

Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: <https://orca.cardiff.ac.uk/id/eprint/27844/>

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Rollnick, Stephen, Butler, Christopher Collett ORCID: <https://orcid.org/0000-0002-0102-3453>, Kinnersley, Paul Richard, Gregory, John Welbourn ORCID: <https://orcid.org/0000-0001-5189-3812> and Mash, B. 2010. Motivational interviewing. *British Medical Journal (BMJ)* 340 (c1900) , pp. 1242-1245. 10.1136/bmj.c1900 file

Publishers page: <http://dx.doi.org/10.1136/bmj.c1900>
<<http://dx.doi.org/10.1136/bmj.c1900>>

Please note:

Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies.

See

<http://orca.cf.ac.uk/policies.html> for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.



GUIDELINES

Diagnosis and management of idiopathic childhood constipation: summary of NICE guidance

Lauren Bardisa-Ezcurra,¹ Roz Ullman,¹ Jenny Gordon,² on behalf of the Guideline Development Group

¹National Collaborating Centre for Women's and Children's Health, London W1T 2QA

²Royal College of Nursing Institute, Cowley, Oxford OX4 2JY

Correspondence to: L Bardisa-Ezcurra
lbardisa-ezcurra@ncc-wch.org.uk

Cite this as: *BMJ* 2010;340:c2585
 doi: 10.1136/bmj.c2585

This is one of a series of *BMJ* summaries of new guidelines based on the best available evidence; they highlight important recommendations for clinical practice, especially where uncertainty or controversy exists. Further information about the guidance, a list of members of the guideline development group, and the supporting evidence statements are in the full version on bmj.com

bmj.com archive Previous articles in this series

- ▶ Pharmacological management of neuropathic pain in non-specialist settings (*BMJ* 2010;340:c1079)
- ▶ Assessment of recent onset chest pain or discomfort of suspected cardiac origin (*BMJ* 2010;340:c1118)
- ▶ Early management of unstable angina and non-ST segment elevation myocardial infarction (*BMJ* 2010;340:c1134)
- ▶ Reducing the risk of venous thromboembolism in patients admitted to hospital (*BMJ* 2010;340:c95)
- ▶ Depression in adults, including those with a chronic physical health problem (*BMJ* 2009;339:b4108)

Constipation is described as “the subjective complaint of passage of abnormally delayed or infrequent passage of dry, hardened faeces, often accompanied by straining and/or pain.”¹ Constipation is common in childhood, is rarely life threatening, and therefore might be expected to have little effect on healthcare provision. The reality is somewhat different, however. Symptoms become chronic in more than a third of patients, causing great discomfort, and many children need medical treatment and nursing care.²⁻⁵ Lack of understanding about the condition, delayed diagnosis, and suboptimal treatment and support contribute to ongoing symptoms and multiple medical consultations.⁶ Social costs include children missing school, being excluded from peer group activities, and feeling that they cannot tell their friends about their condition. This article summarises the most recent recommendations from the National Institute for Health and Clinical Excellence (NICE) on the care and management of children and young people with idiopathic constipation.⁷

Recommendations

NICE recommendations are based on systematic reviews of best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the Guideline Development Group's experience and opinion of what constitutes good practice. Evidence levels for the recommendations are in the full version of this article on bmj.com.

Establishing the presence of constipation

Establish whether constipation is present during history taking. Two or more of the following findings indicate constipation:

- Children under 1 year: fewer than three complete stools a week (fig 1; this does not apply to exclusively breast fed babies after 6 weeks of age), hard large stools, “rabbit droppings” or “nuts” (type 1, fig 1), distress on defecating, bleeding associated with hard stools, straining, previous episode(s) of constipation, and previous or current anal fissure.
- Children or young people over 1 year: fewer than three complete stools per week (see Bristol stool form scale), overflow soiling, rabbit droppings or nuts (fig 1), large infrequent stools that can block the toilet, poor appetite that improves with passage of a large stool, waxing and waning of abdominal pain with passage of stools, evidence of retentive posturing, anal pain,

previous episode(s) of constipation, previous or current anal fissure, painful bowel movements, and bleeding associated with hard stools.

Diagnosing idiopathic constipation

If the child or young person has constipation take a history and exclude underlying causes.

- “Red flag” findings and diagnostic clues to an underlying condition: constipation reported from birth or first few weeks of life, failure to pass meconium or delay in passing meconium (more than 48 hours after birth in term baby), long narrow ribbon-like stools (more likely in a child under 1 year), previously unknown or undiagnosed weakness in legs, locomotor delay, and abdominal distension with vomiting.
- Diagnostic clues to idiopathic constipation: constipation that starts after a few weeks of life with obvious precipitating factors (fissure, change of diet, or infections in children under 1 year; fissure, change of diet, timing of potty or toilet training, and an acute event such as infection, moving house, starting nursery or school, fears and phobias, major change in family, taking medicine in children over 1 year); normal passage of meconium (within 48 hours after birth in term baby); child generally well, with normal weight and height; no neurological problems in legs; normal locomotor development; history of poor diet or insufficient fluid intake (or both); and changes in infant formula or weaning in child under 1 year.

Perform a physical examination and exclude underlying causes.



Fig 1 | Bristol stool form scale. Adapted, with permission, from the NICE guidelines⁷

Laxatives	Recommended doses (all drugs listed below are given by mouth unless stated otherwise)
Macrogols	
Polyethylene glycol 3350 + electrolytes	<p>Paediatric formula Oral powder, Macrogol 3350 (polyethylene glycol 3350)* 6.563 g, sodium bicarbonate 89.3 mg, sodium chloride 175.4 mg, potassium chloride 25.1 mg in each sachet (unflavoured)</p> <p>Disimpaction</p> <ul style="list-style-type: none"> • Child under 1 year: ½ to 1 sachet daily (non-BNFC recommended dose) • Child 1–5 years: 2 sachets on 1st day, then 4 sachets daily for 2 days, then 6 sachets daily for 2 days, then 8 sachets daily (non-BNFC recommended dose) • Child 5–12 years: 4 sachets on 1st day, then increased in steps of 2 sachets daily to maximum of 12 sachets daily (non-BNFC recommended dose) <p>Ongoing maintenance (chronic constipation, prevention of faecal impaction)</p> <ul style="list-style-type: none"> • Child under 1 year: ½ to 1 sachet daily (non-BNFC recommended dose) • Child 1–6 years: 1 sachet daily; adjust dose to produce regular soft stools (maximum 4 sachets daily) (for children under 2, non-BNFC dose) • Child 6–12 years: 2 sachets daily; adjust dose to produce regular soft stools (maximum 4 sachets daily) <p>Adult formula Oral powder, Macrogol 3350 (polyethylene glycol 3350) 13.125 g, sodium bicarbonate 178.5 mg, sodium chloride 350.7 mg, potassium chloride 46.6 mg in each sachet (unflavoured)</p> <p>Disimpaction</p> <ul style="list-style-type: none"> • Child/young person 12–18 years: 4 sachets on 1st day, then increased in steps of 2 sachets daily to maximum of 8 sachets daily (non-BNFC recommended dose) <p>Ongoing maintenance (chronic constipation, prevention of faecal impaction)</p> <ul style="list-style-type: none"> • Child/young person 12–18 years: 1–3 sachets daily in divided doses adjusted according to response; maintenance, 1–2 sachets daily
Osmotic laxatives	
Lactulose	<ul style="list-style-type: none"> • Child 1 month to 1 year: 2.5 ml twice daily, adjusted according to response • Child 1–5 years: 2.5–10 ml twice daily, adjusted according to response (non-BNFC recommended dose) • Child/young person 5–18 years: 5–20 ml twice daily, adjusted according to response (non-BNFC recommended dose)
Stimulant laxatives	
Sodium picosulfate†	<p>Non-BNFC recommended doses Elixir (5 mg/5 ml)</p> <ul style="list-style-type: none"> • Child 1 month to 4 years: 2.5–10 mg once a day • Child/young person 4–18 years: 2.5–20 mg once a day <p>Non-BNFC recommended dose Perles (1 tablet = 2.5 mg) Child/young person 4–18 years: 2.5–20 mg once a day</p>
Bisacodyl‡	<p>Non-BNFC recommended doses By mouth</p> <ul style="list-style-type: none"> • Child/young person 4–18 years: 5–20 mg once daily <p>By rectum (suppository)</p> <ul style="list-style-type: none"> • Child/young person 2–18 years: 5–10 mg once daily
Senna§	<p>Senna syrup (7.5 mg/5 ml)</p> <ul style="list-style-type: none"> • Child 1 month to 4 years: 2.5–10 ml once daily • Child/young person 4–18 years: 2.5–20 ml once daily <p>Senna (non-proprietary) (1 tablet = 7.5 mg)</p> <ul style="list-style-type: none"> • Child 2–4 years: ½ to 2 tablets once daily • Child 4–6 years: ½ to 4 tablets once daily • Child/young person 6–18 years: 1–4 tablets once daily
Docusate sodium¶	<ul style="list-style-type: none"> • Child 6 months–2 years: 12.5 mg three times daily (use paediatric oral solution) • Child 2–12 years: 12.5–25 mg three times daily (use paediatric oral solution) • Child/young person 12–18 years: up to 500 mg daily in divided doses

Unless stated otherwise, doses are those recommended by the British National Formulary for Children (BNFC) 2009. Informed consent should be obtained and documented whenever drugs or doses are prescribed that are different from those recommended by the BNFC.

* At the time of publication (May 2010) Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that includes electrolytes. It does not have UK marketing authorisation for use in faecal impaction in children under 5 years, or for chronic constipation in children under 2 years. Informed consent should be obtained and documented. Movicol Paediatric Plain is the only macrogol licensed for children under 12 years that is also unflavoured.

† Elixir, licensed for use in children (age range not specified by manufacturer). Perles not licensed for use in children under 4 years. Informed consent should be obtained and documented.

‡ Dulcolax tablets which contain bisacodyl as the main ingredient should not be confused with Dulcolax perles which contain sodium picosulfate.

§ Syrup not licensed for use in children under 2 years. Informed consent should be obtained and documented.

¶ Adult oral solution and capsules not licensed for use in children under 12 years. Informed consent should be obtained and documented.

Fig 2 | Recommended doses of laxatives for the treatment of idiopathic constipation in children

- Red flag findings and diagnostic clues to an underlying condition: abnormal appearance, position, or patency of anus (fistulas, bruising, multiple fissures, tight or patulous anus, anteriorly placed anus, absent anal wink); gross abdominal distension; asymmetry or flattening of the gluteal muscles; evidence of sacral agenesis; discoloured skin, naevi, or sinuses; hairy patch; lipoma; central pit (dimple that you cannot see

the bottom of); scoliosis; deformity in lower limbs, such as talipes; abnormal neuromuscular signs in lower limbs not explained by any existing condition (such as cerebral palsy); and abnormal lower limb reflexes.

- Diagnostic clues to idiopathic constipation: normal appearance of anus and surrounding area, soft flat abdomen or distension that can be explained because of age or excess weight, normal appearance of the skin and anatomical structures of lumbosacral and gluteal regions, normal gait, normal tone and strength in lower limbs, and normal lower limb reflexes (perform only if red flags in history or examination suggest new onset neurological impairment).

If any red flag findings are present, do not treat for constipation. Instead, refer urgently to a healthcare professional with experience in the specific aspect of child health that is causing concern.

Do not perform a digital rectal examination unless you are a healthcare professional competent to interpret features of anatomical abnormalities.

In the absence of red flags, inform the child or young person and his or her parents or carers of a positive diagnosis of idiopathic constipation and also that underlying causes have been excluded by the history and physical examination. Reassure them that a suitable treatment is available, but that it may take several months for the condition to resolve.

Treatment of faecal impaction (disimpaction)

Assess all children with idiopathic constipation for faecal impaction, including those who were referred to the relevant services because of red flags but who had no findings of concern on further investigation. Use both history taking and physical examination to diagnose faecal impaction—looking for overflow soiling, faecal mass palpable abdominally, and, if indicated, rectally. The presence of one or both of these on physical examination together with the history is indicative of impaction.

If indicated, offer this oral regimen for disimpaction:

- Polyethylene glycol 3350 plus electrolytes (which may be mixed with a cold drink), using an escalating dose regimen (see fig 2) as first line treatment.
- If this does not lead to disimpaction after two weeks, add a stimulant laxative.
- If the first line treatment is not tolerated, substitute a stimulant laxative singly or with an osmotic laxative such as lactulose (fig 2).
- Inform families that treatment can initially increase symptoms of soiling and abdominal pain.

Ongoing maintenance treatment

Offer the following treatments:

- Polyethylene glycol 3350 plus electrolytes (fig 2) as the first line treatment; adjust the dose according to symptoms and response.
- If this does not work, add a stimulant laxative (fig 2).
- If the first line treatment is not tolerated, substitute a stimulant laxative. Add another laxative such as lactulose or docusate (fig 2) if stools are hard.
- Continue laxatives at maintenance dose for several weeks after regular bowel habit is established;

this may take several months. Children who are undergoing toilet training should remain on laxatives until toilet training is well established.

- Do not stop laxatives abruptly: gradually reduce the dose over a period of months in response to stool consistency and frequency. Some children and young people may require laxatives for several years.

Diet and lifestyle interventions

Do not use dietary interventions alone as first line treatment for idiopathic constipation.

Treat with laxatives and a combination of the following:

- Negotiated and non-punitive behavioural interventions suited to the child's stage of development. These could include scheduled toileting and support to establish a regular bowel habit, maintenance and discussion of a bowel diary, information on constipation, and use of encouragement and reward systems.
- Dietary modifications to ensure a balanced diet and a sufficient intake of fluids.

Information and support

Offer children and young people and their families a point of contact with specialist healthcare professionals, including school nurses, who can give ongoing support.

Overcoming barriers

Improving awareness and understanding among healthcare professionals, children with constipation, and their families about the condition and its management will reduce misconceptions and negativity about diagnosis and treatment. An

emphasis on recommended regimens for disimpaction and maintenance, how to reduce medication, and simple behavioural and lifestyle interventions, together with a reduction in the use of invasive investigations and interventions, will help to improve outcomes, reduce discomfort, and refocus on the positive results of optimal treatment and care.

Contributors: All authors contributed to the conception and drafting of this article and revising it critically. They all approved this version. RU is guarantor.

Funding: The National Collaborating Centre for Women's and Children's Health was commissioned and funded by the National Institute for Health and Clinical Excellence to write this summary.

Competing interests statement: All authors have completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declare: (1) All authors were members of the Guideline Development Group (JG chaired the group, RU was the senior research fellow, LB-E was the research fellow); (2) They have no relationships with any companies that might have an interest in the submitted work; (3) Their spouses, partners, and children have no financial relationships that may be relevant to the submitted work; and (4) They have no non-financial interests that may be relevant to the submitted work.

Provenance and peer review: Commissioned; not externally peer reviewed.

- 1 Croffie JMB, Fitzgerald JF. Hypomotility disorders. In: Walker A, ed. Paediatric gastrointestinal disease. 3rd ed. Decker, 2000:830.
- 2 Van Den Berg M, Benninga MA, Di Lorenzo C. Epidemiology of childhood constipation: a systematic review. *Am J Gastroenterol* 2006;101:2401-9.
- 3 Borowitz SM, Cox DJ, Tam A, Ritterband LM, Sutphen JL, Penberthy JK. Precipitants of constipation during early childhood. *J Am Board Fam Pract* 2003;16:213-8.
- 4 Candelli M, Nista EC, Zocco MA, Gasbarrini A. Idiopathic chronic constipation: pathophysiology, diagnosis and treatment. *Hepatogastroenterology* 2001;48:1050-7.
- 5 Youssef NN, Di LC. Childhood constipation: evaluation and treatment. *J Clin Gastroenterol* 2001;33:199-205.
- 6 Farrell M, Holmes G, Coldicutt P, Peak M. Management of childhood constipation: parents' experiences. *J Adv Nurs* 2003;44:479-89.
- 7 National Institute for Health and Clinical Excellence. Constipation: the diagnosis and management of idiopathic childhood constipation in primary and secondary care. 2010. www.nice.org.uk/CG099.

COMPETENT NOVICE

Motivational interviewing

Stephen Rollnick,¹ Christopher C Butler,¹ Paul Kinnerley,¹ John Gregory,² Bob Mash³

Motivational interviewing has been shown to promote behaviour change in a wide range of healthcare settings

Discussion about change occurs in almost every branch of medicine, and goes beyond the "big four" lifestyle habits (smoking, excessive drinking, lack of exercise, and unhealthy diet), to also include the use of aids, devices, or medicines. Patients often seem ambivalent or unmotivated, and clinicians typically try to advise them to change, using a directing style, which in turn generates resistance or passivity in the patient (see box 1). Motivational interviewing is an alternative approach to discussing behaviour change that fosters a constructive doctor-patient relationship and leads to better outcomes for patients.¹

Motivational interviewing involves helping patients to say why and how they might change, and is based on the use of a guiding style.² A recent systematic review that included 72 studies found that motivational interviewing

KEY POINTS

Simply giving patients advice to change is often unrewarding and ineffective

Motivational interviewing uses a guiding style to engage with patients, clarify their strengths and aspirations, evoke their own motivations for change, and promote autonomy of decision making

You can learn motivational interviewing in three steps: practise a guiding rather than directing style; develop strategies to elicit the patient's own motivation to change; and refine your listening skills and respond by encouraging change talk from the patient

Motivational interviewing has been shown to promote behaviour change in various healthcare settings and can improve the doctor-patient relationship and the efficiency of the consultation

outperformed traditional advice giving in 80% of studies.³ With practice, time can be saved by avoiding unproductive discussion and by using rapid engagement to focus on the changes that make a difference.

¹Department of Primary Care and Public Health, School of Medicine, Cardiff University, Cardiff CF14 4XN

²Department of Child Health, School of Medicine, Cardiff University

³Department of Family Medicine and Primary Care, Stellenbosch University, Tygerberg, South Africa 7505

Correspondence to: S Rollnick rollnick@cardiff.ac.uk

Cite this as: *BMJ* 2010;340:c1900
doi: 10.1136/bmj.c1900

This series aims to help junior doctors in their daily tasks and is based on selected topics from the UK core curriculum for foundation years 1 and 2, the first two years after graduation from medical school

Box 1 | Contrasting styles

Directing style: “OK, so your weight is putting your health at serious risk. You already have early diabetes. (*Patient often resists at this point.*) . . . Overweight is conceptually very simple, if you think about it. Too much in, not enough out. So you need to eat less and exercise more. There no way you can get around that simple fact.” (*Patient replies with a “yes, but . . .” argument.*)

Guiding style: “OK, let’s have a look at this together and see what you think. From my side, losing some weight and getting more exercise will help your diabetes and your health, but what feels right for you? (*Patient often expresses ambivalence at this point.*) . . . So you can see the value of these things, but you struggle to see how you can succeed at this point in time. OK. It’s up to you to decide when and how to make any changes. I wonder, what sort of small changes might make sense to you?” (*Patient says how change might be possible.*)

bmj.com archive
Previous articles in this series

- Managing sudden death in hospital (*BMJ* 2010;340:c962)
- How to handle stress and look after your mental health (*BMJ* 2009;338:b1368)
- Practising safely in the foundation years (*BMJ* 2009;338:b1046)
- Audit: how to do it in practice (*BMJ* 2008;336:1241)
- Confidentiality (*BMJ* 2008;336:888)

How best to do it**Step 1: practise the guiding style**

Among the broad communication styles commonly used to address patients’ problems are directing, guiding, and following.² Although each is appropriate to certain situations in everyday practice, a guiding style is best suited to consultations about change. When this topic comes up, shift your stance from that of a director to that of a well informed guide, and follow three principles: engage with and work in collaboration with patients, emphasise their autonomy over decision making, and elicit their motivation for change. You retain control over the direction and structure of the consultation and provide information as needed, but you ensure that your patients retain responsibility for change. Box 1 shows the contrast in styles between directing and guiding.

Use three core skills—asking, listening, and informing—in the service of this guiding style to draw out your patients’ ideas and solutions.² This shows that you want to know about and respect their ability to make sound decisions.

- “Ask” open ended questions—invite the patient to consider how and why they might change;
- “Listen” to understand your patient’s experience—“capture” their account with brief summaries or reflective listening statements such as “quitting smoking feels beyond you at the moment”; these express empathy, encourage the patient to elaborate, and are often the best way to respond to resistance;
- “Inform”—by asking permission to provide information, and then asking what the implications might be for the patient.

Once you have practised these three skills, and once you feel comfortable with the shift from director to guide, you can add to your toolbox a set of strategies containing specific questions that are suited to different circumstances.

Box 2 | Seeing the pros and cons

“I want to try to understand your smoking better from your perspective, both the benefits for you and the drawbacks. Can I ask you firstly what you like about your smoking?” (*Patient responds. Use your curiosity to elicit a good understanding.*)

“Now can I ask you what you don’t like about your smoking?” (*Patient responds. Remember it’s their experience that counts, so avoid offering your perspective for the time being.*)

(*Then you summarise both sides, as briefly as possible, capturing the words and phrases that the patient came up with.*) “OK, so let’s see if I have this right? You like the fact that smoking helps you unwind and, addicted or not, you like that first smoke in the morning. On the other hand, your main concern is about its effect on your health. Is that about right? OK.”

(*Then you invite the patient to consider the next step.*) “So where does that leave you now?” (*Patient usually describes readiness and any need for advice or information.*)

Step 2: add useful strategies to your toolbox

Motivational interviewing aims to elicit the motivation to change from the patient, rather than to try to instil this in them; it also aims to work with their strengths rather than just talk about problems and weaknesses. Different strategies are available to achieve these aims in a guiding style, eliciting the what, why, and how of change from the patient. This “menu of strategies”⁴ has been used successfully among college students to reduce use of alcohol, tobacco, and cannabis.⁵

Agenda setting (what to change?)

Patients often face more than one option for change. In agenda setting, rather than impose your priority on patients, you conduct an overview by inviting them to select an issue or behaviour that they are most ready and able to tackle, feeling free also to express your own views.² For example, to reach agreement about what to deal with in the consultation you might say: “That’s very helpful. Are you more ready to focus on eating or on increased activity? Or is there some other topic that you would prefer to talk about? I’d like to talk about those test results at some point, but what makes sense to you right now?”

Pros and cons (why change?)

It is normal and common for patients to feel in two minds about both the status quo and change. It can be helpful to invite them to say how they see the pros and cons of a situation. Then your next step is to ask them to clarify whether change is a possibility (box 2).

Assess importance (why) and confidence (how)

To be efficient you need to spend time where it is most needed. Those who are not convinced of the importance of change are unlikely to benefit from advice about how to change, and a focus on the why of change is pointless if the main issue is how to achieve it. This focused strategy (box 3) has produced successful outcomes in the smoking field,⁶ where a recent review also provides support for the efficacy of motivational interviewing.⁷

Exchange information

One of the first successful studies of motivational interviewing placed listening at the centre during feedback of test results.⁸ This gave rise to the “elicit-provide-elicite” strategy (box 4), in which a guiding style is used to encourage patients to clarify the personal implications of information that you provide.

Box 3 | Assessing importance and confidence

“Would you mind if we took a moment to see exactly how you feel about using these tablets?” (*An invitation promotes collaboration and patient autonomy.*)

“How important is taking this medicine for you right now?” (*Elicit a brief review of patient’s feelings, fears, and aspirations, then ask:*) “How confident do you feel about taking these tablets regularly?” (*Elicit, and then summarise patient’s view of importance and confidence.*)

(*Then tailor your next step accordingly—for example, if importance is low, consider something like:*) “Well, do you mind if I just give you some information about how these tablets might help, but it will be up to you to decide in the end.” (*Emphasising autonomy always helps.*)

Make decisions about change (setting goals)

Goals and targets for change that come only from your side are often met with “Yes, but. . .” explanations about why they will not work from the patient. Box 5 shows how you can, if the patient is ready for it, use a guiding style to elicit practical solutions from the patient and offer suggestions from your side as well.

Step 3: respond skilfully to patients’ language

You can refine your skills further by paying attention to the language that patients use.⁹ You will notice that they talk about why or how they might change (this is called change talk)—“I guess I should take my medicine more

TOP 10 USEFUL QUESTIONS

What changes would you most like to talk about?
 What have you noticed about . . . ?
 How important is it for you to change . . . ?
 How confident do you feel about changing . . . ?
 How do you see the benefits of . . . ?
 How do you see the drawback of . . . ?
 What will make the most sense to you?
 How might things be different if you . . . ?
 In what way . . . ?
 Where does this leave you now?

regularly”; “I want to quit smoking”; “I am going to eat less fried food”—or about the opposite: “I don’t like tablets”; “I enjoy my smoking”; “I’ve never succeed in losing weight.” You can choose whether to elicit change talk or not. The assumption is that if you do, motivation to change will be enhanced, and subsequent change is more likely to take place.⁹ Box 6 shows how a doctor elicits change talk and responds to it with further listening. Many of the questions shown in step 2 are useful because they elicit change talk—for example, “How important is it for you to take this medicine?”

One line of research has been to examine whether motivational interviewing improves outcomes. A recent meta-analysis of 119 studies concluded that it exerts a small but positive effect across a wide range of problem domains, but not in all.¹⁰ Another line of research has been to study language and change talk. For example, if people struggling with alcohol and other drugs offer more change talk in counselling, their outcomes in regard to substance use are better^{11–13}; moreover, practitioners who are competent in motivational interviewing elicit more change talk, independent of the motivation of the patient.¹¹

What are the challenges?

Any skilful task in medicine takes time to learn. Training, supervision, and feedback on performance will allow you to save time by using efficient questions suited to your personality, the patient, and the setting (see box 6). Motivational interviewing has been shown to be effective in settings where time constraints are paramount, like accident and emergency departments.^{14 15}

The biggest challenge is usually with the shift in style and attitude involved. This includes letting go of what has been called the “righting reflex,”¹² the tendency to identify a problem and solve it for the patient (see box 1), and instead, enabling the patient to do this work for themselves. This can leave you feeling that you will lose control of the consultation. We suggest that you retain control of the overall direction of the consultation, and hand over to the patient control about the what, why, and how of change. You certainly can and should offer your views and expertise, but within a style that is collaborative and emphasises the patient’s freedom to make any final decision.

Conclusion

Motivational interviewing is not a quick fix method, let alone a set of clever techniques for getting patients to do what they otherwise would not want to do.¹⁶ It is not done

Box 4 | Information exchange

“OK so can I check your understanding of the situation? What do you know about the risks of being overweight?” (*Elicit understanding.*) . . . “Well you are right about it being very common and that people are generally living longer, but as you say it does put an extra strain on the heart and causes diabetes, which again affects the heart, kidney, and so on. It also causes high blood pressure.” (*Provide information.*) “OK, now can I ask, how do you think this information applies to you?” (*Elicit patient’s interpretation.*)

Box 5 | Making decisions

“It sounds like you really want to try quitting smoking, but you’re struggling with imagining how you can do it.” (*Summarising the patient’s situation.*)

“It will be up to you to decide when and how to do it (*emphasising the patient’s freedom of choice*) but I am wondering how do you see yourself succeeding with this?” (*Inviting the patient to envision change. Patient responds, usually identifying main challenges.*)

“So you are hoping you can find a way of breaking through the withdrawal period. (*Listening, in response to what patient has said.*) There are all sorts of quitting aids that others have found useful, but what makes sense to you? (*Inviting patient to clarify what will be helpful.*) Or maybe you want to bring your husband down to talk with us so we can all make a plan together?” (*Patient clarifies what will be helpful, and the discussion narrows down in favour of a plan that is agreed jointly.*)

Box 6 | Eliciting change talk

A young refugee with HIV-AIDS is pregnant and faces the need to take antiretroviral therapy appropriately and make lifestyle changes.

Doctor: How are things at home?

Mother: Well my husband agrees I should take the pills to have a healthy baby but he doesn’t want to use condoms.

Doctor: What would be most helpful for us to start talking about? Is it condoms, your medication, or something else? (*Brief agenda-setting*)

Mother: I want to talk about the medicine. (*Change talk*)

Doctor: That’s fine, we can come back to other things. What would you most like to know about the medicine? (*Eliciting: the start of information exchange*)

Mother: If I miss taking my medicine I worry that it will bring harm. (*Change talk*)

Doctor: You would like to take this medicine every day. (*Listening*)

Patient: I want to. (*Change talk*)

Doctor: (*Informing*) It can be difficult to take the medicine at the right time each day, yet it is important. Even if people are feeling better and stronger, the medicine keeps them healthy, so it’s important to keep taking it. What’s the difficulty for you? (*Eliciting the patient’s personal interpretation of the information*)

Mother: I miss them because I hide this all from my mother, and she can see what I am doing all the time.

Doctor: You struggle to take them at the same time each day. (*Listening*)

Patient: Yes, I want to keep well (*change talk*), but she looks strangely at me.

Doctor: Can you think of any ways in which you can change the time and place that you take medicine? (*Asking*)

Mother: Maybe I will do this when I go to the toilet after she has gone to bed. (*Change talk*)

Doctor: You can see that working for you. (*Listening*)

Mother: It must work. I must do something like this. (*Change talk*)

Doctor summarises what’s been said and uses agenda setting once again to offer the patient a choice of talking about disclosure of her HIV status to others, improving her diet, or safe sex.

“to” or “on” patients, but “with” or “for” them. It can be used in any consultation about change, and evidence of its effectiveness is growing. It is helpful to consider your patient as your teacher. If he or she responds positively, and becomes an active participant in talk about change, this feedback tells you that you are doing a good job.

We thank William R Miller and Terri Moyers for feedback on earlier drafts of this paper.

Contributors: All authors contributed to the original draft of this paper and to subsequent revisions, and reviewed the final manuscript. SR, CB, PK, and BM provided clinical illustrations. SR saw the final revisions through to publication and is the guarantor.

Competing interests: None declared.

Provenance and peer review: Not commissioned; externally peer reviewed.

- 1 Miller WR, Rollnick S. *Motivational interviewing: preparing people for change*. 2nd ed. Guilford Press, 2002.
- 2 Rollnick S, Miller WR, Butler C. *Motivational interviewing in health care: helping patients change behavior*. Guilford Press, 2008.
- 3 Rubak S, Sandbaek A, Lauritzen T, Christensen B. Motivational interviewing: a systematic review and meta-analysis. *Br J Gen Pract* 2005;55:305-12.
- 4 Rollnick S, Mason P, Butler C. *Health behavior change: a guide for practitioners*. Churchill Livingstone, 1999.
- 5 McCambridge J, Strang J. The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: results from a multi-site cluster randomized trial. *Addiction* 2004;99:39-52.

- 6 Butler CC, Rollnick S, Cohen D, Bachmann M, Russell I, Stott NCHS. Motivational consulting versus brief advice to quit smoking: a randomised trial. *Br J Gen Pract* 1999;49:611-6.
- 7 Lai DTC, Cahill K, Qin Y, Tang JL. Motivational interviewing for smoking cessation. *Cochrane Database of Systematic Reviews* 2010;(1):CD006936.
- 8 Miller WR, Sovereign RG, Krege B. Motivational interviewing with problem drinkers: II. The drinker's check up as a preventive intervention. *Behav Psychother* 1988;16:251-68.
- 9 Miller R, Rose G. Towards a theory of motivational interviewing. *Am Psych* 2009;64:527-37.
- 10 Lundahl D, Tollefson D, Gables C, Brownell C. A meta-analysis of motivational interviewing: twenty five years of empirical studies. *Res Soc Work Pract* 2010;20:137-60.
- 11 Moyers TB, Martin T, Christopher PJ, Houck JM, Tonigan JS, Amrhein PC. Client language as a mediator of motivational interviewing efficacy: where is the evidence? *Alcohol Clin Exp Res* 2007;31(suppl 10):40-7S.
- 12 Amrhein PC, Miller WR, Yahne CE, Palmer M, Fulcher L. Client commitment language during motivational interviewing predicts drug use outcomes. *J Consult Clin Psychol* 2003;71:862-78.
- 13 Aharonovich E, Amrhein PC, Bisaga A, Nunes EV, Hasin DS. Cognition, commitment language, and behavioral change among cocaine-dependent patients. *Psychol Addict Behav* 2008;22:557-62.
- 14 Burke B, Arkowitz H, Menchola M. The efficacy of motivational interviewing: a meta-analysis of controlled clinical trials. *J Cons Clin Psych* 2003;71:843-61.
- 15 Hettema J, Steele J, Miller WR. Motivational interviewing. *Ann Rev Clin Psych* 2005;1:91-111.
- 16 Miller WR, Rollnick S. Ten things that motivational interviewing is not. *Behav Cogn Psychother* 2009;37:129-40.

Accepted: 18 March 2010

10 MINUTE CONSULTATION

Vitamin B-12 deficiency

Ben Hudson

Department of Public Health and General Practice, University of Otago, Christchurch 8140, New Zealand

ben.hudson@otago.ac.nz

Cite this as: *BMJ* 2010;340:c2305
doi: 10.1136/bmj.c2305

This is part of a series of occasional articles on common problems in primary care. The *BMJ* welcomes contributions from GPs

bmj.com archive
Previous articles in this series

- ▶ Stridor in children (*BMJ* 2010;340:c2193)
- ▶ “My baby keeps bringing up his feeds!” (*BMJ* 2010;340:c2189)
- ▶ Hoarse voice (*BMJ* 2010;340:c522)
- ▶ Sexual health consultation for men who have sex with men (*BMJ* 2010;340:c958)
- ▶ Acute cough in adults (*BMJ* 2010;340:c574)

An 85 year old man had a preoperative assessment for a knee replacement. His full blood count was normal apart from haemoglobin 95 g/l and mean corpuscular volume 105 fl. He drank no alcohol. Further testing showed that his vitamin B-12 was low: 90 pmol/l (reference range 160-800 pmol/l). Folate, ferritin, thyroid stimulating hormone, and liver function tests were normal. He had no other medical or surgical history and ate a balanced diet that includes meat.

Vitamin B-12 is found only in foods of animal origin. Dietary B-12 is freed from food protein by pepsin in the acid gastric environment and binds to haptocorrin, a protein secreted in saliva. In the small intestine, haptocorrin is degraded by pancreatic enzymes; vitamin B-12 is released and binds with intrinsic factor, which is secreted by gastric parietal cells. This complex binds to receptors at the terminal ileum and is actively absorbed. A small fraction (1-2%) of the intake of B-12 is passively absorbed across the entire absorptive surface of the gastrointestinal tract. The recommended daily allowance of B-12 is small (2 µg per day) in comparison to body stores (2-5 mg).

What you should cover

Assess clinical evidence of B-12 deficiency

Symptoms of B-12 deficiency include neurological changes such as paraesthesia, numbness, ataxia, and memory loss. Oropharyngeal ulceration and glossitis may occur.

Review the medical history and drugs for possible causes (figure). If suggested by the history, examine for impaired vibration, touch, pain, and position sense and for ataxia.

Review the results of blood testing for macrocytic anaemia and neutrophil hypersegmentation, which indicate B-12 deficiency. Patients may present with neurological changes of B-12 deficiency but with marginal or no haematological abnormalities. Coexisting iron deficiency may prevent the development of macrocytosis in a B-12 deficient patient; if iron deficiency is suspected then check ferritin.

INFORMATION FOR PATIENTS

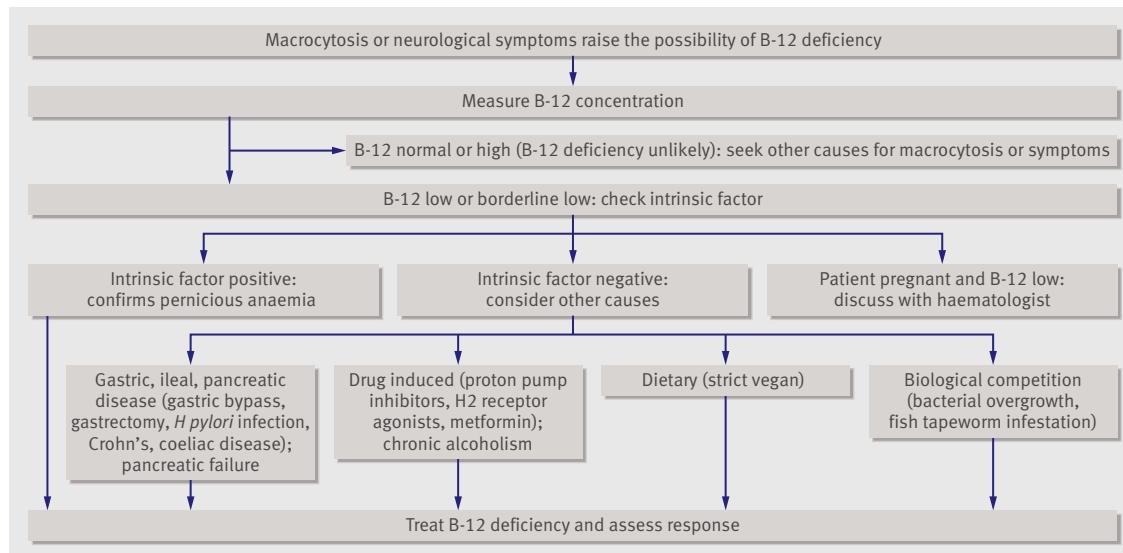
Vitamin B-12 deficiency anaemia—information and resources on the Patient UK website ([www.patient.co.uk/health/Anaemia-\(Pernicious\)-and-Vitamin-B12-Deficiency.htm](http://www.patient.co.uk/health/Anaemia-(Pernicious)-and-Vitamin-B12-Deficiency.htm))

Pernicious Anaemia Society—international society providing information, help, and support (www.pernicious-anaemia-society.org)

FURTHER READING

Galloway M, Hamilton M. Macrocytosis: pitfalls in testing and summary of guidance. *BMJ* 2007;335:884-6. doi:10.1136/bmj.39325.689641.471

Hvas AM, Nexø E. Diagnosis and treatment of vitamin B12 deficiency—an update. *Haematologica* 2006;91:1506-12.



Assessing vitamin B-12 deficiency

Myelodysplasia may present with macrocytosis and should be suspected if macrocytosis is accompanied by other haematological abnormalities, such as neutropenia, monocytosis, thrombocytopenia, or thrombocytosis. A blood film should be requested and a haematology referral made. Myeloma may also present with macrocytosis and should be considered when bone pain, recurrent infection, or hypercalcaemia are present; serum electrophoresis should be requested.

What you should do

Decide whether your patient has clinical B-12 deficiency. Interpreting B-12 levels is difficult. Concentrations of B-12 vary greatly between individuals and agreement between different commercial assays is poor: patients with clinical deficiency may have “normal” results on some assays and low results on others. Correlation between B-12 concentration and response to B-12 replacement is poor, so although a normal result does not rule out clinical deficiency, a low result does not necessarily indicate the need for treatment. Pregnancy and oral contraceptives can cause low B-12 levels without true deficiency, and patients with underlying haematological disorders may have artificially high levels (myeloproliferative disorders) or low levels (myeloma, severe neutropenia) that do not reflect true stores. Where there is neurological or haematological abnormality and low or borderline low B-12, give a course of treatment and reconsider ongoing replacement if there is no response.

Consider the cause

The first step in clarifying the cause of B-12 deficiency is to check for pernicious anaemia (figure). Intrinsic factor antibodies are highly specific (nearly 100%) but poorly sensitive (about 60%) for pernicious anaemia. Parietal cell antibodies lack specificity, so are less useful. The value of testing where there is a probable cause (gastric surgery or dietary deficiency, for example), or in elderly patients with clear B-12 deficiency, is debated, as treatment is the same regardless of the underlying cause. The Schilling test is no longer widely available.

Consider referral

Refer to a gastroenterologist if malabsorption due to inflammatory bowel disease or coeliac disease is suspected. Pregnant women with B-12 deficiency need urgent haematology advice, as interpreting B-12 levels in pregnancy is particularly difficult and B-12 deficiency is associated with pregnancy complications and birth defects.

Treatment

Hydroxocobalamin 1 mg by intramuscular injection three times a week for two weeks and then every three months.

Monitoring

Check a full blood count at eight weeks to confirm a return to normal haemoglobin values and cell volume. In anaemia needing urgent confirmation that the cause is B-12 deficiency, a reticulocyte count one week after start of treatment will be markedly raised if B-12 deficiency is the cause. Further monitoring is not needed after haematological or symptom response.

Competing interests: None declared.

Provenance and peer review: Not commissioned; externally peer reviewed.

Patient consent not required (patient anonymised, dead, or hypothetical).

Accepted: 19 April 2010

Endpiece

“Big pharma”

“The young physician starts life with 20 drugs for each disease, and the old physician ends life with one drug for 20 diseases.”

Sir William Osler (1849-1919),
Canadian born British physician and educator

Submitted by Thomas Ford, core medical trainee year 1,
Royal Infirmary of Edinburgh, Edinburgh

Cite this as: *BMJ* 2010;340:c2137