

Interview with Dr. Michael Apkon

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Dr. Michael Apkon

Dr. Michael Apkon, MBA, MD, PhD, was appointed President and CEO for The Hospital for Sick Children (SickKids) in January 2014.

Dr. Apkon has a BSc degree in Biomedical Engineering from Northwestern University, as well as MD and PhD degrees from Washington University School of Medicine in St. Louis and an MBA from the Yale School of Management.

Prior to coming to SickKids, Dr. Apkon was senior vice president for Medical Affairs and the chief medical officer for the Children's Hospital of Philadelphia (CHOP) and professor of Anesthesiology and Critical Care at the University of Pennsylvania, as well as a practicing paediatric intensive care specialist.

Dr. Apkon also served in leadership roles at Yale University School of Medicine and Yale-New Haven Health System, including executive director for Yale-New Haven Children's Hospital, and as a faculty member for Yale School of Medicine and the Yale School of Management.

As a healthcare executive, Dr. Apkon has led systems development and improvement to drive high quality and safe care, improve clinical operations, and promote an integrated approach to healthcare across a continuum of services. His academic interests include using technology to enhance safety and the application of operations management tools to enhance performance.

UTMJ: Could you tell us a little about yourself, your career trajectory and your transition into an executive capacity?

MA: I was educated first as a Biomedical Engineer, and engineers think about systems from the standpoint of how different components are selected and connected together. I believe in the proposition that every system is perfectly designed to give exactly the performance that you observe. This is a mechanical view of the world and how things work. After completing my undergraduate degree, I trained as a scientist. Scientists believe that there are explanations for observations, although they may remain to be discovered, and they work through hypothesis generation and testing to develop models that explain those observations. In some ways,

they are trying to figure out the system design by probing it from the outside. Scientists will acknowledge that all models are flawed, but some models are useful and help communicate a way of thinking about the world. I also have been trained as a physician and have been moved and inspired by the promise and capability of modern medicine and by the caregivers that bring commitment and passion for making a difference at the bedside. At the same time, I have also been frustrated that systems of care are sometimes inadequate and can even fail tragically. Those failures drive us to find new clinical solutions and improve those systems. For me, it led me to move to more of a health administrative role over my career and to pursue a more formal management education by obtaining a Masters of Business Administration (MBA) degree.

What I learned over my administrative career is that organizations are complex systems and their behaviour is hard to explain in engineering terms. However, the process of improvement requires recognizing that complexity and inspiring people to pursue a common goal; to align and direct energy to make the system better.

My educational trajectory has been mirrored in the healthcare roles I've had. I'm a Paediatric Intensivist. The Intensive Care Unit (ICU) is an interesting and important example of a clinical microsystem – a relatively self-contained clinical system, where different people come together to do complex things. My thinking of critical care has evolved from worrying about how well I could perform the life-saving procedures like resuscitation, intubation, making the right diagnosis and doing the right things to treat critically ill children, to now thinking more holistically about how to optimize a child's functional outcome as they move through the ICU. The broader my thinking, the more I came to recognize the number of people who contribute to those outcomes and the more apparent the challenges in coordinating their contributions. As I've taken on expanded roles, my thinking has evolved to consider a broader team and to think about the boundaries between professions, disciplines, and different components of the healthcare system. I have been fortunate to have professional experiences that allow me to have a broader scope and to work across many boundaries.

UTMJ: Just as a follow up, what influenced your choice to pursue Paediatric Intensive Care?

MA: I think it reflects my being a systems thinker from the beginning. As a pre-medical and engineering student, I focused on physiologic systems and how they operate. Most medical specialties are organized around one organ system or another. If you look at the field of intensive care medicine (especially paediatrics), you work as an applied systems physiologist across all physiologic systems. In intensive care, you need to have an understanding across most specialties and the interactions between the organ systems each specialty is responsible for. In some ways, it allowed me to be involved with all disciplines of medicine. Another thing that drew me to intensive care was being a member of a complex team where you end up as a sort of a quarterback across many different specialties. You are responsible for getting a child through critical condition or illness, such as helping them through the post-operative care after cardiac surgery, or their recovery from a major trauma.

UTMJ: What is possibly the greatest misconception the public has about paediatric health care?

MA: Probably it is just thinking about kids as small adults and thinking about their needs as being simply scaled down. This extends to people often thinking that the common conditions that kids and adults suffer from can be treated in the same way. There are a couple of differences between paediatric and adult health care. One is that kids suffer from different conditions and even when they suffer from the same ones, the presentation can be very different. It takes a certain degree of specialization to recognize and manage those conditions and the benefit of specialization is very clear. There is a technical expertise when caring for kids that can have a considerable impact. Because children make up only 20% of the population and are healthier than adults on average, most adult-oriented caregivers, even those with a general practice such as general surgery, will not see many kids and won't get many opportunities to treat sick kids. The benefits of technical expertise focused on children is significantly underappreciated. Another difference is that kids experience their injury or illness during a period of their most profound development: cognitive; psychosocial; and motor development. They are also evolving at a time when they are developing attachments to parents and siblings, as well as trying to make sense of the world. It is hard for us to convey the rationale around the discomfort of medical care or the separation from

their parents that is sometimes required during treatment. How a child is helped through that experience has a significant impact on their emotional wellbeing and, ultimately, their overall health. Paediatric care is specialized to help a child through that experience in ways that recognize their developmental level and unique needs. The importance of that is also underappreciated. Being child-centered isn't about having the right artwork on the walls. Rather, it is about helping the child through the experience of a painful procedure, managing their anxiety, and helping them engage with their activities of daily living in ways that recognize their dependence on adults.

One other consideration in thinking about paediatric care compared with adult care stems from the fact that children are, by and large, healthy and their utilization of health care services is much lower than the per capita utilization of adults, particularly older adults. That means you don't need, relatively speaking, a lot of paediatric expertise to serve the paediatric population. That fact creates a different dynamic in terms of how care is concentrated for advanced pediatric care compared to advanced adult care. Children's care tends to occur in far fewer organizations than the care of adults with similar conditions. An example is the organization of cardiac surgery services in the province of Ontario. There are roughly a dozen hospitals that do cardiac surgery for adults and each hospital has a number of cardiothoracic surgeons, because that's what it takes to meet the demand of the population of Ontario and deliver high quality services. That also ensures that cardiac surgery is available relatively close to home for most of the province's adults. In contrast, for children, when you consider the number of surgeries a centre needs to do to operate with high quality, you find that the number of cardiac surgery cases only warrants one or two programs. Any more would compromise the ability of one or more of the programs to deliver high quality, because surgeons simply would not have enough training. Each of these serve a much larger geographic base than the comparable adult programs. This kind of differential scale has led to a super concentration of advanced services in only a few locations within the province. That means families will be more challenged by the choice of convenience vs. quality, and there will be a greater need to coordinate care among providers separated by greater geographical distances compared to the adult healthcare world.

UTMJ: How has the delivery of paediatric health care changed in the last 10-15 years?

MA: There has been a real evolution in the kinds of care that can be delivered in two ways. First, we have become better in preventing the common illnesses of childhood that previously would have led to hospitalization and morbidity. A good example of that is the development of the rotavirus vaccine, which was introduced roughly a decade ago and which led to approximately a 40% decrease in hospitalizations in community hospitals, since one of the most common reasons for paediatric admissions had been rotavirus-associated gastroenteritis. There have also been changes in emergency department management of diarrhea and vomiting in children, allowing for outpatient management and leading to more of a decrease in the number of hospital admissions. Second, our capability at the extreme end of the care spectrum has evolved considerably. As an example, the indications for bone marrow transplant, one of the more advanced therapies we offer, has expanded from the treatment of leukemias to treatment of sickle cell disease, immune deficiencies, and a variety of other conditions. This has led us to perform more complicated work. Refinement in living donor transplantation has meant we do more solid organ transplants as well. Advances in cardiac surgery have allowed us to advance from providing only palliative care for the most severe cardiac disease to complete surgical repairs or even relying on artificial hearts. This means children that would have passed away in infancy now survive into adulthood. The care delivered by these kinds of advances is highly specialized and happens in only a small number of centres. The result of both factors is that we don't need to do as much in community hospitals while we are doing more in highly specialized centres.

UTMJ: You have already mentioned a few, but what are some challenges you see in delivering health care to the paediatric population in the near future?

MA: There are two challenges that I see. One is spanning distance to address the problem created when you need access to highly specialized services, but where there is a low demand for those services. In Ontario, there are only 4 centres with paediatric intensive care units, but children requiring those units live all over the province. That begs the question as to how we connect children to critical care services and to those centres when needed. They will likely present to the closest emergency department of local health clinics, but for most of those sites, caregivers will have limited experience caring for critically-ill children. We need to be thinking about how to solve the geographic and capability gaps between the highly specialized and the

more accessible local centres so that we build or preserve local competencies; hence, when those centres are called upon, they are able to provide high quality care in advance of transporting a child to a more specialized centre for definitive care.

The second challenge is that of coordinating care as our care delivery gets more specialized and complex. Now, we manage entire populations of people with very complex care needs, such as those that have major congenital abnormalities or that have undergone transplantation. It is wonderful that these people are able to survive conditions that they may not have in the past, but the complexity of their care creates other challenges. We are also taking a broader view of the outcomes we are trying to achieve through care, and that also creates challenges. For example, for children with congenital heart disease, we are no longer focused on survival from surgery or survival through infancy. Rather, we are increasingly oriented towards the best possible functional outcomes as a child grows and develops through childhood and into adulthood. Those challenges require a different mindset and a much larger team to weigh in and provide therapies over extended periods of time and to coordinate care across multiple venues, multiple professions, and multiple disciplines. This is a problem for all fields of medicine. As care becomes more specialized, care becomes more fragmented and requires coordination across those providers. This is not unique to paediatrics, but it is even more amplified in paediatrics due to the concentration of the experts and specialists at fewer locations. It is already an issue in adult oncology, cardiac care, and many different specializations, but it is more pronounced in the paediatric population.

UTMJ: You mentioned that many children are surviving complex conditions and growing into adulthood, so can you comment on the barriers to the transition from paediatric to adult care?

MA: The barriers are profound. The fundamental barrier is that there are not that many adult providers that have the expertise to continue providing care to children with rare diseases and there is a discontinuity in the caregivers' knowledge about a patient as they transition. Even if you did have competent caregivers, there is a handoff of an entire childhood of medical information that is quite complex in some cases. That transition can become very problematic. Oftentimes, the medical records stay at the original institution, particularly when you have electronic records. But the lack of expertise is often the bigger problem. In some areas, transitions work well. For example, for a child

with diabetes, there are quite competent adult endocrinologists that treat Type 1 and Type 2 diabetes. For those children, the challenge is a good hand-off and not finding clinical expertise, although there are some unique considerations in dealing with young people during that transition to adulthood where they need to take more responsibility for their own care. In other areas, it has been historically difficult to find adult-oriented specialists familiar with diseases of childhood. In some cases, there has been a very deliberate attempt to build that expertise. If I think about management of patients with cystic fibrosis (CF) for example, there hadn't been many adults living with cystic fibrosis until recently, so the experience among adult-oriented physicians was not that extensive. Children's hospitals like SickKids have sought out adult providers to become part of the care team, in order to develop that expertise and facilitate the transitions in care. Those kinds of programs have added a lot of value. Over time, as the numbers of adults living with CF has increased, that expertise has deepened and become more widely available. In other areas, it has been harder to build that expertise, particularly in some of the surgical disciplines where it takes a lot of training and practice to develop the expertise to address the abnormal anatomy of congenital anomalies.

Hospitals like SickKids have tried to identify partners on the adult side of the health care system and to work together to build effective transition approaches. For example, in congenital heart disease, our cardiac surgeons would go to University Health Network or St. Michael's Hospital and do cardiac surgeries on young adults with congenital heart disease if their expertise is needed. We run a joint program where we have pediatric cardiologists and adult cardiologists working together on the transition. This helps to build skill on the adult side and to bring the expertise of the pediatric cardiologists and develops a group of adult cardiologists that are comfortable with the complex anatomies of congenital heart disease. In fact, there has been an emergence over the last few years of specific training programs. There are programs now that take adult cardiology trainees to that train in a children's hospital program for some period of time to develop their skills.

UTMJ: We have talked a lot about new technologies and how often they are being introduced and, of course, paediatrics is no exception. What are your thoughts on the role that technology plays in the paediatric population, how can it influence the relationship between the physician and the patients as well?

MA: That is an interesting question. Technology is a broad term, so I can think of a number of ways that that fits in. Certainly, there are technological advances that let us do things at the bedside. In the last decade and a half, we have seen the refinement of extracorporeal life supports, Echo, heart-lung machines in the ICU, and artificial heart technology being able to save many kids that would have died because of their heart disease or following surgery. These have become a kind of a routine technology that have become more functional over time, and I expect it will continue to see those advances. Another example is the advances in robots that make it possible to operate in tiny spaces more effectively. I believe that we will continue to see technology kind of push us further towards reducing mortality and morbidity.

Technology is also likely to be a significant enabler of transcending geographic distance. There are so many untapped possibilities around tele-medicine and tele-health that could allow experts centralized to one centre to manage patients remotely and to help build capacity in the more distant communities.

A third application of technology may be the digital enablement of bedside care. As an example, the more robust use and deployment of electronic health records connected to decision support systems that leverages the promise of artificial intelligence could improve diagnostic accuracy and care in many ways. One worry is that the use of technology could create barriers between caregivers and patients. At the same time, however, technology could actually be empowering, by allowing physician brain power and time to be more directed towards creating a more human connection to patients and their families, allowing for more of a healing relationship to develop.

UTMJ: In February of this year, a joint panel of MPs and senators tabled the 70-page report called: "Medical Assistance in Dying: A Patient Centred Approach". It suggested a two-phase approach, with an initial phase allowing doctor-assisted deaths for adults 18 years and older, and then expanding it to mature minors within 3 years. What are your thoughts on the role of medical assistance in dying in paediatric populations?

MA: I personally feel somewhat conflicted about the topic. Certainly, end of life care is a significant component of care in the ICU. I think that there is probably some blurring in the line between compassionate palliative care and medical assistance in dying. Some of the more emotionally difficult experiences I've had in the ICU have been related to end of life care and the sorts of moral dilemmas that such care can encompass.

The issue is probably more amplified by the difficulty in determining at what point it makes sense to allow a person to decide for themselves about their end of life care. Age 18 to me is an artificial milestone and, certainly, the ethical constructs that we use in paediatrics recognize that there are many things where minors do have the right to decide, as long as it respects the principle of informed consent. The challenge is figuring out when, and figuring out how to avoid a slippery slope where it becomes younger and younger, and the tests become less and less clear. If you said that the rules that we afford to an 18-year-old should be applied to 17-year-olds, if they meet certain criteria, I would probably have no problem accepting that from the standpoint of fairness and fitting within the ethical construct that we have. That doesn't mean I'm comfortable with medically-assisted dying; it means that I could accept it and believe that it has a role. If you told me a 3-year-old should be able to decide, I'd have a real hard time with that, as I am sure most people would. What I struggle with is what happens in between and I honestly don't know how to address it. I'm troubled by the cases where families have let very young children make decisions to reject care. Although those decisions are not necessarily the same as decisions about medical assistance in dying, I'm not sure there is a bright line between choosing medically-assisted dying and saying no to life-saving therapy. I'm troubled when that happens at a very young age, because I don't believe informed consent is possible and we know from a lot of developmental work individuals don't have a good way of balancing short-term priorities with the long-term, even in adolescence.

UTMJ: On a lighter note, who have been some of your biggest influences both inside and outside of medicine and what kind of impact have they had on your career?

MA: Outside of medicine, I look to my parents and my grandfather. My grandfather really stressed the importance of listening to people and making a good first impression, as well as engaging in productive, constructive business relationships and professional relationships. I think of my parents from the standpoint of the importance of service and making a difference. Some of my earliest memories are accompanying my father in some volunteer work that he was doing with disabled and handicapped young adults. Professionally, I've had the benefit of three exceptional mentors. The person I trained with in critical care at Yale taught me a lot about how to think about clinical problem-solving, as well as how to think about the relationship between a physician and families that they serve. He

set a very high standard for quality and compassionate care, as well as for the intellectual rigor in thinking deeply about clinical medicine and physiology. From the two mentors I've had over my administrative career, I've learned a lot about leadership, how to think strategically, as well as how to think about influence in a way that doesn't rely on power as much as being able to bring people to a common vision.

UTMJ: Last question to wrap up, what advice would you give to doctors who are interested in entering the world of administration in medicine?

MA: I would suggest that you think beyond the role and work of physicians and really think about systems and interrelationships between professions, disciplines, and organizations. I'd also suggest trying to see things through the eyes of the people we are caring for. Administrative roles can be very rewarding. For me, it has been a means to an end, the end being better care. It's important to be clear on the role. There is a tendency for people, as they move into administrator roles, to view the role as an advocate for the group you are leading, and this is not unique to physicians. The reality is that leadership is about aligning those individuals so that they can more effectively contribute to an organization's success. With each succession up the administrative ranks, there is an even greater need to have a broader view and to think about how your constituencies relate to the others. As a physician executive, overseeing a group of physicians for example, it is easy to understand the perspective of being there to ensure that everybody else supports what is needed by the physicians to do their job. At the same time, I actually think the more important perspective is to be able to see what these other stakeholders need from the group I lead. That's not always an easy perspective to develop.

UTMJ: Is there anything else you'd like to add or mention?

MA: I hope people reading this interview appreciate the unique and powerful ecosystem that we have in and around the University of Toronto. This is an exceptional medical, education, and discovery ecosystem that is as advanced and productive as anywhere on the globe. The wonderfully collaborative environment gives us some unique opportunities for us to think collectively about addressing the greatest challenges in healthcare: the fragmentation in our Ontario health system and the need to mitigate the tradeoffs we make with more specialized and complex care delivery.