Midwifery Management of Prelabor Rupture of Membranes at Term

Amy Marowitz, CNM, MS, and Robin Jordan, CNM, PhD

Spontaneous rupture of membranes before the onset of labor at term is commonly referred to as PROM (either premature or preterm rupture of membranes) and occurs in about 8% of term pregnancies. PROM is associated with an increased risk of infection. Many controversies exist regarding the optimal management of PROM, including the choice of induction or expectant management, use of digital vaginal exams, and routine administration of antibiotics. This article reviews the literature on PROM and illustrates some of the management issues encountered by presenting approaches used in midwifery services. J Midwifery Womens Health 2007;52:199–206 © 2007 by the American College of Nurse-Midwives.

keywords: expectant management, induction, prelabor or premature rupture of membranes at term

INTRODUCTION

Spontaneous rupture of the amniotic membranes before the onset of labor occurs in about 8% of term pregnancies.1 Approximately 60% to 80% of women with prelabor rupture of membranes at term will enter spontaneous labor within 24 hours.2 The risk of maternal and neonatal infection increases following rupture of the membranes, but the etiology of infection following prelabor rupture of membranes can be difficult to ascertain because pre-existing infection can cause prelabor rupture.3

Many aspects of the management of prelabor rupture of membranes are controversial. The primary clinical decision related to prelabor rupture of membranes at term is whether or not to induce labor in an effort to reduce perinatal infection risk. Management considerations include patient preference regarding induction, optimal timing of induction, frequency of digital vaginal examinations, use of antibiotics, maternal and fetal status at the time of prelabor rupture of membranes, and group B streptococcus (GBS) colonization status. Practice patterns vary considerably, and certainty regarding optimal management remains elusive. This article includes a literature review and discussion of management controversies, illustrated by the different approaches of several midwifery services.

DEFINITIONS AND TERMINOLOGY

Premature rupture of membranes is a commonly used term, although prelabor rupture of membranes is more precise, and less likely to cause confusion regarding gestational age. Conveniently, either “prelabor rupture of membranes” or “premature rupture of membranes” can be shortened to PROM. PROM can occur at any gestational age, and it is further specified as term PROM (>37 weeks’ estimated gestational age [EGA]) or preterm PROM (<37 weeks’ EGA).

The timing between membrane rupture and onset of labor has also varied in the historical definitions of PROM. Traditionally, the rupture of membranes before the onset of term labor was defined as PROM only if there was a certain latency period between rupture and labor. However, there was no agreement on the length of the latency period, and clinical research that assessed the consequences of PROM used different latency intervals.4 Professional organizations, such as the American College of Obstetricians and Gynecologists (ACOG) and most contemporary researchers have adopted a simple definition that does not depend on any latency interval. Today, PROM is used to denote “rupture of membranes before the onset of labor,” and premature PROM (PPROM) is used to denote “rupture of membranes before the onset of labor before 37 weeks’ gestation.”5

Another term that deserves attention is prolonged rupture of membranes. This term is generally defined as rupture of membranes for greater than 24 hours with or without labor. Because “prolonged” implies abnormality, the term promotes the widespread impression among providers that when duration of rupture of membranes exceeds 24 hours, there is a sharp increase in risk for mother and baby. This is not supported by current evidence.6,7

Expectant management is an additional term without consensus on definition. It may mean avoidance of induction unless complications occur, or may be used when induction is simply delayed for some period of time. The duration of this delay varies considerably in the studies that provide the evidence for current management practices.6,8,9

EARLY PROM RESEARCH

Studies in the 1960s documented an increased incidence of perinatal infection in women with PROM.10–15 These studies found an increase in maternal and perinatal infection and perinatal mortality in women who had
rupture of membranes greater than 24 hours. The recommendation for immediate labor induction and a management goal of birth within 24 hours of rupture were based on these early investigations. These studies have limited relevance today. Many of these studies did not use standardized criteria for determining perinatal infection, and they lacked randomization. In addition, they included women with both term and preterm gestations. Preterm newborns are more likely to acquire infection and have greater morbidity when compared to term newborns; therefore, the true incidence of neonatal morbidity following 24 hours of PROM in women at term is less than noted in these studies. Finally, it is important to remember that antibiotics effective for the treatment of anaerobic microorganisms were not available in the 1960s; because of this, both maternal and neonatal infection were associated with significant morbidity. Contemporary advances in the treatment of infection, fetal surveillance, and neonatal care have significantly improved outcomes. Subsequent PROM research in the 1970s and 1980s evaluated management options. Comparisons of immediate induction and expectant management in women with PROM at term found no difference in maternal and neonatal infection rates between the two management options. There was a significantly higher rate of cesarean sections in women who were induced. The contrast with the earlier studies and concerns about rising cesarean section rates prompted many clinicians to consider a less aggressive management approach for term PROM.

A number of additional prospective studies comparing induction and expectant management followed. Results of these studies vary considerably regarding rates of neonatal and maternal infection and cesarean section rates. These differences and significant inconsistencies in treatment protocols and research methodologies make it difficult to draw conclusions about the best management. In an effort to address these issues, the large International Multicentre Term Premature Rupture of Membranes Study (the TERMPROM study) was conducted between 1992 and 1995.

The TERMPROM study

The TERMPROM study by Hannah et al. is often cited because of its methodologic quality and size. These researchers randomly assigned 5041 women ≥7 weeks’ gestation with PROM to four groups as follows: 1) immediate induction with oxytocin; 2) immediate induction with prostaglandins; 3) expectant management for up to 96 hours followed as needed by induction via oxytocin; and 4) expectant management for up to 96 hours followed as needed by induction via prostaglandins. Study outcomes included neonatal and maternal infection, cesarean birth, and women’s satisfaction with management (Table 1). The incidence of neonatal infection and cesarean section did not differ between the women in the expectant management groups and immediate induction groups. Clinical chorioamnionitis was lowest in women receiving immediate induction with oxytocin.

Findings of this landmark study were strengthened by its large, multicenter, randomized sample. Findings were also limited by several factors. Chorioamnionitis was narrowly defined as fever >37.5°C on two occasions, 1 hour apart, rather than the more commonly accepted criteria of ≥38°C. The antibiotic regimen was determined by the individual hospital protocol rather than study parameters. Of greater importance is the fact that 30% of all women in the study had digital vaginal

<table>
<thead>
<tr>
<th>Chorioamnionitis</th>
<th>Immediate Induction With Oxytocin N (%)</th>
<th>Immediate Induction With Prostaglandin N (%)</th>
<th>Expectant Management Followed by Induction With Oxytocin N (%)</th>
<th>Expectant Management Followed by Induction With Prostaglandin N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 (4.0)</td>
<td>24 (1.9)</td>
<td>173 (13.7)†</td>
<td>99 (7.8)</td>
<td>38 (3.0)</td>
</tr>
<tr>
<td>Postpartum fever &gt;38°C</td>
<td>25 (2.0)</td>
<td>36 (12.8)</td>
<td>46 (3.6)†</td>
<td>38 (3.0)</td>
</tr>
<tr>
<td>Neonatal infection</td>
<td>127 (10.1)</td>
<td>123 (9.7)</td>
<td>138 (10.9)</td>
<td>138 (10.9)</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>74 (5.9)</td>
<td>64 (5.1)</td>
<td>109 (8.6)*</td>
<td>99 (7.8)</td>
</tr>
<tr>
<td>Women’s evaluation that there was nothing liked about their treatment</td>
<td>36 (13.0)</td>
<td>123 (9.7)</td>
<td>138 (10.9)</td>
<td>138 (10.9)</td>
</tr>
</tbody>
</table>

Adapted from Hannah et al.

*P < .001 for the comparison between the induction with oxytocin and the expectant management followed by induction with oxytocin group.

†P = .008 for the comparison between the induction with oxytocin and the expectant management followed by induction with oxytocin group.

‡P < .001 for the comparison between the induction with oxytocin and the expectant management followed by induction with oxytocin group.

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examinations at time of PROM diagnosis, exposing women to a significant risk factor for infection.

Women in the study were asked to evaluate their care. Participants in the two induction groups were less likely than those in the expectant management groups to say there was nothing they liked about their care. The authors point out that explanation of these findings is open to interpretation. Because this was a randomized trial, participants did not choose their care option. Also, women were told about a possibly higher risk of neonatal infection with expectant management during the informed consent process. This may have influenced the views of those individuals randomized to this option. In addition, while these results showed that women were statistically more likely to prefer induction, it also showed that many women prefer expectant management. In the expectant management groups, 41.3% and 42% of the women stated they liked not having medication to start labor. Conversely, in the induction groups, 19.2% and 15.8% of the women stated they disliked having medication to start labor. Secondary analysis of the TERM PROM data provided more information about the risk of maternal infection following PROM. Logistic regression analysis determined that number of vaginal examinations was most predictive for the development of chorioamnionitis. Of the women who had ≤ 3 vaginal examinations, 2% had clinical chorioamnionitis, whereas the incidence of chorioamnionitis increased to 20% in women who had more than 8 vaginal examinations during labor (OR, 5.07; 95% CI, 2.51–10.25; P < .001). The women in the oxytocin induction group had the lowest rate of infection and the fewest vaginal exams. One commentator speculated that the TERM PROM study results may be have been different if the researchers had limited the number of vaginal exams in the study protocol. Other independent factors associated with maternal infection include duration of labor (OR, 4.12; 95% CI, 2.46–6.90), presence of meconium (OR, 2.28; 95% CI, 1.67–3.12), length of latency period (OR, 1.77; 95% CI, 1.27–2.47), and GBS colonization (OR, 1.71; 95% CI, 1.23–2.38).

Cochrane Review

In 2006, the Cochrane collaboration published a review on management options for women with term PROM that included 12 studies and 6814 women. The TERM PROM study dominated the findings of this review because of its size. This meta-analysis found that women undergoing immediate induction have a lower rate of chorioamnionitis (RR, 0.74; 95% CI, 0.56–0.97) and endometritis (RR, 0.30; 95% CI, 0.12–0.74) compared with women with expectant management. There was no difference in rates of cesarean birth (RR, 0.94; 95% CI, 0.82–1.08) or neonatal infection (RR, 0.83; 95% CI, 0.61–1.12) based on management option. Reviewers concluded that the differences in outcomes between induction and expectant management are not substantial, and women should be informed of risks and benefits of each option to make an informed choice.

MANAGEMENT OF PROM AT TERM

Risk Factors for Infection

The choice of expectant management or induction is an important management decision for women with term PROM. However, other factors influence infection risk, including the number of vaginal exams, duration of rupture and duration of labor, internal monitors, presence of meconium, and positive GBS status. Determining the influence of one variable is challenging, because some risk factors, such as longer duration of rupture and labor and more vaginal examinations, tend to occur together.

Numerous studies have identified the number of digital vaginal examinations as a risk factor for perinatal infection. The timing of the first digital vaginal examination may also be significant. In their technical bulletin on PROM, ACOG advises that the use of the digital vaginal exam during the initial evaluation be discouraged “unless prompt labor and delivery are anticipated.” Visual estimation of cervical status via speculum is recommended as the means to determine cervical status.

Time

Time is an important factor in term PROM, although it is not clear whether duration of latency period, length of labor, or total duration from rupture of membranes to birth is the most significant. Studies of risk factors for intra-amniotic infection show that the risk of infection gradually increases with duration of rupture. Despite a lack of evidence, there is no persistent belief that the risk to mother and baby sharply increases once the membranes have been ruptured for 24 hours. This may lead to management decisions with the goal of ensuring birth within 24 hours of rupture. In the studies by Kappy et al., discussed above, this type of aggressive management did not decrease infection, and was associated with a higher cesarean section rate in women with term PROM.

Maternal GBS Colonization

Maternal GBS status adds another layer of complexity to management of women with term PROM. Colonization with GBS is a known risk factor for neonatal and maternal infection. GBS and PROM together may have a synergistic affect. The relationship between infection rates following PROM and maternal GBS status was analyzed in secondary analysis of the TERM PROM study data. This analysis showed that when a woman is GBS-positive, neonatal infection rates were lower in women who were managed with immediate induction.
with oxytocin compared to the neonatal infection rate in women managed with immediate induction with prostaglandin or expectant management (2.5% vs. 8%).

The TERMPROM findings should be interpreted with the understanding that common practices regarding GBS prophylaxis during the time data was collected for this study were significantly different than they are now. Protocols regarding management of women colonized with GBS were not agreed upon by professional associations such as ACOG and the American Academy of Pediatrics (AAP) and varied greatly by clinician. Of the 5041 women in the study, 4834 women had GBS cultures upon entry to the study. The sampling procedure was not consistent regarding site of culture (vaginal vs. introital) and culture medium (selective with broth, selective without broth, and nonselective). In most cases, the culture results were not available before the delivery. Use of antibiotics was left to the clinician’s discretion. In addition, the majority of women who were GBS-positive in this study did not receive antibiotic prophylaxis (Table 2).

Because antibiotic prophylaxis during labor for GBS-positive women is known to decrease the incidence of neonatal infection, it is likely that study results would have been influenced by the screening and treatment guidelines used today.

A positive GBS culture is often thought to indicate immediate induction in women who have term PROM, but this recommendation is not specified in the GBS guidelines from the Centers for Disease Control and Prevention (CDC). The CDC guidelines simply state, “At the time of ... rupture of membranes, intrapartum chemoprophylaxis should be given to all pregnant women identified as GBS carriers.” Neither the ACNM Clinical Bulletin nor the ACOG Committee Opinion on GBS prevention offer specific recommendations regarding management of term PROM in GBS-positive women beyond the recommendation that antibiotic prophylaxis should be offered.

**Table 2. Antibiotic Use by Treatment Group for Women Colonized With Group B Streptococci in TERM PROM Study**

<table>
<thead>
<tr>
<th>Antibiotics before birth</th>
<th>Immediate Induction With Oxytocin N (%)</th>
<th>Immediate Induction With Prostaglandin N (%)</th>
<th>Expectant Management Followed by Induction With Oxytocin N (%)</th>
<th>Expectant Management Followed by Induction With Prostaglandin N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 (14.9)</td>
<td>26 (19.6)</td>
<td>39 (26.2)</td>
<td>36 (31.3)</td>
<td></td>
</tr>
</tbody>
</table>

Adapted from Hannah et al.35

Prophylactic Antibiotics

Antibiotics are recommended for a woman who is GBS-positive and has: 1) gone into labor; 2) ruptured membranes; 3) an unknown GBS status and her membranes have been ruptured for > 18 hours; or 4) clinical signs of infection. Antibiotics for GBS prevention are not needed when a woman is GBS-negative, regardless of duration of rupture, unless there are clinical signs of infection present. It is not clear if antibiotics should be routinely administered to women with term PROM for prevention of perinatal infections caused by organisms other than GBS. The issue is not addressed in the 2003 ACOG Practice Bulletin on Prophylactic Antibiotics in Labor and Delivery. Cochran reviewers concluded that routine antibiotic use for women with PROM at term decreases the maternal infection rate from a mean of 7% to 3%. However, concerns about possible adverse outcomes secondary to the overuse of antibiotics, in combination with the overall low rate of infection, prompted the reviewers to recommend restricting antibiotic use to those who develop clinical indications for treatment.

Method of Induction

Evaluation of the evidence on induction methods for women with term PROM is complicated by widely varying study designs, the different prostaglandin preparations available, and different routes of administration. In the large TERMPROM study, the women in the oxytocin induction group had a lower rate of infection than those in the prostaglandin induction group. All other maternal outcomes were the same. The use of oral misoprostol has been shown to be comparable to oxytocin in some studies. The optimal method of induction for term PROM has not been determined.

Home or Hospital Expectant Management

Expectant management at home is one care option for women with PROM. Secondary analysis of women who were expectantly managed at home in the TERMPROM study indicated that women managed at home were more satisfied with their care, but they experienced higher rates of maternal infection (10.1% vs. 6.4%; \( P = .006 \)), neonatal infection (3.1% vs. 1.7%; \( P = .06 \)), and cesarean section (13.0% vs. 8.9%; \( P = .007 \)) than those who were expectantly managed in the hospital. Although the TERMPROM study did randomize women to expectant or immediate induction, the women in the expectant group were not randomized to home versus hospital surveillance, therefore this analysis is from two groups of women who were not randomized and the number of vaginal examinations were not limited by study protocol.
In the absence of rigorous study of this issue, it is not possible to draw conclusions regarding the best place for expectant management of term PROM.

**MIDWIFERY MANAGEMENT OF TERM PROM: EXAMPLES FROM THREE PRACTICES**

**Nurse-Midwives of San Francisco, San Francisco, CA**

Leslie Cragin, CNM, PhD

Our midwife faculty practice attends approximately 500 women annually in a hospital birthing center at San Francisco General Hospital. Women with term PROM who meet specific criteria are eligible for expectant management at home after being seen initially by the midwife. Criteria include a reactive non-stress test (NST), clear fluid, no sign of infection, adequate prenatal care, access to a car, and availability of a support person at home. We use a signed checklist for documenting that the woman meets the criteria, that she accepts responsibility for monitoring for signs of infection, and will return to the birth center at a mutually agreed upon time. If clients do not fully meet all criteria, they can choose to await labor at the hospital birth center. We have a policy of not performing digital exams, which is consistently adhered to. We do not routinely perform a sterile speculum exam (SSE) if gross rupture of membranes are evident and Nitrazine and ferning are positive; however, most women do undergo an SSE. Our guidelines do not specify an end point of expectant management; however, it’s common for us to advise women to return for induction at 18 hours post rupture. The only “pressure” to use induction is from attending pediatricians at the nursery who prefer that infants whose moms have prolonged ROM (>18 hrs) have blood cultures done. About 70% of women with PROM choose induction, and 30% choose expectant management. In many situations, expectant management is not an option requested by women; however, we offer it to everyone who meets the above criteria.

**Emory Nurse-Midwifery Service at Grady Health System, Atlanta, GA**

Mickey Gillmor-Kahn, CNM, MN

We are a fairly large service within a tertiary care system in an urban setting, interacting with a large number of residents and attendings as our consultants. Our practice agreement reflects the need for very specific care guidelines to facilitate smooth transitions among the midwives and to minimize conflicts with the large group of consultants.

Our practice agreement states that after PROM, we can defer induction 6 to 12 hours to await spontaneous labor. After documentation of PROM in women who are between 36 to 42 weeks’ gestation, the patient is admitted and digital vaginal examination deferred until active labor is confirmed, or conditions dictate the need for such an examination. If there is no labor within 6 to 12 hours after PROM, or if membranes have been ruptured for more than 12 hours on admission, we initiate our PROM labor induction protocol of cervical ripening with prostaglandin or initiation of Pitocin depending on cervical status. Antibiotics for GBS prophylaxis are begun on admission if the woman is GBS-positive or after 18 hours of rupture if GBS status is unknown.

Most of our clients prefer immediate induction. On occasion, some do wish to wait 12 hours to see if labor begins on its own. Despite the written practice agreement allowing for this, conflicts with our consultants and nursing staff sometimes occur when this option is chosen.

In addition, the avoidance of digital vaginal examinations can be of concern to the nursing staff. They are particularly uncomfortable without a vaginal exam on admission, and may feel that a speculum examination does not provide enough information. Our consultants also expect to learn the results of a vaginal examination. In addition, some nurses and physicians are concerned that waiting 12 hours for the onset of labor increases the risk of infection. There is often pressure from nurses and physicians to utilize the more aggressive management approach.

**Birth Care & Family Health Services, Lancaster County, PA**

Maribeth Diver, CNM, MSN

Our midwifery practice serves mostly rural Amish or Mennonite families who are committed to natural, out-of-hospital birth. We attend births at home, in the birth center, and in the hospital. Most clients self-pay, have a very limited cash income, and desire minimal testing and intervention in both pregnancy and labor. We work hard to avoid intervention, to stay out of the hospital, and to keep costs low. This is made more challenging with PROM.

Our practice guidelines state that we are to consult if “regular contractions” are not established by 18 hours post rupture, with the goal of ensuring active labor within 24 hours of rupture. However, the guidelines do not specify an end point at which transfer is necessary; that determination depends on a case-by-case evaluation with our collaborating physician and consent of the family.

When PROM occurs, we maintain a strict code of “nothing in the vagina” except a sterile speculum, if indicated, for confirmation of rupture. No digital exams until active labor, no intercourse, tampons, vaginal flushes, or tub baths. We counsel women about good hygiene, changing pads frequently, wiping front to back, and checking their temperature every 3 hours. We review fetal movement counts. As early ROM may occur because of an occiput–posterior baby, we recommend
optimal fetal positioning exercises. We typically do a home visit at 6 to 8 hours postrupture for fetal heart tones and a check-in. In case of meconium-stained fluid, we would visit sooner, but this is a rare occurrence in our practice. At this first home visit, we discuss the risks and benefits of induction of labor and expectant management. The option of transport to the hospital for induction or augmentation is offered but rarely chosen.

Labor stimulation is begun if labor does not ensue. If the woman is GBS-positive, we typically encourage attempts at labor enhancement after 6 to 12 hours. If the woman is GBS-negative, we suggest this at about 18 to 20 hours, though some are interested sooner. We begin labor stimulation with 4 ounces of castor oil. When contractions begin, we suggest squatting with every contraction to increase pressure on the cervix. If contractions are far apart, we encourage nipple stimulation. We also recommend walks and time on the “rebounder” (small exercise trampoline). If needed, we progress to herbal or homeopathic remedies. Typically, we begin with sublingual homeopathic black cohosh (Actaea racemosa) and blue cohosh (Caulophyllum thalictroides) and herbal tincture of cotton root bark (Gossypium hebraeum), each used alternately every 15 to 30 minutes. If there is a poor response, we alternate blue and black cohosh in tincture form.

CDC recommendations are used in the provision of antibiotics for GBS prevention. For women who are GBS-positive, we usually begin antibiotic prophylaxis within 6 hours, though if rupture and no labor occurs at night, we wait until the next morning. For women with an unknown GBS status, we begin prophylactic antibiotics at 18 hours postrupture or if there are other risk factors. GBS-negative women do not receive routine chemoprophylaxis regardless of duration of rupture unless there is clinical evidence of infection.

The great majority of women with PROM in our practice either spontaneously progress to active labor or respond to our labor-stimulating approaches. In the past 3 years, we have had only six women with rupture of membranes greater than 24 hours, and only one planned out-of-hospital birth that required transfer. This transport occurred at 24 hours postrupture in a primiparous mother with an unknown GBS status who, despite antibiotics, developed a temperature of 100.5°F.

**IMPLICATIONS FOR MIDWIFERY PRACTICE**

Contemporary research comparing induction and expectant management following term PROM shows a lower rate of chorioamnionitis in women who undergo immediate induction. However, the differences are small, and the number of vaginal exams is known to be a significant confounding variable in these studies. ACOG,5 Cochrane reviewers,7 and the authors of the well-respected TERMPROM6 study consider both induction and expectant management for 72 to 96 hours to be reasonable management options.

Other clinically important issues in the management of term PROM are not addressed by available evidence. No large trial has been done comparing induction and expectant management with strictly limited vaginal examinations and antibiotic prophylaxis for women with GBS. Rigorous studies comparing expectant management at home and in the hospital are lacking. In addition, the optimal timing for induction is not known. Duration between rupture and start of induction varied considerably in many studies. This is not a trivial matter, because a time lapse between rupture and induction will result in the onset of spontaneous labor for some women. It also gives women time to attend to logistic issues, such as childcare, or to rest before labor.

Two practices supported by current research findings should be incorporated into midwifery care of women with term PROM. The first is to strictly limit vaginal examinations. There is considerable evidence documenting the increased risk of perinatal infection related to digital vaginal examination, yet little change has occurred in this aspect of practice. Despite ACOG’s recommendation that vaginal examination should be deferred during the initial evaluation,7 doing a “baseline vaginal exam” is common practice. Requiring vaginal examinations at set intervals to prove labor progression is another entrenched habit. A speculum examination to determine initial cervical status is sufficient in most cases, and digital examinations should be done only when the information is needed to make management decisions. The second practice is to consistently provide information about the options of expectant management and immediate induction to women with term PROM, and to involve them in the decision-making process. This is congruent with midwifery hallmarks and philosophy of care. In addition, it is explicitly supported by Cochrane reviewers7 and the TERMPROM researchers.6

The varied practices of the midwifery services described above illustrate many of the controversies and complexities of term PROM. Current management of term PROM is often based on provider preference and institutional norms. In caring for women with PROM, there may be pressure to intervene in an attempt to prevent infection, with little support for avoiding interventions known to contribute to increased infection risk. Current research and evidence-based practices should be disseminated within midwifery and obstetric services with the goal of encouraging providers to offer the options of induction and expectant management to women with term PROM.

**CONCLUSION**

Almost 40 years ago, Shubeck et al.13 wrote that the clock of infection begins ticking with rupture of mem-
branes. Subsequent research has shown that the etiology of infection in the presence of ruptured membranes is far more complex. There is no clear formula for determining the risk for a particular mother and baby. In most cases, infection is probably caused by multiple interrelated factors. Many questions regarding ruptured membranes and infection remain unanswered.

In an editorial accompanying the publication of the term PROM study, Duff\textsuperscript{48} stated his view that the practice of expectant management should be abandoned. An unquestioning acceptance of this view is not justified based on available evidence. Women should be fully informed on the risks and benefits of induction and expectant management, and offered both options. Midwives should strive to remain champions of a care approach that involves women in decision making and supports the value of nonintervention.

We thank Leslie Cragin, Mary Beth Diver, and Mickey Gillmor for their contributions to this article.

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