PRELIMINARY COMPARATIVE DATA FROM

THE 2011 ISMP MEDICATION SAFETY SELF ASSESSMENT® *for* HOSPITALS

A quality improvement workbook for study participants

Institute for Safe Medication Practices

Dear Healthcare Provider:

The Institute for Safe Medication Practices (ISMP) is pleased to provide you with preliminary findings from the 2011 ISMP Medication Safety Self Assessment® for Hospitals and a quality improvement workbook to assist you in your efforts to prevent medication errors. Your hospital has demonstrated an exemplary commitment to medication safety by completing the self assessment and submitting your findings to ISMP. Now, as promised, we have compiled comparative data to help you prioritize your ongoing medication error-reduction efforts.

The workbook includes an aggregate profile of hospital respondents and aggregate comparative reports on the key elements of medication use and the core characteristics of safe medication practices. Directions for interpreting the reports and worksheets are also included to help you use the data to establish medication safety priorities.

We encourage you to share the workbook with the team you assembled to complete the self assessment or a similar committee, and to use the data to compare your organization to other demographically similar hospitals. However, please do not rely upon your standing compared to others to decide whether you need to improve medication safety in certain areas. All scores are relative and cannot be used to predict which hospitals are safe. Thus, if your performance is better than others, or your scores have increased when compared to your prior self-assessment score(s), do not be lulled into complacency. Instead, use the comparative data to stimulate your ongoing efforts to fully implement all of the medication error-reduction strategies suggested in the self assessment.

You will notice that the workbook includes only preliminary data and does not include an in-depth analysis of the data. During the next several months, we will be working with statisticians and researchers to thoroughly analyze the data. Shortly thereafter, we plan to publish our findings in a professional journal.

While it is important to widely disseminate and use the workbook and preliminary data from the 2011 ISMP Medication Safety Self Assessment® for Hospitals within your organization, please refrain from publishing or distributing the data externally. Unauthorized release of the data, which is protected by copyright, may result in misinterpretation and could jeopardize our ability to publish the results of our comprehensive analysis in a peer reviewed journal where the healthcare community at large can benefit from all that has been learned.

Again, we thank you for participating in the 2011 ISMP Medication Safety Self Assessment® for Hospitals and commend you for submitting your findings to us. We are well aware of the challenges you faced in both completing the assessment and sharing your findings. The ultimate goals of the 2011 ISMP Medication Safety Self Assessment® for Hospitals have been to heighten awareness of distinguishing characteristics of a safe medication use system and to document progress with our nation's medication safety efforts during the past decade. Without your help, we would not be able to achieve these goals. Your collective willingness to share your assessment of medication safety has provided us with essential data from which to learn as we work together to make our healthcare systems safer and more efficient.

Sincerely,

Michael R. Cohen, RPh, MS, ScD, FASHP
President, Institute for Safe Medication Practices

Endorsements and Definitions

Organizations that endorsed the 2011 ISMP Medication Safety Self Assessment® for Hospitals

- American Association of Colleges of Nursing
- American Hospital Association
- American Nurses Association
- American Organization of Nurse Executives
- American Pharmacists Association
- American Society for Healthcare Risk Management
- American Society of Health-System Pharmacists
- American Society of Medication Safety Officers
- Amerinet
- Anesthesia Patient Safety Foundation
- Association of American Medical Colleges
- Child Health Corporation of America
- Federation of American Hospitals
- Health Care Improvement Foundation
- Health Research and Educational Trust
- Healthcare Information and Management Systems Society
- Institute for Healthcare Improvement
- The Joint Commission
- MedAssets
- National Patient Safety Foundation
- Pennsylvania Patient Safety Authority
- Premier
- University HealthSystem Consortium
- VHA

Definitions
(for purposes of the 2011 ISMP Medication Safety Self Assessment® for Hospitals tool and findings)

Maximum weighted score
The highest numerical score assigned during the weighting process to the entire self assessment and to each key element, core characteristic, and self-assessment item; the highest score possible.

Mean weighted score
The average weighted numerical score achieved by respondents for each key element and core characteristic. This score is directly comparable to the weighted scores that appear on your computer-generated self-assessment form, which was created when you submitted data to ISMP.

Percent of maximum weighted score
The mean weighted score reported as a percentage of the maximum weighted score. The percentages offer you an opportunity to view collective performance within a familiar "report card" context.

Mean total assessment score
The average numerical score achieved by respondents for the self-assessment tool in its entirety. These scores can be found in Tables 1 and 2 in the far right column.

Aggregate data
A compilation of individual data submitted by hospitals to represent the whole; collective results.

Respondent Profile

Below is an aggregate snapshot of the hospitals that chose to submit data for the 2011 ISMP Medication Safety Self Assessment® for Hospitals to a confidential, national database managed by ISMP for educational and research purposes only. Demographic statistics for all US hospitals are included for comparison. Overall, demographics of respondent hospitals are similar with respect to all US hospitals in some of the categories listed. However, there are a few notable differences. Compared to all US hospitals, respondents were less likely to be under 100 beds and government owned, and more likely to be not-for-profit, a general medical and surgical hospital, a physician residency-training facility, and licensed for 300 beds or more.

Response rate

Total respondents: **1,310**
Response rate: 21%
(based upon the total number of all US registered hospitals: 6,334)*

Respondent profile compared to the national profile

Bed size	Respondents	National comparison*
Fewer than 100	30%	54%
100 to 299	39%	31%
300 and over	31%	15%
Setting	**Respondents**	**National comparison***
Rural	37%	35%
Urban	63%	65%
Region	**Respondents**	**National comparison***
Midwest	27%	27%
Northeast	15%	16%
South	39%	39%
West	20%	18%
Ownership	**Respondents**	**National comparison***
For-profit	23%	25%
Not-for-profit	65%	50%
Government	11%	25%
Other	0.5%	0%
Physician residency-training program	**Respondents**	**National comparison***
Yes	37%	18%
No	63%	82%
Type of hospital	**Respondents**	**National comparison***
General medical and surgical	88%	77%
All others	12%	23%

**Total number of US hospitals and national comparisons taken from: Annual Survey Database fiscal year 2010, Health Forum, LLC, An American Hospital Association Company, copyright 2011.*

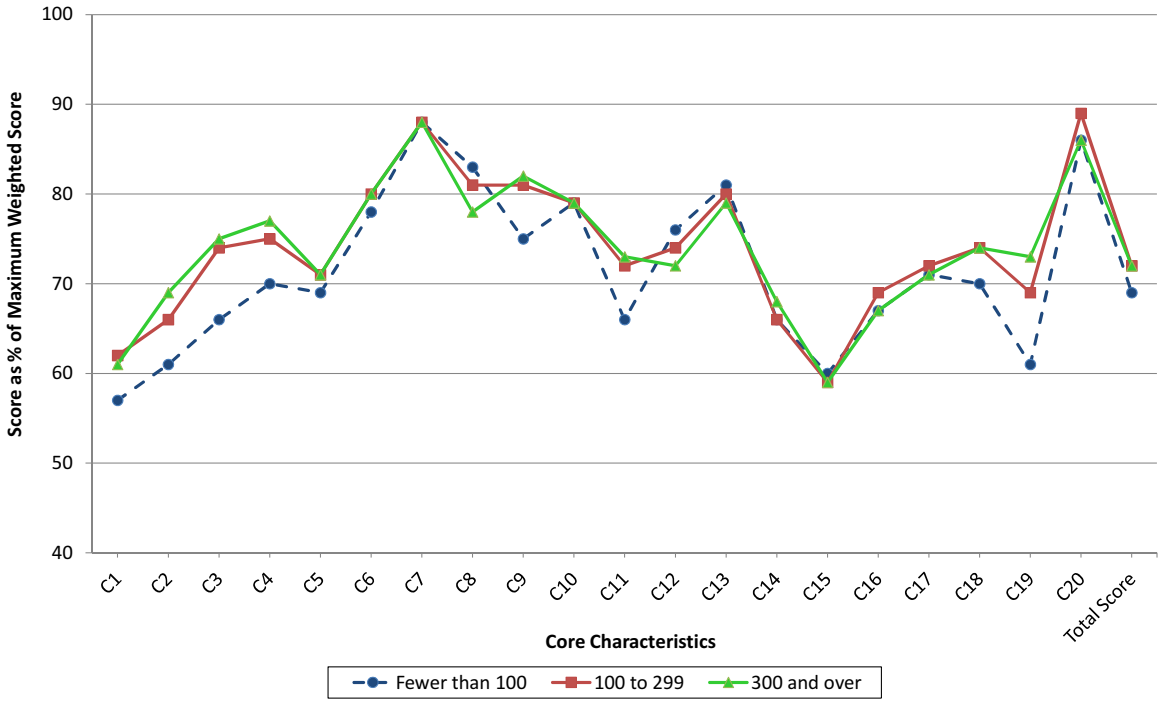
Graphic Display of Core Characteristics (C)

Information presented graphically is often easier to interpret at a glance. Therefore, graphs that display aggregate performance within the core characteristics of a safe medication system have been provided. Technically, bar graphs would be the most appropriate chart to use for this purpose. However, we have chosen to use line graphs simply because the similarities and differences in performance are more obvious. However, please note that each data point is discrete and there is no relationship between adjacent data points. Each line graph presents a comparison of performance between demographically dissimilar hospitals based upon the following parameters:

- bed size
- rural or urban setting
- four geographical regions in the US
- physician residency-training program
- pharmacy residency-training program
- type of hospital.

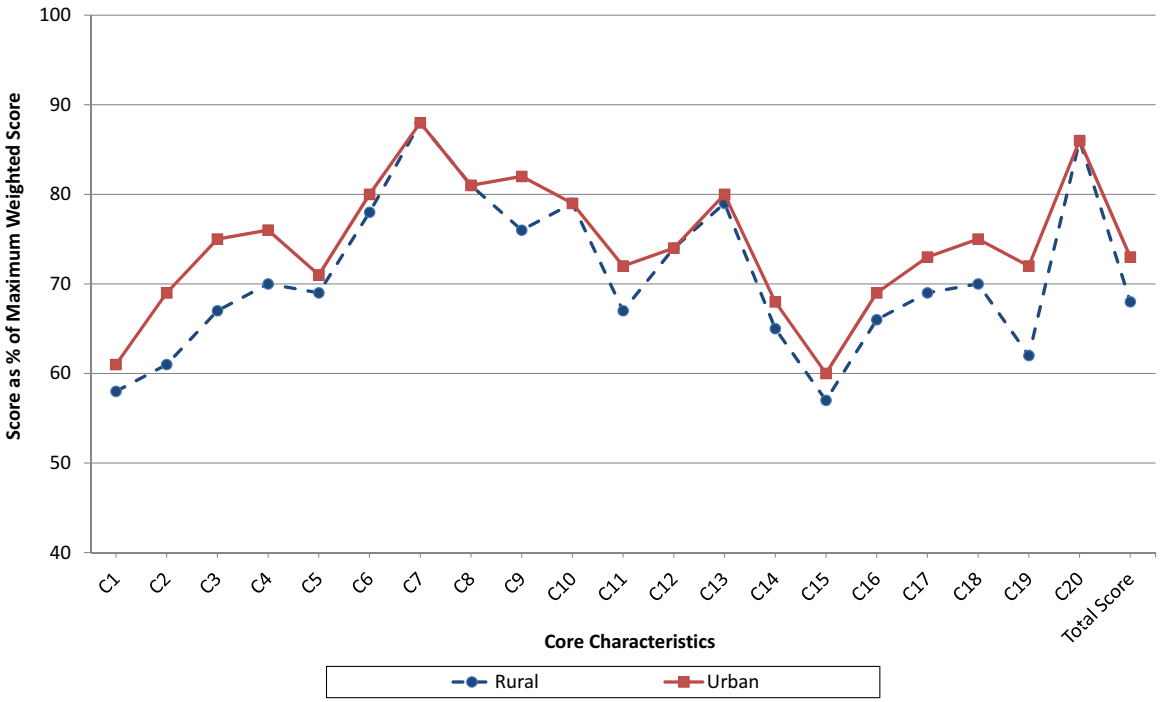
For each parameter, the graphs display mean weighted scores for each core characteristic. While your weighted scores for each core characteristic can be compared to the graphic display of aggregate data, our primary purpose for providing the data in this format is to demonstrate, quickly and visually, the differences or similarities between demographically dissimilar hospitals.

Graph 1. Core Characteristics by Bed Size



Graphic Display of Core Characteristics (C)

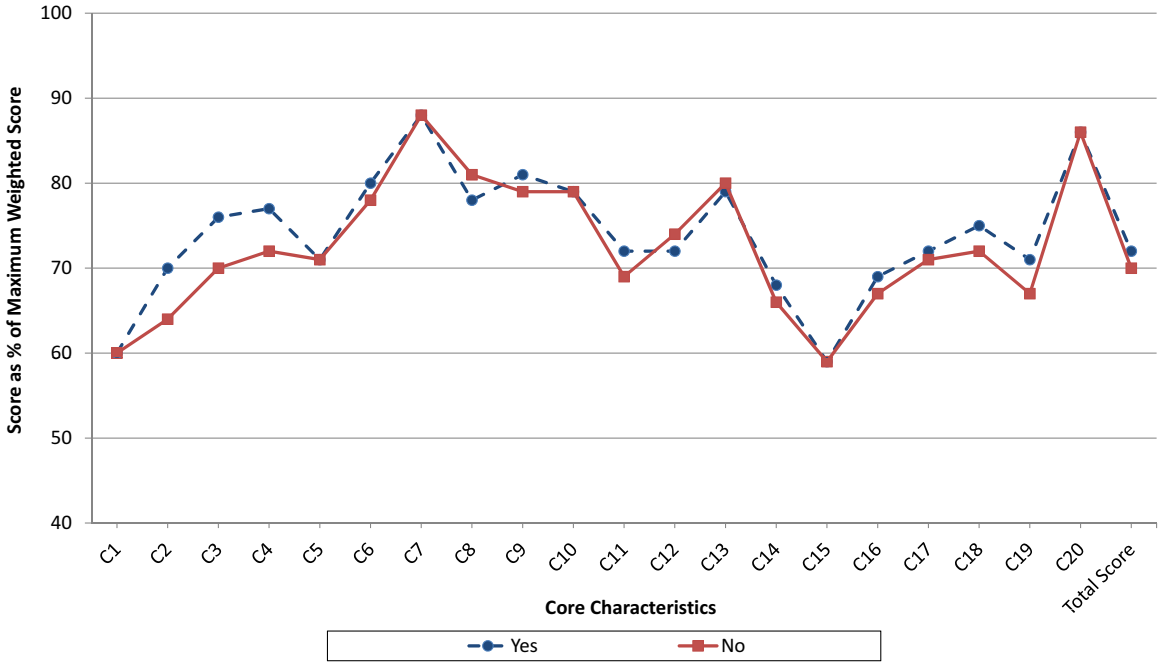
Graph 2. Core Characteristics by Setting



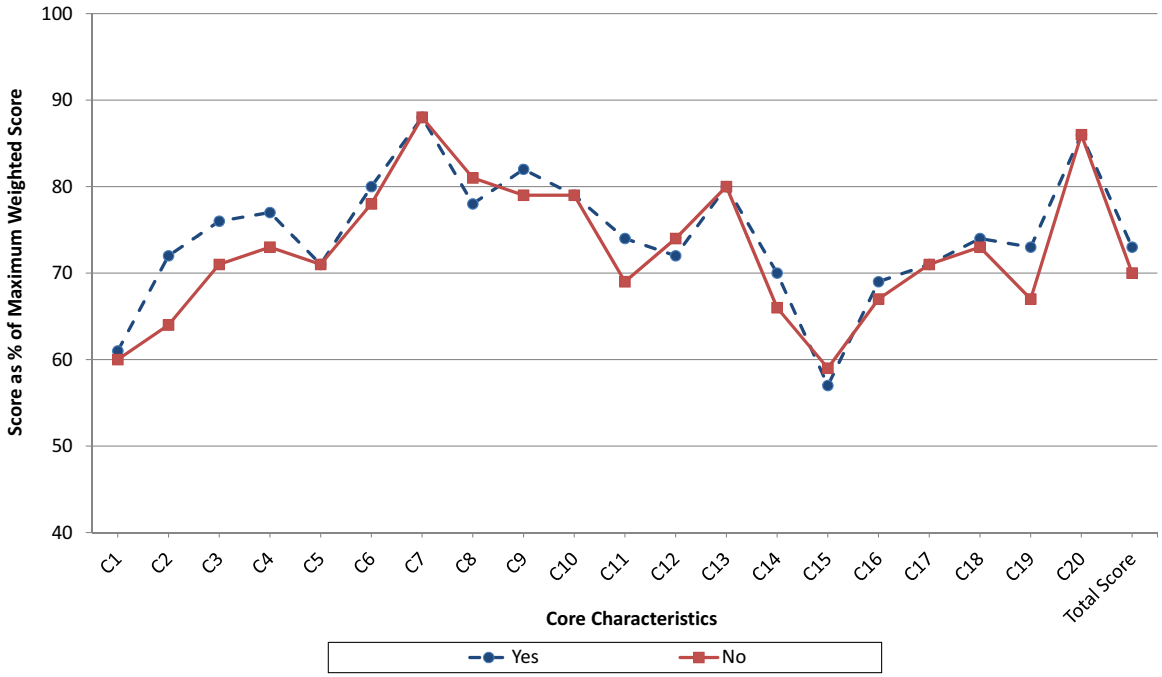
Graph 3. Core Characteristics by Region

Graphic Display of Core Characteristics (C)

Graph 4. Core Characteristics by Physician Residency-Training Program

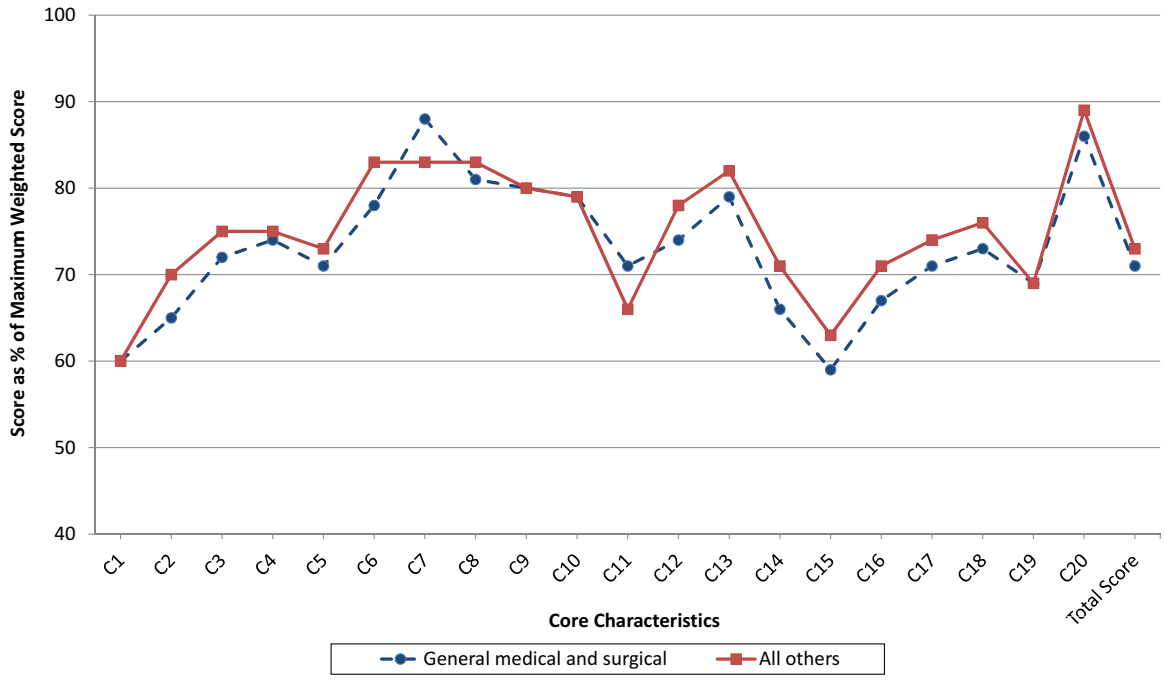


Graph 5. Core Characteristics by Pharmacy Residency-Training Program



Graphic Display of Core Characteristics (C)

Graph 6. Core Characteristics by Type of Hospital



Section I: Worksheet for Key Elements of Medication Use

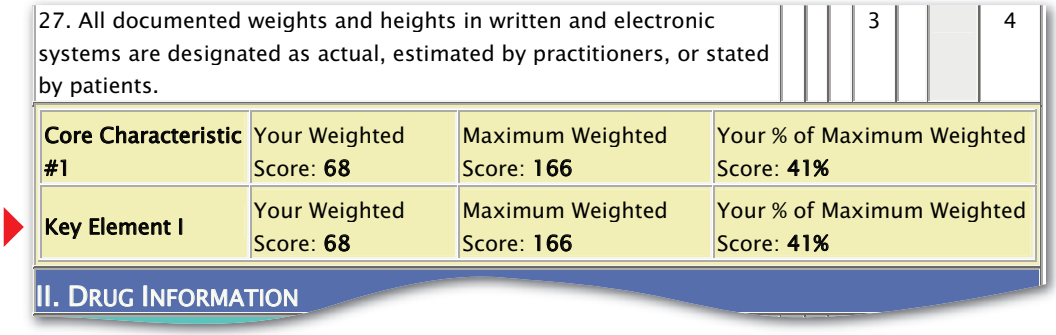
The 2011 ISMP Medication Safety Self Assessment® for Hospitals is divided into ten key elements that most significantly influence safe medication use. Based on research and experience of ISMP and others, we believe that weaknesses in these key elements are at the root of medication errors. For reference, a brief description of the ten key elements appears in the Appendix. For each key element, Table 1 provides:

- the maximum weighted score (note: for self-assessment items with parts A and B [and C, if applicable], the maximum score was obtained using the highest possible weighted score)
- the mean weighted score for all respondents
- the mean weighted score as a percentage of the maximum weighted score
- the mean total assessment score for all respondents (found in Table 1 in the far right column).

The data are further stratified by bed size, setting, and physician residency-training program to allow better comparison with demographically similar organizations.

Using the Key Elements Worksheet I

Step 1: Use your computer-generated self-assessment results form, which was created when you submitted data to ISMP, to transfer your weighted scores and your % of maximum weighted scores for each key element onto Worksheet I (page 11). You can find these scores in a boxed area at the end of each key element. See the example below.



27. All documented weights and heights in written and electronic systems are designated as actual, estimated by practitioners, or stated by patients.			3			4
Core Characteristic #1	Your Weighted Score: **68**	Maximum Weighted Score: **166**	Your % of Maximum Weighted Score: **41%**			
Key Element I	Your Weighted Score: **68**	Maximum Weighted Score: **166**	Your % of Maximum Weighted Score: **41%**			

II. Drug Information

Step 2: Enter your facility's bed size and setting (urban or rural) in the spaces provided on Worksheet I (page 11). Circle Yes or No to indicate if your hospital provides a physician residency-training program.

Step 3: On Table 1 (page 10), highlight the mean weighted scores and the % of maximum weighted scores for key elements in institutions that are demographically similar to your hospital.

Step 4: Using Table 1 (page 10), enter the highlighted scores for each key element of demographically similar hospitals in the spaces provided on Worksheet I (page 11).

Step 5: Compare your % of maximum weighted scores with the aggregate results of respondents that are demographically similar to your hospital.

Step 6: List on the bottom of Worksheet I (page 11) the key elements with the greatest opportunities for improvement in your hospital. These may include key elements with the lowest scores (as a percent of the maximum weighted scores) as well as those where your score was low in comparison to other demographically similar hospitals.

Remember, all scores are relative and cannot be used to predict which hospitals are safe. Thus, if your performance is better than others, do not be lulled into complacency. Instead, use the comparative data to inform your ongoing efforts to fully implement all of the medication error-reduction strategies suggested in the self assessment.

Table 1. Key Elements
Stratified by Bed Size, Setting, and Physician Residency-Training Program

Key Element	I Patient Information	II Drug Information	III Communication	IV Drug Labeling	V Drug Standardization	VI Devices	VII Environment	VIII Staff Education	IX Patient Education	X QI/RM*	Total
Maximum weighted score	166	252	114	92	224	140	138	162	70	492	1,850
Bed Size											
Fewer than 100 beds mean weighted score	**94**	**158**	**80**	**67**	**177**	**92**	**109**	**103**	**47**	**342**	**1,268**
% of maximum weighted score	57	63	70	73	79	66	79	64	67	70	69
100 to 299 beds mean weighted score	**103**	**174**	**85**	**69**	**185**	**101**	**106**	**102**	**48**	**359**	**1,333**
% of maximum weighted score	62	69	75	75	83	72	77	63	69	73	72
300 beds and over mean weighted score	**101**	**180**	**88**	**69**	**184**	**102**	**105**	**103**	**47**	**361**	**1,340**
% of maximum weighted score	61	71	77	75	82	73	76	64	67	73	72
Setting											
Rural mean weighted score	**96**	**158**	**80**	**67**	**177**	**94**	**107**	**100**	**46**	**338**	**1,264**
% of maximum weighted score	58	63	70	73	79	67	78	62	66	69	68
Urban mean weighted score	**102**	**178**	**87**	**69**	**185**	**101**	**107**	**105**	**48**	**365**	**1,346**
% of maximum weighted score	61	71	76	75	83	72	78	65	69	74	73
Physician Residency-Training Program											
Yes mean weighted score	**100**	**180**	**88**	**70**	**183**	**101**	**105**	**104**	**48**	**362**	**1,341**
% of maximum weighted score	60	71	77	76	82	72	76	64	69	74	72
No mean weighted score	**100**	**165**	**82**	**68**	**182**	**96**	**108**	**102**	**47**	**350**	**1,301**
% of maximum weighted score	60	65	72	74	81	69	78	63	67	71	70
Grand Totals											
mean weighted score	**100**	**171**	**84**	**68**	**182**	**98**	**107**	**103**	**48**	**355**	**1,316**
% of maximum weighted score	60	68	74	74	81	70	78	64	69	72	71

* QI/RM is an abbreviation for Key Element # 10: Quality Processes and Risk Management.

Section I: Worksheet for Key Elements of Medication Use

Key Elements Worksheet I

Key Element	I Patient Information	II Drug Information	III Communication	IV Drug Labeling	V Drug Standardization	VI Devices	VII Environment	VIII Staff Education	IX Patient Education	X QI/RM
Maximum possible weighted score	166	252	114	92	224	140	138	162	70	492
Individual Hospital Scores										
Enter your weighted scores										
Enter your % of maximum weighted scores										
Aggregate Respondent Scores										
Your Bed Size: _____ Enter applicable mean weighted respondent scores										
Enter applicable % of maximum weighted respondent scores										
Your Setting: _____ Enter applicable mean weighted respondent scores										
Enter applicable % of maximum weighted respondent scores										
Physician Training: Y N Enter applicable mean weighted respondent scores										
Enter applicable % of maximum weighted respondent scores										

Individual Hospital Key Element Opportunities for Improvement

This Worksheet is available in a Word format (www.ismp.org/selfassessments/Hospital/2011/Default.asp) that allows computer entry of information and expansion of the columns and rows as desired.

Section II: Worksheet for Core Characteristics (C)

Each of the ten key elements of the 2011 ISMP Medication Safety Self Assessment® for Hospitals is further defined by one or more core characteristics of a safe medication system. For reference, a list of the 20 core characteristics appears in the Appendix. For each core characteristic, Table 2 provides:

- the maximum weighted score (note: for self-assessment items with parts A and B [and C, if applicable], the maximum score was obtained using the highest possible weighted score)
- the mean weighted score for all respondents
- the mean weighted score as a percentage of the maximum weighted score
- the mean total assessment score for all respondents (found in Table 2 in the far right column).

The data are further stratified by bed size, setting, and physician residency-training program to allow better comparison with demographically similar organizations.

Using the Core Characteristics Worksheet II

Step 1: Use your computer-generated self-assessment results form, which was created when you submitted data to ISMP, to transfer your weighted scores and your % of maximum weighted scores for each core characteristic onto Worksheet II (page 14). You can find these scores in a boxed area at the end of each core characteristic. See the example below.

86. Prescribers include the clinical indication for all ambulatory prescriptions and inpatient drug orders to help distinguish those with look-alike names.	0						10
Core Characteristic #5	Your Weighted Score: **40**	Maximum Weighted Score: **52**	Your % of Maximum Weighted Score: **77%**				
Core Characteristic #6 ***Readable labels that clearly identify drugs are on all drug containers, and drugs remain labeled up to the point of actual drug administration.***	**A**	**B**	**C**	**D**	**E**	**N/A**	**Max**
87. All computer systems							

Step 2: Enter your facility's bed size and setting (urban or rural) in the spaces provided on Worksheet II (page 14). Circle Yes or No to indicate if your hospital provides a physician residency-training program.

Step 3: On Table 2 (page 13), highlight the mean weighted scores and the % of maximum weighted scores for each core characteristic in institutions that are demographically similar to your hospital.

Step 4: Using Table 2 (page 13), enter the highlighted scores for each core characteristic of demographically similar hospitals in the spaces provided on Worksheet II (page 14).

Step 5: Compare your % of maximum weighted scores with the aggregate results of respondents that are demographically similar to your hospital.

Step 6: List on the bottom of Worksheet II (page 14) the core characteristics with the greatest opportunities for improvement in your hospital. These may include core characteristics with the lowest scores (as a percent of the maximum weighted scores) as well as those where your score was low in comparison to other demographically similar hospitals.

Remember, all scores are relative and cannot be used to predict which hospitals are safe. Thus, if your performance is better than others, do not be lulled into complacency. Instead, use the comparative data to stimulate your ongoing efforts to fully implement all the medication error-reduction strategies suggested in the self assessment.

Section II: Worksheet for Core Characteristics (C)

Table 2. Core Characteristics (C)
Stratified by Bed Size, Setting, and Physician Residency-Training Program

Related Key Elements	I	II		III	IV		V				VI	VII		VIII		IX	X				Total
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	
Maximum weighted score	166	176	76	114	52	40	42	36	132	14	140	54	84	92	70	70	198	158	108	28	1,850
Bed Size																					
Fewer than 100 beds mean weighted score	**94**	**108**	**50**	**80**	**36**	**31**	**37**	**30**	**99**	**11**	**92**	**41**	**68**	**61**	**42**	**47**	**141**	**111**	**66**	**24**	**1,268**
% of maximum weighted score	57	61	66	70	69	78	88	83	75	79	66	76	81	66	60	67	71	70	61	86	69
100 to 299 beds mean weighted score	**103**	**117**	**56**	**85**	**37**	**32**	**37**	**29**	**107**	**11**	**101**	**40**	**67**	**61**	**41**	**48**	**142**	**117**	**75**	**25**	**1,333**
% of maximum weighted score	62	66	74	75	71	80	88	81	81	79	72	74	80	66	59	69	72	74	69	89	72
300 beds and over mean weighted score	**101**	**122**	**57**	**88**	**37**	**32**	**37**	**28**	**108**	**11**	**102**	**39**	**66**	**63**	**41**	**47**	**140**	**117**	**79**	**24**	**1,340**
% of maximum weighted score	61	69	75	77	71	80	88	78	82	79	73	72	79	68	59	67	71	74	73	86	72
Setting																					
Rural mean weighted score	**96**	**107**	**51**	**80**	**36**	**31**	**37**	**29**	**100**	**11**	**94**	**40**	**66**	**60**	**40**	**46**	**137**	**110**	**67**	**24**	**1,264**
% of maximum weighted score	58	61	67	70	69	78	88	81	76	79	67	74	79	65	57	66	69	70	62	86	68
Urban mean weighted score	**102**	**121**	**57**	**87**	**37**	**32**	**37**	**29**	**108**	**11**	**101**	**40**	**67**	**63**	**42**	**48**	**144**	**119**	**78**	**24**	**1,346**
% of maximum weighted score	61	69	75	76	71	80	88	81	82	79	72	74	80	68	60	69	73	75	72	86	73
Physician Residency-Training Program																					
Yes mean weighted score	**100**	**123**	**58**	**88**	**37**	**32**	**37**	**28**	**107**	**11**	**101**	**39**	**66**	**63**	**41**	**48**	**143**	**118**	**77**	**24**	**1,341**
% of maximum weighted score	60	70	76	77	71	80	88	78	81	79	72	72	79	68	59	69	72	75	71	86	72
No mean weighted score	**100**	**112**	**53**	**82**	**37**	**31**	**37**	**29**	**104**	**11**	**96**	**40**	**67**	**61**	**41**	**47**	**140**	**114**	**72**	**24**	**1,301**
% of maximum weighted score	60	64	70	72	71	78	88	81	79	79	69	74	80	66	59	67	71	72	67	86	70
Grand Totals																					
mean weighted score	**100**	**116**	**55**	**84**	**37**	**32**	**37**	**29**	**105**	**11**	**98**	**40**	**67**	**62**	**41**	**48**	**141**	**115**	**74**	**24**	**1,316**
% of maximum weighted score	60	66	72	74	71	80	88	81	80	79	70	74	80	67	59	69	71	73	69	86	71

Section II: Worksheet for Core Characteristics (C)

Core Characteristics (C) Worksheet II

Related Key Elements	I	II		III	IV		V				VI	VII		VIII		IX	X			
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
Maximum possible weighted score	166	176	76	114	52	40	42	36	132	14	140	54	84	92	70	70	198	158	108	28
Individual Hospital Scores																				
Enter <u>your</u> weighted scores																				
Enter <u>your</u> % of maximum weighted scores																				
Aggregate Respondent Scores																				
Your Bed Size: _____ Enter applicable mean weighted respondent scores																				
Enter applicable % of maximum weighted respondent scores																				
Your Setting: _____ Enter applicable mean weighted respondent scores																				
Enter applicable % of maximum weighted respondent scores																				
Physician Training: Y N Enter applicable mean weighted respondent scores																				
Enter applicable % of maximum weighted respondent scores																				

Individual Hospital Core Characteristic Opportunities for Improvement

Core Number(s)	Related Key Element	Core Number(s)	Related Key Element

This Worksheet is available in a Word format (www.ismp.org/selfassessments/Hospital/2011/Default.asp) that allows computer entry of information and expansion of the columns and rows as desired.

Section III: Self-Assessment Items

Each of the 20 core characteristics of the 2011 ISMP Medication Safety Self Assessment® for Hospitals is divided into self-assessment items, which were used to evaluate your success with each of the core characteristics. Your results, which were provided after you submitted your findings to ISMP, list the maximum weighted score for each self-assessment item. See the example below.

Core Characteristic #3 *A controlled drug formulary system is established to limit choice to essential drugs, minimize the number of drugs with which practitioners must be familiar, and provide adequate time for designing safe processes for the use of new drugs added to the formulary.*	A	B	C	D	E	N/A	Max
51. The hospital formulary contains minimal duplication of therapeutically equivalent products.					4		4
52. Before a decision is made t… the					12		

U

Using the Self-Assessment Items Worksheet III

Step 1: Using the 2011 ISMP Medication Safety Self Assessment for Hospitals® tool, review self-assessment items that comprise the key elements and core characteristics that were identified as opportunities for improvement in Worksheets I and II.

Step 2: Identify self-assessment items under these key elements and core characteristics with scores of A-D. Transfer these items to the Self-Assessment Items Worksheet III (page 16). Include the maximum weighted score, your weighted numerical score, and your letter score (A-D) for reference.

Step 3: Identify self-assessment items throughout the assessment that scored A-D. Add these items to Worksheet III if they are not already listed. Additional copies of the Worksheet may be required.

Step 4: Prioritize the order in which the self-assessment items will be addressed based on the following:

- **Maximum weighted scores:** Items with the highest maximum weighted scores have the greatest impact on safety because there is clear, documented evidence or expert consensus regarding their effectiveness.
- **Ease of implementation:** Begin with items you know you can achieve without considerable delay. Including these types of items at the top of your prioritized list can help ensure early success and establish momentum for ongoing improvements.
- **Successful small-scale implementation:** An item that scored C or D suggests that the risk-reduction strategy has been implemented in part with some success or in full in some areas. Building upon these early successes is a natural progression of effort.
- **Resource considerations:** Do <u>not</u> hesitate to include a resource-intensive strategy high on your priority list. Items that require extensive time and financial outlays to implement also require extensive planning. Making a resource-intensive strategy a priority helps to ensure that the planning work begins immediately, even if implementation is a year or more away.
- **Motivation:** Successful change begins with acquiring staffs' buy-in to the change process. Strategies that incite enthusiasm strengthen the commitment to achieving a shared goal.

Step 5: Develop your medication safety action plan based on attaining the maximum weighted score (E answers) for these self-assessment items.

Remember, all scores are relative and cannot be used to predict which hospitals are safe. Thus, if your performance is better than others, do not be lulled into complacency. Instead, use the comparative data to stimulate your ongoing efforts to fully implement all the medication error-reduction strategies suggested in the self assessment.

Section III: Self-Assessment Items

Self-Assessment Items Worksheet III

Item #	Corres-ponding Core #	Self-Assessment Items	Maximum Weighted Score	My Score		Priority #
				Weighted Score	Letter Score	

This Worksheet is available in a Word format (www.ismp.org/selfassessments/Hospital/2011/Default.asp) that allows computer entry of information and expansion of the columns and rows as desired.

Appendix

Key Elements of Medication Use

I Patient Information: To guide appropriate drug therapy, healthcare providers need readily available demographic and clinical information (such as age, weight, allergies, diagnoses, and pregnancy status), and patient monitoring information (such as laboratory values, vital signs, and other parameters), that gauge the effects of medications and the patients' underlying disease processes.

II Drug Information: To minimize the risk of error, the drug formulary must be tightly controlled, and up-to-date drug information must be readily accessible to healthcare providers through references, protocols, order sets, computerized drug information systems, medication administration records, and regular clinical activities by pharmacists in patient care areas.

III Communication of Drug Orders and Other Drug Information: Because failed communication is at the heart of many errors, healthcare organizations must eliminate communication barriers between healthcare providers and standardize the way that orders and other drug information is communicated to avoid misinterpretation.

IV Drug Labeling, Packaging, and Nomenclature: To facilitate proper identification of drugs, healthcare organizations should provide all drugs in clearly labeled, unit dose packages and take steps to prevent errors with look- and sound-alike drug names, ambiguous drug packaging, and confusing or absent drug labels.

V Drug Standardization, Storage, and Distribution: Many errors are preventable simply by minimizing floor stock, restricting access to high-alert drugs and hazardous chemicals, and distributing drugs from the pharmacy in a timely fashion. Whenever possible, healthcare organizations also should use commercially available solutions and standard concentrations to minimize error-prone processes such as IV admixture and dose calculations.

VI Medication Device Acquisition, Use, and Monitoring: To avoid errors with drug delivery devices, healthcare organizations must assess the devices' safety before purchase; ensure appropriate fail-safe protections (e.g., free-flow protection, incompatible connections, safe default settings); limit variety to promote familiarity; and require independent double checks for potential device-related errors that could result in serious patient harm.

VII Environmental Factors, Workflow, and Staffing Patterns: Environmental factors, such as poor lighting, cluttered workspaces, noise, interruptions, high patient acuity, and non-stop activity contribute to medication errors when healthcare providers are unable to remain focused on medication use. Staffing pattern deficiencies and excessive workload also underlie a broad range of errors and present unique challenges to healthcare organizations today.

VIII Staff Competency and Education: Although staff education is a weak error-reduction strategy alone, it can play an important role when combined with system-based error-reduction strategies. Activities with the highest leverage include ongoing assessment of healthcare providers' baseline competencies and education about new medications, non-formulary medications, high-alert medications, and medication error prevention.

IX Patient Education: Patients can play a vital role in preventing medication errors when they have been educated about their medications and encouraged to ask questions and seek satisfactory answers. Because patients are the final link in the process, healthcare providers should teach them how to protect themselves from medication errors, and seek their input in related quality improvement and safety initiatives.

X Quality Processes and Risk Management: Healthcare organizations need systems for identifying, reporting, analyzing, and reducing the risk of medication errors. A Just Culture must be cultivated to encourage frank disclosure of hazards and errors (including close calls), stimulate productive discussions, identify effective system-based solutions, and address at-risk behaviors. Strategically placed quality control checks are also necessary. Simple redundancies that support a system of independent double checks for high risk, error-prone processes promote the detection and correction of errors before they reach and harm patients.

Appendix

Core Characteristics of Safe Medication Practices

1 Essential patient information is obtained, readily available in useful form, and considered when prescribing, dispensing, and administering medications, and when monitoring the effects of medications.

2 Essential drug information is readily available in useful form and considered when prescribing, dispensing, and administering medications, and when monitoring the effects of medications.

3 A controlled drug formulary system is established to limit choice to essential drugs, minimize the number of drugs with which practitioners must be familiar, and provide adequate time for designing safe processes for the use of new drugs added to the formulary.

4 Methods of communicating drug orders and other drug information are streamlined, standardized, and automated to minimize the risk for error.

5 Strategies are undertaken to minimize the possibility of errors with drug products that have similar or confusing manufacturer labeling/packaging and/or drug names that look and/or sound alike.

6 Readable labels that clearly identify drugs are on all drug containers, and drugs remain labeled up to the point of actual drug administration.

7 IV solutions, drug concentrations, doses, and administration times are standardized whenever possible.

8 Medications are provided to patient care units in a safe and secure manner and available for administration within a time frame that meets essential patient needs.

9 Unit stock is restricted.

10 Hazardous chemicals are safely sequestered from patients and not accessible in drug preparation areas.

11 The potential for human error is mitigated through careful procurement, maintenance, use, and standardization of devices used to prepare and deliver medications.

12 Medications are prescribed, transcribed, prepared, dispensed, and administered within an efficient and safe workflow and in a physical environment that offers adequate space and lighting, and allows practitioners to remain focused on medication use without distractions.

13 The complement of qualified, well-rested practitioners matches the clinical workload without compromising patient safety.

14 Practitioners receive sufficient orientation to medication use and undergo baseline and annual competency evaluation of knowledge and skills related to safe medication practices.

15 Practitioners involved in medication use are provided with ongoing education about medication error prevention and the safe use of drugs that have the greatest potential to cause harm if misused.

16 Patients are included as active partners in their care through education about their medications and ways to avert errors.

17 A safety-supportive Just Culture and model of shared accountability for safe system design and making safe behavioral choices is in place and supported by management, senior administration, and the Board of Trustees/Directors.

18 Practitioners are stimulated to detect and report adverse events, errors (including close calls), hazards, and observed at-risk behaviors, and interdisciplinary teams regularly analyze these reports as well as reports of errors that have occurred in other organizations to mitigate future risks.

19 Redundancies that support a system of independent double checks or an automated verification process are used for vulnerable parts of the medication system to detect and correct serious errors before they reach patients.

20 Proven infection control practices are followed when storing, preparing, and administering medications.

About ISMP

About the Institute for Safe Medication Practices (ISMP) and the 2011 ISMP Medication Safety Self Assessment® for Hospitals

The Institute for Safe Medication Practices (ISMP) is the nation's only nonprofit, charitable organization devoted entirely to medication error prevention and safe medication use. ISMP is known and respected worldwide as the leading resource for independent and effective medication safety recommendations.

ISMP's strategies are based on up-to-the minute information gained from analysis of reports to the voluntary ISMP National Medication Errors Reporting Program, onsite visits to individual healthcare organizations, and advice from outside advisory experts.

ISMP's highly effective initiatives, which are built upon system-based solutions, include: four medication safety newsletters for healthcare professionals and consumers that reach more than three million total readers; educational programs, including conferences on medication use issues; confidential consultation services to healthcare systems to proactively evaluate medication systems or analyze medication-related sentinel events; advocacy for the adoption of safe medication standards by accrediting bodies, manufacturers, policy makers, and regulatory agencies; independent research to identify and describe evidence-based safe medication practices; and a consumer website (www.consumermedsafety.org) that provides patients with access to free medication safety information and alerts.

ISMP is not a standards setting organization. As such, the self-assessment items in this document are not purported to represent a minimum standard of practice and should not be considered as such. In fact, some of the self-assessment items represent innovative practices and system enhancements that are not widely implemented in most hospitals today. However, their value in reducing errors is grounded in scientific research and/or expert analysis of medication errors and their causes.

As an independent nonprofit organization, ISMP receives no advertising revenue and depends entirely on charitable donations, educational grants, newsletter subscriptions, and volunteer efforts to pursue its lifesaving work. For more information that will make a difference to patient safety, please visit ISMP online at: www.ismp.org.

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