

Special Delivery

Flight attendants team with medical advisers to aid passengers during in-flight labor and childbirth.



BY WAYNE ROSENKRANS

Airline crew responses to rare pre-term labor and childbirth during flight have been difficult for the industry to assess quantitatively compared with much more frequent types of in-flight medical events (IFMEs).^{1,2} Either situation may occur because a pregnant passenger fails to comply with an airline's policy for travel (Table 1, p. 46) or, more likely, because an unknown health factor or natural process disrupts her careful plans for the ideal full-term childbirth. In an aircraft cabin, both are serious, exposing the baby to high risk of injury, death or possibly health problems later in life even with timely emergency medical transport after landing to a neonatal intensive care unit.

Medical and cabin safety specialists — relatively comfortable with airline guidelines and readiness to deal with leading IFMEs such as heart attacks — today have sketchier information when it comes to pre-term labor and childbirth aboard a large commercial jet. As a result, researchers in several countries have called on governments and the airline industry to collect better data about these events to help them pursue more robust, evidence-based recommendations.³

For flight attendants, the practical effect is that what they study in first aid or medical training materials reflects the professional judgments of specialists based on a fairly limited number of events. Accounts of how aircraft crews have responded successfully to a pregnant patient's crisis without compromising overall cabin safety or flight safety therefore have taken on added

importance. Potentially valuable insights or lessons for understanding unexpected operational risk factors also can be found in brief narratives that flight attendants and pilots have submitted to publicly available confidential reporting systems.

Fresh Insights

MedAire's MedLink Global Response Center, located within the emergency department at Banner Good Samaritan Hospital in Phoenix, had a total of 27 cases of in-flight labor in calendar years 2006, 2007 and 2008. Two cases involved in-flight births — one to a 20-year-old airline passenger and one to a 25-year-old airline passenger — and the circumstances of the 20-year-old passenger's labor led to a medical diversion. The age of passengers in labor ranged from 16 to 43, and the average was 27, MedAire said. One baby was stillborn during pre-term labor that had begun during flight and continued at a hospital after landing; no other maternal or infant deaths occurred. These cases were among approximately 55,000 IFMEs in which MedLink provided ground-based medical advice.

The 20-year-old passenger was eight months pregnant, and she unexpectedly went into labor five hours into a 10-hour flight. "Two doctors and two nurses traveling aboard the flight voluntarily stepped forward to assist, with surprisingly little time to spare before delivery," MedAire said. "A healthy baby girl made her entrance into the world at Flight Level 330 (approximately 33,000 ft) over Kazakhstan."

Immediately after this delivery, a crewmember contacted the response center, and an emergency medicine physician — following MedLink protocols — collaborated with the medical volunteers, cabin crew and flight crew and provided them detailed guidance on post-delivery care; monitoring of the mother's and baby's medical conditions; and guidance on use of appropriate medications from the enhanced emergency medical kit. Other specialists concurrently suggested suitable medical diversion airports along the route, consulting their database and making arrangements for emergency medical transport upon landing at the airport selected by the captain.

The data also showed that licensed medical professionals — such as physicians, nurses, midwives and emergency medical technicians — aboard these 27 flights had volunteered to assist in 18 cases (67 percent); the captain diverted the flight in eight cases (30 percent); and average time into the flight varied by flight length, with 37 percent of planned flight time elapsed when the short-haul aircraft crews learned of the labor, 59 percent elapsed on long-haul flights and 62 percent elapsed on medium-haul flights.

“None of our 27 total cases could be said to be a full-term labor,” said Paulo Alves, M.D., vice president, aviation and maritime health. “The numbers may be low, but the potential for complications is really high. No passenger with a full-term pregnancy had been allowed on board. We don't have precise information about the gestational maturity aspect to make any further inference, but the fact that no babies had major initial complications suggests a good level of average maturity.”

Occasionally, in-flight labor escapes notice by the pregnant passenger and

the cabin crew by masquerading as a cramp or back pain, or because the passenger is unaware of the pregnancy or psychologically is in denial. Other times the situation is complicated because the pregnant woman has not declared her late stage of pregnancy to the airline, and her health condition has not been discovered by airline ground personnel during passenger screening at the ticket counter or boarding gate.

“In some of our scenarios, it's possible that the mom was intending to travel without revealing her condition; otherwise, she would not have been traveling,” Alves said. “She may intend to deliver somewhere closer to family, for example. To travel at the last minute, she could try to disguise the condition, but then when she asks the cabin crew for help after the beginning of the labor, often her labor already is advanced.”

Not Like TV

Numbers alone can't capture what the flight attendants, medical volunteers, pregnant passengers and newborn babies experienced in these cases, said Heidi Giles MacFarlane, vice president of strategic development at MedAire. “We think of childbirth in an aircraft today as a low-resource situation involving health risks comparable to the increased mortality that a mother and child may experience in the underdeveloped world,” she said. “The issues also have much to do with passenger responsibility — the woman taking all necessary precautions, everything possible, to ensure that she is not going to deliver her baby on that airplane.”

About the only time that visibly pregnant women induce a little anxiety in a cabin crew during boarding, however, is on an ultra-long-range flight of more than 16 hours, Giles MacFarlane

said. The cabin crew realizes that unless the aircraft is just leaving or arriving, an in-flight birth almost always would result in a medical diversion because the cabin crew and medical volunteers cannot be sure of the health status of the newborn, Alves added.

Ideally, establishing a positive relationship early in the flight will encourage each pregnant passenger to reach out immediately for help from a flight attendant at any sign of labor. “When boarding someone who is visibly expecting a baby, a flight attendant often can have a quick conversation, saying ‘Congratulations, when are you due? How exciting!’ The mother typically will reply, ‘I am due on such and such date.’ The flight attendant then can add, ‘If there is anything that I can do for you, please don't hesitate to let me know.’ After building simple rapport, if that person gets into a critical situation, she likely will speak up.”

After departure, flight attendants periodically should check on the well-being of these passengers as time permits. Things get interesting quickly in pre-term labor scenarios, requiring cabin crews to recall what they know from training and to disregard what they know from popular culture. “In that situation, initial expectations are largely based on what flight attendants have seen on television shows,” Giles MacFarlane said. “Very often they have seen extreme, dramatic cases ... lots of complications and problems. As soon as a passenger says ‘I think I'm in labor,’ they may think the passenger will have the baby in five minutes. In reality, the key to the whole response is to focus on a proper overall assessment of what is actually happening.”

More realistically, after labor begins, medical volunteers or flight attendants attending the mother generally will have at least 30 minutes to prepare before the

birth. “Especially for a first-time birth, it will require some time from the initial contractions,” Alves said. “The time is not counted in seconds, it is in minutes and sometimes even in hours.”

This allows time to notify the flight crew, initiate a call to ground-based medical advisers and make a public

address announcement for medical volunteers. In most cases, managing the pre-term labor scenario concludes with landing before delivery and handing off the passenger to emergency medical responders. “As a flight attendant, once the flight diverts, and the passenger in labor has been taken off

the airplane, it’s not my problem any longer,” Giles MacFarlane said. “That’s normally a pretty short scenario, but I still would prepare for the situation where the diversion was expected but turned out not to be immediately possible.” Even if diversion is warranted from the standpoint of health risk,

Different Airline Rules for Reducing Risk of In-Flight Labor and Childbirth

IATA Recommendation

Examples of Airline Policy Variations

Uncomplicated pregnancy

A woman who has a single pregnancy should not be accepted to fly beyond the end of the 36th week. A woman who has a multiple pregnancy should not be accepted to fly beyond the end of the 32nd week.

- For travel after 36 weeks on domestic flights only, Qantas Airways accepts without medical clearance a woman who has a single pregnancy and accepts with airline medical clearance a woman who has a multiple pregnancy.
- Travel after 36 weeks is allowed by Lufthansa if the woman obtains airline medical clearance and presents a medical certificate from a physician dated within 72 hours of the departure time, stating that an examination has confirmed her physical fitness for flight.
- Continental Airlines accepts women in any stage of pregnancy but requires a medical certificate from a physician to allow boarding of a flight within seven days of the estimated date of delivery (EDD).
- Aeromexico requires the woman to sign and submit a liability exemption certificate and provide a letter from her physician showing stage of pregnancy and state of health to fly at seven months or later, and prohibits travel within seven days of the EDD.
- Air India requires airline medical clearance, an indemnity bond and a physician to accompany a woman to allow boarding a flight at 32 through 35 weeks.
- Japan Airlines requires an obstetrician to accompany the passenger as a condition of acceptance for boarding within seven days of EDD on a domestic flight or within 14 days on an international flight.

Complicated pregnancy

A physician or other medical practitioner should make a case-by-case determination of fitness to fly. A woman should not be accepted to fly if she has active bleeding related to a threatened or completed miscarriage; the airline’s passenger medical clearance unit should clear her for flight after she has been medically stable without any bleeding or pain for 24 hours.

- Regardless of the EDD, Qantas, Air France, and Lufthansa require clearance by the airline medical clearance unit if any complications have been identified.
- South African Airways requires every pregnant woman to present a letter from her gynecologist stating the EDD and “whether it is a high-risk pregnancy and any possible complications at the time of travel.”

Certificate/letter from physician

For uncomplicated single and multiple pregnancies, clearance by an airline’s passenger medical clearance unit should not be required to fly, but a physician certificate should be required from the passenger after 28 weeks of pregnancy.

- Japan Airlines expects a pregnant woman to carry a letter from her physician — stating the EDD and that the pregnancy is uncomplicated — if traveling within 28 days of the EDD.
- Emirates advises that boarding may be denied in some circumstances if a pregnant ticket holder has declined to carry a medical certificate or letter from a physician.

Physical signs of labor

Not mentioned.

- Continental Airlines explicitly advises pregnant women that boarding will be denied if physical signs of labor are present on the day of travel.

Airline-specific travel prohibitions

Not mentioned.

- American Airlines advises women that boarding will be denied for travel within seven days of the EDD or within 30 days for trans-Atlantic flights, trans-Pacific flights and flights to/from Central America or South America.

IATA = International Air Transport Association

Source: IATA Medical Manual; Web sites of individual airlines

Table 1

the captain may decide that, in the big picture, this action would not be safe for the flight.

If medical volunteers, a remote adviser or the pregnant passenger say in-flight childbirth is imminent, customary cabin crew teamwork in marshalling resources and dividing tasks has proven to be a key factor in successful outcomes whether a medical volunteer or flight attendant attends the delivery. “When they agree immediately on who is going to do what — similar to the model used to train for in-flight fire fighting — coordination can happen in seconds,” she said.

One of the first cabin safety issues then enters the picture: Where a passenger in labor can be accommodated best in the cabin. Flight attendants may have to weigh the safety risks of temporarily foregoing the maximum protection of passenger seats and a seat belt to position the woman on the floor of a galley, an action best avoided if another solution is workable.

“Sometimes medical volunteers did not make the best decisions just because they were not in their usual ‘perfect’ environment to make them — or they made decisions that they were not trained to make,” Alves said. “The best combination is the remote doctor working with someone who has hands and eyes directly on the pregnant passenger.”

Medical oxygen may be helpful to some passengers during pre-term labor but is not essential. “To my knowledge, there is no specific role for oxygen for the mother during labor unless she is in distress or exhausted,” Alves said. “Later on, for the baby, there’s no doubt oxygen could be required because then he or she will be needing some respiratory support.”

Safety Issues

MedAire’s IFMEs and reports filed with the U.S. National Aeronautics and Space Administration Aviation Safety Reporting System also serve as a reminder that pre-term labor and childbirth aboard an aircraft generate an unexpectedly high level of distraction and emotional involvement for pilots and flight attendants. “All aircraft crewmembers are trained on how to deal with distraction, but even those who have been trained in the best manner don’t necessarily succeed at not becoming distracted — particularly when something as unusual as this occurs,” Giles MacFarlane said.

Another often-reported safety issue is flight deck door security protocols that eliminate face-to-face updates between pilots and flight attendants concerning a passenger in labor or a childbirth, and complete reliance on spoken interaction via interphone. In real situations, message relay via the flight crew also has been extremely cumbersome with the possibility of delaying, if not miscommunicating, critical information, she said.

Another problem has occurred after flight attendants agreed to cover for another crewmember’s safety duties but subsequent distractions caused them to omit critical safety duties for some phase of flight, Giles MacFarlane said. Preparing the cabin for landing involves a relatively high workload level, for example.

“If even one cabin crewmember has been dedicated to caring for a passenger in labor, all other crewmembers have to communicate to ensure that that person’s duties are covered,” she said. “It is then very possible that a duty could be overlooked. If a childbirth is occurring during the landing phase, sterile cockpit procedures [limiting flight deck–cabin

communication to messages immediately critical to safety of flight] also will mean that the cabin crew will hesitate to communicate with the flight crew.”

A recurrent issue in MedAire’s cases has been agreeing to complete another person’s major duties but missing some key details. “It is easy to check the cabin to be sure that luggage is properly stowed and that every passenger is secured,” Giles MacFarlane said. “It’s the smaller things — for example, verifying in a particular section that all of the galley carts were secured or that all the bins were double-latched — that others might overlook because those simply were not part of their group of duties. On landing, a cart that has not been double-latched very easily could be set loose, a cart compartment could come open, and containers could come flying into the cabin.”

To read an enhanced version of this story, go to www.flightsafety.org/asw/may09/child-birth.html.

Notes

1. Estimated date of delivery (EDD) is calculated from the current date, first day of the last menstrual period, ultrasound date and gestational age by ultrasound. Pre-term refers to delivery before completion of 37 weeks of gestation.
2. If a passenger has complied with airline rules derived from International Air Transport Association recommendations for travel while pregnant, her in-flight labor by definition will be pre-term — that is, at least four weeks before the EDD for a single uncomplicated pregnancy and eight weeks before the EDD for an uncomplicated multiple pregnancy. Delivery at term means during a normal range of 37 to 42 complete weeks.
3. Sand, Michael; Bechara, Falk-Georges; Sand, Daniel; Mann, Benno. “Surgical and Medical Emergencies On Board European Aircraft: A Retrospective Study of 10,189 Cases.” *Critical Care* Volume 13 (2009), 13.