

Multimorbidity through the lens of life-limiting illness: how helpful are Australian clinical practice guidelines to its management in primary care?

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Supplementary Material S1

Table S1. Ovid MEDLINE search strategy

#	Searches	Results
1	Critical Pathways/	6020
2	Clinical Protocols/	25802
3	CONSENSUS/	9161
4	consensus development conference/ or consensus development conference, nih/	11034
5	consensus development conferences as topic/ or consensus development conferences, nih as topic/	2597
6	guideline/ or practice guideline/	30813
7	guidelines as topic/ or practice guidelines as topic/	141934
8	Health Planning Guidelines/	4001
9	(consensus development conference or consensus development conference, nih or guideline or practice guideline).pt.	39486
10	(position statement* or policy statement* or practice parameter* or best practice*).ti,kf,kw.	8370
11	(standards or guideline or guidelines).ti,kf,kw.	95994
12	((practice or treatment* or clinical) adj guideline*).ab.	33404
13	(CPG or CPGs).ti.	5299
14	consensus*.ti,kf,kw.	21797
15	consensus*.ab./freq=2	21189
16	((critical or clinical or practice) adj2 (path or paths or pathway or pathways or protocol*).ti,kf,kw.	3628
17	recommendat*.ti,kf,kw.	35385
18	(care adj2 (standard or path or paths or pathway or pathways or map or maps or plan or plans)).ti,kf,kw.	6314
19	(algorithm* adj2 (pharmacotherap* or therap* or treatment* or intervention*).ti,kf,kw.	1330
20	or/1-19	342506
21	exp *neoplasms/	2679793
22	(Cancer* or melanoma* or myeloma* or sarcoma* or lymphoma* or neuroblastoma* or retinoblastoma* or osteosarcoma* or tumor* or tumour* or malignan* or neoplas* or leukemia* or leukaemi* or carcinoma* or adenocarcinoma*).ti.	2168272
23	exp *Coronary Disease/	161395
24	((Coronary or ischemi* or ischaemi*) adj2 disease*).ti.	62451
25	exp *Dementia/ or (dementia* or Alzheimer* or frontotemporal lobar degeneration* or pick disease* or picks disease*).ti.	139810
26	*cardiovascular diseases/ or cardiovascular disease*.ti.	100845

27	*Myocardial Ischemia/ or *Heart diseases/	74533
28	((myocardial or heart) adj (disease* or ischemi* or ischaemi*)).ti.	69901
29	exp *cardiomyopathies/ or exp *heart failure/	149860
30	(cardiomyopath* or heart failure).ti.	93822
31	*Pulmonary Disease, Chronic Obstructive/ or (chronic obstructive pulmonary disease* or COPD).ti.	37799
32	*renal insufficiency, chronic/ or *kidney failure, chronic/	75222
33	(Chronic adj (renal or kidney)).ti.	30229
34	*liver failure/ or *end stage liver disease/	6207
35	((liver or hepatic) adj (failure or disease*)).ti.	39199
36	(chronic adj (liver or hepatic)).ti.	6656
37	*neurodegenerative diseases/ or *lewy body disease/ or *motor neuron disease/ or *amyotrophic lateral sclerosis/ or *bulbar palsy, progressive/ or *muscular atrophy, spinal/ or *parkinson disease/	80381
38	(neurodegenerative or lewy body or motor neuron* or amyotrophic lateral sclerosis or progressive bulbar palsy or parkinson* or (MND or ALS)).ti.	87552
39	*multiple sclerosis/ or *multiple sclerosis, chronic progressive/ or *multiple sclerosis, relapsing-remitting/	45591
40	multiple sclerosis.ti.	43308
41	or/21-40	3984113
42	exp Australia/ or (australia* or australasia* or new south wales* or victoria* or queensland* or tasmania* or northern territory*).ti,ab,kw,kf.	187431
43	20 and 41 and 42	1035
44	limit 43 to yr="2012 -Current"	526
45	limit 44 to english language	523

Notes:

Includes database subsets: Ovid Medline (1946 to August 03, 2018); Epub Ahead of Print, In-Process & Other Non-Indexed Citations; Daily; and Versions.

Lines 1-19 represent the 'guidelines' part of the search. This is based on an existing search by Canadian Agency for Drugs and Technologies in Health (CADTH).

/ = Medical Subject Heading (MeSH) search; ti = title field search; ab = abstract field search; kw = exact author keyword field search; kf = author keyword field search; pt = publication type field search; adj2 = search words can occur within two spaces of each other, in either order; ab./freq=2 = words must appear with a frequency of 2 (i.e. twice) within the abstract field.

Sources used to identify Australian clinical practice guidelines

Guideline repositories and sources of evidence summaries

- Clinical Practice Guidelines Portal (Australia): <https://www.clinicalguidelines.gov.au/portal>
- Guidelines International Network (GIN): <http://www.g-i-n.net/>
MJA's 'Guidelines and Statements' section: <https://www.mja.com.au/journal/guidelines>
- eTG Complete (subscription resource)
- Australian Medicines Handbook (subscription resource)
- Handbook of Non-Drug Interventions: HANDI: <https://www.racgp.org.au/clinical-resources/clinical-guidelines/handi>

Medical speciality colleges or societies, or organisations

- Royal Australian College of General Practitioners (RACGP): <https://www.racgp.org.au/>
- Royal Australian College of Physicians (RACP): <https://www.racp.edu.au/>
- Centre for Remote Health: <https://www.crh.org.au/remote-phc-manuals-overview>
 - CARPA Standard Treatment Manual
 - Minymaku Kutju Tjukurpa: Women's Business Manual
- Australian Primary Health Care Research Institute:
<https://rsph.anu.edu.au/research/centres-departments/australian-primary-health-care-research-institute>
- AusDoc.Plus 'Guide to Guidelines': <https://www.ausdoc.com.au/guidetoguidelines>

Palliative care organisational websites

- Palliative Care Australia (PCA): <https://palliativecare.org.au/>
- CareSearch: <https://www.caresearch.com.au/Caresearch/Default.aspx>
- End of Life Directions for Aged Care (ELDAC): <https://www.eldac.com.au/>
- PalliAGED: <https://www.palliaged.com.au/>

Condition-specific organisational websites

- Cancer Council Australia (CCA): <https://wiki.cancer.org.au/australia/Guidelines>
- Cancer Australia: <https://canceraustralia.gov.au/>
- Clinical Oncological Society of Australia (COSA): <https://www.cosa.org.au/>
- Australian Heart Foundation: <https://www.heartfoundation.org.au/>
- Cardiac Society of Australia and New Zealand: <http://www.csanz.edu.au/>
- Lung Foundation Australia: <https://lungfoundation.com.au/>
- Thoracic Society of Australia and New Zealand: <https://www.thoracic.org.au/>
- Kidney Health Australia: <http://kidney.org.au/>
- Gastroenterological Society of Australia (GESA): <http://www.gesa.org.au/>
- Australian Liver Foundation: <http://liver.org.au/>
- Dementia Australia: <https://www.dementia.org.au/>
- MND Australia: <https://www.mndaust.asn.au/>
- Parkinson's Australia: <https://www.parkinsons.org.au/>
- MS Australia: <https://www.msaustralia.org.au/>

Government sites

- Australian Government Department of Health: <https://www.health.gov.au/>
- National Health and Medical Research Committee (NHMRC): <https://www.nhmrc.gov.au/>

Supplementary Material S2

Table S2. Examples of graded/ranked comorbidity management evidence

Guideline or summary	No. and type of comorbidity evidence ratings/gradings	Example recommendation	Level and/or grade of recommendation
The COPD-X Plan: Australian and New Zealand guidelines for the management of chronic obstructive pulmonary disease	10 x NHMRC ranked statements	Anxious and depressive symptoms and disorders are common comorbidities in people with COPD ... and have a range of negative impacts (D5 p.121)	<i>NHMRC: level 1</i> (i.e. evidence obtained from a systematic review of all relevant randomised controlled trials)
Clinical practice guidelines and principles of care for people with dementia	3 x Evidence-Based Recommendations	The role of antidepressants in the treatment of depression in people with dementia is uncertain. Larger trials conducted in people with dementia have not shown benefit (in group data) for antidepressants for treatment of depression per se. Nevertheless, it is considered that those with a pre-existing history of major depression (prior to developing dementia) who develop a co-morbid major depression should be treated in the usual way. (Recommendation 88, Behavioural and psychological symptoms of dementia p. XV)	<i>Evidence-Based Recommendation</i> (i.e. a recommendation formulated after a systematic review of the evidence, with supporting references provided) <i>GRADE: Moderate</i>
Guidelines for the prevention, detection, and management of heart failure in Australia 2018	11 x Graded recommendations	Adaptive servoventilation is not recommended in patients with HF _r EF and predominant central sleep apnoea because of an increased all-cause and cardiovascular mortality. (10.9. p.1178)	<i>GRADE: Strong AGAINST;</i> <i>Quality: Moderate</i>

Table S3. Examples of burden of treatment, quality of life, and patient preference statements

	COPD	Heart failure	Deprescribing	Dementia
Burden of comprehensive treatment on patients or caregivers	The burden of disease and care fluctuates and it may be appropriate to encourage discussion about long term goals prognosis and attitudes to future treatment and care plans can be encouraged (O p. 34).	Patients with heart failure are required to adhere to a complex regimen when managing their heart failure at home, to maintain stability, decrease hospitalisation and mortality, and improve quality of life. The regimen includes taking their medications at the right time and right dose, monitoring their heart failure specific signs and symptoms (to determine when these signs and symptoms indicate a deterioration in health), and collaboration with a health professional (8.4. p. 1165)	The potential burden of medication management on the carer cannot be underestimated. In addition to stress, worry and the restriction of carer activities associated with the administrative tasks of medication management and managing negative side effects, there is an emotional burden involved in the responsibility of making decisions about medications (Consumer values and preferences p. 50)	Carer(s) and family should have access to programs designed to provide support and optimise their ability to provide care for the person with dementia. Programs should be tailored to the needs of the individual and delivered in the home or at another accessible location (Recommendation 102 p. XVII).
Quality of life	The benefits of pulmonary rehabilitation include a reduction in symptoms (dyspnoea and fatigue), anxiety and depression, and improvements in HRQoL, peripheral muscle function and exercise capacity, and, following rehabilitation, participants gain an enhanced sense of control over their condition [evidence level I/II] (O6.1 p. 53).	Predominant obstructive sleep apnoea with nocturnal hypoxaemia and apnoea/hypopnoea index over 30 per hour in patients with heart failure may be treated with nocturnal oxygen supplementation, CPAP, BiPAP or adaptive servo-ventilation to improve quality of life and decrease sleepiness (10.9 p. 1179).	The quality of life of the person with dementia is regularly discussed as central to treatment decisions (starting, continuing and discontinuing) (Consumer values and preferences p. 49)	Improving quality of life, maintaining function and maximising comfort are appropriate for people living with dementia throughout the disease trajectory, with the emphasis on particular goals changing over time (Recommendations, Principles of care 2 p. V).
Financial burden on patients	The cost of inhaler devices varies between products. As there are no differences in patient outcomes for the different devices, the cheapest device the patient can use adequately should be prescribed as first line treatment (O5.1 p.52).		... [I]Individual clinicians should be aware of the cost implications for individuals, based on local subsidisation criteria (Resource implications and cost effectiveness p. 54).	Souvenaid® is not listed on the Australian Therapeutic Goods Register and is not considered by any Australian regulatory body to be a therapeutic good. There is no government subsidy available for Souvenaid, so the full cost must be borne by the consumer (Nutritional supplements p. 45).
Patient preferences	However, with few head to head comparisons of LAMAs available, the choice of LAMA and inhaler device depends on patient and clinician preferences (O1.2.1 p. 38).	Adjusting management strategies in the setting of multimorbidity and heart failure is integral to better outcomes. Together with a patient's values, preferences, and goals, a list of clinical priorities and an approach to match should be established. This may involve other specialists as appropriate (8.2.3 p. 1164).	Good communication between clinicians and people with dementia and/or carers/family about the benefits and harms of continuing versus discontinuing, in the context of their values and preferences, is necessary when discussing a potential trial of deprescribing (p. 4).	Health and aged care professionals should provide person-centred care, by identifying and responding to the individual needs and preferences of the person with dementia, their carer(s) and family (Recommendations, Principles of care 1 p. V).

	Managing patients with multimorbidity effectively involves taking a patient-centred approach to balancing multiple, and at times competing, priorities (O7. p.66).	Essentially, a more nuanced approach with clinical judgement and recognition of the contribution of personalised, patient-centred decisions is to be adopted (8.2.3 p.1164)	Potential outcomes of deprescribing should be placed in the context of what is important for the person with dementia and their family (Consumer values and preferences p. 50).	<p>Treat each person as an individual by offering a personalised service (Principles of dignity in care p.9).</p> <p>Enable people to maintain the maximum possible level of independence, choice and control (Principles of dignity in care p.9).</p> <p>Listen and support people to express their needs and wants (Principles of dignity in care p.9).</p>
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**Cancer pain management in adults* was not included in this table as it did not contain statements on the burden of treatment.

Abbreviations

BiPAP: Bilevel positive airway pressure

CPAP: Continuous positive airway pressure

HRQoL: Health-related quality of life

LAMA: Long-acting muscarinic antagonists