

### Appendix 1. Selection criteria for general practices

Of all the general practices participating in the MedicineInsight program, the following inclusion criteria were applied for the purposes of this study.

Practices were required to:

1. have been established at least two years before the end of the analysis period
2. have no interruptions in practice data in the two years to the end of the analysis period
3. issue an average of at least 30 prescriptions per week
4. cater to typical general practice patients rather than specialise (eg youth mental health centres).

### Appendix 2. Identifying patients with T2D and CVD

#### Inclusion criteria

The cohort inclusion criteria were determined by group consensus. This was done in conjunction with medical practitioners, pharmacists and a clinical coding specialist. We developed algorithms and a search strategy to identify conditions of interest from multiple data fields. Regular patients[a], aged ≥18 years, with a coded (Pyefinch or Docle) or free-text reference to type 2 diabetes (T2D; or unspecified diabetes) in any diagnosis field (history, reason for visit or reason for prescription) were identified (details captured in progress notes are not available).

Of these patients, those with a coded or free text reference to atherosclerotic cardiovascular disease (CVD) in any diagnosis field (history, reason for visit or reason for prescription) were identified.

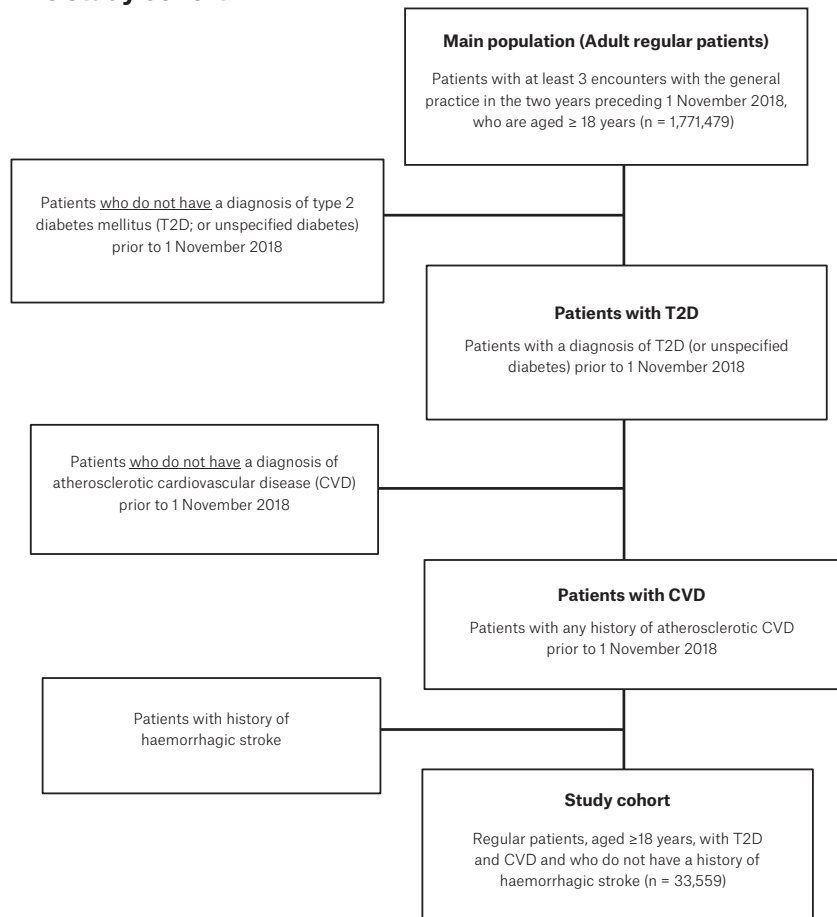
Coded text refers to terms which are selected by the practitioner from a pre-coded list which is built into the clinical software. The coded terms used to identify T2D and CVD are listed in the table below. Practitioners can also choose to record a condition as free text. Where a free text entry is a spelling or phrasing variant of one of the coded terms listed, this was also accepted as identifying the condition.

[a] Regular patients are defined as those who have at least three encounters with the practice in the past two years, in accordance with The Royal Australian College of General Practitioners’ definition of ‘active’ patients. For this study this represents three or more encounters with the practice in the two years preceding 1 November 2018.

#### Exclusion criteria

Patients recorded as deceased or inactive in the clinical information system at 31 October 2018 were excluded. Patients with a history of haemorrhagic stroke were actively excluded from the diabetes and CVD cohort because of differing treatment recommendations.

### The study cohort



**Coded terms used to identify type 2 diabetes**

Acidosis - diabetic ketoacidosis	Diabetic coma - Ketoacidotic
Amyotrophy - diabetic	Diabetic diet
Arteritis - diabetes mellitus	Diabetic diet management
Asymmetrical proximal diabetic neuropathy	Diabetic dietary counselling
Background Retinopathy	Diabetic endarteritis
Bruns-Garland syndrome	Diabetic foot
Care plan, diabetic	Diabetic foot care
Check up, diabetes	Diabetic foot ulcer
Coma - acidotic - diabetes mellitus	Diabetic gastroparesis
Coma - hypoglycaemic	Diabetic glomerulosclerosis
Coma, ketoacidotic	Diabetic hypoglycaemic coma
Completion of diabetes cycle of care	Diabetic ketoacidosis
Diabetes	Diabetic ketoacidotic coma
Diabetes - controlled	Diabetic lumbosacral radiculoplexus neuropathy
Diabetes - unstable	Diabetic nephropathy
Diabetes assessment	Diabetic neuropathy
Diabetes clinic	Diabetic peripheral vascular disease
Diabetes cycle of care	Diabetic precoma
Diabetes cycle of care completion	Diabetic retinopathy
Diabetes educator referral	Diabetic retinopathy - background
Diabetes eye Care	Diabetic retinopathy - non proliferative
Diabetes mellitus	Diabetic retinopathy - proliferative
Diabetes mellitus - NIDDM	Diabetic vascular disease - peripheral
Diabetes mellitus - Type II	Diet, diabetic
Diabetes mellitus, NIDDM	DKA (diabetic ketoacidosis)
Diabetes Mellitus, Type 2	Feet check - for a diabetic patient
Diabetes review	Foot ulcer, diabetic
Diabetes type II requiring insulin	Gastroparesis - diabetes mellitus
Diabetes with vascular changes	Gastroparesis, diabetic
Diabetic amyotrophy	Glomerulosclerosis, diabetic
Diabetic care plan	Hypoglycaemic coma
Diabetic care plan review	Insulin coma
Diabetic coma - hypoglycaemic	Intercapillary glomerulosclerosis
Ketoacidosis, diabetic	Non insulin dependent diabetes mellitus

**Coded terms used to identify type 2 diabetes**

Ketoacidotic coma	Peripheral vascular disease, diabetic
Keto-acidotic diabetic coma	Referral to diabetes educator
Kimmelstiel Wilson Disease	Retinopathy - background
Kimmelstiel Wilson Syndrome	Retinopathy - diabetic
Lumbosacral plexopathy	Retinopathy, diabetic
Nephropathy - diabetes mellitus	Review - diabetes mellitus
Nephropathy, diabetic	Review of diabetes
Neuropathy - diabetic	SIP - Diabetes
Neuropathy, diabetic	T2DM
NIDDM	Type 2 diabetes mellitus
NIDDM - requiring insulin	Unstable diabetes
NIDDM (non-insulin dependent diabetes mellitus)	

**Coded terms used to identify CVD**

AAA	Anterior myocardial infarct
AAA (abdominal aortic aneurysm)	Anterolateral myocardial infarct
AAA Repair	Antiangina agent prescription
AAA Rupture	Aortic aneurysm
Abdominal aortic aneurysm	Aortic aneurysm - abdominal
Abdominal aortic aneurysm repair	Aortic aneurysm - thoracic
Abdominal aortic aneurysm rupture	Aortic aneurysm repair
ACS (acute coronary syndrome)	Aortic stent
Acute coronary insufficiency	Aortofemoral bypass
Acute coronary syndrome	Aortoiliac bypass occlusion
Acute myocardial infarction	Aortoiliac angioplasty
AMI	Aortoiliac stent
AMI (Acute Myocardial Infarction)	Arterial Embolism - minor
Aneurysm - abdominal aorta	Arterial insufficiency
Aneurysm - aorta	Arterial stent - Aorta
Aneurysm - iliac artery	Arterial stent - carotid artery
Aneurysm - thoracic aorta	Arterial stent - coronary artery, drug-eluting
Aneurysm of abdominal aorta	Arterial stent - coronary artery, not drug-eluting
Aneurysm of aorta	Arterial stent - renal artery
Aneurysm of thoracic aorta	Arteriosclerosis obliterans
Angina	Arteriosclerotic arterial insufficiency

**Coded terms used to identify CVD**

Angina pectoris	Atherosclerotic heart disease
Angina pectoris - unstable	Balloon coronary angioplasty
Angina, stable	Bare metal stent, coronary artery
Angina, unstable	Blockage Coronary Artery
Angioplasty - coronary	Blocked aortoiliac bypass
Angioplasty - coronary (with stent)	Blocked carotid artery stent
Angioplasty - renal	Blocked coronary artery bypass graft
Angioplasty, aortoiliac	Blocked femoro-popliteal bypass
Angioplasty, brachiocephalic	Blocked renal artery stent
Angioplasty, carotid	Brachiocephalic angioplasty
Angioplasty, coronary	Bypass - coronary
Angioplasty, subclavian	CABG
CABG (Coronary Artery Bypass Graft)	Coronary artery stent blocked
Care plan, chronic heart disease	Coronary artery surgery
Carotid angioplasty	Coronary artery, bare metal stent
Carotid artery bypass surgery	Coronary artery, drug eluting stent
Carotid artery occlusion	Coronary artery, not drug-eluting stent
Carotid artery stenosis	Coronary endarterectomy
Carotid artery stent	Coronary heart disease
Carotid artery stent blocked	Coronary insufficiency
Carotid artery stent occlusion	Coronary occlusion
Carotid stenosis	CVA
Cerebral infarction	CVA (Cerebrovascular Accident)
Cerebral TIA	CVI (Cerebrovascular Insufficiency)
Cerebral Transient Ischaemia	Drug eluting stent, coronary artery
Cerebral Transient Ischaemic Attacks	Femoro-popliteal bypass blockage
Cerebrovascular accident	Femoro-popliteal bypass occlusion
Cerebrovascular disease	Heart attack
Cerebrovascular insufficiency	Heart disease, atherosclerotic
Chronic heart disease care plan	Heart disease, coronary
Chronic heart disease care plan review	Heart disease, ischaemic
Chronic stable angina	IHD
Coronary Angiography and Stent	IHD (Ischaemic Heart Disease)
Coronary angioplasty	Iliac artery aneurysm

**Coded terms used to identify CVD**

Coronary angioplasty with stent	Inferior myocardial infarction
Coronary angioplasty, bare metal stent	Ischaemic heart disease
Coronary angioplasty, drug eluting stent	Ischaemic Stroke
Coronary artery balloon angioplasty	Ischaemic vascular disease
Coronary artery bypass graft	Lacunar infarct
Coronary artery bypass graft blockage	Lacunar Stroke
Coronary artery bypass graft occlusion	MI
Coronary artery disease	Migrainous stroke
Coronary Artery Disease-Rehabilitation	Migranous Stroke
Coronary artery endarterectomy	Myocardial Damage
Coronary artery stent	Myocardial infarction
Myocardial infarction - anterior	Obstructed aortoiliac bypass
Myocardial infarction - anterolateral	Obstructed carotid artery stent
Myocardial infarction - inferior	Obstructed coronary artery bypass graft
Myocardial infarction - posterior	Obstructed femoro-popliteal bypass
Myocardial infarction - silent	Obstructed renal artery stent
Myocardial infarction - subendocardial	Occluded aortoiliac bypass
Myocardial infarction - superior	Occluded carotid artery stent
Myocardial Infarction - with ST elevation	Occluded renal artery stent
Myocardial infarction - without ST elevation	Occlusion - coronary artery
Myocardial infarction, anterior	Occlusion of aortic bifurcation bypass graft
Myocardial infarction, anterolateral	Occlusion of femoropopliteal bypass graft
Myocardial infarction, inferior	Occlusion, coronary artery
Myocardial infarction, Non STEMI	PCTA
Myocardial infarction, posterior	PCTA (percutaneous transluminal angioplasty)
Myocardial infarction, STEMI	Percutaneous transluminal angioplasty
Myocardial infarction, subendocardial	Percutaneous transluminal coronary angioplasty
Myocardial infarction, superior	Peripheral arterial disease
Myocardial insufficiency	Peripheral vascular disease

**Coded terms used to identify CVD**

Non ST elevation myocardial infarction	Popliteal aneurysm
Non-ST-elevation myocardial infarction (NSTEMI)	Posterior myocardial infarct
NSTEMI	Preinfarction syndrome
NSTEMI (non-ST-elevation myocardial infarction)	

**Coded terms used to identify haemorrhagic stroke**

Cerebral haemorrhage	Intracerebral haemorrhage
Haemorrhage, intracerebral	Intracranial haemorrhage
Haemorrhage CVA	Stroke, haemorrhagic
Haemorrhagic stroke	Stroke - haemorrhagic
Intracerebral bleed	

**Appendix 3. Medicines**

Active ingredient names used to search for medicines included in this study

**Blood pressure-lowering medicines – active ingredient**

Amiloride	Losartan
Amlodipine	Methyldopa
Atenolol	Metoprolol
Bisoprolol	Minoxidil
Candesartan	Moxonidine
Captopril	Nebivolol
Carvedilol	Nifedipine
Chlortalidone	Nimodipine
Clonidine (cardiovascular)	Olmesartan
Diltiazem	Oxprenolol
Enalapril	Perindopril
Eprosartan	Pindolol
Felodipine	Prazosin (cardiovascular)
Fosinopril	Propranolol
Hydralazine	Quinapril
Hydrochlorothiazide	Ramipril
Hydrochlorothiazide with triamterene	Sotalol
Indapamide	Telmisartan
Irbesartan	Terazosin (cardiovascular)

**Blood pressure-lowering medicines – active ingredient**

Labetalol	Trandolapril
Lercanidipine	Valsartan
Lisinopril	Verapamil

**Lipid-modifying medicines – active ingredient**

Atorvastatin	Gemfibrozil
Cholestyramine/Colestyramine	Nicotinic Acid
Colestipol	Pravastatin
Ezetimibe	Rosuvastatin
Fenofibrate	Simvastatin
Fluvastatin	

**Antiplatelets and anticoagulants – active ingredient**

Abciximab	Eptifibatide
Apixaban	Fondaparinux
Aspirin	Heparin
Bivalirudin	Nadroparin
Clopidogrel	Prasugrel
Dabigatran	Rivaroxaban
Dalteparin	Ticagrelor
Danaparoid	Tirofiban
Dipyridamole	Warfarin
Enoxaparin	

**Blood glucose-lowering medicines**

Active ingredient	Class
Metformin hydrochloride	Metformin
Acarbose	other
Pioglitazone	other
Rosiglitazone	other
Exenatide	GLP-1RA
Liraglutide	GLP-1RA
Glimepiride	Sulfonylurea
Glibenclamide	Sulfonylurea
Gliclazide	Sulfonylurea
Glipizide	Sulfonylurea
Empagliflozin	SGLT2

### Blood glucose-lowering medicines

Canagliflozin	SGLT2
Dapagliflozin	SGLT2
Sitagliptin	DPP-4 inhibitor
Vildagliptin	DPP-4 inhibitor
Linagliptin	DPP-4 inhibitor
Saxagliptin	DPP-4 inhibitor
Alogliptin	DPP-4 inhibitor
Insulin aspartate	Insulin
Insulin lispro	Insulin
Insulin glulisine	Insulin
Insulin neutral	Insulin
Human Isophane Insulin	Insulin
Bovine Isophane Insulin	Insulin
Human Neutral Insulin- isophane insulin	Insulin
analogue insulin aspart - insulin aspart protamine	Insulin
analogue insulin lispro - insulin lispro protamine	Insulin
analogue insulin detemir	Insulin
analogue insulin glargine	Insulin

## Appendix 4

### General treatment targets and recommended monitoring

	<b>Recommended monitoring for patients with T2D</b>	<b>Recommended general target for patients with T2D</b>
Blood pressure	Every 3–6 months at time of study, <sup>1</sup> currently every 3–4 months <sup>2</sup>	<140/90 mmHg <sup>3</sup>
LDL-C	Annually, more frequently if not at target <sup>1,2</sup>	<1.8 mmol/L (for patients with CVD) <sup>4</sup>
HbA1c	Every 3–6 months at time of study, <sup>1</sup> currently every 3–4 months <sup>2</sup>	≤53 mmol/mol (7%) <sup>3</sup>
eGFR	Annually, more frequently if results are changing <sup>1,2</sup>	

*eGFR, estimated glomerular filtration rate; HbA1c, glycated haemoglobin; LDL-C, low-density lipoprotein cholesterol; T2D, type 2 diabetes*

### References

- Expert Group for Endocrinology. Endocrinology. In: eTG complete [Internet]. West Melbourne, Vic: Therapeutic Guidelines Limited, 2014.
- Expert Group for Diabetes. Diabetes. In: eTG complete [Internet]. West Melbourne, Vic: Therapeutic Guidelines Limited, 2019.
- The Royal Australian College of General Practitioners. Management of type 2 diabetes: A handbook for general practice. East Melbourne, Vic: RACGP, 2020.
- Cardiovascular Expert Group. Cardiovascular. In: eTG complete [Internet]. West Melbourne: Therapeutic Guidelines Limited, 2018.