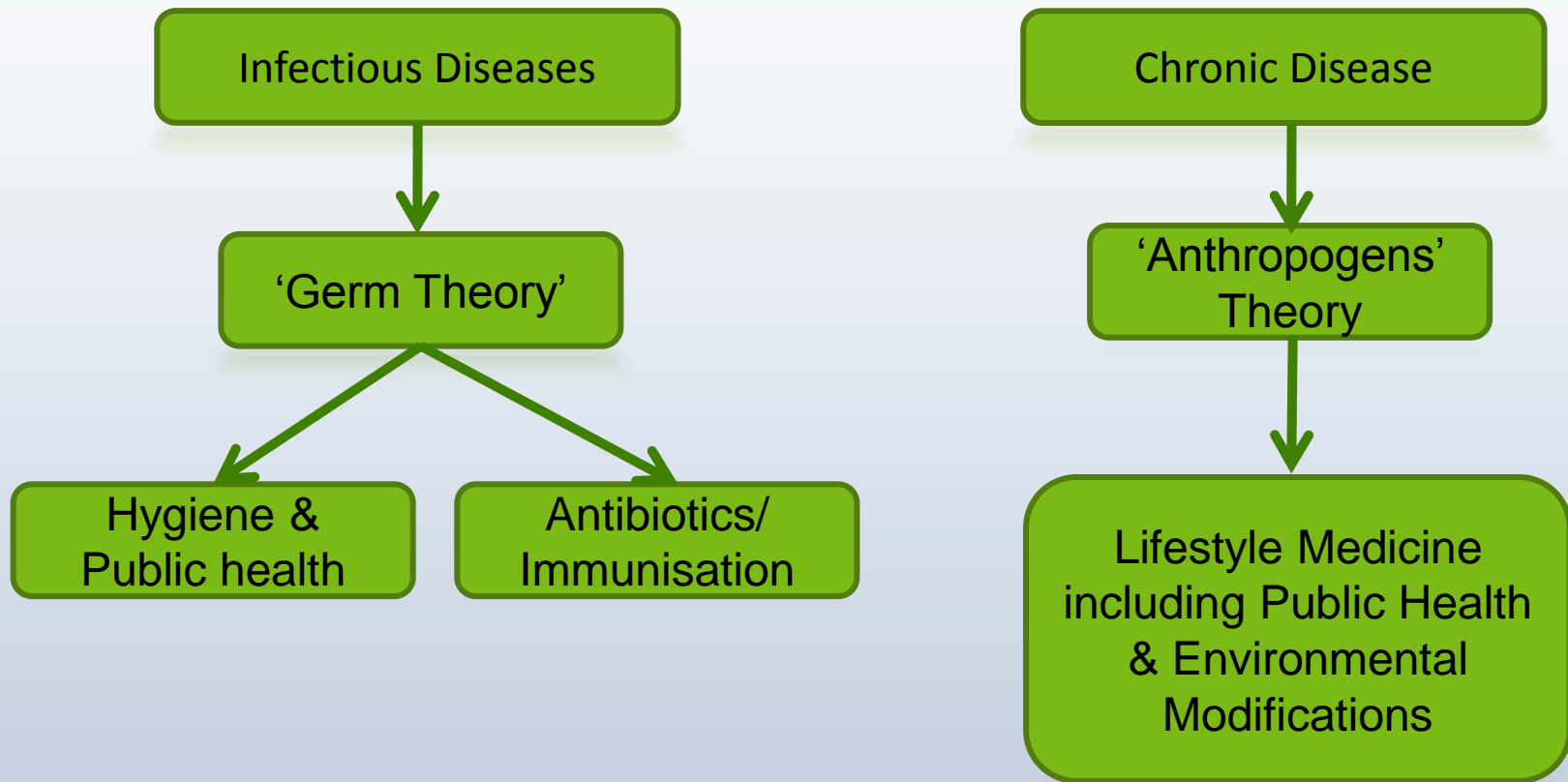
- Smoking
- Air pollution
- Fructose
- SAFA meats
- High EI/EE ratio
- Inactivity
- Sleep deprivation
- Chronic stress
- High N6/N3
- "Fast foods"
- Obesity
- Over-

Refs . Toussaint-Samat MA history of Food, 1994; . Civitello L. Cuisine and Culture, 2011;
 . Tannahill R. Food in History, 1988

“Anthropogens”:

‘Man-made environments, their bi-products and lifestyles encouraged by these, some of which may be detrimental to human health.’

Two categories of disease: multiple causes

[illegible]

'Anthropogens' and Chronic Disease

Nutrition - excess energy, fat, sugar, salt; malnutrition etc.

Activity - inactive leisure &/or work time; excessive sitting.

Stress - 'burn-out', 'brown out', anxiety, depression.

Techno-pathology
adverse effects of technology

Inadequate Sleep – sleep disorders; sleep time.

Environment - 'Man-made', air pollution; EDCs

Occupation – shift work; occupational hazards

Drugs, smoking and alcohol
iatrogenesis; recreational drugs

Over exposure – sunlight, radiation, CO₂

Under exposure - light (SAD), sunlight (vitamin D)

Relationships – support, belonging, care

Social inequality – ratio between rich and poor

Outline

- Changes in disease prevalence
- **‘Lifestyle medicine’, self-management and chronic disease**

Lifestyle Medicine

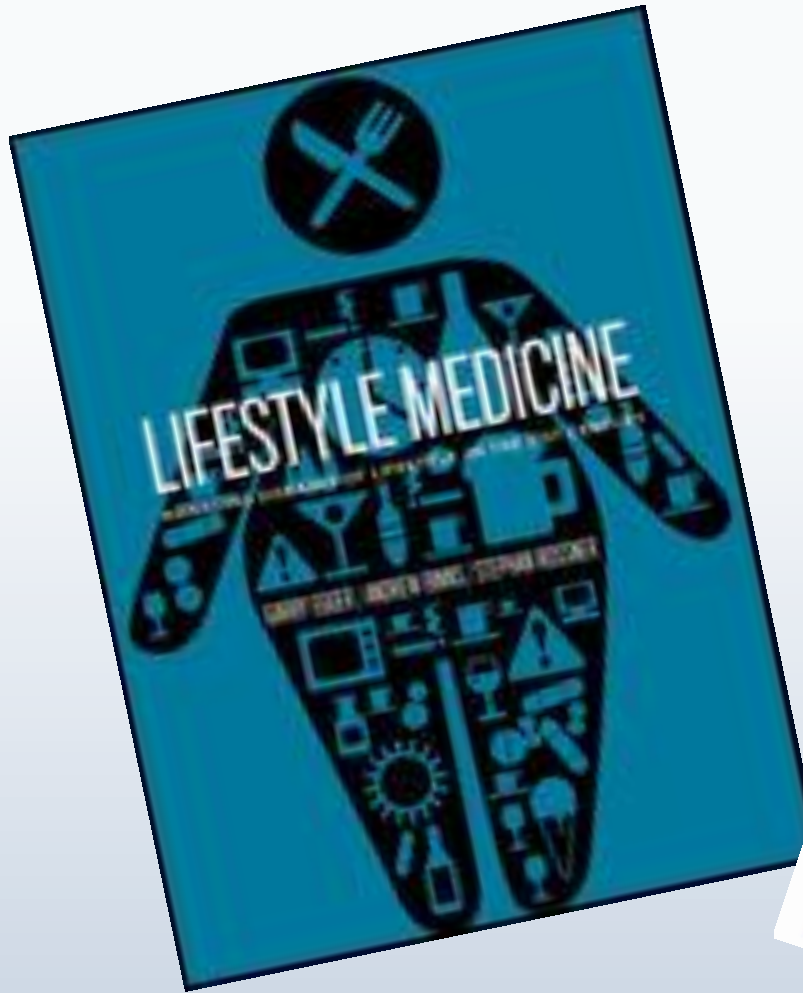
“ The application of environmental, behavioural, medical and motivational principles to the management (including self-care and self-management) of lifestyle-related health problems in a clinical (and/or public health) setting.”

Egger, Binns & Rossner ‘Lifestyle Medicine’ McGraw-Hill (in press)

motivation

Differences Between Conventional & 'Lifestyle' Medicine

Conventional Medicine	Lifestyle Medicine
'Downstream' focus	'Upstream' focus
Treats individual risk factors	Treats lifestyle causes
Patient is passive recipient of care	Patient is active partner in care
Responsibility is on the clinician	Responsibility is on the patient
Medication is often the main treatment	Medication is an adjunct treatment
Goal of disease management	Goal of primary/sec/tertiary prevention
Less consideration of the environment	More consideration of the environment
Side effects justified by the outcome	Side effects seen as part of outcome
Referral to other medical specialties	Referral (also) to allied health specialties
Doctor operates independently	Doctor is coordinator of a team






Australasian Lifestyle Medicine Association (ALMA)

www.lifestylemedicine.com.au

Self Care and Self Management

Level of Intervention

	Primary Prevention (Patient)	Secondary Prevention (Patient + Dr)	Tertiary Prevention (Dr + Patient)
Self Care			
Self Management			

Self Management

*“... active participation by people
in their own care”*
(RACGP, 2008)



Evidence for Chronic Disease & Self Management (CDSM)

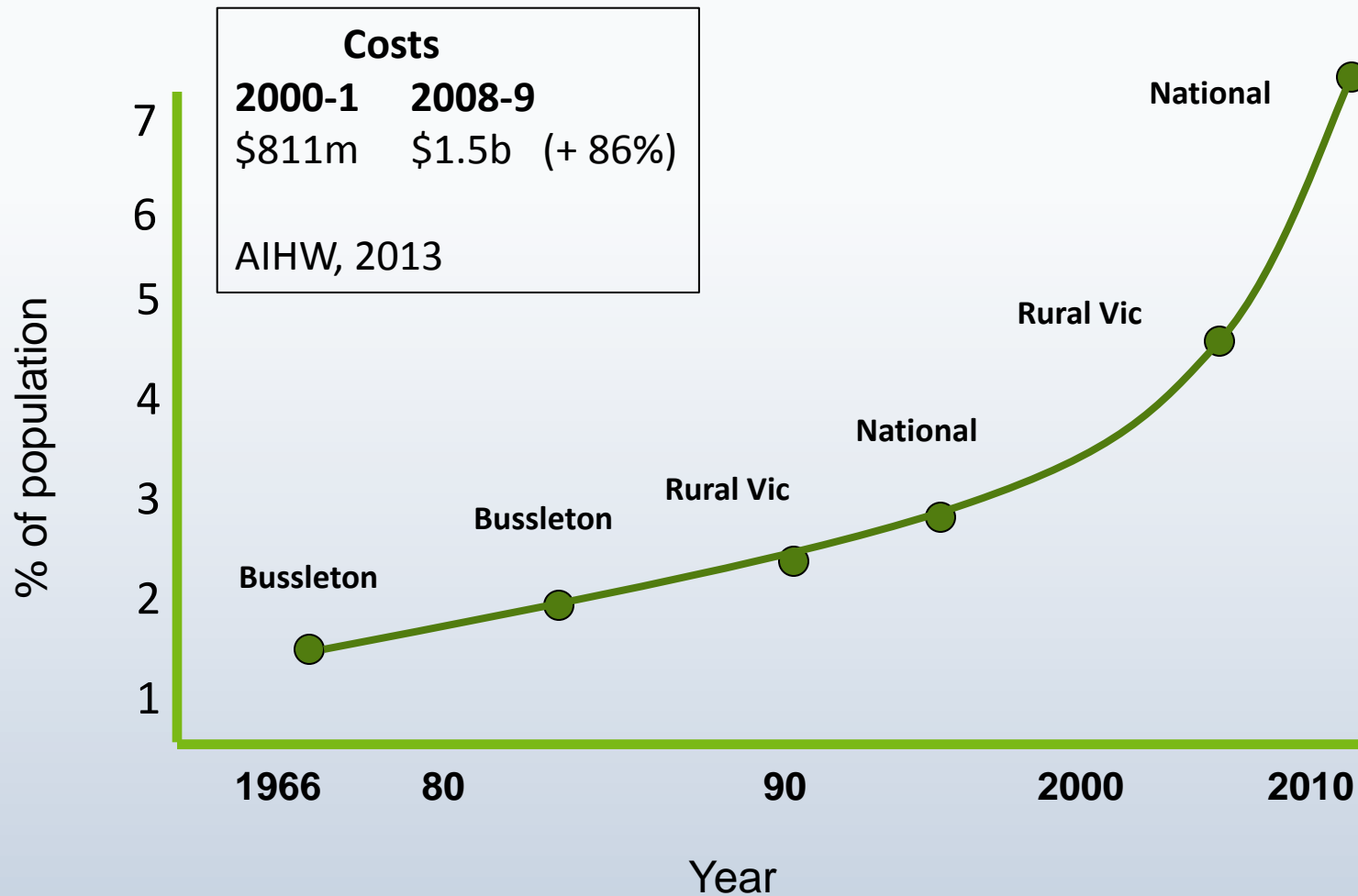
- ★ Improved clinical outcomes eg. diabetes; asthma; chronic pain; joint protection etc
- ★ Better use of health services/reduced health care utilisation
- ★ Improvements in 'self efficacy' in dealing with CDs
- ★ Improved health-related behaviours (eg. exercise, relaxation etc)
- ★ Improved service satisfaction

Ref: Lawn S., et al., *Aust J Prim Health* 2009;15:37-44.
Chodosh J., et al. *Annals Int Med* 2005;143:427-438.
Holman H, Lorig K. *Pub Health Rep* 2004;119:239-245

Type 2 Diabetes: Why Self Management?

- It has a long prodrome - hence opportunity for prevention/reversal
- It is has a largely lifestyle/ behavioural aetiology - and hence management
- It involves daily monitoring/care
- It has some obvious self-recognition symptoms which need to be managed quickly eg. hypos, fatigue etc
- it requires self-motivation

Growth of Type 2 Diabetes in Australia



Sources: 1. Wellborn et al., *MJA*, 1995;163:129-132; AIHW, Australia's Health, 2011

Desired Outcomes of DSM

- Clinical Outcomes
 - eg. improved blood pressure/cholesterol etc
- Health Knowledge*
 - eg. nutrition, exercise
- Health Behaviour
 - eg. nutrition, exercise, smoking, BMI<30
- Increased health/self efficacy*
 - self monitoring, blood glucose, foot care, eye care etc
- Self-reported health status/quality of life
- Better utilisation of health services

* Currently shown to be effective outcomes

Evidence for Diabetes Self-Management (DSM) - systematic reviews

1. Norris et al., *Diab Care* 2001;24:561-87

72 RCTs: Found +tive effects of DSM training on:

- self monitoring of blood glucose • dietary habits • glycaemic control

2. Shojania et al., *JAMA* 2006;296:427-40

66 studies of quality improvement for DSM

- decreased HBA₁C by -0.35% to -0.42%

3. Chodosh et al., *Ann Int Med* 2005;143:427-38

26 eligible RCTs comparing SM with usual care

- decrease in HBA₁C (-0.36%) • decrease in BP (5- 4.3mmHg sys/dias)

4. Cochran et al., *Diab Educ* 2008;34(5):815 (meta-analysis)

- compared QOL from DSM with standard care

- effect sizes of 0.281 – 0.313 showing effect of DSM

Patient DSM Options

- Prevention
- Reversal
- Mitigation
- Adaption
- Deterioration



This will involve the patient in the 4 M's

Monitoring your condition(s)

Blood sugars; HBA₁C; Blood Pressure; Cholesterol

Managing the symptoms, treatment and consequences of your condition(s)

Foot care; eye care; wound care

Making changes to adapt to your condition(s)

Nutrition; physical activity; sleep; stress; smoking

Maintaining quality of life in the face of your condition(s)

Regular visits to primary care team; peer support

“Diabetes self management has always been a larger phenomenon than the sum of a patient’s diabetes self management (DSM), knowledge, behaviors and decisions.”

Corser W. *J Nurs Care Qual* 2009; 24(2):172-8

Outline

- **A structure (and evidence-base) for diabetes self-management (DSM) in clinical practice**

Categorisation of DSM Supports

1. Patient oriented interventions

- brief counselling/ cluster (group) counselling
- patient tracking systems
- telephone follow-ups
- peer support

2. Clinician or system oriented interventions

- Clinician training (Motivational interviewing; Health Coaching etc)
- CDMS; team care arrangements
- Provider participatory decision making style

3. Combined interventions

- peer developed educational materials/office resources
- outcome oriented goal setting
- 'user-friendly' practice facilities
- SHARED MEDICAL APPOINTMENTS

Structure for good self management

APPROACH

IMPLICATIONS

	Client Centred	Motivation Focused	Health 'literacy' Oriented
Counseling			
Support Structures			
Outcomes			

Structure of good self management

APPROACH

IMPLICATIONS

	Client Centred
Counseling	<i>Shared care</i>
Support Structures	<i>'User-friendliness'</i>
Outcomes	<i>Increased "Health Efficacy"</i>

Being Client Centred

**Reflective Listening:
Using the OARS
approach**

Observe

Assess

Re-State

Summarise

Being Client Centred

Having a 'User-Friendly' Practice Environment

How 'user-friendly' is this?



?

Increasing Self (Health) Efficacy

“Assessing which patients have low self-efficacy and identifying those who might be less likely to perform self management behaviors as a result, is likely to prove especially helpful in modifying health behaviors among the chronically ill.”

Marks, Allegrante and Lorig, (2005)

The Art of 'Nudging' in Lifestyle Medicine

Modifiable 'determinants'

- Modern western diet
- Sedentary work & leisure
- High stress/poor coping skills
- Sleep disorders/daytime fatigue
- Heavy alc/drug use
- Social isolation

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- Predominantly plant-based diet
- 250 mins exercise/wk + 'incidental' activity
- Low stress/excellent coping skills
- excellent sleep/no fatigue
- Controlled drug/alc use
- Good social support

CURRENT

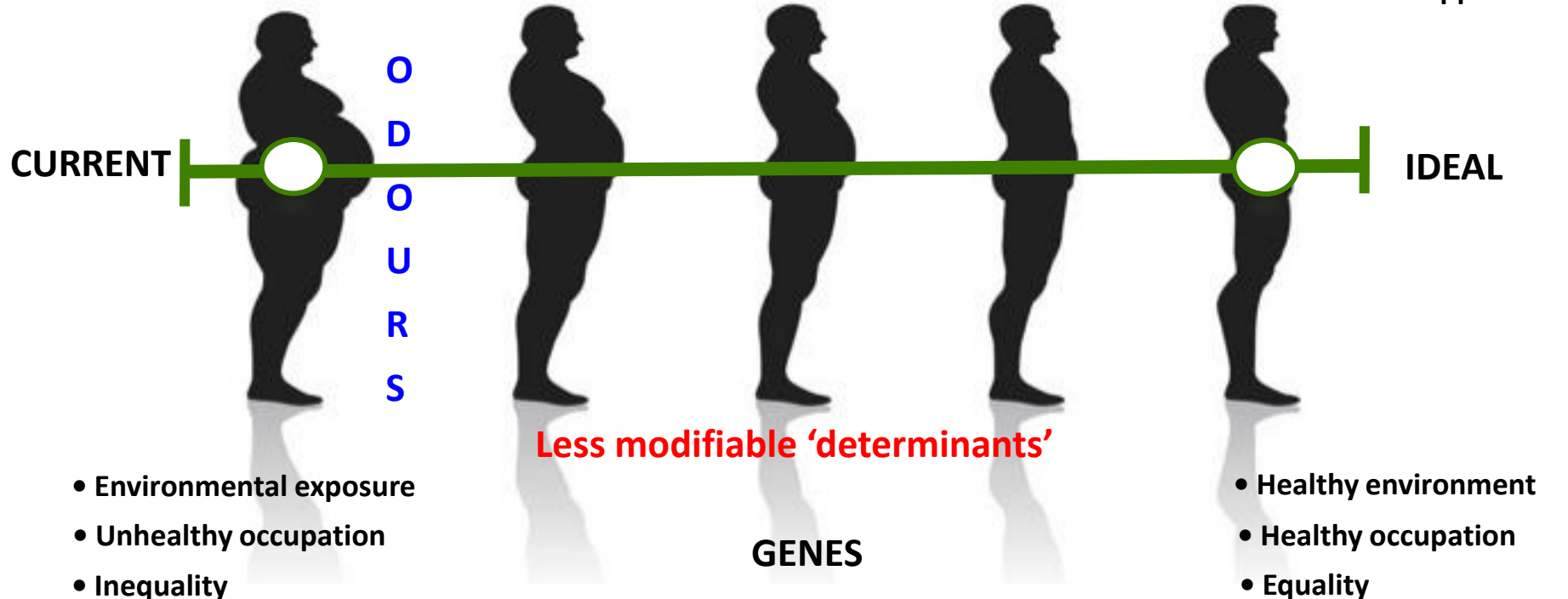
IDEAL

Less modifiable 'determinants'

- Environmental exposure
- Unhealthy occupation
- Inequality



- Healthy environment
- Healthy occupation
- Equality

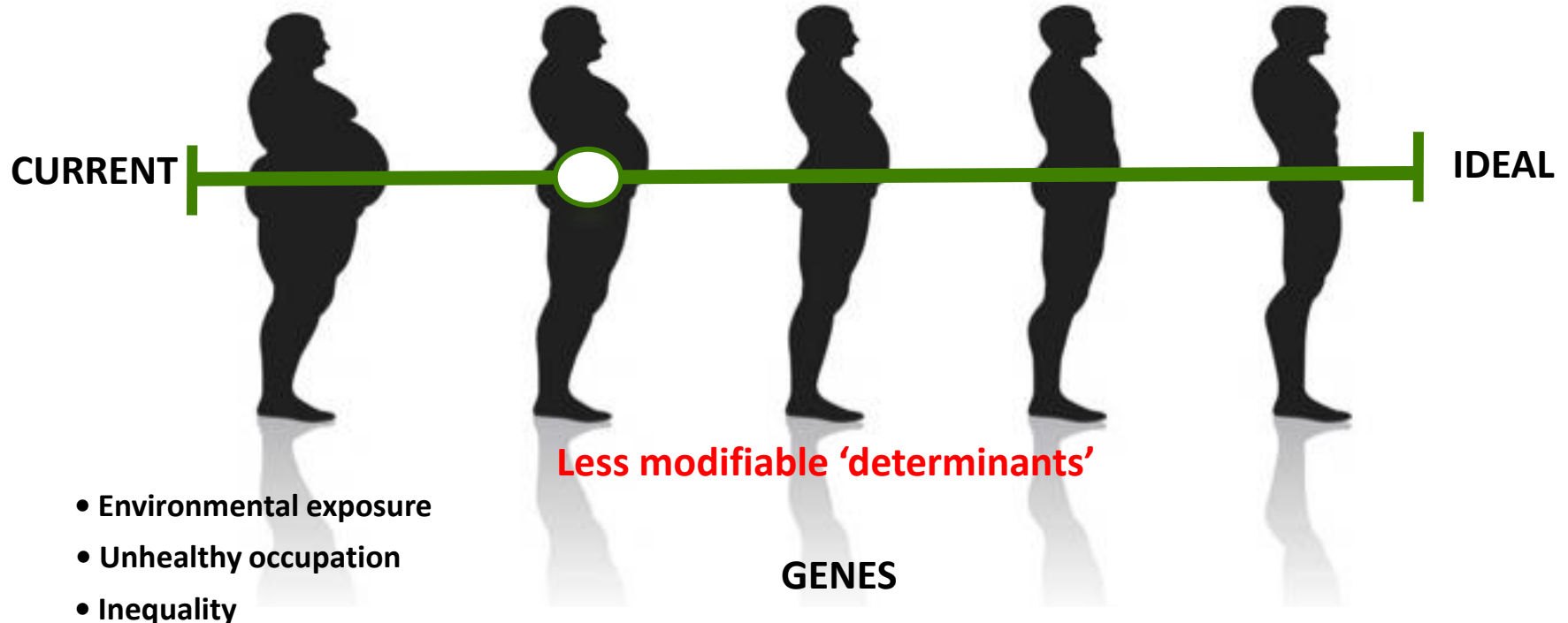
GENES



The Art of 'Nudging' in Lifestyle Medicine

Modifiable 'Determinants'

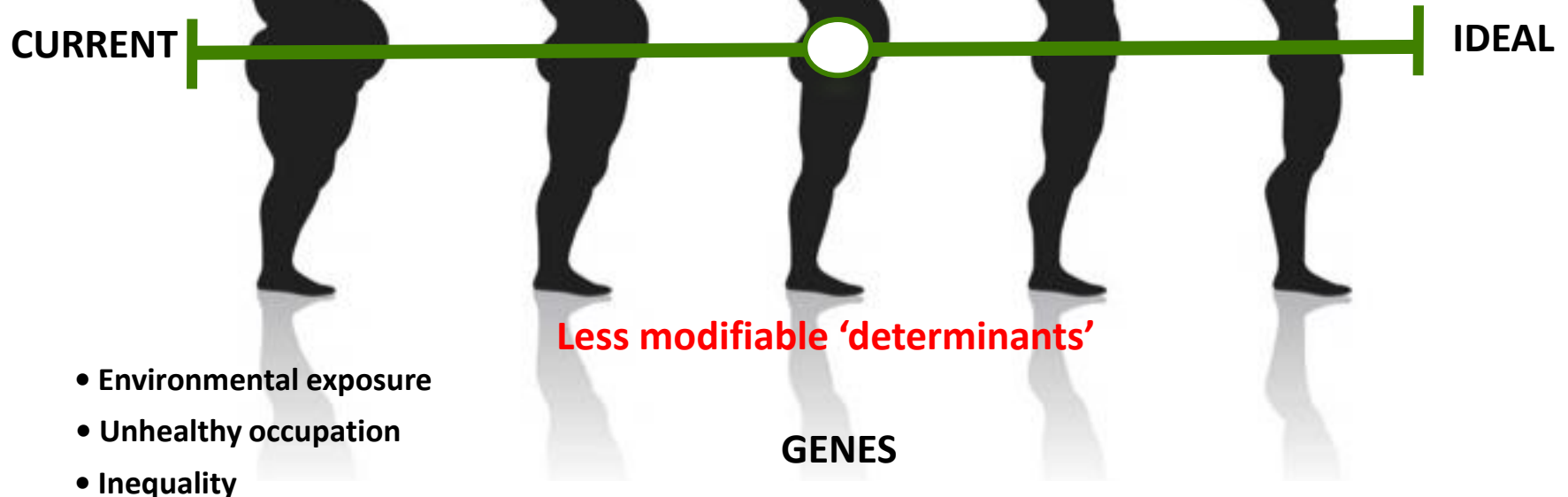
- less total food intake
-  'incidental' activity
- High stress/ poor coping
- Poor sleep/ daytime fatigue
-  rec. drug use
- Social isolation



The Art of 'Nudging' in Lifestyle Medicine

Modifiable 'Determinants'

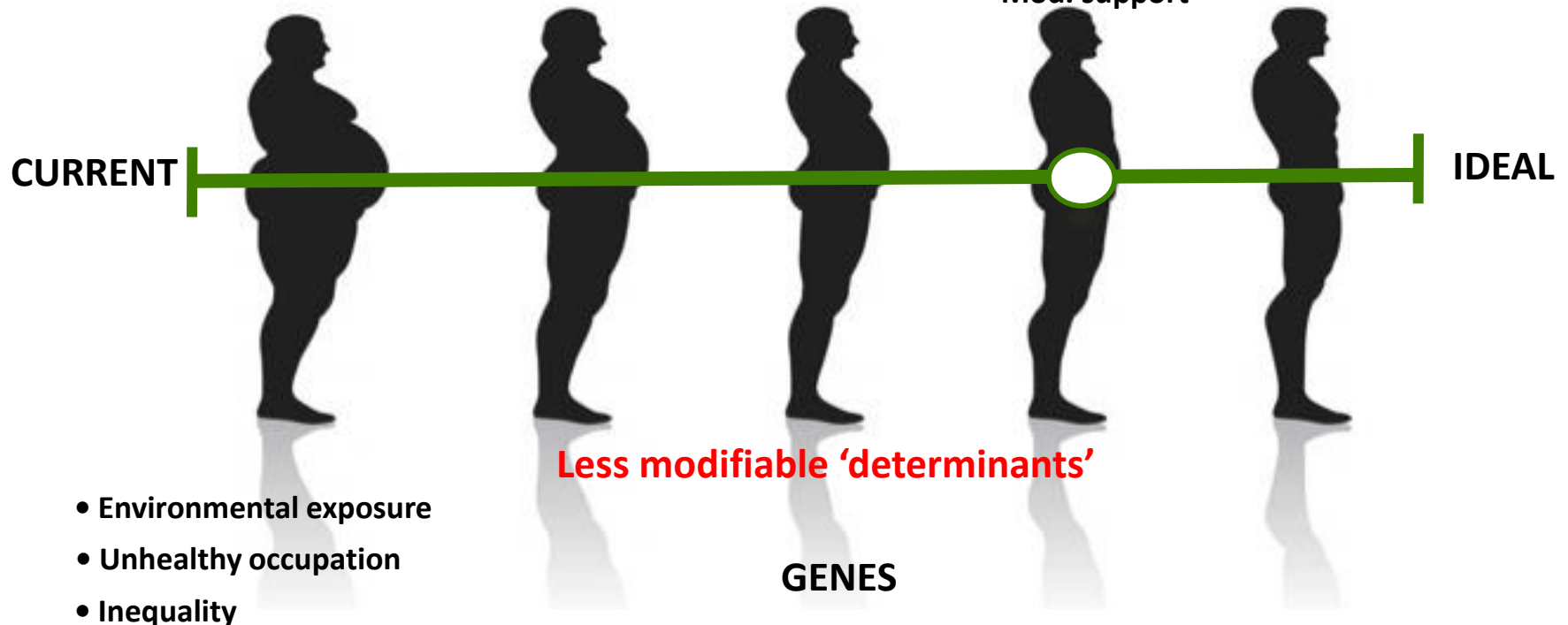
- ↓ fat/
high energy diet
- ↑ 'Incidental' &
some leisure activ.
- Mod. stress/
mod. coping
- Broken sleep/
↑ daytime energy
- ↓ smoking
- Some support



The Art of 'Nudging' in Lifestyle Medicine

Modifiable 'Determinants'

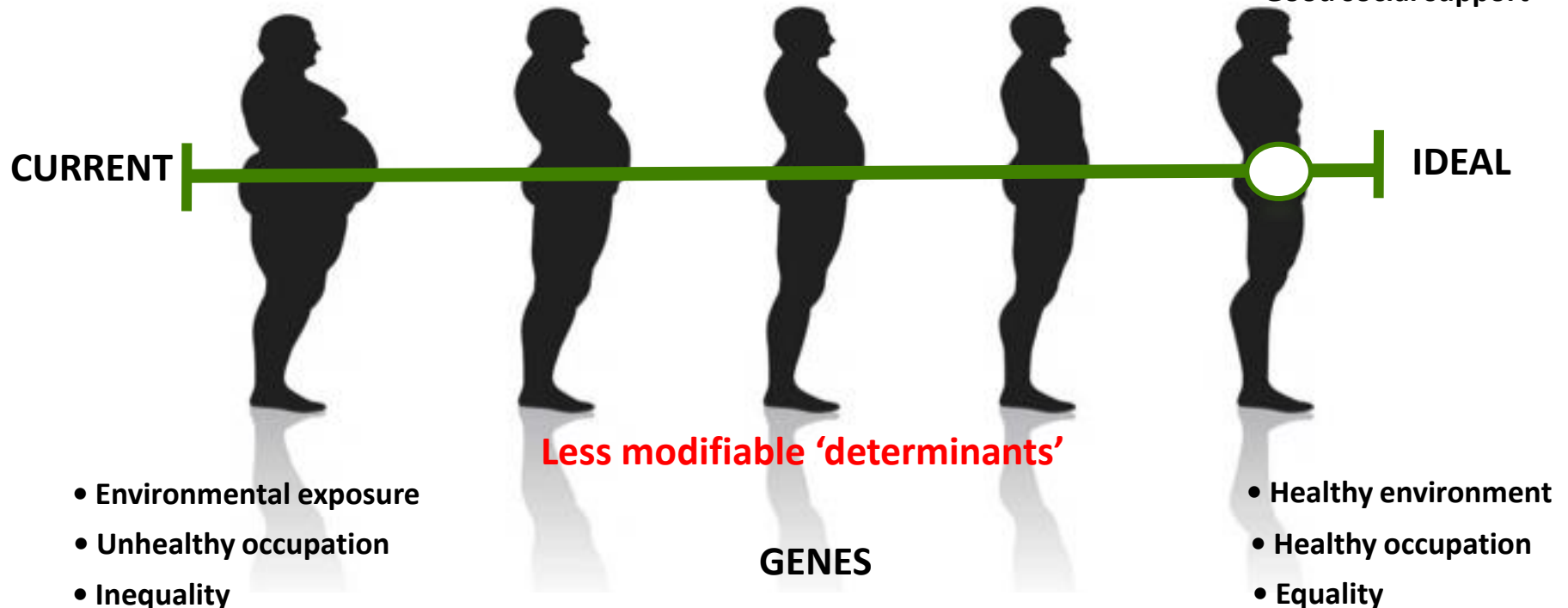
- ↑ vege/ fruit-based diet
- ↑ 'incidental', work. & leisure activ.
- Mod. stress/ good coping skills
- ↑ sleep/little fatigue
- Mod. alcohol use
- Mod. support



The Art of 'Nudging' in Lifestyle Medicine

Modifiable 'Determinants'

- Predominantly plant-based diet
- 250 mins exercise/wk + 'incidental' activity
- Low stress/excellent coping skills
- excellent sleep/no fatigue
- Controlled drug/alc use
- Good social support



Being Client Centred in DSM: The Evidence

- Provider participatory style & provider communication skills are associated with greater DSM assessments.

Kaplan et al. *Med Care* 1989;27:S11027

- A Cochrane analysis (20 studies) concluded there is no evidence (2006) to support the widespread introduction of shared care – except for improved prescribing

Smith et al. *Cochrane Data Base System* 2007;3:CD004910.

- Training to increase self-efficacy increases outcome expectancy and blood glucose control in Taiwanese diabetics

Wu et al *Nurs Health Sci* 2011;13(3):335-43

- Group-based DSME in a meta-analysis with people with type 2 diabetes results in improvements in clinical, lifestyle and psychosocial outcomes.

Steinsbekk A et. *BMC Health Services Research*, 2012; 12:213

“The most consistent positive outcome of interventions to improve self care has been improvement in self-efficacy.”

Adams RJ. *Risk Man Hlthcare Pol* 2010;3:61-72

Practice Implications

- Although intuitively logical there is, as yet, no consistent evidence to support widespread use of shared care in DSM;
- A patient-based approach with empathy, listening skills, good communication, outcome-oriented goals and shared decision-making is more effective than a directive approach;
- Increases in patient self-efficacy ('health efficacy?') provide the biggest 'bang for the buck' in DSM;

Structure for good self management

APPROACH

IMPLICATIONS

	Client Centred	Motivation Focused
Counseling	<i>Shared care</i>	<i>Motivational interviewing</i>
Support Structures	<i>'User-friendliness'</i>	<i>Team Care</i>
Outcomes	<i>Increased "Health Efficacy"</i>	<i>Increased 'intrinsic' motivation (Health Determinancy)</i>

Motivational Interviewing: Three things to determine

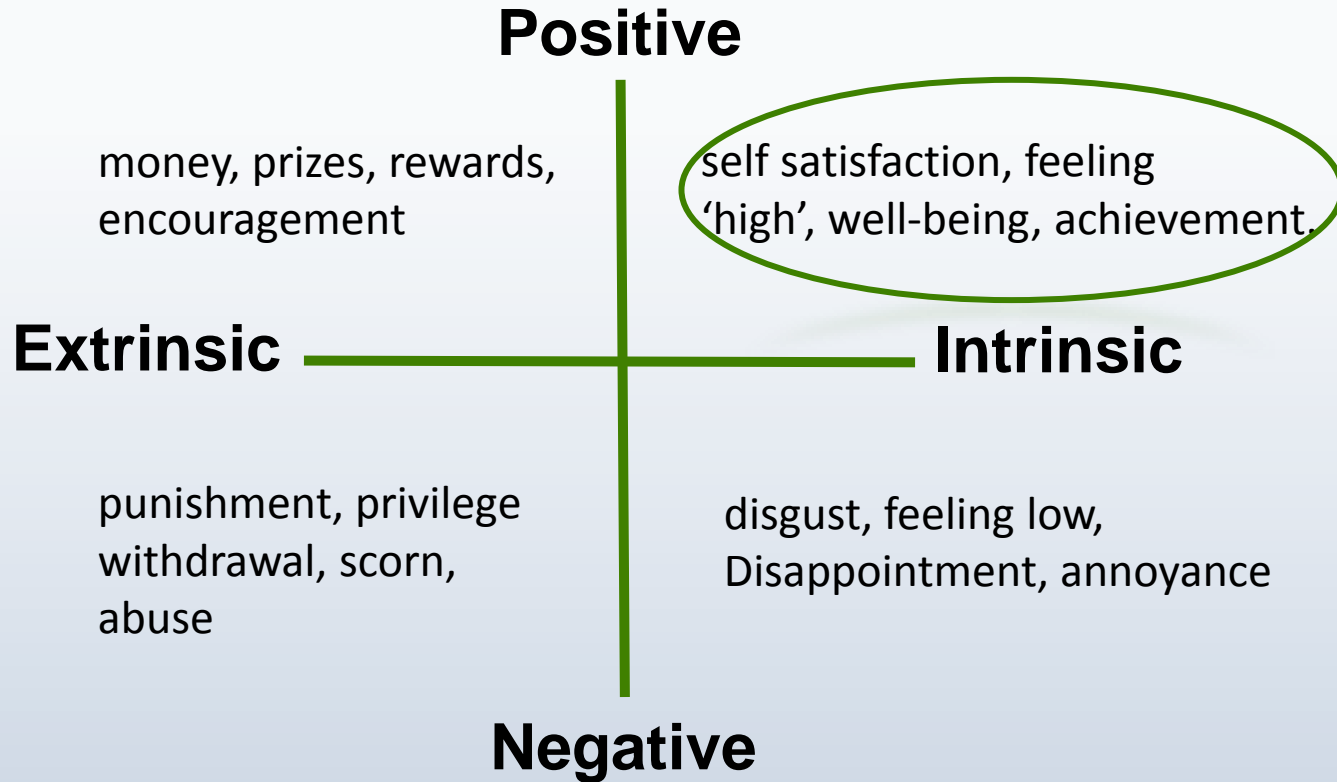
1. How *ready*, *willing* and *able*, is the patient to change?
2. What are the barriers to change?
3. What are the triggers to change?

Team Care Arrangements

Ex Physiologists: www.essa.org.au



Forms of Motivation



Being Motivation Focused in DSM: The Evidence

- MI improves outcomes in most areas, but targeted MI with experienced counsellors can have an even better impact.

Rubak et al. *Brit J Gen Prac* 2005; 55(513):305-312

Armstrong et al., *Ob Rev* 2011;12:709-723

- MI improved type 2 patients' understanding of diabetes, their beliefs regarding treatment aspects, their contemplation on and motivation for behaviour change

Rubak et al. *Scand J Prim Health Care* 2009;27(3):172-9

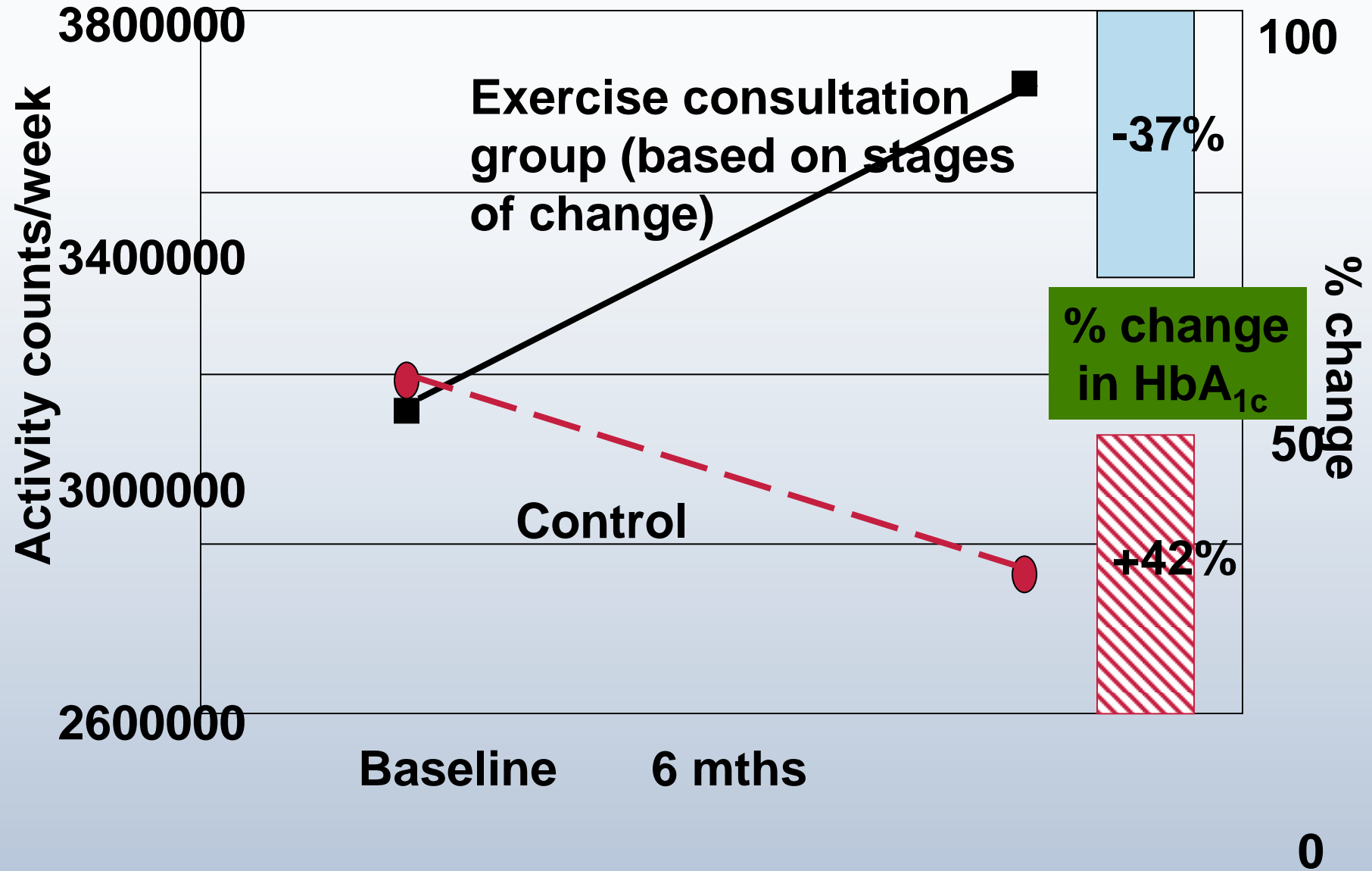
- A team care intervention with nurse management can lead to greater numbers of diabetes patients reaching goal than with usual care

Taylor et al., *Diab Care* 2003;26(4):1058-1063

- Increasing ability expectations through improving intrinsic motivation increases diet management (and less so exercise)

Oftedal B, Bru E, Karlsen B. *Scan J Caring Sci* 2011;25(4):735-44.

Increased activity and decreased HbA_{1c} in diabetics given exercise Rx based on stages of change



Practice Implications

- Motivational interviewing has generally been shown to be more effective than a standard approach in DSM and other, forms of behavioural self-management;
- The practice team should be involved at all levels of DSM care;
- An underlying outcome goal should be to aim at increasing 'intrinsic motivation' in the individual.

Structure for good self management

APPROACH

IMPLICATIONS

	Client Centred	Motivation Focused	Health 'literacy' Oriented
Counseling	<i>Shared care</i>	<i>Motivational interviewing</i>	<i>Tutoring Mentoring</i>
Support Structures	<i>'User-friendliness'</i>	<i>Team Care</i>	<i>'Hub and spoke' approach</i>
Outcomes	<i>Increased confidence (Health Efficacy)</i>	<i>Increased 'intrinsic' motivation (Health Determinancy)</i>	<i>Increased understanding (Health Literacy)</i>

Facts on Health literacy

- Around 50% of the population are functionally health illiterate
- On top of this up to ~10% have some level of dyslexia
- This increases to 2/3 in over 60 years olds; is highest in low SES, low education, Indigenous and non English speaking individuals
- Health status is associated with low functional health literacy
- Over 2/3 of the functionally illiterate have told no-one about this

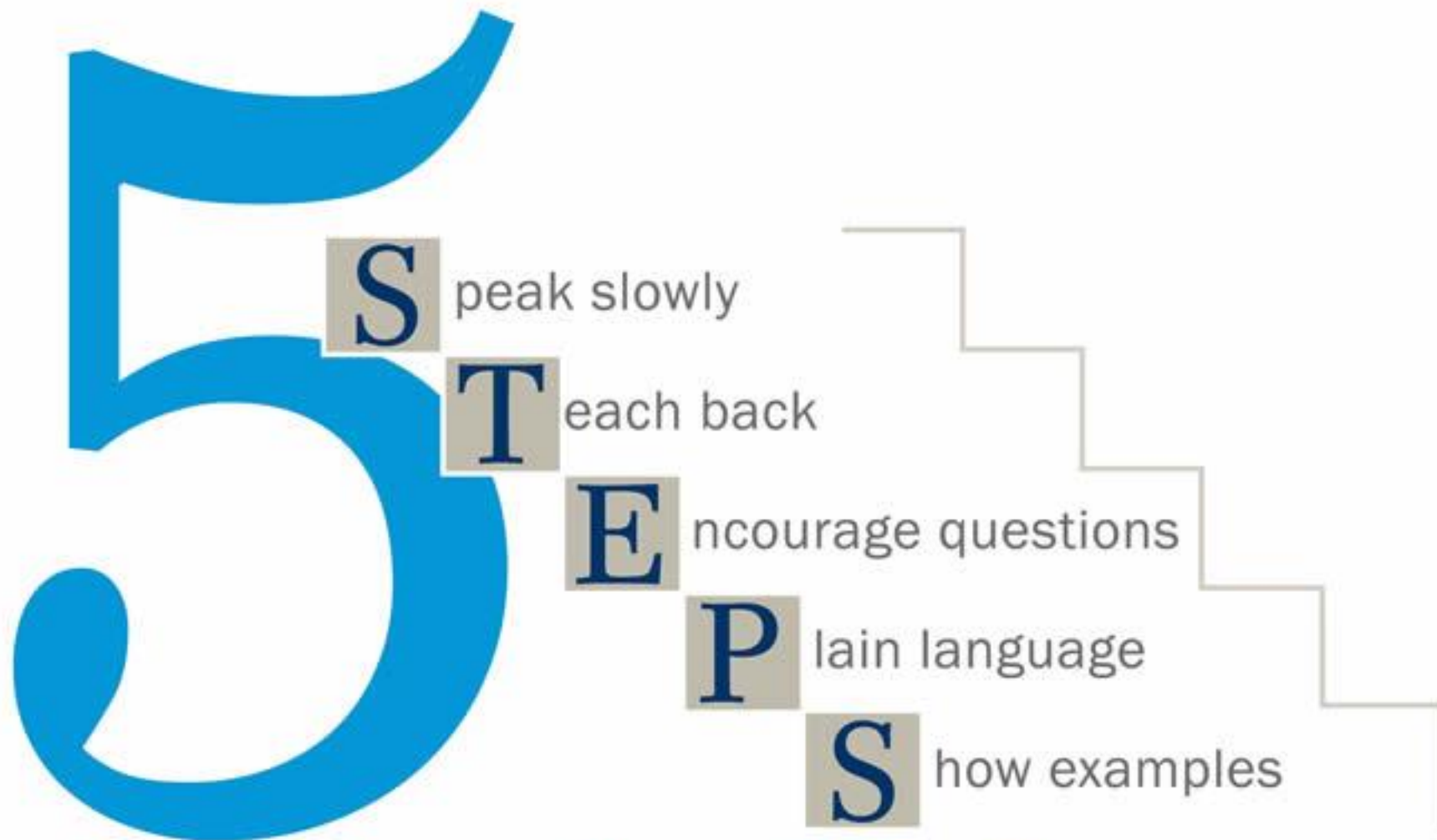
HENCE: Health literacy has to be considered in any LM/CDSM consultation.

Practice Tips for Improving Health Literacy: The 'Hub-and-Spoke' Approach

BEYOND BLUE: <http://www.beyondblue.org.au/index.aspx?>

BLACK DOG INSTITUTE: <http://www.blackdoginstitute.org.au/>





to better health literacy

www.stvincentcharity.com/programs-services/centers-excellence/health-literacy/what-is.aspx

Being Health Literacy Oriented in DSM: The Evidence

- There are good reasons why people with low HL have poor health: ie. reluctance to ask questions; intimidating effect of text; less information seekers etc.

Adams RJ. *Risk Man & Healthcare Pol* 2010;3:61-72

- However, to date there are limited intervention studies and these show mixed results. Most report improved outcomes but only about 50% show an effect on clinical outcomes.
- Biggest improvements are in knowledge and self-efficacy; the former doesn't guarantee changes in outcomes.

Clement et al., *Patient Educ Couns* 2009;75:340-351

- There are limited studies on literacy interventions with diabetes. One study shows decreases in HBA₁C, but only in those with low literacy.

Rothman et al. *JAMA* 2005;118:276-84

Practice Implications

- Although low health literacy is associated with increased disease risk, there is currently limited evidence to show that literacy interventions *per se* change diabetes outcomes;
- Most literacy interventions are simple and focus on increased knowledge. However, this is no guarantee of behaviour change;
- Complex interventions are best at achieving some outcomes - but not all. More evaluative studies are needed to show the most effective health literacy interventions;
- Health literacy interventions are likely to work best in those who are 'activated' to respond.

Structure for good self management

		APPROACH	
IMPLICATIONS		Client Centred	Motivation Focused
			Health 'literacy' oriented
	Counseling	<i>Shared care</i>	<i>Tutoring Mentoring</i>
	Support Structures	<i>'User-friendly' Care</i>	<i>'Hub and spoke' approach</i>
	Outcomes	<i>Increased 'self-efficacy'</i>	<i>Increased understanding (Health Literacy)</i>

**Shared Medical Appointments
('Group Visits')**

Definition and Types of Group Visits

Definition:

Group visits are: *...comprehensive medical visits (billable at individual rates) focusing on chronic disease, but run in a supportive group setting of consenting patients with similar concerns, and run with 2-4 appropriate health professionals, including a GP within the group visits model (eg. see www.groupvisits.com)*

Types:

Group Visits (Shared Medical Appointments)

	SMAAs	PSMAAs	DIGMAS
Heterogeneous	✓	✓	✓
Homogeneous	✓	✓	
Gender-based	✓	✓	✓
Specialist based		✓	

<http://www.diabetesincontrol.com/articles/diabetes-news/13392-mary-ann-hodorowicz-q1-the-basics-of-shared-medical-appointments>

www.youtube.com/watch?gl=CO&hl=es-419&v=OdKa9bXVinE

Conclusion

Although DSM is intuitively enticing, the field of study is young and hence does not yet have a strong evidence-base in some aspects of interventive practices.

However, there is a strong 'logic-base' in theoretical structures to support the notion that 'absence of evidence is not evidence of absence' in a sunrise field of practice such as this.

In the meantime, supported principles such as motivational interviewing, empathetic communication, team-care involvement, enhanced patient self-efficacy and a 'user-friendly' practice environment should become entrenched in chronic care management.

Acknowledgements

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Australian Government

Department of Health