

## **FROM EXCEL TO BUSINESS INTELLIGENCE: MODERNIZING DATA REPORTING FOR A NON- PROFIT HEALTHCARE PROVIDER**

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*Eddie Johnson landed his first job out of college in Evergreen's data department. He was informed that his first year of employment would be probationary. His first assignment was to update the way that Evergreen shares performance data with its stakeholders. These stakeholders included healthcare, law enforcement, local government, and mental health professionals. He knew that this group was full of people who were important to both Evergreen and his potential career. At his first stakeholder meeting he learned just how sensitive his role in data reporting would be.*

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### **INTRODUCTION**

Eddie Johnson checked once more to make sure that his phone was silenced. He was both excited and nervous that February 2020 morning. Today was a big day. His first professional meeting at his first job. Johnson had always loved a challenge, particularly one that involved data. That had been at the heart of his motivation to pursue the job at Evergreen. "Just listen" he told himself. He knew that he was prone to overconfidence and all too eager to help. He also knew that everyone in the room loomed large in his potential career. He was not yet aware that key members of the group held vastly different concerns.

Johnson was a recent graduate from Central College. He had earned a Business Management degree with a Business Analytics minor. This was his first job out of college and he was committed to making a good first impression. Johnson was given the challenge of reworking the quarterly Mental Health Crisis Center (MHCC) performance reports. The need to modernize data reporting was a common theme in his interviews with Evergreen. He was also warned that the MHCC data were very sensitive to the Regional Mental Health Network (RMHN) members. Still, data integrity and visualizations that reveal rather than obscure were to be the guiding principles in his work. A visit by state regulators at the next quarterly meeting meant that he would have a short window to modernize the MHCC's performance reporting.

### **EVERGREEN, THE MHCC, AND THE RMHN**

Evergreen is a regional mental health care provider. As a non-profit the majority of its revenue comes from state funds and grants. Evergreen's mission is to provide high quality, compassionate and comprehensive mental health and developmental disability services to the region.

The Mental Health Crisis Center (MHCC) is Evergreen's treatment center for those in the region dealing with debilitating mental health events. The MHCC has received multiple national awards and has been used as a benchmark by many other regional mental health care providers. The center utilizes registered nurses, sophisticated triage and virtual care provision from psychiatrists to deliver timely and effective care to one of society's most vulnerable and overlooked populations. Registered nurses triage potential clients and admit those who display needs appropriate to the MHCC's level of care. Admitted individuals then meet with a psychiatrist, via web conference, within thirty minutes of arrival. The clinic provides service around the clock.

The MHCC serves as a keystone to the Regional Mental Health Network (RMHN) by establishing an agreed upon point of first contact for many cases. RMHN meetings bring together healthcare, law enforcement, local government, and mental health professionals. Board meetings involve discussions of both big-picture issues in mental health care delivery and conversations related to navigating specific cases. Distributing updated MHCC performance data is a key aspect of advisory board meetings. Johnson's goal is to make the relevant facts easier for stakeholders to digest. His larger goal is to aid Evergreen in fostering communication and cooperation among all service providers that interact with those who qualify for Evergreen's services.

Communication and team building are necessary cornerstones that underlie both the success of the MHCC, and that of the broader cooperative effort to provide efficient and effective care in the region. Individuals with debilitating mental illness often present costly and difficult challenges for both law enforcement and healthcare providers. Without facilities like the MHCC, cases often require hours of high-cost transportation and or direct supervision by law enforcement or medical staff. In addition, these individuals often lack both insurance and the ability to pay. In fact, Evergreen often receives little to no compensation from those that they serve even when individuals under their care do have insurance.

Evidence suggests that the RMHN has drastically improved the delivery of care in their region. A non-academic study commissioned by Evergreen estimates that together the RMHN and the MHCC reduced regional hospital costs by nearly \$4 million in 2016. While Evergreen clearly provides significant benefit to its region, friction remains. Evergreen cannot completely absorb the financial costs and resource-strain experienced by other stakeholders servicing individuals facing mental health issues in the region.

Friction within the RMHN are discussed and evaluated at quarterly meetings. Each stakeholder group within the RMHN has its own interests. As a whole, they would all like for Evergreen to provide more care for a broader range of patients. Meanwhile, Evergreen

works to highlight the services that they are able to provide and to build a consensus on how to handle cases that are not appropriate for the MHCC. The meetings also generate creative solutions that would not be possible without the regular interactions.

### **JOHNSON'S FIRST RMHN MEETING**

After the meeting was called to order, each member in attendance gave their name and position.

Pam Bond, Evergreen Regional Health Network Coordinator  
Cindy Tanner, Evergreen Director of the Mental Health Crisis Center  
Rhonda Carroll, Evergreen Chief Executive Officer  
William Conner, Chief of Police  
Jonathan Thompson, Sheriff  
Jessica Morgan, Samaritan Hospital Director  
Samantha Allen, Samaritan Hospital Emergency Room Director  
Jarrett Crawford, Clermont Geriatric Care Vice President of Operations  
Eddie Johnson, Burke Data Analysis

Following introductions, the previous meeting's minutes were approved. Next, the RMHN Coordinator, Pam Bond, reviewed the MHCC performance data for the latest quarter. This involved handing out the report, see Appendix, and reading the new quarter's figures.

Sheriff Thompson was visibly upset. "We might spend all night with someone and when it comes time to get them into the MHCC, you require medical clearance. That is not a problem unless they refuse medical care. At that point we have to turn them loose. This has been happening more and more and there has just got to be a solution."

Pam: "This has been an ongoing issue. There is a precedent that if the individual is in a bad enough state a judge can intervene."

Samantha Allen, head of the Samaritan Hospital ER came across as though she had not slept. "I know that I have called the MHCC more times than the call log shows and a lot of them are not getting admitted."

Pam: "I know that it can be confusing, but not all calls to Evergreen are MHCC calls. Only calls that eventually reach the MHCC are included in the data. I would be happy to double check the data if you like."

Jarrett Crawford from Clermont, a local geriatric care provider, was interested in the distribution of the ages of admitted clients. "I am wondering what percentage of admissions represent the sixty-five and older population. We are always interested in how our target market is changing in the region."

Pam: "You can get a sense of that number by looking at the percentage of admissions with Medicare as a payment source, but we do not track that information directly."

Chief Conner, expressed pride at the reduction in calls from law enforcement. “You know, calls from law enforcement are down. I think that means that we are doing a great job. Also, Evergreen really should be commended on the excellent work that they do. In fact, they do such a good job, that I am concerned that people are bussing in from outside the district just to take advantage of the higher level of service.”

Pam: “Looking at the number of admissions from “other” which would be outside of our district, there does not appear to be an alarming trend there.”

Cindy Tanner, the MHCC Director, then gave an update on the MHCC program amid COVID. “We have set up COVID infection prevention guidelines for staff and clients following CDC standards. Also, we are seeing people who are a lot sicker than usual due to the stress of COVID and due to a lack of proper prescription compliance. This lack of compliance is likely driven by a fear of leaving home to refill medications. Unfortunately, we had to send some clients to a higher level of care because they were not following the guidelines for social distancing and masks. Also, most of the psychiatric hospitals have begun requesting medical clearance, and worst of all Mountain View Hospital has recently closed.”

Jessica Morgan, Samaritan Hospital director: “The closing of Mountain View has caused longer delays in placing some individuals who require a higher level of care than is provided by the MHCC. These delays have been very taxing on our ER.”

Allen, Samaritan ER Director, confirmed, “Our ER counts had gone down back in April and May, but have recently been increasing. With our ER flows as high as they are, I just wanted to commend Evergreen on its placement process. Your evaluators are excellent and have been very helpful with placements.”

Rhonda Carroll, the CEO of Evergreen, reported on the state of their finances. “We will soon have spent all of the state funds provided for private inpatient psych beds, but our Board of Trustees has recently allowed the allocation of more money to pay for these bed days.”

Tanner, the MHCC director, then commented on transports. “We have had the hardest time getting deputies to respond to requests for transports.<sup>1</sup> It may be because officers can make more money out of town on their time-off rather than doing transports for the MHCC. We have recently increased compensation for transports but that does not seem to be working.”

Conner, the police chief retorted apologetically: “My department was short six officers and we also had significant staff shortages due to COVID concerns and quarantines. These shortages may have caused your transport issues.”

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<sup>1</sup> Evergreen hires off-duty police to transport individuals under their care and those who need a higher level of care.

Board members also discussed the recent outbreak of COVID at the county jail, and a couple of recent local cases. One case required officers to sit with a client for three days in the ER.

Conner: “I have spoken with Evergreen management, and they confirmed that there were no inpatient beds available during the incident.”<sup>2</sup>

Tanner: “The client was put on a state hospital waiting list, but the state was not taking anyone at this time. The client also needed a COVID test, which increased processing time. The other case involved an aggressive client who was not appropriate for the MHCC.”

Conner: “Evergreen was able to get the client assessed at the local Evergreen clinic, and that the client was accepted by Clermont, a local geriatric psychiatric facility.”

Concerning other business, Crawford, from Clermont, reported, “We are still taking clients and trying to be of service to the community.”

Tanner: “There is a crisis-counseling program available for anyone dealing with stress from COVID.” She then provided the COVID crisis number. The date of the next meeting was set, and the meeting was adjourned.

### **JOHNSON’S FIRST ASSIGNMENT**

Johnson is given three Excel files each containing a year of MHCC performance data.

Placeholder for data link 1

Placeholder for data link 2

Placeholder for data link 3

Currently, The RMHN Coordinator distributes a printout of the Excel report to stakeholders at quarterly RMHN meetings. The file includes monthly counts related to intakes, bed days, client-payer sources, county of residence, discharges, calls, and patient transportation data. Each row lists an outcome of concern. Outcomes are measured on a monthly basis with each month listed in a separate column. Finally, a year-to-date column serves as an endcap.<sup>3</sup> For an example of a complete annual Excel report, see the Appendix.

Tanner leaned in the door on her way past the office, “Hey Johnson, we are all looking forward to the new format. Remember that we will need to go live by the next quarterly meeting. Also, the folks in records will be updating the reports so be sure to give them instructions.” With this new context, Johnson was sure that he could improve on the current report. Johnson, knew that his minor had prepared him to put together an interactive data report that would be simple, honest and informative. His only concern was how the new format would be received by the RMHN. His main concern was how Pam would receive

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<sup>2</sup> Evergreen Pays psychiatric hospitals to provide inpatient care for individuals who require a higher level of care than can be administered by Evergreen.

<sup>3</sup> Evergreen operates using a financial year of September through August.

the new format. He knew that she was the force that held the RMHN together and her feedback would be paramount.

## Appendix

**Figure A1: Example MHCC Performance Report**

Fiscal Year 2020 (Sep. 19 through August 20)		Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	YTD
Intake	Total Clients Admitted	93	101	74	78	89	92	59	57	56	82	60	62	903
	Readmitted within 30 Days of Discharge	6	9	8	3	10	6	3	4	2	4	6	3	64
	Clients Presented Not Admitted Total	0	0	2	2	2	0	0	0	0	0	2	0	8
	Clients Presented Sent for Medical Eval.	4	1	1	4	7	12	8	7	8	8	1	10	71
	Total Clients Discharged	103	106	79	87	81	83	63	50	53	76	63	61	905
Bed Days	Total for Both Units	416	395	336	274	299	326	192	176	162	278	189	194	3237
Payer Source	Medicaid	8	12	7	11	9	6	5	1	2	12	8	10	91
	Medicare	2	1	0	0	2	4	0	4	1	3	4	2	23
	Both Medicaid and Medicare	1	0	2	2	1	2	1	1	0	0	0	0	10
	No Payer Source	77	85	62	63	70	76	51	48	50	65	47	48	742
	Private Insurance	5	3	3	2	7	4	2	3	3	2	1	2	37
Fictitious County of Residence (Only "Other" Is out of Region)	Boone	30	34	20	22	31	24	15	20	16	34	21	25	292
	Bracken	4	5	7	2	4	3	2	2	4	2	3	3	41
	Lyon	4	8	8	8	7	9	2	3	5	7	3	4	68
	McCracken	21	22	17	21	21	17	13	9	11	12	10	6	180
	Gallatin	2	2	1	0	1	3	1	0	3	2	1	0	16
	Fulton	12	12	9	6	8	9	4	6	7	3	8	9	93
	Cumberland	3	1	1	1	2	3	4	3	0	1	1	0	20
	Nicholas	2	2	1	1	1	5	2	1	0	1	2	0	18
	Elliott	2	4	1	1	2	4	3	3	0	1	0	2	23
	Menifee	4	5	3	4	4	5	4	3	5	11	4	2	54
	Carlisle	0	4	0	4	2	2	2	2	2	2	2	0	22
	Hickman	2	1	3	4	1	3	3	1	2	2	2	3	27
	Other	7	1	3	4	5	5	4	4	1	4	3	8	49
Discharged from MHCC to:	Evergreen Center Outpatient Services:													
	- Open Evergreen Center Client	37	38	26	31	35	32	24	20	20	17	22	22	324
	- Non-open Evergreen Center Referral	40	35	34	31	20	31	22	14	15	29	28	17	316
	Inpatient Psych Facility (State or Private)	9	8	6	9	9	10	8	9	8	18	9	6	109
	Substance Abuse Services	0	3	0	1	1	3	0	0	1	1	0	1	11
	Non Evergreen Community Resource Ref.	16	18	11	10	9	4	6	3	6	9	4	11	107
	Discharged with No Referrals	1	4	2	5	7	3	3	4	3	2	0	4	38
MHCC Calls	Total Phone Calls to MHCC for Admissions	126	137	132	114	102	137	80	151	139	114	161	151	1544
	Calls from ER/Med Facility	66	79	80	64	53	91	51	85	73	45	93	104	884
	- Outcome - Accepted	38	45	44	33	26	22	12	18	15	24	22	16	315
	- Outcome - Denied - MHCC Full	0	2	1	1	3	2	0	2	1	2	1	3	18
	- Outcome - Denied - Medical Reasons	7	10	12	6	7	6	4	6	5	0	5	8	76
	- Outcome - Denied - Level of Care	7	8	7	8	5	51	32	48	41	12	59	65	343
	- Outcome - Referral Cancelled	14	14	16	16	12	10	3	11	11	7	6	12	132
	Calls from Evergreen Staff	20	34	25	24	13	24	15	18	20	22	24	12	251
	Staff Calls Requesting Med. Clearance	1	1	0	0	0	2	0	1	3	4	0	1	13
	- Outcome - Accepted	18	28	23	17	13	10	10	16	18	19	19	9	200
	- Outcome - Denied - MHCC Full	0	2	0	1	0	1	0	0	1	1	0	0	6
	- Outcome - Denied - Medical Reasons	0	3	0	2	0	2	1	0	0	0	0	0	8
	- Outcome - Denied - Level of Care	0	1	1	3	0	1	1	2	1	2	4	2	18
	- Outcome - Referral Cancelled	2	0	1	1	0	10	3	0	0	0	1	1	19
	Calls from Law Enforcement	40	24	27	26	36	22	14	48	46	47	44	35	409
	Law Calls Requesting Med. Clearance	1	0	0	2	1	3	1	0	2	3	0	0	13
	- Outcome - Accepted	28	16	13	16	22	6	6	19	12	23	11	3	175
	- Outcome - Denied - MHCC Full	1	0	1	0	0	0	1	0	0	0	2	2	7
	- Outcome - Denied - Medical Reasons	0	1	0	1	0	4	3	1	3	1	0	1	15
	- Outcome - Denied - Level of Care	4	2	9	3	9	8	1	23	26	12	27	26	150
	- Outcome - Referral Cancelled	7	5	4	6	5	4	3	5	5	11	4	3	62
	Walk-Up's Accepted	5	3	1	2	1	3	1	4	2	4	5	7	38
Transports to Psych. Hospitals	MHCC Clients	11	8	3	8	3	9	5	6	5	8	12	2	80
	Courtesy Transports	30	34	40	34	40	58	35	37	32	31	28	39	438