Interventions for improving patients’ adherence to medical treatment
Adherence to medical treatment plays a key role in maintaining or improving clinical outcomes. Poor adherence to medical treatment is known to be associated with an increase in morbidity and mortality. It has been suggested that interventions that aim to improve adherence in patients with chronic conditions, such as type 2 diabetes, could help to reduce the burden of disease.

Factors that influence adherence
Factors that can influence adherence to medical treatments include:

- the relationship between the healthcare provider and the patient;
- the systems through which healthcare services are delivered; and
- the environment in which the patient lives.

A US-based study found that barriers to adherence at the level of the healthcare system were a lack of education about treatment regimens, a lack of support to help patients establish routines for taking their medications and poor communication between pharmacies and healthcare providers. At the patient level, a prospective cross-sectional study of 200 patients taking antihypertensive medication in the United Kingdom (UK) that was conducted over four months found that although the overall rate of adherence was 79%, only 36% of patients were fully adherent to treatment. The most common reason for non-intentional adherence to treatment was remembering to take medication. The most common reasons for intentional non-adherence to treatment were the fear of side effects and the inconvenience of having to take medication outside of the home. The authors emphasised the importance of the healthcare provider’s role in educating patients about their disease and helping them to understand the need for treatment to try and improve adherence.

Interventions for improving adherence
Interventions that aim to improve adherence can be divided into:

- interventions that are centered around the patient (for example, educational interventions may improve patients’ knowledge about their disease, but the evidence has not shown that they are effective for improving adherence when used alone. However, there is evidence to suggest that when they are used in combination with other interventions, for example training patients to self-manage their condition, educational interventions may be of benefit);
- interventions that focus on the delivery of healthcare; and
- interventions aimed at improving the communication between patients and clinicians.

This article will focus on interventions that are centered around the patient.

Healthcare professionals play a key role in supporting patients to take their medications in a way that ensures they receive the greatest benefit from treatment. Evidence evaluating the long-term impact of interventions to improve adherence is limited and the results from existing studies are inconsistent. However, where evidence is available it suggests that interventions to improve adherence may be of benefit and studies have identified areas of focus for further research.
**Nurse-led interventions**

An explanatory randomised controlled trial that was published in 2012 evaluated the impact of a nurse-led intervention on adherence in patients with type 2 diabetes. The researchers developed the nurse-led intervention to determine the possible causes of non-adherence by eliciting the beliefs patients had about their medication. The aim of the trial was to determine the short-term effect of the intervention on the way in which patients took their treatment and to help determine the sample size for a definitive, pragmatic trial looking at the control of blood glucose levels.

The intervention had two components that were both delivered in one consultation:

• a motivational component where the nurse elicited the patient’s beliefs about taking medication; and

• an action planning component where the nurse asked the patient to make a written plan for taking their medication.

A total of 211 patients with type 2 diabetes in the UK were eligible for inclusion in the trial. Patients were randomised to receive either standard care or the intervention. If the patient was in the intervention group the nurse asked them questions about any beliefs that may have impacted on their intention to take their treatments (for example, their views on the benefits and risks of taking their medication and factors that helped or stopped them from taking their medication). Nurses reinforced the patients’ positive beliefs by giving them information tailored to their specific situation. If the patient had negative beliefs about taking their medication the nurses helped them to identify ways of addressing them. The primary outcome of the study was adherence to medication 12 weeks after randomisation to the intervention group or the standard care group.

Twelve weeks after randomisation the patients in the intervention group took their prescribed medication correctly on 77.4% of days compared to 69.0% of days in the group who received standard care. The mean difference in adherence between the groups (i.e. the mean difference in the percentage of days that the medication was taken correctly) was 8.4% (95% CI 0.2, 16.7; p=0.044). There were no significant differences in the levels of glycated haemoglobin (HbA1c), the percentage of patients reporting hypoglycaemia or satisfaction with treatment between the groups.

These findings suggest that there may be an association between a nurse-led intervention and improvements in adherence to treatment. The study did not find a significant difference between the groups in the levels of glycated haemoglobin (HbA1c) but the authors recognised that the length of follow-up and power of the intervention were not designed to evaluate this. They suggest that a larger pragmatic trial looking at the intervention with a longer follow-up period and higher power is needed to identify the impact the intervention might have on clinical outcomes.

A small, two-group randomised clinical trial in the US looked at the effectiveness of a nurse-led intervention on adherence to a new oral chemotherapeutic drug in 48 adults with the following cancers: chronic leukaemia, multiple myeloma, breast cancer, colorectal cancer, hepatocellular carcinoma and renal cell carcinoma. Patients were randomised to receive a tailored intervention to promote adherence or standard education about chemotherapy. The standard education included giving the patient a notebook containing information about their disease and instructions about their treatment from the clinic nurse, an oncologist or a nurse practitioner. Patients in the intervention group received this standard education, but they were also given a personalised assessment and intervention plan that was tailored to their needs.

Patients were called every week during the first month of treatment and then twice a month for six months (or until they had finished their course of chemotherapy). During the first call the nurses discussed the barriers or facilitators of adherence with the patients, including side effects from the treatment, symptoms of depression and interactions with healthcare providers and significant others. Strategies for adherence were then identified and tailored to each patient. For example, if a patient found it difficult to remember to take their medication they may have been taught how to use a pillbox or alarm reminder system.

The results of the trial showed that at four months the self-reported rate of adherence was 95.1% in the intervention group and 82.4% in the standard care group. However, these differences were not statistically significant, which the authors suggest was a result of the small sample size. The authors concluded that these findings could potentially provide a focus for clinical practice and the use of a coaching intervention to promote adherence could be considered as part of the routine care of these patients in the future; however, further research is necessary to look at the effectiveness of the intervention in other healthcare settings.
Combination interventions to improve adherence and clinical outcomes

There is evidence to suggest that multi-faceted strategies may help to improve adherence to medication and clinical outcomes. A small randomised controlled trial evaluating an integrated care intervention in patients with COPD who had been admitted to hospital found an association between the intervention and improvements in patients’ knowledge of their disease, adherence to treatment and their nutritional state.

The intervention involved a discharge assessment from a specialist nurse, which included an educational session about self-management that lasted for two hours. Patients were given information about how to identify signs of a clinical deterioration and were told to phone a call centre if they had a deterioration so they could speak with a specialist nurse. Each patient was also given an individually tailored care plan. Within 72 hours of discharge from hospital the patient was visited by the specialist nurse and the primary care team (comprising a clinician, nurse and social worker). They received weekly phone calls for a month after discharge and then one call three and nine months after discharge to support self-management. Patients in the standard care group did not receive the educational session, a visit from the primary care team and specialist nurse and they did not have access to the call centre.

There were 113 patients who were eligible for inclusion in the trial but only 57% completed the study at 12 months (five did not want to participate, exclusion criteria appeared in nine patients during follow-up, 21 patients died and 16 were lost to follow-up). The researchers evaluated the groups for differences in clinical state, functional state, quality of life, self-management, lifestyle factors, medical treatment and satisfaction with healthcare at 12 months. With regards to medical treatment, the results showed that 71% of patients in the integrated care group reported adherence to inhaled treatment compared to 37% in the standard care group (p=0.009). In the intervention group 85% of patients could identify a COPD exacerbation compared to 22% in the standard care group (p<0.001).

Although the findings from the current literature for interventions to improve adherence are inconsistent, some studies do show that these interventions may be of benefit. Different approaches to improving adherence include educational techniques, behavioural techniques, provider-focused interventions (for example, providing postgraduate education to clinicians to help increase their knowledge and improve performance) and interventions focused at the level of the healthcare system (for example, integrated care interventions). It has been recognised that adherence is not solely dependent on the patient, but both healthcare providers and healthcare systems need to be involved in strategies to improve adherence.


