Good Acoustics Matter: Using Evidence Based Design to Improve Patient Satisfaction and Healthcare Outcomes

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patient experience  empathy  innovation
patient experience  
quiet healing
What are you doing to “move the needle”? What are you doing daily to create a quiet environment? Does the C-suite “get it”? What is your level of “Acoustic Quality”? Would your patients heal faster if they got more sleep? How does your acoustical soundscape help heal?
Or do you believe in “hope”?
Do you hope that what are you doing will “move the needle”?
   Do you hope that you will create a quiet environment?
   Do you hope that the C-suite will “get it”?
Do you hope that your acoustical soundscape helps heal?
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- President & Principal of Acoustics By Design
- Masters of Science in Acoustical Engineering, Purdue University
- President, National Council of Acoustical Consultants
- Board Certified and Past Chair Building Acoustics, Institute of Noise Control Engineers (INCE)
- LEED Accredited Professional BD+C
- Education Chair, FGI Acoustic Working Group
- Sustainability in Acoustics Leadership Award
Kenric

Engineer
Kenric
Engineer
Visitor
Kenric

Engineer

Visitor

Patient
Kenric
Engineer
Visitor
Patient
Father
Upon completion, participants are able to:

- Explain how noise levels are increasing in healthcare facilities
- Explain how noise levels tie into patient satisfaction scores and healing.
- Identify how FGI criteria, Healthcare Facility Noise Surveys, Multi-Disciplinary Hospital Focus Groups surveys combine together to create an evidence based design roadmap for acoustical design of renovated and new spaces.
Noise levels are increasing in healthcare facilities.
Sound Familiar?
A Brief History of Healthcare Acoustics

<table>
<thead>
<tr>
<th>Measurement Location</th>
<th>Average Daytime Level ($L_{eq}$)</th>
<th>Average Nighttime Level ($L_{eq}$)</th>
<th>WHO Recommended Daytime/Nighttime Levels</th>
<th>FGI Multi-Occupant Recommended Daytime/Nighttime Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Spaces – 8th Floor</td>
<td>57</td>
<td>52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Spaces – 8th Floor</td>
<td>58</td>
<td>54</td>
<td>35/30</td>
<td>50/40</td>
</tr>
<tr>
<td>Public Spaces – 11th Floor</td>
<td>58</td>
<td>55</td>
<td></td>
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</tr>
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Unnecessary noise...is that which hurts a patient.

Of one thing you can be certain, anything that wakes a patient suddenly out of his sleep will invariably put him into a state of greater excitement.
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~ Florence Nightingale
“Notes on Nursing: What It Is, and What It Is Not”
Chapter 4 on Noise, 1860
A Brief History of Healthcare Acoustics

Florence Nightingale
“Notes on Nursing: What it is, and What it is not”
1860

- HIPAA 1996
- WHO 1999
- Green Guide For Healthcare 2004
- LEED 2009
- FGI Guidelines 2010, 2014
Why does everything beep?

Another annoying thing in the hospital is the beeping. Why does the IV pump need to beep loudly in my ear when the nurse is the only one who can fix it? Doesn’t it make more sense for it to beep next to the person who can do something about it? It is especially annoying when I have a headache (which is after each of my treatments). With all of the technology today, surely there is the ability to make it quiet in my room but loud by the nurse?

Also, the nurse call buttons are getting fancier, but it appears...
Noise Levels, Patient Satisfaction Scores and Healing.
Doctors, nurses, patients & families say “noise & privacy” are the lowest performing scores and #1 issue
### THE HOSPITAL ENVIRONMENT

<table>
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<tr>
<th>Question</th>
<th>Options</th>
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<td>8. During this hospital stay, how often were your room and bathroom kept clean?</td>
<td>1: Never, 2: Sometimes, 3: Usually, 4: Always</td>
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<td>9. During this hospital stay, how often was the area around your room quiet at night?</td>
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HCAHPS Patient Satisfaction Reporting

“Quiet at Night” is almost always the lowest score

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   4. Always
I can’t get better here, with all those alarms and people waking me up to give me pills and take my blood pressure and get my blood.

I feel like I get sicker in the hospital because I can’t get any sleep!

For me, the worst noise levels came from the patients that shared a room with me, with a thin partition separating us.

To make matters worse many times when those alarms go off no one responds. So the noise doesn't accomplish anything.