

Survival Guide for Clinical Engineering Millennials

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About the Authors



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Editor's note: This article explores the career experiences and survival tips of two clinical engineers identifying themselves as millennials—a demographic cohort typically defined as individuals born between 1981 and 2000. The authors note that because millennials have diverse values and behaviors, the insights described here may apply to some but not necessarily all millennials.

What is a generation? It is a social construct and, therefore, more fluid and open to social interpretation than a decisive science with strict definitions. Although many individuals in a given generation will exhibit similar qualities, no universal rules or criteria exist. In general, a generation refers to a group of individuals who have had similar experiences growing up and developing, with comparable life experiences and cultural events shaping their existence and attitudes toward life.¹

In the workplace, attitudes that distinguish generations can be thought of in terms of management style, preferred reward system, and opinion on training (Table 1). Baby boomers (i.e., people born after World War II and until 1964), for example, tend to exude a participative

management style, whereby they “roll up their sleeves” and work alongside their fellow employees in order to facilitate action and work completion. Millennials generally exhibit a collaborative management style, helping to enable and provide the necessary tools for their employees to succeed. For example, a millennial manager may ask his/her employees to “tell me what would make your job easier.” Reward systems also are unique among generations. Baby boomers tend to focus on money, career/title advancement, and recognition as the greatest ends to employment, while millennials tend to define success based on personal meanings derived from their careers.²

Viewpoints on training also can differ along generational lines. Baby boomers often believe that the more training employees receive, the more likely they will be to take a new position somewhere else (i.e., “train your workforce too much and they will

leave”). Millennials, however, consider training a vital part of the everyday job. They assert that continuous learning is part of life, and one must always seek new growth and opportunities within the job to increase success at work.²

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| Characteristic | Generation | | |
|------------------|---|---|---|
| | Baby Boomers | Generation X | Millennials |
| Year of birth | 1946–64 | 1965–80 | 1981–2000 |
| Loyalty | Team | Manager | Colleagues |
| Job | Self-worth | Part of me | Add value/contribute |
| Management style | Participative | Collaborative | Highly collaborative |
| Work style | Structured: challenge rules and cautious about change | Flexible: change rules and view change as opportunity | Fluid: create rules and see change as improvement |
| Rewards | Money, title, recognition | Freedom is the ultimate reward | Work that has meaning for me |
| Job changing | Puts you behind | Is necessary | Is part of the daily routine |
| Training | Train them too much and they'll leave | The more they learn, the more they'll stay | Continuous learning is a way of life |

Table 1. Talent Management System training entitled: “Diversity and Equal Employment Opportunity” module²

Two millennials collaborated on this article: Clarice Holden and Andrew Moser. Holden was born in the late-1980s in New York, grew up in Texas, and now lives in California. Since middle school, Holden knew that biomedical engineering was what she wanted to study. She chose Tulane University for her education because it has one of the oldest biomedical engineering programs in the country (began circa 1977). After graduating with a bachelor of science degree in biomedical engineering, Holden joined the Technical Career Field internship program for biomedical engineers at the Veterans Health Administration hospital in Temple, Texas. After 2 years, she moved to her current supervisory biomedical engineer position at the Department of Veterans Affairs (VA) Greater Los Angeles Healthcare System.

Moser was born in the mid-1980s in Daejeon, South Korea, grew up in Colorado, and now resides in southern California. He joined the U.S. Air Force Reserves in 2002 as a surgical technologist and completed his enlistment in 2010. During his time in the Reserves, he earned his undergraduate degree in biomedical engineering from the University of Southern California. After graduation, he was hired by the Food and Drug Administration as a consumer safety officer, then transferred to the VA as a biomedical engineer.

Currently, millennials are the youngest generation in the clinical engineering workforce. Because they have grown up in a data- and technology-driven world, they have

many unique strengths. However, as a newly minted generation, millennials must continue to refine their skills in the workplace. Patience, empathy, collaboration, global perspective, and innovation are five survival skills that are key to thriving in clinical engineering today (Figure 1). By applying these survival tips, new engineers can be empowered and successful at work.

Patience

Patience is a vital skill that isn't always ingrained in millennials and may require work to develop. Patience can be defined as



Figure 1. Survival tips for clinical engineering millennials. Definitions adapted from Merriam-Webster dictionary.

good-natured acceptance or capacity to tolerate delay or trouble. Having patience is a less intuitive skill for millennials. Because we grew up with ready access to technology (e.g., cellular phones, high-speed Internet, instant streaming of online videos, online shopping), we tend to be impatient³—to expect instant gratification. However, while working in hospitals and with clinicians, patience is vitally important for long-term projects, and

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millennials must cultivate prolonged focus. For example, when installing a computed tomography scanner, one does not simply plug in a device. The multistep, multiphase process involves design configuration of the system, construction of the space for the unit, network infrastructure design, and several other components.

Patience is an essential skill for working in the hospital environment and must be developed through practice. However, it also needs to be applied prudently. For the vast majority of the time, a clinical engineer should be patient when working with others in the hospital. In certain situations requiring a fast turnaround time (e.g., bringing systems back onto the network after an outage, keeping treatment systems from excessive downtime), patience needs to be coupled with sound follow through.

An example from Holden's experience occurred when the medical center's linear accelerators were taken offline for a week due to a virus issue with a router that directed data traffic between the planning and treatment systems. Timely delivery of radiation oncology treatments is vitally important; therefore, the systems had to be brought back online as soon as possible. Instead of patiently following the standard process and submitting tickets to information technology for remediation, the most senior networking biomedical equipment support specialist dropped all other work to evaluate and resolve the situation.

Empathy

Empathy is defined as an action of understanding and having an awareness of the thoughts and experiences of another. This skill should be easy to grasp for millennials,⁴ as they have been some of the first participants in social networking and other electronic communications. Being able to empathize with another person's perspective, whether it is that of a biomedical equipment support specialist/technician, an engineer, or a clinical staff member, is very useful for building positive work relationships. These relationships help to further integrate clinical engineering as a service within the hospital, building both interservice and customer relations.

Empathy allows millennials to improve their communication skills with other generations in the workforce, customers, and vendors. Being able to "speak the language" of these other groups is fostered through empathy—it helps build bridges with other professionals in the hospital and provides constant fresh perspectives on resolving problems. In a broader sense, empathy also is essential for growing clinical engineering as a profession and has helped to train other students and young clinical engineers. Through empathy, one is able to provide input to others on their career journeys.

From Moser's experience, empathy has a limit. When one takes the perspective of subordinates or supervisors, one will have some bias that will prevent truly understanding them. One should not rely solely on commonality as the basis for empathy; just because you went to the same university or served in the same branch of military does not automatically mean you no longer need to develop a working relationship. Remember that empathy is a tool that can assist you in developing competence in interpersonal effectiveness (i.e., forming and sustaining positive relationships with people). Independent of your generational affiliation, actively listening (i.e., responding through paraphrasing) to someone's emotional position is just as important as acknowledging their logical position.

Collaboration

In today's increasingly connected world, collaboration is an essential ability. It can be defined as a process involving people or organizations working together to realize shared goals. Group endeavors are facilitated by electronic communications, which can be both a help and a hindrance—today, emails far outnumber hardcopy memos and usually are not as polished. Successful collaboration is necessary because much of today's teamwork occurs remotely and millennials prefer workplaces with high levels of collaboration.⁵

Millennials are comfortable with remote teamwork, which can be a useful tool in furthering one's professional acumen. Through professional organizations such as the Association for the Advancement of Medical Instrumentation and the American College of Clinical Engineering, new clinical engineers can benefit from the vast knowledge of experienced authorities and assist in directing the field of healthcare technology management (HTM) by providing input on novel initiatives and drafting new professional standards.

As an engineer within the VA, Holden has had access to a broad network of clinical engineers and technicians nationally. Through collaborative learning gained by interning at the VA Central Texas hospital, visiting clinical engineers at other VA hospitals, and continuing her career with the VA, Holden believes that she has gained greater knowledge than would have been acquired through independent study. Opportunities for collaboration exist in the VA, such as national workgroups that guide standards for the numerous VA HTM departments. Because the richness and caliber of standards are improved through this team collaboration, millennials (both new engineers and technicians) are encouraged to volunteer. Understanding that diversifying one's professional development through collaboration will enrich career development is an important lesson for millennials.

Global Perspective

Global perspective (defined as demonstrating a broad view of clinical engineering's mission, strategic priorities, and role within industry and the broader community) is a trait that all generations should develop to

progress in their careers. Having the ability to anticipate and identify opportunities to improve your organization while demonstrating a broad understanding of the mission, including department and individual responsibilities related to strategic priorities, is vital at any level. Identity, cultural/generational diversity, interdependence, and conflict resolution/trust development are key aspects in nurturing global perspective. Millennials must exercise patience, as relationships must be built before trust can be developed.^{6,7}

Identity is the understanding of one's self, as well as a reflection of how an individual identifies with the various cultures, social structures and generational groups.⁸ Establishing points of reference in relation to others is essential for understanding multiple perspectives. Interdependence is a valuable element of global perspective that provides understanding of complex links between people/organizations and their impact on each other—the cause and effect occurrences from our actions and inactions. Trust development often is used to create strategies that lead to achieving organizational goals without undermining others when possible.^{6,9}

Innovation

Innovation has been defined as the application of better solutions that meet new requirements, unarticulated needs, or existing market needs.¹⁰ Innovation is a trait that many in the younger generations believe they have fully embraced. However, certain elements of innovation are less widely known. The most common element of innovation is creativity/process improvement, which could range from a Six Sigma project to a revolutionary change like the creation of magnetic resonance imaging scanner or another multifaceted, complex medical device.

Understanding the differences between discontinuous revolutionary innovations and micro-evolutionary innovations is an aspect of innovation that we typically don't think about.¹¹ These differences can have huge implications in a millennial's relationships within the workplace. Within any generation, there are

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people who believe that they need to make revolutionary or drastic changes to establish themselves within the organization or culture (i.e., creating a legacy or name to be respected by one's peers). In general, it is not prudent to make enormous changes to an organization if the people within it are not ready. An example of this could be making a sudden change in the work order procedure or capital asset procurement process without communicating expectations to staff, with the express intent of impressing executive leadership. Innovations should support both the mission and the stakeholders of an organization.¹²

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Conclusion

By applying the survival tips described here, clinical engineering millennials will be more successful, competitive, and efficacious in the healthcare environment. Importantly, they may also be happier. ■

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