

What do Patients Care About?

Harnessing the New Science of Sentiment Analysis

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The New Science of Sentiment Analysis

“When dealing with people, remember that you are not dealing with creatures of logic, but creatures of emotion.”

Dale Carnegie

“I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”

Maya Angelou

Traditional Measures of Patient Satisfaction

Patient Satisfaction Surveys

- Structured questions
- Random sample of patients
 - Inpatient, Ambulatory Surgery, Emergency Room, Physician Offices, Outpatient Clinics Third level
- Quantitative measures
 - Average Scores
 - Relative Ranks comparing hospitals, providers
 - Trending over time

HCAHPS Surveys

- CMS-mandated for all hospitals
- Publicly available data for consumers



- Value-based purchasing
- To be extended to other settings

HCAHPS Surveys

- 27 multiple-choice questions / 8 domains

Relationship - Nurse
Relationship - Physician
Call light response
Clean & quiet

Pain
Medication Education
Discharge Education
Overall Rating of Care/ Likelihood to Recommend

- Opportunity for written comments

BUT....

80%+ of available information provided by patients on their experience lies in 'unstructured' data

- Comments on surveys
- Complaint databases
- Web-site reviews
- Social media sites

Sentiment Analysis as the Solution

- Provides insights by converting large volumes of unstructured data (comments) into structured data for analysis
 - Based on “Natural Language Processing” software
 - Assigns comments to meaningful categories/themes
 - Scores comments based on emotional strength from -5 to +5
 - Benchmarks against national and regional norms
 - Tracks sentiment trends over time

Industries Using Sentiment Analysis



Retail



Financial



Restaurant



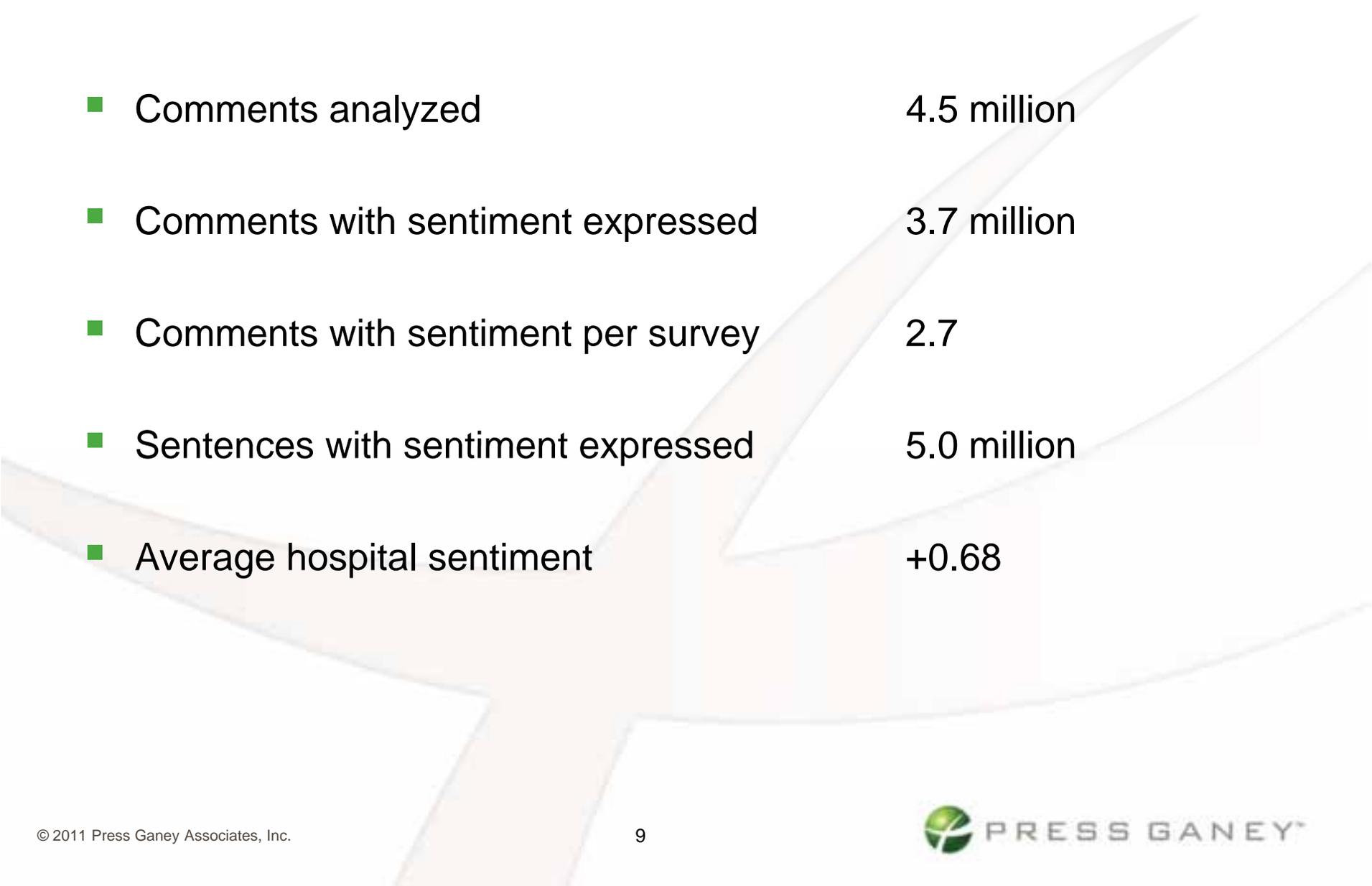
Hospitality



Airline

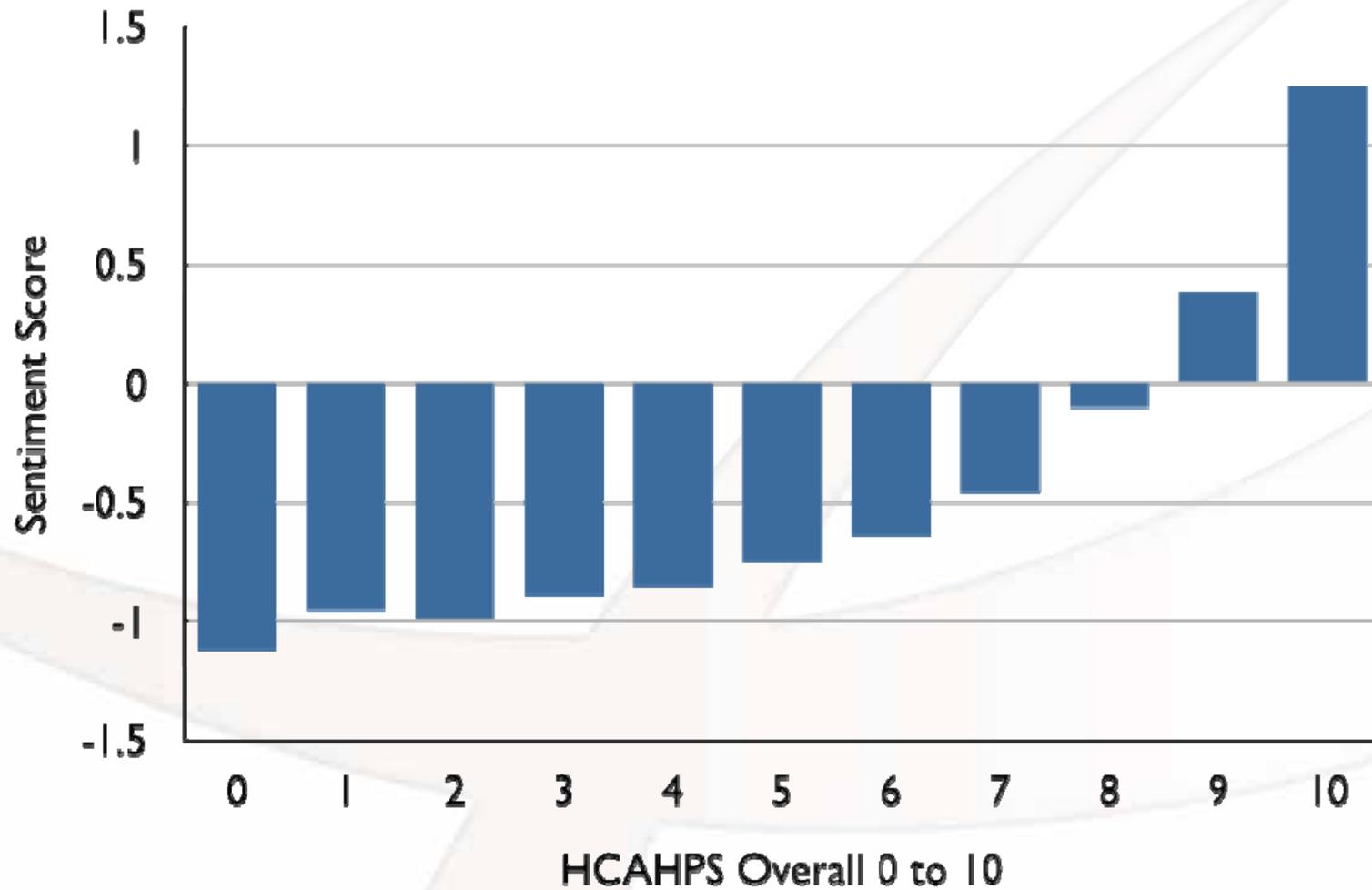
Image Source: Wikimedia

Comment Database: 2011 Inpatient Surveys

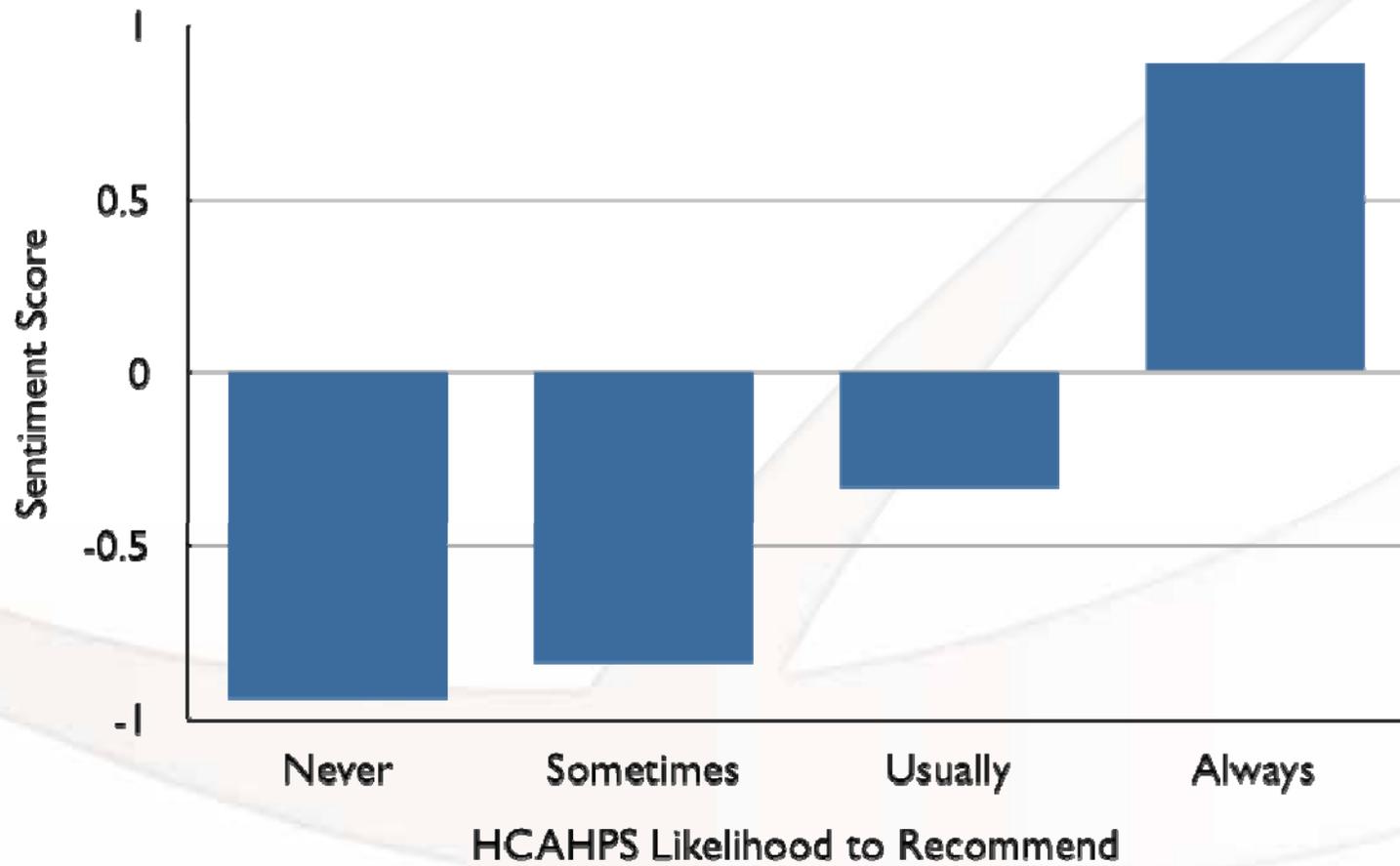


■ Comments analyzed	4.5 million
■ Comments with sentiment expressed	3.7 million
■ Comments with sentiment per survey	2.7
■ Sentences with sentiment expressed	5.0 million
■ Average hospital sentiment	+0.68

Comment Sentiment and HCAHPS Overall



Comment Sentiment and HCAHPS LTR



The WHY behind the scores

- People who have strong positive or negative sentiments are much more likely to express those feelings to others and influence their perceptions
- Comments drive the scores rather than vice versa
- Provide additional detail on experience
- Identify issues not covered in survey

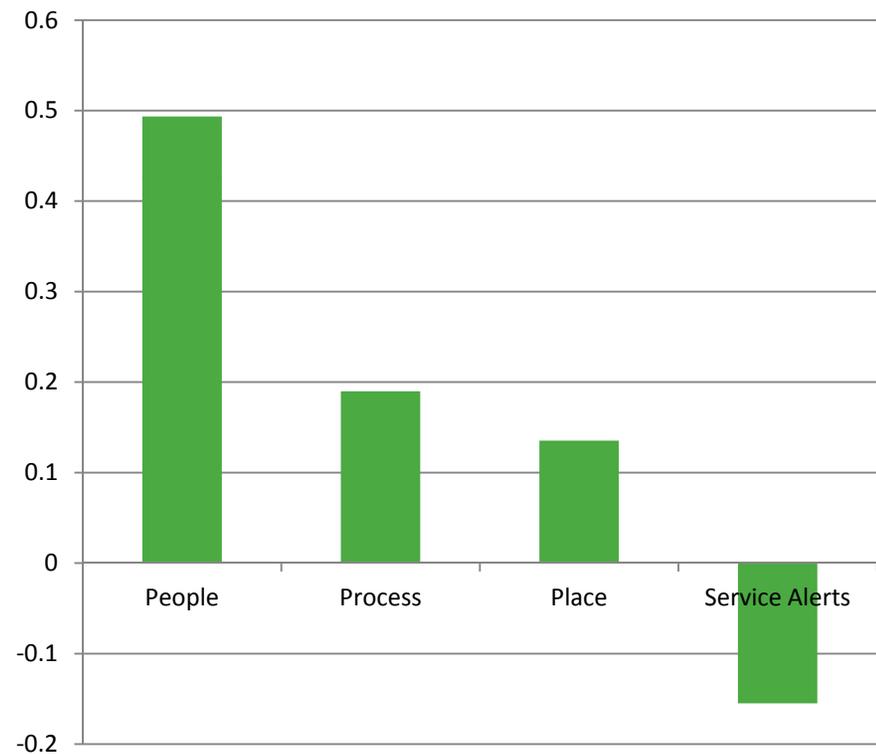
Traditional satisfaction scores will continue to be the driving force for evaluation/reimbursement - sentiment analysis is a complementary perspective that can drive new insights and provide additional information

Major Categories and Sentiment Scores

Distribution of Comments by Major Category

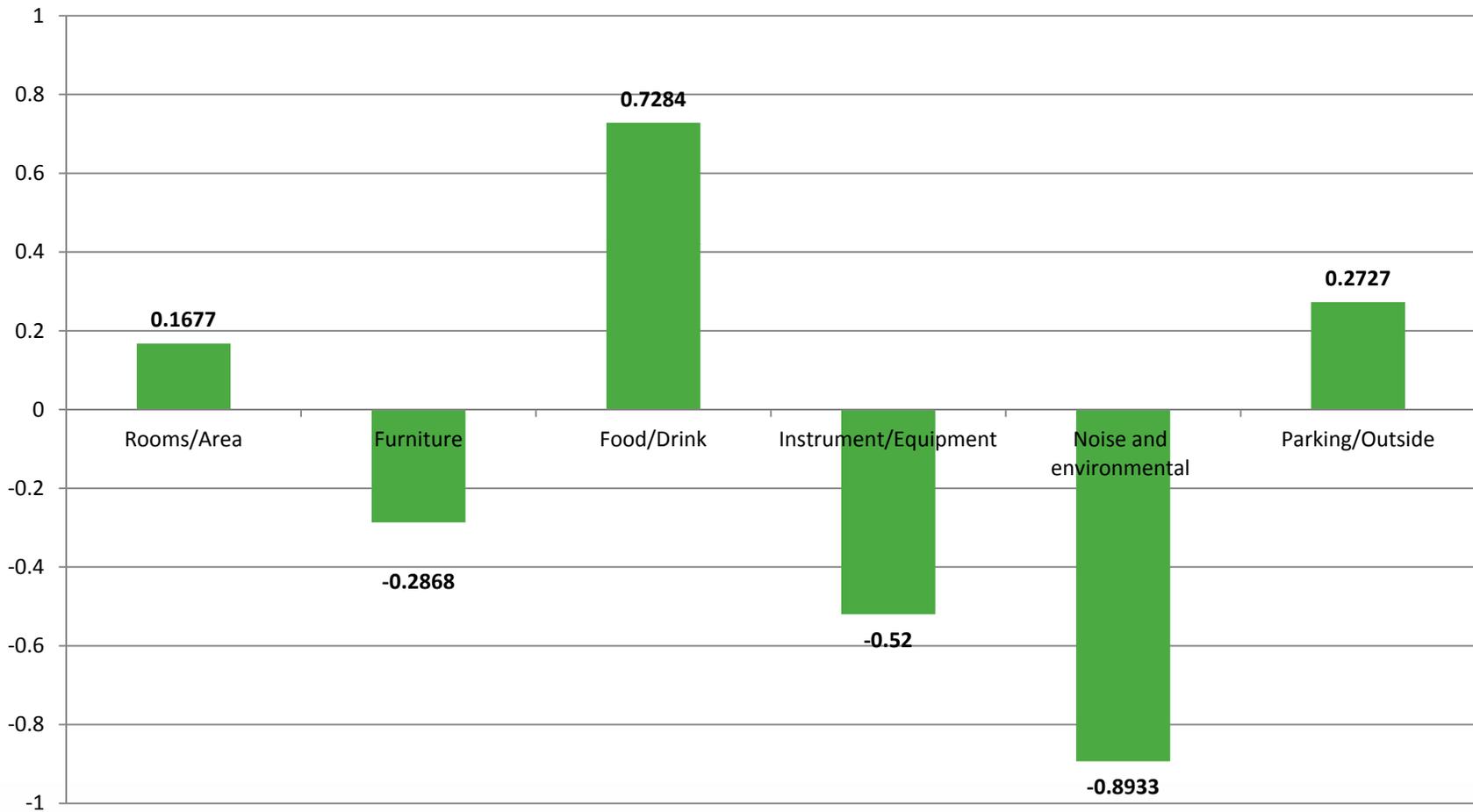


Average Sentiment Scores by Category



Digging in: 'Place' Category Details

PLACE Category: Detailed Breakdown of Sentiment Scores



'Place' Root Cause Analysis: Noise/Environment

Comments about noise/environment
ROOM - Extremely loud, not able to get any sleep.
ROOM - It could get noisy in the hallway on occasion.
ROOM - Overly excessive noise level by staff in hall outside
ROOM - Lot of noise in hall.
Across from front desk - so noisy!
ROOM - Roommate had TV on loud 24/7 - Maybe should change something about this.
ROOM - The noise was of no fault to the nurses my roommate was very rude and was asked several times to turn down her TV!
ROOM - Person in next room was very loud.
ROOM - Window side cold during nights noise from hallway and room across hall loud for all 3 nights.
Noisy with moving soil linen machines chairs etc.
ROOM - Construction was very loud.

Hallway/Staff

Roommate/TV

**Temperature/
Environmental Noise**



'Place' Root Cause: Tests/Equipment

ROOM - **FREQUENT interruptions of sleep** at night because of lack of coordination of services (vitals, blood work, meds etc.).

VISITORS AND FAMILY - **Wife was very uncomfortable sleeping in chair at night.**

ROOM - **Chair in room was not designed for comfort.**

TESTS AND TREATMENTS - In emergency, the skill of person who tried **IV was bad, he bruised my hand**, and had to call another nurse.

TESTS AND TREATMENTS - - I am a very **hard stick and bruise easily, so it took a few times to start my IV.**

TESTS AND TREATMENTS - Students had trouble starting IV.

NURSES - It took **4 nurses to put a new IV in me, three failed, attitude in general of nurses could have been better -**

NURSES - In ER, **nurse who put in IV was incompetent and clearly nervous.**

Uncomfortable Chairs/ Lack of Sleep

Painful IV Insertions

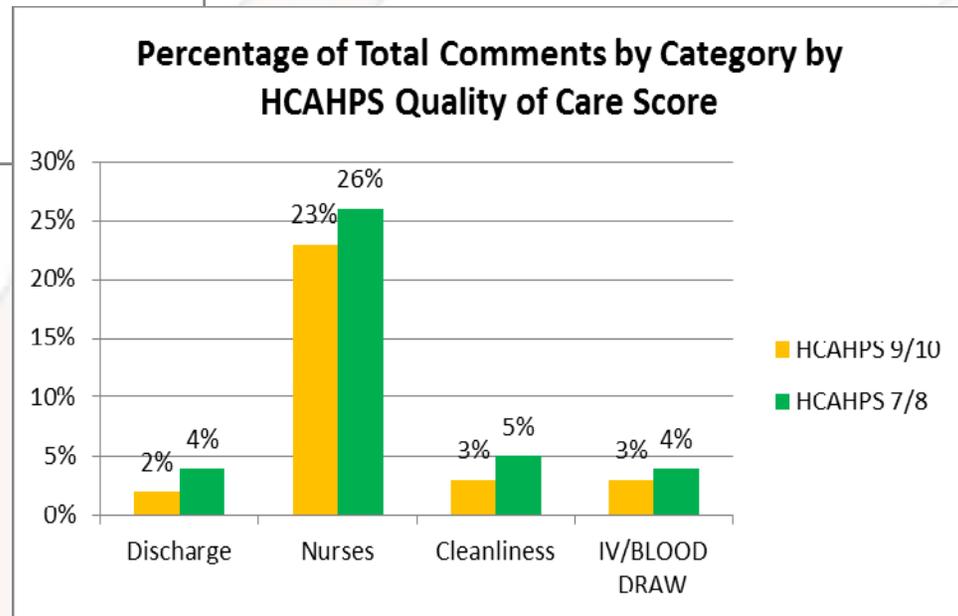
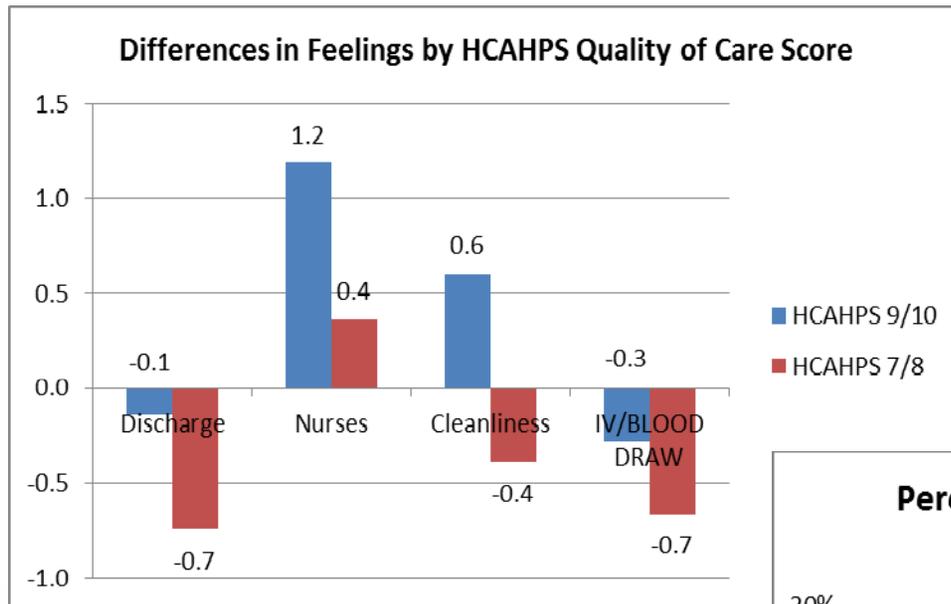
Digging into the Issues

- For patients with pain, parking and transportation issues are a concern
- Among some patients, call light responsiveness and pain management are seen as an equity issue
- Blood draws and IV starts – source of discomfort that can particularly impact pain score

Digging into the Issues

- Overall rating of care is impacted by caregivers other than physician and nurse – housekeeping, food delivery, transport
- Scoring of “room clean & quiet” is impacted by temperature and lighting

Beyond HCAHPS Scores: Feelings and Volume of Comments



Uniqueness of Healthcare Sentiment

- Patient satisfaction surveys are largest and most meaningful database of human emotion regarding healthcare
- Much more than just room, food and products - about traumatic experiences, if not life and death
- Stronger and deeper emotions than non-healthcare - what could be more personal?
- More complex human interactions - patients, doctors, nurses, technicians
- More complex interactions with technology
- **Degree of sentiment may be more meaningful and actionable indicator than traditional satisfaction ratings**