Moving Towards Zero Waste at The Ohio State University Wexner Medical Center

Start Date: September 1st, 2020

End Date: December 2nd, 2020

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EXECUTIVE SUMMARY

The primary purpose of our research project was to find a digital software to appropriately synthesize waste diversion data for all Wexner Medical Center facilities, and to devise a waste reduction plan to initiate better recycling practices. The implementation of this plan will be an important step in moving towards Ohio State's Zero Waste Goal, which is achieving a 90% waste diversion rate by 2025. This project also serves as a response to the Autumn 2020 EEDS Capstone RFP for the Smart Columbus Project. Ms. Lauren Koch, the Sustainability Consult at the WMC, has served as our project sponsor and advisor.

Our team was tasked with creating two deliverables for Ms. Koch, which are described in detail throughout this report. They are to: 1) **Create a waste dashboard** 2) **Create a waste reduction plan**. The strategies detailed in this report are meant to better organize waste diversion data, to spark behavior change among current employees and hospital guests, and to encourage better compliance with recycling regulations.

Our primary research methods included key informant interviews and a benchmarking analysis. Our team contacted and interviewed sustainability professionals at top performing hospitals ranked by Practice Greenhealth. The selected hospitals were Harborview Medical Center at the University of Washington, the University of Vermont Medical Center, and the Cleveland Clinic. They all provided valuable information about how they track waste data and encourage better recycling practices at their respective medical facilities. Additionally, we interviewed sustainability staff at the Ohio State University and within the Wexner Medical Center to get more insight on local environmental attitudes, waste diversion laws, and recycling infrastructure in Columbus.

We completed a thorough literature review and benchmarking analysis to evaluate potential dashboard software based on price, ease of use, and graphic generation capabilities.

After the research and interview processes described above, we devised the following

recommendations:

1) A virtual waste dashboard should compile all waste diversion data from Wexner Medical Center

    sites to allow for data analysis over time. The selected software should handle large amounts of

    data, be user-friendly, and create comprehensive charts and graphs for usage by the Wexner

    Medical Center staff, and for mass distribution. The software should be reasonably priced. Based

    on these requirements, **the recommended software described in this report are Qlik Sense**

    and Smartsheet.

2) A waste reduction plan will incentivize better recycling and waste disposal strategies for

    employees, patients, and guests at all Wexner Medical Center facilities. Based on key informant

    interviews at hospitals honored for their sustainability efforts, **we have created a four-part plan**

    to encourage better recycling practices. The four components include:

    a. Educational video for viewing at hospital sites and for distribution to employees

    b. Handout with material decomposition rates

    c. Composting program at the cafeteria

    d. "Nursing Champions Program" for nurses to hold other staff accountable for

    waste disposal

These recommendations and our research methods and results are described in detail in this

report. Time and resource limitations were somewhat constraining, but the evidence supporting these

recommendations seems more than adequate. We are hopeful that the implementation of these ideas will

lead to the creation of a waste dashboard, and to sustainable behavior change around recycling practices

and improved waste diversion rates at the Wexner Medical Center.

INTRODUCTION

As a whole, the waste stream in the healthcare industry is complex and messy. Hospitals produce an average of 29 pounds of waste per bed per day. The OSU Wexner Medical Center has 1,133 staffed beds, which means that approximately 32, 857 pounds of waste are produced each day when the hospital is at full capacity (American Hospital Directory, n.d.). Although hospitals have strict regulations regarding waste disposal and contamination, only 15% of hospital waste is classified as hazardous (Ngo, 2020). The other 85% of waste is either sent to a traditional landfill or otherwise diverted. Some hospitals have implemented programs to help increase their waste diversion rates and prevent large quantities of non-hazardous waste from going to the landfill. These "top-performing hospitals" were ranked by Practice Greenhealth, an organization focused on finding sustainability solutions in the medical field (*Practice Greenhealth (1)*, n.d.). A key purpose of our study is to gather information about waste streams at these top-performing hospitals and apply them to current waste diversion practices at the Wexner Medical Center.

At the Wexner Medical Center, waste is recorded by tonnage and then recorded in Microsoft Excel. Multiple organizations are involved in waste collection at each hospital site, which means that waste data is coming from various sources. Some data is reported monthly, while other data is reported quarterly, bi-annually, or annually. All of this data is manually inputted into Excel by Ms. Koch, which is time-consuming and inefficient. The simple act of recording waste diversion data uses time that could be spent researching sustainability initiatives to improve waste diversion rates. An alternative method for tracking and reporting waste data would be massively beneficial for Ms. Koch and the present and future sustainability programs at the Wexner Medical Center.

The Wexner Medical Center is currently implementing several waste diversion and sustainability practices. Even with these programs in place, the need for better recycling and waste diversion practices remains. The Wexner Medical Center had a 32.94% diversion rate for fiscal year 2020 (The Ohio State University, 2020). The hospital is not ranked in the Top 25 Sustainable Hospitals by Practice Greenhealth

(Practice Greenhealth (2), n.d.); our waste diversion rates are feeble in comparison to the national leaders. Harborview Medical Center was ranked as a leader in waste management and sustainability by Practice Greenhealth, and had a waste diversion rate of 47.35% in fiscal year 2019 (Data Set 1). This is over 14% higher than Ohio State's diversion rate for fiscal year 2020. In order to achieve Ohio State's Zero Waste Goal of 95% landfill diversion by 2025 and to receive recognition for waste management, it is imperative that more waste reduction programs are implemented at the medical center.

RESEARCH METHODS

A. Benchmarking:

Competitive benchmarking was used to compare waste performance techniques at the Wexner Medical Center to other comparable medical institutions. The institutions were selected based on at least one of the following: geographic location, size, performance and/or culture. We selected three medical centers that were leaders in the sustainability field, and that fit the aforementioned characteristics. They were the Harborview Medical Center at the University of Washington, the University of Vermont Medical Center (UVMC), and the Cleveland Clinic. Additionally, we performed internal benchmarking to identify waste diversion practices on the Ohio State University's campus as a whole, which provided valuable insight to waste diversion attitudes in our geographic locale and within the political setting of the university (Burke, 1995).

B. Key Informant Interviews

Key informant interviews (see: *Appendices)* were conducted to gain insight about waste diversion practices and waste recording methods with sustainability professionals at top performance hospitals. We selected 3 hospitals based on Practice Greenhealth's Top 25 Sustainable Hospitals (*Practice Greenhealth* (2), n.d.). Our team reached out to individuals at the Cleveland Clinic, the Harborview Medical Center at the University of Washington, and the University of Vermont Medical Center. These individuals worked

in departments such as waste diversion / management, project management, sustainability, and environmental services. Ms. Koch, the project advisor, helped make introductions via email, and our project manager, Elena Musser, would contact the selected interviewees to schedule zoom calls. At least two team members would attend each interview, with one member to ask questions and the other to serve as a designated scribe. The interviews lasted between 30 and 60 minutes, and questions were sent to the interviewees at least one day in advance for optimal preparation. In addition to interviews with top performing hospitals, some sustainability staff at the Ohio State University were also contacted and interviewed. Such individuals include staff from the Environmental Services Department (EVS), the Director of Student Life, and the Zero Waste Coordinator for the university. These individuals helped us better understand the culture surrounding waste diversion at the university, and the infrastructure that is currently in place in Columbus to allow for improved recycling. All of the interviews were extremely informative, relevant, and were used as the baseline for our final recommendations for this project.

RECOMMENDATIONS FOR THE WEXNER MEDICAL CENTER

After conducting key informant interviews and benchmarking with comparable medical centers, we have devised multiple recommendations. We decided that providing two software options would allow Ms. Koch and all staff at the Wexner Medical Center to make the final call on which better suits their needs. Similarly, we found four strategies to help increase waste diversion rates and decrease the amount of waste that is sent to the landfill. All of these methods have proven to be effective based on case studies and anecdotal evidence, but their intended impacts will be amplified when collectively implemented. We recognize that our findings are merely recommendations, and that they may or may not be implemented by the Wexner Medical Center, but are confident that these selected software programs could be beneficial in numerous ways.

Deliverable I: Waste Dashboard

Our team was tasked to research different dashboard software programs to better track, manage, and analyze waste data at the Wexner Medical Center. As previously mentioned, Ms. Koch currently inputs all waste data in Microsoft Excel manually, which requires significant time and effort to complete. This is an inefficient use of time, and the graphs and charts created through Excel are often visually unpleasing. The need for new software to track waste data is clear, as well as software to create visual representations of data. The Wexner Medical Center produces massive quantities of waste across all sites. As such, the selected dashboard software needs to handle heavy amounts of data, should be user-friendly, and should generate aesthetically-pleasing graphics to make the data come to life.

Our group researched dashboard software systems used in a variety of workplaces, including at Ohio State, in real estate, in waste management, and more. One outstanding software for this type of work is called Zabble Zero. After meeting with the executive of the company, we realized that this program would be perfect, but prohibitively expensive. Our advisor Ms. Koch recommended that we continue the search for software that was cheaper but still effective. We continued to research software and compare companies before settling on two programs, called Smartsheet and Qlik Sense. We provided two recommendations to allow the Wexner Medical Center staff to decide for themselves which software would be the most effective for their needs.

Smartsheet (*Figure 1*) is a high functioning software and data program that turns large datasets into beautifully generated graphics. Smartsheet is compatible with the university software programming and allows non-administrative users to view the Dashboard. It is relatively low cost ($125 per month) and is extremely user-friendly. A colleague of the group has worked closely with the software and testified to its data organization and graphic-generating capabilities. We may be able to further leverage this relationship to gain further information about the day-to-day use of Smartsheet.

Qlik Sense (*Figure 2)* is also a high functioning dashboard software that is able to handle large quantities of data. Qlik Sense can generate colorful and clean graphics that are easily understood by viewers. The main downside to this program is that it is only iOS compatible, and may not run efficiently on university computers that are not produced by Apple. Qlik Sense is the more expensive option in most circumstances ($150 per month) but has been made available to OSU administrators free of cost. This is the cheapest option for the time being, but would be more expensive if the promotional program through Ohio State is terminated. At least initially, Qlik Sense would be able to help track data and create visually appealing graphics without the financial costs associated with Smartsheet.

In total, Smartsheet and Qlik Sense are both sophisticated enough to handle the Wexner Medical Center's datasets. They both appear easy to use and create visually appealing graphics to use in an online dashboard. However, some level of Excel usage is still required with these software systems. Neither is a perfect solution, but they would be able to generate graphics that are more attention-grabbing and sophisticated than those produced with Excel alone. In the future (see: "Areas of Further Research"), we suggest hiring a student intern or full-time staff member to assist with waste data tracking and further explore dashboard possibilities.
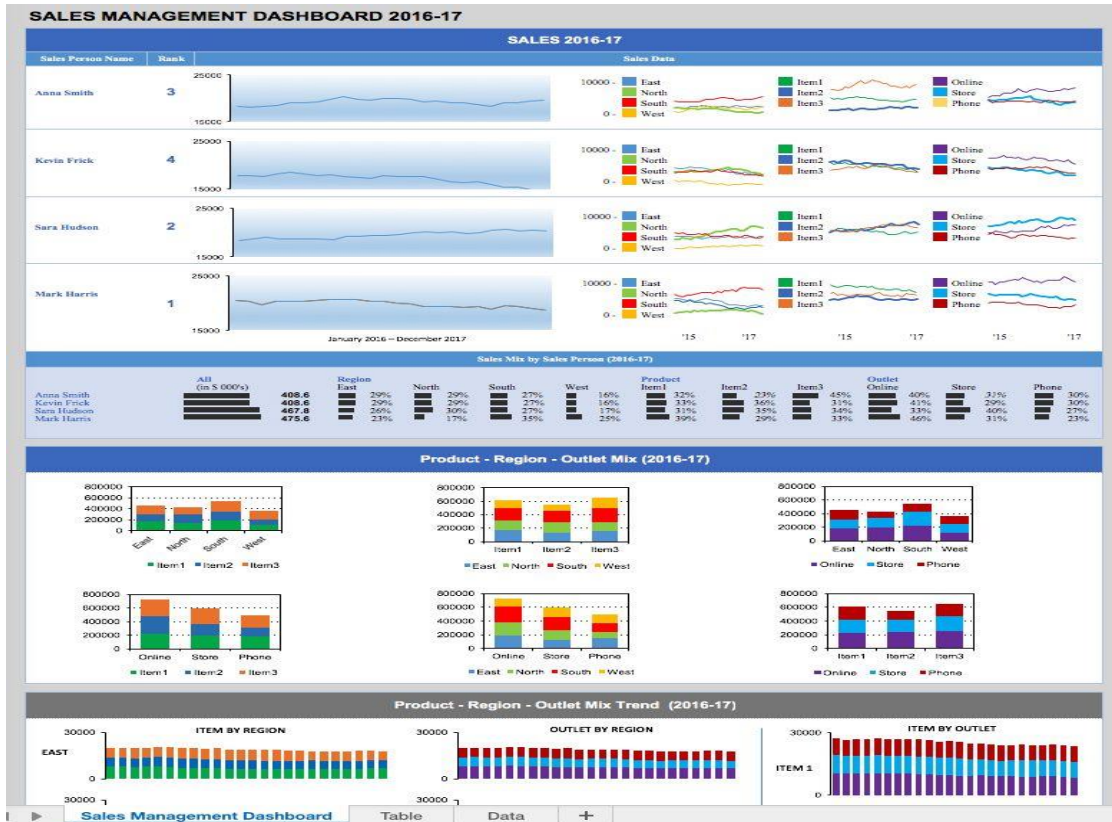
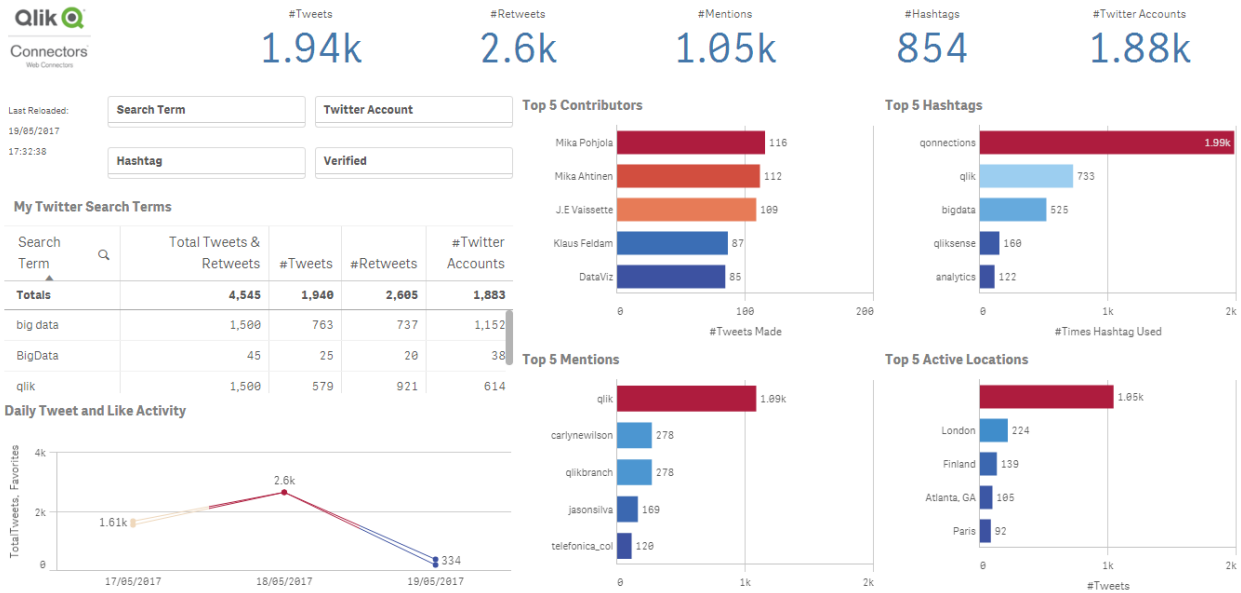Figure 1. Smartsheets Dashboard Example (smartsheet.com)

Figure 2. Qlik Sense Dashboard Example (Qlik.com)

Deliverable II: Waste Reduction Plan

Our team was tasked with creating a waste reduction plan for all facilities at the Wexner Medical Center. Initially, we thought that this would be in the form of a building-level challenge. The original idea was that various departments such as the Emergency Room, the Burn Unit, the James Cancer Center, etc. would have a competition over a period of two weeks to see which department or building could achieve the highest waste diversion rates. Ms. Koch, the Sustainability Consult at the WMC and our advisor for this project, recommended that we inquire about a comparable program called "RecycleMania" on Ohio State's campus that compared waste diversion rates between dorms. Mr. Tom Reeves, the Director of the Office of Student Life, has implemented the RecycleMania program for several years on OSU's campus. Mr. Reeves said that RecycleMania was a good "tool to bring awareness to recycling as a whole," but that the results were "relatively meaningless." The waste diversion rates differed greatly between buildings due to differences in recycling bin numbers, the presence or absence of composting, and the disposal of dining hall and café materials for particular dorm buildings. As such, some residence halls were bound to have higher or lower diversion rates based on things out of the control of the program participants. At the Wexner Medical Center, various units will have different types of waste that have different disposal requirements. As such, the data results from a building level challenge would likely be biased due to the uncontrolled variables. Although this might still encourage recycling, we found four other methods that may accomplish this goal while also leading to long-lasting waste reduction solutions that can be more accurately tracked over time. These solutions are described in detail below.

Part 1: Educational Video

For the first part of the waste reduction plan, we recommend that the Wexner Medical Center create a 30-60 second educational video to be distributed via email and on display monitors at all hospital

sites. The video could show how to properly sort items into the recycling or trash bins. Recyclable items vary by location, so some employees and guests might be unaware of the types of acceptable recycling materials in Columbus and specific to the WMC. The video can also show what happens to waste once it is at the recycling facility, and what happens when recycling bins are contaminated with landfill waste. Students majoring in Acting and Film Studies at Ohio State could be recruited for free to create this video[1]. These students are required to get real-world experience to build their resumes and to compile clips to show their talents. As such, it is likely that many would be eager to work behind or in front of the camera to create this project. This could be a low-cost way to produce a valuable product to encourage better recycling behaviors for all viewers, and to spark dialogue about consumption and waste disposal.

Modern technology has become an integral part of our daily lives. Smart phones, televisions, laptops, and tablets have become the norm, and almost everyone has unlimited access to videos and other forms of media through these devices. Videos can be an effective way to lead to behavior change in some scenarios, especially when framed to fit a particular audience (Tuong, Larsen, & Armstrong, 2012). Educational videos can be distributed through social media, email, or displayed on screens like televisions (Tuong et al., 2012). In fact, "the use of videos seems to be a promising, relevant and increasingly used instructional strategy that could enhance the quality of clinical skills education under contemporary conditions" (Forbes et al., 2013).

A study that examined the effects of educational recycling videos for middle school students concluded that this was a very effective way to introduce the students to proper recycling practices (Flanagan, 2017). The videos portrayed how materials are recycled and what happens when recycling is contaminated with landfill waste (Flanagan, 2017). This allowed the students to see the impacts of improper waste disposal and allowed them to consider the implications of the waste they created (Flanagan, 2017). A similar study conducted in Australia introduced farmers to proper recycling practices for their particular locale, and was an effective way to educate participants about recycling in their

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[1] One teammate is a theatre major and has insight about career-building activities for actors and film majors. Unpaid work to gain experience is a common occurrence for artists in college.

geographic region, and how to divert more waste from the landfill for their occupation (Russell, 2006). Educational videos can be distributed through social media, email, or displayed on screens like televisions (Tuong et al., 2012). For the Wexner Medical Center, the videos could be sent via email to various employees and displayed on the 500+ video monitors across all WMC sites. It is reasonable to assume that a video would be an effective way to show employees at the Wexner Medical Center where their waste goes, and what happens if waste is disposed of improperly. This sort of visual representation would make recycling seem more relevant to the activities of their daily lives and may evoke a more empathetic response than alternative educational measures.

Part 2: Physical Handout

One of the most informative interviews we conducted was with Ms. Brenda Nissley from Harborview Medical Center at the University of Washington. Harborview Medical Center is one of the leaders in sustainability and environmental advocacy according to Practice Greenhealth's 2020 rankings (*Practice Greenhealth (2)*, n.d.). Ms. Nissley said that one of the most important aspects of encouraging better recycling behavior is to educate employees about where their waste is going, and how long it takes to decompose. She created a flyer called "Trash Talk", *Figure 3,* that shows decomposition rates for common items in the hospital, including plastic water bottles, apple cores, latex gloves, and single-use metal shears, among others. Ms. Nissley provided strong anecdotal evidence that this flyer sparked behavior change for several employees, and that she received personal accounts from employees of more recycling awareness and compliance after viewing this flyer.

Ms. Nissley was kind enough to send us the "Trash Talk" flyer, and it has already been distributed at the Wexner Medical Center. This portion of the project has already been successfully implemented, though there has not been enough time to accurately report the results because the flyer was distributed one month before writing this report.

A study at the Midwest University medical center found that changing signage by recycling bins was not an effective way to "increase recycling compliance and accuracy" (Andrews et al., 2013). Signage by recycling bins traditionally shows which materials are recyclable, and which are not. Medical staff are often rushed, and may not have the time or desire to carefully examine such signage while working their shifts (Andrews et al., 2013). However, sending information about material decomposition rates via email and distributing physical flyers may have a different impact. Ms. Nissley found that employees became more compliant with recycling rules after reading the "Trash Talk" handout.
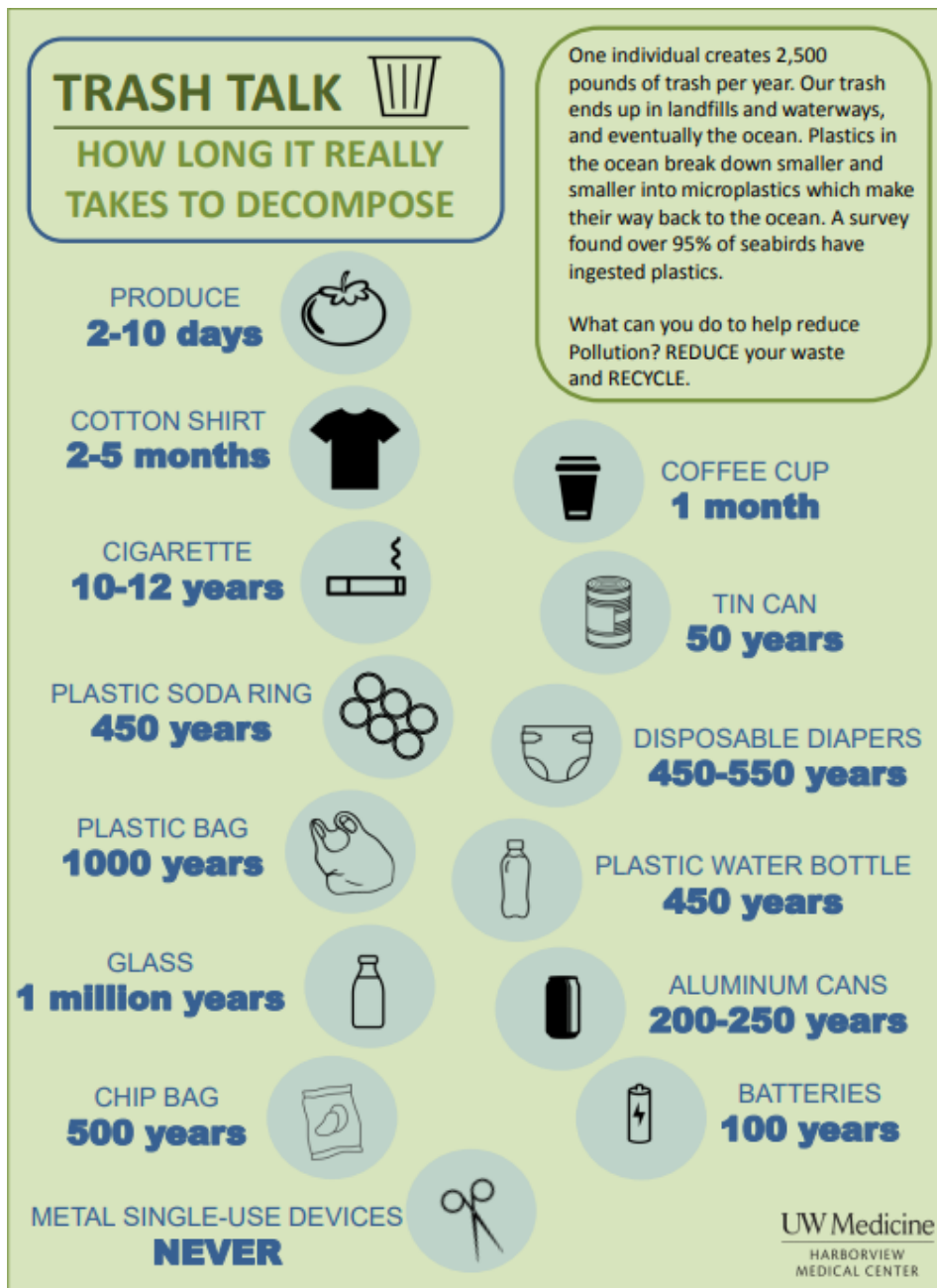
TRASH TALK

HOW LONG IT REALLY TAKES TO DECOMPOSE

One individual creates 2,500 pounds of trash per year. Our trash ends up in landfills and waterways, and eventually the ocean. Plastics in the ocean break down smaller and smaller into microplastics which make their way back to the ocean. A survey found over 95% of seabirds have ingested plastics.

What can you do to help reduce Pollution? REDUCE your waste and RECYCLE.

PRODUCE
2-10 days

COTTON SHIRT
2-5 months

CIGARETTE
10-12 years

PLASTIC SODA RING
450 years

PLASTIC BAG
1000 years

GLASS
1 million years

CHIP BAG
500 years

METAL SINGLE-USE DEVICES
NEVER

COFFEE CUP
1 month

TIN CAN
50 years

DISPOSABLE DIAPERS
450-550 years

PLASTIC WATER BOTTLE
450 years

ALUMINUM CANS
200-250 years

BATTERIES
100 years

UW Medicine
HARBORVIEW MEDICAL CENTER

Figure 3. Trash Talk, University of Washington Harborview Medical Center, 2017.

Part 3: Composting Program

Composting is an effective way to divert waste from the landfill and has shown positive impacts for some medical centers. Ms. Brenda Nissley from Harborview Medical Center, as well as Mr. Colin

Santee and Ms. Jennifer Bergeron from the University of Vermont Medical, all utilize composting programs at their respective medical centers, and have attested to the benefits of these programs. They all said that composting has helped reduce waste streams. Ms. Nissley, in particular, was adamant about the benefits of composting for sustainability efforts at the Harborview Medical Center. A study at Wageningen University in the Netherlands examined a Dutch company that has developed an on-site anaerobic digestion system for five medical centers in the area (Goosensen, 2017). The system is designed to take hazardous material like used bandages, syringes, and wastewater to dispose of on-site (Goosensen, 2017). The system also takes non-biodegradable rubbish, thus preventing its accumulation at landfills (Goosensen, 2017).

Another success story of a composting system comes from Emory University. Around 2010 they launched a pilot program for their food service workers to show them a visual representation of the amount of trash that would be saved by composting. Since 2010, Emory has taken great steps in accomplishing an effective composting program. "Emory Healthcare reduces and recycles waste generated in clinics by washing and reducing gowns and linens, reusing sharps containers and donating equipment and materials for use in other countries" (Emory Sustainability Initiatives, n.d.). *Figure 1* shows their diversion rates of compost from landfills (Emory Sustainability Initiatives, n.d.). The overall message of composting speaks for itself. With a goal to divert even more trash from landfills, we recommend that the Wexner Medical Center create a partnership with a local composting program such as the Columbus Compost Exchange to reach their 2025 waste goals (*The Compost Exchange*, n.d.). Although this company is currently focused on small-scale, household- and neighborhood-level compost collection, there is potential for collaboration with this company as proper composting infrastructure is already in place (*The Compost Exchange*, n.d.).
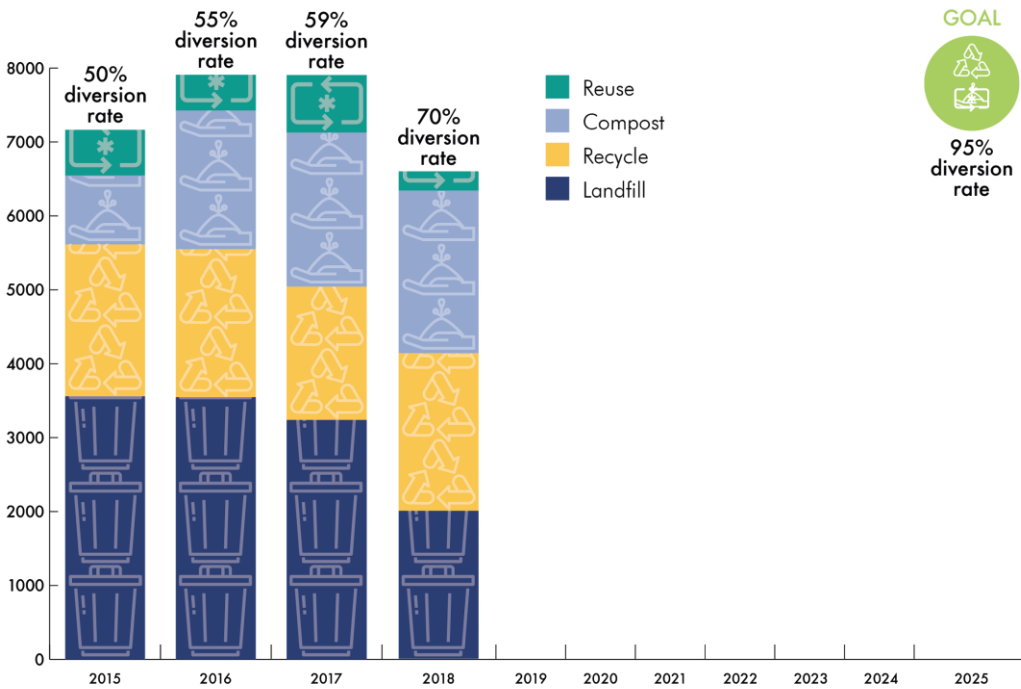
Waste Diverted From Landfills

Figure 4. Creating systems and programs to help everyone reduce, reuse, and recycle materials (Emory Sustainability Initiatives, n.d.).

Part 4: Nursing Champions Program

During the interviewing portion of our research project, we were introduced to several strategies utilized by top performing healthcare centers ranked by Practice Greenhealth. One of the most notable was a program at the University of Vermont Medical Center (UVMC) called the "Nursing Champions Program." This program involves the recruitment of nurses to act as sustainability representatives amongst their peers. Ms. Jennifer Bergeron and Mr. Colin Santee, both from UVMC, recommended this program to us, and thought that it could be very impactful at the Wexner Medical Center. The program is voluntary, and relies on the involvement of interested nurses to be successful. Nurses that want to be involved attend a training by the sustainability administration at UVMC and learn about materials that should be recycled, composted, or put in trash bins to be sent to the landfill. After the training, they are

expected to educate their peers and kindly correct staff when they misplace an item in the trash bins. Studies have shown that social pressure can have a big impact on pro-environmental behaviors, as social pressure from a peer can make individuals more likely to comply with rules and proper recycling practices (Kirakozian, 2015).

At the Wexner Medical Center, a survey could be sent to all nurses across all WMC sites to gauge interest in participating in such a program. The interested individuals could meet with Ms. Lauren Koch or other sustainability staff at the WMC to discuss recycling practices at their facilities. With enough interest, there could be nurses on each floor during all shifts to help regulate recycling and waste disposal, which could have tremendous impacts on employee behavior and compliance. This would also spark dialogue between workers about recycling and the environmental impacts of generated waste.

AREAS OF FURTHER RESEARCH

As described above, the manual recording of waste diversion data is complex, and it will continue to be so until a waste dashboard is effectively implemented. We recommend that Ms. Koch and the Wexner Medical Center create a part-time internship within the Environmental Services (or another comparable) Department that is focused on dashboard implementation and data tracking. This intern could manually input data into Excel and help handle the transition to a dashboard, should one of our recommended software systems be adopted. This position would be beneficial to both the Wexner Medical Center staff and the interns themselves.

While there can be some difficulties recycling waste materials that are contaminated by use in medical centers, less hazards are associated with composting. Further research could be done to target food waste within cafeterias to divert it from landfills. In doing so, this could produce large amounts of compost to be used within the community, assuming it is done correctly. Even if food is only a small amount of the total waste created by the Wexner Medical Center, it still is impactful to chip away at things that can be fixed now to move towards zero waste.

We also recommend continuing collaboration with staff, student organizations, and various educational departments at the Ohio State University. Keeping an open line of communication between the university and the medical center will allow more opportunities for innovation within the waste diversion realm to arise. The continuous sharing of ideas and programs will encourage higher-level thinking to promote higher success rates of accomplishing similar goals to tighten the gap between institutions and more importantly, further progress towards zero waste.

CONCLUSION

Our final recommendations for this research project were devised using information gathered from key informant interviews and a benchmarking analysis. Our interviews revealed that many other medical institutions and individuals within the Ohio State University use Microsoft Excel to track waste data. However, each person we interviewed was unsatisfied with Excel's performance, which highlights the need for a better solution. Our research revealed that Smartsheet and Qlik Sense are two user-friendly software programs that could meet the data analysis needs of the Wexner Medical Center. For our second deliverable, we created a multi-faceted waste reduction plan with four separate components. To reiterate, a 30-60 second educational video screened across all Wexner Medical Center sites could help influence better recycling practices among viewers. Next, physical and virtual handouts for employees, such as the "Trash Talk" handout from Harborview Medical Center, could also spark dialogue around sustainability and potentially lead to behavior change. Third, composting has proven to be a beneficial practice for waste reduction and implementing a composting program at the Wexner Medical Center could have profound results. The final component of our waste reduction plan would be the "Nursing Champions Program," where specific nurses volunteer to educate peers about proper recycling practices during their respective shifts. This would ensure accountability and responsibility at all hours of the day, provided a nursing champion is "on duty" during all shifts. Together, the four components of the waste reduction

plan could influence hospital employees, patients, and visitors to be more conscious of the waste they produce and how they dispose of it while on site and at home.

We sincerely believe that our recommendations are compelling and have the potential to positively impact waste diversion rates at the Wexner Medical Center. The three medical institutions we interviewed are living proof that our waste diversion rates can improve, and that the trash sent to the landfill can be reduced. Their suggested methods, as well as those we have recommended, can lead to long-lasting changes in the way we think about, collect, track, and dispose of waste at the Wexner Medical Center. If OSU can implement additional waste diversion measures such as those recommended in this paper, and comes anywhere near the 95% waste diversion goal, we would become a leading waste diversion hospital in the United States, which seems a target worth shooting for.

APPENDICES

Direct notes from interviews conducted are available upon request. Contact Greg Hitzhusen at Hitzhusen.3@osu.edu for further inquiries.

Data Sets

Data Set 1: Source: Video call interview with Brenda Nissley- Environmental Sustainability and Waste Manager for Harborview Medical Center
Description: Notes from conversation regarding data organization, waste diversion, and program education; conducted on October 7th, 2020.

Data Set 2: Source: Video call interview with Kyle Mathias, Functional Analyst of Crothall Healthcare at Ohio State University
Description: Notes from conversation include software usage, waste disposal methods at the Wexner Medical Center, and location of bins and trash after pickup; conducted on October 8th, 2020.

Data Set 3: Source: Video call interview with Molly Kathleen, Zero Waste Coordinator at Ohio State University
Description: Notes from conversation include software usage, program characteristics, and diversion techniques; conducted on October 22nd, 2020.

Data Set 4: Source: Video call interview with Tom Reeves, the Director of The Office of Student Life at Ohio State University
Description: Notes from conversation included details of University standard disposal process, sustainable practices on Campus, and gearing waste reduction towards different employees; conducted on October 22nd, 2020.

Data Set 5: Source: Video call interview with Colin Santee, the Facilities Operations & Sustainability Coordinator from the University of Vermont Medical Center
Description: Notes from conversation included tracking data at UMVC, rates of PPE disposal, and impacts of the Coronavirus on overall hospital waste; conducted on October 22nd, 2020.

Data Set 6: Source: Video call interview with Emily Szramowski, the Program Manager in the Office of Executive Administration at the Cleveland Clinic
Description: Notes from conversation included software usage, previous programs, and diversion techniques; conducted on October 26th, 2020.

RESOURCES

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