

A huge healthcare opportunity

Imagine a disease that is responsible for over 20% of hospital admissions and 50% of care home admissions, and wonder why it is not front page news. Especially when technology and systems are available to make improvements, saving many lives and reducing costs dramatically.

Patient compliancy, or adherence to prescribed medication, is a major issue. Many estimate that over half of all patients do not comply with their medication. Even patients with life-threatening conditions often do not comply.

There are several causes for non-compliancy. Many patients simply forget whether they have taken their daily dose, and sometimes take extra medications “just in case”. Other patients are nervous about side effects – not surprising when many grew up in the era of thalidomide and have become accustomed to regular news reports about drugs which have proven dangerous to their takers. Some patients believe that changes to lifestyle are preferable to taking drugs, especially when the medication is long term. Others don’t even bother to fill the prescription, perhaps believing like the ostrich that putting their head in the sand is an appropriate response when danger threatens.

Making matters worse, the health care provider and specialists such as doctors and pharmacists are usually not aware whether a patient is complying with their medication or why.

Medication only works when people take it. The technology now exists to monitor medication usage and help patients adhere better to their prescribe regimen.

Public health

In some cases, non-compliancy is only a danger to the individual who chooses not to adhere to their medication. The cost for an avoidable hospital or care home admission is, however, a cost for society and the family. Not long ago it was acceptable for an individual to choose not to wear a seat belt when driving. Today this personal choice is generally regarded as unacceptable, yet we still grant individuals the freedom not to take their medications.

In some cases, non-compliancy is a clear danger to public health. We are all familiar with bacteria which are becoming resistant to antibiotics because so many people do not

Highlights:

- Medication schedule reminders
- Recording of dosage events
- Quality of Life questionnaires
- Communication with healthcare provider
- Reducing cost and saving lives
- Someday all medication will be delivered this way

finish their prescription. Diseases like tuberculosis and aids are equally threatening, requiring complicated and lengthy medication treatments and a high degree of compliancy.

Monitoring and prevention

When the professionals become aware of non-compliancy, if they do, it is often too late to take corrective action.

Advances in pharmaceutical knowledge mean that it is today possible to prevent serious diseases by prescribing medication to be taken over long periods of time. Heart attacks and strokes are prevented by taking certain pills, while diabetes II can be treated in the early phases with a strict medication regime. Without close monitoring by healthcare professionals these preventative treatments are much less effective than they should be.

Imagine a situation in which carers know when patients are not complying with their medication. Carers can intervene, maybe talking to the patient to find out why. If memory is a problem, the patient can be provided with a reminder system. If the patient is feeling unwell, and fearing side-effects, then maybe a change of dose or another medication may be appropriate. Often a little education will be sufficient – it is noticeable that many patients leave the doctor’s surgery without knowing why they have been given a prescription.

Information and feedback about patient compliancy is not only important for the professionals. Parents want to know whether their children have taken their medication while away at school or camp. Family members responsible for elderly relatives also need to know that their patients are complying.

Medication monitoring – a solution

Cypak is developing the specification for an Advanced Medication Monitor (AMM) together

Cypak Medication Compliancy – Application Note

with the Continua Healthcare Alliance and the IEEE world standards organisation.

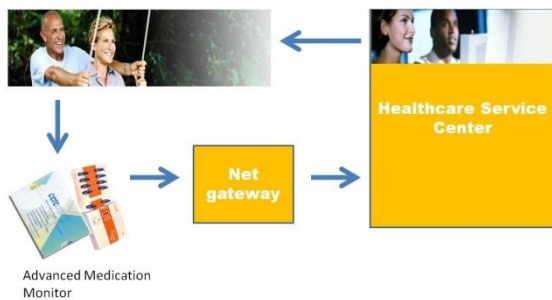
The technology has been available for use in clinical trials in recent years, and has now achieved the low cost points that make it feasible for use in high volumes.

An AMM can be programmed with a reminder scheme to alert a patient when the next dose is due.

Doses taken are time-stamped and recorded for communication to a carer or health service centre.

The AMM also provides a questionnaire to reinforce correct behaviour, for example to take pills before meals, and to register their quality of life. It may be useful to record whether a patient is sleeping better or continues to experience pain. Early indications of side effects can be detected and interventions planned.

Communication with the care giver



The technology is small enough to be embedded in a pill pack and taken by the patient while travelling or away from home.

The recorded data can be communicated to the healthcare service centre at any time, either using the mobile phone network or a home internet connection.



An Advanced Medication Monitor supplied by Stora Enso

Measuring outcomes

Together with other companies in the Continua Healthcare Alliance, Cypak is cooperating to build a standard platform that can link medication monitors with other personal monitors for example, blood pressure, blood sugar, and weight.

The full spectrum of data from Continua devices will provide a professional with a complete picture of medication compliancy and whether the medication is having the desired result.

Professional intervention

Advanced Medication Monitoring brings the healthcare professional into the patient's home, often allowing the patient to remain comfortably in their own environment without having to be admitted to a hospital or care home. Regular monitoring enables the professional to keep a finger on the patient's pulse, intervening early to prevent problems before they occur.

Taking care of patients at home will deliver major savings for the healthcare system. The costs of institutional care are many times greater than home care, delivering a higher return on investment for tele-health initiatives.

The future of drug therapies

Close monitoring of drug adherence and outcomes has the potential to transform drug treatments, enabling in-life testing of new preparations, continual feedback on efficacy, and early warning of problems. New preparations can be brought to market early in the knowledge that clinical trials can continue while the therapy is in early use.

The Advanced Medication Monitor will revolutionize the way we deliver and manage medication, making more efficient use of resources, preventing waste, and improving outcomes.