



Sound Masking Solutions in Healthcare



cambridge[™]
SOUND MANAGEMENT

www.cambridgesound.com

Treating The Whole Patient - Improving Patient Satisfaction

The mission of many modern hospitals has expanded to not only include rehabilitation of a patient's body, but also to rejuvenate their mind and spirit. Press Ganey, a medical research and strategic healthcare consultant group, conducts a series of surveys at over 10,000 medical facilities to help administrators improve patient care. With over 30 years of statistical evidence, Press Ganey has seen direct correlations between high patient satisfaction and a patient's perception of receiving high quality of care. When patients sleep better and are more comfortable, their perception of the hospital's overall quality of care increases.⁶ As patient satisfaction and quality of care become a greater focus, hospitals are seeking ways to increase acoustic comfort and privacy.

While healthcare environments continue to improve, striving to provide better patient outcomes and experiences, many hospital environments remain extremely noisy, disrupting patients and causing privacy concerns. Caregivers have several options at their disposal to address unwanted noise and increase patient privacy. One possible solution is to add a sound masking system. The QtPro™ sound masking system provides an unobtrusive and consistent background sound, similar to airflow, designed to reduce the impact of distracting noise and mask conversations. The QtPro sound masking system dramatically contributes to patient satisfaction because it effectively:

Promotes Rest & Relaxation



By adding sound masking, patients are able to sleep better resulting in an improvement of medical outcomes.

Improves Speech Privacy & Confidentiality



Enhances patient privacy and reduces the intelligibility of confidential conversations.



“ Approximately four months after we installed the Qt® system, our hospital's post stay Press Ganey survey of 57 patients on the issue of “noise in and around the room” showed a dramatic 33% increase in patient satisfaction. ”

Ben Pethe
Director of Facilities Management
Saint Thomas Hospital
Nashville TN





Promoting Rest and Relaxation - Improving Medical Outcomes



Sleep is an important part of the healing process, but noise from hallways and nurses' stations often prevents patients from getting the rest they need. Excessive noise and the resulting lack of sleep tops

the list of patient complaints. Not only does a noisy hospital environment disturb patient sleep, it weakens their immune system and impacts recuperation.

Studies show that patients in rooms with sound masking find that it helps to shorten the time it takes to fall asleep and prevents unwanted noises from disrupting their sleep.² Patients have reported they slept better, felt it was quieter, and were more satisfied with staff care. In addition, incidence of patient readmittance to the hospital was lower.

“ It can be seen that sound masking has the most significant effect in promoting ICU patients' sleep, producing an improvement of 42.7%.¹ ”



Making Patients Feel More Comfortable & Confident - Enhancing Speech Privacy and Patient Confidentiality



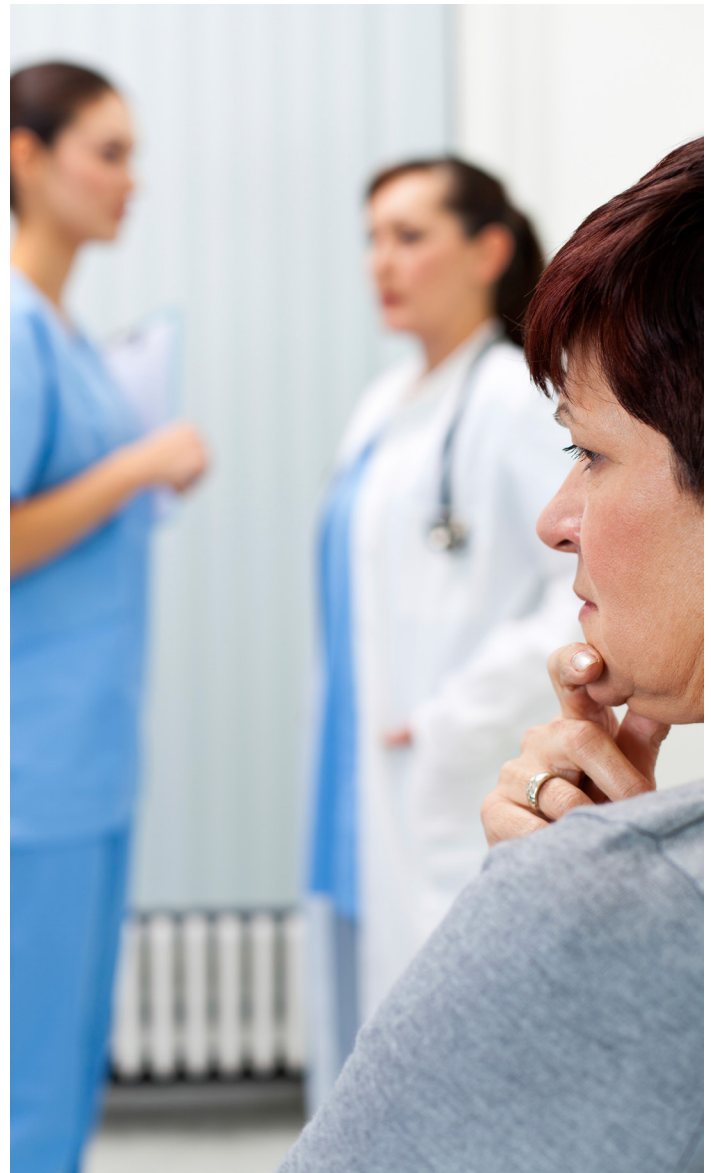
The Health Insurance Portability and Accountability Act (HIPAA) mandates how a healthcare provider is able to collect, store and use patients' personal health information and requires providers to

implement safeguards to protect patient privacy. Hospitals not only have a legal obligation to ensure patient privacy but an obligation to help their patients feel more confident of their privacy and comfortable.

Patients feel more comfortable when they can confidentially speak with their provider. Ensuring speech privacy is particularly important in public spaces such as reception areas and open counters common in pharmacies, where privacy is virtually nonexistent. If patients can overhear other people's discussions, they feel they might also be heard by others. As a result, patients may feel that they cannot fully discuss their issues and questions with other healthcare professionals.

During shift changes and physician rounds, small groups of staff frequently engage in medical discussions and confidential staff conversations in hallways just outside of patient rooms. By reducing the intelligibility of these conversations, patients feel more confident that their privacy is being maintained.

The QtPro sound masking system makes conversations more difficult to hear or comprehend. Because it reduces speech intelligibility, privacy is improved and a patient's fear of being overheard is reduced and the safeguard requirements as mandated by HIPAA are fulfilled.



“ Maintaining speech privacy in healthcare settings helps reduce medical errors as it supports open conversations among patients, families, and Patient Care Teams (PCTs) and is believed to influence patient satisfaction.³ ”

The Patient Protection and Affordable Care Act - Ranking the Nation's Hospitals

As mandated by the Patient Protection and Affordable Care Act, The Department of Health and Human Services (HHS), has launched an initiative, known as the Value Based Purchasing (VBP) program, to reward hospitals for the quality of care they provide to Medicare and Medicaid patients. The VBP program, administered by the Centers for Medicare and Medicaid Services (CMS), reimburses hospitals across the country for inpatient acute care services based on quality of care in addition to the quantity of services provided. CMS measures hospital performance using two metrics:

Clinical Process of Care

A quantitative measurement, based on scientific evidence reflecting medical guidelines, standards and practice parameters. The measurement converts medical information from patient records into a rate or percentage that allows facilities to assess their performance.⁴

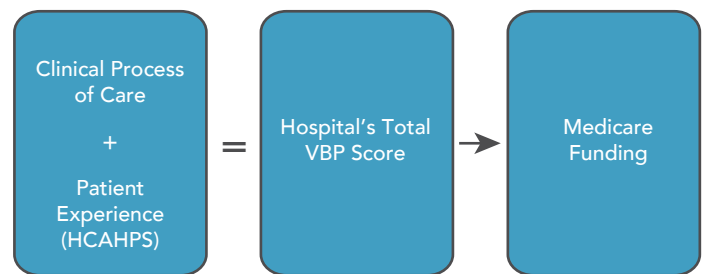
Patient Experience/Satisfaction

A qualitative measurement, based on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. This survey is filled out by patients after an inpatient hospital visit.

VBP seeks to reward hospitals for improving the quality of care provided to patients. A low HCAHPS/patient satisfaction score translates to a lower overall VBP score, which equates to a lower Medicare reimbursement for a hospital.

Medicare payments reflect a hospital's VBP score (the hospital's achievement, improvement, and consistency in clinical processes of care and HCAHPS survey results). A facility's weighted score is based on both patient survey results (30%) and other clinical measures (70%).

Nationally, the HCAHPS measure for "Quiet at Night" reveals that patients are marginally satisfied with the level of hospital noise near their rooms at night. When surveyed upon discharge, patients express their dissatisfaction with low ratings on questions about "Quiet at Night," "Likelihood to Recommend," and "Hospital Overall."



Clinical Process of Care Scores + HCAHPS Scores = Total VBP Score which impacts Medicare Funding

“ The QtPro sound masking system is the perfect example of how every detail of the hospital was carefully considered to promote patient healing and comfort. ”

Tracy Clouser
Director of Marketing
Florida Hospital Wesley Chapel
Wesley Chapel, FL

Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) Survey - Rating Patient Satisfaction

HCAHPS is the first national, standardized, publicly reported patient survey regarding hospital care. It was designed by CMS and the Agency for Healthcare Research and Quality and measures a patient’s perception of care on 10 dimensions, ranging from nurse communication to **quietness of the hospital environment**. Hospitals need to obtain at least a 50th percentile in each dimension to receive achievement points for full Medicare funding.

Below is a sample of HCAHPS survey results of three randomly selected hospitals from the greater Boston metropolitan area. Note that the lowest performing area on the survey is the “Quiet at Night” category.

At A Glance:

- The survey covers 10 dimensions of patient care (see sample survey below).
- The results of the HCAHPS survey are reported and available for public review, allowing patients to compare hospitals side-by-side.
- Medicare reimbursement funding is now based on a pay-for-performance system, versus the previous pay-for-quantity system.

Sample HCAHPS Survey (Responses in the “always” category for each dimension)

PATIENT SURVEY QUESTIONS	HOSPITAL 1	HOSPITAL 2	HOSPITAL 3
Patients who reported that their nurses “always” communicated well.	80%	78%	80%
Patients who reported that their doctors “always” communicated well.	82%	80%	84%
Patients who reported that they “always” received help as soon as they wanted.	67%	63%	63%
Patients who reported that their pain was “always” well controlled.	75%	74%	70%
Patients who reported that staff “always” explained about medicines before giving it to them.	67%	65%	65%
Patients who reported that their room and bathroom were “always” clean.	78%	68%	71%
Patients who reported that the area around their room was “always” quiet at night.	56%	47%	52%
Patients at each hospital who reported that YES, they were given information about what to do during their recovery at home.	88%	88%	88%
Patients who gave their hospital a rating of 9 or 10 on a scale from 0 (lowest) to 10 (highest).	78%	67%	75%
Patients who reported YES, they would definitely recommend the hospital.	80%	72%	81%

Survey results are publicly available at: www.medicare.gov/hospitalcare
 (Sample based on 3 randomly selected hospitals in the Boston metropolitan area on July 12th, 2013)



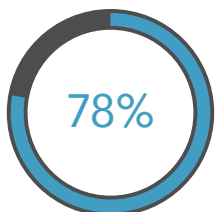
What the National HCAHPS Data Reveals...

Since 2009, HHS has collected over 15 million surveys from nearly 4,000 hospitals. Each of the 10 dimensions are separated into two or three subcategories. The chart on the right displays an in depth look at the “quiet at night” category of questions using the same three hospitals from the sample results on the previous page. The chart also includes the average state hospital ranking (in this example Massachusetts) and the national average for these questions. The diagram below displays the average HCAHPS results for each of the 10 dimensions. Nationally, patients are marginally satisfied with the hospital noise near their rooms at night. Consequently, hospitals across the board are receiving the lowest of all HCAHPS scores from discharged patients on the key measure of “quiet at night.”

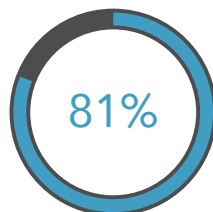
	Patients who reported that the area around their room was always quiet at night.	Patients who reported that the area around their room was usually quiet at night.	Patients who reported that the area around their room was never quiet at night.
HOSPITAL 1	56%	28%	16%
HOSPITAL 2	47%	34%	19%
HOSPITAL 3	52%	32%	16%
STATE AVERAGE	52%	33%	15%
NATIONAL AVERAGE	60%	30%	10%

Survey results are publicly available at: www.medicare.gov/hospitalcare
 (Sample based on 3 randomly selected hospitals in the Boston metropolitan area on July 12th, 2013)

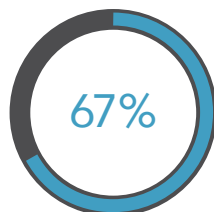
National Average HCAHPS Results



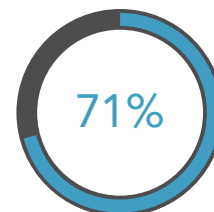
Nurses Always Communicated Well



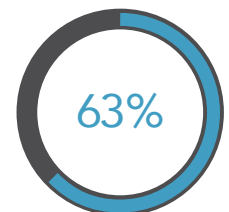
Doctors Always Communicated Well



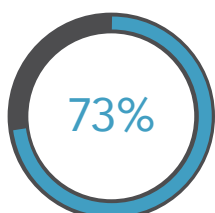
Patient Always Received Help When Wanted



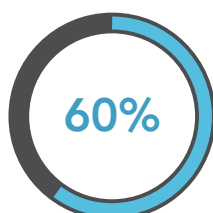
Pain Was Always Controlled



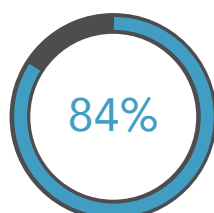
Staff Always Gave Medicine Information



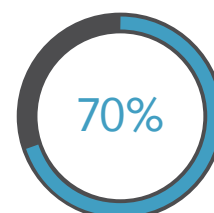
Patient Rooms Were Always Clean



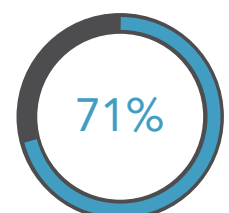
Patient Room Always Quiet At Night



Received Recovery Information



Patients Rating Hospital High



Patient Would Recommend Hospital

Reducing Noise, Improving Care - Building a Better Acoustic Environment

There are many ways a hospital can improve their acoustic environment.

Give each patient their own individual room.

This option significantly increases construction and operating costs and, in previously existing hospitals, reduces patient capacity resulting in reduced funding.

Add barriers and other sound blocking materials in public spaces.

This option increases construction costs and creates a less inviting space with less natural light and airflow, resulting in decreased comfort for patients and visitors.

Add sound masking.

This option is easily integrated into existing spaces, allows hospitals to keep spaces open for more natural daylight and airflow, and increases the ability for hospitals to use an inpatient room to house more than one patient.

The simplest and most effective sound masking system designed for hospital environments is the QtPro sound masking system. The QtPro system provides a continuous background sound that reduces the impact of unwanted hospital noises and masks conversations, making the resulting environment feel more private and comfortable.



“ Managing healthcare facilities’ acoustic environments by lowering noise levels and introducing appropriate levels of background sound to mask intruding noise can improve healthcare delivery.⁵ ”

References:

1. “Clinical Review: The Impact of Noise on Patients’ Sleep and the Effectiveness of Noise Reduction Strategies in Intensive Care Units,” Xie, Hui, et al. *Critical Care* 2009
2. “Sound Masking in Healthcare Environments,” <http://www.healthcaredesignmagazine.com/article/sound-masking-healthcare-environments>
3. “Acoustics in Healthcare Environments; Ceiling & Interior Systems Construction Association,” http://www.cisca.org/files/public/Acoustics%20in%20Healthcare%20Environments_CISCA.pdf
4. “Centers for Medicare and Medicaid Services, Process of Care Measures,” <http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalProcessOfCareMeasures.html>
5. Acoustic Environment Technical Brief, “Green Guide for Health Care,” <http://www.acentech.com>
6. “2011 Press Ganey Pulse Report: Perspectives on American Health Care,” <http://www.pressganey.com/researchresources/hospitals/pulseReports.aspx>





The QtPro Sound Masking System - The Cost Effective Solution For Improving Patient Satisfaction

The QtPro sound masking system helps providers address speech privacy and acoustic comfort issues in the private and public areas within the hospital. The system can be installed in both new and existing hospital facilities with minimal disruption to hospital operations. Our Qt Emitters can be installed into virtually any ceiling type.

QtPro systems have been improving the acoustic conditions in hospitals across the globe and offer convenient features such as emergency paging integration and audio inputs for background music. Our systems also offer the most uniform coverage and provide the best isolation from room to room and throughout public areas.

“ Patients and staff experience the positive ambiance we wanted to achieve through our open design concept, and we gained a greater level of patient satisfaction. ”

Alison Brisson
Plant Operations Manager
Wentworth Douglas Hospital



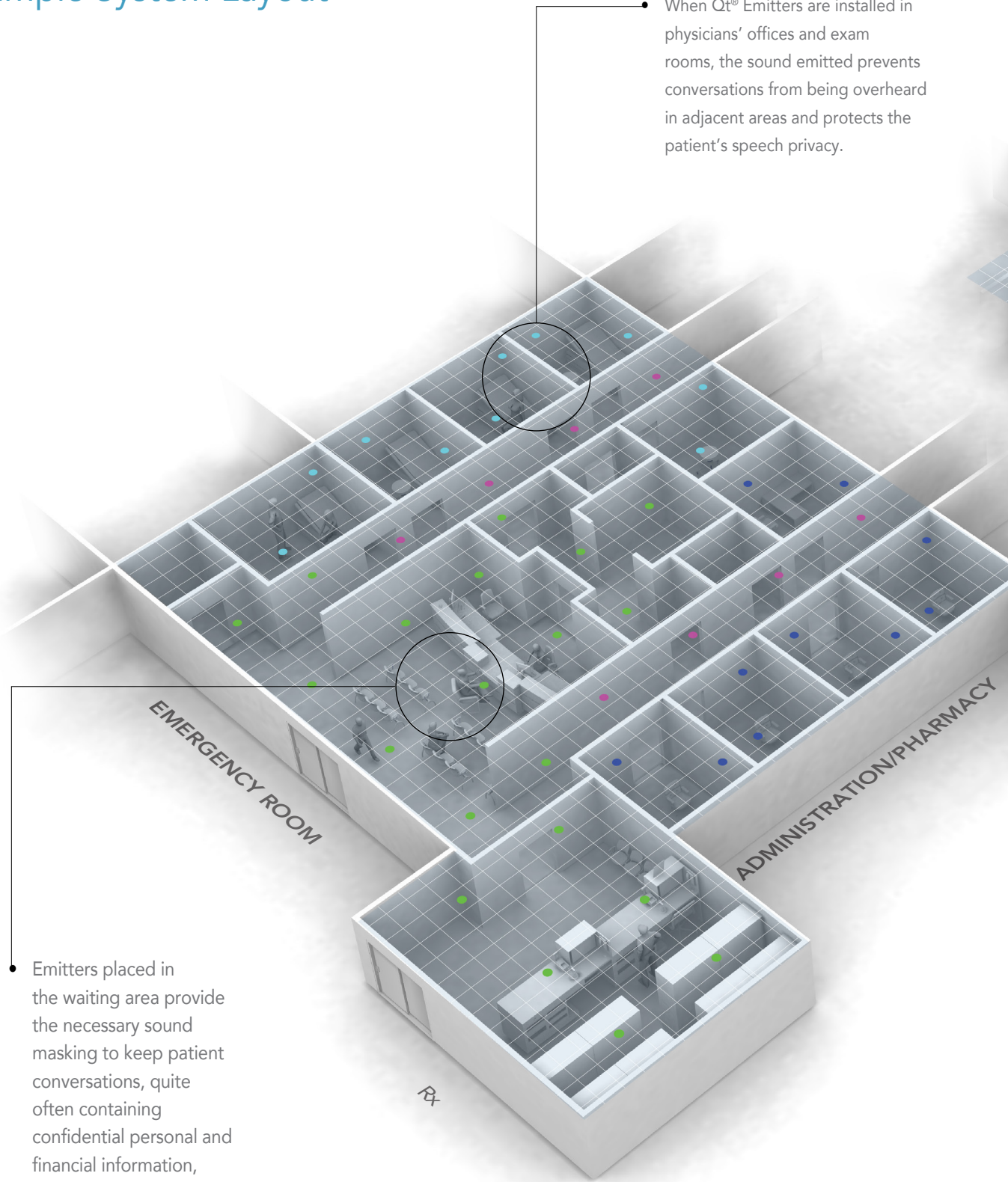
“ To ensure patient privacy and comfort in all 83 patient rooms, 18 emergency rooms, hallways, the main lobby, nurses’ stations, and operating rooms, we deployed QtPro sound masking. ”

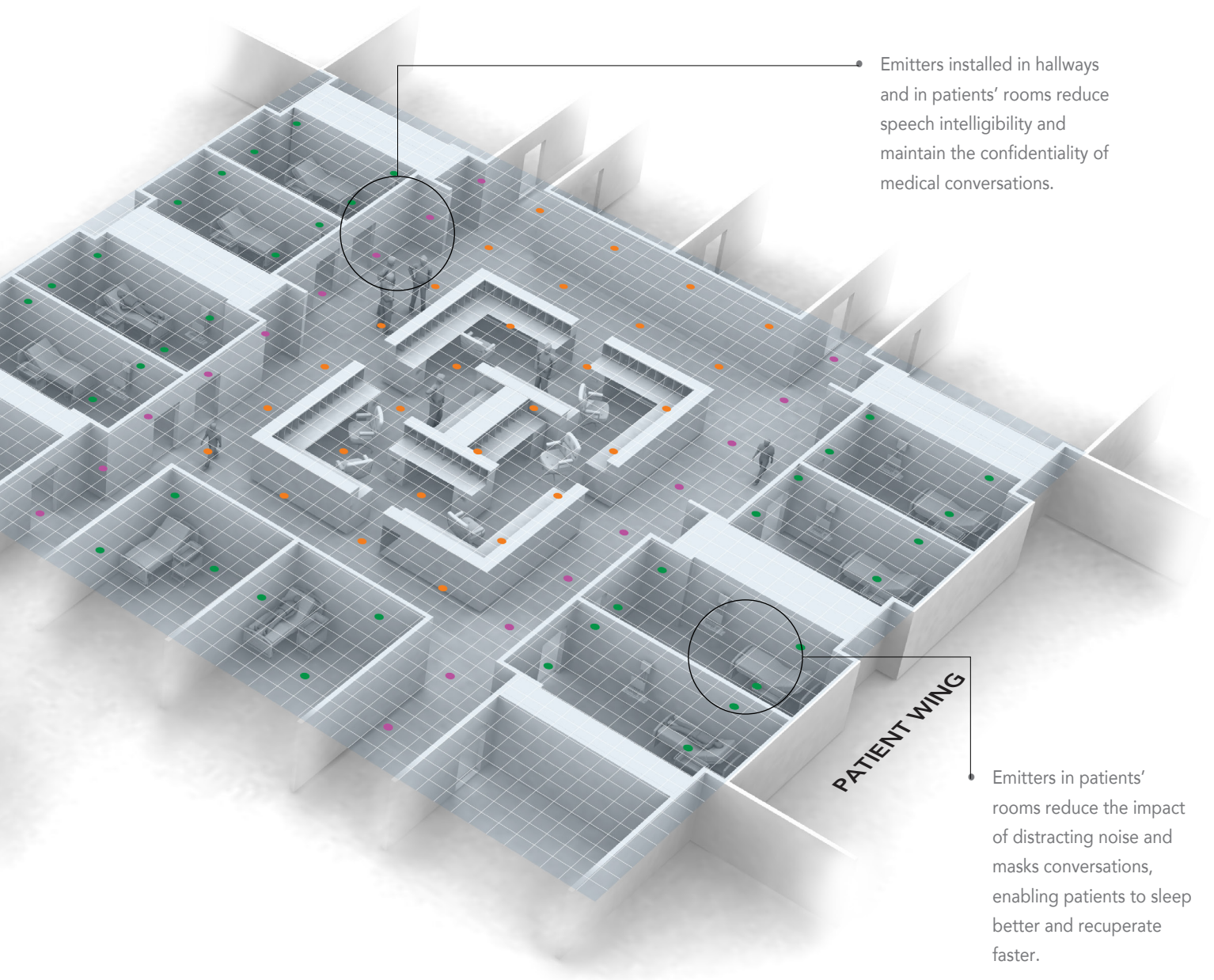
John Crouch
Director of Facilities
Florida Hospital Wesley Chapel

The QtPro Sound Masking System - Sample System Layout

When Qt® Emitters are installed in physicians' offices and exam rooms, the sound emitted prevents conversations from being overheard in adjacent areas and protects the patient's speech privacy.

Emitters placed in the waiting area provide the necessary sound masking to keep patient conversations, quite often containing confidential personal and financial information, private.





Emitters installed in hallways and in patients' rooms reduce speech intelligibility and maintain the confidentiality of medical conversations.

Emitters in patients' rooms reduce the impact of distracting noise and masks conversations, enabling patients to sleep better and recuperate faster.

Private

- Patients' Rooms
- Doctors' Offices
- Examination Rooms
- Treatment Rooms
- Psychiatric Counseling Rooms
- Hospital Administration

Public

- Waiting Rooms
- Emergency Exam Rooms
- Patient Registration
- Business Areas
- Pharmacies
- Nurses' Stations

Zoning Flexibility

The QtPro system is designed to meet the unique acoustic requirements of any hospital space whether large or small. Individual zones can range from 100 square feet to 12,000 square feet (9.3 m² - 1,115 m²) to provide the appropriate sound levels.

- Zone 1: Hallways
- Zone 2: Nurses' Station
- Zone 3: Patients' Rooms
- Zone 4: Exam Rooms
- Zone 5: Offices
- Zone 6: Waiting, Reception, Intake, Pharmacy

QtPro™ Line of Products

QtPro direct-field sound masking systems are ideal for healthcare environments. All QtPro systems are GreenSpec listed, consume less than 24 watts of power and can contribute to LEED Certification. These versatile systems are available with a variety of control module options suitable for small spaces to multi-site facilities.

Room Size	Product	Zones	Max Coverage	Paging and/or Music Inputs	System Control
Small	Qt® 100	1 Zone 1-120 Emitters	12,000 ft ² / 1,115 m ²	1 input for paging or music	- LCD front panel control - iOS via Bluetooth
Medium	Qt® 300	3 Zones 1-360 Emitters	36,000 ft ² / 3,344 m ²	2 inputs for paging and/or music	- Pre-installed software via LAN direct PC connect - LCD front panel control
Large	Qt® 600	6 Zones 1-720 Emitters	73,000 ft ² / 6,689 m ²	2 inputs for paging and/or music	- Pre-installed software via LAN direct PC connect - LCD front panel control



Cambridge Sound Management, Inc. (CSM) is the developer of QtPro sound masking systems currently deployed in hundreds of millions of square feet of space throughout the world. CSM offers innovative, simple and intelligently designed solutions to the problems of privacy and acoustic distractions based on over 50 years of research started by Bolt, Beranek and Newman (BBN) that result in improved productivity and comfort. QtPro combines exceptional audio performance,

low impact installation, and affordability with lowest total cost of ownership. QtPro systems are extremely reliable and consume less than 24 watts of power per 72,000 square feet (6,689 m²) of space, are GreenSpec listed, and can contribute to LEED Certifications. For more information about the QtPro family of products, or to learn more about how sound masking can help your business improve privacy and worker productivity (and patient comfort), visit our website at www.cambridgesound.com.



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