

COVID-19: Operational Strategies and Practices



Conor P Delaney MCh PhD FRCSI (Hon)

Chairman, Digestive Disease & Surgery Institute

Victor W. Fazio MD Endowed Professor of Colorectal Surgery

Vice-President, American Society of Colon and Rectal Surgeons

Cleveland Clinic and Case Western Reserve University

Patients

Caregivers

CARE

Community

Organization

A doctor in a white coat is examining an elderly patient's leg in a hospital room. The patient is lying in a bed, and the doctor is leaning over the bed. The background shows a typical hospital room with a window and some medical equipment.

5.4M

Outpatient
E&M Visits

245K

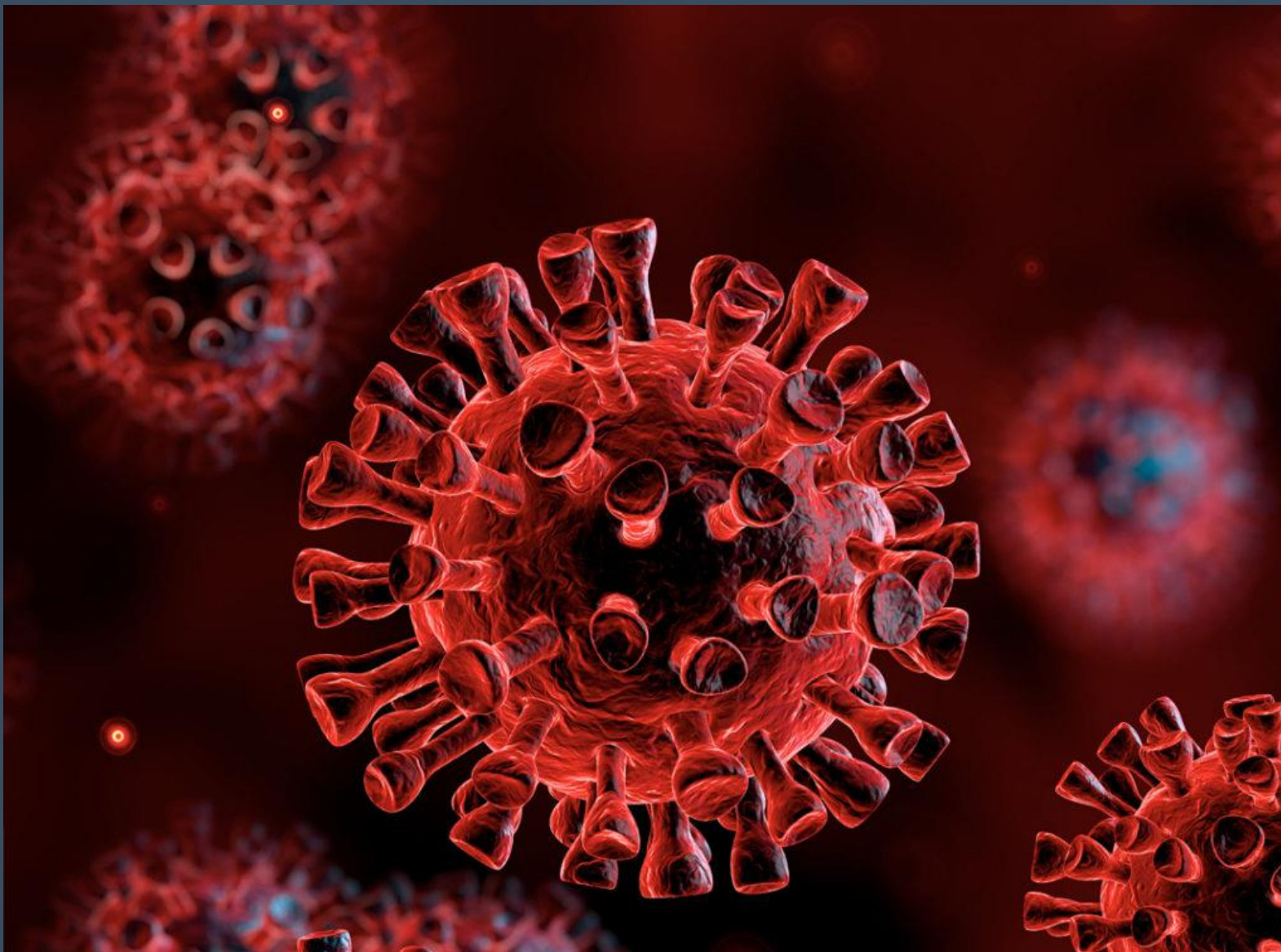
Surgeries &
Procedures

295K

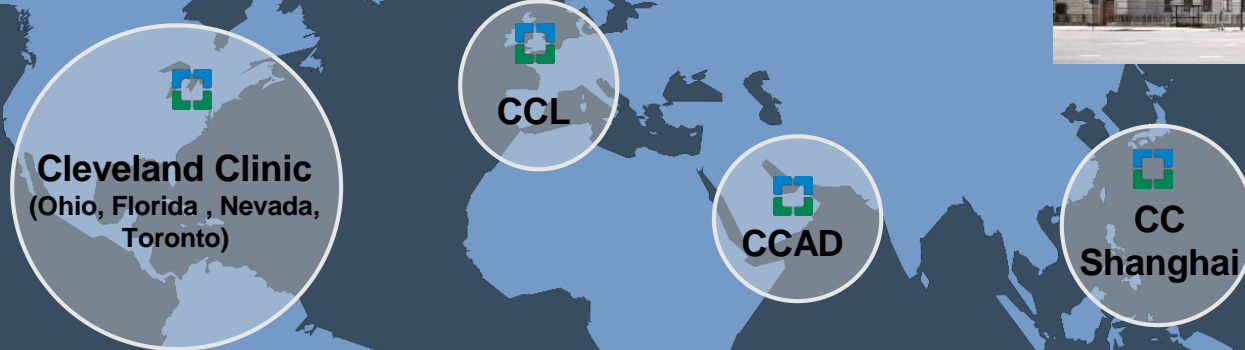
Admissions &
Observations

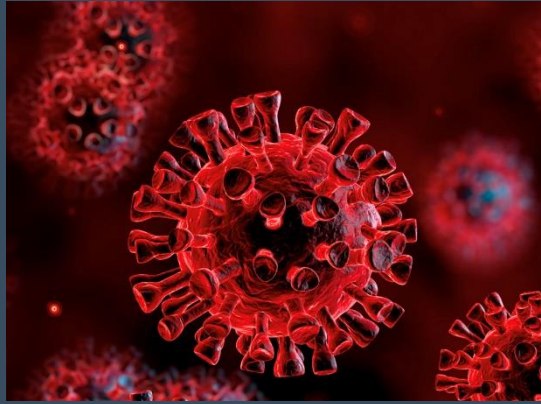
25K

Hospital
Transfers



Integrated Global Healthcare System





Reduction of services
Guidelines and safety
Practice transitions
Recovery phase



Surgical Tier Recommendations- COVID 19

Essential procedures meet one of the following criteria:

1. Threat to the patient's life if the surgery or procedure is delayed
2. Threat of permanent dysfunction of an extremity or organ system if delayed
3. Risk of metastasis or progression of staging if delayed
4. Risk of rapidly worsening to severe symptoms if delayed
5. Presence of severe symptoms causing an inability to perform activities of daily living

General Surgery Recommended Surgical Priority Tiers (COVID-19)

1 Emergency	2 Semi-urgent (1-2 week delay)	3 Semi-elective (2-4 week delay or more)	4 Non-essential [wait month(s)]
Small bowel obstruction with concern for intestinal compromise	Small bowel obstruction with failure to resolve	Splenectomy	Excision of benign cyst or soft tissue tumors
Abdominal sepsis including bowel perforation or concern for intestinal ischemia	Compete or partial gastrectomy for cancer	Lymph node biopsy	Ventral, umbilical inguinal hernia repairs (non-incarcerated)
Unstable GI bleed	Pancreatic resection for cancer	Insertion of peripherally inserted catheters and ports (pediatrics, dependent on clinical need)	Parastomal Hernia repair
Incarcerated inguinal or ventral hernia (including parastomal hernias)	Hepatectomy for cancer	Removal of infected prosthetic material or mesh for abdominal wall infection	Insertion of peripherally inserted catheters and ports(adults)
Internal Hernia	Mastectomy or lumpectomy for Breast Ca (+/- node biopsy or lymphadenectomy)	Enterocutaneous fistula takedown	Diaphragmatic hernia repair
Gastric volvulus		Breast biopsy for high risk lesion	Paraesophageal hernia repair
I&D of soft tissue necrosis or abscess			Mastectomy (contralateral for risk reduction or prophylactic for genetic concerns)
Necrotizing pancreatitis with severe sepsis			Bariatric surgery (Gastric bypass, Sleeve Gastrectomy and elective revisional bariatric surgery)
Liver or Intestinal Transplantation			Anti-reflux procedures (Fundoplication)
Acute Cholecystitis			Endoscopic myotomy (POEMs, POPs)
Acute Appendicitis			Cholecystectomy for chronic cholecystitis or biliary dyskinesia
Removal of infected catheters and ports			Thyroidecotomy (total ,subtotal, lobectomy)
			Parathyroidectomy

Digestive Disease Recommended **Transfer/Referral** Priority Categories

CORS / Surgery	Surgery	GI / Hepatology / Endoscopy	DDSI Cancer
Large bowel obstruction	Abdominal sepsis including bowel perforation, abscess or concern for intestinal ischemia	Cholangitis	Colorectal resection or assessment for cancer **
Toxic colitis non-responsive to medical therapy	Symptomatic incarcerated inguinal or ventral hernia (including parastomal & para-esophageal hernias)	Palliation of GI obstruction (UGI, LGI and pancreatico-biliary)	Gastric resection or assessment for cancer**
Peritonitis	Small bowel obstruction with concern for intestinal compromise or failure to resolve	Cases where endoscopic procedure will urgently change management	Pancreatic assessment or resection for cancer**
Complicated diverticulitis (smoldering/non-drainable abscess)	Acute cholecystitis / appendicitis	Hepatic failure requiring liver transplant assessment	Mastectomy or lumpectomy for Breast Ca or urgent assessment of mass or imaging abnormality
GI bleeding*	Symptomatic abdominal fistulas	GI bleeding *	

* Acceptance will also consider other criteria (such as PPE, supplies, blood availability, clinical stability)

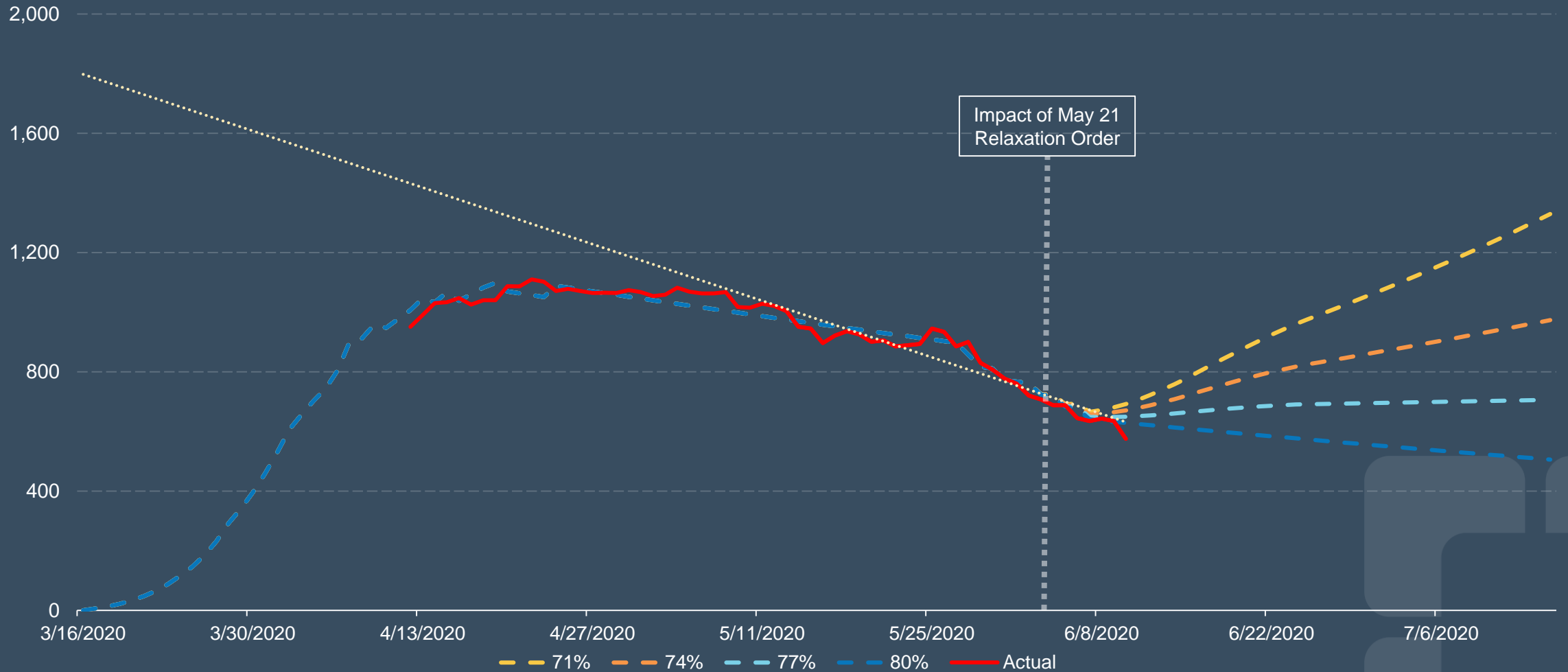
Work Streams

PPE and Reuse
Data & Analytics
Finance
Supply Chain
Labor Pool
HR / Workforce

Communications
ICU
Testing & Infectious Disease
Care Transformation & Virtual <i>Distance & Ambulatory</i>
Documentation
















Security and Transportation
Home Monitoring
Care Transformation & Virtual <i>Surgical Reactivation</i>
Operational Efficiency

Ohio Census



Days of Supply

Inventory as of: 04/06/2020

CDC Category	40% Social Distancing*			40/60% Social Distancing*			Daily Burn Rate	Current Burn Rate
	On Hand Qty	Depletion Date	Days On Hand	Depletion Date	Days On Hand		Qty**	On Hand**
N95	149,491	7/27/2020	 112	11/4/2020	 212		4,443	 34
Masks (Ear loop/Surgical)	845,277	5/21/2020	 45	6/19/2020	 74		12,432	 68
Eyewear (Face Shields/Goggles)	181,977	6/22/2020	 77	8/20/2020	 136		4,544	 40
Isolation Gown	343,580	5/6/2020	 30	5/14/2020	 38		5,672	 61
Gloves Exam (Pairs)	18,057,662	12/31/2020	 269	12/31/2020	 269		193,657	 93

No Foreseen Issues w/N95s, Eye Protection & Gloves

* Incorporating full model contingencies (cohorting, extended re-use, reprocessing, limited re-supply)

**These values are historical to current date, and have therefore not adjusted to the new extended and re-use protocols

- Data reflects Ohio only
- Assumes 5 re-processes for N95s & 10 re-processes for eye protection
- Reflects new data from Dr. Simon's 04/06/2020 report out
- Higher social distancing scenarios generally have more cases spread out over a longer time; the volume and timing of those cases impact depletion date



COVID-19 Task Force



Metric

Metric	Main Campus				East						West				South			
	Main	IC	HEC	Total	SP	EU	HC	MM	ACMC	Total	FV	LU	AV	Total	ME	Lodi	AK	Total
Total Acute Care Beds Available	1,181	0	0	1,181	172	110	351	190	98	921	334	94	126	554	148	20	363	531
Acute Hospital Occupancy	78.0%	0.0%	0.0%	78.0%	45.3%	53.6%	82.3%	51.6%	29.6%	60.0%	68.3%	51.1%	57.9%	63.0%	58.1%	35.0%	70.2%	65.5%
ICU Beds on Site	247	0	0	247	25	12	48	28	9	122	52	0	12	64	12	0	55	67
ICU Occupancy	78.9%	0.0%	0.0%	78.9%	20.0%	75.0%	75.0%	46.4%	44.4%	54.9%	57.7%	0.0%	25.0%	51.6%	58.3%	0.0%	76.4%	73.1%
Patients in Isolation	75	0	0	75	14	21	45	34	7	121	49	5	20	74	9	1	34	44
Vents on Site	249	0	0	249	27	16	60	41	0	144	46	17	15	78	21	0	88	109
Patients on Vents	101	0	0	101	2	2	12	7	3	26	15	0	2	17	1	0	20	21
Vents Available	148	0	0	148	25	14	48	34	0	121	31	17	13	61	20	0	68	88

Emergency Room

Avg ER Door to Provider (Minutes)	13.76	0.00	0.00	13.76	14.38	22.10	22.48	13.80	18.74	18.79	10.25	7.81	15.13	11.47	7.63	9.87	7.53	7.72
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COVID-19 Status

In-House Specimen Collected	23	0	0	23	6	7	21	5	0	39	22	4	6	32	6	0	18	24
In-House COVID+ Patients	26	0	0	26	0	13	14	31	1	59	13	0	2	15	4	0	7	11
In-House COVID PUI	13	0	0	13	5	5	11	8	5	34	10	3	14	27	3	0	3	6
COVID+ Patients in ICU Percent	5.3%	0.0%	0.0%	5.3%	0.0%	0.0%	8.3%	21.4%	11.1%	9.0%	7.7%	0.0%	0.0%	6.3%	25.0%	0.0%	5.5%	9.0%
COVID+ Patients on Vent Percent	37.0%	0.0%	0.0%	37.0%	0.0%	0.0%	26.7%	14.7%	100.0%	15.9%	14.3%	0.0%	0.0%	12.5%	25.0%	0.0%	33.3%	30.0%
Prior Day COVID+ Discharges	1	0	0	1	0	0	2	4	0	6	4	0	0	4	0	0	3	3

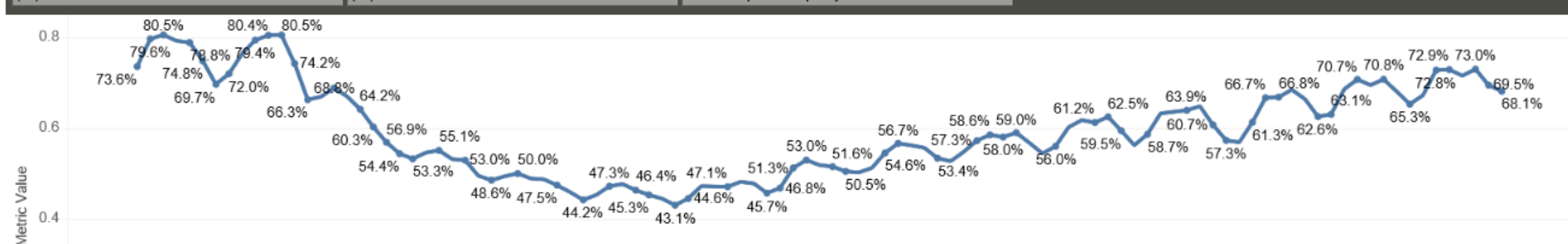
Region

Facility

Metric

(All)	(All)	Acute Hospital Occupancy
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COVID-19 Metric Trends



Paging

Search Directory **GO**

Pager#

Include your name and 10-digit call-back number.

Send Page **My Paging**

COVID-19 Hotline

If you believe you have COVID-19 symptoms or have been exposed, call the **Cleveland Clinic Caregiver COVID-19 Hotline at 216.445.8246.**

If you need to schedule a **Boost appointment** or for live, 24/7 **emotional support** please call **Caring for Caregivers 216.445.6970.**

Caregiver Community to provide you with



• Coronavirus Disease 2019

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- Home
- News & Contacts
- Do The Right Thing
- Patient Safety & Clinical Risk
- Quality
- Quality Goals
- Regulatory Affairs
- Reporting Data
- Infection Prevention

Coronavirus Disease 2019

Cleveland Clinic

COVID-19 Coronavirus

Personal Protective Equipment (PPE) Recommendations for Caregivers in Procedural Areas and Operating Rooms

	 N95¹ (fit-tested respirator)	 Face Mask² (surgical or ear-loop mask)	 Protective Eyewear (goggles or face shield)	 Gown & Gloves
COVID-19 NEGATIVE patients (by PCR or rapid test)	Use standard precautions in the care of all other patients based on anticipated exposure to blood & body fluid. Standard precautions may be used in addition to required PPE in patients in transmission based precaution. PPE to consider based on exposure may include some or all of the following: <ul style="list-style-type: none">• Gloves• Gowns• Face Mask• Eye Protection			
All Other Patients				
Performing procedures and surgeries with minimal aerosol risk <ul style="list-style-type: none">• Open or skin surface; laparoscopic; non-endoscopic surgery Consider venting pneumo-peritoneum through filter. Consider use of smoke evacuation Bovie pencils	 Anesthesia Team ONLY	 Other caregivers wear mask and leave room during intubation/extubation	 Full face shield for COVID-19+ during intubation	
Performing highest risk procedure or if possible risk of aerolization: <ul style="list-style-type: none">• Bronchoscopy• Nebulization• Tracheostomy• NIPPV• Open tracheal suctioning• Intubation/Extubation• ENT or GI endoscopies• TEE• High flow O2• Naso-enteric tube placement• ENT or skull base surgery• Oropharyngeal surgery• Other tracheal or lung surgery			 Full face shield for COVID-19+	

¹ Powered Air Purifying Respirator (PAPR) indicated for caregivers for whom an N95 mask does not fit.

² Face mask usage:

- Masks should always be worn covering nose & mouth
- Handle used mask by ear loops or strings ONLY
- Never touch front of the mask

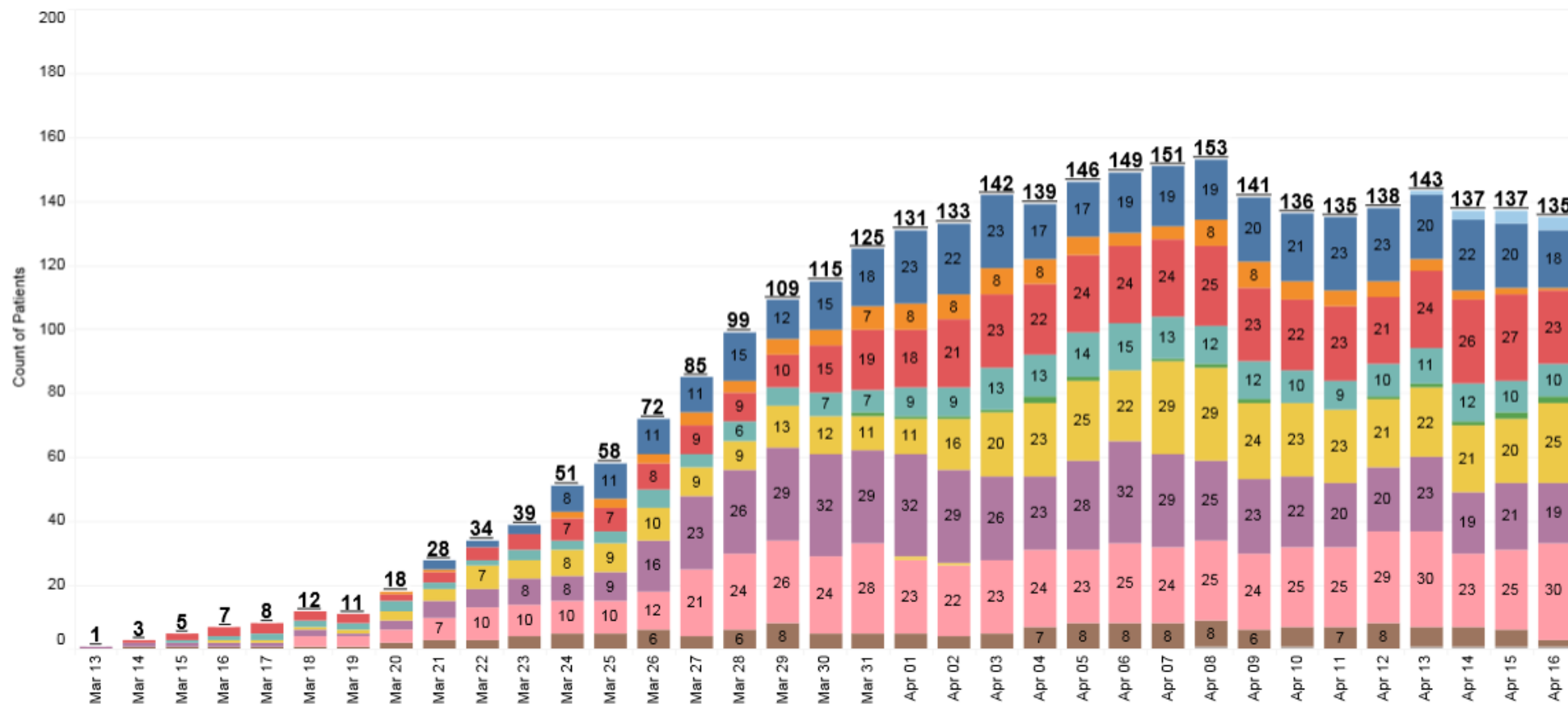
Institute Briefing

Agenda 3/30

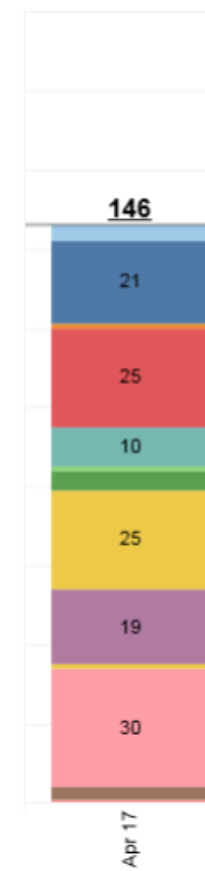
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|--|-----------------------------|-------------|
| 1. Leadership Update: ET, Incident Command, Etc. | H. Wiedemann | 3:30 – 3:35 |
| 2. Updated COVID Numbers | H. Wiedemann | |
| 3. HEC Surge Plan & Staffing | R. Pappas and
A. Machado | 3:35 – 3:50 |
| 4. Scrub Update | Joelle Lofaso | 3:50 – 3:55 |
| 5. Admission Criteria Confirmed or Suspected
COVID19 patients | B. Borden | 3:55 – 4:00 |

Covid + Inpatient Hospital Trend

Census by Result Date and Color Coded by Hospital



Today



Hospital


ACMC HOSPITAL

AKRON GENERAL MEDICAL CENTER

AVON HOSPITAL

CCF CLEVELAND CLINIC MAIN

CCF WESTON HOSPITAL

 EUCLID HOSPITAL

FAIRVIEW HOSPITAL

HILLCREST HOSPITAL

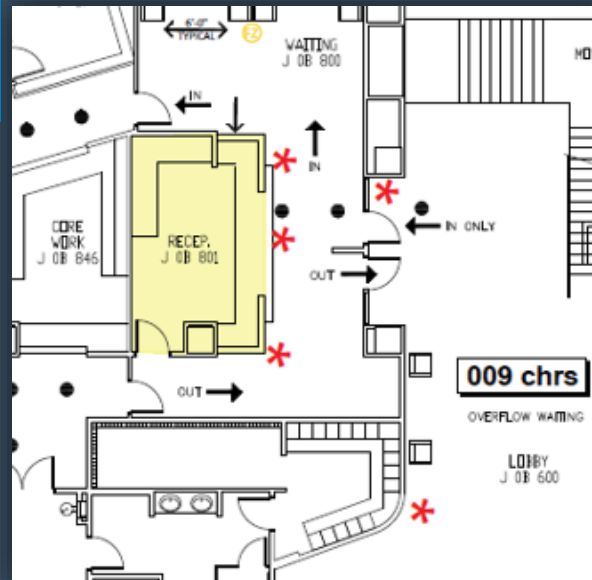
LODI COMMUNITY HOSPITAL


MARYMOUNT HOSPITAL

MEDINA HOSPITAL

SOUTH POINTE HOSPITAL

Physical Distancing






**Cleveland Clinic
Visitor Restrictions
During COVID-19 Outbreak**

- **NO visitors permitted**
- Visitor exceptions will be made for the following:
 - Pediatric (1 permitted)
 - Labor & Delivery (1 permitted)
 - End of life circumstances (Care team will discuss with family)
- Any other family/friends coming here will be instructed to leave the building.

These restrictions are being put in place for the safety of our patients, caregivers and the community.

 **Cleveland Clinic**

Workforce Transition



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graph TD; A[Workforce Transition] --> B[Reduce work space density]; B --> C[Work-from-home Reassessment]; B --> D[Staggered Shifts];
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Reduce work space density

Work-from-home
Reassessment

Staggered
Shifts

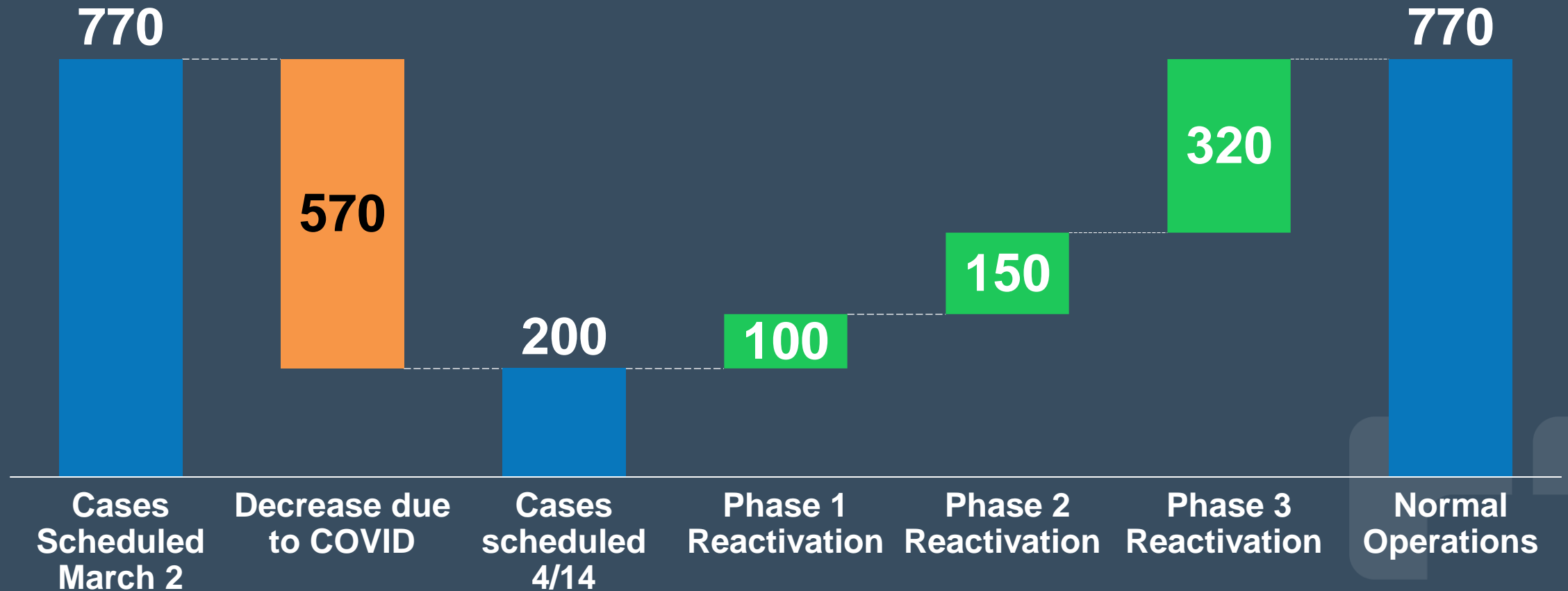
Approach to Surgical Reactivation

- Phased approach
- Focus on quality, safety, and access
- Minimize utilization of PPE, blood, Med-Surg & ICU beds
- Flexibility of ramping volume up / down for increased COVID admissions or PPE/testing constraints
- Universal pre-operative COVID testing (24-72 hours)
- Location cohorting between COVID and non-COVID centers when possible

Surgical Reactivation Phasing

	Space	Services	Example Procedures
Phase 1	ASC	<ul style="list-style-type: none">• Largest provider backlog• Limited exposure• Minimal resources	<ul style="list-style-type: none">▪ <i>Colonoscopy</i>▪ <i>Hysteroscopy</i>▪ <i>Cataracts</i>
Phase 2	Centers of Excellence	<ul style="list-style-type: none">• Largest provider backlog• Cohorted exposure• Expanding resources / supply	<ul style="list-style-type: none">▪ <i>Joint Replacement</i>▪ <i>Spinal Fusion</i>
Phase 3	Hospitals	<ul style="list-style-type: none">• Range of provider backlogs• Large resource / supply needs	<ul style="list-style-type: none">▪ <i>Brain</i>▪ <i>Living Donor Transplant</i>

Phased Approach to Daily Surgical Reactivation



ODH Guidelines for Restarting Non-Essential Procedures:

- Does not require an inpatient or overnight stay
- Utilize minimal personal protective equipment (PPE)
- Minimal impact on inpatient hospital bed capacity
- Provider defines process for timely COVID-19 testing of patients
- Providers continue to use telehealth modalities whenever possible
- Provider communicates impact of COVID-19, risk of contracting COVID-19 and engages patients in a shared decision making regarding the need for and timing of health care services.

DDSI Numbers



- 200 Staff, 73 APPs, and 850 Caregivers
- 24 multi-disciplinary centers
- Clinical presence at all CCHS hospitals, ASCs and FHCs
- 108 Clinical residents; 32 Research residents
- Annual Activity (NEO):
 - 145,000 patient visits
 - 14,000 inpatient cases
 - 34,000 outpatient cases
 - 95,000 endoscopic procedures
 - 180 liver & SB transplants



DDSI Sections and Centers

Department of Colorectal Surgery

Surgical Oncology

Inflammatory Bowel Disease

Functional Bowel Disorders

Hereditary Colorectal Neoplasia

Pelvic Floor

Wound & Ostomy Care

Dept of Gastroenterology, Hepatology & Nutrition

Inflammatory Bowel Disease

Swallowing Center

Gastroparesis

Advanced Endoscopy

Nutrition

Hepatology

General Gastroenterology

Department of General Surgery

HPB Surgery

Complex Hernia

Foregut & Surgical Endoscopy

Acute Care & Trauma Surgery

Bariatric & Metabolic Surgery

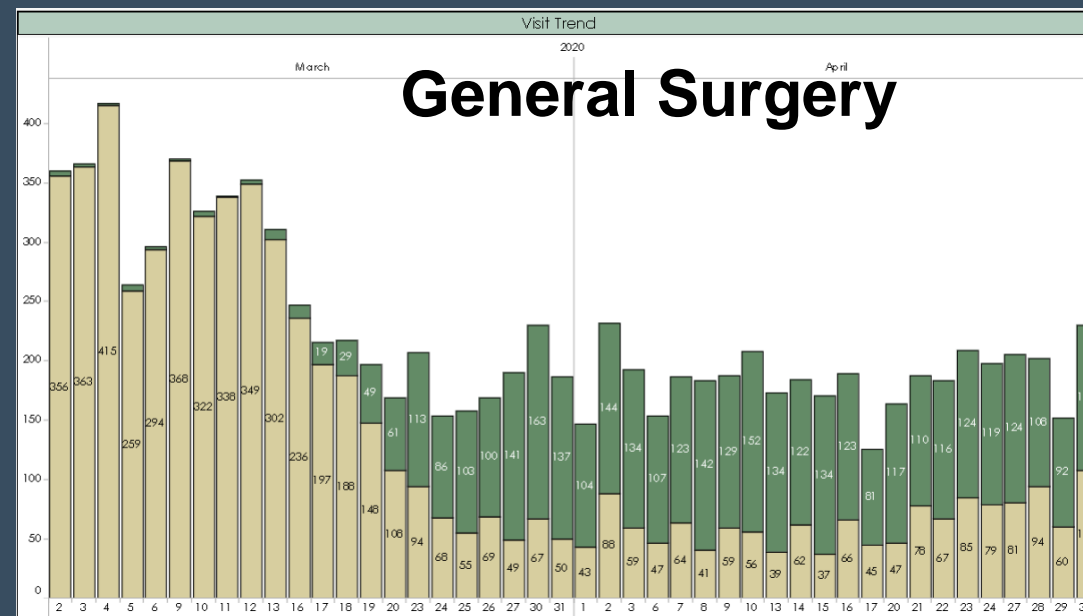
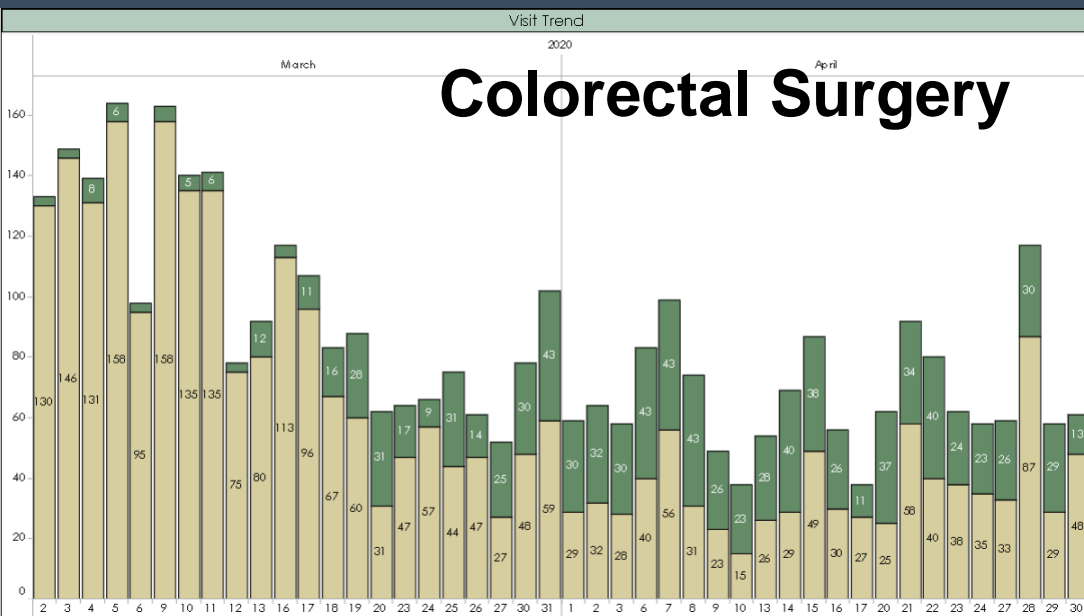
Breast Surgery

Pediatric Surgery

Liver Transplantation

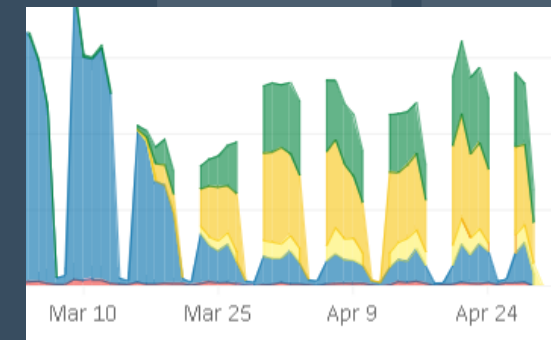
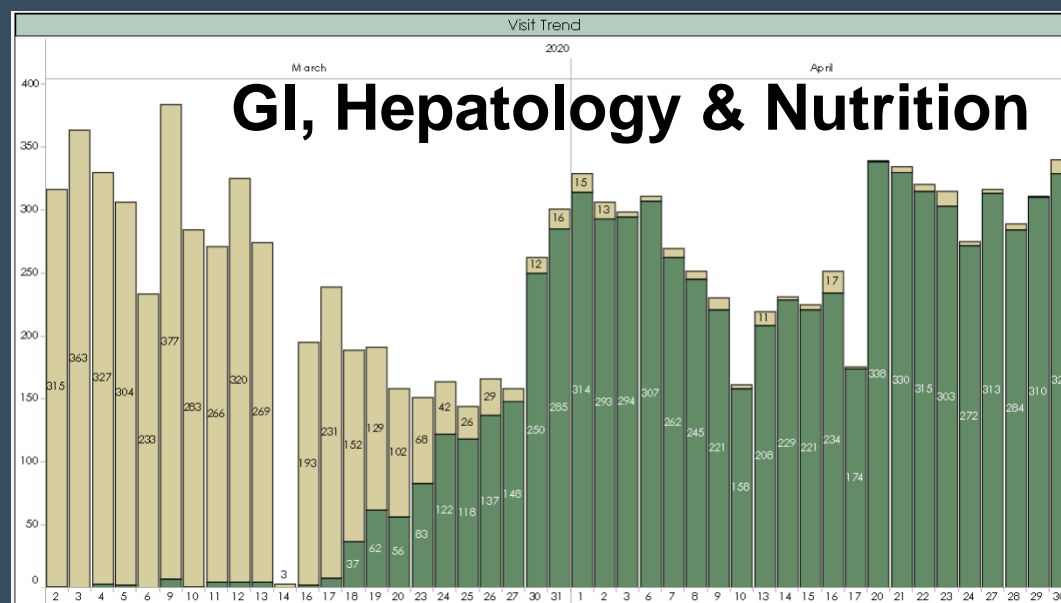
Gut Rehab & Transplantation

DDSI Synchronous Visits



 In Person

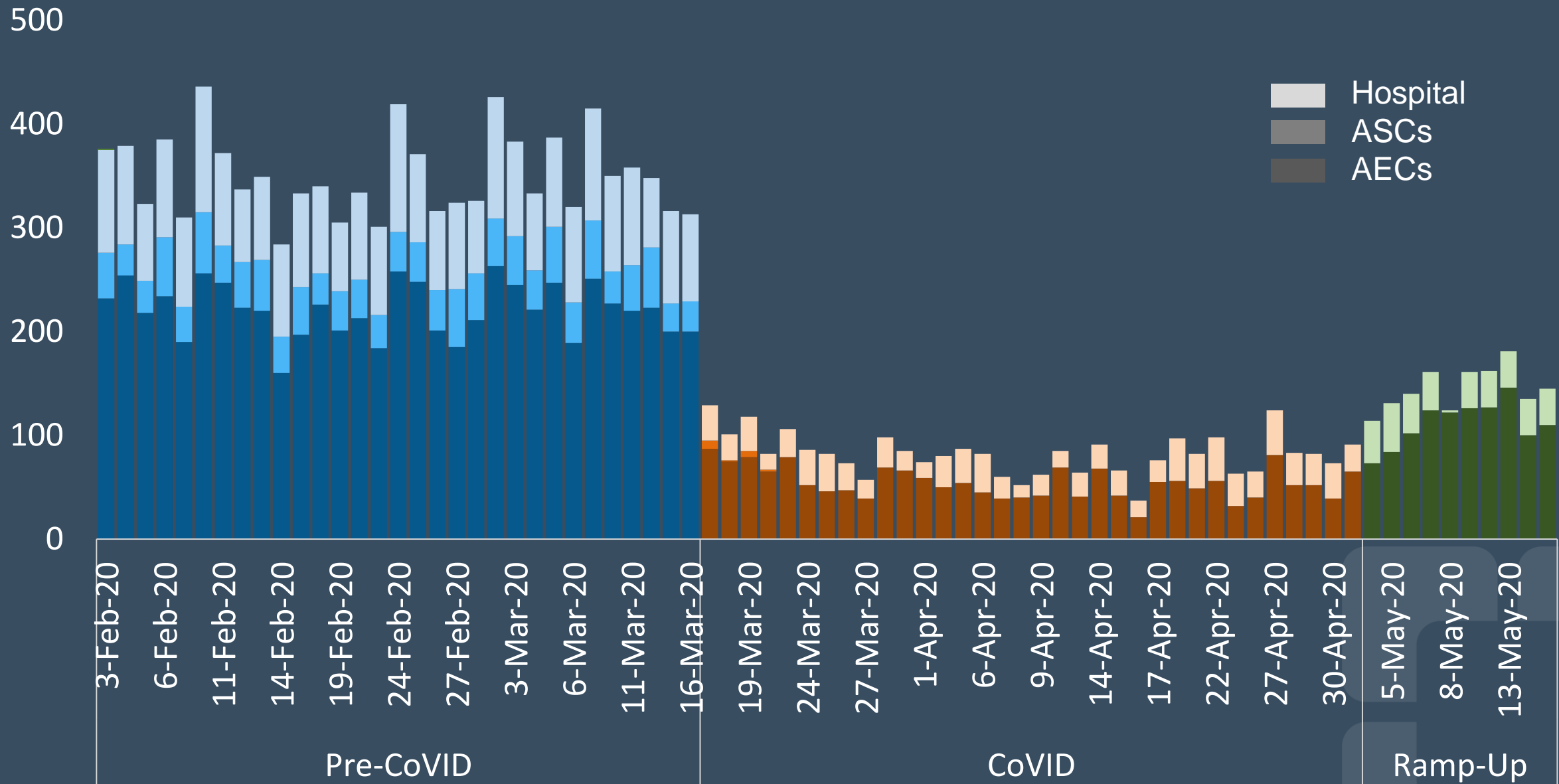
 Virtual



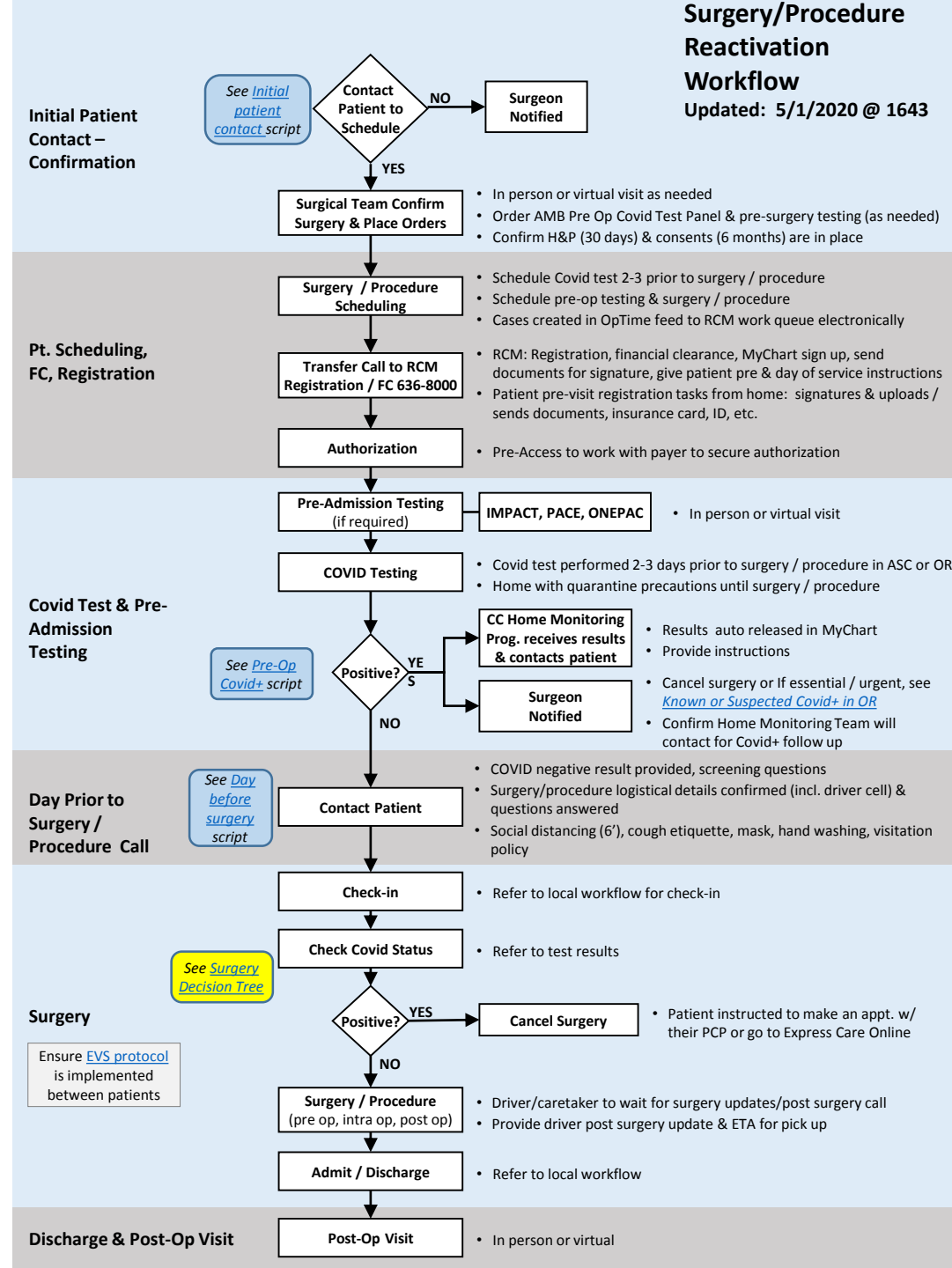
Projected Performance – Available Slots



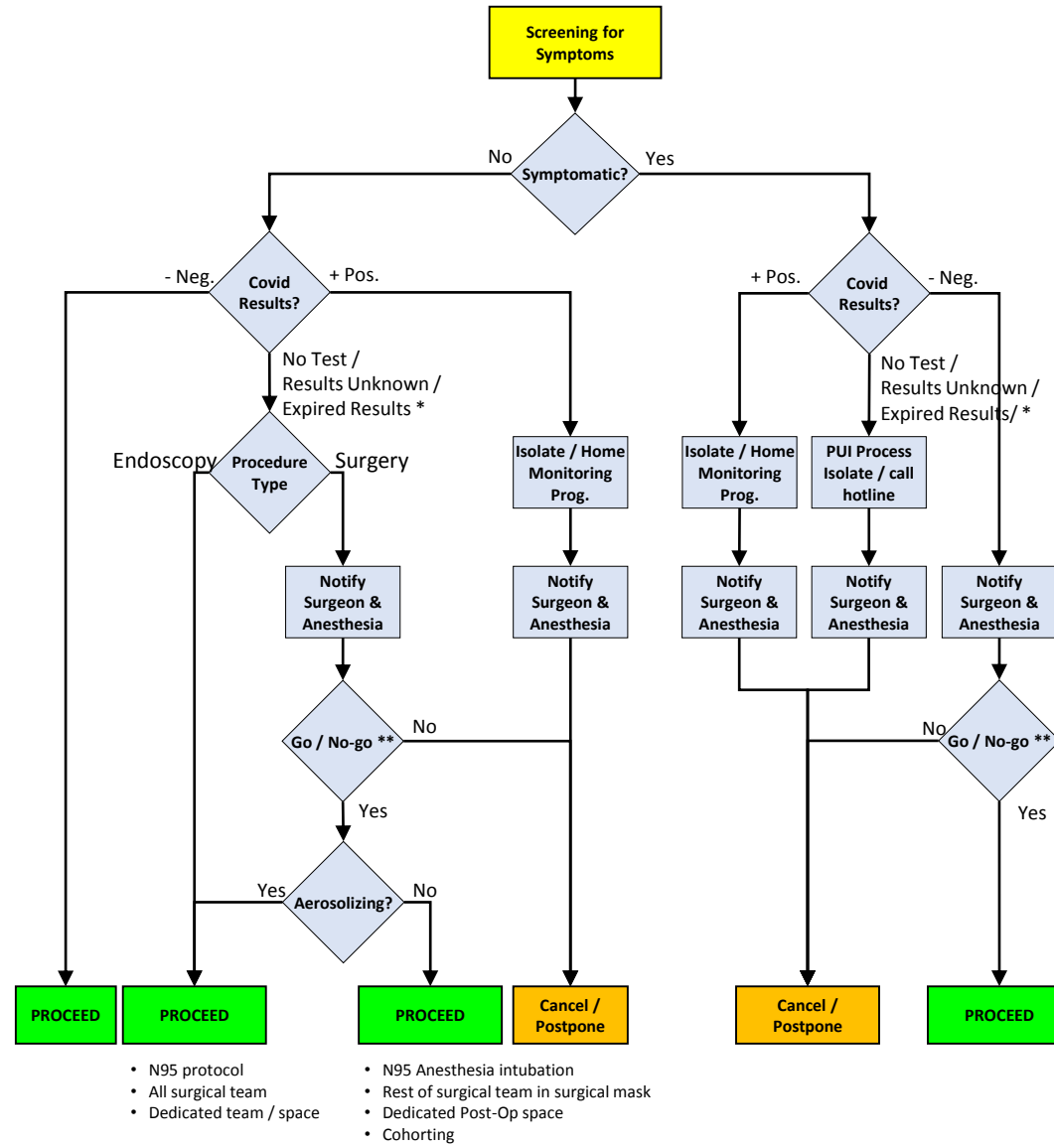
NEOH Endoscopy Volume (95,000 in 2019)



Covid-19 Surgical Workflow



Covid-19 Pre-Operative Surgery Decision Tree



- N95 protocol
- All surgical team
- Dedicated team / space
- N95 Anesthesia intubation
- Rest of surgical team in surgical mask
- Dedicated Post-Op space
- Cohorting

* Consider switching case order (last case of the day); Consider rapid testing

** Consult local Surgical Operations Covid-19 Governance Committee

Caregiver Work Place Health

Cleveland Clinic

Work Place Health



- Food
- Transport
- Hotel
- Salary
- COVID Emotional Support Line

Current Priorities

- Continue to stress to patients that it is safe to obtain healthcare at this time
- Increase clinic activity and access for patients
- Use of virtual and non-traditional hours
- Reviewing all deferred cases, re-schedule based on priority
- Continued efforts to maximize quality, efficiency and value



Every life deserves world class care.