

**4.1. RECOMMENDATION:**

**Should NURSES diagnose preterm pre-labour rupture of membranes (pPROM) and deliver initial treatment of injectable antibiotics, using a standard syringe, before referral?**

**Problem:** Poor access to injectable antibiotics for pPROM  
**Option:** Nurses delivering injectable antibiotics for pPROM  
**Comparison:** Care delivered by other cadres or no care  
**Setting:** Community/primary health care settings in LMICs with poor access to health professionals

Recommendation	<i>We recommend against the option</i>	<i>We suggest considering the option with targeted monitoring and evaluation</i>	<i>We recommend the option</i>
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
We suggest considering the option with targeted monitoring and evaluation. As there are questions about whether nurses have the skills and equipment to make the diagnosis, the intervention should be implemented where nurses are trained to give injections and in care for pregnant women.			
<b>Justification</b>	There is insufficient evidence on the effectiveness of nurses diagnosing preterm pre-labour rupture of membranes (pPROM) and delivering initial treatment of injectable antibiotics, using a standard syringe, before referral. However, this is probably an acceptable and feasible approach to the management of preterm PROM. It may also reduce inequalities in settings where access to more highly trained providers is limited.		
<b>Implementation considerations</b>	The following should be considered when using nurses to deliver antibiotics to treat preterm PROM: <ul style="list-style-type: none"> <li>- The relevant professional bodies should be involved in the planning and implementation of the intervention to ensure acceptability among affected health workers</li> <li>- The distribution of roles and responsibilities between nurses and other health workers needs to be made clear, including through regulations and job descriptions</li> <li>- Changes in regulations may be necessary to support any changes in nurses' scope of practice</li> <li>- Implementation needs to be in the context of a comprehensive remuneration scheme, in which salaries or incentives reflect any changes in scope of practice. Giving incentives for certain tasks but not for others may negatively affect the work that is carried out</li> <li>- Referral systems need to function well, i.e. financial, logistical (e.g. transport) and relational barriers need to be addressed. Specifically, local health systems need to be strengthened to improve quality of care at the first referral facility</li> <li>- Supplies of drugs and other commodities need to be secure</li> <li>- Responsibility for supervision needs to be clear and supervision needs to be regular and supportive</li> <li>- Nurses and their supervisors need to receive appropriate initial and ongoing training</li> </ul>		
<b>Monitoring and evaluation</b>			
<b>Research priorities</b>	Studies assessing the effects and the acceptability of using nurses to deliver injectable antibiotics to treat preterm PROM in LMICs are needed		

4.1 EVIDENCE BASE:

Should NURSES diagnose preterm pre-labour rupture of membranes (pPROM) and deliver initial treatment of injectable antibiotics, using a standard syringe, before referral?

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CRITERIA	JUDGEMENT	EVIDENCE	COMMENTS AND QUERIES															
BENEFITS & HARMS OF THE OPTIONS	<p>Are the anticipated desirable effects large?</p> <p>No <input type="checkbox"/> Probably no <input type="checkbox"/> Uncertain <input checked="" type="checkbox"/> Probably yes <input type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/></p>	<p>One systematic review searched for studies that assessed the effects of nurse-led primary care compared to care that was given by primary care doctors (Laurant 2012). However, this review did not identify any studies that specifically assessed the effects of nurses delivering injectable antibiotics for preterm PROM. <b>We are therefore unable to draw any conclusions about the desirable or undesirable effects of this intervention.</b></p> <p><b>Indirect evidence:</b>                      The same review identified a number of studies, mostly from high income settings, where nurses were compared to doctors for the delivery of other types of interventions. The review suggests that nurse care may improve several health outcomes while it may make no difference to other outcomes. However, the certainty of this evidence varies.</p> <table border="1"> <thead> <tr> <th>Outcomes</th> <th>Impacts</th> <th>Certainty of the anticipated effect</th> </tr> </thead> <tbody> <tr> <td>Patient health status</td> <td>For some of the outcomes, benefits in favour of nurses. For other outcomes, no differences between nurses and doctors</td> <td>Very low to moderate</td> </tr> <tr> <td>Patient mortality</td> <td>No differences between nurses and primary care doctors</td> <td>Moderate</td> </tr> <tr> <td>Process of care</td> <td>Mixed results: some studies showed differences between nurses and primary care doctors in process of care, e.g. nurses gave more advice to patients, while others showed no differences</td> <td>Very low to moderate</td> </tr> <tr> <td>Patient satisfaction and preferences</td> <td>Patients were significantly more satisfied with nurses compared with primary care doctors. Also, patients preferred significantly more often to see a nurse rather than a primary care doctor.</td> <td>Very low to moderate</td> </tr> </tbody> </table> <p>Annex: page 6 (Laurant 2012)</p>	Outcomes	Impacts	Certainty of the anticipated effect	Patient health status	For some of the outcomes, benefits in favour of nurses. For other outcomes, no differences between nurses and doctors	Very low to moderate	Patient mortality	No differences between nurses and primary care doctors	Moderate	Process of care	Mixed results: some studies showed differences between nurses and primary care doctors in process of care, e.g. nurses gave more advice to patients, while others showed no differences	Very low to moderate	Patient satisfaction and preferences	Patients were significantly more satisfied with nurses compared with primary care doctors. Also, patients preferred significantly more often to see a nurse rather than a primary care doctor.	Very low to moderate	
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<p>Are the desirable effects large relative to the undesirable effects?</p> <p>No <input type="checkbox"/> Probably no <input type="checkbox"/> Uncertain <input checked="" type="checkbox"/> Probably yes <input type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/></p>																		
RESOURCE USE	<p>Are the resources required small?</p> <p>No <input type="checkbox"/> Probably no <input type="checkbox"/> Uncertain <input type="checkbox"/> Probably yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/></p>	<p><b>Main resource requirements</b></p> <table border="1"> <thead> <tr> <th>Resource</th> <th>Settings in which nurses already provide other care</th> </tr> </thead> <tbody> <tr> <td>Training</td> <td>E.g. one week of training in diagnosis and management, including diagnosis of amniotic fluid volume by ultrasound where available. Assumes proficiency in diagnosing pregnancy, assessing gestational age, and assessing amniotic fluid leakage through observation and simple pH testing</td> </tr> <tr> <td>Supervision and monitoring</td> <td>Regular supervision by senior midwife or doctor</td> </tr> <tr> <td>Supplies</td> <td>Antibiotics, diagnostic equipment, e.g. litmus paper. Ultrasound equipment</td> </tr> <tr> <td>Referral</td> <td>Transportation, adequate referral centre</td> </tr> </tbody> </table>	Resource	Settings in which nurses already provide other care	Training	E.g. one week of training in diagnosis and management, including diagnosis of amniotic fluid volume by ultrasound where available. Assumes proficiency in diagnosing pregnancy, assessing gestational age, and assessing amniotic fluid leakage through observation and simple pH testing	Supervision and monitoring	Regular supervision by senior midwife or doctor	Supplies	Antibiotics, diagnostic equipment, e.g. litmus paper. Ultrasound equipment	Referral	Transportation, adequate referral centre						
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	Is the incremental cost small relative to the benefits?	<p>No <input type="checkbox"/> Probably no <input type="checkbox"/> Uncertain <input checked="" type="checkbox"/> Probably yes <input type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/></p>	<p>Uncertain as there is no direct evidence on effectiveness. Indirect evidence from the review referred to above (Laurant 2012) suggests that, compared to doctor-led care:</p> <ul style="list-style-type: none"> <li>• Overall, studies showed lower costs for nurse-led care</li> <li>• Consultation length was longer for nurses</li> <li>• For the frequency of consultations, results were mixed</li> <li>• For most studies there were no differences in the use of healthcare services and prescriptions</li> </ul>	
ACCEPTABILITY	Is the option acceptable to most stakeholders?	<p>No <input type="checkbox"/> Probably no <input type="checkbox"/> Uncertain <input type="checkbox"/> Probably yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Varies <input checked="" type="checkbox"/></p>	<p>A systematic review of nurse-doctor substitution (Rashidian 2012) did not identify any studies that evaluated the acceptability of injectable antibiotics for preterm PROM when delivered by nurses. <b>We are therefore uncertain about the acceptability of this intervention to key stakeholders.</b></p> <p><b>Indirect evidence:</b> For other maternal and child health interventions, the same review suggests that:</p> <ul style="list-style-type: none"> <li>• Nurses may be motivated to offer advanced care by increased recognition and job satisfaction (moderate certainty evidence)</li> <li>• Recipients may regard nurses as more accessible and better at listening and caring than doctors (moderate certainty evidence). However, some recipients may have concerns about nurses' competence and willingness to provide high quality care compared to doctors (low certainty evidence). In addition, for tasks that are more "medical" in nature, recipients may prefer doctors over nurses (low certainty evidence)</li> <li>• Doctors were generally satisfied with the contribution of nurses to maternal and child health care, although some concerns were raised (low certainty evidence). Doctors may welcome the contribution of nurses where it reduces doctors' workloads (moderate certainty evidence). Doctors may be comfortable with nurse prescribing, believing that it improves continuity of care (low certainty evidence). However, an increase in nurse autonomy may negatively affect or produce negative reactions among other professions, including doctors and midwives, who for instance may be unwilling to relinquish final responsibility for patient care. A lack of clarity about nurse roles and responsibilities in relation to other health workers may also be a challenge (low certainty evidence)</li> </ul> <p><b>Annex:</b> page 43 (Rashidian 2012)</p>	
FEASIBILITY	Is the option feasible to implement?	<p>No <input type="checkbox"/> Probably no <input type="checkbox"/> Uncertain <input type="checkbox"/> Probably yes <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Varies <input type="checkbox"/></p>	<p>The intervention requires relatively few supplies (antibiotics and simple diagnostic tools). In addition, it is simple to deliver and requires only a small amount of training.</p> <p>Regular supervision needs to be in place, and adequate referral to a higher level of care for further management may also be necessary. However, a systematic review (Rashidian 2012) suggests that nurses may be unprepared or not adequately trained or supervised when they are given advanced and substitution roles (low certainty). In addition, in some settings, changes to norms or regulations may be needed to allow nurses to prescribe and deliver injectable antibiotics.</p> <p><b>Annex:</b> page 43 (Rashidian 2012)</p>	