

Appendix A

Definitions of data items in the Australian Bureau of Statistics' National Health Survey 1995

- *Cardiovascular conditions* – a generic term describing the following conditions of the circulatory system (Australian Bureau of Statistics 1997b): hypertension (high blood pressure), heart disease (including ischaemic heart disease, diseases of pulmonary circulation and heart failure), atherosclerosis (plaque lining the arteries); cerebrovascular disease (including stroke and its after effects), other circulatory diseases (including thrombosis, aneurysms and diseases of the capillaries), and ill-defined heart conditions such as irregular heart beat and palpitations. Varicose veins and haemorrhoids are excluded.
- *Recent cardiovascular condition* – estimated from the reported cardiovascular conditions experienced by the respondent in the two weeks prior to interview.
- *Action* – estimated from the reported actions taken for a recent cardiovascular condition. Actions taken included consultations with doctors and other health professionals, use of medications, admission to hospital as an inpatient (including same day patients), use of casualty (emergency) or outpatient services at a hospital, and visits to day clinics.
- *Admitted to hospital* – estimated from the reported admission as an inpatient for a period of one night or more, or for less than one night on a doctor's referral (such as day patients admitted for minor surgery, tests or other procedures) in the two weeks prior to interview, for a recent cardiovascular condition.
- *Visited casualty/emergency or outpatients* – estimated from the reported use of emergency, casualty and outpatient services at a hospital in the two weeks prior to interview for a recent cardiovascular condition.
- *Visited day clinics* – estimated from the reported visits to day clinics (as identified by the respondent) for minor surgery or diagnostic tests (excluding X-rays) for a recent cardiovascular condition.
- *Doctor consultations* – estimated from the reported consultation with a doctor in the two weeks prior to interview for a recent cardiovascular condition.
- *Consultation with other health professional* – estimated from the reported consultations with a health professional (excluding a doctor) in the two weeks prior to interview for a recent cardiovascular condition.
- *All medication* – estimated from the reported consumption or other use of any medications, pills or ointments during the two weeks prior to interview for a recent cardiovascular condition.
- *Heart medication* – estimated from the reported consumption or other use of medication for fluid, heart or blood pressure in the two weeks prior to interview for a recent cardiovascular condition.
- *Days away from work or school* – estimated from the reported normal work or school days (other than days in hospital) on which the respondent did not attend for all or most of the day. School days include days away from college, university, etc.

- *Days of reduced activity*—estimated from the reported days (other than days away from work or school) on which the respondent cut down on his/her usual activities.

Appendix B

Cardiovascular conditions included in estimates from the Australian Bureau of Statistics' National Health Survey 1995

Condition	ICD-9-CM code	ABS code
Hypertension		072
Essential hypertension	401	
Hypertensive heart disease	402	
Hypertensive renal disease	403	
Hypertensive heart and renal disease	404	
Secondary hypertension	405	
Heart disease		082
Rheumatic fever with heart involvement	391	
Diseases of mitral valve	394	
Other rheumatic heart disease	398	
Ischaemic heart disease	410–414	
Diseases of pulmonary circulation	415–417	
Acute pericarditis	420	
Acute and subacute endocarditis	421	
Acute myocarditis	422	
Other diseases of pericardium	423	
Other diseases of endocardium	424	
Cardiomyopathy	425	
Conduction disorders	426	
Cardiac dysrhythmias	427	
Heart failure	428	
Ill-defined descriptions and complications of heart disease	429	
Atherosclerosis	440	015
Cerebrovascular disease		219
Subarachnoid haemorrhage	430	
Intracerebral haemorrhage	431	
Other and unspecified intracranial haemorrhage	432	
Occlusion and stenosis of precerebral arteries	433	
Occlusion of cerebral arteries	434	
Transient cerebral ischaemia	435	
Acute, but ill-defined, cerebrovascular disease	436	
Other and ill-defined cerebrovascular disease	437	

(continued)

Condition	ICD-9-CM code	ABS code
Stroke after effects		119
Late effects of cerebrovascular disease	438	
Other diseases of the circulatory system		019
Rheumatic fever without mention of heart involvement	390	
Aortic aneurysm	441	
Other aneurysm	442	
Other peripheral vascular disease	443	
Arterial embolism and thrombosis	444	
Polyarteritis nodosa and allied conditions	446	
Other disorders of arteries and arterioles	447	
Disease of capillaries	448	
Phlebitis and thrombophlebitis	451	
Portal vein thrombosis	452	
Other venous embolism and thrombosis	453	
Noninfectious disorders of lymphatic channels	457	
Hypotension	458	
Other disorders of circulatory system	459	
Bulbus cordis anomalies and anomalies of cardiac septal closure	745	
Anomalies of pulmonary valve	746	
Other congenital anomalies of circulatory system	747	
Ill-defined signs and symptoms of heart conditions	427, 429	182

Appendix C

Index of antithrombotic, lipid lowering and cardiovascular drugs by generic drug name

This index lists antithrombotic, lipid lowering and cardiovascular drugs by generic drug name. The Anatomical Therapeutic Chemical (ATC) code at the main group or therapeutic subgroup level is indicated in brackets.

Anticoagulants (B01AA, B01AB)

Vitamin K antagonists (B01AA)

Phenindione
Warfarin

Heparin group (B01AB)

Dalteparin
Enoxaparin
Heparin
Heparin calcium
Heparin sodium
Heparin sodium LMW
Heparinised saline
Tinzparin

Antiplatelet drugs (B01AC)

Aspirin
Dipyridamole
Ticlopidine hydrochloride

Thrombolytic drugs (B01AD)

Streptokinase

Serum lipid lowering drugs (B04)

Statins (HMG COA reductase inhibitors) (B04AB)

Pravastatin
Simvastatin

Fibrates (B04AC)

Clofibrate
Gemfibrozil

Resin binders (bile sequestrants) (B04AD)

Cholestyramine
Colestipol hydrochloride

Other lipid lowering drugs (B04AE, B04AX)

Nicotinic acid and derivatives (B04AE)

Nicotinic acid

Other cholesterol and triglyceride reducers (B04AX)

Probucol

Inotropic drugs (C01A, C01C)

Cardiac glycosides (C01A)

Digoxin
Proscillaridin

Cardiac stimulants excluding cardiac glycosides (C01C)

Dobutamine hydrochloride
Dopamine hydrochloride
Metaraminol

Antiarrhythmics (C01B)

Amiodarone hydrochloride
Bretylium tosylate
Disopyramide
Flecainide acetate
Lignocaine hydrochloride
Mexiletine hydrochloride
Procainamide hydrochloride
Quinidine

Nitrates (antianginal vasodilators) (C01D)

Glyceryl trinitrate
Isosorbide dinitrate
Isosorbide mononitrate
Pentaerythritol tetranitrate

Diuretics (C03)

Thiazides (C03A)

Bendroflumazide
Chlorothiazide
Cyclopenthiiazide
Hydrochlorothiazide
Methyclothiazide

Low ceiling diuretics excluding thiazides (C03B)

Chlorthalidone
Clopamide
Indapamide
Mefruside
Metolazone
Quinethazone

High ceiling diuretics excluding thiazides (C03C)

Bumetanide
Ethacrynic acid
Frusemide

Potassium sparing agents (C03D)

Amiloride hydrochloride
Spironolactone
Triamterene

Low ceiling diuretics and potassium sparing agents in combination (C03E)

Hydrochlorothiazide with amiloride hydrochloride
Hydrochlorothiazide with triamterene

Beta blockers (C07)

Alprenolol hydrochloride
Atenolol
Atenolol with chlorthalidone
Labetalol hydrochloride
Metoprolol tartrate
Oxprenolol hydrochloride
Penbutolol
Pindolol
Pindolol with clopamide
Propranolol hydrochloride
Sotalol hydrochloride
Timolol maleate

Calcium channel blockers (C08)

Amlodipine besylate
Diltiazem hydrochloride
Felodipine
Nifedipine
Perhexiline maleate
Verapamil hydrochloride

ACE inhibitors (C09)

Captopril
Enalapril maleate
Fosinopril
Fosinopril sodium
Lisinopril
Perindopril
Quinapril
Ramipril
Trandolapril

Other antihypertensives (C02A, C02C, C02D)

Centrally acting antiadrenergic agents (C02A)

Clonidine
Methyldopa
Rauwolfia serpentina

Peripherally acting antiadrenergic agents (C02C)

Debrisoquine
Labetol hydrochloride
Prazosin hydrochloride
Terazosin

Agents acting on arteriolar smooth muscle (C02D)

Diazoxide
Hydralazine hydrochloride
Minoxidil
Sodium nitroprusside

Peripheral vasodilators (C04)

Betahistine
Isoxuprine
Nicotinic acid
Oxpentifylline
Phenoxybenzamine hydrochloride
Phentolamine mesylate

Appendix D

The classification of cardiovascular disease under the International Classification of Primary Care

The International Classification of Primary Care (ICPC) is a widely tested, comprehensive classification system designed for use by primary care providers (Lamberts & Wood 1987). The ICPC allows for the classification of a patient's reason for encounter, the provider's assessment/diagnosis, and the process of care/intervention undertaken by the provider. The structure of the ICPC includes 17 chapters, nearly all of which are based on body systems, each with seven identical components.

The 17 chapters are:

- A General and unspecified
- B Blood and blood-forming organs and lymphatics (spleen, bone marrow)
- D Digestive
- F Eye
- H Ear
- K Circulatory (referred to in this report as Cardiovascular)
- L Musculoskeletal
- N Neurological
- P Psychological
- R Respiratory
- S Skin
- T Endocrine, metabolic and nutritional
- U Urological
- W Pregnancy, child bearing, family planning
- X Female genital (including breast)
- Y Male genital
- Z Social problems.

The seven components within each chapter are:

1. Symptoms and complaints;
2. Diagnostic and preventive procedures;
3. Medication, treatment, and therapeutic procedures;
4. Results;
5. Administrative;
6. Referral and other reasons for encounter; and
7. Diagnoses.

The first and seventh components of the ICPC can be converted to the Ninth Revision of the International Classification of Disease (ICD-9-CM), however conversion on a one-to-one basis is not always possible. Lamberts and Wood (1987) include a conversion of ICPC to ICD-9-CM.

The ICPC codes for cardiovascular conditions are:

K—Circulatory

Component 1 – Symptoms and complaints

ICPC code	ICPC Description
K01	Pain attributed to heart
K02	Pressure, tightness, heaviness attributed to heart (excl. R02—shortness of breath, dyspnoea)
K03	Other pain attributed to circulatory system
K04	Palpitations/awareness of heartbeats
K05	Other abnormal/irregular heartbeat/pulse
K06	Prominent veins
K07	Swollen ankles/oedema
K24	Fear of heart attack
K25	Fear of hypertension (excl. known hypertension)
K27	Fear of other disease of the circulatory system
K28	Disability/impairment
K29	Other symptoms/complications of the heart/circulatory system (excl. R93—fluid in chest)

Component 7 – Diagnosis/diseases

ICPC code	ICPC Description
K70	Infectious disease of the circulatory system
K71	Acute rheumatic fever/ chronic rheumatic heart disease
K72	Neoplasm of the circulatory system
K73	Congenital anomalies of the heart/circulatory system
K74	Angina pectoris
K75	Acute myocardial infarction
K76	Other and chronic coronary heart disease
K77	Heart failure
K78	Atrial fibrillation/flutter
K79	Paroxysmal tachycardia
K80	Ectopic beats, all types
K81	Heart murmur, not otherwise specified
K82	Pulmonary heart disease
K83	Heart valve disease not otherwise specified, non-rheumatic
K84	Other disease of the heart
K85	Elevated blood pressure without hypertension
K86	Uncomplicated hypertension
K87	Hypertension with involvement of target organs
K88	Postural hypotension (low blood pressure)
K89	Transient cerebral ischaemia
K90	Stroke/cerebrovascular accident
K91	Atherosclerosis (excl. heart/brain)
K92	Other arterial obstruction/peripheral vascular disease
K93	Pulmonary embolism
K94	Phlebitis and thrombophlebitis
K95	Varicose veins of legs (excl. S97—ulcer)
K96	Haemorrhoids
K99	Other disease of the circulatory system

Appendix E

Survey of Morbidity and Treatment in General Practice in Australia 1990–91—list of treatments other than prescriptions

Therapeutic procedures

Repair/immobilise

- Close laceration
 - Remove sutures
- Treat fracture/dislocation
- Cast removal
 - Alter/aerate/cut hole in plaster
- Immobilise soft tissue (splint)
 - Cast
 - Sling
 - Cervical collar
 - Bandage/strap
- Repair/immobilise not elsewhere classified
 - Treatment to stop expansion (e.g. ice)

Excise, incise, aspirate

- Excise lesion (removal of moles, growths etc.)
- Circumcision
- Aspirate joint
- Aspirate cyst
- Incise/drain (including remove earwick; puncture ganglion)
- Enema
- Excise/remove not elsewhere classified
 - Remove foreign body (e.g. splinter)

Destroy, cauterise

- Chemical cautery
- Cryotherapy (use of nitrogen oxide – warts)

Electrocautery (diathermy)
Destroy vein
Destroy, cauterise not elsewhere classified

Injection not otherwise specified

Medication not otherwise specified (e.g. gargles)
IV fluids/infusion
Local anaesthetic

Press, compress, dilate

Bandage/dressing (e.g. clean wounds)
Compression
Compress/support
Press/compress/dilate not elsewhere classified (e.g. heel pillow)
Incontinence pads

Physical therapies

Exercise
Thermal hydrotherapy
 Steam inhalation
Manipulation
Massage
Acupuncture
 Laser
Ultrasound
 Microwave/shortwave
Electrical stimulation
Physical aid (e.g. walking frame, stick)
Physical therapy not elsewhere classified

Urogenital procedure

Endometrial biopsy
 D&C
Tubal ligation
Vasectomy
Insert diaphragm
Insert IUD
 Remove IUD
 Remove and insert IUD

Urogenital procedure not elsewhere classified

Urinary catheter

Obstetric procedure

Normal delivery

Low forceps delivery

Abnormal vaginal delivery

Complicated vaginal delivery

Caesarean section

Induce labour

Perineal repair

Post partum procedure

Delivery not otherwise specified

Obstetric procedure not otherwise specified

Miscellaneous procedure

Order rest

Time off work (e.g. work certificate)

Observe/wait

Remove ear wax

Pierce ears

Anaesthetic given (assisting at operation)

Transfusion

Other procedure (e.g. oxygen)

Procedure not elsewhere classified

Clinical treatments

Counselling—psychological

Counselling – individual

Psychological testing

Counsel – life stage

Bereavement counselling

Marriage counselling

Hypnosis

Relaxation therapy

Psychotherapy

Counsel, other

Counselling—health

- Counsel – nutrition/weight
- Counsel – smoking
- Counsel – alcohol
- Counsel – drug abuse (including legal drugs)
- Counsel – occupational risk
- Counsel – exercise
- Counsel – relaxation
- Counsel – environment
- Counsel – health not elsewhere classified (including multiples of above)
 - Life style
 - Prevention

Counsel—sex, pregnancy

- Family planning
- Sexual counselling
- Pre-pregnancy
- Counselling – pregnancy
- Counselling – genetic
- Counselling – sex, pregnancy not elsewhere classified

Advice/education (not elsewhere classified)

- Advice not otherwise specified
- Treatment advice (go to bed, take panadol when needed, clear fluids)
- Advice about body
- Advice – care of sick third person (e.g. elderly person/prevention)
- Advice – care of well person/mother care
- Change drug dosage
 - Increase dosage
 - Decrease dosage
 - Stop medication
 - Recommend medication (not new script)
 - Advise how to take drugs etc.
 - Review dosage
- Legal advice (e.g. workers' compensation, child welfare)
- Recommend/advise naturopathic medication

Reassurance, support

Appendix F

Survey of Morbidity and Treatment in General Practice in Australia 1990–91—list of generic cardiovascular drugs and diuretics

Antihypertensive agents

Clonidine
Guanethidine
Hydralazine
Prazosin hydrochloride
Methyldopa
Debrisoquine
Reserpine
Rauwolfia
Captopril
Minoxidil
Felodipine
Enalapril maleate
Verapamil
Raudinex
NatriliX

Antiarrhythmic agents

Quinidine bisulphate
Procainamide
Rythmodan
Mexiletine
Flecainide acetate
Amioderone hydrochloride
Lignocaine injection
Sotalol

Antiangina agents

Glyceryl trinitrate
Sorbide nitrate
Peritrate
Glyceryl trinitrate ointment
Nifedipine
Diltiazem

Cardiac glycosides

Digoxin
Lanatoside-C

Beta blockers

Oxprenolol
Pindolol
Propranolol
Atenolol
Metoprolol
Vimolol
Labetalol
Alprenolol

Adrenergic stimulants

Hydergine
Adrenaline injection

Peripheral vasodilators

Betahistine
Nicotinic acid
Phenoxybenzamine
Nicotinyl alcohol

Antimigraine drugs

Pizotifen
Dixarit
Ergalan
Ergot caffeine cyclizine
Ergotam tartrate
Ergotamine + caffeine
Methysergide
Ergodryl
Nicotinic alcohol

Other cardiovascular drugs

Dipyridamole
Paroven
Probucol
Colestipol hydrochloride
Simvastatin
Oxpentifylline
Lopid
Streptokinase

Diuretics

Amiloride
Chlorothiazide
Cyclopenthiiazide
Frusemide
Hydrochlorothiazide
Thiazide + amiloride
Methyclothiazide
Bendrofluazide
Chlorthalidone
Clopamide
Triamterene
Quinethazone
Spironolactone
Mefruside
Ethacrynic acid
Bumetanide
Metolazone
Desmopressin

Appendix G

Medicare Benefits Schedule—cardiovascular medical services

The following provides detailed information from the Medicare Benefits Schedule (effective 1 November 1995) for the groups of cardiovascular medical services included in this report.

Diagnostic procedures and investigations

Type of service	Medicare item number
Cardiovascular diagnostic procedures and investigations	
Twelve-lead electrocardiography	11700–11702
Phonocardiography	11706
Continuous ECG recording	11708–11709
Ambulatory ECG monitoring	11710–11711
Multi channel ECG monitoring and recording	11712
Signal averaged ECG recording	11713
Blood dye—dilution indicator test	11715
Implanted pacemaker testing	11718, 11721
Therapeutic procedures—vascular	
Artery of neck, bypass	32700
Internal carotid artery, transection and reanastomosis of, or resection of small length and reanastomosis of	32703
Internal carotid artery, reoperation for recurrent stenosis	32706
Aorto-iliac or aorto-femoral grafting	32709
Ilio-femoral bypass grafting	32712
Renal arteries (both), bypass grafting to	32724
Mesenteric vessel (single), bypass grafting to	32730
Mesenteric vessel (multiple), bypass grafting to	32733
Inferior mesenteric artery, operation on	32736
Femoral artery bypass grafting	32739–32754
Femoral artery sequential bypass grafting	32757
Harvesting of vein from leg or arm	32760
Arterial bypass grafting	32763
Arterial or venous anastomosis	32766, 32769
Aneurysm of common or internal carotid artery, or both, replacement by graft	33100
Thoracic aneurysm, replacement by graft	33103
Artery or vein bypass graft	33106
Thoraco-abdominal aneurysm, replacement by graft	33109
Suprarenal abdominal aortic aneurysm, replacement by graft	33112

(continued)

Type of service	Medicare item number
Infrarenal abdominal aortic aneurysm, replacement by graft	33115, 33118, 33121
Aneurysm of iliac artery, replacement by graft	33124
Aneurysm of iliac arteries, replacement by graft	33127
Aneurysm of visceral artery, excision and repair	33130
False aneurysm, repair of	33136, 33139, 33142
Ruptured thoracic aortic aneurysm, replacement by graft	33145
Ruptured thoraco-abdominal aortic aneurysm, replacement by graft	33148
Ruptured suprarenal abdominal aortic aneurysm, replacement by graft	33151
Ruptured infrarenal abdominal aortic aneurysm, replacement by graft	33154, 33157, 33160
Ruptured iliac artery aneurysm, replacement by graft	33163
Ruptured aneurysm of visceral artery, replacement by anastomosis or graft	33166
Ruptured aneurysm of visceral artery, simple ligation of	33169
Aneurysm of major artery, replacement by graft	33172
Artery or arteries of neck, endarterectomy of	33500
Internal carotid artery, reoperation	33503
Innominate or subclavian artery, endarterectomy of	33506
Aortic endarterectomy	33512
Aorto—femoral endarterectomy	33515
Iliac endarterectomy	33518
Ilio-femoral endarterectomy	33521
Renal artery, endarterectomy of	33524
Renal arteries, endarterectomy of	33527
Coeliac or superior mesenteric artery, endarterectomy of	33530
Inferior mesenteric artery, endarterectomy of	33536
Artery of extremities, endarterectomy of	33539
Extended deep femoral endarterectomy	33542
Artery or vein, patch grafting to	33545, 33548
Vein harvesting of	33551
Endarterectomy in conjunction with an arterial bypass operation	33554
Embolus, removal of, from artery of neck	33800
Embolectomy or thrombectomy	33803, 33806
Inferior vena cava or iliac vein, thrombectomy of	33809
Thrombus, removal of	33812
Major artery or vein of extremity, repair of wound of	33815, 33818, 33821
Major artery or vein of neck, repair of wound of	33824, 33827, 33830
Major artery or vein of abdomen, repair of wound of	33833, 33836, 33839
Artery of neck, re-operation for bleeding or thrombosis after carotid or vertebral artery surgery	33842
Laparotomy, for control of post operative bleeding or thrombosis after vascular procedure	33845
Extremity, reoperation on	33848
Transluminal balloon angioplasty of 1 peripheral artery or vein of 1 limb	35300
Transluminal balloon angioplasty of aortic arch branches, aortic visceral branches, or more than 1 peripheral artery or vein of 1 limb	35303

(continued)

Type of service	Medicare item number
Transluminal balloon angioplasty of 1 coronary artery	35304
Transluminal balloon angioplasty of more than 1 coronary artery	35305
Transluminal stent insertion including associated balloon dilation for 1 peripheral artery or vein of 1 limb	35306
Transluminal stent insertion including associated balloon dilation for visceral arteries or veins, or more than 1 peripheral artery or vein of 1 limb	35309
Transluminal stent insertion including associated balloon dilation for coronary artery	35310
Therapeutic procedures—cardiothoracic	
Right heart catheterisation	38200
Left heart catheterisation	38203
Right heart catheterisation with left heart catheterisation	38206
Cardiac electrophysiological study	38209, 38212
Selective coronary arteriography—placement of catheters and injection of opaque material	38215
Selective coronary arteriography—placement of catheters and injection of opaque material with right or left catheterisation, or both	38218
Single chamber permanent transvenous electrode, insertion of	38250
Permanent pacemaker, insertion or replacement of	38253
Temporary transvenous pacemaker electrode, insertion of	38256
Permanent dual chamber transvenous electrodes, insertion of	38259
Permanent myocardial electrode, insertion of	38470
Permanent pacemaker electrode	38473
Valve repair, 1 leaflet	38380
Valve repair, 2 or more leaflets	38381
Aortic valve leaflet or leaflets, decalcification of	38483
Mitral valve, open valvotomy of	38487
Valve replacement with bioprosthesis or mechanical prosthesis	38488
Valve replacement with allograft, or unstented xenograft	38489
Coronary artery bypass using saphenous vein graft or grafts only	38497
Coronary artery bypass using single arterial graft, with or without vein graft or grafts	38500
Coronary artery bypass using 2 or more arterial grafts, with or without vein graft or grafts	38503
Congenital cardiac surgery	
Patent ductus arteriosus, shunt, colateral or other single large vessel, division or ligation of	38700, 38703
Aorta, anastomosis or repair of	38706, 38709
Aortic interruption, repair of	38712
Main pulmonary artery, banding, debanding or repair of	38715, 38718
Vena cava, anastomosis or repair of	38721, 38724
Intrathoracic vessels, anastomosis or repair of	38727, 38730
Systemic pulmonary or cavo-pulmonary shunt, creation of	38733, 38736
Atrial septectomy	38739
Atrial septal defect	38742
Intra-atrial baffle, insertion of	38745
Ventricular septectomy	38748
Ventricular septal defect, closure	38751

(continued)

Type of service	Medicare item number
Intraventricular baffle or conduit, insertion of	38754
Extracardiac conduit, insertion of	38757
Extracardiac conduit, replacement of	38760
Ventricular myectomy	38763
Ventricular augmentation	38766
Therapeutic procedures—neurosurgical—cerebrovascular disease	
Aneurysm, clipping of reinforcement of sac	39800
Intracranial arteriovenous malformation, excision of	39803
Aneurysm, or arteriovenous malformation, intracranial proximal artery clipping of	39806
Intracranial aneurysm or arteriovenous fistula, ligation of cervical vessel or vessels	39812
Carotid-cavernous fistula, obliteration of	39815
Extracranial to intracranial bypass using superficial temporal artery	39818
Extracranial to intracranial bypass using saphenous vein graft	39821
Diagnostic imaging	
M-mode and 2-dimensional real time echocardiographic examination of the heart	55102, 55105, 55112
Heart, 2-dimensional real time transoesophageal examination of	55118
Intra-operative 2-dimensional real time transoesophageal echocardiography	55130
Duplex scanning of carotid or peripheral vessels	55201–55237
Serial angiocardiography	59900, 59903, 59906
Selective coronary arteriography	59912
Cerebral angiography	59915
Arteriography, peripheral	59918
Aortography	59921
Selective arteriography	59924
Digital subtraction angiography, examination of head and neck	60000–60009
Digital subtraction angiography, examination of thorax	60012–60021
Digital subtraction angiography, examination of abdomen	60024–60033
Digital subtraction angiography, examination of upper limb or limbs	60036–60045
Digital subtraction angiography, examination of lower limb or limbs	60048–60057
Digital subtraction angiography, examination of aorta and lower limb or limbs	60060–60069
Selective arteriography or selective venography	60072, 60075, 60078
Myocardial perfusion study using thallium	61300, 61301, 61304, 61305
Myocardial infarct—avid imaging study	61308, 61309
Gated cardiac blood pool study	61312, 61315
Cardiac first pass blood flow study, cardiac shunt study, or cardiac output study	61322, 61323

Source: Commonwealth Department of Human Services and Health 1995.

Appendix H

Summary of the Disease Costs and Impact Study methodologies

A summary of the methodologies used in the Disease Costs and Impact Study is provided below. This information has come directly from the report *Health System Costs of Cardiovascular Diseases and Diabetes in Australia 1993–94* by Mathers et al. (in preparation), in which detailed information about the methodologies used to estimate health care costs in 1993–94 can be found.

The basic approach for direct costs of health services has been to take known aggregate expenditures on health care and apportion those to disease categories using Australian data (hospital morbidity data, casemix data, the national survey of morbidity and treatment in general practice, and the National Health Survey). The attribution of the direct costs of health services to disease is discussed in more detail below.

It must be emphasised that the cost estimates for 1993–94 are based on attribution of total health expenditures to diseases based on available information on the mix of diseases treated and the costs of treatment. For medical and allied health services, and to some extent for drugs, utilisation data relate to 1989–90 or 1990–91 and so costs reported for these sectors will not reflect changes in clinical practice or disease patterns between then and 1993–94. Also, costs of specialist medical services are estimated using 1990–91 data on referral patterns by GPs and costed at the average cost within specialist type. For example, this means that all pathology tests are assumed to have the same average cost.

Although the cost estimates reported here provide a broad picture of the health system resources used by age, sex and disease, they should be interpreted with caution for specific diseases. Detailed bottom-up costing of the treatment costs of a specific disease may give more accurate estimates than the top-down approach of the DCIS but the latter ensures consistency of estimates, complete coverage of all diseases, and ensures that cost estimates for individual diseases and age-sex groups add to the known total health expenditures.

Recurrent expenditure on health care which has not yet been attributed includes ambulance services, community health services, health promotion and illness prevention, and aids and appliances. Other types of direct cost, not yet attributed to disease categories, are capital expenditure (\$1.5 billion in 1989–90), together with costs not counted within the National Accounts context. These include costs incurred by families and friends in caring for patients, travel costs of patients and welfare service costs. The current estimates of direct costs are therefore conservative.

Hospital admitted patient services

This sector includes admitted patient costs for recognised public hospitals (including public psychiatric hospitals), Repatriation (Veterans') hospitals and private hospitals. The proportions of total public acute hospital expenditure which relate to admitted patients are given by the admitted patient fractions estimated for each State and Territory by the National Health Ministers Benchmarking Working Group (1996).

Disease costs for admitted patient services are estimated by apportioning the total admitted patient expenditure for each State or Territory to individual episodes of hospitalisation with an adjustment for resource intensity of treatment for the specific episode (using Diagnostic Related Groups or DRGs). Medical costs for private, compensable and other non-public patients in public, Repatriation and private hospitals are estimated using DRG-derived medical cost weights and age-sex specific information from the Health Insurance Commission on in hospital private medical charges for various categories of service.

Outpatient and casualty services

The 1989-90 ABS National Health Survey is used to allocate total expenditure on non-admitted patient services for 1993-94. Total visits to outpatient clinics (including casualty or accident and emergency departments) for each age-sex-disease group are estimated from the National Health Survey data on numbers of outpatient visits in the two weeks prior to interview. Expenditure is allocated assuming that all visits have the same cost.

Nursing homes

The distribution of main disabling health condition of nursing home residents in the 1993 Australian Survey of Disability, Ageing and Carers is used to allocate total nursing home expenditure for 1993-94 to age-sex-disease categories at ICD-9 chapter level. This expenditure is apportioned to specific disease groups at the sub-Chapter level according to the distribution of diagnosis for patients in that age-sex group who transfer from acute hospitals (around 60% of nursing home admissions).

Medical services

This sector includes expenditure on all private medical services apart from those to hospital admitted patients. It includes consultations with general practitioners and specialists as well as pathology tests and screening and diagnostic imaging services. The Survey of Morbidity and Treatment in General Practice in Australia 1990-91 is used to allocate age-sex specific out of hospital expenditure on medical services to disease diagnoses. This allocation is done separately for general practitioners (based on encounters surveyed in the Bridges-Webb survey) and for 17 categories of specialists (based on the pattern of referrals to each category of specialist in the Bridges-Webb survey).

Age-sex specific out of hospital expenditure on medical services is derived from Medicare and Department of Veterans' Affairs (DVA) data. This expenditure covers all charges for which a Medicare or DVA claim has been made. It is adjusted to include expenditure for which claims have not been made using an inflation factor derived from the Australian Institute of Health & Welfare health expenditure data on total expenditure on medical services.

This methodology assumes that the pattern of GP services by diagnosis in 1993-94 is the same as that collected in 1990-91, that the pattern of diseases managed by each type of specialist in 1993-94 reflects the pattern of referrals to that specialist type from GPs in 1990-91 and that each referral to a specialist of a given type generates services with equal cost.

All other screening and diagnostic tests were costed based on the 1990-91 pattern of referrals by GPs using the overall average charge per pathology test in 1993-94.

Allied health services

The 1990–91 Survey of Morbidity and Treatment in General Practice in Australia and the 1989–90 ABS National Health Survey are used to allocate total Australian expenditure on allied health practitioners to age–sex–disease groups. Total visits to allied health practitioners in 1993–94 for each age–sex–disease group are estimated from the National Health Survey data on visits to 14 types of allied health practitioners in the two weeks prior to interview. Annual visits to other types of allied health practitioner are estimated from referrals by GPs in the Bridges-Webb survey. Expenditure is allocated assuming that all visits have the same cost. The methodology covers all allied health professionals except pharmacists (see below).

Pharmaceuticals

Total pharmaceutical expenditure is decomposed into two components: expenditures on prescription drugs and non-prescription (over the counter) pharmaceuticals. The 1990–91 Survey of Morbidity and Treatment in General Practice in Australia together with 1993–94 estimates of total costs and numbers of prescriptions for 40 categories of drug are used to allocate total Australian expenditure on prescription pharmaceuticals to age–sex–disease groups. Expenditure on over the counter pharmaceuticals is attributed to disease–age–sex groups using information from the 1989–90 ABS National Health Survey. The methodology addresses all pharmaceutical costs apart from the cost of pharmaceuticals dispensed in hospitals, which are included in estimates of hospital costs.

For each of 40 therapeutic drug groups, the relative distribution of prescriptions by disease, age and sex for all community prescriptions in 1993–94 is assumed to be the same as that for prescriptions by general practitioners in 1990–91. For diseases where a significant proportion of prescriptions are made by medical specialists, this assumption may have limited validity. Detailed estimates of 1993–94 utilisation and expenditure for the 40 drug categories are used as a starting point for attribution to disease–age–sex groups. This takes into account differences in average drug costs across therapeutic categories, average numbers of repeats and relative changes in utilisation and costs across drug categories between 1989–90 and 1993–94.

Public health programs

Community and public health programs in general are not yet included in the estimates of disease costs due to the difficulties in obtaining comprehensive casemix data for these health sectors.

Research

Estimated total Australian expenditure on health and medical research for major disease and population groups in 1991 was used to estimate total research spending for males and females by chapter of ICD-9. Chapter level expenditure was allocated to disease–age–sex groups at sub-Chapter level in proportion to total health expenditure for other health sectors.

Other institutional, non-institutional and administration

Other institutional health expenditure (the Red Cross Blood Transfusion Service), other non-institutional health expenditure and administration expenditure (Commonwealth, State and

Territory health authority administration expenses and management expenses of Medicare and registered private health insurance funds) are allocated to disease-sex-age groups in proportion to total health expenditure for other health sectors.

It may be possible to refine this attribution process through analysis of the types of expenditure comprising these categories. For example, almost half of 'Administration' expenditure is for administration of health insurance funds, and it may be possible to allocate this according to the distribution across sectors of health insurance funds expenditure. At this stage, a simple overall pro rata allocation process has been used for the three sectors combined.