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UNCERTAINTIES PAGE

Does mindfulness based cognitive therapy prevent relapse of depression?

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This is one of a series of occasional articles that highlight areas of practice where management lacks convincing supporting evidence. The series adviser is David Tovey, editor in chief, the *Cochrane Library*. This paper is based on a research priority identified and commissioned by the National Institute for Health Research's Health Technology Assessment programme on an important clinical uncertainty. To suggest a topic for this series, please email us at uncertainties@bmj.com.

Depression typically runs a relapsing and recurrent course.[1] Without ongoing treatment people with recurrent depression have a very high risk of repeated depressive relapses throughout their life, even after successful acute treatment. Major inroads into the substantial health burden attributable to depression could be offset through interventions that prevent depressive relapse among people at high risk of recurrent episodes.[2] If the factors that make people vulnerable to depressive relapse can be attenuated, the relapsing course of depression could potentially be broken. Currently, most depression is treated in primary care, and maintenance antidepressants are the mainstay approach to preventing relapse.[3] The UK's National Institute for Health and Clinical Excellence (NICE) recommends that to stay well, people with a history of recurrent depression should continue taking antidepressants for at least two years. However, many patients experience side effects, and some express a preference for psychosocial interventions, which provide long term protection against relapse.[4] Mindfulness based cognitive therapy (MBCT)[5] was developed as a psychosocial intervention for teaching people with a history of depression the skills to stay well in the long term (see box for a description of MBCT).

A recent systematic review and meta-analysis of six randomised controlled trials (n=593) suggests that MBCT significantly reduces the rates of depressive relapse compared with usual care or placebo, corresponding to a relative risk reduction of 34% (risk ratio 0.66, 95% confidence interval 0.53 to 0.82).[6] However, despite the emerging evidence base[6] and widespread clinical enthusiasm for MBCT,[7] several uncertainties remain.

What is the evidence of the uncertainty?

Firstly, it is not clear how MBCT compares with other approaches to preventing depressive relapse—most notably, maintenance antidepressants. Evidence from two of the six randomised controlled trials included in systematic review mentioned above suggests that MBCT was at least as efficacious as maintenance antidepressants in preventing relapse (risk ratio 0.80, 95% confidence interval 0.60 to 1.08),[6] but the sample sizes were small and the confidence intervals were wide. Even though antidepressants are the first line approach to preventing depressive relapse, no trials have yet evaluated whether the combination of antidepressants and MBCT provides added benefit over either treatment alone. There are also no head to head trials comparing MBCT with other psychosocial approaches known to help people stay well in the long term (such as cognitive behavioural therapy and interpersonal therapy).

Secondly, although the six randomised controlled trials have not yet reported adverse effects, neither have studies explicitly explored in any depth MBCT's acceptability in a broad range of populations. The earliest two trials of MBCT provided evidence through retrospective analyses suggesting that MBCT may be effective only for people who had had three or more episodes of depression.[6] As a result, subsequent trials have restricted their sample to patients with three or more previous episodes. Future

METHODS

We identified relevant studies and ongoing trials by searching Embase, PubMed, PsycINFO, Web of Science, Scopus, and the Cochrane Central Register of Controlled Trials using the keywords "mindfulness-based cognitive therapy" or "MBCT" and "depress*".

Description of mindfulness based cognitive therapy

Mindfulness based cognitive therapy (www.bemindful.co.uk/mbct/about) is a psychosocial, group based, relapse prevention programme for people with a history of depression who wish to learn long term skills for staying well. It combines systematic mindfulness training—meditation exercises targeted at enhancing awareness and developing self compassion—with elements from cognitive behavioural therapy.

MBCT is based on a theoretical premise similar to that on which cognitive behavioural therapy is based, and it uses strategies from that therapy too. However, MBCT helps people to learn that the negative thoughts that can signal the start of a depressive episode are fleeting events in the mind that they can choose to engage with or not. Through the mindfulness course people learn new ways of responding that are more self compassionate, nourishing, and constructive. This is especially helpful at times of potential depressive relapse, when patients learn to recognise habitual ways of thinking and behaving that tend to increase the likelihood of relapse and can choose instead to respond adaptively.

RECOMMENDATIONS FOR FURTHER RESEARCH

- Among patients at high risk for depressive relapse, how does MBCT compare with maintenance antidepressants alone or both treatments together in preventing relapse? Can MBCT provide an alternative for people wishing to discontinue antidepressants?
- Among patients at high risk of depressive relapse, how does MBCT compare with other psychosocial approaches (such as cognitive behavioural and interpersonal therapies) in preventing relapse?
- How acceptable is MBCT to a broad range of patients (for example, patients with different sociodemographic and cultural backgrounds and patients with varied psychiatric and medical comorbidities)? Can the early indications that MBCT is effective only for patients with three of more previous episodes be replicated?
- What are the facilitators and barriers to implementation of NICE's recommendations for MBCT in the UK's health services? Can this knowledge be used to develop an implementation plan for introducing MBCT consistently into NHS service delivery?

WHAT SHOULD WE DO IN THE LIGHT OF THE UNCERTAINTY? PRACTICAL ADVICE ON REFERRING PATIENTS FOR MBCT AND ON COMMISSIONING SUCH SERVICES IN THE UK*

How do I know when to refer someone for cognitive behavioural therapy, interpersonal therapy, or mindfulness based cognitive therapy?

All three psychosocial treatments are recommended by NICE, but cognitive behavioural and interpersonal therapies aim to help patients with current depression get well and stay well. MBCT might therefore be considered for people who are well but still at substantial risk of relapse—that is, those who have experienced three or more previous episodes of depression. This includes people who have relapsed despite antidepressant treatment; who cannot or choose not to continue antidepressant treatment; and/or who have residual symptoms. Such patients may present asking for long term support in the management of their depression or feel at risk of having future relapses after drug or psychological treatment.

MBCT is best suited to people interested in a psychosocial approach to preventing future episodes of depression who are open and willing to learn new ways of thinking and behaving and to learn within a group based context, and who can invest the time both to attend the groups and to do the home practice.

What can referrers and patients expect from a MBCT service?

- MBCT is a group based class (8-15 participants). It involves eight weekly classes, each lasting two hours, facilitated by a teacher who meets the UK's *Good Practice Guidelines for Teaching Mindfulness-based Courses* (http://mindfulnessteachersuk.org.uk/).
- MBCT therapists would normally meet patients individually, before the classes start, to assess suitability for MBCT and to provide the opportunity to explain more about the course and provide practical details.
- During the course, patients are asked to engage in about an hour a day of home practice to support their learning, supported by audio-recorded, guided meditation practice sessions.
- After the course many services offer booster or reunion sessions, typically monthly or quarterly.

Commissioning depression services

To manage the typically recurrent course of depression, services should offer—as part of the care pathway for depression—MBCT to help people to stay well

*Based on the current NICE guidelines[13]

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Previous articles in this series

- Should selective digestive decontamination be used in critically ill patients? (*BMJ* 2012;345:e6697)
- What factors influence prognosis in children with acute cough and respiratory tract infection in primary care? (*BMJ* 2012;345:e6212)
- How effective are non-drug, non-surgical treatments for primary dysmenorrhoea? (*BMJ* 2012;344:e3011)
- Should we use individual cognitive stimulation therapy to improve cognitive function in people with dementia? (*BMJ* 2012;344:e633)
- What is the most effective way to maintain weight loss in adults? (*BMJ* 2011;343:d8042)

research is needed to establish how acceptable MBCT is to a broad range of patients

Thirdly, even though it is nearly 10 years since NICE first recommended MBCT and even though the 2009 NICE update identified the therapy as a key priority for implementation, there is a substantial gap between the efficacy research and implementation in routine practice settings. A recent survey suggests that only a small number of mental health services in the UK have systematically built MBCT into their depression care pathways.[8]

Is ongoing research likely to provide relevant evidence?

Many of the uncertainties are answerable through well designed and adequately powered studies (see "Recommendations" box); indeed, in many cases this research is under way. Three ongoing randomised controlled trials—in the UK,[9] the Netherlands,[10] and Australia[11]—ask how MBCT compares with, or can augment, antidepressants in terms of preventing depressive relapse. All three trials recruit from the population of adult patients with a history of three or more episodes of depression who are currently in remission, and all the trials report time to depressive relapse as their primary outcome. The UK's PREVENT trial compares MBCT plus tapering or discontinuing maintenance antidepressants with maintenance antidepressants alone in terms of preventing depressive relapse or recurrence over 24 months.[9] The Netherlands MOMENT study comprises two parallel trials: the first trial compares maintenance antidepressants with MBCT plus maintenance antidepressants; the second compares MBCT plus tapering of maintenance antidepressants with MBCT plus maintenance antidepressants.[10] The primary outcome is relapse or recurrence over 15 months. The Australian DARE trial is a single blind trial using group comparison between MBCT and self monitoring ("depression relapse active monitoring"); relapse over 24 months is the outcome measure.[11]

However, these randomised controlled trials are not comparing MBCT directly with other psychosocial interventions. A further trial will compare MBCT with cognitive psychoeducation, an equally plausible cognitive treatment delivered by the same therapists and which does not require participants to practise meditation.[12]

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Provenance and peer review: Commissioned; externally peer reviewed.

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EASILY MISSED?

Perilunate dislocation

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This is one of a series of occasional articles highlighting conditions that may be more common than many doctors realise or may be missed at first presentation. The series advisers are Anthony Harnden, university lecturer in general practice, Department of Primary Health Care, University of Oxford, and Richard Lehman, general practitioner, Banbury. To suggest a topic for this series, please email us at easilymissed@bmj.com

A 30 year old, right hand dominant mechanic presented to the emergency department with a swollen, painful right wrist after he fell on to an outstretched right hand from a motorcycle travelling at high speed. Radiographs were interpreted as normal and the patient was discharged with a diagnosis of a wrist sprain. The next morning he presented again to the same emergency department with a new symptom: numbness of the right thumb and index, middle, and ring fingers. The radiographs were reviewed and a perilunate dislocation with median nerve compression was diagnosed. That afternoon the patient had median nerve decompression and open reduction and stabilisation of the perilunate dislocation with ligament repair.

KEY POINTS

- Remain vigilant about the possibility of perilunate dislocation in patients who sustain high energy hyperextension wrist injuries with or without carpal bone fractures
- Delay in diagnosis can result in injury to the median nerve in the acute setting and post-traumatic arthritis
- Confirm the diagnosis with posteroanterior and lateral plain wrist radiography, which would show the "spilled teacup" sign (lunate angulated volarly) and disruption of the smooth borders of the carpal rows (Gilula's lines)
- Immediate management involves closed reduction, followed by early surgical repair (stabilisation and fixation)

HOW COMMON IS PERILUNATE DISLOCATION?

- Perilunate dislocation is a rare presentation
- Associated with scaphoid fractures in 61% of cases[1]

What are perilunate and lunate dislocations?

Perilunate dislocations usually result from high energy hyperextension injuries to the wrist. In perilunate dislocations, the capitate and other carpal bones are displaced dorsal to the lunate, which remains located in the lunate fossa of the distal radius (fig 1). Lunate dislocation is the final stage in the continuum of perilunate dislocation and refers to the volar displacement of lunate from the lunate fossa of the distal radius.[1]

Why is perilunate dislocation missed?

A case series on the management of neglected perilunate dislocation described 10 cases managed in a single centre that were missed on initial presentation.[2] Additionally, several recent cases of misdiagnosis of perilunate dislocation have been reported,[3-5] highlighting the fact that this diagnosis is still being missed. Owing to the rarity of perilunate dislocation, the radiological signs are often not recognised by primary care doctors, including emergency physicians. The symptoms are usually attributed to a wrist sprain[6] or associated fractures[3 4] that in isolation do not require emergency surgery.

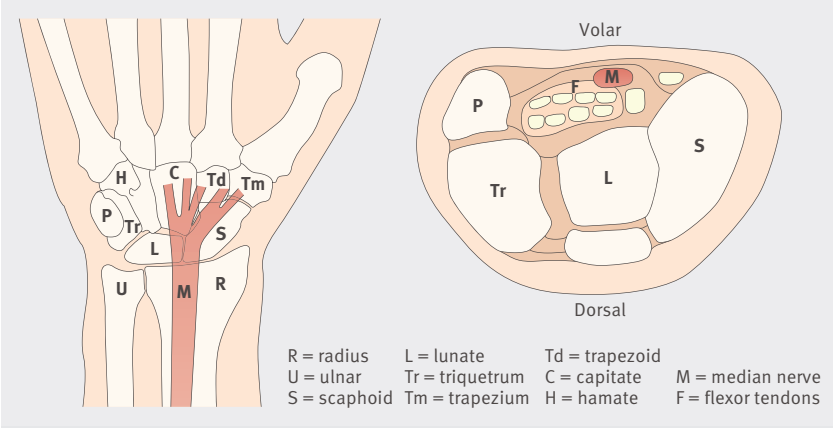

Fig 1 | Left: Anteroposterior diagram of the right wrist and median nerve. Right: Cross section of the right wrist showing the relation of the carpal bones and median nerve. In the wrist the median nerve passes through the carpal tunnel along with nine flexor tendons. The carpal tunnel is situated volar to the lunate and scaphoid. Owing to its close proximity to the median nerve, displacement of the lunate in a perilunate dislocation can exert pressure on the median nerve that may result in nerve injury

Why does this matter?

Emergency reduction of the perilunate dislocation is needed to reduce the pressure on the median nerve to try and prevent progression of nerve damage (fig 1). In addition, it is helpful to reduce the joint to relieve the tension on the vascular supply to the displaced carpal bones and thus reduce the risk of avascular necrosis.[2] Although the long term outcome of perilunate dislocations can be poor, misdiagnosis and delayed treatment result in a substantially worse prognosis, with an increased propensity for the development of post-traumatic arthritis.[4] If the initial diagnosis is missed and the patient presents late, a major salvage procedure—for example, proximal row carpectomy[7] or wrist arthrodesis—may be the only surgical option.

How is it diagnosed?

Clinical

The patient's history will often be of a high energy trauma such as a motor vehicle accident, a fall from a height, or an industrial related accident.[8]However, consider this diagnosis also in patients presenting with wrist pain after any fall on to an outstretched hand. The mechanism of injury is usually forced wrist hyperextension with some degree of ulnar deviation.[9] Examination will show a variable amount of swelling, diffuse tenderness, deformity, and limited wrist movement. The usual bony landmarks will be lost owing to the swelling and the dislocation itself. Additionally, the patient may have altered or loss of sensation in the median nerve distribution. This finding should raise a strong suspicion of a serious wrist injury.

Investigations

For patients presenting with a swollen painful wrist and bony tenderness after an injury, arrange posteroanterior and lateral plain wrist radiography and, if clinically indicated, other special views such as a scaphoid series.

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Previous articles in this series
- Hirschsprung's disease (*BMJ* 2012;345:e5521)
- Pre-eclampsia (*BMJ* 2012;345:e4437)
- Post-traumatic stress disorder (*BMJ* 2012;344:e3790)
- Herpes simplex encephalitis (*BMJ* 2012;344:e3166)
- Familial hypercholesterolaemia (*BMJ* 2012;344:e3228)

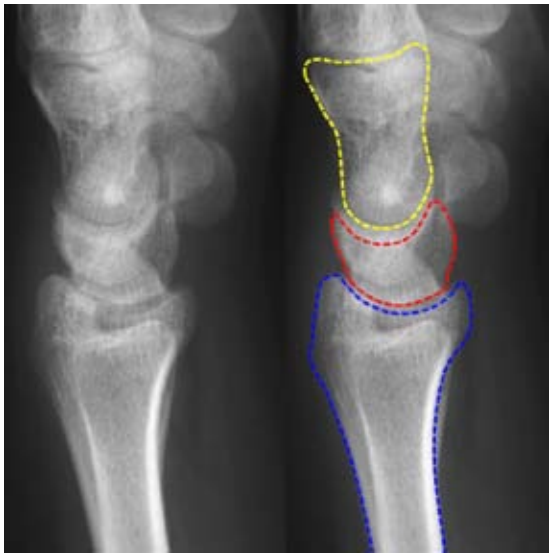

Fig 2 | Lateral plain radiograph of a normal wrist (volar aspect). The radius (blue), lunate (red), and capitate (yellow) are approximately collinear

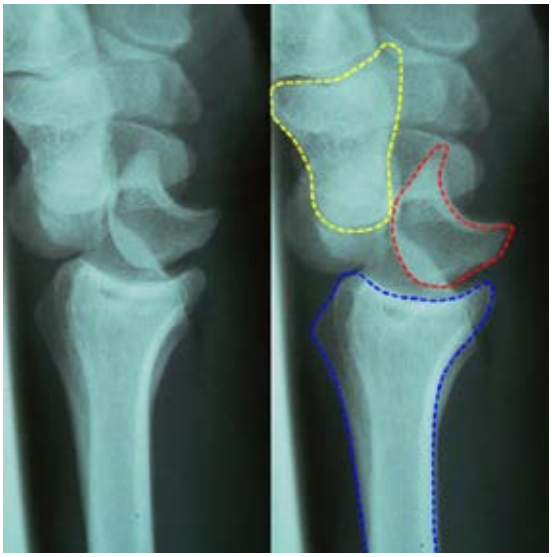

Fig 3 | Lateral plain radiograph of a wrist with a perilunate dislocation (volar aspect). The lunate (red) is angulated volarly: the spilled teacup sign. The capitate (yellow) is displaced dorsally in relation to the lunate

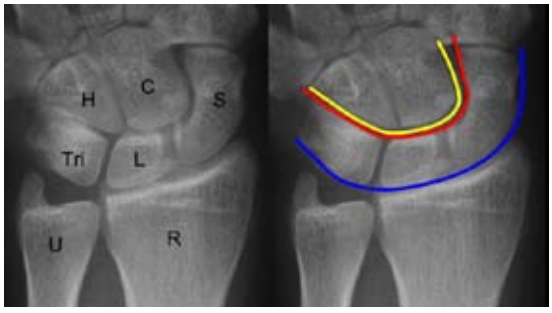

Fig 4 | Posteroanterior plain radiograph of a normal left wrist. The carpal bones are organised into two rows. The three coloured lines illustrate Gilula's lines, which represent the smooth borders of these carpal rows. The blue line outlines the proximal margin, and the red line outlines the distal margin of the proximal carpal row (scaphoid, lunate, triquetrum, pisiform). The yellow line outlines the proximal margin of the capitate and hamate. R=radius, U=ulnar, S=scaphoid, L=lunate, Tri=triquetrum, C=capitate, H=hamate

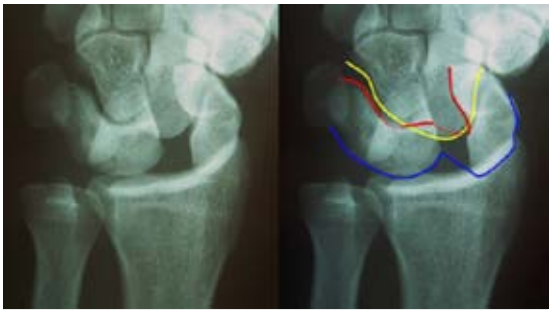

Fig 5 | Posteroanterior plain radiograph of a left wrist with a perilunate dislocation. The carpal bones are unevenly spaced and the carpal rows are overlapping. Obvious disruption of Gilula's lines is visible, which suggests a ligamentous injury. The red line is dotted where it no longer represents the distal margin of the proximal carpal row: the scapholunate gap and the overlap of the triquetrum and lunate

Perilunate dislocation is diagnosed radiographically on the basis of the posteroanterior and lateral plain wrist radiographs, which should be taken with the x ray beam at 90° to the wrist in both views. Inadequate views in either plane are unacceptable as they may lead to a missed diagnosis or a false positive diagnosis. On a normal lateral radiograph the radius, lunate, and capitate should be approximately collinear (fig 2). However, in a perilunate dislocation, the capitate along with the rest of the carpus will appear displaced dorsally to the line of the radius, and the lunate will be angulated and flexed in the volar direction. This is called the "spilled teacup" sign, owing to the appearance of the lunate tipping volarly (fig 3). If the lunate is fully dislocated, the lunate will be completely displaced from the lunate fossa of the distal radius.

On a normal posteroanterior radiograph, the carpal bones would be uniformly spaced and organised into two rows with smooth borders that can be represented by three hypothetical lines named Gilula's lines (fig 4).[10] Uneven spacing or overlapping of the carpal bones and disruption of Gilula's lines suggests a ligamentous injury that may be associated with a perilunate dislocation (fig 5). Additionally, the lunate may appear triangular on posteroanterior films owing to its angulation and displacement.

Perilunate dislocations are often associated with fractures of the scaphoid and radial styloid and less commonly with the capitate, triquetrum, and ulna styloid. Wrist radiographs with evidence of these fractures should be scrutinised carefully. The attending doctor should be careful not to always attribute the cause of the patient's symptoms to these fractures and thereby potentially overlook a perilunate dislocation.

How is perilunate dislocation managed?

Immediate management of a perilunate dislocation entails closed reduction under regional block or general anaesthesia. If closed reduction is successful, a hand surgeon can perform definitive surgery in the next one to two days.

However, if the dislocation is irreducible by using the closed method, the patient will need emergency surgery by a hand surgeon.

Definitive management of these injuries (including cases of successful closed reduction) is open repair, stabilisation of the torn ligaments, and fixation of displaced or unstable fractures. This can be an extensive operation that may require both dorsal and volar approaches. Postoperatively, the wrist is then immobilised in a below-elbow cast or splint for about eight weeks, followed by gentle mobilisation with the guidance of a hand therapist.

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Competing interests: None declared.

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

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

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Corrections and clarifications

Shortcomings of natural family planning methods
This Letter contained a few errors (*BMJ* 2012;345:e5566, print publication 25 Aug, p 31), which were introduced during editing. Firstly, the second sentence of the penultimate paragraph should have read: "Pills, condoms, FABMs, and even depot medroxyprogesterone acetate require continuing commitment [not "Pills, condoms, FABMs, and even implants require continuing commitment"]." Secondly, the initials at the start of the competing interests statement should have been DAV [not DAK, as published]. Finally, we should have included a link to the full rapid response (www.bmj.com/content/345/bmj.e4908/rr/596880) at the end of the Letter.

Primary Sjögren syndrome
The labelling of figure 3 in this Practice article by Manuel Ramos-Casals and colleagues needs to be clarified (*BMJ* 2012;344:e3821, print publication 1 Sep, pp 36-40). The figure should have more accurately identified "Conjunctival and corneal staining with rose bengal, a fluorescein derivative" [not "Corneal staining with fluorescein," as published].

Authors' reply
This Letter contains two errors in the fourth paragraph (*BMJ* 2012;345:e5881, print publication 8 Sep, pp 28-9). The correct spelling of the drug in the second sentence is trimethoprim-sulfamethoxazole [not "trimethoprin-sulfamethoxazole"]. Furthermore, trimethoprim-sulfamethoxazole is the same as co-trimoxazole (referred to in the first sentence)—they are not different drugs as the Letter implies.

Kidney dialysis—the need for humanity
In this Patient Journey we forgot to include the email address of one of the authors (the patient), which had been specifically requested (*BMJ* 2012;345:e4492, print publication 8 Sep, pp 46-7). The email address of Renata Carey for any correspondence is renata@dunira.com.

US officials warn 39 countries about exposure to hantavirus among travellers to Yosemite park
In this News story by Bob Roehr (*BMJ* 2012;345:e6054, print publication 15 Sep, p 5), we mistakenly referred to Vanya Gant, the London infectious disease specialist mentioned in the last paragraph, as "she" and not he as is correct. We would like to apologise to Vanya Gant for this mistake.

Early fluid resuscitation in severe trauma
The authors of this Clinical Review (*BMJ* 2012;345:e5752, print publication 15 Sep, pp 38-42) would like to point out that there are a few inaccuracies in their article. In the last line of the first paragraph, the parenthesis should have clarified that severe traumatic injuries are defined as ›15 [not "‹15"] by the injury severity score. The third paragraph under the heading "What fluids should be used to resuscitate trauma patients who do not need DCR?" should also have read, in its penultimate sentence: "Among patients with severe traumatic brain injury not in hypovolaemic shock, initial resuscitation with either hypertonic saline or hypertonic saline and dextran [not "or dextran"], compared with normal saline, did not result in improved neurological outcome or survival at six months." Lastly, reference 16 should have cited Bickell WH [not "Bicknell"] as the first author.

Is there equal pay in healthcare? Not if you are a doctor
The figures in this Feature by John Appleby (*BMJ* 2012;345:e6191, print publication 22 Sep, pp 22-3) got muddled so that figure 2 appeared with the legend for figure 1 and vice versa.

Are the causes of obesity primarily environmental? No
Timothy M Frayling, the author of this Head to Head article, has alerted us to an error in the penultimate paragraph (*BMJ* 2012;345:e5844, print publication 22 Sep, pp 24-5). The sixth sentence in this paragraph stated that "inactivity in children preceded increases in percentage body fat, but increased body fat percentage did not precede reduced physical activity." This is incorrect and should have read: "Inactivity in children did not precede increases in percentage body fat, but increased body fat percentage did precede reduced physical activity."

Overtreatment, over here
This Editor's Choice incorrectly refers to Sharon Brownlee, who features in a video on bmj.com, when in fact her name is Shannon Brownlee (*BMJ* 2012;345:e6684, print publication 6 Oct 12). We apologise to Shannon Brownlee for this mistake.

Pregnant women in UK are offered whooping cough vaccine to protect newborns as cases and deaths rise
In the first paragraph of this News story we incorrectly referred to whooping cough as a "virus" (*BMJ* 2012;345:e6594, print publication 6 Oct 12, p 3). As pointed out to us by readers, whooping cough is not a virus, but a bacterial disease.