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Montreal, QC, H9F 4V7

August 15, 2020

Mme. LaJoie
Administrative Director
Clinique Parodontologie CTH
755 St. George Blvd, Montreal, QC, H3T 6B2

Dear Mme. LaJoie:

Please find enclosed the report, Causal Analysis of Gathering in Public Areas at Clinique Parodontologie CTH. In preparing this report, I have learned a great deal about the panel size at the clinic, staff and schedule management, and collaboration with building administration, tenants, and business owners. Thank you for your guidance and encouragement throughout this process.

The staff members at Clinique Parodontologie CTH were particularly helpful in gathering primary data by participating in surveys and interviews. Their positive attitude, ideas, and input were essential to the investigation.

The Covid-19 pandemic has presented the dental field with unprecedented challenges that extend far beyond the sterilization of instruments. The range of infection control protocols now affect support staff and untreated visitors to the clinic. Based on results of this inquiry, a list of recommendations to resolve social distancing issues within and immediately surrounding the clinic has been compiled and may be found on page eight of the report.

It has been a pleasure working on this project and I would be happy to answer any questions. Please, feel free to phone at 514-633-9865 or email to christina.hruby@alumni.ubc.ca anytime.

Sincerely,



Christina Hruby

**Causal Analysis
of Gathering in Common Areas
at Clinique Parodontologie CTH**

for

Dr. Cartier D.D.S., DIPL. PARO. FICD

Dr. Talon D.M.D., M.SC., DIPL. PARO. FRCD

Dr. Hamel D.M.D., DIPL. PARO. FRCD

Mme. LaJoie, Administrative Director

by

Christina Hruby, RDH

English 301 Student

July 31, 2020

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Abstract

The Covid-19 pandemic has made social distancing a reality in public places and has affected the practice of dentistry profoundly. The Ordre des Dentistes du Québec has specified protocols with which dental clinics must comply to avoid fines or forced closure.

Due to limited space, high patient volume, and a large staff, Clinique Parodontologie CTH faces the challenge of maintaining acceptable occupancy in public areas such as: the waiting room, corridor, lunchroom, sterilization area, periodontists office, as well as the lobby and hallway of the building in which the clinic is located.

Primary data collected, in the form of survey, interview, and suggestion box responses, guided analysis of causative factors of problematic crowding. Collaboration with nearby businesses and building administration revealed solutions to congestion affecting staff, patients, and chaperones.

Dental practices confronted with overwhelmed public areas should consider the following recommendations.

- Creating a one-way direction of traffic in corridors.
- Staggering appointment times, lunch schedules, and working hours of staff members.
- Elongating duration of appointments.
- Providing patients and chaperones with secondary waiting areas.
- Billing patients prior to appointments, to avoid returning to the reception area after treatment.
- Encouraging patients to arrive to appointments punctually and to remain on the premises for treatment only.

CAUSAL ANALYSIS

Introduction

Transmission of the Covid-19 has been linked to saliva droplets and aerosols (particles suspended in the air), two realities of dental treatment (Bertrand et al. 22). As a result, strict clinical protocols have been adopted in operatories. Dental offices are also public areas where contact occurs between co-workers, patients, chaperones, building administrators, and delivery personnel. Social distancing must be maintained between all points of contact to maintain public safety during the pandemic.

Inadvertent gathering is taking place in common areas of Clinique Parodontologie CTH. High patient volume is overwhelming the waiting room, the narrow corridor is unable to accommodate adequate space for two-way foot traffic, and the lunchroom is insufficient to host all staff members simultaneously.

The purpose of this inquiry is to identify the sources of gathering and assess potential solutions. The goal is to maintain the safety of all staff and visitors to the clinic while sustaining a patient turnover rate that does not significantly reduce profitability.

Surveys and interviews were conducted, and a suggestion box was installed to gather primary data for analysis of issues at Clinique Parodontologie CTH. Primary data was collected from staff members of the clinic. Twenty-four anonymous surveys were voluntarily completed, and 12 confidential interviews were voluntarily conducted. Copies of the survey and interview questions are located in the appendix, on pages 13 through 15. Building administration, neighbouring tenants, and nearby local businesses were also contacted to uncover potential conflicts and solutions. The Phase 3 Covid-19 Buccodental Procedure Directives issued by the Ordre des Dentistes du Quebec were used as secondary reference and guidance.

CAUSAL ANALYSIS

The report concludes by acknowledging that uniformity of team working hours and lunch times as well as limited waiting area for visitors are contributing to problematic gathering at the clinic. Immediate and feasible solutions are recommended, that fulfill the needs of profitability, patient demand, and public safety.

Data Section

Dimensions and Capacity of Public Areas at Clinique Parodontologie CTH

According to primary data results, clinic areas experiencing problematic gathering include the waiting room, corridor, sterilization center, lunchroom, the offices of the periodontists and administrative director, and the laundry room. The diagram below (Figure 1) identifies these rooms with blue stars and indicates the square footage of each area. The operatories are not affected by social distancing issues because there are never more than 4 individuals in these rooms at any given time.

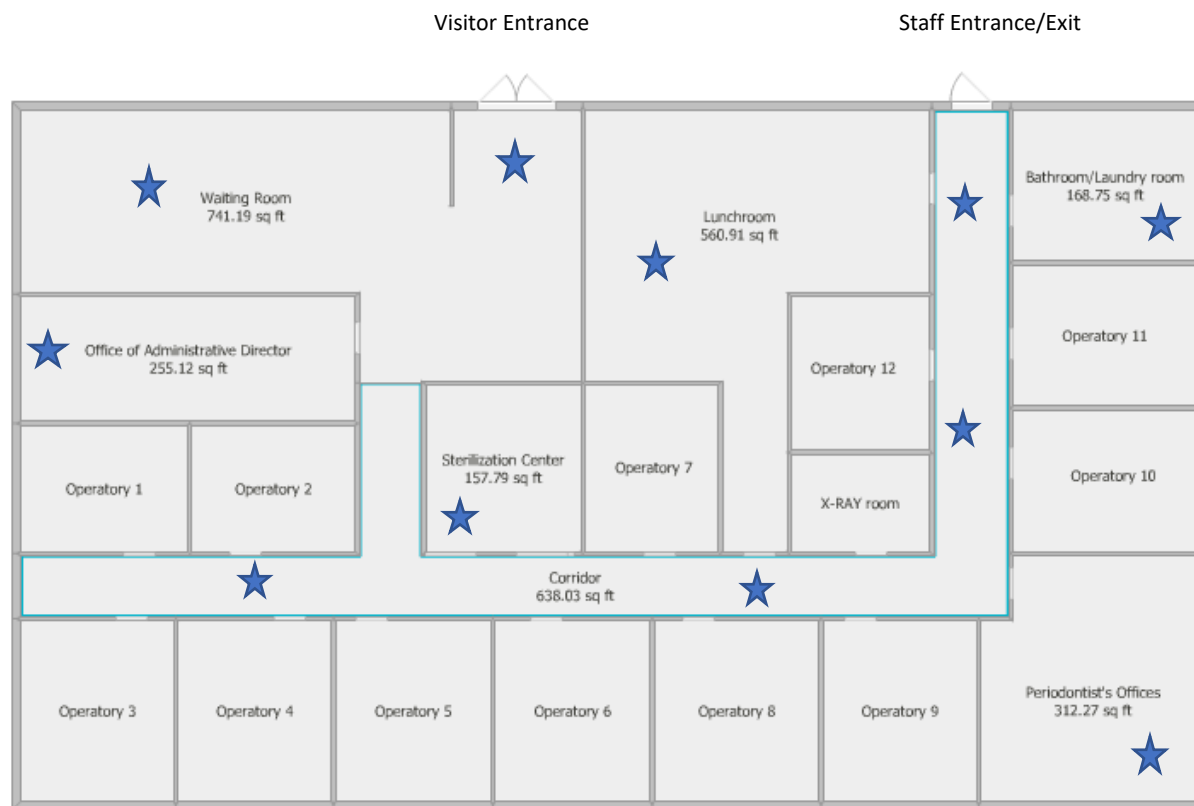


Figure1: Blueprint of Clinique Parodontologie CTH

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The waiting room is adjoined to the visitor entrance and houses the receptionist and three secretaries. Three billing stations are available and the number of chairs for waiting patients has been reduced to seven. Dental assistants and dental hygienists are also traveling in and out this room to greet patients and accompany them to and from operatories. The maximum capacity for this room, allowing 2 metre distancing, is fourteen individuals.

The corridor connecting the waiting room to all operatories, the x-ray room, the lunchroom, bathroom/laundry room, the sterilization center, and the offices is approximately five feet, or one and a half meters, wide.

The sterilization center, with a galley style set-up, can accommodate a maximum of four staff members. The sterilization clerk is occupying the space throughout the day, leaving room for only three other employees at any given time.

The lunchroom table can seat a maximum of seven individuals to maintain six and a half feet, or two metres, leeway. Physical distancing is particularly important in the lunchroom because masks cannot be worn while eating (Bertrand et al. 5).

Since staff lockers are located in the lunchroom, employees are now using the lunchroom as well as the laundry/bathroom to change into and out of uniforms before and after shifts.

Staff and Visitor Volume

Table 1: Breakdown of Staff Members

Job Title	Number of members	Cumulative Total
Periodontists	3	3
Dental Hygienists	9	12
Dental Assistants	6	19
Sterilization	1	20
Secretaries	3	23
Receptionist	1	24
Administration	4	28
Accountants	2	30

CAUSAL ANALYSIS

Table 2: Daily Visitor Volume

Type of Visitor	Average Daily Total	Cumulative Daily Total
Patient	150	150
Chaperone	20	170
Delivery Personnel	5	175

Table 3: Team Breakdown

	Team 1: Cartier	Team 2: Talon	Team 3: Hamel
Periodontists	1	1	1
Dental Hygienists	3	3	3
Dental Assistants	2	2	2
Secretaries	1	1	1
Patients	50	50	50
Chaperones	7	7	7
Total # of members	64	64	64

Thirty staff members are present at the clinic each day treating one hundred and fifty patients and hosting twenty chaperones on average; however, both the staff and their associated visitors can be divided into 3 groups of approximately sixty-four individuals. Managing each team separately will facilitate manipulation of the schedule and crowd control.

Sources of Congestion

Data collected from voluntary and anonymous surveys, voluntary and confidential interviews, and a suggestion box indicated causes of gathering at Clinique Parodontologie (Figure 2).

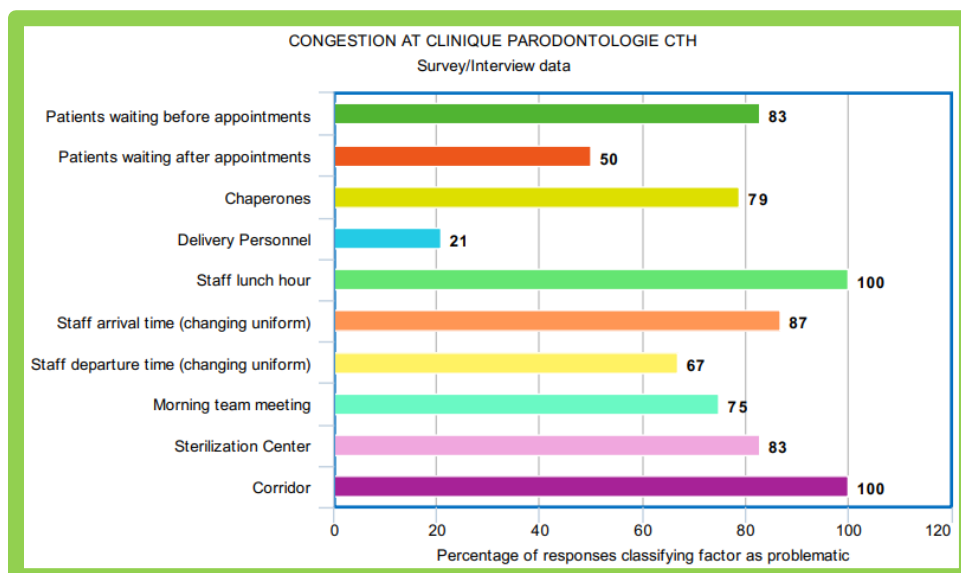


Figure 2: Congestion at Clinique Parodontologie CTH

CAUSAL ANALYSIS

The following list summarizes the factors contributing to problematic gathering at the clinic:

1. Since Covid-19 protocols mandated by the Ordre des Dentistes du Québec indicate that staff members who are in close contact with patients (periodontists, dental hygienists, and dental assistants) must change into uniforms after arriving and before leaving the premises, (Bertrand et al., 28) and because these twenty individuals are arriving and departing CTH at the same time, the bathroom and lunchroom areas are crowded at opening and closing times.
2. Morning team meetings, which usually take place in the periodontists' office, cannot host three teams concurrently while maintaining appropriate social distancing.
3. Roughly 30 staff members are taking lunch between noon and one 'o'clock, overwhelming the lunchroom.
4. Patients are waiting on average ten to fifteen minutes before appointments and five to ten minutes after appointments. Consensus among survey and interview subjects indicates that due to additional Covid-19 screening and disinfection protocols, appointment lengths are now strained. Subjects also estimate that an extra ten minutes would be sufficient in resolving delays.
5. Because all teams are commencing the workday simultaneously, appointment times are following similar schedules. Visitor arrival and billing is occurring across the three teams at the same times throughout the day.
6. Chaperones are occupying space in the waiting room needed for patients.
7. Because appointments are generally ending at the same times, the sterilization center is congested alongside patient turnover patterns.
8. Delivery personnel are occasionally arriving at inconvenient times, but the issue is generally not problematic.
9. The corridor is a heavily travelled and struggling to accommodate two-way traffic.

CAUSAL ANALYSIS

Effect of Scheduling on Waiting Room Crowding

The following chart displays the patient flow throughout the workday. One hundred percent capacity implies that all seats and billing stations are occupied. The receptionist monitors the headcount of the area and asks additional patients to wait in the hallway until spaces vacate.

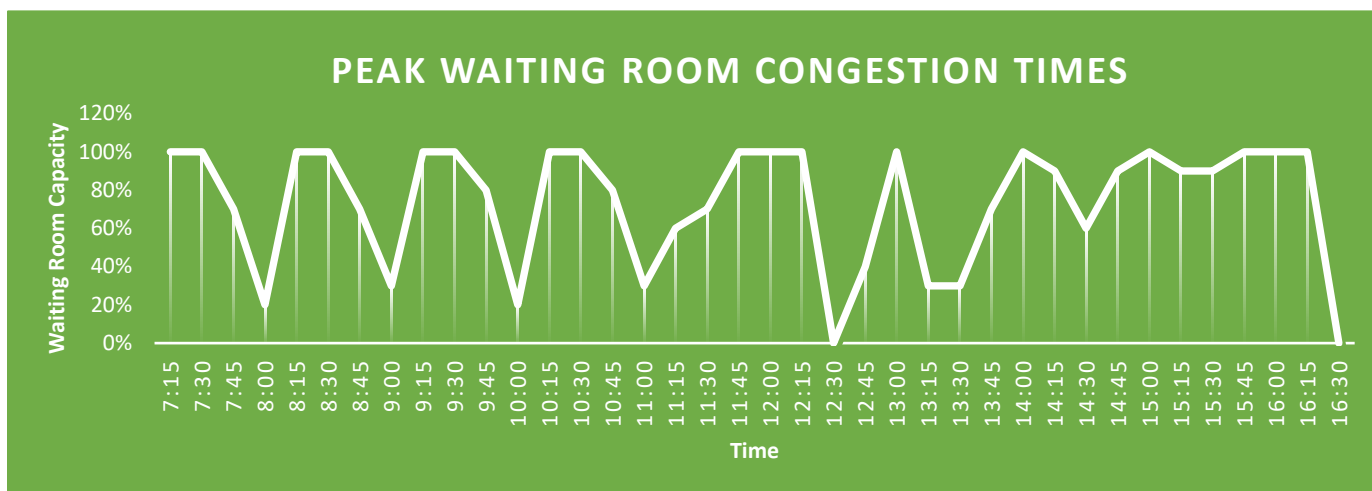


Figure 3: Peak Waiting Room Congestion

Trends indicate that patients are arriving ten to fifteen minutes prior to their appointments, which usually begin at the half hour mark. Patients are completing treatments and escorted back to the waiting room within a twenty-minute interval that overlaps with the next wave of appointments. During this overlap, the waiting room is at one hundred percent capacity and there are often three to six additional patients in the hallway outside the clinic. The secretaries are experiencing a twenty-minute billing rush which is followed by forty minutes of minimal activity.

CAUSAL ANALYSIS

Amenability of Personnel to Altered Schedule

Presently, the workday schedule for all employees of Clinique Parodontologie CTH extends from 7:30 am to 4:00 pm, which includes a lunch hour from 12:00 pm to 1:00 pm. Primary data sources revealed unanimous approval for altering both lunch hours and workday opening hours. A staggering of team schedules would appear as follows:

Table 4: Daily Team Schedules

	Team 1	Team 2	Team 3
Workday begins	7:00 am	7:15 am	7:30 am
Lunch hour begins	11:00 am	12:00 pm	1:00 pm
Lunch hour ends	12:00 pm	1:00 pm	2:00 pm
Workday ends	3:30 pm	3:45 pm	4:00 pm

Such an adjustment would result in offsetting patient flow between teams by fifteen minutes thus alleviating reception and sterilization areas. Spreading the influx of patients softens peaks and valleys, allowing better customer service and a less stressful environment. Separate lunch hours reduce lunchroom crowding significantly. The total number of employee-working-hours is not increased, leaving payroll costs unaffected.

Conflicting Interests

Complaints from fellow tenants and building administration voiced at the tenant meeting held on July 10, 2020 included:

- 1- Fourth floor tenants are inconvenienced by accumulation of patients waiting in the hallway to enter the clinic.
- 2- Building administration is displeased with crowding in lobby caused by visitors waiting for elevators, patients waiting to be called up to the clinic, and the overflow of chaperones.
- 3- Tenants from all floors report that patients are not respecting two-person maximum in elevators.

Alternative waiting areas are required for patients and chaperones. Patients need to be informed regarding social distancing rules of the building.

CAUSAL ANALYSIS

Available Facilities

Meetings with building administration to request use of alternate facilities and with nearby business owners/management revealed the following options for secondary waiting areas and improved foot-traffic flow:

Table 5: Available Facilities and Establishments

Facility/Establishment	Status of Request
Use of rear door of clinic as exit for patients	Approved
Use of Café on ground floor to host chaperones	Denied: lease terminated
Placement of four chairs in hallway outside clinic as secondary waiting area	Denied
Use of seating in lobby as secondary waiting area	Denied
Starbucks	Approved
McDonald's	Approved
Tim Horton's	Denied: Take-out only
Chapter's	Approved
Fairfield Shopping Center	Approved
Quesada Burritos & Tacos	Denied- Take-out only

Building administration will not support overcapacity needs of the clinic and does not accept taxing of hallway and lobby areas; however, reclassifying rear door for visitor use can be beneficial for foot traffic within the clinic. Businesses located within a five-minute walk of the clinic were visited. Because of social distancing constraints in public areas, not all establishments are prepared to host chaperones or waiting patients. A satisfactory list of options was compiled.

CAUSAL ANALYSIS

One-way Direction of Traffic

The rear door of the clinic was classified as a staff entrance; however, approval from building administrators to use it as an exit for patients, presents a solution to the close proximity of two-way traffic in the clinic corridor. Analysis of the floor plan and comments collected from the suggestion box have culminated in the following proposed one-way foot traffic plan for the clinic (Figure 4: One-way at Clinique Parodontologie CTH). Please note that the floor colour of all areas where social distancing is problematic have been changed to highlight zones needing attention.

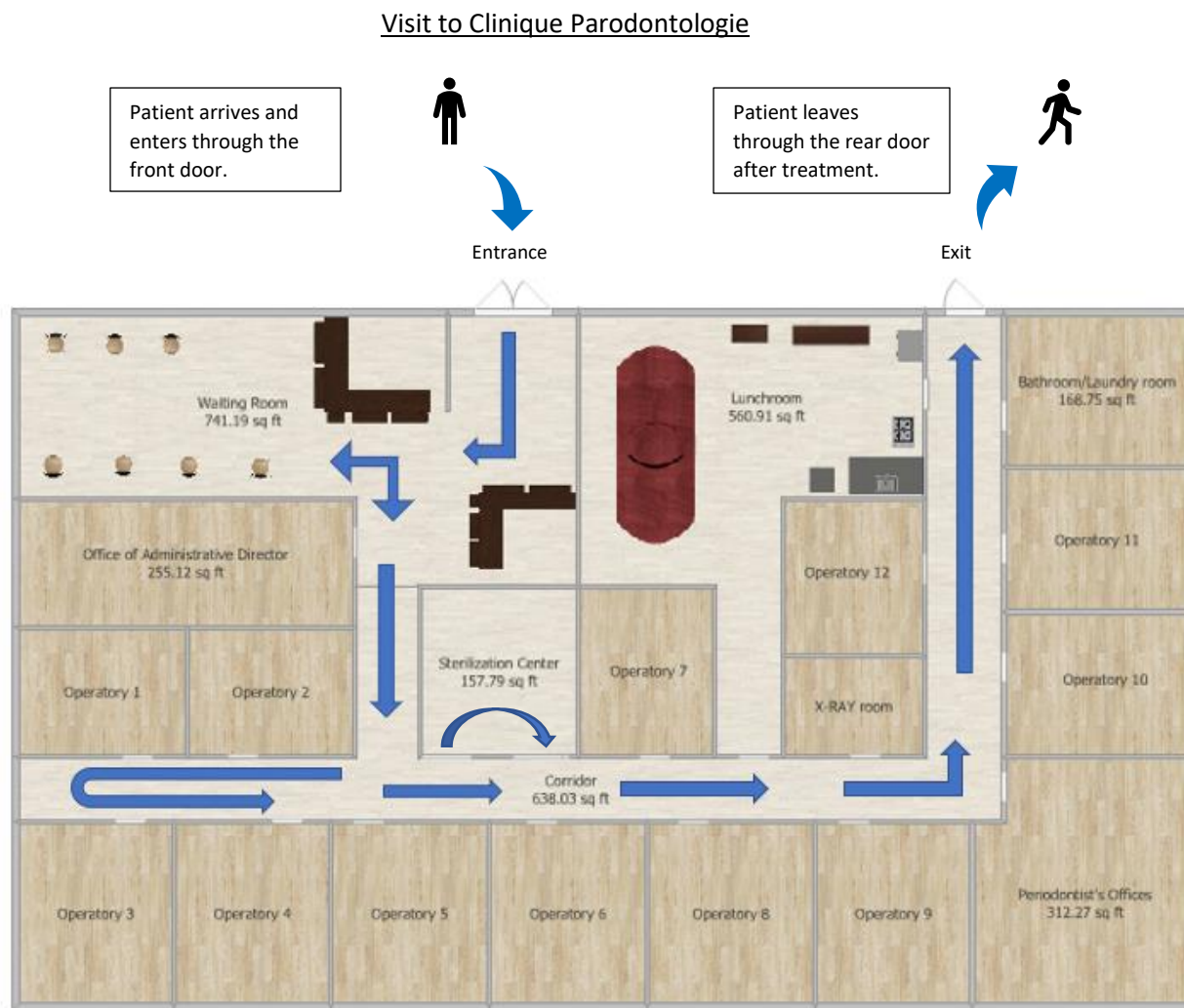


Figure 4: One-way at Clinique Parodontologie CTH

CAUSAL ANALYSIS

Budget

A budget of \$400 is allocated to this inquiry. The funds are allotted to printing of surveys and signage indicating traffic flow throughout the clinic. Originally, flyers were to be printed advising chaperones of nearby businesses prepared to host them while waiting for patients. Brainstorming revealed that sending the list of establishments to the patients along with the confirmation of the appointment would be more cost effective. The list is also useful to unaccompanied patients who arrive early to their appointment. Addresses, distance on foot, and a small map of the area are attached to email and text confirmations, twenty-four hours prior to appointments. Local businesses are appreciative that CTH clients are encouraged to frequent their establishments and hopeful that the visits will generate income. The budget is currently in a surplus of \$250.

Conclusion

Summary of Findings

Clinique Parodontologie CTH is a thriving practice that is striving to meet patient needs. Because of the twelve-week Covid-19 clinic closure, 1500 appointments were cancelled between March 16th and May 29th of 2020. Staff members are striving to accommodate clients, stressing the limits of the schedule and capacity of the premises. Areas of Clinique Parodontologie CTH experiencing congestion include: the waiting room, fourth floor hallway in front of the clinic entrance, corridor inside the clinic, sterilization center, lunchroom, elevators, and lobby of the building. Individuals affected by social distancing challenges associated with the clinic are staff members, patients, chaperones, and fellow tenants.

CAUSAL ANALYSIS

Interpretation of Findings

Scheduling and congestion are complex and multifactorial issues. The major sources of bottlenecking and excessive gathering at Clinique Parodontologie CTH have been identified as: appointment length, scheduling tendencies related to uniform opening and lunch hours, the presence of chaperones and waiting patients in the clinic, lobby, and hallways of the building, and two-way foot traffic in the narrow clinic corridor.

Recommendations

To maintain 2 metre distancing between all staff and visitors of Clinique Parodontologie CTH, the following suggestions are recommended:

1. Advising patients to arrive at the entrance of the clinic at the time of their appointment, but not earlier.
2. Sending patients a list of establishments where they may wait for their appointment time and where chaperones may wait for patients during treatment.
3. Staggering schedule hours of the three teams to manage smaller patient influx and alleviate sterilization center, lobby, and elevators.
4. Extending appointment lengths by ten minutes to ensure adequate time for additional Covid-19 screening and disinfection.
5. Creating a one-way foot traffic direction in clinic corridor (Figure 2), displaying signage accordingly.
6. Billing patients prior to treatment to eliminate a return to the reception area at the end of appointments.
7. Escorting patients to the exit at the rear of the clinic at the end of appointments.

CAUSAL ANALYSIS

8. Staggering working hours of the three teams to alleviate crowding in bathroom and lunchroom as staff change into and out of uniform at beginning and end of workday.
9. Creating 3 separate team lunch hours and inviting periodontists and administrative staff to eat in their offices to reduce lunchtime crowding.
10. Hosting morning meetings in different locations: periodontists office, lunchroom, administrative director's office.
11. Voting on preferred workhour options to maintain fairness among teams.

References

Bertrand, Morneau, et al. *Covid-19-Procédures Buccodentaires*. Ordre des Dentistes du Québec, May 2020, http://www.odq.qc.ca/Portals/5/fichiers_publication/DossierSante/Coronavirus/COVID-19%20-%20PROC%C3%89DURES%20DENTAIRE%2022%20mai_rev.pdf.

Bornabis, G. Owner, McDonald's Restaurant, 2600 St. George Blvd, Montreal, Québec.

Bruneau, S. Manger, Starbucks, 955 St. George Blvd, Montreal, Québec.

Cormier, A. Manager, Chapter's, 6321 Chemin Labrousse, Montreal, Québec.

Gentile, R. Manager du service à la clientèle, Fairfield Shopping Centre, 6801 Chemin Labrousse, Montreal, Québec.

Héroult, E. Manager, Quesada Burritos & Tacos, 6361 Chemin Labrousse, Montreal, Québec.

Lefebvre, J. Building Manager, 755 St. George Blvd, Montreal, Québec.

Patel, G. Manager, Tim Horton's, 305 Brunswick Blvd, Montreal, Québec.

Appendix

Survey

Public Gathering at Clinique Parodontologie CTH

I am a registered dental hygienist and an undergraduate student at the University of British Columbia currently working on a technical writing project. The purpose of this survey is to collect primary data that will be used to analyze and reduce gathering in public areas of Clinique Parodontologie CTH, as per Covid-19 social distancing mandates. The goal of this inquiry is to provide a safe environment for patients, visitors, and staff of Clinique Parodontologie CTH throughout the pandemic. The formal report will be presented to the shareholders, practicing partners, and office manager of the clinic. Together with the guidelines issued by the Ordre des Dentistes du Quebec, the data collected from this survey will serve to identify sources of congestion and problematic times in the schedule. The valuable information you provide will be used for analysis in proposing crowd control methods to ensure health and safety at Clinique Parodontologie CTH. The survey contains 9 multiple choice questions and it will take approximately 5 minutes to complete. Your responses are voluntary, anonymous, and greatly appreciated.

Thank you for your participation.

- 1- Please indicate the number of visitors present in the waiting room area at the following times.

7:15		9:30		11:15		1:00		2:45	
7:30		9:45		11:30		1:15		3:00	
7:45		10:00		11:45		1:30		3:15	
8:15		10:15		12:00		1:45		3:30	
8:45		10:30		12:15		2:00		3:45	
9:00		10:45		12:30		2:15		4:00	
9:15		11:00		12:45		2:30		4:15	

- 2- Approximately how long do patients wait before being taken in to an operatory?

	Often	Sometimes	Rarely
0-5 minutes			
5-10 minutes			
10-15 minutes			
15-20 minutes			
20-25 minutes			

- 3- Approximately how many chaperones visit the clinic per day?

5-10	
11-15	
16-20	
21-25	

- 4- Approximately how long so chaperones wait in the waiting room?

	Rarely	Sometimes	Often
15 minutes			
30 minutes			
45 minutes			
Longer than 45 minutes			

5- When are patients more likely to wait?

Before appointment	
After appointment	
Equally before or after	

6- Time allocated for appointments:

Too long	
Sufficient	
Too short	

7- If answer to previous question was too short/too long, what adjustment to appointment length would be appropriate?

5 minutes	
10 minutes	
15 minutes	

8- Would temporarily altering the workday start and finish times (for the period of pandemic) be acceptable? The number of hours worked would not increase or decrease, but only be shifted. An earlier start would coincide with an earlier finish. A later start would coincide with a later finish.

	Acceptable	Unacceptable
10 minutes		
20 minutes		
30 minutes		

9- Would temporarily altering lunch times (for the period of the pandemic) be acceptable?

	Acceptable	Unacceptable
15 minutes		
30 minutes		
45 minutes		

A suggestion box has been installed in the lunchroom. Please feel free to share any ideas or identify concerns you have regarding the current working environment.

Thank you

Interview Questions**Public Gathering at Clinique Parodontologie CTH**

I am a registered dental hygienist and an undergraduate student at the University of British Columbia currently working on a technical writing project. The purpose of this interview is to collect primary data that will be used to analyze and reduce gathering in public areas of Clinique Parodontologie CTH, as per Covid-19 social distancing mandates. The goal of this inquiry is to provide a safe environment for patients, visitors, and staff of Clinique Parodontologie CTH throughout the pandemic. The formal report will be presented to the shareholders, practicing partners, and office manager of the clinic. Together with the guidelines issued by the Ordre des Dentistes du Quebec, the data collected from this interview will serve to identify sources of congestion and problematic times in the schedule. The valuable information you provide will be used for analysis in proposing crowd control methods to ensure health and safety at Clinique Parodontologie CTH. The interview consists 10 questions and it will take approximately 10 minutes to complete. Your responses are voluntary, confidential, and are greatly appreciated.

Thank you for your participation.

- 1) Would you say that you have noticed instances when it has been difficult to maintain a 2-metre distance between individuals at the clinic: yes, no?
- 2) Where in the clinic did this occur?
- 3) At what time/times did this occur?
- 4) Would you say that this occurs rarely, sometimes, or often?
- 5) Since the reopening of the clinic, would you say that patients and chaperones are compliant with the addition of Covid-19 protocols: always, mostly, sometimes, rarely, never?
- 6) Since the reopening of the clinic, would you say that staff members are compliant with the additional Covid-19 protocols: always, mostly, sometimes, rarely, never?
- 7) Where do you typically spend your lunch hour: Inside the clinic, outside the clinic?
- 8) Since the reopening of the clinic, where do you usually spend your lunch hour: inside the clinic, outside the clinic?
- 9) Where would you prefer to spend your lunch hour: inside the clinic, outside the clinic?
- 10) Do you have any comments or suggestions that you would like to share regarding social distancing at the clinic?

A suggestion box has been installed in the lunchroom. If you think of any recommendations going forward or if your patients comment on the matter, please feel free to share them in this manner. The box will be checked daily and all comments will remain anonymous.

Thank you