

## Biography

Dr. Kanwaljeet S. Anand graduated from M.G.M. Medical College, Indore (India). As a Rhodes Scholar at the University of Oxford, he received the D.Phil. degree, followed by post-doctoral training at Harvard Medical School. He has practiced as a Pediatrician for the past 38 years, taking care of critically ill, or injured and traumatized children, adolescents, and young adults.

As a medical scientist, his research was recognized with awards from the British Paediatric Association (1986), American Academy of Pediatrics (1992), International Association for Study of Pain (1994), American Pain Society (2000), Royal College of Paediatrics & Child Health (2004). In 2009, he received the highest international honor in Pediatrics, awarded by the Swedish Academy of Medicine every 5 years, the Nils Rosén von Rosenstein Award. He was chosen to present the “In Praise of Medicine” Public Address at 100<sup>th</sup> Anniversary of Erasmus University Medical Center (2013), the Journées Nationales de Néonatalogie Keynote Address at The Pasteur Institute (2015), received the Nightingale Excellence Award from Stanford Children’s Healthcare (2016), and was awarded an Honorary Doctorate by Örebro University in Sweden (2019).

His community service helped to launch the Harmony Health Clinic (providing free-of-cost medical and dental care since 2008), served victims of the 2010 Haiti earthquake and several other natural disasters. He received the Father Joseph Biltz Award (2007) from the National Conference for Community & Justice and the Dr. Martin Luther King “Salute to Greatness” Individual Award (2008) from the Governor of Arkansas.

He has authored more than 275 leading scientific articles, edited 9 books/journal issues, and published numerous other monographs, book chapters, and national guidelines. He is currently a Professor of Pediatrics, Anesthesiology, Perioperative & Pain Medicine at Stanford University School of Medicine.

## Interview Abstract

Dr. Kanwaljeet Anand begins the interview by describing his journey into pediatric pain and symptom management through his work examining metabolic and hormonal stress responses of infants undergoing surgery. From this work, he retraced history to understand where the notion of ‘babies don’t feel pain’ came from, and then eventually studied more closely the pain responses of infants.

Dr. Anand describes how he was surprised to find that babies mounted three times the metabolic stress response to surgery as compared to adults, and how his pediatric pain research initially received a lukewarm response from his peers. However, that lukewarm response turned into a massive media scandal as news outlets sensationalized Dr. Anand’s work as ‘disgraceful doctors performing surgery on babies without anesthesia.’ Eventually this media frenzy ended with public apologies printed in the same newspapers.

Since that media incident early in his career, Dr. Anand describes his journey as being “doubly blessed” by immense support from many colleagues and peers as he doubled down into some field-defining research on pain in neonates and infants, as well as clinical work for underserved populations in the “Deep South” of the United States.

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Dr. Anand concludes the interview by describing the Harmony Health Clinic which serves the uninsured populations of Central Arkansas, as one of his dreams realized. The next dream he hopes to achieve is to cultivate a greater understanding and reverence for the children that give medical professionals an opportunity to serve.

### Glossary of Acronyms

<i>Abbreviation</i>	<i>Definition</i>
EKG	Electrocardiography
ENT	Otolaryngologist
GMC	General Medical Counsel of the U.K.
ICU	Intensive Care Unit
NICU	Neonatal Intensive Care Unit
NIH	National Institutes of Health
PDA	Patent Ductus Arteriosus ligation
SCBU	Special Care Baby Unit
UCSF	University of California at San Francisco

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## Interview Roadmap



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**Bryan Sisk:** Today is August 7, 2019. I am Bryan Sisk and I'm in St. Louis, Missouri interviewing Dr. Kanwaljeet Anand over the telephone for the Pediatric Palliative Care Oral History Project. Dr. Anand is San Jose, California. So, thank you Dr. Anand for joining me to today. To get us started could you tell me when your mind turned to pediatric pain as a career focus?

**Kanwaljeet Anand:** Well, it was mainly by accident. I had been working on measuring the metabolic and hormonal stress responses of babies undergoing surgery, and found that babies have a huge stress response and when they are given anesthetic or analgesic during and after the surgery then their stress responses are more physiological rather than being extreme or pathological. In trying to understand this data the question came up, do babies actually feel pain? I was sort of forced to consider this question, because when I presented my data at various conferences, people said, "Okay, what does this mean? Are they actually feeling pain if they are under nitrous oxide and muscle relaxant?" So, that's how I became interested in the pain system and its development.

[00:01:43]

**Bryan Sisk:** I believe this was the mid-80s when you started this work, mid-to-late-80s when you started this work, is that correct?

**Kanwaljeet Anand:** I worked on this in sort of, 1982, that's when I enrolled in the doctoral student at Oxford, so those were mainly hormonal metabolic stress response studies. The question of pain didn't come up until I had moved to Boston, at the Children's Hospital, and that's when being a research fellow in the department of anesthesia that the questions came up again and again.

[00:02:24]

**Bryan Sisk:** Did you have a clinical practice as well or were you full-time research?

**Kanwaljeet Anand:** While at Boston's Children's initially I was just doing a post-doc fellowship, having completed my PhD at Oxford. While at Oxford I was working in the neonatal intensive care unit. It's called the Special Care Baby Unit. SCBU [Special Care Baby Unit], it was called at Oxford at that time. But when I moved to Boston during my post-doc I was only doing research. I had no clinical responsibilities.

[00:03:06]

**Bryan Sisk:** So, when you started tackling the question of do babies feel pain, what was the commonly held viewpoint in neonatology and pediatric communities with that situation?

**Kanwaljeet Anand:** Well, it was widely believed that babies are not capable of feeling pain, that their nerves are not myelinated and so transmission of painful or nonsusceptive impulses does not occur into their central nervous system.

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**Bryan Sisk:** How did you tackle that with your research to get from the biochemical and hormonal stress response, trying to answer the question of do they feel pain?

**Kanwaljeet Anand:** I first tried to understand why this notion developed. So, In order to tackle anything you need to resolve the reasons why; why are we at this point in time? And so, basically what I discovered was that back in the 1940s, just after the Second World War, all the surgeons were coming back home and they turn their focus to doing surgeries to correct congenital deformities newborn infants or small young infants. At that time many babies who were lifted for surgery, they succumbed during the induction of anesthesia. Because if you recall in the 40s the common approach was an ether mask, so a gauze mask in which ether or chloroform were dripped, giving unmeasured concentrations of these very potent gases to babies. Many of them suffered cardiac arrest or hypertension and died before the surgery could be done. So there was a big concern that the anesthetic itself is somehow bad for babies. At that time in 1941 and '42, Myrtle McGraw was this psychology researcher in New York and she published some observations on the response of newborn babies to pin prick.<sup>1</sup> And she said they don't have a specific withdrawal response, they have a generalized activation in response to pain. Many times if babies have been fed and swaddled, they are not responding at all. So people in the pediatric anesthesia field, which actually still have not been born at that time, so it's mostly adult physiologists who were giving anesthetic to babies, they sort of put two and two together and said, "Well, babies don't feel pain, so why are we doing all of this?" And so that's when the Liverpool Technique became very popular. This was a technique that Jackson Rees had published. Jackson Rees was at the Alder Hey Children's Hospital in Liverpool in England. Bascially, the technique was giving three times dose of curare and as muscle relaxant and then hyperventilating the child, so that it would reduce cerebral blood flow and thereby provide an anesthetic to those babies.

This became very popular in the late-40s and 50s. Unfortunately, despite the development of monitoring, like EKG [Electrocardiography] monitoring or oxygen saturation monitoring, temperature monitoring, no one really challenged this notion until I started studying the stress responses are babies having surgery.

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**Bryan Sisk:** What was the initial reaction when you started giving presentations on data to say, "We've been doing this with kids but they've been feeling pain this whole time?"

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<sup>1</sup> McGraw, M. (1941). Neural Maturation as Exemplified in the Changing Reactions of the Infant to Pin Prick. *Child Development*, 12(1), 31-42.

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**Kanwaljeet Anand:** I was surprised when I saw the data for the first time because babies had a stress response. My hypothesis was that since newborn babies have an immature endocrine system and very limited reserves of glycogen or fat, that they would have a markedly reduced stress response. But the results showed they had a metabolic response that was three times that of adults who were undergoing similar types of surgery. Even the hormones were off the chart. I felt, "Why is this? Is this because of them being newborn and immature hormonal regulation or is this because of something we're doing to these babies differently." That's when I started going into the operating room and seeing what was done, and to me this was intuitively very strange that they babies are being paralyzed and surgeries are being done without proper anesthetic.

Anyway, that was the notion and we challenged that notion by designing some double-blind randomized control trials and then measuring the stress responses. When I presented the data people were quite surprised. They really questioned the fact that these hormonal responses were indicative of very big hit to physiology of the infant, and what could this mean. Does this mean that baby is actually conscious or is feeling the pain of surgery while under the muscle relaxant?

[00:10:20]

**Bryan Sisk:** How quickly after your studies was there a change in practice?

**Kanwaljeet Anand:** Well, [laughs] unfortunately, there was not much attention given even to these studies. It was like just another study. We had a randomized control trial of Fentanyl anesthesia for pre-term babies undergoing PDA [Patent Ductus Arteriosus] ligation. It was published in *The Lancet*.<sup>2</sup> The paper was initially published on the 10th of January 1987 and they published it without any of the figures that we had sent to the journal. When we pointed that out then it came out again, the entire article with the figures was reprinted on the 31st of January in the weekly issue of *The Lancet*. People said, "Yeah, interesting, very good work." There was a letter to which we responded and that was the end of it. And then in May of '87 *The Redbook Magazine* somehow picked up this article and said, "Look what these researchers are doing. They are doing surgery on babies without giving them anesthetic to see if the baby responds to pain of surgery or not." So this came out in *The Redbook Magazine*. And then the next day *The Daily Mail* in the U.K. [United Kingdom] published this front page article saying, "This test is a crying shame." So it was sensationalizing the whole issue. Then, a couple of days later the all-party parliamentary group, pro-life group from the U.K. of Parliament issued this press statement, saying that "this is unethical research,

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<sup>2</sup> Anand, KS., Sippell, W., Aynsley-Green, A. (1987). Randomised Trial of Fentanyl Anaesthesia in Preterm Babies Undergoing surgery: Effects on the Stress Response. *The Lancet*, 329(8524), 62-66.

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these doctors who have done this research their license should be revoked, they should never be allowed to do these inhuman research studies," and so on. There was a big uproar about this. For months, or for longer I think, *The Times of London* and other newspapers were publishing correspondence about this uproar. In fact, the General Medical Counsel of the U.K. launched a public inquiry—they put a panel of experts—at that time I was attending the World Conference on Pain in Hamburg in Germany. I had to cut short my trip or my stay at this conference to catch the overnight ship that goes from Brussels.

First we had to get from Hamburg to Brussels, changing like five trains in the middle of the night. My wife and I took this—what do we call it, this channel crossing steam ship and we caught a train to London. I went straight to the GMC [General Medical Counsel of the U.K.] offices, and having not slept the entire night and then faced three hours of questioning. Anyways, they were not convinced. And my PhD supervisor was also there, Sir Albert Anysley-Green—at that time he was still Dr. or Professor Anysley-Green. They were not convinced that we had done due diligence. They asked us give them the original records, the source documents of all the data that were collected and published in this paper. Late that afternoon Anysley-Green and I caught a bus to Oxford. Luckily, after even two years after I had left Oxford, people had not thrown away the lab books, notes, and the case report forms and everything. And so all of that was neatly boxed and kept in storage. We were able to get those boxes out and then we traveled back to London, and the next morning showed up at the GMC and shared all of this original source documents with them. Then, they published their findings saying that this is highly ethical research that they have examined, all stages of the research, and that the study findings are valid and that sort of thing.

Basically, what had also happened was everyday people were writing letters. People that were on the ethics committee reviewed the study protocol were writing letters to the newspapers saying this was ethically done. Even the nurses from the unit wrote letters. So there was a number of people who came out in support of our studies. After about a month or so, this whole thing was settled. The British all-party parliamentary group issued a public apology, which was also published in the newspapers but it wasn't front page news in *The Daily Mail*, it was hid in one corner on the 17th page or whatever.

[00:16:55]

**Bryan Sisk:**

So, a big uproar when it got pick up by one news outlet. Was there any uproar about the common clinical practice that you were trying to investigate, like the fact that mostly, kids didn't get any anesthesia outside of this research?

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**Kanwaljeet Anand:** That became a big issue. So once all this uproar was going on there were a number of editorials published in the anesthesia journals. David Hatch and Myron Yaster and very leading pediatric anesthesiologists wrote an editorial on this issue and the ultimate result of all of this controversy was our research became known the world over. People were very aware of this research and many anesthesiologists came out in support. George Gregory and Scott Robinson from UCSF [University of California at San Francisco] said, "We routinely give Fentanyl to babies having PDA ligation." Others reported saying, "Although babies may not feel pain, but we still like to give them analgesia after the surgery is over," and things like that. Ultimately, it ended up in my favor or in my benefit because more and more people started questioning the old dogma and started using anesthesia and analgesic for babies.

[00:18:48]

**Bryan Sisk:** How did you first find out that *Redbook* had published that article? I'm assuming you weren't a regular subscriber to *Redbook*.

**Kanwaljeet Anand:** Absolutely not, no. I just found out when *The Daily Mail* published this front page article and my supervisor called me and said, "Sunny, we are in deep shit." Particularly after the members of Parliament issued the press release, we knew we really had to defend this tooth and nail.

[00:19:26]

**Bryan Sisk:** What were you thinking when you first saw that and they were getting upset with you?

**Kanwaljeet Anand:** I was a lowly post-doctorate fellow. I thought "this is the end of my career. I will never be able to show my head out of shame—that this is really terrible. I brought dishonor to my parents and my family." It was all kinds of thoughts going on [*laughs*]. But I truly felt that I didn't do anything wrong. We did everything and very carefully designed the study. We insisted that the anesthesiologist, even for the control group, we insisted that they give 30% or 40% nitreous oxide to the babies, which was over and above what was recommended by the standard approach. So we felt that we were doing right by the babies, and for this to misinterpreted so much we were simply subjecting them to pain so that we can see whether they respond or not, that flipped the whole thing on it's head.

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**Bryan Sisk:** After *Redbook* and *The Daily Mail* and the varied apology to you in the newspapers, when did you start to see changes in clinical practice?

**Kanwaljeet Anand:** Basically this was what led to the review article that was published in November of '87.<sup>3</sup> This storm of this controversy had died down. It was in

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<sup>3</sup> Anand, KS., Phil, D., Hickey, P. (1987). Pain and Its Effects in the Human Neonate and Fetus. *The New England Journal of Medicine*, 317(21), 1321-1329.

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June of '87 that I started saying, "I've footsied around this question long enough. I really need to look at,"—so that's when Paul Hickey my mentor at Boston Children's and I published the review article in *The New England Journal on Pain and Its Effects*. We traced the pain system from the earliest development and looked at all the behavioral manifestations of being in babies. And this was literally hundreds and hundreds of articles. We had to synthesize all of this into a scientific framework. That work I think was doubly blessed because it led to various methods for assessing pain. It led to a strong rationale for justifying pain meds and giving anesthetic.

But even then the practices had not changed. There was reluctance on the part of many anesthesiologists to completely change their practice and start giving strong anaesthetics to babies because they were concerned about the hemodynamic effects and things like that. So that's when my work with Paul Hickey was completed, and this was published as a lead article in *The New England Journal* in January of 1992;<sup>4</sup> this was on babies having cardiac surgery where we showed that giving a deep anesthetic to babies who are critically ill after surgery actually reduces their mortality and morbidity. So that's when the whole field a pediatric anaesthesia changed their practice and everyone consistently started using anesthesia during surgeries in babies.

[00:23:48]

**Bryan Sisk:**

Previously I had spoken with Neil Schechter and I had read the works of Eland and Anderson<sup>5</sup> and this concern or this question of whether, not only infants, but whether children and younger children experience pain in a meaningful way. It seems like it had been long lasting where the kids were getting fewer narcotics post-operative for the same procedures adults were. It kind of makes sense when you think about an infant and why there could be some confusion about whether or not they're experiencing pain, because they might not outwardly manifest it the same way that an adult would. With kids it seems like can clearly manifest outward symptoms. So, what do you think it that took so long for that gain recognition?

**Kanwaljeet Anand:**

I think people just called their responses as reflective in nature, their withdrawal, their facial expression, their crying, were simply—I think part of the problem was the actual definition of pain, because back in the 1960s the International Association for the study of pain defined pain as a sensory and emotional experience associated with tissue damage or described in terms of tissue damage. Since babies and particularly children below two years of age don't have the verbal repertoire to describe their pain, it was questioned whether they actually do you feel pain. Even today there are

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<sup>4</sup> Anand, KS., Hickey, P. (1992). Halothane–morphine compared with high-dose sufentanil for anesthesia and postoperative analgesia in neonatal cardiac surgery. *The New England Journal of Medicine*, 326(1), 1-9.

<sup>5</sup> Eland, J., Anderson, JE, Jacox, A., (Ed.). (1977). The experience of pain in children. *Pain: A Sourcebook for Nurses and Other Health Professionals*. Little, Brown, Boston, MA.

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people across the world who argue that children less than two years are incapable of feeling pain because they don't have the psychological construct to be able to identify pain as pain.

There's one particular person with whom I debated and argued multiple times. His name is Stuart Derbyshire and to this day he continues to write about the fact that small children don't feel pain.

[00:26:13]

**Bryan Sisk:**

Were there different views on acute postoperative pain versus by chronic lingering cancer pain and other types of pain? Was it good differently what was it you pretty much similarly?

**Kanwaljeet Anand:**

The acute pain is being discounted as behavioral reflex and things like that. As far as the prolonged pain was concerned, there was absolutely no evidence that these children were in pain, because most people, most clinicians, identify pain with a psycho-physiological activation response, which is what happens in acute pain—you get these changes in heart rate, blood pressure, facial expressions, body movement, writhing, all those things. But when the pain gets prolonged, then the organism experiences a shut down of behavior, even normal behavior is shut down because that acute psycho-physiological activation response is so energy expensive, I believe it may be the organisms' way to conserve energy. So when there is prolonged pain, say for example, in children having sickle cell crisis, they have a shut down of their behavior; they're trying to be still, they're trying not to move, they have a flag affect, even their heart rate and blood pressure are at the normal levels, albeit without the normal variability—like we have the sinus variability associated with breathing, and we don't have that in setting of prolonged or chronic pain. That again was discounted because children were not able to express their pain or complain loudly. Also there were these cultural notions that "experiencing pain builds character, you'll be stronger for it, whatever doesn't kill you will make you stronger." Those notions are commonly prevailing in society.

[00:28:48]

**Bryan Sisk:**

When you were going around in the late-80s, early-90s and giving presentations on this in places, what was the response of the crowds, which I'm assuming had anaesthesiologist and maybe some surgeons in it, what was there response to the research?

**Kanwaljeet Anand:**

I mean most of them were receptive to the research. I found a much greater degree of acceptance from nurses or from mothers who have had children with these kind of painful conditions. I think gradually the surgeons also came around and said, "absolutely." There were some very senior people who were hard to convince but they did get convinced ultimately, as more and more data started getting published and many more people started

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working on this area. The supportive evidence built up to a level where it could not be denied.

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**Bryan Sisk:** What was the point when you realized your career was going to be okay?

**Kanwaljeet Anand:** *[laughs]* Well after the GMC published its findings and then there were similar notices published in several different journals in the U.K., so that's when I realized that I can breathe. And then after the paper in *The New England Journal* was published in 1987,<sup>3</sup> this was November of 1987, that whole year was a very significant year in my life I must say. Then there was a lot of interest I was on the *Nightly News with Peter Jennings*. I was on the *Today Show with Bryant Gumbel*. I was being interviewed by almost every news channel and there was a full page article that came out in the *Washington Post* with my picture in the middle. I think there was a much more receptive audience after this scientific rationale was published and people realized that all of this data had been sitting around, but no one has really synthesized this into one single framework. That's when I felt, "Okay, I could look forward to a career."

[00:32:03]

**Bryan Sisk:** What did you learn through that experience about interacting with the media and with the public?

**Kanwaljeet Anand:** I felt that I was extremely nervous. I just had to learn to relax and to simply answer the question instead of going to clichés or things like that. It taught me a lot. It just taught me that in a place like America, an immigrant from a third world country, if they work hard enough and do good work, they can be recognized. I learned a lot about interacting with people and always trying to understand the other's point of view. Those were very important life lessons.

[00:33:23]

**Bryan Sisk:** After this probably, really strong buzz and sense of elation after you've gotten a couple of leading articles in *The New England Journal of Medicine*, what happened to your career after that? How did it develop, research, clinically? What did it lead to?

**Kanwaljeet Anand:** After my post-doc fellowship in June of 1988, I applied for a residency program realizing that I loved taking care of children and families, and felt that I had spent almost six years in research with my doctoral work and post-doc fellowship. I matched at Boston Children's Hospital, which was very, very lucky. I was the first foreign medical graduate to have matched in the national matching program, and so went through residency training, went through my critical fellowship at Mass. General. Because in those days there was no duty-hour limits. We were working extremely hard. In addition I was traveling because of these lecture invitations and we had also started a

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family. That time was a busy time. This was the time when Pat McGrath and I got together and we published our book on *Pain in the Neonate*.<sup>6</sup> It was during my intership that we created the outline of that book and then over the next year and a half got all the chapters, edited, and the book was published.

After my clinical training I really had a passion for underserved populations. My wife and I moved to the deep south because that's where there was the highest mortality of children following critical illnesses. And so spent almost 23 years in the deep south after that.

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**Bryan Sisk:** Did you leave your research for the clinical world?

**Kanwaljeet Anand:** No, I did get back. Once I was in a faculty position, I saw that there was a lot of clinical research and people had—with the five years I was in clinical training there were many others who had taken the lead in terms of doing clinical studies. But some of the hypotheses that were being generated from those clinical studies I felt would require an animal model for pain in newborn animals or small infant animals. As a young faculty member I was working in Plotsky's lab in Emory University in Atlanta and developed these models for acute pain and inflammatory pain in newborn rats. We published the very first studies<sup>7</sup> on these repetitive pain models to sort of, judge what is happening to pre-term babies who are admitted to the NICU [Neonatal Intensive Care Unit] and undergo eight to ten or maybe, even more painful procedures everyday. So we created some animal models. In the meantime, while I was doing that, I was also involved in some epidemiologic studies to document the frequency of painful procedures in babies. And then, I got my first NIH [National Institute of Health] Award which was K08 to develop those models, this was in 1994. At the end of that I had done a randomized trial of analgesia and pre-term babies and then, we got funded for the NEOPAIN multicenter trial, so this was my first R01 that was funded in 1999. So continued and have continued multiple studies on pain management since then. Vertically also looking at mechanisms of opioid tolerance and withdrawal and trying to understand some of the underlying mechanisms.

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**Bryan Sisk:** Heading back for just a second. You matched into your residency and then fellowship at Boston Children's Hospital. During your intern year, you started writing a landmark book, and either during residency or fellowship you published the lead article in *The New England Journal of Medicine*. And on top of that you were a four medical graduate and you were presumably

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<sup>6</sup> Anand, KS., McGrath, P. (Eds.) (1993). *Pain in the Neonate*. Elsevier.

<sup>7</sup> Anand, KS., Coskun, V., Thirivikramn, K., Nemeroff, C., Plotsky, P. (1999). Long-Term Behavioral Effects of Repetitive Pain in Neonatal Rat Pups. *Physiology & Behavior*, 66(4), 627-637.

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only a few years older than most of your colleagues, what was that experience like?

**Kanwaljeet Anand:** Really it was quite interesting. I had received some degree of clinical training in India and in the U.K., so as an intern I was lot more comfortable in critical situations. Many times I would be, as the intern, would be running a code in the ICU [Intensive Care Unit] while one of my senior residents would stand and just make sure I'm doing the right thing. Also having trained in India I was also very facile with all kinds of procedures, so intubations, or getting IV's or lines placed. My peers knew to call upon me to put in a very difficult IV. I recall one particular—as a fellow, this was at Mass. General, we had a baby with a Pierre Robin sequence. The baby obviously, needed some ventilation but no one could intubate. They were calling the ENT [Otolaryngologist] surgeon to maybe do an emergency cricothyrotomy. I asked my attending—I wasn't on service but the attending who was on service and the fellow who was on service, I asked them, " Can I take a look?" Luckily, I was able to get a tube into this child. People realized I have some extra procedural skills, just based on the volume of patients I had seen in India and in England. You see I wasn't that much older than my peers during residency and fellowship because in India you go into medical school straight out of high school. And whereas people have to do four years of college to get into medical school. Those four, maybe, a couple or more years, six years I had spent in research—I was about the same age as others, but it took everything to be able to survive in a competitive training program at Harvard. Most of my colleagues were far more accomplished than I was really.

[00:42:04]

**Bryan Sisk:** Amazing. As you were clearly were developing this expertise in this track in pain and especially, newborn's pain, what was your interaction in the field of pediatric pain medicine that was starting to develop, like mid- to late-90s?

**Kanwaljeet Anand:** I think it was tremendous. I got a lot of mentorship from people like Chuck Berde, and Myron Yastor, and a number of folks, Pat McGrath, Leona Kuttner, Celeste Johnston. So these were senior people who were—Pat McGrath, how can I forget Pat, he co-edited the book with me. Basically, these were very senior people and they would help me, they would advise me, they showed me how to apply for grants and get funding. Even as a resident I was applying for research grants, and did land a couple of those so that I could do the epidemiology studies and other things to remain a little bit active during my training. We had literally grown up together to the point some of these people on whose shoulders I took off, they're now retiring or coming to be at the end of their careers. I really have a tremendous regard, respect, and friendship with all of these folks.

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**Bryan Sisk:** What about pediatric palliative care? That was also developing around the mid- to late-90s, is when it was gaining more and more force, and it was certainly focused on pain as one aspect of children's total suffering. What were your interactions with the palliative care community?

**Kanwaljeet Anand:** They were very positive because a lot of my work applied to the palliative care field because of the pain, but also because of end of life care. I learned a lot from people who were the pioneers in the pediatric palliative care field, simply because I was an ICU physician and I dealt with end of life frequently in my clinical work. There was really a very positive interaction, a lot of two-way learning from each other on pain management versus, handling sensitive conversations, how to be more culturally receptive to people, so around the time of that.

There was also, which I hadn't previously developed—there was also a certain philosophical benefit I got while interacting with people in palliative care—realizing that care does not end when cure is no longer the primary goal. To look upon life and death as the two sides of the coin. I learned to be a better physician from them. I learned that compassion and caring transcend the actual intent of our interactions with patients.

[00:46:40]

**Bryan Sisk:** Looking back over your career, what do you think were the biggest challenges you faced as you were trying to launch into this field of pediatric and infant pain?

**Kanwaljeet Anand:** I think the biggest challenges were—I would say funding was a very big challenge. I've had limited success in getting research funding. But because these fields were so new and so unknown—I can tell you in period of my career there were 13 grant submissions and all of them were rejected. Even publishing some of the data was very difficult. We had several rejections because these ideas were too new or too radical in some ways. So those were some of the challenges.

The other thing that I feel could have done much more is, if I had had a consistent mentor. The mentorship I received from Paul Hickey, who was mentor during the post-doc fellowship was limited to that. It didn't extend much beyond or the mentorship I got as a doctoral student. I just didn't realize the importance of mentorship and I should have identified the career mentor to whom I could go and speak with across different jobs or different levels of my career. I really feel that that was a challenge. I did not identify and become associated with one consistent mentor.

Then, I think there was also some difficulty because of my appearance and origin, having spent many years in the deep south, there is overt racism there, it still exists. There was a fair amount of—I would say some were

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discounting my abilities even while I was in Boston or in England. And I felt that. It was not stated, it was felt in the warmth of a handshake or it felt in daily clinical rounds where what you presented was not as important as what another person may have presented, the same thing.

I think it just showed that I needed to perform at a much higher level, work much harder to achieve the same degree of success as some of my peers. Be that as it may, I have no regrets. Would I change anything? Not a single thing. I feel it allows me to be a lot more supportive of my trainees, it has really maintained my humility to some extent. I have benefited a lot from all those experiences, even though they didn't feel very good at that time.

[00:51:15]

**Bryan Sisk:** Have you noticed those things changing overtime or has a lot that remained the same?

**Kanwaljeet Anand:** Yeah, well no I don't think particularly in the deep south things have changed very much. So I was in Little Rock, Arkansas until 2009 and then I moved to Memphis, Tennessee. That is still a very racially divided community, very segregated and the social economic climbs are clearly drawn around race. Anyway those attitudes have improved, no question about it, but more so in a place like California or maybe in a place like St. Louis or others. But there are some cities, some states where there is still a big disadvantage to people who are not of the same ethnic background.

[00:52:40]

**Bryan Sisk:** A couple of final questions as we close out. When you look at your career and all of the kids you've taken care of, what do you think are the biggest changes in the way we address pain and suffering in these kids?

**Kanwaljeet Anand:** It's been very exciting to be a part of this whole change in medicine. You see medicine was being practiced as a science, as in art, but little attention was given to the experience of the patient that was undergoing the medical treatment. There's been a change towards making medicine a lot more humane and a lot more concerned about the experience of those who are the consumers of medicine. There is also an increasing focus on wellness, rather than Patrick Dennis' let's look at Salutogenesis. So those are very important trends that have occurred.

[00:54:04]

**Bryan Sisk:** Of all of the things that you've accomplished in your career, what are your favorite contributions?

**Kanwaljeet Anand:** *[laughs]* Well I feel very satisfied about the one thing that I accomplished in Little Rock, Arkansas, and that was to start a charitable free medical clinic. It's called the Harmony Health Clinic. I was president of the board. This was a dream of mine to serve the underserved and the uninsured. More than 10 years now, from the time the clinic opened it's doors, it is still functioning.

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Since then I've been involved in other charitable clinics, but that stands out in my mind, I feel was my greatest contribution. The research *etcetera* was important but in terms of bringing solid and sucor to people who were at their wits end, I feel that was my significant contribution.

[00:55:27]

**Bryan Sisk:**

Lastly, I would love for you to dream aloud. If budget, and politics and all of the other things that get in the way as an obstacle; if none of those existed what would you ideally want the care for children, especially children in pain and suffering with serious illnesses, what would you want that to look like in another 10 years?

**Kanwaljeet Anand:**

I dream that all of us who work in medicine would be motivated solely by compassion and love. That would be my dream. It would be my dream that we are sensitive to the needs of children who have serious illnesses; that we honor and revere them and thank them for giving us the opportunity to serve. That's where I feel the details will take care of themselves. There will always be newer drugs and newer devices and new ways of delivering care. I feel the most precious treasure that we have in healthcare is our compassion, our empathy, our willingness to acknowledge and then relieve the suffering of another. That's a rare privilege. I feel the more we can shape that and keep that sacrosanct, that would be my dream.

[00:57:33]

**Bryan Sisk:**

Those were the end of the questions I have. Are there any points in this history that you think I've glazed over or missed that I should really dig into further in the future?

**Kanwaljeet Anand:**

No, I think you did a wonderful job Bryan. You made me think and reflect. I will treasure this conversation we've had together.

[*End of Audio*]

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