

GLOBAL HEALTH

Innovation Insight Series

An infant receiving treatment in a Phoenix radiant warmer incubator



Photo courtesy of Phoenix Medical Systems

PHOENIX MEDICAL SYSTEMS I: Generating Preliminary Sales

ESTABLISHED 1989

CHENNAI, INDIA

V. SASHI KUMAR, FOUNDER

THE PROBLEM/SOLUTION SPACE

Each year, approximately 4 million infants die within one month of their birth, and 1 million die within their first day of life.¹ Most of these deaths (99 percent) occur in low- and middle-income countries.² Neonatal hypothermia is recognized as a key contributor to the morbidity and mortality risk of newborns.³ Hypothermia occurs when newborns do not have adequate body fat and metabolic rate to maintain viable body temperature. This problem is particularly common among premature babies.

Incubators can prevent neonatal deaths from hypothermia, shorten hospital stays, and reduce the rate of neonatal complications that may lead to lifelong illness and disability.

STANFORD GRADUATE
BUSINESS SCHOOL OF
Program in
Healthcare Innovation



STANFORD
biodesign

From 1950 to 1998, incubators with high concentration oxygen and other advances contributed to a 75 percent decline in infant mortality rates.⁴ However, these benefits were disproportionately realized in developed nations, particularly those in North America and Europe. Incubator use in the developing world remains limited. A major barrier to adoption is cost, with modern incubators developed for Western settings requiring an investment up to \$30,000 or more per unit. Hospitals in developing regions also frequently do not have the technical expertise and access to replacement parts needed to repair these complicated devices.

ABOUT PHOENIX MEDICAL SYSTEMS

V. Sashi Kumar started his career in the medical technology field while attending the Indian Institute of Technology (IIT), Madras. As a postgraduate engineering student studying entrepreneurship, one of his first projects was to develop an infant incubator that could be easily and inexpensively maintained. He initiated the effort after observing in a local hospital that many infant incubators were available, but few were actually in use. When he asked the physicians why this was the case, they told him that the devices were non-operational and that they were unable to repair them due to cost constraints

and/or the lack of necessary technical skills and parts. They asked Kumar if he could fix one, and he immediately got to work. Through this process he discovered that the devices were not particularly functional or easily serviceable. He decided to build a better option for use by local hospitals.

Over the next several years, he dedicated himself to developing an incubator that had all the right properties for the Indian setting. The device had to have low

power requirements, be reliable, and be easily maintained. He presented a device that met these requirements as his final senior project at IIT. He returned to the hospital to show the doctors his invention and was surprised (and a bit fearful) when a physician immediately placed a baby in the incubator. Kumar stayed with the infant for the next 14 days to ensure that the unit operated as expected, without harming the child. After two weeks he was satisfied with the outcome—and so were the doctors; they committed to purchasing more of the incubators if Kumar would build them.

In 1989, Kumar founded Phoenix Medical Systems Ltd. to manufacture the device. It took him about a year to establish the necessary ecosystem to allow him to produce the incubator in Chennai. During that time, he spent many hours communicating design



Photo courtesy of Phoenix Medical Systems

The Phoenix service and back-end service support teams at a group meeting

constraints and quality requirements to local component manufacturers who had never before worked in the medical device arena. By 1990, he had several companies that understood the complexity of medtech manufacturing and could provide him with what he needed to begin full-scale production.

ONE CHALLENGE: GENERATING PRELIMINARY SALES

Initially, Kumar tried selling his incubator through the few medical equipment distributors that existed in India at the time. However, “It was very difficult,” he recalled.⁵ Relative to the simple medical products these companies were used to representing, such as syringes and blood pressure cuffs, the incubator was technically complex. “Most of the distributors did not appreciate the technology,” Kumar explained. “They were willing to sell the product, but they didn’t make an effort to understand how it worked. So when they went to a hospital, they couldn’t present the incubator very well. The doctors would ask questions that the reps couldn’t answer.” In combination, these factors deterred many sales representatives from making a concerted effort to sell the product.

Phoenix was able to make a small number of sales through the medical equipment distributors, but the product did not gain any significant traction in the market. Kumar needed a different approach for generating incubator sales.

THE SOLUTION: BUILDING AN INTEGRATED SALES AND SERVICE TEAM

Kumar recognized that he needed a sales team that would deeply understand the technology and could interface with doctors at their level, anticipating and thoroughly addressing their questions. To accomplish this, he hired three sales representatives of his own—one in each of the key regions he hoped to penetrate with the product. “I trained them very well on the product, and then put them on the job,” he said. “Naturally, since they were able to talk about the product pretty well and impress upon the doctors that it was the right product, sales started picking up.”

Most of the medical device manufacturers in India failed because they couldn’t provide good after-sales service . . . I found that when I gave good service, the customers kept coming back.

Kumar had another key insight related to the role that after-sales service could play in the sales process. Initially, the company had a single technician to service the incubators it sold. “Most of the medical device manufacturers in India failed because they couldn’t provide good after-sales service,” he noted. “I knew that was the case, but I didn’t really think about it until later on. I found that when I gave good service, the customers kept coming back.” Seizing on this as an opportunity, Kumar made a notable increase in the number of service technicians on the company’s payroll. Again, he carefully trained these employees to service and repair the incubator product.

He also trained the technicians to help build Phoenix’s relationships with its customers. Metrics were established to ensure that each customer received timely, thorough service and that customer satisfaction was consistently maintained at high levels. Because of the high level of support they received, Phoenix’s customers developed a strong sense of loyalty to the company. For example, Kumar said, “Most of the time when a purchasing decision is being made in India, the doctors or decision makers walk to a couple of nearby hospitals to find out what they’re using. And there was a tendency for the hospital to call my service engineer and tell him ‘Somebody came today from so-and-so hospital.



The Phoenix factory in Chennai, India

He was pretty impressed with this particular product' and so on. So the technicians became a channel for us to bring in information about hospitals and customers who might be interested in the product." Phoenix was able to pass these leads to its sales representatives who could then follow up to close a deal. Based on the success of this model, "I kept on increasing my service staff," Kumar explained. Since the service technicians required a lower salary than the sales representatives, this was a cost-effective strategy for expanding incubator sales.

Through this integrated sales and service strategy, Phoenix was able to rapidly grow its business. Over time, Phoenix expanded its product line, as well. With a team of 15 dedicated sales reps and 30 service engineers, the company achieved a 30 percent market share in India's neonatal and infant care market by 2007.⁶ ♦

NOTES

- 1 Lawn et al., "Neonatal Survival 1:4 Million Neonatal Deaths: When? Where? Why?" *The Lancet*, 2005; 365: 891-900, http://www.who.int/maternal_child_adolescent/documents/pdfs/lancet_neonatal_survival_paper1.pdf (September 4, 2012).
- 2 Ibid.
- 3 Luke C. Mullany, "Neonatal Hypothermia in Low-Resource Settings," *Seminars in Perinatology*, December 2010, pp. 426-433, [http://www.seminperinat.com/article/S0146-0005\(10\)00107-2/abstract](http://www.seminperinat.com/article/S0146-0005(10)00107-2/abstract) (September 4, 2012).
- 4 S. Johnson, *Where Good Ideas Come From: The Natural History of Innovation*, Riverhead (New York) 2010.
- 5 All quotations are from an interview with V. Sashi Kumar conducted by the authors unless otherwise cited.
- 6 "Innovation Has Been the Core Area for Us," *Medical Buyer*, November 13, 2008, http://www.medicalbuyer.co.in/index.php?option=com_content&task=view&id=1024&Itemid=48 (August 5, 2012).