



PRELIMINARY COMPARATIVE DATA FROM
THE 2004
ISMP MEDICATION
SAFETY SELF
ASSESSMENT®
for **HOSPITALS**


A quality improvement workbook for study participants

Institute for Safe Medication Practices



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Dear Healthcare Provider:



The Institute for Safe Medication Practices (ISMP) is pleased to provide you with preliminary findings from the 2004 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 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 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. We will keep you informed of our progress through periodic briefings in the *ISMP Medication Safety Alert!* and on our web site at www.ismp.org.

While it is important to widely disseminate and use the workbook and preliminary data from the 2004 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 2004 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 goal of the 2004 ISMP Medication Safety Self Assessment® for Hospitals has been to heighten awareness of distinguishing characteristics of a safe medication system and to document progress with our nation's medication safety efforts during the past 4 years. Additionally, ISMP and the Health Research & Educational Trust of the American Hospital Association plan to use analysis of the 2004 data to develop curricula to support your ongoing efforts to enhance medication safety, as with the Pathways for Medication Safety™ tools (www.hospitalconnect.com/hret/programs/medpathways.html) created in response to the 2000 self assessment findings. Without your help, we would not be able to achieve these goals. In the end, we firmly believe that your collective willingness to share your assessment of medication safety will continue to help restore the public's confidence 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 2004 ISMP Medication Safety Self Assessment® for Hospitals:

American College of Physicians
 American Hospital Association
 American Organization of Nurse Executives
 American Pharmacists Association
 American Society of Healthcare Risk Management
 American Society of Health-System Pharmacists
 AmeriNet
 Anesthesia Patient Safety Foundation
 Association of American Medical Colleges
 Broadlane
 Catholic Health Association
 Child Health Corporation of America
 Federation of American Hospitals
 Health Information and Management Systems Society
 Health Research and Educational Trust
 Joint Commission on Accreditation of Healthcare Organizations
 National Center for Quality Assurance
 National Patient Safety Foundation
 Premier
 The United States Pharmacopeial Convention
 University HealthSystems Consortium
 VHA, Inc.

Definitions

(for purposes of the 2004 ISMP Medication Safety Self Assessment® for Hospitals tool and findings)

Maximum weighted score

The highest numerical score assigned during the weighting process 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. This score is directly comparable with the weighted scores that appear on your computer-generated survey 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 numerical possible score. While this percentage is not directly comparable with the weighted scores that appear on your computer-generated survey form, the percentages offer you an opportunity to view collective performance within a familiar “report card” context. To directly compare your numerical scores with the percent of maximum weighted scores in the tables and graphs provided, you must divide your numerical weighted score by the maximum possible weighted score and multiply the results by 100.

Mean total assessment score

The mean numerical score achieved by respondents for each of the key elements and the self-assessment tool in its entirety.

Total weighted score

The total scores for each key element, core characteristic, and full self-assessment which includes items provided in both the 2000 and 2004 self-assessments as well as all new items.

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 from the 2004 ISMP Medication Safety Self-Assessment® for Hospitals to a confidential, national database managed by ISMP for education and research purposes only. Demographic statistics for all US hospitals on the original mailing list 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 government controlled, under 100 beds, and from the South, and more likely to be nonprofit, from the Midwest, a medical teaching facility, and of a general medical/surgical type.

Response rate

Total respondents: 1,623

Response rate: 28%

(based upon the total number of self-assessment tools sent to hospitals in the initial mailing: 5,864)

Respondent profile compared to the national profile

Bed size	Respondents	National comparison**
Less than 100	37%	49%
100-299	39%	36%
300 and greater	23%	15%
Setting	Respondents	National comparison**
Rural	45%	40%
Urban	55%	60%
Region*	Respondents	National comparison**
West	20%	19%
Midwest	33%	27%
Northeast	16%	15%
South	31%	39%
Ownership	Respondents	National comparison**
For profit	10%	18%
Nonprofit	70%	54%
Government	19%	28%
Other	1%	
Physician training program	Respondents	National comparison**
Yes	34%	18%
No	66%	82%
Type of hospital	Respondents	National comparison**
General medical/surgical	88%	82%
All others	12%	18%

*Location could not be determined for 8 respondents.

**National comparisons taken from: Annual Survey Database fiscal year 2003, Health Forum, LLC, An American Hospital Association Company, copyright 2004.



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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 between 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:

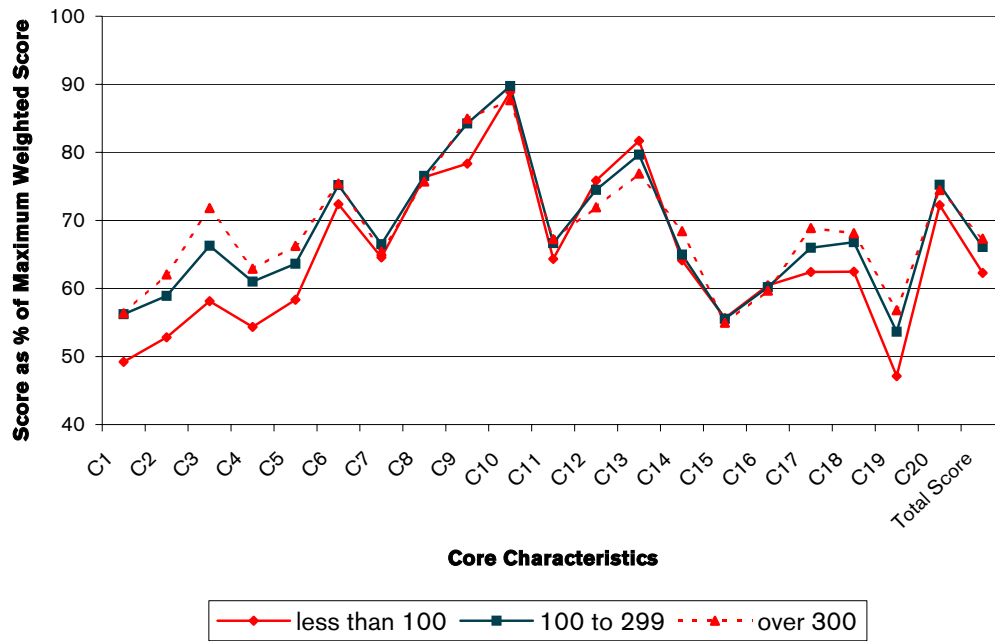
- bed size;
- rural or urban setting;
- four geographical regions in the US;
- physician training program;
- pharmacy residency program; and
- type of hospital.

For each core characteristic, the graphs display total weighted scores, which include items provided in both 2000 and 2004 self-assessments as well as all new items. Your weighted scores for each core characteristic are not directly comparable to the graphic display of aggregate performance on each chart. Our purpose for providing the data in this format is to demonstrate, quickly and visually, the variation between demographically dissimilar hospitals.

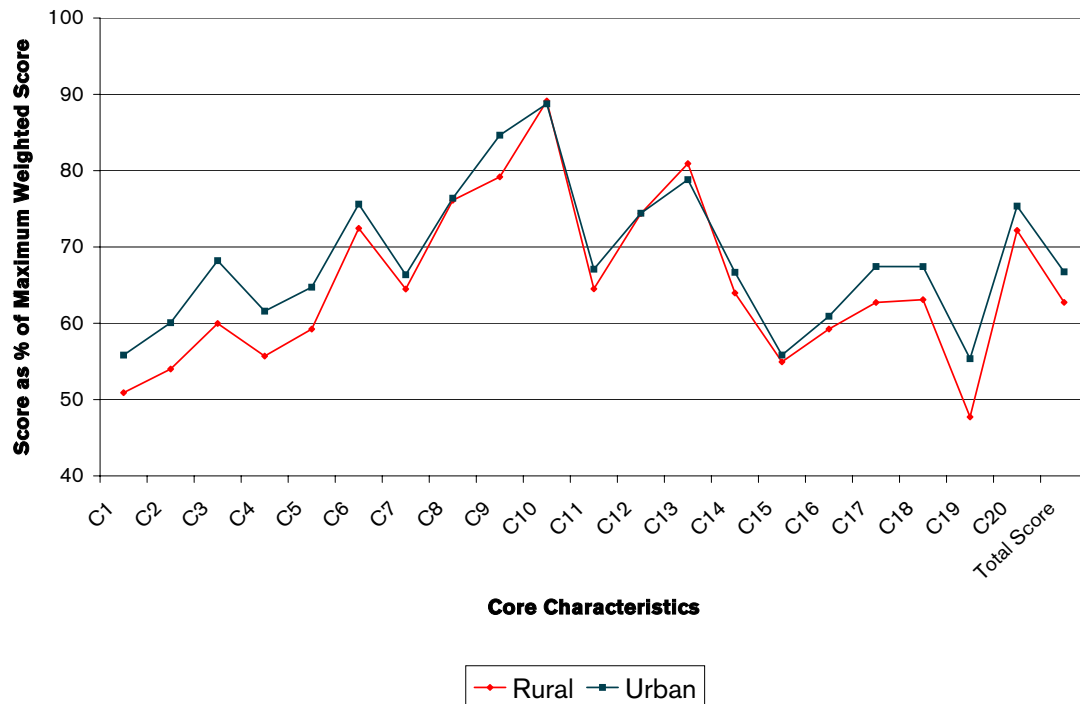
Graphic Display of Core Characteristics (C)



Graph 1. Core Characteristics by Bed Size



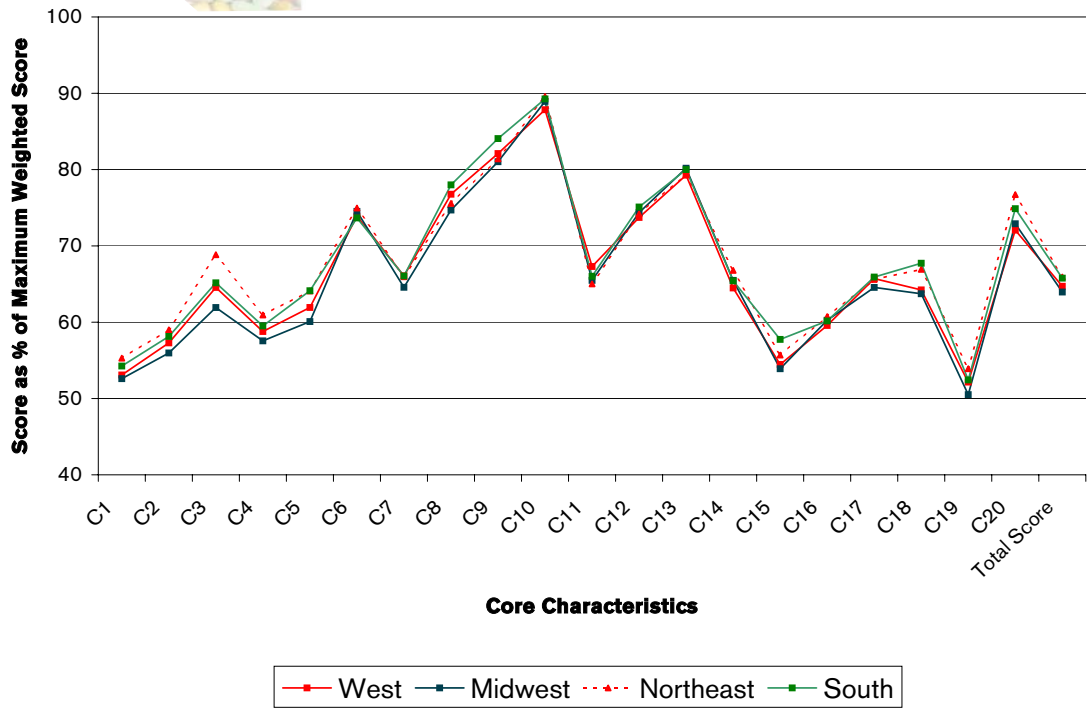
Graph 2. Core Characteristics by Setting



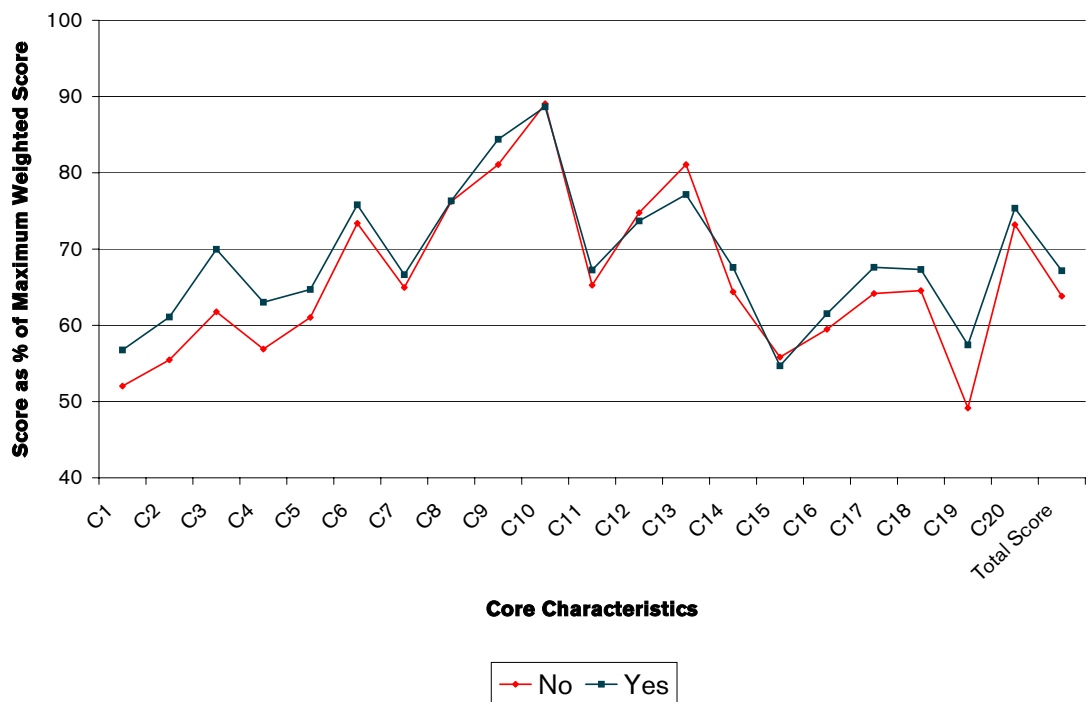
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Graphic Display of Core Characteristics (C)

Graph 3. Core Characteristics by Region



Graph 4. Core Characteristics by Physician Training Program

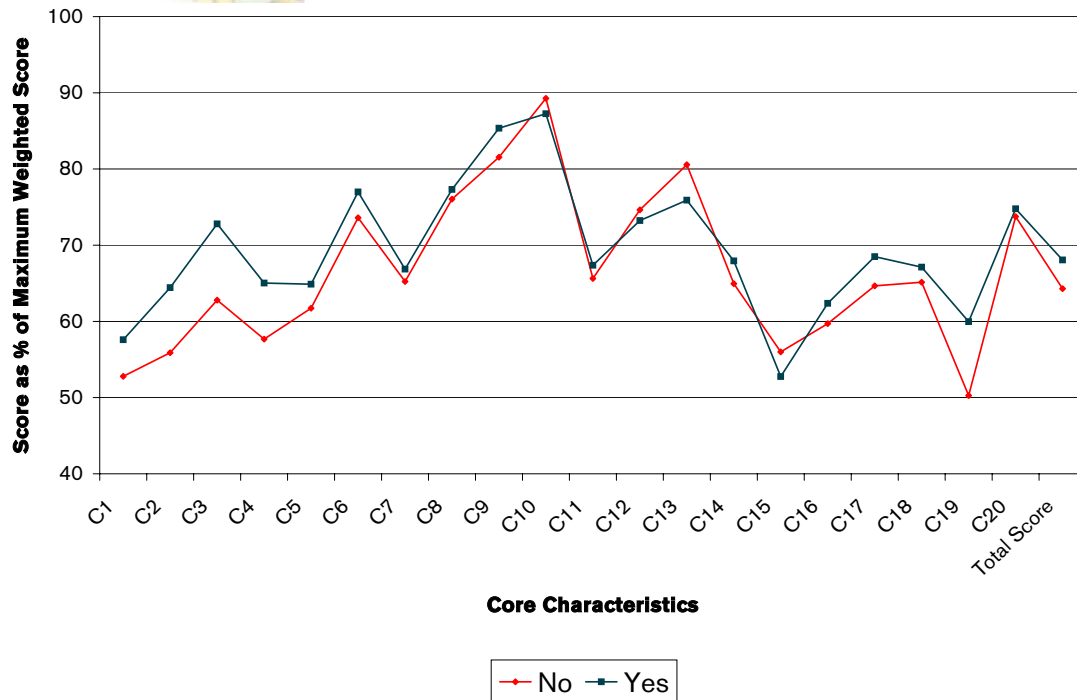


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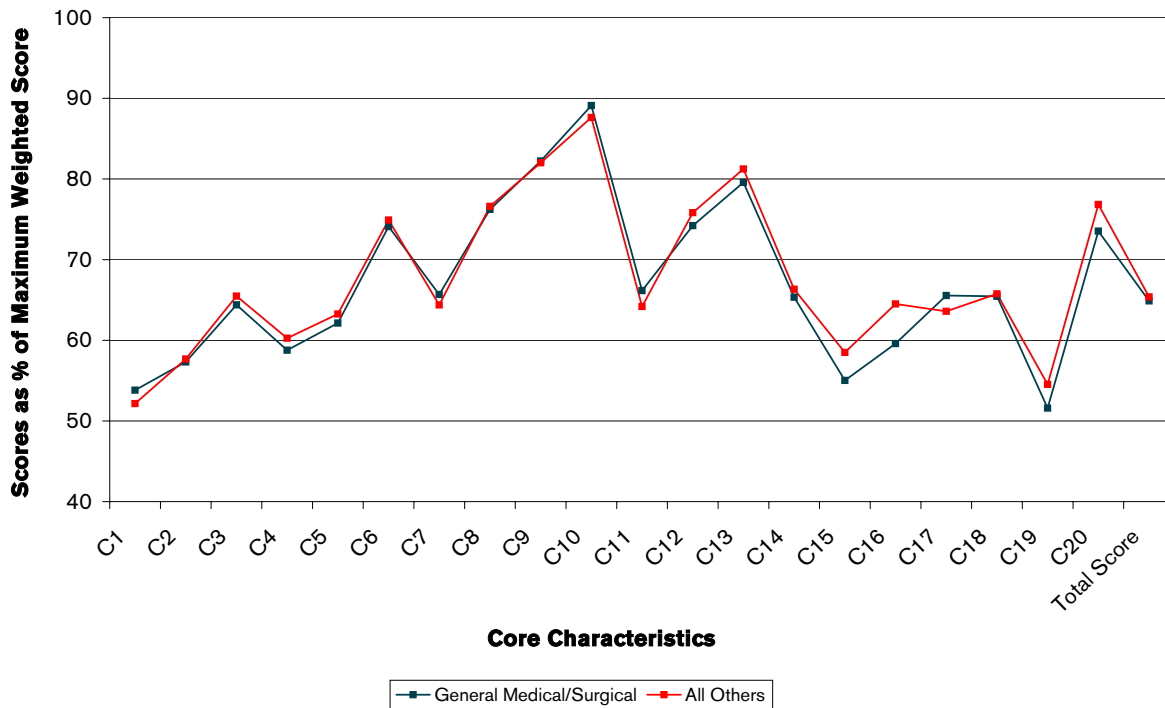
Graphic Display of Core Characteristics (C)



Graph 5. Core Characteristics by Pharmacy Residency Program



Graph 6. Core Characteristics by Type of Hospital



Section I: Worksheet for Key Elements of Medication Use

The 2004 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 I 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 possible weighted score; and
- the mean total assessment score for all respondents.

Please note: Total weighted scores are provided, which include items provided in both 2000 and 2004 self-assessments as well as all new items. The data are further stratified by bed size, setting, and physician training program to allow better comparison with demographically similar organizations.

Using the Key Element Worksheet I

Step 1: Use your computer-generated survey results form, which was created when you submitted data to ISMP, to transfer your total weighted scores for each key element onto Worksheet I (page 11).

Step 2: Convert your total weighted scores into a percent of the maximum possible weighted score using the following formula:

Your total weighted score divided by the maximum possible weighted score (found on Worksheet I [page 11] and Table I [page 10]) multiplied by 100 equals your score as a percent of the maximum possible weighted score.

Example

Your total weighted score for key element # 3 (KE III) = 61
The maximum possible weighted score for key element # 3 = 104
61 divided by 104 multiplied by 100 = 59%

Enter your percent of the maximum possible weighted score onto Worksheet I (page 11).

Step 3: Enter your facility's bed size and setting in the spaces provided on Worksheet I (page 11). Circle Yes or No to indicate if your hospital provides physician training.

Step 4: On Table I (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 5: Using Table I (page 10), enter the highlighted scores for each key element of demographically similar hospitals in the spaces provided on Worksheet I (page 11).

Step 6: Compare your weighted scores with the aggregate results of all respondents and those that are demographically similar to your hospital.

Step 7: 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 possible 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 I: Worksheet for Key Elements of Medication Use

Table 1. Key Elements Stratified by Bed Size, Setting, and Physician 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	124	204	104	100	208	88	100	140	56	360	1484
Bed Size											
< 100 beds mean weighted score	61.0	110.9	56.5	66.8	159.5	56.6	78.6	85.0	33.9	215.3	924.1
% of maximum weighted score	49%	54%	54%	67%	77%	64%	79%	61%	60%	60%	62%
100 to 299 beds mean weighted score	69.7	124.6	63.4	70.6	166.2	58.7	77.0	85.7	33.7	231.2	980.7
% of maximum weighted score	56%	61%	61%	71%	80%	67%	77%	61%	60%	64%	66%
> 300 beds mean weighted score	69.9	132.4	65.4	71.8	165.5	59.2	74.3	88.2	33.4	239.0	999.1
% of maximum weighted score	56%	65%	63%	72%	80%	67%	74%	63%	60%	66%	67%
Setting											
Rural mean weighted score	63.1	113.7	57.9	67.2	160.2	56.8	77.5	84.5	33.2	216.9	931.0
% of maximum weighted score	51%	56%	56%	67%	77%	65%	78%	60%	59%	60%	63%
Urban mean weighted score	69.2	127.4	64.0	71.3	166.2	59.0	76.5	87.3	34.1	235.3	990.4
% of maximum weighted score	56%	62%	62%	71%	80%	67%	77%	62%	61%	65%	67%
Physician Training											
No mean weighted score	64.5	116.9	59.2	68.4	162.3	57.4	77.8	85.3	33.3	222.0	947.2
% of maximum weighted score	52%	57%	57%	68%	78%	65%	78%	61%	59%	62%	64%
Yes mean weighted score	70.4	129.9	65.5	71.4	166.0	59.2	75.4	87.4	34.5	237.1	996.7
% of maximum weighted score	57%	64%	63%	71%	80%	67%	75%	62%	62%	66%	67%
Grand Totals											
mean weighted score	66.5	121.3	61.3	69.4	163.5	58.0	77.0	86.0	33.7	227.1	963.8
% of maximum weighted score	54%	59%	59%	69%	79%	66%	77%	61%	60%	63%	65%



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	124	204	104	100	208	88	100	140	56	360
Individual Hospital Scores										
Enter <u>your</u> total weighted scores										
Enter <u>your</u> calculated % of the maximum possible 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										



Section II: Worksheet for Core Characteristics (C)

Each of the ten key elements of the 2004 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 II 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 possible weighted score; and
- the mean total assessment score for all respondents.

Please note: Total weighted scores are provided, which include items provided in both 2000 and 2004 self-assessments as well as all new items. The data are further stratified by bed size, setting, and physician training program to allow better comparison with demographically similar organizations.

Using the Core Characteristic Worksheet II

Step 1: Use your computer-generated survey results form, which was created when you submitted data to ISMP, to transfer your total weighted scores for each core characteristic onto Worksheet II (page 14).

Step 2: Convert your total weighted scores into a percent of the maximum possible weighted score using the following formula:

Your total weighted score divided by the maximum possible weighted score (found on Worksheet II [page 14] and Table II [page 13]) multiplied by 100 equals your score as a percent of the maximum possible weighted score.

Example:

Your weighted score for core characteristic # 4 (C 4) = 61

The maximum possible weighted score for core characteristic # 4 = 104

61 divided by 104 multiplied by 100 = 59%

Enter your percent of the maximum possible weighted score onto Worksheet II (page 14).

Step 3: Enter your facility's bed size and setting in the spaces provided on Worksheet II (page 14). Circle Yes or No to indicate if your hospital provides physician training.

Step 4: On Table II (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 5: Using Table II (page 13), enter the highlighted scores for each core characteristic of demographically similar hospitals in the spaces provided on Worksheet II (page 14).

Step 6: Compare your weighted scores with the aggregate results of all respondents and those that are demographically similar to your hospital.

Step 7: 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 possible 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 Training Program

Related Key Element	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 possible weighted score	124	144	60	104	40	60	36	52	96	24	88	52	48	84	56	56	132	120	80	28										1484	
Bed Size																															
< 100 beds																															
mean weighted score	61.0	76.0	34.9	56.5	23.3	43.4	23.2	39.7	75.2	21.3	56.6	39.4	39.2	53.9	31.2	33.9	82.4	74.9	37.7	20.2										924.1	
% of maximum weighted score	49%	53%	58%	54%	58%	72%	65%	76%	78%	89%	64%	76%	82%	64%	56%	60%	62%	62%	47%	72%										62%	
100 to 299 beds																															
mean weighted score	69.7	84.8	39.8	63.4	25.5	45.1	23.9	39.8	80.9	21.5	58.7	38.7	38.2	54.6	31.1	33.7	87.1	80.2	42.9	21.1										980.7	
% of maximum weighted score	56%	59%	66%	61%	64%	75%	67%	77%	84%	90%	67%	74%	80%	65%	56%	60%	66%	67%	54%	75%										66%	
> 300 beds																															
mean weighted score	69.9	89.3	43.1	65.4	26.5	45.2	23.6	39.4	81.6	21.0	59.2	37.4	36.9	57.5	30.8	33.4	90.9	81.7	45.4	20.8										999.1	
% of maximum weighted score	56%	62%	72%	63%	66%	75%	65%	76%	85%	88%	67%	72%	77%	68%	55%	60%	69%	68%	57%	74%										67%	
Setting																															
Rural																															
mean weighted score	63.1	77.8	36.0	57.9	23.7	43.5	23.2	39.6	76.0	21.4	56.8	38.7	38.8	53.7	30.8	33.2	82.8	75.7	38.2	20.2										931.0	
% of maximum weighted score	51%	54%	60%	56%	59%	72%	64%	76%	79%	89%	65%	74%	81%	64%	55%	59%	63%	63%	48%	72%										63%	
Urban																															
mean weighted score	69.2	86.5	40.9	64.0	25.9	45.4	23.9	39.7	81.3	21.3	59.0	38.7	37.8	56.0	31.3	34.1	89.0	80.9	44.3	21.1										990.4	
% of maximum weighted score	56%	60%	68%	62%	65%	76%	66%	76%	85%	89%	67%	74%	79%	67%	56%	61%	67%	67%	55%	75%										67%	
Physician Training																															
No																															
mean weighted score	64.5	79.9	37.1	59.2	24.4	44.0	23.4	39.6	77.8	21.4	57.4	38.9	38.9	54.1	31.3	33.3	84.7	77.5	39.3	20.5										947.2	
% of maximum weighted score	52%	55%	62%	57%	61%	73%	65%	76%	81%	89%	65%	75%	81%	64%	56%	59%	64%	65%	49%	73%										64%	
Yes																															
mean weighted score	70.4	88.0	42.0	65.5	25.9	45.5	24.0	39.7	81.0	21.3	59.2	38.3	37.0	56.8	30.6	34.5	89.2	80.8	46.0	21.1										996.7	
% of maximum weighted score	57%	61%	70%	63%	65%	76%	67%	76%	84%	89%	67%	74%	77%	68%	55%	62%	68%	67%	57%	75%										67%	
Grand Totals																															
mean weighted score	66.5	82.6	38.7	61.3	24.9	44.5	23.6	39.7	78.9	21.3	58.0	38.7	38.3	55.0	31.0	33.7	86.2	78.6	41.6	20.7										963.8	
% of maximum weighted score	54%	57%	65%	59%	62%	74%	66%	76%	82%	89%	66%	74%	80%	65%	55%	60%	65%	65%	52%	74%										65%	



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	100	108	44	92	40	40	28	44	96	24	72	44	48	68	40	52	112	88	72	28	
Individual Hospital Scores																					
Enter <u>your</u> total weighted scores																					
Enter <u>your</u> calculated % of the maximum possible 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																					
Core Number(s)		Related Key Element					Core Number(s)					Related Key Element									



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Section III: Self-Assessment Items

Each of the 20 core characteristics of the 2004 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 sample below).

Core characteristic # 1: Essential patient information is obtained, readily available in useful form, and considered when prescribing, dispensing, and administering medications.

	SELF-ASSESSMENT ITEMS	A	B	C	D	E	N A	Max Score	Prior Score
1(1)	Prescribers and nurses can easily <u>and</u> electronically access <u>inpatient</u> laboratory values while working in their respective inpatient locations.					2		4	
1(2)	Pharmacists can easily <u>and</u> electronically access <u>inpatient</u> laboratory values while working in their respective inpatient locations.					2			
2(1)	Prescribers and nurses can easily <u>and</u> electronically access <u>outpatient</u> laboratory values while working in their respective outpatient locations.					2		4	
2(2)	Pharmacists can easily <u>and</u> electronically access <u>outpatient</u> laboratory values while working in their respective outpatient locations.					2			
	... and electronically access both ... working in their					2		4	

Using the 2004 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 Step 2. Compare your weighted scores with the maximum possible weighted scores to identify self-assessment items where you have scored lowest. Develop your medication safety action plan based on attaining the maximum weighted score (E answers) for these self-assessment items. You may want to prioritize your activities by selecting self-assessment items with the highest possible weighted scores. Another option is to group the self-assessment items by ease of implementation and begin with those you know you can achieve without delay.



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 Related to Medications:** 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.
- IIII 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 Delivery 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:** 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 Process and Risk Management:** Healthcare organizations need systems for identifying, reporting, analyzing, and reducing the risk of medication errors. A non-punitive culture of safety must be cultivated to encourage frank disclosure of errors and near misses, stimulate productive discussions, and identify effective system-based solutions. 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 Medication Use

- 1 Essential patient information is obtained, readily available in useful form, and considered when prescribing, dispensing, and administering medications.
- 2 Essential drug information is readily available in useful form and considered when ordering, dispensing, and administering 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 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-based floor 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 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 evaluations 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 non-punitive, system-based approach to error reduction is in place and supported by management, senior administration, and the Board of Trustees/Directors.
- 18 Practitioners are stimulated to detect and report errors, and interdisciplinary teams regularly analyze errors that have occurred within the organization and in other organizations for the purpose of redesigning systems to best support safe practitioner performance.
- 19 Simple 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 2004 ISMP Medication Safety Self Assessment® for Hospitals

The Institute for Safe Medication Practices (ISMP) is the nation's only nonprofit organization devoted entirely to medication error prevention and safe medication use. The organization is known and respected worldwide as the premier resource for impartial, timely, and accurate medication safety information.

The Institute's highly effective initiatives, which are built upon a non-punitive approach and system-based solutions, fall into four key areas: knowledge, analysis, understanding, and prevention of medication errors. Initiatives include: independent expert review of medication errors reported through the US Pharmacopeia (USP)-ISMP Medication Errors Reporting Program; four medication safety newsletters for healthcare professionals and consumers that reach nearly a million total readers; frequent educational programs, including teleconferences, on medication safety issues; and confidential consultation services to healthcare systems to proactively evaluate medication systems or analyze medication-related sentinel events.

As an independent watchdog 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, visit ISMP online at www.ismp.org.

ISMP is not a standard setting organization. As such, the self-assessment items in the 2004 ISMP Medication Safety Self Assessment® for Hospitals 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. However, their value in reducing errors is grounded in scientific research and expert analysis of medication errors and their causes. In many respects, the self-assessment tool represents the ideal attainment of a safe medication system, not a minimum standard of care.

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