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Good Practice Guide –
Supporting Medication Adherence with Technology

The voice of technology
enabled care

The key to successful adoption of technology
enabled care, putting people at the centre,
service design and measuring the benefits.

About TSA

TSA is the industry body for Technology Enabled Care (TEC), representing the largest industry specific network in Europe and bringing together a growing membership of organisations across local government, health and the private sector.

Led by Chief Executive Alyson Scurfield and supported by Rt Hon Paul Burstow, the former Minister of State for Care Services as President, the organisation is, with its members, driving the growth of the Technology Enabled Care industry by leading, inspiring, promoting and driving strategy, innovation, choice and standards to enhance people's independence and quality of life.

TSA drives quality, safety of Technology Enabled Care Services through its internationally recognised Quality Standards Framework (QSF). In a largely unregulated industry the QSF accreditation is the best way to ensure services reach the quality industry benchmark for safety and quality of service delivery.

TSA continues to lead and direct the Technology roadmap, led by its Technology Steering Board and the launch of the 2017 white paper, TSA will lead and support the industry on changes which need to be made by 2025 as UK telecommunications shift from analogue to digital. TSA will work with the TEC community, service providers, communications companies and regulators, to build a roadmap that minimises disruption whilst harnessing the transformational opportunities offered by digital.

The not-for-profit membership based organisation has also developed an online Education Platform designed to raise awareness and support personal development of staff across the TEC industry with relevant education, learning and training. Online resources include TECS Call Monitoring, Response and Installation Services and Fire Survival Guidance.

www.tsa-voice.org.uk

Acknowledgements

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The Medication Compliance Conundrum

To fully understand why people do not take their medication correctly, if at all, it would be useful to have a few definitions:

Conundrum
A confusing and difficult problem or question.

Medication compliance
Keeping to and following instructions on how to take prescribed medication.

Medication adherence
Commitment to the process of complying with instructions on how to take prescribed medication.

Medication wastage
Any sub-optimal use of prescribed medication.

I was once told that medication non-compliance was a conundrum wrapped inside a riddle, wrapped inside a quandary, hidden behind a dilemma and presented as a puzzle. In my experience, I have found it to be frustratingly easy to define and incredibly complex to remedy.

Firstly, non-compliance (or non-adherence) is actually not one, but two completely different problems. There is accidental non-compliance, in which people forget to take their medication or do not take it correctly at the appropriate time. This type is usually seen in elderly or confused people, often with dementia or in people with learning disabilities.

The good news is that this type of non-compliance can be managed quite successfully using a combination of technology and support. It is by far the larger of the two types of non-compliance.

Then there is the second type, deliberate non-compliance, in which people choose not to take their medication in accordance with instructions and often refuse to take the medication at all.

And here is where I confess to being completely confused. After all, we are talking about medication for epilepsy, diabetes, high blood pressure, or heart problems that are simply not being taken.

In Belgium, kidney transplants must be repeated every three years because people do not take their anti-rejection medication.

But come on, we are all guilty of deliberate non-compliance. Who hasn't stopped taking antibiotics before the course is finished? The type of medication which has the highest compliance? You guessed it – pain killers.

So, is this telling us something important? That the only medication that forces us to comply with the prescribed instructions is the one we can feel benefiting us? Simple but true.

And therein lies the real conundrum. We believe that if we cannot feel any detrimental effects of not taking our medicines then we can choose when, if, how and how many we will take.

Deliberate non-compliance is therefore very difficult to manage. But let's not forget that the real loser in medication non-compliance is the taxpayer.

We contribute around £5 billion for prescription medicines that are not taken correctly or not taken at all - over 50% of the total prescribed drug cost per annum. And if you adopt my definition of medication wastage, where medication is taken incorrectly, it is even higher.

So, can technology make a difference to non-compliance? Yes, it can, but only as part of a designed programme of change that determines the real issues that give rise to or cause the non-compliance.

Access to the technology products alongside expert advice on which products to use and how they can be integrated into the programme for change will make a substantial difference. But all development programmes must begin and end with CONTINUING online training of front line staff. Efforts to tackle deliberate non-compliance can be supported by appropriate technology, when it is used in an effective way.

But this non-complier needs psychological, as well as technological, support and this is more difficult to manage.

Managing medication non-compliance is a battle we must win, so that wastage is reduced, returning much needed funds to the NHS. We all have the challenge to make a difference – technology is an important part of the answer, but really understanding the issues leading to all non-compliance is fundamental to our success.

The technology sector has a short window in which to showcase its ability to make a difference – if it does not understand the fundamentals that give rise to the problem, it cannot hope to create appropriate products to solve them.

Norman Niven
CEO, Protelhealth

Summary

This guidance document is designed to provide a range of information, advice and areas for discussion within Commissioning functions across **Social Care, Health and Housing, and for TEC service providers and suppliers** – it is by no means exhaustive in its content and the range of solutions to support people, carers, families and services will continue to expand over time.

Medication compliance is an area of significant spend across the whole system and impacts on an ever-growing cohort, many of whom are the most vulnerable people in society; the end user must remain at the heart of the solution and messages must be kept simple and straight forward.

While there are examples of good practice in the use of technology to support medication adherence, there is by no means a wholesale approach to technology enabled medication support across the country; a key recommendation to all organisations and their commissioners is to develop local strategies to adopt technology (both in relation to medication support and wider technology enabled care provision) within four areas across Social Care & CCG commissioning, Secondary & Social Care provision, Housing provision:

- Hospital discharge to home – introducing technology and medication routines within the ward; creation of demonstration area for patients, families and staff.

- Reablement and intermediate care in the community – positioning technology at the heart of provided support, as early as possible, to increase confidence and self-management, reduce dependency.

- Rehabilitation centres – technology at the centre of care and support, embedding within ongoing care provision in preparation for return home; creation of demonstration area for patients, carers and families.

- Care package reviews within 3 months of a new care package – to identify areas of increased independence, remove unnecessary care before dependency and explore new areas for technology and everyday gadgets to support daily living.

Simple, easy to follow case studies, video testimonials and demonstration guides will provide confidence to people, families and staff, helping them to identify someone who is just like the person they care for – TSA continue to work towards a common narrative for TECS and welcomes contributions and feedback from organisations to help raise awareness to the wider public about the role technology can play in keeping people safe and independent, and particularly solutions to support medication adherence.

We need to continue to work together within the Technology Enabled Care sector and share examples of effective solutions that deliver increased independence and efficient services.

Positioned correctly, both in terms of information and advice provided to those able to self-manage or those looking to support loved ones and in terms of utilisation of technology enabled care as the default wherever possible, there are sustainable efficiencies to be made across the whole system, from safe reduction of medication check calls within social care, reduction in unnecessary admissions due to adherence issues and supporting more effective discharge and reablement pathway, with the right level of support provided from the start.

Introduction

Many thousands of people are supported each day with medication across the Social Care, Health and Housing system, within a range of settings from their own home through to the hospital ward.

Historically, the approach within Health and Social Care may have been in many cases to provide care support to administer medication or to act in an observing role to check medication was taken. In doing so this has resulted in the potential for greater dependency on support, reduced independence as people wait for carers to visit before taking their medication, less opportunity to promote self-care and increased cost across the whole system that is simply no longer viable in times of austerity. Increasingly technology is successfully playing a role in supporting the person, their families and carers, and the health and care economy with their medication regimes.

There is a clear role for technology to play, but it must also be noted that, while technology should be considered first at the heart of the care and support provided, solutions will not work for everyone and an individual, needs-led view must be taken.

It is also clear that, while this document advocates a clear role for technology in supporting medication compliance, both from a self-care position as well as supporting services to deliver medication support cost-effectively, the level of non-compliance and wastage of medication in the system is well documented.

Medication wastage costs the NHS £500m per year[1], while for people with long term conditions[2]:

- Between 30 and 50% of prescribed medicines are not taken as recommended

- Ten days after starting a new medicine, 30% of people are already non-adherent

- Of these, 55% of people don't realise they are not taking their medicines correctly, whilst 45% do.

Medication management has been identified by Carers UK as the single greatest concern of their members, who are mainly the family members and carers of vulnerable adults.

The positive effects of medication can be reduced if people fail to follow their prescription advice over long periods of time; a failure to take medication at the right time can result in a loss of control of disease symptoms, while overdosing can quickly lead to dangerous situations including drowsiness, a loss of balance and cardiac and breathing problems.

As the range of technology solutions continues to increase and the awareness of both the workforce and the wider public of such technology and its application grows, positioning the right technology at the right time to improve compliance will continue to demonstrate reduced care home admissions, A&E visits and hospital admissions.

[1] Health Secretary Jeremy Hunt – statement on medication adherence, 2nd July 2015
[2] Barber N et al 2004. http://qualitysafety.bmj.com/content/13/3/172.full.html

Technology is a key enabler for the delivery of effective medication support

The use of technology, from simple, everyday gadgets through to vital signs monitoring hubs and voice assistants, continues to increase at pace within the Social Care, Health and Housing economy, and awareness is growing within the wider public as their everyday use of smart technology is being seen more openly in the delivery of Health and Social Care services and solutions.

The small number of examples referenced in this document are by no means the full picture of good practice solutions within the UK and, as with the range of technology being adopted, the list of technology enabled services is also growing at pace; organisations are highly recommended to continue to develop relationships, share what is working well and what lessons have been learnt for the future, and the TSA is in place to provide support on sharing the learning and harnessing collaboration, whether that is at strategic, commissioning or operational levels.

Collaboration between Social Care, Health, Housing and Community Pharmacy delivers efficiencies

Guidance within the Care Act positions the responsibility on Health for supporting people with medication; in some areas, this could be taken as a simple shift from Social Care to Health, however it does provide an opportunity to work more closely between Social Care, Health and Community Pharmacy and bring technology to the forefront of cost-effective support.

Many of the technology solutions referenced within the document could be provided by any one or all of the organisations making up Social Care, Health, Housing and Community Pharmacy in a geographical area, and a common understanding should be reached between organisations of how outcomes could be met with technology, when a physical care activity is required and when a person and their family network can self-manage, and indeed who should commission and deliver the outcome.

Key Findings from West Midlands Automated Pill Dispenser Pilot

- The pill dispenser is highly effective in helping vulnerable adults remember to take their medication. Of those asked, 96% said it worked and resulted in improved health, more independence and a better quality of life

- Although the device is aimed at people with poor memory such as those with Alzheimer's and dementia, it also benefited patients with Parkinson's, mental health issues, learning difficulties, physical difficulties, patients with long-term medical conditions on a daily pill regime, and the visually impaired

- The data collected showed significant savings have been achieved. In total, the participants generated savings of £431k, an average of £1,700 per person over a six-month period

- The two largest areas of savings are from reductions in medication prompting visits at the patient's home and reduced hospital re-admissions for those on the pill dispenser. Home visits amounted to £107k, i.e. 52% of total social care savings, and hospital admissions amounted to £151k, i.e. 68% of total health savings

- The pharmacists recorded the number of doses in each pill dispenser once they had filled it and the number of doses remaining in the dispenser when it was returned to the pharmacy. This calculation produced a figure of just 2.9%.

Ref: wm-adass.org.uk/wp-content/uploads/2014/04/Getconnected-resources.doc

NHS
Midlands and East

IEWM
Improvement and Efficiency
West Midlands

There is understandably a growing level of activity around self-care across the system and the responsibility on organisations to provided trusted advice to the public and self-funders about the service and solutions available, where to find them and how to access them; this is equally relevant to Telecare services, to ensure they are not only able to deliver solutions that meet the outcomes of people, but also to provide trusted advice on where people may be able to find information to allow them to make informed decisions and, where desired, purchase solutions for themselves.

Supporting self-administration in the community

Care Call supports 3,000 people across North Tyneside through the provision of Telecare solutions, including options to support people with medication choices.

Whenever possible, medication should be dispensed from its original container as prescribed, however some people need additional assistance with medication reminders or to raise an alert if time-specific medication is not taken at the prescribed times.

1. The first recommended option is a linked or non-linked pill dispenser - if the person can manage medication reminders with a non-linked audible alert, medication is dispensed into the pill mill by a pharmacist and the appropriate times set up, this can also be linked to carers or a control centre or to visit and provide on-site assistance.

2. A further option is to utilise the "I'm OK facility" on alarm units - if this has not been activated within the programmed time, a call is made from the control centre to remind people to take their medication as prescribed.

3. Door contacts can be placed on a person's medication cupboard - if the door contacts are not activated within a given time, Care Call operators contact the person to remind them to take their medication.

4. In some instances, the most appropriate option has been a telephone call from the control centre to give medication reminders - the reminders are programmed into the call handling system and prompt the call handler to provide a pill prompt call reminder, this system is effective when telecare options are not appropriate.

All options are considered for people and their physical limitations and capacity considered.

Technology supporting medication management in Care Homes[3]

Medication management presents care homes with several logistical, staffing and quality of care issues. Its mismanagement can have very severe consequences for an "offending" staff member or anyone who contributed to or should have prevented the mismanagement. It is for these reasons that medication management merits all care home managers' serious attention.

There are clear examples of effective medicines management through pharmacy-led medicines review or pharmacist prescribers:

> The Shine study in Northumbria used pharmacist prescribers from the hospital to undertake medicine reviews with residents and their families. For every resident reviewed 1.7 medicines were stopped, leading to net annualised saving of £184/person and meant that for every £1 invested in the intervention, £2.38 was released from the medicines budget, in addition it saved time on administration of medicines and improved the quality of life for residents.
>
> Brighton and Hove CCG contracted with an independent provider to undertake a pharmacist led medicines review with 20,000 care home residents. This resulted in £300,000 of savings due to medicines being stopped in one year and similar savings from avoidance of hospital admissions per resident reviewed.
>
> Leeds West CCG undertook the CHAMOIS Project. Of 400 residents who were reviewed by a pharmacist 28% required a follow up review, 40% of residents had mismatched allergy records and 1,555 recommendations were made to the GP and 91% of these recommendations were accepted. The gross cost saving was £90,000 and an additional £20,000 was saved on the medicines costs meaning a total of £140 was saved per resident reviewed.

There is a myriad of ways in which technology can already assist with each step of the medication management cycle, including[4]:

- Intelligent stock management with automatic requests for repeats being sent to pharmacy websites and alerting when a medicine is reaching its expiration date
- Electronic devices with Medication Administrations Records (MAR) software for nurses to time stamp when they deliver a medicine to a resident and record a missed or erroneous administration
- Automatic reminder alarms to next time of administration
- Electronic tools for doctors to communicate with care home nurses about the medicines they have prescribed to residents
- Electronic tools for helping nurses to calculate medication dosages
- Electronic devices for keeping medicines safe and secure, e.g. electronic pill dispensers and intelligent medicine cabinets.

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[3] Technology and Innovation in Care Homes – The SEHTA Review - http://www.sehta.co.uk/wp-content/uploads/2016/02/The-SEHTA-TICH-Review.pdf
[4] Royal Pharmaceutical Society – Care Home Roundtable Report – October 2016 - https://www.rpharms.com/Portals/0/RPS%20document%20library/
    Open%20access/Publications/Care%20Homes%20Round%20Table%20Report.pdf

Signposting to information/advice and retail sites

The range of websites and online content showcasing technology to support people, carers, families and services continues to grow and while the majority do offer support and useful information, there will be an element that may be misleading or indeed the sheer volume of information could confuse and put off people that are looking for simple solutions.

Social Care, Health and Housing organisations have a responsibility to provide information and advice, but are equally mindful of providing the right information that is up to date and does not endorse particular solutions over others.

A collection of websites and content that has been recommended by local authorities in the West Midlands can be found at **www.athome.uk.com** within the 'Useful Information' section (**http://www.athome.uk.com/useful-information/national/**) - it is by no means an exhaustive list and the TSA would welcome suggestions for content to add to the AT Home site.

Specifically, in relation to medication, alongside information provided on solution provider websites, the following sites are good examples to share with people looking for information, advice and solutions (as well as support in general):

Medication Management section –
http://asksara.dlf.org.uk/questionnaire.php?topic_id=80

LivingMadeEasy – Medication Reminder Apps –
http://www.livingmadeeasy.org.uk/products.php?groupid=3824

Memory and Safety section –
http://www.dlf.org.uk/factsheets/safety

Pill dispensers section –
http://www.rica.org.uk/content/pill-dispensers

unforgettable
life-changing dementia products

https://www.unforgettable.org/catalogsearch/result/?q=medication

....

spring chicken

https://www.springchicken.co.uk/search?type=product&q=medication

....

telmenow.com
technology for independent living™

https://www.telmenow.com/catalogsearch/result/?q=medication+aids

....

Increasingly apps are being used to support prompts and reminders, with the range of examples both expanding and changing on a weekly basis, and therefore it is imperative that trusted information and advice is accessible on available apps, how well they function, the upfront and ongoing costs, and ratings and reviews that provide confidence for end people.

Three leading sources of impartial, trusted information and advice are:

ORCHA
Organisation for the Review of Care & Health Applications

www.orcha.co.uk

my health apps
tried and tested by people like you

http://myhealthapps.net/

http://medappfinder.com/

Medication Support Systems

For many people with daily medication routines, the only support needed is to have medication arranged in separate compartments to identify separate doses – the person may need a solution to physically access the medication, but can recognise the pills to take and does not need support to prompt when to take them.

Dosette boxes or trays have been used to help people manage their medications for many years; they are available from pharmacies or from community equipment stores in daily, weekly or monthly formats. These boxes are suitable for most medications though some drugs must not be removed from their packages to be included in them because they may react with moisture in the air, or may be contaminated by exposure to other medication.

Some dosette trays can be filled by pharmacists and then hermetically sealed so that tablets can be accessed only by piercing the appropriately labelled foil covering each compartment in the tray; this arrangement can be extended

to include liquid medicines which would otherwise be outside the scope of such systems, and can also provide reminder prompts.

Benefits of employing such systems include reduction in medication administration errors and a 20% average saving in the time taken for medication rounds.[5] There are numerous examples around the UK and Ireland of pharmacy filled blister packs that are sealed and delivered, and growing instances of pharmacies organising individual medication schedules, printing out labels on sealed pouches and arranging for delivery to a person's home or into residential care homes.

Simple solutions can be a powerful enabler for self-care

For some carers and families, knowing what simple gadgets are available and how to use them can be important, demonstration videos can be found on the AT Home website:

Eyedrop Applicator

https://youtu.be/V3GTnPTvQPE

Pill popper

https://youtu.be/5Z2lK09FO5M

Pill box

https://youtu.be/7gqR4RL_93c

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5 Dolphin Manor Care Home – Biodose case study - http://www.biodose.co.uk/case-studies.php

Medication Reminder Solutions

Many people can manage their medication well, but occasionally forget that a medication is due or whether they have already taken a dose; over time individual needs are likely to change and the support family can provide may also need a helping hand, as families juggle busy working lives and a caring role.

It must be noted that solutions should be needs-led and people will respond differently, particularly when introducing new elements to daily routine and habits; the solution selected must be accompanied with a clear view on what outcome is to be achieved and any associated risks with adopting a new solution, and the mindset that the solution must fit within the person's existing lifestyle and patterns, and not the other way around.

A plethora of different reminder technologies are available including:

- Watches that alarm when it's time to take medication

- Alarms that can be attached to the cap of a bottle of tablets

- Telephone reminder calls that are programmed into a Dispersed Alarm Unit or into a Telecare system for delivering an automated call – as shown in the example above from North Tyneside Council

- Reminder call delivered personally by call handlers at a Telecare Monitoring Centre

- Portable alarm units that can be programmed to deliver multiple alarms

- Simple mCare arrangements where reminders are delivered by SMS to the mobile phone (or landline phone) of the person

- Voice or video message reminders within digital clocks

- Reminder apps for smartphones, allowing photographs of medication and enabling person to confirm they have received and acted on the reminder

Mr A from Norwich was originally assessed for the use of a Pivotell pill dispenser in November 2014. He was starting to exhibit signs of dementia, and was coping with some ad-hoc support but no formal package of care, which was being considered at the time.

After assessment, it was decided that Mr A may respond well to using a pill dispenser to support his medication compliance. The prescribed medication ranged from blood pressure, heart, dementia and gout, twice per day. Once he started to take his medication correctly, Mr A improved considerably and the care package was no longer required.

Calculations showed a potential saving of £5,900 for Social Care, plus uncalculated savings to Health Care from better adherence to medication (between November 2014 and April 2016).

6 West Midlands Pill Dispenser project report, April 2014 - wm-adass.org.uk/wp-content/uploads/2014/04/Getconnected-resources.doc

7 Norfolk County Council – Pivotell case study, May 2017 - http://www.pivotell.co.uk/blog/norfolk/

Medication Dispensing Support Systems

For people who need further levels of medication support, there are technologies that can both provide reminders and can help deliver the appropriate pills at the correct time; these solutions should only be provided if the simpler approaches described above are not proving to be successful.

The most commonly used approach is to have medication for a week loaded into a medication cassette by a pharmacist or a family member (enabling up to 28 doses); the cassette is then locked in place in an electronic dispenser unit, which can be programmed as appropriate using a simple keypad; the unit alarms at the selected times allowing medication to be accessed. If the person has dexterity issues, the dispenser can be placed into a tipper to allow the device to be turned upside down more easily and the pills to drop into a cup below.

The use of automatic pill dispensers is widespread across the country, with case studies shown in the appendices at the end of this document, most notably in the West Midlands Pill Dispenser project [6] and most recently in Norfolk County Council [7].

Critical to the success of utilising medication dispensers effectively is having clear protocols, procedures and defined responsibilities established for filling and delivering medication carousels, responses to alarms, and review issues, along with a clear pathway for selecting the medication reminding option, an example can be found in the Medication Reminders pathway diagram from Herefordshire/Worcestershire in appendix E; the results have shown considerable benefits to all stakeholders and medication dispenser devices are often selected as the preferred option by many Telecare service providers.

Families may not always be available to fill and deliver the dispenser cassettes and engagement with pharmacies willing to provide this service is crucial; in some areas a legacy of funding pharmacies to fulfil this role has led to inequalities in service across a geographical area, however increasingly pharmacies are seeing the filling and distributing of pill dispensers as an opportunity and are covering larger areas, particularly as service such as reablement and intermediate care look for a standard solution to support growing cohorts of people/service people.

Gateshead Utilisation of Technology Enabled Support for Medication

A review was undertaken of social care users receiving medication prompt visits (34 clients receiving one visit every day).

Arrangements were made, working with the person and their families, to utilise automated medication dispensers and prompts.

The cost to social care for providing prompts in staffing hours per annum equated to £71,038; the cost to clients per annum in service charges was £2,089 for these visits.

All clients successful transferred to the automated dispensers with no reported issues developing during the six-month review period and medication adherence continued, prompts were increased where required from 1 per day to up to 4 per day. Support from local pharmacists in filling the carousels was an integral link to the success of the project, as were their carers who could pick up and change over the carousels when required.

Total cost of equipment and telephony costs to social care - £9,303. Total cost to clients for provision and monitoring of the automated dispenser - £211.64 per annum.

Total Saving to Social Care - £61,735 - Total saving to the client - £1877.72

Technology Enabled support is completely integrated within the assessment function in social care; staff are prompted within the assessment framework to automatically consider its use and if not used, why it is seemed unsuitable. Referrals for "add-on" peripheral devices such as Pill Dispensers have escalated because of projects like the medication example, where real savings can be identified.

'In 2011/12, we were averaging around 100 referrals and have seen growth each year, last year we received over 500+ referrals. All our social work / assessment teams are now performance managed around the level of Technology Enabled support referrals that are being generated.'

Example solutions and useful information to support medication adherence

MemRabel 2

MemRabel 2 is a new kind of calendar clock that helps people remember things they should do, daily, weekly, monthly, yearly. It can play voice and/or picture messages as well as videos or slideshows that you can add yourself to personalise reminders.

Price: £119.95
(£99.99 ex VAT)

Example webpage links:
http://bit.ly/2y9tsKq
http://bit.ly/2waACAw
Video clips from: http://bit.ly/2xllEWy

Step-by-step instruction guide:
http://bit.ly/2wY0lMa
Learning the benefits video:
http://bit.ly/2y7pL7K

Memo Minder

The Memo Minder Plus is a device which recognises when someone walks past and plays a single recorded message, e.g. it can help people remember to complete an important daily task or action such as take your pills in the morning or lock the door behind you.

Price: £19.95
(including. VAT)

Example webpage links:
http://bit.ly/2fjGblM
http://bit.ly/2xmpbW1
Video clips from: http://bit.ly/2xllEWy

Step-by-step instruction guide:
http://bit.ly/2fk6NDg
Learning the benefits video:
http://bit.ly/2xAwudh

Talking clock reminder

Your Minder is a versatile talking clock that announces the time, day of the week, and the date at the press of a button. It can record up to six daily voice message alerts for use as timed reminders, medication, daily tasks, or any other event where a memory prompt is needed. Programmed alarms are repeated daily.

Price: £39.99
(£33.32 ex VAT)

Example webpage links:
http://bit.ly/2xmqbcJ
http://bit.ly/2vUKTN1
Video clips from: http://bit.ly/2xllEWy

Step-by-step instruction guide:
http://bit.ly/2xmBkdp
Learning the benefits video:
http://bit.ly/2y7YzG1

Automatic Pill dispenser

The Automatic Pill Dispenser is filled with pills for the week ahead and reminds the user by means of an alarm and flashing light when to take their medication. It will make the correct dose available at the correct time of day or night, whilst keeping other pills locked out of sight.

When the alarm sounds, the internal tray will rotate one position and the correct dosage will come into view in the lid opening. Pills are removed from the dispenser by tilting it and pouring the pills into the hand or suitable container. This will also cancel the alarm signal and flashing light.

Price:
£120 - £222
(£100-£185 ex VAT)

Example webpage links:

http://bit.ly/2h3ULxH

Step-by-step instruction guide:

http://bit.ly/2y0Hw86

Minitell alarmed pillbox

A pocket sized, alarmed pillbox which can be easily filled & programmed by the user or family member to alarm up to 5 times a day or once a day for 5 days and be taken out and about.

Price: £21.60
(£18.00 ex VAT)

Example webpage links:

http://bit.ly/2h3WLq3
http://bit.ly/2x3uvNo

Positioning technology solutions within medication support assessment

Medication support is clearly the responsibility of a range of stakeholders across Health, Social Care, Housing and Pharmacy, and one of the key opportunities to identify a role for technology is within the medication support assessment.

The examples in **appendix F** from Cornwall & Scilly Isles and appendix J from Worcestershire CCGs provide guidance to the medicine compliance assessment and references the potential role for technology – having community pharmacy heavily engaged in such assessments is recommended, both to identify issues with compliance and to identify the practicalities of adopting technology solutions for the person, carers/family and the pharmacy.

Things to consider – barriers and challenges

Proving Compliance

In the foreword, Norman Niven outlined the two areas of non-compliance, and a person's decision to choose not to take medication as prescribed should be considered when identifying the best solution and reviewing the potential risks for the medication routine not being followed.

Although some forms of packaging allow medication to be tracked within the body, or carers can view a person via a webcam or indeed physically visit the person, all services must weigh up the impact of not fully complying with medication routines and the cost and indeed intrusion of providing support and services to aid compliance, and in all cases appropriate consent must be in place.

Fundamentally, the person setting up a Telecare service, or tailoring a service to a person's needs, will need to make a judgement whether the person needs a simple reminder, assistance with administration of the medication, a monitoring function, or a combination of these methods of support; such decisions should be made based on their assessment of that person's abilities and motivations, together with those of family, friends or support workers.

Pharmacy Engagement

Engaging pharmacy regularly within community health and social care services, and discussions with the relevant LPC (local pharmaceutical committee), will help in exploring solutions and agreeing pros and cons of different approaches, and will also ensure a common narrative is achieved in terms of information and advice, awareness of a range of technology and an ongoing dialogue around the roles and responsibilities in relation to reviewing usage and compliance, and identifying when solutions are no longer working and alternatives need to be found.

It is recommended to monitor usage of a range of medication support aids and the period of time where correct usage can be seen; each solution will have a period of adoption and a point where usage of the solution will become habitual, however change in circumstances could equally quickly lead to a rejection of the solution and the need to address compliance with an alternative option.

A white paper from 2016, medication adherence with smart phones **(appendix D)**, discusses the opportunities and potential barriers to delivering a pharmacy-driven app to support medication adherence, and the role of apps and the interaction between the end user and any stakeholder involved in 'administering' the app must be fully explored before rolling the solution out.

It is also recommended that services review both the points raised within the Automated Multi-Compartment Compliance Aids (AMCA) briefing from Pharmacy Voice **(appendix G)** and the feedback comments from Pivotell **(appendix H)** in relation to practice points and practical considerations when utilising medication dispensers, and involve pharmacies early in discussions when introducing new devices.

Step-up/step-down approach to technology supporting medication adherence

The range of solutions is significant and while this can provide issues in keeping knowledge up to date, both for Telecare services and the wider workforce, it does also provide greater potential for an individual, needs-led approach – people and their carers may prefer simple gadgets or less hands-on solutions, some may only be compliant with their medication if it is their own voice reminding them to take their pills.

The examples referenced in this document from the table above and in Herefordshire/Worcestershire **(appendix E)**, Gloucestershire **(appendix A)**, Falkirk **(appendix B)**, show that a manageable step-up/step-down approach and guidance to technology solutions will support services and ensure the workforce think of a variety of solutions.

Simple, ongoing awareness training (both physical and online) will help staff to think technology first and a range of persona-driven examples such as those found on the AT Home website - **http://www.athome.uk.com/testimonials-2/** - support staff, carers and families to identify what may work best for the person they care for.

TEC service providers and suppliers, and the range of information, advice and retail sites within this document, can provide a richer conversation to help find the right solution and to provide a range of examples of people being supported to meet their individual outcomes and delivering an impact on the cost effectiveness of services provided.

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- Sunderland Care and Support
- Herefordshire Council
- Gloucestershire County Council
- Norfolk County Council
- Pivotell

Useful examples, further reading and evidence – appendices:

All appendices can be downloaded and viewed via the following links on the TSA website – https://www.tsa-voice.org.uk/supporting-medication-adherence-with-technology-appendices-4

Appendix A –   Medication Aid Pathway - Gloucestershire Telecare Service

Appendix B –   Medication Reminder Equipment catalogue – Falkirk Council

Appendix C –   The True Cost of Medication Non-Adherence – Let's Take Care of It

Appendix D –   Medication Adherence with Smart Phones: Pharmacists Focused App

Appendix E –   Medication Reminder Pathway example – Herefordshire/ Worcestershire Councils

Appendix F –   Medication Compliance Assessment – Cornwall & Scilly Isles

Appendix G –   Automated Multi-Compartment Compliance Aids – Pharmacy Voice

Appendix H –   Pivotell feedback comments to AMCA publication

Appendix J –   Guidance on Medication Adherence Interventions – Worcestershire CCGs