Serendipity – AAP Section on Critical Care Distinguished Career Award 2011

Thank you, Michele for your kind words. I would like to thank the Academy and the Section on Critical Care for this very special honor. I would also like to thank my wife, Laura James, for her love, support and understanding, without which I would not have been able pursue my professional goals. I am delighted that she and my in-laws are with me here today.

I am very humbled to be included in the company of the previous recipients of this award. This is really the Hall of Fame team. These are the individuals that immediately come to mind when one thinks of the significant advances in our field of critical care medicine and I have been fortunate to have known all of them. I have been even more fortunate to have worked closely with many of them and to become their friend and colleague and I have the American Academy of Pediatrics to thank for providing me with the opportunity to do so.

1995  David Todres  
1996  John Downes  
1997  Peter Holbrook  
1998  George Gregory  
1999  George Lister  
2000  Russell Raphaely  
2001  Murray Pollack  
2002  Daniel L. Levin  
2003  Ann E. Thompson  
2004  Bradley P. Fuhrman  
2005  J. Michael Dean  
2006  David G. Nichols  
2007  Ashok P. Sarnaik  
2008  Patrick M. Kochanek  
2009  Jerry Zimmerman  
2010  M. Michele Moss

The word “career” has several origins, including the French carrière, for racecourse and Late Latin carrāria or carriage road. The conventional definition of career is a profession or occupation chosen as one’s life work. However, it is the alternative definition, a path
or progress through life or history, which is more closely aligned to the origins of the word. It is this definition that is particularly meaningful for me today. Receiving this award has allowed me to spend some time thinking about the path that I have followed over the years. Please bear with me while I free associate.

A person does not usually receive this type of recognition until they are, shall we say relatively “mature”. Now, I am not saying that I am old, but many things have happened since I first entered medicine. First there was the discovery of fire and then came the invention of the wheel, the use of ether as an anesthetic as demonstrated by Morton, the discovery of penicillin by Alexander Fleming and more recently space exploration, which has helped to accelerate the development of many new technologies. Of course there have also been many major cultural milestones such as M*A*S*H, Cheers, Seinfeld and Survivor, but that is a topic for another day. In medicine, the use of advanced imaging techniques such as CT scans, ultrasound, MRI’s, PET scanners has become routine. Other technologies that we take for granted include calculators and smartphones. In fact retro technology has come full circle; there are now iPhone slide rule and abacus apps. And here we have the first iPhone. We have pulse oximetry and more sophisticated point of care testing. Yet through all of these developments, some considered advances, some not, the one constant for me in my practice has been the people that I have worked with.

It has been my good fortune to have worked with many amazing people over the years. They have been brilliant, tireless and engaging, but most importantly they share a passion for the care of critically ill children. The essence of pediatric critical care lies in its diversity. If you choose to make this your career, your options are unlimited. Whether your focus is in basic science research, quality improvement, teaching or medical ethics, each day that you spend in the intensive care unit provides the opportunity for you to do a little bit of everything. As you take care of your patients you become a teacher, administrator, ethicist, behaviorist and even a researcher, because
every individual patient represents a teaching point or a research opportunity, a chance to observe and incorporate data and formulate a hypothesis. Each day, we function as the air traffic controller of the intensivist led team, which as we all know, the pediatricians had put into practice long before the adult intensivists realized it was the way to go.

The quality improvement/patient safety initiative has done a number of important things for healthcare. It has increased awareness for the public that the care they receive can be provided safely and effectively. It has standardized practice to incorporate best evidence and allow us to better study the end result of the treatments that we provide. Without question, initiatives such as the Surviving Sepsis Campaign and the prevention of catheter associated blood stream infections, have saved lives. Unfortunately these efforts have also had unintended consequences. Complacency, inattention to detail and losing the desire to learn are all potential hazards in the implementation of standardized practice. Work becomes formulaic and as the electronic health record becomes a universal reality, a few keystrokes, touches on a screen or clicks of a mouse can replace pulling out the handbook and doing calculations by hand. Are we moving towards better and safer patient care? Absolutely. An equally important question is: are those who are becoming physicians today learning what they need to learn? I think we are beginning to learn more about this each day.

There is no such thing as a routine or typical patient and one of the greatest mistakes a physician can make is to assume that there is. In the intensive care unit, the consequences are amplified by the severity of the problems as well as the compressed timeframe in which these problems evolve.

Benoit Mandelbrot, a mathematician and the inventor of the field of fractal geometry in the 1980’s had many wide-ranging interests. Throughout his career he analyzed economic behavior and extraordinary economic events. He was convinced that
economists planned for “mild randomness” and misunderstood “wild randomness,”
learning from the averages and overlooking the outliers and in the end, underestimating
catastrophic risk. He wrote in “The (Mis)behavior of Markets” (2004) that “The
financiers and investors of the world are, at the moment, like mariners who heed no
weather warnings.” As pediatric intensivists, we need to be mariners who do heed the
weather warnings. Our weather warnings are the subtle signals we get from our
patients that tell us they are continuously changing. How we respond and tailor our
care can make all the difference in the world.

Coincidence is when false significance is attributed to chance occurrences.
Synchronicity or meaningful coincidence (Jung) is when an underlying principle unites
discrete events, but they are not necessarily causal or related in a reproducible or
deterministic way.
The English author Horace Walpole coined the word serendipity, when he formed the
word from Serendip which was an old name for Sri Lanka. He explained that this name
was part of the title of "a silly fairy tale, called The Three Princes of Serendip: as their
highnesses traveled, they were always making discoveries, by accidents and sagacity, of
things which they were not in quest of...."
Serendipity then is when you’re looking for something and you find something else
that’s even better – think penicillin or Christopher Columbus.

With that in mind, here is a brief timeline of my serendipitous career...
In 1972 I entered the UC Davis School of Medicine. After graduating in 1976, I began my
pediatric residency at the UC Davis Sacramento Medical Center. My attendings included
Corey Frates, Ken Cox, Crystie Halstead and my Chairman, Eli Gold. It was from these
individuals that I learned what a PICU was (even though we didn’t really have one) and
how important it was to be a complete physician.
In 1979 I began my PCCM Fellowship at the Children’s Hospital National Medical Center
with Peter Holbrook, Alan Fields and Murray Pollack. During our fellowship, we spent 2
months in the adult Medical ICU at George Washington University Hospital with Bill Knaus, Jack Zimmerman and the adult ICU fellow at the time, Art St. Andre. Bill Knaus had just developed APACHE and this caught my attention, since I had been looking for an idea for a research project. With guidance from Murray and Urs Ruttiman, this eventually led to a pediatric therapeutic intervention scoring system and then to a pediatric physiology based outcome score, the Physiologic Severity Index. Of course, as you all know, Murray took this initial effort several levels higher in the form of PRISM, which is still a standard for pediatric outcomes determination.

After completing my fellowship, I started my first real job in 1981 at the Children’s Hospital of San Francisco as the Director of the just constructed PICU. During my time there, I worked with Ann Pettigrew and the other PICU Directors as part of the Pediatric Intensive Care Network of Northern and Central California. Ann, who had previously been in the Massachusetts Department of Maternal Child Health, was instrumental in helping us demonstrate to the State of California that regionalization of pediatric critical care was possible and necessary. This initiative was later taken up by District IX of the AAP and the California EMS-C Authority. Also at the Children’s Hospital of San Francisco, I met David Holman, an adult pulmonologist and Chair of the Bioethics Committee and Thomasine Kushner, the ethicist consultant to the Committee. It was from them that I developed my career-long interest in bioethics.

Also in 1981 I joined the Society of Critical Care Medicine and the Pediatric Section, where I eventually served as the Section Chair and along with Frank Gioia, a medical school classmate, began the first Pediatric Critical Care Clinical Review Series.

In 1983 I joined the American Academy of Pediatrics and have been fortunate to have had a role in guidelines development, advocacy and in the activities of this Section on the executive committee and as Chair. In the Academy I have also chaired one of the SMC Action Groups and been a member of the COPEM, SOTM, SOHM and SOAPM.

I moved to the Children’s Hospital Oakland in 1987. While I was there, the CEO took a group of us to a quality improvement retreat not far from here at Brandeis. The retreat was led by Don Berwick, currently the Administrator of the Centers for Medicare &
Medicaid Services (CMS), and formerly President and Chief Executive Officer of the Institute for Healthcare Improvement. He was just beginning to have a major impact on healthcare improvement and after returning to California, we began developing clinical pathways and implementing performance improvement measures. One of my most rewarding experiences in Oakland was co-directing the joint PCCM fellowship program (CHO/UCSF). It was challenging and exciting and the fellows definitely kept me on my toes.

Along the way, I served on the AHA ECC Subcommittee on Pediatric Resuscitation and had an inside look at yet another professional organization. In 1992, I was elected to the Board of Regents of the American College of Critical Care Medicine and eventually served as Chancellor of the College. In the early 2000’s after moving to the East Coast, I worked with Joel Portnoy and his colleagues at CHOP on several patient safety projects and have continued to be involved with these initiatives at Saint Barnabas Medical Center. Finally in 2006 I began a term on the ABP PCCM Subcommittee, working with some of the smartest people I have known.

My career and the physician that I am today is in many ways the result of these serendipitous events, traveling along my path, looking for something and finding something even better at each turn.

Intensive care is a team effort. It is an interdisciplinary and multidisciplinary team effort. Even as we find our units becoming more and more specialized, the underlying concept remains the same. Each member of the ICU team is essential and never more evident than when one of them is missing.

Everyone has their good days and bad days. A good day in the ICU can mean any number of things. It can be something big, such as successfully getting the fresh neonate single ventricle repair through the first post-operative night. Or it can be a
patient resuscitation, where each and every person present has been essential to the successful outcome. It can be the look on the resident’s face as they understand why something they have just learned is now happening to their patient. It can be the relief that a parent feels when you tell them that their child has been weaned off the ventilator and is breathing comfortably on their own. A bad day in the ICU is when all your beds are full and there are 3 scheduled surgeries for the day. A bad day in the ICU is when your login password has expired and the new one you want to use isn’t acceptable because you’ve already used it in the last 6 months. A bad day in the ICU is when you drop the guidewire for the central line you are inserting, onto the floor. A bad day in the ICU is when the coffeepot in the lounge is empty. A really bad day in the ICU is when you have spent an hour explaining brain death to a family and they tell you that they want everything to be done. But the worst day in the ICU is when your patient has died and you have done everything you know that can be done. Unfortunately, as critical care physicians, we encounter this more often than others might. It is part of what we do and cannot be avoided. So why do we come to work every day? It is because, on balance, the good days outnumber the bad and the best good day lessens the pain of the worst bad day.

If there is a central theme to what I am trying to say today, it is the importance of the human factor in critical care. The complexity of managing critically ill children can be aided by technology. Personalized medicine is becoming a reality as individualized therapies are being developed. An individual’s stem cells can be induced to form cardiomyocytes that will allow us to determine their risk for disease and which drugs to take when they become ill. There will come a time when a hospitalized patient will be identified by their DNA, not their wristband. Today’s educational session has highlighted some of the amazing things that we do with technology each day. Certainly many critical care practitioners have been lured into the field by the promise of newer and fancier toys. However the foreseeable future does not include the replacement of the human element, Watson and Jeopardy and telemedicine, not withstanding. A team
coordinated by a computer does not feel the same. A discussion of prognosis with a
family cannot be replaced by a Wikipedia link for hepatic failure. I do not believe that
our patients and their families are ready for automaton medicine.

What is wonderful about our field of critical care? Let’s look once again at the previous
recipients of the Section on Critical Care Distinguished Career Award, who for me
represent the very best of pediatric critical care. What is remarkable about them is how
diverse and individual they are. The first recipient of the award, David Todres, greatly
valued the humanistic aspect of medicine and applied this throughout his career. Jack
Downes established the first multidisciplinary pediatric intensive care unit and is
considered one of the founders of the field of pediatric critical care. George Gregory
revolutionized the care of the newborn with respiratory distress syndrome. Dan Levin
wrote the handbook that every resident and fellow who aspired to be a pediatric
intensivist had to have. Peter Holbrook and Murray Pollack were my personal mentors
and through their insight into the importance of pediatric critical care as a
multidisciplinary specialty and demonstration of outcomes of care, they have helped our
field to mature. Of course establishing a scientific basis for what we do is essential to
maintaining credibility and this group is replete with outstanding clinical and basic
scientists. Others have taken leadership roles in major professional organizations and
academic institutions. Finally and perhaps most importantly, all of these individuals
have been teachers, because it is only by passing along their knowledge that our
specialty has been able to grow and develop. Through their teaching, they have inspired
countless others to pursue this very rewarding career. With that thought and to all the
students, residents and fellows that I have been privileged to teach, I leave you with
this. I cannot take credit for the many wonderful achievements they have
accomplished, but I am happy to have walked along the same path with them for a
while.
Thank you for allowing me to share my thoughts on what it means to me to be a pediatric critical care physician and thank you to the Section on Critical Care for this very special honor.