Polypharmacy:
Guidance for Prescribing In Frail Adults

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Method

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Contents

Section 1

Polypharmacy: Guidance for Prescribing In Frail Adults

This guideline is intended to provide some guidance on how to make safe and sensible decisions on prescribing in two often overlapping situations where extra thought and consideration is needed.

1. When faced with a patient who is either on or has indications to be on multiple medications.

2. When a patient is 'Frail' in a medical sense. 'Frailty' in this guideline is taken to describe a state where a patient has a reduced ability to withstand illness without loss of function.[1]

Research has demonstrated that patients on multiple medications are more likely to suffer drug side effects and that this is more related to the number of co-morbidities a patient has than age.[2] There is a clear and steady increase in the number of patients admitted to hospital with drug side effects.[3] Patients admitted with one drug side effect are more than twice as likely to be admitted with another.[2]

This guideline aims to provide guidance for the following situations:

1. Patients who are taking **very large numbers of medications** [>10 prescribed items] and who are either suffering side effects or are unwilling or unable to take such a large number of medications.

2. Patients who have **suffered a side effect of medication** and where a decision is needed on whether to restart the drug or avoid.

3. Patients with **Indications of Shortened Life Expectancy** where life expectancy is shorter than the time that medication would take to give significant effect.

4. Situations **where Guidelines suggest 'Medication Review'** but are not specific as to what is to be done eg Comprehensive assessment of Falls Risk, Anticipatory Care, Care Home Drug reviews.

In each of these situations the guideline aims to summarise the expected effectiveness of several of the main current drug strategies looking at:

1. What benefit various drug strategies hope to achieve?

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[1] Roackwood *CMAJ 1994; 150:489-495.*
[2] Co-morbidity and repeat admission to hospital for adverse drug reactions in older adults: retrospective cohort study M Zhang et al BMJ 2009;338:a275
[3] Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients M Pirmohamed et al, BMJ 2004;329:15-19

2. How many patients per annum need to be treated with that drug to obtain benefit in one patient?

3. Where possible an estimation of how long treatment was needed in therapeutic trials to show a significant difference between being on that drug and not being on that drug?

With this information prescribers are then advised, in conjunction with patients and where relevant carers, to use this information:

1. Consider stopping medication that would not reasonably be expected to give a benefit within the reasonable expectation of that person's lifespan.

2. Prioritise which of multiple medications are the most effective when major polypharmacy [>10 prescribed drugs] exists.

3. Consider stopping medication where the risk of side effect is considered to be now greater than expected benefit.

Process

1. Identify drug and check that it does have a **valid and current indication** in this patient with reference to Highland Formulary. Take particular regard of **drugs that are tolerated poorly in frail patients.**

2. Is the drug expected to give day to day **symptomatic** benefit [eg painkillers, antidepressants]? Or is **important in preventing rapid symptomatic deterioration**? If so it should in almost all cases continue or only be discontinued following specialist advice.

3. Is the drug **replacing a vital hormone** eg thyroxine? If it is it should continue.

4. Is the drug in a form the patient can take, supplied in the most appropriate way and the least burdensome dosing strategy?

5. Is the drug contraindicated or one of the **High Risk Drugs Group**? If so strongly consider stopping.

6. For drugs not already covered in Process steps 1 to 5 compare the drug to the **Drug Effectiveness Summary** which aims to estimate effectiveness.

7. Once all drugs have been through steps 1 to 6, decide with patient and/or carer what drugs have an effect of sufficient magnitude to consider continuation /discontinuation.

It may be helpful to summarise on **DRUG REVIEW SUMMARY** to help compare treatments. More than one page may be required.

Drug Effectiveness Summary

This chart included as an appendix summarises the expected effect of various commonly prescribed drug strategies represented in terms of **Number Needed to Treat** per annum to achieve a desired effect.

In most cases this demonstrates that these strategies can be very effective **if given to enough people for a long enough period of time**.

Where possible emphasis has been given to trials that include older age groups. Where possible metanalysis and reviews of multiple trials from reputable sources eg Cochrane have been used to try and obtain the best estimates of overall effect. [**List of trials**]

It is recognised that no data in any trial or metanalysis will ever give an exact figure for an individual patient. It is reasonable to assume however that the figures given give a reasonable estimate of the order of magnitude of effect.

It is noted that patients in drug trials will tend on average to be younger, fitter and have less co-morbidity than those not in trials.

The drugs included were chosen as:

1. Is a **drug commonly associated with admission due to adverse drug reaction.**

or

2. Drug commonly prescribed in patients with multiple co-morbidity?

Section 2

Further Information Inserted as Hyperlinks within Guidance Document

Indications Of Shortened Life Expectancy

We suggest following guidance contained in the prognostic indicators guidance from the Gold Standards Framework incorporated into the 'Living Well/ ying Well' strategy. A full copy of this is available as an appendix and at:

http://www.goldstandardsframework.nhs.uk/Resources/Gold%20Standards%20Framework/PIG_Paper_Final_revised_v5_Sept08.pdf

Main groups

1. Where the answer to the question 'Would you be surprised if this person were to die in the next 6 to 12 months?' is No.

2. Choice/Need – where a patient with advanced disease is making a choice for comfort care rather than 'curative' treatment.

3. One Clinical Indicator often associated is patients requiring help with multiple activities of daily living either at home or in care home due to:

    a. Advanced organ failure.
    b. Multiple co-morbidity giving significant impairment in day to day function.
    c. Advanced dementia.

The Gold Standard framework gives specific information as to what tends to indicate poor prognosis in a number of conditions.

For example:

Frailty
Frailty is well defined as a 'reduced ability to withstand illness without loss of function'.

Gold standard framework defines this further as:

- Multiple co-morbidities with signs of impairment in day to day functioning
- Combination of at least 3 of:

    - weakness
    - slow walking speed
    - Low physical activity
    - weight loss
    - self reported exhaustion.

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Drugs That Can Be Associated With Rapid Symptomatic Decline If Stopped

Drugs in this group may be in need of review but commonly will require specialist advice or cautious stepwise withdrawal.

- ACE inhibitors in heart failure [left ventricular impairment].
- Diuretics in heart failure.
- Steroids.
- Drugs for heart rate or rhythm control [beta blockers; digoxin].

Drugs for which specialist advice is **strongly advised** before altering include:

- Anticonvulsants for epilepsy.
- Antidepressant, antipsychotic and mood stabilising drugs [eg lithium].
- Drugs for the management of Parkinson's Disease.
- Amiodarone.
- Disease modifying antirheumatic drugs.

High Risk Drug Group

The following are highlighted as being particularly high risk combinations and should be avoided where possible and clearly justified when considered necessary. This list is **NOT exhaustive**, and the safety of other drugs has to be considered depending on individual circumstances.

NSAID

+ Angiotensin Converting Enzyme Inhibitor [ACE] or Angiotensin 2 Receptor Blocker [ARB] + Diuretic ['Triple Whammy' combo]
+ eGFR <60
+ diagnosis heart failure
+ Warfarin
+ age >75 without PPI

Warfarin

+ another antiplatelet. *It is noted that although specific indications for this exist, in a frail group of patients the risk is high and combination should be challenged unless specifically noted as having taken account of patient frailty/polypharmacy.*
+ NSAID
+ Macrolide
+ Quinolone
+ Metronidazole
+ azole antifungal

Heart Failure diagnosis

+ Glitazone
+ NSAID
+ Tricyclic antidepressant

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Drugs That Are Tolerated Poorly In Frail Patients

Similar to above, although sometimes necessary, the following groups are noted to be poorly tolerated and associated with adverse events [especially falls]. It is particularly important to clarify if patients on the following have a **Valid and Current Indication** and are still felt to be effective**. Attention is still needed when considering stopping these see Drugs that can be associated with rapid symptomatic decline if stopped.**

- Digoxin in higher doses 250microgram +
- Antipsychotics [although note caution re rapid symptomatic decline]
- Tricyclic antidepressants
- Benzodiazepines particularly long term
- Anticholinergics
- Phenothiazines [eg prochlorperazine]
- Combinations painkillers [eg co-codamol v paracetamol].

Abbreviation Definitions

NNT number needed to treat to avoid a single additional adverse outcome. Needs to refer both to what adverse outcome is avoided and over what time scale. [Calculated as 1/ARR]
ARR The absolute difference in adverse outcomes between groups.
RRR The relative difference between out comes between groups.

Drugs Most Associated With Admission Due To Adverse Drug Reaction [ADR]

In 2004 UK study most common drug groups associated with admission due to ADR were:

1.	NSAIDs	29.6%
2.	Diuretics	27.3%
3.	Warfarin	10.5%
4.	ACE	7.7%
5.	Antidepressants	7.1%
6.	Beta blockers	6.8%
7.	Opiates	6.0%
8.	Digoxin	2.9%
9.	Prednisolone	2.5%
10.	Clopidogrel	2.4%

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Information on Particular Drug Side Effects

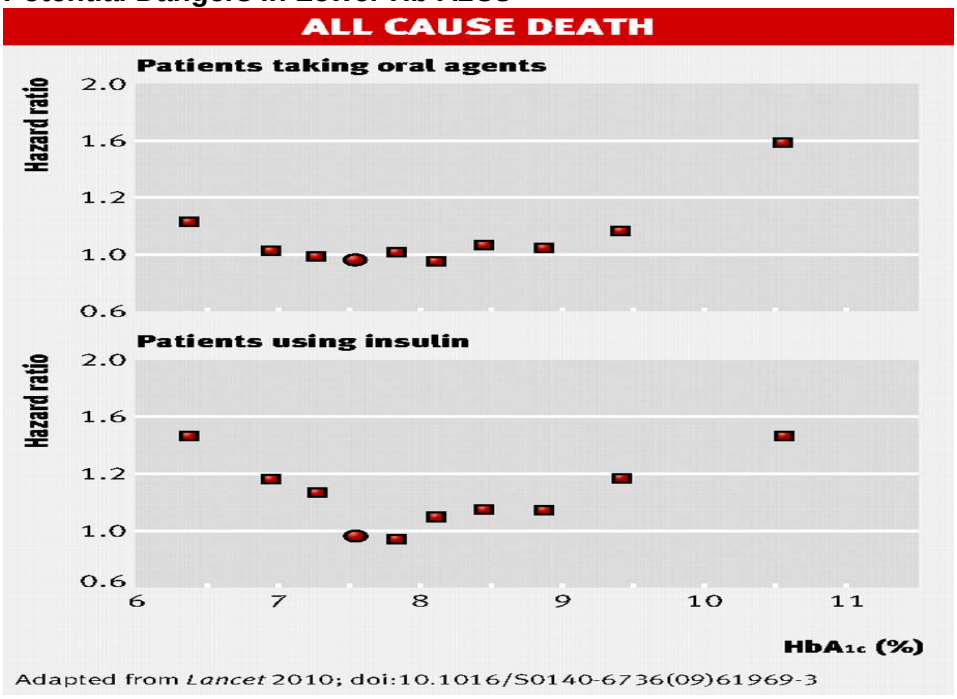
Combination Antiplatelet Therapy with Warfarin

Taking **warfarin** as baseline ie one risk of bleeding in a recent large study is as follows

Aspirin	0.93 [0.88 to 0.98]
Clopidogrel	1.06 [0.87 to 1.29]
Aspirin + Clopidogrel	1.66 [1.34 to 2.04]
Warfarin + Aspirin	1.83 [1.72 to 1.96]
Warfarin + Clopidogrel	3.08 [2.32 to 3.91] 13.9% bleed/patient year
Warfarin + Aspirin + clopidogrel	3.70 [2.89 to 4.76] 15.7% bleed/patient year

Bleeding here = admission to hospital with bleeding related episode or death with bleed.
Average Age in trial 70
Main indication. 82 854 patients surviving hospitalisation with atrial fibrillation.
Stroke occurrence lowest in warfarin only group.

Potential Dangers in Lower Hb A1Cs



Researchers analysed data from nearly 48,000 primary care patients who had stepped up their hypoglycaemic treatment. Hb A1c around 7.5% had the lowest mortality. Risk of death rose significantly on both sides of this reference group, reaching a hazard ratio of 1.52 (1.32 to 1.76) for patients in the bottom 10th of HbA1c concentration (median 6.4%), and 1.79 (1.56 to 2.06) for patients in the top 10th (median 10.5%).

These results are of particular concern for the frailer groups of patients covered by the Polypharmacy Guideline who given the long lead time to obtain benefits from low Hb A1c, may nonetheless suffer adverse outcomes.

Information on Particular Drug Side Effects [Cont]

Drugs and Dehydration

STOP

- ACE inhibitors
- Angiotensin 2 Receptor Blockers
- NSAIDs
- Diuretics

In Dehydrated Adults

For example those suffering from more than minor vomiting/diarrhoea.

Restart when well (eg 24 to 48 hrs eating and drinking normally).

Adults with advanced heart failure can decompensate rapidly off drugs and adults with more than minor dehydration in this group need urgent specialist advice.

In all patients but in particular frail adults this is useful information to give to patient; relative; carer; care home staff.

Risks of stopping Aspirin in Secondary Prevention

Low dose aspirin is recommended treatment in patients who have suffered myocardial infarction or other vascular event.

Stopping low dose Aspirin in this situation has a risk of increased cardiac events on stopping.

This has recently been estimated as increasing risk of non fatal myocardial infarction from 6 per 1,000 patient years to 10 per 1,000 patient years. This gives a number needed to harm from stopping aspirin of about 250 per year.

DRUG	Valid Indication ?	Symptomatic Relief or to prevent rapid symptomatic decline?	Vital Hormone Replacement ?	High risk drug combo or poorly tolerated ?	NNT per annum and to do what	Stop/ Continue + notes	Reason for stopping

DRUG REVIEW SUMMARY [Back to text]

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Patient Label

Trials Used To Complete Drug Effectiveness Summary

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Cardiac Trials

Effect of enalapril on survival in patients with reduced left ventricular ejection fractions and congestive heart failure. The SOLVD Investigators NEJM Volume 325:293-302 August 1, 1991 Number 5

HOPE Study *N Engl J Med* 2000;342;145–153

The Cardiac Insufficiency Bisoprolol Study II (CIBIS-II): a randomised trial. Lancet. 1999 Jan 2;353(9146):9-13.

The Randomized Aldactone Evaluation Study Investigators. The Effect of Spironolactone on Morbidity and Mortality in Patients with Severe Heart Failure [RALES] Bertram Pitt, M.D., Faiez Zannad, M.D., Willem J. Remme, M.D., Robert Cody, M.D., Alain Castaigne, M.D., Alfonso Perez, M.D., Jolie Palensky, M.S., Janet Wittes, Ph.D. NEJM Volume 341:709-717 September 2, 1999 Number 10

Setoguchi et cal Improvements in Long Term Mortality after Myocardial Infarction *J of AM College of Cardiology Vol. 51, No. 13, 2008 April*

Stroke Secondary Prevention

Antithrombotic Trialists' Collaboration. Collaborative meta-analysis of randomised trials of antiplatelet therapy for prevention of death, myocardial infarction, and stroke in high risk patients. *BMJ* 2002;324:71–86.

PROGRESS Collaborative Group. Randomised trial of a perindopril-based blood pressure-lowering regimen among 6105 individuals with previous stroke or transient ischaemic attack. *Lancet* 2001;358:1033–1041.

10-Year Follow-up of Intensive Glucose Control in Type 2 Diabetes Rury R Holman, Sanjoy K Paul, M Angelyn Bethel, David R Matthews, H Andrew W Neil. The New England Journal of Medicine. Boston: Oct 9, 2008. Vol. 359, Iss. 15; pg. 1577

Halkes et al Dipyridamole plus aspirin versus aspirin alone in secondary prevention after TIA or stroke: a metaanalysis by risk J. Neurol. Neurosurg. Psychiatry 2008;79;1218-1223

Rashid P, Leonardi-Bee J, Bath P. Blood pressure reduction and secondary prevention of stroke and other vascular events. A systematic review. *Stroke* 2003;34:2741–2749.

High-Dose Atorvastatin after Stroke or Transient Ischemic Attack The Stroke Prevention by Aggressive Reduction in Cholesterol Levels (SPARCL) Investigators NEJM Volume 355:549-559 August 10, 2006 Number 6

NICE technology appraisal guidance 210 Clopidogrel and modified-release dipyridamole for the prevention of occlusive vascular events (review of technology appraisal guidance 90) Dec 2010

Warfarin
Warfarin versus aspirin for stroke prevention in an elderly community population with atrial fibrillation (the Birmingham Atrial Fibrillation Treatment of the Aged Study, BAFTA): a randomised controlled trial *Lancet* 2007; 370: 493–503.

Hypertension
Pharmacotherapy for hypertension in the elderly. *Cochrane Database of Systematic Reviews* 2009, Musini VM, Tejani AM, Bassett K, Wright JM Issue 4. Art. No.: CD000028. DOI: 10.1002/14651858.CD000028.pub2.

Statins
Effects Scandinavian Simvastatin Survival Study Group. Randomised trial of cholesterol lowering in 4444 patients with coronary heart disease: the Scandinavian Simvastatin Survival Study (4S). Lancet 1994;344:1383-1389.

LaRosa JC, He J, Vupputuri S. Effect of statins on risk of coronary disease: a meta-analysis of randomized controlled trials. JAMA. 1999;282:2340-2346.

Goldberg RB, Mellies MJ, Sacks FM, Moye LA, Howard BV, Howard WJ, Davis BR, Cole TG, Pfeffer MA, Braunwald E. Cardiovascular events and their reduction with pravastatin in diabetic and glucose-intolerant myocardial infarction survivors with average cholesterol levels: subgroup analyses in the Cholesterol and Recurrent Events (CARE) trial. Circulation 1998;98:2513-2519.

West of Scotland Coronary Prevention Group. West of Scotland Coronary Prevention Study: identification of high-risk groups and comparison with other cardiovascular intervention trials. Lancet 1996; 348: 1339-1342.

Primary prevention of cardiovascular disease with atorvastatin in type 2 diabetes in the Collaborative Atorvastatin Diabetes Study (CARDS): multicentre randomised placebo-controlled trial. Lancet. 2004 Aug 21-27;364(9435):685-96 of intensive glucose lowering in type 2 diabetes Gerstein HC, Miller ME, Byington RP, et al.. N Engl J Med. 2008 Jun 12;358(24):2545-59.

MRC/BHF Heart Protection Study of cholesterol lowering with simvastatin in 20 536 high-risk individuals: a randomised placebo controlled trial Heart Protection Study Collaborative Group THE LANCET • Vol 360 • July 6, 2002.

Diabetes
Survival as a function of HbA1c in people with type 2 diabetes: a retrospective cohort study *The Lancet*, 2010 Volume 375, Issue 9713, Pages 481-489C. Currie, et al.

Effect of intensive control of glucose on cardiovascular outcomes and death in patients with diabetes mellitus: a meta-analysis of randomised controlled trials. Lancet 2009; 373: 1765–72 K Ray et al.

Intensive Blood Glucose Control and Vascular Outcomes in Patients with Type 2 Diabetes The ADVANCE Collaborative Group N Engl J Med 2008;358:2560–2572.

Effect of intensive control of glucose on cardiovascular outcomes and death in patients with diabetes mellitus: a meta-analysis of randomised controlled trials Kausik K Ray, Sreenivasa.

Rao Kondapally Seshasai, Shanelle Wijesuriy, Rupa Sivakumaran, Sarah Nethercott, David Preiss, Sebhat Erqou, Lancet 2009; 373: 1765–72.

Effects of Intensive Blood-Pressure Control in Type 2 Diabetes Mellitus The ACCORD Study Group (10.1056/NEJMoa1001286) was published on March 14, 2010, at NEJM.org.

Osteoporosis

Alendronate for the primary and secondary prevention of osteoporotic fractures in postmenopausal women. Wells GA, Cranney A, Peterson J, Boucher M, Shea B, Welch V, Coyle D, Tugwell P. Cochrane Database of Systematic Reviews 2008, Issue 1. Art. No.: CD001155. DOI: 10.1002/14651858.CD001155.pub2.

Renal

Randomised placebo- controlled trila of effect of ramipril in decline in glomerular filtration rate and risk of terminal renal failure in proteinuric, non-diabetic nephropathy [REIN study]. The Gisen Group Lancet 1197;349:1857-63.

Renal Function and requirement for dialysis in chronic nephropathy patients on long term ramipril: REIN follow-up trial. Gisen Group Lancet 1998;352:1252-56.

Effects of inhibitors of the renin-angiotensin system and other antihypertensive drugs on renal outcomes:systematic reviews and meta-analysis. Casas J, Chua W et al Lancet 2005;366:2026-33.

Bleeding Risk and Antiplatelet Strategies

Risk of bleeding with single, dual, or triple therapy with warfarin, aspirin, and clopidogrel in patients with atrial fibrillation Hansen ML, Sorensen R, Clausen MT, et al. Arch Intern Med. 2010 Sep 13;170 (16):1433-41.

Aspirin in Secondary Prevention

Discontinuation of low dose aspirin and risk of myocardial infarction: case control study in UK primary care. Rodriguez LA, Cea-Soriano L, Martin- Merino E, Johansson S. BMJ 2011; 343:d 4065.

Other

Older Patients With Multiple Comorbid Diseases: Clinical Practice Guidelines and Quality of Care Cynthia M. Boyd; Jonathan Darer; Chad Boult; et al. JAMA. 2005;294(6):716-724.

High Risk Prescribing in primary care patients particularly vulnerable to adverse drug events: cross sectional population database analysis in Scottish general practice. Guthrie B, McCowan C, Simpson CR, Dreischulte T, Barnett K. BMJ 2011; 342:3514 doi: 10.1136/bmj.d3514 *Source of high risk drug group information.*

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Drug Effectiveness Summary

ACE INHIBITORS			
Indication	**NNT per annum**	**To do what**	**Notes**
Elevated Vascular Risk [Normal LV]	280	Prevent one death [all causes]	Trial ran for 5 years
Impaired LV Function-mild/moderate	30	Prevent one death [all causes]	Likely **symptomatic** benefit
Chronic Kidney Disease	See Notes	Increase time to dialysis, reduce Cardiovascular Risk	ACE inhibitors unlikely to show benefit greater than other antihypertensives unless PCR >100, in frail adults unlikely unless severe Proteinuria PCR > 500 mg/mmol due to time to show effect.
Combination Therapy including ACE			
ACE + Indapamide	55	Prevent one stroke	Trial ran for 5 years
Secondary Prevention post MI > 80 yrs [ACE+ BB +ASP+ STAT]	33	Prevent one Death	
ACE + Beta blocker for impaired LV	14	Prevent one death	Likely **symptomatic** benefit
Impaired LV Mild /moderate ACE + BB	15	Prevent one Death	Likely **symptomatic** benefit
Impaired LV Severe ACE + BB + Spiro	7	Prevent one Death	Likely **symptomatic** benefit
ASPIRIN Primary Prevention	Enormous	No longer recommended	
ASPIRIN Post Stroke/ TIA	100	Prevent one stroke or MI or Vascular Death	
DYPYRIDAMOLE In addition to ASPIRIN post stroke/TIA	100	Prevent one vascular event	BNF caution in cardiac disease
CLOPIDOGREL post stroke or TIA	Equivalent to Dypridamole + Aspirin	Prevent one vascular event	
WARFARIN			
AF + another risk factor v ASPIRIN	40	Prevent one Stroke- no difference in mortality	
HYPERTENSION			
BP > 140/90 trial predominantly systolic hypertension			
Cardiovascular morbidity and mortality >80 yrs			
Low Risk	80	Avoid one cardiovascular event	2 years for effect
High Risk [Diabetes, vascular disease]	32	Avoid one cardiovascular event	2 years for effect
Cerebrovascular morbidity and mortality > 80 yrs	122	Avoid one cerebrovascular event	2 years for effect
Cardiovascular morbidity and mortality > 60yrs			
Low Risk	107	Avoid one cardiovascular event	4.5 years for effect
High Risk [Diabetes, vascular disease]	40	Avoid one cardiovascular event	4.5 years for effect
Cerebrovascular morbidity and mortality > 60 yrs	225	Avoid on cerebrovascular event	4.5 years for effect

Numbers Needed to Treat are a guide; they do not give exact figures for individuals patients

Drug Effectiveness Summary

STATINS	**NNT per annum**	**To do what**	
MI or Angina	80 to 170	Major Coronary Event.	No difference in Mort to 5 years
Post Stroke [Atrova 80 v Placebo]	165	One Cardiovascular Event	No difference in Mort to 5 years
Tight HbA1c Control Strategies			
Microvascular Risk			
ADVANCE [HbA1c7.3% v 6.5%]	333	One microvascular event [predominantly retinal]	Trial ran 5 years
UKPDS [HbA1C 7.9% v 7%]	200	One microvascular event [predominantly retinal]	Trial ran 10 years
Macrovascular Risk	No difference at 10 years		
Metformin			
Overweight /obese Diabetic	50	One MI or Diabetes event or Death	10 year follow up
Standard < 140 BP control in diabetes			
Any means	57	One Stroke or major diabetes event or death	8 year follow up
Tight BP control in diabetes			
BP 120 v BP 134	500	Prevent one stroke	4 years minimum for effect
Number needed to harm for this strategy	50		
Osteoporosis [Alendronate + Calcium/VitD]	**2y Prevention Vertebral #**	**2y Prevention Hip #**	**Notes for Osteoporosis**
70 -74 years	65	430	NNT per annum to prevent further #
75 - 79 years	45	180	Potential symptomatic benefit re Vertebral #
80 - 84 years	60	105	**Normally 2 years needed to see effect.**
85 - 89 years	55	45	
90+years	40	40	

High Risk Combinations

These combinations are noted to be particularly high risk and should be looked for and stopped at every drug review.

NSAID

+ ACE or ARB + Diuretic ['Triple Whammy' combo]
+ eGFR <60
+ diagnosis heart failure
+Warfarin
+age >75 without PPI

Heart Failure

+ Glitazone +NSAID
+azole antifungal

Warfarin

+another antiplatelet. *It is noted that although specific indications for this exist. In a frail group of patients the risk is very high and combination should be challenged unless specifically noted as taken account of patient frailty/Polypharmacy.*
+NSAID
+Macrolide
+Quinolone
+Metronidazole

Drugs that are tolerated poorly in frail patients

It is particularly important to clarify if patients on the following have a **Valid and Current Indication** and are still felt to be effective**.**

- Digoxin in higher doses 250 microgram +
- Antipsychotics
- Tricyclic antidepressants
- Benzodiazipines particularly long term
- Anticholinergics
- Phenothiazines [eg prochlorperazine]
- Combinations painkillers [eg cocodamol v paracetamol]

Numbers Needed to Treat are a guide; they do not give exact figures for individuals patients

Prognostic Indicator Guidance

Revised Vs 5. Sept 08

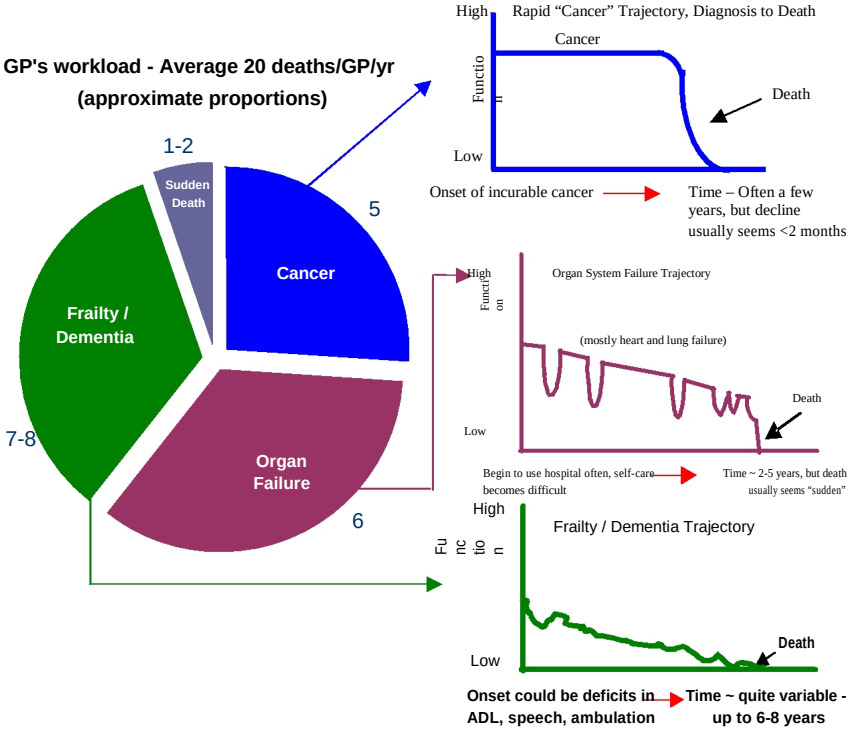
"Earlier recognition of people nearing the end of their life leads to earlier planning and better care"

Guidance to enable better identification of patients who may need supportive/palliative care

About 1% of the population die each year, yet it is intrinsically difficult to predict or identify which patients may be in their last year of life. If predicted earlier, some supportive care measures could be introduced that would enable earlier discussion of their wishes, improve care aligned to their preferences and fewer crises. In short, if we could better identify these patients, we might be more able to provide better care for them as they approach the end of their lives. This guidance paper suggests which adult patients with any condition predicted to be in the final 6-12 months of life might be in need of supportive/palliative care. It was developed originally to support primary care teams using the Gold Standards Framework (GSF) and Quality Outcome Framework (QOF) to include more appropriate patients on their Palliative/Supportive Care Registers, and thereby to encourage better prediction of possible need and provision of care. The focus is more on improving prediction of need for support, rather than pure prognostication of time remaining. Though all prognostication is inherently inexact, and as people live longer with more co-morbid conditions, there can be disparity between levels of care provided to patients with different diagnoses. This guidance aims to help clinicians to support more patients nearing the end of life, whatever their underlying illness. It contributes to the development of accepted indicators for patients in the last months/year of life, which will aid identification of such patients and promote excellence in end of life care.

Three triggers for Supportive/ Palliative Care are suggested- to identify these patients we can use any combination of the following methods:

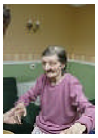
1. **The surprise question 'Would you be surprised if this patient were to die in the next 6-12months' -** an intuitive question integrating co-morbidity, social and other factors. If you would not be surprised, then what measures might be taken to improve their quality of life now and in preparation for the dying stage. The surprise question can be applied to years/months/weeks/days and trigger the appropriate actions enabling the right thing to happen at the right time eg if days, then begin a Care Pathway for the Dying. (See Needs Support Matrices)
2. **Choice/ Need - The patient with advanced disease makes a choice for comfort care only, not 'curative' treatment, or is in special need of supportive / palliative care** eg refusing renal transplant
3. **Clinical indicators - Specific indicators of advanced disease for each of the three main end of life patient**



Typical Case Histories

1) Mrs A - A 54 year old woman with cancer of colon with liver secondaries and requiring a stent for jaundice who is feeling increasingly weak and tired. Likely rapid decline

2) Mr B - A 76 year old man with heart failure with increasing breathlessness on walking who finds it difficult to leave his home has had 2 hospital admissions in the last year and is worried about the prospect of any more emergencies and coping in the future



3) Mrs C - An 81 year old lady with COPD, heart failure, osteoarthritis and increasing forgetfulness, who lives alone. She fractured her hip after a fall, eats a poor diet and finds mobility difficult. She wishes to stay at home but is increasingly unable to cope alone and appears to be 'skating on thin ice'. Likely slow decline, difficult to predict dying phase. Common picture in care homes

The Department of Health's new End of Life Care Strategy July 08 suggests development of a care pathway begins with the" identification of people approaching the end of life and initiating discussions about preferences for end of life care" (Exec.Summary 9 p.11). It also suggests use of this guidance to support such early identification "For many people suffering from a chronic illness a point is reached where it is clear that the person will die from their condition. Despite this, for many conditions it may be difficult, if not impossible and potentially unhelpful, to estimate prognosis accurately. The Prognostic Indicator Guidance developed as part of the Gold Standards Framework (GSF) provides useful prompts or triggers to a healthcare professional that discussions about the end of life should be initiated, if this has not already happened". (3.22)

Trigger 3 – Specific clinical indicators of advanced disease

These clinical prognostic indicators are an attempt to estimate when patients have advanced disease or are in the last year or so of life. These are only indicators and must be interpreted with clinical judgement for each individual patient, but they can help to alert clinicians to the need for extra supportive are. They have been drawn from a number of expert sources from the UK and abroad, and are updated regularly. Some use such indicators routinely, to assess patients' need for palliative/supportive/hospice care. Although these are intrinsically only a very approximate guide to prognosis, these clinical indicators can therefore act as a rough guide to indicate to those in primary care and in secondary services that patients may be in need of palliative / supportive care. Primary care teams may include these patients on their Supportive/palliative care registers and hospital staff may suggest to GPs in discharge letters that such patients are included on the registers, if helpful.

Co-morbidities or other General Predictors of End Stage illness[1 / 2]

Co-morbidity is increasingly the biggest predictive indicator of mortality and morbidity. Also-
+Weight loss - Greater than 10% weight loss over 6 months
+General physical decline
+Serum Albumin < 25 g/l
+Reducing performance status / ECOG/Karnofsky score (KPS) < 50%. Dependence in most activities of daily living(ADLs)

1. Cancer Patients

Cancer[3]

Any patient whose cancer is metastatic or not amenable to treatment, with some exceptions – this may include some cancer patients from diagnosis e.g. lung cancer. 'The single most important predictive factor in cancer is performance status and functional ability' – if patients are spending more than 50% of their time in bed/lying down, prognosis is estimated to be about 3 months or less. More exact predictors for cancer patients are available elsewhere on the GSF website.

2. Organ Failure Patients

2.1 Heart Disease - CHF [4]

At least two of the indicators below :-
- CHF NYHA stage III or IV – shortness of breath at rest or minimal exertion
- Patient thought to be in the last year of life by the care team - the 'surprise' question
- Repeated hospital admissions with symptoms of heart failure
- Difficult physical or psychological symptoms despite optimal tolerated therapy

2.2 Chronic Obstructive Pulmonary Disease – COPD [5]

- Disease assessed to be severe e.g. (FEV1 <30%predicted – with caveats about quality of testing)
- Recurrent hospital admission (>3 admissions in 12 months for COPD exacerbations)
- Fulfils Long Term Oxygen Therapy Criteria
- MRC grade 4/5 – shortness of breath after 100 meters on the level or confined to house through breathlessness
- Signs and symptoms of right heart failure
- Combination of other factors e.g. anorexia, previous ITU/NIV/resistant organism, depression
- >6 weeks of systemic steriods for COPD in the preceding 12 months

2.3 Renal Disease [6]

- Patients with stage 5 kidney disease who are not seeking or are discontinuing renal replacement therapy. This may be from choice or because they are too frail or have too many co-morbid conditions.
- Patients with stage 5 chronic kidney disease whose condition is deteriorating and for whom the one year 'surprise question' is applicable ie overall you would not be surprised if they were to die in the next year?
- Clinical indicators:
  - CKD stage 5 (eGFR <15 ml/min)
  - Symptomatic renal failure -Nausea and vomiting, anorexia, pruritus, reduced functional status, intractable fluid overload)
- Increasingly severe symptoms from comorbid conditions requiring more complex management or difficult to treat

NB. many people with Stage 5 CKD have stable impaired renal function and do not progress or need RRT.

2.4 Neurological Disease - a) Motor Neurone Disease[7]

MND patients should be included from diagnosis, as it is a rapidly progressing condition
Indicators of rapid deterioration include:
- Evidence of disturbed sleep related to respiratory muscle weakness in addition to signs of dyspnoea at rest
- Barely intelligible speech
- Difficulty swallowing
- Poor nutritional status
- Needing assistance with ADL's
- Medical complications eg pneumonia, sepsis
- A short interval between onset of symptoms and diagnosis
- A low vital capacity (below 70% of predicted using standard spirometry)

b) Parkinson's Disease [8]

The presence of 2 or more of the criteria in Parkinson disease should trigger inclusion on the Register

- Drug treatment is no longer as effective / an increasingly complex regime of drug treatments
- Reduced independence, need for help with daily living
- Recognition that the condition has become less controlled and less predictable with "off" periods
- Dyskinesias, mobility problems and falls
- Swallowing problems
- Psychiatric signs (depression, anxiety, hallucinations, psychosis)

c) Multiple Sclerosis [9]

Indications of deterioration and inclusion on register are:-

- Significant complex symptoms and medical complications
- Dysphagia (swallowing difficulties) is a key symptom, leading to recurrent aspiration pneumonias and recurrent admissions with sepsis and poor nutritional status
- Communication difficulties e.g. Dysarthria ± fatigue
- Cognitive impairment notably the onset of dementia
- Breathlessness may be in the terminal phase

3. Patients with Frailty and Dementia

Frailty [10]

- Multiple comorbidities with signs of impairments in day to day functioning
- Deteriorating functional score eg EPOC/ Karnofsky
- Combination of at least 3 symptoms of: weakness, slow walking speed, low physical activity, weight loss, reduced weight loss, self reported exhaustion

Dementia [11]

- Unable to walk without assistance, and
- Urinary and fecal incontinence, and
- No consistently meaningful verbal communication, and
- Unable to dress without assistance
- Barthel score < 3
- Reduced ability to perform activities of daily living Plus any one of the following:

10% weight loss in previous six months without other causes, Pyelonephritis or UTI, Serum albumin 25 g/l, Severe pressure scores eg stage III / IV, Recurrent fevers, Reduced oral intake / weight loss, Aspiration pneumonia

Stroke [12]

- Persistent vegetative or minimal conscious state / dense paralysis / incontinence
- Medical complications
- Lack of improvement within 3 months of onset
- Cognitive impairment / Post-stroke dementia

Functional scores- 1) Karnofsky Performance Status Score

The Karnofsky score, measures patient performance of activities of daily living. Score Function

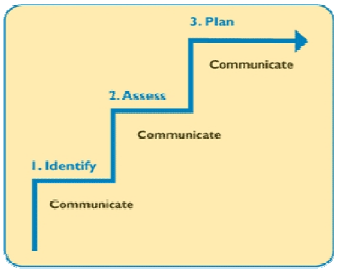
100	Normal, no evidence of disease	50	Requires considerable assistance
90	Able to perform normal activity with only minor symptoms	40	Disabled, requires special assistance
80	Normal activity with effort, some symptoms	30	Severely disabled
70	Able to care for self but unable to do normal activities	20	Very sick, requires active supportive treatment
60	Requires occasional assistance, cares for most needs	10	Moribund

2) WHO/ ECOG Performance Status [13]

0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g. light housework, office work
2	Ambulatory and capable of self care but unable to carry out work activities: upright more than 50% of waking hours
3	Capable of only limited self care, confined to bed or chair more than 50% of waking hours
4	Completely disabled, cannot carry on any self care, totally confined to bed or chair
5	Dead

Prognostication or Prediction of need. Prognostication is inherently difficult and inaccurate, even when informed by objective clinical indicators, and the trend is usually to over-estimate prognosis and to under-estimate planning for possible need, especially for those with non-cancer illnesses. The aim of this paper is to enable better identification of patients who may need supportive/ palliative care. It focuses more on pragmatically and instinctively improving prediction of decline, leading to better anticipation of need for support, and less on pure prognostication of time remaining, for which there is much more accurate guidance available (see GSF website)**.** In anticipating this possible deterioration, earlier discussions about preferences and needs can be initiated; some practical measures could be introduced leading to prevention of crises and referral sought for extra help or advice. The aim of such Advance Care Planning discussions , is to seek out their particular unmet needs and preferences, sometimes previously unvoiced, enabling more people to live out the final stage of life as they wish. We suggest a change towards instinctive, anticipatory and 'insurance-type' thinking, rather than pure prediction of likely timescale, so that appropriate support and care can be mobilised. We know that some attempt to improve this prediction, however inaccurate, is key to beginning the process that leads to better end of life care for all.

How to use this Guidance



This Guidance document aims to clarify triggers for consideration of patients in need of supportive/palliative care. This is not attempting to answer the question 'how long have I got?' but more in answer to the question 'what can we do?', and is in response to the common way of thinking 'Hope for the best but prepare for the worst'.

The main processes used in GSF are to **identify, assess, plan**, and at all times **communicate** about patient care and preferences. Use of this guidance might enable better ***identification*** of patients nearing the end of their lives i.e. in the last 6-12 months of life, to trigger better ***assessment*** and ***pre-planning*** e.g. holistic needs assessment, Advance Care Plans, and the appropriate management care plan and provision of ***supportive care*** related to their ***needs***.

For primary care teams, this is the first step towards developing a Supportive/ Palliative Care Register, now part of QOF palliative care points in the GMS contract. For more details of suggestions for claiming the QOF points, templates etc see the www.goldstandardsframework.nhs.uk/gp_contract.php. For those using the Gold Standards Framework (GSF), this might trigger inclusion of more non-cancer patients in the current Supportive Care Register. Of course, not all of these tests are performed in primary care, but GPs/DNs collate information from hospitals and, together with their own holistic assessment, form an overall view of a patient's likely prognosis. N.B: It can be much harder to predict whether patients in the third category of frail elderly patients are nearing end of their lives, as they are intrinsically more complex and vulnerable, with a more chronic variable illness trajectory. We do not suggest necessarily that all patients in this third category are included on the GSF Supportive Care Register, unless they fulfil the other criteria of co-morbidity, need or predicted decline, but we are suggesting that more non-cancer organ failure patients be included i.e. with Heart Failure and COPD, to the expected prevalence or to represent at least half the patients in the Supportive Care registers

For hospital teams, in addition to accessing supportive/palliative care services and consideration of supportive measures, it would also be helpful to notify the GP/Primary care team that this patient has advanced disease and could be included on their Supportive/Palliative Care Register.

For specialist palliative care/ hospice teams - Although traditionally focussed mainly on cancer patients, specialist palliative care now extends to patients with non-cancer illnesses. There is greater collaboration with other teams e.g. heart failure nurses, to provide best patient care, and these indicators may help clarify referrals.

For PCTs /Commissioners/managers etc - This could be used as part of an End of Life care strategic plan for the area, with improved provision of services for all patients nearing the end of life. **NB Long Term Conditions.** There is a strong overlap with care for patients with Long Term Conditions and prediction of unplanned admissions to hospital and that of patients with advanced disease in the last year of life. This is especially true for patients with heart failure or COPD. Close collaboration with Case Managers to support good end of life care is very important.

For Care Homes - Use of some broad prognostic indicators has been found to help identify patients most in need in some care homes, and help focus care and trigger key actions (see below and GSF Care Homes on website)

Examples of prognostic indicators used as part of patient needs assessment

Patients have differing requirements at varying stages of their illness. Some GPs categorise their patients on the Supportive Care Register according to estimated prognosis and need, and colour code them accordingly. Care Homes using the GSF for Care Homes Programmes have also found the intuitive grouping of their residents to be very helpful. Although only a rough guide, this helps teams 'awareness of patients' varying needs, focuses care to ensure that the right care is directed at the right time, ensures regular review, and triggers key actions at each stage. A needs/support plan is therefore developed. Suggested prognostic coding could be:

A - 'All' Stable	**B** - 'Benefits' eg DS1500 Green	**C** - 'Continuing Care' -Yellow	**D** - 'Days'- Terminasl phase Red
Years + prognosis	**Months prognosis**	**Weeks prognosis**	**Days prognosis**

The use of means of estimating approximate prognosis and need i.e. the intuitive 'surprise' question, needs/choice based care, and these clinical indicators, may help to ensure that patients with advanced illness receive higher quality proactive care and support as they near the end of their lives.

Development of this guidance paper. This paper was developed and later fully revised following wide consultation with a large number of specialist clinical bodies, special interest groups, national disease associations, Royal College of General Practitioners and major palliative care texts. We were helped also by considering prognostic indicators from other countries eg USA, used to trigger referral of non-cancer patients to hospice/palliative care. Since its first development in June 06, this 'PIG' paper has been widely used by clinicians nationally and internationally, by GPs in the UK (90% of whom now have supportive/palliative care registers), by care homes' staff, researchers and many others. We undertake regular reviews and would be pleased to receive any comments or ideas for improvements or example of usage. The accompanying Needs Support Matrixes are also in development for most conditions.

Further information and other prognostic guidance is available from www.goldstandardsframework.nhs.uk

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The 'Surprise question' was first developed and expounded by Prof Joanne Lynn, RAND Lecturer USA and senior advisor on end of life care.

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questions you might be asked at your medicines review include:

- Are you taking all of your medicines?
- Are there any you miss out or forget to take?
- Can you take/use the medicine properly?
- Do you feel you are having any side effects from your medicines?
- Do you have any concerns about your medicines?
- Do you take any other medicines, such as those bought in a pharmacy or supermarket?

You will also be able to ask any questions or raise any concerns you have about your medicines.

Where can I get more information?

For further information about your medicines, please contact:

- Your medical practice.
- Your community pharmacy.
- NHS24 (web: www.nhs24.com or telephone: 08454 24 24 24).

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For further information about NHS Highland medicines reviews, please refer to the Policy Page of the NHS Highland Intranet

NHS Highland

Medicines Review

Important information for patients and carers

Working with you to make Highland the healthy place to be

Introduction

A medicines review is a meeting with your doctor, pharmacist or nurse to talk about your medicines. Your medicines should be reviewed regularly (usually once a year) to check that they are right for you.

Why are medicines reviews needed?

When you are first prescribed a medicine, your doctor, pharmacist and/or nurse checks that it is the best medicine for you. However, things can change, for example:

- You might have developed a side effect from the medicine.
- Your health might have changed, such as developing a long-term condition.
- You might have started taking other additional medicines.
- The guidelines for treating your condition might have changed.
- You may be taking a large number of medications (known as “polypharmacy”).
- A medication you are on may be no longer essential for your health day to day.

All of these factors can affect whether a medicine remains the best choice for you.

What is “polypharmacy”?

You might have heard your doctor, pharmacist or nurse talk about “polypharmacy”. Polypharmacy just means “lots of pharmacy” or, in other words, taking a large number of medicines.

Medicines reviews are particularly useful for people who take lots of medicines so they are sometimes called “polypharmacy reviews”.

What happens at a medicines review?

You will be asked to make an appointment with your doctor, pharmacist or nurse for a medicines review. The review will take between 10 and 30 minutes.

The review will involve the doctor/pharmacist/nurse gathering information from you and from your medical record. This information will be used to check that you are taking the most appropriate medicines.

It might be necessary for the doctor/ pharmacist/nurse to recommend some changes to your medicines. The reasons for these changes will be explained to you and you will be asked for your agreement before any changes are made.

What changes to my medicines might be recommended?

Some common changes your doctor/ pharmacist/nurse might recommend to your medicines are:

- A medicine may be changed to a form that is easier to take (eg, once a day rather than three times a day).
- A medicine may be started or changed to a newer version.
- A medicine may be stopped.

Do I need to take anything to my medicines review?

It would be very useful if you could bring all of your medicines with you, including any you have bought in a pharmacy or shop. If you buy vitamins or herbal or homoeopathic remedies, please bring them too.

Medicines often have two names (a generic name and a brand name) so having the medicines with you will prevent any confusion if the doctor/pharmacist/nurse calls the medicine by a different name to the name you normally use.

What questions will I be asked at my medicines review?

At the medicines review, you will be asked about how you are getting on with your medicines. Some of the