communities and countries within the region because there are vast cultural, economic, and political differences between countries in Sub-Saharan Africa that directly impact resource allocation, physician training, and financial support for specialized surgical care.

CONCLUSIONS

We present a model for establishment of cardiac surgical care in Sub-Saharan Africa that emphasizes transfer of surgical knowledge and establishment of a surgical training paradigm to foster sustainability. Emphasis on surgical quality of care has been critical to establishing regional trust in this program and has facilitated its growth as a regional referral center for cardiac surgical care in Sub-Saharan Africa.

Webcast

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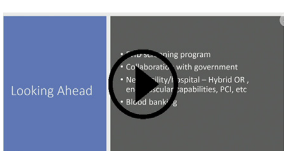

Conflict of Interest Statement

The authors reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

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Key Words: cardiothoracic training, congenital heart disease, global surgery, rheumatic heart disease

Discussion

Presenter: Keith Dindi

Unidentified Speaker 1. As our discussion is opened by Dr Percy Boateng, I would like to do a formal acknowledgment to a former partner of mine, Dr Lyle Joyce, who has been totally devoted and committed not just to this program, but to humanitarian outreach activities over the course of an entire career. Part of the funding for these trips comes from the Thoracic Surgery Foundation and by funds supported by Edwards in the Every Heart Beat Matters grant submission. Every year, his grant is 1 of the top 3 ranked grants. But more important, his devotion, commitment, and style of training, in my 25-year career, are number 1. I have never worked with a surgeon who is totally devoted and really trains residents. So you're very fortunate to work with him. If anybody is interested in getting into this type of activity, talk to Dr Joyce, because he's got it figured out. Percy.

Dr Percy Boateng *(New York, NY)*. I marvel at what you're presenting. This is, I guess, the holy grail for all of us in this room. I was born in Ghana, grew up in Ghana, so I share the same passion that you have. This is phenomenal. In the short time that you guys went from no surgery to doing surgery independently, I can't say enough about what you guys have done. This is a model that maybe all of us can replicate. I have a couple of questions. I wanted clarification for my

education, maybe the audience as well. You keep using the word rural. Is this a really rural program? I mean, what else is in Kenya that we don't know about? I mean– [laughter].

Dr Keith Dindi *(Kenya)*. So when I say rural–and that for me is one of the appeals of this program, it is set out in a rural community. This is where the hospital is. It is way off Nairobi, the capital city. So, it really stands out. It's like a sore thumb out there. But the exciting thing about that [inaudible], it's serving the people that are truly underserved out of the catchment areas of the big cities. So it is truly a rural area away from Nairobi. That's what we mean when we're talking about rural community.

Dr Boateng. Okay. How many other heart surgery programs are there in Kenya? Are you the only one or are there other programs?

Dr Dindi. We have 2 other programs, both of them in Nairobi. The issue is in terms of affordability. A lot of our patients come from the city and other places, and come to Tenwek because it's the most affordable program. In terms of consistency of open programs, it's also the most consistent. Now, we do have a program at our National Hospital, which is our best in Nairobi. They're also trying to really get consistent. We're working together, collaborating together with the National Hospital to meet the huge need for rheumatic heart care in the region.

Dr Boateng. We all are faced with the same challenges across most of these so-called third-world middle-income countries. What about Tenwek created this environment that has made it possible for you to surmount the political, the administrative, the financial, all the things that everybody struggles with? Because we know that people have said for years fly admissions don't work. But somehow you guys figured it out. As Dr Bowman may attest and other people [inaudible] attest too, you can do a million trips in, if you don't transfer knowledge, it's pretty much a waste of time. But you guys did have the model in place, and I know from talking with Dr Bowman, the personal challenges he faces with the government of Rwanda, a country that is put up on the poster as one of the best countries in Africa that is doing these remarkable things with infrastructure and training. But yet, when it comes to heart surgery, he's always having a battle back and forth. So it seems a bit ironic that you guys were able to do this in Tenwek. Is it being rural, so that moved you away from the politics and that sort of helped? Can you shed some light on that for us.

Dr Dindi. Sure. I think there are 2 things. Number 1, the presence of a board-certified cardiothoracic surgeon on the ground from the very beginning. I think that made a lot of difference. There's a gentleman who's a real champion for heart surgery who has been there from the very beginning. He's been instrumental in networking with the community here in the states and other places and maintaining the focus of the program and in dealing with some of those challenges you're talking about and really ensuring that everything remains on track. So that is one huge thing. I think the other thing has been the emphasis on collaboration, especially with government. We've been very aggressive in involving government at every stage of what it is that we are doing. So we not only inform them that this is what we'd like to do, but also allow them to participate with us. For example, now in the Rheumatic Heart Screening Program, that, I think, is a big deal. We've involved government from the very beginning, and they're part of it, so they feel the ownership of the program. It helps us to be able to deal with some of the political-social aspects of getting the job done, especially in Africa. So I think, as I said, stepping out of our surgeon role into the board rooms and being suave enough to understand that if we are to truly get the job done, it will not be done from the operating room. I think it will be done from the board rooms. So, we've been aggressive with lobbying.

Dr Boateng. A lot has been made about the National Surgical Obstetric Anesthesia Planning program. Was this modeled after that in any way? Is this something you know about in terms of, because when you read about global surgery, that's one of the big topics about how to develop a program locally is to use this National Surgical Obstetric Anesthesia Planning model. I must say that what Dr [inaudible] said about the champion who is a consummate teacher makes a huge difference because if you don't teach, no one is going to learn. So if you have somebody who's a selfless teacher, that's probably the best building block. That must have been one of the major reasons you guys learned so much and were able to do so much in such a short time. Because I can do all the surgeries, if I don't teach my residents, I'm not transferring knowledge to the next generation. I die with that knowledge in my head. And that's it. I could be the greatest, I could be Yacoub, anybody. If you don't teach, what's the point? I think that must have really helped you guys.

Dr Dindi. I think so. I truly think that having an individual who has the ability to not only see the needs of the present but also is wise enough to maneuver the waters and deliver knowledge to the next generation, but not just pass on the knowledge, but to truly inspire them to be part of the change that is needed. And for us, we've been lucky. We have Dr White with us, who's truly an inspirational figure. Because of what he's done, many of us who have qualified, we could go and work in many other places. But we all keep going back because we think we want to be part of the dream of offering care to the people back home.