

What products or interventions are available to aid medication adherence?

April 2020

The first stop for professional medicines advice

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Summary

It is estimated that only 50% of people with long term conditions take their medications optimally. Adherence is key to achieving therapeutic goals and improving patient outcomes, whilst non-adherence leads to reduced clinical benefit and generates significant waste. Reasons for behaviours which drive low rates of medication adherence are complex and multifaceted. To impact significantly on medication adherence rates, patients need to be informed, motivated, and skilled (or supported) to take their medicines optimally.

Evidence supporting most interventions aimed at improving medication adherence is inconclusive and suggests limited impact. Interventions with several components, tailored to the needs of each individual in their current social context often lead to more successful outcomes. For example, numerous smart phone applications are available that are designed to support medication adherence using reminder notifications, but evidence suggests that their impact alone on adherence is modest or inconclusive. NICE advises that no one particular intervention can solve non-adherence and proposes that a wide range of interventions, tailored to each individual be made available to promote medication adherence.

Addressing non-adherence is challenging and there is no evaluated, national, multi-disciplinary tool available to identify, assess and resolve medicines adherence issues. This work was driven partly by the routine and often inappropriate use of **Multicompartment Compliance Aids (MCCA's)** filled by pharmacies. MCCAs are widely used (or requested) but are not the solution to all medication adherence issues. The risks of using them are [widely documented](#) and their impact on medication adherence, as with other interventions, is unknown. Routine use of MCCAs without patient adherence assessment is discouraged and by providing examples of other ways to support adherence, this work aims to support a move away from the routine use of MCCA's. An [indicator](#) measuring 7 day prescribing for long term conditions has been developed as a marker for the level or frequency of MCCA use – this can be used to compare the local position against a national median.

Health and social care professionals need to have a greater awareness of the range of interventions and aids available, and a better understanding of how to select the most appropriate intervention in a way that can help individuals to maintain their independence when taking their medicines. This document starts to address the need for a tool to identify, assess and resolve medication adherence issues by providing examples of medication adherence aids, interventions and adjustments available together with product/device suppliers. It presents adherence aids according to the type of barrier they might be helpful in managing using the [COM-B model](#) of adherence. This model allows medication taking behaviours to be explored in more depth and nuance than the binary model of intentional and unintentional non-adherence and offers a systematic approach to identify and address the various known barriers to taking medication.

[Funding](#) of adherence aids is discussed briefly in Appendix 1. It is important that commissioners and providers consider this and collaborate as to how they will meet the medication adherence needs of their local population. Limitations of this document are outlined in [Appendix 2](#).

Given the risks of using MCCAs, health and social care professionals have a duty to supply medication in the safest way and to carefully consider the risks as well as potential benefits in each case. Unless a clear, explicit rationale for using an MCCA (filled by a pharmacy), rather than supplying medications in their original packs is documented, professionals could find themselves liable to challenge as the health and social care landscape moves further towards providing person centred care.

The default should be to supply medicines in original packaging with appropriate adherence aids and targeted support provided where needed in order to maintain patient independence as much as possible.

This document is endorsed by the London Regional Medicines Optimisation Committee (RMOC).

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Aims

This document aims to provide health and social care professionals with guidance on a systematic approach to supporting medication adherence and a resource to help them select and source the appropriate adherence aids and solutions.

Part 1 aims to offer a systematic approach to identify and manage barriers to medicines adherence using the COM-B model of adherence.

Part 2 provides a table of information for health and social care professionals of potential solutions, with details of suppliers, to support individuals in taking their medication in original packs by default.

Part 1: Identifying and managing barriers to medication adherence

1.1 Background

Medication adherence (taking the medicine optimally and persisting with it) is key to achieving therapeutic goals. Non-adherence leads to reduced clinical benefit, avoidable morbidity and mortality as well as wastage. Around 50% of people with long term conditions are adherent to their medication across diverse disease and patient groups. It is estimated that approximately \$300 billion (£269 billion) could be saved globally by improving medication adherence. As the population ages and more people have long term conditions, the issue is likely to become more common in the future. (1-3)

The NHS long-term plan calls for a fundamental shift in the way the NHS works alongside patients and individuals. It highlights the need to create genuine partnerships between professionals and patients with a commitment to increasing support for people to manage their own health. As part of this shift, the plan focuses on delivering a person-centred approach. Taking a person-centred approach to medication adherence is necessary to improve medication adherence and therefore to improve patient outcomes. (4) However, adherence to medication is a complex and challenging issue for healthcare professionals, patients and the health system. (5)

NICE and The Royal Pharmaceutical Society (RPS) have recommended that *“the development of an evaluated, national, multi-disciplinary assessment tool designed to identify, assess and resolve medicines adherence issues is needed”*. No such tool is (yet) available and in the meantime, it is a challenge to successfully implement interventions or adjustments which promote medication adherence and support patient capability, independence and re-ablement. (6-9) This is partly due to the multifaceted, complex and dynamic nature of non-adherence. Tools will only be useful as *part of* developing unique solutions for each person. As with all complex interventions, person-centred discussions, clinical judgement and ongoing monitoring will be needed alongside an assessment tool. (10-12)

1.2 The role of pharmacy filled Multi-Compartment Compliance Aids (MCCAs)

A key driver of this work is the routine and often inappropriate use of, and requests for MCCAs filled by pharmacies. MCCAs were first widely used in the 1980's, prior to patient packs being introduced - when the norm was for tablets and capsules to be dispensed from stock pots into identical brown bottles. In this context, MCCAs provided a means to assist patients in taking their medicines but their role has not been formally reviewed since the introduction of patient packs. (13)

There is no legal requirement for MCCAs to be routinely provided to patients, carers or care facilities, nor is there any evidence that using MCCAs improves adherence or any other patient outcomes. Currently, MCCAs are often recommended inappropriately as a solution to address the needs of patients who need 'help' with their medication. In some areas their use is integrated into practice and service policy without due consideration to the possibility of more appropriate and helpful alternatives. (7;9;13-16) Concerns relating to MCCAs are widely documented – for example, wrong medicines and wrong doses being taken due to confusion about how to use the device properly. (13)

Although **community pharmacists are required to make “reasonable adjustments”** to enable disabled persons to use their medicines according to the Disability Discrimination Act and under legislation carried forward in the Equality Act 2010, this does not mean routinely supplying them with an MCCA. (9;13;16) Whilst there is a defined role for pharmacy filled MCCAs, they are not the answer to *all* medication adherence issues and their routine use without patient adherence assessment is discouraged by the RPS and NICE. (9;13;16)

Health and social care professionals have a duty to supply medicines in the safest way and to carefully consider the risks as well as potential benefits in each case. The default should be to supply medicines in original packaging with appropriate adherence aids and targeted support provided where needed in order to maintain patient independence as much as possible. Unless a clear, explicit rationale for the need for using an MCCA (filled by a pharmacy) rather than supplying medications in their original packs is documented, professionals could find themselves liable to challenge as the health and social care landscape moves further towards providing person centred care. (12) However, there are scenarios where MCCAs are helpful, examples of which are suggested the [Table](#). An [indicator](#) measuring 7 day prescribing for long term conditions has been developed as a marker for the level or frequency of MCCA use – this can be used to compare the local position against a national median. Pillboxes filled by patients themselves or their relatives or friends are seen as being somewhat different because the patient retains control of their medication when they choose to use these. Professionals are therefore required to look beyond MCCAs filled by pharmacies. (15)

Health and social care professionals need to have a greater awareness of the range of interventions and aids available, and a better understanding of how to select the most appropriate intervention in a way that can help individuals to maintain their independence when taking their medicines. Reasons for behaviours which drive low rates of medication adherence are complex and multifaceted and an MCCA is not one-size-fits-all solution and can pose risks. NICE advises that no one particular intervention is able to solve non-adherence to medication and proposes that a wide range of interventions tailored to the individual needs to be made available. Furthermore, the RPS have called for the development of an evaluated, national, multi-disciplinary assessment tool designed to identify, assess and resolve medicines adherence issues. (7;9)

1.3 The COM-B model and medication adherence

Reasons for behaviours which drive low rates of medication adherence are complex and multifaceted. It has been suggested that interventions supported by behavioural models and theories can be more successful at modifying behaviours than those based on intuition. The COM-B model is a model for behavioural change that was developed from the Theoretical Domains Framework (TDF), which encompasses the domains of several other behavioural models. (17) It has recently been applied to medicines adherence. (18) Other behavioural models and theories include the Theory of Planned Behaviour, the Social Cognitive Theory, the Self-Regulation Model, the Transtheoretical model, the Theoretical Domains Framework (TDF), the Health Belief model and the Svarstad and Bultman's Health Collaboration Model (HCM).

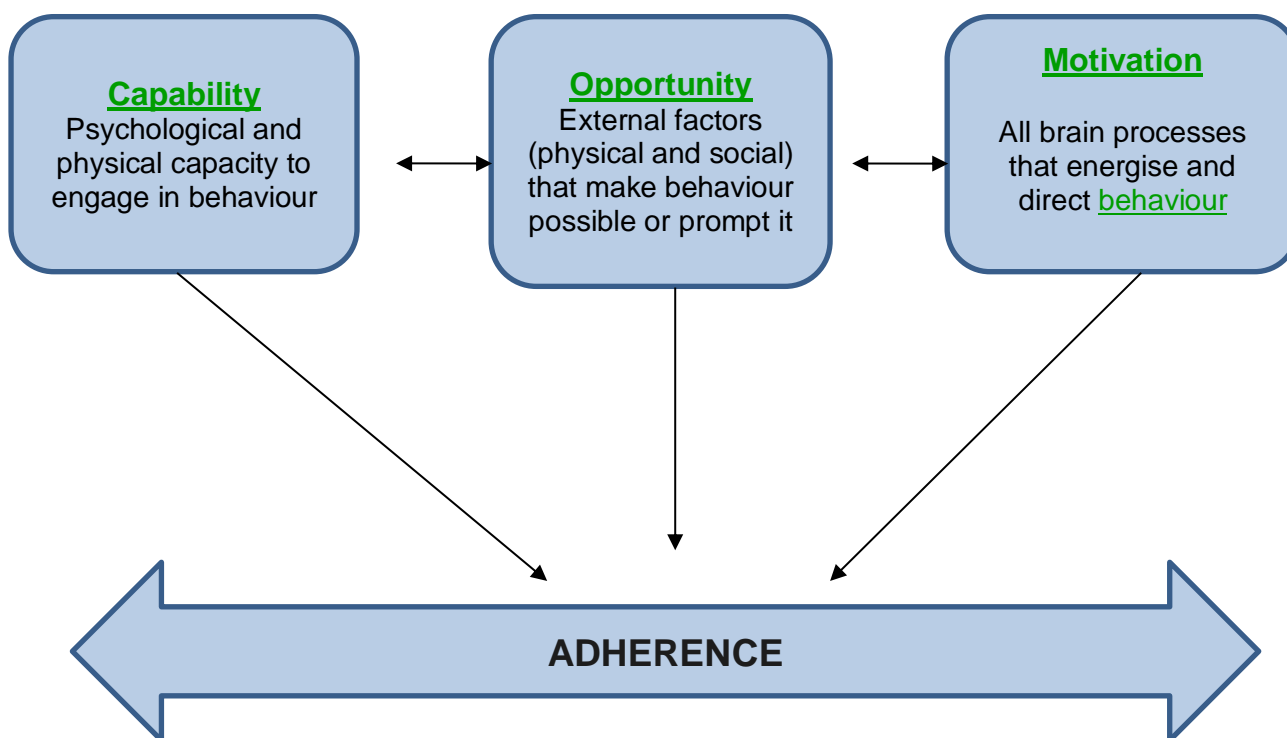
The [COM-B model](#) states that an individual must have adequate Capability, Opportunity, and Motivation for a Behaviour (such as medicine-taking) to take place and if there are deficits in any one of these areas, the behaviour may not occur. (18) Factors such as issues with memory, dexterity and ability to plan relate to 'capability', factors such as perceptions and beliefs, as well as emotions and habitual processes, relate to 'motivation' and factors such as social support and regimen complexity relate to 'Opportunity'. It provides a systematic way of thinking about and addressing medication adherence issues for an individual.

Research has shown that the most influential factor in the COM-B model is the motivational aspect. So, for example, if a patient has doubts about the effectiveness of a medicine or concerns about side effects or drug interactions (whether they have expressed these concerns or not), they are unlikely to take that medicine as prescribed regardless of any adherence aids being supplied to them. Other medication adherence barriers include cognitive problems, beliefs that are not congruent with medication taking, diminished hearing and sight and complexity of regimens. As these barriers to medication adherence are complex and varied, solutions to improve adherence must be targeted and multifactorial. (3;18)

It is important to explore the patient’s concerns and values to help identify any motivational, belief or other barriers to ascertain the root cause of non-adherence. This should lead to shared decisions and the patient taking responsibility for their own health where they are able to do so. To facilitate this, there may be a role for some education and a degree of additional support for patients. It should be remembered that a person’s needs may change over time and so assessments should be repeated at suitable intervals. (7;10-13;19-22)

The COM-B model can help to provide some insights as to why some patients do not take their medicines as they are intended to be used. It allows the determinants of behaviours such as medication-taking to be explored in more depth and nuance than the binary model of intentional and unintentional non-adherence. The COM-B model therefore facilitates the identification of the pattern of drivers underlying an individual’s non-adherence. Interventions can then be personalised to the needs of that individual. COM-B links capability, opportunity and motivation to evidence-based behaviour change techniques. By extension, this document offers a systematic way to identify and address various barriers to taking medication as advised. (18;22;23)

Figure 1: Application of COM-B to medication adherence



1.4 Assessing and managing medication adherence needs

To find out whether a patient is genuinely taking their medicines or not and gain an insight into why not if this is the case, it is vital to have effective person-centred consultations. The CPPE learning programme on consultation skills for pharmacy practice: taking a patient-centred approach, offers training on this. (12)

Questions should normalise non-adherence because it is something we all do and there should be no judgement associated with non-adherence. (7) Examples of open and non-judgemental questions to ask patients include general or ‘opening’ questions. More specific and probing questions are also needed and the following examples illustrate how the COM-B model could be used to elicit what the key barrier(s) are. It may then be possible to use this document to suggest appropriate solutions.

Figure 2: Examples of questions to use to determine type of barrier to medication adherence

Question	Determinant of behaviour (type of barrier) as per COM-B model and link to adherence aids in table.
How easily can you read these labels?	Capability
How easily can you get your medicines out of this pack or blister?	
How do you manage with using that inhaler – can you show me?	
How many times in the last week did you forget to take a medicine?	
What problems do you have getting your medicines on time?	Opportunity
Who helps you with your medicines?	
How do you feel about taking your medicine?	Motivation
Can you tell me more about your worries?	
What do you know about why you've been given the new medicine?	
What matters most to you about your health? How do you think medicines help?	

Once non-adherence is recognised by health or social care professionals (for example, by using open and non-judgmental questioning techniques), they should collaborate with patients to choose one or more interventions based on the individual barriers to adherence. (5) Evidence supporting most interventions to improve medication adherence is inconclusive and a gold standard adherence intervention remains elusive. (8, 23) The limited evidence available tends to be specific to certain patient groups and for some interventions, suggests limited impact with respect to improving adherence and clinical outcomes. (8;23) More studies are needed to ascertain the impact of various interventions on adherence but it should be noted that some interventions have been shown to be modestly effective, such as:


- Timely and sustained educational interventions, usually in combination with behavioural interventions (such as talking about how to incorporate medicines-taking into the daily routine), have been shown to be successful but can require a lot of time and resource to deliver. (5;8;21;24;25)
- Text message or telephone reminders are most effective when they are personal, interactive and frequent whilst electronic drug monitors are unlikely to improve adherence without additional support from professionals. (5;24)
- Reducing the pill burden where possible can be helpful. (5; 26)

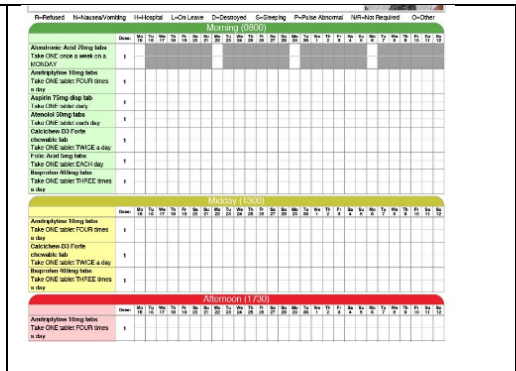
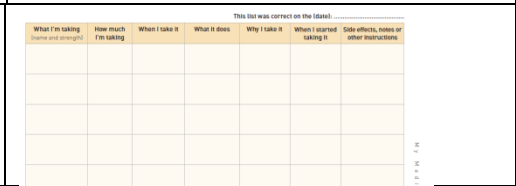

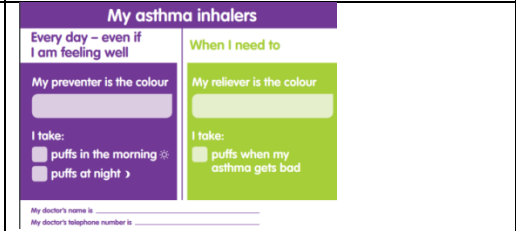
Interventions which have many different components are generally most effective in improving adherence. (2;5;21;24) For example, numerous smart phone applications are available that are designed to support medication adherence using reminder notifications but evidence suggests that their impact alone on adherence is modest or inconclusive. (27, 28) To impact significantly on adherence rates, patients need to be informed, motivated, and sufficiently able (or supported) to take their medicines optimally. This may explain why interventions with several components, tailored around the needs of each individual in their current social context often leads to more successful outcomes. (25)

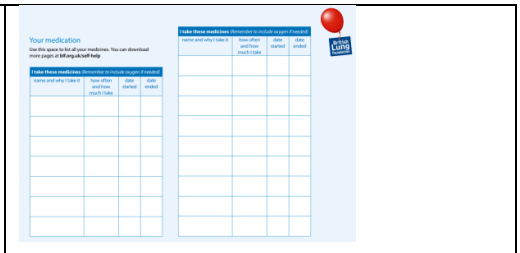
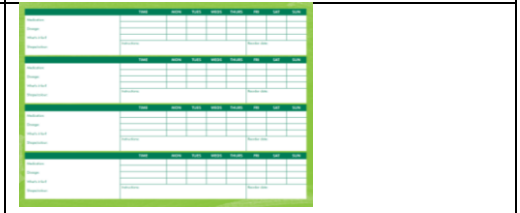
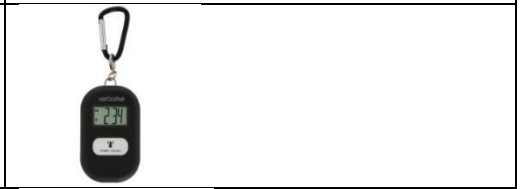
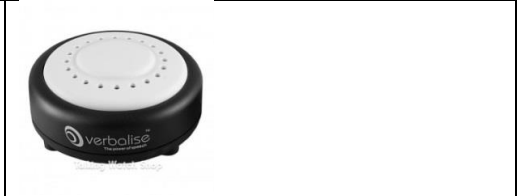

Part 2: Interventions and aids to support medicines adherence





The **Table in Part 2 below** lists examples of a variety of interventions and tools that professionals might use to help patients improve adherence once various barriers specific to the patient are identified. They are presented according to the type of barrier they might be helpful in addressing by using the COM-B model of adherence.

Part 2: Interventions and aids to support medicines adherence






Barrier	Intervention or support aid	Description	Examples of where to access	Image(s) / example image of product
<p>Capability</p> <p>A person's physical and/or psychological capacity to take medicines optimally.</p> <p>Assessing someone's capability to perform a range of tasks associated with taking medicines may require the skill sets and competencies of certain health or social care professionals. For example, an optometrist will need to assess a person's vision whereas an occupational therapist may be best placed to assess their grip strength. When interpreting the outcomes of these assessments and what their adherence barriers are, it is important to consider what the patient is currently doing to overcome these barriers, before advising something different. (11)</p>				
<p>Some difficulty remembering to take medicine(s)</p> <p>This could be for a range of reasons from dementia and mental health issues to no specific reason at all.</p>	<p>Reminder systems which link in with a patient's routine</p> <p>such as telephone reminders from a relative/friend, fridge stickers or magnets and positioning medication in visible places (e.g. morning medicines near toothbrush or kettle), taking medications around breakfast or other mealtimes or at teatime. Patients should be encouraged to take the lead in describing their daily routine and in considering how they can fit in medication taking easily with the healthcare professional facilitating as needed. (29)</p>		<p>Zazzle</p>	 <p><i>Example Fridge magnet</i></p>
	<p>Simplifying medication regimens</p>	<p>A medication review (by pharmacist or doctor or nurse) can be undertaken to consider whether the medication regimen can be simplified. There is evidence that reducing the pill burden where possible can improve adherence. (5;26)</p>		
	<p>Telephone or text reminders</p>	<p>Telephone reminders from family, friends, carers or organised through telecare companies could help people to remember to take medicines. There must be a robust system in place to inform those reminding the patient about changes to medicines. Evidence suggests that text messages or telephone reminders are most effective when they are personal or interactive whilst electronic drug monitors are unlikely to improve adherence without additional support from professionals. (5;24)</p>		

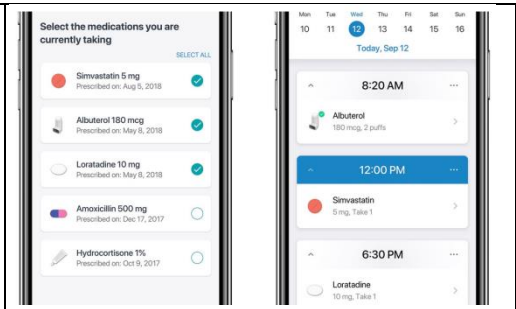
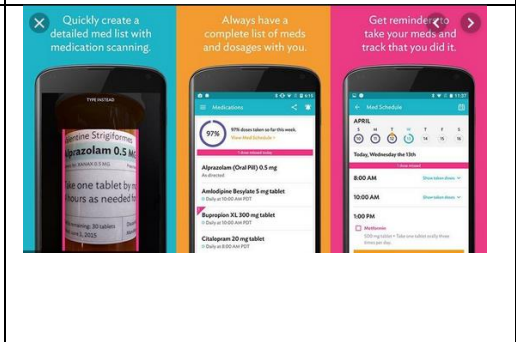
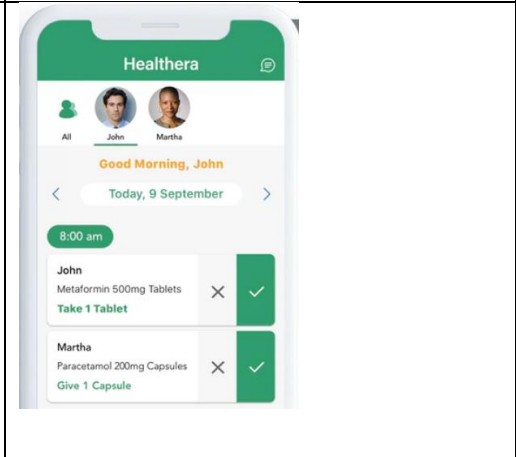
	<p>Medication reminder charts</p> <p>RPS Good Practice guidance for reminder charts should be adopted, i.e. The chart should be constructed on the basis of the current prescription together with information about repeat prescriptions for PRN medicines. The patient and carer should be provided with explanation about how to use the chart.</p> <p>Some areas have their own medication chart templates which are often preferred over other options.</p> <p>Medication charts should be updated every time the patient's medication</p>	<p>For patients who have some difficulty remembering to take medicines, reminder charts are one way to help.</p> <p>Computer generated reminder charts are practical and cost effective and some community pharmacies offer them free-of-charge – usually in areas where there are commissioned medicines support services. However, many community pharmacy teams are unaware of how to produce medication charts using their dispensing systems. (11;30) Community pharmacy teams could contact their system provider and ask to be shown how to use this functionality to produce reminder charts.</p>		
		<p>Provide has produced an online My Medicines Care Plan booklet that includes a Medicines List template, which is endorsed by NICE.</p>		
	<p>The British Heart Foundation has produced a personal record for patients with heart failure which includes a chart to record medications.</p>	<p>Can be downloaded for free via https://www.bhf.org.uk/ or ordered (03003303311)</p>		
	<p>Asthma UK has an easy read medicines card (A5) prompt for inhaler use. An asthma action plan and a host of other resources are also available.</p>	<p>Can be downloaded for free via Asthma UK (link to card) or by calling 0300 222 5800</p>		

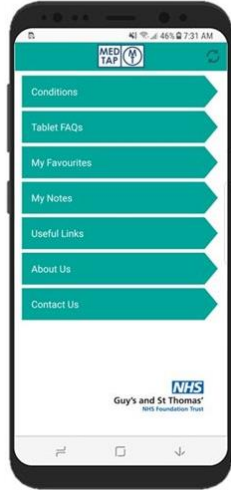
	<p>changes.</p>	<p>The British Lung Foundation has produced a medication list template for patients with lung conditions to record medications. Other useful resources also available.</p>	<p>Can be downloaded for free via the BLF website or ordered (by calling 03000030555)</p>	
		<p>Macmillan cancer support has a medication planner chart available for patients with cancer to record medications. Other useful resources also available.</p>	<p>Can be downloaded for free via the Macmillan website.</p>	
<p>Alarm devices</p> <p>Numerous alarm devices are available which may be helpful in remembering to take medications. A small selection is presented here. It is important that patients are assessed for suitability for having these since some patients may get panicked by sudden noises or vibrations.</p>	<p>Talking medication reminder keychain. Up to 5 alarms can be set. Supplied with carabiner, lanyard and extra battery.</p>	<p>Talking Watch Shop (Verbalise Ltd)</p>	<p>Talking Watch Shop (Verbalise Ltd)</p>	
	<p>Verbal medication reminder alarm. Up to 8 alarms can be set. Can also be used as an audio clock.</p>	<p>Talking Watch Shop (Verbalise Ltd)</p>	<p>Talking Watch Shop (Verbalise Ltd)</p>	
	<p>Tabtime Timer 8 Alarm. Up to 8 daily alarms can be set. Alarm is a bleep accompanied by red flashing light. Magnet on the back allows it to be put on a fridge or other magnetic surface.</p>	<p>Tabtime Ltd</p>	<p>Tabtime Ltd</p>	

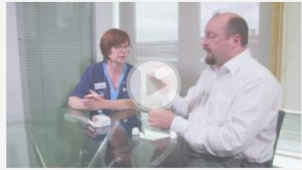

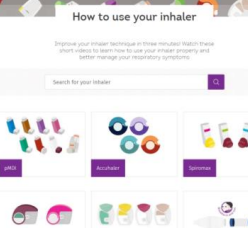

		<p>Cadex medication reminder and medical alert watch. Watch with rubber strap and option for up to 12 audible alarms per day. Some models can display text when alarm sounds. Holds a database of medical and contact information. Can be converted to a pendant.</p>	Living Made Easy	
		<p>Vibralite 8 programmable watch with memory. Up to 8 daily audible and vibrating pre-set alarms for variable daily reminders including taking medication.</p>	Pivotell	
		<p>Programmable watch with vibrating alarm and memory. Up to 12 vibrating alarms and recordable scrollable text messages per day and periodic auto-repeat alarms for variable daily reminders including taking medication.</p>	Malem Medical Ltd	
	<p>Programmable voice reminder</p>	<p>Mem-X Voice Reminder. Designed for people with some memory loss. Up to 90 x 10 second messages can be stored. At the alarm time the Mem-X will sound the alarm and the user pushes the blue button to play the pre-recorded message.</p>	Alzproducts Ltd	
	<p>Medication organisers which dispense medicines</p> <p>These may be suitable for patients with stable yet somewhat complex medication regimens</p>	<p>Pivotell offers a range of battery operated, programmable medication dispensers with audio and visual alarms. These tend to be used in areas where there are commissioned medicines support services. These services assess suitability of patients for these (or other adherence aids) and provide necessary training to patients and pharmacy teams who provide them. Patients will usually need a spare device to enable pharmacies to dispense the next weeks/months medicines whilst one device is in-use. Pivotell offer a version for patients with hearing impairment. Alarms can be programmed to continue</p>		





<p>and there may be some evidence to support their use. (31)</p> <p>However:</p> <p>It is important that patients are assessed for suitability for having these since some can be complex devices to use and to fill.</p> <p>Another reason to assess patients for suitability of these is that some patients (e.g. with dementia) may get panicked by sudden noises or vibrations.</p> <p>Hospitals pharmacies may not all be familiar with these devices which can cause confusion and potentially delay discharge.</p> <p>Before using any devices where medicines are stored outside of their original</p>	<p>until the medication is dispensed. The products have dividers for pills for 7-28 days and can dispense many times a day. Some models are designed to be filled by a pharmacy and some can be used with SMS messaging to alert others if medication was not taken. Telecare enabled products are also available. These are quite large and can take time, focus and expertise and training to provide.</p>		
	<p>Medelert automatic pill dispenser. A battery operated, programmable medication dispenser with audio alarm and/or vibrate mode which continues until tray is tipped. The products have dividers for pills for 7-28 days. Clear lid available. These are quite large and can take time, focus and sometimes expertise to fill accurately.</p>	<p>Tabtime Ltd</p>	
	<p>MiniTell alarmed pocket pill dispenser - pill organiser with alarm and 5 separate compartments for medication. Can be set to sound an alarm up to 5 times a day, or an alarm once a day for 5 days. If used as a daily dispenser, needs to be refilled daily.</p>	<p>Complete Care Shop</p> <p>Vibrating version available from Tabtime.</p>	
	<p>Med-alert pill organiser with programmable alarm which can be configured to 4 intervals throughout the day. Separate compartments for each day of the week. Not suitable for more complex regimens.</p>	<p>CareCo</p>	





<p>packaging, patients or health/ social care professionals should consult a pharmacist regarding any potential medication stability concerns.</p>	<p>5 Times a Day Pill Box Reminder – a pill organiser with alarm and 5 separate compartments for medication. Audible or vibrating alarm. If used as a daily dispenser, needs to be refilled daily.</p>	<p>Lifemax UK</p>	
	<p>Tabtime 5 device with 5 daily programmable alarms and 5 flip-open compartments for people who take medicines 5 x a day. Alarm is quiet so may not be suitable for people with difficulty hearing. Useful for days out or weekends away.</p>	<p>Medimax</p>	
	<p>Tabtime 4 with 4 daily programmable audio and flashlight alarms and 4 detachable compartments. Useful for people who take medicines up to 4 x a day. Compartments may not be easy to open for some people.</p>	<p>Medimax</p>	
	<p>Tabtime Super 8 - a device with 8 daily programmable audio and flashlight alarms and 8 detachable compartments. Useful for people who take medicines several times a day or to use for a day out/weekend away. Compartments may not be easy to open for some people.</p>	<p>Living Made Easy</p>	
<p>Pill bottle top with last opened indicator and reminder alarms</p>	<p>Timecap Timer Pill Bottle with timer. Cap also fits onto a standard pill bottle. Option for up to 24 daily alarms, a last opened indicator and time and day of week display. Useful for family/ friends/ carer to monitor adherence. Pharmacist advice would be needed to check if a medicine is suitable to be used in this.</p>	<p>Pivotell</p>	


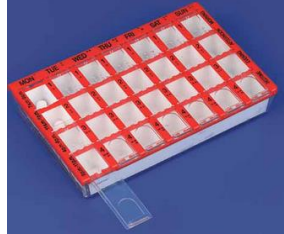


	<p>Smart Phone medication reminder applications 'Apps'</p>	<p>There are thousands of medication reminder smart phone apps available with more being developed. Most work by prompting the user to take their medication at specific times of the day through a reminder notification however evidence suggests that people tend to link medicines taking with activities rather than times and that people often need multiple cues. These apps have potential for enhancing adherence, however current evidence that their use is linked to improved adherence is modest or inconclusive. The quality and integrity of information in these apps can vary and some have been criticised for presenting inadequate or inaccurate health information which may deviate from evidence-based recommendations as well as violations of privacy.</p> <p>A few papers have sought to appraise the quality of several of these apps with some congruence in their findings.(27,28,32) A 2018 study appraised the quality of several of these apps. (28,) The highest scoring apps were; GenieMD, Medisafe and CareZone and Care4Today. Features of better quality apps were; reliable content, availability in Android and iOS, text or other medication recognition systems, alerts for caregivers and useful features such as capacity to schedule dosing regimens and back up capabilities. However, some of the 'convenient' features might introduce risks and patients may want to look at some options before deciding on one which could help them.</p>	<p>Medisafe app Free via Android or iOS smart phones.</p> <p>Medisafe video This is an American app and some medication names and standard doses may be different to UK ones.</p> <p>CareZone app Free via Android or iOS smart phones.</p> <p>CareZone video This is an American app and some medication names and standard doses may be different to UK ones.</p> <p>Healthera Connect is an app created in the UK which interfaces with the patients chosen pharmacy and provides medication reminders and support with ordering medication.</p>	  
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		<p>There are some apps which have been developed by teams working within NHS services. One example is presented here but there may be others.</p>	<p>MedTap was developed by cardiovascular clinicians at Guy's and St Thomas' NHS Foundation Trust. It is freely available on iOS and Android and focusses on helping patients to understand more about their cardiology medicines and to remember to take them. It includes short videos on conditions, tablet FAQs, useful links and the ability to set reminders and record appointments and test results.</p>	
	<p>Multi compartment compliance aid (MCCA) filled by pharmacy</p>	<p>A small number of patients may be eligible to have a MCCA filled by a pharmacy for them. For example, an older person with mild cognitive impairment who has a complex but stable medication regimen (which is suitable for use in an MCCA) and limited support from family and friends and no carer. As long as they <i>want</i> to take their medicines and have a stable medication regimen, patients in this type of scenario may benefit from a compliance aid filled by a pharmacy. (10) Different pharmacies provide various products and options should be discussed directly with the chosen provider if a patient is assessed as being in this group. Compliance aids filled by pharmacists should NOT be used routinely as explained in the background of this document and on the RPS webpage's. (9) Unless there is clear, explicit rationale for the use of MCCAs, the default should be to supply medicines in their original packaging.</p>		
<p>Difficulty understanding <i>how</i> to use or take</p>	<p>Medication review</p>	<p>A medication review (by pharmacist or doctor or nurse) can be undertaken with patients to help them understand how to use their medicines as intended and/or to check their understanding.</p>		





medicine(s) Some of these resources can be used in clinical settings and viewed with patients.	Inhaler guides	RightBreathe - presents quality assured information and training videos about every inhaler and spacer device licensed in the UK for treating asthma and COPD. Includes spacer compatibility information.	Available for free on the website and an app (iOS/Android) is available which can be used by patients.	Training material 
		The PrescQipp website includes training videos and leaflets on how to use a range of inhalers.	Available for free via PrescQipp website (respiratory section) with no need to log in.	
		The Asthma UK website provides videos on how to use a range of inhalers. Includes resources on helping children and babies to use their inhalers, using spacers, how to clean and look after inhalers and some common inhaler mistakes .	Available for free via the Asthma UK website	
	Injecting Insulin guidance	Diabetes UK host a broad range of content explaining what diabetes is, how diabetes medicines work, with FAQ's and possible side effects and videos on using insulin.	Available for free via the Diabetes UK website	
Complexity of regimen is an issue	Medication Review	A medication review with a pharmacist, doctor or nurse with the patient can be helpful to assess whether the medication regimen can be simplified. There is evidence and consensus that reducing the pill burden where possible can improve adherence. (5,26)		




<p>Weekly pill organisers (not filled by pharmacy)</p> <p>Weekly pill organisers filled by the patient or their relative or friend help to keep the patient in control and more easily allow for changes to be made if the prescription changes. Patients (or their relatives or friends) should be supported by their pharmacists with advice on whether their pills are suitable for using in these (see SPS MCCA database) and pharmacists may need to provide support and training on selecting and using one of these organisers safely.</p>	<p>A weekly pill organiser with 7 coloured and marked removable organisers with 4 compartments for each day.</p>	<p>Sold by most pharmacies</p> <p>Or from Complete Care Shop</p>	
	<p>A compact weekly pill organiser with 7 compartments, 1 for each day. Operated by clicking the button which rotates the compartment – the lid is flipped to open the compartment.</p>	<p>Living aids UK</p>	
	<p>A weekly pill organiser in a wallet form with 7 clear removable organisers with 4 marked compartments for each day and flip lids and Braille markings. Medication record card included. Daily boxes can be liable to fall out.</p>	<p>Sold by most pharmacies</p> <p>Or Complete Care Shop</p>	
	<p>Medidos pill organisers - a weekly pill organiser in a wallet form with 7 clear, marked and removable organisers with 4 compartments for each day whose size can be changed – opened with sliding lids. Single day sleeve and medication record card included. Weekend and maxi version available. Daily boxes can be liable to fall out.</p>	<p>Sold by most pharmacies</p> <p>Or Dudley Hunt Or Alzproducts</p>	





		<p>PillMate Day Out – small portable pill organiser with 4 marked compartments and flip open lid. Available in maxi size and compatible with PillMate wallet.</p>	<p>Sold by most pharmacies Or Shanty's</p>	
		<p>PillMate Twice daily – weekly pill organiser for people who take medicines twice a day. Has 2 compartments for each day with slide open lids.</p>	<p>Sold by most pharmacies Or Shanty's</p>	
		<p>PillMate Multidose Weekly – marked organiser for people who take medicines up for 4 times a day. Has 28 compartments and slide open lids (which can be difficult to open for some and are quite small). Includes medication card. Available in maxi version with larger compartments.</p>	<p>Sold by most pharmacies Or Shanty's</p>	
		<p>PillMate weekly pill organiser in a wallet form with 7 removable organisers with 4 compartments for each day with flip lids. Different coloured organisers available. Single day sleeve and medication record card included. Also available in maxi version. Daily boxes can be liable to fall out.</p>	<p>Sold by most pharmacies</p>	






		<p>Anabox Pill Organiser – with 5 marked and coloured compartments per day (for morning, noon, evening, night and when required) with a larger one for the morning. The outer case holds 7 daily removable sub-compartments. Lids will slide or click open. Includes medication chart on bottom of case.</p>	<p>Complete Care Shop</p>	
		<p>Maxi Dosette pill reminder - with 7 removable organisers and 4 compartments for each day with slide lids. Marked with days of the week and times including Braille markings. Card and tray included. Can be difficult to open and access compartments which are quite small</p>	<p>Sold in some pharmacies W+W Medsystems Ltd</p>	
		<p>Pivotell Weekly Pill Organiser with roller shutter system for ease of opening. Has 7 marked compartments split in 4 sections. Marked with days of the week and 4 daily doses. Card and tray included.</p>	<p>Pivotell</p>	
		<p>Stacked weekly pill wall-mountable organiser with 7 marked slide-out modules each with 4 compartments which can hold up to 15 standard size capsules. Module lid sliders move in 2 directions to open day or night compartments and come with sensory and visual markers. Pillmate 7 is another similar option with push and release slide out trays via Shanty's</p>	<p>Spring Chicken</p>	



		<p>7 Day Spring Loaded Pill Box - Stacked weekly pill organiser with 7 labelled slide-out trays each with 4 marked compartments. Trays are opened by push and release action.</p>	<p>Manage at Home</p>	
	<p>Multi compartment compliance aid (MCCA) filled by pharmacy</p>	<p>A small number of patients may be eligible to have a MCCA filled by a pharmacy for them. For example, an older person with mild cognitive impairment who has a complex but stable medication regimen (which is suitable for use in an MCCA) and limited support from family and friends and no carer. As long as they <i>want</i> to take their medicines and have a stable medication regimen, patients in this type of scenario may benefit from a compliance aid filled by a pharmacy. (10) Different pharmacies provide various products and options should be discussed directly with the chosen provider if a patient is assessed as being in this group. Compliance aids filled by pharmacists should NOT be used routinely as explained in the background of this document and on the RPS webpage's. (9) Unless there is clear, explicit rationale for the use of MCCAs, the default should be to supply medicines in their original packaging.</p>		
<p>Swallowing difficulty</p> <p>Before considering the options outlined here, an assessment of whether the patient still needs the medication should be carried out. It is important to understand the clinical context and issues to consider when providing safe pharmaceutical care for patients with swallowing difficulties. This article provides an</p>	<p>Alternative formulation of same medicine</p>	<p>Some patients may benefit from having their medication in a different formulation such as a liquid instead of capsules or tablets if one is available. Licensed medicines are preferred over unlicensed specials and there should be due to consideration to cost. A medication review is an ideal time to discuss this with the patient.</p>		
	<p>Tablet cutters</p>	<p>Pocket sized pill splitter with blade guard, holds up to 800mg size tablets. Also available in a form with storage compartment for tablet(s).</p>	<p>Distinctive medical</p>	
		<p>See-Thru tablet cutter – a pocket sized transparent pill splitter – has a 'V' shaped area which helps to align the tablet and split it securely and evenly.</p>	<p>Distinctive medical</p>	

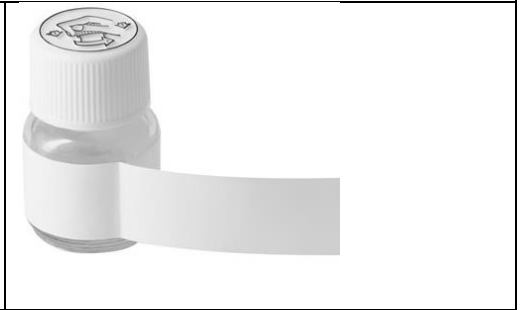


overview. (33)	Tablet cutter and crusher in one	Small single tool to easily cut and crush tablets to a powder for easier dissolving. Top half of the tool cuts and the bottom half crushes.	Shanty's	
	Pharmacies providing halved or quartered tablets	Pharmacies may be able to provide patients with halved or quartered tablets if they cannot use a tablet cutter and they are determined by the pharmacist to have a need for these.		
	Tablet crusher	Tablet crusher with cap and storage area	Distinctive medical	
	Tablet crusher cups	Pair of durable plastic cups designed for use as a pair to allow for uniform grinding.	Distinctive medical	
	Tablet crusher with pouches	Silent Knight tablet crusher – for use with small latex free pouches to hold crushed medicines. Can be used with adhesive closure strips which secure the pouches.	Distinctive medical	


	Pilgo Pill Swallowing cup	Plastic cup designed to aid with swallowing tablets and capsules with a liquid. Has an internal rib structure which encourages a natural drinking position.	Independence Ltd	
Manual dexterity issues Many of these aids are available on prescription or free from pharmacies or from manufacturers.	Larger bottles and lids	These can improve grip for some patients. A pharmacist can advise on whether a medicine can be used out of its original container.	From pharmacies upon request.	
	Non-childproof medication lids	Can be used on medication bottles instead of the standard childproof lids. A pharmacist can supply these after providing guidance on storing medication out of reach of children.	From pharmacies upon request.	
	Use of an alternative container of patient's choice.	A pharmacist's advice should be sought when considering alternative containers as some medicines may not be pharmaceutically stable outside its original packaging.	Advice from a community pharmacist, pharmacist working in GP practice or pharmacist working in a hospital.	
	Multi Grip bottle opener ('Wing tipped cap')	Can be used for any bottles with plastic screw lids. Open by downward pressure and rotation. Can be useful for people who lack strength in their hands.	Ability Superstore	
	Pill bottle openers	Ergonomically designed pill bottle opener – ribbed inside to help grip the lid. May be helpful for people with weakened grip. May not be suitable for patients with latex allergies.	Ability Superstore	

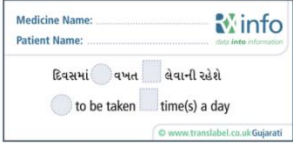
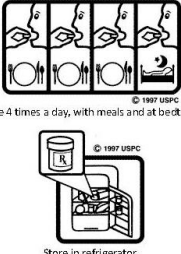
	<p>Eye drop dispensers</p> <p>Some eye drop dispensers are also available from manufacturers of eye drops (e.g. Alcon Eyoti, Celluvisc Compliance aid and the ComplEye).</p> <p>Moorfields Eye Hospital NHS Foundation Trust have a useful guide which details other eye drop dispensers and includes what eye drop bottles each can be used with. (34)</p>	<p>Autodrop – fits all round 2.5ml to 15 ml bottles. Helps to keep eye open and deliver drop into the centre of the eye. Available in different colours.</p>	<p>RNIB shop</p> <p>Complete Care Shop</p>	
		<p>Opticare eye drop dispenser which fits all round 2.5ml to 15ml eye drop bottles. Hand sized dispenser with an eye piece for aiming the drop accurately. Large squeezable area to make it easy to administer a measured dose.</p>	<p>RNIB shop</p>	
		<p>Arthro Eye drop dispenser –Has elongated levers for squeezing and swivel eyepiece. For circular and oval bottles in a range of sizes. Size 5 can be used for 2.5ml and 5ml round bottles and size 10 can be used with 10ml and 15ml round bottles. Helpful for people with severe arthritis and/or difficult lifting hand.</p>	<p>IC Vision</p>	
	<p>Inhaler aids</p> <p>Several different inhaler aids are available which help patients grip, actuate or twist their inhaler device.</p>	<p>Device to place over pressurised (aerosol) inhalers to aid when strength in hands is impaired (e.g. in arthritis). Haleraid - For use with Flixotide®, Seretide®, Serevent®, and Ventolin® inhalers.</p>	<p>Available free directly from manufacturers. Some are available from community pharmacies.</p>	

<p>Device to remove tablets/ capsules from foil blister backs.</p> <p>Note that some blister packs are peelable and pharmacy staff should check and advise patients accordingly.</p>	<p>Pill Press - designed to help remove tablets and capsules from foil blister packaging.</p>	<p>Talking Products</p>	
	<p>Pill puncher / popper</p> <p>Small and durable plastic devices which can be used to remove tablets from foil blisters easily. Can be used with a single hand.</p>	<p>yourcare Living made easy</p>	
	<p>Medi-Popper</p> <p>Designed by a Parkinson's sufferer to release tablets and capsules of any size from a foil blister.</p>	<p>Independence Ltd</p>	
<p>Squeezer for creams and gels in tubes</p>	<p>Tube squeezers with key-turn action. Can be wall mounted.</p>	<p>Essential Aids UK</p>	
<p>Oral syringe or measure</p>	<p>For patients taking liquid medicines who cannot easily use a spoon to measure a dose and take it, an oral syringe may be preferable if they are able to use it. Pharmacies can provide these from their stock.</p>		

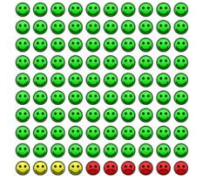


<p>Problems with vision</p> <p>It may be helpful for patients with reduced vision to use the same pharmacy/ brands of products so that products consistently 'feel' the same and are recognisable. (11)</p>	<p>Magnifying glass</p>	<p>Optometrists can supply suitable magnifying classes. Alternatively, the RNIB</p>	<p>Local optometrist or RNIB shop</p>	
	<p>Braille medication labels</p>	<p>Reizen-RL 350 Braille Labeller. Easy to use, hand-held, lightweight labelling machine for producing braille labels, without needing knowledge of braille. For use with Dymo tape. Braille labels should not be stuck over medication labels.</p>	<p>RNIB shop</p>	
	<p>Tactile or coloured markers</p>	<p>All sorts of things can be used as tactile markers such as rubber bands, stickers or coloured dots.</p>	<p>Bumpons from the RNIB shop or coloured dots from stationary shop. A coded key should be available to indicate what the marker means.</p>	
	<p>Braille Patient Information Leaflets</p>	<p>The X-PIL service is collaboration between Datapharm and the Pharmaceutical industry with input from the RNIB which is free to use. Users can call 0800 198 5000 24 hours a day and 7 days a week to listen to and/or request PILs in large/clear print Braille or on audio CD. Users will be asked to provide the name of the medicine and the medicine's product code number.</p>		
	<p>Large size or clear print Patient information Leaflets</p>			
<p>Audio Patient information Leaflets</p>				
<p>Large size labels</p> <p>The RNIB suggest using Arial font no smaller than 14. Labels with black bold text on a yellow background are</p>	<p>Community pharmacy dispensing systems can be used to create large text labels. Instructions for doing this using some commonly used systems are included as examples:</p> <ul style="list-style-type: none"> • Proscript: Using the reprint (F6) function, when a dispensed item is highlighted click on F4. • Nexphase: From the patients PMR, select the patient tab along the top of the screen then go into patient details, click the 'visually impaired' box and save. • Pharmacy Manager: Go into the patient details, click on the 'other' tab at the top of the screen and tick 'Large labels required' and then "Apply". 			



	<p>easiest for people with visual impairment to read.</p>	<p>Freely accessible service from Translabel, can be used to produce large-print labels, including in other languages. Labels written, proof read and certified by a professional translation service. Labels are for use in addition to standard labels as they don't include all the text required by law. Instructions provided.</p>	<p>Using large text may lead to use of multiple labels which can obscure important details on medicine containers. Some pharmacies use flagged labels in these scenarios which enable larger amounts of information or larger text on labels without obscuring text on medication containers.</p>	<p>These are available from pharmacy label suppliers</p> <p>They can also be fashioned by sticking two labels back to back and affixing this new double sided label to the container with sellotape.</p>	
	<p>Eye drop dispensers</p>	<p>See above</p>			
	<p>Audio Labelling</p>	<p>PenFriend Audio Labeller. Each label holds a message up to 1 hour long. Audio labels can be recorded then played back when PenFriend is placed on the label. Can hold 250 hours of recordings. Comes with lanyard, keyfob, memory card, 127 mixed size labels (includes 4 magnetic) and batteries. Available in different European languages.</p>	<p>RNIB shop</p>		
<p>Problems with applying creams or ointments</p>	<p>Long handled applicator</p>	<p>Can be filled with creams/ ointment. Has rotating balls to distribute creams onto skin</p>	<p>Mobility Smart</p>		

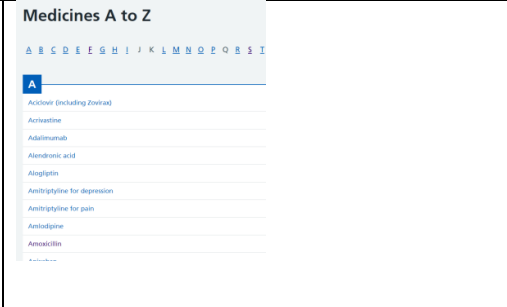
	Backbliss applicator	Cream or ointment is put onto the pad	www.backbliss.com	
Opportunity External factors that impact taking medicines optimally possible or that prompt it.				
Needs help organising medicines	<p>Help and support from community pharmacist or clinical pharmacist to implement simple solutions which fit with the patients daily routine</p> <p>The pharmacist can look at the patient's records and ask a range of questions to find out what medicines the patient takes, how and whether they take them and whether medicines are ordered as expected. They will also consider how stable their medication regime has been over time and consider how likely it is to be stable in future. They will ask what help patients have at home from relatives and/or carers and when and what the patient can and cannot do themselves.</p> <p>The aim of the medication review is to provide support which maintains the patient's independence as much as possible. The pharmacist may advise:</p> <ul style="list-style-type: none"> ➤ Talking with the patient about incorporating taking medicines into their daily routine ➤ Using reminder charts or Medication Administration Record (MAR) charts ➤ Using other prompts such as alarms or visual reminders. ➤ Support with ordering and delivery of medicines, e.g. by organising electronic repeat dispensing service for vulnerable patients. ➤ Use of daily or weekly pill organiser that is filled by patients relative or friend.. <p>Compliance aids filled by pharmacists should NOT be used routinely. As a last resort, if none of the other options are feasible, the pharmacist might consider preparing a MCCA for the patient.</p>			
Language barriers or lower level reading ability.	Patient Information Leaflet's in different languages	The X-PIL service is collaboration between Datapharm and the Pharmaceutical industry. Users can call 0800 198 5000 24 hours a day and 7 days a week to request PILs in other languages. Users will be asked to provide the name of the medicine and the medicine's product code number. Manufacturers may also be able to provide PIL's in other languages.		

	Interpreter services	<p>Each NHS organisation will have guidance and policies on accessing and using interpreter services. Enlisting the help of other healthcare professionals who speak the language of patients and relatives is also an option but due consideration should be maintaining patient confidentiality.</p>		
	Pharmacy label translation	<p>Translabel is a free resource designed to assist pharmacists to provide accurate translations of common label directions for patients where English is not their primary language. Over 50 languages including non-European languages. Labels written, proof read and certified by professional translation service. Labels to be used with standard pharmacy labels.</p>	<p>Freely accessible service from Translabel. Requires use of label paper and standard printer. Can be used to produce large-print labels. Instructions provided.</p>	<p>Translation: ___ to be taken ___ times a day Language: Gujarati Label:  <input type="checkbox"/> View translation validation documentation <input type="button" value="Print Label"/></p>
	Pictogram Library for medicines	<p>USP Pictograms are standardised graphic images that help convey important medication instructions, precautions, and/or warnings. The USP library offers 81 pictograms in .gif or .eps format which can be downloaded after accepting the United States Pharmacopeial Convention's license agreement.</p>	<p>Available for free from www.usp.org/health-quality-safety/usp-pictograms after registering to access.</p>	<p>Sample Pictograms</p>  <p>Take 4 times a day, with meals and at bedtime. © 1997 USPC Store in refrigerator.</p>
Access to services (e.g. smoking cessation services) due to mobility issues	Community pharmacy support	<p>Repeat dispensing, prescription collection and medicines delivery services from community pharmacies may be available for vulnerable patients and can improve access to medicines. These may be available for free or incur a small charge. Some pharmacies may offer enhanced services to patients in their own homes. Medication review services by specially trained pharmacist led teams may be available in patient's homes in some areas of the country.</p>		

<p>Social support (lack of) and physical surroundings are a barrier to medicines adherence</p>	<p>Assessment and optimisation of social support should be sought. The GP, patient, a family member or friend can request a home assessment from an occupational therapist. If a patient requires disability equipment, telecare or adaptations to the home then their local authority (council) may be able to help following the home assessment.</p>	
<p>Motivation The ‘thinking’ that energises and influences people’s decisions on whether and how they take their medicines.</p>		
<p>It is important to work with each patient to support them in understanding why the medication has been prescribed, what the expected goals of treatment are and to agree realistic goals going forward. If the reasons for prescribing are unclear and/or expected goals are not being met, it should be considered whether the medicine really needs to be continued. Timely educational interventions tailored to gaps in knowledge for each individual and exploration of misconceptions which might underlie beliefs about treatment, usually in combination with interventions to facilitate the development of habits for successful outcomes (e.g. for example, talking about how to incorporate medicines-taking into the daily routine), have been shown to be successful but can require a lot of time and resource to deliver. (5;21;24)</p>		
<p>Patient has doubts about the need to take a medication – they are unsure it is necessary for them or there are anxieties about side effects or other issues.</p> <p>All of these require discussion with the patient to enable them to make informed choices about whether and how to take their medicines.</p>	<p>Medication review with pharmacist or doctor or nurse</p>	<p>Medication reviews with the patient can be helpful to address any concerns and discussions should be tailored in each case to explore, clarify and systematically address the issues underlying the patient’s doubts. This may involve teaching the patient about their medication, condition or how the medicine works (with their permission to do so). With side effects, it may be appropriate to consider alternative treatments which are less likely to cause the side effects the patient is worried about. A medication review might also be helpful in deciding whether to continue or stop a medicine (deprescribing) or for adjusting dosing. Some of the example resources below give an idea of the type of resource which can be used in medication reviews to support meaningful discussions with patients and shared decision-making. There is some evidence that medication reviews with clinical pharmacists can help to improve medication adherence. (5;35)</p>
	<p>Community pharmacy advanced services</p>	<p>Community pharmacies are funded to offer a New Medicines Service (NMS) to provide support for people with long-term conditions newly prescribed a medicine to help improve medicines adherence. They also currently offer adherence centred medication review services targeted at patients with long term conditions who are on multiple medicines. (30)</p>
	<p>Coaching patients (e.g. using motivational interviewing techniques)</p>	<p>Taking a person-centred approach reflects a shift from counselling a patient about their meds, to true consultation with the patient. It re-defines the relationship between healthcare professional and patient from a paternalistic one to a partnership model where the balance of power is equal and decision-making is shared. Supporting patients to</p>

	<p>by a suitably trained healthcare professional.</p>	<p>take ownership and responsibility for their own health has the potential to change behaviours and to improve health outcomes. Motivational techniques such as the four E's (which are based on the GROW model for coaching) can be useful to Explore, Educate, Empower and Enable the patient to make informed decisions. (10,23)</p> <p>Delivering a patient centred approach can be complex and challenging but there are learning resources to help develop the skills and knowledge to do this. The CPPE offers a distance learning package on Consultation skills for pharmacy practice: taking a patient-centred approach which explores this in more detail.</p>	
	<p>Patient decision aids</p>	<p>NICE have produced a range of patient decision aids to support implementation of its guidelines across a range of therapeutic areas.</p>	<p>Access freely by searching 'patient decision aids' on NICE website or using filters.</p> <p>Example: Cardiovascular risk 10% over 10 years: taking atorvastatin</p>  <ul style="list-style-type: none"> • 4 people will be saved from developing CHD or having a stroke (the yellow faces) • 90 people will not develop CHD or have a stroke, but would not have done anyway (the green faces) • 8 people will still develop CHD or have a stroke (the red faces)
	<p>Videos for patients explain how heart medicines work.</p>	<p>Drug Cabinet is a resource by the British Heart foundation (BHF). It is a range of videos explaining what heart medicines do in the body, how with FAQ's and possible side effects. Condition guides also available.</p>	<p>Free to access from https://www.bhf.org.uk/</p> <p>E.g. warfarin, statins, ACE Inhibitors, insulin and other.</p> 
	<p>The medicines for my heart book by the BHF.</p>	<p>Describes medicines that may prescribed to treat or prevent common heart conditions. Explains reason for each, how it works, how it should be used and the most common side effects.</p>	<p>Free to access from https://www.bhf.org.uk/ or call 0300 3303311</p> 

	<p>Videos and other content for patients with diabetes.</p>	<p>Diabetes UK host a broad range of videos and other content explaining what diabetes is, how diabetes medicines work, with FAQ's and possible side effects. Includes videos on using insulin.</p>	<p>Free to access from www.diabetes.org.uk/</p>	
	<p>eLearning for patients with Diabetes</p>	<p>Know diabetes hosts several eLearning courses for patients with diabetes which cover medication.</p>	<p>Free to access from www.knowdiabetes.org.uk</p>	
	<p>Structured education programmes for patients with diabetes or pre-diabetes.</p>	<ul style="list-style-type: none"> • DAFNE (Dose Adjustment for Normal Eating) is a skills-based education programme in which adults with type 1 diabetes learn how to adjust insulin to suit their free choice of food. • DESMOND (Diabetes Education and Self-Management for Ongoing and Newly Diagnosed) is a structured group education programme for adults with type 2 diabetes. It has a theoretical and philosophical base and supports people to identify their own health risks and respond by setting specific behavioural goals. Healthcare professionals can refer patients to these programmes. • The NHS Diabetes Prevention Programme: Healthier You is accessible in some areas by referral (including self-referral) for patients who have a HbA1c between 42mmol and 47mmol/L – via https://preventing-diabetes.co.uk/ 		
	<p>Medication monographs for medicines used in mental health conditions.</p>	<p>Detailed monographs from the Royal College of Psychiatrists on various classes of medicines. Includes advice for patients who may have concerns about their medicines.</p>	<p>Free to access from www.rcpsych.ac.uk/</p>	<p>How often do you have to have these injections and how long do they do on for?</p> <p>What's good and bad about having depot injections?</p> <p>Can you say no to having depot injections?</p> <p>What happens if you miss an injection?</p> <p>What if you are not happy about the injections?</p> <p>Warnings</p>

	<p>NHS Medicines A to Z</p> <p>And NHS A to Z Health</p>	<p>A growing A to Z list of medicines. Each monograph covers how medicines work, why they are needed, common side effects and questions. Links to other information on NHS Choices. The NHS A to Z covers a broad range of conditions.</p>	<p>Free and open access via https://www.nhs.uk/medicines/</p>	
	<p>Patient Healthcare Charity websites and contacts</p>	<p>Healthcare charities can be a helpful way for patients to connect with others with the same condition(s) and to learn more about their condition and how to manage it. Many have useful resources on their websites. This is a useful website to search for a relevant charity.</p>		
	<p>Text message programmes</p>	<p>There is some research supporting higher (self-reported) adherence following a targeted 18 week text message programme in people with Asthma, wherein patients received texts such as '<i>Take your preventer every day and control your asthma before it controls you</i>'. (36) Reminders are usually more successful when accompanied by other interventions.</p>		
<p>Negative Mood, e.g. Depression</p>	<p>Cognitive Behavioural Therapy (CBT)</p>	<p>CBT has been shown to be potentially useful (if delivered by a trained specialist for motivational interviewing or planned behaviour education) for certain groups of patients such as those with depression or patients with HIV who have a high viral load despite therapy. (5)</p>		

This is and cannot be a comprehensive document encompassing all the available interventions intended to support medication adherence because there are thousands of such products available. However, we have tried to include a significant range of products which are available to the best of our knowledge. **These products and links are provided for informational purposes only; they do not constitute an endorsement or an approval by UKMi, SPS or the NHS.**

References

- (1) Balkrishan R. The importance of medication adherence in improving chronic-disease related outcomes: what we know and what we need to further know. *Medical Care* 2005; 43(6):517-520.
- (2) Gonzalez-Bueno J, Calvo-Cidoncha E, Nieto-Martin MD. Selection of interventions aimed at improving medication adherence in patients with multimorbidity. *European Journal of Hospital Pharmacy* 2019; 26(1):39-45.
- (3) Russell CL, Ruppert TM, Matteson M. Improving Medication Adherence: Moving from Intention and Motivation to a Personal Systems Approach. *Nursing Clinics of North America* 2011; 46(3):271-281.
- (4) The Kings Fund: NHS long-term plan explained <https://www.kingsfund.org.uk/publications/nhs-long-term-plan-explained> <Accessed January 2019>
- (5) Kini V, Michael Ho M. Interventions to Improve Medication Adherence: A Review. *Journal of the American Medical Association* 2018; 320(23):2461-2473.
- (6) da Silva NL, Ribeiro E, Zanini AC et al. Compliance with treatment: Related-issues and insights for pharmacist intervention. *Brazilian Journal of Pharmaceutical Sciences* 2011; 47(1):1-12.
- (7) NICE clinical guideline 76. Medicines adherence: Involving patients in decisions about prescribed medicines and supporting adherence. National Institute of Clinical Excellence (NICE). <https://www.nice.org.uk/guidance/cg76>
- (8) Nieuwlaat, R., Wilczynski, N., and Navarro, T. Interventions for enhancing medication adherence. *Cochrane Database of Systematic Reviews* <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD000011.pub4/abstract>
- (9) Royal Pharmaceutical Society Toolkit: Improving patient outcomes with the better use of MCA's Royal Pharmaceutical Society (RPS). www.rpharms.com <Accessed September 2019>
- (10) Personal Communication, Lelly Oboh, Consultant Pharmacist FRPharmS. Consultant Pharmacist, Care of older people, Guys & St Thomas NHS Foundation trust and NHS Specialist Pharmacy Services (Medicines Use and Safety Division), December 2019
- (11) Personal Communication, Paresh Parmar, Care of Older People Pharmacist, London North West Hospitals NHS Trust, November 2019
- (12) Personal Communication, Professor Nina Barnett (Consultant Pharmacist, Care of Older People, London North West Hospitals), October 2019
- (13) Husain, I., Minshull, J., and Oboh, L. Summary of Guidance and Evidence for use of Multi Compartment Compliance Aids (MCCAs). Available via www.sps.nhs.uk <Accessed August 2019>
- (14) Oboh, L. Supporting older people in the community to optimise their medicines including the use of multi compartment compliance aids (MCAs). Available via www.sps.nhs.uk <Accessed August 2019>
- (15) Robinson J. Use of multi compartment compliance aids in the community is 'excessive', says NHS Wales. *The Pharmaceutical Journal* 2019; 303(7929).
- (16) Medicines Adherence Support Project report and tool, North East & North Cumbria AHSN Yeung, A. Available via <http://www.ahsn-nenc.org.uk> <Accessed September 2019>
- (17) Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science* 2011; 6(1):42.
- (18) Jackson C, Eliasson L, Barber N et al. Applying COM-B to medication adherence: A suggested framework for research and interventions. *The European Health Psychologist* 2014; 16(1):7-17.
- (19) Personal Communication, Cherise Gyimah (nee Howson), Medicines Project Lead, Integrated Care Transformation Team, Guys St Thomas' NHS Foundation Trust, December 2019
- (20) Personal Communication, Jesson Redulla (Clinical Specialist Occupational Therapist - COE - London North West Hospitals NHS Trust), December 2019
- (21) Costa E, Giardini A, Savin M. Interventional tools to improve medication adherence: Review of literature. *Patient Preference and Adherence* 2015; 9:1303-1314.
- (22) NICE Quality Standard [NG21]. Home care: delivering personal care and practical support to older people living in their own home. National Institute of Clinical Excellence (NICE). <https://www.nice.org.uk/guidance/ng21> <Accessed September 2019>
- (23) Easthall C, Barnett N. Using theory to Explore the Determinants of Medication Adherence; Moving Away from a One-Size-Fits-All Approach. *Pharmacy* 2017; 5(3):50.
- (24) Kripalani S, Yao X, Haynes RB. Interventions to enhance medication adherence in chronic medical conditions: A systematic review. *Archives of Internal Medicine* 2007; 167(6):540-550.
- (25) Osterberg, Lars., Blaschke. et al. Adherence to medication. *The New England Journal of Medicine* 2005; 353(5):487-497.
- (26) Coleman CI, Sobieraj DM, Limone B. Dosing frequency and medication adherence in chronic disease. *Journal of Managed Care Pharmacy* 2012; 18(7):527-539.
- (27) Ahmed I, Ahmad NS, Ali S. Medication Adherence Apps: Review and Content Analysis. *JMIR Mhealth and Uhealth* 2018; 6(3):e62-1.
- (28) Ali EE, Teob AKS, Goh SXL. MedAd-AppQ: A quality assessment tool for medication adherence apps on iOS and android platforms. *Research in Social and Administrative Pharmacy* 2018;14(12):1125-1133.
- (29) Personal Communication, Jenny Cronin (Prescribing Support Pharmacist, Coventry, Rugby and North Warwickshire CCG), December 2019.
- (30) Personal Communication, Gopal Patel (Clinical Pharmacist at North West London Hospitals NHS Trust, previously a Community Pharmacist at H.A. McParlands, Hayes), November 2019.
- (31) El-Saifi N, Moyle W, Jones C. Medication Adherence in Older Patients With Dementia: A Systematic Literature Review. *Journal of Pharmacy Practice* 2018; 31(3):322-334.
- (32) Dayer L, Heldenbrand S, Anderson PGPO et al. Smartphone medication adherence apps: potential benefits to patients and providers. *Journal of the American Pharmaceutical Association* 2013; 53:172-181.
- (33) Barnett, N. Parmar, P. How to tailor medication formulations for patients with dysphagia. *Pharmaceutical Journal* 2016. Available at <https://www.pharmaceutical-journal.com/learning/learning-article/how-to-tailor-medication-formulations-for->

- [patients-with-dysphagia/20201498.article?firstPass=false](#) <Accessed January 2020
- (34) Moorfields Eye Hospital: Eye drop compliance aids. Available at <https://www.moorfields.nhs.uk/sites/default/files/Eye%20drop%20compliance%20aids.pdf> <Accessed September 2019>
- (35) Horne R, Chapman SC, Parhan R. Understanding patients' adherence-related beliefs about medicines prescribed for long-term conditions: a meta-analytic review of the Necessity-Concerns Framework. *PloS One* 2013; 8(12):e80633.
- (36) Petrie, KJ, Perry K, Broadbent E et al. A text message programme designed to modify patients' illness and treatment beliefs improve self-reported adherence to asthma preventer medication. *British Journal of Health Psychology*; 2012(17):74-84.
- (37) Solihull Council Website (MyLife portal). Accessible at <https://solihull.mylifeportal.co.uk/equipmenttohelpyou> <Accessed January 2020>
- (38) Primary Care contracting - support for people with disabilities. Available via <https://pcc-cic.org.uk/sites/default/files/articles/attachments/generalnotesonddamarch2005.pdf> <Accessed September 2019

Appendix 1: Funding for adherence aids

- The devices listed in the table below can be accessed by various means:
- They can be privately purchased but this may not be an option for some patients and is seen as a barrier by some healthcare professionals. (30)
- Some can be supplied by pharmacies. Community pharmacists have a legal obligation to comply with the Equality Act 2010 which incorporates the former Disability Discrimination Act (DDA) 1995. Pharmacy contractors receive a small fee within their practice payments to contribute towards the cost of providing auxiliary aids. This requires community pharmacists to make reasonable adjustments to services to identify and address patients sensory and physical needs and this may include provision of an auxiliary aid. (14;30) For example, a simple medication reminder chart, tablet cutter or medicine dropper. Funding can be sought from Health and Social Care organisations that may be able to provide equipment or minor adaptations that cost under £1,000 if they are considered to meet an assessed need. To access this, patients or their relatives should liaise with their local council and could be supported by their healthcare professionals to do so. Councils offer a range of products which help people live as independently as possible at home – these include devices which help people take their medicines. Councils may advise an assessment by an Occupational Therapist to help ascertain how best to get patients the right help.(20;37;38)

Appendix 2: Limitations and disclaimers

- This document is not an adherence assessment tool – the very nature of medication adherence precludes the development of such a tool. It is a document intended to provide an idea of tools, aids and interventions which are available and can be used to support adherence.
- These products and links are provided for informational purposes only; they do not constitute an endorsement or an approval by UKMi or SPS. Inclusion of a product within this document does not indicate that a service (or health or social care professional) is obliged to provide it.
- This is and cannot be a comprehensive document encompassing all the available interventions intended to support medication adherence because there are thousands of such products available. However, we have tried to include a significant range of products which are available to the best of our knowledge.
- This document contains a number of links to websites of external organisations. The author bears no responsibility for the accuracy, legality or content of the external site or for that of subsequent links although every effort will be made to keep them updated in line with usual quality assurance processes.
- Product availability was accurate at the time of writing and the document will only be updated in line with usual quality assurance processes.
- Information about costs of products / adherence aids is not included because this is liable to fluctuation. Users are advised to follow the links to find out the latest information about the cost of individual products.
- The COM-B model is presented here as a systematic way of thinking to address medication non-adherence. This [paper](#) provides a detailed rationale as to why this model is considered helpful. (23)
- Some areas of the country have domiciliary care support from pharmacist-led teams. Readers should find out if their local area has such a team and whether they have produced any local guidance on adherence aids.
- This document has been made available as a PDF for ease of use and to avoid formatting issues.. To obtain a copy in word, please email the author via the [SPS website](#).

Quality Assurance

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Search strategy

- Charity and disability support websites searched systematically via
 - <https://www.charitychoice.co.uk/charities/health>
 - <http://www.aboutmyhealth.org/patient-charities-list.php>
 - <https://www.gov.uk/government/organisations/charity-commission>
- Organisations websites and documents:
 - CPPE(Training Programme: Supporting your patients to make the most of their medicines)
 - National Pharmacy Association website and documents
 - Pharmaceutical Services Negotiating Committee (PSNC) website and documents
 - Care Quality Commission (CQC) website and documents
 - National Institute of Clinical Excellence (NICE)
 - Specialist Pharmacy Service (SPS)
 - Royal Pharmaceutical Society (RPS)
- Internet searches for products
- Literature searches: Included reviews and meta-analysis looking at whether various individual interventions improved adherence in different populations. Excluded studies focussed on specific interventions or in specific populations. Excluded studies or reviews looking at methods of assessing adherences or factors associated with adherence or non-adherence).
Papers were viewed as full text and rejected if they did not align with the goals of this document.
 - Medline 1950 to present
 - *MEDICATION ADHERENCE/ OR PATIENT COMPLIANCE/ AND CHRONIC DISEASE/ OR MULTIPLE CHRONIC CONDITIONS/ [Limited to reviews]
 - *TREATMENT ADHERENCE AND COMPLIANCE"/ OR*MEDICATION ADHERENCE/ OR *PATIENT COMPLIANCE/ OR *MEDICATION ADHERENCE/ [Limited to reviews]
 - (*REMINDER SYSTEMS/ OR *MOBILE APPLICATIONS/) AND *MEDICATION ADHERENCE/)
 - EMBASE 1981 to present
 - CHRONIC DISEASE/ OR MULTIPLE CHRONIC CONDITIONS/ *MEDICATION COMPLIANCE/ OR *PATIENT COMPLIANCE/[Limited to reviews]
 - (MEDICATION COMPLIANCE/ OR PATIENT COMPLIANCE/) AND CHRONIC DISEASE/ OR MULTIPLE CHRONIC CONDITIONS/ AND PHARMACIST/) [Limited to reviews]
 - (exp *MOBILE APPLICATION/ OR *REMINDER SYSTEM/) AND *MEDICATION COMPLIANCE/

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