Innovative Governance Model for a Sustainable State-Wide University-Based Telemedicine Program

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Introduction

Forms of governance and arrangements for oversight can be critically important determinants of the successes and sustainability of telemedicine programs regardless of their sizes, which range from large multi-national programs down to small programs involving a small cluster of telemedicine service providers and/or service users [1–4]. Fine-tuning of a telemedicine services' organization chart regarding the political realities of the environments in which stakeholders will deliver or utilize telehealth services can have long-term rewards. This may be especially true in the United States where experience shows that university-based telemedicine programs' priorities can be misaligned with the priorities of their parent university's healthcare entity. Experience has shown that unless suitable bi-directional communication with higher authorities, such as a state legislature or a state department of health services, is established at the time of the founding of a telemedicine program, and baked into the telemedicine program's organization chart and oversight mechanisms, the telemedicine program is more likely to fail than succeed.

In 1996, Arizona embarked on an experiment in governance (little more than a "tweak" in existing university's state government policy) for its recently funded university-based state-wide telemedicine program. The Arizona State Legislature took the initiative of creating the state-wide Arizona Telemedicine program with the

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specific aims of: (1) encouraging, and supporting, the build-out of a dedicated healthcare telecommunications network to support the delivery of specialty medical services to Arizona's underserved rural communities; and (2) to promote the expansion of Arizona's rural healthcare workforce. The first step was the creation of a rural telecommunications infrastructure for healthcare [5–7].

In 1996, broadband telecommunications were virtually non-existent in rural Arizona. Several Arizona Governors, including Fife Symington III and Rose Mofford, had been unsuccessful in attracting large telecommunication companies to do business in rural Arizona. In the early 1990s, the state's only medical school was in Tucson, Arizona, 115 miles southeast of the state capitol in Phoenix. The legislature tasked the University of Arizona's College of Medicine's Dean with finding a solution to the telecommunications challenges.

In 1996, initial enabling legislation created funding for what the state legislature labeled the "Arizona Rural Telemedicine Network (ARTN)," a name that stuck and is still attached to the annual funding of the program. The Medical College's then Dean James Dalen created the Arizona Telemedicine Program (ATP), a new administrative unit at the University of Arizona, to house the ARTN. ATP has a large portfolio of healthcare services, innovative educational programs, research activities, and federal grants [7].

The Arizona Telemedicine Council's (ATC) creation was agreed upon by the Chairs of the Appropriations Committees of Arizona House of Representatives and Arizona Senate. The ATC was designed to provide the ATP with a direct reporting relationship to the Arizona State's Legislature, on the Arizona State Capitol Campus. The general principles for the ATC had been conceived by the director-designate of the ATP, Ronald S. Weinstein, MD, as a requirement for his recruitment as ATP Founding Director (Fig. 12.1). It was understood that the ATP was to be a part time job, in addition to his responsibilities as Head of the Department of Pathology in the University of Arizona's College of Medicine-Tucson and Pathologist-in-Chief at University Medical Center in Tucson. However, it eventually became his full-time job 11 years later, in 2007, when he stepped down as a pathology department head after 32 years in that position at two different medical schools, first in Chicago and then in Tucson, AZ.

Mr. John Lee, an Assistant Director at the AZ State Legislature's Joint Legislative Budget Committee (JLBC), who had state university budgets in his portfolio, discussed Dr. Weinstein's requirement for a direct channel though which to communicate with the Arizona State Legislature with him by telephone. Dr. Weinstein outlined what he wanted to accomplish and expressed his concerns over the capability of research universities to accommodate some programs' whose primary constituencies resided outside of the walls of the university, such as rural communities and the Arizona state prisons where telemedicine was expected to address access to care issues, which were a healthcare concern in the state at that time. Dr.

Fig. 12.1 Founders of the Arizona Telemedicine Program, June 1996 at the Arizona Health Sciences Center, Tucson, Arizona. Left to right: Richard A. McNeely, Director, Biomedical Communications and Co-Director of the Arizona Telemedicine Program, Ronald S. Weinstein, MD, Co-founder and Director, Arizona Telemedicine Program, Arizona Representative Lou Ann Preble, Arizona Representative Robert "Bob" Burns, Co-founder Arizona Telemedicine Program and Chair, and Co-founder of the Arizona Telemedicine Council, Rachel Anderson, Director, Arizona Health Sciences Medical Library, and John Lee, Assistant Director, Joint Legislative Budget Committee, Arizona State Legislature. A statue of Hippocrates is seen in the background. (Reproduced with permission from [8])

Weinstein trained as a cancer scientist and pathologist at Harvard and the Massachusetts General Hospital in Boston and regarded these institutions as being insular in the 1960s when he had trained there. Having worked with university budgets, Mr. Lee understood his concerns.

Their invention was the Arizona Telemedicine Council (ATC). To address these concerns, Mr. Lee and Dr. Weinstein came up with the idea of creating the ATC as a *blue ribbon* "non-statutory overarching authority." Dr. Weinstein insisted that ATC meetings be on the Arizona State Capitol Campus. He had worked at the US Capitol in Washington, DC, as a college student and appreciated the value of the "halo effect" of state and the federal capitol campuses. Since academic, governmental, and commercial buildings are designed with large atriums at the fronts of buildings, often for the singular purpose of gaining "public trust," Dr. Weinstein reasoned that holding ATC quarterly meetings on the Arizona Capital Campus, especially in the

JLBC Board Room, would add to the perceived legitimacy of the ATC and its implied authority. In addition, Mr. Lee and Dr. Weinstein also agreed that the ATC would meet quarterly (January, April, July, and October) for 2-hour lunch meetings. ATC meetings would have all the trappings of a "public meeting." The JLBC has its own small red brick building across the street from the Arizona State Capitol, 1.6 miles from downtown Phoenix. Mr. Lee would propose to Representative Bob Burns that the current chairs of the Arizona State Legislature's House and Senate Appropriations Committees, or their successors, chair these two-hour meetings. Dr. Weinstein would create the agenda, with input from stakeholders. Agendas would be pre-published before the meetings, as is required for "public meetings" at the State Legislature, and minutes of the previous ATC meeting would be presented to the Director of the ATC at the time of the next meeting.

At the time of the creation of the ATC, Representative Bob Burns, the co-sponsor for the enabling legislation for the ATP, and his counterpart in the Arizona State Senate both agreed to co-chair these meetings. To his great credit, Representative Burns (ret.) has continued to do so for the next 23 years, even after he termed out of the House, was elected to the AZ State Senate, and was immediately selected as Chair of Senate Appropriations, and State Senate President, in his fourth term as a Senator, and then elected onto the Arizona Corporation Commission, for which he is currently Chairman. Bob Burns remains the face of telemedicine in Arizona today from the perspective of the Arizona state government. Governance of the ATP was divided up in a highly creative manner. The ATP would report to the ATC for programmatic oversight and to the Arizona College of Medicine for fiduciary oversight.

Under the joint leadership of Dr. Weinstein and (currently) Arizona Corporation Commission Chairman Bob Burns, the ATP has expanded into one of the largest, most comprehensive university-based telemedicine and telehealth programs in the United States (Fig. 12.2).

The ATC meetings serve as a showcase for current independent telemedicine programs in operation throughout Arizona as well as emerging telemedicine technologists and innovative healthcare service delivery models. It provides a forum for discussing legal, regulatory, and reimbursement issues, and prospective legislation (Fig. 12.3). In addition, the ATC provides a platform for presentations by telemedicine medical devices and telehealth, robotics, Artificial Intelligence, and automation advances in the healthcare industry. Arizona-based telemedicine companies are encouraged to make presentations on their visions for the industry. The ATP's federally funded programs, as well as state and federal funding opportunities are openly discussed. The ATP has been a magnet for federal grant and contracting funding.

The following analysis of the interrelated ATP and ATC covers a 15-year period (2003–2018).

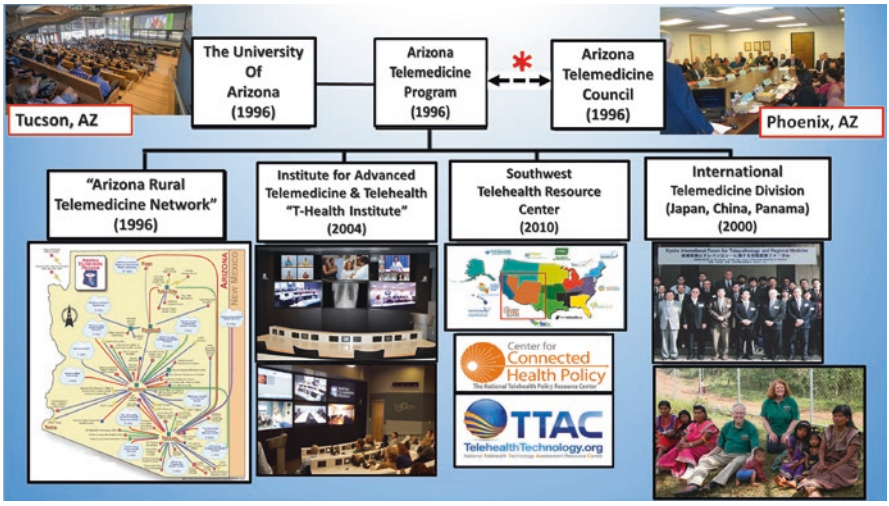

Fig. 12.2 Activities Chart for the Arizona Telemedicine Program (upper tier, center). The Arizona Telemedicine Program (ATP), founded in 1996, reports to The University of Arizona, in Tucson, AZ (upper tier, left) for fiduciary purposes and the Arizona Telemedicine Council (ATC) (upper tier, right) for programmatic review. The ATC, also founded in 1996, is a non-statutory over-arching authority (red asterisk/dotted bi-directional arrow) which meets quarterly on the AZ State Capitol Campus, in Phoenix. The "Arizona Rural Telemedicine Network" (lower tier left) is operated by ATP. By 2006, it linked 160 sites in 70 communities. The ATP's T-Health Institute, in downtown Phoenix, AZ, houses its T-Health Amphitheater (lower tier, 2nd from the left (Upper photo–Video-wall layout for an Interprofessional Education and Collaborative Practice [IPECP] exercises; Lower photo–"Community Briefing on Telemedicine" for Phoenix-area executives)), a multi-purpose video-conferencing facility used by dozens of organizations each year. In addition, In addition, the T-Health Institute developed innovative medical science curriculum for K-12 and college students [9–12]. The HRSA-funded Southwest Telehealth Resource Center (lower tier, 3rd from the left) is also operated by the ATP. Its territory (map; red box) includes Arizona, Colorado, New Mexico, Nevada, and Utah. National components of the Telehealth Resource Center consortium are the Center for Connected Health Policy (CCHP) and the Telehealth Technology Assessment Center (TTAC). The International Telemedicine Division of the ATP was organized in 2000 [13, 14]. The ATP provided technical assistance for the Republic of Panama's Telemedicine and Telehealth Program, from 2000 to 2009. Dr. Weinstein in Kyoto, Japan, (lower tier, right, upper photo; Dr. Weinstein is in the front row, 2nd from the right, next to Dr. Jame McGee, Chair of pathology at Oxford University, UK, who 1st to the right) at a meeting of leaders in telepathology from Japan, Poland, Germany, United States, and Great Britain, in 2000. Dr. Weinstein and an ATP associate director are pictured with families at a telemedicine clinic on a native Panamanian reservation in rural Panama (lower tier, right, lower photo) [15]

Fig. 12.3 Quarterly meeting of the Arizona Telemedicine Council in the Board Room of the Joint Legislative Budget Committee of the Arizona State Legislature on the Arizona State Capitol Campus, in Phoenix, Arizona. State Senators Robert "Bob" Burns (Chairing the meeting) and Amanda Aguirre are at the far end of the table. Ronald S. Weinstein, MD, Director of the Arizona Telemedicine Program, is speaking at the head of the table (left, standing)

ATC Membership

The members of the ATC serve for open-ended terms. Many come from the governmental, agency, public, and/or educational sectors (Fig. 12.4). Membership of the Arizona Telemedicine Council is regarded as a significant honor in Arizona. Corporate Commissioner Burns and Dr. Weinstein select, and invite, members. Mr. Burns and Dr. Weinstein keep two factors in mind: (1) maintaining a balance of individuals with "corporate memory" of the development of the Arizona telemedicine programs and of the telemedicine industry; and (2) the value of having members with a broad range of relevant job descriptions and skill sets. Candidates are often invited to attend ATC meetings before they are recruited as members. One litmus is the capability of an individual to leave one's "corporate identity outside the door" of the JLBC conference room.

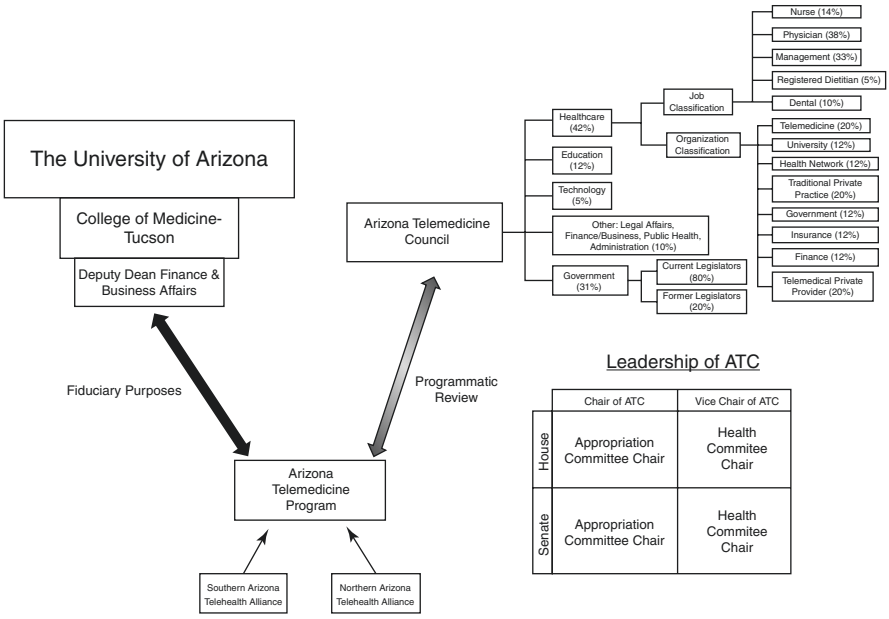

Fig. 12.4 "Dual Track" shared oversight of the Arizona Telemedicine Program (ATP) by the University of Arizona's College of Medicine and Arizona Telemedicine Council (ATC). Birds eye view of this hybrid set-up is shown in this figure. Upper right shows the distribution of ATC current 39 members. Lower right shows the leadership of the ATC. Mr. Burns, as co-founder of the ATP and ATC, substitutes for the House Appropriation Committee Chair when available, which is most of the time for the past 23 years

Analysis of the Arizona Telemedicine Council

Industries represented on the ATC. Figure 12.5 shows the distributions of industry classifications of the current 39 members of the ATC. The single largest percentage of ATC members had jobs in the healthcare industry.

The largest percentages of healthcare industry workers came from telemedicine service organizations (20%), private telemedicine practices (20%), healthcare networks (12%), and universities practices (12%) (Fig. 12.6).

Over half of the healthcare slice consisted of practicing physicians, nurses, dentists, and dietitians, while hospital management also well represented (Fig. 12.7).

Government Attendees

The second largest category of ATC members (12%) had jobs in government (Fig. 12.8). The government job sub-classifications (Fig. 12.8) included current and former legislators (71%) and government agency employees (29%).

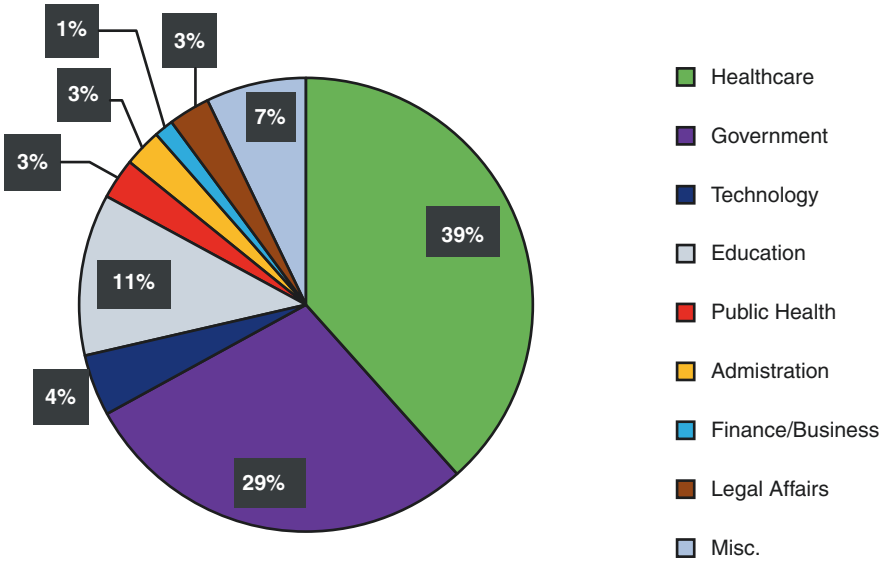

Fig. 12.5 Industry classifications of all ATC members for a 15-year period (2003–2018). It shows the distributions of job classifications of the current 39 members of the ATC and illustrates the fact that ATC members are drawn from a broad spectrum of industries

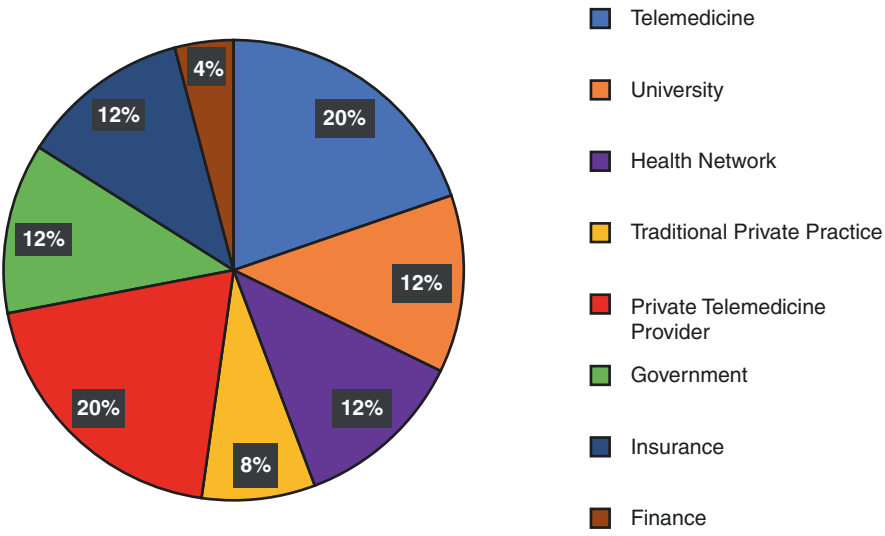

Fig. 12.6 Business sectors for ATC members working in the healthcare industry (2003–2018)

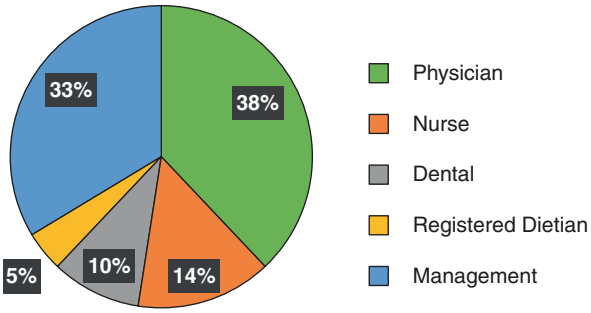

Fig. 12.7 Breakout, by position, of health workers employed in the health sector

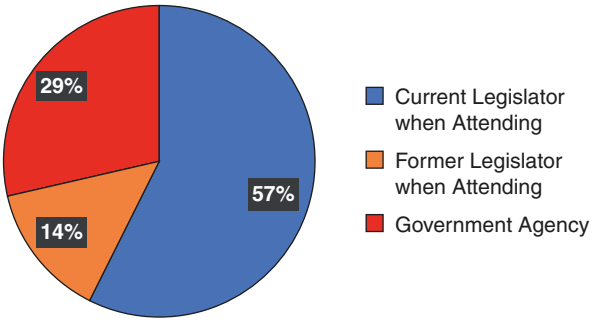

Fig. 12.8 Status of government ATC attendees (2003–2018)

The presence of current, and former, legislators present at the ATC meetings provides an opportunity for open communication between the professionals in the field, such as physicians, nurses, insurers, and the state legislature.

ATC Presenters

ATC quarterly meeting agendas consist of ATP updates by the ATP Director and ATC moderator, Dr. Weinstein; presentations on a series of legislative, regulatory, and reimbursement issues; overviews of newer telehealth applications; and telehealth industry updates. Over half of the speakers are invited one-time speakers (Fig. 12.9).

Figure 12.10 shows the number of meetings members on the council have attended with some attending for more than a decade (Fig. 12.11). Over the 15-year period, over half of ATC members have attended a minimum of six meetings, Dr. Weinstein being at all 58 meetings and Corporate Commissioner being at 52 of the 58 meetings.

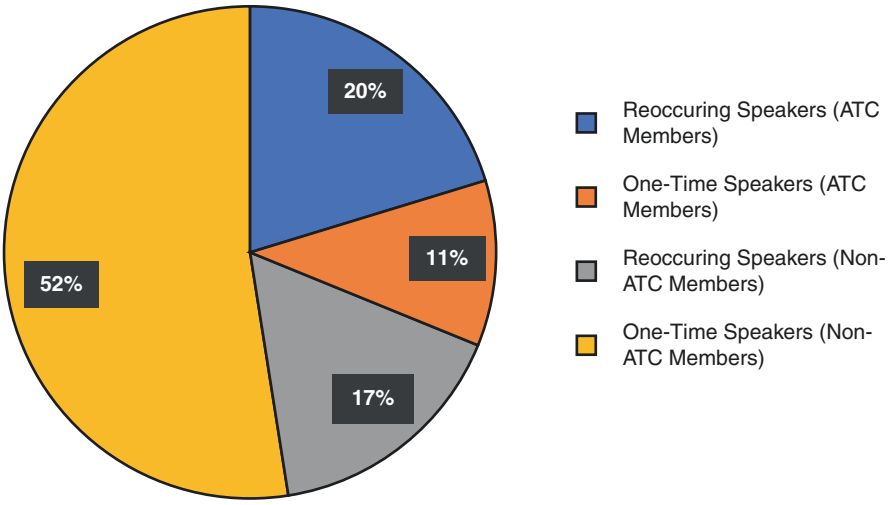

Fig. 12.9 Frequencies of ATC meeting speakers (2003–2018)

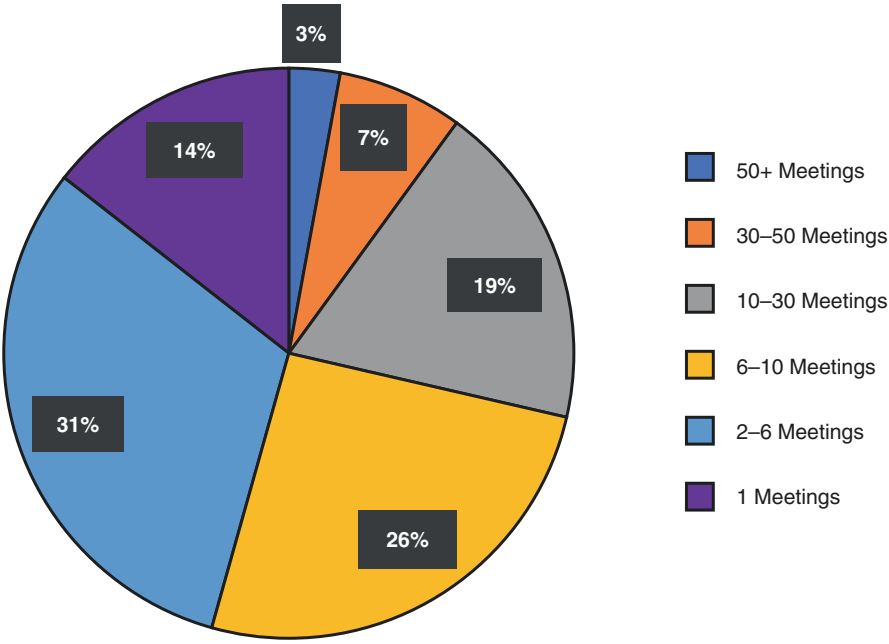

Fig. 12.10 Numbers of meetings attended by ATC members (2003–2018)

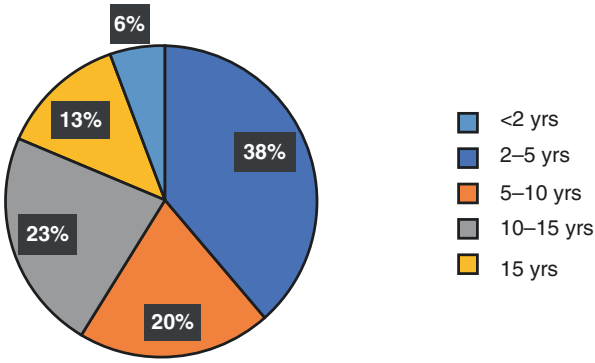

Fig. 12.11 Ranges of years of ATC membership (2003–2018)

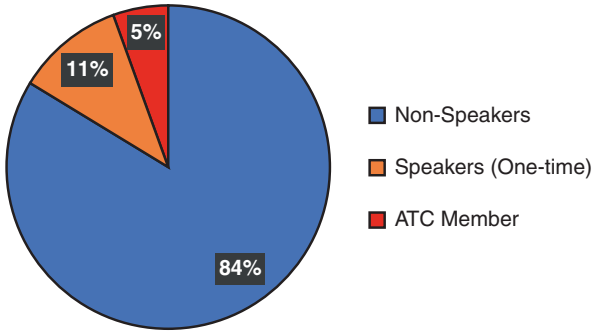

Fig. 12.12 Profiles of single ATC meeting attendees (2003–2018). The ATC meetings serve as a showcase for the telemedicine industry. Often attendees from industry come to a single ATC meeting. Not infrequently, other employees of an individual company come on other occasions

Having the same leadership present in the council was also critical. This continuity of the same leadership in the council has allowed for the maintenance of goals and provided a foundation for the relationships within the council to develop.

The ATC meetings have an important role in showcasing telemedicine, telehealth, and digital medicine to a very broad spectrum of interested groups ranging from community leaders and healthcare advocacy groups, to principals in healthcare related start-up companies. The ATP is a national leader in federally funded digital medicine research and in telehealth-enabled distance education. Many different interested individuals and groups are invited to attend ATC meetings as spectators to learn about diverse facets of the telehealth and digital medical industries (Fig. 12.12).

Retrospective Longitudinal Analysis of ATC Attendance

Meeting attendance per meeting by attendees (blue line in Fig. 12.13) and members (orange line in Fig. 12.13) reflects the interest and commitment made by their communities to guide telemedicine in Arizona to help alleviate the healthcare disparities

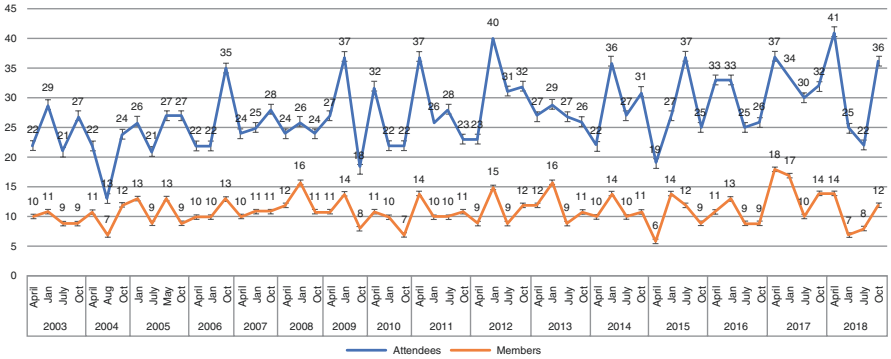

Fig. 12.13 Numbers of member (orange line) and total attendees (blue line) at ATC meetings over time (2003–2018)

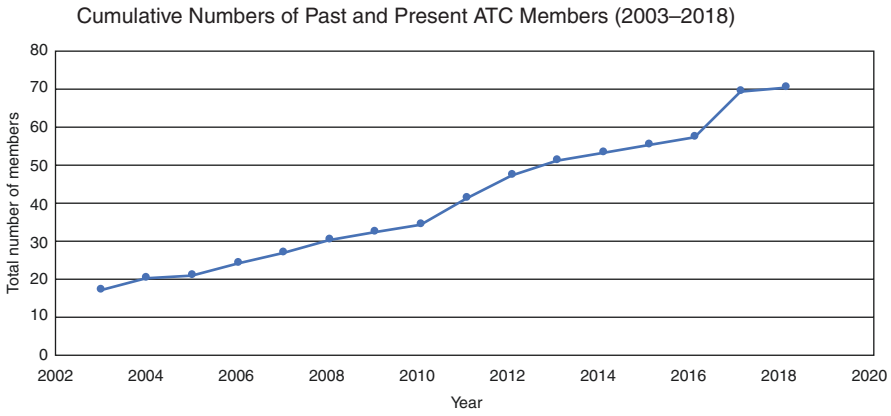

Fig. 12.14 Cumulative numbers of individuals who have served as ATC members (2003–2018)

and make a difference in their communities. On average, meetings have 28 attendees in the room (room seats 43 people) and 11 are ATC members. Some meetings, however, have reached 41 attendees of which 15 are ATC members. There is no apparent correlation between meeting quarters (January, April, July, or October) and the level of attendance.

Overall, the consistency of the same leadership and members has strongly contributed to the impact made by this council since it has provided a foundation for friendships and understanding within the ATC along with stability and structure. Without stability and long-lasting relationships, the ATP wouldn't have been able to integrate into the capital as easily since consistency turned out to be the key. Cumulatively, ATC has had 70 members (Fig. 12.14).

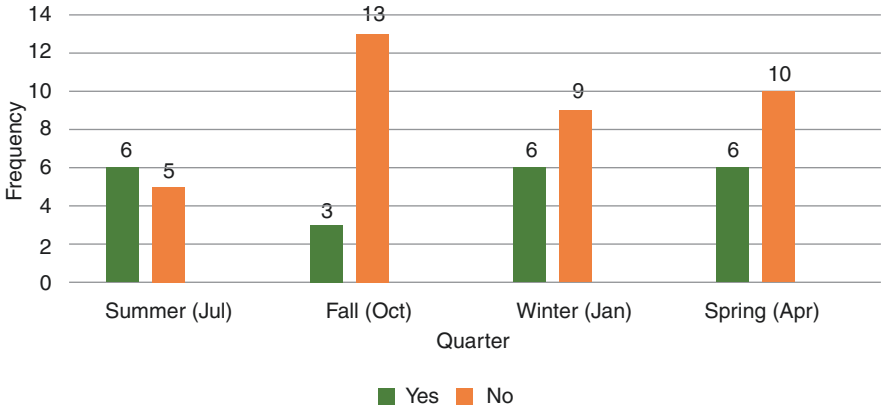

Fig. 12.15 Bar graph showing the frequency with which legislation was discussed at ATC meetings, by quarter (2003–2018). *Note: the following ATC meetings were cancelled: January 2014, July 2004, and July 2006–2010. This accounts for the lower net numbers of ATC summer meetings

Frequency of ATC Consideration of Legislation

Lastly, since legislation is addressed in the ATC repeatedly through presentations and discussions, the ATC remains closely linked with the Arizona Legislature. This link helps preserve the council since it provides current and past legislators a motivation to continue to attend the meetings. More importantly, it allows for the council to communicate to the healthcare legislators what is needed for the industry and what currently is working or not. The legislators benefit from knowledge that the ATC members bring while the ATC members benefit from being able to directly communicate with current Arizona legislators.

It was concluded via this longitudinal 15-year study, overall, legislation is discussed in over half the summer, winter, and spring meetings. In the fall meeting though, legislation is not as frequently discussed as the legislative session is adjourned for the year. Per year there are approximately four quarterly meetings, though some were not held (Fig. 12.15).

ATC Leadership: The Burns–Weinstein Partnership

We acknowledge that the Burns–Weinstein partnership is unusual in terms of the ranges of shared interests of Mr. Burns and Dr. Weinstein coming into their leadership roles for the ATP. They are also the same age and perceive that they are at the similar stages in their careers.

Mr. Burns and Dr. Weinstein were schooled in government, although at different stages of their lives and from somewhat different perspective. They understood the important roles that legislative staffs have in linking constituents to governmental resources.

Mr. Burns entered politics to deal with regulatory issues negatively affecting the chain of pre-K education centers he operated with his wife. Dr. Weinstein had a life-long interest in government. He had been a student leader and actively participated in mock legislatures in high school. In college, although a pre-medical student, he competed successfully for a Ford Foundation-funded summer internship in the US House of Representatives which was awarded to the Union College (Schenectady, New York) student with the highest grade in the "Introduction to Government" course. Dr. Weinstein spent the summer of 1959 in Washington, DC, participating in the management of constituent relations in the office of an up-and-coming Congressman from Upstate New York. As a bonus, he attended the hearings of Senator McClellan's "United States Senate Select Committee on Improper Activities in Labor and Management" featuring Senator John F. Kennedy, a member of the committee and its select subcommittee (on "racketeering") and candidate for the US Presidency in 1960, and his 34-year-old younger brother Bobby Kennedy, Chief Council of the Select Committee and future Attorney General and then New York Senator. Weinstein shared a birthday with Bobby Kennedy (November 20) who was just 13 years his senior. Jimmy Hoffa, the President of the Teamsters' Union, testified at length, and the mob of his Teamster supporters were in the audience over a period of several days. These were "showcase" hearings which were electrifying theater from Dr. Weinstein's perspective. For three consecutive days, Dr. Weinstein, a 21-year-old soon-to-be college senior, sat behind Jackie Kennedy, Senator Kennedy's wife, seated in the front row of the audience, who had spent her 30th birthday the weekend before the hearings at the Kennedy family horse farm in Virginia. He chatted with members of the Kennedy family entourage who surrounded him in the audience. Later in life, he served on the Board of Directors of a Kennedy family foundation.

Mr. Burns and Dr. Weinstein both had long standing interests in computers nurtured during their respective US military services, Mr. Burns as an Aviation Electronics Technician, in the US Navy, and Dr. Weinstein as a Major in the US Air Force Medical Corp during the Vietnam War. In 1962, after completing his stint in the US Navy, Mr. Burns became a computer programming analyst at the General Electric Company, in Phoenix, Arizona. Ironically, Dr. Weinstein's father had worked as a mechanical engineer at the General Electric Company's headquarters in Schenectady, New York, during World War II. Family rumor had it that his father, H. Edward Weinstein, may have worked on designing the trigger mechanism for the atom bomb exploded in Hiroshima. As a lead programmer, Mr. Burns successfully wrote computer code for a broad range of clients including software systems for plants in the electrical generation, fuel distribution, paper, petrochemical, and steel industries. Dr. Weinstein received his training in computer science auditing courses at the Air Force Institute of Technology at the Aerospace Medical Researcher Laboratories at Wright-Patterson Airforce Base in Fairborn, Ohio, while he was in

service as a Major in the US Air Force with a day-time job as Vice Chair of Pathology in the Division of Toxicology at the Aerospace Medical Research Laboratories. He gained experience with BASIC, FORTRAN, and COBOL programming languages, computer system design, and the use of a relatively portable Hewlett-Packard 9700 computer with punched paper reels for data input, and a Burroughs B-3500 computer, with IBM punch cards used for their data input. While he was stationed at the Aerospace Medical Research Laboratory in his role as a toxicologist, he found that a fuel oxidizer, mono-methyl hydrazine, exposure was causing hemolytic anemias in young airmen working in Titan missile silos [16]. After completing his military service, he became Chair of Pathology at Rush Medical College and Rush-Presbyterian St. Lukes' Medical Center in Chicago, Illinois, at age 36. His focus was on cancer research. In Chicago, his research group published often cited papers: (1) linking P-glycoprotein expression to invasion and metastasis in human colon cancers; and (2) demonstrating that perturbation of the lipid bi-layer in cancer cell membranes can reverse P-glycoprotein-induced multi-drug resistance, a potential pharmacological breakthrough [17, 18].

With the encouragement of the Rush leadership, which was promoting university technology transfer in the early 1980s, Dr. Weinstein, partnering with his businesswoman sister, Beth Newburger, co-founded one of the first PC-based high school education software companies. They caught the crest of the early personal computer wave of activity in computer-based education in the early 1980s. Dr. Weinstein personally designed the software for one of the first successfully marketed Scholastic Aptitude Test (SAT) preparation course study products, incorporating one of the first computer study games and including a ground-breaking product manual. Their OWLCAT company was acquired by Digital Research Inc., a pioneering California software company, in 1984.

Next, responding to a crisis in National Cancer Institute clinical trials, involving high levels of interobserver variability in surgical pathology diagnosis being rendered by expert uropathologists supporting urinary bladder cancer clinical trials, Dr. Weinstein had invented, patented, and successfully commercialized computer-driven robotic telepathology in the mid-1980s, and is known today as the "father of telepathology." His Corabi International Telemetrics, Inc. (i.e., "Corabi" is Dr. Weinstein's wife's family name), and a companion family-owned company, Apollo Telemedicine, became suppliers of telepathology equipment to the United States Department of Veterans of Affairs, in 1996. This was adopted as the telepathology platform for the longest sustainable telepathology service in the United States [19–21]. Therefore, Mr. Burns and Dr. Weinstein each had years of prior experience in developing computer applications and, in addition, decades of experience as small business owners, by the time they met in 1996.

Their shared interests in public service were also significant components of both of their careers. Mr. Burns is one of the most successful politicians in Arizona history (approximately 28 years of service as an elected official). Dr. Weinstein has been president of six professional organizations and is President-Emeritus of the American Telemedicine Association as a "pioneer" in the field of telemedicine. Mr. Burns, and his wife, ran a successful pre-school education business for

Fig. 12.16 Ronald S. Weinstein, MD (left) and Robert "Bob" Burns (right: as an AZ State Senator) acknowledging receipt of the highly regarded The University of Arizona's "2012 Technology Innovator Award" for their work in creating and developing the state-wide Arizona Telemedicine Program. Three hundred invited guests, faculty members, and graduate students attended the University of Arizona's "Innovation Award Luncheon" which honored the Arizona Telemedicine Program's co-founders, at The University of Arizona Student Union, in Tucson, Arizona, with a glass artists plaque (being held by Dr. Weinstein) and a monetary award of $10,000. This was used to support the ATPs' Sir William Osler Summer Fellowship Program for College and High School Students and the development, testing, and implementation of regular school year K-12 medical science courses [9, 11–13, 22, 23]

27 years. Dr. Weinstein was awarded his first National Institutes of Health grant as a first-year resident at the Massachusetts General Hospital and was an academic department head for 32 years. He has had continuous federal research support for 54 years, nearing a record in that category. He also had a long-time interest in university technology transfer and spun out five start-up companies while a full-time employee of universities (Fig. 12.16).

Challenges

Inventing a robust but nuanced form of governance for a telemedicine and telehealth program can be challenging for creators of telemedicine programs, both large and small [1–5]. Alignment of the expectations and needs of future stakeholders within the framework imposed by governance arrangements for a lead organization can be a daunting task.

Is the ATC Zoom Compatible?

COVID-19 will put the institutionalization of the ATC as an Arizona quasi-agency, dedicated to maintaining a communication channel between the university-housed ATP, in Tucson, and the AZ State Legislature, in Phoenix, to the test. The ATC held its April 2020 quarterly meeting as a "virtual" meeting, over Zoom, for the first

time. This ATC meeting on Zoom had 70 attendees which set an attendance record for the ATC but, noticeably, with a reduced number of ATC members in attendance. On the one hand, ATC was no longer constrained by the 43-seat capacity in the Board Room in the JLBC building on the state capitol campus. Also, the ATC was readily available for rural participants hundreds of miles away, if they had access to the broadband internet. On the other hand, using Zoom, the ATC sacrificed almost all of the personal networking that typically took place at in-person ATC quarterly meetings in the past and, arguably, even kept the ATC focused on its "primary mission" of supporting rural telemedicine for over two decades. Lively discussions and the questioning of presenters were notably absent. The 10-minute ATC lunch breaks, during which time even "frantic networking" took place in-person, were sorely missed by the "virtual" attendees. Not only were the shared commitments to the telemedicine mission highly valued by the ATC members and non-member attendees alike over many years, the thought of losing long-term professional and personal friendships, the by-products of these ATC meetings, is sad to contemplate.

It remains to be seen if ATC "virtual" meetings will become the new normal for the ATC. In fact, we will see if this shift in strategy, going "virtual," negatively impacts the long-term viability of the ATC itself. One way or the other, our initial impression is that Zoom has its limitations with regards to professional networking. The unique environment created within the ATC over the years is, already, sorely missed! Hopefully that's limited to the "old-timers."

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