

## Appropriate Admission to Intermediate Care Unit

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### Introduction

The Intermediate Care (IMC) Pilot was created to evaluate the appropriateness of patient admissions to IMC units within three Sentara hospitals. In addition, the pilot explored the following utilization measures; ED border hours; days in the IMC; and IMC border hours between July 18, 2015 and October 3, 2015. A total of 247 audits for patients identified as IMC eligible were completed. A review of Epic data revealed 323 patients with an IMC stay during the same time frame (see Figure 1).

Figure 1. IMC Audit and Epic Sample Records by Hospital

Hospitals	Total Audits Completed		Clarity <sup>1</sup> Records Included IMC Stay		Records Common between Audit and Clarity <sup>1</sup>	
	n	%	n	%	n	%
SCH	89	36.0	142	44.0	66	38.8
SNVMC	47	19.0	62	19.2	22	12.9
SPAH	111	45.0	119	36.8	82	48.2
<b>Total</b>	<b>247</b>	<b>100</b>	<b>323</b>	<b>100</b>	<b>170</b>	<b>100</b>

### Background and Significance

The Intermediate Care Units (IMC) are designed to provide moderate to high intensity nursing care and/or a high level of surveillance, monitoring, and assessment. The IMC Pilot goals were to improve patient placement from ED to IMC, improve compliance with IMC Admission, Discharge, and Transfer (ADT) criteria, and identify barriers that extend IMC length of stay in the IMC units within three Sentara hospitals; Sentara Northern Virginia Medical Center, Sentara Careplex, and Sentara Princess Anne. The goals were based off of the standardized Admission and Discharge Criteria to the Intermediate Care Policy which was originally created in 2013 and revised in December 2014.

### Project Aims

The pilot would evaluate appropriateness of patient admissions to IMC within three Sentara hospitals, and explore utilization measures.

### Methodology

Emergency Department patients admitted to Intermediate Care units were monitored from bed assignment thru eight hours post Intermediate Care admission by the eHospital RN (see Figure 2). eHospital RN will be able to measure: average Emergency Department boarder hours, average transfer boarder hours, percentage of Intermediate Care patients meeting criteria, percentage of Intermediate Care patients not meeting criteria, average length of stay for Intermediate Care patients, average length of stay for Intermediate Care patients that meet and do not meet criteria, number of Medical Response Team calls and out of unit codes after Intermediate Care arrival from Emergency Department, and number of patients transferred from Intermediate Care to Intensive Care Unit or Medical-Surgical within eight hours of Emergency Department admission.

Figure 2. Descriptive Statistics for IMC Criteria by Hospital

Hospitals	Met IMC Criteria on Admission		Met IMC Criteria 8 Hours Post Admission		Met IMC Criteria on Admission & 8 Hours Post Admission	
	n	%	n	%	n	%
<b>SCH (n = 66)</b>	47	71.2	47	71.2	42	63.6
<b>SNVMC (n = 22)</b>	20	90.9	17	77.3	16	72.7
<b>SPAH (n = 82)</b>	57	69.5	53	64.6	51	62.2
<b>Total (n = 170)</b>	<b>124</b>	<b>72.9</b>	<b>117</b>	<b>68.8</b>	<b>109</b>	<b>64.1</b>

### Significant Findings

On average, patients at SNVMC waited 9.9 hours for transfer from the ED to IMC compared to 2.8 hours at SCH and 3.3 hours at SPAH. IMC length of stay was similar between hospitals SNVMC (2.8 days) and SPAH (2.4 days). Patients at SCH remained in the IMC about 1 day longer (3.8) than SNVMC or SPAH. On average, patients at SNVMC waited almost twice as long (13.6 hours) for transfer from IMC compared to 7.2 hours at SCH and 7.6 hours at SPAH.

### Results

Overall, 72.9% of patients identified as Intermediate Care eligible met Intermediate Care criteria on admission. Approximately 68.8% of patients met Intermediate Care criteria eight hours post admission. Approximately 64.1% met Intermediate Care criteria on admission and eight hours post admission. Overall, Emergency Department boarder hours averaged 3.9 hours, Intermediate Care length of stay averaged 3.0 days, and Intermediate Care boarder hours averaged 8.2 hours.

### Conclusions and Implications

ED boarder hours (4.3) for patients who met IMC admission criteria were significantly higher than ED boarder hours (3.0) for patients not meeting IMC criteria on admission. Differences in Intermediate Care length of stay and Intermediate Care boarder hours between patients who met Intermediate Care admission criteria and patients who did not meet Intermediate Care admission criteria were not statistically significant (see Figure 3).

Figure 3. Differences in Utilization Measures by IMC Admission Group

IMC Admission Criteria	Criteria Not Met		Criteria Met		t-test	df	p Value
	Mean	SD	Mean	SD			
<b>ED boarder hours</b>	3.0	2.0	4.3	5.5	-2.190	166	.030
<b>IMC LOS in days</b>	3.1	3.0	3.0	2.3	.265	168	.792
<b>IMC boarder hours</b>	10.0	14.4	7.5	12.0	1.089	156	.278

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