

# **Data Driven Model of Evidence Based Practices for Corrections Programs**

by Sangeetha Hariharan

Under the supervision of Dr. Kathy Weaver

INFM 737: Information Management Capstone Experience

The University of Maryland – College Park

Spring, 2016



PALS - Partnership for Action Learning in Sustainability

An initiative of the National Center for Smart Growth

Gerrit Knaap, NCSG Executive Director

Uri Avin, PALS Director

## Contents

Abstract.....	2
Methodology.....	2
URINALYSIS .....	2
WORK RELEASE .....	6
INFRACTIONS .....	8
MONTHLY JAIL STATISTICS.....	9
Technology Used .....	11
Successes.....	11
Challenges .....	11
Impact of the Project.....	11
Future Scope.....	12

## **Abstract**

The Howard County Department of Corrections (HCDC) protects the public and its employees by providing safe, secure and humane conditions for persons legally under its authority. To achieve this goal, the department offers many programs and provides multiple opportunities for offenders to become law abiding and productive members of society. The aim of this capstone project is to help in the fulfillment of HCDC's strategic goals. The project entailed analysis of data generated by various sub-departments within the correctional facility, which in turn will help the facility identify trends and gain insights to further improve the facility's programs.

## **Methodology**

The purpose of this project is to understand the data from the various departments of HCDC, conduct a thorough analysis to find salient trends, evaluate programs' effectiveness, and discriminate between successful programs and programs that need improvement. Studying the data trends to identify problem areas will not only help correctional facility staff but will also help inmates; new and improved programs based on data analysis can be offered and can help the inmates to be better prepared when they re-enter society.

The following data comes from various HCDC departments, and is analyzed and illustrated.

### *URINALYSIS*

HCDC first conducts urinalysis when an inmate is admitted to the facility and is used to estimate the extent of drug use by inmates. This information can have a profound impact on how the facility assigns programs and treatment services to those identified with drug abuse issues. In addition, by estimating the kind of drugs prevalent in the community, HCDC can warn other agencies about the increase or decrease of certain types of drugs. Moreover, the knowledge acquired will assist in the rehabilitation and supervision of offenders, which can contribute to the safety and security of inmates and to the protection of the public in communities to which offenders return. The illicit use of drug and alcohol by inmates presents a serious threat to the safety and security of the correctional facility. Urinalysis testing of inmates is an effective means to discipline and detect inmates who use illicit drugs or alcohol. Consistent urinalysis testing can ensure a drug-free environment at the facility.

To understand all these phenomena, urinalysis data in each tested category was analyzed for each month of 2015 using Microsoft Excel. A snapshot of the analysis can be seen in Figures 1 and 2. Figure 1 shows the percentage of inmates tested positive in each category by month in 2015. This analysis helps in understanding the activity on a monthly level and helps to better understand data across months. Figure 2 presents the analysis by analyzing each category for a year, which helps when the facility wants to focus their attention on a particular category. Additionally, this analysis also helps in identifying trends and isolating anomalies.

Figure 1: Percentage of inmates tested positive in various categories for the year 2015

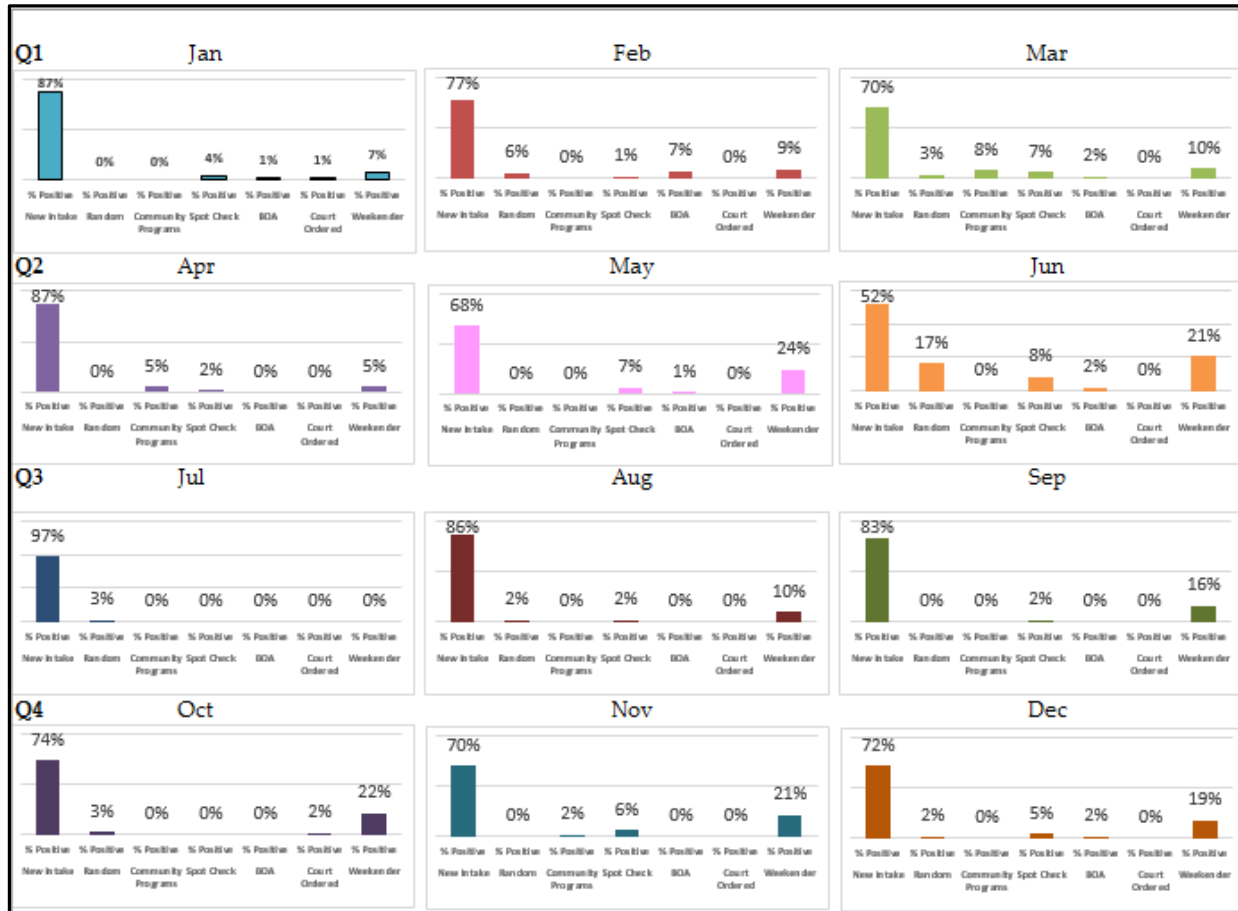


Figure 2: Percentage of inmates tested positive in various categories for the year 2015

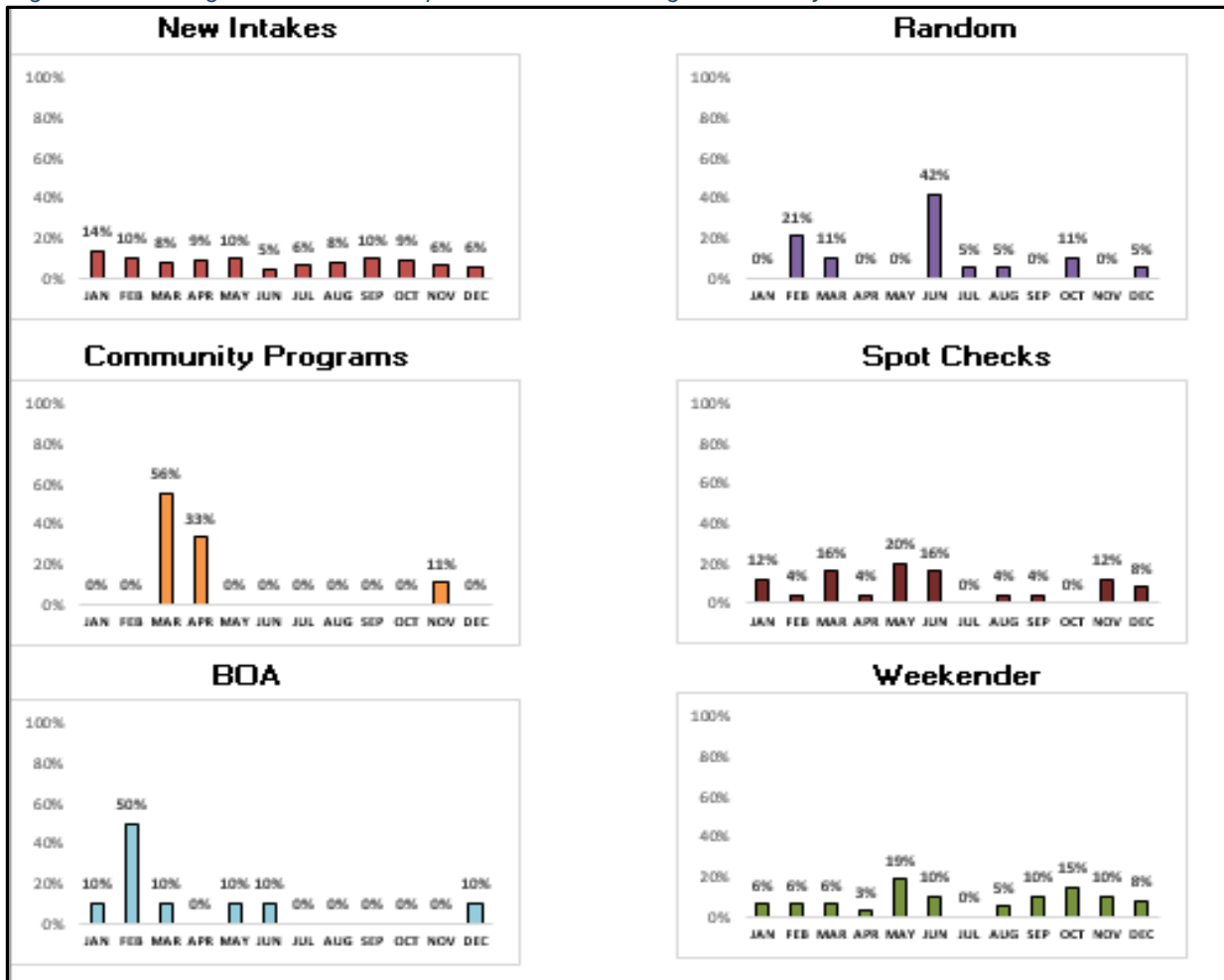


Figure 3 shows the population distribution of the inmates who participated in the drug test and Figure 4 shows percentage of inmates who tested positive.

Figure 3

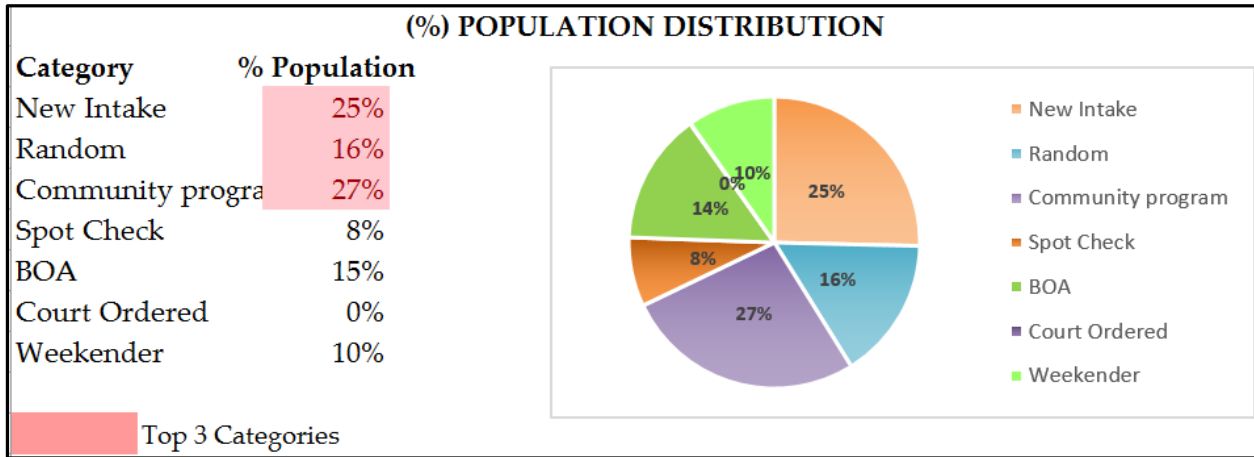
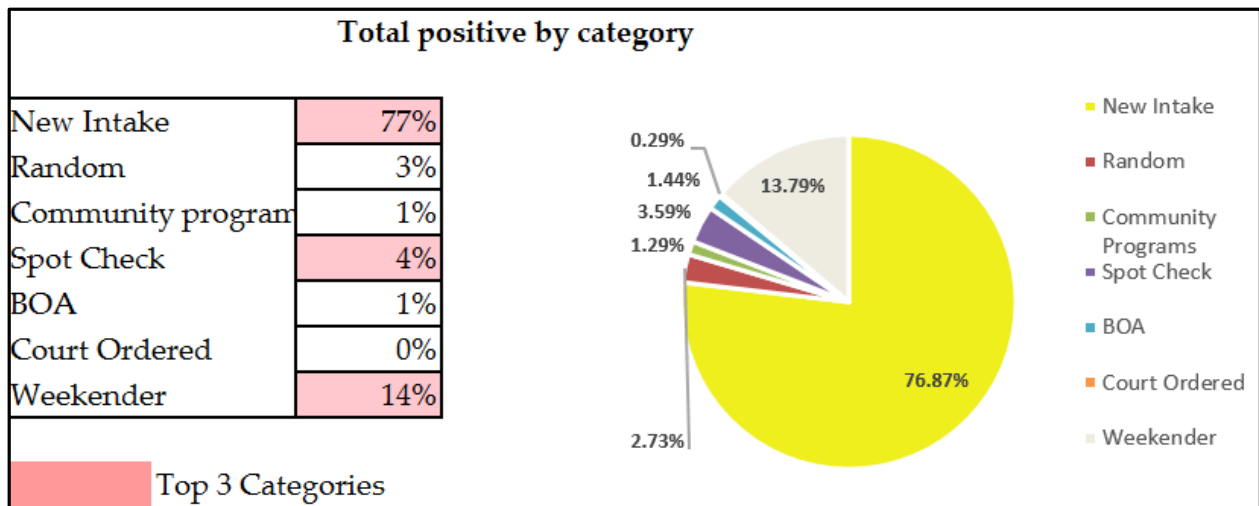


Figure 4

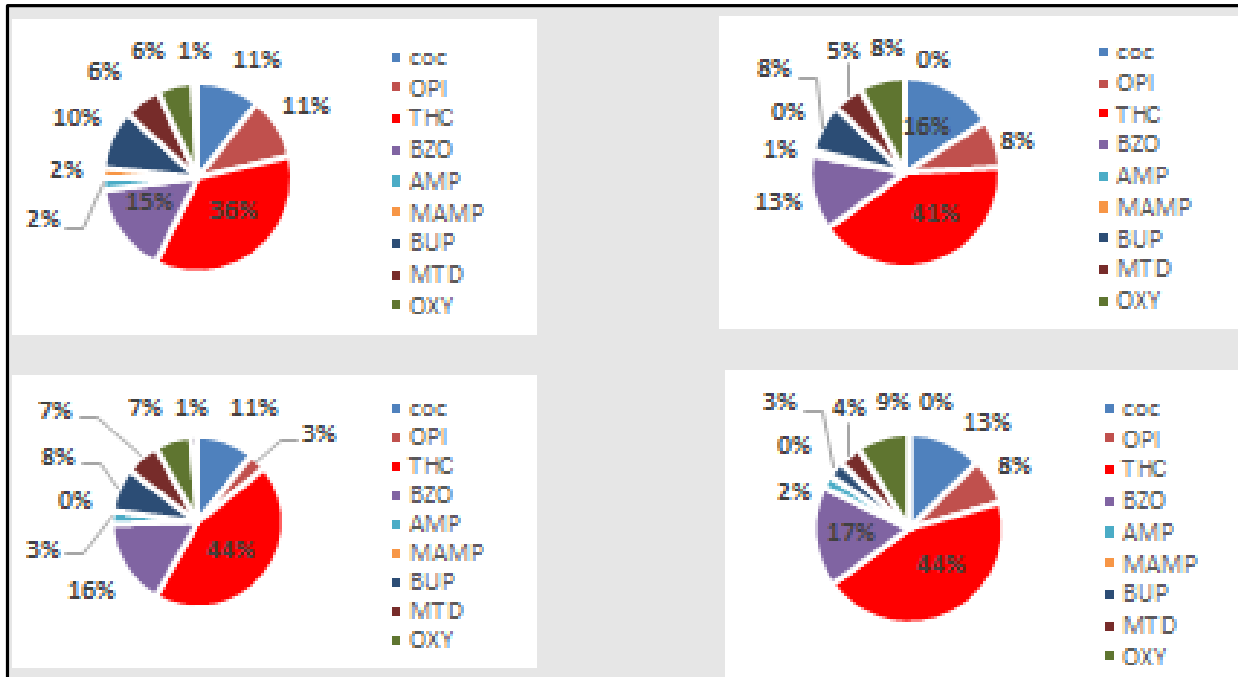


In addition to analyzing the positively tested inmates, substance analysis that lists the use of various drugs found in the preliminary urinalysis is also carried out (Figure 5). This analysis helps the facility know the type of drugs that are prevalent in the market and any changes in its consumption. This analysis will not only help the facility analyze historical data, but will also help in examining new data, which can then be used to re-evaluate existing programs and introduce new ones.

All the analysis across the various sheets are automated. Any changes made to the data in the master sheet will automatically be reflected in all the analysis sheets. This makes analyzing new data simple and efficient. With the help of these automated sheets any team member can input the data on the master sheet and see the analysis.

In addition to analyzing urinalysis data for 2015, a template for capturing future data is also suggested to help the facility gather all the required data at one place, which will aid in future analysis work.

Figure 5



### WORK RELEASE

The Work Release department is an important part of the facility that allows offenders who are employed at the time of sentencing to maintain their jobs in the community, pay program costs, and continue to lend financial support to their families. The facility actively gathers information about inmates the work release program. Analyzing and understanding this data can help identify areas of improvement and strategically work toward the goal of improving the life of all the inmates incarcerated in the facility.

Figure 6 shows the analysis of work release data for 2015. The black bar in each graph represents the yearly average for each employment and status category. Using average numbers within the graph helps identify general yearly trends, pinpointing months that do not follow the trend.

Similarly, Figure 7 shows the monthly trend for the categories of work release for 2016. The black bar at the beginning of the graph shows the average of the last year (2015) and the red bar at the end of the graph shows the current average date.

The whole analysis sheet is automated, which makes the analysis efficient and time-saving, allowing the team to focus their attention on implementing new programs and refining old policies.

Figure 6: Work Release Data, 2015

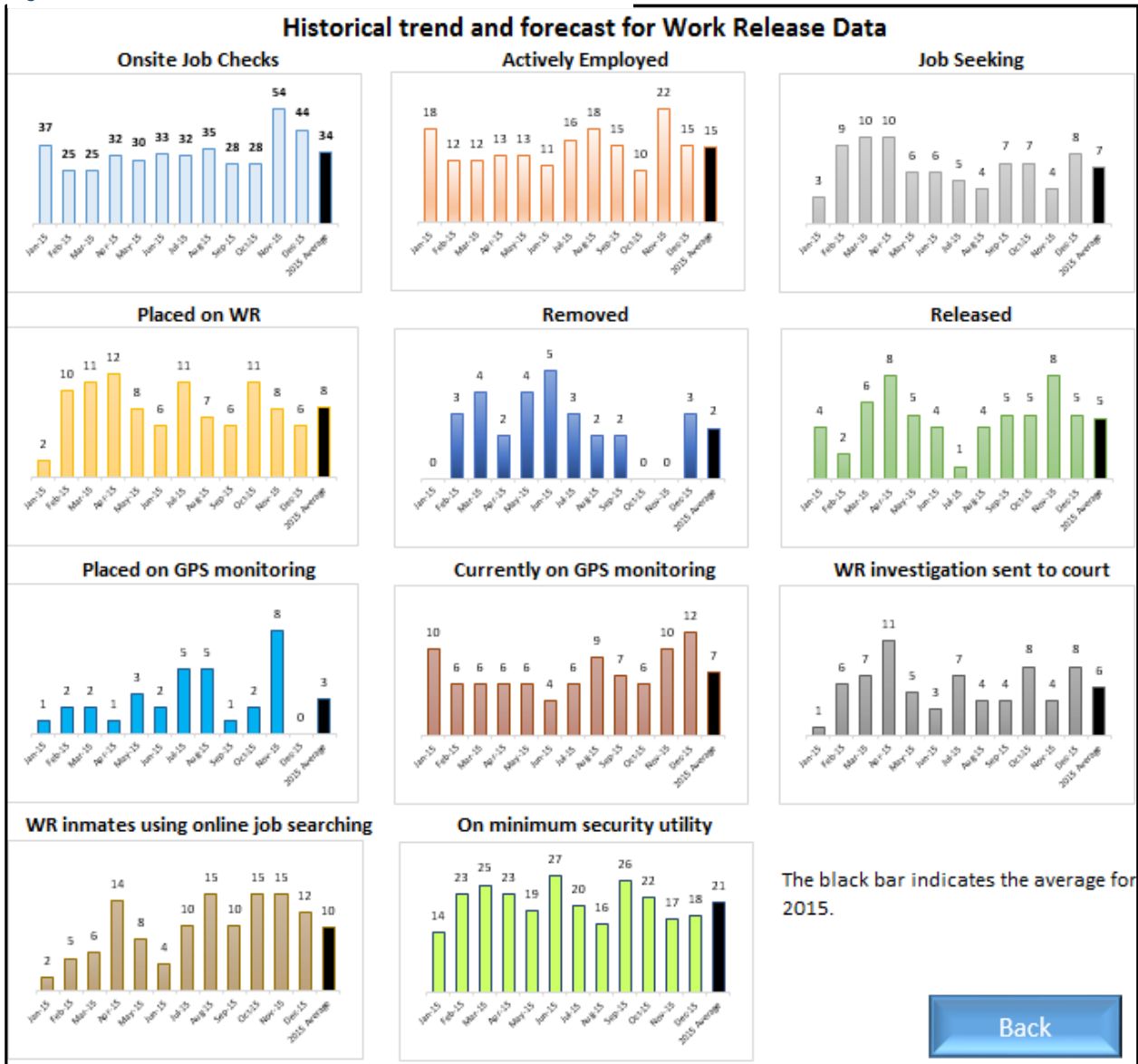
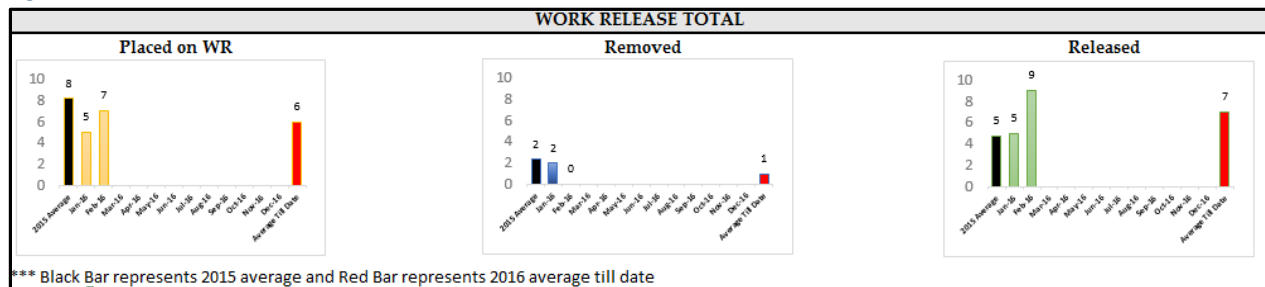


Figure 7: Work Release Data, 2016





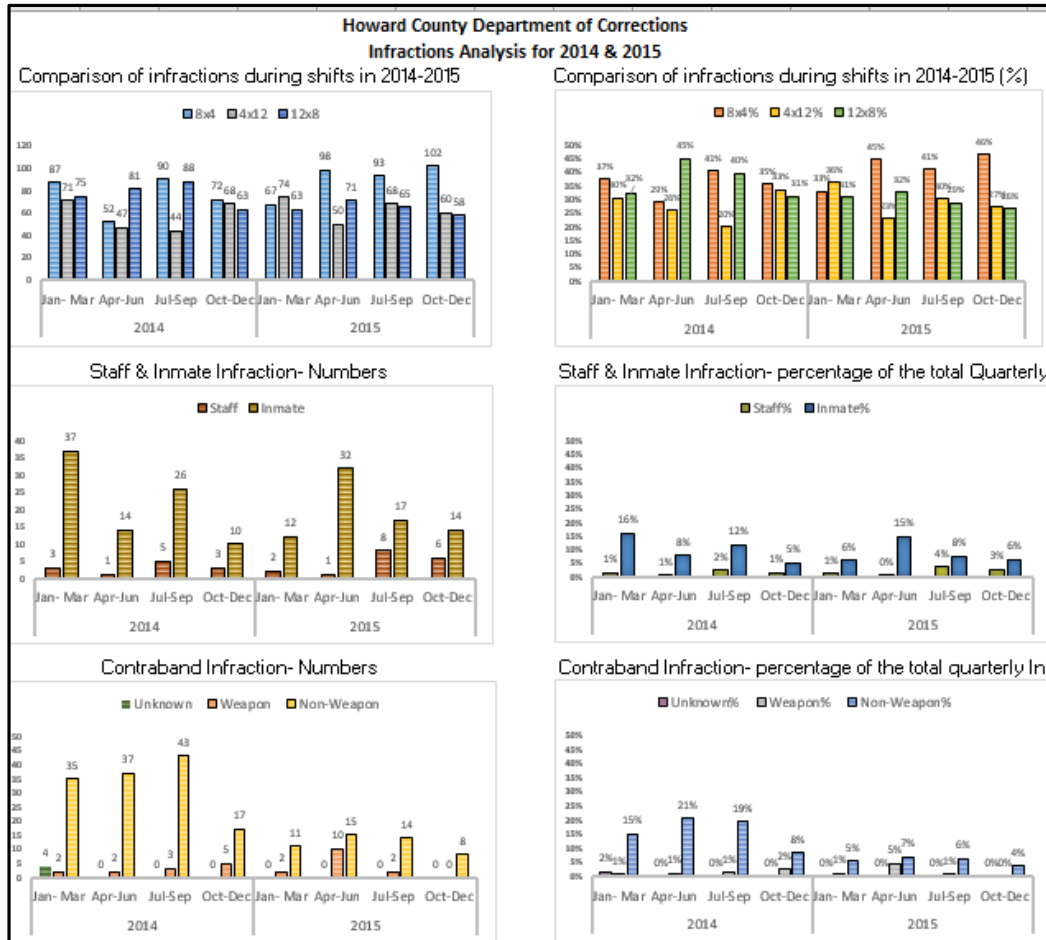
**INFRACTIONS**

This is another department that collects a large amount of potentially useful data. By understanding the occurrence and type of infractions, the facility can put adequate measures in place to avoid such instances.

Figure 8

Howard County Department of Corrections Infractions details for 2014 & 2015																
		2014														
		Jan- Mar			Apr-Jun			Jul-Sep			Oct-Dec			Yearly		
Shift	8x4	87	37%		52	29%		90	41%		72	35%		301	36%	
	4x12	71	30%		47	26%		44	20%		68	33%		230	27%	
	12x8	75	32%		81	45%		88	40%		63	31%		307	37%	
<b>Total (Shift)</b>		233			180			222			203			838		
Assault	Staff		3	1%		1	1%		5	2%		3	1%		12	1%
	Inmate		37	16%		14	8%		26	12%		10	5%		87	10%
<b>Total Assault</b>		40			15			31			13			99		
Contraband	Unknown	4	2%	10%	0	0%	0%	0	0%	0%	0	0%	0%	4	0%	3%
	Weapon	2	1%	5%	2	1%	5%	3	1%	7%	5	2%	23%	12	1%	8%
	Non-Weapon	35	15%	85%	37	21%	95%	43	19%	93%	17	8%	77%	132	16%	89%
<b>Total Contraband</b>		41			39			46			22			148		
<b>Total (Assault &amp; Contraband)</b>		81			54			77			35			247		

Figure 9  
To



facilitate this, a template was prepared that can help the team organize the data in a systematic and methodical way, making sure that anyone viewing the data can make sense of the numbers. In addition, a trend analysis was carried out for the infraction data between 2014 and 2015, comparing the occurrences in the two years. This analysis has the potential to help the facility in evaluating policy related improvements at a glance. This kind of analysis makes comparison over time extremely effective.

**MONTHLY JAIL STATISTICS**

Every month the facility holds a meeting to discuss the performance of each department and to identify areas of improvement. For this meeting they use a report that depicts all the significant numbers from the various departments.

Initially this report was made in MS Word and all the calculations, like average and sum, were carried out manually, however, a new report using MS Excel makes the task of reporting simple and efficient. This new report also lists average figures that are automatically calculated based on previous months' numbers. Listing the average figures can help the team understand if, in any particular month, there are any deviations from the trend. This report gives the facility an opportunity to examine the data and determine if certain reactions to new policies occur in a patterned trend. This report also lists last year's average along with current average to date for each of the categories that will help the team in comparing data over time.

Figure 10

<b>HOWARD COUNTY DETENTION CENTRE MONTHLY STATISTICS</b>						
<b>MONTH OF JAN 16</b>						
		<b>MALES</b>	<b>FEMALES</b>	<b>TOTAL</b>	<b>LAST YEAR</b>	<b>AVG TO DATE</b>
<b>I. POPULATION</b>						
A.	INTAKE	218	56	274		274
B.	DEPARTURE	212	48	260		260
C.	LAST DAY OF CURRENT MONTH	234	51	285		285
D.	AVERAGE DAILY POPULATION	235	46	281		281
<b>II. NOT IN CONFINEMENT</b>		0	0	0		0
<b>III. STATUS</b>						
A.	<u>AWAITING TRIAL</u>					
	1. LESS THAN 90 DAYS	70	10	80		80
	2. 90 DAYS OR MORE	34	0	34		34
B.	<u>PRE-SENTENCE INVESTIGATION</u>	1	1	2		2
<b>TOTAL AWAITING TRIAL &amp; PRE-SENTENCED</b>		105	11	116		116
C.	<u>SENTENCED</u>					
	1 LOCAL					
	A. 0-90 DAYS	10	2	12		12
	B. 91-180 DAYS	11	0	11		11
	C. 181-364 DAYS	5	1	6		6
	D. 365 DAYS	20	3	23		23
	E. 366 DAYS- 18 MONTHS	35	3	38		38
	F. OVER 18 MONTHS	4	1	5		5
<b>TOTAL SENTENCED</b>		85	10	95		95

## Technology Used

The demands of the project required an analysis tool versatile enough to handle data entry, data manipulation, and data visualization. Microsoft Excel's data analysis and graphical features met these needs with the added advantage of familiarity on the client's side. In addition, the data was set up across tables, which provided the ability to analyze it over time and across various categories. Further, post numerical analysis, visual representation, and validation of the analysis were carried out by plotting and graphing the data into numerous graphical artifacts such as interactive dashboards, bar graphs, pivot tables, forecasting tools, and pie charts.

## Successes

One of the key ingredients for a successful completion of a project is proper communication. A major success in this project has been the regular weekly call with the Deputy Director and at times with the data team, which helped in taking stock of the progress, incorporating feedback, and making sure that everyone was on the same page and continuing to make progress despite the numerous challenges encountered during the course of the project. Furthermore, another takeaway of this project is the identification of key pieces of information that can play a crucial role in making better-informed decisions.

## Challenges

Every project has its share of successes and challenges. One of a consultant's most crucial jobs is balancing elements to anticipate a challenge and convert it into success. One of the biggest challenges faced in this project was the inability to identify people accountable for recording certain types of data. This hurdle led to a few delays in the deliverables. Another challenge was the format of the data that required analysis, which was mostly recorded in MS Word or scanned from a PDF.

## Impact of the Project

Capturing the right data and analyzing it with clear objectives can help an organization be more successful. Hopefully, this project will help the Howard County's Department of Corrections to improve their operation and have a subsequent impact on inmates currently housed in the facility. A few potential impacts of this project are:

- highlighting deficiencies in the data and the data collection process
- analyzing data and generating intelligence about programs and processes that need improvement
- providing a data driven picture of the efficacy of the underlying methods and possible areas for improvement.

## **Future Scope**

Data driven decisions can help an organization become more efficient and successful. HCDC can use the data that they generate to understand historical trends and implement new policies. This project helped HCDC by demonstrating the power of data and the importance of an efficient data gathering process.

Moving forward, HCDC needs to streamline their data capturing process by identifying the person responsible for recording data and the mode of collecting data. Moreover, captured data needs to be validated to preserve its accuracy by placing adequate checks to maintain data accuracy.

Lastly, these changes need to be implemented in HCDC's sub-departments to ensure that all the sub-departments can understand how to analyze the data they generate to make better decisions.