# The Past, Present and Future of Telemedicine and Telehealth

*Richard S. Bakalar*

*Editor's note: The 1st Annual Future of Health: Telemedicine and AI Symposium was held on July 8, 2016 in Ho Chi Minh City, Vietnam. Dr. Bakalar was a member of the faculty, and the text that follow is modified from his lecture.*

***TMT:*** *During your lecture, you state that program governance is critical to the success of telemedicine program (Figure 1). What are the components of program governance? [00:00 min]*

**Dr. Bakalar:** One of the things we've learned over the last several years is that technology has become widely available and has become capable of meeting a lot of telemedicine and telehealth needs of the industry. But what has been lacking is the coordination of the stakeholder involvement in trying to create a policy, objectives, and tracking those objectives to fruition using the different technologies.

So, one of the things that I think is really critical when we think about program governance is having the right stakeholders working together that represent both the users of the system, as well as those who provide services, as well as the financial stakeholders. In order to create an effective system, it has to be well-planned, budgeted, and have metrics that help us understand the performance of the network.


*Figure 1. Telemedicine's Present*

***TMT:*** *Please describe your concept of effective program governance. [00:55 min]*

**Dr. Bakalar:** With respect to examples of effective governance, the Arizona Telemedicine Program,[1] which has been in place for over 20 years, has been shown to be very effective in setting goals for attracting not only services within its jurisdiction and also outside its jurisdiction, internationally, but it has also set a priority around education and training of it users and end users. And that has been very successful in not only providing standardization of delivery of services but an expansion of services beyond original intent.

So, moving from one or two service lines into over 20 or 30 service lines with over 120 providers in a network has been very successfully managed through that very tightly managed governance.

***TMT:*** *Healthcare professionals often express frustration with platforms that are not intuitive, distract from the patient consultation, and waste time with unimportant alerts (Figure 2). Have you experienced this? [01:43 min]*

**Dr. Bakalar:** As technology is presented to clinicians and providers in general, often times there is a lot of emphasis on workflow and data collection, but little emphasis on what I describe as thought flow or the presentation of information at the right time and the right place on the computer screen or the tablet to affect the right decision making process. Oftentimes, this lack of attention to thought flow can cause confusion and actually cause poor decision making in some cases.

We find that organizations that spend effort to try to optimize platforms—not only for telemedicine but for electronic medical records and other digital systems—they often get a much better return on their investment and more adoption and more support by the end users.

In telemedicine, this is particularly true because oftentimes the providers are in a different location and on a different system. And it's really important to have a focused presentation of questions and answers so that the clinicians can be responsive and timely in their responses.

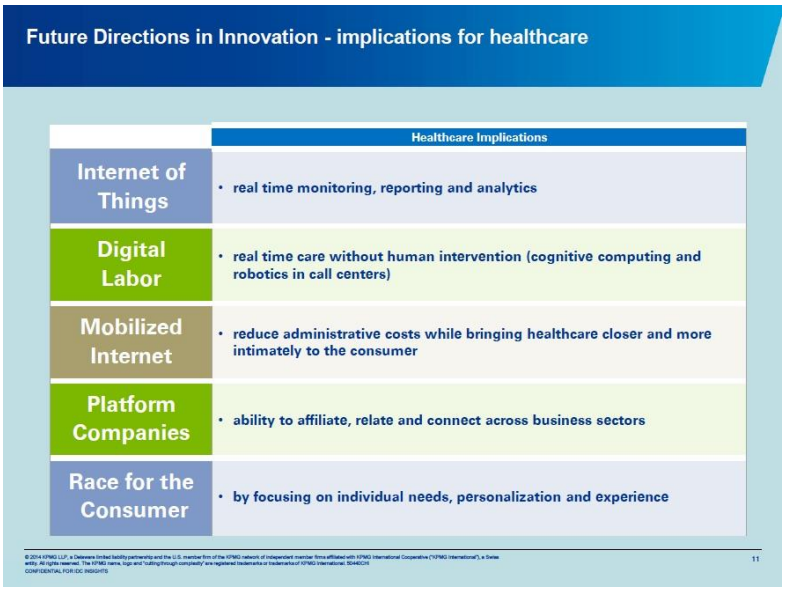


*Figure 2. Future Direction in Innovation*

***TMT:*** *The telemedicine platform is the centerpiece and often the cause of great distress for older patients (Figure 2). How can telehealth systems overcome the lack of internet savvy for technology among geriatric patients? [02:43 min]*

**Dr. Bakalar:** It's very interesting to ask the question around user friendliness or human factors as it relates to consumers using telehealth platforms. One of the things we find is the fact that it doesn't have to be a geriatric patient. It can be anybody that has low sophistication with user experience in digital platforms.

The thing that makes user platforms user friendly per se, is consideration for intuitiveness and simplicity. And oftentimes EMRs (electronic medical records) that have patient portals for example, present information that is very friendly and appropriate to clinicians but oftentimes is not consumer friendly. And therefore, the use and adoption is pretty limited.

What we often find now is that there are new tethered systems that are available, which are designed for consumer use and have very simple presentations of critical information that's important to consumers. For example, if you are looking at laboratory test, rather than describing the normal values, have a red, yellow, green, or very simple way of presenting whether the patient is in normal range or whether the patient needs to attend to some behavioral change to get a better result in the future.

So, the consumer-friendly presentation of information is critical not only in telehealth but health in general.

***TMT:*** *What is an example of a program that meets this goal? [04:04 min]*

**Dr. Bakalar:** There is a system called Get Real Health, for example, that has been well-designed for consumer-friendly presentation of data not only not only for tracking their information and finding information that's been presented to them from their providers but also for education and other additional services that can be rendered on a consumer-friendly personal health record form.

***TMT:*** *From the perspective of a physician and expert in the field of telemedicine, please describe examples of how programs might position themselves for success in the following areas (Figure 3). Let's start by addressing how to expedite clinical and operational decision-making [04:25 min]*

**Dr. Bakalar:** Telemedicine, like I said, has been around an extensive period of time. And one of the lessons learned in the past is that having a specialist project their expertise to a primary care referring physician oftentimes can easily present what the likely diagnosis is. But one of the things we find that's really valuable, in addition to knowing what the problem is, is knowing what to do about the problem.

And so, one of the lessons learned, for example, in many early telemedicine networks is that it's not sufficient to have a radiologic service give you a differential diagnosis. But rather, have the surgeons or the clinicians who actually mange those patients involved in the process where they can provide guidance on the timeliness of service and the appropriate course of service or path of service going forward. And this will actually help expedite deciding when the patient should be seen, where the patient is to be seen, and by the right person.

And so, what I referred to here is expediting clinical operational decision making, having the right decision makers involved early in the process so that those patients can be navigated to the right person at the right time. And if they can be managed locally without transfer that's even better. But if they do need to be transferred they can be transferred to the right place the first time rather than have to be rerouted to other places after an initial interim evaluation.

***TMT:*** *How might programs position themselves for success through improved quality of services and affordable health outcomes? [05:47 min]*

**Dr. Bakalar:** One of the derived benefits of having a telemedicine platform is the documentation process in addition to the collaboration that comes with the telemedicine

platform. And the ability to do quality reviews or peer review after consults is another benefit as opposed to a phone conversation with the specialist, which doesn't capture the information in a meaningful way, which can be reviewed subsequently. So, the ability to have peer review—to have documentation similar to the standards of a face-to-face encounter using telemedicine can help improve the quality of service.

And of course, the affordability can be derived from the fact that we have reduced duplication of services. Getting the right assessment at the right time by the right person reduces the overall cost for care. So, even if an encounter itself may be costlier in the beginning, the total cost of care for an entire course of care may actually be less expensive because of the streamlining of the process and the reduced duplication of services.

***TMT:*** *How might a telehealth service optimize resource management and operational performance? [06:42 min]*
**Dr. Bakalar:** Platforms in general offer the opportunity to better leverage specialty services, which are oftentimes very costly. And so, the fact that specialists may be underutilized in one location vs. another, those resources can be shared across facilities and get better utilization of a fulltime specialist.

Another aspect of this—a lesson learned in the military over two decades ago—is the ability to what we call reverse telemedicine, where in cases where you have to locate a specialist outside of the normal centralized hospital setting to a remote location because of a procedure that needs to be accomplished. We can actually reroute information or data to those clinicians so that they can be fully utilized in the remote location even if they don't have a full schedule in those locations.

And so, having a virtual workload leveling or balancing capability using technology is an effective way of optimizing resource management and also get better performance because of the fact that we can have the right person at the right time and right place.

***TMT:*** *How might programs position themselves for success as defined by improved consumer health and independence, satisfaction, and access [07:44 min]*
**Dr. Bakalar:** Telehealth has changed the dynamic. Where in the past the doctors have had the control and referred patients to other specialists or other providers. When we look at telehealth and consumer health where consumers now are initiators and drivers of their health system, and are now able to request help when they need it, and where they have more of an empowerment role in their care, it helps in several ways.

Number one, it helps them become more of a participant in the decision-making process of their care. And more importantly, it helps them become more adherent and compliant with medical recommendations, because now they're part of the decision process and they are also part of the accountability of the outcomes of the course of therapy they have been given by a healthcare professional.

So, the fact that a consumer is now a participant and interactive and now in greater control can provide better outcomes, greater satisfaction, and actually increase access because now they can initiate the request as opposed to waiting for a physician to make the referral in their behalf.

***TMT:*** *How might programs enhance coordination of services and reduce health system costs [08:47 min]*
**Dr. Bakalar:** As was mentioned in this presentation, digital health has a spectrum of new delivery models, which include not only doctor-to-doctor and consumer-to-doctor or provider telehealth, but there is also care call center delivery models in which a central call center can support both inpatient or outpatient and mobile patient services from a centralized location.

By using this more efficient mechanism of having a team of specialists coordinate activities, and track and monitor patients, and escalate those patient's problems to an appropriate level of care in a more efficient way, we can not only improve the outcome of patients who are failing to do well, or identify those that may not be recognized as failing to do well and escalate those cases to a higher level of care.

The cost of consolidation is the fact that these call centers have a more efficient use of specialty resources and also a triage mechanism where those patients that need to be escalated can be. But those patients that don't need to have escalation can be tracked remotely on a surveillance basis and only be escalated when they have problems.

In a typical traditional health system, often patients who don't need escalation are escalated simply because the protocols are not sophisticated enough to identify those that are having problems. Therefore, everybody gets escalated whether they need it or not. This is particularly true when you have a fee-for-service model where additional services or volume is incentivized as opposed to outcomes and best use of resources.

So, having a centralized coordinated effort can actually reduce cost through an appropriate use of resources and also by minimizing the unnecessary overuse of resources that might be the case in an income service model.


*Figure 3. Telemedicine Solutions*

***TMT:*** *Are you optimistic about the future of telemedicine? [10:38 min]*

**Dr. Bakalar:** I'm very optimistic around digital health and telemedicine specifically because the technology has become ubiquitous—widely available not only in the US but on a global basis—which will now help us be innovative in how we develop technologies for diagnosis and treatment and for collaboration and information technology and for using information data analysis for predictive models and providing much more sophisticated use of resources.

The challenges of leveraging this new capability are to aligned incentives with reform of payment models. And so, I think there is no question, with the proper governance and the proper technology we can achieve greater use of limited resources. The challenge is aligning incentives so that the most efficient ways of doing things are adopted, as opposed to today where we incentivize volume as opposed to outcomes. So, as long as we can improve the way we reimburse for care to look for better outcomes, the technology is readily available and the governance is emerging to be able to support those.

***TMT:*** *What is the key conclusion we should take from your lecture during the 1st Annual Future of Health: Telemedicine and AI Summit in Ho Chi Minh City, Vietnam? [11:45 min]*

**Dr. Bakalar:** With respect to the reform of healthcare in general, we see a lot of emphasis on fragmented care, like we see in the United States, to single payer care in other countries or jurisdictions. And one of the lessons I think we've learned not only in telehealth but in healthcare in general is that it's not important who pays for care but what we pay for.

And so, I think telemedicine is a good example of an efficient way of using care more effectively. And if we reimburse it based on the outcomes, as opposed to basing it on the fact that a service was rendered or not, I think that will help drive greater adoption of better delivery models than if we depend on our traditional models simply because we can control the volume more effectively than we can with new models.

The most important thing we need is to look at whether it is single payer or whether multi payers in the alignment of incentives toward outcomes as opposed to alignment towards volume.

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Reference

1. The University of Arizona. Arizona Telemedicine Program. 2016. URL: http://telemedicine.arizona.edu. Accessed 8/23/16.

*Tags:* affordable health outcomes, alerts, consumer health and independence, elderly, Future of Health: Telemedicine and AI summit, future of telemedicine, health system costs, how does telehealth enhance the doctor patient relationship, operational decision making, operational performance, patient consultation, platforms that are not intuitive, program governance, resource management, Richard Bakalar, telehealth and telemedicine, telemedicine platform, telemedicine process improvement, telemedicine program implementation, telemedicine remote health, what is telemedicine and how does it work