CF CARE

Cystic Fibrosis - Collaborative Adherence Resources & Education

The management of suboptimal adherence with motivational interviewing (MI)

Motivational interviewing is a collaborative conversation style for strengthening a person's own motivation and commitment to change.

Miller and Rollnick, 2013

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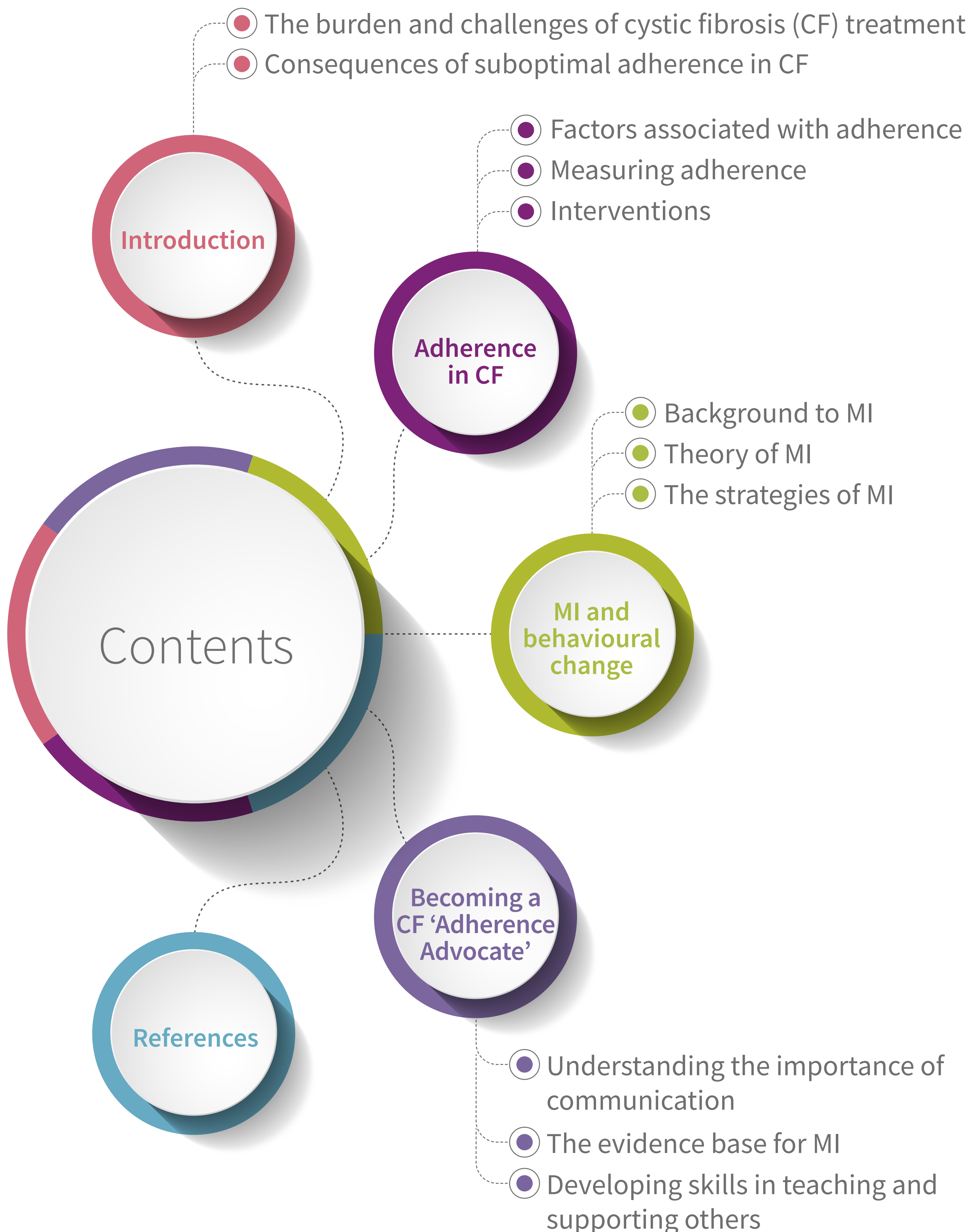

This extensive resource has been developed by a steering committee comprised of international cystic fibrosis (CF) experts to cover motivational interviewing (MI) techniques, which can form an effective framework for improving patients' openness to behavioural change. The resource explores the issues with adherence in CF, as well as the principles and strategies of MI. It aims to equip you with knowledge and skills to improve your individual practice of MI and provides you with the relevant background for the topics discussed in the five MI modules. These modules can be downloaded from here.

The burden and challenges of cystic fibrosis (CF) treatment

Important developments in CF treatments and management strategies have led to a remarkable improvement in the health of people with CF. It is widely recognised that survival is improving (Burgel et al., 2015), attributable at least in part to early and aggressive treatment, as well as therapeutic advances (Lopes-Pacheco, 2020).

However, the use of multiple medications and therapies can be complex, demanding and time-consuming for patients of all ages and their relatives (Sawicki and Tiddens, 2012; Sawicki et al., 2013). Members of the CF multidisciplinary team (MDT) often have long (and occasionally intense) relationships with patients and their families. The team needs to deliver care that is both holistic and patient-/family-centred, with the aim of helping people with CF achieve a balance between optimum treatment and quality of life (Duff and Oxley, 2014).

Whilst both CF teams and patients willingly embrace this philosophy of care, the reality is that complex management regimens place an ever-greater burden of care on patients and their families. This can lead to non-adherence (Bregnballe et al., 2011; Sawicki and Tiddens, 2012) and low levels of competence with administration of therapy, both of which can be detrimental to health outcomes (Sawicki and Tiddens, 2012).

'Adherence' is one preferred term to describe how patients' healthcare behaviours concur with agreed recommendations made by CF team members ('concordance' and 'levels of self-care behaviour' being others) (Duff and Latchford, 2010). Good adherence is difficult to define but optimal adherence almost universally involves taking the right treatment, in the right way, at the right time. Adherence is known to vary according to the complexity of the treatment regimen and the way adherence is measured (White et al., 2017; Lopes-Pacheco, 2020).

Consequences of suboptimal adherence in CF

Optimal adherence is strongly associated with better outcomes and reduced risk of hospitalisation (Eakin et al., 2013; Mikesell et al., 2017; Quittner et al., 2014). Suboptimal adherence has been found to be the single biggest cause of treatment failure (Thee et al., 2021), leading to poor health outcomes (Eakin et al., 2011). It is explicitly linked to treatment failure, lower quality of life, reduced baseline lung function and higher morbidity; it is also predictive of intravenous antibiotic requirements (Briesacher et al., 2011; Duff and Latchford, 2010; Eakin et al. 2011; Eakin et al., 2013; Quittner et al., 2008; Mikesell et al., 2017). Improving adherence is also one of the most important psychosocial challenges in CF care today (Muther et al., 2018).

Factors associated with adherence

The factors that influence treatment non-adherence in CF are wide-ranging and can vary vastly from patient to patient. To better understand these factors, we have developed the CF CARE Adherence Management Flowchart using the latest CF adherence research to provide a comprehensive overview of the drivers of non-adherence and strategies to address them.

In the following sections, the core domains and key categories that were identified will be briefly reviewed. An overview of the flowchart can be viewed in the below figure, which divides the possible factors under the following five core domains:

- **Patient-related factors**
- **Disease-related factors**
- **Therapy-related factors**
- **Health system-related factors**
- **Socioeconomic-related factors**

The complete interactive flowchart can be accessed here, which includes further supporting studies and references, as well as additional examples and possible interventions. The flowchart is intended to support you in creating personalised care plans to address non-adherence, with the aim of improving outcomes in CF.

There are many aspects that can impact adherence to CF treatments and interventions

Patient-related factors

The patient-related factors that affect adherence are wide-ranging and include factors intrinsic to each individual patient. The patient's knowledge, skills and ability are known to affect adherence and may include their treatment knowledge (Pakhale et al., 2016), disease knowledge (Ohn et al., 2018), capacity of administering therapy (Zanni et al., 2014) and level of education (Flores et al., 2013). The patient's attitude and personal organisation also play a role in adherence through their feelings towards treatment (Arden et al., 2019) and beliefs (Happ et al., 2013; Keyte et al., 2019), as well as time management skills (Ohn et al., 2018) and prioritisation skills (Nicolais et al., 2019). The patient's mental health can also affect adherence through depression and anxiety (Quittner et al., 2016).

There are also factors related to the patient's immediate environment such as the role of family/caregivers and the social environment. Family/caregiver support and organisation can help or hinder patient adherence (Prieur et al., 2021). Furthermore, social life and social pressures (Arden et al., 2019; Hogan et al., 2015; Oddleifson and Sawicki, 2017), as well as the availability of non-familial support systems (Helms et al., 2015), can also contribute to adherence.

Disease-related factors

Severity and progression of disease, as well as the presence of comorbidities, can all impact adherence and functioning, including recent pulmonary exacerbations and/or hospitalisations (Mikesell et al., 2017; Quittner, 2014; Eakin et al., 2013), the patient's relationship with their disease progression (Lomas, 2014; Dziuban et al., 2010) and physical comorbidities (Ronan et al., 2017) and mental health comorbidities (Cohen-Cymberknoh et al., 2018).

Therapy-related factors

There is also a myriad of factors that can impact adherence relating to the specific treatments and interventions that patients with CF are undertaking. These include the perceived benefit and complexity of treatment, as well as the frequency and duration of treatments (Sawicki et al., 2015). For instance, patients can also experience tiredness, fatigue or burnout from doing treatments every day (Eaton et al., 2020). Furthermore, treatments may cause stress and inconvenience in daily life (Sawicki et al., 2015). Additionally, adverse effects and polypharmacy are also barriers to adherence (Narayanan et al., 2017).

Health system-related factors

There are many ways in which the health system and CF team members interact with patients to support adherence both on a day-to-day basis as well as at key transition points. Critical to the functioning CF teams and their support of adherence are the team's knowledge, awareness and communications skills (Duff and Latchford, 2010). More broadly, how the healthcare system is organised in terms of multidisciplinary team support (Zobell et al., 2017), as well as adherence protocols and assessments (Riekert et al., 2015; Santuzzi et al., 2020), will affect the adherence of patients. Furthermore, while digital monitoring tools can support treatment adherence (Calthorpe et al., Thorax. 2020), a patient's adherence to these tools will also be variable based on things like patient preference (Calthorpe et al., BMJ Open Respir Res 2020), which must also be taken into account.

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How patients interact with the healthcare system will also change as they age (Ohn et al., 2018) and as their individual circumstances change in relation to ease of access to services, for example, distance from outpatient services if they move for work, education or other reasons (Abraham et al., 2018). These factors can all have an impact on patient adherence and its monitoring.

Socioeconomic-related factors

Finally, there are social and financial resources that patients may have access to that can support adherence. Social resources include level of education (Flores et al., 2013) and aspects of the family environment that support adherence (Everhart et al., 2014). Financial resources include household income (Oates et al., 2015) and insurance coverage of prescription medication (Li et al., 2018). These factors can feed back into aspects of the previous four domains as well.

Together, these core domains show the complex and overlapping web of factors that can lead to suboptimal adherence in CF patients. If you are interested in learning more about these factors and specific interventions, please view the CF CARE Adherence Management Flowchart **here**.

Measuring adherence

The accurate measurement of adherence is very important, as data will inform and support any intervention with patients. Variable and unreliable measurement techniques (e.g. self-report, bottle count and prescription collection) are important factors that account for inconsistency in reported adherence rates. Even in cases where patient understanding of both the disease and treatment plan is satisfactory, accurate measurement of adherence rates (expressed as a percentage of the prescription) is methodologically fraught.

It is therefore vital for CF teams who are concerned about their patients' adherence to follow current best practice guidelines. These involve (i) measuring disease and treatment knowledge, understanding of disease and treatment plan and the factors that block adherence at both an individual and family level, (ii) establishing comprehensive treatment plans with written copies for patients and parents, and (iii) triangulating data by utilising at least two assessment modalities (e.g. daily diary and electronic monitoring) and then exploring concurrence between two or more results, with electronic data taking precedence (Quittner et al., 2008; NICE, 2009).

It is also useful for CF teams to have handy tools to check in with the patients about how *they feel* they are doing with their treatments. You could just ask, but using brief tools might be more useful. We have developed a tool called the Brief Adherence Rating Scale, using three visual analogue scales covering how well patients feel they are doing with their treatments overall, how easy they find the treatments, and whether they think they need to change what they are doing. This tool is meant as a prompt for discussion rather than a reliable measure, but you may find it useful to start a conversation or to track change over time.

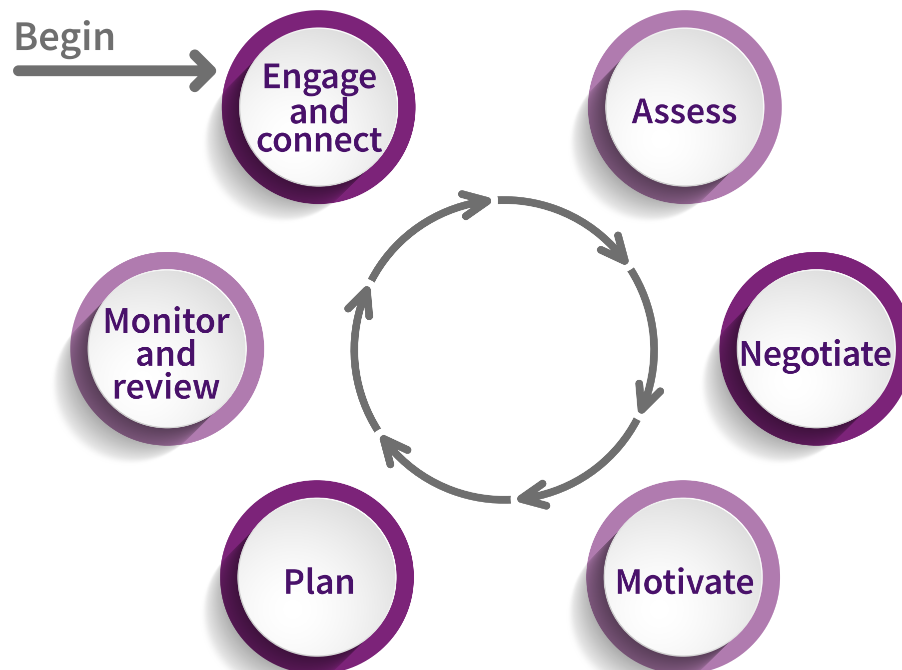
The Brief Adherence Rating Scale, along with other handy tools, can be found in the accompanying Adherence Toolkit **here** on the CF CARE website.

To further aid discussions with your patients, we have also developed a tool called the Visual Analogue Scale for Adherence and Non-Adherence (VASANA). This tool can be used to track how well patients are taking specific medications and can help focus discussions on medications that patients are struggling with. The VASANA tool can be found **here** on the CF CARE website.

Interventions

The work done with patients to increase adherence consists of six key stages, described on the following pages. These stages need to take place in the context of routine clinic and ward visits rather than during separate consultations.

The six key stages involved in the process of helping patients increase adherence



Engage and connect: establish a collaborative relationship with the patient

Interventions begin with discussion. Yet, in order for a CF team to discuss potentially sensitive topics effectively with a patient, there needs to be a sense of engagement and a connection between the two. In the National Health Service (NHS) in England, for example, the most common complaint provided in writing in 2020 was about communication (NHS Digital, 2021).

In CF care, the importance of optimising communication between clinicians and individuals and families living with CF is well known, particularly with regards to daily care, adherence and psychosocial concerns. In a study published in 2020, CF clinicians highlighted the need for resources and training to better engage their patients in high priority areas such as social, psychological, and economic challenges, preparation for transition to adulthood, and sustaining daily care. Furthermore, advanced communication skills that foster trust-building were suggested as being highly valuable (Cooley et al., 2020).

The foundation of good communication is listening. Listening and understanding helps shape consultations to derive maximum clinical information from patients. It is vital to realise that good listening is not a passive process; it involves more than sitting silently. Active listening leads to patients becoming actively engaged in their healthcare and to true collaboration between them and their health professional. It also leads to more honest – and ultimately more useful – dialogue. Active listening is achieved by listening to the following:

- **To the content of the message**
- **To the feelings of the speaker**
- **Without interrupting**
- **Without judging**

In turn, an optimal response is made up of 'OARS' (Miller and Rollnick, 1991):

Open-ended questions: These questions cannot be answered with a single word or phrase. For example, rather than asking, "Do you like to drink?" a clinician might ask, "What are your feelings about drinking?"

Affirmations: A clinician can support and comment on a patient's strengths, motivation, intentions and progress. Keeping morale up is really important, especially if you'd like them to take a difficult step, such as getting on top of treatment, where confidence is going to be an important factor

Reflective listening: A clinician can demonstrate that they have heard and understood the patient by reflecting what the patient has expressed. There are different ways to do this, ranging from the simple (reflecting back just what's been said, perhaps changing a few words) to the more complex (reflecting back the meaning of what's been said – or at least what you think this is)

Summaries: Summarising what has been discussed can be really useful. It provides a nice pause in the conversation before it goes off in a different direction. Pulling together different strands can also make a very powerful point – for example, the different ways someone may have talked about their worries

In a truly collaborative relationship, CF teams can hold an open and honest discussion with patients. Along the way, information and education is provided, and the patient is empowered to make the choices which affect them with support. In such interactions, patients feel they have some control over their treatment regimen. They become informed and knowledgeable about CF and their care, and can then negotiate with their team from an informed perspective.

Collaboration is the key to success. Without it, patients will not trust the team with the truth about how they are coping and how well they are really doing with their adherence. They are also less likely to believe and follow advice. The importance of establishing meaningful communication with patients through reflective listening, as well as an in-depth account of OARS, can be found **here**.

Assess

A good assessment does not only focus on current adherence behaviour, even though this is important. Assessment should include all of the factors that may influence adherence behaviour. In general, a full assessment should:

- **Establish current behaviour**
- **Establish current knowledge**
- **Explore current beliefs**
- **Explore resources**
- **Explore the role of the patient's family/friends/partner**
- **Explore barriers/facilitators**
- **Explore any problem situations in detail**

Negotiate

As discussed in the previous sections, it is important to consider how the therapeutic relationship can be best used to improve adherence. The principles of true collaboration result in:

- **Open and honest conversations**
- **Getting key messages across**
- **Listening to and understanding an actively engaged patient**

It is within the context of the truly collaborative relationship that discussion and negotiation about treatment plans can effectively take place.

Although CF teams hold clinical responsibility and cannot overtly condone supporting a reduced/amended regimen, this position needs to be balanced with a realistic assessment of what a patient will actually do when they are discharged from an inpatient stay or leaves the clinic.

In many cases, there will be a need to share the dilemma with the patient. The discussion could be started using the following approach:

"As part of your CF team, I have the responsibility to provide you with the best possible care and advise you on a treatment plan that will achieve this. However, what I hear you say is that sticking to this plan is such hard work for you right now that it can't be done. Where do we go from here?"

Three things need to be considered when negotiating

Who do we need to negotiate with?	Patients, parents, carers, partners, siblings
What do we need to negotiate?	Only those aspects of treatment that the patient cannot adhere to optimally
When do we need to negotiate?	When it is certain that the patient has good knowledge and understanding of the treatment in question When traditional attempts to support the patient in adhering to treatment have failed

Motivate

The idea of change is in the air, but the decision – of course – rests with the patient. We know, though, that staying the same is always the easier option for individuals, especially when the change they are contemplating is difficult and means confronting some scary or worrying thoughts about their illness.

We know that helping patients to work things out for themselves is always better than the CF team making suggestions. So how should a member of the CF team try to address the bias towards the maintenance of the *status quo*? The CF team can address this issue by helping patients explore all their thoughts and feelings around the choice whether to change or not. Ultimately, this will involve a confrontation between incompatible or inconsistent beliefs. The theory of 'cognitive dissonance' is a useful concept to understand this process. Cognitive dissonance was proposed by Leon Festinger (Festinger, 1957) to describe a situation when two incompatible beliefs exist that cannot both be true. Dissonance between beliefs, such as when there is something someone feels they ought to be doing, but they are not (e.g. giving up smoking), makes people feel uncomfortable and produces momentum to change, if handled in the right way.

Active listening skills need to be used to identify discrepancies between patients' thoughts and behaviours (this is often referred to as 'developing discrepancies'). This allows an assessment of how important patients believe it is to change (i.e. to increase their adherence) and how confident they are in achieving it. In reality, patients are usually already aware of most discrepancies, but individuals are adept at not thinking about the things they are not doing (but should be) that make them feel guilty or uncomfortable.

The development of discrepancies between patients' goals or values and their current behaviour is discussed in further detail here.

Plan

When an individual has decided to change, having a plan can make all the difference between success and failure. The first step during the planning stage involves setting goals. It is tempting to set vague goals, e.g. to 'take all my medicines' or 'just get better'. However, unless the goals are clear, change may prove problematic, and success will almost certainly be impossible to assess. The best way to establish goals is to make them 'SMART':

- **S**pecific
- **M**easurable
- **A**ttainable
- **R**elevant
- **T**ime-bound

SMART allows goals to be defined unambiguously, measured with an acceptable level of certainty, realistic, pertinent to the patient's aims, and achievable within a reasonable time frame. It is worth noting that it is usually best to start with small, preliminary steps to build up the patient's confidence.

Once the goals are agreed upon, a change plan can be completed. Writing a change plan commits the patient to change and reminds them of their reasons for wanting to change. It helps patients to focus on what they will actually do, as well as help them consider what things may make the change easier (or harder). Generally, people are more likely to do something if they write it down, thus making the commitment somewhat more formal.

We have developed an Individual Treatment Plan tool, which can help patients take control of their treatment and overcome barriers to adherence. This template document can be found here on the CF CARE website.

The key to successful change is planning. Although it is tempting for most people to be impatient for change, launching into change without preparation is likely to lead to failure. At the same time, the second most common reason for failure is not to begin at all. Even when a decision has been made, it is easy to postpone starting a plan.

Whenever someone starts to change, it is very likely that they will meet obstacles along the way. These obstacles may delay or halt the process of change, or prevent it from starting altogether. A useful strategy to help patients get past obstacles is to adopt implementation intention plans. Research has shown that using this simple technique can produce a medium-to-large effect on rates of goal attainment (Gollwitzer and Sheeran, 2006; Gollwitzer and Sheeran, 2008; Gollwitzer, 2014).

Implementation intention plans help patients prepare an action plan for any barriers to change. Spending time anticipating what they might be is useful in itself, but this technique also involves generating possible solutions. Most importantly, barrier and solution are written down before the change is attempted, meaning the solution is well rehearsed before the problem is encountered. Obstacles and solutions need to be written down in a format that leaves no room for doubt about what will happen:

"If ____________ happens, then I will do ________________."

During the planning process, the clinician's experience and knowledge will prove very helpful for the patient. It is important for the CF team member to remember not to slip into 'expert mode' by telling patients what to do. Instead, patients should be asked if it would be helpful if they are told what other patients have found useful. 'Guiding' is a very apt description of this process – advising, listening and adapting to the needs of the patient.

The aim of any behaviour change is to make it routine so that the behaviour becomes automatic (habitual). In the early days, the target behaviour could be deliberately added to an already established routine so that it is assimilated into a daily activity or routine. Alternatively, a prompt/cue could serve as a reminder for the patient. Examples of prompts/cues are:

- **Mobile phone alarms, stickers, placing medications in a location where they will be seen**
- **Behaviour incorporated into an existing routine or behavioural sequence and used as a cue (e.g. teeth brushing)**
- **Use of friends/family/partner (identified by the patient) as a source of reminding and support**

Another useful technique is to encourage the patient to visualise possible problems and imagine dealing with them successfully using the pre-planned responses that have been agreed together. The process of visualisation makes it much more likely that the patient will cope better in real life.

It is important to remember the crucial role played by the patient's beliefs, as discussed earlier. It may be that these beliefs will be brought up during the planning stage, so it is best to be prepared to discuss them with the patient.

The final tip is to use reinforcement. It is a common myth that the most powerful way to change behaviour is to threaten punishment. In actual fact, positive reinforcement is a far stronger incentive, and can be used effectively in helping a patient plan change. It is advisable for a CF team member to spend time establishing what patients could do to reward themselves if they succeed in changing – making it very clear what this is and when it can be awarded. Recording this is also very useful. It is important that rewards are actually taken, as it associates the behaviour to the reward. The most effective reinforcements are psychological because they give the patient the sense of being in control and of doing the right thing, as well as making them proud and confident. On the other hand, most of us also respond to more material reinforcements (whether this is shopping or chocolate-based!).

Monitor and review

The final stage is to monitor what happens after a patient initiates change. It is important to allocate time to review progress, to reflect on successes, and to revise the plan if it is not working. Above all, it is important to keep morale up, and to keep the focus on change. Change is not easy and it often requires several different attempts to succeed.

When people achieve change, sometimes they forget to give themselves credit for it. Sometimes they respond with comments like "it's nothing special – I should have done it ages ago anyway". This could be because they feel guilty at having needed support to change. In these situations it is important to normalise the process – to remind patients that many people struggle with change and to point out how well the patients have done. If a CF team member had planned a reward, they should ensure that the patient has followed through with it.

The best way to ensure that someone continues to make changes is to help them see for themselves that the changes they have made are positive.

Additional interventions aimed at specific factors that are causing suboptimal adherence are detailed in the CF CARE Adherence Management Flowchart found **here** on the CF CARE website.

Background to MI
Theory of MI
The strategies of MI

Background to MI

MI is an intervention designed for situations in which a patient needs to make a behaviour change but is unsure about it, sometimes to the extent of being hostile to the idea. It builds on the notion that the first step in any consultation is to start a conversation. It then uses particular strategies to steer this conversation towards change.

The background to MI lies in the treatment of people with alcohol problems. The traditional approach had been to confront the person with the consequences of their drink problem, the belief being that unless they admitted they had a problem, they would never get better.

When this was done, however, the people who were being confronted fought back unsurprisingly by denying they had a problem. Many responded by not hearing it, and by coming up with reasons why their counsellor was wrong ("I don't drink any more than the next person…"). It was tempting for those providing counselling to then blame the patient, seeing them as having 'no willpower' and 'no motivation'.

The first paper on MI, written by psychologist Bill Miller in New Mexico (1983), tackled this issue by drawing upon his own clinical practice. In contrast to the prevailing view, he suggested that rather than seeing denial as poor willpower or lack of motivation to solve the problem, it might be more helpful to see this outcome as a product of the situation in the counselling session, i.e. confrontation produces resistance and denial.

Bill Miller went on to suggest a number of ways that a counsellor might try to avoid a confrontation, and this laid the foundations of MI (Miller, 1983). MI was further developed in collaboration with psychologist Stephen Rollnick, a clinical psychologist originally from South Africa but then working in addictions in the UK. Stephen Rollnick saw the relevance of this approach to physical health settings, especially lifestyle change and later adherence. Bill Miller and Stephen Rollnick went on to collaborate on the first book on MI and many publications since (e.g. Miller and Rollnick, 1991; Rollnick and Miller, 1995; Rollnick et al., 2007; Arkowitz et al. 2017).

A directive, client-centred counselling style for eliciting behaviour change by helping clients to explore and resolve ambivalence. Rollnick and Miller, 1995

It sometimes seems strange to see MI described as both person-centred and directive, as person-centred approaches are traditionally not directive. Nevertheless, it is a good description, as the aim of the intervention is to encourage the patient to change their behaviour.

Theory of MI

Main principles of MI

Although MI has its roots in clinical practice, it is now clear that the main tenets behind MI have a very long history. They can be summarised in six general principles:

Principle 1: People should not be told what to do

Even if a member of the CF team is providing the correct advice, most people do not generally comply as a result of simply being told what to do. If people do not feel they have a choice, they feel a real need to do whatever it is they have been told not to – to prove they still have free will. This phenomenon is described by the 'reactance theory' developed by Jack Brehm in 1966.

Principle 2: Listening

If a CF team member cannot listen and engage patients in conversation, the patients are unlikely to change. This part of MI has its roots in patient-centred counselling, proposed by Carl Rogers, who argued that change can be facilitated by providing people with therapists who adopt a non-directive style, who is empathic, genuine in their attempts to understand, warm in their responses but who mostly listen (Rogers, 1975).

Principle 3: The patient should tell the CF team member that they need to change

The very best thing that can happen is for patients to tell a CF team member why they should change. If patients say it themselves without the CF team member saying it first, it is much more powerful. Also, the reasons tend to be more powerful too – if individuals do something because they think it is right, this person is more likely to carry through than if they were doing it to please someone else.

Principle 4: Cognitive dissonance

As discussed in the 'interventions' section (found here), cognitive dissonance was proposed by Leon Festinger (1957) to be a feature of situations in which people are struggling with a choice about changing, which is making them feel uncomfortable – if handled appropriately, it produces a momentum towards change.

Cognitive dissonance is a very powerful phenomenon that all of us have experienced. MI refers to this (or ambivalence, a related concept) and aims to use an understanding of the principles to encourage change. If the contrast between the two choices is brought out, people feel an urge to resolve the conflict by choosing.

Principle 5: People need to feel confident before trying to change

Even if patients are convinced of the need to change, if they do not feel confident, they are unlikely to try. Worse, they can feel depressed as they realise their predicament. If self-belief is high, patients will feel confident and are much more likely to succeed. MI is explicit about the need to keep morale high.

Principle 6: Ambivalence is normal

It is normal for human beings to be unsure about what to do, especially if the choice is tough or involves a change that would be difficult.

The strategies of MI

MI has been practical in focus. The strategies of MI are more persuasive than coercive, more supportive than argumentative. The motivational interviewer must proceed with a strong sense of purpose, clear strategies and skills for pursuing that purpose, and a sense of timing to intervene in particular ways at incisive moments. Miller and Rollnick, 1991

The four key strategies of MI are (Miller and Rollnick, 1991) as follows:

1. **Expressing empathy through reflective listening**
2. **Developing discrepancy between goals/values and current behaviour**
3. **Adjusting to resistance rather than opposing it directly**
4. **Supporting self-efficacy and increasing confidence**

CF care team members who have adopted MI as a preferred style have found the use of OARS (open-ended questions, affirmations, reflective listening, summaries – detailed in the previous section **here**) and the elicitation of self-motivational statements (where the patient voices personal concerns and intentions, as opposed to trying to persuade the patient that change is necessary) to be particularly useful in the early stages of treatment.

Expressing empathy through reflective listening

The CF team’s first aim when working with a patient is to open up the conversation. Even though the CF team may be concerned about a patient, particularly when a change in behaviour is required urgently, interventions that are deployed quickly may count for nothing if the team does not listen reflectively. It does not matter if a healthcare service has access to the best available medical treatments; if patients do not return for an appointment, they will not be able to benefit from them. This is a difficult situation, but most times, it is more important for clinicians to engage with patients, so that patients are more likely to respond to what the clinicians are saying and come back, rather than for clinicians to go through the full list of things that need to be covered.

Conversations may be thought of as operating on two levels. On the first (or superficial) level, interactions are polite, formal or stunted. On the second, deeper level, clinicians take time to find out what is going on with their patient and how they are feeling. The first level typifies most consultations that occur in the clinic. For the vast majority of times, this is sufficient. Sometimes, though, the first level is not sufficient to gain a good understanding of the issues affecting patients and for helping them. The second level typifies the conversations people have with those who are close to them and who they trust. If there is a significant issue preventing adherence, it is unlikely to emerge in the clinic unless the conversation moves to a deeper level.

Most people are skilled in having conversations at a deeper level, and we all have them from time to time. When in clinic, however, CF team members usually adopt a way of interacting that keeps things at a more superficial level. This is a very good way for CF team members to stay focused and to use time effectively. At times, however, clinicians need to give themselves permission to use their natural skills in opening up a conversation with a patient to the deeper level, in order to help them solve a problem with adherence.

The CF team can use a number of skills to make patients feel at ease and able to open up with them and to feel understood if they confide some difficult emotions. This can be achieved through the use of **OARS**.

OPEN-ENDED QUESTIONS

Open-ended questions are very useful for opening a conversation and limiting assumptions regarding the status of patients or how they are feeling. Some examples of open and closed questions are given below:

Closed question	Open question
Are you using your nebuliser?	Tell me what brings you here today?
Do you think it's a good idea to use your nebuliser regularly?	What do you think about the possibility of using your nebuliser regularly?
Did you use the nebuliser today?	Tell me about your nebuliser use during a typical week
Do you like to smoke?	How do you feel about smoking?
How has your use of medications been this week, compared with last week: more, less, or about the same?	What has your use of medicines been like during the past week?
How long ago did you use your nebuliser?	Tell me about the last time you used your nebuliser

AFFIRMATIONS

Affirmations help keep morale up, making it more likely that change will be attempted. It is important that the clinician's encouragement and support are genuine, as this can have a significant effect on the course of the conversation. One way of doing this is through statements of recognition of patient strengths:

For example:

"Not everyone manages to give up smoking as you have."

REFLECTIVE LISTENING

Reflective listening refers to the process of reflecting back what a patient has said. Reflection can be simple and intuitive – such as reflecting back the main content of a statement (content reflection). This is the simplest response to resistance: non-resistance – repeating the patient's statement in a neutral form. It acknowledges and validates the patient's voice and shows that the CF team member is listening.

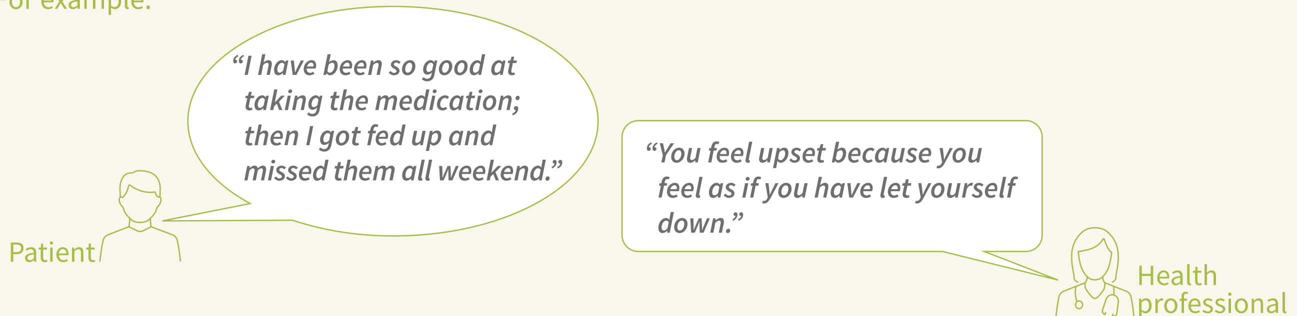
For example:

"This has been a rough few weeks for me."

"It sounds like things are not going well."

However, reflection can also be complex and powerful, such as reflecting back a meaning from earlier in a conversation that has a bearing on what a patient has just told a CF team member (**meaning reflection**). This is a powerful way of helping a patient to talk, and to think about something, such as changing their behaviour.

For example:



Meaning reflections give the CF team member the opportunity to help move the conversation on to more meaningful topics, showing the patient that the team member is listening and understanding. This technique may appear risky, but if used appropriately, will invariably result in a deeper understanding. Even if the team member is wrong, the patient will usually tell you what is really going on.

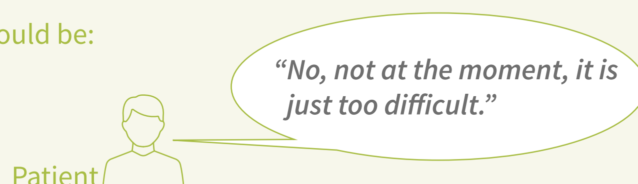
Another form of reflection is **amplified reflection**, where the CF team member exaggerates what a patient has just said, if they are being particularly negative and the conversation feels stuck. This technique carries more risk, but can be very powerful when performed correctly, and can lead to a re-appraisal by the patient.

There is another form that, when used correctly, can be very useful: double-sided reflection. This entails reflecting back different contrasting statements made by a patient and thinking about the order so that the final thing to be said leads the conversation on to talking about change. It is best explained through an example:

The tendency is to reflect back in this manner:

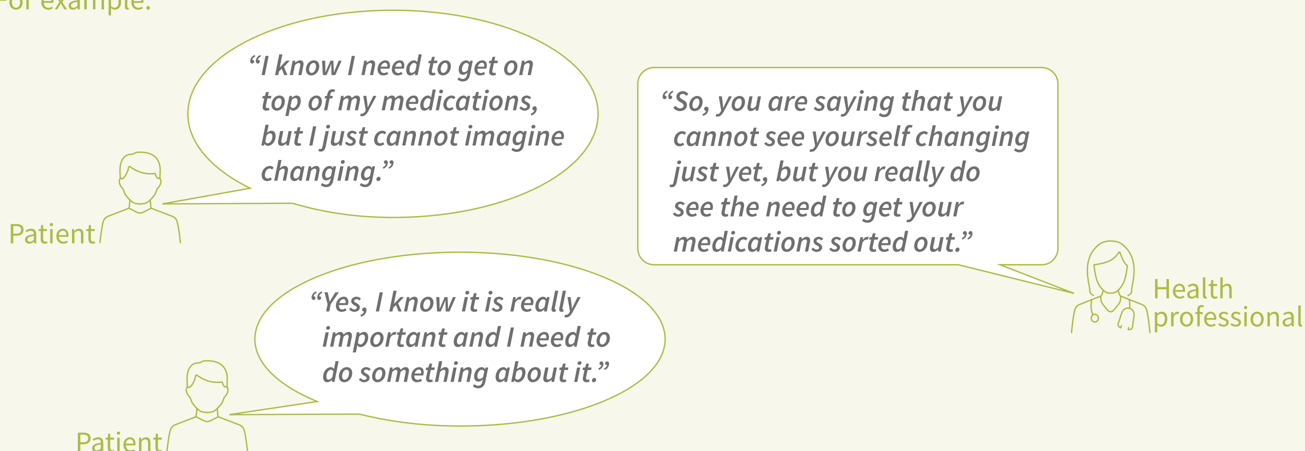
"So, you are saying that you do see the need to get your medications sorted out, but at the moment, you cannot see yourself doing it."

A typical response could be:



Now, consider the order in which the CF team member reflected the two statements back. What would happen if the CF team member reversed the order of the statements and finished on the more positive one?

For example:



It is possible, then, for the CF team member to alter the whole tone of the conversation that follows. One way a team member can practice this is by using the phrases "So, on the one hand" and "and on the other hand" when the team member starts to use double-sided reflections.

"So, on the one hand, you are saying that you cannot see yourself changing just yet, but on the other hand, you really do see the need to get your medications sorted out."

SUMMARIES

This refers to the CF team member pulling together things a patient has said and presenting them back in a brief summary. Although summaries seem like a simple technique, it is surprising how powerful it is to actively pull together what someone has been saying and reflect it back. Sometimes this really does produce novel insights.

Finally, reframing offers a CF team member the possibility to go beyond reflecting back what a patient has said and to reframe it with a different perspective – perhaps pointing out the positives for a patient who has taken a very negative view of their past achievements. "Reframing acknowledges the validity of the client's raw observations, but offers a new meaning for them." (Miller and Rollnick, 1991).

Developing discrepancy between goals/values and current behaviour

Once the conversation is going, the CF team member's task is to help patients think about change. A team member may wonder whether it is necessary to use techniques that focus on change, on the basis that the topic of change is likely to be mentioned during the conversation with the patient. This is a valid concern, but in situations where the change is charged with emotion – for example, where thinking about increasing adherence to a medication triggers thoughts about the consequences of the disease and not adhering – a person's natural tendency is usually to try not to think about it.

In this context, the CF team's role is to 'level the playing field' – to try to ensure that there is an honest discussion about the consequences of changing and of not changing. CF team members should remember that:

"Faced with the choice between changing one's mind and proving that there is no need to do so, almost everyone gets busy on the proof." John Galbraith

Many of the techniques that may be helpful in this situation are designed to raise awareness of the problem and to focus on the discrepancy between beliefs and goals – what patients would like to be doing (or what they think they should be doing) and what they actually are doing. People often know this already, but try not to think about it.

CF team members are able to achieve this goal through summaries. With permission, a team member might integrate objective assessments, such as test results or diaries. If team members decide to make use of objective assessments, they should spend time to explore the implications of the assessments' results in order to maintain focus on the main objective, i.e. summaries. One technique used in addiction therapy is for the healthcare professional to complete a 'drink diary' with the patient: the healthcare professional shares a sheet of paper with the days marked on with the patient and together they fill in the amount of alcohol the patient thinks they drank in a preceding period of time. The healthcare professional would then ask the patient to add the amount up and proceed to ask if the patient finds the total surprising. This technique can be adapted for many other situations, including adherence.

MI involves the use of scaling questions. These focus on the two things (that are crucial to change), which together produce 'readiness':

- **Importance ("I know I ought to change")**
- **Confidence ("I know I can change")**

The CF team should ask about importance – i.e. how important does a patient think it is for them to change at that point in time, on a scale from 0 to 10? This is followed by a similar question about confidence in being able to change.

THINKING ABOUT CHANGE

The behaviour you are thinking about changing:

IMPORTANCE

How important is it for you to change this **behaviour** right now? Please rate how important you feel it is to change on the following scale with an X, where 0 is 'not important at all' and 10 is 'the most important thing'.

CONFIDENCE

If today were the day you decided to change the behaviour, how **confident** are you that you could do it? Please rate your confidence on the following scale with an X, where 0 is 'not confident at all' and 10 is 'very confident'.

Visual analogue scales can be very useful; they immediately focus the conversation on the here and now and can highlight potential barriers to change long before they disrupt the work. After asking a patient to rate their importance and confidence, the CF team member can ask, "What would it take for you to be at X?", where X is a rating a little higher than the one the patient has given.

The readiness ruler and scaling questions tools as described above, along with other handy tools, can be found in the accompanying Adherence Toolkit **here** on the CF CARE website.

In some ways, MI can be thought of as a decision aid for those deciding whether or not to change a behaviour. The metaphor of scales is a useful one; the clinician's job is to help patients weigh up the pros and cons of changing and to encourage them to be open and honest when placing weights on the side of change. A useful technique is to make the pros and cons explicit using a grid (a decisional matrix; see below) that can be filled in with the patient, which lists the benefits and costs of staying the same and changing. Using this grid, the benefits of not changing and the costs of changing can be discussed. This is important, and honest. If these items are not discussed, the patient will think them anyway – most people have very good reasons for not changing. However, the grid also enables the benefits of changing to be discussed. The suggested way of moving through the grid is to discuss benefits of staying the same first, then costs of staying the same, then costs of change, and finishing with the benefits of changing.

DECISIONAL MATRIX

	Staying the same	Changing
Benefits of		
Costs of		

As noted earlier in the discussion about cognitive dissonance, there is a tendency in people to close down a difficult choice as quickly as possible, and MI aims to keep this discussion going, which makes change much more likely. The CF team should remember that this exercise should be done sensitively.

Adjusting to resistance rather than opposing it directly

When the topic of change comes up in conversation, the CF team needs to be prepared for a certain amount of resistance. This is an understandable and common reaction. Avoiding confrontation certainly reduces it, but it does not make it disappear altogether.

An important factor is for a CF team member to pay attention to the words that are used. After practice, it is generally easy for a team member to spot words that indicate that a patient is thinking about change, and words that indicate a patient is not – or resisting. Examples of resistance – or status quo – talk include arguing, interrupting, denying, and ignoring.

Research shows that strong change talk, particularly towards the end of a session, is associated with change afterwards. The CF team needs to look out for elements captured in the acronym 'DARN' (Miller, 2004):

- Desire
- Ability
- Reason
- Need

It may well be, however, that instead of DARN words, a CF team member is confronted with resistance. Poor adherence can also be intentional, though this may not be explicit – a patient may be aware of the need to change but is too scared to fully consider it as an option. In such cases, once a good rapport has been built, a team member needs to talk to the patient about the problem behaviour (i.e. poor adherence). A team member can be forthright about this, as long as they do not tell the patient what to do, for example, "Is it OK if we talk about the medication now?".

Once this conversation starts, a CF team member is likely to be confronted by some well-worn thoughts and phrases that represent resistance to change. This is to be expected; this is a difficult topic that a patient is likely to have considered several times before. It is also a very sensitive topic, and patients are likely to have become very skilled at keeping worrying thoughts at bay.

Handling this resistance is one of the most useful skills the CF team can develop. Resistance at some level is a feature of many consultations. After all, very few patients enjoy going to a hospital to be briefed about things they have to do, and resistance to the idea of a long-term intrusive treatment regimen is clearly understandable.

It is important for a CF team to ensure that resistance does not stop the discussion about change prematurely. Most people's natural reaction to hearing resistance statements is to argue back, try to persuade, or, conversely, drop the issue altogether. In a way, dealing with resistance is akin to trying to prevent a car from skidding on ice. One has to resist the natural tendency to brake hard and jerk the wheel; instead, one has to gently ease off the accelerator and 'roll with resistance'.

How should the CF team respond to resistance? It is common (but unhelpful) for a CF team member to respond by trying harder to convince patients they are wrong. There is a very handy way of thinking about this: clinicians need to avoid 'the righting reflex'; this is the compulsion people have to correct others when they are wrong, and to give them advice when responsibility is felt by them. In clinical situations, this tendency can be very powerful. Unfortunately, if yielded to, it almost always results in unhelpful responses (e.g. "Yes, but…").

THERE ARE MANY EXAMPLES OF RESISTANCE TALK, MANY OF WHICH YOU WILL BE FAMILIAR WITH

Disagreeing	"Yes, but..."
Discounting	"I've already tried that"
Interrupting	"But..."
Side-tracking	"I know you want me to do my airway clearance, but did you notice I gained 5 pounds? You have to admit I've been doing a great job with my weight!"
Unwillingness	"I don't want to have to do that as well"
Blaming	"It's not my fault. If only my parents..."
Arguing	"How do you know?"
Challenging	"My current treatment doesn't make a difference to my lung function"
Minimising	"I'm not that underweight"
Pessimism	"I keep trying to do better but nothing seems to help"
Excusing	"I know I should eat more calories but with my job I'm always on the go and it's hard to prepare and then sit down for a big meal"
Ignoring	

'Rolling with resistance' is the term used in MI to describe the act of not responding with persuasion, but to sidestep an argument and encourage conversation. MI suggests that the CF team should acknowledge that ambivalence about a decision – leading to some resistance to change – is perfectly normal. When a CF team member does this, it immediately lowers resistance. Alternatively, the CF team member can use reframing and reflective listening to encourage discussion and point out alternatives to the patient.

The key principles behind rolling with resistance are as follows:

- **Resistance should not be responded to with confrontation**
- **Statements should be reframed**
- **Empathy and reflective listening should be used**
- **Ambivalence should be acknowledged as being normal**

It is important for the CF team to remember not to describe patients as resistant, as this invites confrontation. Instead, a CF team member should steer the conversation towards the consideration of alternatives, and let patients see the incompatibility between their goals and their current behaviour. In this case, this CF team's role is to allow the two sides of the internal struggle to be voiced.

When patients indicate a willingness to consider change, the CF team can discuss alternatives with them. Even after a patient has decided to change, there are usually many ways of achieving it.

Strategy	Example
Simple reflection	Patient: *"I'm not going to use my nebuliser anytime soon."* CF team member: *"You don't think it would help you right now."*
Amplified reflection	Patient: *"I don't know why my mom is worried; I take most of my medicines."* CF team member: *"So your mum shouldn't worry at all?"*
Double-sided reflection	Patient: *"I know you want me to start taking all my medication, but I'm not going to!"* CF team member: *"You don't want to talk about the medication, though you can see it's a big concern."*
Shifting focus	Patient: *"I cannot stay in and use my nebuliser when all my friends are going out!"* CF team member: *"You're ahead of me – we were exploring your concerns about the medication. Shall we talk about how the nebuliser fits into your life later?"*
Agreement with a twist	Patient: *"Why is everyone so stuck on my not using the nebuliser? You'd go out all the time, too, if your family were nagging you."* CF team member: *"That's a good point. It is not as simple as you not using the nebuliser. I agree with you that we shouldn't be trying to place blame here. It sounds like it involves the whole family."*
Reframing	Patient: *"My mum is always nagging me about my nebuliser."* CF team member: *"It sounds like your mum is really worried, although she expresses it in a way that gets to you. Maybe we can help her learn how to tell you she is worried in a more helpful way."*

Supporting self-efficacy and increasing confidence

When a patient is committed to making a change, a lack of confidence in their ability may cause great frustration – they now appreciate the need to change but do not feel able to. At worst, it can increase distress. MI therefore explicitly aims to increase confidence and self-efficacy. One way of achieving this is for the CF team to consistently treat patients and their choices with respect. If the decision to change comes

from patients, they immediately feel more secure in their own judgements than if change is being imposed from the outside.

It is a central principle of MI that individuals take responsibility for their own actions. This is important if change is to be firmly rooted, but can be difficult in clinical settings, especially where there is concern for a patient's welfare. It is also important to consider, however, that if patients do not own their decision to change a behaviour, any behaviour change tends to be short-lived. Respect for a patient contributes to increasing self-esteem and may enable a discussion about the actual goal of a behaviour change to take place.

When discussing goals with patients, there are many techniques that the CF team can use to enhance a patient's self-efficacy and the chances of success. One technique is to look for past successes. If a patient has low mood or anxiety, they can often see past events from a very negative perspective. Reframing these thoughts can be helpful. When practical considerations concerning the behaviour change are discussed, the CF team can use techniques to enhance the creativity of the process, such as problem solving and brainstorming:

- **Generating a list of possibilities together with the patient (the CF team may add some suggestions, such as what techniques other patients have tried)**
- **Encouraging the patient to evaluate the list**

Patients can then pick their preferred option.

It is also important for CF team members to be realistic and build bridges into real life from the therapy session – a well-developed plan will be of no or little benefit if it is unrealistic; for example, a team member should set smaller targets rather than big ones. If patients choose so, they may bring people who may be important to the implementation of their change in behaviour, such as friends or relatives, to the session.

The scaling questions discussed earlier can be useful tools, as can goal setting: making explicit, realistic targets, and breaking down large goals into smaller, more manageable steps. Using a simple goal–strategy–target formula can be useful. Writing these down makes a difference – they act as a reminder and foster a greater sense of commitment to change.

Sometimes there may be practical help that patients need; perhaps some knowledge that the CF team can help them access, for example, a new skill that they need to work on.

Eliciting self-motivational statements is an important part of enhancing self-efficacy. Four types of motivational statements include the following (Miller and Rollnick, 1991):

- **Cognitive recognition of the problem** (e.g. "I guess this is more serious than I thought.")
- **Affective expression of concern about the perceived problem** (e.g. "I'm really worried about what is happening to me.")
- **A direct or implicit intention to change behaviour** (e.g. "I've got to do something about this.")
- **Optimism about one's ability to change** (e.g. "I know that if I try, I can really do it.")

Some strategies for eliciting self-motivational statements include the following:

- **Problem recognition** (e.g. "What things make you think that this is a problem?")
- **Concern** (e.g. "What is there about your use of medication that you or other people might see as reasons for concern?")
- **Intention to change** (e.g. "If you were 100% successful and things worked out exactly as you would like, what would be different?")
- Optimism (e.g. "What makes you think that if you decide to make a change, you could do it?")

Becoming a CF 'Adherence Advocate'

Understanding the importance of communication

In CF care, achieving the predicted longevity depends on patients' successful adherence and associated health behaviours, despite the burden of their treatments. For young people, consultations can be complicated, with potentially differing perspectives of patients and parents, undermining successful communication. Person-centred, collaborative approaches to consultations and management are becoming desirable models of care (Dwamena et al., 2012; Duff and Latchford, 2010; Santana et al., 2018). This echoes both a cultural change in the expectations of the patient–professional relationship and emerging evidence that patient-centred styles are associated with increased satisfaction and improved health outcomes over traditional expert-led consultations (Duff and Latchford, 2010; Rossiter et al., 2020).

The link between a patient adhering to a healthcare professional's advice and the healthcare professional's communication skills is well documented in the literature. The way a physician communicates with patients affects the outcome of care. This also includes patient satisfaction, health status, recall of information and adherence. A meta-analysis of studies from 1949 to 2008 was carried out to investigate whether there is an overall positive correlation between physician communication and patient adherence. In addition, the meta-analysis looked at the results of studies that investigated whether physician training in communication skills had an effect on patients adhering to recommendations. Zolnierek and Dimatteo (2009) found that:

- **Out of 106 correlational studies, all except two showed a positive correlation between physician communication and patient adherence**
- **The probability of a patient adhering was 2.1 times greater for those whose physician was a good communicator**
- **Out of 21 experimental interventions analysed, the effect of physician training on patients' adherence was positive**
- **The probability of a patient adhering was 1.62 times greater if his/her physician had received communication skills training**

The evidence base for MI

Those involved in developing MI have been interested in evaluation from the beginning. Since its adoption as a treatment for alcohol problems, much of the early work was in this area. A review of 11 clinical trials of MI published in 1997 concluded that it is an effective, efficient, and adaptive therapeutic style (Noonan and Moyers, 1997).

Other trials have also confirmed this conclusion, and MI is now well established as a treatment of choice for illicit drug and alcohol problems, as well as growing increasingly popular in a number of different fields, including lifestyle change and adherence in chronic illness. As the numbers of trials in MI have increased, so have the opportunities to pool different results statistically to produce a meta-analysis. The MARMITE (Meta-Analysis of Research on Motivational Interviewing Treatment Effectiveness) review (Hettema et al., 2005) included 72 trials drawn from areas including alcohol abuse (31), drug abuse (14) and treatment compliance (5). Altogether, the trials featured 14,267 participants treated with MI. The average length of MI offered in these trials was just 2.2 hours. Unsurprisingly, the investigators found the effectiveness of MI varied widely between the different studies, but were able to conclude that there were robust and enduring effects when MI is added to an active treatment. Additionally, they noted that MI increased treatment retention, treatment adherence and staff-perceived motivation.

A systematic review and meta-analysis of 48 randomised controlled trials (Lundahl et al., 2013) found a significant, modest advantage for MI (odds ratio, 1.55). Similar to the findings from Hettema et al. (2005), effectiveness in different studies varied. MI was not observed to be useful in treating eating disorders, for example, but showed particular promise for viral load in HIV. In summary, MI was found to be robust across moderators such as delivery location and patient characteristics and effective in brief interventions.

An earlier review by Lundahl et al. (2010) had highlighted several interesting findings, including that the effects of MI can be long lasting, even after a brief intervention, and that the professional background of the person doing MI makes no difference (i.e. it does not have to be a psychologist).

More recently, MI has been demonstrated to help improve or support the management of anxiety disorders (Marker et al., 2018), rehabilitation care for multiple sclerosis (Dorstyn et al., 2020), self-care behaviours in patients with chronic heart failure (Ghizzardi et al., 2021), modification of cardiovascular risk factors (Mifsud et al., 2020) and glycaemic control in people with type 2 diabetes mellitus (Berhe et al., 2020).

Furthermore, a meta-analysis of 16 randomised controlled trials across a range of chronic diseases suggested that MI interventions might be effective at enhancing medication adherence in adults, with interventions delivered solely face to face more effective than those delivered solely by phone (Zomahoun et al., 2017).

A summary of the literature as it applies to CF has been reviewed by Duff and Latchford (2010); this review indicated that there are now many high-quality studies covering adult and child populations in a number of clinical areas, including diabetes and HIV, and work is ongoing in CF. There has also been some evaluation of CF team training in MI (Duff and Latchford, 2013), which showed lasting learning outcomes and changes to practice. Overall, it is becoming clear that, at the very least, MI is a highly promising intervention.

Developing skills in teaching and supporting others

Understanding how to prepare and deliver training can allow Adherence Advocates to produce efficient and effective training programmes within a CF centre and to develop confidence in assessing the learning outcomes.

Are clinicians using MI anyway? Probably not. Studies of routine consultations found that without training, clinicians do not use MI (Moran et al., 2008); this indicates that training is needed. After training, studies have shown that nurses apply MI to some extent (Noordman et al., 2012; Noordman et al., 2013) and that performing MI during consultation increases if there is more time, more lifestyle discussion, and the patients show more readiness to change (Jansink et al., 2013).

One danger in running a short workshop in MI with no follow-up is that practitioners 'drift' after training until they are no longer using MI, but still think they are. Effectively, they have been 'inoculated against further training' (Miller and Mount, 2001). Good follow-up and support following training is therefore essential.

The key elements that should be included in MI training are well established. A report by the Health Foundation (2011) summarised good practice in training in MI. This report suggests that even brief training can have long-term effects, but that professionals need more advanced and longer training in order to offer some of the more complex aspects (Health Foundation, 2011), as well as to give participants the opportunity to practice these skills, receive feedback, and ultimately gain the expertise necessary to be effective MI providers (Victor et al., 2019).

In terms of how this should be organised, key features should include the following:

- **A focus on the underlying philosophy as well as skills**
- **Adequate duration to allow the embedding of skills**
- **Opportunities to practise through role play**
- **Opportunities for ongoing feedback and supervision**

MI is an approach that can form an effective framework for improving patients' openness to behavioural change. The CF team should utilise MI in clinical practice to optimise good adherence and ultimately support the patient effectively.

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