Selling Medical Ultrasound Technology in Asia

Linda Trevino and Alessandro Gubbini

A surprising ethical dilemma arose for a young engineer during his first business trip to Asia to work with customers of his company's ultrasound imaging technology. On the long airplane ride, Pat was dutifully reading a travel book to learn more about Korean and Chinese cultures when he was shocked to learn how ultrasound technologies were being used in these countries. A technology that he had always considered to be a way to help people by diagnosing disease was being commonly used to intentionally identify and interrupt pregnancies when the fetus was female. As an engineer, Pat had been trained to be passionate about innovation and problem solving. He was used to thinking about these technologies as innovative high-tech solutions to serious health problems. He was also committed to developing higher-quality, more efficient, affordable devices so that they could be used more widely. It had never occurred to him that in some Asian cultures, where overpopulation combined with a strong patriarchal culture led to a preference for sons over daughters, this technology that he considered to be innovative, helpful, and supportive of people's well-being might be used to eliminate female lives.

As ultrasound technology has advanced and become more available, it has been used more widely in decisions to abort female fetuses in favor of sons. After some more research, Pat learned that this practice has become quite common in China, which controls population growth by allowing families to have only one child. In India, female children are more costly to families because the culture requires the family to bear the expenses of their daughters' weddings and dowries. By comparison, an ultrasound exam is a small expense even for these poor families. Pat was further surprised to learn that using ultrasound technology to identify fetus gender and abort the fetus based upon gender information is unlawful in most of these countries (for example, in India doctors are forbidden from disclosing the sex of fetuses). However, the enforcement of such laws is difficult and spotty, especially in clinics that are far away from cities and regulators. The problem is being exacerbated because many ultrasound machines are being sold on the second-hand market, thus making ultrasound more available and more affordable to these clinics. The increasing use of the technology to abort female fetuses is beginning to create a huge societal problem because males are outnumbering females, distorting nature's careful gender balance. There are estimates that more than 150 million women are ''missing'' from the world as a result of sex-selective abortions and female infanticide. That's equivalent to missing every woman in America! The 2001 Indian census demonstrated a huge drop in the number of young girls relative to boys (927 girls for every 1,000 boys compared to 945 to 100 a decade earlier), and the problem continues to worsen as the use of ultrasound technology increases. According to UNICEF, China now has only 832 girls for every 1,000 boys aged 0–4. Looking to the future as these children grow up, some have predicted increasing trafficking of women for prostitution and violent crime as young males compete for the smaller number of available females.

In thinking through what he had learned, Pat found himself considering the patients, the health-care practitioners, and the health-care industry as well as his company, other technology developers, and the broader cultures involved. Patients benefit from access to life-saving technologies that can identify diseases at an early stage so that they can be treated more successfully. But patients can also be harmed

if, due to early identification of their child's gender, mothers feel forced into abortions against their will. In these cultures, many mothers apparently do feel compelled by cultural or family pressures to abort female fetuses. Medical practitioners benefit from the ability to do faster and more accurate diagnoses, but they too can be pressured to use these systems for unethical purposes. The industry and the developers (including Pat's company) certainly profit from the production and sale of more of these products. But the company and industry risk sullying their reputations if they are found responsible for selling these systems to unauthorized users for unlawful purposes. Imagine what the media could make of that story. According to a prestigious British medical journal, The Lancet (2006), the unlawful use of diagnostic ultrasound technologies is contributing to an estimated 1 million abortions of female fetuses every year. Yet, these diagnostic technologies still greatly benefit society worldwide in saving and improving the lives of many millions of patients.

How should Pat think about this? Do the benefits to society of the technology outweigh the harms? Even if they do, does the company want to be connected to a practice that many people find immoral and that is illegal in many countries? Pat found this practice particularly distasteful when looking at it from the perspective of the females who would not be born simply because of their gender. Pat wondered, is this practice fair to them? And aren't we all facilitating the practice by looking the other way? What would happen if such gender discrimination were globally accepted as normal practice? Could that ever be the right thing to do?'' What would international health organizations such as the World Federation for Ultrasound in Medicine and Biology (WFUMB), which provides training and education to doctors worldwide, have to say about such practices? Pat wondered what his wife would think if she knew that his work involved this unexpected result? Would she expect him to do something? What is his individual responsibility here? What is his company's responsibility?

Because Pat felt so confused by what he had read, and he didn't fully understand the legal or cultural environment, he never mentioned the subject to his Asian clients. But it remained in the back of his mind. When he returned home, he kept thinking about it. There was no formal structure for him to surface the issue within the company, so he decided to discuss the subject with some trusted colleagues. He wondered whether they were aware of the issue and what they might think about it. Were they as bothered as he was? It turns out that they were as unaware of these practices as he had been. It also seemed more distant to them because they had not traveled to Asia as he had, and there was no agreement about what to do. Engineers tend to think about products only in technical terms—the potential for technical flaws and dangers that might harm patients. They rarely encounter the ultimate end users, and they're not trained to think about cultural implications.

As a Westerner, all of this was particularly hard for Pat to deal with. He was caught completely off guard. He asked himself: What do I need to do, if anything? I'm scheduled to return to these countries to support our clients' use of our technology, so I won't be able to avoid the issue for long. It seems almost ridiculous that I became aware of this issue through a travel book. If it hadn't been for that book, I probably never would have thought about the issue at all. My company had not prepared me. It offered no special training on cultural or ethical issues for employees they send to work overseas. It seemed like the company's values of providing people with the opportunity for earlier diagnoses prevented us from exploring the potential misuse of our product. The company and industry focus on how to develop technologies to identify life-threatening conditions earlier, better, and faster. We like to think of ourselves and our technologies as saving lives, not risking them. The company's stated value is to provide health-care solutions to patients worldwide. But, in this case, our technology was being used to

both save and end lives. Do our values need to change? I think of our company as being good and ethical, but we were obviously unprepared in this case. We had not done our homework. Even if the company wanted to do something, Pat wondered what they could do. The company is an original equipment manufacturer (OEM), meaning that it doesn't sell directly to the end users. Therefore the responsibility for putting these technologies into the wrong hands is widely dispersed across different manufacturers, distributors and local institutions. Pat also wondered whether and how the company could influence these different parties to take action even if it decided it was right to do so. On top of that, the company is in the United States, and these end users are halfway across the world.

Case Questions

Consider Pat's concerns as described in this case and prepare a memorandum that addresses the concerns described below. Your memo should be completed in narrative form (you may use headings if you choose to do so for organizational purposes, but do not list your responses in bullet form). Maximum page length: 10 pages (double spaced).

Identify all of the potential ethical issues you see (if any). Describe and analyze the implications of **each** issue, including who or what may be affected by the company's response. In identifying issues and addressing their implications, your discussion should be as comprehensive as possible—you should consider any economic, social, or ecological implications, as well as the potential impact **at least** two cultural differences you can identify.

Additionally, your analysis should thoroughly identify and discuss **at least** two potential courses of action that the company could take with respect to each issue you have discussed. Clearly demonstrate your reasoning process—identify and explain any ethical principles or arguments you are relying on; do not simply state unsupported conclusions.

If you choose to apply any approaches to ethical reasoning that you learned about in this course, clearly state what they are and how you are applying them to this case. Of the possible solutions you identified, which would you recommend that the company adopt as a resolution? Again, fully explain and justify your recommendations. Finally, explain how you would implement each solution you have recommended.