

This excerpt comes from

My Garden of Flowers: Miracles in the Neonatal Intensive Care Unit - What Every NICU Family Needs to Know
by Manjeet Kaur, M.D., published by Inspirante Publishing, LLC, and has been republished with the permission of the author.

PART I

The Building of a NICU

Memoirs of a Neonatologist



Love

*Let love be an infinite gift,
That rejoices in giving.
A giving that resonates with joy ...
Therein lies the gift of giving!
—Manjeet Kaur*



I have always felt a special love for children. When I was about seven or eight years old, I would sit in a revolving chair in my grandfather's medical clinic in Delhi pretending to be a doctor. I saw how his patients loved him.

"I want to be a children's doctor," I would say—I had not yet learned the word "physician." I was one of the lucky ones who hone in on their vocation early in life.



If I could pinpoint a moment that is etched in my mind when I knew that Neonatology was to be my life's career choice, it would be when I performed my first intubation during the first week of the Neonatal Intensive Care Unit (NICU) rotation of my Pediatrics Residency (training) at CHEO (Children's Hospital of Eastern Ontario) in Ottawa, Canada. We suddenly heard the monitor alarms go off during our daily morning rounds in the NICU. I even remember the name of the tiny baby from almost forty years ago. "Charity just extubated!" called the nurse who had run to assess the cause of the alarm.

"Who wants to intubate?" asked Dr. Brock MacMurray, the Chief of Neonatology, and who was soon

to become my mentor. I quickly volunteered, enthusiastic to learn a new procedure. We did nasotracheal intubations at CHEO back then, a procedure in which the endotracheal tube (ETT) is passed through the nose and then gently guided through the pharynx (throat) into the windpipe with the help of a curved Magill forceps. I performed the procedure with my heart racing as the nurses and residents looked on. The baby pinked up as Dr. MacMurray listened to the chest for tube placement and gave a thumbs-up

I can do this! I thought. What a fine, challenging and rewarding job!



I never forgot the encouragement from my mentor, and throughout the next six weeks I thoroughly enjoyed a rotation that many residents dreaded. When we relocated to Philadelphia it was easy for me to

pick Neonatology as the specialty that I wanted to pursue throughout my medical career—a calling I was to learn would not only be a profession but also a dedication.



These memoirs are the story of that career as it unfolded over the next three decades. I hope that you enjoy reading them as much as I have enjoyed writing them.

Manjeet Kaur

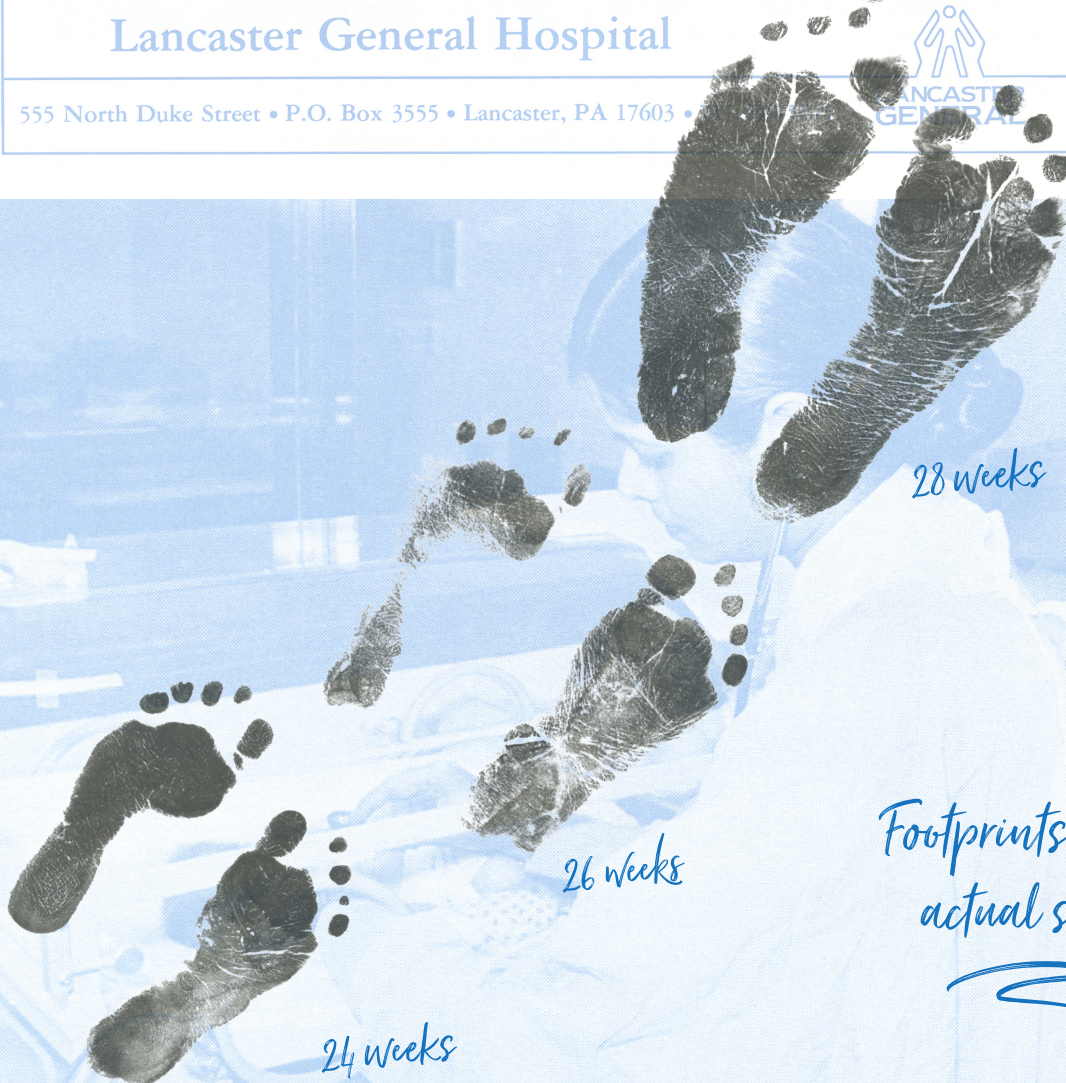


Neonatal
Intensive
Care
Unit



Lancaster General Hospital

555 North Duke Street • P.O. Box 3555 • Lancaster, PA 17603 •



Establishing the NICU at Lancaster General Hospital

*A*s I look back, time stands still and the years fade away. It's the summer of 1984. I had completed my fellowship in Neonatology and stayed on as a faculty member at the Medical College of Pennsylvania (now Drexel) in Philadelphia, when my husband, a cardiologist and also an attending,¹ opted to go into private practice.

When an opportunity came up in Lancaster, Pennsylvania, our friends were highly encouraging, suggesting that it would be a good place to practice. Coming from New Delhi, where I attended Maulana Azad Medical College, then Canada, where I completed my pediatric residency at Ottawa Children's Hospital, and on to the United States—I had already experienced quite a cultural and emotional roller coaster.

I was used to the peace and beauty of the countryside, having studied at a boarding school in the Himalayan ranges in Mussoorie and then in a small town, Ferozepur in Punjab, Northern India, and I loved the natural beauty of Lancaster, which was then considered Amish country. My husband, who had grown up in urban New Delhi, was initially not so sure about settling in a small town.

¹ An attending is a staff physician who has completed his/her training and is now practicing medicine and often teaching medical students and fellows in their specialty. Usually an attending has titles such as assistant, associate, or professor.

“ I connected with Lancaster at first sight. The delightful blossoms of this lovely countryside beckoned me almost as Avonlea had enticed Anne in *Anne of Green Gables*.

I connected with Lancaster at first sight. The delightful blossoms of this lovely countryside beckoned me almost as Avonlea had enticed Anne in *Anne of Green Gables*. The greenery of the farms, orchards, and rolling hills; the graceful boughs of the willows; the pure loveliness of the cherry blossoms, creeks,

and covered bridges—complete with horse-drawn buggies—were very endearing. It appeared a picturesque place, “a home away from home,” I called it, as it reminded me of my school town in India, which I had loved.



My first meeting with Paul Wedel, the President, and Nevin Cooley, the Vice President of Lancaster General Hospital² (LGH) came after I had already spoken to pediatric groups called MBMA (now Lancaster Pediatric Associates) and BHPT (now called Roseville Pediatrics). Though supportive, there was a lot of ambivalence regarding the initiation of Neonatology at LGH. As an obstetrician put it, “We have Hershey Medical Center only twenty-five minutes away. We don’t have the numbers needed to support a NICU.”

However, I received a very warm welcome when I joined LGH in May 1984. Most of the staff were very excited, but like anything new, there was certainly some resistance to change.

Dr. William Boben, then the Chief of Pediatrics, traveled with me for meetings at other hospitals in the area: St. Joseph’s, Ephrata, and Columbia Community, where we presented our plans for the establishment of a new Neonatal Intensive Care Unit at Lancaster General. Though the initiation had been somewhat dubious, the poignant reception by the area hospitals as we presented the plans was very encouraging. Advertising was mainly via newspapers and television back then, and we started in a rather non-ostentatious manner. The practice of neonatal intensive care was still in its infancy back in 1984,

2 Now Penn Medicine Lancaster General Health

INTELLIGENCER JOURNAL, Lancaster, Pa., Monday, May 14, 1984 — 5

Pediatrics Specialist Joins Staff at LGH

Lancaster General Hospital announces the appointment of Manjeet Kaur, M.D., to the Department of Pediatrics, Division of Neonatology.

Before coming to Lancaster, Dr. Kaur was assistant professor of pediatrics and consultant neonatologist at Montgomery Hospital, Norristown.

Dr. Kaur is certified by the American Board of Pediatrics, a fellow of the Royal College of Physicians and Surgeons of Canada and holds memberships in the Philadelphia Perinatal Society and the American Medical Women’s Association.

Dr. Kaur is the wife of Surender Singh, M.D.

and it was still unfamiliar to most people. We spent the first three to four months reviewing literature, creating protocols, and developing brochures and teaching programs for the staff. After reviewing equip-



ment costs from literature and from my colleagues at the Medical College of Pennsylvania, I presented the hospital president with a budget of about \$110,000. This was in 1984, and it seems unimaginable today to even consider that such a paltry sum could be the initial cost for establishing a NICU.

I promised the administration that I would oversee the unit and provide coverage until we found an additional neonatologist. This was certainly a very ambitious commitment, as my boys, Simran and Arun, were only seven and one and a half years old at the time. It's difficult to imagine now, when we're making our call schedules and trying to accommodate our days off, that back then I was on call 24/7. On occasions that I had to go out of town I would ask a pediatrician to cover for a day. If I had a baby on a respirator, I just stayed.

Of course, other than work with my NICU babies, all the rest of my time and life was my family and children. My husband was always very supportive, and our mother lived with us, which made it easier. "Work is worship," I told my seven-year-old son; just as my dad had often quoted during my childhood years. Simran's rigorous work ethic and empathetic acceptance have thus been qualities since those formative years, as I wrote in a personal reference for his college application. My younger son, Arun, was too young to understand and needed even more cuddles when I was home.

We recruited from amongst the nurses working in the regular "Newborn Nursery" and the "Premie

Nursery," where babies requiring any additional assistance were admitted. They were ready, and more than willing, to undergo further training to meet the requirements of the higher level of treatment that is provided in a NICU to enable babies to stay in Lancaster with their moms.

The staff was fabulous! I received flowers and small gifts, which remain precious memories of this day. There was an aura of excitement, as well as a lot of "ifs" and "buts," as expected; I recall the head nurse coming to my office, pen and notebook in hand, saying, "Just tell me what you need and we'll get it." Coming from Philadelphia, where I was "just" one of the attendings, this was indeed remarkable.

The enthusiasm and support of the staff made this challenge a fun and very rewarding endeavor. It was almost like setting up a house, including the décor. They were passionate about keeping babies who were previously sent to Hershey in Lancaster. Vicky, Judy, Brenda, Lynn, Tracy, Brenda, Kim, Karen, Nancy, Marion, Sherry, Betsey, Cindy, and Pat were just a few of the nurses. Miriam, our ward clerk, was very much a part of our NICU team, keeping everyone in line with the support of our administrators, Josephine and Joan.

New ventilators, monitors, and intravenous and other supportive equipment were ordered. The ebullience of the nursing staff was infectious as they embraced the change, and the now archaic monitors were replaced with state-of-the-art technology of the eighties.

“ I received a very warm welcome when I joined LGH in May 1984. Most of the staff were very excited, but like anything new, there was certainly some resistance to change.

“ ... we would only keep babies that were at least thirty-two weeks gestation in Lancaster.

The Sunday News ran a feature article profiling our new unit at LGH, which included a description of some of the common problems of the newborn and the equipment that was being installed to provide treatment for these sick infants. Most of all, the article highlighted the value of this new medical service to the community, quoting Dr. Boben:

“It is one of the most difficult and heart-rending decisions for physicians and family members when a mother delivers an infant with difficulties and you have to fire this infant off to Hershey or Harrisburg or Philadelphia. ... This is not a profit-making venture for LGH; to tear a child away is very difficult ... That’s why we set this up—as a service.”

“New NICU Will Keep Families Together” was the headline in the Lancaster newspaper.

The times were different then. To borrow from Charles Dickens, “It was the best of times,” but it wasn’t the worst, though there were difficult times. It was the best of times in that one could make plans, execute them more easily, and make things happen. It was a difficult time in that we were starting from scratch, with little ancillary assistance and no such thing as computers and Internet access, which was still way into the future; however, it was a challenge and a privilege that few people get in a lifetime.

We’d planned to start out with ten NICU beds with four radiant warmers (acute care open beds

with heat source) and six incubators (or isolettes). We had decided that initially we would only keep babies that were at least thirty-two-weeks gestation in Lancaster; any smaller babies would be stabilized and transferred to Hershey, a level-3 NICU.³

Once the equipment was ordered, we organized seminars to train our staff. I’d been on faculty at the Medical College of Pennsylvania (MCP) before I came to Lancaster, and had left with a lot of goodwill and great friends. I was able to tap into those resources and recruit Linda, a nurse educator then at MCP, to come and participate in a two-day seminar, and we were able to cover all the basic topics between her training and the conferences that I ran.

Our staff members were like sponges, noting all the information, and asking questions while maintaining their humor. One incident stands out. The usual concluding sentence after the nurse



3 Problems of prematurity are inversely proportional to the gestation. At less than thirty-two weeks, babies have increasing lung and general immaturity and are therefore more prone to experience the problems of prematurity.

Montage

Edited By Linda Collingwood

The Sunday News
Section E
August 26, 1984

At LGH: New Neonatal Intensive Care Unit will keep families together

In the room next door, friends and relatives are cheering the birth of a little boy or girl. There's Grandma with a stuffed teddy bear; an aunt with some roses; a proud new father handing out cigars.

But in this room, the parents are somber. "They hold hands. They cry. They're frightened. They can't cuddle their newborn; because their baby has been whisked to a hospital miles away. They pray that their baby survives.

The usual celebration of the birth of a child can be usurped by the birth of a baby with severe medical problems.

"It is one of the most difficult and heart-rending decisions for physicians and family members when a mother delivers an infant with difficulties and you have to fire this infant off to Hershey or Harrisburg or Philadelphia," said Dr. William Boben, chief of pediatrics for Lancaster General Hospital.

But now Lancaster will have a new medical service to help ease some of the anguish the parents of these infants experience. After two years of planning, Lancaster General Hospital will open its four-bed (isolette) neonatal intensive care unit (NICU) the first week of September.

"We have in this county a sufficient number of deliveries to merit such a unit sixty to 80 babies are transferred out of the county each year. The volume was there," said Boben, "but much more important than that was the human element here."

"Suddenly, unplanned, you have a sick infant at Hershey and the parents are here in Lancaster. That was the chief reason behind the process to get this into the county."

Then, as fate would have it, neonatologist Dr. Manjeet-Kaur moved to Lancaster with her husband, LGH cardiologist Dr. Surender Singh. Dr. Kaur was ready to take on the responsibility as head of the unit.

She comes to Lancaster with eight years of training in New Delhi, India. She also did a pediatric residency for three years at Children's Hospital of Eastern Ontario, Ottawa, Canada, and a fellowship in neonatology from The Medical College of Pennsylvania in Philadelphia.

Dr. Kaur was a member of the physician team which helped a premature, 15-ounce baby in Philadelphia survive and thrive.

That little one is now two years old and developmentally normal.

Lancaster General also has the county's first pediatric neurologist, Dr. Robert Vanucci, on its staff. He, with Drs. Kaur and Boben, will spearhead the NICU program with referring pediatricians.

Premature and/or full-term babies can require intensive care if they suffer respiratory, feeding, jaundice, hemorrhage or other severe medical problems.

An advanced, compact system for continuous monitoring of oxygen delivery in critical care situations is an integral piece of equipment in the unit. "Oxygen requirements for these babies is very critical," Dr. Kaur explained. "This sophisticated equipment lets us monitor the babies' oxygen."

Too much oxygen can cause blindness, Dr. Boben explained, and too little can cause brain damage. Thus, trained personnel, as well as up-to-date equipment is vital.

When a neonate's vital signs start to change, the medical staff needs to know it immediately. The NICU, therefore, also features a Neo-Trak 506 vital signs monitoring system which provides ECG, respiration, blood pressure and two-temperature monitoring.

And, there are other concerns the health-provider must consider in the treatment of these sick infants. "These little tiny babies are very defenseless," Dr. Kaur said. "And we have to treat them as soon as we see infection. We also have to prevent infection; that is why they are in isolation."

Most of the babies in the NICU will be fed intravenously

"Special solutions can keep them going for months," Dr. Kaur related. She emphasized the importance of having carefully trained personnel to implement an intravenous feeding. "A little amount of fluid which may just be a drop in the bucket to an adult can flood a tiny infant. You have to watch every cc (1/4 teaspoon) being given to these babies.

In addition, an IV technique must be "right on



Sunday News Photo By Jack L.Ponard
Neonatologist Dr. Manjeet Kaur will head the new neonatal intensive care unit at the Lancaster General Hospital, scheduled to open in early September.

the money," said Dr. Boben. "It's one thing to get a needle, into an adult; but to get it into a tiny, tiny baby, everything must be just right or you will have a child with a sore arm or infection. It takes a lot of specialized nursing and physician care. It really becomes art."

Total jaundice management will also be available in the LGH NICU. "These babies can have horrendous problems with jaundice because their enzymes are immature," explained Dr. Kaur.

Premature babies are also prone to have brain hemorrhages "We monitor them with ultrasound using a little transducer which can be brought right into the nursery and put on the soft spot of the head," she said.

The body systems that can go awry in a premature (or even a full-term birth) are many. And, although the LGH NICU can handle the bulk of those health disorders, there are some medical cases which will still need to be referred to hospitals outside of Lancaster.

"We do not plan to do heart surgery on these babies," said Dr. Boben. "Or, if an infant is born with his intestines out of the body we wouldn't do that surgery here either."

So far, the equipment alone for the LGH neonatal intensive care unit has cost approximately \$100,000. But, Dr. Boben said, "This is not a profit-making venture for LGH. As perinatal events have become more relaxed and personalized (birthing rooms, fathers at deliveries), to tear a child away is very difficult I've never yet met a mother who'd rather send her child off into the night to a distant hospital somewhere. That's why we set this up as a service."

educator finished an instruction would be “You take this action and then you hover.”

One of the nurses, Vicky, was asked a question; she told me afterward that she answered correctly adding, “and then you hover.” The whole class burst out laughing. Vicky herself laughed so much that her glasses fell off and broke. That was one of the highlights of those early days, and long afterward the story about Vicky’s glasses remained a humorous memory.



When needed, I attended deliveries and C-sections for the family physicians and pediatricians, and I truly think that the physicians were glad of that respite so they didn’t have to leave their busy practices. The obstetricians were also happy they didn’t have to wait for the family physician or pediatrician to come in as I was in the hospital and more easily available.

The first cesarean section I attended was with Brenda, an RN (registered nurse) who was pregnant and almost full-term herself. Of course, as Murphy’s Law would have it, we had an LGA (large for gestational age) infant who had bilateral spontaneous pneumothoraces (air around the lungs). As Brenda tried to reach for tubes in her tackle box on the floor, we determined to make simplistic changes—along with guidelines and charts there would be additional

The administration was extremely supportive, and has always continued to be so. There was a lot less formality and bureaucracy back then, even in an institution of the standard of LGH, and the nurse manager and I were at liberty to plan the running of the NICU. We had our equipment organized, had protocols in place, and after the nursing orientation we were on our way.

space and tables assigned specifically for infant resuscitation. Interestingly, I attended a delivery sixteen years later of a baby with a similar last name and, on inquiring about a possible connection, was told that my first C-section baby was an uncle of this infant, was on a boxing team, and had been “student of the week” that month in the Lancaster newspaper. I received a newspaper clipping in the mail of this young man in his boxing attire the following week. Such is the close-knit community in Lancaster County.

September 1984 was the official inauguration of the Lancaster General Neonatal Intensive Care Unit. we had a ribbon-cutting ceremony attended by the staff and administrators and, most importantly, prayers by the chaplain.

“ Back in 1984 ... when we needed to administer oxygen and no respiratory masks were available, the oxygen tubing would be stuck in a paper cup and the cup then placed over the infant’s nose and mouth.

“The staff, though apprehensive, was very excited
—their theoretical learning was about to be tested.

Back in 1984 we made do with very little in the nursery. When we needed to administer oxygen and no respiratory masks were available, the oxygen tubing would be stuck in a paper cup and the cup then placed over the infant's nose and mouth. Although it was a primitive oxygen mask, it certainly worked well.

At times, being the single neonatologist in town was indeed a daunting task. I remember being called in the middle of the night, not only for deliveries but also for starting intravenous lines (IVs) on infants who weren't taking feeds or who were on antibiotics.

The first procedure that I determined to teach our staff was how to start IVs, so back to our great resource of The Medical College of Pennsylvania. The nurses were sent in pairs for a week for NICU orientation and to learn IV skills in babies, which was subsequently reinforced in Lancaster. This took another three to four months to accomplish, after which we felt more comfortable keeping sicker babies.

The very first baby we kept on a respirator after the inauguration of our NICU was little Lauren, a thirty-two-week-gestation infant with respiratory distress syndrome (immature lungs), which would have been one of the simpler admissions at a bigger center. Her story is included in this book. The staff, though apprehensive, was very excited—their theoretical learning was about to be tested. Lauren was Dr. Tift's patient from what was then called the BHPT

Pediatrics. Lauren's parents were informed and were offered the choice of transferring her to Hershey Medical Center (HMC) or keeping her at LGH.

“This is our first vent baby at LGH, but I would trust Dr. Kaur if I had my own baby in here,” said Dr. Tift, and added a few other good words. I remember how comforting that was, almost as much as when my mentor, Dr. MacMurray, had spoken words of encouragement just before my Fellow of the Royal College of Physicians, Canada (FRCPC) board's practical in Canada, not so many years earlier.

That first intubation was quite a celebratory and dramatic event in our NICU. It seemed like at





Intelligencer Journal photo by Richard Reinhold

Baby's Discharge is 1st For ICU

By Chris Noonan
Intelligencer Journal Staff

Six-week-old Lauren Sturla is going home for her first Christmas—but if all had gone according to plan, she wouldn't even be here yet.

Lauren was born two months premature on Nov. 12. And as is not uncommon with such infants, she had a lot of problems.

Before this September, Lauren would have been transferred to hospitals in Hersey or Philadelphia for special care. No more.

Staffers at Lancaster General Hospital's new neonatal intensive care unit monitored and oversaw her development for 39 days until she was strong enough to go home with her parents Friday.

The unit is the only one of its kind in the county. Before it was formed, 60 to 80 babies were transferred out of the county each year.

"The idea is, babies can be cared for

in the county and parents don't have to travel," explained Anita Gogno, public relations director for LGH.

Lauren is the first child for Jeff and Ann Sturla, both 26, of 107 Donna Drive, Terre Hill. When Mrs. Sturla's placenta ruptured, doctors decided that the baby would have fewer problems if it were delivered prematurely.

But Lauren's lungs were underdeveloped and she needed oxygen. She was one of the first babies in the unit to go on a respirator.

She weighed four pounds, six ounces, but dropped to 3.9 pounds because she wasn't feeding correctly.

The baby's digestive system was underdeveloped. She couldn't breastfeed or handle formula, so she was fed intravenously.

But Lauren's veins were so small and tender that they broke when nurses tried to put needles into them. "So they shaved both sides of her head to find a vein," said her mother. "They told me the veins in

your head are as good to use as the ones in your arms and legs."

The sight scared Mrs. Sturla.

"We were very worried in the beginning," she said. "As soon as she was born the doctor told me to give her a kiss. I guess for 72 hours it was touch and go because of her being so early. She was hooked up to everything they could book her up to."

Mrs. Sturla visited her daughter every morning, then she and her husband would return to the hospital each night for a second visit.

Now Lauren weighs a healthy 4.13 pounds and is eating well. Her parents still have to watch over her carefully. They've learned infant CPR and will listen for warning beeps from a heart monitor the baby will wear on her chest for the next three months.

"She'll lead a normal life," her mother said. "And we can almost handle her as if she were born when she was term due."

The parents of six-week-old Lauren Sturla, born prematurely last month, prepare to take their daughter home Friday from Lancaster General Hospital—just in time for her first Christmas. Jeff and Ann Sturla, center, are seen off by Dr. Manjeet Kaur, left, head of the hospital's neonatal intensive care unit, and nurse Betsy Gebert.

least a dozen staff members, including nurses and respiratory therapists, were there during that procedure. “It went well!” I thought, after we placed the endotracheal tube and makeshift sandbags for support, not having very simple pieces like the angel frames that we have today. The staff was great—everyone pitching in as a team, providing long hours of care and poised to run for equipment as needed. With our first respirator in place, the staff was a bit nervous. We didn’t have our own call room then, so our NICU manager had arranged the delivery of a sofa-cum-bed to my office for those times when I was unable to go home for hours or, on occasion, for days at a time.

Lauren improved over the next three days and was soon ready to go home. All had gone extremely

well; the morale of the staff was pretty high and this called for another celebration! The media was there to cover the event, and the article in the *Intelligencer Journal* highlighted that the baby would need to have been transferred out of the county had this birth occurred two months earlier, before the NICU was established at LGH.

Though most pediatricians supported our endeavors, my biggest champions and supporters were Dr. Stephen Tifft, a great pediatrician, and Dr. Hilary Becker, a pediatrician who had some neonatology experience. I’ll always be grateful to both of them. They not only covered for me for an occasional night here and there when I needed a break but also provided moral support



Simple things were addressed too. In those days, triple dye was applied to the cord of the infant after delivery, which worked well as an antiseptic but was unsightly with the violet stain and delayed cord separation. I had a meeting with the obstetricians and presented data and other options, just as we later did for meconium-stained babies. The maternity team always embraced changes if they were

evidence-based, and especially if accompanied by appropriate presentations.

Thus began what was for me three decades of strong bonding with little angels from Lancaster—now our NICU Grads, whom I personally like to refer to as my godchildren: the diverse tiny buds who have blossomed into my wonderful Garden of Flowers.



Happy Birthda



First Birthday
1985



Serving the Community

Lancaster General Hospital was founded as a non-sectarian hospital in 1893. Since its founding, it has provided an expanding range of medical, health, and education services to a community that is demographically and ethnically diverse. Lancaster is known for its sizable Amish and Mennonite population, and it includes both urban and rural communities. Since its inception in 1984 the NICU at Lancaster General Hospital made a vital contribution to the community health programs as new developments in medical technology were introduced to ensure that the sick newborn babies received the very best of care. The NICU also expanded the quality of its support to give the best family experience while the babies were in the hospital, and to ensure that the parents received the best possible support when they brought their little NICU grad home.

With support from our president we expanded our service to the community and I obtained privileges at St. Joseph Hospital (now called Lancaster Regional Hospital) so I could go there for deliveries and transport the sicker newborns to LGH. The staff of St. Joseph's nursery were a lot of fun to work with, and over the years some of them transferred to work with us in the NICU at LGH.

One of these babies from St. Joseph's was Bobby, a term LGA (large for gestational age) infant with



meconium aspiration, perinatal distress, and seizures, possibly caused in part by the difficult delivery of this large baby. We started him on Phenobarbital and Dilantin, drugs we still use, and the pungent, odorous paraldehyde drip that we used back then, before his seizures could be controlled. With the constant care of our great staff, along with the Lord's blessings, all went well; the lad is now a thirty-year-old professor who lives in Florida with a family of his own.

“The NICU also expanded the quality of its support to give the best family experience while the babies were in the hospital.”

“Prenatal ultrasounds were unknown or rare in the 1980s ... we never knew what we were going to get.

Over the years we have cared for babies from single mothers, babies born to mothers who did not know that they were pregnant, and babies with a wide variety of conditions such as diaphragmatic hernias, gastroschisis, encephaloceles and meningo-myeloceles, sacrococcygeal teratomas, and various syndromes. Being amidst the Amish population meant more cases of dwarfism and genetic disorders, which are more prevalent within their community due to consanguinity or inbreeding.

Prenatal ultrasounds were unknown or rare in the 1980s, and every delivery could be a surgical challenge as well—we *never knew what we were going to get*. In those first two years, I certainly saw a lot of pathology that would be channeled to a center with surgical capability today.



Various community support events were held such as public educative conferences, birth fairs, and student awareness. I remember a public rhetoric at a church addressing the “Mothers of Twins Club” regarding problems of multiple gestation and support systems.

High school students were welcomed from area schools seeing the problems of teenage pregnancy and drug issues in their students, and students from Lancaster Country Day School came every year for several years as part of their field trip while completing a psychology course. We spoke about teenage pregnancy issues and the long-term effects of drug and alcohol abuse on babies—important wake-up calls for young teenagers.

The annual Birth Fair provided information and gave parents the opportunity to ask questions of the

pediatric and neonatal specialists. The media recognized these services to the community, and always gave promotional coverage of these events.

Of course, we were always ready to respond when needed. I recall the wedding of one of our RNs. It was a lovely morning, and I was preparing to go to the ceremony when I got a call about a baby in distress, who turned out to have a diaphragmatic hernia (herniation of some abdominal contents into the chest). Being the only neonatologist in town, I rushed to the hospital and we got busy with respiratory support, stabilizing the infant before transferring him. At that time, surgical cases were transferred to the Hershey Medical Center (HMC) or Children’s Hospital of Philadelphia (CHOP).



LANCASTER, PA, NEW ERA—TUESDAY, JUNE 4 1985

Pediatricians to Talk to Moms at Birth Fair

By NAOMI YOCOM
New Era Staff Writer

MOTHERS-TO-BE are always full of baby questions on everything from diet to diapers.

"Should I breast-feed?"

Suppose the baby comes early ...? "What if my doctor isn't in when I call — who do I talk to?" "How do I take a brand new baby's temperature?" • "What should I do about colic?"

To respond to this mountain of question marks, Saturday's YWCA Birth Fair will offer a panel discussion on child care with pediatricians Drs. Clark McSparren, Margaret Knox and Hillary Becker, family practitioner Dr. Peter Altimare and neonatologist (specialist in the care of high-risk newborns) Dr. Manjeet Kaur. Registered nurse Joanna Boyer of Lancaster General Hospital will be the moderator.

Questions like, "If I have a problem breast-feeding, do I go to my child's pediatrician or to my obstetrician?"

The pediatricians generally agreed that problems should be handled by whoever is best able to handle them, and all said they would encourage the woman to continue breast-feeding.

The question about breast feeding had a different shading when asked of Dr. Manjeet Kaur, neonatologist at Lancaster General Hospital. The babies she deals with may desperately need breast milk.

If this is the case, but the baby is too small to be put to the breast, Mrs. Kaur will encourage the mother to pump her breast so the milk can be frozen for the baby. Mrs. Kaur said, reassuringly, that only 6 or 7 percent of all babies are premature (defined as under 5 pounds, 8 ounces or less than 37 weeks gestation), and only 1 or 2 percent are extremely high risk. Women are more likely to give birth prematurely if they are carrying multiple babies, are under 16 or over 35, suffering from poor nutrition (often these women are from poor socio-economic backgrounds), have given birth prematurely in the past or have medical problems such as diabetes, said Mrs. Kaur.



"Education and good prenatal care can help prevent some premature births. There are things that can be done during pregnancy."

-Dr. Manjeet Kaur

Also, if a mother drinks alcohol, takes drugs or smokes cigarettes she is risking premature birth.

Education and good prenatal care can help prevent some premature births, Mrs. Kaur said.

"There are things that can be done during pregnancy." It is important to know what is normal and what is not and what to do if there may be trouble. This is just one of the goals of the Birth Fair, which will run from 8:30 a.m. to 1:30 p.m. at the YWCA, 110 N. Lime street.

There is no admission charge.

Another story imprinted indelibly in my mind is of a courageous Amish mother of five children. She had recently been diagnosed with metastatic breast cancer while twenty-six weeks pregnant, and she presented with jaundice due to liver metastasis among other symptoms. The baby would be better off being delivered via cesarean section so the mother could begin chemotherapy. Little Miriam looked literally green at delivery; she was very sick, and needed every medical modality we had available. Mom did

survive long enough to hold and care for her baby in the NICU. I'll never forget that stoic strength of faith exhibited by the baby's father, calm and accepting, even as he had a dying wife and possibly baby as well. I'm always amazed at this profound faith and strength of the Amish, which I've witnessed time and again over the years. That day I saw living proof of that trust.

After his wife passed, the father came back to see us, bringing the little one and his other children, all

“I’m always amazed at this profound faith and strength of the Amish.

neatly dressed in white blouses, black pinafores, and bonnets. I remember bringing them some chocolates and feeling overwhelmed with emotion at such valiant acceptance. The extended-family support of the Amish folk is phenomenal, and brings them great strength.

I had a wonderful continuity with the families over the first two years, since I was the only neonatologist at the time. This is likely one of the reasons why I’m

still so connected with babies from the early days, having cared for them every day during their stay in the NICU.

The people of Lancaster County have a wonderful community spirit. We had many volunteers—always ready to do whatever was needed to keep our babies comfortable. One delightful eighty-year-old lady came to meet me. “I want to knit hats for your babies, Dr. Kaur,” she said. **“I knit all day except when I am in the church or the bathtub.”** We talked about designs, not placing strings or ribbons to prevent a choking hazard. True to her word, from that day on, Mrs. Beal provided us with stacks of hats for many years.



Two years on, another neonatologist joined us—one with a great love for Mickey Mouse. I’ve never met anyone so enamored of Mickey—ever! At his job interview he wore a Mickey tie, a Mickey watch, and to my surprise, when he took his wallet out to show me a photograph of his daughter, it was—you guessed it—a Mickey wallet! What a sweet love for a pediatrician. Dr. John Jirka turned out to be a dedicated neonatologist with a great sense of humor.

Now we could keep smaller babies in the NICU, and between LGH and St. Joseph Hospital we covered over 2,500 deliveries a year.

Like any other busy unit, we continued to have challenging cases. A call I remember vividly was one for transport of an extremely preterm infant born in a toilet bowl in a bar. Not knowing what to expect, after intubation we brought back the baby, who stayed with us for weeks. Mom, a single mother, bonded with the NICU staff and made wonderful friends in

the NICU. She kept in touch with her NICU family, and I still have a painting of a little boy that Mom had made and gifted me—a precious memento!



Our NICU was certainly well supported by the administration. **Pulse oximetry** was first introduced for babies in the mid-eighties. Looking back, it's hard to imagine how we ever survived without that common, non-invasive modality for monitoring oxygenation! At that time we were obtaining capillary blood gases, which do not give a very accurate oxygen status, to monitor the babies' respiratory status. We had only just learned of this new technology when we had preterm twins delivered. We met with the administrators and expressed our request, and they promptly located the needed equipment and had it flown to us. That certainly saved the babies many sticks!

This was still the pre-surfactant era. We did have several babies with chronic lung disease and long-term vents, and we sent at least four babies home on ventilators after a tracheostomy in those early years. One of a set of twins had been sent home on a ventilator. He remained on the vent for almost eighteen months, and when we went to visit him at home he was crawling along with the long, extended



In 1988 and 1990 we were joined by two other neonatologists, Dr. Lebischak and Dr. Mahajan. Dr. Lebischak, a bright doctor and fun-loving friend, worked at LGH for almost sixteen years before relocating to Florida. Dr. Mahajan is a caring, intelligent, and



coil connected to his tracheostomy. Andrew is a fine young married man today. I remember nurses with a respiratory therapist taking little Zach for a walk with a trach and vent as he had never been out of the NICU in the first nine months of life. Another baby I remember was on a respirator for over a year. We celebrated his first birthday in the NICU, and actually cut a birthday cake for him outside the NICU.

knowledgeable physician who became a good friend and was still working in the NICU in 2017. He and his wife had triplets who were in the NICU and are now great, college-going youngsters.

Tiny Miracles



Heidi at 24 weeks



Bud at 24 weeks



Jonathan at 23 weeks



Ryan at 30 weeks



Miracles in the NICU

People often speak of the miracles that happen in the NICU—I have truly seen the Divine Hand at work many times over the years. Situations that seemed beyond hope, and tiny, brave warriors who survived against all the odds.

*W*e had toiled all night with a very sick infant who was born via emergency cesarean section, had very poor Apgar scores, pulmonary hypertension, and was extremely difficult to ventilate. The cord pH of this little boy was so low (representing fetal compromise) that we were unsure of his survival, and we definitely didn't expect an intact survival without neuro-developmental issues.

He ended up requiring ECMO (extracorporeal membrane oxygenation),⁴ was sent out by helicopter for this specialized treatment, and then came back to us. Mom said that she named him Drew Justin, as he drew a lot of attention and was born just in time. This little one has grown up to be a cute, normal, little boy. For many years, the grateful young mom brought her sweet bundle of joy to visit her NICU family.



A term infant, delivered via a repeat C-section, presented with respiratory distress and was transferred to the NICU. The baby's oxygen requirement kept going up, and we ended up intubating her and placing her on vent support. Her need for respiratory support, however, continued to escalate over the next few days. She became hard to oxygenate despite maximal respiratory support due to persistent pulmonary hypertension (PPHN).⁵ A decision was made to send her out for (ECMO), and she was transported by helicopter to a hospital in Washington, DC. They found on a scan that she had a cerebellar (brain) bleed, and the protocol at that facility determined that she didn't qualify for ECMO. They

would just take her off the vent and let her go; therefore, my partner brought her back to LGH.

This little cherub had multiple pneumothoraces (lung air leaks) during the hospital course, and at one time had eight tubes in place to drain recurrent air-collection pockets around her lungs. I remember coding her and placing chest tubes. We continued to care for her as best as we could, using high ventilator support until she was finally well enough to be discharged. I have delightful photos of her at follow-up, at our NICU reunions, and ones her mom sent. Today, she is a normal adult and is working in the medical field. Amazing, isn't it?!



4 ECMO: a procedure in which the sick lungs are bypassed and the blood is re-oxygenated outside the body in equipment somewhat like a heart-lung machine.

5 PPHN: persistent pulmonary hypertension is a condition where oxygenated blood is diverted back from the lungs due to a narrowing of blood vessels in the lungs.

“Little Bud” was a twenty-four-week-gestation infant born with fused eyelids—a consequence of extreme prematurity. Though lots of babies who are born at that stage of immaturity survive today, in the early 1980s fused eyelids was considered to be a criterion of non-survivability. Initially thought to be non-viable, Bud had a strong heart rate and was resuscitated. He was a strong one, made it through numerous hurdles, and went home with his delightful family after a NICU stay of about three months.

His mom kept strong connections, sent photos and notes, and came for visits both at work and at home. He has certainly become an extended family for me. Every Halloween, my children had to wait for Bud’s visit with his mom and two sisters before they

were allowed to go trick-or-treating in case we missed Bud. One time he came to my house after earning a black belt in karate to show me how he could break a block of wood, and again after his graduation, since I had not been able to attend the ceremony—“Before he went to his girlfriend’s home,” his mom told me.

Of course, he was always in attendance at our various NICU reunions, and later, an ambassador at one of our hospital administrative retreats. Invariably he brought me flowers and would say, “My mom says to always greet a lady with flowers.” How absolutely endearing!



“ ‘My mom says to always greet a lady with flowers.’ How absolutely endearing!



Early Days Celebrations

