

[Maternal mental health interventions to improve child development](#)

## Q1: What are the effective maternal mental health interventions to prevent developmental problems in early infancy?

### **Background**

Over the past four decades a very substantial body of evidence from high-income countries indicates that the prevalence of perinatal mental health problems ranges from 10-15%. In contrast there is much less evidence available from low and middle income countries. A series of studies in the last decade provide consistent evidence that rates of perinatal mental health problems in women in these settings may be twice that in high income countries. In addition to constituting a serious burden to women's health, there is growing international evidence that mood disturbance in mothers affects the health and development of their infants and young children. In low-income countries, maternal depression has been linked directly to higher rates of diarrhoeal diseases, infectious illness and hospital admission, reduced completion of recommended schedules of immunization and worse physical, cognitive, social, behavioural and emotional development in children, and may lead to reduced child survival.

### **Population/Intervention(s)/Comparator/Outcome(s) (PICO)**

- Population: mothers and infants in low and middle income countries
- Interventions: maternal mental health interventions ((psychosocial support to mothers including home visiting, psycho-education, improving mothers' knowledge on child rearing practices, parent training programmes)
- Comparator: Treatment as usual or no intervention
- Outcomes: Child growth and development outcomes  
 Maternal mood or depression  
 Mother-infant interaction

### **List of the systematic reviews identified by the search process**

*INCLUDED IN GRADE TABLES OR FOOTNOTES*

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We commissioned a new systematic review of available trials from low and middle income countries. We also used additional information and REGRADED a systematic review in this regard.

The systematic review commissioned by WHO:

Rahman A, Fisher J, Waheed W (2009a). Maternal mental health interventions in low and middle income countries: A systematic review of the evidence. Commissioned and received 2009.

### **Search strategy**

A systematic search was undertaken of six electronic bibliographic databases – MEDLINE, EMBASE, CINAHL, PsycINFO, the British Nursing Index and the Allied and Complementary Medicine database – covering the period 1966 to 2008. They used Search terms for trials such as randomized controlled trial, controlled clinical trial, clinical trials, evaluation studies, cross over studies AND names of World Bank classified low and middle income countries (World Bank, 2005). No language restriction was applied. Reference lists of all included articles were hand-searched and experts from the field were approached to identify any other relevant studies.

### **Other reviews included in the evidence profile:**

Barlow J, Coren E, Stewart-Brown S (2003) Parent-training programmes for improving maternal psychosocial health. *Cochrane Database of Systematic Reviews*, (4):CD002020. (grade table attached)

### **PICO table**

Serial no.	Intervention/Comparison	Outcomes	Systematic reviews used	Explanation
1.	All maternal mental health interventions	<u>Maternal mood</u> <ul style="list-style-type: none"><li>• SCID interviews for DSM-IV diagnoses of major depression in mothers;</li></ul>	Rahman A, Fisher J, Waheed W (2009a). Maternal mental health interventions in low and middle income countries: A systematic review of the evidence. Commissioned and received	This review was commission by WHO.

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		<p><u>Mother-infant interaction:</u></p> <ul style="list-style-type: none"> <li>• Coded ratings of 5 – 10 minute video recordings of mother and infant during free play and feeding.</li> </ul> <p><u>Infant growth</u></p> <ul style="list-style-type: none"> <li>• Infant anthropometry: weight, length and head circumference;</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition.</p>	2009.	
2.	Parent-training programmes	Depression (the Beck Depression Inventory), the Irritability, Depression and Anxiety Scale, and the Centre for Epidemiological Studies Depression Scale.	Barlow J, Coren E, Stewart-Brown S (2003) Parent-training programmes for improving maternal psychosocial health. <i>Cochrane Database of Systematic Reviews</i> , (4):CD002020.	Was GRADED

**Narrative description of the studies that went into the analysis (including a study-by-study table)**

Design, methods and main findings of seven trials included in the review					
Authors	Location and funding	Design	Sample, recruitment and retention	Baseline and outcome measures	Main findings
Cooper PJ et al (2002).	<p><u>Location:</u></p> <ul style="list-style-type: none"> <li>• Khayelitsha, a periurban settlement outside Capetown, South Africa;</li> <li>• Most dwellings are serviced or un-serviced shacks;</li> <li>• Population instability associated with: overcrowding, rural to urban migration, migration from flood prone areas, internal migration from un-serviced to serviced housing and away from most violent neighbourhoods;</li> <li>• Very high unemployment (<math>\pm</math> 67%) and high illiteracy (<math>\pm</math> 25%).</li> </ul> <p><u>Funding:</u></p> <p>World Health Organization and the Wellcome Trust.</p>	<ul style="list-style-type: none"> <li>• A pilot investigation to inform a controlled trial;</li> <li>• Comparison between two non-systematically recruited groups of women and their babies six months postpartum.</li> </ul>	<ul style="list-style-type: none"> <li>• Intervention group: 40 pregnant women, recruited by a non-specified strategy;</li> <li>• Comparison group: mother-infant dyads, 'group matched' on at least two of: maternal age, parity and marital status from participants in a survey in an adjacent area;</li> <li>• Recruitment rate not reported;</li> <li>• 32/40 (80%) mothers in intervention group followed up.</li> </ul>	<p><u>Baseline:</u></p> <p>No baseline assessment</p> <p><u>Outcome:</u></p> <p>Assessments conducted at infant age six months:</p> <p><u>Maternal mood</u></p> <ul style="list-style-type: none"> <li>• SCID interviews for DSM-IV diagnoses of major depression in mothers.</li> </ul> <p><u>Mother-infant interaction:</u></p> <ul style="list-style-type: none"> <li>• Coded ratings of 5 – 10 minute video recordings of mother</li> </ul>	<p><u>Maternal mood:</u></p> <ul style="list-style-type: none"> <li>• Major depression 19% (6/32) in the intervention group and 28% (9/32) in the comparison group (ns).</li> </ul> <p><u>Mother-infant interaction:</u></p> <ul style="list-style-type: none"> <li>• Controlling for age and education, mothers in the intervention group were more sensitive in play (<math>p = 0.02</math>) and tended to show more positive affect during feeding (<math>p = 0.08</math>).</li> </ul> <p><u>Infant growth:</u></p> <ul style="list-style-type: none"> <li>• Infants in the intervention group</li> </ul>

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				<p>and infant during free play and feeding.</p> <p><u>Infant growth</u></p> <ul style="list-style-type: none"> <li>• Infant anthropometry: weight, length and head circumference</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition.</p>	<p>were heavier (<math>p = 0.01</math>) and taller (<math>p = 0.02</math>), but no differences in head circumference or weight to height ratio.</p> <ul style="list-style-type: none"> <li>• Intervention effect still apparent (<math>p = 0.08</math>) even when breastfeeding duration controlled.</li> </ul>
<p>Baker-Henningham H et al (2005).</p>	<p><u>Location:</u></p> <p>All nutrition clinics (12), which provide health education for mothers and monitor infant growth, in Kingston and St Andrew, Jamaica, with later addition of a further 6 clinics from St Catherine, an adjacent area.</p> <p><u>Funding:</u></p> <p>Thrasher Research Foundation, USA and subsidiary grants from the British High Commission-DFID, Jamaica and the University of the West Indies Mona Campus Research and</p>	<ul style="list-style-type: none"> <li>• Clinics were stratified by size of client population and randomly assigned to intervention (11 clinics) or control (7 clinics) conditions;</li> <li>• Comparisons made between mother-infant dyads at baseline and one year later.</li> </ul>	<ul style="list-style-type: none"> <li>• Inclusion criteria: child aged 9 to 30 months; weight for age – 1.5 z-scores of national reference and -2 z-scores in prior three-months; birthweight &gt; 1.8 kilograms; singleton infant; absence of chronic disease or disability;</li> <li>• 70/76 (92%) intervention and 69/70 (99%) eligible dyads recruited;</li> <li>• 64/70 (91%) intervention and 61/69 (88%) followed-up.</li> </ul>	<p><u>Baseline:</u></p> <ul style="list-style-type: none"> <li>• Parental sociodemographic characteristics, housing quality, maternal vocabulary on PPVT-R.</li> </ul> <p><u>Outcome:</u></p> <p>Assessments conducted one year post-recruitment:</p> <p><u>Maternal mood</u></p> <ul style="list-style-type: none"> <li>• Culturally modified version of the CES-D</li> </ul>	<p><u>Maternal mood:</u></p> <ul style="list-style-type: none"> <li>• Decline in depressive symptoms in intervention, but not control group mothers (<math>b = -0.98</math>; 95%CI -1.53 to -0.41);</li> <li>• Mothers receiving 40 – 50 home visits had greatest decline in depressive symptoms (<math>b = -1.84</math>; 95%CI -2.97 to -0.72);</li> <li>• Mothers receiving 25 – 39 home visits had lesser decline in depressive symptoms (<math>b = -1.06</math>; 95%CI -2.02 to -0.11);</li> </ul>

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	<p>Publication Fund. The aides were supported by the Jamaican Ministry of Health. The research was conducted in collaboration with Great Ormond Street Hospital for Children, which is funded in part by the National Health Service UK Executive.</p>			<p>to assess maternal depression;</p> <p><u>Child development</u></p> <ul style="list-style-type: none"> <li>Griffiths Mental Development Scale subscales assessing: locomotor, hearing and speech, hand eye coordination and performance development to give a global developmental quotient (DQ);</li> <li>Child anthropometry;</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition</p>	<ul style="list-style-type: none"> <li>Mothers receiving 0- 24 visits did not differ from control group (b = -0.09; 95%CI -1.11 to 1.13)</li> </ul> <p><u>Child development</u></p> <ul style="list-style-type: none"> <li>Final maternal depression and final DQ correlated in boys (p&lt;0.05), but not in girls.</li> </ul>
<p>Rojas G et al (2007).</p>	<p><u>Location:</u></p> <p>Primary care clinics provide antenatal and postnatal health care to most mothers in Santiago, Chile. Three of these clinics in economically disadvantaged areas of the city were chosen as study sites.</p>	<p>Comparison between participants randomized to multi-component intervention condition or to usual primary health care by computer-generated random numbers in sealed numbered</p>	<ul style="list-style-type: none"> <li>Inclusion criteria: having a child aged ≤ one year; attending one of the clinics; EPDS score ≥ 10 on two occasions two weeks apart; MINI diagnosis of major depression;</li> <li>Exclusion criteria: any treatment for depression since giving birth; pregnancy; psychotic symptoms;</li> </ul>	<p><u>Baseline:</u></p> <ul style="list-style-type: none"> <li>Maternal age, marital status, occupation, parity, interval since giving birth and history of depression;</li> <li>EPDS, SF-36, MINI</li> </ul> <p><u>Outcomes:</u></p>	<p><u>Maternal mood:</u></p> <ul style="list-style-type: none"> <li>EPDS scores improved in multi-component intervention at three months (-4.5 difference in mean scores between groups 95% CI -6.3 to -2.7, p&lt;0.0001)</li> <li>EPDS scores at least 3 points lower at six months than at</li> </ul>

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	<p><u>Funding:</u> Fondo de Ciencia y Teconologia Chile</p>	<p>envelopes.</p>	<p>suicidal behaviours; history of mania or alcohol or substance abuse;</p> <ul style="list-style-type: none"> <li>• Of 313 meeting inclusion criteria, 67 met one or more exclusion criteria and 16 refused; 230 of remaining 246 (93%) recruited;</li> <li>• In intervention group 101/114 (89%) followed up at three and 106/114 (93%) at six months;</li> <li>• In control group 108/116 (93%) followed up at three and 102/116 (88%) at six months;</li> </ul>	<p>Assessments conducted three and six months after the intervention:</p> <p><u>Maternal mood</u></p> <ul style="list-style-type: none"> <li>• Primary outcome was EPDS score;</li> <li>• Secondary outcomes were mental health, emotional role, social functioning and vitality dimensions of the SF-36 and clinical improvement;</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition.</p>	<p>baseline in 73% of the intervention group and 57% of the usual care group (95% CI 3 to 29)</p>
<p>Rahman A et al (2008).</p>	<p><u>Location:</u> Union Council clusters in two sub-districts: Gujar Khan and Kallar Syedan in a rural area 65 km southeast of Rawalpindi city in Pakistan. Union Councils each have a population of 15,000 to 20,000 people and are served by a Basic Health Unit (BHU). Each BHU has a multidisciplinary staff including Lady Health Workers who are responsible for 100 households in</p>	<p>Comparison between women living in 40 Union Councils in the two sub-districts which had been randomized independently to either intervention (20) or control (20) conditions.</p>	<ul style="list-style-type: none"> <li>• Inclusion criteria: being married, aged 16 – 45 years, in the third trimester of pregnancy, meeting psychiatrist administered SCID criteria for DSM-IV major depressive episode.</li> <li>• Exclusion criteria: serious medical condition, pregnancy-related illness,</li> </ul>	<p><u>Baseline:</u></p> <ul style="list-style-type: none"> <li>• Maternal age, education, family structure, parity, socioeconomic status and financial empowerment;</li> <li>• HDRS, Brief Disability Questionnaire, Global Assessment of Functioning, self-assessment of</li> </ul>	<p><u>Maternal mood:</u> After adjusting for covariates mothers in the intervention group were:</p> <ul style="list-style-type: none"> <li>• Less likely to be depressed at six months post intervention (23% vs. 53%, AOR 0.22, 95% CI 0.14 to 0.36, p&lt;0.0001);</li> <li>• Less likely to be</li> </ul>

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	<p>their local villages.</p> <p><u>Funding:</u></p> <p>Wellcome Trust</p>		<p>significant learning or intellectual disability and postpartum or other psychosis.</p> <ul style="list-style-type: none"> <li>• 463 / 1787 (26%) met inclusion criteria and resided in intervention and 440/1731 (25%) in control Union Councils;</li> <li>• In the intervention group 418/463 (90%) mothers followed up at six and 412/463 (89%) at twelve months.</li> <li>• In the control group 400/412 (91%) mothers followed at six and 386/412 (88%) at twelve months.</li> <li>• In the intervention group 368 (79%) infants assessed at six and 360 (78%) at twelve months;</li> <li>• In the control group 359 (82%) assessed at six and 345 (78%) at twelve months.</li> </ul>	<p>adequacy of social support.</p> <p><u>Outcomes:</u></p> <p><u>Maternal mood</u></p> <ul style="list-style-type: none"> <li>• Psychiatrist administered HDRS and SCID at 6 and 12 months post intervention to assess maternal depression;</li> </ul> <p><u>Infant health and development</u></p> <ul style="list-style-type: none"> <li>• Infant anthropometry: weight and length;</li> <li>• Number of diarrhoeal episodes in previous fortnight and immunization status of the infant.</li> </ul> <p><u>Family health and functioning</u></p> <ul style="list-style-type: none"> <li>• Maternal reports of exclusive breastfeeding, use of contraception and time dedicated to</li> </ul>	<p>depressed at twelve months post intervention (27% vs. 59%, AOR 0.23, 95% CI 0.15 to 0.36, p&lt;0.0001);</p> <ul style="list-style-type: none"> <li>• Were less disabled at six (Adjusted Mean Difference (AMD) -1.80, 95%CI-2.48 to -1.12, p&lt;0.0001) and twelve months (AMD -2.88, 95% CI-3.66 to -2.10, p&lt;0.0001);</li> <li>• Had better global functioning at six (AMD 6.85, 95%CI 4.73 to 8.96, p&lt;0.0001) and twelve months (AMD 8.27, 95%CI 6.23 to 10.31, p&lt;0.0001); and</li> <li>• Had better perceived social support at six (AMD 6.71, 95%CI 3.93 to 9.48, p&lt;0.0001) and twelve months (AMD 7.85, 95%CI 5.43 to 10.27, p&lt;0.0001).</li> </ul> <p><u>Infant health and development</u></p> <ul style="list-style-type: none"> <li>• No difference between groups in infant stunting or malnutrition;</li> <li>• Infants of intervention group mothers had</li> </ul>
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				<p>infant play;</p> <p>All outcomes assessed by independent assessors blinded to treatment condition.</p>	<p>fewer episodes of diarrhoea at 12 months (AOR 0.6, 95%CI 0.39 to 0.98, p = 0.04); and were more likely to be fully immunized (AOR 2.5, 95%CI 1.47 to 4.72, p = 0.001).</p> <p><u>Family health and functioning</u></p> <ul style="list-style-type: none"> <li>• Intervention group more likely to be using contraception at 12 months (AOR 1.6, 95%CI 1.20 to 2.27, p = 0.002); and</li> <li>• Both parents dedicated time to playing with the baby (AOR mothers 2.4, 95%CI 2.07 to 4.01, p&lt;0.0001; AOR fathers 1.9, 95%CI 1.59 to 4.15, p = 0.0001)</li> </ul>
Rahman A et al (2009b).	<p><u>Location:</u></p> <p>Kallar Syedan a Union Council District of 60 villages in a rural area southeast of Rawalpindi city in Pakistan. Most families live by subsistence farming supplemented by male family members working for the armed services, other government services or as labourers. The area has one Rural Health Centre and 12 Basic Health</p>	<p>The 48/60 villages accessible by road were chosen as study sites. Comparisons were made between mothers and infants living in the 24 villages independently randomly assigned to</p>	<ul style="list-style-type: none"> <li>• Inclusion criteria: being married, aged 17 – 40 years, in the third trimester of pregnancy, registered with a LHW ;</li> <li>• Exclusion criteria: serious medical condition and pregnancy complications.</li> <li>• In total, 334/367 women met inclusion</li> </ul>	<p><u>Baseline:</u></p> <ul style="list-style-type: none"> <li>• Maternal age, education and parity and family income and structure;</li> <li>• Maternal knowledge and attitudes about infant development in the first 8 weeks of life using an original Infant Development</li> </ul>	<p><u>Maternal knowledge about infant development:</u></p> <ul style="list-style-type: none"> <li>• Intervention group had significantly higher increase in IDQ scores than control group three months postpartum (AOR 4.28, 95%CI 3.68 to 4.89, p&lt;0.0001)</li> </ul>

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	<p>Units each with a multidisciplinary staff including Lady Health Workers who are responsible for 1000 women living in local villages.</p>	<p>the intervention condition with those from the 24 villages assigned to the usual care control condition.</p>	<p>criteria and agreed to participate. Of these, 177/194 (91%) lived in intervention villages and 157/173 (90%) in control villages;</p> <ul style="list-style-type: none"> <li>In the intervention group 163/177 (92%) participants completed outcome assessments;</li> <li>In the control group 146/157 (93%) completed outcome assessments.</li> </ul>	<p>Questionnaire (IDQ);</p> <ul style="list-style-type: none"> <li>Maternal emotional distress using the WHO-SRQ 20 locally field tested and validated.</li> </ul> <p><u>Outcomes:</u></p> <p>Assessments conducted three months postpartum:</p> <p><u>Maternal knowledge about infant development:</u></p> <ul style="list-style-type: none"> <li>IDQ</li> </ul> <p><u>Maternal emotional distress</u></p> <ul style="list-style-type: none"> <li>WHO-SRQ 20</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition.</p>	<p><u>Maternal emotional distress</u></p> <ul style="list-style-type: none"> <li>No difference in WHO-SRQ20 scores between intervention and control groups.</li> </ul>
<p>Cooper PJ et al (2009).</p>	<p><u>Location;</u></p> <ul style="list-style-type: none"> <li>Two areas: SST and Town II in</li> </ul>	<p>Pregnant women, identified systematically in</p>	<ul style="list-style-type: none"> <li>Inclusion criteria: living in one of the two study areas and being in the</li> </ul>	<p><u>Baseline</u></p>	<p><u>Mother-infant interaction</u></p> <ul style="list-style-type: none"> <li>Intervention group</li> </ul>

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	<p>Khayelitsha, a periurban settlement outside Capetown, South Africa;</p> <ul style="list-style-type: none"> <li>• SST has high unemployment and poverty, housing is of poor quality, living conditions overcrowded and many residents are newly arrived migrants from rural areas;</li> <li>• Town II is nearby, but housing standards are better, with running water, electricity and connection to a public sewerage system available to many;</li> <li>• During the study many people were moved from poor housing in SST to better housing in an adjacent area</li> </ul> <p><u>Funding:</u></p> <p>The Wellcome Trust and a Fellowship from the Vlotman Trust.</p>	<p>regular home visits. They were randomly assigned to intervention or standard care control conditions using minimization procedures to balance for factors known to be associated with adverse outcomes, including antenatal depression and unintended pregnancy.</p>	<p>third trimester of pregnancy;</p> <ul style="list-style-type: none"> <li>• Exclusion criteria; None</li> <li>• In total 449/452 women met inclusion criteria and agreed to participate. Of these, 220 were assigned to the intervention and 229 to the control condition;</li> <li>• Of these, 354/449 (78.8%) participated in the six month, 346 (77%) the twelve month and 342 (76%) the 18 month follow up assessments.</li> <li>• Younger women less likely to be followed up (<math>24.9 \pm 4.4</math>) than older women (<math>26.1 \pm 5.8</math> years, <math>p &lt; 0.05</math>)</li> </ul>	<p>None</p> <p><u>Outcomes</u></p> <p>Assessments conducted in a purpose built accessible facility equipped with a one way mirror and video-recorders.</p> <p><u>Mother-infant interaction</u></p> <ul style="list-style-type: none"> <li>• At infant age six months, video tapes of 10 minutes of free play independently scored to assess maternal sensitivity and intrusiveness;</li> <li>• At infant age one year, observations of structured play using a set of stacking rings and a form board to assess maternal ability to facilitate play;</li> </ul> <p><u>Infant attachment</u></p>	<p>significantly more sensitive and less intrusive in interactions with their infants at both six and twelve months, all <math>p &lt; 0.05</math>;</p> <p><u>Infant attachment</u></p> <ul style="list-style-type: none"> <li>• More infants in the intervention than the control group were securely attached (OR 1.70, <math>p &lt; 0.029</math>);</li> <li>• Higher rates of anxious-avoidant attachment in control than intervention group</li> </ul> <p><u>Maternal depression</u></p> <ul style="list-style-type: none"> <li>• Lower prevalence of depression in intervention than control group at six and twelve months, but differences not significant;</li> <li>• EPDS scores lower in intervention than control groups at both assessment points, but difference only significant (<math>p = 0.04</math>) at</li> </ul>
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				<ul style="list-style-type: none"> <li>At infant age 18 months, the Strange Situation Procedure.</li> </ul> <p><u>Maternal depression</u></p> <ul style="list-style-type: none"> <li>Six months postpartum SCID interviews, which incorporated the EPDS, administered in Xhosa by a trained research worker, taped and then scored with a clinical psychologist;</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition.</p>	<ul style="list-style-type: none"> <li>six months;</li> <li>Depression ratings unrelated to maternal sensitivity or intrusiveness</li> </ul>
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<p>Hughes M et al (submitted).</p>	<p><u>Location</u></p> <p>A rural and a semi-urban community in Goa, a western state in India.</p> <p><u>Funding</u></p> <p>Wellcome Trust Research Training</p>	<p>Pregnant women identified through 138 Anganwadi Centres. These are government preschool centres in which the teacher maintains a list of names of women who are pregnant in the local area. After a</p>	<ul style="list-style-type: none"> <li>• Inclusion criteria: living in the study area, being in the third trimester of pregnancy and able to speak English or Konkani; and having one of the two risk factors: scoring <math>\geq 5</math> on GHQ-12, or self-reported unplanned pregnancy and 'male child bind' (having only female children in a cultural context with a</li> </ul>	<p><u>Baseline</u></p> <ul style="list-style-type: none"> <li>• Socioeconomic factors; parity, gestational age; feelings about the pregnancy and past psychiatric history.</li> <li>• Maternal mood assessed by locally validated EPDS and CIS-R.</li> </ul>	<p><u>Maternal mood</u></p> <p>Controlling for between group differences in sociodemographic factors</p> <ul style="list-style-type: none"> <li>• No difference between groups in EPDS score &gt; 12 (7.7% versus 7.8%, UOR 1.01, 95% CI 0.51 to 2.01)</li> </ul>
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	<p>(MH) and Career Development Fellowships (VP).</p>	<p>screening process, those meeting inclusion criteria were randomly assigned to intervention or standard care arms.</p>	<p>strong preference for sons)</p> <ul style="list-style-type: none"> <li>• Exclusion criteria: being unable to speak the study languages, current severe health condition, intending to leave the area during the study period or frequent thoughts of self harm.</li> <li>• Of 1320 pregnant women, 62 were ineligible and 76 did not attend the screening interview. Of the 1173 screened, 565 (48.1%) met trial inclusion criteria, but 142 (25.1% of these met at least one exclusion criterion and were released and one declined. The remaining 422 women at high risk of postnatal depression were assigned to intervention (212) or standard care control (210) conditions. Prevalence of risk factors was the same in the two groups.</li> </ul>	<p><u>Outcomes</u></p> <p><u>Maternal mood</u></p> <ul style="list-style-type: none"> <li>• EPDS score and meeting CIS-R assessed ICD diagnostic criteria for depression at three months postpartum;</li> </ul> <p><u>Infant development</u></p> <ul style="list-style-type: none"> <li>• DASII mental development quotient (DQ)</li> <li>• Maternal report of infant birthweight ;</li> <li>• Infant weight at 12 and 26 weeks postpartum</li> </ul> <p>All outcomes assessed by independent assessors blinded to treatment condition</p>	<p><u>Infant development</u></p> <ul style="list-style-type: none"> <li>• No difference between groups in DQ &lt;85 (12.1% versus 10.0%, URR 0.82, 95%CI 0.45 to 1.49);</li> <li>• Although mean infant weight 1 SD below expected norms at birth, 12 and 26 weeks postpartum, no difference between intervention and control groups</li> </ul>
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There are only seven trials of maternal mental health interventions from low and middle income countries. The trials have been carried out in varied settings: three from Asia, two from Africa, and one from South America and one from the Caribbean. While the targets for the intervention in all seven trials were mothers and young children, the interventions varied in their theoretical rationale, mode of delivery, setting, duration and the perinatal period in which they were administered. All trials measured maternal depression as an outcome, while six out of the seven trials also measured a range of child-related outcomes. Six of the seven trials were randomized controlled trials.

### Quality scores of the seven trials included in the review

Table 1 Quality scores of the seven trials included in the review							
	Cooper et al (2002).	Baker-Henningham et al (2005).	Rojas et al (2007).	Rahman et al (2008).	Rahman et al (2009b).	Cooper et al (2009).	Hughes et al (submitted).
Was the study described as randomized?  (Includes words such as randomly, random, and randomization)	0	Cluster RCT = 1, No details of process of randomization given	Randomization of individuals= 1 Computer assignment = 1	Cluster = 1 Table of random numbers = 1	Cluster = 1 Table = 1	Randomization of individuals= 1 Computer assignment = 1	Randomization of individuals= 1 Table of random numbers = 1
Was the study described as double blind?	Single blind	Single blind	Single blind	Yes = 1	Single blind	Single blind	Yes = 1
Was there a description of withdrawals and dropouts?	Yes = 1	Yes = 1	0	Yes = 1	Yes = 1	Yes = 1	0
Total	1	2	2	4	3	3	3

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The quality of evidence table shows that the average quality score for the seven trials was 2.71 (range 1–5). Of the 7 studies included in the review, six described the trial as randomized and controlled (Baker-Henningham et al, 2005); (Rojas et al, 2007); (Rahman et al, 2009b); (Rahman et al, 2008); (Cooper et al, 2009); (Hughes et al (submitted) . Baker- Henningham et al (2005) gave no details on the randomization procedure but the remaining five studies used computer or allocation tables to randomize either individual participants or clusters. None of the other studies made reference to whether or not participants were blinded as to study condition. All seven trials used blind assessors to measure outcomes. Rojas et al (2007) and Hughes et al (submitted) did not refer to dropouts from the trial, but all the other studies reported some data about participants who withdrew or dropped out.

Interventions which combined a direct maternal component with an infant health component were able to produce a demonstrable change in infant outcomes. Five of the seven trials also demonstrated a positive effect of the intervention on maternal depression. The interventions that had the greatest effect on maternal depression also led to an improvement in social functioning and reduction in disability in the mothers.

**GRADE tables**

Table 1

Author(s): Scott Baker

Date: 2009-09-10

Question: Should parent training programs be used for improving maternal psychosocial health and promoting positive mother-infant interactions?

Settings:

Bibliography: Barlow J, Coren E, Stewart-Brown S (2003) Parent-training programmes for improving maternal psychosocial health. *Cochrane Database of Systematic Reviews*, (4):CD002020.

Quality assessment							Summary of findings					Importance
							No of patients		Effect		Quality	
No of studies	Design	Limitations	Inconsistency	Indirectness	Imprecision	Other considerations	parent training programs	control	Relative (95% CI)	Absolute		
<b>Behavioural Parent-Training: Maternal depression (measured with: Beck Depression Inventory; Better indicated by lower values)</b>												
1 <sup>1</sup>	randomized trials	serious <sup>2</sup>	no serious inconsistency	no serious indirectness	no serious imprecision	none	151	135	-	SMD 0.04 lower (0.27 lower to 0.19 higher)	⊕⊕⊕⊕ MODERATE	CRITICAL
<b>Behavioural Parent-Training: Maternal anxiety/stress (measured with: Irritability, Depression and Anxiety Scale; Better indicated by lower values)</b>												



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1 <sup>3</sup>	randomized trials	serious <sup>2</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	23	25	-	SMD 0.39 lower (0.97 lower to 0.18 higher)	VERY LOW	CRITICAL
<b>Behavioural Parent-Training: Maternal self-esteem</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Behavioural Parent-Training: Relationship with Spouse (measured with: Parenting Stress Index; Better indicated by lower values)</b>												
1 <sup>5</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	serious <sup>7</sup>	none	46	45	-	SMD 0.43 lower (0.85 to 0.02 lower)	LOW	CRITICAL
<b>Behavioural Parent-Training: Parenting Efficacy/Skills (measured with: Parenting Sense of Competence Scale; Better indicated by lower values)</b>												
2 <sup>8</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	serious <sup>9</sup>	none	56	55	-	SMD 0.17 lower (0.55 lower to 0.2 higher)	LOW	CRITICAL
<b>Behavioural Parent-Training: Mother-infant interaction (measured with: Parenting Stress Index-Attachment; Better indicated by lower values)</b>												
1	randomized trials <sup>10</sup>	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	46	45	-	SMD 0.34 lower (0.75 lower to 0.08 higher)	VERY LOW	CRITICAL
<b>Behavioural Parent-Training: Infant physical health</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Multi-Modal Parent-Training: Maternal depression (measured with: Parenting Stress Index; Better indicated by lower values)</b>												
1 <sup>11</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	serious <sup>7</sup>	none	20	20	-	SMD 0.66 lower (1.29 to 0.02 lower)	LOW	CRITICAL
<b>Multi-Modal Parent-Training: Maternal anxiety/stress</b>												
0	no evidence					none	0/0 (0%)	0/0	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL

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	available							(0%)	0)	to 0 fewer)		
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Multi-Modal Parent-Training: Maternal self-esteem (measured with: Personal Orientation Inventory: Self-Acceptance; Better indicated by lower values)</b>												
1 <sup>12</sup>	randomized trials	serious <sup>13</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	16	10	-	SMD 0.28 lower (1.08 lower to 0.51 higher)	VERY LOW	CRITICAL
<b>Multi-Modal Parent-Training: Relationship with Spouse (measured with: Parenting Stress Index: Relationship with Spouse; Better indicated by lower values)</b>												
1 <sup>14</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	20	20	-	SMD 0.16 lower (0.78 lower to 0.46 higher)	VERY LOW	CRITICAL
<b>Multi-Modal Parent-Training: Parenting Efficacy/Skills (measured with: Parenting Stress Index: Competence; Better indicated by lower values)</b>												
1 <sup>15</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	20	20	-	SMD 0.63 lower (1.26 to 0.01 higher)	VERY LOW	CRITICAL
<b>Multi-Modal Parent-Training: Mother-infant interaction (measured with: Parenting Stress Index: Relationship With Child; Better indicated by lower values)</b>												
1 <sup>16</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	serious <sup>7</sup>	none	20	20	-	SMD 0.68 lower (1.32 to 0.04 lower)	LOW	CRITICAL
<b>Multi-Modal Parent-Training: Infant physical health</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Humanistic Parent Training: Maternal depression (measured with: Beck Depression Inventory; Better indicated by lower values)</b>												
1 <sup>17</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	serious <sup>7</sup>	none	39	17	-	SMD 0.62 lower (1.2 to 0.04 lower)	LOW	CRITICAL
<b>Humanistic Parent Training: Maternal anxiety/stress (measured with: General Health Questionnaire; Better indicated by lower values)</b>												
1 <sup>18</sup>	randomized trials	serious <sup>6</sup>	no serious	no serious	very serious <sup>4</sup>	none	46	50	-	MD 0.60 lower (1.42 lower to		CRITICAL

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			inconsistency	indirectness						0.22 higher)	VERY LOW	
<b>Humanistic Parent Training: Maternal self-esteem (measured with: Rosenberg Self-Esteem Scale; Better indicated by lower values)</b>												
1 <sup>19</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	46	50	-	MD 0.90 lower (2.94 lower to 1.14 higher)	VERY LOW	CRITICAL
<b>Humanistic Parent Training: Relationship with Spouse</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Humanistic Parent Training: Parenting Efficacy/Skills</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Humanistic Parent Training: Mother-infant interaction (measured with: Parenting Stress Index: Interaction; Better indicated by lower values)</b>												
1 <sup>20</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	46	50	-	SMD 0.60 lower (2.84 lower to 1.64 higher)	VERY LOW	CRITICAL
<b>Humanistic Parent Training: Infant physical health</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Cognitive-Behavioural Parent Training: Maternal depression (measured with: Beck Depression Inventory; Better indicated by lower values)</b>												
3 <sup>21</sup>	randomized trials	serious <sup>13</sup>	no serious inconsistency	no serious indirectness	serious <sup>9</sup>	none	68	66	-	SMD 0.18 lower (0.53 lower to 0.16 higher)	LOW	CRITICAL
<b>Cognitive-Behavioural Parent Training: Maternal anxiety/stress (measured with: Brief Symptom Inventory; Better indicated by lower values)</b>												

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1 <sup>22</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	14	8	-	MD 0.13 lower (0.67 lower to 0.41 higher)	VERY LOW	CRITICAL
<b>Cognitive-Behavioural Parent Training: Maternal self-esteem</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Cognitive-Behavioural Parent Training: Relationship with Spouse</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Cognitive-Behavioural Parent Training: Parenting Efficacy/Skills (measured with: Parenting Sense of Competence Scale; Better indicated by lower values)</b>												
1 <sup>23</sup>	randomized trials	serious <sup>13</sup>	no serious inconsistency	no serious indirectness	serious <sup>7</sup>	none	36	42	-	SMD 0.03 higher (0.42 lower to 0.47 higher)	LOW	CRITICAL
<b>Cognitive-Behavioural Parent Training: Mother-infant interaction (measured with: Parenting Stress Index: Interaction; Better indicated by lower values)</b>												
1 <sup>24</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	13	13	-	MD 1.77 lower (6.7 lower to 3.16 higher)	VERY LOW	CRITICAL
<b>Cognitive-Behavioural Parent Training: Infant physical health</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Rational Emotive Parent Training: Maternal depression (measured with: POMS: Depression-Dejection; Better indicated by lower values)</b>												
1 <sup>25</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	serious <sup>7</sup>	none	21	16	-	SMD 0.80 lower (1.48 to 0.12 lower)	LOW	CRITICAL
<b>Rational Emotive Parent Training: Maternal anxiety/stress (measured with: POMS: Tension-Anxiety; Better indicated by lower values)</b>												

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1 <sup>26</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	21	16	-	SMD 0.58 lower (1.25 to 0.08 higher)	VERY LOW	CRITICAL
<b>Rational Emotive Parent Training: Maternal self-esteem</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Rational Emotive Parent Training: Relationship with Spouse (measured with: Parenting Stress Index (Relationship with spouse).; Better indicated by lower values)</b>												
1 <sup>27</sup>	randomized trials	serious <sup>6</sup>	no serious inconsistency	no serious indirectness	very serious <sup>4</sup>	none	21	16	-	SMD 0.34 lower (0.99 lower to 0.32 higher)	VERY LOW	CRITICAL
<b>Rational Emotive Parent Training: Parenting Efficacy/Skills</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Rational Emotive Parent Training: Mother-infant interaction</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Rational Emotive Parent Training: Infant physical health</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Improved participation and human rights</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL

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								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>User and family satisfaction</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		IMPORTANT
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		
<b>Adverse effects of treatment</b>												
0	no evidence available					none	0/0 (0%)	0/0 (0%)	RR 0 (0 to 0)	0 fewer per 1000 (from 0 fewer to 0 fewer)		CRITICAL
								0%		0 fewer per 1000 (from 0 fewer to 0 fewer)		

<sup>1</sup> Analysis 1.5

<sup>2</sup> 41% Drop out

<sup>3</sup> Analysis 1.9

<sup>4</sup> less than 100 individuals in trial, confidence interval crosses zero, and upper or lower bound demonstrates appreciable effect size

<sup>5</sup> Analysis 1.19

<sup>6</sup> Number of drop outs not reported in review

<sup>7</sup> less than 100 individuals

<sup>8</sup> Analysis 1.6

<sup>9</sup> Overall number of individuals is between 100 and 200.

<sup>10</sup> Analysis 1.16

<sup>11</sup> Analysis 2.4

<sup>12</sup> Analysis 2.18

<sup>13</sup> Number of drop outs not reported by study

<sup>14</sup> Analysis 2.5

<sup>15</sup> Analysis 2.7

<sup>16</sup> Analysis 2.22

<sup>17</sup> Analysis 3.3

<sup>18</sup> Analysis 3.12

<sup>19</sup> Analysis 3.16

<sup>20</sup> Analysis 3.9

<sup>21</sup> Analysis 4.1

<sup>22</sup> Analysis 4.6

<sup>23</sup> Analysis 4.4

<sup>24</sup> Analysis 4.10

<sup>25</sup> Analysis 5.10

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<sup>26</sup> Analysis 5.7

<sup>27</sup> Analysis 5.15

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**From evidence to recommendations**

<b>Factor</b>	<b>Explanation</b>
<b>Narrative summary of the evidence base</b>	<p>There are only seven trials of maternal mental health interventions from low and middle income countries. The quality of the studies is fairly robust given the difficulties of conducting high quality research in resource-constrained settings: six out of the seven studies used the randomized controlled trial design. The trials have been carried out in varied settings: three from Asia, two from Africa, and one from South America and one from the Caribbean. While the targets for the intervention in all seven trials were mothers and young children, the interventions varied in their theoretical rationale, mode of delivery, setting, duration and the perinatal period in which they were administered. Interventions were diverse and included psychosocial support to mothers including home visiting, psycho-education in groups or one to one, improving mothers' knowledge on child rearing practices, and when required structured cost free pharmacotherapy (fluoxetine) . All trials measured mental depression as an outcome, while six out of the seven trials also measured a range of child-related outcomes.</p> <p>Interventions which combined a direct maternal component with an infant health component were able to produce a demonstrable change in infant outcomes. Five of the seven trials demonstrated a positive effect of the intervention on maternal depression. It is also notable that the interventions that had the greatest effect on depression also led to an improvement in social functioning and reduction in disability in the mothers.</p>

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	<p>We were able to grade the additional review of Barlow et al., 2003 on parent training programmes for improving maternal psychosocial health support in high income countries which also found that maternal interventions with a postnatal component and an infant health component were effective in improving maternal-child interactions.</p>
<b>Summary of the quality of evidence</b>	<p>Of the 7 studies included in the review, six described the trial as randomized and controlled. All seven trials used blind assessors to measure outcomes. (Rojas et al, 2007) and (Hughes et al, (submitted) did not refer to dropouts from the trial, but all the other studies reported some data about participants who withdrew or dropped out. The strength of the evidence can be considered as moderate.</p>
<b>Balance of benefits versus harms</b>	<p>No harm can be perceived. Benefits will not only go to the children but also to mothers according to the evidence review.</p>
<b>Values and preferences including any variability and human rights issues</b>	<p>Due to a lack of knowledge and understanding of mental health in many settings, it is important that women are not stigmatized for receiving treatment. As a result, inclusion of the family, a focus on the infant and community-based interventions may be favourable. Community-based interventions are also likely to reach more women and be more acceptable.</p>
<b>Costs and resource use and any other relevant feasibility issues</b>	<p>Integrating the mental health component into the routine work of the health workers rather than introduce it as a vertical programme would make it more feasible and acceptable. Thus, health workers are more likely to accept the intervention as part of their day-to-day activity, and the approach would be seen as less stigmatizing. Available evidence from low income countries supports its feasibility. However, the high number of intervention sessions makes it more difficult to implement.</p> <p>Good quality training and supervision of such health workers will still require a cadre of mental health workers whose primary task would not be providing individual mental health care, but to train and supervise the work of non-specialists.</p>
<b>Recommendation(s)</b>	
<p>For poorly nourished, frequently ill and other groups of at risk children, parenting interventions promoting mother-infant interactions including</p>	

## Maternal mental health interventions to improve child development

psychosocial stimulation should be offered to improve child development outcomes. Such programmes should be delivered preferably within ongoing mother and child health programmes.

Strength of recommendation: STRONG

To improve child development outcomes, mothers with depression or with any other mental, neurological or substance use condition should be treated using effective interventions (see recommendations for treatment of depression and other mental, neurological or substance use conditions).

Strength of recommendation: STRONG

Additional psychosocial support should be offered to mothers with depression or with any other mental, neurological or substance use condition including home visiting, psycho-education, improving mothers' knowledge on child rearing practices.

Strength of recommendation: STRONG

## Update of the literature search – June 2012

In June 2012 the literature search for this scoping question was updated. No new systematic reviews were found to be relevant.