The internet and mental health practice

The internet is one of the fastest growing technologies in the world. The number of web users worldwide is estimated at 513 million, with approximately 100 million adult users in the United States and 25 million in the United Kingdom. There is evidence that seeking health information is one of the most common reasons for using the internet. About 100,000 websites dedicated to health information have been identified.

As in other areas of medicine and clinical practice, the internet and its associated technologies have begun to change the nature of mental health practice. Moreover, because the internet facilitates access to information and resources by patients and clinicians, there is an increasingly “mental health literate” community who may seek certain types of web-based mental health interventions. Self help is of increasing importance in Western countries. For instance, about 4% of the American population may undertake self help for medical conditions in any 12 month period. The internet provides fee and non-fee-based professional therapy, counselling and self help packages directly to the community.

In this EBMH Notebook, we update a previous paper on the expanding role of the internet in mental health practice. We consider the internet from the perspective of the mental health specialist, examining its impact in two domains: (a) information resources and (b) treatment provision. We discuss the scope of information and treatment resources for the practitioner and provide examples of resources. We also discuss the advantages and major obstacles to using these technologies. Finally, we speculate about the ways in which the internet will continue to change clinical practice and likely future trends.

### Information resources

#### Resources available for practitioners

There are a number of well known sites which provide starting points to find mental health resources on the internet (see Table 1: Names and URLs of popular mental health sites).

<table>
<thead>
<tr>
<th>Site</th>
<th>URL</th>
</tr>
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<tbody>
<tr>
<td>Mental Health Net (professional resources index)</td>
<td><a href="http://www.mentalhealth.com/">http://www.mentalhealth.com/</a></td>
</tr>
<tr>
<td>Dr Grohol’s Psych Central</td>
<td><a href="http://psychcentral.com/resources/">http://psychcentral.com/resources/</a></td>
</tr>
<tr>
<td>ISMHO: International Society for Mental Health Online</td>
<td><a href="http://www.ismho.org">http://www.ismho.org</a></td>
</tr>
<tr>
<td>The American Psychiatric Association</td>
<td><a href="http://www.psych.org">http://www.psych.org</a></td>
</tr>
<tr>
<td>The American Psychological Association</td>
<td><a href="http://www.apa.org">http://www.apa.org</a></td>
</tr>
<tr>
<td>Centre for Addiction and Mental Health’s Resources</td>
<td><a href="http://www.camh.net/resources/index.html">http://www.camh.net/resources/index.html</a></td>
</tr>
<tr>
<td>Online journals &amp; databases</td>
<td></td>
</tr>
<tr>
<td>Journal of Online Behaviour</td>
<td><a href="http://www.behavior.net/JOB/">http://www.behavior.net/JOB/</a></td>
</tr>
<tr>
<td>Journal of Medical Internet Research</td>
<td><a href="http://www.jmir.org">http://www.jmir.org</a></td>
</tr>
<tr>
<td>PsychLinx.com</td>
<td><a href="http://www.psychlinx.com/">http://www.psychlinx.com/</a></td>
</tr>
<tr>
<td>Reference guide to medications</td>
<td></td>
</tr>
<tr>
<td>Patient information</td>
<td></td>
</tr>
<tr>
<td>National Institute of Mental Health</td>
<td><a href="http://www.nimh.nih.gov">http://www.nimh.nih.gov</a></td>
</tr>
<tr>
<td>The Association for Advancement of Behavior Therapy</td>
<td><a href="http://www.aabt.org">http://www.aabt.org</a></td>
</tr>
<tr>
<td>American Psychological Society</td>
<td><a href="http://www.apa.org">http://www.apa.org</a></td>
</tr>
<tr>
<td>The Anxiety Panic Internet Resource (tapir)</td>
<td><a href="http://www.algy.com/anxiety/">http://www.algy.com/anxiety/</a></td>
</tr>
<tr>
<td>Evidence-based information with a consumer focus</td>
<td></td>
</tr>
<tr>
<td>BluePages</td>
<td><a href="http://bluepages.anu.edu.au">http://bluepages.anu.edu.au</a></td>
</tr>
<tr>
<td>InfraPsych</td>
<td><a href="http://infra-psych.com">http://infra-psych.com</a></td>
</tr>
<tr>
<td>Clinical practice guidelines</td>
<td></td>
</tr>
<tr>
<td>Centre for Evidence-Based Mental Health</td>
<td><a href="http://cebmh.warne.ox.ac.uk/cebmhV/">http://cebmh.warne.ox.ac.uk/cebmhV/</a></td>
</tr>
<tr>
<td>Cochrane Collection</td>
<td><a href="http://www.cochrane.org/">http://www.cochrane.org/</a></td>
</tr>
<tr>
<td>Assessment tools</td>
<td></td>
</tr>
<tr>
<td>Brain technologies</td>
<td><a href="http://www.braintechnologies.com/index.htm">http://www.braintechnologies.com/index.htm</a></td>
</tr>
<tr>
<td>Georgia Mental Health Network</td>
<td><a href="http://www.mcg.edu/Resources/MH/selftest.html">http://www.mcg.edu/Resources/MH/selftest.html</a></td>
</tr>
<tr>
<td>Internet forums including e-mail discussion groups and web-based discussion groups</td>
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<tr>
<td>Behavior Online</td>
<td><a href="http://www.behavior.net/forumfront.html">http://www.behavior.net/forumfront.html</a></td>
</tr>
<tr>
<td>American Association of Pastoral Counsellors</td>
<td><a href="http://www.aapc.org/">http://www.aapc.org/</a></td>
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</tbody>
</table>
professional); third-party certification, and tool-based evaluation. False, explicit or 
misinformation may improve treatment adherence. False, explicit or 
falsehoods, or ethical (self-regulation through adherence to a code of 
practice). The internet supports sophisticated search engines which locate information readily, and allows searches of 
research databases (such as PubMed). Professional information is disseminated by online forums, newsgroups, and internet 
tutorials, with many professional organisations communicating and conferencing via the web. Business assistance, accounting, 
career information and prescribing software can be readily obtained.

Clinical tools are also available online. Practitioners may wish to subscribe to or use online assessment tools. Although valida-
tion, standardisation, and copyright violation may be potential 
disadvantages of these resources, the advantages are ease of 
testing from many locations and immediate scoring and 
assessment.

The internet also provides information that might facilitate 
patient management or education. This includes hundreds of 
web sites providing patient education. The practitioner may 
develop a useful portfolio of useful high quality sites, or produce his/her own website to disseminate relevant clinical and personal information. The DMOZ directory provides a cata-
ologue of professional resources including academic pro-
grames, associations, continuing education, internet psychol-
ogy resources and publications.

### Obstacles and disadvantages

Two major issues when using the web for information are too 
much information and no quality control. Waiting through 
large amounts of uncensored information of low quality is time-
consuming and frustrating. Focused search engines or edited 
portal sites maintained by professional societies, professional 
librarians or other organisations may help to reduce to volume 
of information retrieved.

Quality is a greater challenge. There has been intense inter-
national interest in this issue fuelled by anxieties about patient 
harm, but some believe that medical information on the inter-
net should not and cannot be regulated. For professionals, a 
major issue is recommending sites whose content is evidence-
based. Good quality psychological and psychiatric health infor-
mation may improve treatment adherence. False, explicit or 
harmful information may have devastating consequences 
("copy cat" suicides, for example). A recent review examined 
three major initiatives to tackle quality issues: codes of conduct 
or ethics (self-regulation through adherence to a code of 
conduct); third-party certification, and tool-based evaluation. Each 
of these initiatives had disadvantages, including the burden placed on health information producers, users and cer-
tifiers; the need to maintain initiatives; user indifference; and the absence of meaningful enforcement mechanisms.

In the field of mental health, indicators of the quality of infor-
mation on websites are yet to be determined. Recent research 
suggests a correlation between web quality as assessed by clini-
cal practice guidelines and site features such as DISCERN 
ratings and the presence of an editorial board. Site popular-
ity is not sufficient. The correlation between quality and Google Page Rank, a measure of site inter-connectiveness, has not been established.

In the United Kingdom, there are efforts to provide evidence-
based mental health material as part of the National Electronic 
Library for Health. Nevertheless, quality of information remains an issue, particularly for consumers who do not neces-
sarily have the training or the professional context to assess the 
validity of information or key indicators of quality.

There has been a lack of evaluation of the effects of internet 
information on professional services and consumer mental 
health knowledge. Web information is used increasingly by psy-
cychologists and professionals from related professions. While 
this suggests that the internet is a useful medium for 
information dissemination, it remains unclear whether the 
internet can foster good clinical practice or improve mental health outcomes. Moreover, there is no evidence that providing 
high quality web based information to people with mental health problems improves patient outcomes or mental health literacy.

### Treatment

**TREATMENT SERVICES ON THE INTERNET**

A range of different types of mental health services or “interac-
tions” are available through the internet (see table).&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n

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<thead>
<tr>
<th>Type of Intervention</th>
<th>Providers</th>
<th>Features</th>
<th>Quality Control</th>
<th>Accessibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online therapy</td>
<td>Psychiatrists, psychologists</td>
<td>Internet-based resources</td>
<td>Quality guidelines</td>
<td>Remote access</td>
</tr>
<tr>
<td>Support groups</td>
<td>Mental health professionals</td>
<td>Online bulletin board</td>
<td>Privacy guidelines</td>
<td>Region-specific</td>
</tr>
<tr>
<td>Self-help guides</td>
<td>Mental health educators</td>
<td>Downloadable self-help materials</td>
<td>Copyright guidelines</td>
<td>Global access</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment methods</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online therapy</td>
<td>Easy access, immediate scoring and feedback</td>
<td>Potential for copyright violation</td>
</tr>
<tr>
<td>Support groups</td>
<td>Immediate access to expert advice and referral</td>
<td>Limited geographical availability</td>
</tr>
<tr>
<td>Self-help guides</td>
<td>Immediate access to comprehensive materials</td>
<td>Potential for misuse by patients</td>
</tr>
</tbody>
</table>

### Evidence of effectiveness

There are a number of internet interventions for treating anxiety or depression, including COPE, FearFighter, and the Tera-
peutic Learning Program. There have been few studies on the effect of these types of interventions, although evidence is 
beginning to emerge that the internet can be used to deliver 
cognitive behaviour therapy designed to prevent depression. 
The internet has also been used to modify eating disorders and 
prevent obesity through exercise. Internet delivery may be as effective as classroom delivery for these interventions.
Although a recent randomised trial did not find any effect from an internet-based cognitive behaviour programme. There is clearly a need for further research.

Further randomised controlled trials of internet technologies are needed to convince clinicians and policy makers of their effectiveness, feasibility and economic value. It is also imperative to understand how consumers use and interact with e-mental health services. Finally, there is a need to investigate the usefulness of professionally mediated online support groups. Evidence to date suggests that face to face professionally mediated support groups are popular, may be effective, and are used by proportionally more individuals with stigmatising disorders, such as depression, than individuals with less stigmatising disorders. It has been suggested that online interactions have unique benefits.

### Professional practice

There is evidence that patients may prefer online help in some instances, yet professional societies may not be responding fast enough to the demand for online services. A recent survey of participants in Norwegian online mental health discussion forums found that the majority of respondents preferred that active participation in these groups by professionals. The authors concluded that “Professionals will need new knowledge and perceptions of their roles, and public authorities will have to decide their role in influencing the quality of services offered, and the social values conveyed, to those who seek help through the internet” (p 59). E-mail counselling was also reportedly more popular than face to face or telephone counselling for mental health problems in a recent Japanese survey.

There may be an unmet need for help, with many unable to access services because of expense or lack of accredited counsellors. Online services have the potential to address some of this unmet need. Yet there are also dangers. Practitioners in clinical practice may respond to emails from patients without considering the associated legal and ethical issues. Given these factors, there is a need for professional societies to develop standards and accredited training to help protect practitioners and assist consumers in online counselling.

### Future trends

It is difficult to predict future trends, especially in areas where technologies are rapidly developing. In 1943, the Chairman of IBM suggested that “there is a world market for maybe five computers.” Despite the difficulties with prediction, we believe that there will be a rapid expansion of current internet services, including more online professional communication, publishing, training, counselling and online information. Although web counselling may account for considerably less volume of interaction than telephone counselling at present, this is likely to change because more people are beginning to routinely access health information online. At the level of professional practice, it is likely that mental health practitioners will be more informed about online interactions of all types, use them with a more complete understanding of their implications, use and provide patient information electronically to other professionals, (possibly) employ online counsellors as locums and offer more services to those in remote and rural areas. If found to be cost effective and beneficial, consumers and the Government may demand more widely available internet services.

The question remains whether internet technologies can be used to create novel mental health interventions, thereby changing the nature of mental health practice, or whether these technologies provide opportunities to complement already existing practices through their use as adjunct treatments. It is difficult to judge what is truly innovative and unique and what is an extension of existing practices using alternative media. To us, it would seem that internet technologies will both complement and expand existing services. Given the huge appeal of the internet and its capacity for tailored information dissemination, it may radically change how health care can be delivered to the community. The internet creates new networks and partnerships and it provides a unique opportunity for confidential access to a broad range of services and treatment options. For example, the internet allows us to provide services to individuals who do not have access to or do not wish to access general practice services, because these services are not tuned to their needs, because of distance or perhaps because of the stigma they feel. Providing such services through the internet may fulfil goals that were not previously considered a possibility in mental health practice. Ultimately, it may be possible to provide health care services which do not require the assistance of a human operator at any point. Whether this is desirable is highly debatable, but such assistance would certainly be regarded as a radical change in the provision of mental health services.

### Acknowledgements

Funding for this study was provided by NHMRC Programme Grant 179805. This article updates a previously published Table 2: Definition of online mental health services

<table>
<thead>
<tr>
<th>Interactions</th>
<th>Definition</th>
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<tbody>
<tr>
<td>E-mail advice</td>
<td>Non-synchronous e-mail advice from professionals or paraprofessionals. Usually involves a single session.</td>
</tr>
<tr>
<td>E-mail counselling</td>
<td>Personal counselling conducted by email by a trained professional. Interactions are asynchronous. Usually involves more than one session.</td>
</tr>
<tr>
<td>Chat counselling</td>
<td>Synchronous communication (by writing) online through a virtual chat room or software. This includes synchronous interactions between a professional therapist and client.</td>
</tr>
<tr>
<td>Web telephony counselling</td>
<td>Real time speaking over the internet via microphone and speakers between professional and client.</td>
</tr>
<tr>
<td>Video conferencing counselling</td>
<td>Real time video interaction produced by video equipment installed on the computers of both parties.</td>
</tr>
<tr>
<td>Newsgroups</td>
<td>Group communication, originally designed to allow information on technical topics among internet users.</td>
</tr>
<tr>
<td>Chat rooms</td>
<td>Group communication usually for support among people with mental health problems. Either synchronous or asynchronous.</td>
</tr>
<tr>
<td>Discussion groups</td>
<td>Group communication that is synchronous or asynchronous. May involve group counselling if mediated by therapist.</td>
</tr>
<tr>
<td>Communication systems delivering self help guidance</td>
<td>Internet sites which provide self help programs such as online self help books.</td>
</tr>
<tr>
<td>Communication systems delivering tailored and computerised interventions</td>
<td>Internet sites which use technology to provide tailored self help</td>
</tr>
</tbody>
</table>
Which treatments are effective for cognitive, behavioural and psychological symptoms in dementia?


The authors searched for evidence to October 2002. A full description of evidence of the effects of treatments on cognitive, behavioural and psychological symptoms in dementia is presented in Clinical Evidence (and reproduced on the EBMH website www.ebmentalhealth.com).

**Cognitive symptoms**

**Beneficial**
- Donepezil
- Galantamine

**Likely to be beneficial**
- Ginkgo biloba
- Oestrogen (in women)
- Reality orientation
- Selegiline

**Trade off between benefits and harms**
- Phystostigmine
- Rivastigmine

**Unknown effectiveness**
- Lecithin
- Music therapy
- Nicotine
- Non-steroidal anti-inflammatory drugs
- Reminiscence therapy
- Tacrine
- Vitamin E

**Key messages**

**Donepezil**

One systematic review and two subsequent RCTs have found that donepezil compared with placebo improves cognitive function and global clinical state at up to 52 weeks in people with mild to moderate Alzheimer’s disease. The review found no significant difference in patient rated quality of life at 12 or 24 weeks between donepezil and placebo. One RCT in people with mild to moderate Alzheimer’s disease found no significant difference in cognitive function at 12 weeks between donepezil and rivastigmine, although significantly fewer people taking donepezil withdrew from the trial for any cause.
Galantamine
RCTs identified by a systematic review, and one additional RCT, have found that galantamine improves cognitive function compared with placebo in people with Alzheimer’s disease or vascular dementia.

Ginkgo biloba
RCTs found limited evidence that ginkgo biloba improved cognitive function compared with placebo in people with Alzheimer’s disease.

Lecithin
Small, poor RCTs identified by a systematic review provided insufficient evidence to assess lecithin in people with Alzheimer’s disease.

Music therapy
Poor studies identified by a systematic review provided insufficient evidence to assess music therapy.

Nicotine
One systematic review found no RCTs of adequate quality on the effects of nicotine.

Non-steroidal anti-inflammatory drugs
One RCT in people with Alzheimer’s disease found no significant difference in cognitive function after 25 weeks treatment with diclofenac plus misoprostol compared with placebo. Another RCT in people with Alzheimer’s disease found that indometacin improved cognitive function after 6 month treatment compared with placebo.

Oestrogen (in women)
One systematic review has found that, in women with mild to moderate Alzheimer’s disease, oestrogen improves cognition over 7–12 months treatment compared with no oestrogen.

Physostigmine
One systematic review in people with Alzheimer’s disease found limited evidence that slow release physostigmine improved cognitive function compared with placebo, but adverse effects, including nausea, vomiting, diarrhoea, dizziness, and stomach pain, were common.

Reality orientation
One systematic review of small RCTs found that reality orientation improved cognitive function compared with no treatment in people with various types of dementia.

Reminiscence therapy
One systematic review provided insufficient evidence to assess reminiscence therapy.

Rivastigmine
One systematic review and one additional RCT have found that rivastigmine improves cognitive function compared with placebo in people with Alzheimer’s disease or Lewy body dementia, but adverse effects such as nausea, vomiting, and anorexia are common. Subgroup analysis from one RCT in people with Alzheimer’s disease suggests that people with vascular risk factors may respond better to rivastigmine than those without. One RCT in people with mild to moderate Alzheimer’s disease found no significant difference in cognitive function at 12 weeks between donepezil and rivastigmine, although rivastigmine significantly increased the proportion of people who withdrew from the trial for any cause.

Selegiline
One systematic review has found that, in people with mild to moderate Alzheimer’s disease, selegiline improves cognitive function, behavioural disturbance, and mood compared with placebo, but has found no significant difference in global clinical state.

Tacrine
Systematic reviews found limited evidence that tacrine improved cognitive function and global state in Alzheimer’s disease compared with placebo, but adverse effects, including nausea and vomiting, diarrhoea, anorexia, and abdominal pain, were common.

Vitamin E
One RCT in people with moderate to severe Alzheimer’s disease found no significant difference in cognitive function after 2 years treatment with vitamin E compared with placebo. However, it found that vitamin E reduced mortality, institutionalisation, loss of ability to perform activities of daily living, and the proportion of people who developed severe dementia.

Behavioural and psychological symptoms
Likely to be beneficial
- Carbamazepine
- Olanzapine
- Reality orientation
- Risperidone

Unknown effectiveness
- Cholinesterase inhibitors
- Haloperidol
- Sodium valproate
- Trazodone

Key messages
Carbamazepine
One RCT found that carbamazepine reduced agitation and aggression compared with placebo in people with various types of dementia.

Cholinesterase inhibitors
One RCT in people with mild to moderate Alzheimer’s disease found no significant difference in psychiatric symptoms at 3 months between galantamine and placebo, but another RCT found that galantamine significantly improved psychiatric symptoms at 6 months compared with placebo. One RCT in people with moderate to severe Alzheimer’s disease found that donepezil significantly improved functional and behavioural symptoms at 24 weeks compared with placebo, but another RCT in people with mild to moderate Alzheimer’s disease found no significant difference in psychiatric symptoms at 24 weeks between donepezil and placebo.

Haloperidol
One systematic review in people with various types of dementia found no significant difference in agitation between haloperidol and placebo, but found limited evidence that haloperidol may reduce aggression.
Olanzapine
One RCT in people with Alzheimer’s disease found that olanzapine (5–10 mg daily) reduced agitation, hallucinations, and delusions compared with placebo.

Reality orientation
One systematic review of small RCTs found that reality orientation significantly improved behaviour compared with no treatment in people with various types of dementia.

Risperidone
One RCT in people with moderate to severe dementia, including Alzheimer’s disease and vascular dementia, found that risperidone significantly improved behavioural and psychological symptoms over 12 weeks compared with placebo, but another RCT in people with severe dementia and agitation found no significant difference in symptoms over 13 weeks.

Sodium valproate
One RCT found that sodium valproate reduced agitation over 6 weeks in people with dementia, but another RCT found no significant difference in aggressive behaviour over 8 weeks between sodium valproate and placebo.

Trazodone
One RCT in people with Alzheimer’s disease found no significant difference between trazodone and haloperidol in reducing agitation. Another RCT in people with dementia plus agitated behaviour found no significant difference in agitation among trazodone, haloperidol, behavioural management techniques, and placebo. The RCTs may have been too small to exclude a clinically important difference.