

CONVERSATIONS



# NOISE: GOING BEYOND

a “One-Size-Fits-All” Solution

An Interview on Noise Reduction With Susan Mazer, PhD

## INSIDE YOU WILL LEARN ABOUT:

The ways sound can support a healing environment.

Creating a culture of appropriate noise levels within a busy healthcare setting.

Engaging staff in building a healing environment in their own units, for patients and for themselves.

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**Susan E. Mazer, PhD**

Susan E. Mazer, PhD, is President, CEO, and co-founder of Healing HealthCare Systems, producers of The C.A.R.E. Channel. A thought leader and expert on how the environment of care impacts the patient experience, she has authored articles and whitepapers on noise in hospitals, HCAHPS, speech privacy, patient safety, elder care, and more. Susan earned her PhD in Human and Organizational Development from Fielding Graduate University, where she also holds a Master of Arts degree. She was previously awarded a graduate fellowship to Stanford University, where she completed her Master of Arts in Musicology. Prior to her role in healthcare, she worked full-time as a jazz harpist performing alongside Dallas Smith, and with notable musicians including Ahmad Jamal, Frank Sinatra, and Julio Iglesias. Susan and Dallas's music has been featured on NPR, the Discovery Channel, and NOVA. You can follow Susan on LinkedIn or read her blog at [HealingHealth.com](http://HealingHealth.com).

## Noise: Going Beyond a “One-Size-Fits-All” Solution

### Explain how you became involved with the issue of noise in hospitals.

My background is as a performing musician. I began working with nurses in the early 1980s when I developed a workshop on “Music as Therapy.” The workshop pointed to the ways in which the music shifts one’s sense of time and place and could enhance the patient’s own experience. Based on my own experiences as a musician, I focused on the profound impact of music. In the late ‘80s, my husband, Dallas Smith, and I set up a music-in-residence program in a local hospital. We would go into the unit and play from 4 to 8 hours so our musical intervention could move past being entertainment. We wanted the music to be used environmentally, but we also wanted to get a sense of the impact on patients and staff. It was because of these events that I developed the concept of “Music as Environmental Design.” As we became aware that we were introducing music into an active, dynamic auditory environment, we also became aware of everything else going on in the hospital. Thus, my work really began in the 1990s in wanting to create a therapeutic auditory environment and to understand all the auditory events that affect a patient.

### What do you perceive as the key issue for the industry?

One of my questions is: How does sound support or prevent a healing environment? The earliest discussions about healing environments focused on the visual, spatial, and touchable—more on the fixed environment than the auditory environment.

### You have said you’re not necessarily striving for pure quiet—that has its own problems. You’re looking to create a positive and calm environment.

That’s correct. Researcher Diana Pope stated years ago, in a paper titled, “Noise, Music, and Tone of Voice,” that if you find a sound unpleasant, making it softer will not fix it—would not make it pleasant. So if you hear music you can’t stand, turning it down does not help. She was also looking at the tone of voice used by caregivers with seniors. Tone of voice for any of us becomes strained in a high-



noise environment. That's why it's important for the auditory environment in a hospital to sound appropriate.

### **You're talking about a culture change to teach people to be quieter and more sensitive to those around them.**


Actually, it is not so much a "culture change to teach" as it is to create a culture that does not tolerate inappropriate noise. Let's look at an institution that has the noise issue down to a science: a church. If you visit the Vatican or the Duomo in Florence, hundreds of people are walking through, and they are all whispering. The church itself demands quiet. Noise is inappropriate for the space and the culture.

Every culture, and every hospital, has its own sound, its own values and tolerances. It has its own rules about what is acceptable and what is not. So, in the case of a hospital, whatever you hear is assumed to be what is permitted. This sense of what is permitted is embedded in the hospital culture to allow loud conversations, tolerate slamming doors, and ignore sounds that the staff doesn't hear anymore. The challenge, then, is to understand it in the same way as the individual who can't tolerate it. Only when local practices become unacceptable will we do something about it. But as long as staff members provide excuses, justifications, and blame, the culture won't change. Remember: What we permit, we promote.

### **What immediate steps can healthcare facilities take to address the noise issue?**

The first step is assessment. Decibel meters provide only one piece of the puzzle. Let's say we go into a hospital and ask, "Do you think your hospital has an issue with noise, and how do you know that?" Nurse managers reply, "Yes, we know because patients complain about it." My response would be, "Does your staff complain about it?"

The staff needs to make a *living* assessment, implying measurement beyond decibels. They need to walk in to somebody else's unit, sit in a waiting area or an empty patient room for a while, and listen. What do you hear? What's the dynamic? How do you track that? Until the staff is uncomfortable with the noise environment, it's like telling people who like their bodies to lose weight.

 Every culture has its own sound, its own values and tolerances. It has its own permissions and its own rejections.



Until there is real assessment and serious inquiry into the noise problem—why do you think we have that problem, where do you think it exists, what’s the evidence, have you talked to staff, have you walked around the hospital—it will be an uphill climb.”

I also believe HCAHPS measures and patient satisfaction measures are a backward way to change culture. You have to do what is right in service of your own professionalism, your own standards. Saying we have to be quieter because our HCAHPS scores are poor is putting the cart before the horse. Until there is real assessment and serious inquiry into the noise problem—why do you think we have that problem, where do you think it exists, what’s the evidence, have you talked to staff, have you walked around the hospital—it will be an uphill climb. And when you get it right and the culture starts influencing behavior, the HCAHPS scores will take care of themselves.

**So is the answer to sit in an empty patient room for several hours and write down everything you hear and how loud or soft sounds are relative to your personal thresholds?**

It’s not that simple. A hospital is a 24-hour institution with many neighborhoods, all with their own cultures and needs. There is no one-size-fits-all solution. We need to ask: Is this a healing environment? Is it an environment where the patients are the true focus? Is this an environment where the staff can do its best work and thrive? Each unit must be dealt with like a small neighborhood.


The one-size-fits-all solution is the nature of a regulated industry. But until hospitals accept the complexity of the issue and ask those tough questions, we will have this debate.

**So if step one is assessment and step two is recognizing that the issue needs to be changed, is step three implementing those changes?**

Yes. Do the most obvious, easy-to-fix things first. Make sure the doors don’t slam, that equipment is functioning as quietly as it can, and housekeeping operations are in alignment with the unit’s culture.

You should also engage staff members, but not without first asking them for their experiences. You can’t come in with a list and say, “This is what you’re now required to do,” because for them it’s one more battering ram. You need to enroll them in creating a healing environment in their own unit—not just for the patients, but for themselves. Ask them questions like, “What is the most distracting sound to you as you’re doing your daily work?” HCAHPS is about patient satisfaction and has become a reason to make the staff work harder.



 Do the obvious first, then peel back the layers, because the minute you turn off what makes the most noise, all of the other noises rise to the surface.

There should be an understanding that if the environment does not reflect the professionalism and care staff brings to every patient, then it has to be improved.

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### **Absolute silence is not what you are going for either.**

A personal story: I was in a hospital recently, and I had four IVs—two in each arm. The alarm goes off. No nurses or aids show up. The alarm continues, and still no action, so I hit the nurse call button. Nearly 25 minutes later, a nurse comes in and says, “Oh, the IV bag is empty. No big deal.”

My issue was not about the sound of the alarms. My issue was that the staff had become accustomed to the sound of the alarm and no longer heard it as an alarm. When the alarm first went off, no one took action. As a patient, I did not know what the alarm meant. It was annoying and frightening, and I could do nothing about it. The alarm was ignored, and I, as a patient, felt ignored.

The most upsetting sound is the one the patient does not understand. Florence Nightingale said that ongoing sounds are not the most disturbing, but rather the erratic noises that invade that established sound level. As an example, on an airplane, the engine becomes “silent” because we become habituated to it. When it stops, that’s alarming to us.

### **So, you need to establish a comfort level by keeping noise low in general, but any spike in noise will start the mind roiling in a negative direction.**

You do not want to startle anyone. If a sound creates apprehension, anticipation, anxiety, waiting, or fear of surprise, as Nightingale wrote, it is damaging to the patient.

### **How do you balance the need for technology, such as alarms, with the need for a quiet and peaceful environment in terms of healing?**

If a heart-rate monitor has a steady beat, patients adjust to it. It’s the alarms going off that cause anticipation and expectation. I attended a medical alarm fatigue summit, and something like 95% of all alarms are non-actionable; they



ring because of something like the heart rate going up or down from a defined normal range. As with my IV bag alert, not all alarms are about life-threatening issues. Many hospitals have come up with protocols to deal with technology. They have to attenuate everyone to what is normal for each patient, sift out the auditory environment so they can hear patients, and turn them off when they just need to be reset.

Another suggestion looks at alarms that have to be reset following a peak. For example, a patient's blood pressure spikes and returns to normal, but the spike sets off the alarm and has to be reset. The suggestion is to set the alarm not to ring within 60 seconds of the event. If the blood pressure returns to normal within a minute, the alarm would not go off. Again, the one-size-fits-all mentality has triggered many alarms that are not critical or not actionable. And because monitors are such a vital part of caring for patients, the clinical staff must decide how to attenuate them without putting the patient at risk.


**The sustained alarm causes the patient to think something is wrong. The longer it's unresolved, the more distress it creates in the patient.**

Yes, and the family goes from stress to distress—alarms are going off and nobody's doing anything about it. For the staff, the non-actionable alarms are at the bottom of the list because they are busy saving lives rather than comforting patients. Yet patients and families are subjected to unnecessary stress on top of whatever the health issue is. This needs to change. Alarm fatigue has now been identified as a serious issue. One hospital reported over 11,000 non-actionable alarms within 30 days.

**Saving lives and comforting patients—if you're dealing with one and ignoring the other, you might as well be ignoring them both.**

While there is continuing research looking at the impact of environmental stressors on patients and staff, there is not a real understanding yet as to the human price of being cared for in a setting that is itself unhealthy. Nightingale said it first: The first responsibility of a hospital is not to harm the sick.

Patients and families are already afraid that they are going to die due to neglect, lack of consideration, and/or errors. The kind of suffering that comes from this fear is not on anybody's chart. This should be dealt with every day in every

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department, and there should be accountability to provide an environment that is safe, comforting, healing.

### Where does the industry stand on this?

Had the HCAHPS survey not included the question about the environment being quiet at night, hospital noise would still be a mere annoyance. Now reimbursement is attached to HCAHPS, giving it teeth. I'm just glad it has become an issue. But the quiet night is only one part of the patient experience; HIPAA has made the role of noise in speech confidentiality an issue as well.

### What can architects and designers do to help?


Many hospitals have some sort of sound quality committee or other committee that deals with the issue of noise. Architects and designers should work with this committee to understand the issues facing that particular client and come up with design solutions that can support the whole effort to reduce noise. Also, adding an acoustical engineer or a noise control engineer to the project team is essential. Otherwise, the auditory outcome of a new building may be ignored until the building comes to life.

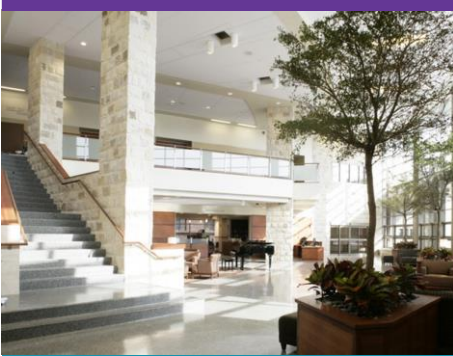
Even if acoustic materials are included in the design of corridors, patient rooms, waiting areas, lobbies, etc., it is still hard to determine how those spaces will sound once they are operational. If the hospital foundation decides to donate a gorgeous water fountain for the lobby, how does that sound? If the floors are concrete and the walls are glass, how does that sound? And what does a high ceiling do to sound?

An acoustic engineer and noise control engineer can determine exactly what the space will sound like, the reverberation, and how far the sound will travel. There are architectural fixes after the fact, but it is best dealt with before the fact.

### What do you see as next steps for the industry?

The noise issue has to be re-evaluated with every facility and organizational change. Everything and everyone affect the auditory environment, and the reverse is also true. Taking out one wall, putting in another, using Plexiglas instead of solid walls, putting in acoustic tile, not putting in acoustic tile,

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changing the flooring, adding windows for more sunlight—that all affects how sound behaves.

Evaluation and re-evaluation of protocols also need to be done on an ongoing basis regardless of the design solutions in place. For example, if a facility has decentralized nurses' stations, discussions often occur near the patient's door. A doctor leaves a patient room speaking in a loud voice. Or maybe a team of doctors and the nurse are standing next to a room having conversations that should be confidential but are heard by others. In each of these situations, staff has to be both compelled and comfortable addressing the situation as it occurs.

Noise is a systemic issue. You can't set it and forget it, because it's not just one thing. Noise feeds on itself. The louder it is, the louder everyone talks. Every unit has its own culture, and then there's the macro-culture of the facility.

Nonetheless, for the sake of the patient and family who may move throughout the facility, consistency supports the quality of the patient experience.

Noise studies go back decades, and they are evidence-based, well-published, peer-reviewed studies. Nonetheless, noise control is still not showing up consistently at the bedside or at the design table. Noise management has to move to the front of the room, or it's not going to happen. Many organizations plan to fix the squeaky wheel tomorrow, but the patient is in the hospital today; improvements planned later are irrelevant to the patient whose time is now, not tomorrow, not next month or next year.