

**Government of the District of Columbia  
Department of Mental Health (DMH)  
Saint Elizabeths Hospital (SEH)**

**January 2008**  
**Monthly Trend Analysis**  
**- Hospital Statistics -**

**March 26, 2008**

**Office of Monitoring Systems (OMS)  
Performance Improvement Department (PID)**

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## I. Introduction

The June 25, 2007 Settlement Agreement (Agreement) between the District of Columbia and the United States requires Saint Elizabeths Hospital (Hospital) to regularly track and analyze data for actionable indicators and targets identified in the Agreement. The initial corrective action plan (CAP) submitted to the Department of Justice (DOJ) on October 25, 2007 provides that the Office of Monitoring Systems (OMS) in the Performance Improvement Department (PID) will produce monthly reports on key indicators and distribute it to the Hospital's senior managers. The core purpose of the Monthly Report is to assist the Hospital in improving the quality of patient care by providing the Hospital's key actors with critical information regarding patients and its performance in delivering timely and effective services. OMS published the first edition of the Monthly Trend Analysis Report (November 2007 Monthly Report) on December 19, 2007. This is the third edition incorporating the Hospital's key data available for year 2007 and the month of January 2008.

Many of the Hospital's managers recognize the urgency of performance monitoring using data and the importance of data collection. However, the Hospital currently lacks a functioning information system<sup>1</sup>, from which reliable administrative and performance data could be efficiently obtained. In addition, methods of data collection are often manual and rudimentary. Aggregate numbers are hand counted and the accuracy of those numbers is not easily verified. Offices that maintain a database do not utilize their database in the most efficient way and it often lacks critical data elements. OMS is providing them with technical assistance to improve their data tracking capacity, reconstructing the data collection system as needed, and analyzing compiled data. The monthly report is a final product of these processes.

Areas covered in the monthly report include the Hospital's census, characteristics of patient population, the Interdisciplinary Recovery Planning (IRP) process, Treatment Mall group activities, Pharmacy data, Restraint/Seclusion, and Unusual Incidents. This month's edition additionally includes data regarding Infection Control (Chapter V) and Clinical Profile of Patient Population (Chapter VI).

As the current data collection mechanism is often manual and fragmented, the validity of the data presented in the report may not be verifiable for some areas. Despite these limitations, all available data is presented in this report. This is aimed at promoting efforts to enhance the reliability and validity of data as well as contribute toward building a data-driven culture wherein Hospital staff routinely and proactively use data at all levels to assess service delivery and to develop evidence based strategies which support best practice and ultimately improve the quality of patient care.

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<sup>1</sup> We expect that the Hospital's upcoming information management system AVATAR, which is scheduled to launch in early summer of this year, will tremendously expand our data tracking and reporting capacity.

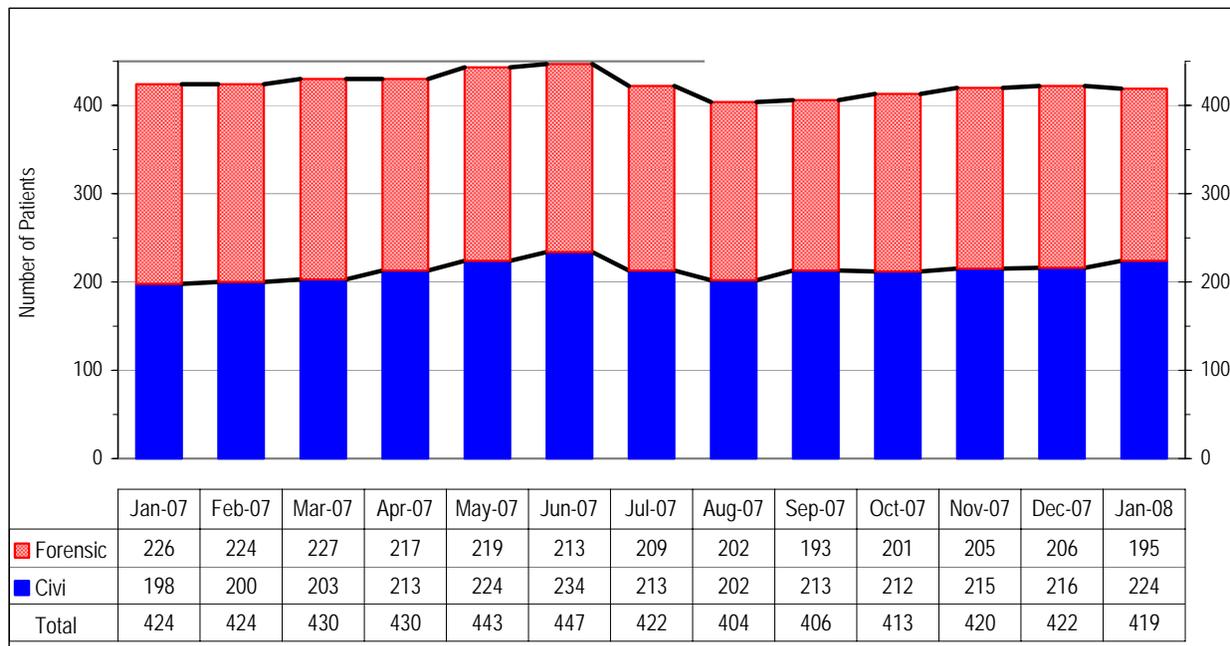
## II. Census

### 1. SEH Inpatient Population

The Hospital currently operates 20 units, 10 for civil services and 10 for forensic services. (See **Table 1.**) Patients in the civil program are housed in RMB and CT2 buildings; patients in the forensic program are in the John Howard Pavilion (JHP). On any given day during FY 2007, the Hospital served an average of 428 inpatients, including 210 patients in the civil program and 219 in the forensic program. The forensic program additionally serves approximately 100 outpatients who have been adjudicated “not guilty by reason of insanity” and currently are on court ordered conditional release. This report focuses on the inpatient population.

As shown in **Figure 1** below, the Hospital’s overall census decreased marginally by the end of FY 2007 then slightly increased in the beginning of FY 2008. The total number of inpatients reached the highest level at 447 in June 2007, dropped in August and September, and gradually increased again during the first quarter of FY 2008. As of January 31, 2008, the Hospital was serving a total of 419 inpatients: 224 inpatients in the civil program and 195 inpatients in the forensic program. The forensic census does not include patients on court ordered conditional release or insanity acquittees on Unauthorized Leave.

**Figure 1. Number of Patients Served by SEH on a Given Day (Jan 2007 ~ Jan 2008)**

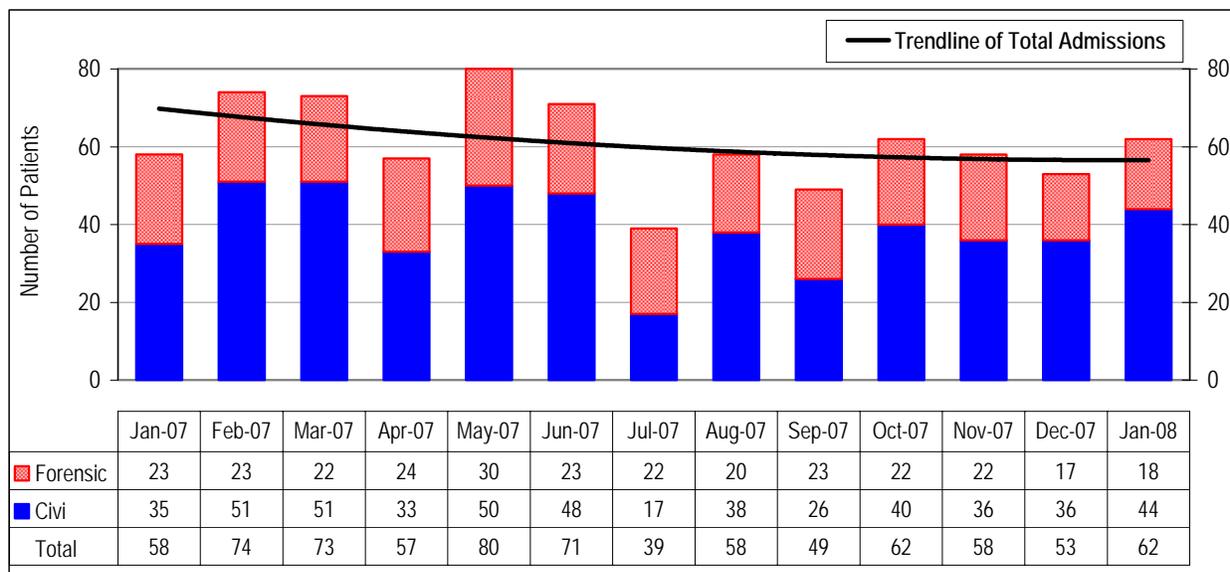


*Note: The nursing offices maintain the Hospital’s daily census reports, from which the average number of inpatients served on a given day has been generated to represent each month. However, forensic data for the months of October 2007 through January 2008 and civil data for December above reflects a point-in-time number reported on the last day of each month.*

## 2. Admissions & Transfers

The overall decline of inpatient population in FY 2007 is mostly a result of a decrease in new admissions during the last fiscal year. **Figure 2** illustrates this declining trend despite monthly variation where the number of admissions ranged from a high of 80 to a low of 39. Admissions to the forensic program have been relatively stable, ranging from 20 to 30 per month. On the other hand, the civil program shows frequent fluctuations from month to month. A spike in civil admissions occurred in February, March, and May 2007 when the number of admissions during each respective month was 50 or greater. In July, the number dropped to a low of 17. This decline is partly a result of the DMH Authority diverting some acute admissions to the Psychiatric Institute of Washington (PIW) and the Greater Southeast Community Hospital starting in June 2007. However, the number of civil admissions to SEH rose again to 40 in October and 36 in November and December 2007, respectively. The number has jumped to 44 in January 2008. The number of new admissions to civil program in January 2008 is higher than that recorded for January 2007. These recent admission trends are contributing to the aforementioned increase in the overall patient census to date for FY 2008.

**Figure 2. Admissions (Jan 2007 ~ Jan 2008)**



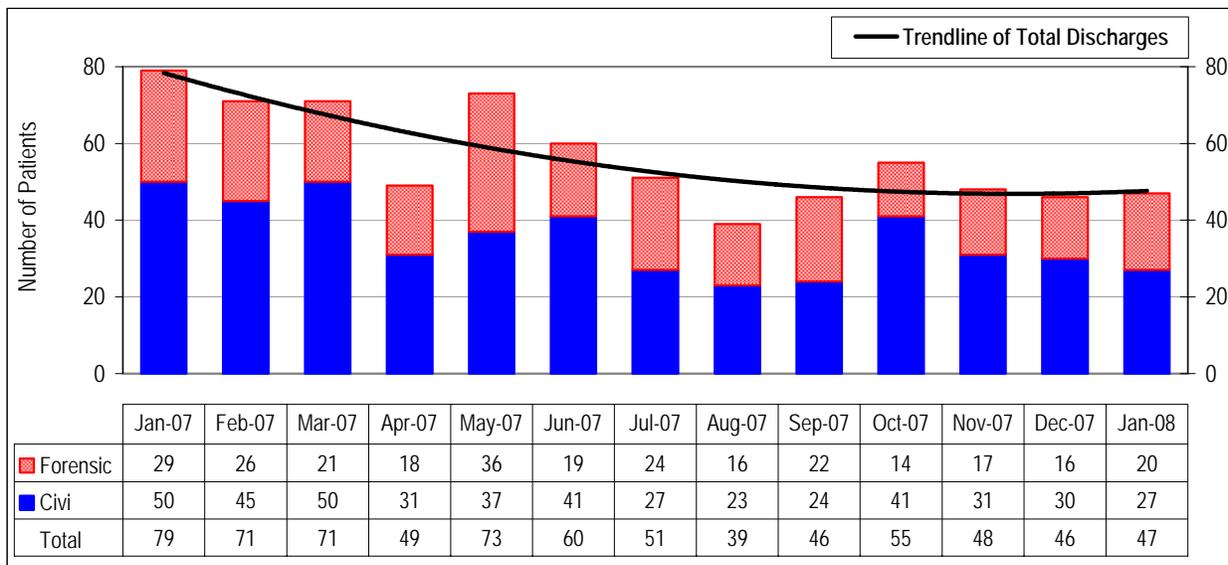
Source: Daily Census Report, Nursing Office

Some patients who initially enter the forensic program may be subsequently transferred to the civil program. This occurs when inpatients are civilly committed following a determination by the court that they cannot be restored to competency in the foreseeable future. During FY 2007, a total of 20 patients were transferred from the forensic program to the civil program. During the past four months of FY 2008, six forensic patients were transferred to the civil program. Those patients have become and are counted as civil patients from the month following the transfer and they are not included in the new admission data. Additionally, in January 2008 there were two civil patients who were transferred to JHP as their behaviors significantly jeopardized the safety of patients and staff in the civil program, requiring the structure of a maximum security setting.

### 3. Discharges

Total discharges each month increased between August and October 2007 but began to decline in October 2007. This trend continued through January 2008, particularly in the civil program. As seen in **Figure 3** below, over the past 13 months, the Hospital discharged between 39 and 79 patients each month. The high number of discharges in the early part of 2007 reflects a concerted effort by the Hospital and the DMH to implement discharge plans for long term patients. However, in only three out of the past 13 months did monthly discharges on the civil side exceed admissions, and there continues to be a significant number of patients who are “ready for discharge” but for whom discharge is not effected.

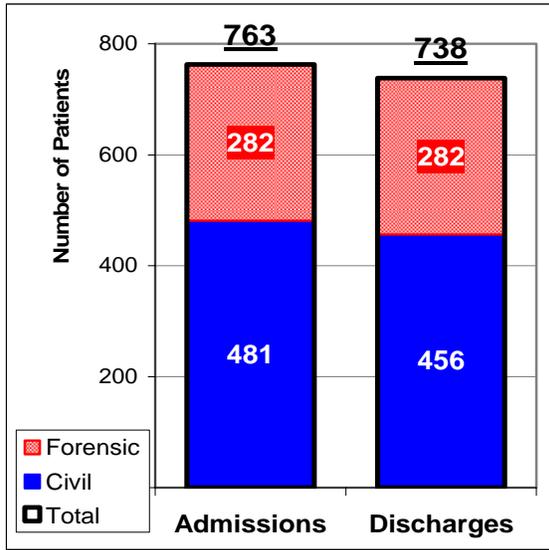
**Figure 3. Discharges (Jan 2007 ~ Jan 2008)**



Source: Daily Census Report, Nursing Office

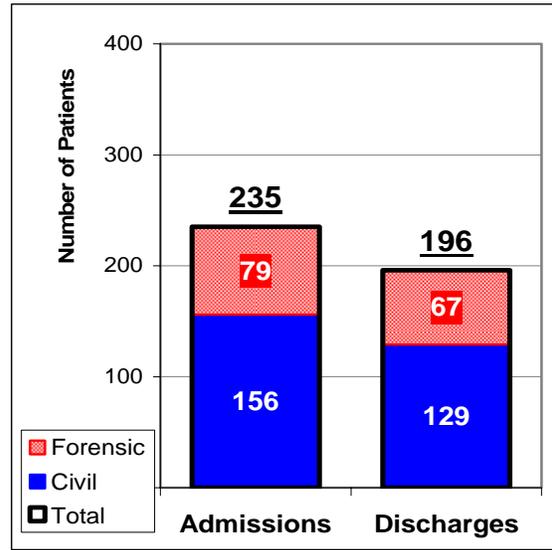
Total admissions during FY 2007 and to date in FY 2008 exceed the total discharges during the same time period, contributing to a recent increase of the inpatient population. According to **Figure 4** and **Figure 5** below, in FY2007, the Hospital discharged 738 patients while receiving 763 admissions, resulting in a net increase of 25 patients. The difference between admissions and discharges is even larger over the first four months of FY2008, where there were 27 more civil admissions than discharges. Admissions to the forensic program also exceeded discharges by 12. In total, the Hospital appears to have a net increase of 39 patients. However, it is important to note that this increase does not reflect additional changes that may affect the true number of inpatients who are presently being served on ward. Currently, the Hospital lacks a systemic mechanism and protocols to track the number of patients who may have been temporarily transferred to a medical facility, who are on unauthorized leave, who may have been released to a Convalescent Leave (CL) status – physically discharged from ward to a court ordered conditional release – or who may have returned to the Hospital from CL or another facility. It is crucial to monitor the number of patients in these categories in order to accurately assess the trends in the actual number of patients that the Hospital is serving.

**Figure 4. Admissions vs. Discharges (FY07: 10/1/06~9/30/07)**



Data Source: Daily Census Report, Nursing Office

**Figure 5. Admissions vs. Discharges (FY08 To Date: 10/1/07~1/31/08)**



### III. Demographic Characteristics of Patient Population

The Office of Monitoring Systems generates on a monthly basis the list of patients from STAR, the Hospital's current information management system. Although STAR is often not up to date, it is the only automated database that can electronically produce the entire list of patients with their unit and demographic information. The OMS analyzes the STAR data and updates findings every month in this chapter. However, for the month of January 2008, we used data from the Patient Diagnosis Database that was constructed through a special data collection project. The DOJ requested that the Hospital provide clinical data for the patients in preparation for the site visit that was scheduled for February 2008. In collaboration with the DOJ Compliance Officer, the OMS coordinated data collection and created a database that includes diagnoses and medication information of the inpatient population who were being served by the Hospital as of January 25, 2008. This database allowed us to be able to conduct various analyses and we present findings on demographic analysis in this chapter and findings on the clinical profile in the Chapter IV on page 13.

#### 1. Patients by Program and Unit

As of January 25, 2008, the Hospital was serving 426 inpatients: 218 on the civil side; 208 on the forensic side (**Table 1**). On average, each unit serves about 21 patients and the unit populations range from 16 to 32. Of the 218 patients in the civil program, 115 or 53% were being served in long-term care units, 68 or 31% in geriatric care units, and the remaining 35 or 16% in acute care settings. Of the 208 inpatients in the forensic program, 78 or 38% were in pre-trial status.

**Table 1. Number of Patients Served by Program Area and Unit (as of 1/25/08)**

Civil Program				Forensic Program			
Unit	Female	Male	Total	Unit	Female	Male	Total
CT2-A/B Long-term	20	12	32	JHP-2 Post-trial		21	21
CT2-C/D Geriatric	10	13	23	JHP-3 Post-trial		21	21
RMB-1 Geriatric	10	12	22	JHP-4 Post-trial		17	17
RMB-2 Geriatric	8	15	23	JHP-6 Pre & post trial	21		21 (=19+2)
RMB-3 Long-term	6	14	20	JHP-7 Pre-Trial		24	24
RMB-4 Long-term	8	12	20	JHP-8 Pre & post trial		20	20 (=10+10)
RMB-5 Acute	6	10	16	JHP-9 Pre-Trial		25	25
RMB-6 Acute	11	8	19	JHP-10 Post-trial		19	19
RMB-7 Long-term	6	15	21	JHP-11 Post-trial		20	20
RMB-8 Long-term	9	13	22	JHP-12 Post-trial		20	20
<b>Civil Total – Number</b>	<b>94</b>	<b>124</b>	<b>218</b>	<b>Forensic Total – Number</b>	<b>21</b>	<b>187</b>	<b>208</b>
<b>Percent</b>	<b>43%</b>	<b>57%</b>	<b>100%</b>	<b>Percent</b>	<b>10%</b>	<b>90%</b>	<b>100%</b>
				<b>Grand Total – Number</b>	<b>115</b>	<b>311</b>	<b>426</b>
				<b>Percent</b>	<b>27%</b>	<b>73%</b>	<b>100%</b>

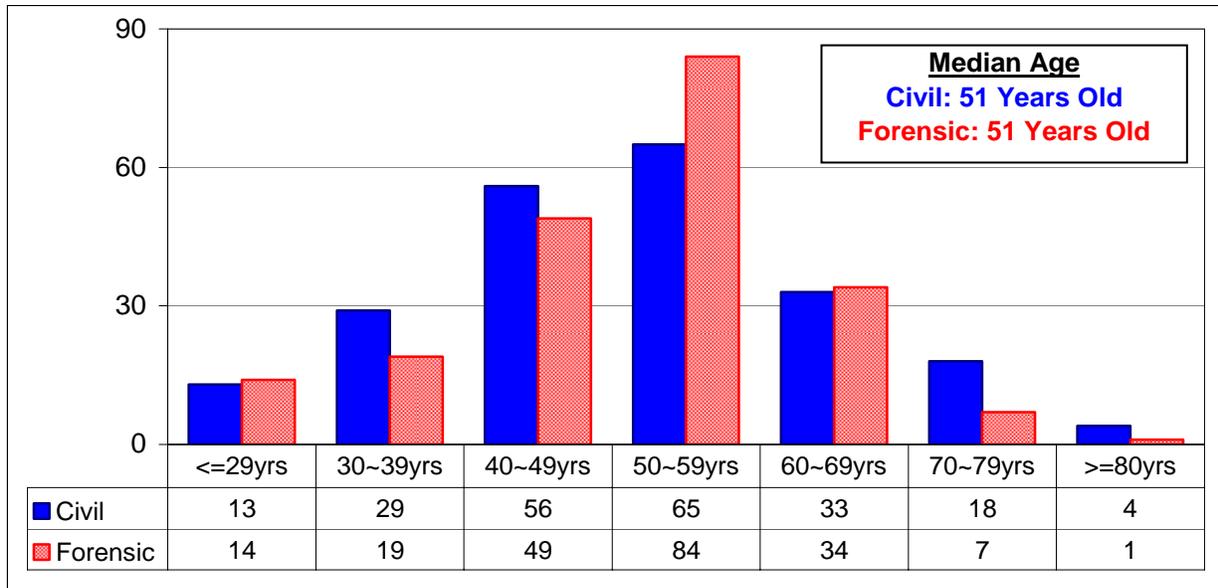
Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

Note: Data above includes patients who may be in authorized leave but excludes those who are in unauthorized leave at the time of data collection.

## 2. Demographic Characteristics

The age distribution of the Hospital’s patients reflects a bell curve and the majority of patient age falls within the 50-59 year range. A significant proportion of patients are 60 years of age or older: one out of four patients in the civil program (25%) and one out of five patients in the forensic program (20%). The median age as well as the average age is 51 years for both civil patients and forensic patients.

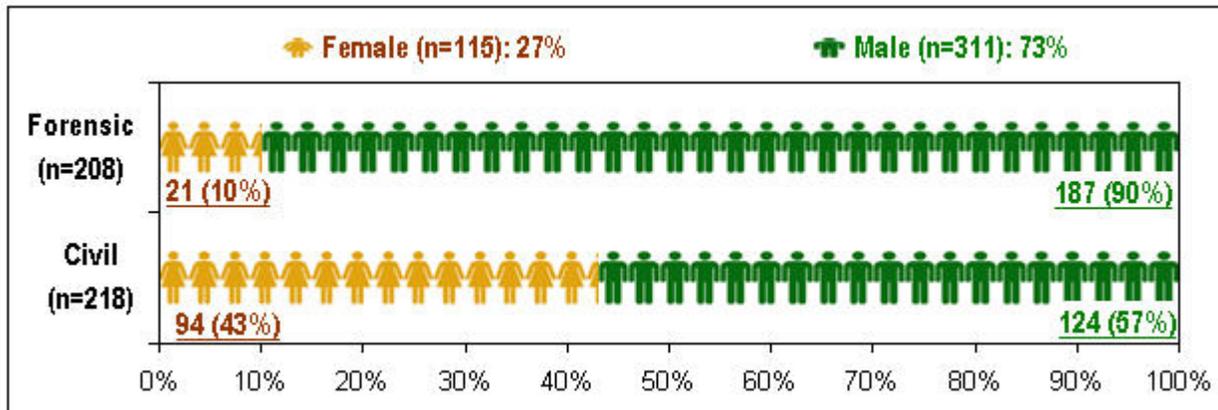
**Figure 6. Age Distribution (as of 1/25/08)**



Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

The majority of the Hospital’s patients are male: 73% of the patients served by the Hospital are male and 27% are female. However, as illustrated in **Figure 7** below, there is a significant difference in gender distribution between the civil program and the forensic program: only 10% of the forensic patients are female whereas 43% of the civil patients are female.

**Figure 7. Gender Distribution (as of 1/25/08)**

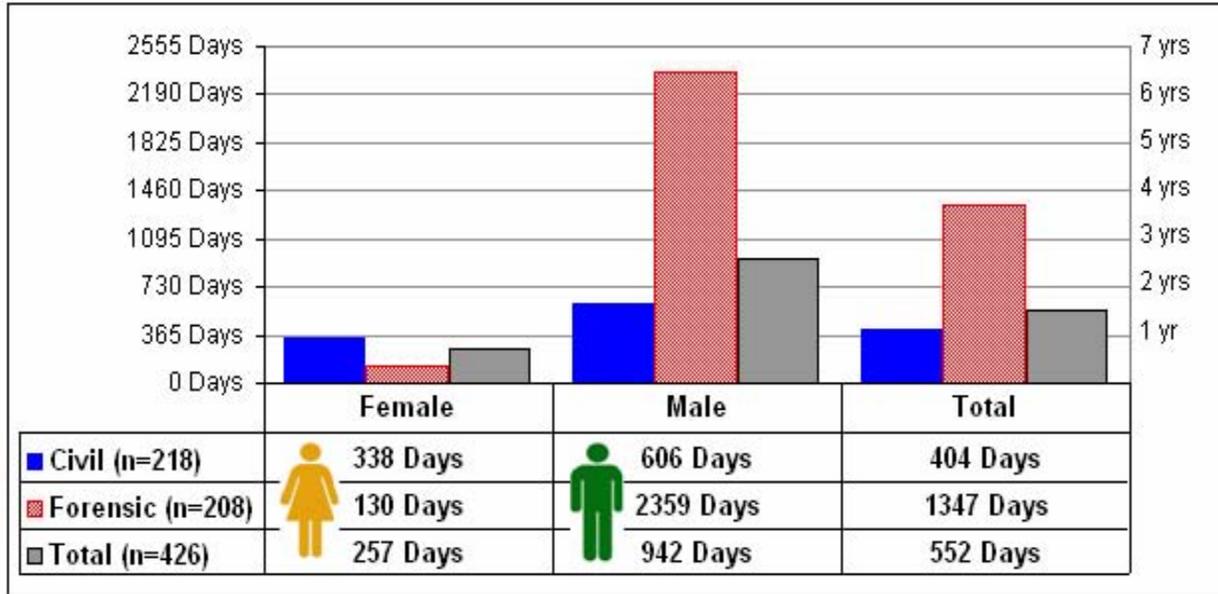


Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

### 3. Length of Stay

Not surprisingly, the length of stay (LOS) for forensic patients is much longer than that of civil patients. The median<sup>2</sup> length of stay is 404 days (13 months) for civil patients and 1347 days (45 months) for forensic patients (**Figure 8**). Also, male patients are more likely to stay in the Hospital for a longer period than female patients. The median LOS for female patients is 257 days (8 months) whereas that for male patients is 942 days (31 months).

**Figure 8. Median Length of Stay by Program and Gender (as of 1/25/08)**



Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

**Table 2** below further provides median, average (mean), and maximum length of stay breakdown by unit. Patients served in RMB-5, one of the admission units, have the shortest median length of stay in the civil program, at about 24 days. More than half the patients served in RMB-2, one of the geriatric units, have been in the Hospital for longer than 1468 days (48 months or four years). The length of stay for the patients in JHP-6, JHP-7 & JHP-9, which serve primarily as pre-trial units, is much shorter than the rest of units that serve as post-trial unit. The median LOS for the 78 pre-trial patients is 116 days (3 months), whereas the median LOS for the post-trial patients is 3329 days (109 months or 9 years). The average LOS for pre-trial patients is 135 days (4 months) and that for post-trial patients is 3715 days (122 months or 10 years).

<sup>2</sup> The median is the middle value of the set when they are ordered by rank, separating the higher half of a sample from the lower half, whereas the average is the arithmetic mean that is computed by dividing the sum of a set of terms by the number of terms. The average is not appropriate for describing skewed distributions as it is greatly influenced by outliers. For example, a few cases with extremely high LOS can skew the average LOS higher. The median is often used as a better measure of central tendency as it is influenced less than the average by outlier observations.

Table 2. Length of Stay (Months) by Program and Unit (as of 1/25/08)

<b>Civil Program</b>				<b>Forensic Program</b>			
<b>Unit</b>	<b>Median</b>	<b>Average</b>	<b>Maximum</b>	<b>Unit</b>	<b>Median</b>	<b>Average</b>	<b>Maximum</b>
<b>CT2-A/B</b> Long-term	18	38	170	<b>JHP-2</b> Post-trial	39	57	199
<b>CT2-C/D</b> Geriatric	26	38	220	<b>JHP-3</b> Post-trial	149	144	235
<b>RMB-1</b> Geriatric	39	61	180	<b>JHP-4</b> Post-trial	156	161	285
<b>RMB-2</b> Geriatric	48	90	339	<b>JHP-6</b> Pre & post trial	4	10	102
<b>RMB-3</b> Long-term	13	27	112	<b>JHP-7</b> Pre-Trial	4	3	6
<b>RMB-4</b> Long-term	8	46	230	<b>JHP-8</b> Pre & post trial	38	73	259
<b>RMB-5</b> Acute	2	2	5	<b>JHP-9</b> Pre-Trial	3	4	14
<b>RMB-6</b> Acute	3	6	28	<b>JHP-10</b> Post-trial	110	119	289
<b>RMB-7</b> Long-term	16	38	113	<b>JHP-11</b> Post-trial	148	137	261
<b>RMB-8</b> Long-term	20	34	170	<b>JHP-12</b> Post-trial	105	122	311
<b>Civil (n=218)</b>	<b>13</b>	<b>40</b>	<b>339</b>	<b>Forensic (n=208)</b>	<b>44</b>	<b>78</b>	<b>311</b>
				<b>Grand Total (n=426)</b>	<b>18</b>	<b>58</b>	<b>339</b>

Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

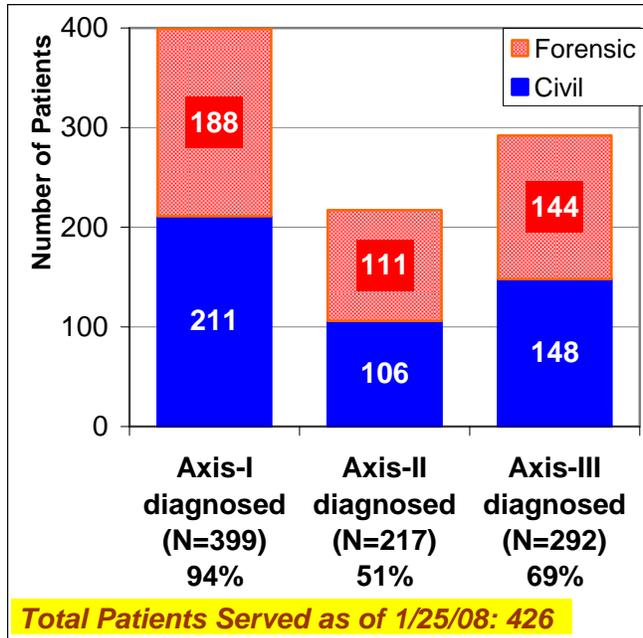
## IV. Clinical Profile of Patient Population

As aforementioned, the Hospital conducted clinical data collection in January 2008. The OMS generated the initial list of patients, set up data entry worksheets for each unit, and provided technical assistance to the psychiatrists and the General Medical Officers (GMO), who updated diagnoses<sup>3</sup> and medications for the patients in their respective unit. Using the compiled data of the 1/25/08 Patient Diagnosis Database, we conducted further analysis on the diagnoses by each unit as well as by program (civil vs. forensic). This chapter introduces findings at the program level. Please refer to the “Patient Diagnosis Analysis Summary” published by OMS as of March 17, 2008 for the unit level data.

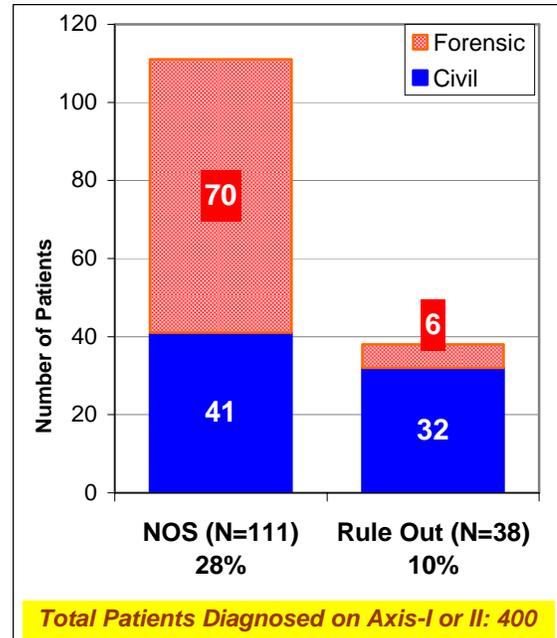
### 1. Patients with Axis-I and Axis-II Diagnosis Identified

Of the total of 426 inpatients served as of January 25, 2008, 94% or 399 patients had at least one psychiatric diagnosis in Axis I identified by their attending psychiatrists. (See **Figure 9**.) The remaining 27 patients may include those patients whose psychiatrists could not complete providing diagnosis information on time as well as those who had no Axis 1 diagnosis identified. Of those 399 patients, 244 or 61% had more than one diagnosis in Axis I.

**Figure 9. Patients Diagnosed with Psychiatric Diagnosis & Medical Condition (1/25/08)**



**Figure 10. Patients with a NOS or Rule-Out Diagnosis (1/25/08)**



Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

The number of patients with one or more diagnoses identified in Axis II is 217, which account for 51% of the total patient population. The 217 do not include those who were indicated to have

<sup>3</sup> The data entry worksheets provided a drop-down list of DSM-VI codes for Axis I and Axis II.

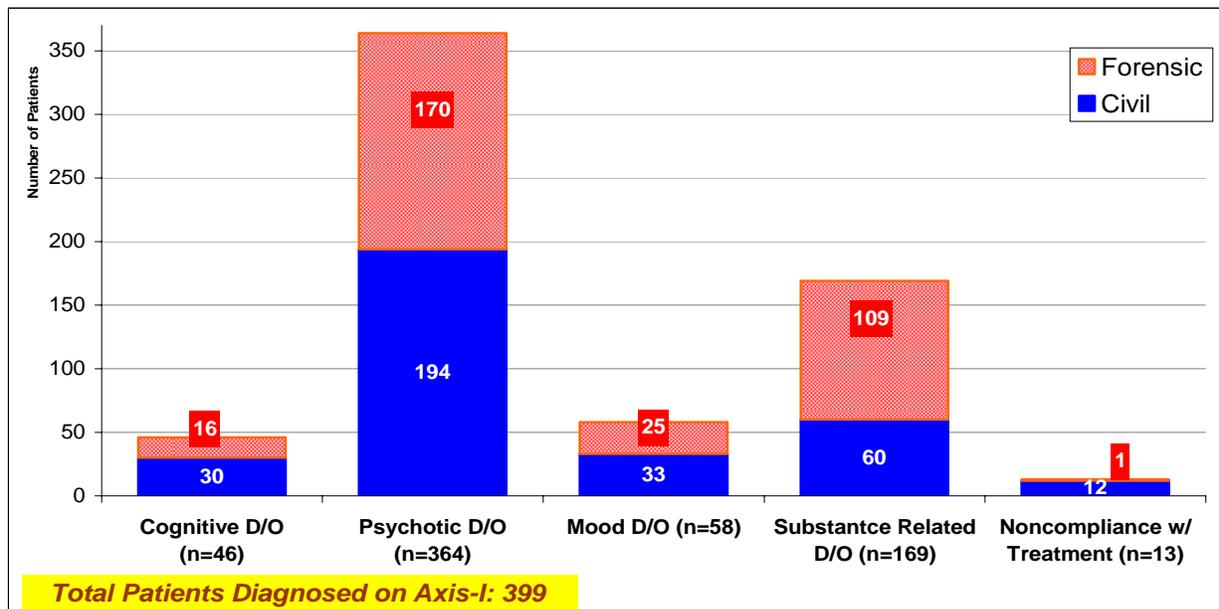
'No Diagnosis on Axis II (DSM-VI Code V71.09)' but include 70 patients whose 'Diagnosis Deferred on Axis II (DSM-VI Code 799.9)'<sup>4</sup>. Refer to **Figure 12** on page 15.

**Figure 10** exhibits the number of patients who were diagnosed as "not otherwise specified (NOS)"<sup>5</sup> on at least one of their diagnoses in Axis I or Axis II. Of the 400 patients who had at least one diagnosis on Axis I and/or Axis II, 111 or 28% had a NOS diagnosis. The most frequent NOS diagnoses include '298.9 Psychotic Disorder NOS' (39 patients), '294.8 Dementia NOS' (14 patients) and '294.9 Cognitive Disorder NOS' (14 patients). NOS diagnoses are more prevalent among civil patients. The Patient Diagnosis DB also reveals that 38 patients had a "rule-out" diagnosis on Axis I or Axis II.

## 2. Clinical Disorders (Axis I)

Of the 399 patients with one or more diagnosis on Axis I, 91% (364) had a psychotic disorder that includes schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder and all other psychotic disorders. Among those, the most common diagnoses were Schizophrenia (207 patients) and Schizoaffective (120 patients). A total of 46 patients were diagnosed as Delirium, Dementia, Amnesic Disorders, or Cognitive Disorder NOS. A total of 58 patients were diagnosed as having a mood disorder, which includes Depressive Disorders and Bipolar Disorders.

**Figure 11. Patients by Axis-I Psychiatric Disorder\* (1/25/08)**



\* Axis-I diagnoses were grouped as guided by the DSM-IV-TR Classification of the American Psychiatric Association.

<sup>4</sup> "When there is insufficient information to make any diagnostic judgment about an Axis II diagnosis, this should be noted as Diagnosis Deferred on Axis II". *DSM-IV-TR, American Psychiatric Association.*

<sup>5</sup> "Enough information available to indicate the class of disorder that is present, but further specification is not possible, either because there is not sufficient information to make a more specific diagnosis or because the clinical feature of the disorder do not meet the criteria for any of the specific categories in that class." *DSM-IV-TR, American Psychiatric Association.*

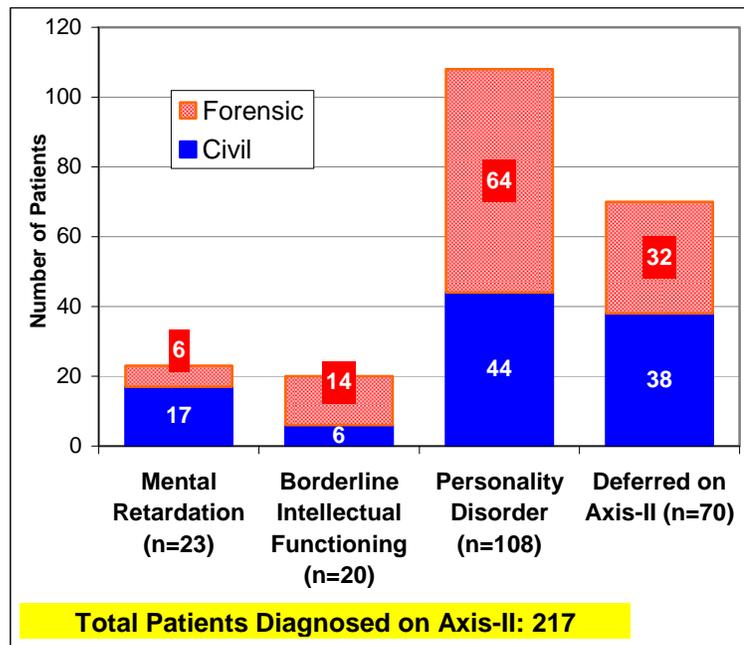
A total of 169 patients, 42% of the 399 patients with Axis-I diagnosis, were diagnosed as having a substance related disorder. Diagnoses of substance related disorders are more prevalent among forensic patients than civil patients. Nearly three out of five patients (58%) in the forensic program have a substance related disorder diagnosed whereas 28% of the civil patients have a substance related disorder diagnosed.

Additionally there were 13 patients who were identified as ‘Noncompliance with Treatment (DSM-IV code V15.81)’<sup>6</sup> and of those, 12 patients were being served in the civil program and the other patient was in the forensic program.

### 3. Personality Disorders and Mental Retardation (Axis II)

There were 147 patients who had at least one Axis II diagnosis identified and 70 patients whose Axis II diagnosis was deferred. Of the 147 patients with at least one identified diagnosis in Axis II, 108 patients were diagnosed with personality disorders. (See **Figure 12.**) The most frequent types of personality disorders include ‘301.7 Antisocial Personality Disorder’ (28 patients), ‘301.9 Personality Disorder NOS’ (27 patients), and ‘301.83 Borderline Personality Disorder’ (17 patients). It should be noted that the number of patients diagnosed with a personality disorder is notably higher in some units as compared to others.

**Figure 12. Patients with Diagnosis in Axis II (1/25/08)**



Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

Additionally, a total of 23 patients were diagnosed with Mental Retardation (DSM-VI Code 317~319) and 20 patients were diagnosed with ‘V62.89 Borderline Intellectual Functioning’<sup>7</sup>.

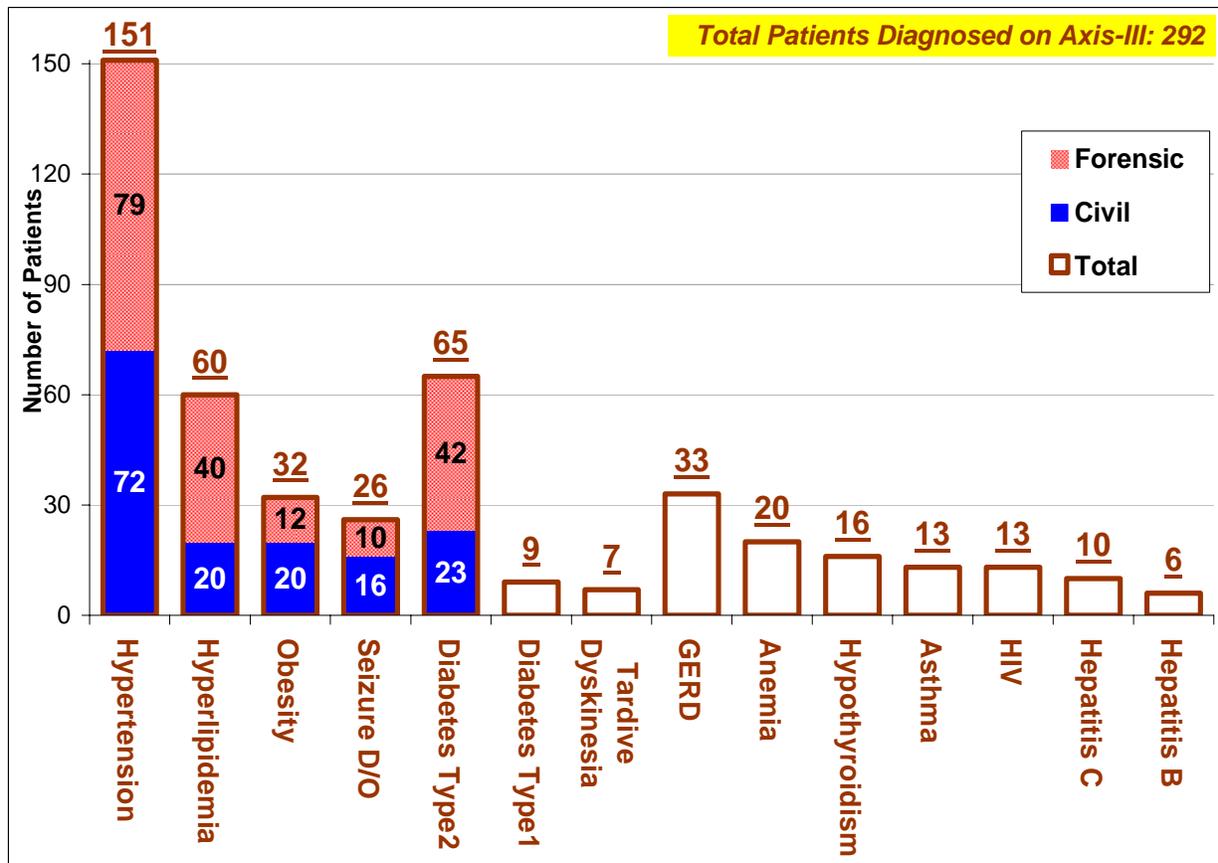
<sup>6</sup> “This category can be used when the focus of clinical attention is noncompliance with an important aspect of the treatment for a mental disorder or a general medical condition. The reasons for noncompliance may include discomfort resulting from treatment, expense of treatment, decisions based on personal value judgments or religious or cultural beliefs about the advantages and disadvantages of the proposed treatment, maladaptive personality traits or coping styles, or the presence of a mental disorder. This category should be used only when the problem is sufficiently severe to warrant independent clinical attention.” *DSM-IV-TR, American Psychiatric Association.*

<sup>7</sup> “This category can be used when the focus of clinical attention is associated with borderline intellectual functioning, that is, an IQ in the 71–84 range. Differential diagnosis between Borderline Intellectual

### 4. Medical Conditions (Axis III)

According to the 1/25/08 Patient Diagnosis DB, a total of 292 patients, comprising almost 70% of the total inpatient population, had at least one identified medical or physical condition requiring monitoring and/or treatment. The most prevalent medical condition among those patients was 'Hypertension'. A total of 151 patients, which is more than one third of the total inpatient population of the Hospital, were suffering from 'Hypertension'. (See **Figure 13.**) There were 65 patients identified as having 'Type II Diabetes' while 9 patients had 'Type I Diabetes' or its type unidentified. The number of patients diagnosed with 'Hyperlipidemia' was 60. Thirty-two (32) patients were diagnosed with 'Obesity' and 26 patients were diagnosed as having 'Seizure Disorder'. There were 33 patients suffering from 'Gastroesophageal Reflux Disease (GERD)'.

**Figure 13. Patients in Major Medical Conditions (1/25/08)**



Source: Analysis of 1/25/08 Patient Diagnosis DB, OMS

Functioning and Mental Retardation (an IQ of 70 or below) is especially difficult when the coexistence of certain mental disorders (e.g., Schizophrenia) is involved.” *DSM-IV-TR, American Psychiatric Association.*

The number of patients carrying a diagnosis of Tardive Dyskinesia (TD)<sup>8</sup> was only seven. TD is known to be often common among patients taking anti-psychotic medications and the elderly are more susceptible to it. Considering these factors and the demographic profile of the current patient population, it is possible that TD may be under-diagnosed among Hospital patients. The 1/25/08 Patient Diagnosis DB also shows that the Hospital had 13 HIV patients, 10 patients with Hepatitis C<sup>9</sup>, and 6 patients with Hepatitis B<sup>10</sup>.

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<sup>8</sup> "Tardive dyskinesia is a neurological disorder caused by the long-term use of neuroleptic drugs, or anti-psychotic medications. Neuroleptic drugs are generally prescribed for psychiatric disorders, as well as for some gastrointestinal and neurological disorders. The prevalence of tardive dyskinesia is estimated to be 10 to 20 percent of individuals treated with anti-psychotic medications. The elderly are more susceptible to persistent and irreversible TD than younger people." *National Mental Health Association*.

<sup>9</sup> Hepatitis C is a blood-borne infectious disease that is caused by Hepatitis C virus (HCV) infecting the liver. The infection causes liver inflammation (hepatitis) that may turn to chronic hepatitis can result later in cirrhosis (fibrotic scarring of the liver) and liver cancer. The hepatitis C virus (HCV) spreads by blood-to-blood contact with an infected person's blood. As no vaccine against hepatitis C is available, the symptoms of infection can be medically managed, and a proportion of patients can be cleared of the virus by a long course of anti-viral medicines.

<sup>10</sup> Hepatitis B is a serious disease caused by a virus that attacks the liver. The virus, which is called hepatitis B virus (HBV), can cause lifelong infection, cirrhosis (scarring) of the liver, liver cancer, liver failure, and death. *Centers for Disease Control and Prevention (CDC)*.

## V. Infection Control

Infection data critically reflects both the risk and quality factors of the patient care setting in a public health care facility. The OMS compiled and analyzed available infection data at the Hospital, with support from the Infection Control Coordinator of the Office of the Medical Affairs. However, the scope of the available data is limited to laboratory test results for the following types of infection: MRSA (Methicillin-Resistant Staphylococcus Aureus), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV), and HIV (Human Immunodeficiency Virus). Although the data discussed herein cannot provide an all-encompassing picture of infection control and management practices at the Hospital, we believe it still provides meaningful information and insights about the current practice of infection diagnosis.

Prior to presenting these findings, it should be noted that there are some concerns regarding the integrity and validity of the data. Currently, patients' infection test results are transmitted primarily through facsimiles from the Hospital's Blackburn Laboratory to the Infection Control Coordinator. However, we find that the form in its current iteration is not an effective data collection and tracking tool: some information in the form is ambiguous, and the responsibility of transmission and receipt of the information is not clear. OMS will work closely with the Infection Control Coordinator and the Blackburn Laboratory to enhance the current infection data collection and monitoring process. In the meantime, it must be noted that we have been unable to completely validate the accuracy of data presented in this section. The Hospital should continue to improve data tracking mechanisms in order to ensure the validity, reliability and integrity of data in the future. Additionally, although every effort has been taken to substitute technical language with layman's terms, in cases where this was not possible, we have included definitions and explanations of those terms.

### 1. MRSA

Methicillin-resistant Staphylococcus aureus (MRSA) is a bacterium causing "*staph*" infections that are resistant to treatment with usual antibiotics. It is known that MRSA occurs most frequently among patients who undergo invasive medical procedures or who have weakened immune systems and are being treated in hospitals and healthcare facilities<sup>11</sup>. It can be carried on the skin or in the nose of healthy people, and may never cause an infection or make them sick. It can cause minor skin infections that go away without any special medical treatment. MRSA can cause skin infections that look just like infections caused by other staph.

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<sup>11</sup> MRSA in healthcare settings commonly causes serious and potentially life threatening infections, such as bloodstream infections, surgical site infections, or pneumonia. The main mode of transmission to other patients is through human hands, especially healthcare workers' hands. Hands may become contaminated with MRSA bacteria by contact with infected or colonized patients. If appropriate hand hygiene such as washing with soap and water or using an alcohol-based hand sanitizer is not performed, the bacteria can be spread when the healthcare worker touches other patients. *Centers for Disease Control and Prevention (CDC)*

During the last 13 months beginning January 2007 through January 2008, a total of 52 patients who were likely to be at risk of being a MRSA carrier were tested for MRSA infections. Of those, 19 patients (37%) had a MRSA skin infection detected.

## 2. Hepatitis B Virus (HBV)

Identifying Hepatitis B Virus (HBV) carriers<sup>12</sup> in a hospital setting is crucial for patient care. During year 2007, a total of 187 tests for HBV were conducted: 54 for civil patients and 133 for forensic patients. The 187 includes 7 repeated tests (see **Table 3**). Of the total 187 HBV tests, five (5) results were positive for *Hepatitis B surface antigen (HBsAg)*. Individuals who remain *HBsAg* positive for at least six months are considered to be HBV carriers. A total of 146 tests were positive for *hepatitis B surface antibody (anti-HBs)*, which indicates previous exposure to HBV, but the virus no longer present and the person cannot pass on the virus to others. A total of 129 patients were positive for *Anti-hepatitis B core antigen (anti-HBc)* but they are considered at low risk to develop the adverse sequel of chronic hepatitis B. For more explanation regarding each test result, refer to the note section of **Table 3**.

**Table 3. HBV Test Results (Jan 2007 ~ Dec 2007)**

Program	Jan-07	Feb-07	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Total
<b>Civil</b>	4	2	7	8	5	4	8	1	5	4	4	2	54
<b>Forensic</b>	5	11	9	22	17	7	12	11	18	13	1	7	133
<b>Total Tested</b>	<b>9</b>	<b>13</b>	<b>16</b>	<b>30</b>	<b>22</b>	<b>11</b>	<b>20</b>	<b>12</b>	<b>23</b>	<b>17</b>	<b>5</b>	<b>9</b>	<b>187</b>
<i>Repeat Incidents</i>				1			1	1	1	1		2	7
<b>Surface Antigen<sup>1)</sup></b>	<b>1</b>			<b>2</b>					<b>1</b>		<b>1</b>		<b>5</b>
<b>Surface Antibody<sup>2)</sup></b>	<b>7</b>	<b>10</b>	<b>13</b>	<b>14</b>	<b>20</b>	<b>9</b>	<b>17</b>	<b>9</b>	<b>21</b>	<b>13</b>	<b>4</b>	<b>9</b>	<b>146</b>
<b>Core Antibody<sup>3)</sup></b>	<b>8</b>	<b>9</b>	<b>12</b>	<b>27</b>	<b>12</b>	<b>7</b>	<b>11</b>	<b>9</b>	<b>18</b>	<b>11</b>		<b>5</b>	<b>129</b>

**Notes: What does the test result mean?** (American Association for Clinical Chemistry)

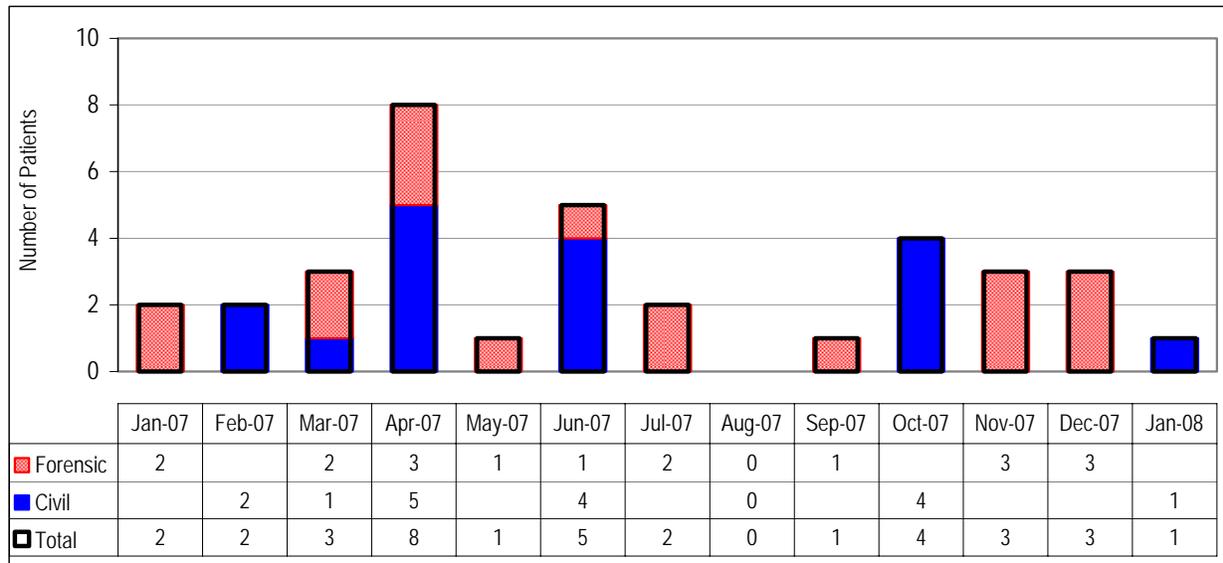
- 1) *Hepatitis B surface antigen (HBsAg): A negative result indicates that a person has never been exposed to the virus or has recovered from acute hepatitis and has rid themselves of the virus (or has, at most, an occult infection). A positive (or reactive) result indicates an active infection but does not indicate whether the virus can be passed to others.*
- 2) *Hepatitis B surface antibody (anti-HBs): a positive result indicates immunity to hepatitis B from the vaccination or recovery from an infection.*
- 3) *Anti-hepatitis B core antigen (anti-HBc): If it is present with a positive anti-HBs, it usually indicates recovery from an infection and the person is not a carrier or chronically infected. In acute infection, the first type of antibody to HBc to appear is an IgM antibody. Testing for this type of antibody can prove whether a person has recently been infected by HBV (where anti-HBc, IgM would be positive) or for some time (where anti-HBc, IgM would be negative).*

<sup>12</sup> Hepatitis B virus infects the liver. The virus is in blood, semen, menstrual blood, and other body fluids. Five to 10% of adults and about 90% of babies who get hepatitis B will go on to "carry" or keep the virus for the rest of their lives. These people are called "hepatitis B carriers." They may not be sick, but they can pass the virus on to others and make others sick with hepatitis B. – *Maryland Department of Health & Mental Hygiene.*

### 3. Hepatitis C Virus (HCV)

There are several blood tests that can be used to detect Hepatitis C Virus (HCV)<sup>13</sup> infection. The Hospital Laboratory conducts EIA (Enzyme immunoassay) antibody test<sup>14</sup>. According to the test results, during 2007, there were a total of 34 patients (16 civil patients and 18 forensic patients) who tested positive for Hepatitis C.

**Figure 14. Patients with HCV Infection (Jan 2007 ~ Jan 2008)**



### 4. HIV/AIDS

Human immunodeficiency virus (HIV) is a retrovirus that can lead to acquired immunodeficiency syndrome (AIDS), a condition in humans in which the immune system begins to fail, leading to life-threatening opportunistic infections. The Infection Control Program reported that between January 2007 and January 2008, a total of 29 patients, about two to three patients per month, were newly identified to be positive for HIV. This finding does not necessarily reflect the actual number of current patients with HIV because some patients may have been released from the hospital and some patients may have tested positive prior to January 2007. The 1/25/08 Patient Diagnosis Database identified 13 inpatients who tested positively for HIV (see **Figure 13** on page 16).

<sup>13</sup> Hepatitis C infection is the most common cause of chronic liver disease in North America: about 2% of all adults in the United States have been exposed to the virus, and 75-85% of those are chronically infected. The CDC recommends HCV testing to those who have ever injected illegal drugs, who have evidence of chronic liver disease. Persons at risk for HCV infection might also be at risk for infection with hepatitis B virus (HBV) or HIV. – *American Association for Clinical Chemistry*

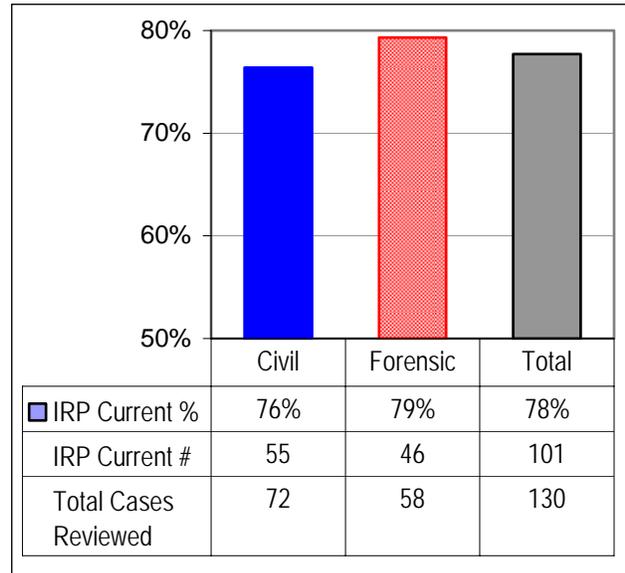
<sup>14</sup> Enzyme immunoassays (EIAs) detect the presence of antibodies in serum directed against HCV. These tests are commonly used for initial detection of hepatitis C. However, EIAs do not differentiate between acute, chronic or resolved infection. – *United States Department of Veterans Affairs*.

## VI. Treatment Planning

### 1. Timelines of Interdisciplinary Recovery Planning (IRP)

Currently, there is no systemic mechanism in place to monitor and measure the timeliness and currency of Interdisciplinary Recovery Planning (IRP) as the Hospital documents IRP forms only manually and in a hard copy format. The FY 2008 1<sup>st</sup> quarter self-assessment conducted in November 2007, however, provides us with an approximate estimate in regard to the currency of IRPs. According to the findings from the self-assessment review result, IRPs on at least one out of five patients (22%) are behind schedule. (See **Figure 15**.)

**Figure 15. IRP Currency by Program (11/14/07)**



Source: Nov-2007 Self-Assessment Preliminary Findings

Both the civil program and forensic program clinical administrators began monitoring IRP conference participation in December 2007 using a unified tracking form. According to the findings from data compiled, a total of 211 IRP conferences, including 116 from the civil side and 95 from the forensic side, were reported to be held during the month of January 2008 (see **Table 4**.) Of those 211, 57 or 27% were IRP Comprehensive conferences and 143 or 68% were IRP Review conferences. The type of conferences which occurred for the remaining 11 cases is not identifiable.

Civil		Forensic	
Unit	Number	Unit	Number
CT2-AB	7	JHP-2	9
CT2-CD	4	JHP-3	9
RMB-1	14	JHP-4	8
RMB-2	14	JHP-6	16
RMB-3	4	JHP-7	9
RMB-4	7	JHP-8	7
RMB-5	31	JHP-9	17
RMB-6	28	JHP-10	4
RMB-7	5	JHP-11	6
RMB-8	2	JHP-12	10
<b>Subtotal</b>	<b>116</b>	<b>Subtotal</b>	<b>95</b>

Source: IRP Participation Tracking DB, Jan-2008

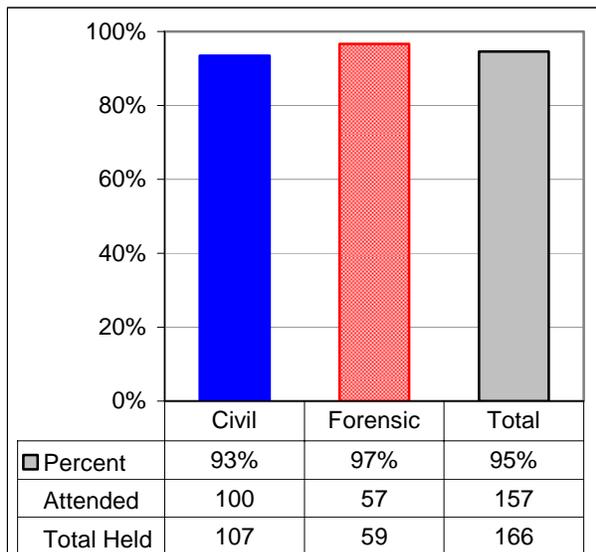
### 2. Patient Participation in IRP

The self-reported data for the months of December 2007 and January 2008 shows a consistently high level of patient participations in IRPs. According to **Figure 17**, patients participated in 192 or 91% of the total 211 IRPs held in January 2008: 88% for civil and 95% forensic. This is a slight decrease from the participation rate (95%) in December 2007 (see **Figure 16**).

It is notable that the patient participation data for these two months shows a sharp contrast to the findings of the clinical records review conducted in

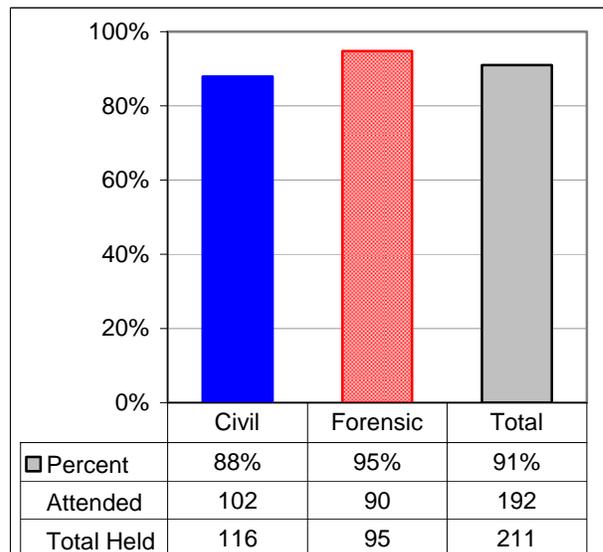
the November 2007 self-assessment (refer to the December 2007 Trend Analysis Report). The self-assessment findings illustrated that only 39% of the total IRP forms reviewed (18% for civil and 63% for forensic) included a patient’s signature, which is an indicator of patient participation. The discrepancy level is particularly marked for civil. Currently, the Office of Quality Improvement (OQI) conducts monthly audit by comparing the self-reported data with signatures on the IRP and the findings also shows a discrepancy between reported attendance and documentation of signatures. This may mean that many patients who attend IRP conferences are not signing the final IRP forms.

**Figure 16. Patients’ Participations in IRP Conferences (Dec 2007)**



Source: IRP Participation Tracking DB, Dec-2007

**Figure 17. Patients’ Participations in IRP Conferences (Jan 2008)**



Source: IRP Participation Tracking DB, Jan-2008

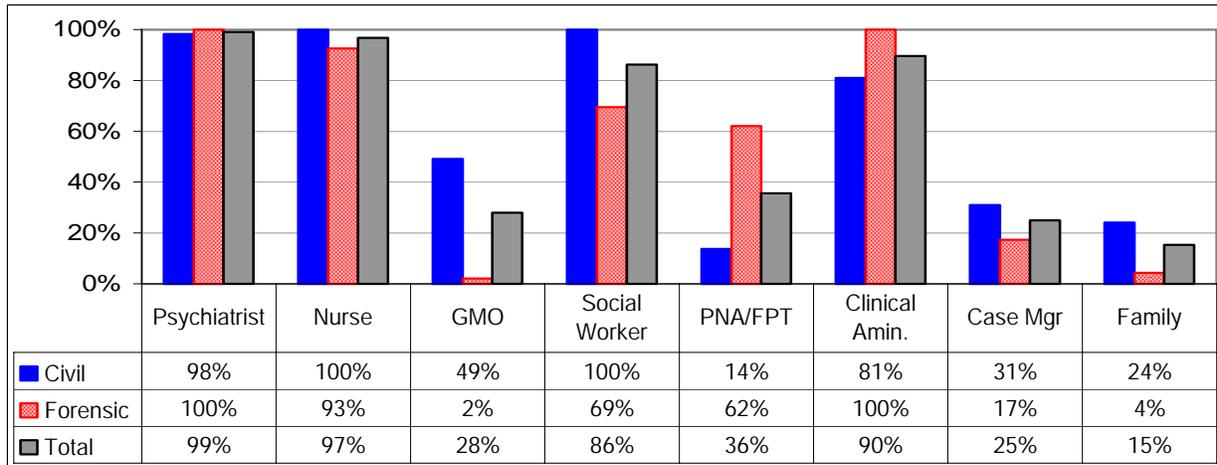
### 3. Staff & Family Participation in IRP by Discipline

**Figure 18** below compares staff participation in IRP conferences between civil services and forensic services by each core discipline, based on the self-reported data in the month of January 2008. According to the findings, psychiatrists, nurses and clinical administrators attended almost all IRP conferences in both civil and forensic services held during the month of January 2008. Social workers attended all of the 116 IRP conferences for civil patients as opposed to 69% of IRP conferences for forensic patients. Forensic Psychiatric Technicians (FPTs) attended a majority (62%) of the forensic conferences whereas PNAs attended only 14% of the civil IRPs. GMOs (General Medical Officer) attended 28% of the IRP conferences. GMOs on the civil side attended almost half of the IRPs at 49% where only 2% of forensic IRPs showed GMOs’ participation. Case managers attended almost one third of civil IRPs and family members participated in 24%<sup>15</sup> of IRPs on the civil side. The forensic cases had a significant difference with case managers at 17% and family members at 4% attending the IRPs. The participation rate of family members is particularly higher for patients in an acute care setting on

<sup>15</sup> This includes 8 cases where families participated in IRPs over the phone.

the civil side (i.e. 61% or 19 out of the 31 patients in RMB-5) and those in minimum/medium security units (JHP-2, JHP-3, and JHP-8) on the forensic side. There were only few cases where therapists (3%) or treatment mall team members (6%) participated in the IRP conferences. However, it is notable that the CT-2AB unit showed 100% participation of treatment mall team members of the all seven IRPs held during the month January 2008.

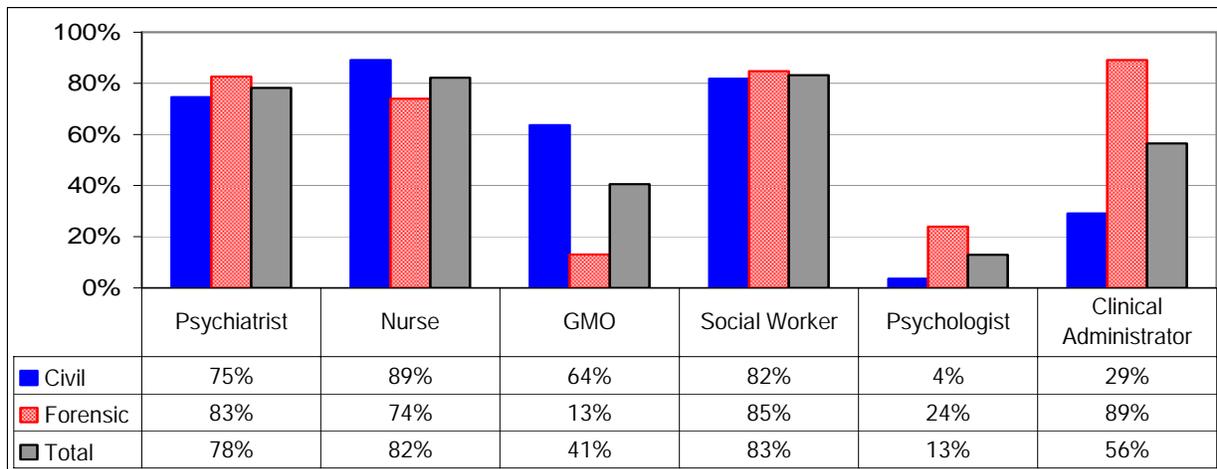
**Figure 18. Staff & Family Participations in IRP by Discipline (Jan 2008)**



Source: IRP Participation Tracking DB, Jan-2008

Like patient participation, staff participation rate in the self-reported data is overall much higher than indicated in the November Self-Assessment review findings. **Figure 19** below presents the percentage of IRP forms that included staff signatures by discipline. For instance, 78% of the cases reviewed had signatures from psychiatrists, 82% from nurses, 83% from social workers, and 56% from clinical administrators. However, on the contrary, GMOs, whose participation rate during January was reported to be 28%, had their signatures in 41% of the IRP forms. The OQI's monthly audit finds such a discrepancy in staff participation as well. We will introduce the results of the OQI's audit in the next trend analysis report.

**Figure 19. Staff Signatures in IRP Forms by Discipline (Nov-2007 Self-Assessment)**



Source: Nov-2007 Self-Assessment Preliminary Findings

## VII. Treatment Mall

### 1. Summary of Treatment Mall Programs

The Hospital provides various treatment programs to patients through on ward activities, a work adjustment training program (WATP) and a multi-disciplinary treatment mall program from 9:45 a.m. to 2:45 p.m. Monday through Friday, embracing an Enhanced Recovery Model. The treatment mall offers diverse group sessions during weekdays through eight programs, which include Psychosocial Rehabilitation; Dual Diagnosis; Cognitive Development; Behavior Management; the Geriatric Center; Skill Development; the Geri mall and; Restorative Care. Each program runs a variety of groups, including but not limited to mental health training, physical health training, medication skills, social skills, community living skills, dance, music, art and physical activities. Groups are led by nursing staff, rehabilitation services staff, psychiatry, psychology, social work and other disciplines such as dietary or dental staff. The breakdown of scheduled groups by discipline can be found in **Table 6** on page 26.

### 2. Monthly Trend of Group Cancellation

The treatment mall monitors group activity status of about 45~50 sessions each day in the following five program areas: Psychosocial Rehabilitation, Dual Diagnosis program, Cognitive Development program, Behavior Management program, and the Geriatric Center. In the month of January 2008, beginning January 7 through January 31, a total of 859 sessions were scheduled for a total of 18 non-holiday weekdays<sup>16</sup>. However, of those 859 sessions, 105 sessions (12%) were cancelled as the treatment mall was closed for other reasons. The number of the cancelled sessions due to such mall closures exceeds the number of sessions to be held for two days. This implies that in the month of January, the treatment mall was available for group activities for a total of about 16 days.

Of the remaining 754 sessions that were expected to be held, 22 sessions were reported<sup>17</sup> to have been cancelled or affected by leaders' absence: group leaders called to cancel or did not show at the scheduled time, and as a result these sessions were negatively affected<sup>18</sup>. Those 22 sessions account for about 2.6% of the total scheduled sessions or 2.9% of the total expected sessions. The number and the rate of such cancellation in January are lower than those observed in the past. The number of cancelled group sessions between April 2007 and November 2007 was on average about 53 in a given month, ranging from 24 to 71 (see **Figure 20**). The rate of cancellation for the months of September through November 2007 was over 4% of the scheduled sessions (see **Table 6**). Cancellation of scheduled group activities

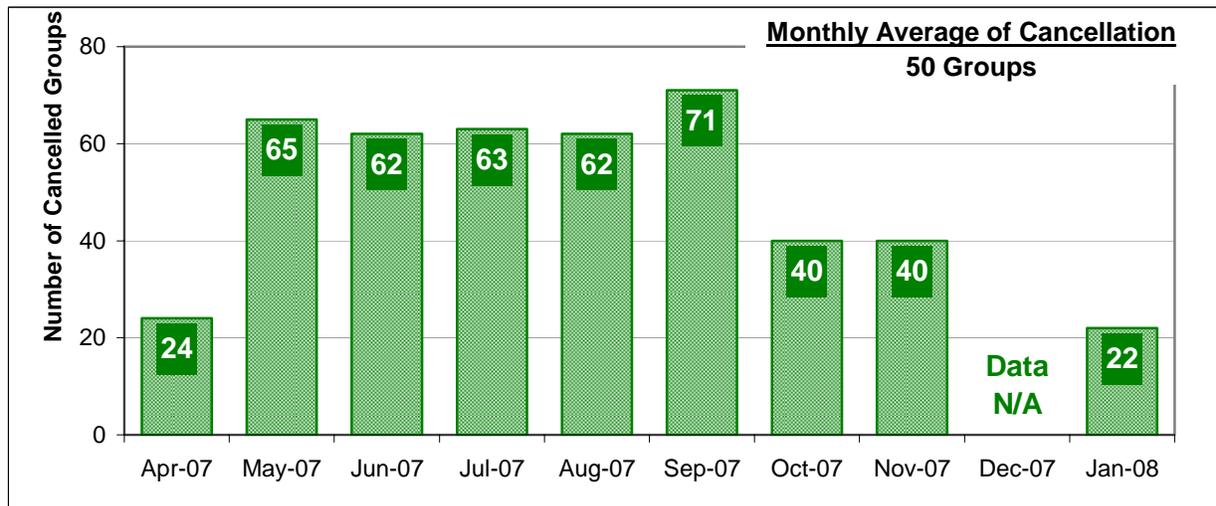
<sup>16</sup> The treatment mall was officially closed from January 1<sup>st</sup> (Tuesday) to January 4<sup>th</sup> (Friday) and January 19<sup>th</sup> (Monday), Martin Luther King Jr. Day as holidays.

<sup>17</sup> The current monitoring system lacks a structured process to ensure that the result of all scheduled sessions are reported and documented.

<sup>18</sup> These sessions were not held at all, covered by staff, or combined with other sessions. For more information regarding cancelled sessions, go to page 27.

adversely affects the compliance with the DOJ requirement that patients have at least 20 hours of active treatment activities each week.

**Figure 20. Group Activities Cancelled by Group Leaders (Apr 2007 ~ Jan 2008)**



Data Source: Analysis of Treatment Mall Group Cancellation Data, Office of Monitoring Systems

Note: Cancellation data for the month of December 2007 is not available as the treatment mall was in the process of modifying the tracking system to make it more efficient.

### 3. Group Cancellation by Discipline of Group Leader

Of the total 22 sessions that were cancelled or affected by leaders' absence in January 2008, 9 (41%) were those led by the rehabilitation service staff and 8 (36%) were from the psychiatry discipline. As displayed in **Table 5**, the volume of cancellation from the psychiatry discipline (2) has been consistently high over the past several months: more than one third of cancelled sessions are those run by leaders in the psychiatry discipline.

**Table 5. Group Cancellation by Discipline of Group Leader (Sep 2007 ~ Jan 2008)**

Discipline	Sep ~ Nov 2007		Jan 2008	
	Number*	Percent	Number	Percent
Chaplain Services	15	10%	0	0%
Dental	0	0%	0	0%
Dietary/ Nutrition	1	1%	0	0%
Medical/ GMO	9	6%	1	5%
Nursing	14	9%	1	5%
Psychiatry	51	34%	8	36%
Psychology	18	12%	1	5%
Rehab Services	29	19%	9	41%
Social Work	6	4%	0	0%
Other	7	5%	2	9%
<b>Total</b>	<b>151</b>	<b>100%</b>	<b>22</b>	<b>100%</b>

\* The total between September 2007 and November 2007.

While **Table 5** displays the volume of cancellation by each discipline and the proportion of those cancelled sessions out of the total cancelled sessions, **Table 7** analyzes cancellation rate, the percentage of cancelled sessions out of the total scheduled sessions, which reflects consideration of the total volume of scheduled sessions in each discipline. According to this, sessions scheduled with psychiatrists and medical staff (GMO) consistently shows the highest cancellation rate. The number of group sessions scheduled with medical staff is relatively low compared with those run by other

disciplines and a small number of cancellation can result in a high cancellation rate: in January, medical staff were expected to lead 11 sessions, of which one session was cancelled and this accounts for 9% and it was 14% between September 2007 and November 2007. Of the 91 sessions scheduled with psychiatrists in January, 8 sessions (9%) were called to cancel. The cancellation rate of psychiatrists was 11% from September through November. Nursing and rehabilitation services lead the highest number of group sessions: 222 and 229, respectively. Of those, 1 session (0.5%) by nursing staff and 9 sessions (4%) by rehabilitation service staff were called to cancel. Group sessions led by dental, social workers, and nursing staff consistently show a low cancellation rate.

**Table 6. Scheduled vs. Cancelled Sessions by Discipline (Sep 2007 ~ Jan 2008)**

Discipline of Group Leader	September ~ November 2007			January 2008		
	# Scheduled	# Cancelled	Cancellation Rate <sup>1)</sup>	# Scheduled (Expected) <sup>2)</sup>	# Cancelled	Cancellation Rate <sup>1)</sup>
Chaplain Svcs	233	15	6%	48	0	0%
Dental	25	0	0%	5	0	0%
Dietary/Nutrition	75	2	3%	17	0	0%
Medical/GMO	65	9	14%	11	1	9%
Nursing <sup>3)</sup>	1211	14	1%	222	1	0.5%
Psychiatry	466	51	11%	91	8	9%
Psychology	146	18	12%	35	1	3%
Rehab Svcs	1048	29	3%	229	9	4%
Social Work	311	6	2%	62	0	0%
Other <sup>4)</sup>	160	7	4%	34	2	6%
<b>Total</b>	<b>3740</b>	<b>151</b>	<b>4%</b>	<b>754</b>	<b>22</b>	<b>2.6%</b>

- Notes 1) The number of cancelled sessions was divided by the number of scheduled sessions in each discipline  
 2) The number of sessions that were expected to be held; it excludes those cancelled due to the treatment mall closure for a reason other than holiday. Data for the months of September through November 2007 doesn't consider such closures while excluding sessions cancelled from holiday closures.  
 3) The following group activities are excluded: 'Community Meeting', 'Week in Review' and 'WRAP Ground'  
 4) Other includes those who do not belong to any of above disciplines: i.e. program administrator, volunteer, etc.

#### 4. Group Cancellation by Discipline of Program Area

Table 7 displays the group cancellation pattern by program area. Nearly one third of the total scheduled group sessions belong to the Psychosocial Rehabilitation program in which both the number of cancelled

**Table 7. Group Cancellation by Program (Jan 2008)**

Program	Cancelled		Total Scheduled	Cancellation Rate
	Number	Percent		
Behavior Management	0	0%	106	0%
<b>Cognitive Development</b>	<b>6</b>	<b>27%</b>	<b>164</b>	<b>4%</b>
Dual Diagnosis	2	9%	105	2%
Geriatric Center	0	0%	214	0%
<b>Psychosocial Rehabilitation</b>	<b>14</b>	<b>64%</b>	<b>270</b>	<b>6%</b>
<b>Total</b>	<b>22</b>	<b>100%</b>	<b>754</b>	<b>3%</b>

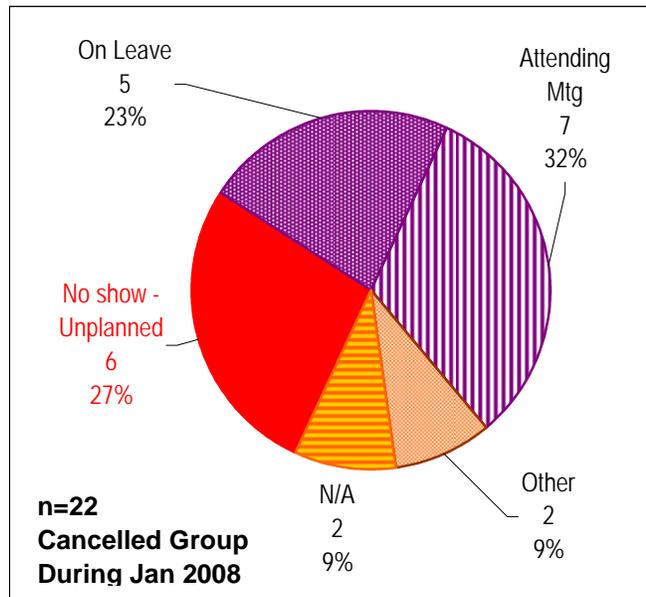
sessions and the cancellation rate are the highest in January 2008. Scheduled group sessions in the Behavior Management program and the Geriatric Center program have no reports of cancellation.

### 5. Reason of Cancellation and Coverage of Cancelled Groups

Of the 22 cancellations, 27% or 6 were those where responsible group leaders did not show up at the scheduled time without any advance notice. Seven (7) group leaders called to cancel because they were attending meetings and 5 cases were cancelled as group leaders were on sick leave.

The majority of cancelled group sessions appear to be covered by other staff. Of the 22 groups, 15 sessions (68%) were covered by other staff in absence of leaders, and 2 sessions (9%) were combined with other group activities. The remaining five groups were not covered at all.

**Figure 21. Reason of Group Cancellation (Jan 2008)**



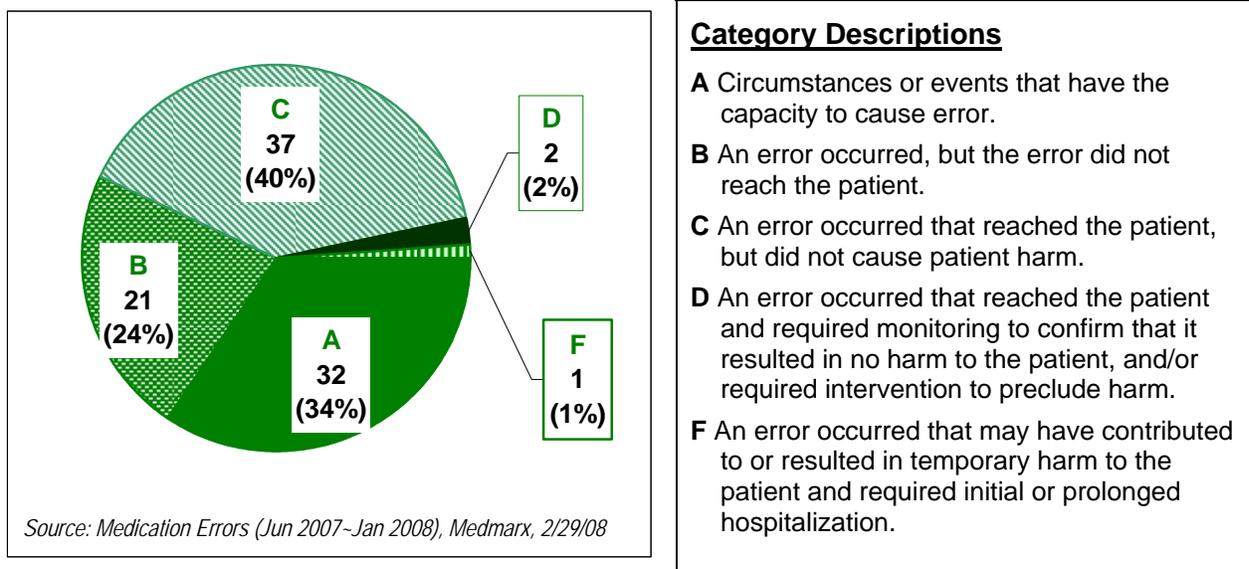
## VIII. Medication

This Chapter presents data regarding medication errors<sup>19</sup> and adverse drug reactions (ADRs)<sup>20</sup> documented in MEDMARX. MEDMARX is an internet-based error and drug reaction reporting database many hospitals and health care systems use to document and track medication errors and ADRs and the Hospital has been participating since April 2007. The OMS extracted data from MEDMARX for year 2007 and further analyzed trend as below.

### 1. Medication Errors

Over the past 9 months, May 2007 through January 2008, a total of 93 medication errors were reported and documented in the MEDMARX database. Despite some variation from month to month, on average, approximately 10 errors per month were reported (see **Table 8** below). Of the 93 reported errors, one occurrence caused patient harm resulting in hospitalization (see the Outcome Category F in **Figure 22**). Two cases required intervention to preclude harm (Outcome Category D). One third (40% or 37) of the reported errors reached the patient but did not cause patient harm and 21 cases (24%) did not reach the patient. The remaining 32 cases are those considered to have the capacity to cause errors but actual errors did not occur.

**Figure 22. Outcomes (Category) of Medication Errors (May 2007 ~ Jan 2008)**



<sup>19</sup> A medication error is any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use. – *National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP)*.

<sup>20</sup> A Suspected Adverse Drug Reaction is a "noxious and unintended response to any dose of a drug (or biologic) product for which there is a reasonable possibility that the product caused the response. In this definition, the phrase 'a reasonable possibility' means that the relationship cannot be ruled out. – *Food and Drug Administration proposed definition, Federal Register, 3/14/2003 (Volume 68, Number 50)*

The aggregate data suggests that the most commonly reported types of errors were prescription writing errors (47%) and omissions errors (32%) (see **Table 8**). There were six cases of improper dose/quantity, six cases of wrong drug, four cases of wrong administration technique, and three cases of wrong patient. However, occurrences of omission errors, improper doses/quantity and unauthorized/wrong drug errors declined over time. In fact, as of December, 11 out of 12 reported errors were prescription writing errors. January did see a return of two cases of unauthorized/wrong drug errors.

**Table 8. Volume & Type of Reported Medication Errors (May 2007 ~ Jan 2008)**

Type of Error	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total	Percent
Prescribing error	2	5	4	7	4	5	3	11	3	44	47%
Omission error	10	2	1	1	2	7	1		6	30	32%
Improper dose/quantity	2		2	1	1					6	7%
Unauthorized/wrong drug	1	1	2						2	6	5%
Wrong administration technique	1	2						1		4	5%
Wrong patient	2			1						3	3%
<b>Total*</b>	<b>18</b>	<b>10</b>	<b>9</b>	<b>10</b>	<b>7</b>	<b>12</b>	<b>4</b>	<b>12</b>	<b>11</b>	<b>93</b>	<b>100%</b>

Source: Medication Errors, Medmarx, 2/29/08

Note: One patient experienced 3 errors and four patients each experienced 2 errors during the reported time period (8 months). In total, 76 patients are involved in a total of 93 medication errors

Of the 93 errors, 91 cases were caused by a single error and two cases were caused by two errors. The most common contributing factors are workflow disruption (32%), knowledge deficits (20%) and performance deficits (15%).

## 2. Adverse Drug Reaction (ADR)

MEDMARX database documents a total of 53 Adverse Drug Reactions (ADRs) reported by the Hospital during the past eight months, between May 2007 and January 2008. This is equivalent to an average of about seven (7) reports per month. The 53 reported ADRs include one life-threatening case and two events that required hospitalization (see **Table 10**).

Twenty (20) cases (38%) brought about other medically significant conditions and 14 cases (26%) required interventions to prevent incapacity.

**Table 9. Frequently Reported Causes of Errors (May 2007 ~ Jan 2008)**

Cause of Error	Number	Percent
Workflow disruption	31	33%
Knowledge deficit	19	20%
Performance (human) deficit	14	15%
Communication	6	6%
Transcription inaccurate/omitted	4	4%
Documentation	4	4%
Procedure/protocol not followed	3	3%

Source: Medication Errors, Medmarx, 2/29/08

**Table 10. Volume of Reported ADRs by Severity & by Month (Jun 2007 ~ Jan 2008)**

Severity	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Total	Percent
Results in death									0	0%
Is life-threatening							1		1	2%
Requires initial/prolonged hospitalization	1	1							2	4%
Is a congenital anomaly or birth defect									0	0%
Other medically important condition			1	11	2	3	1	2	20	38%
Intervention to prevent incapacity	1	5	2		4		1	1	14	26%
Results in persistent/significant incapacity									0	0%
<i>Not serious (none of the above apply)</i>	3	5	4	1	1		2		16	30%
<b>Total*</b>	<b>5</b>	<b>11</b>	<b>7</b>	<b>12</b>	<b>7</b>	<b>3</b>	<b>5</b>		<b>53</b>	<b>100%</b>

Source: ADRs (Jun 2007~Jan 2008), Medmarx, 2/29/08

Note: One patient experienced 3 ADRs and 6 patients each experienced 2 ADRs during the reported time period (7 months). In total, 42 patients are involved in a total of 50 medication errors.

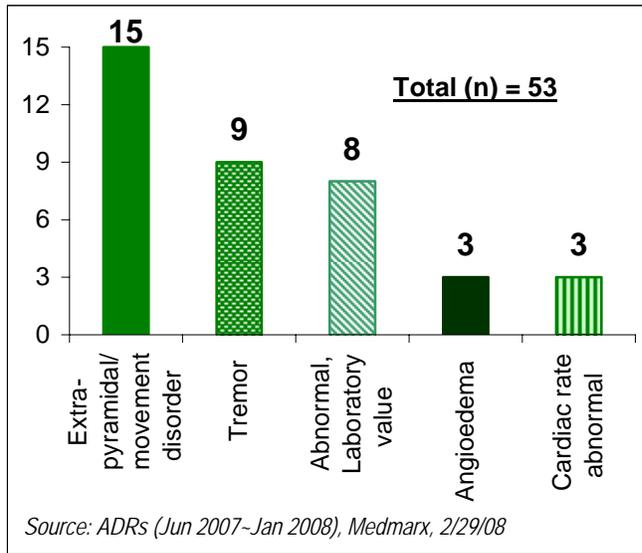
**Table 11** presents reported ADRs by location of patients involved in those events and suggests that some units, particularly in the civil program, may not be appropriately reporting the ADR events to the Hospital's Pharmacy. There were only two units (RMB-2 and RMB-7) from the civil program that reported a total of 20 ADRs for the past 8 months while the forensic units reported a total of 29 ADRs for the same time period. Among the forensic units, JHP-7 and JHP-9, the pre-trial units where the total number of patients served throughout the year is much larger than post-trial units, reported higher number of ADRs.

The most common reaction of those reported ADRs was extra pyramidal/movement disorder: 15 or 30% (see **Figure 23**). Tremor has been reported in 9 cases (18%) and abnormal laboratory values incurred in 8 cases (16%).

The pharmaceuticals most commonly reported to cause ADRs included Olanzapine (16%), Divalproex (14%), Risperidone (14%), Quetiapine (12%) and Ziprasidone (10%) as seen in **Table 12**.

Civil Program		Number	Forensic Unit		Number
CT2-A/B	Long-term		JHP-2	Post-trial	1
CT2-C/D	Geriatric		JHP-3	Post-trial	
RMB-1	Geriatric		JHP-4	Post-trial	2
RMB-2	Geriatric	14	JHP-6	Pre / post	1
RMB-3	Long-term		JHP-7	Pre-Trial	10
RMB-4	Long-term		JHP-8	Pre / post	4
RMB-5	Acute		JHP-9	Pre-Trial	6
RMB-6	Acute		JHP-10	Post-trial	3
RMB-7	Long-term	6	JHP-11	Post-trial	2
RMB-8	Long-term		JHP-12	Post-trial	
Civil Total		20	Forensic Total		29
Not Identified		4	Grand Total		53

**Figure 23. Most Common Reactions of ADRs (Jun 2007 ~ Jan 2008)**



**Table 12. Drugs that Caused >=5 ADRs (Jun 2007 ~ Jan 2008)**

Generic Name	Number	Percent*
Olanzapine	8	15%
Divalproex	8	15%
Risperidone	8	15%
Quetiapine	7	12%
Ziprasidone	5	9%

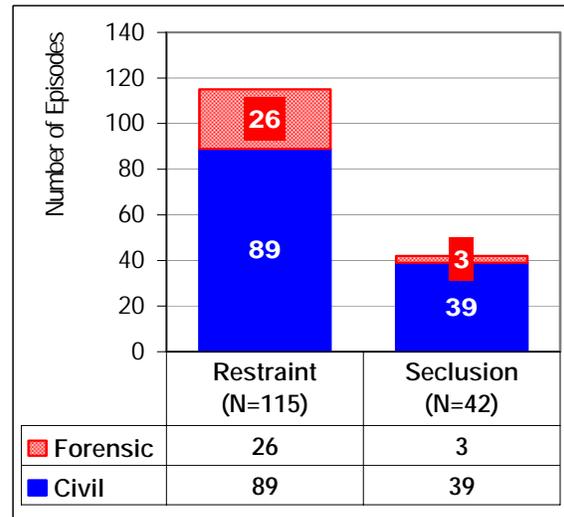
\* Percentage of events where respective drug caused ADRs, out of the total ADRs (53) that were reported to have occurred during the above time period (Jun 2007 ~ January 2008).

## IX. Restraint/Seculsion

### 1. Frequency of Restraint/Seculsion Episodes

**Figure 24** indicates that there were 115 restraint episodes and 42 seclusion episodes in the past 16 month period of October 1, 2006 to January 31, 2008. This translates to an average of about 8 restraint episodes (**Figure 25**) and 3 seclusion episodes occurring per month (**Figure 26**). Both restraints and seclusions are used primarily by the civil service units: 77% of restraint episodes and 93% of seclusion episodes occurred on the civil side. Over the past 16 months, forensic services used restraints fewer than two times per month on average and had only a total of 3 seclusion episodes.

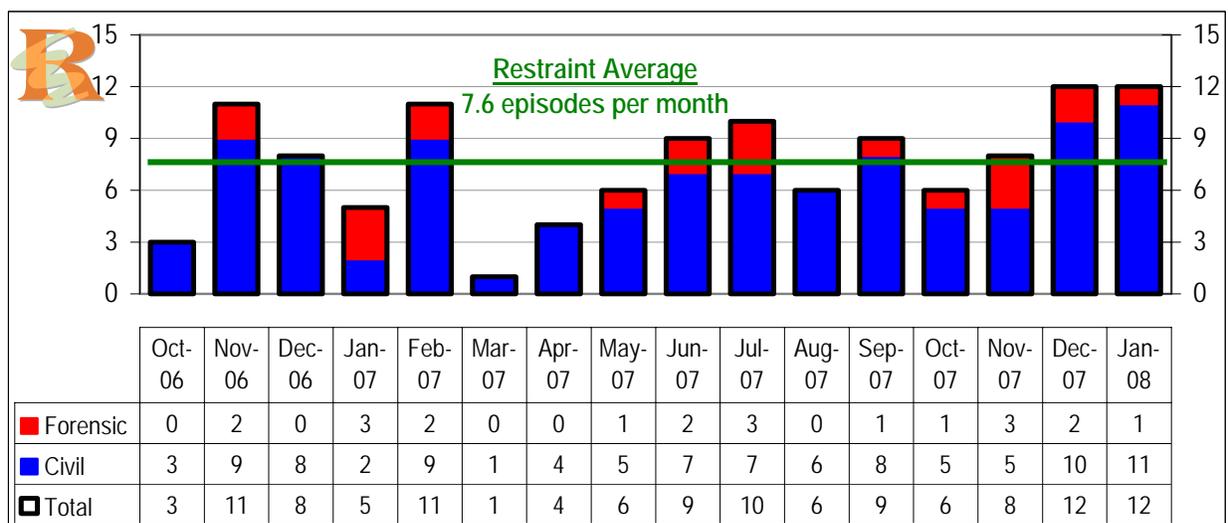
**Figure 24. Seclusion & Restraint Episodes: 16 Months (Oct 2006 ~ Jan 2008)**



The use of seclusions as well as restraints in the civil services considerably increased in FY 2008. During the month of December 2007, there were 10 restraint episodes and 10 seclusion episodes reported from the civil program. In January 2008, 11 restraint episodes and 10 seclusion episodes were reported. Seven different patients were involved in the 11 restraints episodes that occurred in January. Of the 10 seclusions, one patient accounted for 4 episodes.

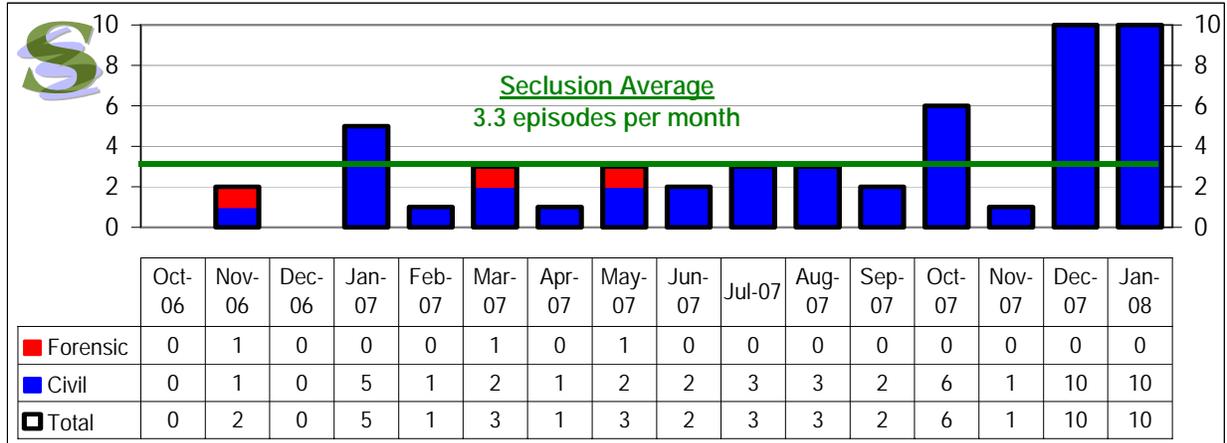
*Source: Seclusion/Restraint Quarterly Reports, FY2007; Seclusion/Restraining Log, FY2008*

**Figure 25. Number of Restraint Episodes by Month (FY2007 ~ FY2008)**



*Source: Seclusion/Restraint Quarterly Reports, FY2007; Seclusion/Restraining Log, FY2008*

Figure 26. Number of Seclusion Episodes by Month (FY2007 ~ FY2008)



Source: Seclusion/Restraint Quarterly Reports, FY2007; Seclusion/Restraining Log, FY2008

## 2. Duration of Restraints/Seclusions

While seclusion is not used as often as restraint, it results in longer hours of use as compared with restraint. In FY 2007, the average duration of a restraint episode was less than 2 hours (Figure 27), as compared to an average duration of over four hours for seclusion episodes (Figure 28). The average duration per episode increased considerably for both restraint and seclusion in FY2008: 3 hours 17 minutes per restraint episode and 5 hours 11 minutes per seclusion episode. This is due in part to a few cases that recorded extremely lengthy hours of restraints and seclusions in December 2007. In fact, even though the average duration of a seclusion episode is longer than the average duration of a restraint episode, the length of a seclusion episode is likely to be shorter. Of the 27 incidents of seclusion to date in FY2008, 20 episodes (74%) each lasted one hour or less. Of the 34 restraints, excluding 4 protective measures, 22 episodes (64%) each lasted one hour or less.

Figure 27. Average Hours per Restraint Episode (FY2007)

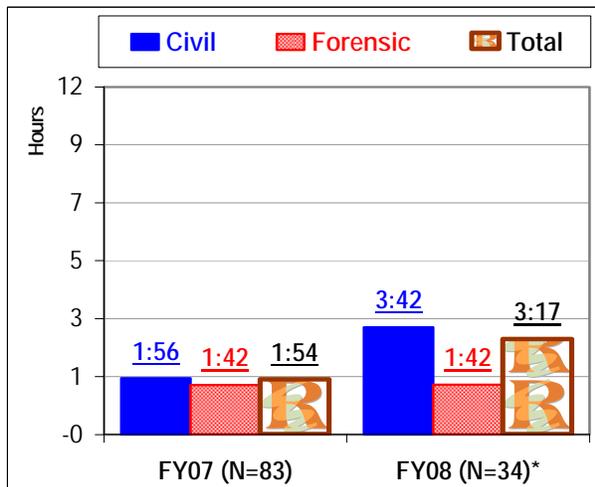
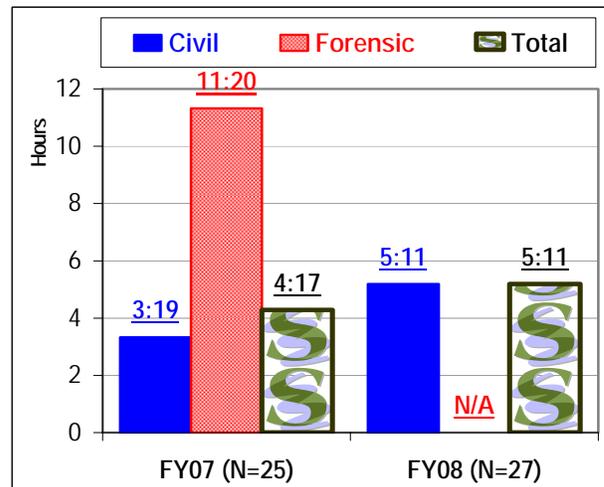


Figure 28. Average Hours per Seclusion Episode (FY2008: 4 Months)



Note: Hours of four restraints used as daily protective measure are not included.

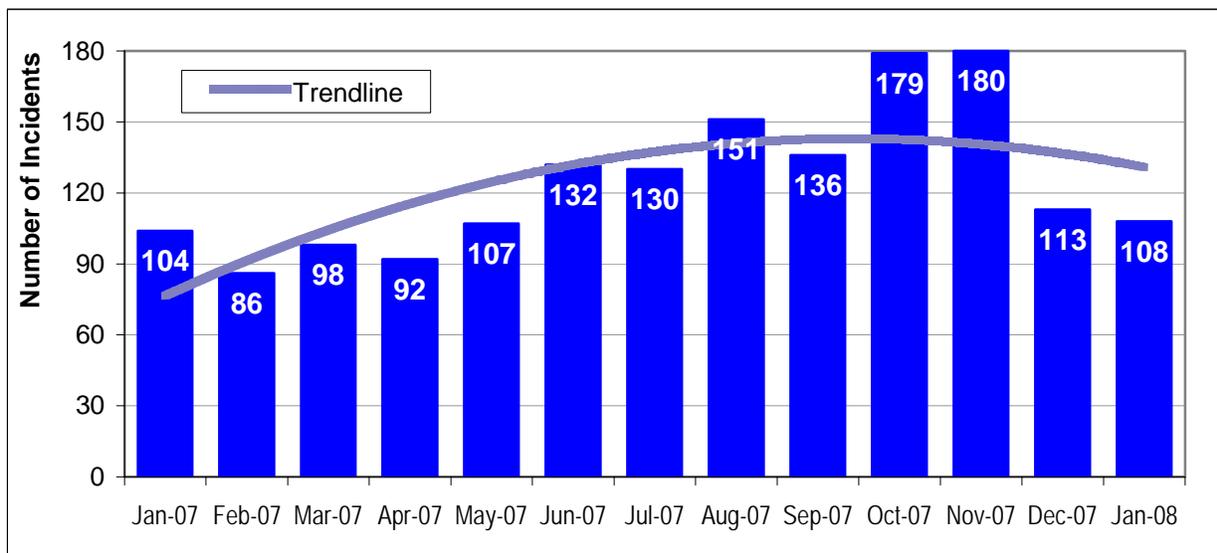
## X. Unusual Incidents

### 1. Number of Unusual Incidents (UIs)

**Figure 29** illustrates that during 2007, the number of reported unduplicated unusual incidents (UI) consistently increased, reaching the highest level in November 2007. But the number dropped significantly in the months of December 2007 and January 2008. There is a notion that UIs tend to occur more frequently during the summer months. Unfortunately, the Hospital does not yet have sufficient data to support this view.

In the thirteen month period ending January 31, 2008, a total of 1616 unique incidents, an average of approximately 124 incidents per month, occurred and were reported to the Hospital’s Risk Manager. Of those, 94% (1522) or an average of 117 incidents involved about 98 patients each month.

**Figure 29. Volume of Reported UIs (Jan 2007 ~ Jan 2008)**



Data Source: Analysis of Unusual Incident Database, OMS

### 2. UIs by Type

According to **Table 13**, over one third (38%) of the reported incidents in the past 13 months were categorized as high severity, including medical emergency and unauthorized leave, whereas the other 62% were less critical. High severity incidents included 12 patient deaths, one staff death, 21 allegations of abuse or neglect, 9 serious assaults or altercations, and 2 suicide attempts. The total number of medical emergencies was 211; about 16 per month. Medical emergency incidents noticeably increased in 2007 beginning in June and were reported almost once per day during the months of August through November. The number dropped to a total of 9 in January 2008. The Office of Quality Improvement is currently conducting a special study on a small number of reported medical emergency incidents in an

effort to learn about the cause of the increase and outcomes as well as any noteworthy patterns and trends.

Another type of UI exhibiting an increase since last summer is elopement or unauthorized leave (UL). For the last 13 month period, a total of 279 ULs, an average of 21 per month, were reported. The number of ULs significantly increased from early summer through October and declined in November and December. But, in January 2008, it went up again to 38. The spike during the summer time may have been due in part to the warm weather as well as expansion of privileged hours from daylight saving time. However, the data doesn't necessarily support the view that the number of ULs is seasonal as the month of January 2008 marked the highest number of ULs for the past 13 months.

**Table 13. Number of UIs by Type and Month (Jan 2007 ~ Jan 2008)**

UI Type		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan 2008	Monthly Average	Percent
High Critical Severity	Abuse/Neglect	2	0	2	2	2	1	1	3	2	3	1	0	2	2	1%
	Assault/ Altercation	0	0	1	0	0	1	1	1	0	2	0	0	3	1	1%
	Contraband	1	0	0	1	1	0	5	2	6	10	10	8	8	4	3%
	Death	1	1	0	0	0	1	2	2	0	5	0	1	0	1	1%
	Injury	3	0	1	0	0	2	1	0	0	0	3	0	1	1	1%
	Medical Emergency	8	14	11	14	9	20	11	31	18	29	25	12	9	16	13%
	Suicide Attempt	0	0	0	1	1	0	0	0	0	0	0	0	0	0.2	0.1%
	UL/ Elopement	11	11	10	10	15	18	24	27	27	36	29	23	38	21	17%
	Other (Highly Severe)	0	0	0	0	2	1	1	1	1	0	0	0	6	1	1%
	<i>Sub-total</i>	<b>26</b>	<b>26</b>	<b>25</b>	<b>28</b>	<b>30</b>	<b>44</b>	<b>46</b>	<b>67</b>	<b>54</b>	<b>85</b>	<b>68</b>	<b>44</b>	<b>67</b>	<b>47</b>	<b>38%</b>
Less Critical Severity	Assault/Altercation	44	33	34	32	37	45	42	38	48	47	59	46	21	40	33%
	Minor Injury, Fall, etc.	19	14	24	15	24	22	21	19	19	31	28	12	13	20	16%
	Other (Less Severe)	15	13	15	17	16	21	21	27	15	16	25	11	7	17	14%
	<i>Sub-total</i>	<b>78</b>	<b>60</b>	<b>73</b>	<b>64</b>	<b>77</b>	<b>88</b>	<b>84</b>	<b>84</b>	<b>82</b>	<b>94</b>	<b>112</b>	<b>69</b>	<b>41</b>	<b>77</b>	<b>62%</b>
<b>Grand Total</b>		<b>104</b>	<b>86</b>	<b>98</b>	<b>92</b>	<b>107</b>	<b>132</b>	<b>130</b>	<b>151</b>	<b>136</b>	<b>179</b>	<b>180</b>	<b>113</b>	<b>108</b>	<b>124</b>	<b>100%</b>

Data Source: Analysis of Unusual Incident Database, OMS

**Reference: UI Code Numbers**

High Critical Severity	Abuse: 1-8	Assault/Altercation: 9-14	Contraband: 15-19	Death: 20-21
	Injury: 26-31	Medical Emergency: 35-37	Suicide Attempt: 44	UL/Elopement: 45-47
	Other: 32 (lose), 38 (med-error), 39 (neglect), 49 (other)			
Less Critical Severity	Assault/Altercation: 52-56		Minor/Fall: 57-62	
	Other: 51 (administrative), 63-65 (loss), 66 (med-error), 67 (suicide gesture), 68 (other)			

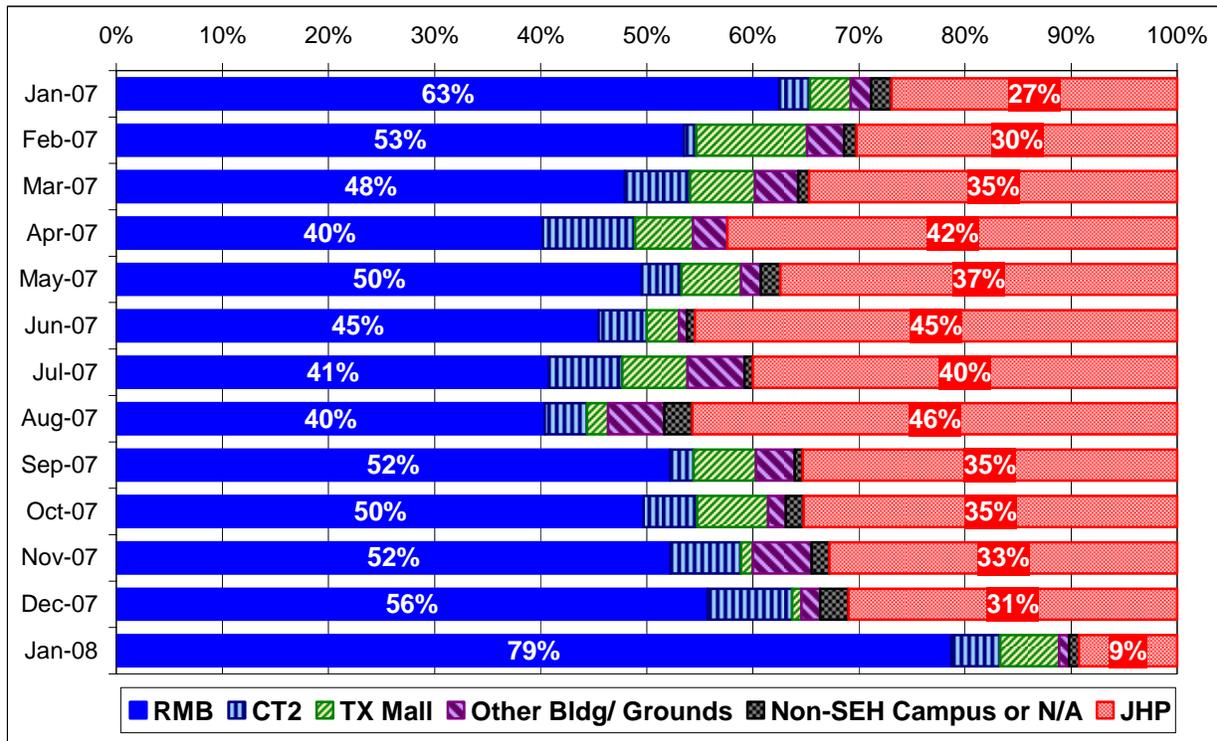
The increase of medical emergency and ULs contributed to an increase in the proportion of high severity incidents compared with less severity incidents. As of January 2007, high severity incidents comprised about 25% of the the total incidents. During the second half of 2007 ( July through December), the percentage of high severity incidents was 41%. In the month of

January 2008, high severity incidents increased to 62% of the total incidents. Minor assault/altercation, reported as a less critical severity incident, is the most commonly reported incident, comprising 33% of the entire reported incidents (40 per month). Less severe injuries from falls or minor accidents constitute about 16% of the reports: on average 20 per month.

### 3. UIs by Location

In the last 13 months, most of the UI reports originated from RMB building: on average, more than half (51%) of the reported UIs occurred in the RMB building, 35% in the JHP building, 5% in the CT2 building, 5% in the treatment mall building, 3% in other buildings or grounds on the Hospital's campus, and the remaining 1% occurred outside the campus (i.e. court, transport, etc.). **Figure 30** further shows that the percentage of reported UI occurrences from the RMB building increased since last summer and jumped to the highest level in January 2008, when almost four out of five UI reports were related to incidents that occurred in the RMB building.

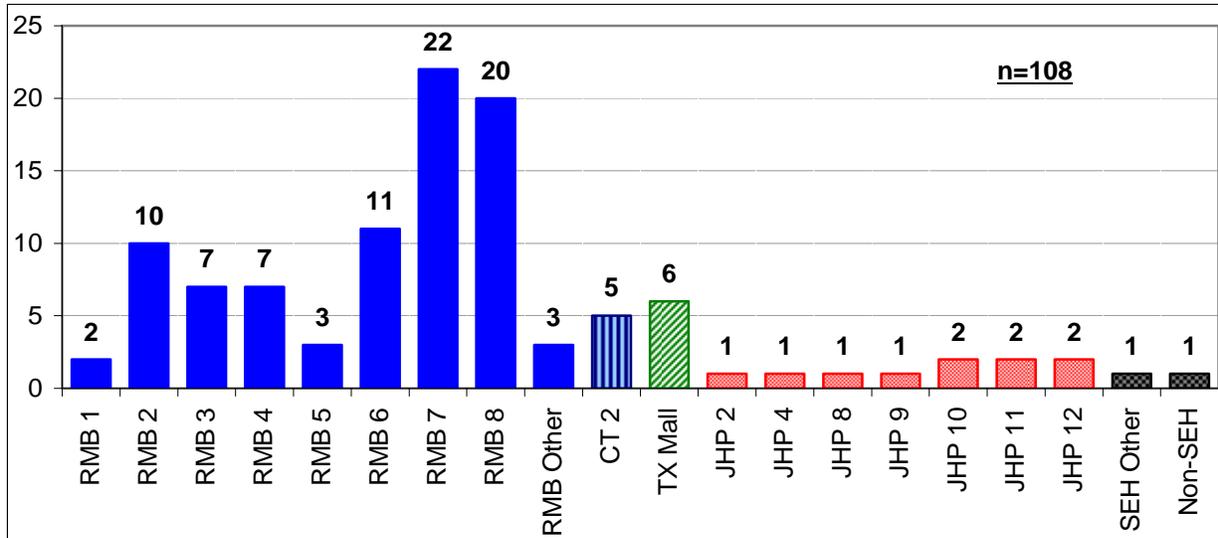
**Figure 30. Trend of UIs by Location (Jan 2007 ~ Jan 2008)**



Data Source: Analysis of Unusual Incident Database, OMS

**Figure 31** further presents breakdown of UI locations at the unit level. Units that reported UIs most frequently in January 2008 were RMB-7 (22 UIs) and RMB-8 (20 UIs). RMB-6 and RMB-2 also experienced a high number of UIs: 11 and 10, respectively. Some units in the forensic program had no reported UI and the number of UIs for the other forensic units range between one and two per unit.

Figure 31. UIs by Location at Unit Level (Jan 2008)



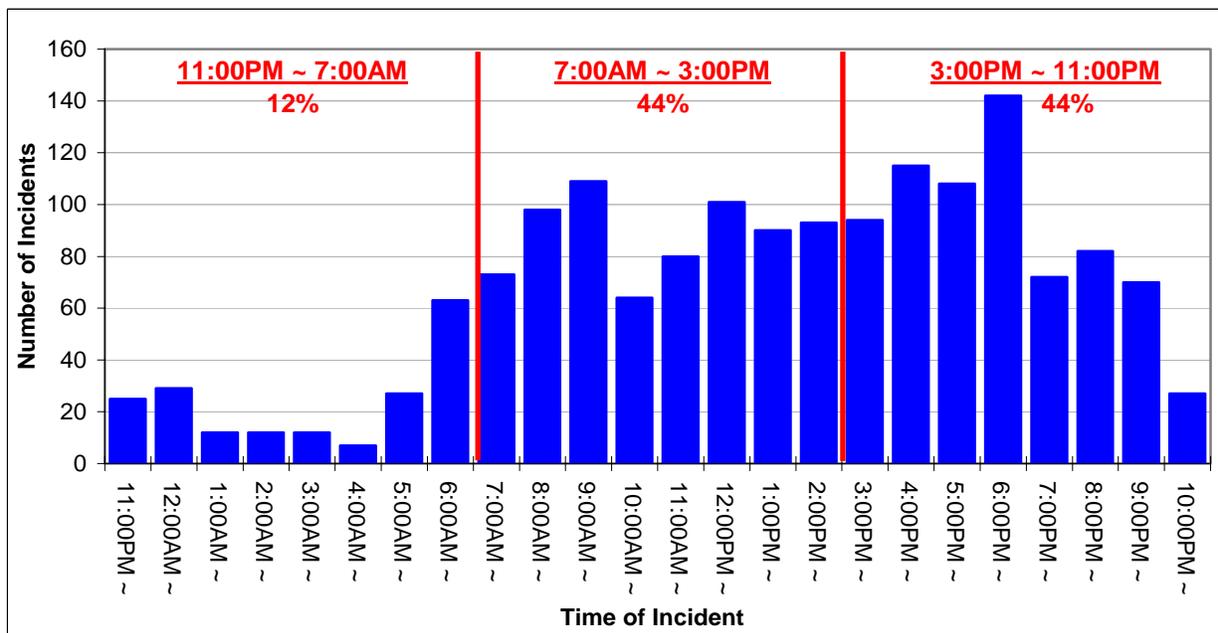
Data Source: Analysis of Unusual Incident Database, OMS

Note: 'RMB Other' includes lobby, cafeteria or other areas that don't belong to a particular unit within the RMB building. 'SEH Other' includes all other buildings on the campus except those identified above. 'Non-SEH' means outsider the campus.

#### 4. UIs by Time and Shift

Figure 32 displays frequency of incidents by time of the day as well as by shift. Few incidents occur after midnight through early morning hours. The number of incidents substantially rises from 6:00 a.m. and continues to increase until 10:00 a.m. It decreases in the late morning but increases again in the afternoon and reaches the highest point between 6:00 p.m. and 7:00 p.m.

Figure 32. Frequency of UIs by Shift and Time of the Day (Jan 2007 ~ Jan 2008)



Data Source: Analysis of Unusual Incident Database, OMS

## 5. Delay in UI Reporting

The current Hospital policy requires an unusual incident to be reported to the Risk Manager within 72 hours (or 3 days) after the incident occurs. However, our recent analysis regarding the length of delay between the time an incident occurred and the time the Risk Manager received the report illustrates that many incidents are not reported within the required timeframes.

As presented above, a total of 108 incidents were reported during the month of January 2008. Of those, only 21 incidents (19%) were reported within 3 days after the incident occurrence. A majority of reports (72 or 67%) were reported between 4 days and 10 days after the occurrence. The median length is about 6 days and the average length is more than 8 days due to some extremely delayed reports: 8 incidents were reported more than a month after they occurred.

**Table 14. Delay in UI Reporting (Jan 2008)**

Length of Report Delay*	# of UIs	%
1 Day	2	2%
2 Days	7	6%
3 Days	12	11%
4~5 Days	30	28%
6~10 Days	42	39%
11~30 Days	7	6%
31~42 Days	8	7%
<b>Total</b>	<b>108</b>	<b>100%</b>
<b>Average Length</b>	<b>8.3</b>	<b>Days</b>
<b>Median Length</b>	<b>6</b>	<b>Days</b>

*Data Source: Analysis of Unusual Incident Database, OMS*

*Note: The length of report delay has been calculated by subtracting the time an incident occurred from the time the report received by the Risk Manager in the January 2008 UI Database. It needs to be further noted that errors might have inadvertently occurred in some cases in the process of documenting reports or entering data into the UI database. Currently, each UI report is entered by program assistant staff and some reports have illegible hand-writing, which contributes to more chances of data entry errors.*