

# Continuous labour support

## Clinical question

Among nulliparous women, does continuous labour support versus usual care, affect the rates of cesarean section, assisted vaginal birth, epidural analgesia, or augmentation of labour with oxytocin?

Population:	Nulliparous women in labour
Intervention:	Continuous labour support (doulas, midwives, nurses)
Comparison:	Usual care (intermittent or no support)
Primary Outcome:	Cesarean section
Secondary Outcomes:	Assisted vaginal birth, epidural analgesia, augmentation of labour with oxytocin

## Search strategy

- Time period: 1990 -2009
- Search terms: Support, continuous support, labor, obstetric, parturition, delivery, perinatal care, doula, monitrice, midwife, midwifery care, nurses role, birth attendant.
- Databases searched: CINAHL; MEDLINE (Ovid SP); EMBASE; Cochrane CDSR, CENTRAL, & DARE.
- Titles reviewed - 391; abstracts reviewed - 32; papers reviewed - 23; papers meeting eligibility for inclusion -12

## Synthesis of the evidence

### Meta-analyses

- Three meta-analyses were identified and all included studies conducted between 1980 and 2006, and studies conducted in developing/low income countries.
- All the meta-analyses reported significant reductions in cesarean section rates for women with continuous labour support. All meta-analyses reported reductions in rates of secondary outcomes.
- The most recent and largest meta-analysis with 16 RCTs reported small differences between groups with marginal statistical significance (upper limit confidence intervals of .99).

### Randomized controlled trials

- Among the 9 RCTs eligible for inclusion, the largest RCT with over 6,000 participants and conducted in North America reported no significant difference in cesarean section rates (Hodnett, 2002). Three RCTs reported significant reductions in cesarean section rates for women with continuous labour support.
- One of the nine RCTs reported a significant reduction in assisted vaginal delivery for women with continuous labour support, 6 reported no significant differences, and 2 did not report this outcome. Four reported significant reductions in the use of epidural analgesia for women with continuous labour support and five reported no difference. Two reported significant reductions in the use of oxytocin augmentation for women with continuous labour support, one reported an increase in use of augmentation for women with continuous labour support, 3 reported no significant difference, and 3 did not report this outcome.

### Limitations

- Two of the studies reporting significant differences in primary and secondary outcomes were conducted in settings (Texas and Botswana) where women in the control group had no labour support person available (Kennell, 1991 & Madi, 1999) and where there are low rates of epidural analgesia use. These findings cannot be generalized to Canada where labour support is now considered “usual care” and where rates of epidural use in many facilities are at least 50%.

### Conclusions

In the North American setting, continuous labour support does not show evidence of an association with reduced interventions in labour including cesarean section, assisted vaginal delivery, use of epidural analgesia, or oxytocin augmentation.

In settings where women do not have access to labour support other than a doula, continuous support by a doula is associated with a significant reduction in labour interventions.

Labour support may be of value in North American settings when use of epidural analgesia can be delayed or avoided.

Meta-analysis	Inclusion	Intervention	Findings	Comments
<p>Hodnett E, et al. 2007. The Cochrane Database of Systematic Reviews, Issue 3</p> <p><b>Continuous support for women during childbirth</b></p>	<p><b>16 RCTs</b></p> <p>N= 13,391</p> <p>Breart, 1992, 3 trials Belgium, n=264; France, n=1320; Greece, n= 569</p> <p>Campbell, 2006, USA, n=600</p> <p>Cogan 1988, Texas, n=34</p> <p>Dickinson, 2002, Australia, n=992</p> <p>Gagnon, 1997, Montreal, n=413</p> <p>Hemminki, 1990, 2 trials Finland n=80 (1987); n=161 (1988)</p> <p>Hodnett, 1989, Toronto, n=145</p> <p>Hodnett, 2002, Canada/USA; n=6915</p> <p>Hofmeyr, 1991, South Africa, n=189</p> <p>Kennell, 1991, Texas, n=412</p> <p>Klaus 1986, Guatemala, n=465</p> <p>Langer, 1998, Mexico, n=724</p> <p>Madi, 1999, Botswana, n=109</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>Published and unpublished RCTs comparing continuous support with usual care.</li> </ul>	<p>Continuous support during labour vs. usual care.</p>	<p><b>Primary Outcome</b></p> <p>CS RR 0.94 (0.91-.99)</p> <p><b>Secondary Outcomes</b></p> <p>Forceps RR 0.92 (0.85-0.99)</p> <p>Epidural RR 0.92 (0.85 -0.99)</p> <p>Oxy aug RR 0.94 (0.81-1.05)</p>	<p><b>At the border of significance or no difference</b></p> <ul style="list-style-type: none"> <li>Included pre-1990 trials</li> <li>Breart trials published only as abstracts</li> <li>Dickinson reported on satisfaction only</li> <li>Hemminki with note that this was poor quality</li> <li>Did not include Gordon, McGrath, Janssen</li> </ul>

Meta-analysis	Inclusion	Intervention	Findings	Comments
<p>Scott KD, et al; 1999. AJOG:180(5)</p> <p><b>A comparison of intermittent and continuous support during labour: A meta-analysis</b></p>	<p><b>11 RCTs</b></p> <p>N= 4392</p> <p>Breart, 1992, 3 trials Belgium, n=264; France, n=1320; Greece, n= 569</p> <p>Hemminki,1990, 2 trials Finland n=80 (1987); n=161 (1988)</p> <p>Hodnett, 1989, Canada, n=103</p> <p>Hofmeyr, 1991, South Africa, n=189</p> <p>Kennell, 1993, Ohio, n=585</p> <p>Sosa, 1980, Guatemala, n=40</p> <p>Kennell, 1991, Texas, n=616</p> <p>Klaus, 1986, Guatemala, n=465</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• RCTs examining emotional/social/non-medical support</li> <li>• Near term or term</li> </ul>	<p>Continuous doula support vs. no support</p> <p>Intermittent doula support vs. no support</p>	<p><b>Continuous doula vs. No support</b></p> <p><b>Primary Outcome</b> CS OR 0.49 (0.37-0.65)</p> <p><b>Secondary Outcomes</b> Forceps OR 0.43 (0.28-0.65) Analgesia OR 0.64 (0.49 -0.85) Oxy aug OR 0.29 (0.20 -0.40)</p> <p><b>Intermittent doula vs. No support</b></p> <p><b>Primary Outcome</b> CS OR 0.91 (0.67-1.2)</p> <p><b>Secondary Outcomes</b> Forceps OR 0.72 (0.5 -1.0) Analgesia OR 0.84 (0.7 -1.0) Oxy aug OR 1.06 (0.89 -1.3)</p>	<p><b>Significant difference when comparing continuous (lay person) vs. intermittent (midwife or student with one trial using a lay person).</b></p> <ul style="list-style-type: none"> <li>• Search for papers was non-systematic</li> <li>• Breart trials published only as abstracts</li> <li>• Hemminki excluded from our report because of poor quality</li> <li>• Included pre-1990 trials.</li> </ul>
<p>Zhang J Bernasko, et al; 1996. Obstetrics &amp; Gynecology: 88(4) Part 2</p> <p><b>Continuous labour support from labour attendant for primiparous women: A meta-analysis</b></p>	<p><b>4 RCTs</b></p> <p>N= 1349</p> <p>Hofmeyer, 1991, South Africa, n=189</p> <p>Kennel, 1991, Texas, n=616</p> <p>Klaus, 1986, Guatemala, n=417</p> <p>Sosa, 1980, Guatemala, n=127</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• RCTs 1965 - May, 1995</li> </ul>	<p>Continuous labor support by labour attendant vs. no labour attendant</p>	<p><b>Primary Outcome</b> C/S RR 0.54 (0.4-0.7)</p> <p><b>Secondary Outcomes</b> Forceps use RR 0.46 (0.3-0.7) Oxy aug RR 0.44 (0.4-0.7)</p>	<p><b>Significant difference</b></p> <ul style="list-style-type: none"> <li>• RCTs took place in hospitals that did not allow companions or labour support persons other than those provided by the study.</li> <li>• Two pre-dated the inclusion criteria</li> </ul>

Randomized controlled trials	Inclusion	Intervention	Outcomes	Comments
<p>McGrath, S, Kennell, J. 2008. BIRTH 35:2.</p> <p><b>A randomized controlled trial of continuous labor support for middle-class couples: Effect on cesarean delivery rates</b></p> <p>Cleveland Ohio</p>	<p>N= 420</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• Nulliparous</li> <li>• Ages 18-41</li> <li>• Third trimester</li> <li>• Uncomplicated pregnancy</li> <li>• Accompanied in labour by male partner</li> <li>• Under care of private obstetrician</li> </ul>	<p>Trained doula vs. usual care.</p>	<p><b>Primary Outcome</b> CS 13.4% vs 25% p=.002</p> <p><b>Secondary Outcomes</b> Asst vag 21.0% vs. 10% ns Epidural 64.7% vs. 76% p= .009</p>	<p><b>Significant difference</b></p> <ul style="list-style-type: none"> <li>• 39% dropout after enrollment</li> </ul>
<p>Campbell D. et al, 2006. JOGNN: 35</p> <p><b>A randomized control trial of continuous support in labor by a lay doula</b></p> <p>New Jersey</p>	<p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• Nulliparous</li> <li>• Singleton pregnancy</li> <li>• Low risk at time of enrollment</li> </ul> <p><b>Exclusion</b></p> <ul style="list-style-type: none"> <li>• Women with a contraindication to labour</li> </ul>	<p>Trained doula vs. standard care N= 600</p>	<p><b>Primary Outcome</b> CS 18.9% vs 17.9 ns</p> <p><b>Secondary Outcomes</b> Epidural 85% vs.88% ns Oxytocin 46 vs 49% ns</p>	<p><b>No difference</b></p> <ul style="list-style-type: none"> <li>• Control group had support persons in attendance</li> </ul>
<p>Hodnett E. et al; 2002. JAMA 288:11</p> <p><b>Effectiveness of nurses as providers of birth labor support in North American hospitals: A randomized controlled trial</b></p> <p>13 Canadian and US hospitals</p>	<p>N= 6,915</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• Singleton or twin pregnancy</li> <li>• Live fetus &gt; 34 weeks gestation</li> <li>• No contraindication to labour</li> <li>• In established labour but second stage not imminent</li> <li>• 1:1 nursing care not medically required</li> </ul>	<p>Trained nurse for continuous labour support vs. usual care</p>	<p><b>Primary Outcome</b> CS 12.5% vs 12.6%, ns</p> <p><b>Secondary Outcomes</b> Asst vag 15.7% vs.16.2% ns Oxy aug 30.1% vs. 25.2% p=.01 Epidural 58% vs. 70.4% p=.03</p>	<p><b>No difference CS, forceps</b></p> <p><b>Significant difference, oxy augmentation and epidural</b></p>

Randomized controlled trials	Inclusion	Intervention	Outcomes	Comments
<p>Gordon N, et al, 1999. Obstetrics &amp; Gynecology: 93(3)</p> <p><b>Effects of providing hospital-based doulas in health maintenance organization hospitals</b></p> <p>California</p>	<p>N= 476</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• Nulliparas</li> <li>• Uncomplicated pregnancies</li> <li>• Spontaneous labour and &lt; 5 cm dilation on admission</li> </ul>	<p>Trained doula vs. usual care</p>	<p><b>Primary Outcome</b> CS 16.8% vs 15.8% ns</p> <p><b>Secondary Outcomes</b> Asst vag 19.2% vs. 28.8% ns Oxy aug 61.7% vs. 92.4% ns Epidural 54.4% vs. 66.1% ns</p>	<p><b>No difference</b></p> <ul style="list-style-type: none"> <li>• Setting was a Health Maintenance Organization where participants would have health insurance and be employed</li> </ul>
<p>Madi B et al. 1999. BIRTH: 26(1)</p> <p><b>Effect of female relative support in labor: A randomized controlled trial</b></p> <p>Botswana</p>	<p>N= 109</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• Nulliparas</li> </ul>	<p>Support in labour with a female relative vs. no support</p>	<p><b>Primary Outcome</b> CS 6% v. 13% p =.03</p> <p><b>Secondary Outcomes</b> Asst vag 4% vs. 13 % p= .03 Oxy aug 13% vs.30%. p= .03 Analgesia 53% vs.73%, p= .03</p>	<p><b>Significant difference</b></p> <ul style="list-style-type: none"> <li>• Women laboured in a large room, then moved to a 6 bed labour/delivery room without privacy.</li> </ul>
<p>Langer A et al; 1998. BJOG:105</p> <p><b>Effects of psychosocial support during labour and childbirth on breastfeeding, medical interventions, and mothers' wellbeing in a Mexican public hospital: A RCT</b></p>	<p>N= 724</p> <p><b>Inclusion</b></p> <ul style="list-style-type: none"> <li>• Nulliparas</li> <li>• Singleton fetus</li> <li>• Low risk</li> <li>• &lt; 6 cm dilation</li> </ul>	<p>Doula vs routine care</p>	<p><b>Primary Outcome</b> CS RR 0.87 (0.68-1.12)</p> <p><b>Secondary Outcomes</b> Asst vag del RR 0.87 (0.38-1.96) Epidural RR 1.01 (0.95- 1.07)</p>	<p><b>No difference</b></p> <ul style="list-style-type: none"> <li>• Routine care not described.</li> </ul>

Randomized controlled trials	Inclusion	Intervention	Outcomes	Comments
Gagnon A. et al. 1997. BIRTH: 24(2)  <b>A randomized trial of one-to-one nurse support of women in labor</b>  Montreal	N= 413  <b>Inclusion</b> <ul style="list-style-type: none"> <li>• Nulliparas</li> <li>• Singleton fetus</li> <li>• &gt; 37 weeks</li> <li>• Low risk</li> </ul> < 4 cm dilated	1:1 nursing care in labour vs. 1:2 or 1:3 nurse-pt ratio	<b>Primary Outcome</b> C/S RR 0.86 (0.54-1.36)  <b>Secondary Outcomes</b> Asst vag RR 1.46 (0.74-1.53) Epidural RR 1.02 (0.59-1.77) Oxy aug RR 0.83 (0.84-1.09)	<b>No difference</b>
Hofmeyr J, et al. 1991. BJOG: 98  <b>Companionship to modify the clinical birth environment: Effects on progress and perceptions of labour, and breastfeeding</b>  South Africa	N= 189  <b>Inclusion</b> <ul style="list-style-type: none"> <li>• Nulliparas</li> <li>• Low risk</li> </ul> < 6 cm dilation	Support by untrained companion vs. no support	<b>Primary Outcome</b> CS OR 0.81 (0.35-1.9)  <b>Secondary Outcomes</b> Asst vag OR 1.06 (0.35-3.1) Analgesia OR 0.98 (0.55-1.7)	<b>No difference</b>
Kennell J. et al. 1991. JAMA: 265(17)  <b>Continuous emotional support during labor in a US hospital. A randomized controlled trial</b>  Houston, TX	N= 412  <b>Inclusion</b> <ul style="list-style-type: none"> <li>• Nulliparas</li> <li>• Age 13 – 34</li> <li>• Singleton fetus</li> <li>• Term</li> <li>• Low risk pregnancy</li> <li>• &gt; 3-4 cm dilated</li> </ul>	Continuous doula support vs. observed group	<b>Primary Outcome</b> CS 8% vs 13% p= .004  <b>Secondary Outcomes</b> Epidural in women who had an SVD 7.8% vs. 22.6% p= <.0001 Oxy aug 17% vs. 23% p= <.0001	<b>Significant difference</b>  <ul style="list-style-type: none"> <li>• Controls in 12 bed labour ward with no companions allowed.</li> </ul>