



Implementation of ChekOne Task Verification Software

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Acknowledgment

This report has been written by me and has not received any previous academic credit at this or any other institution.

I want to begin by saying how grateful I am to God, my Father in Heaven, for leading me through this program.

I want to take this opportunity to thank my supervisor, Greg Bayne, and the entire staff of the Housekeeping Department. Their patience, motivation, and guidance helped me sail through this internship. Lastly, I want to extend a big thank you to Dr. Abidi, for instilling in me the necessary health informatics skills and knowledge that has enabled me to execute this internship project.

Executive Summary

The internship was performed at IWK Health Centre from May 10th, 2017 to September 8th 2017. The objective of the internship was to implement the ChekOne task verification software to track and monitor the daily work routines of the housekeepers at the IWK.

This report provides a bird's eye view of the overall implementation of the project and talks about some of the challenges that were faced.

The ChekOne uses a hierarchy of barcodes defined for: housekeepers > building > specific locations in the building> tasks> duration of tasks. These barcodes are scanned using a handheld device that functions like a cellphone. This device synchronizes the captured scans in real-time into a database system that I am able to access. From this information, I am able to monitor and develop reports of the tasks being performed by the housekeepers. The ChekOne software was used to track and monitor daily tasks, routines and responsibilities that housekeeping staff carry out.

I was mainly responsible for the roll out of the task verification software (ChekOne) at the IWK Health Center. I worked with the Housekeeping Department to teach and familiarize the staff with the software and handheld device. I also worked with the IT Department to assist and solve any problems that occurred. Lastly, I analyzed and developed current work routines to aid in workload and workflow for the housekeepers.

Throughout this internship I was able to utilize the knowledge and skills that I acquired from different modules of the health informatics program. For example, from using knowledge acquired from the Business Process Model notation, I was able to track the workflow of the housekeepers in their daily task routines.

This report also describes the challenges I encountered during the course of the project, and how these challenges were addressed. Finally, several recommendations are made for the future sustainability of this technology at the Health Centre.

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1. Introduction:

Cleanliness in hospitals means more than just maintaining a clean and safe environment. It makes a statement to clients and visitors about the attitudes of staff, managers and the trust board. It reflects attention to detail, the level of care one can expect, and the manner in which the hospital is organized and run. One area that can impact how a hospital ranks among consumers is the perception of cleanliness. While the work of the housekeeping staff is vital in the prevention of the spread of diseases, how that work is performed can also make a difference in the perception of the hospital [1]. This is evident in the job routines of Crothall Healthcare Division as an organization that is in charge of housekeeping services at the IWK Health Center.

2. Description of the Organization

Crothall, a subsidiary of Compass Group Canada, is a specialized provider of Environmental Services to Healthcare clients across Canada [2]. According to the Compass Group Environmental Service (EVS) Manual, “Crothall, the Environmental Services Division, provides an aseptic, sanitary and attractive environment while maintaining a spirit of compassion and customer focus” [3]. Crothall aims to provide a consistent level of service, delivered professionally, while contributing to the health, safety and well-being of clients, visitors and staff. Hence, Crothall seeks to embrace a culture that is highly focused on customer service in the performance of their duties, responsibilities and interactions with fellow employees and customers. Additionally, the company is committed to exceeding customer expectations through continuous quality improvement, increased customer satisfaction, and financial responsibility [3].

The Environmental Mission Statement of Crothall Services is “to deliver services that provide exceptionally clean and sanitary environments for our clients and staff.” Crothall Services’

maintain the responsibility to clean areas that include, but are not limited to, in-patient areas, out-patient areas, emergency rooms, operating rooms, intensive care units, burn units, public spaces, restrooms, locker rooms, lounges, conference rooms and offices [4].

Crothall Services is continually committed to environmental cleanliness and infection prevention. This commitment is the reason why the company has decided to introduce and implement a task verification software and device called ChekOne [3].

3. What is ChekOne

The ChekOne is a task verification software that operates on a handheld device that acts as a phone, GPS and has barcode scanning properties designed for the Housekeeping Services at the IWK Health Center. The ChekOne software uses data to provide web based solutions enabling real-time automated monitoring, reporting, and expectations of the tasks performed by the housekeepers. It is also a Risk Mitigation application that works by tracking and managing service activities performed by housekeepers at the IWK Health Center on a day-to-day basis. The ChekOne software uses a barcode system that defines the Housekeeper> Building > Specific Location> Task performed by the housekeeper> Time task was performed. When the housekeepers scan the barcodes with the handheld device, data is transmitted in real time to a database that is accessible online for easy monitoring, reporting and analyzing. It is important to have such information readily available via documented reports to reduce the risk of claims over an accident that may occur at the hospital. [5] For example, in the event of a slip and fall case, the supervisor would be able to trace the location and the time the incident occurred including a detailed record as to what services were performed and whom they were performed by.

4. Roll Out of ChekOne

Since data is synchronized in real-time via a cellular network there is no need for manual synchronization or cradling of the device.

A series of barcodes are used to determine housekeeper, properties, areas, task, time and duration of task performed. These barcodes are printed on a standard label sheet and placed at their specific locations, either on a wall or a door jam. The building of the ChekOne software application required the following unit details:

- Names of housekeepers using the system
- List of buildings involved in the exercise. IWK Health Centre operates within three buildings. These buildings include, IWK Grace Women's Building, Link Building and the Children's Building.
- List of areas within these buildings.
- Type of housekeeping services to be performed by the housekeepers
- List of emergency and important phone numbers (phonebook feature) such as supervisors and unit managers.

In a typical setup, all housekeepers are required to use a Chekone scanner throughout their shift, so they can capture the work they have done.

5. Work Performed at the organization

As a Health Informatics intern my primary job responsibilities included:

- Implementation of task verification software (ChekOne) within the Housekeeping department at the IWK Health Center
- Work with the Housekeeping Department to teach and familiarize themselves with the software and handheld device
- Work with the support team (IT Department) to assist with challenges and solve problems
- Analyze current work routines to aid in workload and workflow
- Establish an easy to evaluate management reporting system for the leadership team (supervisors) via daily reports

6. Health Informatics Perspective

Careful cleaning and disinfection of environmental surfaces are essential elements of effective infection prevention programs [6]. However, traditional manual cleaning and disinfection practices in hospitals are often abysmal. This often stems from a variety of staff issues that many Housekeeping Departments encounter [6].

Carling P.C inferred that in many healthcare facilities, only 40 to 50 % of surfaces that should be disinfected are done so by housekeepers [7]. Bois J.M et al study found variations among housekeepers in the amount of time spent cleaning and disinfecting surfaces, as well as disparities in the level of cleanliness achieved [8]. Another issue that often arises is the confusion between housekeepers and nursing personnel, regarding who is responsible for cleaning various surfaces and equipment.

In order to improve standard cleaning and disinfection practices, it is recommended that the practices of housekeepers be monitored and that they also receive feedback regarding their performance. However, monitoring of housekeepers duties is often not performed as regularly as required [8]. Rupp M.E et al attributed the lack of monitoring of housekeepers to the amount of time supervisors have to allocate to it and also to the fact that monitoring needs to be done on an ongoing basis in order for it to be effective [9].

It is for reasons discussed above that the ChekOne software was introduced to monitor the task verification of the housekeepers so to ensure that areas within the hospital are being thoroughly cleaned so to help reduce the spread of germs and infections. With the garnered momentum of Information Technology adoption in Healthcare, I was brought on board to develop, monitor, and analyze reports based on the workflow of the housekeepers. The informative and hands on delivery of this MHI graduate program made it easier for me to play an integral role on the project. I was given the opportunity to showcase the acquired knowledge and skills needed for the successful completion of the project.

Knowledge acquired through the Health Information Flow and Use (HINF 6101) course provided me the skills and knowledge that allowed me to apply the Business Process Model and Notation (BPMN) to track the workflow of the housekeepers before and after the implementation of the ChekOne software. A tangible example of how the ChekOne device has improved the efficiency of the housekeepers' routine is, traditionally, housekeepers were required to memorize the tasks to be completed prior to entering client's rooms. Such tasks included, emptying the waste bin; high dust the room; sanitize horizontal surfaces such as door knobs, bed sides tables, window ledges, telephones; clean the client's bathroom and then mop the floor. With the implementation of the ChekOne, the housekeeper scans the barcode placed on the edge of the client's room door

before entering the client's room to clean up. Once the barcode is scanned, it displays a list of tasks to be performed in the client's room. The housekeeper is then required to complete each task and check each completed task off the list. This system allows housekeepers to check for any areas that they missed during the cleaning process. After all the tasks have been checked off as completed, this information is transmitted into a database system where the supervisors are able to see all the tasks completed by a housekeeper in that particular client's room.

Additionally, with the knowledge acquired through the IT Project Management course, (HINF 6300), I was able to set the scope and timelines necessary to execute the project in an effective and efficient manner. Also, my awareness in the importance of teamwork and its effect on a project's life cycle helped me to fully understand the skills needed to complete this project.

Furthermore, the knowledge gained from Knowledge Management (HNF6202), assisted me to fully analyze data extracted from the tasks performed by the housekeepers. This knowledge gave me a full understanding of the goal of the project. Accordingly, I analyzed data collected to understand the benefits of the ChekOne software for managing resources and providing statistics to the management of the housekeeping department. The data collected included:

- Quick scan verification of tasks being completed and scanners being used correctly by the housekeepers.
- Daily work routines of the housekeepers.
- An area with high discharge cleans. A discharge clean is a thorough cleaning performed after a client is discharged from an inpatient room to prepare the room for a new client to be admitted.
- Average clean times for discharge cleans, client room cleans, birthing unit cleans

- Hours of scanned work by housekeepers on a daily basis.

Prior to the implementation of the ChekOne software, complaints from clients and guardians of clients about the service being provided by the housekeepers in their rooms had been difficult to track. This can be attributed to the lack of a verification system that would prove housekeepers' presence in rooms and the tasks done in the rooms.

The implementation of ChekOne has made it possible for factual investigation of complaints. Supervisors are now able to check when a housekeeper went to a room, the tasks completed, how long it took for the task to be completed. Furthermore, it holds housekeepers accountable to their duties and how they manage their time performing their duties.

7. Challenges faced during the rollout of the ChekOne Software:

- a. One of the major issues was the failure of the ChekOne to gain acceptance amongst the housekeepers. This was partly due to most of the housekeepers not possessing the technological know-how on the use of the device. In addition to this, most of the housekeepers are not technology savvy, hence the introduction of the ChekOne software seemed to overwhelm them. To address their challenges and concerns, I provided one on one training sessions with each of the housekeepers.

During each training session, housekeepers were trained on the following:

- . How to scan their ID barcode to log them into the database system
- . How to scan the location or building they are scheduled to work in as well as how to scan their sub location such as the department and area they performed their task
- . How to retrieve and check off completed tasks

- . How to scan for their breaks and when their shift ends
- . What to do if their device shuts off
- . How to make a call to a supervisor if they experience difficulties with their device.
- . How, in the case of an emergency, to make panic calls or call 911 using the device
- . How to receive a call with the handheld device. This function is necessary in situations where housekeepers may be called to an area to clean accidental spills or relocated to a busy area.
- . How to retrieve important messages, reminders and alerts on the devices.

b. Supporting the housekeepers in learning to use the device was also challenging because housekeepers have a very demanding job. Thus, one needs to be patient when introducing the device in a busy work environment. Housekeepers are often busy and have very little time to spare for learning; hence one has to be very concise and precise during training sessions.

c. Yet another issue was solving technical glitches with some of the devices during the course of deployment. The challenge in itself had to do with reassuring the housekeepers about the usefulness and dependability of the device and abating their frustrations caused by the technical glitches. Carrying out a fully integrated test and resolving the issues that were causing these glitches resolved the technical glitches.

Apart from the major challenges outlined above, other minor challenges faced included:

- d. The device on which the ChekOne software runs resembles a mobile phone, for this reason some clients complained that housekeepers were spending time on their phones as oppose to cleaning their rooms. Clients raised such concerns because they had not been made aware of the introduction of the device and its use.
- e. We experienced the sabotage of the ChekOne Task verification device and process by some housekeepers due to their objection of the introduction of the monitoring system. For example, barcodes are needed to initiate the monitoring process but it kept being taken off and destroyed using black markers.
- f. There was a device shortage during the roll out phase of ChekOne because more areas in the health center needed to be covered. These areas include the basement labs, kitchen area, CIU, Heart Clinic, Cafeteria, Ultrasound and Perinatal.
- g. Shortage of batteries; most of the batteries used during the roll out phase lasted for about a period of six hours.
- h. The devices' susceptibility to breakage and malfunction when dropped on the floor or in water. This was due to the lack of protective casing.

8. Conclusion and Recommendation

The following recommendations are to help address the challenges I faced during the roll out of the ChekOne device and also to enhance the overall project success.

- a. Encouraging supervisors and housekeepers to communicate using the calling feature of the handheld device more often to clarify directives so to save time. Usually supervisors and housekeeper meet in person to gain better understanding on instructions or concerns from both parties, which tends to slow down the workflow.

- b. Tasks that need to be checked off the checklist needs to be tailored to meet the task expectations of the different areas that need to be cleaned by a housekeeper. For example, housekeepers cleaning tasks for a client's room will differ from the tasks expected in cleaning the nursing station or the medical storage. Time could be saved if each area that needs cleaning had a user-friendly interface with specific task expectations installed on the ChekOne device. This will reduce the time spent by the housekeeper checking off the applicable tasks per area.
- c. The housekeepers should be made to complete a survey, quarterly, to help determine the effectiveness of the technology being used and to help management to solve any concerns that may arise.
- d. More handheld devices need to be purchased to allow housekeepers to cover all the areas in the health center.
- e. Protective cases need to be purchased to prevent breakages from falls and malfunction when the device falls into water.
- f. Due to the history of sabotage of the barcodes by some housekeepers, management needs to put disciplinary measures in place to serve as a deterrent against any actions that affects the functionality of the device. Additionally, to reduce the rate of breakages due to falls and malfunctions when the device falls into water, a directive needs to be issued to the housekeepers to handle the device with extreme care and disciplinary actions need to be taken against frequent offenders.

The ChekOne software is a crucial tool for effective Information Management, as it ensures successful task verification and accountability on the part of the housekeepers at the IWK Health

Centre. The ChekOne system was initiated to identify problems to enable management in finding solutions to improve work and information flow of the housekeepers. In addition to efficiently generating data, preparing reports and verifying tasks done by the housekeepers. This was achieved by integrating the housekeepers' daily tasks onto the handheld device to ensure the effective tracking and recording of tasks and workflow.

The main challenge faced in implementing the ChekOne verification software was the lack of acceptance of the software by the housekeepers. An education and training strategy for the housekeepers was discussed and drawn up with the managers of the housekeeping department and conducted ahead of time. The group and one on one training sessions with the housekeepers highlighted the benefits of the new verification software and this seemed to mitigate their reservations about the initiation of the project.

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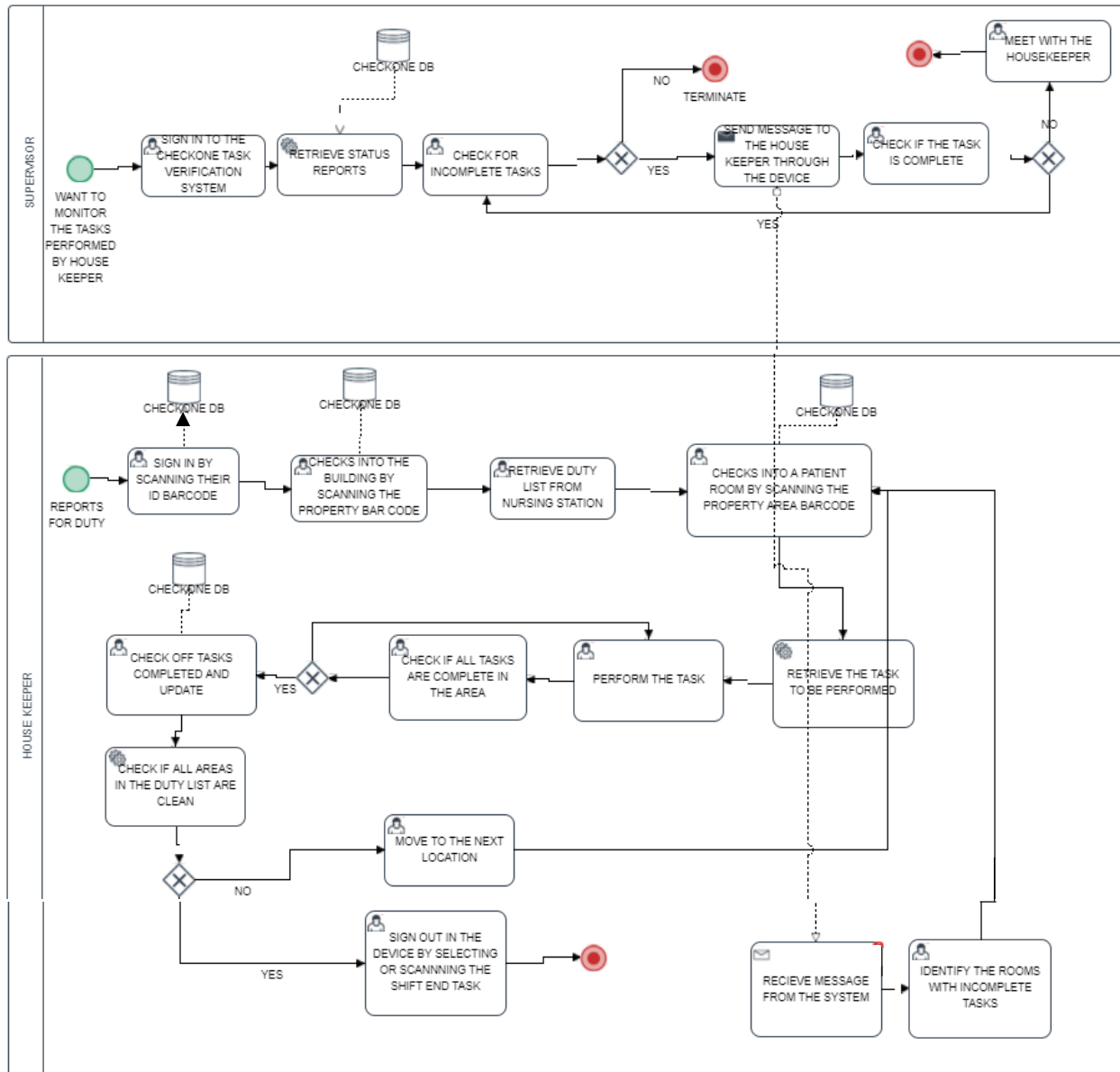
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Appendix-1

BPMN of ChekOne Task Verification



Appendix-2

Service area bar code generation interface

Administration | Client Setup | Reports | Worker Safety | Devices | Akwas Kumah

Add Service Area

[Back to Service Areas](#)

Service Area Name
Name*

Property
Branch*
Client*
Property*

Service Area Group
Area Type*
Group*

Appendix-3

Housekeeper sign-in



Appendix-4

Patient area task list



Appendix-5

Employee task report

Service Report - By Employee

view export add share settings

From: 08/15/2017 00:00 To: 08/16/2017 23:59

Crothall - IWK Health Centr Select Client Select Property

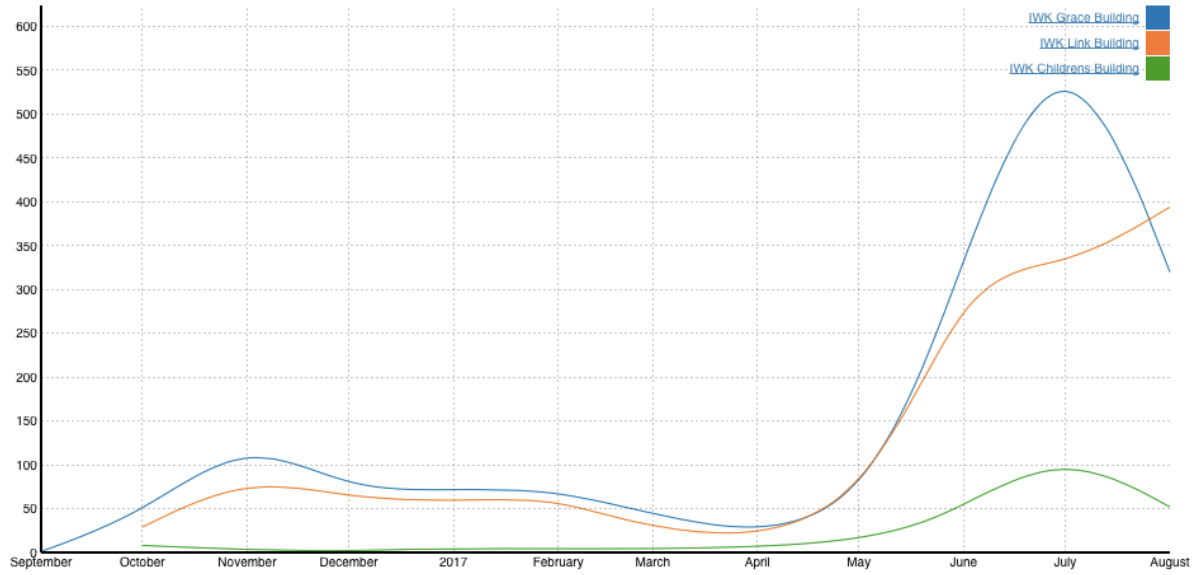
Select Property Area Select Contractor

Select TaskType Go

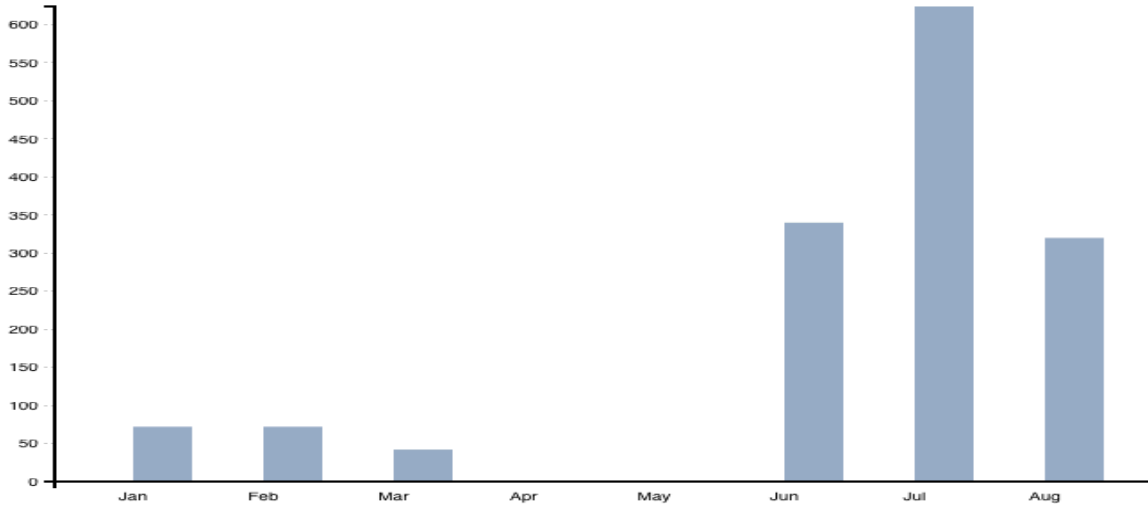
No	Activity	Client	Property	Property Area	Equipment	Scan Time	End Time	Minutes	ESN
1	Sink Cleaned	79104 - IWK Hospital	IWK Link Building	PMU SINK 1		08/16/2017 07:17:40	08/16/2017 07:21:03	4	351581053387530
2	Room Cleaned	79104 - IWK Hospital	IWK Childrens Building	7351 (FR)		08/16/2017 07:21:03	08/16/2017 07:27:54	6	351581053387530
3	Public Washrooms Cleaned	79104 - IWK Hospital	IWK Childrens Building	7420 (PB)		08/16/2017 07:27:54	08/16/2017 07:35:06	8	351581053387530
4	Public Washrooms Cleaned	79104 - IWK Hospital	IWK Childrens Building	7419 (SW)		08/16/2017 07:35:06	08/16/2017 07:37:55	2	351581053387530
5	Room Cleaned	79104 - IWK Hospital	IWK Childrens Building	7418 (CU)		08/16/2017 07:37:55	08/16/2017 07:40:21	3	351581053387530
6	Sink Cleaned	79104 - IWK Hospital	IWK Link Building	PMU SINK 4		08/16/2017 07:40:21	08/16/2017 07:45:20	5	351581053387530
7	Room Cleaned	79104 - IWK Hospital	IWK Childrens Building	7344 (FR)		08/16/2017 07:45:20	08/16/2017 07:50:49	5	351581053387530
8	Room Cleaned	79104 - IWK Hospital	IWK Childrens Building	7417 (O)		08/16/2017 07:50:49	08/16/2017 07:57:13	7	351581053387530
9	Room Cleaned	79104 - IWK Hospital	IWK Childrens Building	7415 (SU)		08/16/2017 07:57:13	08/16/2017 08:00:27	3	351581053387530
10	Sink Cleaned	79104 - IWK Hospital	IWK Childrens Building	SINK 5-PMU 1		08/16/2017 08:00:27	08/16/2017 08:07:40	7	351581053387530

Appendix-6

Total IWK - Discharge Cleans frequency by Location



Total IWK - Discharge Cleans by Month.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
2016								
2017	72	72	42		1	340	624	320

Appendix-7

Houskeeper sign out

