Learning for Life Week 7 Summary

Topic: The Power of Collaboration: Two Heads are Better Than One

Speakers: Thomas P Shanley MD and Donald M Lloyd-Jones MD, ScM

Our session started today with a few words from Eric Neilson, Dean of the Feinberg School of Medicine and Patrick Magoon, CEO of Lurie Childrens' Hospital. Dr. Neilson spoke about how the Learning for Life series is consistent with his vision of creating a culture of ongoing learning at Feinberg, and Mr. Magoon reflected on the opportunities for collaboration that resulted from his hospital's move from Lincoln Park to the downtown medical school campus.

We then had the opportunity to witness some of that collaboration first hand when Tom and Don shared examples of translational and team science. Don explained the concept of translational science as not only moving research from the lab or "bench" to the patient's "bedside," but also pushing the discoveries out into accepted medical practice to impact public health. Traditionally these efforts have taken up to 20 years with a high failure rate, but at Northwestern, the collaborative culture and deployment of "team science" has brought that number down to 7 years in some cases.

We were reminded of the potential of *precision medicine* when Tom described how in the near future, a young patient admitted to Lurie Childrens' hospital with pneumonia would have the organism causing the pneumonia quickly identified through rapid identification techniques and the child's own immunological response status ascertained to determine whether or not immune boosting treatments would improve his/her outcome. This kind of work requires significant collaboration between geneticists, clinicians and biomedical engineers. Tom referred to the critical work of John Rogers (whom we had the opportunity to learn from during our evening at the Shirley Ryan AbilityLab) in providing sensors alerting us to the patient's vital signs and condition even remotely.

Don then explained that the care described in Tom's examples were very dependent on the effective collaboration that occurs at Northwestern using "team science," something that Northwestern is a national leader in. He outlined the critical components of effective teams including an absence of ego, patience, and learning the vocabulary of disciplines different than your own. He then went on to describe the work that his team is doing with funding from the American Heart Association. They are focusing on preventing the number one cause of mortality in the world, cardiovascular disease. Data analytics has allowed them to find that by the time someone is 50, their risk for dying of cardiovascular disease is largely already determined. In fact, by the time a child is 8 years old, there is already stratification of risk with some children more likely to develop cardiovascular disease as adults than others. If we were able to identify which factors play a role in this variable risk, we could target those factors and change outcomes. The environment that the fetus is exposed to during gestation is likely quite significant. Don has convened a team including a data analyst, a basic scientist expert in epigenetics, a nutritionist, a neurodevelopmental psychologist and a team educator to tackle this problem. They applied for a very competitive grant and were told by the grant funding team, "It was like you guys could finish each other's sentences." What a demonstration of effective collaboration that may impact the health of patients worldwide.

Take Home Points:

1. Translational science is much more effective when teams of experts from different disciplines work together.
2. Northwestern is a leader in Team Science and collaboration among its many hospitals and centers
3. *Life's Simple Seven* are the risk factors that can be modified to reduce cardiovascular risk. You can find more information on the American Heart Association's website: http://www.heart.org/HEARTORG/Conditions/My-Life-Check