

Writing Code

A little-known national committee continues a 75-year initiative to build quieter hospitals, designing codes that improve built environments for people with hearing loss and everyone else.

By David M. Sykes

By the Numbers

75

Years since the signing of the U.S. federal act that gives hospitals, nursing homes, and other healthcare facilities grants and loans for construction and modernization.

10

TRILLION

Estimated U.S. dollar value of the global healthcare industry.

Scene 1: The 13th of August in 1946 is a hot and humid day in Washington, D.C. President Harry Truman strides across the Oval Office, sits down behind the grand desk by open windows, and picks up his fountain pen. As the flashbulbs pop, he grins and signs the first big step toward Medicare: the Hill-Burton Act. Twenty years later, President Lyndon B. Johnson pushes the rest through Congress, calling Truman “the *real* daddy of Medicare.”

Actions have consequences, and change can take several lifetimes. Historians call this history’s “long tails.” Truman said, “It’s amazing what you can accomplish if you don’t care who takes credit”—or how long it takes.

The Hill-Burton Act said nothing about hearing disorders but created an organized process that for decades has been quietly improving healthcare environments. Now, 75 years on, this approach has been addressing hearing disorders, noise, and privacy in the \$10 trillion global healthcare industry.

Scene 2: Boston, mid-August 2020. A Zoom meeting convenes 16 professionals from around the U.S. representing medicine, public health, federal and state regulatory agencies, healthcare management, architectural planning, design and construction, and acoustical science and engineering. This is the weekly meeting of the Facility Guidelines Institute (FGI) committee on acoustics, noise control, and privacy, of which I am the founder and chair.

Authorized by Congress as part of the Hill-Burton Act (and privatized by President Ronald Reagan in 1985), FGI is an independent agency that partners with the American Hospital Association, American Institute of Architects, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, and other related organizations to inform healthcare facility planning, design, and construction.

It does so by publishing the FGI Guidelines every four years, but acoustics and noise control had not been addressed in this standard reference until our group approached FGI in 2004 and we were given the responsibility for developing comprehensive acoustical criteria, starting with the 2006 edition.

Our group formed and became involved with FGI when we realized, at an Acoustical Society of America meeting, that any policy development work on healthcare facilities would have to cross disciplines and include professionals with stature in healthcare, not just in acoustics. So, we adopted the name Quiet Healthcare Council and began operating, in 2018, under the aegis of Quiet Communities Inc., an interdisciplinary, national 501(c)3 nonprofit.

Central to how FGI works is the “continuous improvement process.” It ensures the guidelines creation process is fair, transparent, evidence-based, open, timely, and free from conflicts of interest. It enables FGI’s 130-member general membership to keep dozens of independent, technical subcommittees, including ours, marching toward the FGI Guidelines’ quadrennial deadline. The next edition comes out in early 2022.

Framed in the Zoom-meeting grid in August, the members of our acoustics committee were not shy about disagreeing, occasionally arguing about mathematical equations and intricate phrases informing “technical public policy.” Everyone on our committee and at FGI knows the final language must be clear because it will soon be the reference standard—the building codes—for federally funded healthcare facilities across America.

Now, owing to COVID-19, we are writing a guideline on telemedicine because the pandemic ushered in a plethora of online services replacing in-person visits. This affects millions of people who have hearing conditions or are unable to access or use the internet. And we're interpreting "disability rights" to address noisy, stressful conditions in residential care communities that can elevate dementia risk.

Process and Goals

FGI's continuous improvement process has given us a carefully managed model to *iteratively* develop evidence-based policy, crucial as the book grew from 100 pages to 900 pages and three volumes. The goals are to adapt to legislative and regulatory changes—particularly changes affecting health outcomes; organize research that provides evidence for improvements; and conduct public outreach that accelerates public acceptance.

Our acoustics committee covers all aspects of acoustics that make buildings healthier: exterior noise; vibration; acoustical finishes; room noise; speech privacy; sound isolation; room dimensions; and electro-acoustics (telemedicine, paging and call systems, clinical alarms, masking, and sound systems). The three volumes of the 2018 and 2022 editions cover the three building types identified by Hill-Burton: hospitals, residential care, and outpatient clinics.

Written in English, the FGI Guidelines are cited and used in 87 countries, and this global audience demands global thinking coupled with sufficient detail to be locally practical.

"Continuous" Means Never Done

The healthcare field is one of America's largest, most dynamic, and technically demanding industries, requiring continual adaptation. A torrent of new laws and regulations flows from federal and state governments supplemented by technologies from research and development labs.

130

Members of the Facility Guidelines Institute (FGI), which produces the quadrennial FGI Guidelines to inform the construction of hospitals and related buildings.

87

Countries where the FGI Guidelines are cited and used.

Music, Noise, and Health

My interest in acoustics stems from being a musician from about age 7 (piano, wind instruments, and strings, including several years of performing) until I was drafted into the U.S. Army in 1964 at the beginning of the Vietnam War. (The photo of me at left is from that time.) Like many veterans I acquired tinnitus from exposure to firearms and explosives, leading to an interest in noise-induced hearing loss and how to prevent it through noise control—a discipline within acoustics, a branch of physics.

Tinnitus ended my active involvement in music, and I focused instead on writing, management consulting, and entrepreneurship. An esteemed MIT professor approached me and encouraged me to bring my expertise

to the leading society in acoustical science, the Acoustical Society of America, which faced a public policy problem.

After studying their problem, my advice to this group of physicists and engineers was to find a way to work with medical and public health professionals. On their behalf, I contacted Senator Ted Kennedy, who was keenly involved in both healthcare and HIPAA privacy, and then met with the board of FGI to create a “bridge.”

FGI has been a wonderful, interdisciplinary way to connect experts in acoustics, medicine, and public health—by focusing on the health effects of noise, sound, and vibration in clinical environments, where we can do careful, evidence-based, cross-disciplinary research and policy development to benefit the real world. —D.M.S.

100

Approximate number of pages in the 2002 FGI Guidelines.

For example, in 2016 the U.S. Centers for Disease Control and Prevention finally declared noise-induced hearing loss a significant public health problem. Research shows roughly half of people over age 65, and 80 percent of people over age 80, have hearing disabilities—and in healthcare facilities this creates risks for medical errors.

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Recently our group led FGI’s delegation to the national summit on “alarm fatigue” that persuaded the Joint Commission (which oversees hospital licensing) to issue a national safety guideline; contributed to the HIPAA Privacy Rule; and addressed the Affordable Care Act’s patient survey.

Over the committee’s 15 years, we have also published the book “Sound & Vibration 2.0” and contributed to several others; succeeded in getting the FGI criteria accepted into the LEED Green Building Rating System as well as the International Code Council; organized and funded research on healthcare acoustics; and presented peer-reviewed papers worldwide.

900

Number of pages, across three volumes, of the 2018 FGI Guidelines, with the next edition coming out in 2022.

Thank You, Harry

Working behind the scenes on technical public policy to improve people’s lives has quiet rewards, both figuratively and literally. The greatest reward is being able to see ahead and help create the institutional framework for future improvements. One potential landmark act is the Medicare Hearing Aid Act of 2019, H.R. 4618, which would enable Medicare to cover hearing disabilities.

Do we recall the individuals behind this legislation? As Truman noted, it doesn’t matter. What matters is that if this act is passed (and much is uncertain given the pandemic and election), Americans will finally gain affordable access to treatments for hearing loss—after a 75-year wait. Change takes time. —

Share your story:

Have you had problems hearing or with noise in the hospital? Tell us at editor@hhf.org.

Support our research:
hhf.org/donate



David M. Sykes leads several professional organizations in acoustical science, including the Quiet Healthcare Council and the Quiet Coalition, both programs operated by Quiet Communities Inc. He is also a board member of the Bedford VA Research Corp. Inc., which funds veteran-centered research, and is a former board member of the American Tinnitus Association. He cofounded the Laboratory for Advanced Research in Acoustics at Rensselaer Polytechnic Institute in New York and has held faculty or administrative posts at Cornell, Boston University, and Harvard Business School. For more, see quietcommunitiesinc.org. For references, see hhf.org/fall2020-references.