

Government of the District of Columbia Department of Behavioral Health (DBH)



SAINT ELIZABETHS HOSPITAL



FY14 TREND ANALYSIS Hospital Statistics

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Data Disclaimer

The primary source of data extracted and analyzed herein is Avatar, the Saint Elizabeths Hospital's current client information management system that stores official electronic medical records of all individuals served by the Hospital. Additional data source includes the Hospital's Unusual Incident Database. Data reflects information as entered in each system by users. The Office of Statistics and Reporting (OSR) has access to each system and extracted data sets as needed. The OSR does not guarantee the accuracy, timeliness, reliability, or completeness of data although it has made reasonable efforts to ensure that data and its accompanying information are as accurate and up-to-date as possible at the time of analysis and publication. The OSR is not liable for any misinterpretation or misuse of the data. However, notification of any errors or questions on data presented in this report will be appreciated and can be directed to Won-ok Kim, Director of OSR at the Saint Elizabeths Hospital, at <u>Won-ok.Kim@dc.gov</u> or 202-299-5430.

EXECUTIVE SUMMARY

Saint Elizabeths Hospital (SEH or Hospital) is a public psychiatric facility of the Government of the District of Columbia, serving individuals with serious and persistent mental illness who need intensive inpatient care to support their recovery. SEH also provides mental health evaluations and care to individuals committed by the courts. Founded by the United States Congress in 1855, SEH was the first federally operated psychiatric hospital in the United States and, at its peak, served thousands of individuals. However, thanks to the nationwide efforts to expand community-based health care, the inpatient population residing at SEH has declined over time although this downward trend slightly reversed in FY14 with a higher-than-usual number of admissions during that year. As of September 2014, SEH served an average of 283 individuals in care (IICs) on a given day.

On June 25, 2007, the Government of the District of Columbia and the United States Department of Justice (DOJ) signed a Settlement Agreement (Agreement) that required vigorous efforts to improve the quality of patient care at SEH. In addition to the Agreement's requirement that the Hospital track and analyze data for actionable indicators and targets, the leadership of the Hospital further recognized the urgency of improving data collection and performance monitoring. The Hospital successfully demonstrated significant and consistent progress in improving the quality of services, culminating a joint motion by the District and the DOJ filed on August 28, 2014 to dismiss the Settlement Agreement that mandated federal oversight of patient care at SEH. The Court granted the motion, thereby lifting the requirement for federal oversight of patient care. We believe that this *Trend Analysis Report*, along with *PRISM* and our routine data collection and analysis activities, has contributed to promoting a data-driven culture within the Hospital so staff at all levels proactively use data in assessing our service delivery and patient care, and in reaching this milestone.

The Office of Statistics and Reporting (OSR)¹ published the first edition of the *Trend Analysis Report* on June 25, 2007 and bi-monthly thereafter. The *Trend Analysis Report* was replaced by a new monthly report, *PRISM (Performance Related Information for Staff and Managers)*, in April 2009. Since then, *PRISM* has been serving as a primary statistical report that presents monthly data with 12-month trends on census, basic demographics, and selected performance indicators, while the *Trend Analysis Report* was transformed into an annual report providing data and long-term trends with more in-depth analyses in a variety of areas related to patient care. The Hospital expanded its data collection and analysis capacity each year through its electronic medical record system (*Avatar*) and other databases developed by OSR, and the *Trend Analysis Report* continues to evolve to reflect the expanded scope of data available.

Areas covered in this *Trend Analysis Report* include the Hospital's census, admission, discharge and transfer information; demographic characteristics of individuals in care; lengths of stay; readmissions; clinical profile captured in all five axes of DSM-IV-TR and multi-disciplinary assessments; and findings from unusual incident data including violence, falls, and injury. Analysis results are presented visually in charts and tables, along with

¹ OSR was previously known as Office of Monitoring Systems (OMS) in the Performance Improvement Department (PID). The trend analysis reports prior to FY11 were published under OMS.

bullet points describing findings and interpretations in detail for every section. Below are some highlighted trends of the key findings.

The Hospital's historic downward trend in its census reversed in FY14, as the number of admissions continued to increase, exceeding the number of discharges; the Hospital recorded its lowest average daily census in its recent history at 249 as of July 2013, but the census increased to 283 by September 2014, the highest in several years. This was driven primarily by a noticeable increase in admissions of individuals with a pre-trial legal status (*Pre-trial*), which increased by 21% in FY14 from the FY13 level. The increase of *Pre-trial* admissions, however, contributed to a reduction in length of stay (LOS) for individuals remaining in care: in general, *Pre-trial* admissions stay in care for a much shorter time period than those admitted with a civil legal status (*Civil*) or a post-trial legal status (*Post-trial*). In addition, the Hospital continued to make concerted efforts to discharge long-term residents, reducing the percentage of IICs with 10 year or longer LOS. As a result, the median LOS for individuals remaining in care significantly declined in FY14, reaching its lowest level at 394 days (13 months) as of September 30, 2014. However, the LOS for IICs admitted during FY14 is longer than that of IICs admitted during FY13, particularly for *Civil* admissions. Sixty-eight percent (68%) of *Civil* admissions in FY14 were discharged within 90 days, whereas 78% of *Civil* admissions in FY13 were discharged within the same time frame.

Despite an increase of admissions and census in FY14, the Hospital's elopement rate (0.08 per 1000 patient days) is considerably lower than the previous year and well below the national average (0.13 NPR²). This appears to have resulted from the Hospital's improvement in the identification and monitoring of individuals at risk of elopement, its strengthened policy on privilege use, and its improved security overall in FY14.

The readmission rate for the Hospital also significantly decreased in FY14 at all levels: 30-day, 90-day, and 180day readmissions. In particular, the 30-day readmission rate in FY14 (2.3%) is much lower than the national average (6.9% NPR) as well as the previous year's rate (5.6%). Overall, about 16% of discharges were readmitted to the Hospital within 180 days of discharges. Further analysis on characteristics of IICs readmitted suggests that *Post-trial* discharges transferred to the community as outpatients, elderly population, and those who had a shorter LOS in the previous hospitalization are the most likely to be readmitted to the Hospital in the short term.

The percentage of IICs who were 60 years or older and those who were under 40 years consistently increased among individuals remaining in care over the past several years. During FY14, female admissions increased while their discharges decreased, raising the percentage of females remaining in care from 25% as of September 2013 to 33% as of September 2014.

With the continued increase of older adults in care, the percentage of individuals with a major medical condition or physical disorder increased, and nearly half of individuals in SEH care are diagnosed with hypertension. The obesity rate, though, declined for two consecutive years: as of September 2014, 37% were obese as their *Body Mass Index* (BMI) was 30 or above while more than 40% were obese in the previous two years. Additionally,

² NPR: National Public Rate as of June 2013 was published in November 2013 by National Association of State Mental Health Program Directors Research Institute (NRI), based on data collected from a number of state psychiatric hospitals nationwide. This is the most recent NPR data available at the time of publishing this report. This report will include comparison of the Hospital's data with NPR wherever possible.

34% of individuals in SEH care were considered to be overweight as their BMI was 25 or higher but below 30. The obesity rate of the Hospital's population is only slightly higher than the obesity rate of the US adult population (35%) but significantly higher than that of the adult population in the District of Columbia (23%). Our further analysis illustrates that a majority of IICs gain weight quickly upon admission; among individuals admitted in FY14, 79% gained weight within 3 to 30 days of admission. Their obesity rate increased as they stayed in care longer; only 26% of individuals admitted in FY14 were obese at the time of admission, but the obesity rate in the same admission group increased to 38% by 61-90 days following admission.

The percentage of individuals with co-occurring psychiatric and substance use disorders decreased for two consecutive years but still a half (50%) of IICs were diagnosed with a substance use disorder as of September 2014. Particularly, the percentage of IICs with a nicotine use related disorder significantly decreased. The percentage of IICs with an alcohol use related disorder also decreased from the previous year but alcohol is still identified as the most frequently used substance at 24%.

The increase of admissions and census in FY14 contributed to a sizable increase of unusual incidents (UI), particularly violence related incidents. During FY14, an average of 193 UIs were reported per month, an increase of 28% from FY13. The number of physical assaults and aggressive behaviors that do not involve physical contact both increased in FY14. But, it is noteworthy to recognize that the relative frequency of physical assaults compared with aggressive behaviors continued to decrease over the past four years. This trend may be attributed to improved responses and interventions to a violent event by the treatment teams as they successfully prevented many aggressive behaviors during FY13 and FY14 also supports this view: seclusions and restraints for aggressive behaviors during FY13 and FY14 also supports this view: seclusions and restraints were used much more frequently for incidents categorized as aggressive behaviors with no physical contact than for physical assaults in FY13 and FY14, as compared with FY11 and FY12.

A majority of violence related incidents, particularly severe ones, were disproportionately triggered by newly admitted individuals with a pre-trial legal status: one out of four aggressors for physical assaults or aggressive behaviors was an IIC who had been in care for less than 30 days, and two out of three aggressors who triggered severe violence UIs were IICs admitted with a pre-trial legal status. Often times, a small number of the same IICs are repeatedly involved in violence related incidents: during FY14, only 25 individuals, less than 4% of all individuals served, were accountable for nearly half (46%) of physical assaults or aggressive behaviors. Victimization is also frequently repeated: during FY14, each of 15 IICs and 9 employees was victimized in physical assaults or aggressive behaviors for a total of five (5) times or more. An increase of violence related incidents in FY14 impacted the number of patients and staff injured. In fact, 47% of patient injuries and 73% of staff injuries were directly triggered by physical assaults or falls related to assaults.

Please refer to the respective chapter for detailed data and additional analyses.

I. Census, Admissions, Discharges, and Transfers

- The historic downward trend of admissions and discharges first reversed in FY13 and the number of admissions continued to increase in FY14, exceeding the number of discharges. As a result, the census, total patient days, and the number of unique individuals served in care noticeably increased in FY14. During the month of July 2013, the Hospital served a total of 249 individuals in care per day, which was the lowest average daily census (ADC) in its recent history. But the ADC increased to 283 by September 2014, the highest in several years.
- The increased number of admissions in FY14 was driven primarily by *Pre-trial* admissions, which increased by 21% from FY13. Consequently, the number and percentage of *Pre-trial* population remaining in care significantly increased in FY14.
- In FY14, the frequency of leave episodes significantly increased, particularly for therapeutic community activities, home visits, and non-emergency medical leave although the level of emergency medical transfers remained steady and similar to the FY13 level. The number of unauthorized leaves (elopements) in FY14 is considerably lower than the previous years' and the elopement rate of the Hospital is well below the national average.

1. Census and Patient Days

Historically, the Hospital served more than 400 individuals in care (IICs) on a given day until FY08. Since FY09, the number of IICs dropped below 400 and consistently declined through FY13, reaching its lowest level at 249 as of July 2013. This trend, however, was reversed at the end of FY13, and FY14 ended with the average daily census (ADC) of 283 in the month of September 2014.



Figure 1. Trend of Daily Census (FY08 ~ FY14)

- The trend of ADC mirrors the trend of the total patient days³, which are the sum of individuals present at the facility at 11:59 p.m. of each day and exclude those on overnight leave status. The total patient days between FY10 and FY13 shrank by 18%, but increased in FY14: the total patient days in FY13 were 94,724, which can be translated into an average of 260 individuals staying at the facility every night of the year. The total patient days in FY14 increased to 96,205, an average of 264 individuals staying each night.
- Some individuals stay at the Hospital throughout the entire year or longer while others stay only for a couple days to a couple of months. Some individuals may receive inpatient care at SEH only once in their lives while some may be admitted to SEH multiple times during the same year. The Hospital monitors the number of *unique* individuals that were served at the Hospital at least one day during each fiscal year. During FY14, the Hospital served a total of 636 unique IICs. This is an increase from 618 in FY13, reflecting the same trend of ADC and total patient days.
- The total number of unique individuals served on a monthly basis was 300 or above for two-thirds of FY14, including all of the six months in the second half of the

Table 1. Total Patient Days and Number of Unique Individuals Served (FY10 ~ FY14)

| FY | Total Patient Days | Average # of IICs per Night | Total Unique IICs Served** |
|-------|-----------------------|--------------------------------|-------------------------------|
| FY10 | 115,676 | 317 | 697 |
| FY11 | 102,002 | 279 | 652 |
| FY12* | 98,608 | 269 | 619 |
| FY13 | 94,724 | 260 | 618 |
| FY14 | 96,205 | 264 | 636 |

* February 2012 had a leap day and the total number of days for FY12 was 366.

** Some individuals may have been admitted to SEH more than once during the same fiscal year and data herein counts the number of unduplicated individuals served regardless of the number of times they were admitted.

year. During these last six (6) months of FY14, the Hospital received a high number of admissions, a key factor contributing to the increase in census and patient days in FY14. More detailed data and analysis on the admission trend will be presented below in section *I.3 Admissions* on page 11.

Table 2. Total Patient Days and Number of Unique Individuals Served by Month (FY14)

| | Oct-13 | Nov-13 | Dec-13 | Jan-14 | Feb-14 | Mar-14 | Apr-14 | May-14 | Jun-14 | Jul-14 | Aug-14 | Sep-14 | FY14 |
|----------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Total Patient Days | 8101 | 7649 | 7844 | 8394 | 7514 | 8115 | 7789 | 8171 | 7941 | 8084 | 8277 | 8326 | 96,205 |
| Total Unique IICs* | 299 | 291 | 287 | 306 | 300 | 299 | 315 | 306 | 300 | 305 | 312 | 312 | 636* |
| * This is not the sum of monthly numbers but the total number of unique individuals sound at the Userital at least one day during FV14 | | | | | | | | | | | | | |

* This is not the sum of monthly numbers but the total number of unique individuals served at the Hospital at least one day during FY14.

2. Census by Legal Status

- On the last day of FY14, the Hospital was serving a total of 278 individuals in care. Of those, 121 or 44% were in a voluntary or civil commitment legal status (*Civil*), 67 or 24% were those sent by the Court for competency evaluations prior to their trials (*Forensic Pre-trial*). The remaining 90 or 32% were those adjudicated 'Not Guilty by Reason of Insanity" (*NGBRI*) by the court (*Forensic Post-trial*).
- It is challenging to assess and interpret the trend with regard to the proportion of individuals remaining in care by legal status since it varies day by day and month by month due to frequent

Figure 2. Trend of Legal Status for Individuals in Care (09/30/10 ~ 09/30/14)



³ Patient days are the sum of individuals who were present on the unit of the facility at 11:59 p.m. of each day. Patient days do not include individuals on authorized or unauthorized leave at that time although those individuals on such temporary leaves are included in our ADC calculation.

fluctuations in the number of admissions and discharges. Despite that, our data over the past several years suggests that the proportion of individuals with a pre-trial legal status increased over time: as of September 2010, the Hospital was serving a total of 311 IICs, and of those, 18% had a pre-trial legal status. The proportion of the *Pre-trial* population increased to 24% as of September 30, 2014.

- This upward trend in the proportion of individuals with a forensic pre-trial legal status began in April 2014, when the Hospital received an exceptionally large number of *Pre-trial* admissions at 34 while the average number of *Pre-trial* admissions during the first 6 months of FY14 was below 15 per month. This surge in *Pre-trial* admissions subsequently increased the percentage of the *Pre-trial* population remaining in care by the end of April 2014. Since then, the level of *Pre-trial* admissions has remained consistently high and the proportion of this group reached 24% by September 2014, whereas this group had composed only 15% of the individuals in care in March 2014.
- The proportion of individuals with a civil legal status fluctuated, ranging from 41% to 52% throughout FY14: during the first half of FY14, the *Civil* population gradually increased, reaching 52% in March 2014. As the number of *Pre-trial* admissions and individuals remaining in care increased in April 2014, the *Civil* population decreased in the following month but hovered around 45% of all in care during the second half of the year.
- On the other hand, the percentage of individuals in a post-trial legal status decreased consistently throughout the year in FY14: this group constituted 39% of IICs in the beginning of FY14 but dropped to 32% by September 30, 2014. This decline is largely due to an increase of *Post-trial* discharges (transfers to the community as outpatients) that far exceeded *Post-trial* admissions in FY14.



Figure 3. Trend of Month-End Census by Legal Status (FY14)

3. Admissions

Although the number of admissions fluctuated month to month, overall it declined consistently through FY12: in FY12, the Hospital received a total of 400 admissions, which is a decrease of 304 or 43% from FY08. This trend, however, was reversed in FY13 as the total number of admissions increased to 423 in FY13, and increased again to 434 in FY14. In particular, during the month of April 2014 alone, there were 55 admissions, which is the highest level of monthly admissions since January 2009.

The increase of admissions in FY13 was attributed more to an increase of *Civil* admissions, whereas the increase in FY14 was driven by *Pre-trial* admissions. The total number of *Pre-trial* admissions in FY14 increased by 21% from FY13 while *Civil* admissions in FY14 decreased by 15% from FY13.



Figure 5. Number and Percentage of Admissions by Legal Status (FY10 ~ FY14)



- About one third of individuals remaining in the Hospital's care have a post-trial legal status, but most of them remain at the Hospital for long-term stays so *Post-trial* admissions and discharges are relatively rare. Most of the admission and discharge activities occur around the *Civil* and *Pre-trial* population: forty-one percent (41%) of the admissions in FY14 were *Civil* and 53% were *Pre-trial*. Only 6% were *Post-trial* admissions who had been residing in the community as *Forensic Outpatients* but returned to the Hospital as they needed more intensive treatment or violated the court ordered conditions of their release.
- Three of the last five (5) years show that Forensic Pre-Trial admissions outpaced Civil admissions and composed more than half of all admissions, while the Pre-trial population made up less than 25% of individuals in care on a given day.
- The number of monthly admissions during FY14 ranged from 27 to 55. The highest level of monthly admissions during FY14 (55) was nine (9) more than the highest level seen during FY13. In FY14, on average, there were 36 admissions per month, which eclipsed last year's average by just one.

4. Discharges

- The number of discharges also declined consistently until FY12, mirroring the trend of admissions. In FY13, both the number of admissions and discharges increased. The number of discharges in FY14, though, remained at the same level as FY13 but that of admissions continued to increase.
- Some individuals admitted with a pre-trial legal status and assessed to be incompetent may remain at the Hospital even after the criminal charges are dismissed, if they are civilly committed and need continued inpatient care. Once their conditions improve, they may get discharged but their legal status at discharge is *Civil* while they were admitted with a pre-trial legal status. Due to changes of legal status of this group while hospitalized, the number of *Civil* discharges is likely to be higher than *Civil* admissions and vice versa for *Pre-trial* admission and discharges. Consequently, *Civil* discharges often exceeded the number of *Pre-trial* discharges even when the number of *Pre-trial* admissions outpaced *Civil* admissions during the same period of time. More findings regarding the difference between admissions and discharges will be presented below (See section *I.5 Admissions and Discharges*).
- The 429 discharges in FY14 were comprised of 213 discharges (50%) with a *Civil* legal status, 178 (41%) with a *Pre-trial* legal status and 38 (9%) with a post-trial legal status. This is translated into an average of 36 discharges per month (18 *Civil*, 15 *Pre-trial*, and 3 *Post-trial*).
- Between FY10 and FY12, the number of *Civil* discharges noticeably decreased as the number of *Civil* admissions decreased. The number of *Civil* discharges, however, increased in FY13 along with an increase of *Civil* admissions. In FY14, the number of *Civil* discharges decreased again but it was exceeded by the number of *Civil* admissions, leading to an increase of Civil population remaining in care at the end of FY14.
- The trend of *Pre-trial* discharges is the opposite of the *Civil* discharge trend: the increasing trend of *Pre-trial* discharges between FY10 and FY12 reversed in FY13, and the upward trend continued in FY14. The number of *Post-trial* discharges, those transferred to the community on conditional release, increased noticeably in FY14.



Figure 6. Number and Proportion of Discharges by Legal Status (FY10 ~ FY14)



5. Admissions and Discharges

 Both admissions and discharges consistently showed a downward trend through FY12 and an increase in FY13. The number of admissions continued to increase in FY14, but the number of discharges remained the same. Between FY09 and FY13, the number of discharges exceeded the number of admissions, which is the reason why the census continued to decline during that timeframe. However, the difference between admissions and discharges during this period narrowed. Even when the admission trend reversed and the total number of admissions increased in FY13, discharges still exceeded admissions by six (6). In FY14, however, the total number of admissions outpaced the total number of discharges, contributing to a noticeable increase in census by the end of FY14.



As aforementioned, some individuals admitted with a pre-trial legal status may have had their legal status converted to a civil legal status while remaining in care, and subsequently they were discharged with a civil legal status. As a result, there was always some level of net gains in the *Pre-trial* Population since the level of *Pre-trial* discharges would be lower than the level of *Pre-trial* admissions. The difference between admissions and discharges for the *Pre-trial* population during FY14 was exceptionally large. This is due to the considerable increase in the number of *Pre-trial* admissions while the number of *Civil* admissions decreased.





6. Inter-Unit Transfers

During FY14, there were a total of 154 inter-unit transfers⁴, an average of 13 per month, which is a 35% increase from a total of 114 or an average of 10 per month in FY13. This increase is due in part to the Hospital-wide reconfiguration of certified beds⁵ that occurred in January 2014 as well as preparation of unit realignment that occurred in early October 2014 to respond to the changing demographics of the population in care. Additionally, in July 2014 all individuals residing in unit 1A had to be moved to different units temporarily while the Hospital was conducting major repair work on their unit. These three months recorded unusually high numbers of inter-unit transfers, contributing to an increase of the average for FY14. With the exception of these three months, the monthly number of inter-unit transfers typically ranged from five (5) to 11.

Figure 9. Inter-Unit Transfers (FY14)



- The 154 transfers involved a total of 123 unique individuals, which is about 19% of all 636 individuals served at least one day at the Hospital during FY14.
- Of those 123 individuals, 95 or 77% experienced only one inter-unit transfer. The other 28 individuals were transferred more than once over the 12 month period, including two (2) individuals who were transferred more than twice.

| Total Number of Inter-Unit Transfers | FY12 | | FY13 | | FY14 | | |
|----------------------------------------------------------------------------|------------------|---------|------------------|---------|--------------------|---------|--|
| during 12-Month Period | # of Individuals | Percent | # of Individuals | Percent | # of Individuals | Percent | |
| Once | 63 | 91% | 73 | 81% | 95 | 77% | |
| Twice | 2 | 8% | 12 | 13% | 26 | 21% | |
| Three (3) Times | 1 | 1% | 4 | 4% | 1 | 1% | |
| Four (4) Times or More | 0 | 0% | 1 | 1% | 1 | 1% | |
| Total Number of individuals who experienced >=1 transfer in fiscal year | 66 | 100% | 90 | 100% | 123 | 100% | |
| Total/average # of inter-unit transfers | 70 (6 per month) | | 114 (10 per n | nonth) | 154 (13 per month) | | |

Table 3. Unique Individuals in Care Transferred between Units (FY12 ~ FY14)

7. Leaves

The total number of documented leave episodes in FY14 was 3,641, which represent about 303 leave episodes per month or 10 episodes on a given day. Of the 3,641 leaves, 1,378 or 38% were placed on leave to participate in 'therapeutic community activities', 748 or 21% were medical leaves (including 190

⁴ This counts only those transfers from one unit to another unit and does not include bed changes that may have occurred within the same unit.

⁵ This reconfiguration was necessary to comply with the CMS (Centers for Medicare & Medicaid Services) regulations and guidelines.

emergency medical leaves and 558 non-emergency medical leaves); 671 or 18% were leaves authorized for home visits; 516 or 14% were authorized for a court hearing; and 320 or 9% were for pre-discharge activities. Unauthorized leaves (elopements) numbered eight (8) in FY14.

| Loovo Typo & Pooson | | Nov- | Dec- | Jan- | Feb- | Mar- | Apr- | May- | Jun- | Jul- | Aug- | Sep- | FY14 | Monthly |
|----------------------------|-----|------|------|------|------|------|------|------|------|------|------|------|-------|---------|
| Leave Type & Reason | 13 | 13 | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | Total | Average |
| Medical/Emergency | 20 | 14 | 14 | 14 | 9 | 18 | 8 | 18 | 20 | 24 | 16 | 15 | 190 | 16 |
| Medical/Non-Emergency | 39 | 27 | 41 | 25 | 32 | 25 | 30 | 34 | 81 | 88 | 67 | 69 | 558 | 47 |
| Home Visit | 43 | 55 | 60 | 55 | 51 | 59 | 48 | 78 | 56 | 56 | 63 | 47 | 671 | 56 |
| Pre-discharge Activities | 30 | 12 | 17 | 22 | 24 | 32 | 23 | 14 | 26 | 47 | 34 | 39 | 320 | 27 |
| Court Order/ Hearing | 49 | 31 | 33 | 45 | 47 | 41 | 38 | 47 | 42 | 58 | 38 | 47 | 516 | 43 |
| Therapeutic Comm. Activity | 24 | 24 | 20 | 20 | 19 | 43 | 38 | 91 | 315 | 269 | 251 | 264 | 1378 | 115 |
| Unauthorized Leave | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 8 | 1 |
| Total | 205 | 165 | 186 | 182 | 183 | 218 | 185 | 283 | 542 | 542 | 469 | 481 | 3641 | 303 |

Table 4. Leave Episodes by Type and Reason (FY14)

The total number of leave episodes (3,641) in FY14 is a 77% increase from a total of 1,585 (four per day) in FY13. This increase is attributed primarily to a significant increase in documentation of leaves for 'therapeutic community activity', which indicates an individual's temporary absence from the facility while participating in a day program or outing in the community. Previously, such an absence was treated just as participation in a routine treatment program and not documented as a leave episode. But the Hospital began to acknowledge the importance of tracking the whereabouts of each individual accurately at each point in time, so this was added to the types of leave in the electronic medical record system in July 2013. But, consistent documentation was not enforced until a year later, and a dramatic increase in the number of leaves in this category as of June 2014 reflects this change.

Figure 10. Leave Episodes by Type and Reason (FY11 ~ FY14)



An increase in the number of other types of leaves, including non-emergency medical leaves, home visits, court-ordered activities, and pre-discharge activities, in FY14 may be attributed in part to improved documentation as well. It should be noted, however, that there are some other reasons that may have triggered the increase. For example, the Hospital adopted a new FDA approved hepatitis treatment program that required pre-testing and medical visits to medical clinics and facilities outside the Hospital for a number of individuals in care during the summer of 2014. Additionally, around the same time, the Hospital's medical clinic enhanced its capacity to expedite medical appointments for IICs in need of treatment outside the facility. All of these contributed to a noticeable increase of non-emergency medical leaves starting June

2014. The number of leaves related to court ordered activities and hearings also increased, reflecting the increase in *Pre-trial* admissions during the last quarter of FY14.

- Emergency medical leaves (EML, likely medical transfers to external medical facilities) did not increase and remained at a level similar to FY13: there were a total of 190 EMLs or 16 per month in FY14.
- The one area that shows a significant decrease in FY14 is unauthorized leave, elopement. During FY14, eight (8) unauthorized leaves were reported and this is a significant decrease from 26 in FY13. This decrease is attributed to the Hospital's concerted efforts to improve the identification and monitoring of individuals at risk of elopement and its strengthened policy on privilege use and security overall. The Hospital's elopement rate for FY14 is 0.08 per 1000 patient days, which is far below the national average (0.13 NPR).

| Category | | FY11 | FY12 | FY13 | FY14 |
|------------------------------------|----------------------|------|------|------|------|
| Emergency Medical Leave (EML) | Total # of EMLs | 250 | 268 | 188 | 190 |
| Episodes during Fiscal Year | Monthly Average | 21 | 22 | 15 | 16 |
| | One EML | 75 | 79 | 60 | 55 |
| # of Unique Individuals with | Two EMLs | 22 | 21 | 24 | 20 |
| >=1 Emergency Medical Leave(s) | Three EMLs | 14 | 12 | 9 | 15 |
| by Frequency of Leave Episodes | More than Three EMLs | 13 | 20 | 10 | 11 |
| | Total | 124 | 132 | 103 | 101 |
| % of Individuals with >=1 EMLs dur | ing Fiscal Year | 40% | 40% | 42% | 46% |

Table 5. Emergency Medical Leaves: Likely Medical Transfers (FY11 ~ FY14)

The frequency of EMLs in FY14 remained similar to the FY13 level, and there was no significant difference in the total number of unique individuals experiencing an EML: a total of 101 individuals were placed on EMLs in FY14. However, the percentage of those who had more than one EML has continued to increase over the last few years: from 40% in FY12 to 42% in FY13 and 46% in FY14. In particular, the number of individuals who had at least three (3) EMLs noticeably increased in FY14: from 19 in FY13 to 26 in FY14. Those 26 include one (1) individual who experienced six (6) EMLs and another with eight (8) EMLs within the 12 month period. This change may reflect the Hospital's aging population that often has significant comorbid conditions and residual symptoms. (Refer to Chapter II.1 Age Distribution on page 18 and Chapter V.4 General Medical Conditions (Axis III) on page 31.)

Figure 11. Return from EMLs (FY14)



- Most individuals (58%) placed on EMLs returned to the Hospital either on the same day or next day: in FY14, 32% of the individuals that had an EML episode returned to the Hospital on the same day and 26% returned on the next day. Eighteen percent (18%) returned within 2-5 days, 11% within 6-10 days, and 6% within 11-30 days. The remaining 7% stayed in other medical facilities for longer than 30 days and this group noticeably increased in FY14 compared with FY13, when we had only 2% in this category.
- The frequency of EMLs for individuals served in the geriatric units (1A and 1B) substantially decreased: 27% of EMLs in FY14 occurred in the geriatric units, whereas 38% occurred in in FY13. In contrast, admission units (1D, 1E, 1F and 1G) experienced more frequent EMLs in FY14 (60 or 32%) than FY13 (29%).

Figure 13. Change in Median

II. Demographic Characteristics of Individuals in Care

- The percentage of elderly in care has continued to increase over the past several years: those 60 years or older comprised 35% of all IICs in September 2014 while this age group made up only 24% in 2008.
- > The proportion of individuals **under 40 years also increased** steadily over the past four years.
- The percentage of females increased to 33% of the total population at the end of FY14.
- Eighty-six percent (86%) of individuals in care are African American.
- Forty-four percent (44%) are *Protestant*, 22% are *Catholic*, and 10% indicated they have no religion.
- ➢ Half of individuals in our care completed at least 10 years of education.

1. Age Distribution

- The elderly population⁶ in care continued to increase: individuals 60 years or older constituted about 24% of the Hospital's population in October 2008. This percentage increased to 30% in September 2011 and has been at 35% since September 2013.
- While the elderly population steadily increased for several years, the proportion of individuals under 40 years old also noticeably increased: as of September 30, 2010, only 14% of individuals in care were under 40 years old but the same age group comprised 22% as of September 30, 2014. As a result, the median age has stayed between 55 and 56 years of age since FY10 despite the consistent increase in the elderly population in care.



Figure 12. Change in Age Distribution (10/31/08 ~ 09/30/14)

As the proportion of individuals above 60 years old and those under 40 years old increased, the age group between 50 and 59 years old shrank considerably but still constituted 30% of the total population as of September 2014.

⁶ While typically 65 years of age is used to identify "elderly" or "older" population, historically the Hospital and this Trend Analysis Report has monitored age distribution by 10-year increments. For consistent trend analysis, in this report, the term "elderly" population refers to the population 60 years and over.

- The admission and discharge populations were much younger than the individuals remaining in care. In
 FY14, the median age of the admission population was 47 years old and that of the discharge population was
 48 years old while the median age of those remaining in care on the last day of FY14 was 55 years old.
- The overall pattern of age distribution among admission and discharge population over the past few years resembled each other: admissions and discharges of those 60 years or older increased until FY12 but both decreased slightly in FY13. In FY14, the proportion of the elderly population reached its highest level at 19% among admissions and 21% among discharges. The percentage of those younger than 30 years old decreased gradually for both admissions and discharges between FY11 and FY13 and stayed the same in FY14.



Figure 14. Trend of Age Distribution among Admission Population (FY11 ~ FY14)



Figure 15. Trend of Age Distribution among Discharge

2. Gender Distribution

- As of September 2014, one out of three individuals (33%) in our care was female.
- The proportion of females admitted in FY14 marginally fell but fewer females were discharged during FY14, leading to an increase in the number and the percentage of females

| Table 6. Gender Ratio k | oy Group (FY13 vs. FY14 | 4) |
|-------------------------|-------------------------|----|
|-------------------------|-------------------------|----|

| Group | | FY13 | | | FY14 | |
|------------|-------|--------|------|-------|--------|------|
| Group | Total | Female | Male | Total | Female | Male |
| Admissions | 423 | 36% | 64% | 434 | 35% | 65% |
| Discharges | 429 | 35% | 65% | 429 | 30% | 70% |
| Remaining | 273 | 26% | 74% | 278 | 33% | 67% |

remaining in care throughout the year; the percentage of females remaining in care increased from 26% in September 2013 to 33% by September 2014.

A majority of IICs fell in an age range between 50 years old and 69 years old for both the female and male population. However, males were more widely spread across the different age groups, whereas females were concentrated more in the range of age between 50 and 59 years old.

FY14 Trend Analysis (04/30/15)



3. Race/Ethnicity and Primary Language

- Of the 278 individuals remaining in care on September 30, 2014, 218 had their race and ethnicity information identified in Avatar. Of those, 186 or 85% were Non-Hispanic Black or African-American, 25 or 11.5% were Non-Hispanic White or Caucasian, three (3) or 1.4% were Asian or Pacific Islander, and two (2) or 0.9% were Hispanic. Race and ethnicity information for 60 individuals was not available.
- Of the 215 individuals whose primary language was

| Language | e (09/30/14) |
|----------|-----------------------------------------------------------------|
| Number | Percent |
| 1 | 0.5% |
| 207 | 96.3% |
| 1 | 0.5% |
| 2 | 0.9% |
| 1 | 0.5% |
| 3 | 1.4% |
| 215 | 100.0% |
| 63 | |
| | Language Number 1 207 1 2 1 3 215 63 |

Table 8. Race and Ethnicity (09/30/14)

| Race and Ethnicity | Number | Percent |
|---------------------------------------|--------|---------|
| Asian/Pacific Islander | 3 | 1.4% |
| Black/African-American (Non-Hispanic) | 186 | 85.3% |
| Hispanic | 2 | 0.9% |
| White/Caucasian (Non-Hispanic) | 25 | 11.5% |
| Other | 2 | 0.9% |
| Total Identified | 218 | 100% |
| No Data Available | 60 | |

identified in Avatar, 207 or 96% indicated English as their primary language. The other 8 individuals were identified as speaking a language other than English as their primary language. There were 63 individuals with no primary language information documented in Avatar.

4. Marital Status

 There were 176 individuals whose marital status was identified. Of those, 82% were single,

7% were married, and the other 11% divorced,

separated or widowed. Marital status information for 102 individuals was not available in Avatar.

5. Religion & Education

 Of the 144 individuals whose religion information was identified in Avatar, 44% or 64 individuals were *Protestant*, 22% or 31 individuals were *Catholic*, and 6% or 8 individuals

| Table 9. Marital Status | (09/30/14) |
|-------------------------|------------|
|-------------------------|------------|

| Marital Status | Number | Percent |
|--------------------|--------|---------|
| Single | 144 | 82% |
| Married/Common Law | 13 | 7% |
| Divorced/Separated | 15 | 9% |
| Widowed | 4 | 2% |
| Total Identified | 176 | 100% |
| No Data Available | 102 | |

were *Baptists*. There were four (4) identified as *Jewish* and three (3) as *Muslim*, and 20 IICs (14%) indicated other types of religion. The remaining 10% indicated that they did not have any religion.

 Of the 134 IICs whose education information was available, a little bit over half completed at least 10 years of education, including 11% who graduated from high school and about 6% who received some type of college education or a bachelor's degree.

| Table 10. Religion (09/30/14) | | | | | | | | | | |
|-------------------------------|--------|---------|--|--|--|--|--|--|--|--|
| Religion | Number | Percent | | | | | | | | |
| Baptist | 8 | 6% | | | | | | | | |
| Catholic | 31 | 22% | | | | | | | | |
| Jewish | 4 | 3% | | | | | | | | |
| Muslim | 3 | 2% | | | | | | | | |
| Protestant | 64 | 44% | | | | | | | | |
| Other | 20 | 14% | | | | | | | | |
| No religion | 14 | 10% | | | | | | | | |
| Total Identified | 144 | 100% | | | | | | | | |
| No Data Available | 134 | | | | | | | | | |

Table 11. Education (09/30/14)

| Education Level | Number | Percent |
|---------------------------------|--------|---------|
| None | 2 | 1.5% |
| 01-03 Years | 1 | 0.7% |
| 04-06 Years | 9 | 7% |
| 07-09 Years | 53 | 40% |
| 10-11 Years | 46 | 34% |
| High School Graduate | 15 | 11% |
| Some College/Technical Training | 4 | 3% |
| Associate's Degree | 0 | 0% |
| Bachelor's Degree | 4 | 3% |
| Total Identified | 134 | 100.0% |
| No Data Available | 144 | |

III. Length of Stay

- Length of stay (LOS) for individuals remaining in care had increased for several years but started to decline in FY13; the median LOS reached its highest level at 946 days (31 months) in September 2012 and dropped to its lowest level at 394 days (13 months) as of September 30, 2014.
- The percentage of IICs with LOS of 10 years or longer noticeably decreased due in part to the Hospital's efforts to discharge long-term residents as well as an increase of admissions in FY13 and FY14, which increased the percentage of individuals with shorter LOS.
- The shortened LOS in FY14 was largely driven by the Civil and Forensic Post-trial population. Also, an increased number and proportion of Forensic Pre-trial population who tend to have much shorter LOS contributed to the overall reduction of LOS.
- About two out of three individuals admitted to the Hospital in FY14 were discharged within 90 days from admission and half of admissions were discharged within 60 days from admission.
- LOS of *Civil* admissions made in FY14 prolonged overall while that of *Pre-trial* admissions shortened.

1. Length of Stay of Current Population

- The median length of stay (LOS) for individuals remaining in care on September 30, 2014 was 394 days (approximately 13 months), which means that 50% of the individuals in our care have been residing at the Hospital for more than 13 months. This is a significant drop from 857 days (approximately 28 months) a year ago, on September 30, 2013.
- The average LOS is much longer than the median LOS⁷ because the few individuals who have been at the Hospital for an extremely long period of time disproportionately affect the average LOS. The average LOS as of September 30, 2014 was 2,516 days, nearly seven years.

Figure 17. Trend in Median LOS of Individuals Remaining in Care (11/07/07 ~ 09/30/14)



Both the median and average LOS for individuals remaining in care consistently increased between FY07 and FY12 but started declining in FY13. The extent of decline was much more significant in FY14. This recent declining trend of LOS can be better explained from the break-down by cohort with different ranges of LOS.

⁷ 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 contribute to increasing the average LOS. The median is used more often as a better measure of central tendency as it is influenced less than the average by outlier observations.

The percentage of individuals hospitalized for less than one year consistently and substantially increased over the last several years, from 35% in FY10 to 44% by the end of FY13 and 49% by the end of FY14. In addition, those who had been staying between one year and two years noticeably increased in FY14 while those with LOS of between 2 years and 4 years decreased. This change shortened the median LOS (middle point) by more than a year (463 days) from FY13 to FY14.

The percentage of individuals who had been staying for 10 years or longer also significantly decreased from 31% in September 2011 to 23% in September 2014. This reflects the Hospital's ongoing efforts to discharge long-term residents to the community.



Figure 18. Percentage of Individuals in Care by Length of Stay (09/30/10 ~ 09/30/14)

2. Length of Stay by Legal Status

- The shortened LOS for individuals remaining in care in FY14 was driven by the *Civil* and *Forensic Post-trial* population. As of September 30, 2013, the median LOS of the *Civil* population (112) and the *Post-trial* population (57) was 779 days (approximately 25 months) and 5,081 days (13 years and 11 months), respectively. The median LOS on September 2014 decreased to 462 days (15 months) for the *Civil* population and to 4,441 days (12 years and 2 months) for the *Post-trial* population.
- The median LOS for the *Pre-trial* population slightly increased from 46 days in September 2013 to 50 days in September 2014. It should be noted that the number and proportion of the *Pre-trial* population noticeably increased in FY14, contributing to a lower median LOS of the overall population because the *Pre-trial*

Figure 19. Median LOS by Legal Status (09/30/14)



population tends to have much shorter LOS than the *Civil* and *Post-trial* population. Particularly, the number

and percentage of the *Post-trial* population, who tends to have much longer LOS, noticeably decreased, also contributing to the reduced median LOS.

3. Length of Stay by Gender

 Overall, males are likely to stay at the Hospital much longer than females. The median LOS of male individuals in care on September 30, 2014 was 542 days (18 months), whereas that of females was 238 days (8 months). The large gap of LOS between females and males is more evident among the *Post-trial* population, which has a much longer LOS than any other legal status groups, and 93% of the *Post-trial* population is male. Even among the *Civil* population, where women constitute more than half (55%),

Figure 20. LOS by Gender and Legal Status (09/30/14)



males tend to have been in care significantly longer than females; the median LOS for females and males of the *Civil* population was 385 days (12 months) and 513 days (17 months), respectively.

4. Length of Stay by Admission Cohort

- The length of stay data for individuals remaining in care provides a snap shot of the current population in care and it is largely influenced by the volume of admissions and discharges right before each measure. For example, if the number of recent admissions increased and/or recent discharge included more of long-term residents than before, the LOS of individuals remaining in care would be shorter than before. But that would not necessarily represent the trend of LOS for a majority of the population we served. Analysis of LOS by admission cohort allows us to assess the trend, such as reduction or increase of LOS, in a more consistent and comprehensive perspective. Thus, we reviewed the LOS data for individuals admitted between FY12 and FY14⁸, from the point of admissions to the point of discharges within a given time frame, finding that LOS of IICs admitted in FY14 was longer than that of IICs admitted in FY13, which looks contradictory to the trend of LOS for individuals remaining in care.
- About two out of three individuals admitted to the Hospital over the past three years were discharged within 90 days from admission and half of admissions were discharged within 60 days from admission.
- Overall, individuals admitted in FY14 stayed in care longer than those admitted in FY13. The percentage of individuals discharged within 90 days from admission decreased from 70% in FY13 to 66% in FY14. Those discharged within 60 days and 30 days, respectively, decreased from 56% to 49% and from 29% to 19%. The major group that presented prolonged LOS among FY14 admissions is the *Civil* population: at least 77% of *Civil* admissions had been discharged within 90 days in FY12 and FY13, but their 90-day discharge rate dropped to 68% in FY14. The 60-day discharge rate for the *Civil* admission group also dropped from 70% in FY13 to 54% in FY14 and the 30-day discharge rate dropped from 45% to 31%. This is the reason why the proportion of the *Civil* population remained high despite a noticeable decline in the number of *Civil* admissions. In contrast, the percentage of discharges within 90 days among *Pre-trial* admissions increased

⁸ It should be noted that we compiled admissions only between FY12 and FY14 for this analysis, and thus it does not include individuals who were admitted prior to FY12 and still remaining in care at the time of analysis.

from 57% in FY12 to 66% in FY13 and 69% in FY14. The 60-day discharge rate for the *Pre-trial* admission group also increased from 36% in FY12 to 46% in FY13 and 50% in FY14. Their 30-day discharge rate for this group declined marginally in FY14.

Individuals with a post-trial legal status, once they are admitted, tend to stay hospitalized much longer than those with a civil or pre-trial legal status. During FY14, only 22% of *Post-trial* admissions were discharged within three (3) months. It should be noted, however, that the number of the *Post-trial* admissions is relatively very small and a few outliers can easily skew the trend. Also, their discharges are often driven by the Court order rather than the actual clinical status and community resources.



Figure 21. LOS by Admission Legal Status (FY12 ~ FY14)

5. Length of Stay of Discharged Population

The LOS measured for the discharged population is significantly shorter than the LOS measured for those remaining in care at the Hospital because many of the *Post-trial* long-term residents are more likely to remain in care, extending the overall LOS of individuals remaining in care. Therefore, the LOS of the discharged population does not represent the LOS of the overall population but just explains characteristics of individuals getting discharged. While the median LOS of the 278 individuals remaining in care at the end of FY14 was 394 days, the median LOS of the 429 individuals who were discharged during FY14 was 58 days. This is a slight increase from LOS of the discharge population in FY13 (55 days).

| | # of Discharges Median LOS (Days) | | | | Ave | rage LOS (D | ays) | # Discharged >=2 Years | | | | | |
|------------|-----------------------------------|------|------|----------|----------|-------------|-----------|------------------------|-----------|-----------|-----------|-----------|--|
| | FY12 | FY13 | FY14 | FY12 | FY13 | FY14 | FY12 | FY13 | FY14 | FY12 | FY13 | FY14 | |
| Civil | 186 | 223 | 213 | 40 days | 38 days | 50 days | 189 days | 254 days | 322 days | 10 | 19 | 13 | |
| Pre-Trial | 194 | 179 | 178 | 69 days | 61 days | 51 days | 83 days | 84 days | 67 days | 0 | 0 | 0 | |
| Post-Trial | 31 | 27 | 38 | 315 days | 432 days | 918 days | 2159 days | 2255 days | 3317 days | 11 | 10 | 22 | |
| Combined | 411 | 429 | 429 | 63 days | 55 days | 58 days | 287 days | 309 days | 483 days | 21 (5.1%) | 29 (6.8%) | 35 (8.2%) | |

Table 12. LOS at Discharge by Legal Status (FY12 ~ FY14)

- While the median LOS of individuals discharged with a pre-trial legal status decreased from 61 days in FY13 to 51 days in FY14, that for *Civil* discharges increased from 38 days to 50 days.
- The number and percentage of individuals who were discharged after staying in care for long-term (2 years or longer) with a post-trial legal status noticeably increased in FY14.

IV. Readmissions

- The 30-day, 90-day, and 180-day readmission rates all noticeably decreased in FY14. Particularly, the 30-day readmission rate in FY14 (2.3%) decreased significantly from FY13's (5.6%) and is much lower than the national average (NPR 6.9%).
- Individuals discharged in a post-trial legal status are the most likely to return to the Hospital: one out of four Post-trial discharges in FY14 was readmitted within 180 days.
- > Those who are **older** at discharge are more likely to return to the Hospital.
- Those who are discharged with a shorter LOS are more likely to return to the Hospital quickly.

1. Readmission Rate

- Of the 429 discharges that occurred in FY14, 10 individuals or 2.3% were readmitted to the Saint Elizabeths Hospital within 30 days from discharge. This is a significant drop from FY13, when the 30-day readmission rate was 5.6%. Prior to FY14, the readmission rate trend was slightly upward.
- The Hospital's 30-day readmission rate is much lower than the national trend. According to the most recent NPR, the average 30-day admission rate of state psychiatric hospitals is 6.9%.
- The 30-day, 90-day, and 180-day readmission rates all gradually increased between FY11 and FY13, except that the 180-day readmission rate showed a marginal decrease in FY13. In FY14, however, the readmission rate declined significantly at all levels: from 5.6% to 2.3% for 30-day readmissions, from 13.8% to 8.6% for 90-day readmissions, and from 20.3% to 17.0% for 180-day readmissions.



Figure 22. Trend of Readmission Rate (FY10 ~ FY14) Figure 23. Readmission by Legal Status (FY14)

The readmission rate varies by discharge legal status. In FY14, *Civil* discharges showed the lowest 30-day readmission rate at only 1.4% but their 90-day readmission rate (9.4%) surpassed that of *Pre-trial* discharges (6.2%). Then, the 180-day readmission rate went up to above 16% for both *Civil* and *Pre-trial* discharges. *Post-trial* discharges were most likely to get readmitted: their readmission rate in FY14 was 5.3% for 30-day return, 15.8% for 90-day return, and 23.7% for 180-day return. It is not infrequent see an individual with a post-trial legal status returning to the Hospital because of failure to comply with the conditions of the court-ordered conditional release while in the community or due to an absence of a service ordered by the Court.

Additionally, it should be noted that the number of *Post-trial* discharges from the Hospital is relatively low, and the number of *Post-trial* readmissions is statistically insignificant.

As the readmission rate declined in FY14, the trend of repeated readmissions by the same individuals also demonstrated a decline. The number and percentage of unduplicated individuals involved in at least one readmission noticeably decreased at all levels: of the ten (10) cases readmitted within 30 days in FY14, none involved repeated admissions⁹, whereas two (2) individuals were readmitted within 30 days more than once in FY13. Additionally, of the 37 readmissions within 90 days of discharge in FY14, four (4) or 11% were repeated readmissions, whereas nine (9) or 15% of 59 readmissions were repeated ones in FY13.

| | Category | FY10 | FY11 | FY12 | FY13 | FY14 |
|-------------------------------|---------------------------------|-------|-------|-------|-------|------|
| Discharges | Total | 485 | 444 | 411 | 429 | 429 |
| Discharges | Monthly Average Discharge | 40 | 37 | 34 | 36 | 36 |
| | Total | 33 | 23 | 22 | 24 | 10 |
| 20.0 | Monthly Average | 2.8 | 1.9 | 1.8 | 2.0 | 0.8 |
| <u>30-Day</u> Readmission | Rate | 6.8% | 5.2% | 5.4% | 5.6% | 2.3% |
| Reduinission | Unique IICs of >=1 readmission | 32 | 22 | 20 | 21 | 10 |
| | Unique IICs of >=2 readmissions | 1 | 1 | 2 | 2 | 0 |
| | Total | 63 | 52 | 53 | 59 | 37 |
| | Monthly Average | 5.3 | 4.3 | 4.4 | 4.9 | 3.1 |
| <u>90-Day</u> Readmission | Rate | 13.0% | 11.7% | 12.9% | 13.8% | 8.6% |
| | Unique IICs of >=1 readmission | 58 | 42 | 41 | 50 | 33 |
| | Unique IICs of >=2 readmissions | 5 | 7 | 8 | 7 | 4 |
| | Total | 107 | 87 | 84 | 87 | 73 |
| | Monthly Average | 8.9 | 7.3 | 7.0 | 7.3 | 6.1 |
| <u>180-Day</u> Readmission | Rate | 22.1% | 19.6% | 20.4% | 20.3% | 17% |
| | Unique IICs of >=1 readmission | 95 | 66 | 61 | 67 | 63 |
| | Unique IICs of >=2 readmissions | 10 | 15 | 15 | 15 | 10 |

Table 13. Re-admissions (FY10 ~ FY14)

2. Characteristics of Individuals Readmitted to Care

- Historically, females were readmitted to the Hospital more frequently than males: about one out of three individuals discharged in FY13 were female but half of 30-day readmissions were female. The FY14 trend is very different, however. About 30% of discharges in FY14 were female, but only 10% of 30-day readmissions, one out of 10, was female. The proportion of females was higher among 90-day readmissions and 180-day readmissions but was still far below 30%.
- Those who were readmitted to the Hospital continued to be older than those who were not readmitted in FY14. The median age of all individuals discharged during FY13 was 48 years but more than half of those readmitted were 50 years or older at discharge from their previous episodes prior to returns.
- The likelihood of a 30-day readmission appears to be associated with the individual's length of stay in their previous hospitalization. Individuals who were readmitted within 30 days had a history of a noticeably shorter length of stay in their immediate previous hospitalization than those who were not readmitted. The

⁹ The number of repeated admissions is counted in the readmission group of a longer timeframe only. For example, if an individual was readmitted within 30 days and may have another episode of 90-day readmission during the respective fiscal year, (s)he won't be counted as one with repeated admissions within 30-day timeframe but will be counted in the 90-day timeframe group.

median LOS for those discharged in FY14 was 58 days, meaning half of them had stayed in care for less than 58 days. The median LOS of 30-day readmission population in their previous hospitalization was much shorter, at 44 days. The median LOS for the 90-day readmission group increased to 56 days but is still lower than the median for all discharges. The median LOS for the 180-day readmission group increased further to 58 days, same as the median for all discharged. In the previous year, all of the three groups had a shorter LOS in their previous hospitalization than the entire discharge population and the gap of median LOS between the readmissions groups and all discharges is narrower in FY14. This suggests that prolonged discharges in FY14 may have induced a lower readmission rate. Still, readmissions are more likely to occur among individuals who were discharged with a shorter LOS.

Figure 24. Percentage of Females among ReadmissionFigure 25. Median Age of Readmission PopulationPopulation (FY14)(FY14)



Figure 26. Median LOS during Previous Hospitalization prior to Readmission (FY13 vs. FY14)





V. Clinical Profile of Individuals in Care

More than 90% of individuals in care are diagnosed with a psychotic disorder.

The percentage of individuals with a substance use related disorder decreased for two consecutive years but still half (50%) of IICs were diagnosed with a substance use disorder as of September 2014.

- Nicotine was identified as the most frequently used substance for addiction (32%) in September 2013 among individuals in our care but the percentage of those with a nicotine use related disorder significantly decreased to 24% by September 2014. And, the percentage of individuals with an alcohol use related disorder also decreased to 26% but alcohol is the most frequently used substance as of September 2014.
- The percentage of individuals with a condition on Axis II, including personality disorder and mental retardation diagnosed, decreased for two consecutive years: from 43% in September 2012 to 38% in 2013 and 34% in 2014.
- The percentage of individuals with at least one medical condition or physical disorder identified as of September 2014 was 87%, which is slightly higher than that of last year.
- The obesity rate among individuals in SEH care declined for two consecutive years and as of September 2014, 37% were obese as their BMI was 30 or above. This is only slightly higher than the obesity rate of US adult population (35%) but significantly higher than that of the District of Columbia adults (23%).
- A majority of individuals admitted to our care gained weight consistently within a short time after admission and their likelihood of becoming obese increased as they stayed longer.

1. Clinical Disorders (Axis I)

All of the 278 individuals served on September 30, 2014 had at least one clinical disorder diagnosed on Axis I and many of them (71%) had more than one clinical disorder identified.



A majority of individuals in our care carry a psychotic disorder: as of September 30, 2014, a total of 252 individuals (91%) were diagnosed with a psychotic disorder – schizophrenia, schizophreniform disorder, schizoaffective disorder, delusional disorder or any other psychotic disorders.

¹⁰ Axis I diagnoses were grouped as guided by the DSM-IV-TR Classification of the American Psychiatric Association. Data for each classification herein includes all of those diagnosed with each type of disorder in their Axis I regardless of whether it is identified as their principal diagnosis. APA published the fifth edition of DSM (DSM-5) in May 2013, which is currently in the process of implementation nation-wide and SEH is in the process of updating its diagnostic coding system.

- There were 48 IICs (17%) with a cognitive disorder, which includes delirium, dementia, and amnestic and other cognitive disorders. This is a slight decrease from the previous year (19%).
- Thirteen percent (13%) or 35 individuals had a mood disorder, which includes depressive disorders and bipolar disorders. This is a slight increase from 10% in the previous year.
- The Hospital has seen a continued decrease in the percentage of individuals with co-occurring mental health and substance use disorders over the past few years. As of September 30, 2014, a total of 140 individuals or 50% were diagnosed as having a substance use disorder. There were 59% in September 2012 and 55% in September 2013 who had co-occurring disorders.
- The percentage of individuals who have a Not Otherwise Specified (NOS) diagnosis¹¹ on at least one of their Axis I diagnoses continued to increase slightly: as of September 30, 2014, 27% had a NOS diagnosis while 23% in September 2012 and 25% in September 2013 did so.
- Nine (9) individuals (3%) were identified as Noncompliance with Treatment (DSM-IV code V15.81)¹².

2. Substance Use Disorders

As the percentage of individuals diagnosed with a substance use disorder declined, the trend of frequently identified substances also changed. The four most frequently identified substances among individuals in SEH care have been consistently nicotine, alcohol, cannabis, and cocaine for the past three years. However, the percentage for each substance changed each year. Those with alcohol dependence or abuse decreased noticeably for two consecutive years: from 37% in 2012 to 30% in 2013 and 26% in 2014 although alcohol is now identified as the most frequently used substance. Those with nicotine dependence or abuse decreased considerably to 24% as of September 2014 from 32% in FY13 following an increase from 27% in FY12.



Figure 28. Individuals in Care with Substance Use Related Diagnosis by Substance Type (FY12 ~ FY14)

¹¹ An NOS diagnosis reflects that there is enough information available to indicate the class of disorder that is present, but further specification is not possible, either because there is no sufficient information to make a more specific diagnosis or because the clinical feature of the disorder does not meet the criteria for any of the specific categories in that class. (*DSM-IV-TR, American Psychiatric Association.*) The most frequent NOS diagnoses among SEH patients include '298.9 Psychotic Disorder NOS', '294.8 Dementia NOS' and '294.9 Cognitive Disorder NOS.

¹² "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.

Many of those with a substance use disorder are identified as using more than one substance. However, the overall percentage of those with multiple substance use disorders decreased: of the 140 individuals who had at least one substance use disorder in September 2014, 102 individuals, which account for 37% of all in care, were identified as using more than one substance. In FY13, 41% were identified in this group.

3. Personality Disorders and/or Mental Retardation (Axis II)

- Fewer individuals in care were diagnosed with a condition on Axis II and more individuals had their Axis II diagnosis deferred¹³. The percentage of individuals with one or more diagnoses on Axis II decreased in FY14 from a year ago. As of September 30, 2014, 122 (44%) had *No Diagnosis or Condition on Axis II* (DSM-VI Code V71.09), 61 (22%) had *Diagnosis Deferred on Axis II* (DSM-VI Code 799.9), and the remaining 95 or 34% of IICs had one or more diagnoses identified on Axis II. On September 30, 2013, 38% of IICs had one or more diagnoses in the term of the term.
- A total of 66 individuals (24% of all in care) had a personality disorder and this continued a slight decrease from 25% in FY13 and 28% in FY12.
- A total of 42 individuals (15%) were diagnosed with either *Mental Retardation* (DSM-VI Code 317~319) or *Borderline Intellectual Functioning* (DSM-VI Code V62.89)¹⁴ and this is a decrease from last year.
- A total of 12 individuals (4%) had a NOS diagnosis on Axis II.



Figure 29. Individuals in Care with Diagnosis on Axis II (FY12 ~ FY14)

4. General Medical Conditions (Axis III)

- The percentage of individuals with one or more medical conditions identified on Axis III increased from the previous year: 241 or 87% of individuals in care on September 30, 2014 had at least one identified medical condition or physical disorder, whereas 84% of IICs on September 30, 2013 did so.
- The overall pattern of medical conditions prevalent among individuals in our care on September 30, 2014 was very similar to that of the previous years. Nearly half (47%) of individuals in SEH care were diagnosed with *Hypertension* and one of four IICs (24%) were diagnosed with *Hyperlipidemia*. A total of 61 or 22% were diagnosed as having *Type II Diabetes*, 36 or 13% were diagnosed as having *Anemia* or a blood disease, 28 or

¹³ "Indicates insufficient information to make an Axis-II diagnosis", DSM-IV-TR, American Psychiatric Association.

¹⁴ "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." DSM-IV-TR, American Psychiatric Association.

10% were diagnosed with *Tardive Dyskinesia* (*TD*)¹⁵, and 18 or 6% were diagnosed as having a seizure disorder. Those with thyroid disorders (9%) continued to decrease from 11% in FY13 and 14% in FY12.

A total of 80 individuals (29%) were diagnosed on Axis III with Obesity or Overweight: 61 (22%) had an obesity diagnosis and additionally 19 (7%) had an overweight diagnosis on Axis III. This was a marked decrease from 34% last year. However, it should be noted that there remained a considerable discrepancy between Axis-III diagnoses on obesity/overweight and *Body Mass Index* (BMI) calculation results from actual weight and height information; the number of individuals with obesity projected from the BMI calculation¹⁶ as of September 30, 2014 was 99 (37%) and additionally 91 individuals (33%) were overweight as their BMI was between 25 and 30. A further analysis of the findings on obesity is presented on section *V.7 Weight Gain and Obesity* on page 34 below.



Figure 30. Individuals in Care with Major Medical Conditions (FY12 ~ FY14)





¹⁵ "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.

¹⁶ According to the Centers for Disease Control and Prevention (CDC), an adult who has a BMI of 30 or higher is considered obese and an adult who has a BMI between 25 and 29.9 is considered overweight.

5. Psychosocial and Environmental Factors Contributing to the Disorder (Axis IV)

- Of the 278 individuals in care as of September 30, 2014, 99% or 276 had at least one identified psychosocial and environmental problem and 96% or 267 had more than one problem identified.
- Problems with 'social environment' (82%), 'occupation' (74%), 'housing'(74%), and 'primary support group' (74%) were identified as major contributing psychosocial and environmental factors. Also, 61% were identified as having problems related to 'interaction with the legal system or crime'.

Figure 32. Individuals in Care with Psychosocial/Environmental Problems (Axis IV) Identified (09/30/14)



6. Global Assessment of Functioning [GAF] (Axis V)¹⁷

- The proportion of individuals with their GAF score assessed to be 30 or below (*Major Impairment in Several Areas* or Unable to Function in Almost All Areas) increased for two consecutive years: as of September 2012, this group comprised about 36% of the then patient population with a GAF score available. The percentage for the same group increased to 39% as of September 2013 and 43% as of September 2014. However, for the same time period, the group of individuals assessed to be with a GAF score at 20 or lower decreased.
- As those in the lower functioning (with a GAF score 40 or below) increased, those with a GAF score above 50 decreased and

Figure 33. Trend of GAF Score (09/30/10 ~ 09/30/14)



Office of Statistics and Reporting

¹⁷ GAF is a numeric scale (0 through 100) used by mental health clinicians and doctors to rate the social, occupational and psychological functioning of adults. Higher scores indicate higher functioning. It should be noted, however, the GAF scale is a subjective scale and it could vary from one physician to another and over time. In fact, it is no longer included in the DSM V but the Hospital was still using Axis V as of FY14.

the average GAF score (34.7) is lower than the FY13 average (35.3).

| Reference: GAF scale chart, Dr. Ray Wintker of the Murfree | boro VAMC |
|------------------------------------------------------------|-----------|
|------------------------------------------------------------|-----------|

| Domain | Symptom Severity | Level of Functioning |
|----------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1~10 | Persistent danger of severely hurting self or others or serious suicidal act with clear expectation of death | Persistent inability to maintain minimal personal hygiene |
| 11 ~ 20 | Some danger of hurting self or others or gross impairment in communication | Occasionally fails to maintain minimal personal hygiene |
| 21 - 30 | Behavior is considerably influenced by delusions or serious impairment in communication or judgment | Inability to function in almost all areas |
| 31 - 40 | Some impairment in reality testing or communication | Major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood |
| 41 - 50 | Serious symptoms | Any serious impairment in social, occupational, or school functioning |
| 51 - 60 | Moderate symptoms | Moderate difficulty in social, occupational, or school functioning |
| 61 - 70 | Some mild symptoms | Some difficulty in social or occupational functioning, but generally functioning pretty well, has some meaningful interpersonal relationships. |
| 71 - 80 | If symptoms are present, they are transient and expectable reactions to psychosocial stressors | No more than slight impairment in social, occupational, or school functioning |
| 81 - 90 | Absent or minimal symptoms, Generally satisfied with life. No more than everyday problems or concerns. | Good functioning in all areas, interested and involved in a wide range of activities, socially effective, |
| 91 - 100 | No symptoms | Superior functioning |

7. Weight Gain and Obesity

- Out of 278 individuals remaining in care as of September 30, 2014, 270 or 97% had their weight and height information available from the vital sign records and/or the most recent *History and Physical Assessment* in Avatar.
- Of those 270 individuals with weight and height data available, 99 or 37% were obese as their BMI was 30 or above. This is a decrease from 42% in the previous year, but much higher than those formally diagnosed to be obese on Axis-III (61).
- The percentage of individuals considered overweight but not obese as their BMI fell between 25 and 30 increased from 31% in September 2013 to 34% in September 2014. But, again, this is cignificantly higher than these dia

Figure 34. Distribution of Individuals in Care by BMI and Obesity Population (09/03/10 ~ 9/30/14)



is significantly higher than those diagnosed to be overweight on Axis III (7%).

Despite the overall declining trend in the percentage of individuals with obesity or overweight over the past few years, individuals in our care have a noticeably high rate of obesity or overweight than the general population in the District of Columbia: 70% of individuals in our care are considered to be overweight (33.7%) or obese (36.7%), whereas 54% of the adult population in the District of Columbia were estimated to be obese (23%) or overweight (32%) between 2011 and 2012 according to a recent study conducted by the Center for Disease Control and Prevention (CDC)¹⁸.

- The obesity rate among individuals in SEH care (37%) is only slightly higher than the obesity rate among adults in the United States: about 35% of adults in the United States were estimated to be obese and 34% to be overweight.
- There is much research suggesting that the prevalence of obesity and obesity-related diseases is higher among individuals with psychiatric illness than in the general population, particularly for those residing in psychiatric inpatient settings. Reasons may include frequent metabolic side effects of psychotropic medications and other environmental factors¹⁹. However, there is no representative statistics on the obesity rate among inpatients served in behavioral health care facilities that can be compared with the obesity rate for individuals in SEH care.



Figure 35. Weight Gain or Loss by Length of Stay from Admission (FY14)

Our data tracing weight changes of individuals in care from their admissions demonstrates that a majority of individuals admitted to our care gain weight while staying in care: among individuals admitted in FY14, 79% gained their weight within 3 to 30 days upon admission. The percentage of individuals who gained weight compared with the weight at the time of admission remained at around 80% ²⁰ during their first ten (10) months of hospitalization.

¹⁸ Prevalence of Childhood and Adult Obesity in the United States, 2011-2012, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland

¹⁹ Weight-Gain in Psychiatric Treatment: Risks, Implications, and Strategies for Prevention and Management, Amresh Shrivastava and Megan E. Johnston, Mens Sana Monographs (Vol.8), US National Library of Medicine, National Institutes of Health, December 2010.

²⁰ This analysis includes a total of 411 individuals who had been admitted during FY14 (10/01/13~09/30/14) and who had weight and height records available either from the *History & Physical Assessment* (H&P) or *Vital Sign* records in Avatar. Weight and height data measured at admission (within 2 days from admission) was used as baseline data and all of the following weight records available from the vital sign table were grouped by 30 day increments. It should be noted that not all of the 411 admissions with weight data available at admission had their subsequent weight data measured by 30 day increments. If the weight data was not available for a particular time period for an individual or the individual had been already discharged, that case was excluded from the denominator for the respective time period so the result herein is based on available data only and the denominator (n) for each respective time period is indicated in each figure. Any noticeable outliers (i.e. extremely low or high numbers) caused by apparent data entry error were removed from analysis to increase the data reliability. Also, if somebody had their weight data measure more than once within the respective time frame, the later one was used. Finally, this analysis is based on observations only for admissions that occurred in FY14. Nearly two out of three admissions were discharged within 90 days and some of them may have been in care for less than a year from their admission, at the time of data extraction. Accordingly, the total number of cases with available weight data decreased for every incremental period. Particularly, the total number of cases available for 150 days of admissions or thereafter is too small and the margin of error would be larger.

- The level of weight gain increases with longer hospital stay: the percentage of average weight gain for FY14 admissions was about 3% by 3-30 days from admission. Then, it increased to above 4% by 31-60 days, above 6% by 61-90 days and 8.5% by 8-10 months from admission.
- However, like the recent declining trend of obesity rate, the level of weight gain among FY14 admissions was moderately slower than that of the FY13 admission group: in FY13, the percentage of weight gain reached nearly 9% by 91-120 day time frame, whereas the average weight gain for the same time frame in FY14 was 6%.



* Data measured for FY13 admissions did not include those who stayed in care for shorter than 90 days and thus the total applicable number (n) for FY13 is much smaller than that for FY14, which included all admissions regardless of LOS. Also, data herein includes only those who had their weigh data at admission available in the system.

Still, the weight gain occurs so quickly within a short time frame for many admissions and consequently their obesity rate increases as they stay longer: as indicated above, only 26% of individuals admitted in FY14 had their BMI at 30 or above at the time of admission, but the obesity rate among the same admission group increased to 38% by 61-90 day time frame. The overall obesity rate continued to increase with minor fluctuation for those staying even longer at the Hospital: 58% by 241-300 days.





* Data herein includs only those who had their weight and height data at admission availabel in the system to calculate BMI.

VI. Unusual Incidents

- On average, 193 unusual incidents (UI) were reported each month during FY14. This is an increase of 28% from FY13. This increase is primarily attributed to an increase of admissions as a majority of violence related incidents are triggered by recent admissions: in FY14, 24% of aggressors in physical assaults and 28% of aggressors in aggressive behaviors initiated such incidents when they had been in care only for less than 30 days while those in care for less than 30 days composed only 12% to 15% on a given day.
- Individuals in care are more likely to get agitated and become aggressive, resulting in frequent violence related UIs during the process of changing their physical location and activities when there are more stimuli and noise in the environment.
- Often times, a small number of the same individuals in care get involved repeatedly in violence related incidents: during FY14, 25 individuals (less than 4% of all individuals served) were accountable for nearly half (46%) of physical assaults or aggressive behaviors. Victimization is also frequently repeated: during FY14, 15 individuals in care and 9 employees each were victimized by physical assaults or aggressive behaviors five (5) times or more.
- Nearly two out of three assaults or aggressive behaviors identified to be at severe level were triggered by individuals admitted with a pre-trial legal status.
- The number of physical assaults increased in FY14 along with other types of violence related incidents but the relative frequency of physical assaults compared with aggressive behaviors continued to decrease. This trend may be attributed to improved responses and interventions to a violent event by the treatment team as they successfully prevented many aggressive behaviors from turning into assaults.
- > Fall incidents, and the number of unique individuals who fell repeatedly increased in FY14.
- Physical Injury incidents increased for both IICs and staff in FY14. Also, 47% of patient injuries and 73% of staff injuries were directly triggered by physical assaults or falls related to assaults.

1. Volume and Trend of Unusual Incident (UI) Reports

- During FY14, the SEH Risk Manager received a total of 2,321 unusual incident (UI) reports, which is translated into an average of 193 per month or about six (6) per day. This is an increase of 28% from FY13, when a total of 1,808 or an average of 151 UIs per month were reported²¹.
- The number of Uls, when excluding any medication variance (MV) and medication/vital sign refusal events,²² had been trending



Figure 38. Average Monthly Number of Unusual

Incidents (UIs) between FY11 and FY14

²¹ A single unusual incident can involve multiple types of events. For example, a physical assault may accompany an injury or an aggressive behavior incident may accompany a psychiatric emergency. The total number of incidents herein is a distinct count of unique incidents regardless of how many types of events were identified for each incident.

²² UI data in this report excludes all medication variance (MV) events, and medication or vital sign refusal events that used to be reported as UIs until FY13. A mediation variance event was no longer reported as an UI since October 2013, nor was a medication or vital sign refusal since May 2014. While our previous Trend Analysis reports included them, this report re-analyzed the prior years' UI trend data after excluding them, unless the incident involved other types of UIs, for more accurate assessment of the trend. Also, it should be noted that the trend of MV or medication/vital sign refusal events often reflected more the reporting pattern than actual frequencies of incident.

downward between FY11 and FY13 but increased significantly in FY14. This is likely due to an increase in the number of admissions and an increase in the daily census in FY14, which is further presented below.

- Most of the UIs reported were patient involved incidents where at least one individual in care participated as an aggressor, victim or unspecified role. On average, 12 UIs per month involved no individual in care but pertained only to (an) employee(s).
- During FY14, the monthly number of UIs ranged between 169 and 199 except for the following three (3) months when it was well above 200: January, April and August of 2014. These months are also the three (3) months with the highest admissions in FY14.



Figure 39. Trend in the Number of UIs by Month (FY14)

The trend of UIs often mirrors the trend of admissions to SEH. The Hospital's multiple studies demonstrate that individuals in early stage of hospitalization are more likely to be involved in unusual incidents, particularly violence related incidents. In addition to the aforementioned three months with the highest number of UIs in FY14, the trend of the patient UI rate²³ over the past several years closely resembled the trend in the number of admissions over the same period of time.

Figure 40. Trend in the Number of Admissions vs. Trend of Patient UI Rate (FY12 ~ FY14)



²³ The patient UI rate measures the number of patient-involved incidents occurring per 1,000 patient days and thus factors in the number of patients served each month, allowing us to assess the UI trend more objectively than the monthly total number of UIs.

- From FY11 through FY13, the patient UI rate was mostly below 20 per 1,000 patient days, ranging between 15 and 25. The patient UI rate, however, has not fallen below 20 since October 2013 and reached its highest level at 28 per 1000 patient days, or eight (8) per day, in August 2014. The average patient UI rate for FY14 was 22.6, which is an increase from 17.6 in FY13.
- On average, one out of three individuals served at the Hospital is involved in at least one incident as an aggressor, victim, witness or unidentified role during a month of time. In FY14, the Hospital served an average of 303 unique IICs per month. Of those, 109 or 36% were involved in at least one UI in any role each month. However, 57 out of 109 experienced only one incident, whereas the other 52 were involved in more than one incident within a month's time. Of the 52 individuals, about eight (8) or 3% of the total population each were involved in six (6) or more UIs within a month's time. These numbers, however, do not distinguish the role played in each incident. The section *VI.4 Aggressors and Victims of Physical Assault and Aggressive Behavior Incidents* on page 45 below will present further data focusing on frequent aggressors and victims of violence related UIs.

| # of Incidents Involved | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Average | Percent |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|---------|
| 1 Incident | 66 | 47 | 50 | 61 | 57 | 54 | 61 | 61 | 58 | 59 | 54 | 50 | 56.5 | 19% |
| 2 Incidents | 23 | 21 | 27 | 25 | 24 | 21 | 32 | 22 | 15 | 22 | 22 | 28 | 23.5 | 8% |
| 3~5 Incidents | 18 | 25 | 19 | 19 | 19 | 19 | 31 | 13 | 17 | 15 | 26 | 18 | 19.9 | 7% |
| >=6 Incidents | 5 | 6 | 7 | 10 | 5 | 9 | 6 | 10 | 7 | 11 | 13 | 10 | 8.3 | 3% |
| Total IICs involved in UI | 112 | 101 | 104 | 117 | 108 | 103 | 131 | 106 | 97 | 107 | 115 | 106 | 109 | 36% |
| Total served during month | 299 | 291 | 287 | 306 | 300 | 299 | 315 | 306 | 300 | 305 | 312 | 312 | 303 | 100% |

Table 14. Unique Individuals in Care Involved in UIs (FY14)

* One unique individual may be involved in multiple UIs in different roles throughout the year.

2. UI by Type and Severity

A major incident is defined as an incident which poses a significant danger, or is likely to result or has resulted in serious consequences to the health and safety of individuals in care, staff or visitors.²⁴ During FY14, the overall percentage of major UIs for the year was 73%,²⁵ ranging between 66% and 78% each month.

Table 15. Major UIs vs. Non-Major UIs (FY14)

| Major vs. Non-major | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Total | Mean | Percent |
|-------------------------|-----|-----|-----|------------|-----|------------|-----|-----|-----|-----|------------|-----|-------|------|---------|
| Major Incidents (#) | 127 | 128 | 123 | 140 | 129 | 142 | 146 | 147 | 126 | 150 | 190 | 148 | 1696 | 141 | 73% |
| (%) | 74% | 72% | 69% | 66% | 76% | 74% | 69% | 76% | 72% | 75% | 76% | 78% | 73% | | |
| Non-Major Incidents (#) | 45 | 50 | 56 | 73 | 40 | 50 | 67 | 46 | 48 | 49 | 59 | 42 | 625 | 52 | 27% |

- All incidents are coded for their severity level by the Risk Management Office based on the Hospital's policy. A majority of UIs reported during FY14 were coded as low (36%) or medium (46%) in severity and the other 18% were considered high severity.
- Both the number and the percentage of high severity incidents declined through FY13 but the trend was reversed in FY14: the average number of high severity incidents during FY14 was 35 per month, which is a

²⁴ Unusual Incident Reporting and Documentation Policy, Saint Elizabeths Hospital, Effective 1/22/2003 and revised 10/31/2013.

²⁵ This is after excluding medication refusal and vital sign refusal events, most of which were considered to be non-major UIs.

considerable increase from the average of 19 per month in FY13. Additionally, a total of two incidents were considered to be catastrophic²⁶ during FY14.







3. Physical Assaults and Violence Related UIs

- Of the 2321 UIs reported during FY14, 1383 (115 per month) or 60% are those related to some type of violence, which we define to include aggressive behavior, physical/sexual assault, property destruction, psychiatric emergency, seclusion/restraint event, self-injurious behavior, or suicide attempt/gesture. Both the number and the proportion of violence related UIs among all UIs increased gradually over the past three years²⁷: in FY12, 44% of UIs were violence related UIs and 52% in FY13. The recent increase of violence related incidents, particularly in late FY13 and throughout FY14, is most likely to have been triggered by the increased admissions and high census. This is further examined and presented in *Figure 48. Trend of Violence related UIs vs. Trend of Admissions and Census (FY14)* on page 43 below.
- Most of violence related UIs (93%) involve either a physical assault, in which an individual uses unwarranted physical force against peers or staff members, or aggressive behavior, in which an individual exhibits intimidating or threatening behavior towards a peer or staff without any physical contact. In addition, those incidents frequently accompany psychiatric emergencies or involve other types of violence such as property destruction or self-injurious behaviors simultaneously.
- The increase of violence related incidents in FY14 is reflected in every type and form of violence. The average number of incidents involving aggressive behaviors increased from 38 per month in FY13 to 61 in FY14, physical assaults from 36 to 46, property destruction incidents from five (5) to 10, and psychiatric emergencies from 15 to 45 per month.
- Self-injurious behavior or suicide attempt/gesture is another form of violence being monitored and reported as a UI. The frequency of self-injurious behavior incidents and any suicide attempts or gestures, although it is relatively a small number, also increased. During FY14, on average, seven (7) UIs per month involved self-

 ²⁶ A catastrophic UI is an incident where there is a death or major permanent loss of function for an individual involved.
 ²⁷ For data consistency and fair assessment of the trend, the proportion of violence related UIs for FY11 through FY13 has been recalculated after excluding MVs and medication/vital sign refusal events, which used to be part of UIs prior to FY14.

injurious behaviors while three (3) of such incidents were reported per month in FY13. There were two (2) incidents that involved a suicide attempt or gesture during FY14.

Self-harming behaviors are often repeated by the same individuals. During FY14, a total of 92 incidents involving self-injurious behavior or suicide attempt/gesture were received. Of those, 42 incidents (46%) were triggered by just three (3) individuals.



Figure 43. Monthly Average Number of Violence Related UIs (FY11 ~ FY14)





Despite the noticeable increase in the number of physical assaults from FY13 to FY14, it is noteworthy that the 'relative' frequency of physical assaults decreased consistently over the past couple of years when compared with the frequency of aggressive behaviors, which did not involve any physical contact. In FY11 and FY12, more than half of violence related incidents were physical assaults. In FY13, the percentage of physical assaults among violence UIs declined to 46% and aggressive behaviors composed nearly half of violence related UIs (48%). During FY14, the percentage of aggressive behaviors increased further to 53%, whereas the proportion of physical assaults decreased to 40%. This trend may be partially explained as a result of improved responses and interventions to a violent event by the treatment team, which may have successfully prevented many aggressive behaviors from turning into assaults.²⁸

²⁸ Once an aggressive behavior becomes a physical assault, it is reported and counted only as a physical assault while the incident remains as an aggressive behavior if it does not result in any physical contact. The Hospital is conducting a further study to analyze this trend in detail in FY15.

- Another noticeable trend emerging from violence related incidents is a significant increase in the frequency of using seclusion and restraint, particularly in FY13 and FY14. The total number of incidents involving seclusion and/or restraint events was 34 in FY12 and it increased to 65 in FY13 and 191 in FY14.²⁹
- While it is a general goal to reduce the use of seclusion or restraint, these are sometimes necessary and effective when used properly to prevent injury to an IIC or staff. Our data indicates that seclusions or restraints are being used primarily when aggressive behaviors cannot be managed by

Figure 45. Frequency of Seclusion/Restraint Events by Association with Assaults or Aggressive Behaviors (FY11 ~ FY14)



other interventions, and may have prevented them from becoming physical assaults. In FY11 and FY12, respectively, most of seclusion and restraint events followed physical assault incidents. In FY13 and FY14, however, a majority of seclusion and restraint events were used during or after aggressive behaviors that did not evolve into physical assaults.

Despite the increase in the use of seclusion and restraint at the Hospital over the past two years, the percentage of individuals secluded or restrained and their seclusion and restraint hours rate at SEH are far below the national average: in FY14, on average, 0.4% and 2.1% of all individuals served at SEH were involved in one or more restraint and seclusion event, respectively, whereas the most recent NPR indicates 5.8% for restraint and 2.4% for seclusion as the national average. Likewise, during FY14, the restraint hours rate at SEH was 0.03 per 1,000 patient hours while its national average was 0.71, and the



seclusion hours rate at SEH was 0.073 while its national average was 0.44.

A series of our previous studies on violence suggest that individuals who have been recently admitted are more likely to engage in aggressive acts while they are adjusting to a new environment and their medication regimens. The FY14 trend of aggressive behaviors and physical assaults continued to mirror the trend of

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²⁹ An incident may involve both a seclusion event and a restraint event. Such a case is counted only once herein.

admissions and census: the frequency of violence related incidents increased during or right after an increase of admissions and average daily census. Likewise, the frequency of such incidents tends to decrease when admissions and census decrease. A significantly high number of aggressive behaviors and physical assaults were reported in the months of January, April and August, all of which experienced a steep increase in admissions and census.



Figure 48. Trend of Violence related UIs vs. Trend of Admissions and Census (FY14)

A majority of violence related incidents took place on the admission units (1D, 1E, 1F & 1G). This further demonstrates that individuals who have been recently admitted are more likely to present high risk of violence: 57% of aggressive behaviors, 53% of physical assaults and 77% of psychiatric emergency incidents reported in FY14 occurred on one of the four (4) admission units.



Although all of the admission units have higher numbers of violence related incidents overall, the type of most frequent incidents varies by unit. Aggressive behaviors were reported most frequently from 1F, which served primarily male individuals admitted with a pre-trial legal status: a total of 166 incidents for FY14 or 14

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per month. Unit 1F also recorded the highest frequency of psychiatric emergencies at 125 (10 per month) while reporting physical assaults least frequently (53 in total or four per month) among admission units. Unit 1G that also served primarily male individuals admitted with a pre-trial legal status had the highest number of physical assaults (91). Unit 1D served primarily the female individuals admitted with a civil or pre-trial legal status and it reported the second highest number of physical assaults (86) in FY14. Unit 1D, then, reported 64 aggressive behaviors, which is discernibly lower than other admission units. Unit 1E that served both male and female individuals admitted with a civil legal status had a total of 101 incidents involving psychiatric emergencies but only 21 of them accompanied code 13.³⁰

- In FY14, the number and the proportion of high severity physical assaults significantly increased. In FY13, there were a total of 56 physical assaults (5 per month) considered to be high severity and they composed about 13% of all physical assaults. The number of high severity physical assaults in FY14 increased to a total of 128 (11 per month) and they made up 23% of all physical assaults for the year.
- The overall time pattern of physical assault incidents in FY14 is similar to the trend in FY12 and FY13 but there is a fairly notable shift in the peak hours of physical assaults. The frequency of physical assaults starts rising from 5:00 a.m. as IICs start waking up. It increases every hour, more noticeably between 8:00 a.m. and 8:59 a.m., right after breakfast, morning medication administration and shift changes. In FY12 and FY13, this was the peak hour when physical assaults occurred most frequently. In FY14, however, the peak hour for physical assaults shifted to between 9:00 a.m. and 9:59 a.m. Particularly,



Figure 51. Physical Assaults by Severity (FY11 ~ FY14)

the number of physical assaults reported after 9:30 a.m. and before 10:00 a.m. increased by 160%. This appears to be related to a change made in FY14 regarding the start time of treatment groups at the Therapeutic Learning Center (TLC). Prior to January 2014, most of treatment groups at TLC started at 9:00 a.m. and individuals moved from units to TLC right before 9:00 a.m. Since January 2014, however, admission units started to hold community meetings within their units at 9:00 a.m. as frequently as daily. This shifted the start time of treatment groups at TLC for many individuals to 10:00 a.m. Accordingly, individuals participating in treatment groups would get ready and escorted to TLC after the community meetings but before 10:00 a.m., generally between 9:30 a.m. and 10:00 a.m.

Once a majority of individuals join treatment groups and activities at 10:00 a.m., the frequency of physical assaults markedly declines until lunch break between 12:00 a.m. and 1:00 p.m. A similar cycle of ups and downs repeats until the evening hours; the number of assaults tends to increase when many individuals move from one place to another, such as return to unit from TLC (2:00 p.m. to 3:00 p.m.) or return to unit after exercise of privilege (5:00 p.m. to 6:00 p.m.). Then, the frequency of incidents declined following dinner and evening medication administration. While a comprehensive study is recommended to analyze further, this data suggests that individuals in care are more likely to get agitated and become aggressive

³⁰ A code 13 is called and broadcasted hospital-wide for additional help to deal with the crisis that is exceeding the capacity of the staff surrounding the situation. Not every psychiatric emergency incident involves a code 13 but any incident resulting in a code 13 is considered to be a psychiatric emergency incident.

during the process of changing their physical location and activities, which may produce a more stimulating environment with higher levels of noise.



Figure 52. Time Trend of Physical Assault Incidents (FY12 ~ FY14)

4. Aggressors and Victims of Physical Assault and Aggressive Behavior Incidents

Like the pattern found for overall unusual incidents, a relatively small number of individuals trigger violence related incidents repeatedly. During FY14, the Hospital served a total of 636 unique individuals who stayed for at least one day in care. Of those, 401 were never alleged as aggressor for any violence related incidents and 235 or 37% were identified as aggressors for at least one physical assault or aggressive behavior incident during the 12 month time period. Of those 235 individuals, 71 were reported to have initiated a violence related incident only once, and 139 or 26% of all served were aggressors for more than one incident. These 139 repeat aggressors include 25 individuals, each of whom was identified as aggressors in more than 10 incidents during FY14. And these 25 individuals (less than 4% of all individuals served) were accountable for nearly half (46%) of physical assaults or aggressive behaviors.

Figure 53. Number of Unique Individuals by Level of Frequencies of being Aggressors in Physical Assaults or Aggressive Behaviors in FY14



Figure 54. Percentage of Physical Assaults or Aggressive Behaviors Triggered by Repeat Aggressors (FY14)

Total Frequency of Participatios as Aggressors (n=1146)
 Unique Individuals Identified as Aggressors (n=235)
 * Total unique individuals served in FY14: 636 511



<u>n=636 (All Served in FY14)</u>

As addressed on page 41 above, individuals recently admitted to the Hospital are more likely to engage in aggressive behaviors and/or physical assaults than those who have been in care for a longer period. On a given day, about 12% to 15% of individuals in our care have been hospitalized for less than 30 days. During FY14, however, 24% of aggressors in physical assaults and 28% of aggressors in aggressive behaviors initiated such incidents when they had been in care for less than 30 days. Particularly, aggressive behaviors are even more prevalent among those in care for shorter length: more than half of the aggressive behavior incidents occurred among those who had been in care for less than 6 months. This may reflect the degree of psychosis among admissions to the Hospital. Also, staff may not have learned yet about individuals who have been just hospitalized and who are likely to feel more anxious than usual.



Figure 55. LOS of All in Care vs. Aggressors at Incident (FY14)

Figure 56. Median LOS for Aggressors vs. All Individuals in Care (FY14)



* This is the total number of aggressor records for the 1,106 incidents, some of which may have more than one aggressor.

- The median LOS data for aggressors vs. all individuals in care also demonstrates the same pattern: the median LOS for all IICs on September 30, 2014 was 394 days, whereas the median LOS of aggressors for physical assaults and LOS of aggressive behaviors at the time of incidents were 246 days and 157 days, respectively.
- Aggressors' admission legal status and its relationship to the severity of violence related incidents are also noteworthy. About 47% of physical assaults and aggressive behaviors were triggered by individuals admitted with a civil legal status while 42% were triggered by those admitted with a *Pre-trial* legal status. However, nearly two out of three (64% or 155 of 241) aggressors responsible for high severity incidents were those

admitted with a *Pre-trial* legal status, whereas only 31% of aggressors responsible for high severity incidents had been admitted with a civil legal status.

- Often times, a physical assault or aggressive behavior targets a specific individual in care or staff member although not every incident has clearly identified victims. Of the total of 1,106 incidents involving physical assaults and aggressive behaviors in FY14, 367 or 33% identified at least one IIC as a victim and 374 or 34% identified at least one staff member as a victim. It should be noted that some incidents involved more than one victim and a total of 393 individuals in care and 461 employees were reported as victims for those incidents.
- Some individuals in care or employees were reported to be victims for more than one incident. There were a total of 197 unique IICs and 267 unique employees who were identified as victims from incidents involving physical assaults or aggressive behaviors in FY14.
- Like the small number of IICs were identified as repeat aggressors, there were a small number of IICs and employees who were identified as repeat victims of physical assaults or aggressive behavior incidents; a total of 24 IICs were reported as victims for a total of 133 assaults or aggressive behaviors together, and 25 employees were reported as victims for a total of 118 assaults or aggressive behaviors. Particularly, 15 IICs and nine (9) employees each were victimized by physical assaults or aggressive behaviors for five (5) times or more.



Figure 58. Unique Individuals and Employees by

Figure 59. Percentage of Physical Assaults or Aggressive Behaviors by Frequent Victims (FY14)

- Total Frequency of Vicimizations (n=461)
- Unique Employees Identified as Victims (n=267)



5. Medical Emergency related Incidents

The number of incidents reported as medical emergencies, which can involve individuals, staff members or visitors, increased to a total of 251 or 21 per month in FY14, from a total of 184 or 15 per month in FY13. It should be noted, however, the trend of actual emergency medical leaves that are usually transfers of individuals in care to other facilities remained unchanged in FY14 (see *Chapter I.7 above* on page 15).

 Over one third (35%) of medical emergency incidents occurred for individuals residing in the geriatric units (1A and 1B) which remains unchanged from FY13. About another one third (32%) of medical emergency incidents took place among admission units (1D, 1E, 1F & 1G).

Figure 60. Medical Emergency related UIs (FY12 ~ FY14)



6. Falls

A total of 261 fall incidents (22 per month) were reported in FY14. Of those, a total of 22 incidents involved a staff or visitor only. The other 239 incidents involved individuals in care, including four incidents that involved both IICs and staff members. The monthly average number of falls involving IICs and those involving staff both increased in FY14: an average of 20 patient falls, an increase from 17 in FY13, and an average of three (3) staff falls per month, up from two (2) in FY13. The patient fall rate, which factors in the census, also indicates an increase in FY14.



Figure 62. Average Number of Unique Individuals who Fell per Month and Patient Fall Rate (FY11 ~ FY14)



Some individuals fall more than once within a month or within a year. In FY14, the number of unique individuals who fell at least once increased and those who fell repeatedly increased more noticeably. In FY13, on average, about 13 unique individuals fell per month, including an average of two (2) individuals who had more than one fall during a month time period. In FY14, the number of unique individuals with a fall incident increased to 15 per month and so did the number of individuals with repeated fall incidents: of those 15 individuals, on average, almost four (4) were involved in more than one fall incident within each month. The repetitiveness of fall incidents by the same patient is more evident when data is aggregated and

analyzed for the entire fiscal year. During FY14, the number of unique individuals who fell at least once was 100 and of those, 40 individuals fell more than once. This means that of the 239 patient fall incidents, 60 falls were one-time incident by 60 different individuals, and the other 179 falls or 75% of fall incidents involved just 40 individuals who had repeated fall incidents within the fiscal year. This includes 24 individuals who had three or more falls.

While a majority of reported fall incidents are patient falls, a staff fall is more likely to involve an injury. In FY14, a total of 243 individuals in care were reported for fall incidents and a total of 30 employees were reported to have fallen.³¹ Of those 243 IICs who fell, 63 or 26% also had some level of injury reported, whereas 20 or 67% of 30 staff who fell were reported to have injuries. Further reviews indicate that half of those falls resulting in staff injuries were caused by environmental factors such as water or mat inside the hospital and ice around the parking lot of the campus. It is suspected that staff falls may not have been always reported unless





the fall incident resulted in an injury, contributing to a higher percentage in the likelihood of injury when staff fell.



Figure 64. Individuals in Care who Fell by Unit (FY14)

 Until FY13, nearly half of patient falls involved individuals from one of the geriatric units (1A and 1B). In FY14, however, the percentage of falls involving individuals from a geriatric unit significantly decreased: from

³¹ There were a total of 239 incidents that involved a patient fall and some incidents involved more than one individual who fell.

45% in FY13 to 27% in FY14. This reduction may be due to the enhanced application of fall prevention protocols, including close monitoring of geriatric patients at high risk for falls and installation of hand rails at the fall prone areas. Falls involving individuals from most of admission units and some of the long-term units noticeably increased. Particularly, individuals from 2D and 1D were respectively involved in 16% and 13% of patient falls during FY14. Unit 1C also reported a relatively large percentage of patient falls (12%).

7. Physical Injuries

- During FY14, a total of 418 incidents (35 per month) were reported to have physical injuries involving at least one IIC or one staff member. This is a sizable increase from 320 (27 per month) in FY13 after a decline from 367 (31 per month) in FY12.
- Of the 418 injury incidents, 249 or 60% involved one or more patient injuries and 147 or 35% involved one or more staff injuries. The remaining 22 or 5% involved both patient and staff injuries.
- Some incidents results in an injury to more than one individual or staff. A total of 271 injury incidents (249 + 22) involved injury of a total of 287 individuals in care. A majority of those 287 injuries, however, were minor: they either required no treatment or were treated at the unit or medical clinic within the Hospital. Any injury that requires a transfer to an external medical facility is considered to be a major injury and of the 287 patient injuries, 33 were coded as major injuries.
- The patient injury rate is calculated based on the number of these major injuries per 1,000 patient days and it shows a moderate increase from 0.24 in FY13. However, the Hospital's patient injury rate in FY14 (0.34) is still lower than the nation public rate (NPR, 0.38).





- FY11 FY12 FY13 FY14 282 268 220 287 29 36 23 33 0.28 0.37 0.24 0.34 The frequency of incidents resulting in patient or staff injury increased in FY14 after a consistent decline
- between FY11 and FY13. During FY14, on average, 24 IICs were reported for physical injury per month. In FY13, 18 individuals were reported for injury per month and 22 per month in FY12. The number of staff injured also increased from 13 per month in FY13 to 17 per month in FY14.
- Many of the physical injury incidents are related to physical assaults and/or fall incidents. Of the 287 IICs who were reported for injuries in FY14, 115 or 40% were involved in physical assaults and 48 or 17% were

injured from fall incidents. Additionally, there were 21 patient injuries (7%) likely to be sustained from falls that occurred in conjunction with physical assaults. The remaining 103 or 36% of injuries were caused by other types of incidents, such as self-injurious behaviors, accidents, or the cause of injury was not identified or unknown.

- The most prevalent cause of staff injury is also a physical assault. Of the total of 206 staff injuries reported in FY14, 141 or 68% were related to physical assault incidents while 16 or 8% were related to fall incidents. Additionally, 5% were likely to have been injured from falls associated with physical assaults.
- Like patient injuries, a majority of those 206 staff injuries were minor: they either required no treatment or were treated at the unit or medical clinic within the Hospital. Of the 206, seven (7) or 3% were considered to be major injuries that required a transfer to an external medical facility.



A majority of patient injuries are one time incidents but there are a fair number of individuals who are repeated victims of injuries. The 287 patient injuries reported in FY14 involved a total of 150 unique IICs and of those, 50 had more than one injury. In particular, there were seven (7) individuals, each of whom was reported for more than six injuries during the year. Of those, one (1) individual was injured from fall, and two (2) were injured from violence related incidents including physical assaults and self-injurious behaviors.