

# Looking at HAI Case Records in Context of Your Physical Hospital Environment

How Cognitive Computing (AI) adds a different pair of trained eyes



## The Challenge

A healthcare-acquired infection (HAI), also known as a nosocomial infection, is an infection that is acquired in a hospital or other health care facility. In the United States, the Centers for Disease Control and Prevention estimate roughly 1.7 million hospital-associated infections, from all types of microorganisms, including bacteria and fungi combined, cause or contribute to **99,000 deaths each year**. Nosocomial infections can cause severe pneumonia and infections of the urinary tract, bloodstream and other parts of the body. Many types display antimicrobial resistance, which can complicate treatment.

*“Why does the system see that? And why doesn't everybody see something that obvious?”*

- Nurse in the Midwest

## The Solution

4th-IR, in collaboration with a Midwest hospital and an established company in hospital construction & safeguarding, used Natural Language Processing to analyze over 100 HAI cases. The analysis was done against several IBM Watson corpora of knowledge specifically trained for this purpose. IBM Watson technology was used to understand the unstructured and structured information embedded in the HAI reports. The resulting information was combined with a limited set of structured hospital information to find the potential source of pathogens leading to HAI cases.

## Timely, Evidence Based Action

- Save Lives
  - Avoid physical space defects that lead to HAIs
  - Accelerate remediation of existing defects
- Reduce Costs
  - Preventive, targeted maintenance vs big interventions
  - Reduce performance-based fines
- Improve Quality
  - Reduce length of stay
- Drive Innovation
  - Use existing data assets in new ways

## Viewing your facility through a new lens

Microscopes are used to look at pathogens on a different scale. An MRI is used to look deep into the human body without physical trauma. In the same way Artificial Intelligence can be used to look at your existing documentation in a different way. For example, 4<sup>th</sup>-IR's solution allows you to look at your floor map with an understanding of how it relates to your documented HAI cases.



