SURGERY AND COVID-19

DR. J. MCPHERSON
• As this pandemic evolves, the impact on surgery/anesthesia evolves.
• Postponement/Alteration of Surgery
• Why/How/When
WHY/RATIONALE:

1) Try to avoid (control) introduction to COVID-19 to our operative facilities. Postponement related to travel or contact with confirmed case.
2) Protection of population at high risk of having severe disease.
• Postponement of patient >70, with significant co-morbidities, with immune compromise
WHY

3) Preserve resources – beds monitoring capabilities. For surge of infected patients (non-surgical)
4) Limited Resources –
  • Human – Limitations due to school closures, Health care worker illness, rotation of staff to ensure some are “healthy”
  • Equipment – PPE, Monitoring Equipment
5) “Flattening of Curve”
Recognizing that infection will occur but try to spread out to avoid surge which overwhelms our acute care capacity. ‘Social or physical distance’

6) Learn From Others –
• Inevitable
• Just do it, shut it down
1) Specific Exclusion Criteria
   • Eg. Travel/Contact
   • Patient criteria

2) Define “Elective” – Delay of 3 months without significant adverse effect.
3) Examine “Essential” or Time-Sensitive
   • Life/Limb Emergencies
   • Urgent – Cancer/Sepsis/Infection/Trauma
   • Essential – Can’t wait 3 months
   • Patient factors
   • Logistics - Where
HOW

4) Alter Surgical Option
• More complex
• Lesser procedure – delay if secondary option acceptable.
WHEN

1) As needed – are we nimble enough?

2) Staged – Step wise – Implementation of each step?

3) Reduce it all early
   Incremententalism is danger
COVID-19 ENT Updates

March 25, 2020
Dr. Jodi Jones
Head, Department of Otolaryngology
Outline

• Upper aerodigestive tract surgery and COVID-19
• Tracheostomy and COVID-19
• Symptoms of COVID-19
ENT Surgery and COVID 19

- Global reports of increased morbidity and mortality among Otolaryngologists
  - China, Italy, Iran, UK, Australia
- Viral load high in nasal cavity and nasopharynx
- Aerosolization of viral particles – drilling, microdebridement, suctioning
- Asymptomatic spread – 14 healthcare members infected (endoscopic pituitary surgery)

**NEJM. Mar 19, 2020**
ENT Surgery and COVID-19

- ANY surgery of the upper aerodigestive tract (UADT), including endoscopic sinus surgery, nasopharynx, oral cavity, oropharynx, larynx, trachea, mastoidectomy
- Increased requirements for personal protective equipment, negative pressure, suction filters
- ALL HEALTHCARE PERSONNEL
- Limit surgery to only the most urgent/essential cases, preoperative screening where possible
• AAOHNS
  • ...when a detailed examination or surgical procedure is necessary for urgent or emergent care and the **COVID-19 status of the patient cannot be confirmed**, then the patient should be handled as if they are **COVID-19 positive**.
Tracheostomy & COVID-19

- Review indications for trach, can it be delayed until patient swab negative
- Open vs Percutaneous
- OR vs ICU – negative pressure room
- Most experienced anesthesia, surgeon, nursing available
  - Consideration for simulation
Tracheostomy & COVID-19

• PPE for entire team
• PARALYSIS for the surgical procedure, turn off the circuit prior to airway entry
• Cuffed tracheostomy tube, inline suction only
• ***proper doffing of PPE
• No routine dressing changes, delay first trach change up to 4 weeks

• CSOHNS Task Force; ENT UK Framework for open tracheostomy; Manitoba working group
Symptoms of COVID-19

• AAO-HNS, ENT UK, BRS
  • Early presenting symptoms of COVID-19 include:
    • Reduced sense of smell (anosmia/hyposmia)
  • New onset of symptoms
  • Patients may be relatively asymptomatic
Department of Anesthesiology,
Perioperative & Pain Medicine
&
Department of Surgery

Combined Grand Rounds

Linked via MB TeleHealth *
Live Streamed ONLY, no in-person attendance

Wednesday March 25, 2020 at 7:45 am

COVID-19 Pandemic Planning - Update 2

Dr. Chris Christodoulou
Dr. Edward Buchel
Dr. Jodi Jones
Elective surgery delayed
Elective clinic visits rescheduled

Wait lists should be kept as best as possible
working to establish plan for “catching up”

Virtual visits for clinic optimized.
bILLing codes established.
## Current Slate Map

<table>
<thead>
<tr>
<th>Site</th>
<th>Total Slates</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Boniface</td>
<td>6</td>
<td>2x Cardiac, ACSS, 2x Obs/Gyne/C-section, +1 additional slates for essential/time-sensitive procedures.</td>
</tr>
<tr>
<td>Grace</td>
<td>3</td>
<td>3 ORs daily to deliver Ortho Trauma, ACSS and other essential/time-sensitive procedures.</td>
</tr>
<tr>
<td>Victoria</td>
<td>3</td>
<td>3 ORs daily in addition to endoscopy and cystoscopy. Potential to redirect plastics, oral, ENT from other sites appropriate for day surgery and 23 hour care</td>
</tr>
<tr>
<td>Pan Am</td>
<td>2</td>
<td>2 ORs daily for essential and time-sensitive orthopedics and plastics.</td>
</tr>
<tr>
<td>Concordia</td>
<td>2</td>
<td>2 ORs daily for essential, time-sensitive orthopedics (including trauma) and spine</td>
</tr>
<tr>
<td>Misericordia</td>
<td>2</td>
<td>2 ORs daily for retinal and other time-sensitive ophthalmology</td>
</tr>
<tr>
<td>HSC</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
Current daily Resource Planning

• 730 am  Ortho surgery
  • ( HSC, Grace, Conc, Pan Am)

• 750 am  ACSS surgery
  • ( HSC, ST B, Grace, Vic)
PPE and Protocol

• Two main factors

  – Risk from **procedure**
    • High risk procedure  -  upper aero digestive tract
    • Low risk procedure  -  all other surgeries

  – Risk from **patient** as potential or real source.
    • Low risk -  none of the prior 5 factors
    • High risk – any positive prior mentioned risk factor
Patient Risk

• Low risk
  – In province and no risk factors (travel and exposure)

• High risk
  – Risk factors, NEW – out of province.

• Positive

  Urgent vs Emergent
Patient Risk

• Low risk
  – No travel history *including interprovincial*
  – No exposure to COVID positive patient
  – No Exposure to suspected positive
  – Not immunocompromised
  – Not greater then 70

*Screened by: Surgeons office
PAC
Hospital admitting*
## Procedure Risk

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non Upper Aero-digestive tract surgery</strong></td>
<td><strong>Upper Aero-digestive tract surgery</strong></td>
</tr>
<tr>
<td>Urgent</td>
<td></td>
</tr>
<tr>
<td>- A. Can wait 14 days</td>
<td></td>
</tr>
<tr>
<td>- B. Can only wait 5 days</td>
<td></td>
</tr>
<tr>
<td>- C. Less than 5 days</td>
<td></td>
</tr>
<tr>
<td>Emergent</td>
<td></td>
</tr>
</tbody>
</table>
COVID positive

- Non Upper Aero-digestive Tract.
- Upper Aero-digestive Tract
Algorithm
NON UPPER AERODIGESTIVE TRACT – LOW RISK

LOW RISK

URGENT

CAN WAIT 14 DAYS

CAN WAIT 5 DAYS

QUARANTINE

SYMPTOMS +

SYMPTOMS -

SYMPTOMS &

TEST -

TEST +

EDCP OR (N95)

EDCP OR (N95)

Routine OR

Routine OR

Consider further delay until testing negative
NON UPPER AERODIGESTIVE TRACT – HIGH RISK

URGENT

CAN WAIT 14 DAYS

QUARANTINE

SYMPTOMS

- ROUTINE OR

VIRAL TEST CT CHEST

SYMPTOMS

+ ROUTINE OR

EDCP OR (N95)

CAN WAIT 5 DAYS

QUARANTINE ORDER VIRAL TEST

ASYMPTOMATIC & TEST

- ROUTINE OR

EDCP OR (N95)

+ CHEST & VIRAL TEST

- ROUTINE OR vs EDCP OR

SYMPTOMATIC or TEST

+ EDCP OR (N95)

- CHEST & VIRAL TEST

+ CHEST or VIRAL TEST

EDCP OR (N95)

Consider further delay until testing negative
UPPER AERODIGESTIVE TRACT – LOW RISK

LOW RISK

URGENT

CAN WAIT 14 DAYS

QUARANTINE

ASYMPTOMATIC

EDCP OR (N95)

SYMPTOMATIC

ORDER VIRAL TEST
CT CHEST

EDCP OR (N95)

BOTH

EDCP OR (N95)

EITHER

PAPR OR

QUARANTINE
ORDER VIRAL TEST
CT CHEST PRIOR TO OR

PAPR OR VS EDCP OR (N95) + Level 3/Level 4 Jumpsuits

CAN WAIT 5 DAYS

EMERGENT

ALL

EDCP OR (N95)

ANY

PAPR OR

Consider further delay until testing negative
UPPER AERODIGESTIVE TRACT – HIGH RISK

Consider further delay until testing negative
Algorithm & Explanations
NON UPPER AERODIGESTIVE TRACT – LOW RISK

LOW RISK

URGENT

CAN WAIT 14 DAYS

CAN WAIT 5 DAYS

QUARANTINE +/- VIRAL TEST +/- CHEST CT

SYMPTOMS

SYMPTOMS

SYMPTOMS & TEST

SYMPTOMS or TEST

SYMPTOMS

SYMPTOMS

- TEST

- TEST

ROUTINE OR

EDCP OR (N95)

EDCP OR (N95)

EMERGENT
Non Upper Aero-digestive Tract Surgery
Low Risk

- Urgent and can wait 14 days.
  - Quarantine for 14 days
    - Home if possible
    - Hospital if needed

Asymptomatic
  - Surgery as per routine.

Symptomatic
  - Viral test and CT scan
    - + then ECDP

- Urgent and can wait 5 days
  - Quarantine for 5 days
    - Home if possible
    - Hospital if needed

Asymptomatic
  - Discussion with Radiology regarding CT chest
  - Discussion with Lab regarding testing and timing of results.

Symptomatic
  - Viral testing and CT chest
    - + then ECDP
Non Upper Aero-digestive Tract Surgery

Low Risk

- Emergent
  - OR with ECDP
- Endoscopic surgery protocol
NON UPPER AERODIGESTIVE TRACT – HIGH RISK

Urgent

- Can wait 14 days

Quarantine

- Symptomatic
  - Routine or
  - Viral test CT chest
    - Symptomatic &
      - Negative or
    - Positive or

  - EDPC OR (N95)

- Asymptomatic &
  - Test

  - CT chest
    - Symptomatic or
      - Negative or
    - Positive or

  - EDPC OR (N95)

Can wait 5 days

Quarantine order viral test

Routine or

Emergent

EDPC OR (N95)
Non Upper Aero-digestive Tract Surgery
High Risk

• **Urgent and can wait 14 days.**
  – Quarantine for 14 days
    • Home if possible
    • Hospital if needed

Asymptomatic
  - surgery as per routine.

Symptomatic
  – Viral test and CT scan
  – + then ECDP

• **Urgent and can wait 5 days**
  – Quarantine for 5 days
    • Home if possible
    • Hospital if needed
    • Viral test on admission
    • CT chest prior to OR

Asymptomatic and Negative Tests
  – OR ECDP

Symptomatic or Positive Tests
  – OR PAPR
Non Upper Aero-digestive Tract Surgery
High Risk

- Emergent
  - PAPR OR
UPPER AERODIGESTIVE TRACT – LOW RISK

LOW RISK

URGENT

CAN WAIT 14 DAYS

QUARANTINE

ASYMPTOMATIC

EDCP OR (N95)

SYMPTOMATIC

ORDER VIRAL TEST CT CHEST

BOTH

EDCP OR (N95)

EITHER

PAPR OR

CAN WAIT 5 DAYS

QUARANTINE ORDER VIRAL TEST CT CHEST PRIOR TO OR

ALL

EDCP OR (N95)

ANY

PAPR OR

EMERGENT

PAPR OR VS EDCP OR (N95) + Level 3/Level 4 Jumpsuits
UPPER AERODIGESTIVE TRACT – HIGH RISK

- HIGH RISK
  - URGENT
    - CAN WAIT 14 DAYS
      - QUARANTINE ORDER VIRAL TEST AT 1 WEEK
        - ASYMPTOMATIC - VIRAL TEST
          - EDCP OR (N95)
        - SYMPTOMATIC + VIRAL TEST
          - PAPR OR
    - CAN WAIT 5 DAYS
      - QUARANTINE ORDER VIRAL TEST CT CHEST PRIOR TO OR...
        - ALL -
          - EDCP OR (N95)
            - PAPR OR
          - ANY +
            - EDCP OR (N95)
              - PAPR OR
              - PAPR VS EDCP OR (N95)
        - PAPR OR
          - Level 3/Level 4 Jumpsuits

- EMERGENT
Upper Aero-digestive Tract

In all cases consideration should be done to delay case until patient non symptomatic or recovered with negative tests

In all cases consideration should be done to change procedure route

**Emergency cases**: logistically there will likely only be EDCP and Level 3, 4 jump suits.

In all cases if full PAPR not available and indicated the entire surgical team will be quarantined for 14 days.
Other Concerns
Testing

Laboratory Specimens
• Only test persons who are SYMPTOMATIC
  – In addition to routine investigations relevant to the patient’s symptoms and care, testing for COVID-19 requires a nasopharyngeal (NP) swab placed in viral transport medium or NP aspirate. If such a specimen is being collected for ILI or presumed viral RTI, then a second swab is not required.
  – At this point in the epidemic, for COVID-19 testing to occur, the following information must be included on the CPL General Requisition: travel history, relevant symptoms, and request for COVID-19.

  There is currently no serological test for the COVID-19 virus.
CT scan Chest Concerns and Recommendations.

CONCERNS form Radiology

• these patients do require isolation in the dept
  – Limited CT scanner space and human resources.
  – The scanner and room must be cleaned more thoroughly. This takes time and manpower.
  – At this point, we can handle the volume. However, once more cases of COVID suspects, and more staff is isolated, throughput will be affected.
  – Scanners remain fully booked with outpatient and emergency work that must be done currently.

  Additionally, this is also an extra dose of radiation which we are administering the patient without a proven benefit.

FOR NOW

• Asymptomatic aero-digestive cases
  – scan the asymptomatic high risk patients that cannot wait 2 weeks in quarantine.
  – will need to reevaluate as we go.

• Symptomatic upper aerodigestive tract patients that cannot wait for the 2 weeks quarantine
  – recommend NO imaging preoperatively,
  – use of PAPRs.
  – Imaging would not help in this case. The only indication is to look for a specific complication that would affect management.
Linen and Waste

• Handling Linen, etc

  No special care is required for handling linen, cutlery or dishes. Routine Practices are sufficient.

• Waste

  No special care is required for handling patient waste. Routine Practices are sufficient.
Aero-digestive Tract Surgery

PRIOR COMMUNICATION

All:
There has been new concerns raised by the ENT groups in Canada and United States regarding transmission of covid infection to operative staff, when operating in the nasopharynx and oropharynx. All elective cases are cancelled as per prior emails. Urgent and emergent cases that operate on the oropharyngeal and/or nasopharyngeal will be assessed on an individual basis to evaluate the risk and urgency of the procedure.

PROTOCAL

1. As soon as a patient is identified needing this type of procedure urgently/emergently, the patient will be quarantined.
2. Two COVID RT-PCR tests will be done, 48 hours apart, if time allows before surgery. (CHANGED)
3. The patient will have a un-infused CT scan of their chest as close to the time of the OR as possible. THE REQUEST FOR THE SCAN AND REASON FOR THE SCAN WILL NEED TO BE COMMUNICATED TO THE ATTENDING RADIOLOGIST.

If both tests and the CT scan are negative, operating room staff will be limited to essential members only. Staff will wear N95 masks.
If the patient tests positive, PAPR's will be worn by all in room staff.

We are working with clinical engineering at the hospital to develop better smoke evacuation systems that do not recirculate air within the operating room.
DONE

We are working on developing other suction devices that also do not recirculate with in the operating room. Within the next few days we will have information on enhance protection for the operative staff.
DONE

Of note the operating rooms have enhanced filtration (ULPA) with is significantly better then the HEPA filters used in the reported cases.
Theater Smoke Evac and Suction

HSC

- A). the COVID19 virus is .06 - .14 micron
- B) Neptune systems recirculate the vacuumed air into the rooms either through an ULPA filter on the smoke evacuation and HEPA on the liquid.
- C) ULPA filters only go down to .1 micron (hence some particles can pass) and HEPA has a poorer performance

- Therefore use of Neptune systems for any potential COVID-19 patients is stopped.

- 1. Smoke evacuation will be through the piped wall system. There is no air recirculation on this system therefore contamination is minimized/eliminated. FM is looking at inline filtration to try to capture and protect piping.
- 2. Traditional piped medical vacuums with canisters will be used.

- Both the smoke evacuation and medical vacuum systems exhaust outside the facility and are marked at the roofs with warnings for staff safety.
Theater Smoke Evac and Suction
St. Boniface

• Have no negative pressure OR’s.
  – Just a negative pressure bronchoscopy room that used to be an induction room that was converted. Not big enough for most surgeries.

• Canister system in all our ORs (hooked to wall suction)
Laparoscopic Surgery

• Recommendations

  • Surgeons should utilize a closed filtration system during laparoscopy and for evacuation of the pneumoperitoneum at the end of the case as resources and availability allow.

  • Full recommendation including technique available
Upper Endoscopy

All elective delayed.

Urgent / Emergent

– masks and face-shields not N95

– Enhanced droplet for suspected or confirmed cases only
Thanks

Ed Buchel
1. Post an “Enhanced Contact/Droplet Precautions” sign on the OR Theatre door.
2. Maintain OR theatre in normal air handling system operation (positive pressure).
3. Minimize theatre door opening and closing.
4. Appropriate PPE shall be available immediately outside of the OR theatre.
5. All staff entering the OR theatre shall wear PPE including gown, gloves, N95 mask (if aerosolizing procedures are likely) or surgical mask (for non aerosolizing procedures) and eye protection.
6. Personnel assigned to the OR theatre shall include:
   - One (1) designated “clean” circulating nurse who has no contact with patient or patient supplies/equipment;
   - One (1) designated “dirty” circulating nurse who has contact with patient or patient supplies/equipment;
   - One (1) scrub nurse (if applicable); and
   - One (1) designated “runner” outside of the OR theatre to obtain supplies from sterile corridor or other areas outside of the OR theatre as necessary.
7. The designated “clean” circulating nurse shall obtain/open supplies for the team, while maintaining their “clean” status.
8. Staff in direct or indirect contact with the patient shall not touch clean surfaces with contaminated gloves.
9. The designated “dirty” circulating nurse (direct/indirect patient contact) may become “clean” by removing PPE, performing hand hygiene and re-apply clean PPE.
10. Hand hygiene shall be performed after removal of contaminated PPE as per Routine Practices training.
11. Patient chart:
   - Only essential documentation should enter the OR theatre;
   - Should be placed as far as possible away from the patient; and
   - Documentation should be completed by a designated “clean” person.
12. If patient will be transported to the post-op destination on the same bed/stretcher:
   - Whenever possible, bed/stretcher should remain in the OR theatre;
   - If the bed/stretcher cannot remain in the OR theatre:
     - The “dirty” person shall strip and clean the bed/stretcher in the OR theatre using minimal agitation technique for handling laundry as per Routine Practices training. Follow housekeeping Standard Operating Procedures for cleaning and disinfecting the bed.
     - Once cleaned the bed/stretcher shall be placed in the hallway immediately outside of the OR theatre; and
     - A “clean” person shall make up the bed/stretcher with clean linen if required.
13. In the event of a cardiac arrest:
   - Code Blue Team shall don PPE including gown, gloves, N95 mask, and eye protection;
   - An additional designated “clean” person shall be required to pass supplies as required;
   - The defibrillator (separate or removed from the Code Blue Cart) may be brought into the OR theatre and requires cleaning and disinfection post event; and
   - If the Code Blue cart is brought into the room, the contaminated items shall be discarded or reprocessed and the cart cleaned and disinfected/restocked.
Intraoperative Care

a. Post appropriate Precautions sign on the OR Theatre door.

b. Maintain OR theatre in normal air handling system operation (i.e., positive pressure).

c. Apply appropriate PPE - enhanced droplet

Any staff having contact with the patient or patient environment outside the sterile field shall wear gloves and gowns, procedure mask and eye protection

*** Please note if an Aerosol Generating Medical Procedure is required OR anticipated, staff must wear an N95 respirator in addition to gloves, gown and eye protection.
COVID-19 PANDEMIC PLANNING UPDATE 2

Combined Grand Rounds
25 March 2020

Dr. Jack McPherson
Head, Department of Surgery

Dr. Chris Christodoulou
Head, Department of Anesthesiology, Perioperative and Pain Medicine
Provincial Anesthesia Specialty Lead, Shared Health

Dr. Jodi Jones
Head, Department of Otolaryngology

Dr. Ed Buchel
Associate Head, Department of Surgery
Surgery Site Director- Health Sciences Centre
Section Head & Regional Leader, Section of Plastic Surgery: UOM / Shared Health
Outline:

• Review the current status of COVID-19 in Canada and globally.

• The Lighthouse principle:
  • Health Care Providers as **Critical System Risk Monitors**

• Key Anesthesia Updates

❖ Questions: Text (204) 291-8377
An Astronauts Guide to Self-isolation (You Tube)
COVID-19 Globally

Deaths: 18915 / Global Mortality Rate: 4.5%

Questions: Text (204) 291-8377
Canada: COVID-19 Positive Cases
598 – 2792 cases / Mortality 1.4%
Lighthouse Principle: COVID-19

- Everyone owns safety
- Rapid escalation
- Rapid investigation and action plans

Enhanced vigilance is the price of safety!
Key Anesthesia Updates:

• Awareness of COVID-19 clinical syndrome/testing
• N95 priority testing - Occupational Health and Safety
• PPE for Aerosol Generating Medical Procedures (AGMP)
• Individuals returning to MB from Canada
  • 14 self isolation and monitoring
• Virtual Pre-Anesthesia / Chronic Pain Clinics / MS Teams

• MyMBT messaging (Cortext)
• Digital Health E-mail addresses.

Questions: Text (204) 291-8377
Communication:

• COVID-19 Portal (resources)
  • https://umanitoba.ca/faculties/health_sciences/medicine/units/anesthesia/fac_staff/13096.html

• Shared Health COVID-19 website:
  https://sharedhealthmb.ca/covid19/

Questions: Text (204) 291-8377
I learned that **courage** was not the absence of fear, but the **triumph** over it. The **brave** man is not he who does not feel afraid, but he who **conquers that fear**.

— Nelson Mandela
We are about to embrace the unknown..........our individual and collective team efforts in the service of patients and families will be a defining moment in our history. I believe in you, your courage and humanity. As proud Manitobans and Canadians **we stand united** together as a health workforce to take on a generational challenge in COVID-19.

Dr. Chris Christodoulou

We are only as strong as we are united, as weak as we are divided.

-J.K. Rowling

#UnitedweStandMBCanada