



Your Answer Can Impact a Life.

Evaluate PROM Confidently by
Including AmniSure[®] as Part
of Your Clinical Assessment

Sample to Insight





Should you admit her or send her home?

The uncertainty of diagnosing PROM

When a patient presents with suspicion of premature rupture of membranes (PROM), in nearly half of all cases the diagnosis is uncertain based on physical examination alone (1). And traditional methods for diagnosis – pH/nitrazine, ferning, and pooling – may be unreliable (2–4).

20%

Estimated pregnancies present with suspicion of PROM (1)

40%

Patients presenting who will have no obvious leakage of fluid from the cervical os (3)

47%

Cases that cannot be adequately diagnosed by physical exam alone (1)

54%

Negative predictive value for standard clinical assessments, even when used in combination (3)

She is counting on you for accurate, reliable results

AmniSure is 99% accurate in aiding a diagnosis of PROM as part of the overall clinical assessment and has a proven 99% correlation with the current gold standard, indigo carmine. The AmniSure ROM Test is a rapid immunoassay supplied as a single, cost-effective test for in vitro diagnostics. The 4-step test procedure detects placental alpha microglobulin-1 (PAMG-1) protein that is found in high concentrations in amniotic fluid and low concentrations in cervicovaginal fluid (5).

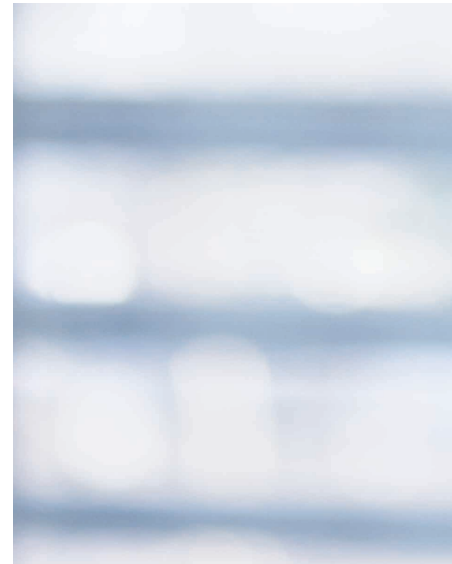
- Saves time and costs of additional PROM diagnostic methods
- Consistent performance across all gestational ages when used as part of the overall clinical assessment
- 99% correlation with gold standard – indigo carmine dye infusion
- Sensitive (99%) and specific (98%), to support diagnostic accuracy of negative and positive PROM results when used as part of the overall clinical assessment

99%
Accuracy
of the AmniSure ROM Test



Science that makes sense

The AmniSure ROM Test detects placental alpha microglobulin-1 (PAMG-1) in the vaginal discharge of pregnant patients presenting with signs, symptoms or complaints suggestive of PROM. Regardless of gestational age, high concentrations of PAMG-1 exist in amniotic fluid (2000–25,000 ng/ml), but low concentrations are found in the background vaginal discharge (0.05–0.22 ng/ml; see references 2 and 3). Clinically significant leakage of amniotic fluid due to PROM increases the concentration of PAMG-1 by at least 2 orders of magnitude (3). Therefore, AmniSure was designed to detect the presence of PAMG-1 in vaginal discharge from 5 ng/ml and above (5).



Clinical evidence consistently validates the high accuracy of the AmniSure ROM Test

Clinical studies investigating efficacy of the AmniSure ROM Test

Reference	Authors and year	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
2.	Cousins et al. (2005)	98.9	100	100	99.1
3.	Lee et al. (2007)	98.7	87.5	98.1	91.3
6.	Grizzel et al. (2008)	100	100	100	100
7.	Silva and Martinez (2009)	100	100	100	100
8.	Tagore and Kwek (2010)	92.7	100	100	95.2
9.	Albayrak et al. (2011)	94.3	97.5	97.6	93.9
10.	Birkenmaier et al. (2012)	94.4	98.6	96.2	98.0
11.	Ramsauer et al. (2013)	96.0	98.9	N/A	N/A
12.	Sosa et al. (2014)	100	99.1	96.3	100
13.	Ramsauer et al. (2015)	97.8	91.5	94.6	96.4

PPV: positive predictive value.

NPV: negative predictive value.

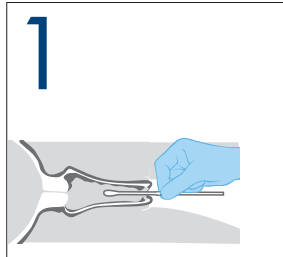
N/A: not available.





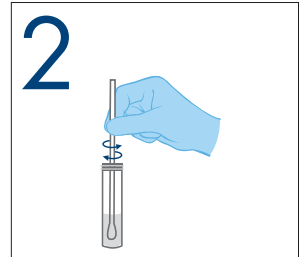
Test procedure*

Collect sample



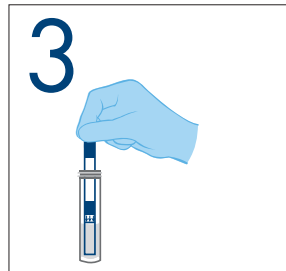
Collect sample of vaginal discharge with sterile collection swab (no speculum required).

Transfer to solvent



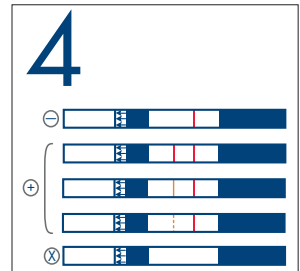
Rinse specimen swab in solvent vial. Discard swab.

Insert test strip



Insert test strip into vial to initiate PAMG-1 detection process.

Read results



Remove test strip from vial, observe and record results.

Reading results

Positive: two red lines

PROM may be diagnosed with clinical judgement



Important notice

Faint or broken lines should always be read as positive.

Negative: one red control line

PROM may be ruled out with clinical judgement

Negative result



Invalid result

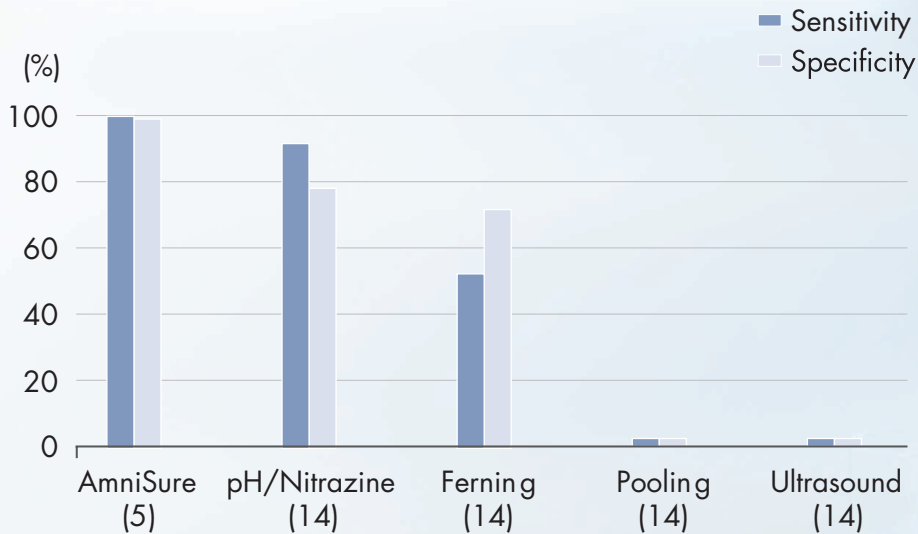


* Please refer to package insert for complete instructions for use.

How does AmniSure compare to other PROM diagnostics?

Nitrazine, pooling, and ferning used in combination yield a negative predictive value (NPV) of only 54.5% compared to 91.3% for PAMG-1 detection with AmniSure. AmniSure also provides reliable results in the presence of common interfering substances known to interfere with traditional methods (5), including:

- Urine
- Semen
- Trace blood
- Vaginal infections



Superior sensitivity and specificity. Performance compared to traditional methods (5, 14).

PROM carries the risk
of neonatal sepsis
if not diagnosed within

24 h

of onset

Of patients
presenting with PROM,

60%

will go on to deliver
at term (17)

How many cases are you missing?

The cost of false negatives can result in failure to treat patients in a timely manner. Two independent risk factors of pre- and post-natal complications are incorrect and untimely PROM diagnoses (5).

- Incorrectly diagnosing PROM can lead to inappropriate or unnecessary interventions, such as hospitalization or induction of labor.
- If the patient is inappropriately discharged, or if PROM goes untreated, she could develop an intrauterine infection, resulting in costly complications.
- Poor fetal outcome can result if a patient is sent home and has PROM. Untimely diagnosis can potentially result in sepsis, cord prolapse or fetal demise.

How many cases are you over-treating?

The cost of false positives can result in unnecessary patient transfer, admission, and administration of antibiotics, corticosteroids, and tocolytics, which lead to a negative impact on both mom and the neonate (14).

- Using various combinations of traditional methodologies, 2–22% of cases can be falsely diagnosed (15).
- Current PROM protocols require patient admission from time of diagnosis to delivery, which can average USD 1000 (equivalent to approximately EUR 900) per day on an antepartum unit (16).

The cost of uncertainty

Approximately USD 26 billion (equivalent to EUR 23 billion) is spent annually in the United States for the initial medical care of premature infants and their mothers (15, 18). PROM is assessed in more than 30% of pregnant women, but preterm PROM (pPROM) still accounts for 25–30% of premature births (19).



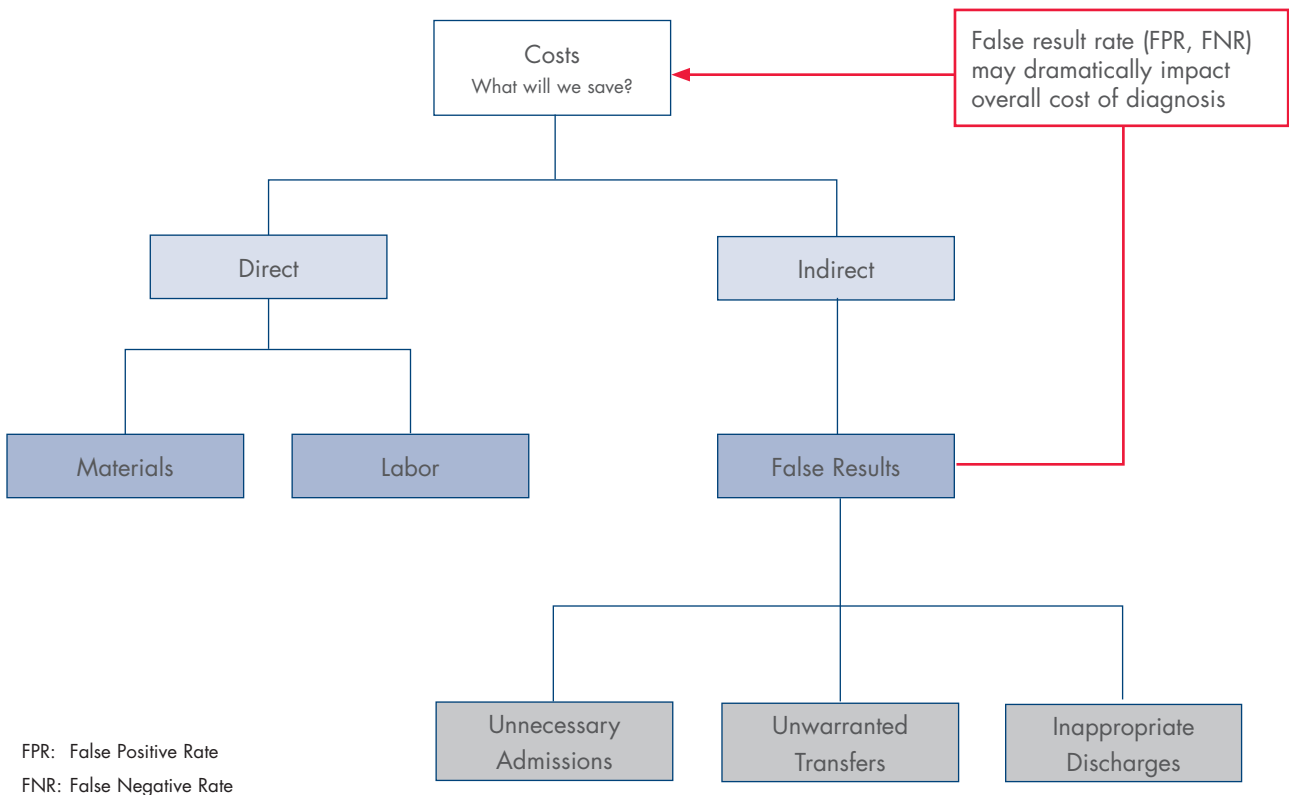


⊕ A **false positive** can result in unnecessary medications, transfers, hospital admission, and induction (10, 20–23).

⊖ A **false negative** can lead to an unwarranted discharge, which could cause lifelong complications and potential litigation (10, 20–23).

There is a significant financial advantage gained by adding the PAMG-1 test to the overall clinical assessment (15), primarily due to reductions in:

- Costs associated with false diagnoses using traditional methods
- Current spending on PROM diagnosis in non-obvious cases using traditional methods



Clinical evidence supports diagnostic accuracy alongside appropriate clinical judgment.

Start with AmniSure.



Use AmniSure as an aid in PROM diagnosis as part of the clinical assessment to avoid unnecessary expense, confidently send the patient home, or provide appropriate treatment without delays.

AmniSure is:

- Cost effective compared to testing and re-testing with traditional methods, especially in uncertain and equivocal cases (24)
- The only PROM diagnostic found to correlate 99% with indigo carmine intra-amniotic injection, recognized by ACOG as the PROM testing gold standard (7)
- Demonstrated by multiple studies to be a more accurate aid in detecting PROM than other PROM tests, including IGFBP-1 (8, 9, 23, 26)

Contact us to learn how AmniSure can make an impact at your hospital!

Ordering Information


Product	Contents	Cat. no.
AmniSure ROM Test (25)	Box of 25 test kits	Inquire
AmniSure ROM Test (10)	Box of 10 test kits	Inquire
AmniSure Test Starter Kit	Starter kit	Inquire

The AmniSure ROM Test (Rupture of [fetal] Membranes test) is intended for in vitro diagnostic use.

References

1. Neil, P.R. and Wallace, E.M. (2010) Is AmniSure useful in the management of women with prelabour rupture of the membranes? *Aust. N. Z. J. Obstet. Gynaecol.* **50**, 534–8.
2. Cousins, L.M., Smok, D.P., Lovett, S.M., Poeltler and D.M. (2005) AmniSure placental alpha microglobulin-1 rapid immunoassay versus standard diagnostic methods for detection of rupture of membranes. *Am. J. Perinatol.* **22**, 317–20.
3. Lee, S.E., Park, J.S., Norwitz, E.R., Kim, K.W., Park, H.S. and Jun, J.K. (2007) Measurement of placental alpha-microglobulin-1 in cervicovaginal discharge to diagnose rupture of membranes. *Obstet. Gynecol.* **109**, 634–40.
4. CodeMap® Compliance Briefing September 17, 2010: Available at: www.codemap.com (accessed September 30, 2011).
5. AmniSure ROM (Rupture of [fetal] Membranes) Test Instructions for Use. QIAGEN, 2015.
6. Grizzell, B.E. et al. Wesley Medical Center (2008) Data found in AmniSure Test Package Insert (FDA Cleared).
7. Silva, E. and Martinez, J.C. (2009) Diagnosing ROM: a comparison of the gold standard, indigo carmine amnioinfusion, to the rapid immunoassay, the AmniSure ROM test. *J. Perinat. Med.* **37**, 956.
8. Tagore, S. and Kwek, K. (2010) Comparative analysis of insulin-like growth factor binding protein-1 (IGFBP-1), placental alpha-microglobulin-1 (PAMG-1) and nitrazine test to diagnose premature rupture of membranes in pregnancy. *J. Perinat. Med.* **38**, 609–12.
9. Albayrak, M., Ozdemir, I., Koc, O., Ankarali, H. and Ozen, O. (2011) Comparison of the diagnostic efficacy of the two rapid bedside immunoassays and combined clinical conventional diagnosis in prelabour rupture of membranes. *Eur. J. Obstet. Gynecol. Reprod. Biol.* **158**, 179–82.
10. Birkenmaier, A., Ries, J.J., Kuhle, J., Bürki, N., Lapaire, O. and Hösl, I. (2012) Placental α -microglobulin-1 to detect uncertain rupture of membranes in a European cohort of pregnancies. *Arch. Gynecol. Obstet.* **285**, 21–5.
11. Ramsauer, B. et al. (2013) The diagnosis of rupture of fetal membranes (ROM): a meta-analysis. *J. Perinat. Med.* **41**, 233–40.
12. Sosa, C.G., Herrera, E., Restrepo, J.C., Strauss, A. and Alonso, J. (2014) Comparison of placental alpha microglobulin-1 in vaginal fluid with intra-amniotic injection of indigo carmine for the diagnosis of rupture of membranes. *J. Perinat. Med.* **42**, 611–6.
13. Ramsauer, B. et al. (2015) Effect of blood on ROM diagnosis accuracy of PAMG-1 and IGFBP-1 detecting rapid tests. *J. Perinat. Med.* **43**, 417–22.
14. Park, J.S. and Norwitz E.R. (2005) Technical Innovations in Clinical Obstetrics. *Contemporary OB/GYN* **50**.
15. Lopes, M. (2013) Managing Costs in High-Risk Obstetrics. *Clinical Practice Brief*, March 2013.
16. Vintzileos, A.M., Ananth, C.V., Smulian, J.C., Beazoglou, T. and Knuppel, R.A. (2000) Routine second-trimester ultrasonography in the United States: a cost-benefit analysis. *Am. J. Obstet. Gynecol.* **182**, 655–60.
17. Martinez de Tejada, B., Boulvain, M., Dumps, P., Bischof, P., Meisser, A. and Irion, O. (2006) Can we improve the diagnosis of rupture of membranes? The value of insulin-like growth factor binding protein-1. *B.J.O.G.* **113**, 1096–1099.
18. Behrman, R.E. and Butler, A.S., eds. (2007) *Preterm Birth: Causes, Consequences, and Prevention*. Washington, D.C.: The National Academies Press.
19. Nisell, H., Hagskog, K., Westgren, M. (1996) Assessment of fetal fibronectin in cervical secretion in cases of equivocal rupture of the membranes at term. *Acta Obstet. Gynecol. Scand.* **75**, 132–4.
20. de Haan, H.H., Offermans, P.M., Smits, F., Schouten, H.J. and Peeters, L.L. (1994) Value of the fern test to confirm or reject the diagnosis of ruptured membranes is modest in nonlaboring women presenting with nonspecific vaginal fluid loss. *Am. J. Perinatol.* **11**, 46–50.
21. Jeurgens-Borst, A.J., Bekkers, R.L., Sporken, J.M. and van den Berg, P.P. (2002) Use of insulin like growth factor binding protein-1 in the diagnosis of ruptured fetal membranes. *Eur. J. Obstet. Gynecol. Reprod. Biol.* **102**, 11–4.
22. Watanabe, T., Minakami, H., Itoi, H., Sato, I., Sakata, Y. and Tamada, T. (1995) Evaluation of latex agglutination test for alpha-fetoprotein in diagnosing rupture of fetal membranes. *Gynecol. Obstet. Invest.* **39**, 15–8.
23. Fujimoto, S. (1995) Clinical usefulness of the dye-injection method for diagnosing premature rupture of the membranes in equivocal cases. *J. Obstet. Gynaecol.* **21**, 215–20.
24. Echebiri, N.C., McDoom, M.M., Pullen, J.A., Aalto, M.M., Patel, N.N., Doyle, N.M. (2015) Placental alpha-microglobulin-1 and combined traditional diagnostic test: a cost-benefit analysis. *Am. J. Obstet. Gynecol.* **212**, 77.e1–10.
25. Chen, F.C. and Dudenhausen, J.W. (2008) Comparison of two rapid strip tests based on IGFBP-1 and PAMG-1 for the detection of amniotic fluid. *Am. J. Perinatol.* **25**, 243–6.
26. Gaucherand, P. et al. (1997) Comparative study of three vaginal markers of the premature rupture of membranes. Insulin like growth factor binding protein 1 diamine-oxidase pH. *Acta Obstet. Gynecol. Scand.* **76**, 536–40.

Trademarks: QIAGEN®, Sample to Insight®, AmniSure® (QIAGEN). 1107414 06/2017 PROM-11057-001 © QIAGEN 2017, all rights reserved.



Ordering www.qiagen.com/shop | Technical Support support.qiagen.com | Website www.qiagen.com