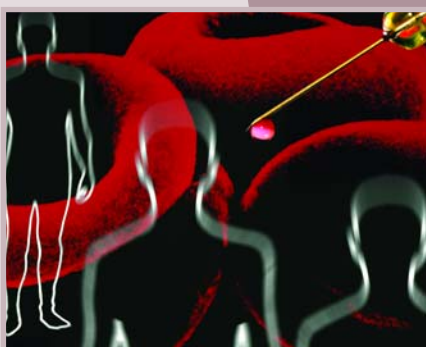


ISMP MEDICATION SAFETY SELF ASSESSMENT<sup>®</sup> FOR

# *Antithrombotic Therapy* in Hospitals



Institute for Safe  
Medication Practices  
(ISMP)

Thanks for Your Participation

## Thanks for Your Participation

The Institute for Safe Medication Practices (ISMP) is pleased to provide you with preliminary findings from the ISMP Medication Safety Self Assessment® for Antithrombotic Therapy in 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 data published in this workbook was collected from responses submitted in 2005-2006.

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, 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. While it is important to widely disseminate and use the workbook and preliminary data from the self assessment 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 ISMP Medication Safety Self Assessment® for Antithrombotic Therapy 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 ISMP Medication Safety Self Assessment for Antithrombotic Therapy for Hospitals has been to heighten awareness of distinguishing characteristics of safe practices with antithrombotic therapy. 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 make our healthcare systems safer and more efficient.

Sincerely,



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

## Explanation and Definitions of Weighted Scores

### Explanation of the weighted scores

To determine a weight for each self-assessment item, ISMP staff used a standard process to independently evaluate each item to determine its impact on patient safety and its ability to sustain improvement. Therefore, the self-assessment items with the highest weight are those that:

- Target the system, not the workforce
- Do not rely heavily on human memory and vigilance
- Demonstrate through scientific evidence that they are effective in reducing serious medication errors
- Prevent the most potentially harmful errors with antithrombotic medications
- Safeguard at-risk patient populations who take antithrombotic medications
- Make it harder for healthcare practitioners to do their job wrong, and easy for them to do it right.

Some of the self-assessment items are weighted in a way that result in no numerical score (zero value) unless there is full implementation of the item throughout the organization.

### Definitions used in this workbook

**Maximum possible 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 weighed 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 provided you must divide your numerical weighted score by the maximum possible weighted score and multiply the results by 100.

# Worksheet for ISMP's Key Elements of Medication Use I

The ISMP Medication Safety Self Assessment® for Antithrombotic Therapy in Hospitals is divided into eight of ISMP's Ten Key Elements™ that most significantly influence the safe use of antithrombotic therapy. 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 key elements used in this assessment appears in the Appendix. For each key element, Table 1 provides:

- the maximum 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

## Using the Key Element Worksheet I

- 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 6).
- 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 6) and Table 1 (page 4) multiplied by 100 equals your score as a percent of the maximum possible weighted score.

### Example for Key Element 1

- *If your total weighted score for key element #1 (KE 1) = 110*
- *The maximum possible weighted score for key element #1 = 190*
- *110 divided by 190 multiplied by 100 = 58%*

Enter your percent of the maximum possible weighted score onto Worksheet I (page 5)

- 3 Enter your facility's bed size, setting, and yes or no response to antithrombosis team in the spaces provided on Worksheet I (page 5).
- 4 On Table 1 (page 4), highlight the mean weighted scores and the % of maximum weighted scores for key elements in institutions that are demographically similar to your hospital.
- 5 Using Table 1 (page 4), enter the highlighted scores for each key element of demographically similar hospitals in the spaces provided on Worksheet I (page 5)
- 6 Compare your weighted scores with the aggregate results of all respondents and those that are demographically similar to your hospital.
- 7 List on Worksheet I, page 5 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 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 in the self-assessment.

Worksheet for Key Elements of Medication Use *continued*

I

**Table 1** ▶ Key Elements Stratified by Bed Size, Setting, and Inpatient and Outpatient Antithrombosis Team

Key Element	I	II	III	IV	V	VI	VII	VIII	Total
	Patient Information	Drug Information	Communication of Drug Orders and Other Drug Information	Drug Storage, Stock, Standardization, and Distribution	Medication Device Acquisition, Use, and Monitoring	Competency and Staff Education	Patient Education	Quality Processes and Risk Management	
<b>Maximum possible weighted score</b>	<b>190</b>	<b>240</b>	<b>60</b>	<b>84</b>	<b>28</b>	<b>52</b>	<b>88</b>	<b>96</b>	<b>838</b>
<b>Bed Size</b>									
<b>&lt; 100 beds mean weighted score</b>	<b>109</b>	<b>102</b>	<b>30</b>	<b>60</b>	<b>17</b>	<b>21</b>	<b>60</b>	<b>40</b>	<b>439</b>
% of maximum weighted score	57%	43%	50%	71%	61%	40%	68%	42%	52%
<b>100 to 299 beds mean weighted score</b>	<b>114</b>	<b>107</b>	<b>32</b>	<b>64</b>	<b>19</b>	<b>21</b>	<b>62</b>	<b>44</b>	<b>465</b>
% of maximum weighted score	60%	45%	53%	76%	68%	40%	70%	46%	55%
<b>300 to 499 beds mean weighted score</b>	<b>117</b>	<b>117</b>	<b>32</b>	<b>65</b>	<b>20</b>	<b>22</b>	<b>62</b>	<b>40</b>	<b>476</b>
% of maximum weighted score	62%	49%	53%	77%	71%	42%	70%	42%	57%
<b>500 beds and over mean weighted score</b>	<b>108</b>	<b>114</b>	<b>31</b>	<b>60</b>	<b>19</b>	<b>18</b>	<b>59</b>	<b>35</b>	<b>443</b>
% of maximum weighted score	57%	48%	52%	71%	68%	35%	67%	36%	53%
<b>Setting</b>									
<b>Rural mean weighted score</b>	<b>107</b>	<b>101</b>	<b>29</b>	<b>61</b>	<b>18</b>	<b>21</b>	<b>58</b>	<b>39</b>	<b>432</b>
% of maximum weighted score	56%	42%	48%	73%	64%	40%	66%	41%	52%
<b>Urban mean weighted score</b>	<b>116</b>	<b>114</b>	<b>32</b>	<b>64</b>	<b>19</b>	<b>21</b>	<b>63</b>	<b>42</b>	<b>472</b>
% of maximum weighted score	61%	48%	53%	76%	68%	40%	72%	44%	56%
<b>By inpatient antithrombosis team</b>									
<b>Yes mean weighted score</b>	<b>122</b>	<b>128</b>	<b>34</b>	<b>62</b>	<b>19</b>	<b>29</b>	<b>64</b>	<b>44</b>	<b>501</b>
% of maximum weighted score	64%	53%	57%	74%	68%	56%	73%	46%	60%
<b>No mean weighted score</b>	<b>111</b>	<b>107</b>	<b>31</b>	<b>63</b>	<b>19</b>	<b>20</b>	<b>61</b>	<b>41</b>	<b>453</b>
% of maximum weighted score	58%	45%	52%	75%	68%	38%	69%	43%	54%
<b>By outpatient antithrombosis team</b>									
<b>Yes mean weighted score</b>	<b>121</b>	<b>120</b>	<b>33</b>	<b>64</b>	<b>21</b>	<b>23</b>	<b>63</b>	<b>42</b>	<b>486</b>
% of maximum weighted score	64%	50%	55%	76%	75%	44%	72%	44%	58%
<b>No mean weighted score</b>	<b>107</b>	<b>102</b>	<b>30</b>	<b>62</b>	<b>17</b>	<b>20</b>	<b>60</b>	<b>41</b>	<b>440</b>
% of maximum weighted score	56%	43%	50%	74%	61%	38%	68%	43%	53%
<b>Grand Totals</b>									
mean weighted score	<b>112</b>	<b>109</b>	<b>31</b>	<b>63</b>	<b>19</b>	<b>21</b>	<b>61</b>	<b>41</b>	<b>457</b>
% of maximum weighted score	59%	45%	52%	75%	68%	40%	69%	43%	54%

# Worksheet for Key Elements of Medication Use *continued*

**Worksheet 1** ▶ *Key Elements Stratified by Bed Size, Setting, and Inpatient and Outpatient Antithrombosis Team*

Key Element	I	II	III	IV	V	VI	VII	VIII
	Patient Information	Drug Information	Communication of Drug Orders and Other Drug Information	Drug Storage, Stock, Standardization, and Distribution	Medication Device Acquisition, Use, and Monitoring	Competency and Staff Education	Patient Education	Quality Processes and Risk Management
<b>Maximum possible weighted score</b>	<b>190</b>	<b>240</b>	<b>60</b>	<b>84</b>	<b>28</b>	<b>52</b>	<b>88</b>	<b>96</b>
<b>Individual Hospital Scores</b>								
Enter <b>your</b> total weighted scores								
Enter <b>your</b> calculated % of the maximum possible weighted scores								
<b>Aggregate Respondent Scores</b>								
<b>Your Bed Size:</b> _____ Enter applicable mean weighted respondent scores								
Enter applicable % of maximum weighted respondent scores								
<b>Your Setting:</b> _____ Enter applicable mean weighted respondent scores								
Enter applicable % of maximum weighted respondent scores								
<b>inpatient antithrombosis team</b> _____ Enter applicable mean weighted respondent scores								
Enter applicable % of maximum weighted respondent scores								
<b>outpatient antithrombosis team</b> _____ Enter applicable mean weighted respondent scores								
Enter applicable % of maximum weighted respondent scores								
<b>Individual Hospital Key Element Opportunities for Improvement</b>								

## Worksheet for Core Characteristics

## II

Each of the eight key elements from the ISMP Medication Safety Self Assessment® for Antithrombotic Therapy in Hospitals is further divided by one or more core characteristics of a safe medication system. For reference, a list of the eleven core characteristics appears in the Appendix. For each core characteristic, Table 2 provides:

- the maximum 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

### Using the Core Characteristic Worksheet II

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 8).

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 8) and Table 2 (page 7) multiplied by 100 equals your score as a percent of the maximum possible weighted score.

#### Example for Core Characteristic 1

*If your total weighted score for core characteristic #1 is 83*

*The maximum possible weighted score for core characteristic #1 = 136*

*83 divided by 136 multiplied by 100 = 61%*

Enter your percent of the maximum possible weighted score onto Worksheet II (page 8)

③ Enter your facility's bed size, setting, and yes or no response to antithrombosis team in the spaces provided on Worksheet II (page 8).

④ On Table 2 (page 7), highlight the mean weighted scores and the % of maximum weighted scores for each core characteristic in institutions that are demographically similar to your hospital.

⑤ Using Table 2 (page 7), enter the highlighted scores for each core characteristic of demographically similar hospitals in the spaces provided on Worksheet II (page 8)

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

⑦ List on Worksheet II (page 8) 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 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 in the self-assessment.

Worksheet for Core Characteristics *continued*

## II

**Table 2** Core Characteristics (C) Stratified by Bed Size, Setting, Inpatient and Outpatient antithrombosis team

Related Key Element	I		II		III	IV	V	VI	VII	VIII		Total
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	
<b>Maximum possible weighted score</b>	<b>136</b>	<b>54</b>	<b>176</b>	<b>64</b>	<b>60</b>	<b>84</b>	<b>28</b>	<b>52</b>	<b>88</b>	<b>56</b>	<b>40</b>	<b>838</b>
<b>Bed Size</b>												
< 100 beds mean weighted score	83	26	88	14	30	60	17	21	60	25	15	439
% of maximum weighted score	61%	48%	50%	22%	50%	71%	60%	40%	68%	45%	38%	52%
100 to 299 beds mean weighted score	87	26	88	19	32	64	19	21	62	28	16	465
% of maximum weighted score	64%	48%	50%	30%	53%	76%	68%	40%	70%	50%	40%	55%
300 to 499 beds mean weighted score	86	31	88	29	32	65	20	22	62	27	13	476
% of maximum weighted score	63%	57%	50%	45%	53%	77%	71%	42%	70%	48%	33%	57%
500 beds and over mean weighted score	83	25	91	24	31	60	19	18	59	24	11	443
% of maximum weighted score	61%	46%	52%	38%	52%	71%	68%	35%	67%	43%	28%	53%
<b>Setting</b>												
Rural mean weighted score	81	25	85	15	29	61	18	21	58	24	15	432
% of maximum weighted score	60%	46%	48%	23%	48%	73%	64%	40%	66%	43%	38%	52%
Urban mean weighted score	87	28	90	24	32	64	19	21	63	28	14	472
% of maximum weighted score	64%	53%	51%	37%	54%	76%	69%	41%	72%	50%	35%	56%
<b>Inpatient antithrombosis team</b>												
Yes mean weighted score	87	35	99	29	34	62	19	29	64	30	14	501
% of maximum weighted score	64%	65%	56%	45%	57%	74%	68%	56%	73%	54%	35%	60%
No mean weighted score	85	27	88	20	31	63	19	20	61	26	15	453
% of maximum weighted score	63%	50%	50%	31%	52%	75%	68%	38%	69%	46%	38%	54%
<b>Outpatient antithrombosis team</b>												
Yes mean weighted score	90	31	93	27	33	64	21	23	63	25	16	486
% of maximum weighted score	66%	57%	53%	42%	55%	76%	75%	44%	72%	45%	40%	58%
No mean weighted score	82	25	86	16	30	62	17	20	60	27	14	440
% of maximum weighted score	60%	46%	49%	25%	50%	74%	61%	38%	68%	48%	35%	53%
<b>Grand Totals</b>												
mean weighted score	85	27	88	20	31	63	19	21	61	26	15	457
% of maximum weighted score	63%	50%	50%	31%	52%	75%	68%	40%	69%	46%	38%	55%

# Worksheet for Core Characteristics *continued*

**Worksheet 2** ▶ Core Characteristics (C) Stratified by Bed Size, Setting, Inpatient and Outpatient antithrombosis team

Related Key Element	I		II		III	IV	V	VI	VII	VIII		
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	
<b>Maximum possible weighted score</b>	<b>136</b>	<b>54</b>	<b>176</b>	<b>64</b>	<b>60</b>	<b>84</b>	<b>28</b>	<b>52</b>	<b>88</b>	<b>56</b>	<b>40</b>	
<b>Individual Hospital Scores</b>												
Enter your total weighted scores												
Enter your calculated % of the maximum possible weighted scores												
<b>Aggregate Respondent Scores</b>												
<b>Your Bed Size:</b> _____ Enter applicable mean weighted respondent scores												
Enter applicable % of maximum weighted respondent scores												
<b>Your Setting:</b> _____ Enter applicable mean weighted respondent scores												
Enter applicable % of maximum weighted respondent scores												
<b>inpatient antithrombosis team</b> _____ Enter applicable mean weighted respondent scores												
Enter applicable % of maximum weighted respondent scores												
<b>outpatient antithrombosis team</b> _____ Enter applicable mean weighted respondent scores												
Enter applicable % of maximum weighted respondent scores												
<b>Individual Hospital Core Characteristics Opportunities for Improvement</b>												
Core Number(s)	Related Key Element				Core Number(s)				Related Key			

## Appendix

### Key Elements

- 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.
- IV. **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.
- V. **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.
- VI. **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.
- VII. **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.
- VIII. **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.

## Core Characteristics

### Core Characteristics

1. Essential patient information is obtained and readily available in a useful form, when prescribing, dispensing, and administering antithrombotic therapy.
2. Essential patient information is used to monitor and manage the effects of antithrombotic therapy, and to adjust the treatment plan when indicated by evidence-based practices.
3. Essential drug information is readily available in useful form and considered when ordering, dispensing, and administering antithrombotic therapy.
4. Essential drug information is readily available in a useful form to guide the management of adverse drug reactions that may occur when antithrombotic agents are prescribed.
5. Methods of communicating orders for antithrombotics and other essential drug information are standardized and automated to minimize the risk for error.
6. Antithrombotic concentrations, doses, and administration times are standardized whenever possible.
7. The potential for human error is mitigated through careful procurement, maintenance, use, and standardization of devices used to deliver medications and provide test results.
8. Practitioners receive sufficient orientation to antithrombotic therapy and undergo baseline and ongoing competency evaluation of knowledge and skills related to safe medication practices.
9. Patients are included as active partners in their antithrombotic therapy through education about their medications and ways to avert errors.
10. 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.
11. Simple redundancies that support a system of independent double checks are used for vulnerable parts of the antithrombotic therapy to detect and correct serious errors before they reach patients.

