Polypharmacy Strategy (v1.6)
There is very limited evidence on the safety and efficacy of medicines in older adults, particularly in the frail, who often have multiple comorbidities and functional impairments. Polypharmacy in older people is associated with decreased physical and social functioning; increased risk of falls, delirium and other geriatric syndromes, hospital admissions and death, and reduced adherence by patients to essential medicines.

The HARMS Study demonstrated a clear correlation between the risk of hospital admission and the number of high risk medications prescribed.

Elderly people often feel better after their medication is discontinued.

In a clinical trial to reduce polypharmacy in older people, the patients' global assessment scale improved in 88% and in most patients cognitive function improved.

A systematic review concluded that deprescribing can be associated with improvements in cognition and behaviour in patients with dementia, and a reduction in falls.

Just because a cardiologist or neurologist recommended starting two drugs last year doesn't mean they are the best-placed expert when it comes to stopping the drugs now. This is usually, and appropriately, the clinical decision of the regular doctor with the general overview.

GPs can safely deprescribe medications with patient and multidisciplinary support.
Executive Summary

The term ‘Polypharmacy’ is generally understood as referring to the concurrent use of multiple medicines by one individual. Whilst in many patients ‘appropriate’ polypharmacy can be beneficial, some patients may experience poor health outcomes due to ‘problematic’ polypharmacy. The greater the number of medicines prescribed the greater the risk of adverse drug reactions and drug interactions. Many patients may not be able to manage complicated medication regimens which may turn affect adherence to prescribed therapies. This can have a negative effect on quality of life as well as increasing costs for the healthcare community though prescribing wastage.

Polypharmacy is widespread and increasingly common, driven largely by national prescribing guidelines that are disease specific, and an increasingly aging (and frail) population with multimorbidities. Where appropriate treatments are evidence-based, there can be improved health outcomes for patients if the medicines are taken correctly. However the evidence base for multiple interventions for several long term conditions in an individual patient is poor. In addition, where the balance of benefits and risks for a medication in an individual is no longer favourable, review and de-prescribing (stopping medicines) may be wholly appropriate.

The aim of this 5-year strategy document is to identify a pragmatic approach to managing polypharmacy in everyday practice through the identification of specific workstreams that GP Practices can undertake. A number of enablers are identified including review documents, Prescribing Team Support, and integration of the Eclipse Live system within GP Practices.

It is acknowledged that multimorbidity and polypharmacy management require additional work. This document also therefore promotes the potential role of the pharmacist in the management of patients with problematic polypharmacy issues. In addition the establishment of the Kernow Integrated Medicines Service (KIMS) will serve to support the Polypharmacy Strategy going forward.

Underpinning the Polypharmacy Strategy are the Royal Pharmaceutical Society’s Medicines Optimisation Principles promoting patient-centred decision making and safe evidence-based practice.
Document Control

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14th April 2015

Approved by:

- KCCG Cornwall Area Prescribing Committee

Endorsed by:

- KCCG Prescribing Team
- KCCG Medicines Optimisation Programme Board
- KCCG East Locality Group
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1. **Background and Context**

Polypharmacy is a term that has been around for many years. It generally describes the concurrent use of multiple medicines by one individual. The 2013 Kings Fund document ‘Polypharmacy and Medicines Optimisation – Making it Safe and Sound’¹ highlights however the distinction that could be drawn between ‘Appropriate’ Polypharmacy and ‘Problematic’ Polypharmacy. The basis being that polypharmacy has the potential to be beneficial for some patients, but also harmful if poorly managed.

For many people, appropriate polypharmacy can improve health outcomes and quality of life, however as the number of medicines prescribed for an individual increases, so can the potential for drug interactions and adverse drug reactions (ADRs). Given that 5% of emergency hospital admissions are down to ADRs² this is a factor worth taking into account when prescribing. In addition, the need to take more prescribed medicines can become an increasing burden which can have a negative influence on an individual’s quality of life. The effect of this can be poor compliance with prescribed treatments.

There are many drivers for polypharmacy, not least is the growth of an aging (and increasingly frail) population and by the increasing prevalence of multimorbidity (where patients may be living with several long-term conditions, often compounded by disability and/or frailty). Chronic disease management itself is highly complex. Specialist national guidelines, including those from NICE are very much disease-specific and whilst the principles guide good practice in one condition, they can often be less helpful in patients with multimorbidity especially where polypharmacy could potentially become problematic. The review of medication in patients at risk of falls for example is specifically recommended in the 2013 NICE Clinical Guideline ‘Falls: assessment and prevention of falls in older people’³. Amongst other things, the Quality and Outcomes Framework (QoF), is designed to incentivise GP practices to manage certain long term conditions, e.g. asthma, diabetes. For some patients however, the achievement of strict surrogate ‘targets’ for specific diseases may not be clinically appropriate, even potentially putting them at risk of harm. In these instances, GPs may prefer to manage the patient conservatively, often following informed discussion with the patient and/or family or carers.

Although evidence-based medicine is accepted practice, the Kings Fund document highlights that the majority of clinical trials focus on single therapies. The impact of combining multiple interventions is rarely examined, nor is the effect outside the relatively artificial clinical trial environment. The point is also made around the ‘law of diminishing returns’, in that each additional drug gives a smaller absolute reduction in risk. Ideally therefore the most important interventions should be maximised and treatments chosen that give the greatest benefit with smallest harm.

It is well established that potentially 40-50% of medicines are not taken as prescribed for long term conditions. This not only has implications for the patients’ health outcomes, but also prescribing budgets. It is estimated that every year more than £300 million of
medicines are wasted of which £150 million is avoidable. In Cornwall alone, previous waste campaigns reveal that wastage is of the order of £2.3 million.

It is also the case that specialist clinicians may focus purely on managing one specific aspect of a patient’s care. Whilst this may be entirely appropriate given the remit of the clinician and time pressures, there may be opportunities for the enhanced management of certain patients with multimorbidity where overall medication burden could be more effectively considered.

The Royal Pharmaceutical Society (RPS) document 'Medicines Optimisation: Helping patients to make the most of medicines' defines four key principles that underpin this strategy:

1. Aim to understand the patient’s experience
2. Evidence-based choice of medicines
3. Ensure medicines use is as safe as possible
4. Make medicines optimisation part of routine practice

The Prescribing Team has worked with GPs and other healthcare professionals for many years to promote safe, evidence-based cost effective prescribing. The team’s focus going forward will be the supporting the polypharmacy work. For this Polypharmacy Strategy to be effective however, it will require sign up from the whole healthcare community. It represents a significant change in working which challenges many inbuilt systems and professional beliefs. Having ‘Pioneer’ status however enables Kernow CCG to investigate innovative approaches to healthcare and challenge existing practice. Given the increasing drive for effective patient-centred decision making, safe, evidence based practice, and the need to reduce health costs, this strategy presents a way forward that is both clinically appropriate and workable.

2. Objectives

The objectives of this strategy are:

1. To raise awareness of problematic polypharmacy and its associated risks
2. To identify a number of specific potential individual polypharmacy projects for GP practices to consider as part of future years’ GP Prescribing Quality Schemes (GPPQS)
3. To identify enablers to support the polypharmacy strategy work
4. To identify specifically the supporting roles of pharmacists and technicians

It is envisaged that this strategy will align with the priorities of the Living Well agenda, currently active in Newquay, West Penwith, and East Cornwall, but also with the 5-year KCCG strategy objectives supporting the Triple Aims:

1. Improved health and wellbeing
2. Improved experience of care and support
3. Reduced cost of care and support

Key performance indicators are defined around these aims.

- **De-prescribing**

Patients often remain on medicines that have the potential to cause adverse effects and where the harms of the drug outweigh the benefits. It is also recognised that people who once derived benefit from prescribed medicines may not continue to do so but their treatments are not always stopped once this point is reached.

Most medicines do not need to be used lifelong and the benefits and risks of medicines in an individual patient need to be regularly reassessed.

Stopping medicines or ‘de-prescribing’ may therefore be a viable option in patients who have either experienced or remain at high risk of a significant adverse reaction, and/or for whom there may no longer be a clinical benefit from remaining on the medicine. New evidence and guidelines may also influence the decision to continue or withdraw a medicine.

Frail patients with multimorbidity may be at higher risk of adverse drug reactions and medicine interactions. Preventative ‘risk modifying’ medicines may not have a favourable risk/benefit profile especially in the longer term. The challenge is recognising the appropriate point to review and consider de-prescribing. One of the aims of this document is to identify specific resources and areas of focus to support this process.

One very useful resource are the Numbers Needed to Treat (NNT) tables in Appendix 3 which give an indication of the absolute benefits and risks associated with certain clinical prescribing interventions.

3. **Benefits**

The benefits of implementing the strategy will be a Cornwall-wide, joined-up approach to improving the healthcare of patients in the county. Patient benefits will also include better involvement and the ability to make informed decisions about their care. There is also evidence that patients can actually feel better when medications are stopped.

This strategy describes a proactive workable solution in response to the significant attitude change relating to the management of the frail elderly in particular. Current thinking on polypharmacy encourages a patient-centred approach with regard to chronic disease management rather than strict adherence to disease-specific guidance and protocols. This greater awareness of benefits and risks of medication in the frail elderly should encourage regular review and ‘de-prescribing’ where appropriate. NICE is currently working on multimorbidity management guidance but in the interim, this document references a number of useful tools and polypharmacy review documents that could be utilised by healthcare professionals.
Whilst cost savings will come from stopping prescribed medicines, significant savings are envisaged from reduced emergency admissions and morbidity management.

4. Principles

The Prescribing Team is now part of the CCG’s Integrated Care Communities directorate. This ensures effective prescribing and medicines optimisation principles are embedded within all transformational activity within the CCG and healthcare community, including the Living Well initiatives. The Polypharmacy work therefore aligns with the CCG’s strategy objectives.

This strategy also supports a number of national priorities:

- **Quality, Innovation, Productivity and Prevention (QIPP)**

  The strategy supports safe, high quality prescribing that is patient-centred. Implementing polypharmacy work requires innovation, built on best available evidence. It is acknowledged however that the work can take time so one of the purposes of this strategy is to identify specific projects to support this area of prescribing. Different projects can be selected by individual GP practices to work on as part of future GPPQS schemes. As this is a 5-year strategy, this will enable change over time. In terms of ‘prevention’, one of the aspirations of polypharmacy work is to reduce the likelihood of poor patient outcomes; falls, ADRs, drug interactions. This in turn should lead to reduced hospital admissions and a better patient experience of care.

- **NHS Constitutional Principles**

  **The NHS provides a comprehensive service available to all**

  An equality impact assessment has been completed for the Medicine Optimisation QIPP work which includes the polypharmacy initiative.

  **The NHS aspires to the highest standards of excellence and professionalism**

  The Prescribing Team will continue to support GPs and other healthcare professionals to promote safe, evidence-based cost effective prescribing in accordance with the Medicines Optimisation principles.

  Individual pharmacists and technicians within the team maintain their level of clinical expertise through regular continuing professional development (CPD) and associated training. This supports effective clinical governance. Two of the pharmacists are non-medical prescribers which give them a valuable insight into the importance of patient informed decision making with regard to prescribing decisions.

  Through their clinical expertise the Prescribing Team pharmacists are able to demonstrate effective leadership with regard to influencing prescribing change.

  **The NHS aspires to put patients at the heart of everything it does**
Understanding the patient experience is a key principle of Medicines Optimisation. Improving the experience of care and support is one of the CCG Triple Aim Outcomes.

The NHS works across organisational boundaries and in partnership with other organisations in the interest of patients, local communities and the wider population.

All prescribing workstreams are explored, considered and implemented through regular engagement with relevant primary and secondary care clinicians. The polypharmacy work requires a significant change in emphasis so it is important to continue to engage with GPs, specialists and other healthcare professionals as necessary to promote key messages. Healthwatch is represented at the Cornwall Area Prescribing Committee (CAPC) and Cornwall Commissioning Prescribing Committee (CCPC) to ensure that there is a degree of patient/public scrutiny of prescribing plans.

The NHS is committed to providing best value for taxpayers’ money and the most effective, fair and sustainable use of finite resources.

Reducing the cost of care is a CCG Triple Aim Outcome. In terms of the polypharmacy work, the main focus will be ensuring safe evidence-based prescribing for individual patients. Although cost savings would be expected from stopping potentially inappropriate medicines, it is envisaged that significant savings will be made through reduced morbidity, mortality, and reduced emergency hospital admissions.

The NHS is accountable to the public, communities and patients that it serves

The CCG has a professional responsibility to commission healthcare services for the population of Cornwall and the Isles of Scilly. This would include safe, evidence based, cost effective prescribing based on informed decision making with individual patients.

- **Living Well**

  The CCG is currently rolling out the Living Well initiative. Work began in Newquay then Penwith and is now being scoped in East Cornwall. This initiative uses Age-UK non-clinician and volunteer-led guided conversations to explore patient’s beliefs and aspirations with regard to their care. By targeting interventions at individuals who are high users of acute and emergency services, significant savings can be made. The Prescribing Team has a key opportunity to integrate good prescribing practice and medicines optimisation principles into the work. It is envisaged that many patients may be experiencing problematic polypharmacy which can be leading to poor health outcomes. Integration of the team in to the ICC directorate also enables to role of the community pharmacist to be championed. The Living Well work sets the basis for a changing landscape with regard to health and social care commissioning and is likely to be rolled out across Cornwall over the next two years.

- **Locality Plans**

  In 2013, the government determined that there would be a specific focus during 2014/15 on those patients aged 75 and over and those with complex needs. CCGs would be
expected to support practices in transforming the care of patients aged 75 or older and reducing avoidable admissions by providing funding for practice plans to do so. They would be expected to provide additional funding to commission additional services which practices, individually or collectively, have identified will further support the accountable GP in improving quality of care for older people. This funding should be at around £5 per head of population for each practice.

Cornwall Locality groups have been developing plans to submit to the CCG to obtain the £5 per head of population funding. The North Cornwall Locality has recently been successful in achieving funding for joint pharmacist/GP polypharmacy reviews. This clearly demonstrates the potential value of the pharmacist role in the review process.

Money from the Prime Minister’s Challenge Fund has recently been awarded to the CCG/Local Pharmaceutical Committee (LPC) to support pharmacists in the Camborne/Redruth area to conduct enhanced domiciliary medicines use reviews for vulnerable patients.

- **Links with other Prescribing Workstreams**

The polypharmacy work overlaps with a number of other CCG prescribing workstreams

- Medicines Synchronisation and Waste Reduction
- Care Home Medication Reviews
- Diabetes
- Respiratory
- Parkinson’s
- Malnutrition Management

5. **Strategies** How do we make sure this works? Make it transformational

This section identifies a number of focus projects and medicines optimisation opportunities for GP Practices to consider, to contribute to the overall polypharmacy strategy work.

5.1 **Focus Projects**

‘*Good patient care depends upon the ability of prescribers to evaluate the clinical need for deprescribing and then undertake supervised withdrawal of medicines when appropriate*’

**Preparation**

Experience has shown that polypharmacy reviews with the patient generally work most effectively when there has been some preparation beforehand. This could mean a review of the patient notes or latest patient profile to identify key issues to focus on. It is also important to establish that everyone involved in the reviews (GP Practice, Pharmacy etc.) are aware of what is happening. This is especially important
if pharmacists are being utilised to review patients away from the GP Practice and/or in their own homes. Communication is essential to facilitate the process.

**Patient Leaflet**

The [AWMSG document](#) includes a template information leaflet for patients on the medication review purpose and process. This can be adapted for local practice use.
5.1.1 Polypharmacy

Methodology

The Kings Fund document advises a pragmatic approach to polypharmacy reviews suggesting GP practices identify all patients prescribed 10+regular medicines for review. However work conducted to date in Cornwall has highlighted several problems with this approach:

- Large numbers of patients are identified on 10+medicines in most practices. The process can therefore appear quite daunting
- Certain items such as dressings and continence appliances/accessories appear on patient’s repeats. These would need to be excluded.
- Many of the polypharmacy support documents highlight a number of significant safety issues. With large number of patients one would then need to somehow prioritise then reviews for maximum benefit
- Reviews to date have indicated that many patients on 10+ medicines are not actually experiencing problems and/or there is very little opportunity for de-prescribing.

Work to date therefore has highlighted the clear distinction needed between problematic and appropriate polypharmacy, therefore it would seem more appropriate to search for patients on more repeat medicines, e.g. 20+ medicines (excluding dressings, continence appliances/accessories etc.) and/or those with fewer medicines, e.g. 4-9 regular repeat medicines who also:

- have at least one prescribing issue that meets criteria for inappropriate prescribing
- have evidence of being at risk of a well-recognised interaction, or clinical contraindication
- have evidence from clinical records of difficulties with medicines taking, including problems with adherence
- have no or only one major diagnosis recorded in the clinical record
- are receiving end-of-life or palliative care (where this has been explicitly recognised)

Eclipse Live ✓
5.1.2 Hospital Admissions Relating to Medicines (HARMs)

Hospital Admissions Relating to Medicines (HARMs) has been the subject of much debate and study for many years. Research has demonstrated that patients on multiple medicines are more likely to suffer ADRs, often leading to hospital admissions. Medication review is a key aspect of medicines optimisation, with the overall aim of reducing medication errors and improving patient safety.

The South Warwickshire work involved medication reviews in patients >65 years taking certain high risk medication. Of the high risk drugs identified, most interventions were made in the oral corticosteroid group (32%), NSAID group (31%), opioid analgesic group (24%), laxative group (21%), hypnotic group (20%), antipsychotic group (20%) and PPI group (14%). A review found that the patients at greatest risk of hospital admission were those taking a combination of up to 7 high risk drugs.

Methodology

GP practices can identify and review patients prescribed certain ‘high risk’ medicines from their clinical system.

High Risk Medication

<table>
<thead>
<tr>
<th>High Risk Medicine</th>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral corticosteroids</td>
<td>Endocrine, Eye, GI, Immune, Musculoskeletal, CNS, Psychiatric, neurological</td>
</tr>
<tr>
<td>NSAIDS</td>
<td>GI Ulcer, Kidney Damage, CVS Risks (Diclofenac)</td>
</tr>
<tr>
<td>Opioid Analgesics</td>
<td>Drowsiness, Falls, Opioid Toxicity</td>
</tr>
<tr>
<td>Laxatives</td>
<td>Dehydration, Rebound Constipation</td>
</tr>
<tr>
<td>Hypnotics</td>
<td>Falls, CNS, Dependence, Withdrawal, Dementia</td>
</tr>
<tr>
<td>Antipsychotics</td>
<td>Increased Mortality in Dementia</td>
</tr>
<tr>
<td>PPIs</td>
<td>Clostridium difficile, Hypomagnesaemia, Bone Fracture</td>
</tr>
<tr>
<td>Hypoglycaemics (insulin or gliclazide)</td>
<td>Hypoglycaemia</td>
</tr>
<tr>
<td>Antihypertensives</td>
<td>Hypotension, Renal Impairment, Hypokalaemia/Hyperkalaemia</td>
</tr>
<tr>
<td>Aspirin and other antiplatelets</td>
<td>GI Bleed</td>
</tr>
<tr>
<td>Digoxin</td>
<td>Toxicity</td>
</tr>
<tr>
<td>Antiarrhythmics</td>
<td>Toxicity, Interactions</td>
</tr>
<tr>
<td>Anticoagulants</td>
<td>Bleeding or subtherapeutic</td>
</tr>
</tbody>
</table>

*Eclipse Live ✓*
5.1.3 High Risk Drug Combinations

The following drug combinations are highlighted within the AWMSG Polypharmacy guidance 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 medicines has to be considered depending on individual circumstances.

Non-Steroidal Anti-inflammatory Drugs (NSAIDs)

- +ACEI or A2RA+diuretic (triple whammy)
- +eGFR < 60ml/min
- +Diagnosis heart failure
- +Warfarin or NOACs, e.g. dabigatran, rivaroxaban, apixaban
- +Age >75 without PPI

Warfarin (or NOAC)

- +antiplatelet in frail patients – risk is high and combination should be challenged
- +NSAID
- +Macrolide and quinolone antibiotics (if concomitant use is essential, ensure appropriate INR monitoring)
- +Azole antifungals including miconazole oral gel (if essential, ensure appropriate INR monitoring)

Heart Failure Diagnosis

- +glitazone
- +NSAID
- +tricyclic antidepressant

Methodology

GP practices can identify and review patients prescribed certain high risk drug combinations from their clinical system

Eclipse Live ✓
5.1.4 Anticholinergic Load

Anticholinergics should be prescribed with caution as elderly patients are more likely to experience adverse effects such as constipation, urinary retention, dry mouth/eyes, sedation, confusion, delirium, photophobia, falls, and reduced cognition. Research also suggests a link to increased mortality with the number and potency of anticholinergic agents.6

The Anticholinergic Rating Scale is useful to raise awareness of the anticholinergic effects of different medicines. A number of studies have been published which aim to assign drugs with one, two, or three points; the higher the number, the stronger the anticholinergic effect.

<table>
<thead>
<tr>
<th>1 Point</th>
<th>2 Points</th>
<th>3 Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haloperidol</td>
<td>Clozapine</td>
<td>Chlorpromazine</td>
</tr>
<tr>
<td>Quetiapine</td>
<td>Nortriptyline</td>
<td>Amitriptyline</td>
</tr>
<tr>
<td>Mirtazapine</td>
<td>Baclofen</td>
<td>Imipramine</td>
</tr>
<tr>
<td>Paroxetine</td>
<td>Cetirizine</td>
<td>Chlorpheniramine</td>
</tr>
<tr>
<td>Trazodone</td>
<td>Loratadine</td>
<td>Hydroxyzine</td>
</tr>
<tr>
<td>Ranitidine</td>
<td>Cimetidine</td>
<td>Oxybutynin</td>
</tr>
<tr>
<td></td>
<td>Loperamide</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prochlorperazine</td>
<td></td>
</tr>
</tbody>
</table>

Methodology

GP practices can identify and review patients prescribed combinations of anticholinergic drugs from their clinical system.

- Minimise use of anticholinergics wherever possible.
- Consider anticholinergic burden scale when prescribing anticholinergic combinations.
- Avoid prescribing anticholinergics with acetylcholinesterase inhibitors e.g. donepezil, rivastigmine (can worsen cognitive impairment).
- Proactively monitor at regular intervals for efficacy and tolerance e.g. annually (or 6 monthly in patients over 75 years) once clinically stable.
- If suspicion of anticholinergic induced impaired cognition, carry out a mini mental state examination (or equivalent) and consider switching or stopping if confirmed and clinically appropriate.
- Refer patients suffering from significant anticholinergic side effects due to psychototropic medication to an appropriate specialist.

Eclipse Live ✓
5.1.5 Poorly Tolerated Drugs in the Frail Elderly

Although sometimes necessary, the following groups of drugs are noted to be poorly tolerated and associated with adverse effects (especially falls). It is particularly important to clarify if patients on the following have a valid and current indication and if treatment is still felt to be effective:

- Digoxin in doses of 187.5mcg daily or greater
- Benzodiazepines and z-drugs, particularly for long-term use
- Phenothiazines (e.g. prochlorperazine)
- Antipsychotics
- Tricyclic antidepressants (TCAs)
- Anticholinergics
- Combination analgesics (e.g. co-codamol)

Eclipse Live ✔
5.1.6 PINCER Study Medication Interventions

The PINCER intervention (Pharmacist-led information technology intervention for medication errors) has been shown to be an effective method for reducing a range of medication errors in GP Practices.

Methodology

GP Practices may wish to utilise pharmacist support to undertake the PINCER intervention (feedback, educational outreach, and dedicated support) in three specific groups of patients.

Three clinically important errors focussed upon during the study were:

1. Patients with a history of peptic ulcer prescribed non-selective non-steroidal anti-inflammatory drugs (NSAIDs) without co-prescription of a proton-pump inhibitor
2. Patients with a history of asthma prescribed \(\beta\) blockers;
3. Patients > 75 years old prescribed angiotensin converting enzyme (ACE) inhibitors or loop diuretics without assessment of urea and electrolytes in the preceding 15 months.

Eclipse Live ✔
5.1.7 Bisphosphonate Review

Osteoporotic fracture is associated with significant morbidity and mortality and osteoporosis should be treated appropriately. Whilst bisphosphonates are the first line treatment choice, non-compliance can be a major issue due to the administration of the drug. This should be addressed whenever possible. Also, the half-lives of the various bisphosphonates are likely to be around 10 years and there is some evidence with alendronate of a continuing effect on bone mineral density for some time after cessation. Consideration may be given therefore to stopping bisphosphonates either temporarily or permanently in some patient groups.

Methodology

GP Practices can identify and review all patients prescribed bisphosphonates through their clinical system. The WeMeReC document: Stopping medicines-bisphosphonates in postmenopausal osteoporosis may be used to inform the review of patients prescribed bisphosphonates. Practices may wish to consider stopping bisphosphonates in certain patients who have taken them for longer than 5 years, and/or in those with reduced renal function (e.g. alendronate should not be used in patients with eGFR<30 ml/min)

Eclipse Live ✔
5.1.8 Benzodiazepine Review

Prolonged use of benzodiazepines leads to issues with tolerance and dependence in many patients and a significant proportion of patients treated long term find it difficult to withdraw from their medication. In addition to tolerance and dependence, other adverse effects associated with benzodiazepines include; over-sedation, amnesia, depression and emotional blunting, and sometimes paradoxical stimulant effects. The elderly may suffer from the adverse effects to a greater degree than younger patients; in particular they are more prone to the hypnotic effects and subsequent debilitating falls.

Methodology

GP Practices can identify and review all patients prescribed long term benzodiazepines and z-drugs from their clinical system. The WeMeReC guide to stopping benzodiazepines and the Clinical Knowledge Summaries on benzodiazepine and z-drug withdrawal can be used to inform the review and agree withdrawal strategies with individual patients.
5.1.9 Proton Pump Inhibitor Review

NICE covers the use of proton pump inhibitors (PPIs) in its latest guidance on gastro-oesophageal reflux disease. Although a large proportion of prescribing may be clinically appropriate (e.g. gastro-protection with a NSAID), there may be several reasons for wanting to stop a PPI:

- Adverse drug reactions, especially with long term use, e.g. increased risk of fracture, hypomagnesaemia.
- An increased risk of Clostridium difficile infection
- Intercurrent illness or concomitant interacting medication
- Remission has been achieved for the desired period or the response has been inadequate

People on long-term treatment with a PPI should be maintained on the lowest dose necessary to control symptoms, and reviewed periodically to assess symptom resolution and treatment tolerability.

Methodology

Practices may wish to identify and review patients taking PPIs. Patients should be offered an annual review, and encouraged to step down or stop treatment. Stepping down treatment may involve using a lower dose, intermittent doses, or changing to antacid and/or alginate therapy. The need for any maintenance therapy must be established.

Eclipse Live ✔
5.1.10 Care Home Medication Reviews

The importance and value of conducting medication reviews in care homes has been well established in Cornwall and the Isles of Scilly over the past few years. This important area of work remains a key focus within the Polypharmacy Strategy.

Methodology

Practices remain free to choose how to conduct medication reviews in individual care homes. However experience to date indicates that the most value can be achieved through joint GP/pharmacist medication reviews, ideally at the home where MAR charts can be checked and the patient (and family, carers, and nursing staff) consulted where possible.

As a specific focus, practices may wish to utilise pharmacist support to review patients new to the practice, who may have transferred from another care home, to reconcile prescribed medication.
5.1.11 Patients recently discharged from hospital – pharmacist-led medicines reconciliation

The risk of prescribing errors is increased when patients transfer between care settings, especially when patients are discharged from hospitals back into primary care. Communication between the hospital and primary care can be delayed resulting in prescribing queries and potential harm to the patient.

Methodology

GP Practices may wish to utilise pharmacist support to review the medication of patients recently discharged from hospital. The pharmacist may identify issues that warrant clarification from the hospital pharmacist or consultant and/or may wish to liaise with community pharmacist colleagues to conduct a Medication Use Review and/or New Medicines Service Intervention. It is acknowledged however that a subgroup of patients most likely to benefit from a post discharge MUR may be unable to benefit from the service as they are housebound and cannot get to a community pharmacy\(^{14}\). In these instances, a domiciliary review from the pharmacist could be considered.
5.1.12 Other Safety initiatives

A number of other potential opportunities to support the polypharmacy strategy work may include:

- Transdermal opioid reviews
- Lithium reviews
- Patients at risk of serotonin syndrome

Practices are free to identify other suitable pieces of work specific to their practices to support the polypharmacy strategy.

_Eclipse Live ✓_
5.1.13 Frailty and Type 2 Diabetes

There is increasing evidence of the relative risks and benefits of treatment of diabetes in the elderly and frail. This evidence is not reflected strongly in NICE guidance (CG87) or in the QOF targets. Elderly and frail individuals with diabetes are at marked increase in risk of adverse effects of treatments for diabetes, including admissions to hospital, and are less likely to benefit from the long-term protective effects of good glycaemia control. The number of people with diabetes in the older age groups is increasing markedly, particularly in Cornwall and the Isles of Scilly. There is a need for local guidance to allow a balance between the drive for tight glycaemia and blood pressure control and prevention of harm.

The table on the following page suggests therapeutic targets for patients depending on their level of frailty.

_Eclipse Live ✓_
**Frailty and Type 2 Diabetes – suggested changes in approach to treatment**

Remember: Patients can be EXCLUDED from QOF if they are on MAXIMAL TOLERATED TREATMENT or due to FRAILITY

<table>
<thead>
<tr>
<th>Level of Frailty</th>
<th>Therapeutic targets</th>
<th>Suggested actions and therapeutic options</th>
</tr>
</thead>
</table>
| Elderly (over 70 years) with life expectancy likely to be over 10 years And/or Edmonton Frail Scale - Up to ‘Mild Frailty’ Rockwood - Up to ‘Mild Frailty’ | - HbA1c 53 to 59 mmol/mol (7%-7.5%)  
Avoid low levels of HbA1c <53 (7%) if on insulin or SU  
(no evidence of benefit and increased risk of hypo)  
- BP <140/80 if tolerated | 1. Metformin remains first line treatment  
2. Avoid starting SU in elderly  
3. Appropriate to use third line agents, Insulin, DPP4, GLP-1, Pioglitazone or SGLT-2 blockers (gliflozins) if HbA1c above target or symptoms of hyperglycaemia  
4. Reassess/Reduce if worsening frailty or hypos |
| Elderly (over 70 years) and life expectancy likely to be less than 10 years And | - Aim is to control symptoms and avoid hypos  
- HbA1c <85 mmol/mol (10%)  
Avoid low levels of HbA1c of <59(7.5%) if on insulin or SU  
- BP <150/90 and no postural drop  
No need to measure alb/creat ratio | 1. Caution with metformin (and other drugs) if eGFR 30-60. **Reduce or stop drugs**  
( eGFR is known to over-estimate renal function in frail elderly patients)  
2. Do not use other ‘third line agents’ unless to control symptoms or to avoid insulin (Linagliptin may be useful here)  
3. Consider insulin treatment to control severe hyperglycaemia with symptoms (Isophane or Analogue once daily)  
4. Do not restrict diet if low or losing weight |
| Severe Frailty or reduced life expectancy. Especially: Multiple co-morbidities ‘Moderately frail’ patients requiring paramedic for hypo management or admitted to hospital with hyper or hypo glycaemia. Edmonton Frail Scale – ‘Very Frail’ Rockwood – ‘Severely Frail or Very severely Frail’ | - Symptom control  
- Avoidance of hypoglycaemia  
(no ‘target’ HbA1c necessary except as a means of assessing risk of hypo glycaemia or severe metabolic decompensation)  
Avoid low levels of HbA1c <59(7.5%) if on insulin or SU  
No need to measure alb/creat ratio | De-escalate treatment – **Reduce drugs**  
1. Consider whether possible to stop insulin (seek advice) and/or SU  
2. Stop metformin (and caution with other drugs) if eGFR is deteriorating, or below 30 or adversely impacting on appetite.  
3. Do not use other ‘third line agents’ (GLP-1, Pioglitazone, SGLT-2blockers)  
4. Stop lipid lowering drugs  
5. Stop /Reduce other drugs likely to cause adverse effects, especially Beta-blockers |
5.2 Enablers and Key Considerations

Key enablers supporting the Polypharmacy Strategy are:

1. Polypharmacy review documentation
2. Eclipse Live
3. The GP Prescribing Quality Scheme (GPPQS) and Enabling Fund
4. Prescribing Team Support

1. Polypharmacy Review Documentation

There are a number of very useful documents available to support the review process. These documents are referenced in Appendix 1. Locally, the preferred documents are:

- **All Wales Medicines Strategy Group: Polypharmacy: Guidance for Prescribing in Frail Adults**
  
  This document contains a number of easy to read sections and flow charts covering many aspects of prescribing, the medication review process, and de-prescribing. A template for a patient leaflet explaining the medication review is included as well as a table highlighting the effectiveness of therapeutic interventions in terms of numbers needed to treat (NNT). Supplementary guidance on individual BNF sections is also available to provide further detail.

- **NHS Greater Glasgow and Clyde: Reference Sources/Tools to Support the Medication Review Process**
  
  This document provides a clear concise medication review process with key considerations and brief examples. A number of hyperlinks are included to related guidance documents.

- **Locally developed STOPP START Toolkit**
  
  This document is a medication review tool designed to identify medication where the risks outweigh the benefits in the elderly and vice versa. The tool was validated in patients aged 65 and over but there is still a place for clinical judgement in deciding whether a person is “elderly” in terms of the potential effects of medication.

- **Palliative Care beyond Cancer**
  
  Although not specifically a review document, this BMJ series of papers cover key areas such as dying matters, recognising and managing key transitions in end of life care, and difficult conversations. The question; ‘Would I be surprised if this patient dies in the next year?’ is covered and maybe a useful prompt in the medication review process."
2. Eclipse Live

Eclipse is currently rolling out the Eclipse Live system to GP practices. Amongst its many advantages, the system is able to run automatic safety searches (RADAR) in GP practices and highlight patients at greatest risk of harm. This data can then be acted upon to reduce morbidity and decrease the risk of unplanned hospital admissions.

The system can also be used to support the focus projects detailed within this document though its ‘ad-hoc’ search functionality. Where this is possible, the project methodology includes the annotation ‘Eclipse Live ✓’. Ad hoc searches can be set up centrally to run at CCG, locality, or practice level depending on requirements.

More advanced aspects of the system include its ‘condition manager’ function, e.g. Diabetes Manager that can be used to more involve the patients in their care.

3. The GP Prescribing Quality Scheme (GPPQS) and Enabling Fund

The objectives of the GPPQS are threefold:

- To support delivery of the identified Medicines Optimisation initiatives, and drive cost-effective prescribing.
- To balance the requirement to deliver savings with a requirement to recognise the quality of prescribing.
- To offer achievable incentives to all practices, and be as transparent and as easy to understand as possible.

Although the GPPQS for 2015/16 has yet to be finalised, the format will remain the same as in 2014/15. It is likely that the polypharmacy focus projects detailed within this document will be included as quality options.

4. Prescribing Team Support

The CCG’s Prescribing Support Technicians, Pharmaceutical Advisors, and Clinical Leads for Medicines Optimisation will continue to be available to support practice-based work on prescribing and polypharmacy throughout the year. Each Locality in Cornwall currently has a nominated CCG pharmacist and prescribing support technician.

Key Considerations

Capacity

It is acknowledged that capacity within GP practices and within the Prescribing Team as it stands will be insufficient to undertake the polypharmacy work over and above existing work commitments. However the importance of implementing the Polypharmacy Strategy is recognised, not just from a day to day perspective, but also as an enhanced focus as part of the Living Well work.
Work is ongoing in the Living Well areas to champion the role of community pharmacy with regard to the interventions they can offer. A PSNC summary of community pharmacy services is referenced\textsuperscript{15}.

It is likely that community pharmacists would wish to be involved in the polypharmacy work going forward. However, to ensure the correct knowledge and skill base to deal with prescribing issues, there would need to be a degree of training and up-skilling in specific areas. Also, for community pharmacists to work in GP practices there needs to be a level of trust built up. The Prescribing Team pharmacists and prescribing support technicians possess unique knowledge, professional skills and experience with regard to prescribing issues which is not easily replaceable through community pharmacy. Nevertheless, community pharmacists are ideally placed to intervene on prescribing issues and provide specific support for patients to take their medicines. They are also able to advise on support for self-care and offer a number of local services, e.g. the minor ailment scheme, and emergency supply scheme.

**Kernow Integrated Medicines Service (KIMS)**

Given the importance of the polypharmacy strategy, and to recognise the capacity for CCG pharmacists and technicians to assist, the preferred option is to establish the Kernow Integrated Medicines Service (KIMS). This service that will be run by CCG Prescribing Team pharmacists and technicians is based on a model of care developed in Lewisham\textsuperscript{16}. Under the scheme, Prescribing Team pharmacists and technicians will visit patients or clients in their own homes or care home, either following discharge or when medication related problems are identified in the community. They will link with GPs and other healthcare professionals associated with the care of the patient. It is envisaged that to judge capacity and pilot the scheme, the service will initiate in the Living Well Areas. The key advantage of the scheme is that it enables the Prescribing Team to act as a central hub for requests, and bring in additional pharmacist/technician support as necessary. Whilst it is generally envisaged that community pharmacists would be involved in the main, in some cases, there may even be a role for specialist clinical pharmacists with RCHT. The team would also be able to assist in the up-skilling of community pharmacists to enable them to conduct the medication reviews confidently and link in with GPs.

Further proposed information on KIMS is detailed in Appendix 3.

5.3 Related Opportunities for Medicines Optimisation

In addition to the polypharmacy focus projects, here are some further opportunities for medicines optimisation

**Medicines Synchronisation**

Medicines synchronisation is when all of a patient's regular medicine is brought into line on to one prescription. This means that patients only need to order one prescription instead of multiple times throughout the month for example. By doing
this, all medicines should run out at the same time. This is obviously safer and more convenient for patients but also time-saving for GP practices and pharmacies.

Synchronisation can be achieved through a number of methods. One initiative that will be considered in 2015/16 will be a community pharmacy medicines synchronisation scheme that will use a patient group direction (PGD) to enable a supply of medicines to be made. Pharmacists can therefore synchronise patients’ prescriptions relatively easily without the need for amended FP-10 prescriptions.

**Pharmacist Repeat Prescription management Service**

Walsall Clinical Commissioning Group (CCG) implemented a pharmacist-led repeat prescription management service (PRPMS). The service was aimed at reducing medicines wastage, minimising possible harm from medicines and improving the quality of repeat prescribing. Prescribing savings were achieved by ensuring the least expensive, clinically appropriate medicines were prescribed, for example by switching from branded to generic drugs. Practice-based pharmacists worked as an integral part of primary care general practice teams to manage repeat prescriptions17.

**Repeat dispensing**

Repeat dispensing is an alternative model for prescribing and dispensing regular medicines to patients on stable long-term treatment, where repeat supplies are managed by the patient’s pharmacy of choice. There are a number of differences and added benefits between the repeat dispensing model and traditional repeat prescribing processes18.

Repeat dispensing is also possible through the Electronic Prescription Service (EPS). There is therefore an advantage for GP practices to become familiar and confident with repeat dispensing to make best use of EPS.

**Implementation of local guidance on Medicines Compliance Assessment**

The purpose of this guidance is to ensure that Monitored Dosage Systems (MDS) are used appropriately to support independent living and to raise awareness of a much wider range of support mechanisms which can be of benefit to patients through the NHS after individual patient assessment. The guidance aims to standardise and simplify the assessment process for compliance aids.

A further opportunity would be to use the new assessment document to review patients currently using blisterpacks, to ensure that the intervention is still the most appropriate for the patient and/or whether or not changes can be made to simplify the medication regimen. This will have an added advantage where care agencies have to make multiple visits to a patient’s home to prompt medication taking.
Improving Prescribed Instructions

Practices may wish to review prescriptions for items prescribed as ‘as directed’ with the intention of amending it to a specific dosage instruction to aid patient understanding and adherence to treatments.

Certain patients may also benefit from prescribing instructions that indicate what they are taking that specific medicine for, e.g. ‘Take one in the morning for high blood pressure’. GP practices could liaise with local pharmacies to ensure that these instructions are highlighted to patients when medicines are dispensed.

Other key prescribing points include:

- Never assume your patient is taking what you think they are taking
- Keep medication regimens as simple as possible – ideally with once or twice daily regimens
- Provide clear written instructions and a dosing schedule
- Check biochemical monitoring is up to date for high risk medicines
- Synchronise medicine quantities where possible
- Don’t forget to ask about OTC products
- If medication can’t be stopped, try to substitute rather than add to medication regimens
- Consider asking patients to bring in all medication from home when a review is conducted (Brown bag review)

6. Responsibilities

Key performance indicators for the Polypharmacy Strategy will be developed around the CCG Triple Aims:

1. Improved Health and Wellbeing

- Numbers of patients reviewed
- Numbers of patients identified as at risk through Eclipse Live RADAR at Practice/Locality Level/CCG level
- Number of additional pharmacists and technicians supported
- Number of KIMS interventions
- Number of Medicines Compliance Assessments Conducted
- Number of community pharmacists involved

2. Improved Experience of care and support

- Number of practices signing up to GPPQS
- Eclipse Live utilisation within GP practices
- Feedback from healthcare professionals
• Feedback from patients
• Evidence of good practice/case studies
• Evidence of improved primary care team working
• Evidence of improved medicines use; use of decision support etc.

3. **Reduced Cost of care and support**

• Number of unplanned admissions due to ADRs
• Prescribing Costs (routinely monitored by the CCG)

7. **Key Deliverables**

1. Agreement of the Polypharmacy Strategy across the Cornwall healthcare community
2. Practice sign-up to 2015/16 GPPQS
3. Establishment of KIMS
4. Practice integration of Eclipse Live
5. An up to date analysis of emergency admissions relating to ADRs.
References


2. BMJ: Adverse drug reactions as cause of admission to hospital: prospective analysis of 18,820 patients  
   http://www.bmj.com/content/329/7456/15

   https://www.nice.org.uk/guidance/cg161

4. Royal Pharmaceutical Society: Medicines Optimisation: Helping patients to make the most of medicines  

5. Case Study: Medicines Optimisation-Reducing HARMs  
   http://www.ardencsu.nhs.uk/media/15073/Reducing-HARMs.pdf

6. AWMSG: Polypharmacy Guidance for Prescribing in Frail Adults, including Strategies for effectively stopping medicines  
   http://www.awmsg.org/docs/awmsg/medman/Polypharmacy%20Guidance%20for%20Prescribing%20in%20Frail%20Adults.pdf

7. A pharmacist-led information technology intervention for medication errors (PINCER): a multicentre, cluster randomised, controlled trial and cost-effectiveness analysis.  

8. WeMeReC: Stopping medicines-bisphosphonates in postmenopausal osteoporosis.  

9. WeMeReC: Stopping medicines-benzodiazepines  

10. Clinical Knowledge Summaries: Benzodiazepine and z-drug withdrawal  
    http://cks.nice.org.uk/benzodiazepine-and-z-drug-withdrawal#topicsummary
11. NICE CG184: Dyspepsia and gastro-oesophageal reflux disease: Investigation and management of dyspepsia, symptoms suggestive of gastro-oesophageal reflux disease, or both.
   https://www.nice.org.uk/guidance/cg184

   http://cks.nice.org.uk/dyspepsia-proven-gord#prescribinginfosub

13. WeMeReC: Stopping medicines – proton pump inhibitors
   https://www.wemerec.org/Documents/enotes/StoppingPPIsenotes.pdf

14. Royal Pharmaceutical Society: Keeping patients safe when they transfer between care providers – getting the medicines right.

15. PSNC: NHS Community Pharmacy services – a summary

16. Lewisham Integrated Medicines Optimisation Service
   http://www.gpinteractivelewisham.nhs.uk/prescribing/making-good-use-of-medicines-including-limos

17. NICE Quality and Productivity: Proven Case Study: Pharmacist-led repeat prescription management: ensuring appropriate prescribing and reducing wastage
   http://www.nice.org.uk/Media/Default/About/Who-we-are/Local%20Practice/14-0001-qp-pharmacist-led-rpms.pdf

18. NHS Employers: Guidance for the Implementation of Repeat Dispensing
   http://www.nhsemployers.org/~media/Employers/Publications/repeat-dispensing-guide.pdf

19. Australian Prescriber: Deprescribing
   http://www.australianprescriber.com/magazine/34/6/182/5

20. MJA Insight: Time to start deprescribing
21. Australian Family Physician: Thinking Through the Medication List

http://www.racgp.org.au/afp/2012/december/medication-list/
### Glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>ACEI</td>
<td>Angiotensin Converting Enzyme Inhibitor</td>
</tr>
<tr>
<td>ADRs</td>
<td>Adverse Drug Reactions</td>
</tr>
<tr>
<td>AWMSG</td>
<td>All Wales Medicines Strategy Group</td>
</tr>
<tr>
<td>A2RA</td>
<td>Angiotensin-II Receptor Antagonist</td>
</tr>
<tr>
<td>BMJ</td>
<td>British Medical Journal</td>
</tr>
<tr>
<td>CAPC</td>
<td>Cornwall Area Prescribing Committee</td>
</tr>
<tr>
<td>CCPC</td>
<td>Cornwall Commissioning Prescribing Committee</td>
</tr>
<tr>
<td>CCG</td>
<td>Clinical Commissioning Group</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>CPD</td>
<td>Continuing Professional Development</td>
</tr>
<tr>
<td>CVS</td>
<td>Cardiovascular System</td>
</tr>
<tr>
<td>eGFR</td>
<td>Estimated glomerular filtration rate</td>
</tr>
<tr>
<td>EPS</td>
<td>Electronic Prescription Service</td>
</tr>
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<td>GI</td>
<td>Gastrointestinal</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
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<td>GPPQS</td>
<td>GP Prescribing Quality Scheme</td>
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<td>HARMs</td>
<td>Hospital Admissions Relating to Medicines</td>
</tr>
<tr>
<td>INR</td>
<td>International Normalised Ratio</td>
</tr>
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<td>LPC</td>
<td>Local Pharmaceutical Committee</td>
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<td>KIMS</td>
<td>Kernow Integrated Medicines Service</td>
</tr>
<tr>
<td>MAR</td>
<td>Medication Administration Record</td>
</tr>
<tr>
<td>MDS</td>
<td>Monitored Dosage System</td>
</tr>
<tr>
<td>MUR</td>
<td>Medicines Use Review</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health Service</td>
</tr>
<tr>
<td>NICE</td>
<td>National Institute for Health and Care Excellence</td>
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<tr>
<td>NOAC</td>
<td>Novel Oral Anticoagulants</td>
</tr>
<tr>
<td>NSAID</td>
<td>Non-Steroidal Anti-inflammatory Drug</td>
</tr>
<tr>
<td>OTC</td>
<td>Over The Counter</td>
</tr>
<tr>
<td>PGD</td>
<td>Patient Group Direction</td>
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<td>PINCER</td>
<td>Pharmacist-led information technology intervention for medication errors</td>
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<tr>
<td>PPI</td>
<td>Proton Pump Inhibitor</td>
</tr>
<tr>
<td>PSNC</td>
<td>Pharmaceutical Services Negotiating Committee</td>
</tr>
<tr>
<td>QIPP</td>
<td>Quality Innovation Productivity and Prevention</td>
</tr>
<tr>
<td>QoF</td>
<td>Quality and Outcomes Framework</td>
</tr>
<tr>
<td>RADAR</td>
<td>Research on Adverse Drug Events and Reports</td>
</tr>
<tr>
<td>RCHT</td>
<td>Royal Cornwall Hospitals NHS Trust</td>
</tr>
<tr>
<td>PRPMS</td>
<td>Pharmacist Repeat Prescription Management Service</td>
</tr>
<tr>
<td>RPS</td>
<td>Royal Pharmaceutical Society</td>
</tr>
<tr>
<td>TCA</td>
<td>Tricyclic Antidepressant</td>
</tr>
<tr>
<td>WeMeReC</td>
<td>Welsh Medicines Resource Centre</td>
</tr>
<tr>
<td>Z-Drug</td>
<td>Zopiclone, Zolpidem and zaleplon drugs</td>
</tr>
</tbody>
</table>
Appendix 1: Review tools

- AWMSG: Polypharmacy Guidance for Prescribing in Frail Adults, including Strategies for effectively stopping medicines.
  
  http://www.awmsg.org/docs/awmsg/medman/Polypharmacy%20%20Guidance%20for%20Prescribing%20in%20Frail%20Adults.pdf

  Supplementary Guidance
  
  http://www.awmsg.org/docs/awmsg/medman/Polypharmacy%20Supplementary%20Guidance-%20BNF%20Sections%20to%20Target.pdf

  

- STOPP START Toolkit

- WeMeReC: Stopping Medicines.
  

  Stopping Medication Series
  
  https://www.wemerec.org/res_enotes.php

End of Life Issues and Considerations

- Palliative care beyond cancer
  
  http://www.bmj.com/content/bmj/341/7774/Spotlight.full.pdf

- Identifying end of life patients
  
  http://www.dyingmatters.org/gp_page/identifying-end-life-patients
Appendix 2: Kernow Integrated Medicines Service (KIMS)

What is the Kernow Integrated Medicines Service (KIMS)?

The aim of KIMS is to support patients with long term conditions to manage their own medicines – enabling them to stay in their own homes as long as possible.

KIMS will also support carers to assist or administer medication safely, and improve patient’s access to personalised support for medication use such as reminder systems.

The service will help address adherence issues whether intentional (where patient makes a decision not to take their medicines as prescribed), or unintentional (when physical, mental or other barriers may prevent patients from taking their medicines as prescribed).

Who are KIMS?

KIMS is provided by the Kernow Clinical Commissioning Group Prescribing Team pharmacists and technicians who work across primary care. They review identified patients or clients in their own homes or care home, either following discharge or when medication related problems are identified in the community.

Which patient groups do KIMS see?*

The service aims to target patients who:

- Receive a social care package for medicines support at home
- Are discharged to a care home
- Have readmissions to hospital, possibly due to medication issues
- Have Mental Health issues
- Are housebound and have adherence problems or medicines management

What will KIMS do?

When a referral to KIMS is received, the team will:

- Visit the patient in their own home and carry out a medicines management assessment to enable a plan to be agreed and implemented
- Liaise with family members, and work closely with social and health care services
- Reconcile medication following a discharge from hospital
- Agree recommendations with both the patient and all relevant people involved in their care
- Review medicines with the prescriber where appropriate
- Send an action letter to all relevant professionals to communicate interventions which have been agreed
- Provide a follow up visit if needed or phone call to support the patient with changes made

Who can refer to KIMS?
Referrals are accepted from any health or social care professional working with Cornwall patients. Including:

- General Practitioners
- Community Pharmacists
- Living Well Teams
- Care Agencies
- Social Services Care Co-ordinators
- Intermediate Care Service
- Prevention & Recovery Team
- Hospital Adult Services Team
- Cornwall Memory Clinic
- RCHT/Derriford Hospital Pharmacists
- Mental Health Teams

**How do I refer to KIMS?**

The standard referral form should be completed and e-mailed from a secure address to xxxxxxxxxx

Please ensure all sections are completed including your details and contact number.

(* Patients must be registered with a Cornwall GP to be seen by KIMS)
### Appendix 3: Numbers Needed To Treat (NNT) Tables

#### Numbers needed to treat drug effectiveness summary (see references for additional information)

**ACE INHIBITORS**

<table>
<thead>
<tr>
<th>Indication</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated Vascular Risk [Normal LV]</td>
<td>200</td>
<td>Prevent one death (all causes)</td>
<td>Treat for 5 years</td>
</tr>
<tr>
<td>Impaired LV Function-total or moderate</td>
<td>30</td>
<td>Prevent one death (all causes)</td>
<td>Likely symptomatic benefit</td>
</tr>
<tr>
<td>Combination Therapy including ACE</td>
<td>55</td>
<td>Prevent one stroke</td>
<td>Treat for 5 years</td>
</tr>
<tr>
<td>ACE + Indepндisive</td>
<td>33</td>
<td>Prevent one death</td>
<td>Likely symptomatic benefit</td>
</tr>
<tr>
<td>Secondary Prevention post MI SE yr [ACE + SBP + AT1 + START]</td>
<td>14</td>
<td>Prevent one death</td>
<td>Likely symptomatic benefit</td>
</tr>
<tr>
<td>ACE = Blocker for Impaired LV</td>
<td>13</td>
<td>Prevent one death</td>
<td>Likely symptomatic benefit</td>
</tr>
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<td>Impaired LV before ACE + SBP</td>
<td>7</td>
<td>Prevent one death</td>
<td>Likely symptomatic benefit</td>
</tr>
<tr>
<td>Worst Renal Deterioration</td>
<td></td>
<td>Increase time to death, reduce Cardiovascular risk</td>
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</table>

**ASPIRIN Primary Prevention**

<table>
<thead>
<tr>
<th>Event</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASPIRIN/Workforce - TIA</td>
<td>100</td>
<td>Prevent one stroke or MI vs TIA or Stroke</td>
<td>Equivalent to CLOPIDOGREL/ASPIRIN</td>
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<tr>
<td>CLAG/DOCAREL - primary or TIA vs Aspirin</td>
<td>100</td>
<td>Prevent one stroke or MI vs TIA or Stroke</td>
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</tbody>
</table>

**AF - atrial fibrillation VAWARN vs ASPIRIN**

<table>
<thead>
<tr>
<th>Event</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
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</thead>
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<tr>
<td>AF = atrial fibrillation</td>
<td>40</td>
<td>Prevent one stroke or MI vs Stroke</td>
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</tr>
</tbody>
</table>

**Secondary Prevention after Stroke/VA WARN vs ASPIRIN**

<table>
<thead>
<tr>
<th>Event</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Stroke</td>
<td>15</td>
<td>Prevent one stroke</td>
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**HYPERTENSION**

<table>
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<tr>
<th>Cardiovascular morbidity and mortality &gt;30 yrs</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
</tr>
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<tr>
<td>Low Risk</td>
<td>30</td>
<td>Avoid one cardiovascular event</td>
<td>2 years for effect</td>
</tr>
<tr>
<td>High Risk [Diabetes, vascular disease]</td>
<td>22</td>
<td>Avoid one cardiovascular event</td>
<td>2 years for effect</td>
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</table>

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<thead>
<tr>
<th>Cardiovascular morbidity and mortality &gt;30 yrs</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>107</td>
<td>Avoid one cardiovascular event</td>
<td>4.5 years for effect</td>
</tr>
<tr>
<td>High Risk [Diabetes, vascular disease]</td>
<td>40</td>
<td>Avoid one cardiovascular event</td>
<td>4.5 years for effect</td>
</tr>
<tr>
<td>Cardiovascular morbidity and mortality &gt;30 yrs</td>
<td>122</td>
<td>Avoid one cardiovascular event</td>
<td>2 years for effect</td>
</tr>
</tbody>
</table>

NNT are a guide: they do not give exact figures for individual patients. Older people have increased absolute event rates, so that NNT to prevent one event may be lower in older people - conversely, NNT are likely to be higher - see weighing the benefit / risk in NNT.
<table>
<thead>
<tr>
<th>STATINS</th>
<th>NNT per annum</th>
<th>To do what</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>M or Angina</td>
<td>80 to 170</td>
<td>Major Coronary Event</td>
<td>No difference in Mort to 5 years</td>
</tr>
<tr>
<td>Post Stroke [Atorvastatin 80 v Placebo]</td>
<td>165</td>
<td>One Cardiovascular Event</td>
<td>No difference in Mort to 5 years</td>
</tr>
</tbody>
</table>

**Tight Blood Pressure Control Strategies**

<table>
<thead>
<tr>
<th>Microvascular Risk</th>
<th>ADVANCE [Hba1c 7.3% v 6.5%]</th>
<th>333</th>
<th>One microvascular event [prominently retinal]</th>
<th>Trial ran 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>UKPDS [Hba1c 7.5% v 7.5%]</td>
<td>200</td>
<td>One microvascular event [prominently retinal]</td>
<td>Trial ran 10 years</td>
<td></td>
</tr>
</tbody>
</table>

**Macrovascular Risk**

<table>
<thead>
<tr>
<th>MEF</th>
<th>No difference at 10 years</th>
</tr>
</thead>
</table>

**Osteoporosis**

<table>
<thead>
<tr>
<th>Osteoporosis [Mestranol + Calcium/Vitamin D]</th>
<th>2y Prevention Vertebal #</th>
<th>2y Prevention Hip #</th>
<th>Notes for Osteoporosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 - 74 years</td>
<td>65</td>
<td>430</td>
<td>NNT per annum to prevent further #</td>
</tr>
<tr>
<td>75 - 79 years</td>
<td>45</td>
<td>180</td>
<td>Potential symptomatic benefit re Vertebral #</td>
</tr>
<tr>
<td>80 - 84 years</td>
<td>60</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>85 - 89 years</td>
<td>55</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>90+ years</td>
<td>40</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

**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]
- +NSAID = Drug interaction
- +Warfarin = NSAID/NSAID
- +Tricyclic antidepressant

**Warfarin**
- +Another anticoagulant, +NSAID, +Meclozine, +Quinidine, +Mefloquine, +Alpha antifungal

**ACE + ARB**

<table>
<thead>
<tr>
<th>Drugs for which specialist advice is strongly advised before altering include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• anticonvulsants for epilepsy</td>
</tr>
<tr>
<td>• antipsychotic and mood stabilising drugs (eg valproate)</td>
</tr>
<tr>
<td>• drugs for the management of Parkinson's disease</td>
</tr>
<tr>
<td>• amiodarone</td>
</tr>
<tr>
<td>• disease-modifying antirheumatic drugs</td>
</tr>
<tr>
<td>• Drugs (eg ACE) for Left Ventricular Sympathetic Dysfunction.</td>
</tr>
</tbody>
</table>

**ARB** = Angiotensin 2 Receptor Blocker 'Sartan'

**Drugs that are tolerated poorly in frail patients**

It is particularly important to clarify if patients on the following have a Valued and Current indication and are still told to be effective.

- Digoxin in higher doses 250 microgram
- Antipsychotics
- Tricyclic antidepressants
- Benzodiazepines particularly long term
- Anticholinergics
- Phosphodiesterase [eg prochlorperazine]
- Combinations parkiniders [eg pottedaomi v porcetamol]

**Drugs to STOP if dehydrated**

- ACE inhibitors
- Angiotensin 2 Receptor Blockers
- NSAIDs
- Diuretics
- Spironolactone, Eplerenone
- Mefloquine

For example these 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 due to drugs and adults with more than minor dehydration in this group need urgent specialist advice.

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