

	<p><b>Ashbec Hospital Patient Safety Rating System</b>  Author(s): W. Vaughn Frick</p>	<p>Analysis Report  Date: 30 November 2019</p>
<p><b>Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System</b></p>		

**Management Summary**

There are already a number of hospital patient safety rating approaches in use. In addition, popular magazines publish lists of the "best" hospitals. Unfortunately, none of them to date have been based on purely measurable, objective data. Most involve surveys or public opinion polls of patients or doctors. As a result, the outcomes of these ratings tend to be as much a reflection of the effectiveness of the hospitals use of their marketing budget as it is a reflection of their performance. Consequently, these ratings don't give the consumer an accurate picture of how safe they will be from medical error. Neither can hospitals use those ratings to effectively manage a continuous process improvement program.

Ashbec has taken a subset of the data reported by hospitals to CMS (and made available to the public by CMS on the Hospital Compare website) and created a rating system that shows the relative performance record of hospitals across the nation based on measurable, objective data. Ashbec's website and apps will allow visitors to see the relative rankings of hospitals in the immediate vicinity of a specified location. In addition, Ashbec will create customized reports for hospital clients that wish to use this data to improve their own performance.

Beginning in December 2019, Ashbec will also publish hospital patient safety ratings based on objective performance measures specifically for cardiac, orthopedic and pulmonary care. The subset of the CMS measures used for each of these three types of care are described in this paper.

[Ashbec LLC](#)

Entire contents © 2019 by Ashbec LLC. All rights reserved. Reproduction or dissemination of this publication in any form without prior written permission is forbidden. The information contained herein has been obtained from sources believed to be reliable. Ashbec LLC disclaims all warranties as to the accuracy, completeness or adequacy of such information. Ashbec LLC shall have no liability for errors, omissions or inadequacies in the information contained herein or for interpretations thereof. The reader assumes sole responsibility for the selection of these materials to achieve its intended results. The opinions expressed herein are subject to change without notice.

# Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System

## CONTENTS

- 1.0 Why create another rating system?.....3
- 2.0 How does the rating system work?.....3
  - 2.1 Injury Related Measures .....3
  - 2.2 Mortality Related Measures .....4
  - 2.3 The algorithm for the overall performance ranking.....4
  - 2.4 The CMS measures for the cardiac care performance ranking.....5
  - 2.5 The CMS measures for the orthopedic care performance ranking .....5
  - 2.6 The CMS measures for the pulmonary care performance ranking .....6
- 3.0 How to use the rating system .....7
  - 3.1 Consumers/Patients/Internists .....7
  - 3.2 Hospitals .....7

# Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System

## 1.0 Why create another rating system?

Not to belabor the obvious but preventable medical error is still a huge problem in the United States. In 1998, the Institute of Medicine estimated the number of deaths from preventable medical error to be in the range of 49,000 to 98,000 people per year. More recent estimates of the annual deaths caused by preventable medical error range from 250,000 people to 440,000 people. Given that there are only approximately 35,000,000 admissions per year, that puts the chances of being accidentally killed at around 1%. The number of injuries caused by preventable medical error is in the millions. Some of those injuries will be permanent and require continuing medical care. It is becoming increasingly important to select hospitals that are reaching their safety objectives.

There are already a number of hospital patient safety rating approaches in use. In addition, popular magazines publish lists of the "best" hospitals. Unfortunately, none of them to date have been based on purely measurable, objective data. Most involve surveys or public opinion polls of patients or doctors. In other instances, the rating system has assumed that a particular practice will be beneficial and they rate the hospital based on whether or not the practice is being used. Often there is very little hard data defining the effectiveness of the practice or even a detailed definition of the practice itself. As a result, the outcomes of these ratings tend to be almost as much a reflection of the effectiveness of the hospital's use of their marketing budget as it is a reflection of their performance. Consequently, these ratings don't give the consumer an accurate picture of how safe they will be from medical error nor can the ratings be used by hospitals to effectively manage a continuous process improvement program focused on improving the hospital's performance.

Ashbec LLC has created a rating system based on publicly available objective data. As an engineer and a business transformation expert, the author lives by the mantra "if you can't measure it, you can't manage it." The Ashbec Hospital Patient Safety Rating System is not and will not be affected by marketing efforts or opinion polls.

## 2.0 How does the rating system work?

Ashbec LLC selected a subset of the available data on the CMS Hospital Compare website. The data was categorized into two categories, injury related measures and mortality related measures. The individual data measures selected are defined by CMS as follows:

### 2.1 Injury Related Measures

COMP-HIP-KNEE	Rate of complications for hip/knee replacement patients
PSI-3	Pressure sores (alternate Measure ID: PSI_3_Ulcer)
PSI-6	Collapsed lung due to medical treatment (alternate Measure ID: PSI-6-IAT-PTX)
PSI-8	Broken hip from a fall after surgery (alternate Measure ID: PSI_8_POST_HIP)
PSI-9	Bleeding or bruising during surgery (alternate Measure ID: PSI_9_POST_HEM)
PSI-10	Kidney and diabetic complications after surgery (alternate Measure ID: PSI_10_POST_KIDNEY)
PSI-11	Respiratory failure after surgery (alternate Measure ID: PSI_11_POST_RESP)
PSI-12	Serious blood clots after surgery (alternate Measure ID: PSI-12-POSTOP-PULMEMB-DVT)
PSI-13	Blood stream infection after surgery (alternate Measure ID: PSI_13_POST_SEPSIS)
PSI-14	A wound that splits open after surgery on the abdomen or pelvis (alternate Measure ID: PSI-14-POSTOP-DEHIS)

## Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System

PSI-15	Accidental cuts and tears from medical treatment (alternate Measure ID: PSI-15-ACC-LAC)
HAI-1	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards (alternate Measure ID: HAI_1_SIR)
HAI-2	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards (alternate Measure ID: HAI_2_SIR)
HAI-3	Surgical Site Infection from colon surgery (SSI: Colon) (alternate Measure ID: HAI_3_SIR)
HAI-4	Surgical Site Infection from abdominal hysterectomy (SSI: Hysterectomy) (alternate Measure ID: HAI_4_SIR)
HAI-5	Methicillin-resistant Staphylococcus aureus (or MRSA) blood laboratory-identified events (bloodstream infections) (alternate Measure ID: HAI_5_SIR)
HAI-6	Clostridium difficile (C.diff.) laboratory identified events (intestinal infections) (alternate Measure ID: HAI_6_SIR)
READM-30-AMI	Rate of readmission for heart attack patients
READM-30-CABG	Rate of readmission for Coronary Artery Bypass Graft (CABG) surgery patients
READM-30-COPD	Rate of readmission for chronic obstructive pulmonary disease (COPD) patients
READM-30-HF	Rate of readmission for heart failure patients
READM-30-HIP-KNEE	Rate of readmission after hip/knee surgery
READM-30-HOSP-WIDE	Rate of readmission after discharge from hospital (hospital-wide)

### 2.2 Mortality Related Measures

MORT-30-AMI	Death rate for heart attack patients
MORT-30-CABG	Death rate for Coronary Artery Bypass Graft (CABG) surgery patients
MORT-30-COPD	Death rate for chronic obstructive pulmonary disease (COPD) patients
MORT-30-HF	Death rate for heart failure patients
MORT-30-PN	Death rate for pneumonia patients
MORT-30-STK	Death rate for stroke patients

### 2.3 The algorithm for the overall performance ranking

The algorithm is simple and to the point. It is a multistep process that can be described as follows:

- For each measure, the hospital scores are ranked from best to worst and a percentile rank is calculated. This is done for every hospital that reports a particular measure.
- To have an overall ranking, each hospital must meet minimal reporting requirements. The hospital must provide a minimum of four of the injury related measures and two of the mortality related measures.
- For hospitals that report a sufficient number of measures, an overall score is calculated in three steps. Only the measures reported by the hospital are included in their total.
  - Percentile rankings are calculated separately for the injury related measures and the mortality related measures for all hospitals. (For each measure, rankings include only the hospitals that actually report the measure.)

## Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System

- For each hospital, the percentile rankings for each measure reported is totaled and divided by the number of measures reported giving an average percentile ranking. This is done separately for the injury related measures in the mortality related measures.
- The overall score for a hospital is their injury related score plus twice their mortality related score divided by three.
- These overall scores are then converted to percentile ranks across all hospitals for the final hospital patient safety rating.

Note that this results in a rating system that rates a hospital based only on the data that it has reported. It does not penalize a hospital that does not offer a particular service.

### 2.4 The CMS measures for the cardiac care performance ranking

PSI-3	Pressure sores (alternate Measure ID: PSI_3_Ulcer)
PSI-6	Collapsed lung due to medical treatment (alternate Measure ID: PSI-6-IAT-PTX)
PSI-8	Broken hip from a fall after surgery (alternate Measure ID: PSI_8_POST_HIP)
PSI-9	Bleeding or bruising during surgery (alternate Measure ID: PSI_9_POST_HEM)
PSI-10	Kidney and diabetic complications after surgery (alternate Measure ID: PSI_10_POST_KIDNEY)
PSI-11	Respiratory failure after surgery (alternate Measure ID: PSI_11_POST_RESP)
PSI-12	Serious blood clots after surgery (alternate Measure ID: PSI-12-POSTOP-PULMEMB-DVT)
PSI-13	Blood stream infection after surgery (alternate Measure ID: PSI_13_POST_SEPSIS)
PSI-15	Accidental cuts and tears from medical treatment (alternate Measure ID: PSI-15-ACC-LAC)
HAI-1	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards (alternate Measure ID: HAI_1_SIR)
HAI-2	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards (alternate Measure ID: HAI_2_SIR)
HAI-5	Methicillin-resistant Staphylococcus aureus (or MRSA) blood laboratory-identified events (bloodstream infections) (alternate Measure ID: HAI_5_SIR)
READM-30-AMI	Rate of readmission for heart attack patients
READM-30-CABG	Rate of readmission for Coronary Artery Bypass Graft (CABG) surgery patients
READM-30-HF	Rate of readmission for heart failure patients
READM-30-HOSP-WIDE	Rate of readmission after discharge from hospital (hospital-wide)
MORT-30-AMI	Death rate for heart attack patients
MORT-30-CABG	Death rate for Coronary Artery Bypass Graft (CABG) surgery patients
MORT-30-HF	Death rate for heart failure patients
MORT-30-STK	Death rate for stroke patients

To receive a cardiac care performance ranking, the facility must report all of the readmission and mortality measures listed in this section.

### 2.5 The CMS measures for the orthopedic care performance ranking

COMP-HIP-KNEE	Rate of complications for hip/knee replacement patients
PSI-3	Pressure sores (alternate Measure ID: PSI_3_Ulcer)

## Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System

PSI-8	Broken hip from a fall after surgery (alternate Measure ID: PSI_8_POST_HIP)
PSI-9	Bleeding or bruising during surgery (alternate Measure ID: PSI_9_POST_HEM)
PSI-10	Kidney and diabetic complications after surgery (alternate Measure ID: PSI_10_POST_KIDNEY)
PSI-11	Respiratory failure after surgery (alternate Measure ID: PSI_11_POST_RESP)
PSI-12	Serious blood clots after surgery (alternate Measure ID: PSI-12-POSTOP-PULMEMB-DVT)
PSI-13	Blood stream infection after surgery (alternate Measure ID: PSI_13_POST_SEPSIS)
PSI-15	Accidental cuts and tears from medical treatment (alternate Measure ID: PSI-15-ACC-LAC)
HAI-1	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards (alternate Measure ID: HAI_1_SIR)
HAI-2	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards (alternate Measure ID: HAI_2_SIR)
HAI-5	Methicillin-resistant Staphylococcus aureus (or MRSA) blood laboratory-identified events (bloodstream infections) (alternate Measure ID: HAI_5_SIR)
READM-30-HIP-KNEE	Rate of readmission after hip/knee surgery
READM-30-HOSP-WIDE	Rate of readmission after discharge from hospital (hospital-wide)

To receive an orthopedic care performance ranking, the facility must report all of the readmission measures listed in this section.

### 2.6 The CMS measures for the pulmonary care performance ranking

PSI-3	Pressure sores (alternate Measure ID: PSI_3_Ulcer)
PSI-6	Collapsed lung due to medical treatment (alternate Measure ID: PSI-6-IAT-PTX)
PSI-8	Broken hip from a fall after surgery (alternate Measure ID: PSI_8_POST_HIP)
PSI-9	Bleeding or bruising during surgery (alternate Measure ID: PSI_9_POST_HEM)
PSI-10	Kidney and diabetic complications after surgery (alternate Measure ID: PSI_10_POST_KIDNEY)
PSI-11	Respiratory failure after surgery (alternate Measure ID: PSI_11_POST_RESP)
PSI-12	Serious blood clots after surgery (alternate Measure ID: PSI-12-POSTOP-PULMEMB-DVT)
PSI-13	Blood stream infection after surgery (alternate Measure ID: PSI_13_POST_SEPSIS)
PSI-15	Accidental cuts and tears from medical treatment (alternate Measure ID: PSI-15-ACC-LAC)
HAI-1	Central line-associated bloodstream infections (CLABSI) in ICUs and select wards (alternate Measure ID: HAI_1_SIR)
HAI-2	Catheter-associated urinary tract infections (CAUTI) in ICUs and select wards (alternate Measure ID: HAI_2_SIR)
HAI-5	Methicillin-resistant Staphylococcus aureus (or MRSA) blood laboratory-identified events (bloodstream infections) (alternate Measure ID: HAI_5_SIR)
HAI-6	Clostridium difficile (C.diff.) laboratory identified events (intestinal infections) (alternate Measure ID: HAI_6_SIR)
READM-30-COPD	Rate of readmission for chronic obstructive pulmonary disease (COPD) patients

## Explaining the "why" and the "what" of the Ashbec Hospital Patient Safety Rating System

READM-30-HOSP-WIDE	Rate of readmission after discharge from hospital (hospital-wide)
MORT-30-COPD	Death rate for chronic obstructive pulmonary disease (COPD) patients
MORT-30-PN	Death rate for pneumonia patients

To receive a pulmonary care performance ranking, the facility must report all of the readmission and mortality measures listed in this section.

### 3.0 How to use the rating system

#### 3.1 Consumers/Patients/Internists

By going to Ashbec's website ([Ashbec.com](http://Ashbec.com)), prospective patients can see the relative safety ranking of hospitals in their (or any) geographic area. This can be particularly useful for people that travel away from home and need to identify safe hospitals in their current location. However, whenever possible you should avoid using this as your only criteria for selecting a hospital. These ratings fall under the category of "all things being equal". Of course, all things are never equal. Your particular medical situation may mean that you need a hospital that provides a service that is not provided by a highly rated hospital in your area but instead is better performed by one of the lower ranking hospitals. Whenever possible, you should consult your personal physician regarding your particular medical needs and which hospital near you is best able to meet those needs. At the request of physicians, Ashbec has also included in this release the above described hospital performance rankings based on the type of care needed. Where appropriate, your physician may also be able to assist you in selecting a hospital that is most likely to accept your medical insurance. (It should be noted that at the time of this writing, even with the help of your physician it may be difficult to avoid surprise billings.)

Under no circumstances should the Ashbec Hospital Patient Safety Rating be considered medical advice.

#### 3.2 Hospitals

In addition to the publicly available information that any hospital has access to on Ashbec's website, Ashbec can also build custom reports that can be used by continuous process improvement programs to track the progress of the hospital's performance improvement program and how their performance compares with other hospitals. The data can include both raw scores and percentile rankings for all the measures described earlier. For example, rankings can be compiled to include all hospitals in a given geographic area or all hospitals in a given hospital system. To the extent that the data is available, historical data showing changes in performance over time can also be compiled. The cost of such reports will vary depending on the scope and complexity required. Hospitals interested in incorporating this information into their management decision-making processes should contact [Vaughn Frick](mailto:Vaughn.Frick@ashbec.com).