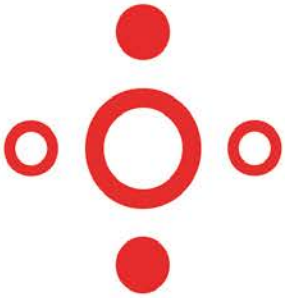
Grŵp Strategaeth Meddyginiaethau Cymru Gyfan
All Wales Medicines Strategy Group



Welsh National Standards for Medication Review

December 2020

This document has been prepared by a multi-professional collaborative group, with support from the All Wales Prescribing Advisory Group (AWPAG) and the All Wales Therapeutics and Toxicology Centre (AWTTC), and has subsequently been endorsed by the All Wales Medicines Strategy Group (AWMSG).

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1.0 INTRODUCTION

The All Wales Medicines Strategy Group (AWMSG) is committed to ensuring that patients in Wales have access to clinically effective and cost-effective medicines which improve patients' health outcomes. The AWMSG five-year strategy 2018-2023 '*Supporting prudent prescribing to obtain the best outcomes from medicines for patients in Wales'* includes a recommendation to develop nationally agreed, multi-professional standards for medication review[1].

The General Medical Council (GMC) guideline Good Practice in Prescribing and Managing Medicines and Devices[2], notes that when prescribing with repeats or on a one off basis, suitable arrangements must be in place for monitoring, follow up and review, taking account of the patients' needs and any risks arising from the medicines. In addition, the Royal Pharmaceutical Society's Competency Framework for All Prescribers[3] highlights the importance of medication reviews, including establishing and maintaining a plan for reviewing the patient's treatment, and adapting the management plan in response to ongoing monitoring and review of the patient's condition and preferences. Evidence shows that people with long-term conditions and using multiple medicines have better clinical and personal outcomes after a structured medication review[4].

This document sets out the Welsh National Standards for Medication Review. To support these standards, it is proposed that a Welsh National Competency Framework for Medication Reviews is also developed.

Medication reviews can have several different interpretations, which vary in their quality and effectiveness[5], however these standards have been developed to facilitate co-produced patient and healthcare professional medication reviews, in any setting, including reviews conducted remotely. Face-to-face reviews, either in person or remotely, are the preferred option. However, where this is not possible reviews may be carried out by telephone. Healthcare professionals should be aware of the different skills required to deliver a remote or telephone consultation. Health Education and Improvement Wales (HEIW) have developed resources to assist healthcare professionals with remote consultation skills. The NHS Wales Video Consulting Service has a range of resources to support healthcare professionals and patients with remote consultations.

Organisations should determine locally the most appropriate healthcare professional to carry out a medication review[5]. Medication reviews should be conducted by a healthcare professional with the appropriate knowledge, skills and competency. Healthcare professionals who conduct medication reviews (called the 'reviewer' in this document) must have effective communication skills, technical knowledge in the process of managing medicines, and therapeutic knowledge on medicines use[5]. Organisations may determine locally how best to assess the knowledge, skills and competency of the reviewer, until a Welsh National Competency Framework is available.

The National Standards provide a structured approach to medication review, but are flexible enough to allow the review to be tailored to the patient. Depending on the circumstances, all of the standards do not have to be completed in one go. Medication reviews can be an ongoing process in which an individual appointment or discussion covers one standard. It is anticipated that a medication review, covering all standards, would take longer than an average GP appointment. However, the exact length should vary according to the needs of the individual patient and complexity of their medication regimen.

1.1 Aims

The medication review standards aim to ensure a consistent approach, resulting in high-quality medication reviews by:

- involving patients and carers;
- considering medicines safety;
- reviewing all prescribed and non-prescribed medicines;
- reducing waste;
- updating patient records and completing documentation.

The standards should be benchmarks for quality, performance and consistency of medication reviews. A high-quality service includes mechanisms to improve it by regular service review, review of incidents, and through the feedback of service users and staff. Implementing standards for medication review will help audit and service review and thereby ensure continuous improvement.

1.2 General principles

- Although listed as separate standards, they are complementary and will be most effective if used collectively.
- The standards do not have to be followed in a stepwise fashion or completed in one sitting. There is interaction and overlap between the standards and it may be possible to share responsibility or delegate a particular standard to a different reviewer, ensuring that communication and documentation are considered.
- Each standard has a number of suggested activities to support achievement, although the activities listed are suggestions and may not be applicable to all patients. For some patients, alternative or additional activities may be appropriate.
- Patients are individuals with differing needs and levels of understanding. The medication review process should be tailored to each person depending on capacity and ability and therefore completing all activities may not be appropriate in all circumstances.

1.3 Task and Finish Group

These standards were developed by a multi-professional Task and Finish (T&F) group of healthcare experts who attended two workshops to share their experience and insight, and give feedback on the draft standards. See Appendix 1 for membership details.

The NICE guideline on medicines optimisation defines medication review as:
'a structured, critical examination of a person's medicines with the objective of reaching an agreement with the person about treatment, optimising the impact of medicines, minimising the number of medication-related problems and reducing waste'[5]. The T&F group used this definition to develop the following standards.

Standard 1: Involving patients and carers
Reach agreement with the patient (or carer, or both) on the aims and goals of treatment.

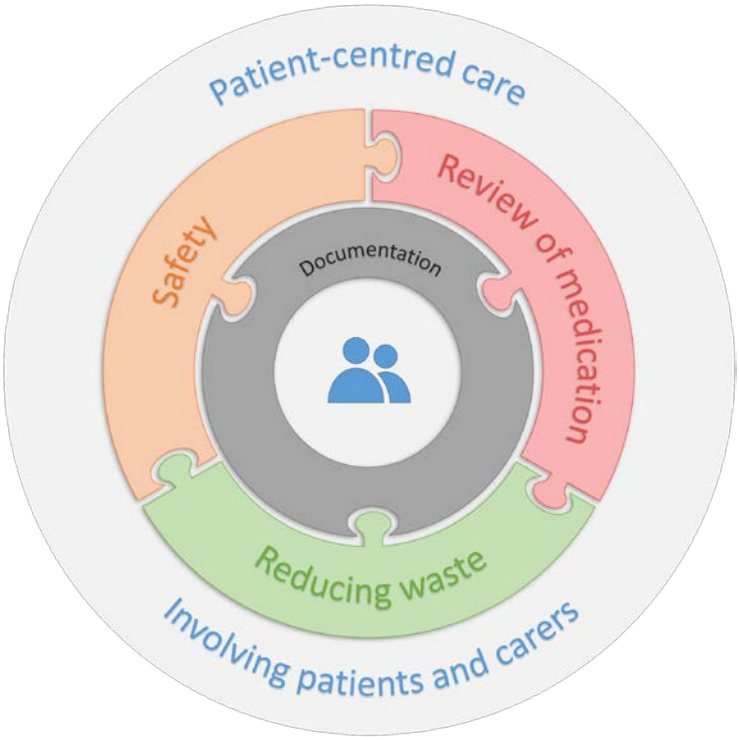
Standard 2: Safety
Minimise medication-related problems.

Standard 3: Review of medicines
Maximise the benefit of medicines.

Standard 4: Reducing waste
Consider activities and actions that contribute to waste and work to address them.

Standard 5: Medication review documentation
Complete documentation and update the patient record.

Figure 1. Welsh National Standards for Medication Review



2.0 WELSH NATIONAL STANDARDS FOR MEDICATION REVIEW

2.1 Standard 1. Involving patients and carers

2.1.1 Activities and checklist

Standard 1: Involving patients and carers Reach agreement with the patient (or carer, or both) on the aims and goals of treatment	
Activities	**Checklist**
Consider reviewer and patient pre-review preparation, appropriate to the patient's needs • Patient information leaflet: Your Medication Review – What to Expect	Leaflet given to patient before review
Shared decision making with patients and carers. Reviewers and patients/carers share knowledge, experience, understanding, options and desired expected outcomes of the review. Consider: • Making Choices Together[6] • A Three-Talk Model of shared decision making[7] • General Medical Council – Decision making and consent[8]	Patient/carer face-to-face review recorded
Establish patient/carer views and understanding • What shall we focus on? What is most important to you (the patient) to talk about today? • What do you (the patient) want to achieve? What do you already know or do to manage the problem? • What do you (the patient) think is the benefit of taking the medication? • What does the reviewer want to achieve (opinions and expectations)?	Patient/carer views and expectations recorded
Establish patient /carer concerns, questions, problems about treatment and condition Following an effective shared decision making discussion, the patient should have had the following questions about their treatment answered: • What are the potential benefits? • What are the potential harms? • What will happen if nothing is done? • Are there any alternative options to consider? Consider: • Have I (the reviewer) clarified and acknowledged concerns? • Have I (the reviewer) addressed concerns where possible? • Have I (the reviewer) managed the patient's or carer's expectations?	Concerns/problems recorded
Assess adherence Consider the COM-B model[9] and the World Health Organization: Adherence to Long-Term Therapies[10] Take into account: • Socioeconomic factors – level of education, access to transport, employment issues etc. • Healthcare factors – accessibility of services, information sharing, continuity of care etc. • System-related factors – mechanisms for obtaining prescriptions and medication, accessibility of services, support with taking medication, methods of communication etc. • The condition – impact of condition on daily functioning and motivation to adhere etc. • The treatment - ease of taking, possible side effects, interactions, timing of benefit etc. Patient-related factors – such as age, gender, ethnicity, level of literacy, mobility, religion. Medication Administration Record (MAR) chart – where available, this may provide information on a patient's adherence.	Adherence assessed

Standard 1: Involving patients and carers Reach agreement with the patient (or carer, or both) on the aims and goals of treatment	
Consider the social model of health (ecobiopsychosocial) Dahlgren and Whitehead model & factors[11]: • Proactive care: non-medical factors affecting wellbeing such as transport, food, pollution, poverty, education, living conditions, housing, road safety, employment, exercise spaces. • Consider social determinants of health. • Prevention • Behavioral risk factors: smoking, alcohol, diet, physical activity.	Lifestyle prescription/support considered
Signpost or give information that the patient can understand, preferably co-created by patients and clinicians.	Information given
Link indication to diagnosis / problem	Medication linked to diagnosis / problem on clinical system

2.1.2 Aims

The patient (and carer) is central to the medication review. Use shared decision making to take into account their views and understanding of their medicines, their concerns, questions or problems, including any issues that may affect their adherence to taking their medication, in the context of a social model of health.

2.1.3 Evidence base

Patient involvement is central to developing agreement with the reviewer about their medication care plan. The exchange of information between doctor and patient is essential to good decision making. Serious harm can result if patients are not listened to, or if they are not given the information they need - and time and support to understand it - so they can make informed decisions about their care[8]. Involving patients requires information that is tailored to the patient's understanding. According to a Public Health England report, '*Improving health literacy to reduce health inequalities*', 42% of working-age adults are unable to understand and make use of everyday health information, rising to 61% when numeracy skills are also needed for comprehension[12].

Involving patients in their care is not only important during the medication review, but research has shown that patients with greater knowledge, skills and confidence in managing their long-term conditions had 18% fewer general practice appointments and 38% fewer emergency admissions that patients who were least able to manage their condition[13]. The GMC guidance on Decision Making and Consent contains seven principles which are relevant to every health and care decision made with every patient[8].

2.1.4 Shared decision making

NICE guideline NG5 states that medicines reconciliation, medication review, supporting adherence and self-management plans should all be carried out using shared decision making[5]. The key messages are that shared decision making is about more than tools: skills trump tools, but attitudes trump skills. Successful implementation relies on a combination of interventions supporting the organisation, clinicians, and patients; organisational support and local ownership are vital for engagement[14].

Evidence-based shared decision making is advocated by Making Choices Together[6], which aims to encourage open conversation between patients and their clinicians and advocates that patients ask four questions when considering tests or treatments:

- "What are my options?"
- "How likely is it to harm or benefit me?"
- "Do I really need this?"
- "What can I do to help myself?"

The GMC guidance on Decision Making and Consent contains seven principles for shared decision making and consent[8]. Principle four encourages finding out what matters to patients in order to share relevant information about the benefits and harms of proposed options and reasonable alternatives, including the option to take no action. Asking patients "What matters to you?" and "How can we decide to improve things?" may help start the discussion.

2.1.5 Adherence

Patient's adherence should be assessed throughout the consultation process, and the results of which should feed into the agreed management plan. According to the NICE guideline on Medicines adherence[15]:

- "Patients do not always take their medicines exactly as prescribed, and healthcare professionals are often unaware of how patients take their medicines.
- The purpose of assessing adherence is not to monitor patients but rather to find out whether patients need more information and support.
- Recognise that non-adherence is common and that most patients are non-adherent sometimes.
- Routinely assess adherence in a non-judgmental way whenever you prescribe, dispense and review medicines.
- Consider assessing non-adherence by asking the patient if they have missed any doses of medicine recently. Make it easier for them to report non-adherence."

A 2003 World Health Organization (WHO) report, *Adherence to long term therapies*, highlighted that studies have shown that patients are more likely to be motivated to take their medicines correctly as prescribed when they:

- understand and accept the diagnosis;
- agree with the treatment proposed; and
- have been able to address and discuss seriously their concerns about the specific medicines[10].

It has been shown that people usually adhere better to prescribed treatment if they have a good relationship with their healthcare professional. When people participate in their healthcare planning, they also assume responsibility for it and are therefore more likely to stay with the plan. Getting clear explanations in a language they understand (organisations must consider their responsibilities under the Welsh Language Standards, and should use an interpreter or translation service if the patient has difficulty understanding spoken English[8]) and understanding the rationale for the treatment can also help to increase adherence[10].

The WHO report concludes that:

- patients need to be supported, not blamed
- adherence is simultaneously influenced by several factors
- patient-tailored interventions are required
- adherence is a dynamic process that needs to be followed up
- health professionals need to be trained in adherence
- family, community and patient organisations are key factors for success in improving adherence.

A multidisciplinary approach to adherence is needed involving all healthcare professionals.

2.1.6 Social prescribing

There are calls for rethinking the roles of doctors and, rather than prescribing medication, considering other determinants of ill health. Social circumstances are an important factor in patient healthcare[16]. It has been estimated that social circumstances

account for 24% of the determinants of health[17]. Re-defining the role of the doctor, recognising the limitations of the traditional medical model as well as its benefits, enabling the assets for health and wellbeing which lie outside health services and encouraging a more central role for people in making decisions about their health and care have been advocated[18].

The Royal College of General Practitioners is partnering with the Royal Australian College of GPs to provide UK GPs with access to the Handbook of Non-Drug interventions (HANDI), an online formulary of non-drug interventions for use in primary care, which have solid evidence of their effectiveness[19].

2.1.7 Patient decision aids

Giving information to patients to ensure that the person understands the seriousness of his or her condition, the anticipated benefits and risks to the specific individual of the proposed treatment, and any reasonable alternatives, has been highlighted by the decision of the Montgomery v Lanarkshire Health Board judgment[20]. The judgment concluded that "*the doctor is therefore under a duty to take reasonable care to ensure that the patient is aware of any material risks involved in any recommended treatment*," and that information provided has to be comprehensible. "*The doctor's duty is not therefore fulfilled by bombarding the patient with technical information*".

A risk is a "material" one in this context if, in the circumstances of the particular case: a reasonable person in that person's position would be likely to attach significance to the risk, or, the doctor or reviewer is, or should be, reasonably aware that the particular person in front of him or her would be likely to attach significance to it[21].

To comply with the duty to provide information, healthcare professionals are required to enter into dialogue with the person, aiming to ensure that the person understands the seriousness of his or her condition, the anticipated benefits and risks to the specific individual of the proposed treatment, and any reasonable alternatives. This will help to put the person in a position to make an informed decision, but only if the information provided is comprehensible.

Patient decision aids can support reviewers to adopt a shared decision-making approach, to ensure that patients and their carers are able to make well-informed choices that are consistent with the person's values and preferences[5]. Patient decision aids inform people about the available options, from an evidence-based perspective; encourage active engagement with the decision making process and help people think about what is important to them so that they can make choices that reflect their values and preferences[22]. Compared to usual care across a wide variety of decision contexts, people exposed to decision aids feel more knowledgeable, better informed, and clearer about their values, and they probably have a more active role in decision making and more accurate risk perceptions[23].

When considering using a patient decision aid, the NICE guideline on Medicines optimisation[5] advises:

- Determine what level of involvement in decision making the person would like and avoid making assumptions about this.
- Offer the patient, family or carers the opportunity to use a patient decision aid.
- Ensure the decision aid is appropriate in the context of the consultation as a whole.
- Do not use a patient aid to replace discussions with a person.
- Ensure that patient decision aids used have followed a robust and transparent development process, in line with International Patient Decision Aids Standards criteria.
- Ensure that the necessary knowledge, skills and expertise have been obtained before using a patient decision aid.

The Royal College of General Practitioners Overdiagnosis Group has compiled resources related to shared decision making and patient decision aids.

2.1.8 Comments from T&F group

The T&F group considered how to engage the patient in the medication review. They felt the patient must want to help themselves and work in partnership with the reviewer. To do this the patient's expectations need to be addressed: they need to be aware of why the review is being done and its benefits to them.

The medication review should be a positive experience for the patient, focusing on the benefits of the review. The T&F group felt it important that the expectations of each party should be made clear at the outset of a review.

The T&F group questioned whether reviewers understood a patient's lifestyle and expectations when prescribing medication, and felt that the review should not just look at medicines but take a more holistic approach, considering other services such as social and housing services.

The T&F group were aware of NICE multimorbidity guideline but noted a lack of evidence-based guidance when dealing with multimorbidity, and thought that multimorbidity guidelines, including information leaflets for patients, would be helpful.

2.2 Standard 2. Safety

2.2.1 Activities and checklist

Standard 2. Safety Minimise medication-related problems by considering real or potential medicine related harm(s) and action taken to address or reduce them.	
Activities	**Checklist**
List all medicines and their indications This includes all prescribed, purchased and over-the-counter medicines, herbal remedies and any other non-prescribed medicines (homeopathic medicines, lifestyle and recreational drugs, food supplements borrowed medication, privately prescribed medication and any "hospital only"/homecare treatments).	Record all medicines including prescribed and non-prescribed
Establish patient or carer views and understanding Using open questions, find out how the patient takes their medicines.	Record any issues identified
Reducing potential risk • Consider potential risk reduction • Refer to the SPC for precautions for use, interactions and undesirable effects. • Consider inappropriate medication, incorrect dosage, incorrect storage, method of administration, non-adherence and potential interactions with other medical conditions • Check relevant National Prescribing Indicators (NPIs) have been addressed, including the Prescribing Safety Indicators (PSIs). • GP practices to check the Quality Assurance and Improvement Framework (QAIF). • Consider STOPP (Screening Tool of Older Persons Prescriptions) / START (Screening Tool to Alert doctors to Right i.e. appropriate, indicated Treatment).	Risk reduction implemented

Standard 2. Safety Minimise medication-related problems by considering real or potential medicine related harm(s) and action taken to address or reduce them.	
Monitoring Monitoring should be appropriate and timely, ensuring results are reviewed. Check relevant monitoring including: • disease control • blood biochemistry • therapeutic drug monitoring.	Monitoring addressed
Adverse drug reactions (ADRs) considered, including those related to drug-drug or drug-food interactions • Complete a Yellow Card if appropriate, via practice computer system or MHRA website.	Identification of ADRs Identification of interactions Yellow card completed and submitted
Consider cross sector communication • Clear and effective information sharing is vital at transfer of care, especially where changes to medication are likely to have occurred. • Changes to medication may have been made by primary care, secondary care, private prescribers, and independent prescribers. • Consider who needs to be informed of medication changes, for example consultant, community pharmacist, social care provider.	Sharing of relevant information to other health and care professionals involved in the patient's care.
Consider shared care protocols Consider relevant shared-care protocols, primary-secondary care ownership, and how they are kept up-to-date.	Monitoring and specialist reviews undertaken as per shared care protocol
Information patient non-adherence Intentional patient non-adherence with the prescription is an important safety component and should be supported e.g. patient education on what to look out for ("red flags") when something might be wrong	Patient advised

2.2.2 Aims

To minimise medicine-related harms.

2.2.3 Evidence base

In 2018, the Policy Research Unit in Economic Evaluation of Health and Care Interventions estimated that in England there were 237 million medication errors per year, of which 66 million were potentially significant errors with 71% occurring in primary care[24]. The WHO Global Patient Safety Challenge, launched in 2017, aims to reduce the level of severe avoidable harm related to medications by 50% over five years globally[25], it is anticipated that implementation of medication review standards will help contribute to this reduction.

An observational prospective cohort study of 1,280 older adults followed up for eight weeks post-discharge from hospital, demonstrated that 37% of patients experienced medication-related harm[26]. The study noted that patients are particularly vulnerable to problems with their medication in the period following hospital discharge due to medication changes and poor information transfer between hospital and primary care. Undertaking medication reviews, particularly post-discharge will likely reduce the number and severity of medication-related harms. Extrapolating the results, the study's authors estimated that post-discharge medicines-related harm in older adults costs the NHS £396 million annually, of which, £243 million is potentially preventable[26].

The current AWMSG NPIs include safety indicators based on the PINCER study[27]. This study highlights potential medication safety issues, and using general practice software Audit+ allows reviewers to decide on whether a treatment should be discontinued. Because AWMSG has developed specific prescribing safety indicators as part of the NPIs, an additional step to examine these has been included in the safety review process for patients in Wales.

2.2.4 Potential risk reduction

AWMSG has introduced prescribing safety indicators as part of the NPIs, with the aim of reducing potential risks. One such indicator is anticholinergic burden. Anticholinergic medicine use in older people has been associated with: constipation, urinary retention, dry mouth or eyes, sedation, confusion, delirium, photophobia, an increased risk of cognitive impairment, dementia and falls, with research also suggesting a link to increase mortality with the number and potency of anticholinergic agents prescribed. To reduce the risk from anticholinergic medications one of the AWMSG National Prescribing Safety Indicators looks at patients aged 75 years and older with an Anticholinergic Effect on Cognition (AEC) score of 3 or more for items on active repeat, as a percentage of all patients aged 75 and older. The indicator aims to encourage a review of patients with an AEC score of 3 or more, to reduce anticholinergic use where appropriate. GPs can use Audit + to identify their patients who have a high anticholinergic score and then review their medication.

Currently genotyping is considered desirable before prescribing certain medicines such as azathioprine. In the future, genome sequencing will be available[28] and may enable prescribers to tailor their choice of medication to take account of any polymorphisms and prevent potential adverse drug reactions[29].

2.2.5 Reporting adverse drug reactions and medicines-related safety incidents

Healthcare professionals and patients are encouraged to identify and report adverse drug reactions and medicine-related safety incidents. Practitioners have a professional responsibility to report serious suspected adverse reactions to all medicines and all reactions to products marked with a Black Triangle in the BNF and elsewhere using the Yellow Card Scheme[2].

The NICE guideline on Medicines optimisation outlines the importance of identifying, reporting and learning from medicines-related safety incidents (MRSI)[5] It advises that "*Organisations should support a person-centred, 'fair blame' culture that encourages reporting and learning from medicines-related patient safety incidents*"[5].

2.2.6 Comments from T&F group

Helping the patient to understand the concept of risk was considered important. Patients should be aware that all medicines can cause harm and therefore the aim is to optimise the benefit: harm ratio; and that each patient is unique and what works for one patient may not work for another. The review should also include a discussion with the patient about the risks of taking or not taking a medicine.

Information technology (IT) and education were seen as important to help primary care and secondary care prescribers. It was felt that clinical support systems were currently only available in primary care and e-prescribing in secondary care was needed. They also thought that an app to support medication review would be useful, especially in secondary care, but could help both secondary and primary care. Education on interactions, and on assessing risk by numbers-needed-to-harm through national workshops would be helpful, and there should be easy access to information.

2.3 Standard 3. Review of medicines

2.3.1 Activities and checklist

Standard 3. Review of medicines Maximise the benefit of medicines by considering the aim and intended outcomes, whether the dose is optimised and how the patient takes their medicines.	
Activities	**Checklist**
List all medication, including prescribed (consider all sources i.e. secondary care, tertiary care) and non-prescribed (including purchased medication, 'over the counter', herbal remedies and any other non-prescribed medicines) and indication.	Record all medications including prescribed and non-prescribed
Consider the aims Review aims and intended outcomes of treatment for each medicine and confirm they are still relevant and in line with the patient's views and goals. Consider: • National Institute for Health and Care Excellence(NICE) guidelines • All Wales Medicines Strategy Group (AWMSG) Polypharmacy: Guidance for Prescribing • European Medicines Agency herbal monographs	Aims of each medicine considered
Consider need Review the need of all medicines. Are there any that are no longer required? Are all medicines essential[30]? Are there any that could be managed at a lower dose? Are there any low evidence therapies and medicines less suitable for prescribing? Consider: • NICE guidelines • AWMSG Polypharmacy: Guidance for Prescribing • STOPP (Screening Tool of Older Persons Prescriptions) / START (Screening Tool to Alert doctors to Right i.e. appropriate, indicated Treatment) guidelines • AWMSG National Prescribing Indicators • NHS Wales Quality Assurance and Improvement Framework • NHS Scotland Polypharmacy Guidance - Medicines Review • AWMSG Low Value for Prescribing in NHS Wales guidelines	Need of all medicines considered
Consider evidence and effectiveness Are therapeutic objectives being met in line with current guidelines to achieve effective therapy? Are there more effective alternatives? Could the dose be adjusted? Are the therapeutic objectives in line with the patient's views and goals? Consider any unmet therapeutic needs Consider: • NICE guidelines • AWMSG Polypharmacy: Guidance for Prescribing • STOPP / START guidelines • AWMSG National Prescribing Indicators • NHS Wales Quality Assurance and Improvement Framework • AWMSG Low Value for Prescribing in NHS Wales guidelines • NHS Scotland Polypharmacy Guidance - Medicines Review	Effectiveness of all medicines maximised
Identify unnecessary medication Consider the following: • AWMSG Polypharmacy: Guidance for Prescribing • STOPP / START guidelines • AWMSG Polypharmacy: Supplementary Guidance – BNF Sections to Target • AWMSG Low Value for Prescribing in NHS Wales guidelines • Deprescribing guidelines • NHS Scotland Polypharmacy Guidance - Medicines Review	Unnecessary medicines stopped

2.3.2 Aims
To ensure that the therapeutic objectives are being achieved, by identifying and optimising essential drug therapy and reviewing the need for medication of limited benefit; also identifying the need for adding or intensifying drug therapy

2.3.3 Evidence base
A medication review must include all medicines that are taken by the patient; this should include any over-the-counter, homeopathic and herbal medicines.

Many patients are reluctant to inform their healthcare professional that they use herbal medicines, therefore it is important to ask about them because these products have the potential to cause adverse drug reactions, as well as to interact with conventional medicines[31]. Herbal medicines marketed in the UK must have a traditional herbal registration (THR) granted by the MHRA[32]. For other herbal medicines that have been prescribed by a herbalist, information can be found in the EMA's herbal monographs[33].

2.3.4 Guidelines
Reviewers must have access to the latest guidelines. NICE Bites is a monthly bulletin which summarises key prescribing points from NICE guidance. The bulletins are prepared by the North West Medicines Information Centre[34]. However, prescribers need to use their clinical judgment in all cases. One study showed that 53% of 839 clinical studies explicitly excluded older people and concluded that despite the high burden of ischaemic heart disease in older people, most drug trials do not enroll participants that reflect the age-related prevalence of the disease[35]. AWMSG's Polypharmacy Guidance For Prescribing contains a section on medicines effectiveness[36] and AWMSG's Polypharmacy: Supplementary Guidance – BNF Sections to Target, provides advice on individual medicines[37].

2.3.5 Need – are all medications essential?
Several prescribing tools are available to help the reviewer decide if a medicine is essential, and when to stop or start a medicine. Examples of some of the tools used are shown below:

- **Beers' criteria**
  In 1991, Beers and colleagues published the first set of explicit criteria for determining potentially inappropriate medicine use in nursing home residents[38].

- **Improved prescribing in the elderly tool (IPET)**
  Referred to as the "Canadian Criteria", the IPET is a list of the 14 most prevalent prescription errors identified from a long list of inappropriate prescription instances drawn up by an expert Canadian Consensus Panel in 1997[39].

- **Screening Tool of Older Persons Prescriptions (STOPP) / Screening Tool to Alert doctors to Right i.e. appropriate, indicated Treatments (START)**
  The STOPP/START tool was developed by a multidisciplinary team of geriatricians, pharmacists, pharmacologists, and primary care physicians[40,41]. The STOPP incorporates commonly encountered instances of potentially inappropriate medicines (PIM) in older adults that include drug–drug and drug–disease interactions, drugs that adversely affect older patients at risk of falls, and duplicate drug class prescriptions.

- **Medication appropriateness index (MAI)**
  Developed by Dr Joseph Hanlon and colleagues[42], the MAI is a validated measure of prescribing appropriateness that assesses a number of elements of prescribing: indication, effectiveness, dose, correct directions, practical drug interactions, drug–disease interactions, duplication, duration, and costs.

Many of these medication review tools criteria are similar. One study concluded that "Because of the minimal overlap between 2012 Beers and STOPP criteria, a modified PIM tool that integrates 2012 Beers and STOPP criteria and considers cancer diagnosis, prognosis, and cancer-related therapy is needed to identify and minimize PIM use"[43].

NHS Scotland has developed an online support tool for medication reviews, '*The 7 Steps'*, as part of their Polypharmacy Guidance[30]. This provides online access to drug group information which can be used during the consultation and is also available as a mobile software application. Unlike other available tools shown below, this also includes consideration of cost effectiveness.

2.3.6 Other tools for polypharmacy

Quality indicators

- ACOVE-3 contains a set of quality indicators to comprehensively measure the care provided to vulnerable older people at the level of the health system, health plan, or medical group[44].
- BEGIN algorithm[45]
- Hedis Dae Criteria[43]
- The Canadian criteria[39]
- Zhan Criteria[46]
- Assessing Care of Vulnerable Elders-3[47]

Deprescribing

Multiple studies of polypharmacy or deprescribing have shown that interventions by pharmacists, doctors, or multidisciplinary teams can reduce the number of medications that patients take and reduce the prevalence of potentially inappropriate prescribing[48]. The D-PRESCRIBE study used a patient brochure coupled with pharmacists making evidence-based recommendations to physicians and resulted in deprescribing among 43% of chronic sedative-hypnotic users, 58% of non-steroidal anti-inflammatory drug users and 31% of glyburide users[49]. However, other studies demonstrate small reductions in prescribing; in one meta-analysis patients were taking an average of 7.4 drugs at baseline; during follow-up this fell by 0.2 drugs in intervention groups and increased by 0.2 drugs in control groups.

Avery has reviewed three systematic reviews on deprescribing and found that deprescribing is complex and time consuming. A Scottish study estimated that it takes 30 minutes for a doctor and 75 minutes for a pharmacist. Reductions were modest, there were no overall reductions in mortality from deprescribing interventions, and they did not reduce hospital admissions. However, Avery noted that deprescribing can reduce the number of medications that patients take and reduce the prevalence of potentially inappropriate prescribing. In addition, it was concluded that deprescribing remains a worthwhile investment and should be done in partnership with the patients and families who cope every day with burdensome polypharmacy[48]. To aid deprescribing, the Bruyere Research Institute in Canada has developed a number of deprescribing guidelines, algorithms and videos to aid deprescribing[50].

2.3.7 Comments from T&F group

Involving the patient so that they understand the purpose and process of the review, and managing their expectations was considered important. Patients need to value the medication review and understand 'what's in it for them'. There should be shared agreement between the patient and reviewer providing maximum benefit and limited harms, based on evidence and patient perspectives.

It was noted that although there were a lot of resources available, reviewers needed a simple pathway through the 'systems' so that the resources were easily available and up-to-date. Ideally there would be one resource in one place with multiple tools, for example, to assess risk/benefit, cost effectiveness of individual treatments and de-prescribing guidelines for high-risk medicines.

Using technology to prepare a 'pre-review' for example, being able to run a report to identify high-risk medicine combinations, adverse drug reactions, medicines that have not been issued / dispensed , or those with a high risk of falls, would help.

It was noted that genetic testing would alter the whole approach to prescribing and medication reviews, and that better primary and secondary care interaction would also help.

2.4 Standard 4. Reducing waste

2.4.1 Activities and checklist

Standard 4: Reducing waste Consider activities and actions that contribute to waste and work to address them.	
Activities	**Checklist**
Consider cost and value • Ensure that allocated resources are used optimally. • Consider the most cost effective medicines in line with local and national prescribing schemes /guidelines. • Consider NICE guidelines and provide medicines with a low acquisition cost if recommended by NICE. • Consider whether unnecessary appointments or monitoring are undertaken. • Consider anything that does not add value to the outcome for the patient. • Consider over-diagnosis which may result in anxiety for the patient, over-treatment and side effects of unnecessary care.	Cost and value considered
Consider patient factors • How does the patient order their prescription? Does the patient have any difficulties ordering their prescription? • Where patients have indicated that they have not been fully adherent with their medication, consider whether stockpiles have built up. Where there is intentional non-adherence, and the patient has been informed of the risks, remove the item from repeat prescription. • Are prescriptions ordered appropriately for housebound patients or care home residents to ensure there is no over-ordering or stockpiling?	Patient factors considered
Consider prescribing factors • Prescribe appropriate quantities taking into account daily dose and length of prescription, Particular consideration should be given to inhalers. • Synchronise quantities of all medicines to ensure they can all be ordered at the same time. • Try to address stockpiling i.e. separate regular medication from 'when required' medication on repeat prescriptions. • Consider whether the formulation prescribed is appropriate for the patient, i.e. tablets instead of liquid.	Prescribing factors considered
Consider environmental factors Consider the environmental risk and carbon footprint of the medication: • NICE Patients decision aid – Inhalers for asthma includes information on carbon footprint and recycling. • Consider the environmental cost of wasted resources	Environmental factors considered

2.4.2 Aims
To avoid and reduce waste associated with prescribing medication.

2.4.3 Evidence base
Medication waste can occur in all stages of the process from prescribing medication, to dispensing medication and finally to medication being taken by the patient. There is increasing awareness of the financial and environmental impact of medicines waste, and although an element of waste is unavoidable, steps can be taken to minimise avoidable waste. In addition to medicine waste, consideration should also be given to wasted appointments, tests, and time for patients and healthcare staff as these also have an impact on the healthcare economy.

In 2009, York Health Economics Consortium and School of Pharmacy, University of London evaluated the scale, causes and cost of wasted medicines and estimated that the gross annual cost of NHS primary and community care prescription medicines wastage in England was around £300 million per year. However the study also noted that less than half of the waste identified can be successfully corrected[51]. In Wales, the Welsh government has estimated that around £10 million in possible savings is available by reducing wasted medicines[52].

Medicines waste not only results in material loss, but potential therapeutic loss where dispensed medicines are only partially consumed or are consumed in ways which limit or negate their therapeutic effect, or are left completely unconsumed[53]. On average, 50% of medication for chronic diseases are not taken as prescribed[10]. By reviewing medications regularly to ensure clinical requirements are unchanged, pharmaceutical waste is significantly reduced[53].

The greatest social and economic returns are to be gained when reducing medicines waste can be effectively linked to improving care quality and health outcomes[51].

2.4.4 Comments from T&F group
It was felt that patients may not take their medication because they do not know what their medicines are for, or are not aware of the risks of not taking them. Therefore it is important to outline to the patient what each medicine is for and the risks of not taking it. Adding the indication for the drug on each prescription may help. It was suggested that separating repeat medication from ‘when required’ medication on the repeat prescription form may help the patient to identify which medication should or shouldn’t be ordered every month.

System factors are important and understanding the processes in general practice, because the 'system', not the 'person', generates the waste.

2.5 Standard 5. Medication review documentation

2.5.1 Activities and checklist

Standard 5. Medication review documentation Complete documentation and update the patient record.	
Activities	**Checklist**
Record the date and who is undertaking the medication review.	Recorded
Record the reason for taking each medicine.	Recorded
Record any changes made, with a reason.	Record patient / carer agrees with changes made
Record advice and supporting information given to the patient or carer (for example, leaflets, enrollment in a Pregnancy Prevention Programme) in addition to information shared with the patient’s wider health and social care team, where appropriate.	Record patient / carer agrees with advice given

Standard 5. Medication review documentation Complete documentation and update the patient record.	
Record in patient record "Medication Review completed to the AWMSG Standards" or, where only one or two standards have been completed, the following may be recorded "AWMSG Medication Review – Standard 1 complete".	Recorded
Record the date when the next review is due.	Recorded

2.5.2 Aims

The patient and reviewer should be clear about the medicines that are being taken, the reason for each medicine being prescribed, and when they should be reviewed. To do this, all patents should have a written summary of their medication, this may be a repeat slip, reminder chart or medication passport (see below), depending on patient's needs.

2.5.3 Evidence base

The medication review process requires clear and transparent documentation in patient records. Incomplete or incorrect medication documentation may contribute to inappropriate clinical decision-making and adverse events[54]. The General Medical Council guidance *Good practice in prescribing and managing medicines and devices (2013)* states that clinical records should include relevant clinical findings; decisions made and actions agreed; details of the person making the decisions and agreeing the actions; the information given to patients; any drugs prescribed or other investigation or treatment; and who is making the record and when. Records should be clear and accurate and should be made at the same time as the events being recorded, or as soon as possible afterwards[2].

Ensuring that the patient record is updated with details of the medication review is vital for subsequent medication reviews and dealing with patient or healthcare professional queries after the medication review.

2.5.4 Resources

The T&F group reviewed various patient passports. Various patient passports are available which may be used to document medication and indication. An example of which is the National Institute of Health Research (NIHR) Applied Research Collaboration Northwest London, who have produced a medication passport available as a booklet and an app[55].

2.5.5 Comments from T&F group

The group felt that they can know what a patient is prescribed but they don't know what is dispensed or taken. Documentation is important for the patient to know what their medicines are for, and the risks of not taking them. Documenting the indication for each medicine and the date of review as part of a shared agreement between patient and reviewer was thought important. A template for medication review, incorporating the standards, for use in the GP practice clinical system was felt to be useful and would help to implement the standards.

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APPENDIX 1. TASK AND FINISH GROUP MEMBERS

Many thanks to the members of the Medication Review Standards Task and Finish Group:

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The Task and Finish Group was supported by the following members of AWTTC:

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Dr Rob Bracchi	Medical Advisor
Anne Coles	Admin Manager
Kath Haines	Head of Welsh Analytical Prescribing Support Unit
Dr Carolyn Hughes	Medical Writer
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APPENDIX 2. PATIENT INFORMATION LEAFLETS

YOUR MEDICATION REVIEW – WHAT TO EXPECT

A medication review is a meeting with a healthcare professional to talk about your medicines and any concerns, problems or questions you may have. If you take medication regularly, you should have a medication review every year, although this may vary depending on the medicine you take. It's important that you have a medication review to make sure you are getting the best from the medicines you are taking.

All medication reviews should be conducted in line with the agreed Welsh National Standards for Medication Review (Table 1).

Table 1. Welsh National Standards for Medication Review

Standard	Aim
1	**Involving patients and carers** Reach agreement with the patient (or carer, or both) on the aims and goals of treatment.
2	**Safety** Minimise medication-related problems.
3	**Review of medicines** Maximise the benefit of medicines.
4	**Reducing waste** Consider activities and actions that contribute to waste and work to address them.
5	**Medication review documentation** Complete documentation and update the patient record.

Your medication review may take place in person, over the telephone or over the internet.

Your medication review appointment may be with a GP, pharmacist, nurse or other qualified healthcare professional. They will be called 'reviewer' in this leaflet.

You may wish to have a family member or friend present during the review. If so, please tell the reviewer and say if you're happy to talk about your medicines and your condition in front of them.

About your medication review

- A medication review is a joint process through which the reviewer will support you to reach decisions about your treatment (shared decision making).
- The reviewer will think about each medicine you are taking and what it is being given to treat. They will review and check whether it is still appropriate for you to take it, depending on whether you still have the condition, or if anything has changed.
- The reviewer may also ask if there are any non-medical factors that may be affecting your health. Such as: smoking, alcohol, diet, physical activity, transport, food, pollution, living conditions, housing, and employment.
- A medication review may take between 10 and 45 minutes.

Preparing for your medication review

- The reviewer wants to understand your views, understanding and expectations about your medicines.
- Please be prepared to tell the reviewer about all the medicines you take including:
    - medicines you buy from a pharmacy or supermarket;
    - medicines prescribed by a hospital;
    - herbal medicines; and
    - any other alternative medicines.

  If you can, you should bring these medicines with you to the review. The reviewer will already know about the medicines prescribed by your GP.
- Please think about concerns, questions or any problems you have **before** coming to your medication review. You may wish to write these down to help you remember.

During your medication review

Reviewing your medicines

- You will be asked about what is important to you regarding your health and the medicines you take.
- The reviewer may ask if you know the reason why you have been prescribed each medicine.
- The reviewer will think about whether you need any blood tests or other investigations to monitor your treatment or condition.
- You may be asked if you would like extra information about any of your medicines or health conditions. You may be given supporting information, such as: internet webpage links for advice, or patient information leaflets.

Taking your medicines

- You may be asked how you take each of your medicines. For example, how many times a day, what time of day do you take it, do you take it before or after food. Please tell them about any problems you may have with taking your medication.
- The reviewer will think about ways to reduce any risk of harm related to the medicines you're taking. If they identify any risks, the reviewer will talk to you about them.
- You may be asked if you have had any unwanted effects (side effects) from your medicines.

Changes to your medicines

- The reviewer will review how well each medicine is working for you, and check the latest treatment guidelines.
- The reviewer may talk to you about your continued need for each medicine you're taking. If they find you are taking unnecessary medications, the reviewer will talk to you about stopping them.
- You may be asked whether you have understood the reasons for any changes and whether you agree with the changes. You should tell the reviewer if you have any concerns and you are not happy with the changes.

Collecting and disposing of medicines

- You may be asked if you have had any problems ordering your medicines or getting your prescription or medicines from the pharmacy.
- You m ay be asked if you have any medicines at home that you no longer need, if so the reviewer will explain how you should dispose of them safely.

After your medication review

- The reviewer will make a record of the medication review in your medical records. The reviewer will record any changes made to the medicines you are taking, for example, any new medicines, or any medicines that you no longer need to take.
- You can ask to look at, or receive, a copy of your medical records. If you wish to do this, ask the reviewer for more information. A leaflet explaining your rights is available: Your Information, Your rights - What you Need to Know
- The reviewer will explain when your next medication review will take place and how the appointment will be arranged.

ADOLYGIAD MEDDYGINIAETHAU – BETH I'W DDISGWYL

Cyfarfod gyda gweithiwr gofal iechyd proffesiynol i sgwrsio am eich meddyginiaethau ac unrhyw bryderon, problemau neu gwestiynau a allai fod gennych yw adolygiad meddyginiaethau. Os ydych yn cymryd meddyginiaeth yn rheolaidd dylech gael adolygiad meddyginiaethau bob blwyddyn, er y gallai hyn amrywio yn dibynnu ar y feddyginiaeth rydych yn ei chymryd. Mae'n bwysig eich bod yn cael adolygiad meddyginiaethau er mwyn gwneud yn siŵr eich bod yn cael y budd gorau o'r meddyginiaethau rydych yn eu cymryd.

Dylid cynnal pob adolygiad meddyginiaeth yn unol â Safonau Cenedlaethol Cymru ar gyfer Adolygiad Meddyginiaethau cytunedig (Tabl 1).

Tabl 1. Safonau Cenedlaethol Cymru ar gyfer Adolygiad Meddyginiaethau

Safon	Nod
1	**Cynnwys cleifion a gofalwyr** Dod i gytundeb gyda'r claf (neu'r gofalwr, neu'r ddau) ynglŷn â nodau triniaeth.
2	**Diogelwch** Lleihau problemau cysylltiedig â meddyginiaethau.
3	**Adolygu meddyginiaethau** Cael y budd gorau o feddyginiaethau.
4	**Lleihau gwastraff** Ystyried gweithgareddau a gweithredoedd sy'n cyfrannu at wastraff a gweithio i fynd i'r afael â hwy.
5	**Dogfennau adolygiad meddyginiaethau** Cwblhau dogfennau a diweddaru cofnod y claf.

Gallai eich adolygiad meddyginiaethau ddigwydd wyneb yn wyneb, dros y ffôn neu ar y we.

Gallai eich apwyntiad adolygiad meddyginiaethau fod gyda meddyg teulu, fferyllydd, nyrs neu weithiwr gofal iechyd proffesiynol cymwysedig arall. Yn y daflen hon fe'u gelwir yn 'adolygydd'.

Efallai y byddwch yn dymuno bod aelod o'ch teulu neu ffrind yn bresennol yn ystod yr adolygiad. Os felly, rhowch wybod i'r adolygydd eich bod yn fodlon siarad am eich meddyginiaethau a'ch cyflwr â hwythau'n bresennol.

Ynglŷn â'ch adolygiad meddyginiaethau

- Proses ar y cyd yw adolygiad meddyginiaethau lle bydd yr adolygydd yn eich cynorthwyo i ddod i benderfyniad am eich triniaeth (gwneud penderfyniad ar y cyd).
- Bydd yr adolygydd yn ystyried pob meddyginiaeth rydych yn ei chymryd ac ar gyfer pa gyflwr y'i rhoddir. Bydd yn adolygu ac yn gwirio a yw'n dal yn briodol i chi ei chymryd, yn dibynnu a ydych yn dal i ddioddef o'r cyflwr, neu os oes unrhyw beth wedi newid.
- Efallai y bydd yr adolygydd hefyd yn gofyn a oes unrhyw ffactorau anfeddygol a allai fod yn effeithio ar eich iechyd, megis ysmygu, alcohol, diet, gweithgarwch corfforol, trafnidiaeth, bwyd, llygredd, amodau byw, sefyllfa tai a chyflogaeth.
- Gallai adolygiad meddyginiaethau gymryd rhwng 10 a 45 munud.

Paratoi ar gyfer eich adolygiad meddyginiaethau

- Mae'r adolygydd am wybod eich barn, eich dealltwriaeth a'ch disgwyliadau ynglŷn â'ch meddyginiaethau.
- Byddwch yn barod i sôn wrth yr adolygydd am y meddyginiaethau rydych yn eu cymryd, gan gynnwys:
    - meddyginiaethau rydych yn eu prynu mewn fferyllfa neu archfarchnad
    - meddyginiaethau sydd wedi'u presgripsiynu gan ysbyty
    - meddyginiaethau llysieuol
    - unrhyw feddyginiaethau amgen eraill

  Os gallwch, dylech ddod â'r meddyginiaethau hyn gyda chi i'r adolygiad. Bydd yr adolygydd eisoes yn gwybod am y meddyginiaethau sydd wedi'u presgripsiynu gan eich meddyg teulu.
- Meddyliwch am eich pryderon, cwestiynau neu unrhyw broblemau sydd gennych **cyn** dod i'ch adolygiad meddyginiaethau. Efallai y byddwch am wneud cofnod o'r rhain er mwyn eich helpu i gofio.

Yn ystod eich adolygiad meddyginiaethau

Adolygu eich meddyginiaethau

- Gofynnir i chi beth sy'n bwysig i chi ynglŷn â'ch iechyd a'r meddyginiaethau rydych yn eu cymryd.
- Efallai y bydd yr adolygydd yn gofyn i chi a ydych yn gwybod pam fod pob meddyginiaeth wedi'i phresgripsiynu ar eich cyfer.
- Bydd yr adolygydd yn ystyried a oes angen unrhyw brofion gwaed neu ymchwiliadau eraill arnoch er mwyn monitro eich triniaeth neu gyflwr.
- Efallai y gofynnir i chi os hoffech wybodaeth ychwanegol am unrhyw rai o'ch meddyginiaethau neu'ch cyflyrau iechyd. Efallai y rhoddir gwybodaeth ategol i chi, megis dolenni i dudalennau gwe i gael cyngor, neu daflenni gwybodaeth i gleifion.

Cymryd eich meddyginiaethau

- Efallai y gofynnir i chi sut rydych yn cymryd pob un o'ch meddyginiaethau. Er enghraifft, sawl gwaith y dydd, pa adeg o'r dydd rydych chi'n ei chymryd, ydych chi'n ei chymryd cyn neu ar ôl bwyd. Soniwch wrth yr adolygydd am unrhyw broblemau rydych yn eu cael o ran cymryd eich meddyginiaeth.
- Bydd yr adolygydd yn meddwl am ffyrdd i leihau unrhyw risg o niwed sy'n gysylltiedig â'r meddyginiaethau rydych yn eu cymryd. Os bydd yn canfod unrhyw risgiau, bydd yn siarad gyda chi amdanynt.
- Efallai y gofynnir i chi a ydych wedi cael unrhyw effeithiau digroeso (sgil-effeithiau) gan eich meddyginiaethau.

Newidiadau i'ch meddyginiaethau

- Bydd yr adolygydd yn edrych ar pa mor dda mae pob meddyginiaeth yn gweithio i chi, ac yn gwirio'r canllawiau diweddaraf o ran triniaeth.
- Efallai y bydd yr adolygydd yn siarad â chi am eich angen parhaus ar gyfer pob meddyginiaeth rydych yn ei chymryd. Os yw'n canfod eich bod yn cymryd meddyginiaethau diangen, bydd yn siarad â chi am roi'r gorau i'w cymryd.

- Efallai y gofynnir i chi a ydych wedi deall y rhesymau am unrhyw newidiadau ac a ydych yn cytuno â'r newidiadau. Dylech ddweud wrth yr adolygydd os oes gennych unrhyw bryderon neu os nad ydych yn fodlon gyda'r newidiadau.

Casglu a gwaredu meddyginiaethau

- Efallai y gofynnir i chi a ydych wedi cael unrhyw broblemau'n archebu eich meddyginiaethau neu'n cael eich presgripsiwn neu feddyginiaethau o fferyllfa.
- Efallai y gofynnir i chi a oes gennych unrhyw feddyginiaethau gartref nad sydd eu hangen arnoch mwyach; os bydd, fe fydd yr adolygydd yn egluro sut y dylech gael gwared arnynt yn ddiogel.

Yn dilyn eich adolygiad meddyginiaethau

- Bydd yr adolygydd yn gwneud cofnod o'r adolygiad meddyginiaethau yn eich cofnodion meddygol. Bydd yn cofnodi unrhyw newidiadau a wnaed i'r meddyginiaethau rydych yn eu cymryd, er enghraifft, unrhyw feddyginiaethau newydd, neu unrhyw feddyginiaethau nad sydd angen i chi eu cymryd mwyach.
- Gallwch ofyn i weld, neu gael copi, o'ch cofnodion meddygol. Os ydych am wneud hyn, gofynnwch i'r adolygydd am ragor o wybodaeth. Mae taflen sy'n egluro eich hawliau ar gael: Eich Gwybodaeth, Eich Hawliau - Yr hyn sydd angen i chi ei wybod
- Bydd yr adolygydd yn egluro pryd y cynhelir eich adolygiad meddyginiaethau nesaf a sut y bydd yr apwyntiad yn cael ei drefnu.

APPENDIX 3. THE THREE-TALK MODEL OF SHARED DECISION-MAKING[7]