Sound Masking Solutions in Hospital Environments
**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. 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:

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**Promotes Rest & Relaxation**

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

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**Improves Speech Privacy & Confidentiality**

Enhances patient privacy and reduces the intelligibility of confidential conversations.

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**Ben Pethe**
Director of Facilities Management
Saint Thomas Hospital
Nashville TN

"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."

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

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.

Promoting Rest and Relaxation - Improving Medical Outcomes

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

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.
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.™
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.¹

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.”

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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)

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

Survey results are publicly available at: [www.medicare.gov/hospitalcare](http://www.medicare.gov/hospitalcare)

(Sample based on 3 randomly selected hospitals in the Boston metropolitan area on July 12th, 2013)
On average, more than 8400 patients complete the HCAHPS survey every day. 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.”

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Always Quiet at Night</th>
<th>Usually Quiet at Night</th>
<th>Never Quiet at Night</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital 1</td>
<td>56%</td>
<td>28%</td>
<td>16%</td>
</tr>
<tr>
<td>Hospital 2</td>
<td>47%</td>
<td>34%</td>
<td>19%</td>
</tr>
<tr>
<td>Hospital 3</td>
<td>52%</td>
<td>32%</td>
<td>19%</td>
</tr>
<tr>
<td>State Average</td>
<td>52%</td>
<td>33%</td>
<td>15%</td>
</tr>
<tr>
<td>National Average</td>
<td>60%</td>
<td>30%</td>
<td>10%</td>
</tr>
</tbody>
</table>

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

References:

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.

"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

"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

"We installed the QtPro in an inpatient area, along with other noise-reducing measures. We’ve experienced positive results from the measures taken."

Wes Pooler
Director of Facilities Management
University of Vermont Medical Center
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.

www.cambridgesound.com
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.

**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**

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.

www.cambridgesound.com

**PATIENT WING**
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.

<table>
<thead>
<tr>
<th>Room Size</th>
<th>Product</th>
<th>Zones</th>
<th>Max Coverage</th>
<th>Paging and/or Music Inputs</th>
<th>System Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>Qt® 100</td>
<td>1 Zone 1-120 Emitters</td>
<td>12,000 ft² / 1,115 m²</td>
<td>1 input for paging or music</td>
<td>- LCD front panel control</td>
</tr>
<tr>
<td>Medium</td>
<td>Qt® 300</td>
<td>3 Zones 1-360 Emitters</td>
<td>36,000 ft² / 3,344 m²</td>
<td>2 inputs for paging and/or music</td>
<td>- Pre-installed software via LAN direct PC connect - LCD front panel control</td>
</tr>
<tr>
<td>Large</td>
<td>Qt® 600</td>
<td>6 Zones 1-720 Emitters</td>
<td>72,000 ft² / 6,689 m²</td>
<td>2 inputs for paging and/or music</td>
<td>- Pre-installed software via LAN direct PC connect - LCD front panel control</td>
</tr>
</tbody>
</table>

Qt Patient Privacy System

Only need to mask a reception area, pharmacy, or small medical office? We have a speech privacy solution for these spaces as well that features lighted privacy signs letting patients know the system is running. Visit www.cambridgesound.com/patientprivacy for details.

About Cambridge Sound Management

Cambridge Sound Management, Inc. the global leader in sound masking, manufactures QtPro sound masking systems to help organizations across multiple industries protect speech privacy, reduce noise distractions, and fuel workplace productivity. Powered by direct-field Quiet Technology, QtPro works by emitting a uniform, barely perceptible background sound at the frequencies of human speech. Cost effective and easy to install, QtPro is deployed in hundreds of millions of square feet of space throughout the world including commercial organizations, healthcare facilities, financial services, government agencies, and educational institutions.