Early intervention services have been developed to address the needs of individuals with early psychosis. Typically, there is a delay between the onset of the first episode of psychosis and receiving an effective treatment—a period of untreated psychosis. Reducing this duration of untreated psychosis (DUP) for people with schizophrenia may lead to an improved prognosis. Early intervention services aim to detect emergent symptoms, reduce DUP, and improve access to effective treatment, particularly in the 'critical period' (the first 3–5 years following onset). Although at the time there was little evidence for the effectiveness of this approach, early intervention services were developed in Australia, the USA, Canada, New Zealand and elsewhere; and the widespread deployment of such services was recommended in the National Service Framework for Mental Health and in the National Institute for Health and Clinical Excellence (NICE) guideline on schizophrenia for England and Wales.

Since then, the provision of early intervention services has steadily increased, with 145 early intervention services currently operating in the UK, serving about 15,750 individuals (Care Services Improvement Partnership, personal communication, 2009). Early intervention teams have also gradually evolved and now often consist of community-based multidisciplinary mental health teams that provide a combination of pharmacist, family intervention, cognitive–behavioural therapy (CBT), social skills training, problem-solving skills training, crisis management and case management. However, although the evidence base for early intervention services is growing, their specific benefits have not been clearly demonstrated. Therefore as part of an update of the NICE guideline on schizophrenia, we conducted a systematic review of early intervention services for people with a first or early episode of psychosis. Because early intervention services typically include an individually tailored combination of evidence-based psychological interventions, we also examined the data on the separate use of CBT and family intervention used specifically in the context of early psychosis.

Results
Early intervention services reduced hospital admission, relapse rates and symptom severity, and improved access to

Aims
To evaluate the effectiveness of early intervention services, cognitive–behavioural therapy (CBT) and family intervention in early psychosis.

Method
Systematic review and meta-analysis of randomised controlled trials of early intervention services, CBT and family intervention for people with early psychosis.

Conclusions
For people with early psychosis, early intervention services appear to have clinically important benefits over standard care. Including CBT and family intervention within the service may contribute to improved outcomes in this critical period. The longer-term benefits of this approach and its components need further research.

Declaration of interest
None.

Early intervention services, cognitive–behavioural therapy and family intervention in early psychosis: systematic review
V. Bird, P. Premkumar, T. Kendall, C. Whittington, J. Mitchell and E. Kuipers

V. Bird, P. Premkumar, T. Kendall, C. Whittington, J. Mitchell and E. Kuipers

Background
Early intervention services for psychosis aim to detect emergent symptoms, reduce the duration of untreated psychosis, and improve access to effective treatments.

Aims
To evaluate the effectiveness of early intervention services, cognitive–behavioural therapy (CBT) and family intervention in early psychosis.

Method
Systematic review and meta-analysis of randomised controlled trials of early intervention services, CBT and family intervention for people with early psychosis.

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For people with early psychosis, early intervention services appear to have clinically important benefits over standard care. Including CBT and family intervention within the service may contribute to improved outcomes in this critical period. The longer-term benefits of this approach and its component treatments for people with early and established psychosis need further research.

Declaration of interest
None.
Data extraction
Two of the authors (V.B. and J.M.) entered study details into a database and assessed methodological quality. Three of the authors (V.B., C.W. and P.P.) extracted outcome data into Review Manager (RevMan version 5.0.18 for Windows XP; The Cochrane Collaboration, Oxford, UK). The assessment of study quality and all outcome data were double-checked by one author (C.W.) for accuracy, with disagreements resolved by discussion.

Where available, data were extracted for the following outcomes: hospital admission; psychotic relapse (if appropriate criteria were used); DUP; and mean positive and negative symptoms as measured using the Positive and Negative Syndrome Scale (PANSS),17 Brief Psychiatric Rating Scale (BPRS),18 Scale for the Assessment of Positive Symptoms (SAPS),19 and the Scale for the Assessment of Negative Symptoms (SANS).20 Outcome data were extracted at both end of treatment and follow-up (based on mean end-point scores). In light of the fundamental aims of early intervention services,12 data on remaining in contact with services (mean end-point scores). In light of the fundamental aims of early intervention services,12 data on remaining in contact with services and accessing psychosocial treatments were also extracted.

Statistical analysis
Meta-analysis was used, where appropriate, to synthesise the evidence using RevMan. Where possible, intention-to-treat with last observation carried forward data were used in the analyses. For binary outcomes, this approach assumes that participants leaving the study early, for whatever reason, had an unfavourable outcome. We calculated the standardised mean difference (SMD) for continuous outcomes, and relative risk (RR) for binary outcomes. For consistency, data from all outcomes (continuous and binary) were entered into RevMan in such a way that negative effect sizes or relative risks less than one favoured the active intervention. The number needed to treat for benefit (NNTB)21 was calculated for statistically significant relative risks. Data from more than one study were pooled using a random-effects model, regardless of heterogeneity between trials, as this has recently been shown to be the most appropriate model in most circumstances.22 Summary effects were assessed for clinical importance, taking into account both the point estimate and the associated 95% confidence interval (CI).

Results
The search process and total number of trials included in the review are illustrated in Fig. 1. Details of all included trials can be found in Table 1, with further information about included and excluded studies available in online Tables DS1 and DS2.

Early intervention services
Four published trials (n = 800) were included in the meta-analysis of early intervention services: COAST (Croydon Outreach and Assertive Support Team);23 LEO (Lambeth Early Onset);11 the OPUS trial;24 and OTP (Optimal Treatment Project).12 Inspection of the Cochrane review of early interventions in psychosis13 identified three additional trials; however, these were excluded as they failed to meet our inclusion criteria regarding the population studied and comparison used. All included trials recruited participants from local mental health services such as community mental health teams, in-patient and out-patient services. However, the trials varied as to whether the participant was a new referral, with LEO13 including only those making contact for the first or second time, whereas COAST,23 OPUS24 and OTP23 considered people who had a documented first contact within a specified time period, ranging from 12 weeks to 5 years.

Interventions often included a case manager or care coordinator, with a lower case-load than in standard care. In addition to medication management, all participants allocated to early intervention services were offered a range of psychosocial interventions, including CBT,11,12,23 social skills training24 and family intervention12,23,24 or family counselling,13 and vocational strategies such as supported employment.11,12,23 The psychosocial and vocational interventions were usually adapted to the needs of first-episode psychosis and offered on an ‘as-required’ basis. The frequency and duration of contact differed between trials, with the duration of the intervention lasting up to 2 years. Outcomes were reported at 9 months to 5 years post-randomisation.

Participants receiving early intervention services, when compared with those receiving standard care, were less likely to relapse (35.2% v. 51.9%; NNTB = 6.47) or be admitted to hospital (28.1% v. 42.1%; NNTB = 7, 95% CI 5 to 7; heterogeneity I² = 0%, P = 1.00) (Table 2). Early intervention services also significantly reduced positive symptoms with a pooled SMD of −0.39 (95% CI −0.42 to −0.35; heterogeneity I² = 9%, P = 0.29) and negative symptoms with a pooled SMD of −0.39 (95% CI −0.57 to −0.20; heterogeneity I² = 0%, P = 0.38). The rate of discontinuation for any reason was lower for early intervention services compared with standard care (27.0% v. 40.5%; NNTB = 8, 95% CI 5 to 14; heterogeneity I² = 40%, P = 0.17). In terms of access and engagement with treatment, although generally high, participants in early intervention

![Flow diagram of selection of papers for inclusion in the clinical review.](https://example.com)

Fig. 1 Flow diagram of selection of papers for inclusion in the clinical review.

CBT, cognitive–behavioural therapy; RCTs, randomised controlled trials.
a includes RCTs published in multiple papers.
Four published trials of CBT were included in the review (n = 620). One paper published in Chinese but with an English abstract was translated subsequent to publication of the schizophrenia (update) guideline and included in this analysis. Participants were recruited from a range of services which included early intervention services, community mental health clinics and in-patient psychiatric wards. In two trials, participants were exclusively in their first episode of psychosis. Another trial additionally included participants who had been admitted for a second time, providing the episode occurred within 2 years of the first admission (17% of their sample). The fourth trial included participants who had consulted a mental health professional for psychosis in the first time in the past 2 years.

Cognitive–behavioural therapy

Four published trials of CBT were included in the review. One paper published in Chinese but with an English abstract was translated subsequent to publication of the schizophrenia (update) guideline and included in this analysis.
approach for early psychosis,25,28 with the remaining two interventions targeting positive symptoms26 and insight building.27 The frequency of sessions and the duration of treatment varied across trials, with the total duration ranging from 5 weeks (plus booster sessions)26 to 1 year.25 At up to 2 years post-treatment follow-up, when compared with standard care alone, CBT significantly reduced mean positive symptoms with a pooled SMD of −0.60 (95% CI −0.79 to −0.41; heterogeneity $I^2 = 0\%$, $P = 0.07$) and mean negative symptoms with a pooled SMD of −0.45 (95% CI −0.80 to −0.09; heterogeneity $I^2 = 62\%$, $P = 0.07$). These benefits were not evident at the end of treatment in terms of both positive (SMD = −0.05, 95% CI −0.22 to 0.12; heterogeneity $I^2 = 0\%$, $P = 0.92$) and negative symptoms (SMD = 0.03, 95% CI −0.17 to 0.23; heterogeneity $I^2 = 0\%$, $P = 0.41$), or relapse within the 2-year follow-up period (27.8% v. 32.2%, $P = 0.44$; heterogeneity $I^2 = 79\%$, $P = 0.03$). Rates of hospital admission up to 2 years follow-up also failed to demonstrate any additional benefit for CBT compared with standard care (38.4% v. 38.5%, $P = 0.94$; heterogeneity $I^2 = 0\%$, $P = 0.36$).

**Family intervention**

Three trials ($n = 288$) assessing family intervention in early psychosis were included in the review.29–31 Participants were recruited from psychiatric services, including in-patient units, and were either first or second admissions,29–31 or had made first contact with services within the past 6 months.30 Two trials29,30 included the individual with psychosis in the family sessions, whereas in Zhang et al31 the majority of family sessions did not include the patient. The interventions delivered in each trial included an element of psychoeducation and problem-solving, with crisis management also evident in one trial.29 Interventions varied in their mode of delivering, with two trials29,30 utilising an individual family approach and the remaining trial combining individual and group-based family sessions. Only one trial29 reported relapse and a further two trials30,31 reported hospital admission; these outcomes were combined to increase statistical power.

The combined analysis indicated that at the end of treatment, participants receiving family intervention were less likely to relapse or be admitted to hospital compared with those receiving standard care (14.5% v. 28.9%; NNTB = 7, 95% CI 4 to 20; heterogeneity $I^2 = 0\%$, $P = 0.40$). At up to 2 years follow-up, one study29 reported a numerically lower risk of relapse (23.1% v. 30.8%, $P = 0.38$), although this was not statistically significant. None of the included family intervention trials provided data on mean positive and negative symptoms.

**Discussion**

**Main findings**

For people with early psychosis, in four trials of early intervention services, four trials of CBT, and three trials of family intervention, meta-analysis demonstrated advantages over standard care. By the end of treatment, early intervention services produced clinically important reductions in the risk of both relapse and hospital admission. In addition, small effects favouring early intervention services were shown in terms of reduced symptom severity and improved access to and engagement with treatment (including psychological therapies). Family intervention also produced clinically important reductions in the risk of relapse and hospital admission when compared with standard care. In the 2 years following the intervention, medium effects favouring CBT were demonstrated in terms of reduced positive and negative symptom severity. We found no data on the effect of family intervention on symptoms and insufficient evidence to reach a conclusion about the impact of CBT on relapse or hospital admission.

**Early intervention services**

Compared with a previous review of early interventions in psychosis,3 our meta-analysis found stronger evidence to support the effectiveness of early intervention services overall. The earlier review included fewer trials that specifically focused on service-level interventions delivered during the 'critical period' following onset of psychosis. Furthermore, although the previous review included both discrete psychosocial and multicomponent service-level interventions, there was a lack of comparable trials for any conclusions to be drawn. Our findings do, however,
substantiate those previously reported in a narrative review of
randomised and non-randomised studies by Penn and colleagues,14
doing conclusion that early interventions had beneficial effects
across a range of domains, although further investigation was
needed to establish the robustness of these findings.14 Our review
attempts to overcome these limitations and provides the first
meta-analytic evidence indicating that both early intervention
services and discrete psychological interventions improve
outcomes for early psychosis.

In the present review, the early intervention services provided
in all of the trials included the provision of psychosocial inter-
ventions, pharmacological treatment and some form of case
management involving smaller case-loads (1:10) and an assertive
approach to treatment. All of the components were tailored to
meet the needs of the individual patient and offered at the earliest
opportunity. These elements were not present in treatment as
usual, although an assertive approach to treatment is so common
that it cannot be specifically excluded. The psychological inter-
ventions used in the included trials were CBT and either family
intervention12,23,24 or family counselling.11 It is possible that the
reduced case-loads and more appropriate use of pharmacological
interventions within early intervention services may account for
some of the clinical and statistically important improvements
demonstrated. Although further research is needed to investigate
the beneficial contributions of these features of early intervention,
given the positive effects of CBT and family intervention when
delivered as discrete interventions for people with early psychosis,
it is just as likely that these two psychosocial interventions have
contributed to some of the benefits of early intervention services
in this review.

Gleeson and colleagues32 recently demonstrated that the
addition of a cognitive–behavioural and family therapy-based
relapse prevention programme to an early intervention service
for individuals in remission from a first episode of psychosis
was more likely to prevent or significantly delay a second episode
when compared with an early intervention service alone. In this
trial the early intervention service alone included only family
psychoeducation and peer support. This study provides some
evidence to support our hypothesis: that an important part of
the overall effectiveness of the early intervention teams included
in our meta-analysis derives from the inclusion of two evidence-
based psychological interventions, namely, CBT and family
intervention. In our review we have shown that the likelihood
of a service user receiving a psychosocial intervention in an early
intervention team is double that found in a community mental
health team.

**Limitations**

One limitation of the present review is the paucity of trials included
in each meta-analysis. We excluded trials focusing on high-risk
groups or prevention of psychosis because of the possible ethical
implications of targeting interventions at these individuals.5 Another
limitation is the variability in long-term follow-up measures
available in different trials making some comparisons difficult.
Only one trial of an early intervention service provided long-term
data (up to 5 years post-randomisation),24 whereas all four trials
of CBT25–28 and one of family intervention29 included long-term
follow-up measures. Therefore, it remains to be determined
whether the effects of early intervention services are sustained.

**Psychological interventions**

Despite the limitations, our findings regarding the efficacy of CBT
and family intervention are consistent with, and reflect, the wider
evidence base found in the treatment and management of later
psychotic episodes. The updated edition of the schizophrenia
guideline15 recommends that both interventions should be offered
to people experiencing an acute episode of schizophrenia and for
promoting recovery in those with established schizophrenia.

The evidence presented here suggests that CBT for early
psychosis has longer-term benefits in terms of reducing symptom
severity. Consistent with the wider evidence base for CBT for
established psychosis, the present review failed to find any
evidence that CBT reduced relapse rates in early psychosis, which
suggests that the main benefits of this intervention are likely to be
a reduction in symptoms and distress in early and established
psychosis. This finding confirms a recent review assessing both
RCTs and non-randomised studies of CBT in first-episode
psychosis, which also failed to demonstrate positive effects on
relapse and readmission.33

Although the number of RCTs for family interventions for
early psychosis was limited in our review, the evidence is
consistent with the larger body of evidence for the role of family
interventions in early psychosis. In that family inter-
vention reduced combined hospital admission and relapse rates.
The review conducted for the updated edition of the schizo-
phrenia guideline15 also found robust evidence for the efficacy
of family intervention in established schizophrenia in reducing
symptoms at the end of treatment. However, in the present review,
one of the included trials reported measures that allowed us to
assess this in the context of early psychosis. It is, therefore,
anticipated that family intervention in first-episode psychosis
may also reduce symptom levels.

**Critical period**

The studies included in the present review did not provide any
data relating to DUP, as all papers focused on people with an
agreed diagnosis, not on populations at high risk of becoming
psychotic and receiving a diagnosis. A number of other reviews
assessing DUP as a predictor have indicated that longer DUP is
subsequently associated with poorer outcomes, including reduced
adherence to CBT,39 altered response to antipsychotic
medications,35 poorer social functioning40 and increased levels
of disability.35 There is some suggestion from studies assessing
the impact of early intervention programmes on high-risk and
ultra-high-risk populations that education and awareness of
psychosis may significantly reduce DUP.40 However, further
research is needed to clarify issues surrounding DUP.40

The present review focused on the first 3–5 years following the
onset of illness. This period has been defined as a critical period,
when many of the psychological, clinical and social deteriorations
associated with psychosis might occur,5,7,40 and when interventions
might potentially have their greatest positive impact on prognosis.5,6
Although the current evidence to support this idea is limited, in-
tervening at the earliest possible opportunity makes both practical and
ethical sense, and hope remains that such intervention might reduce
subsequent symptom severity, loss of functioning and other negative
consequences of psychosis such as social exclusion.41 Intervening
early may also help to reduce the adverse social and societal
consequences of the disorder for both individuals and their family
and carers. However, it can also be argued that providing excellent
care and access to a range of appropriate and effective psychological,
pharmacological and vocational interventions should be available
at any stage of psychosis.42,43

**Implications**

On balance, the evidence reviewed here suggests that early
intervention services are an effective way of delivering care for
people with early psychosis and can reduce hospital admission,
relapse rates and symptom severity, while improving access to and engagement with a range of treatments. The characteristics of these early intervention services include the provision of multimodal psychosocial interventions, pharmacotherapy, and some form of case management with lower case-loads and an assertive approach to treatment, all within the context of intervening as early as possible. Our review also suggests that providing evidence-based psychological interventions as part of a comprehensive early intervention service may contribute to improving outcomes for people with early psychosis. It is important that these psychological interventions have been shown rather more robustly to be effective for people with established schizophrenia. This raises the possibility that comprehensive services comparable to those described here as early intervention services, which include a full range of evidence-based psychological interventions, should be considered for people with established psychosis.

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We thank other members of the Guideline Development Group of the updated edition of the schizophrenia guideline1,5 and Ms Sarah Stockton for creating the search strategies and conducting the database searches. We also thank Dr Alefébyengo Sapara for independently extracting the data for the CBT section of the review.

References

20 Andreason NC. The Scale for the Assessment of Negative Symptoms (SANS). University of Iowa, 1984.

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Strategy

Peter Wells

Love was at a premium –
Jane ran out of supplies.
Father a miner, his life stained by cold dust,
his chest a box of birds,
let go his last persecutory breath.

Mum had three daughters to keep,
all got the message:
love is a ration book.

Jane, the youngest, had least time
for what was left of the crust;
a starveling in love
she sickened for it.
When the strategy was rumbled
she risked the lot
and slit her wrists.

In and out of hospital
a lifetime career;
the only way to keep going
and to save Mum.

She hid behind the curtains
when she won the ward prize for a cake.
She could not explain herself.

Paint became her arbiter
picture after picture –
they did not need words.

At long last, she found words:
‘I got into hospital by pretending to be sick,
I got home by pretending to be sane’.
### Data supplement

**Search strategy**

- Pre-2002: schizophrenia guideline (published 2002)
- Post-2002: MEDLINE, EMBASE, PsycINFO, CINAHL – Ovid SP interface

**Early intervention services**

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**Psychological interventions, including CBT and family intervention**

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<td>(schizo* or hebephren*):ti or (schizo* or hebephren*):ab</td>
</tr>
<tr>
<td>3</td>
<td>(#1 OR #2)</td>
</tr>
<tr>
<td>4</td>
<td>([famil*]:ti,ab,kw or (cognitiv* and behavio* and therap*):ti,ab,kw or (social* or personal or interpersonal) and (skills* or program* or train*):ti,ab,kw or (cognitive* or neuro* or memory) and remediat*):ti,ab,kw or (cognit* and (train* or function* or modif*)):ti,ab,kw</td>
</tr>
<tr>
<td>5</td>
<td>(attention* and (train* or management* or remediat*)):ti,ab,kw or (memory or (train* and remediat*)):ti,ab,kw or (patient and (education or instruction)):ti,ab,kw or (psychoeducat*):ti,ab,kw</td>
</tr>
<tr>
<td>6</td>
<td>(course*):ti,ab,kw or (support* and therap* or psychotherapy):ti,ab,kw or (psychoanaly*):ti,ab,kw or (cognitiv* or dynamic* or psychodynamic* and (therap* or psychotherap*)):ti,ab,kw</td>
</tr>
<tr>
<td>7</td>
<td>MeSH descriptor Sensory Art Therapies explode all trees</td>
</tr>
<tr>
<td>8</td>
<td>MeSH descriptor Creativeness, this term only</td>
</tr>
<tr>
<td>9</td>
<td>MeSH descriptor Music, this term only</td>
</tr>
<tr>
<td>10</td>
<td>(music* or rhythmic* or melod*):ti or (music* or rhythmic* or melod*):ab</td>
</tr>
<tr>
<td>11</td>
<td>(auditory or acoustic) near (stimulat* or cue*):ti or (auditory or acoustic) near (stimulat* or cue*):ab</td>
</tr>
<tr>
<td>12</td>
<td>(compose or composing or guitar* or hearing modalit* or improviz* or improvis* or piano* or sing or sings or singing or song* or (listen* near (reminis* or orientat*)):ti or (compose or composing or guitar* or hearing modalit* or improviz* or improvis* or piano* or sing or sings or singing or song* or (listen* near (reminis* or orientat*)):ab</td>
</tr>
<tr>
<td>13</td>
<td>MeSH descriptor Drama, this term only</td>
</tr>
<tr>
<td>14</td>
<td>MeSH descriptor Psychodrama explode all trees</td>
</tr>
<tr>
<td>15</td>
<td>(psycho?drama* or <em>drama</em> or ((game* or play?back) near theatre*) or mime* or therapeut?):ti or (psycho?drama* or <em>drama</em> or ((game* or play?back) near theatre*) or mime* or therapeut?):ab</td>
</tr>
<tr>
<td>16</td>
<td><em>improvi?ation</em>:ti or <em>improvi?ation</em>:ab</td>
</tr>
<tr>
<td>17</td>
<td>(creative or stories or story*):ti or (creative or stories or story*):ab</td>
</tr>
<tr>
<td>18</td>
<td><em>roleplay</em> or <em>role-play</em>:ti or <em>roleplay</em> or <em>role-play</em>:ab</td>
</tr>
<tr>
<td>19</td>
<td>MeSH descriptor Art, this term only</td>
</tr>
<tr>
<td>20</td>
<td>(art or arts or artist* or drawing* or painting*):ti or (art or arts or artist* or drawing* or painting*):ab</td>
</tr>
<tr>
<td>21</td>
<td><em>dance</em> or dancing or (movement near therap*):ti or <em>dance</em> or dancing or (movement near therap*):ab</td>
</tr>
<tr>
<td>22</td>
<td>(joco?therap* or masks or puppet* or (play* near (filial or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or (train* or treat* or work?shop*)):ti or (joco?therap* or masks or puppet* or (play* near (filial or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or (train* or treat* or work?shop*)):ab</td>
</tr>
<tr>
<td>23</td>
<td>(chromo?therap* or (colo?r* near (heal* or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or (train* or treat* or work?shop*)):ti or (chromo?therap* or (colo?r* near (heal* or course* or curricul* or educat* or intervention* or learn* or module* or program* or rehab* or scheme* or skill* or teach* or (train* or treat* or work?shop*)):ab</td>
</tr>
<tr>
<td>24</td>
<td>(expressive near (intervention* or therap* or treat*)):ti or (expressive near (intervention* or therap* or treat*)):ab</td>
</tr>
<tr>
<td>25</td>
<td>(#4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24), from 2007 to 2008</td>
</tr>
<tr>
<td>26</td>
<td>(#3 AND #25), from 2008 to 2008</td>
</tr>
<tr>
<td>Study (primary reference)</td>
<td>n</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----</td>
</tr>
<tr>
<td>Early intervention services</td>
<td></td>
</tr>
<tr>
<td>Early intervention services: COAST[33]</td>
<td>59</td>
</tr>
<tr>
<td>Early intervention services: LEOP</td>
<td>114</td>
</tr>
<tr>
<td>Early intervention services: OPUS[44]</td>
<td>547</td>
</tr>
<tr>
<td>Early intervention services: OTP[72]</td>
<td>50</td>
</tr>
</tbody>
</table>

| Table DS1 Full details of included trials |

(continued)
<table>
<thead>
<tr>
<th>Study primary reference</th>
<th>n</th>
<th>Participant characteristics</th>
<th>Treatment group</th>
<th>Duration and frequency of treatment</th>
<th>Standard care comparison group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive–behavioural therapy &lt;br&gt;Jackson et al&lt;sup&gt;28&lt;/sup&gt;</td>
<td>91</td>
<td>Eligible participants were aged 15–29 years and experiencing a first episode of psychosis (DSM-III-R). Participants were excluded if they had psychosis with an organic cause, epilepsy, evidence of IQ &lt; 70 or diagnosed with substance dependence</td>
<td>CBT: cognitively oriented psychotherapy for first-episode psychosis (COPE) which consists of four stages: engagement, assessment, adaptation and secondary morbidity. COPE agenda typically included psychoeducation. It focused on stigma and identity issues, problems with motivation and social withdrawal. These issues were addressed using cognitive–behavioural techniques.</td>
<td>12 months duration. Although the frequency of sessions was determined by the needs of the clients, typically participants received one 40-minute session per week or fortnight.</td>
<td>Standard care from the Early Psychosis Prevention and Intervention Centre (EPPIC), which includes access to mobile assessment, home-based treatment and personal assessment and crisis evaluation clinic, in-patient and out-patient units, family work (but not structured family intervention) and prolonged recovery programmes.</td>
</tr>
<tr>
<td>Lecomte et al&lt;sup&gt;28&lt;/sup&gt;</td>
<td>75</td>
<td>Participants were recruited from early intervention programmes and community mental health clinics. Participants were aged 18–35 years and were currently presenting with persistent or fluctuating psychotic symptoms. Individuals with a diagnosis of non-affective psychosis were included as were participants with an unclear diagnosis. Participants had consulted a mental health professional about their psychotic symptoms for the first time within the past 2 years. Participants with organic brain disorders and those already receiving one of the interventions were excluded.</td>
<td>CBT: group-based intervention following a manualised approach but adapted to the needs of first-episode psychosis. The manual covered four areas and followed a positive approach which emphasised reaching specific goals, decreasing distress and finding the solutions that worked best for the individual.</td>
<td>24 treatment sessions delivered twice a week for 3 months.</td>
<td>Usual services delivered by local mental health clinics or early intervention programmes if available in the area. Clients in the control group could receive one of the interventions (CBT or skills training) if they wished after the 9-month follow-up period.</td>
</tr>
<tr>
<td>Lewis et al&lt;sup&gt;26&lt;/sup&gt;</td>
<td>203</td>
<td>Participants had a clinical diagnosis of schizophrenia-spectrum disorders (DSM-IV). Inclusion criteria included either a first or second admission (within 2 years of a first admission) for psychosis. Participants with organic disorders or substance misuse were excluded.</td>
<td>CBT: individual manualised approach which was conducted over four stages and focused on engagement, problem formulation, intervention and monitoring. In particular, positive psychotic symptoms were addressed, with alternative hypotheses generated for abnormal beliefs and hallucinations. The intervention also aimed to identify factors which precipitated and alleviated positive symptoms and distress.</td>
<td>5 weeks CBT programme plus booster sessions after a further 2 weeks and 1, 2 and 3 months</td>
<td>Routine clinical care from local mental health units</td>
</tr>
<tr>
<td>Wang et al&lt;sup&gt;27&lt;/sup&gt;</td>
<td>251</td>
<td>Participants had a diagnosis of schizophrenia (ICD-10) and were in their first episode of schizophrenia</td>
<td>CBT: focused on psychoeducation and insight-building. The intervention aimed to replace irrational thoughts with rational ones and to facilitate communication with the family. CBT occurred in the recovery stage.</td>
<td>6 weekly sessions lasting about 40–50 min</td>
<td>Participants received standard hospital services and were allocated to either clozapine or risperidone. Treatment followed three stages with each stage lasting 3–4 weeks: medication, maintenance and recovery.</td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Study (primary reference)</th>
<th>n</th>
<th>Participant characteristics</th>
<th>Treatment group</th>
<th>Duration and frequency of treatment</th>
<th>Standard care comparison group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goldstein et al\textsuperscript{10}</td>
<td>104</td>
<td>Participants screened positive for probable schizophrenia on the New Haven Schizophrenia Index; 69% of participants were first admissions, with the remaining 31% second admissions</td>
<td>Family intervention: crisis-oriented family therapy. Goals of the interventions included: (a) acceptance of psychosis; (b) identifying probable precipitating stresses at the time onset occurred; (c) identifying potential factors that the family may be vulnerable to; and (d) planning to minimise the impact of any future stresses.</td>
<td>Six weekly sessions</td>
<td>Participants received either a high or low dose of fluphenazine and received standard care from the mental health centre</td>
</tr>
<tr>
<td>Leavey et al\textsuperscript{10}</td>
<td>106</td>
<td>Participants had a recent diagnosis of psychosis (ICD–9) and were in contact with psychiatric services within the past 6 months. Participants with organic disorders or intellectual difficulties were excluded</td>
<td>Family intervention: individual sessions which usually occurred in the patient's home. The interactive sessions included educational components relating to psychotic illness, symptoms and treatment. Families were also taught coping strategies, problem-solving techniques with sessions covering communication with the patient.</td>
<td>Seven sessions each lasting about 1 h delivered within 6 months of first contact with services</td>
<td>Usual care from psychiatric services and CMHTs</td>
</tr>
<tr>
<td>Zhang et al\textsuperscript{11}</td>
<td>78</td>
<td>Participants were first-admission males discharged from a mental health ward and met the Chinese Medical Association's criteria for schizophrenia Participants who were not living within commuting distance to the hospital were excluded.</td>
<td>Family intervention: group involving about 15 families and individual family sessions both of which usually did not include the patient. Sessions focused on education about management of the patient’s treatment and discussion about the problems faced by the families and the importance of continuing medication. Families with common problems were asked to attend family groups, whereas those with unique or complex problems had individual counselling.</td>
<td>Group and family sessions occurred once every 1–3 months for 18 months. Minimum contact with families was once every 3 months.</td>
<td>Standard services available through the hospital out-patient department</td>
</tr>
</tbody>
</table>

CBT, cognitive–behavioural therapy; COAST, Croydon Outreach And Assertive Support Team; CMHTs, community mental health teams; LEO, Lambeth Early Onset; OTP, Optimal Treatment Project.
Table DS2  Excluded studies\(^a\) with reasons for exclusion

<table>
<thead>
<tr>
<th>Study (primary reference)</th>
<th>Interventions</th>
<th>Reasons for exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power et al(^{44})</td>
<td>Early intervention service</td>
<td>Study does not compare an early intervention service with standard care. RCT of GP education intervention (and link to early intervention service team) vs. standard care. Main outcome is GP referral to services.</td>
</tr>
<tr>
<td>Linszen et al(^{45})</td>
<td>Early intervention service/family intervention</td>
<td>No standard care comparison group: early intervention service plus individual therapy vs. early intervention service plus family therapy</td>
</tr>
<tr>
<td>PACE (McGorry et al)(^{46})</td>
<td>Early intervention service</td>
<td>No clinical diagnosis: main aim of the study is to prevent psychosis in high-risk groups</td>
</tr>
<tr>
<td>Rosenbaum et al(^{47})</td>
<td>Early intervention service</td>
<td>Methodological quality: participants not properly randomised into all treatment conditions</td>
</tr>
<tr>
<td>Gleeson et al(^{48})</td>
<td>Early intervention service + CBT and family therapy for relapse prevention.</td>
<td>Study does not compare an early intervention service with standard care. RCT of early intervention service + CBT and family therapy vs. early intervention service.</td>
</tr>
<tr>
<td>Øhlenschläger et al(^{49})</td>
<td>Early intervention service</td>
<td>Focus not on psychosis: main outcome is use of coercive measures</td>
</tr>
<tr>
<td>Waldheter et al(^{50})</td>
<td>Early intervention service</td>
<td>Methodological quality: preliminary data, participants not randomised</td>
</tr>
<tr>
<td>HEART (Kelly et al)(^{51})</td>
<td>Early intervention service</td>
<td>Methodological quality: participants not randomised</td>
</tr>
<tr>
<td>EDIE (Morrison et al)(^{52})</td>
<td>CBT</td>
<td>No clinical diagnosis: main aim of study is to prevent psychosis in ultra-high-risk groups</td>
</tr>
<tr>
<td>Edwards et al(^{53})</td>
<td>CBT</td>
<td>Focus not on psychosis: main aim of study concerned substance misuse</td>
</tr>
<tr>
<td>Haddock et al(^{54})</td>
<td>CBT</td>
<td>No standard care comparison: CBT v. supportive counselling</td>
</tr>
<tr>
<td>Jackson et al(^{55})</td>
<td>CBT</td>
<td>Methodological quality: study not randomised</td>
</tr>
<tr>
<td>Jackson et al(^{56})</td>
<td>CBT</td>
<td>No standard care comparison: CBT v. befriending</td>
</tr>
<tr>
<td>Jolley et al(^{57})</td>
<td>CBT</td>
<td>Methodological quality: n&lt;10 in one treatment arm</td>
</tr>
<tr>
<td>LifeSPAN (Power et al)(^{58})</td>
<td>CBT</td>
<td>Focus not on psychosis: main aim of the study is on suicide prevention</td>
</tr>
<tr>
<td>Newton et al(^{59})</td>
<td>CBT</td>
<td>No clinical/formal diagnosis of psychosis</td>
</tr>
<tr>
<td>So et al(^{60})</td>
<td>Family intervention</td>
<td>No extractable data relevant to the present review: carer outcomes only</td>
</tr>
<tr>
<td>Chan et al(^{61})</td>
<td>Family intervention</td>
<td>Intervention does not meet definition of family intervention</td>
</tr>
</tbody>
</table>

CBT, cognitive-behavioural therapy; EDIE, Early Detection and Intervention Evaluation trial; HEART, Hounslow early active recovery team; PACE, personal assessment and crisis evaluation; RCT, randomised controlled trial; GP, general practitioner.

\(^a\) This table includes four additional papers excluded from the 2002 schizophrenia guideline.

Additional references


Early intervention services, cognitive–behavioural therapy and family intervention in early psychosis: systematic review

Victoria Bird, Preethi Premkumar, Tim Kendall, Craig Whittington, Jonathan Mitchell and Elizabeth Kuipers

Access the most recent version at DOI: 10.1192/bjp.bp.109.074526

Supplementary Material
Supplementary material can be found at:
http://bjp.rcpsych.org/content/suppl/2010/11/01/197.5.350.DC1

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