The Acceptability, Feasibility and Cost-Effectiveness of Nurse-led Models of Care

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Aim:

Is to examine the acceptability, feasibility and cost-effectiveness of nurse-led models of care in primary care (general practice) in Australia

Team

Academics

- Professor Desley Hegney – UQ (nursing)
- A/Professor Elizabeth Patterson – Griffith (nursing)
- Professor Chris del Mar – Bond (medicine)
- Professor Paul Scuffham – Griffith (medicine, health economist)
- Mr. Paul Fahey – USQ (statistician)
- Dr. Diann Eley – UQ (social scientist)
- Mrs Robyn Synnott – UQ (project manager)

Practice Partners

- Dr. Hume Rendell-Short – Toowoomba, Qld (regional)
- Dr. Stephen Black – Palm Beach, Qld (major city)
- Dr. Ruth Stewart – Camperdown, Victoria (rural)

PhD students (full-time ARC scholarships)

- Ms Jacqui Young (UQ – nursing)
- Ms Rosemary Mahommed (Griffith – nursing)

Reference Group

- Royal Australian College of General Practitioners
- Australian College of Rural and Remote Medicine
- Royal Australian College of Nursing
- Australian Practice Nurses Association
- Queensland Nurses Union
- Queensland Nurses Council
- Diabetes Queensland
- National Heart Foundation
- Carers Queensland

The Need for the Study: The Burden of Chronic Disease

- cardiovascular disease - **30%** of all deaths
- **17%** of deaths within Australia are attributed to hypertension
- an estimated **275** Australians develop diabetes every day
- people with diabetes are **2** to **4** times more likely to develop cardiovascular disease
- **60%** of patients are not reaching recommended glycaemic levels

People with chronic conditions currently account for 35% of all general practice consultations (Australian Institute of Health and Welfare [AIHW] 2005) and will, by 2016, comprise 16% of the Australian population (AIHW 2001). It is estimated that by 2051 50% of the Australian population over 50 years of age will have a chronic condition (ABS 2005).

Australian Institute of Health and Welfare, 2006a, 2008a; National Heart Foundation of Australia, 2007; Diabetes Australia, 2007; National Health Priority Action Council, 2006a, 2006b; Saydah, Fradkin, & Cowie, 2004; Kemp et al., 2005)

The Need for The Study: Shortages of General Practitioners (family doctors) in Australia

- ➔ the number of female GPs is increasing and they want to work part-time
- ➔ GPs want to work less hours and have a better work/life balance

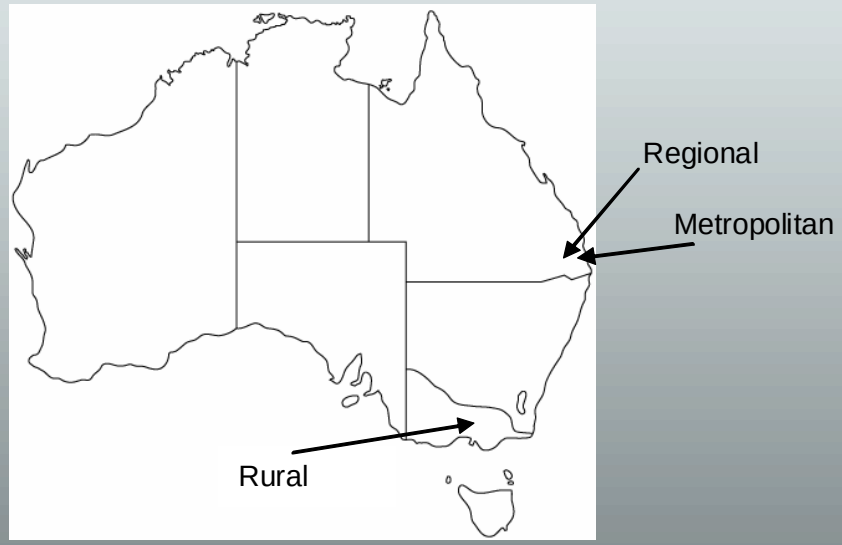
This means that GPs are working less hours.

- ➔ there is a lack of GPs and insufficient support services (mostly due to restrictions on training at both Universities and Colleges)
- ➔ As the Australian population ages and the numbers with chronic diseases increase, so too will the demand on GP services.

Thus the current system of the GP providing the major care to patients in a primary care setting is unsustainable over time, especially in the light of GP workforce shortages (Productivity Commission 2005).

Australian Medical Workforce Advisory Committee, 2005; Productivity Commission 2005

Participant selection



- patients must have visited the practice within the last 12 months
- over eighteen years of age
- able to give informed consent
- speak and understand English
- receiving treatment for one of the following chronic diseases
  - ischaemic heart disease (stable for 6 months or 6 months post intervention)
  - type 2 diabetes
  - hypertension

Study Design

Multi-method design with data triangulation.

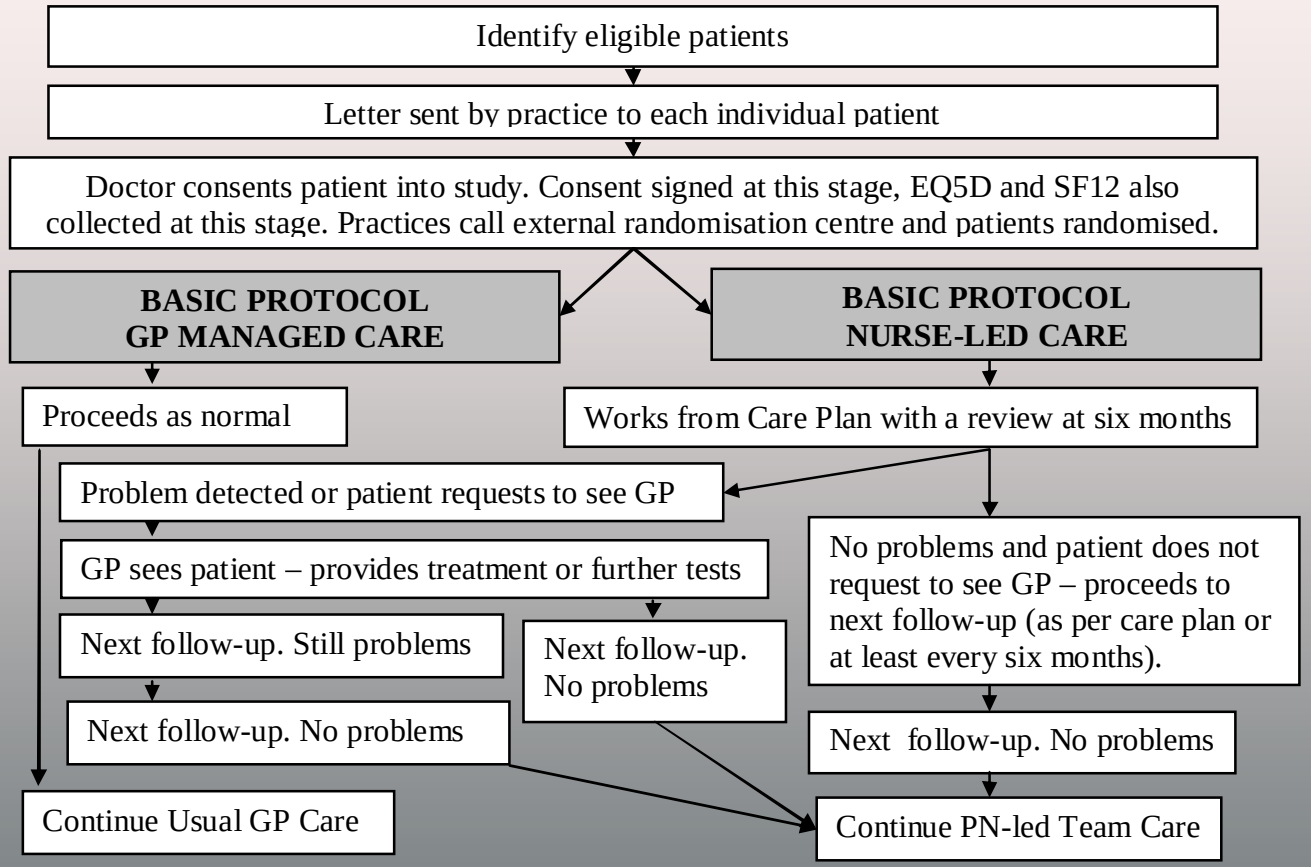
Randomised controlled trial aiming to recruit 125 patients per arm – usual care or nurse-led care

Total of 250 patients (for 95% confidence)

Nurse-led Care

- Registered nurses (not nurse practitioners)
- Screened and approved by doctors
- Be confident in this type of care delivery – that is fully managing the patient including undertaking a consultation
- Nurses provided with professional education and evidence-based guidelines

Study Design



Ethics

- University of Queensland
- Bond University
- Griffith University
- University of Southern Queensland

Quantitative Data Collected

- Clinical data – all patients

Pre (12months prior), 6 months and 12 months

(BMI, HbA1c, BP, meds, cholesterol levels)

- Economic data – all patients

- Collected via questionnaire pre, 6 and 12 months (visits to specialists, after hours, hospitals) plus EQ5D data
- Collected from practices pre and post (number of patients seen per FTE doctor, item numbers of these patients, activity of PN)

- Quality of Life data – all patients

- SF 12 (pre, 6 and 12 months)

- Collaborative practice scale (pre and post) all staff in practices

Qualitative Data

- Interviews with doctors (what is usual practice)
- Interviews with patients in the nurse-led arm
  - Pre study
  - Post study
  - Exit interviews with those patients who change from the nurse-led back to GP arm during the study (PhD student)
- Interviews with patients whose clinical data and quality of life data may be inconsistent (PhD student)
- Interviews with nurses at end of study re their experiences of the model

Eligibility of patients

- Approximately 25% of total patients of each practice meet inclusion criteria
- 14% have hypertension only
- 3% have hypertension and IHD
- 1% have IHD alone
- 7% have diabetes mellitus (with or without hypertension, IHD)
- Participation rates on the 1st May were:
- 18% Palm Beach (48 out of 262)
- 44% Toowoomba (131 out of 296)
- 42% Camperdown (76 out of 180)
- Attrition rates are:
- 4 Palm Beach (or 8%)
- 13 Toowoomba (or 10%)
- 1 Camperdown (or 1%)

Patients into study as at 1st May, 2008

Practice	Diabetes		Hypertension		IHD		TOTAL
	GP	PN	GP	PN	GP	PN	
Palm Beach	5	4	13	13	7	6	48
Camperdown	12	11	13	13	13	14	76
Toowoomba	24	24	23	23	19	18	131
TOTAL	41	39	49	49	39	38	255

Demographics

Gender	Male Female	47% (n = 92) 53% (n=104)
Age Range	37 – 92 years	Mean 69 years
Marital Status	Single/Never married Living together/ defacto Married Divorced Separated not Divorced Widowed	6% (n=12) 1% (n=2) 64% (n=126) 8% (n=15) 2% (n=3) 19% (n=38)
Years of Education	Range: 6 years to 18 years	Mean 10 years

Demographics - Income

Aged Pension *	45% (n=88)
Veterans Pension *	8% (n=16)
Self-funded retiree *	16% (n=32)
Disability Pension	7% (n=14)
Unemployed	6% (n=11)
Manager/Administrator	4% (n=7)
Professional	2% (n=3)
Paraprofessional	3% (n=6)
Tradesperson	2% (n=3)
Administrative Assistant	2% (n=4)
Sales/Personal Service Worker	3% (n=6)
Machine Operator/Driver	2% (n=3)
Manual Worker	1% (n=2)
Self-employed	6% (n=12)
Student	1% (n=2)
Other occupation	8% (n=16)
NB Some participants may be in more than 1 category	

Self-reported health issues

High BP	Male n=69 Female n = 88	80% (n=157)
Heart Attack	Male n=20 Female n=8	14% (n=28)
Heart Failure	Male n=10 Female n=3	7% (n=13)
Angina	Male n=29 Female n=16	23% (n=45)
Stroke	Male n=8 Female n=6	7% (n=14)
Diabetes	Male n=36 Female n=40	39% (n=76)
Anxiety	Male n=11 Female n=14	13% (n=25)
Depression	Male n= 10 Female n= 33	22% (n=43)

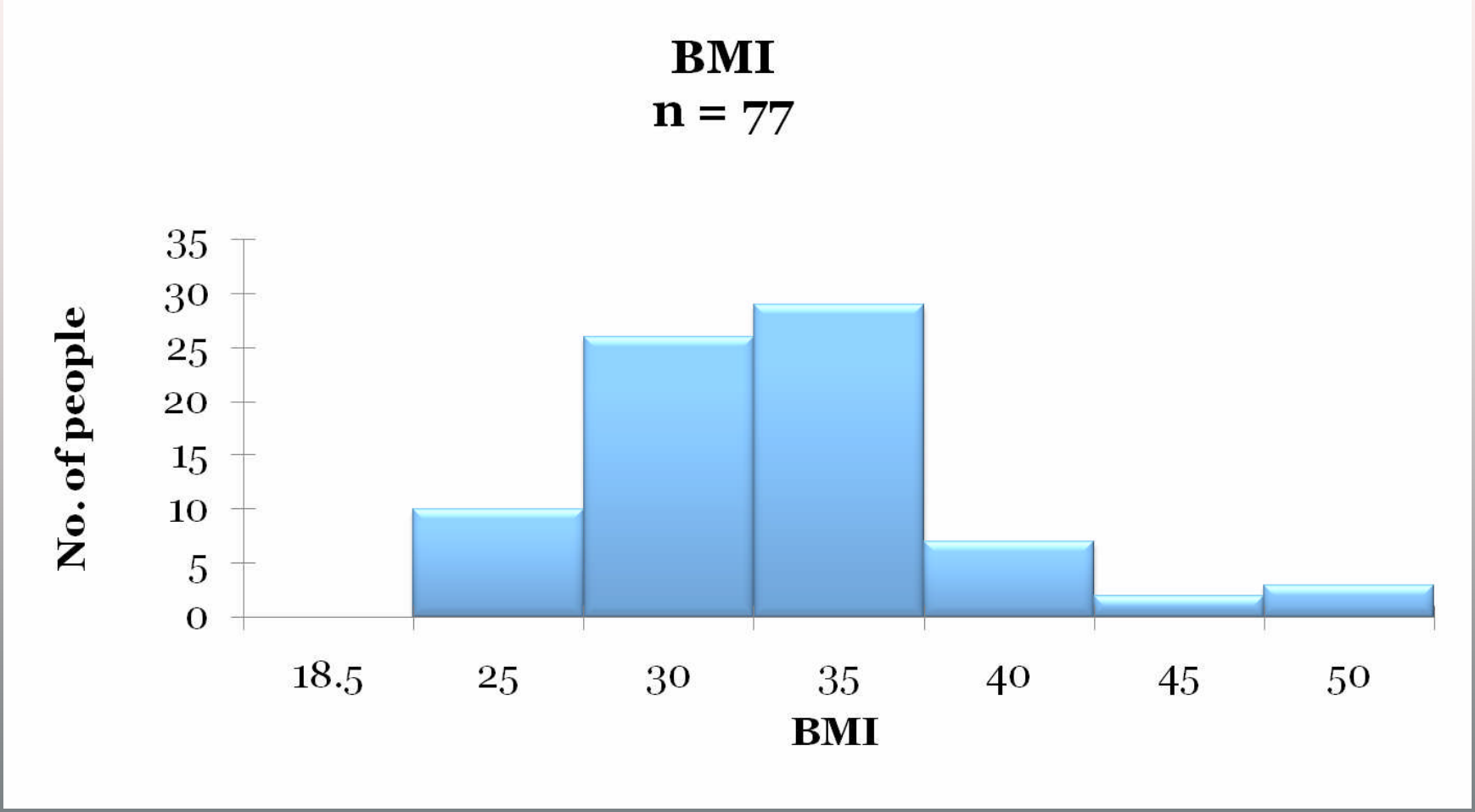
Risk Factors

Risk Factors		
Smoking	Current smoker	2% (n=4)
	Ex smoker	41% (n=81)
	Never smoked	55% (n=107)
Alcohol Usage	Never	29% (n=57)
	Monthly or less	26% (n=50)
	2-4 times a month	14% (n=27)
	2-3 times a week	13% (n=26)
	4 or more times a week	16% (n=32)

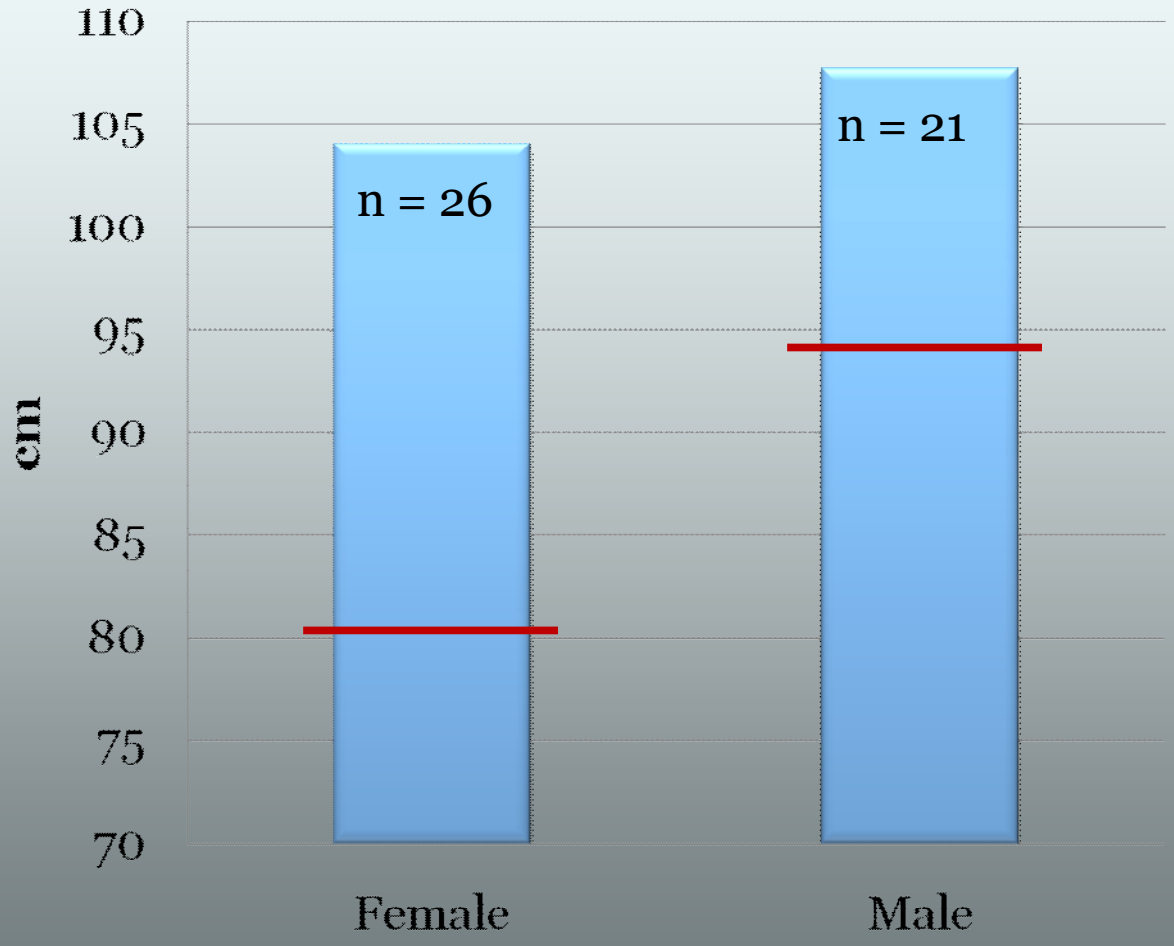
Blood pressure (≤ 130/80 mmHg)

		Systolic	Diastolic
Diabetes N = 45	**Average**	**135**	**76**
	SD	17.4	8.9
	Range	105-180	55-90
IHD & HT N = 82	**Average**	**134**	**76**
	SD	15.3	9.5
	Range	90-170	55-105

BMI (18.5 – 25)

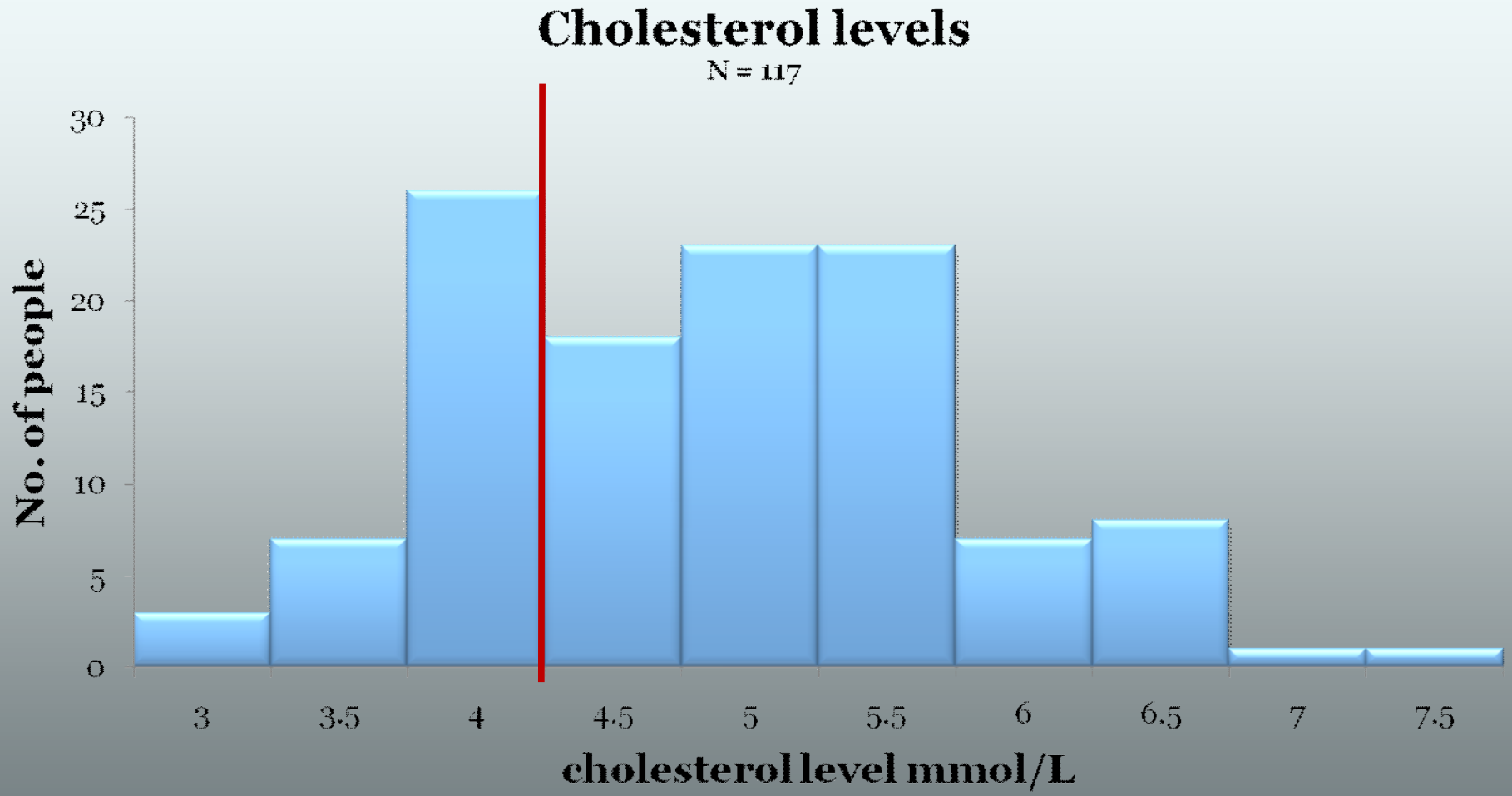


Waist circumference (females - <80cm, males - <94cm)



Of 130 patients - 83 had no waist circumference documented within the previous 12 months – most did not have any documentation for several years

Cholesterol (<4 mmol/L)



HDL, LDL, Triglycerides & HbA_{1c}

HDL

Diabetes (n = 44)

- 1.2 (SD - 0.35) ✓

IHD & HT (n = 54),

- 1.4 (SD - 0.9) ✓

LDL

Diabetes (n = 44)

- 2.6 (SD - 0.85) ✗

IHD & HT (n = 54)

- 2.4 (SD - 0.85) ✓

Triglycerides

Diabetes (n = 46)

- 2.2 (SD – 1.4) ✗

IHD & HT (n = 71)

- 1.6 (SD - 0.9) ✗

HbA_{1c}

Diabetes (n = 44)

- 7.1 (SD - 1.9) ✗

General Health Status (SF12)