Charles County COVID-19

Incident Action Plan

Operational Period

From 4/28/20 8:00 - To 4/30/20 8:00

INCIDENT OBJECTIVES (ICS 202)

1. Incident Name	2. Operational Period				
Charles County COVID-19	Date From:	4/28/20	Date To	4/30/20
	Time From:	8:00	Time To:	8:00

3. Objectives

A.	Maximize the safety and overall health and well-being, including mental health of the residents, county employees, and responders, throughout this incident.
B.	Conduct surveillance of COVID-19 cases in collaboration with the health department, hospital, physicians, and other health care providers.
C.	Maintain timely, accurate and uniform communications with residents, employees and first responders as well as partners in the tri-County and National Capital Region and the state of Maryland.
D.	Prepare for and handle the human reaction crisis contingencies in long terms.
E.	Prepare for long term order maintenance.
F.	Prepare for and sustain our communities' hierarchy of needs throughout this incident.
G.	Determine trigger points for Continuity of Operations for all agencies, including government, public safety, schools, hospital, and other critical infrastructure systems.
H.	Ensure all practical steps to "Slow the Spread" of transmission of COVID-19.

4. Operational Period Command Emphasis

Document all Plans by sending them to DESPlanning@charlescountymd.gov
All submitted plans should have in the Subject area:
…….....example......"LE Force Reduction Plan 04/28/20"

General Situational Awareness

" The Best way to prevent the spread of COVID-19…. Wearing face masks and social distancing!"

5. Site Safety Plan Required? ☐ Yes ☑ No

Approved Site Safety Plan(s) Located at:

6. Attachments (check if attached)

- ☑ ICS 203
- ☐ ICS 204
- ☐ ICS 205
- ☑ ICS 205A
- ☐ ICS 206
- ☐ ICS 207
- ☑ ICS 208
- ☐ Map/Chart
- ☐ Weather Forcast/Tides/Currents
- ☑
- ☐
- ☐
- ☐

ICS 214

7. Prepared by: Name: __Joe Hoffmaster_____ Position/Title: _PSC_____ Signature: _____

8. Approved by Incident Commander: Name: ___Michelle Lilly_____ Signature: _____

ICS 202	IAP Page __2____	Date/Time: _____April 28, 2020 @15:00_____

ORGANIZATION ASSIGNMENT LIST (ICS 203)

1. Incident Name	2. Operational Period			
Charles County COVID-19	Date From:	4/28/20	Date to:	4/30/20
	Time From:	8:00	Time to:	8:00

3. Incident Commander and Staff			
UC	Dr. Howard Haft		
UC	Michelle Lilly		
Deputy	Melanie Gardiner		
Deputy	Tony Rose		
Safety Officer	John Filer		
Public Information Officer	Jennifer Harris	Donna Fuqua	Linda Warner
Intell Officer	Jason Stoddard		

4. Agency Representative	
Agency	**Name**
Intell officer Deputy	Mike Meiser
Lifestyles	Sandy Washington
Public Schools	Mike Meiser

5. Planning Section	
Chief	Joe Hoffmaster
Deputy	Bill Smith
Resource Unit	
Situation Unit	Jen Adams
Documentation Unit	Bill Smith
Demobilization Unit	
Human Resources	
Technical Specialists	**(name / specialty)**

6. Logistics Section	
Chief	Nick Ellis
Deputy	need to fill
Support Branch	
Donations	Ed Tucker
Supply Unit	
Facilities Unit	Nick Ellis
Ground Support Unit	
Service Branch	
Service Branch Dir.	
Communications Unit	Jeffrey Clements
Medical Unit	
Security Unit	
Food Unit	

7. Operations Section		
	Chief	
	Deputy	
a.	Branch I	Public Health
	Branch Director	Ranston Harvey
	Deputy	Mary Lilly
	DSS	
	Liaison Officer	Tom Brown Robbie Jones
	Hospital	Bill Grimes John Filer
	Nursing Homes	Tiffany Brown
	Health Care Providers	Melanie Gardiner
	Rehab Centers	Eddie Kratzer
	Assisted Living	Rosalinda Horton
	Funeral Services	Cataria Patterson
b.	Branch II	Public Safety
	Branch Director	Mark Kaufmann Jr.
	Deputy	Scott Herbert D J Mills
	DES EMS	Steve Finch
	Vol EMS	Andrew Spalding Mitchell Lewis
	Vol Fire	Scott Herbert
	Logistics	Scott Herbert
c.	Branch III	Law Enforcement
	Branch Director, CCSO	Chris Schmidt
	Deputy, CCSO	Cari Baker
	La Plata Police	Chris Becker
	MD State Police	Thomas Quade
	DNR	Catherine Meddelin
	MdTA	Brian Lawrence
d.	Branch IV	Infrastructure
	Branch Director	
	Deputy	
	SMECO	Jennifer Raley
	Grocery	
	Propane	
	Natural Gas	
10.	Finance Section	
	Chief	Jennifer Adams
	Deputy	
	Time Unit	
	Procurement Unit	
	Comp/Claims Unit	
	Cost Unit	

9. Prepared by: Name: ___Joe Hoffmaster_____ Position/Title: __PSC_____ Signature_____

ICS 203	IAP Page ____3_____	Date/Time: _____April 28, 2020 @ 14:00_____

ORGANIZATION ASSIGNMENT LIST (ICS 203)

1. Incident Name	2. Operational Period			
Charles County COVID-19	Date From:	4/28/20	Date to:	4/30/20
	Time From:	8:00	Time to:	8:00

3. Incident Commander and Staff			
UC	Dr. Howard Haft		
UC	Michelle Lilly		
Deputy	Melanie Gardiner		
Deputy	Tony Rose		
Safety Officer	John Filer		
Public Information Officer	Jennifer Harris	Donna Fuqua	Linda Warner
Intell Officer	Jason Stoddard		

4. Agency Representative	
Agency	**Name**
Intell officer Deputy	Mike Meiser
Lifestyles	Sandy Washington
CC Public Schools	Michael Meiser

5. Planning Section	
Chief	Joe Hoffmaster
Deputy	Bill Smith
Resource Unit	
Situation Unit	Jen Adams
Documentation Unit	Bill Smith
Demobilization Unit	
Human Resources	
Technical Specialists	**(name / specialty)**

6. Logistics Section	
Chief	Nick Ellis
Deputy	need to fill
Support Branch	
Donations	Ed Tucker
Supply Unit	
Facilities Unit	Nick Ellis
Ground Support Unit	
Service Branch	
Service Branch Dir.	
Communications Unit	Jeffrey Clements
Medical Unit	
Security Unit	
Food Unit	

7. Operations Section			
	Chief		
	Deputy		
a.	**Branch V**	**Governence**	
	Charles County Govern.	Michele Lilly	
	Town of LaPlata	Chris Becker	
	Town of Indian Head	Ryan Hicks	
b.	**Branch VI**	**Business**	
	Branch Director	Darre'll Brown	
	Deputy	Marcia Keeth	
	Economic Development	Darre'll Brown	
	Chamber of Commerce	Bonnie Grady	
c.	**Group**	**Peer Support**	
	Group Supervisor	Courtney Shannon	
	Deputy	Pam Gantt	
		Debbie Gianinni	
d.	**Branch VIII**		
	Branch Director		
	Deputy		
e.	**Branch IX**		
10.	**Finance Section**		
	Chief	Jen Adams	
	Deputy	need to fill	
	Time Unit		
	Procurement Unit		
	Comp/Claims Unit		
	Cost Unit		

9. Prepared by: Name: ___Joe Hoffmaster_____ Position/Title: __PSC_____ Signature_____

ICS 203	IAP Page __4_____	Date/Time: _____April 28, 2020 @ 14:00_____

COMMUNICATIONS LIST (ICS 205A)

1. Incident Name	2. Operational Period:	Date From:	4/28/20	Date to:	4/30/2020
Charles County COVID-19		Time From:	8:00	Time to:	8:00

3. Basic Local Communications Information:

Name - Last	Name-First	Representing	Email	Phone
Adams	Jennifer	DES FSC	AdamsJen@Charlescountymd.gov	
Baker	Cari	CCSO	bakerce@ccso.us	
Becker	Chris	La Plata Police	cbecker@townoflaplata.org	
Brown	Darrell	Business Director Econ Dev	Brownd@charlescountymd.gov	
Cress	Lauri	Charles Regional Medical Center	lauri.cress@umm.edu	
Ellis	Nick	DES- Logisitics	DESLogistics@charlescountymd.gov	
Filer	John	DES- Liaison	FilerJ@charlescountymd.gov	
Finch	Stephen	DES	FinchS@charlescountymd.gov	
Fuqua	Donna	PIO	Fuquad@CharlesCountyMD.gov	
Harris	Jennifer	PIO	HarrisJ@CharlesCountyMD.gov	
Hoffmaster	Joe	Planning Section	DESPlanning@charlescountymd.gov HoffmasJ@CharlesCountyMD.gov	
Kaufmann	Mark Jr	PS Branch Dir. Vol Fire Chief	markeng1trk@hotmail.com	
Konschak	Matt	NSWC IHD	matthew.konschak@navy.mil	
Lilly	Michelle	CCDES Director, Unified Command	LillyM@charlescountymd.gov	
Lilly	Mary	C C Dept. of Health	Mary.Lilly@maryland.gov	
Lowry	Susan	MDH	suzan.lowry@maryland.gov	
Mills	D.J.	Vol Fire- Special Operations Chief	djm31_9@hotmail.com	
O'Malley Simpson	Katie	CCBOE PIO	Komalley@ccboe.com	
Proctor	Destiny	DES	proctord@charlescountymd.gov	
Quade	Thomas	MSP	Thomas.Quade@maryland.gov	
Rose	Tony	DES Deputy Director, Unified	RoseT@charlescountymd.gov	
Russell	Cindy	DSS	cindy.russell@maryland.gov	
Schmidt	Louis Chris III	CCSO	schmidtlo@ccso.us	
Seaman	Kevin	CCEMS	seamank@chalrescountymd.gov	
Smith	Bill	CCVFA/CCAEMS	Smithb@ccvfireems.org	
Spalding	Andrew	Volunteer EMS Chief	chiefems@ccvfireems.org	

6. Prepared by: Name: _____Joe Hoffmaster___Title: ____PSC__ Signature_____

ICS 205A	IAP Page ____5___	Date/Time: _____April 28, 2020__@ 15:00_____

COMMUNICATIONS LIST (ICS 205A)

1. Incident Name		2. Operational Period:	Date From:	4/28/20	Date to:	4/30/2020
Charles County	COVID-19		Time From:	8:00	Time to:	8:00

3. Basic Local Communications Information:

Name - Last	Name-First	Representing	Email	Phone
Stoddard	Jason	Intell	jstoddard@ccboe.com	
Ranston	Harvey	CCDOH	Ranston.harvey@maryland.gov	
Laschatt	Lisa	CCDOH	lisa.laschatt@maryland.gov	
Meiser	Michael	CCPS	mlmeiser@ccboe.com	
EOC- CC		CCEOC	DESEOC@charlescountymd.gov	
Cherry	Lori	LOGS- Deputy	Cherryl@charlescountymd.gov	
Herbert	Scott	PS LOGS	sherbert@hvfdems.org	
Haft	Howard	CCDH	Howard.haft@maryland.gov	
Raley	Jennifer	SMECO	Jennifer.Raley@SMECO.Coop	
Farr	Courtney	SMECO	Courtney. Farr@SMECO.Coop	
Law	Natasha	SMECO	Natsha.Law@SMECO.Coop	
Teleconfernce #			1-872-240-3212	
Tucker	Ed	Donations	DESDonations@Charlescountymd.gov Etucker@Charlescountymd.gov	
Barnes	Raena	DH-Liaison	raena.barnes@maryland.gov	
Wolf	Theresa	PH-DSS	Therese.Wolf@maryland.gov	
Higgins	David	Safety Officer-Assistant	HigginsD@chalrescountymd.gov	
Jones	Robbie	HD-Liaison	JonesRob@Charlescountymd.gov	
Hicks	Ryan	Indian Head	ryan@townofindianhead.org	
Lewis	Mitchell	Volunteer EMS Chief, Assistant	mlewis@WaldorfVFD.com	
Mott	Robert (Bob)	VEIP Manager Document Facil.	capt302a@gmail.com	
Rands	Ray	VEIP Manager	raymond.rands@maryland.gov	
Edge	Bill	CCSO-Safety		
Peer	Support	Peer Support Team	DESPeersupport@charlescountymd.gov	
Courtney	Shannon	Peer Support Team Leader	Shannonc@charlescountymd.gov	

SAFETY MESSAGE/PLAN (ICS 208)

1. Incident Name	2. Operational Period				
Charles County COVID-19	Date From:	4/28/20	Date To:	4/30/20
	Time From:	8:00	Time To:	8:00

3. Safety Message/Expanded Safety Message, Safety Plan, Site Safety Plan:

"The Best way to prevent the spread of COVID-19... Wearing face masks and social distancing!"

1. Total identified PUI's transported as of 4/28: 487 Total # of patients testing positive : 94

2. PPE stockpiles remain stable with an estimated supply range of 10+ days based on current call volumes.

3. Revision to EMSOP Special Order 2020-01 Version 4.0 has been completed and disseminated to staff.

4. As this is a rapidly changing landscape, leaders should review any changes with their personnel each morning.

5. Speical Order 2020-04 Version 1.0 was released today. New guidelines for personnel at the beginning of their shift, end of their shift and at the station.

6. Personnel who report having a fever, sore throat, cough or other respiratory related symptoms should stay at home and self-isolate until they are symptom free for a period of 72 hours.

7. The County's Peer Support Team has been activated and will make weekly wellness checks with our County's first responders.

8. Please remember that PPE caches are for EVERYONE. We are all in this TOGETHER so there is NO career and volunteer PPE caches.

9. Under the approval of the EOC and to keep congruent with the CDC and Governor Hogan's reccomendations, Safety has approved the use of simple face masks (commercial or crafted) in the public arena. Per SOP, N95's are to be used for all patient contacts with reuse guidelines in place per the CDC recomendations.

10. The Viral Pandemic Triage Protocol (SO 2020-02) starts today for all EMS clinicans. Please make sure you document accordingly in ELITE.

Site Safety Plan(s) Located At: ☐ Yes ☑ No

5. Prepared by: Name: ____**John Filer**_____ **Title:** __**Safety Officer**_ **Signature:**_____

ICS 208	IAP Page _____	Date/Time: ___April 28, 2020__@ 14:00_____

ACTIVITY LOG (ICS 214)

1. Incident Name	2. Operational Period				
Charles County COVID-19		Date From	4/28/2020	Date To:	4/30/2020
		Time From:	8:00	Time To:	8:00
3. Name:	**4. ICS Position**	**5. Home Agency** (and Unit)**:**			

6. Resources Assigned

Name	ICS Position	Home Agency (and Unit)

7. Activity Log

Date/Time	Notable Activities

8. Prepared by: Name: _____Position/Title: _____Signature: _____

Date/Time: _____

ACTIVITY LOG (ICS 214)

1. Incident Name	2. Operational Period				
Charles County COVID-19	Date From	4/28/2020	Date To:	4/30/2020	
	Time From:	8:00	Time To:	8:00	

7. Activity Log (continuation)

Date/Time	Notable Activities

8. Prepared by: Name: _____Position/Title: _____Signature: _____

Date/Time: _____

EOC Operational Period Meeting Schedule

Time	Meeting Schedule	Attendees and Mission	Deliverables
7:30	**Hospital Liaison**	Attended by Hospital Liaison Officer to communicate patient count numbers, PUI's, PUI's transported by EMS	PUI's transported by EMS. Follow up information passed to Infection Control Officers.
8:00	**EOC UC Objectives Meeting**	Attended by Unified Command and Planning Section to adjust the objectives and voice concerns for the upcoming operational period.	Post Objectives Changes to Command and General Staff
9:30	**Strategy Meeting** (C&GS) modified	Attended by Unified Command and General Staff to adjust the objectives and voice concerns for the upcoming operational period.	Post Strategy Changes to Branch Directors
After 09:30	**BRANCH Tactics Meeting**	Attended at Branch level, Branch Directors, PSC, LSC, SOF for the upcoming operational period.	Post unfilled needs outside of Branch Level to LOGS, PSC
After 09:30	**Planning Meeting**	Immediately following the Tactics meeting. Attended by Command Staff to support the IAP.	Open Action Items
10:00	**State EMS Conference Call**	EMS Chief conferences with MD State EMS Officials to share information and discuss	
13:00	**Coordination Briefing**	Attended by all Operations personnel especially Branch Directors and DIVS.	
15:00	**IAP Deliverables** Brief Deliverables	Following the Tactics meeting, all deliverables need to be sent to the Planning Section.	All Branch Directors will submit daily briefs and information bulletins to DESPlanning
15:00	**MEMA Conference Call**	Emergency Manager conference call with State Emergency Managers to discuss State Situational Updates	
16:00	**IAP and Briefs Delivered**	No Meeting	
16:15	**Health Dept, EOC, Hospital**	Conference call to discuss situational updates	
as needed	**Critical Exchange**	Branch Director, Section Chief, report up the chain	Written report up the chain as necessary to follow up after critical moment is being handled.

Safety Officer's Report
Charles County EOC

04-28-20

John Filer
Chief of EMS and SOD
Charles County Department of
Emergency Services

Today's Safety Message: "The best way to prevent the spread of COVID-19…wearing face masks and social distancing."

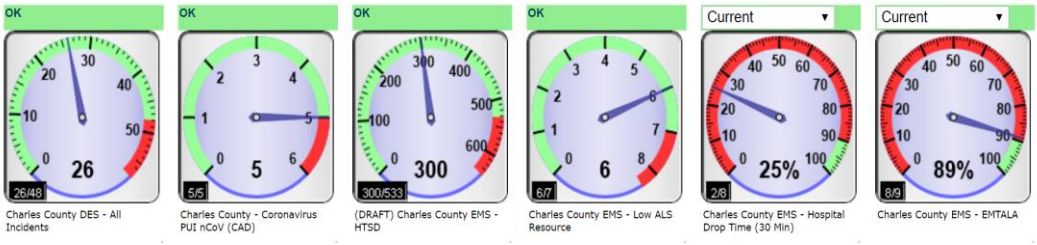
Total number of PUI's transported to date: 487
Total number of patients transported by EMS testing + for COVID: 94
Total number of first responders on self-isolation: 7
Total number of first responders on quarantine: 19
Total number of first responders + for COVID-19: 9
Total number of first responders out for COVID related mental health: 0
Total number of fire stations sanitized: 6
Daily Estimated PPE Burn Rate: 30 sets/day

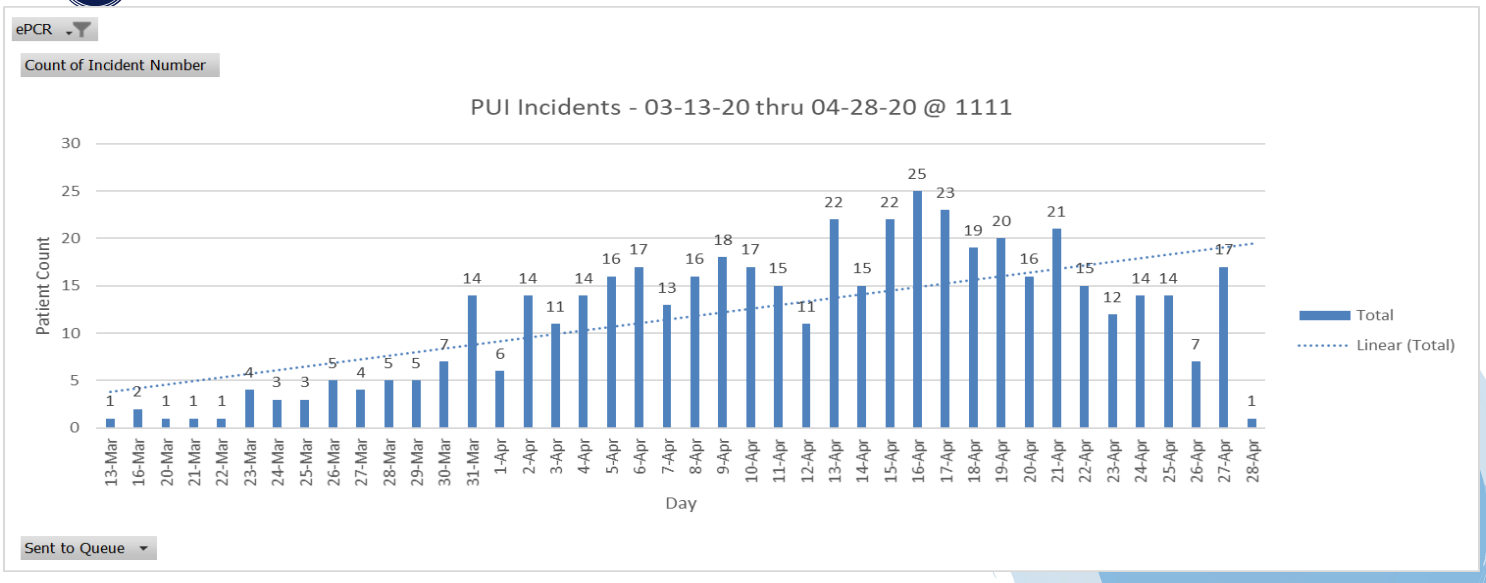
10425 Audie Lane
La Plata, MD 20646

301-399-1143

DESsafety@charlescountymd.gov

www.charlescountymd.gov





The Best Way To Prevent the Spread of COVID-19...

WEARING FACE MASKS AND SOCIAL DISTANCING.

PUBLIC HEALTH BRANCH BRIEFING
COVID-19 PANDEMIC RESPONSE
April 28, 2020

GENERAL REPORTING INFORMATION

INFECTIOUS DISEASE

CASE COUNT—CHARLES COUNTY

As of 4/28/2020, total case count for Charles County is 541.

- *The line list with confirmed case counts for Charles County is continuously updated as lab reports are received from MDH, hospitals, and commercial laboratories.*
- *Contact tracing efforts are continuous with a focus on healthcare workers, EMS, and police.*

CALL CENTER UPDATE

- Operation time: 0800 to 2200.
- The numbers to call remain the same: 301.609.6717 or 301.609.6777
- Volume for new system is approximately 60 call per day.

MEDIA, SOCIAL MEDIA AND WEBSITE

- Nothing new to report.

PARTNER/STAKEHOLDER OUTREACH

LTC/AL

- The Long-Term Care and Assisted Living call will be held Thursday, April 30 at 3 p.m. by CCDOH nurse liaisons.

ALL-PARTNER

- The all-partner call will be held Thursday, April 30 at 4 p.m. by CCDOH nurse liaisons.

EPI SURVEILLANCE PROFILE FOR STATE

Case Investigation, Surveillance, and Infectious Disease Response (D, Blythe)

1) **Latest case counts** – total: 20,113 (87,672 negative)
2) **New cases:** 626
    a) **Age distribution:**
        i) under 18 years - 2 %
        ii) in 19-64 age range 74%
        iii) in 65+ age range 24%
    b) **Geographic distribution:**
        i) National Capital 53%
        ii) Baltimore Metro area 41%
        iii) Eastern Shore 3%
        iv) Southern 2%
        v) Western 1%

c) Of cases, 53% female; 47% male
d) Hospitalizations 15 new; total 4,268
e) Deaths -- Total 929 (71) in Last 24hrs)
f) Release from isolation – 1,295

CONFIDENTIAL – (INFORMATION BELOW IS FOR CORE PLANNING GROUP ONLY)

RESOURCE DISTRIBUTION

- 2 request received 04/27/2020 and filled
- Nurse liaisons will be also assessing LTC/AL needs and encouraging them to enter proper PPE requests and encourage pick up.

VOLUNTEERS

MARYLAND MEDICAL RESERVE CORPS

- 1 responder accepted into unit 04/27/2020

TESTING

VEIP TESTING SITE UPDATE

- Tested to Date as of April 23 (TTD): 455
- 100 appointments slots were made available for Tuesday, April 28, 2020
- Calvert County Health Department will be opening 2 testing lanes at the Calvert VEIP site 04/28/2020

EPIDEMIOLOGY AND SURVEILLANCE

Charles County

- As of 4/28 at 800 am, total case count for Charles County was 541 cases.
- There have been 40 confirmed deaths associated with COVID-19 (7%). Majority of deaths are associated with outbreaks in skilled nursing facilities. There is one probable COVID-19 death. COVID-19 is listed as the cause of death, but laboratory testing has not yet confirmed.
- Average age of fatalities: 78 years
- Gender breakdown among confirmed fatalities: 69% Female, 31% Male
- Racial breakdown among confirmed fatalities:
- 59.0% Non-Hispanic White
- 38.4% Non-Hispanic Black
- 2.6% Hispanic
- Number of negative lab results: 2333
- Positivity Rate: 18.8% (similar to state positivity rate of 18.7%)
- Recovered and released from isolation: 106
- Partially recovered with improved symptoms: 26
- 126 or 23.3% required hospitalization
- Among confirmed cases, 323 (59.7%) Female; 218 (40.3%) Male
- 17% Healthcare Workers
- 2% First Responders: EMS, Fire, Law Enforcement

- 32% have underlying health conditions
- Age range of positive COVID-19 cases: 3 months-100 years

Age Distribution for Charles County cases:

- Under 18 years: 11 (2.0%)
- 18-64 years: 398 (73.6%)
- 65+ years: 132 (24.4%)

ESSENCE data for urgent care utilization at Patient First in Waldorf had no data warnings or alerts for Monday, April 27th. Patient volume was 19. This is a decrease from the volume seen during the weekend. This same trend has been observed on a weekly basis. All were discharged to home for self-care. 3 patients presented with ILI or COVID-19 like symptoms on Monday. Diagnoses for ILI patients on Monday included unspecified chest pain, cough, and pneumonia, unspecified organism. There was 1 case with a CDC Classifier tag for Pneumonia.

Surveillance of EMS call data and alerts

The epidemiologist monitors the Charles County DES First Watch trigger alerts. The number of daily trigger alerts for COVID-19 cases or COVID-19 persons under investigation was 19 on 4/27. EMS indicates that PUI's appear to be declining.

- 4/25: 16
- 4/26: 8
- 4/27: 19

Racial breakdown: The data is now being captured in the MDH line lists of confirmed cases in REDCap. Data was accessed on 4/28 at 8:00 am. Please be cognizant that data may differ from numbers pulled later in the morning since new positive lab results are being received by the health department and entered into NEDSS throughout the work day. This explains any discrepancies in the total count or denominator being used to calculate each data measure.

Total: 541 cases on 4/28 at 8:00 am MDH line list assessed through REDCap:
Data on race and ethnicity changes daily as case investigations are completed and more information on demographics is updated in the electronic reporting disease system. Additionally, when there is an influx of new cases in electronic reporting disease system, data on race and ethnicity may not be available immediately for new cases since race information is not typically captured on a lab report and must be obtained during the investigation.
(Case counts with less than 7 cases should not be shared publicly. This data is confidential.)

Race Breakdown

- Asian: 11 (2.0%)
- Black/African American: 225 (41.6%)
- White: 121 (22.4%)
- Other or 2+ races: 20 (3.7%)
- Data not available: 164 (30.3%)

Ethnicity Breakdown

- Hispanic 12 (2.2%)

- Non-Hispanic 343 (63.4%)
- Declined to answer 38 (7.0%)
- Data not available 148 (27.4%)

Epidemiologist's note: *Please use caution when drawing any conclusions regarding race or ethnicity. There is still a percentage where race data is not available, and information regarding this missing population cannot be assumed. Additionally, it should be noted that the greatest number of cases (58%) are the Waldorf zip codes of 20601, 20602, and 20603. Over half of the county population lives in those zip codes. Additionally, those zip codes have a very diverse population with minority populations comprising the majority of the zip code level population and with African Americans being the largest racial group in those zip codes.*

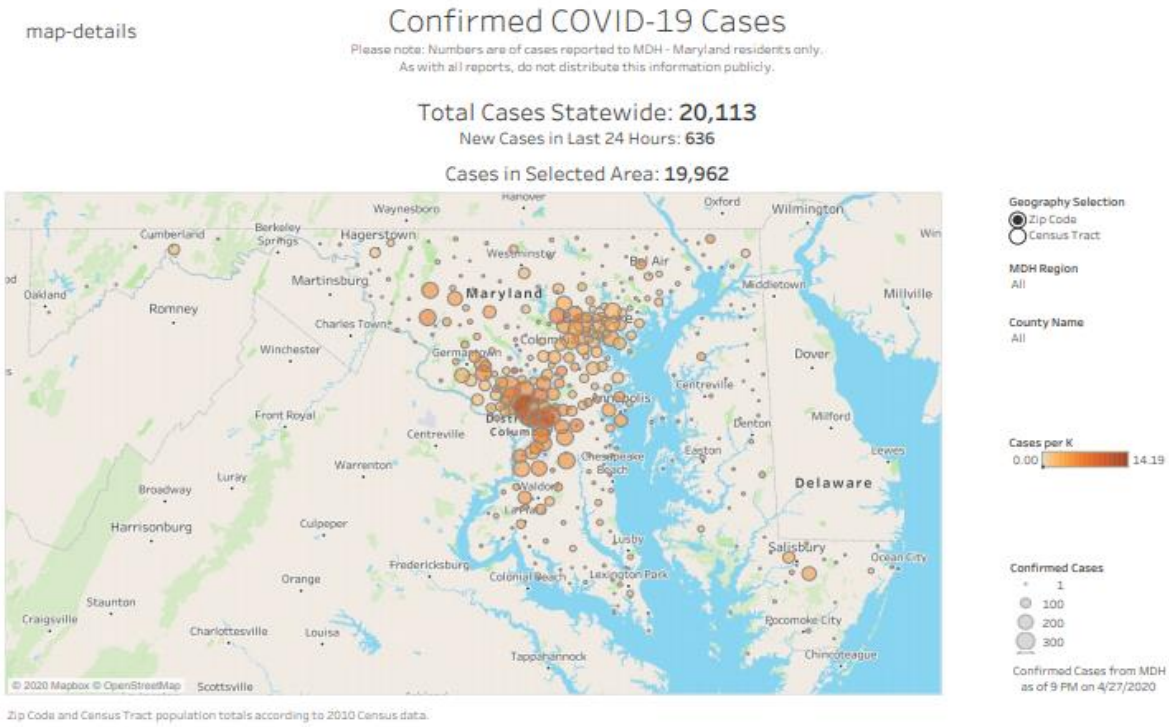
Zip Code level data was also analyzed using the MDH line lists of confirmed cases in REDCap. Data was accessed on 4/27 at 11:00 am. *(Zip code level data with counts less than 7 cases cannot be shared publicly and must remain confidential.)*

Confirmed cases by zip code:

Zip code:	4/27	4/28	Change from 4/27 to 4/28
20601	75	75	0
20602	90	92	+2
20603	143	145	+2
20604	2	2	0
20607	10	10	0
20611	3	3	0
20613	19	19	0
20616	15	15	0
20622	3	3	0
20632	2	2	0
20637	15	15	0
20640	19	20	+1
20645	1	1	0
20646	63	65	+2
20658	3	3	0
20662	8	8	0
20664	5	5	0
20675	6	6	0
20677	5	5	0
20693	2	2	0
20695	35	36	+1

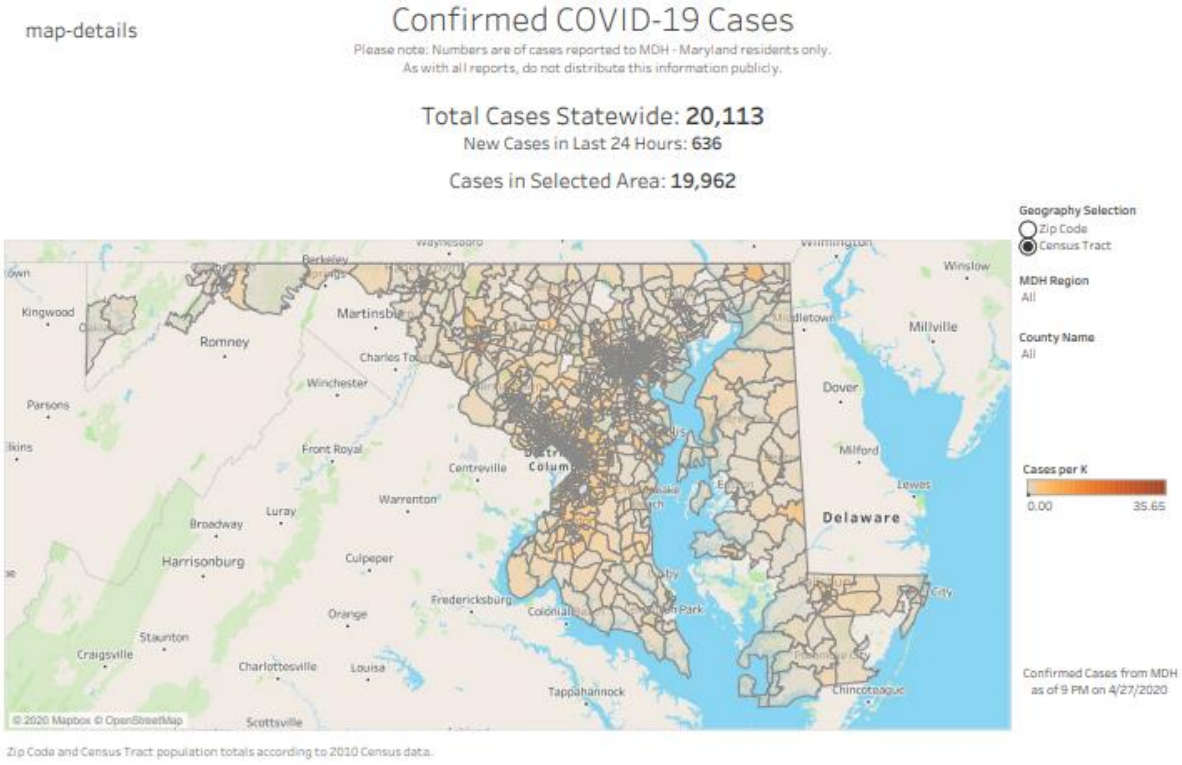
ADDITIONAL INFORMATION: ***This includes the following:***

- **Heat map of COVID cases in Maryland by zip code –** *provided through the Chesapeake Regional Information System for our Patients (CRISP)*

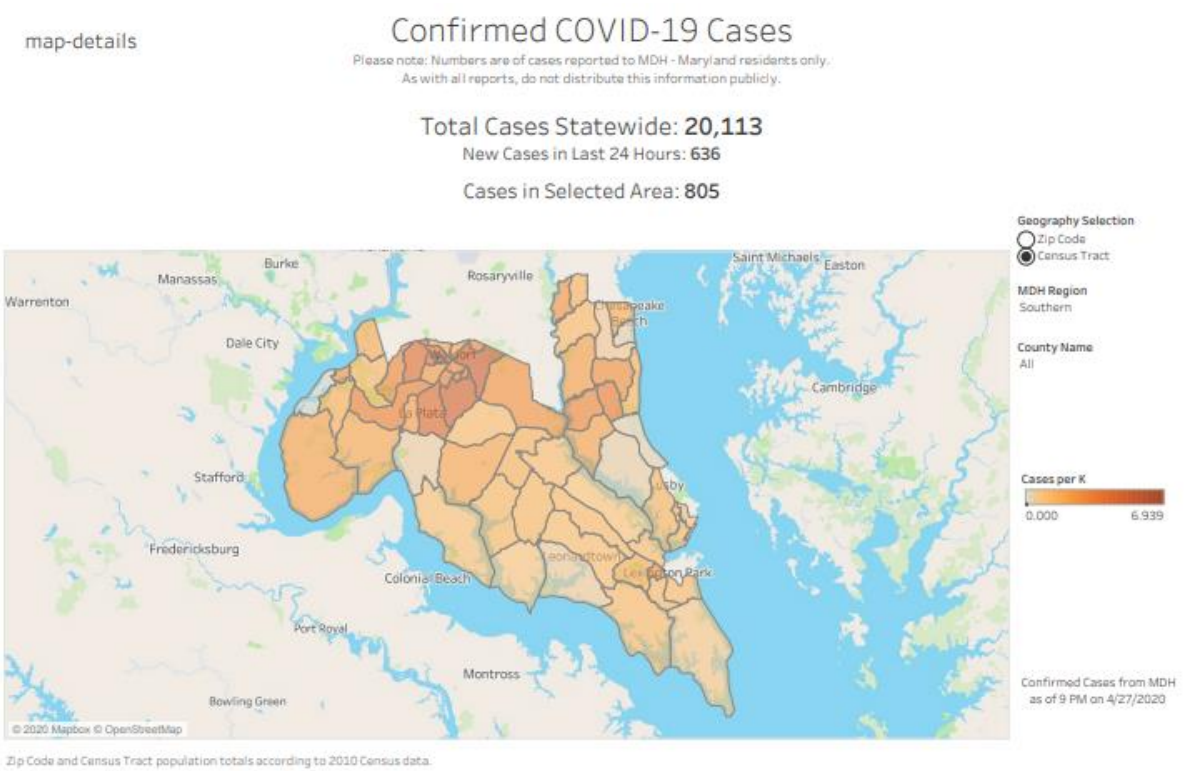


- **Heat Map of Southern Maryland**

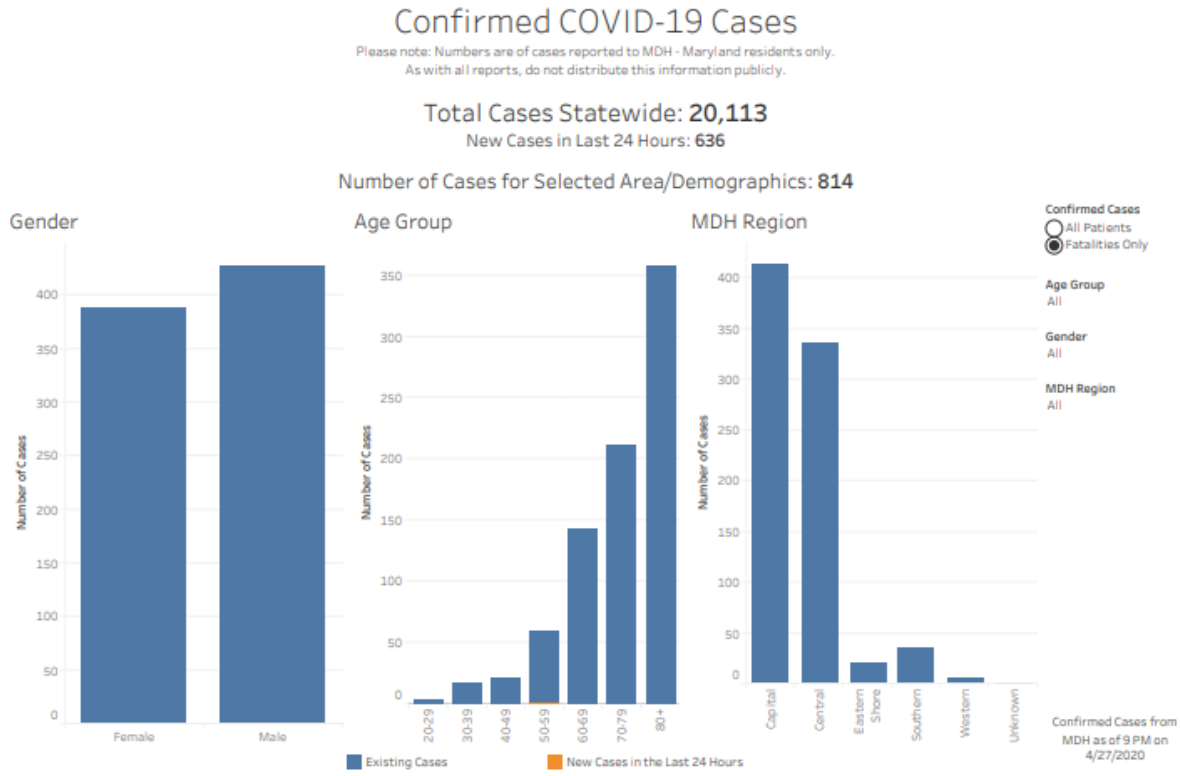
- **Maryland Case Map**



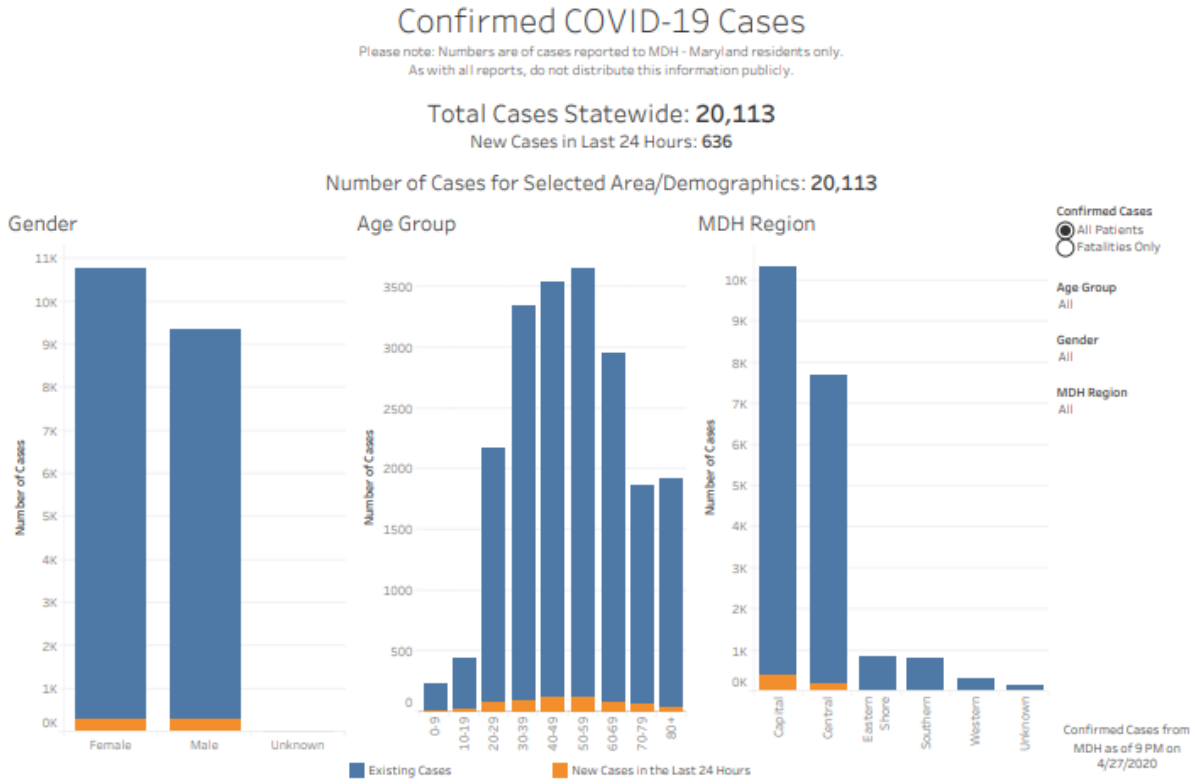
- **Southern Maryland Case Map**



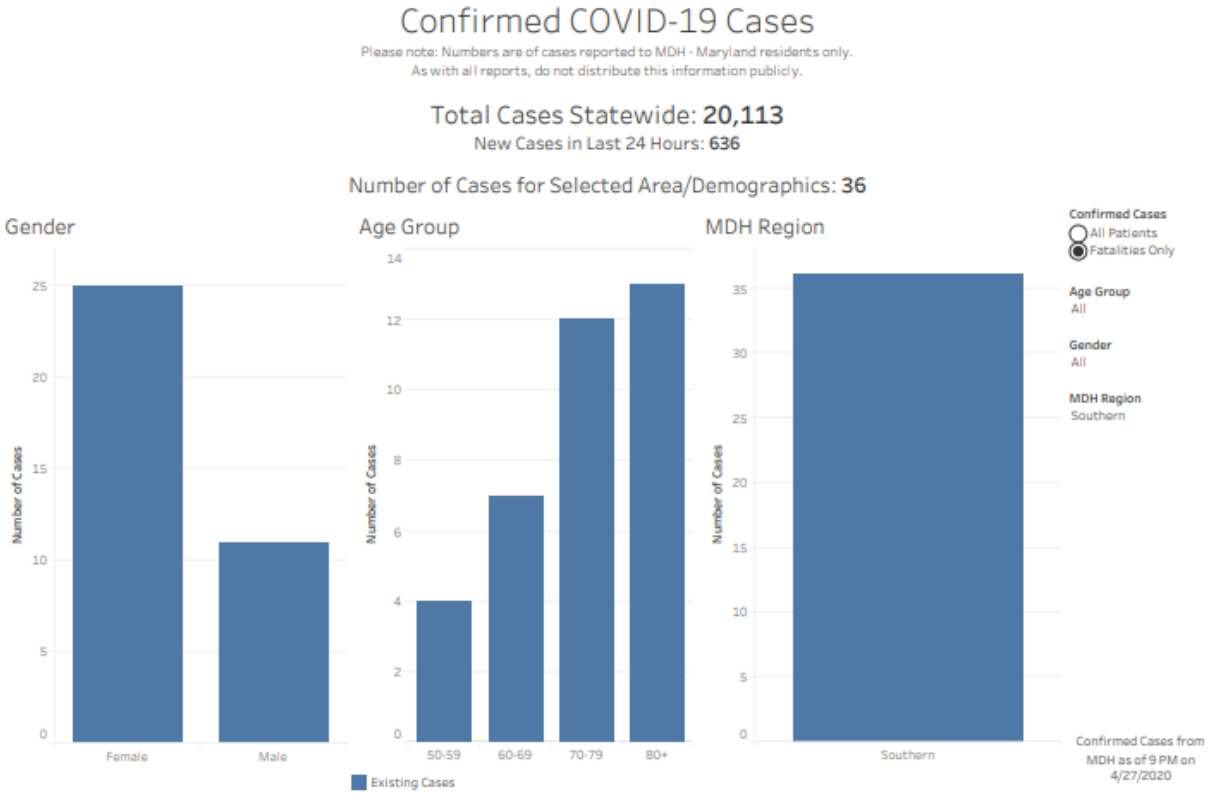
- **Gender, Age, Region (Fatalities)**



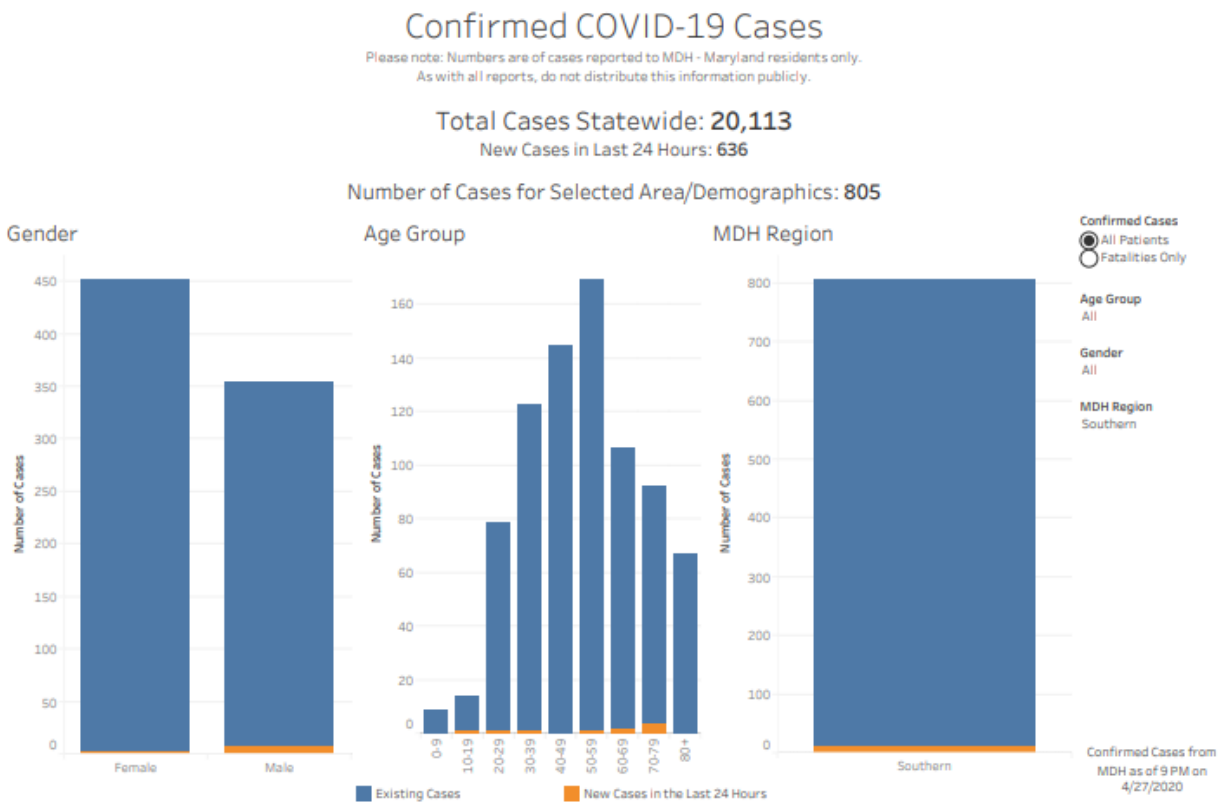
- **Gender, Age, Region (All)**



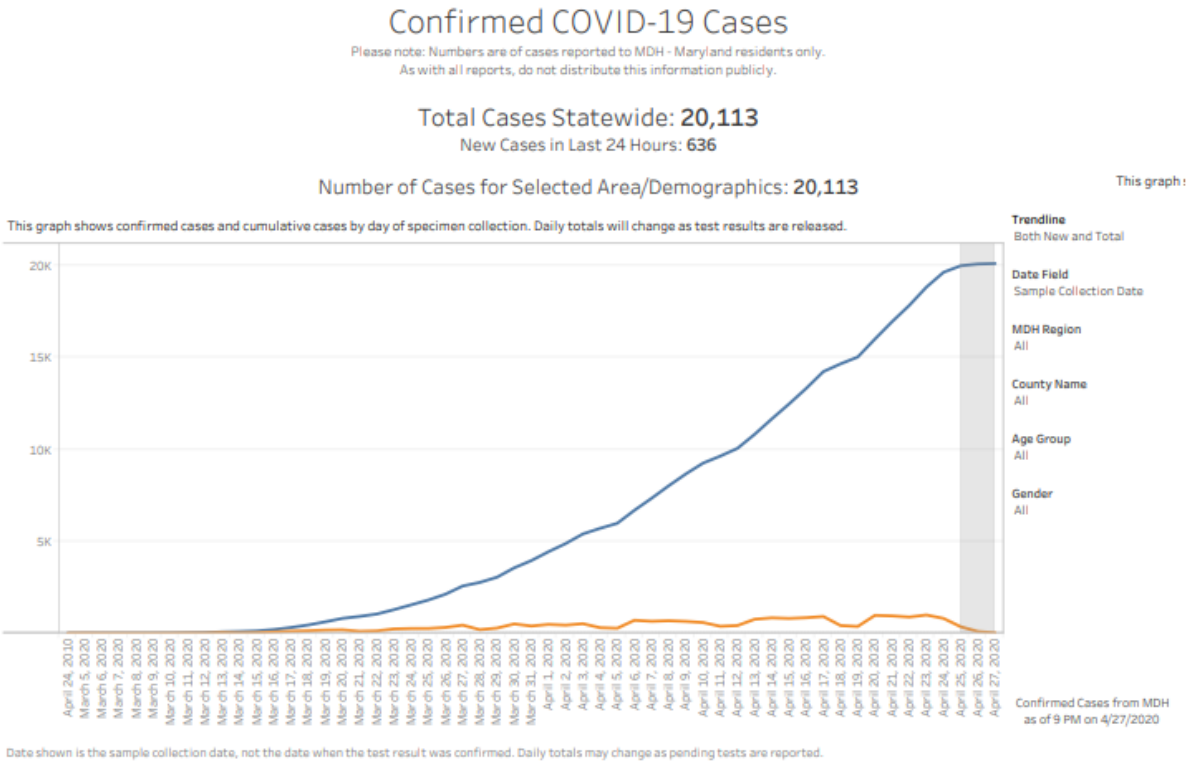
- **Southern Maryland Gender, Age, Region (Fatalities)**



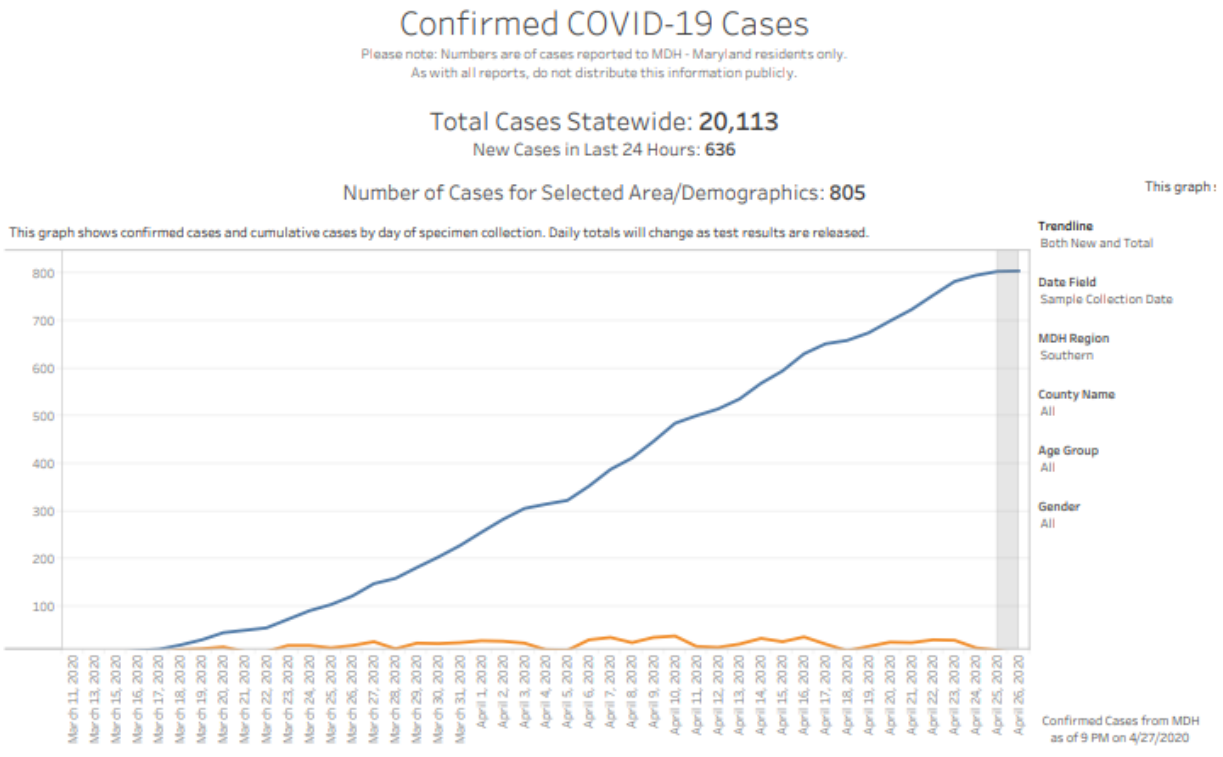
Southern Maryland Gender, Age, Region (All)



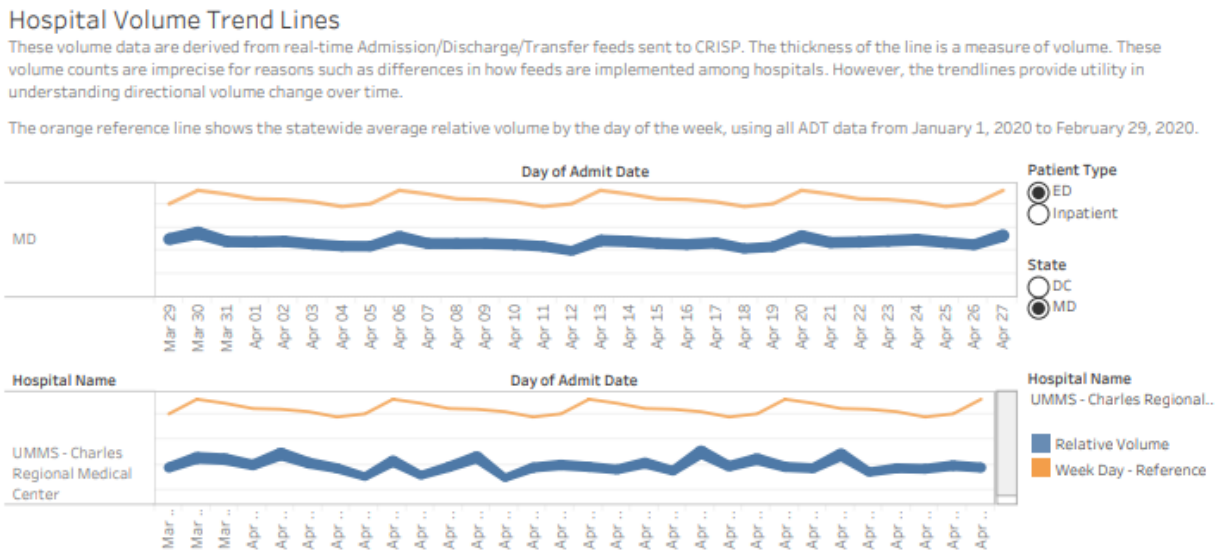
- **Statewide Cases by Date**



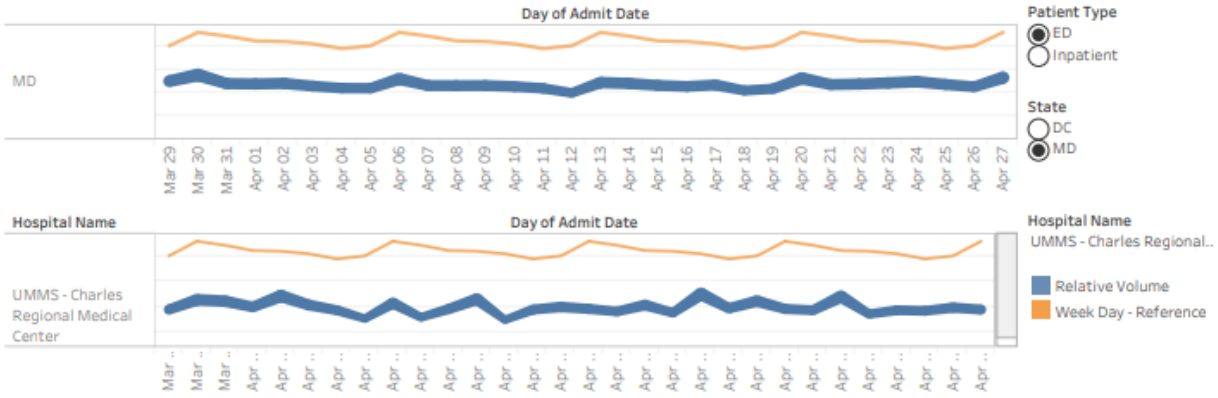
- **Southern Maryland Cases by Date**



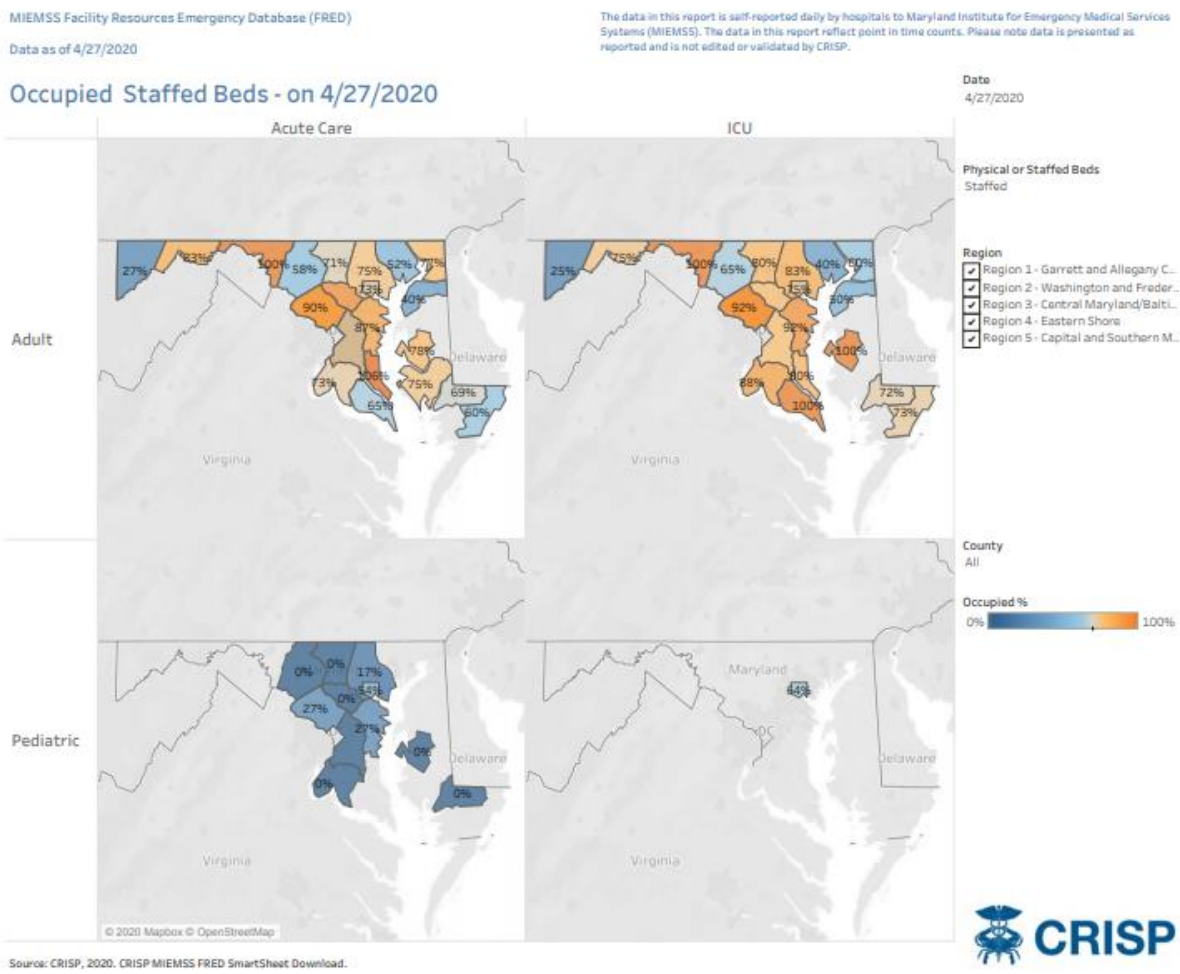
- **Hospital Volume Trends ED**



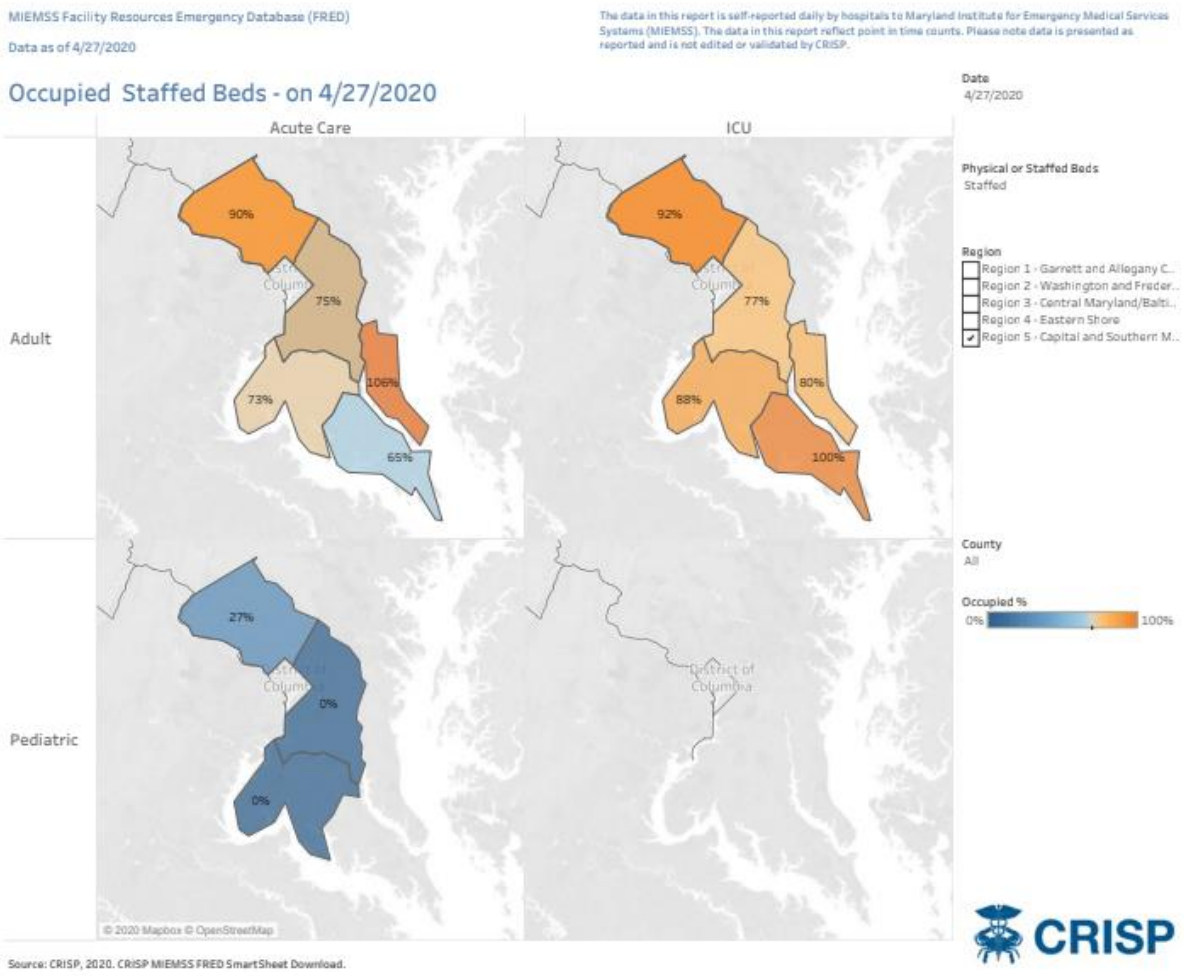
- **Hospital Volume Trends Inpatient**



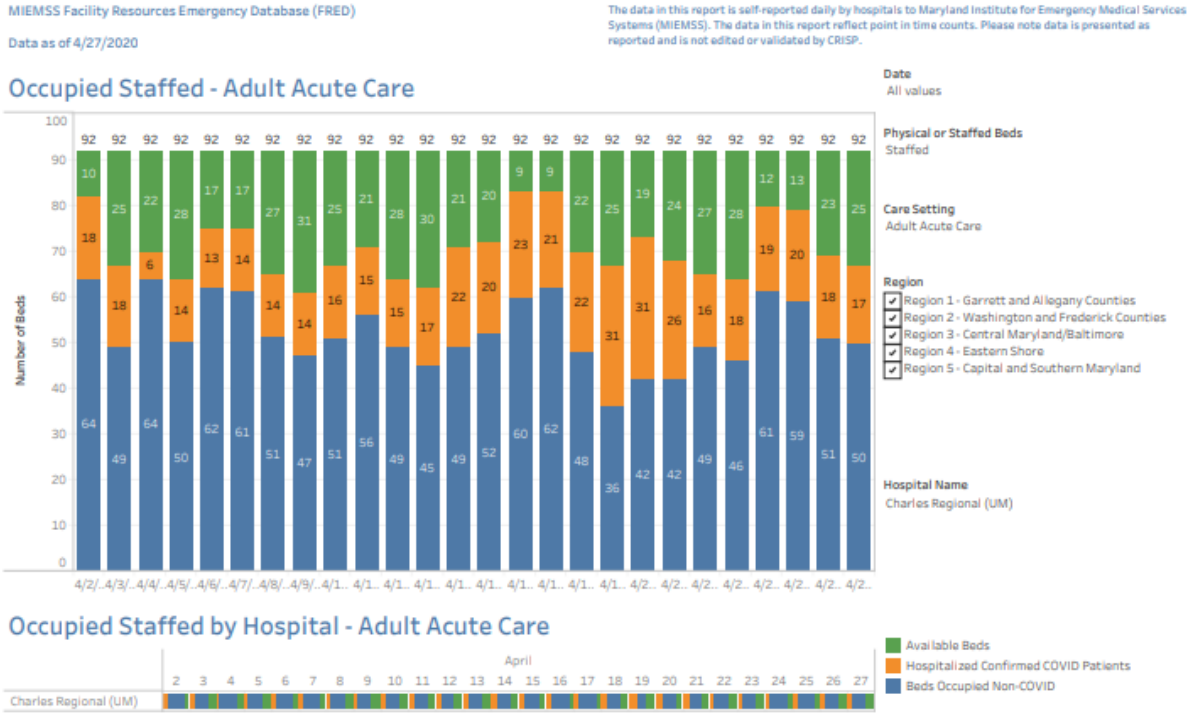
- **Maryland Occupied Staffed Beds**



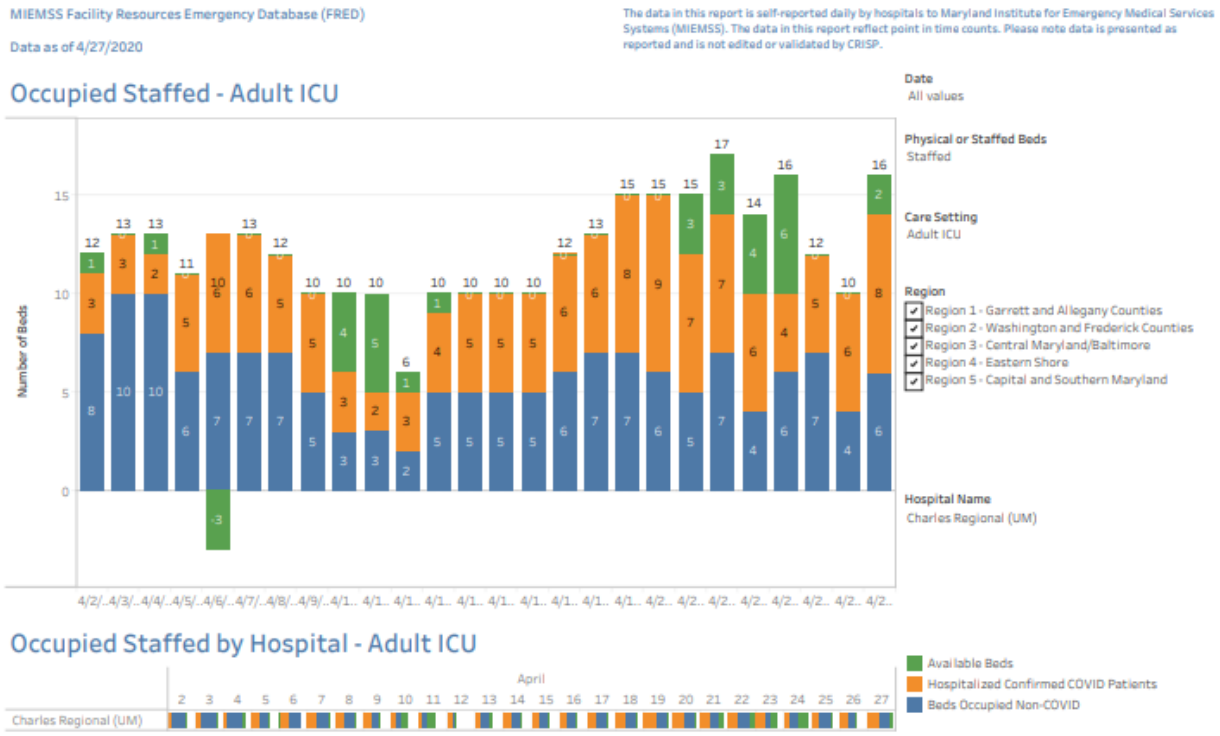
- **Regional Occupied Staffed Beds**



- **Maryland Occupied Staff Acute Care**



- **Maryland Occupied Staff ICU**



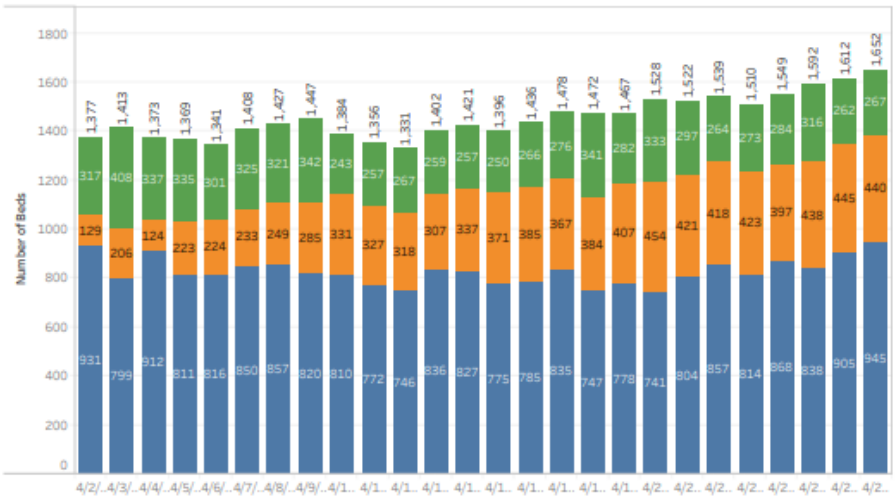
- **Regional Occupied Staffed Beds Acute Care**

MIEMSS Facility Resources Emergency Database (FRED)

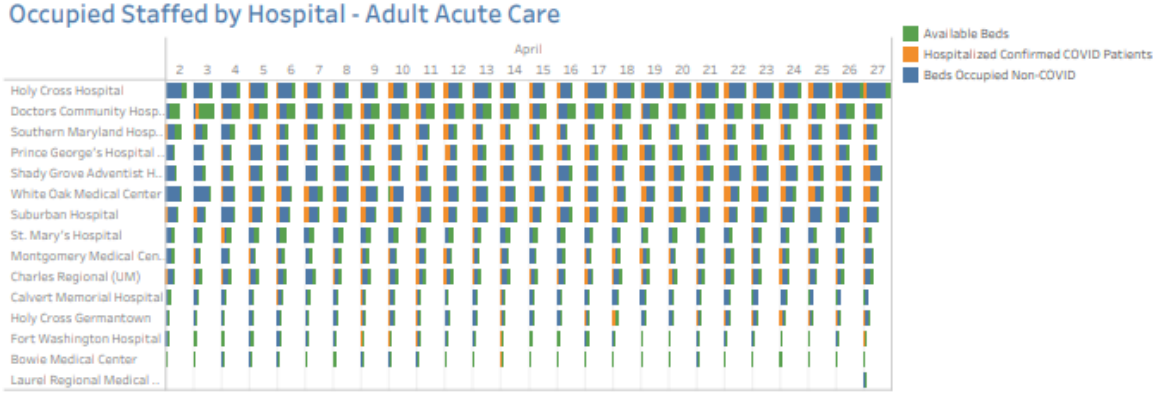
Data as of 4/27/2020

The data in this report is self-reported daily by hospitals to Maryland Institute for Emergency Medical Services Systems (MIEMSS). The data in this report reflect point in time counts. Please note data is presented as reported and is not edited or validated by CRISP.

Occupied Staffed - Adult Acute Care



Occupied Staffed by Hospital - Adult Acute Care



Source: CRISP, 2020. CRISP MIEMSS FRED SmartSheet Download.

CRISP

- **Regional Occupied Staffed Beds ICU**

MIEMSS Facility Resources Emergency Database (FRED)

Data as of 4/27/2020

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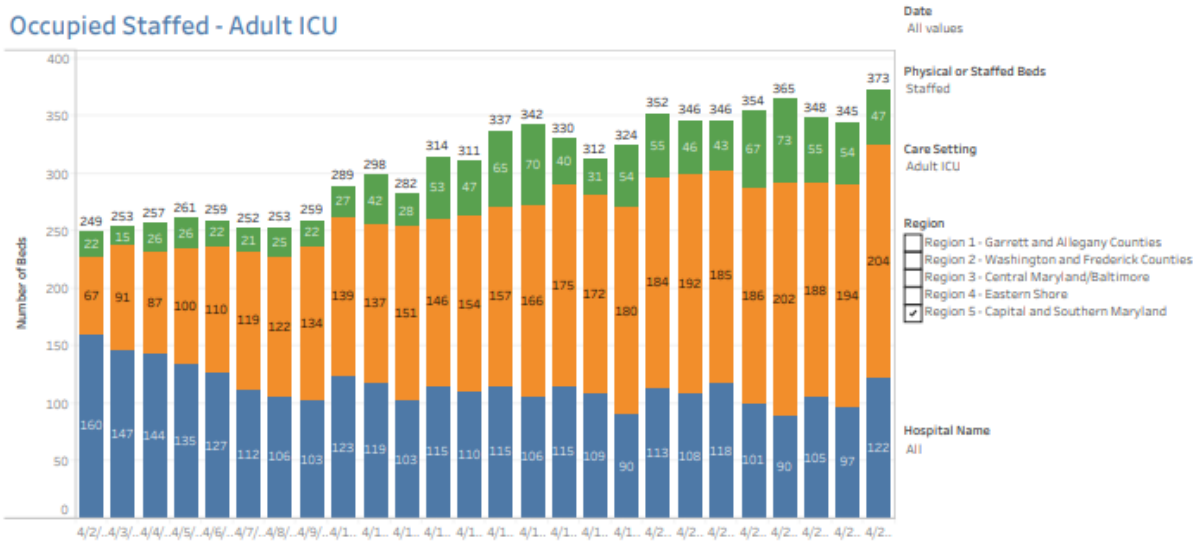
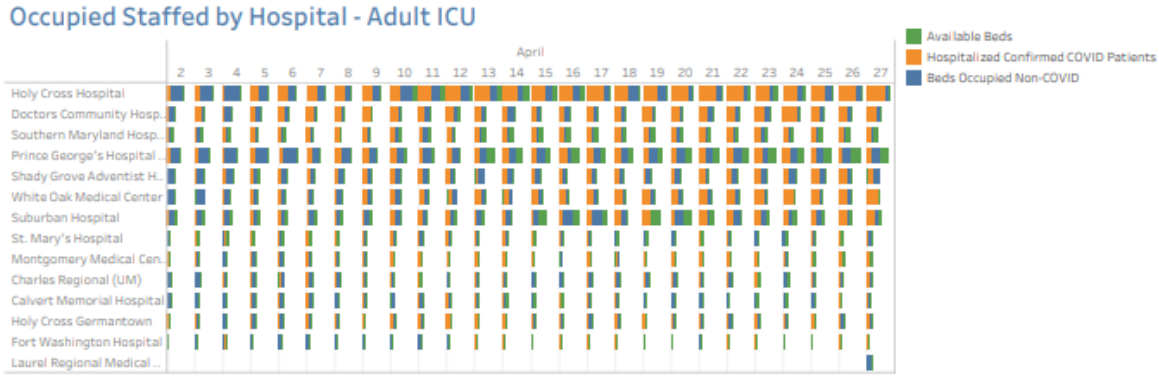
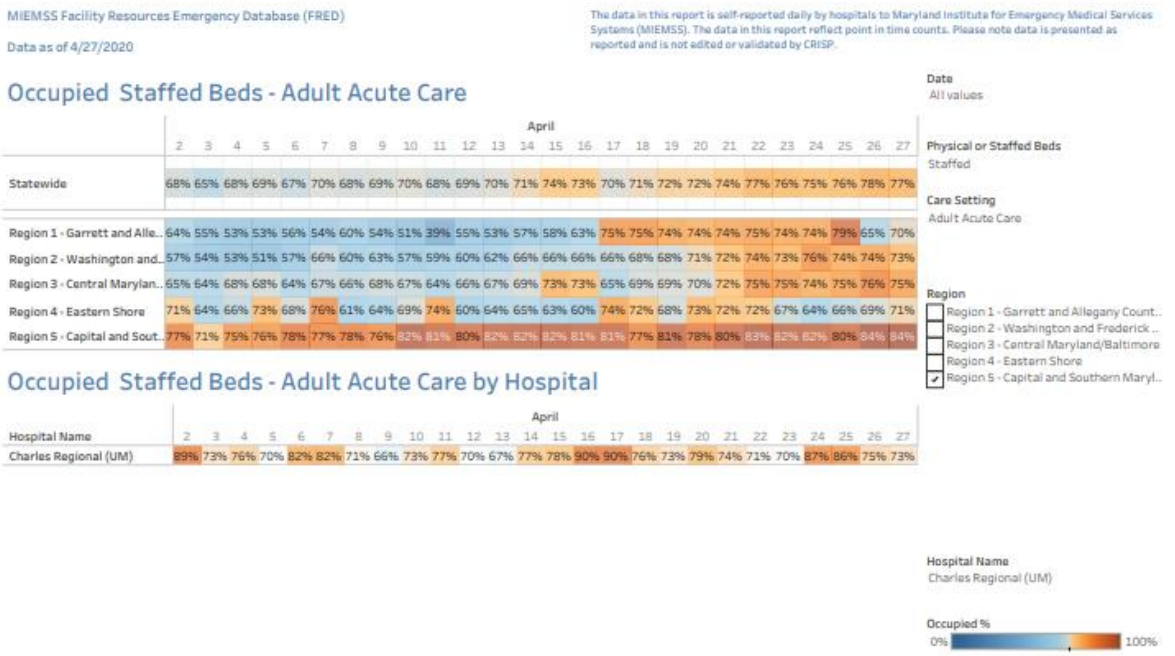


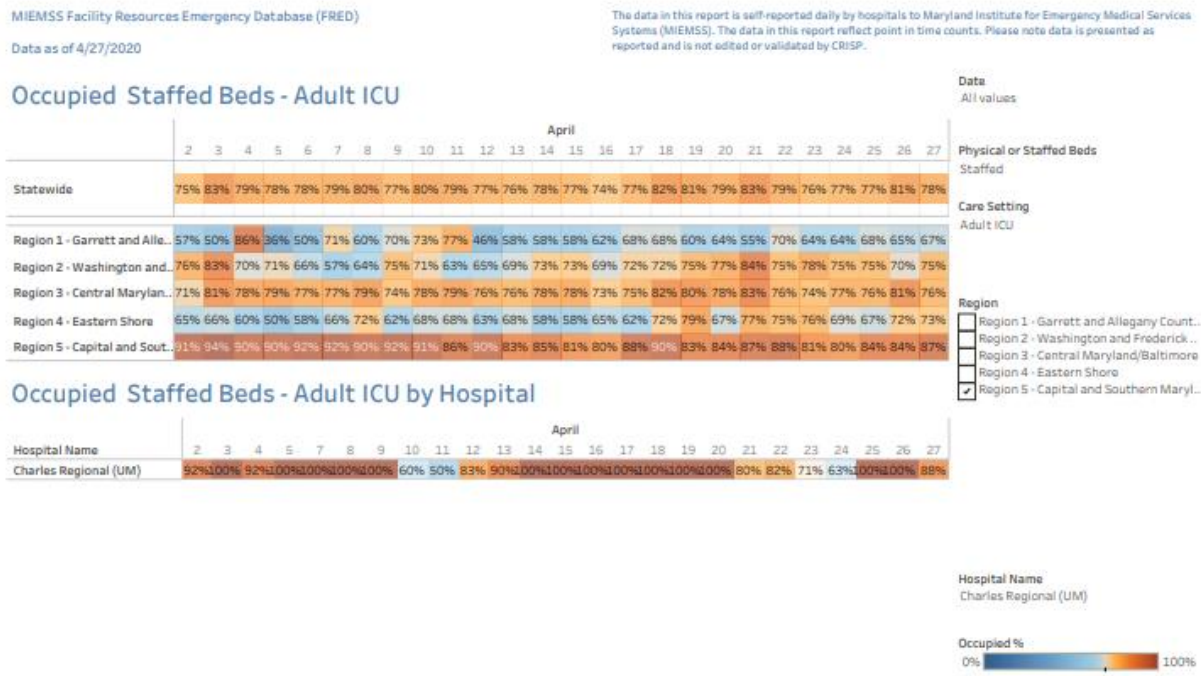


Source: CRISP, 2020. CRISP MIEMSS FRED SmartSheet Download.

- **Maryland Occupied Staffed Beds Acute Care**



- **Maryland Occupied Staffed Beds ICU**



- **Statewide Capacity Overview**

MIEMSS Facility Resources Emergency Database (FRED)

Data as of 4/27/2020

The data in this report is self-reported daily by hospitals to Maryland Institute for Emergency Medical Services Systems (MIEMSS). The data in this report reflect point in time counts. Please note data is presented as reported and is not edited or validated by CRISP.

Statewide Capacity Overview

Available Acute Care and ICU Staffed Beds (Adult):	Ventilators Available:	Patients in the Emergency Department:
1,744	1,424	716
(1744/7573) = 23%	(1424/2098) = 68%	(716/2181) = 33%
Change from day before: +139 beds	Change from day before: -14 vents	Change from day before: +88 patients

Hospitalized Confirmed COVID-19 Patients

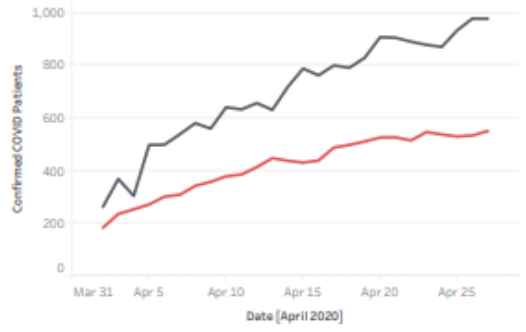
Staffed Acute Care Beds Occupied by COVID-19 Patients:	Staffed ICU Beds Occupied by COVID-19 Patients:
977	551
(977/6109) = 16%	(551/1464) = 38%
Change from day before: -1 patients	Change from day before: +17 patients

Bed Summary

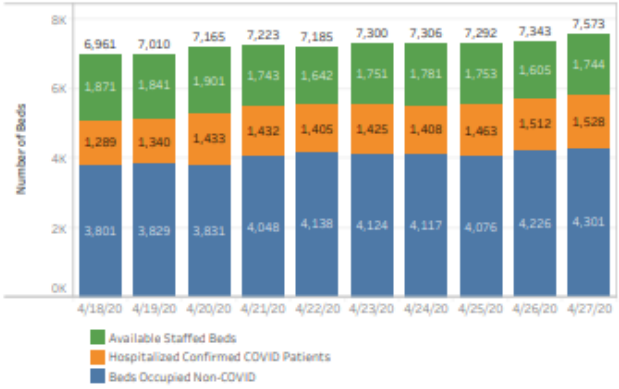
	Physical Beds	Staffed Beds	Occupied Beds	% Occupied Physical Bed	% Occupied Staffed Bed
Adult Acute Care	7,532	6,109	4,681	62%	77%
Adult ICU	1,802	1,464	1,148	64%	78%
Pediatric Acute Care	318	233	97	31%	42%
Pediatric ICU	45	45	29	64%	64%

Hospitalized COVID-19 Patients

Number of COVID-19 Positive Patients in Acute Care and ICU



Statewide Occupied Staffed - Adult Acute Care and ICU - Lasts 10 Days



Source: CRISP, 2020. CRISP MIEMSS FRED SmartSheet Download.

CRISP

- **NCR Case Projections**

	Actual Confirmed Cases On:			Projected Cases For:								
	4/25	4/26	4/27	4/28	4/29	4/30	5/1	5/2	5/3	5/4	5/11	5/18
Washington DC	3,699	3,841	3,892	3,998	4,100	4,197	4,289	4,376	4,458	4,535	4,947	5,177
Charles Co., MD	483	504	529	536	543	550	556	562	568	573	603	624
Frederick Co., MD	830	848	865	880	894	907	920	932	944	955	1,019	1,066
Montgomery Co., MD	3,483	3,645	3,843	3,949	4,050	4,145	4,236	4,321	4,400	4,474	4,859	5,071
Prince George's Co., MD	5,004	5,170	5,451	5,614	5,767	5,911	6,046	6,172	6,288	6,396	6,966	7,320
Arlington Co., VA	764	790	836	856	875	893	910	927	942	957	1,037	1,091
Fairfax Co., VA	2,797	2,941	3,055	3,170	3,282	3,391	3,495	3,596	3,691	3,783	4,292	4,611
Loudoun Co., VA	564	596	628	638	648	657	666	675	683	691	739	774
Prince William Co., VA	1,382	1,468	1,568	1,634	1,700	1,768	1,835	1,903	1,970	2,037	2,487	2,868
Alexandria, VA	575	591	627	641	655	668	680	691	702	713	773	817
NCR	**19,581**	**20,394**	**21,294**	**21,916**	**22,514**	**23,086**	**23,633**	**24,153**	**24,647**	**25,114**	**27,724**	**29,419**

- **NCR Medical Demand Projections**

Medical Demand Projections:

	Actual Confirmed Cases On:			Projected Cases (Hospitalized) [ICU] {Ventilator} For:		
	4/25	4/26	4/27	5/4	5/11	5/18
Washington DC	3,699	3,841	3,892	4,535 (907) [218] {109}	4,947 (989) [237] {119}	5,177 (1,035) [248] {124}
Charles Co., MD	483	504	529	573 (115) [27] {14}	603 (121) [29] {14}	624 (125) [30] {15}
Frederick Co., MD	830	848	865	955 (191) [46] {23}	1,019 (204) [49] {24}	1,066 (213) [51] {26}
Montgomery Co., MD	3,483	3,645	3,843	4,474 (895) [215] {107}	4,859 (972) [233] {117}	5,071 (1,014) [243] {122}
Prince George's Co., MD	5,004	5,170	5,451	6,396 (1,279) [307] {154}	6,966 (1,393) [334] {167}	7,320 (1,464) [351] {176}
Arlington Co., VA	764	790	836	957 (191) [46] {23}	1,037 (207) [50] {25}	1,091 (218) [52] {26}
Fairfax Co., VA	2,797	2,941	3,055	3,783 (757) [182] {91}	4,292 (858) [206] {103}	4,611 (922) [221] {111}
Loudoun Co., VA	564	596	628	691 (138) [33] {17}	739 (148) [35] {18}	774 (155) [37] {19}
Prince William Co., VA	1,382	1,468	1,568	2,037 (407) [98] {49}	2,487 (497) [119] {60}	2,868 (574) [138] {69}
Alexandria, VA	575	591	627	713 (143) [34] {17}	773 (155) [37] {19}	817 (163) [39] {20}
NCR	**19,581**	**20,394**	**21,294**	**22,514 (4,503) [1,081] {540}**	**23,633 (4,727) [1,134] {567}**	**24,647 (4,929) [1,183] {592}**

MISCELLANEOUS

Respectfully submitted by Charles County PHEP

UNIVERSITY of MARYLAND
CHARLES REGIONAL
MEDICAL CENTER

HOSPITAL BRIEF 4-28-2020

- The trigger point for starting up the tent operations outside of the hospital has not yet been activated. Activation will be determined by both staffing levels and patient census presenting to the ED.
- Hospital Bed Capacity = 166. Census = 86
- Hospital ICU Census = 11
- Hospital ICU in now a dedicated COVID-19 Unit, and 3 East is for ICU overflow.
- Isolation Room Capacity = 12
- Isolation Rooms Occupied = 7
- Confirmed positive cases of COVID-19 patient admissions = 25
    - Of the total 25 COVID-19 positive patients, seven (7) of the patients are located in the ICU. Eighteen (18) are located in the 3 South dedicated COVID-19 unit
- PUI admissions = 3
- Ventilated COVID-19 positive patients = 6
- Ventilators not in use = 12
- COVID-19 related deaths = 26 (Total to Date)
- CRMC has implemented a policy that requires ALL staff, visitors (which would be very limited), and contractors of any kind to were a mask while in the hospital at all times.
- The 3 South patient unit at CRMC is dedicated to COVID-19 positive patients only.
- On 4/27/2020 EMS transported to CRMC 1 PUI, and 1 know COVID-19 positive patient.

HOMELAND SECURITY INVESTIGATIONS

S.T.O.P. COVID-19 FRAUD

STRATEGIC TARGETED OUTREACH PROGRAM

Recognize · Protect · Report | COVID-19 Crime

ONLINE SHOPPING RED FLAGS FOR MARKETPLACE AND WEBSITES

- DO NOT CLICK ON UNSOLICITED EMAILS OR TEXTS.
- ENSURE A SECURE BROWSER CONNECTION: HTTPS ONLY.
- VERIFY WEBSITE TRUST SEALS BEFORE PLACING AN ORDER.
- OFFICIAL U.S. GOVERNMENT WEBSITES END IN .GOV
- INSPECT THE URL OF THE WEBSITE AND VERIFY THE DESTINATION.

FINANCIAL RED FLAGS RELATED TO COVID-19

- BEWARE OF E-MAILS, TEXT MESSAGES OR CALLS OFFERING GOODS, SERVICES, LOANS, OR DEBT RELIEF.
- BEWARE OF REQUESTS FOR UNUSUAL PAYMENT METHODS, SUCH AS CRYPTOCURRENCY, PREPAID DEBIT CARDS, GIFT CARDS, MONEY SERVICE BUSINESSES (MSB) TRANSFERS, OR WIRE TRANSFERS.
- GOVERNMENT AGENCIES DO NOT CALL, TEXT OR E-MAIL: CHECK YOUR MAIL, DO NOT FOLLOW LINKS ON SOCIAL MEDIA, AND UTILIZE GOVERNMENT WEBSITES DIRECTLY.
- GOVERNMENT AGENCIES WILL NOT CALL OR E-MAIL ABOUT ECONOMIC IMPACT PAYMENTS AND WILL NOT REFER TO IT AS "STIMULUS" – DO NOT OPEN SUCH E-MAILS OR CLICK ON ATTACHMENTS.

PROHIBITED PHARMACEUTICALS AND MEDICAL DEVICES RED FLAGS

- BEWARE OF WEBSITES OR INDIVIDUALS SELLING PRODUCTS ALLEGING THEY CAN PREVENT, TREAT, DIAGNOSE OR CURE COVID-19.
- CURRENTLY, NO COVID-19 TEST KITS ARE AUTHORIZED FOR PRIVATE SALE TO INDIVIDUALS. AUTHORIZED COVID-19 TEST KITS ARE ONLY BEING DISTRIBUTED TO MEDICAL PROFESSIONALS.
- BEWARE OF PHARMACEUTICAL PRODUCT INFORMATION WRITTEN IN A FOREIGN LANGUAGE OR WITH MISSPELLINGS.
- DON'T BUY PRESCRIPTION PHARMACEUTICALS FROM THIRD PARTY MARKETPLACES OR SOCIAL MEDIA PLATFORMS.

DID YOU KNOW?

Thousands of COVID-19 related web domains have been identified as fraudulent.

Government agencies will not contact anyone to verify a payment was made or to expedite payments.

Consumers interested in finding out if a COVID-19 related product or website is "real or fake," can #AskGTI on Twitter @IPRCenter

ONLINE SHOPPING TIPS

- IF A DEAL SEEMS TOO GOOD TO BE TRUE, IT PROBABLY IS.
- BE AWARE OF PRICE GOUGING.
- VERIFY PURCHASES ARE FROM LEGITIMATE, TRUSTED SOURCES.
- REPORT COVID-19 FRAUD TO COVID19FRAUD@DHS.GOV.

FINANCIAL TIP

$ REACH OUT TO YOUR ELDERLY FRIENDS AND FAMILY MEMBERS AND WARN THEM ABOUT THESE SCAMS.

PROHIBITED ITEMS TIP

- ENSURE YOUR ONLINE PHARMACY IS CERTIFIED BY CHECKING: WWW.SAFEMEDSONLINE.ORG.

FOR MORE INFORMATION PLEASE VISIT
WWW.ICE.GOV

REPORT COVID-19 FRAUD TO
COVID19FRAUD@DHS.GOV

U.S. Immigration and Customs Enforcement

REPORT FRAUD

Intelligence Briefing 4-28-2020
COVID Charles County
Week 7

Updated Infection Numbers: As of 0731 hrs.

Total worldwide: 3,060,152 +67,182 since the 4-27-20 brief.

Worldwide increase of confirmed cases by 24-hour period over the last 10 days

4-17 to 19	4-19/20	4-20/21	4-21/22	4-22/23	4-23/24	4-24/25	4-25/26	4-26/27	4-27/28
164,125	74,806	80,717	93,568	54,956	87,299	91,793	88,301	164,198	67,182

Total fatalities worldwide: 212,056 +4,538 since the 4-27-20 brief
Analysis note: The wild swings in worldwide confirmed case numbers and fatality numbers continue to illustrate the lack of consistent reporting channels. These number should not solely be used to gauge the scope and magnitude of the current situation.

Total confirmed cases in the US: 988,469 +20,884 since the 4-27-20 brief

US increase of confirmed cases by 24-hours period over the last 10 days

4-17 to 19	4-19/20	4-20/21	4-21/22	4-22/23	4-23/24	4-24/25	4-25/26	4-26/27	4-27/28
63,794	24,499	29,134	37,328	16,376	27,844	34,896	33,885	28,336	20,884

Analysis note: The US case number increases have remained relatively unchanged for the last 10 days. However, this is likely not an indication of "flattening the curve." As the data is reviewed, keep in mind we are reporting an additional 28 to 33,000 NEW cases each day. We have yet to see any dramatic decreases in diagnoses new cases.

Total fatalities in US: 56,253 +1315 since 4-27-2020

Maryland Numbers: As of 1000 hrs. via https://coronavirus.maryland.gov/

Total confirmed cases in State in of MD: 20,113 +626 since the 4-27-20 brief
Total tested in the State of MD: 87,672 +2,183 over 4-27-20
Percent of those test that test positive: 22.9%
Analysis note: Maryland percentage of positive test is now on part with PA, MA, IL, MI, CA and LA.
Total Fatalities in State of MD: 929 +71 change since the 4-27-20 brief
Number of probable deaths: 87
Total Ever Hospitalized: 4268 Increase of 167 from 4-27-2020
Persons currently hospitalized: 1528 +15 since 4-27-2020

First Responder Numbers in Charles County: NUMBERS AS OF 4-27-2020 @1230

51 Quarantine: means exposed and they can't come to work. +13 since last report
10 Self Isolation: means sick or tested positive +3 change since last reported

Weather:

Wed 73-60 cloudy, Thursday 66-51 rain, Friday 64-49 rain

Local:

No stores were visited this am.
Analysis note: More meat and poultry plants are closing. The cascading effects will continue to be felt for several weeks until adjustments are made to the supply chain or the factories re-open. Supply chain experts are indicating some stabilization is possible in the come days.

> "In some regions of the U.S., capacity to store poultry is not available or is limited. Processors are adjusting to meet market demands and reduce the oversupply of poultry; nearly 2 million chickens will still need to be destroyed instead of processed for consumption. Similar action is being considered for pig and beef cattle as the surplus becomes too large for processing plants and too expensive for livestock farmers to maintain.
>
> National Business Emergency Operations Center (NBEOC) Report, April 26
>
> - Due to pork processing closures, approximately 30% of U.S. pork capacity is off-line; hog prices are low leaving farmers struggling while the demand for pork continues to be elevated. ESF-14 Update, April 27
> - Tyson Foods released at statement indicating that "millions of pounds of meat" will disappear from the supply chain as the COVID-19 pandemic pushes food processing plants to close. Tyson Foods "(NCR COVID 19 #104)

18th anniversary of the LaPlata tornado
Nursing home and assistant living patients and staff make-up over 38% of the total number of positive cases reported in Charles County.

Maryland Update:

New guidance from Gov. on releasing nursing home data
Additional testing centers are being planned for Calvert and Washington counties

Region:

Over 21,294 cases in the NCR as of 0500 4-28-2020,
38,446 cases in Maryland, DC, and Virginia as of 1100 on 4-28-2020.
Fairfax County Fire reports 12 members have test positive

VA experience hotspot of infections on eastern shore poultry plants
A total of 122 inmates at the DC have tested positive for COVID. Currently, 54 are positive.
DC announces a 17-year old has passed from COVID

National:

Johns Hopkins release paper on phased reopening guidance (see attached)
DHS HIS releases bulletin on COVID Fraud (see attached)
DHS Science and Tech releases Master Question List for COVID 19 (see attached)
Fed says social distancing through the summer is possible
CDC listed 6 more possible pre-indication symptoms of COVID
DHS releases DHS - National Biosurveillance Integration Center titled Biosurveillance Event Report
DHS bulletin on violent threat increase due to COVID

Local critical infrastructure:
No outages or disruptions are reported or are appear to be likely as of today.

Predications/ Analysis:

- The change at the Gov Office re: to releasing nursing home case counts and fatalities this week is likely to create more questions than answers. In addition, it is likely to create a public uproar and increase anger.
- The length and scope of this situation have exposed large cracks in food supply chains, medical supply chains, fossil fuel industries, and other major portions of everyday life. Local leaders should begin a gap analysis and start the after-action process so they can create and modernize resiliency plans, local stockpiles, and coming up with other forward leaning solutions so when the next disaster occurs they are more self-sufficient and better prepared.
- While we have concentrated our efforts on peer support and helping our responders, a proactive approach to including families of first responders is quickly emerging. The command structure should consider a Family Support liaison or expand the Peer support branch.
- The increased discussions about opening the economy, added with the on-going conversation about health care in-equity and racial disproportionality of infections is causing increased polarization, angry, and hate. Social media is rampant with spirited discussions. It is only a matter of time before we begin to see emotions spill over into the public. The small protest we have witnessed thus far could pale in comparison to what is to come. LE should be reviewing plans, manpower, and boosting intelligence gathering to better prepare for potential situations.
- Protests over the continuing of stay at home orders, and business closures are becoming more prevalent and boisterous. Law enforcement should begin to make plans on how to track these groups and respond to events.

- First responder staffing and exposure issues will likely continue to increase. Priority messaging about PPE, manpower reduction strategies, and outside the box thinking should be continued and solutions expedited.
- FOIA and PIA requests for detailed records on infections in assisted living and nursing homes will increase as investigative reporting on this issue increases.
- Grocery stores could become a hotbed of fear and anxiety due to limiting numbers of patrons, assigning shopping days, mask requirements, and now limited meat supplies.
- As critical case in Charles County remain low (outside of nursing homes and assisted living homes), needs in other local jurisdictions are growing. Resources should be prioritized and plans should be made to share/deploy critical resources, personnel, and/or facility space to meet the needs regionally.
- The longer this crisis continues the more likely we are to experience critical events that may not be related to the COVID crisis (incidents within the incident). Those in leadership positions need to be prepared to step into duel leadership/managerial roles at a moment's notice. This requires taking care of yourself and staying up on the latest tactics, strategies and knowledge.
- Planning for crisis recovery starts as soon as the crisis begins. Monday marks the 8th weeks of this crisis, 6th week of schools being closed. Partners and stakeholders should begin planning for what the return to the "new normal" looks like in their organization. Sharing of these plans will help each organization build more comprehensive processes.
- Over the weekend the US will likely eclipse 500,000 cases and 15,000 deaths. Md numbers will likely pass 5000 and 150 fatalities by Friday. These numbers will cause increased pressure to ratchet up rhetoric re: "stay at home orders" and could result in further sanctions and restrictions.
- As the confirmed case numbers continue to rapidly ascend the likelihood of jurisdictions issuing "travel bans" increases. Law enforcement should begin researching the constitutionality of these potential edicts and have plans in place for implantation and begin to develop a public communication strategy. Standardizing local "travel authorization documentation" should be explored by the lead jurisdiction having authority.
- Due to diverted attention, the international and domestic terrorism threat is rapidly increasing. Responders should be reminded to remain vigilant and of the DHS guidelines for spotting suspicion activities and terrorism indicators.
- As we enter into the reported peak of this situation communication, along with sharing of individual branch capability and capacity is more important now than ever. "We don't know what we are going to need to know until we need to know it."
- First responder organizations should begin surveying members for pre-existing conditions and other complicating medical conditions. Responders found to have pre-existing conditions should be placed in limited citizen contact roles.
- A review of the 179 countries that report COVID-19 cases, only two (South Korea and China) have somewhat "flattened the curve" of NEW infections. Both showed flattening roughly 30 to 45 days after the initial spikes. The initial spike in the US began around 3-18-2020.

- Reduced stability in the supply chain along with increased fear and anxiety can be expected with today's "stay at home order."
- After 3 weeks of social distancing and schools being closed non-english speaking communities within Charles County are likely feeling further isolated due to a lack of language specific communications. Direct and increased messaging to Spanish speakers is likely necessary.
- As mass transit continues to shrink in availability, plans should be made to ensure those who rely on it for essential supplies and trips have delivery resources.
- LE and EMS screening protocols should include questions about recent travel to NY, NJ, CT, and FL.
- Immediate attention is needed to direct companies and organization on the proper processes and appropriate contact to use (Donation Manager at the EOC) to donate PPE and cleaning materials to essential personnel
- The next 7 days will likely see a stabilization of a majority of the grocery supply chain. However, the potential for disruption moving forward continues to remain high.
- FOIA and PIA request from media and citizens groups will likely begin to increase the longer this event lasts. "New normal" processes need to be established as soon as possible.
- Lack of child care options will likely add to family stress. Additional resources, activity and options are needed.
- JIC staff should substantially amplify community resource communications
- As we enter the 2nd week of social distancing stress, anxiety, and fear will likely increase. Continuous reminders of patience and focusing on kindness will become increasingly important.
- Many stores restock overnight. Seniors and the vulnerable populations should be strongly encouraged to shop during the early morning hours when supplies are likely to be at their highest.
- As testing increased the confirmed cases in MD will increase. This will likely cause additional life restrictions.
- Supply chain issues will continue and likely increase as further life interruptions and travel restrictions are ordered. The possibility of violence increases as stress increases, especially at grocery stores.
- Commanders of responders and essential staff should have robust plans for potential quarantines and updated continuity of operations including plans for diminished manpower. Further, responder organizations should begin reviewing existing integration plans with the National Guard.
- Obtaining medical supplies and PPE will continue to be an issue for the foreseeable future. All services should use the command ordering process so orders can be tracked.
- The community of Charles County is showing increased signs of pulling together and assisting one another. The JIC should continue to encourage civility and increase positive press of good news stories occurring throughout our community.

“The most effective leaders in crises ensure that someone else is managing the present well, while focusing their attention on leading beyond the crisis toward a more promising future”

Respectfully submitted by Jason Stoddard

Law Enforcement Branch Briefing

COVID-19 Charles County IMT

April 28th, 2020

Buildings:

Charles County Sheriff's Office: District 1 Lobby is closed for scheduled remolding. The District 1 clerks have moved the CCDC Annex building in the same parking area and that lobby is open as normal
Maryland State Police: Restricted to public
Maryland Transportation Authority: Closed to Public
La Plata Police Department: Closed to the public
Natural Resources Police: Building Closed

Operations:

Charles County Sheriff's Office: Operations have gone to emergency schedule in accordance with a CCSO level 3 All-Hazards activation. Patrol operational periods are 12 hours from 0700-1900 and 1900-0700. All other operations sections running with normal services being provided from modified locations. Services provided have not been reduced or augmented as of now.
Maryland State Police: Operations as normal
Maryland Transportation Authority: Operations as normal
La Plata Police Department: Operations as normal; Doing screening in and screening out
Natural Resources Police: Operations as normal

Internal COVID-19:

Charles County Sheriff's Office:

- 7 sworn officer quarantined
- 1 officers isolated
- 25 correctional officer quarantined
- 1 correctional officers isolated (exposed outside of CCDC, has been out of work since October)
- 0 civilian quarantined
- 1 civilians isolated

Maryland State Police: None local
Maryland Transportation Authority: None local
La Plata Police Department: None
Natural Resources Police: None

Crime Stats:

Crime continues to be down in all aspects.

TRU:

Charles County Sheriff's Office: Open and working; triage site for COVID-19 calls for service.
Maryland State Police: Open and working
Maryland Transportation Authority: Open and working
La Plata Police Department: Open and working
Natural Resources Police: Open and working

Call Restrictions:

Charles County Sheriff's Office: None
Maryland State Police: None
Maryland Transportation Authority: None
La Plata Police Department: None
Natural Resources Police: None

Governor's Order Violations since Emergency Orders Issued:

Violation sustained calls for service: 46
Warnings: 43
Charges later: 2
On-scene arrest: 1

Health Department Order Violations (Between 04/16/20 and 04/18/20):

Calls for Service

Founded: 5
Unfounded: 10

Dispositions

Warnings: 5 issued

Items of Note: (Not for redistribution)

- Distribution of relief checks to start; postal inspector is worried about fraud and theft.

- Attacks against 5G towers, based on online conspiracy of a connection between China, the technology, and the spread of COVID-19.

*CHANGES IN RED

From: John Filer, EMS Chief
Slightly edited by: DESPlanning

From: Kenneth Miller <MillerK@charlescountymd.gov>
Sent: Tuesday, April 28, 2020 10:38 AM
To: All Personnel
Subject: Paxton Homecoming Detail (Procession)

Greetings,

On behalf of Charles County Department of Emergency Services, we are requesting your departments support and assistance with returning our brother home to his family in St. Mary's County, MD. During the procession we will ask for any departments wishing to pay respects, assist us with intersection control or overpasses on the procession route. Please be vigilant and strictly adhere to the Governor's mandate of social gatherings and social distancing. We ask that your departments also understand that the procession will be limited to only those departments which our brother was affiliated with as an employee/volunteer. During this current outbreak (COVID-19), we must understand this and demonstrate professionalism. We must adapt to the standards and understand that a traditional ceremony or procession is not feasible at this time. We will however (later date to be announced) have a full memorial ceremony for our brother.

We would ask those counties, city department representatives make arrangements for all intersections listed in regards to the area you have been requested to fill the role of. As follows is a list of our requests:

Baltimore City Fire Department
Mike Hineline – michale.hineline@baltimorecity.gov
Logistics at procession start point to Route 95 south AA County/Howard County Line

Baltimore County Fire Departments (Lansdowne VFD/Middle River VFD)
Michael Kratochvil – wickedcustomsmd@gmail.com
Derek – derek1965@comcast.net
Working directly with Baltimore City rep. with regards of logistics of escorts and apparatus placement throughout route from Baltimore City-Howard/Anne Arundel County line.

Charles County Sheriff's Office (Motor Patrol)
T. Hemsley – hemsleyt@ccso.us
Please let me know if you can facilitate working with Calvert, and St. Mary's Motor Patrols for the Southern MD area escort (Mattawoman Rd/Crain Hwy-South)

Charles County Department of Emergency Services
K. Miller – millerk@charlescountymd.gov
Logistics for procession and COVID compliant ceremony with family.

Prince George County Fire Department
Latonia Hackley – lchackley@co.pg.md.us
Please arrange and schedule apparatus for blocking intersections throughout Prince George County and return contact info for assigned apparatus and OIC of each intersection. (cell/unit ID):

1. Branch Ave/Surratts Rd.
2. Branch Ave/Burch Hill Rd./Earnshaw Dr.
3. Branch Ave/Moore Rd.
4. Branch Ave/Chadds Ford Dr.
5. Branch Ave/Clymer Dr./Matapeake Business Dr.
6. Branch Ave/McKendree Rd.

Charles County Volunteer Fire/EMS
William (Bill) Smith – smithb@ccvfireems.org
Would like to request Aerial Apparatus (2) for flag display arch @ Radio Station and Audie Lane. (over Audie Lane only)
Please arrange and schedule apparatus for blocking intersections throughout Charles County and return contact info for assigned apparatus and OIC of each intersection. (cell/unit ID):

1. Leonardtown/Mattawoman-Beantown Rd
2. Mattawoman Beantown/Mattawoman Dr.
3. Mattawoman Beantown/Popular Hill Rd.
4. Mattawoman Beantown Rd/Leonardtown Road/St. Charles Parkway
5. St. Charles Pkwy/St. Marks
6. St. Charles Pkwy/St. Thomas
7. St. Charles Pkwy/Post Office
8. St. Charles/St. Ignatius
9. St Charles/Smallwood
10. St. Charles/Billingsly
11. St. Charles/Rosewick/Radio Station
12. Radio Station/LaPlata Road
13. LaPlata/Leonardtown
14. Leonardtown/Bryantown
15. Prince Frederick Rd./Route 381
16. Benedict Bridge/231

Calvert County Volunteer Fire and EMS
Robert (Bert) Small – beepbeep_25@yahoo.com
Would like to request Aerial Apparatus (2) for flag display arch @ Industry Lane/Route 4 (over Industry Lane only)
Please arrange and schedule apparatus for blocking intersections throughout Calvert County and return contact info for assigned apparatus and OIC of each intersection. (cell/unit ID):

1. Calvert Side Benedict Bridge/231
2. Route 231/Calvert Industrial Park/Sixes
3. Route 231/JW Williams Rd
4. Route 231/Prince Frederick Blvd
5. Route 231/Route2-4
6. Route 2-4/Sixes Rd
7. Route 2-4/Broomes Island Rd
8. Route 2-4/Calvert Beach Rd
9. Route 2-4/White Sands Dr.
10. Route 2-4/Cove Point Rd.
11. Route 2-4/Patuxent Parkway
12. Calvert Side TJ Bridge

St. Mary's County Volunteer Fire and EMS
Nick Harrision – nick.harrison91@gamil.com
Would like to request Aerial Apparatus (2) for flag display arch @ Bay District Station 3 entrance. (Shangri-La Dr. in front of station over Shangri-La Dr.)
Please arrange and schedule apparatus for blocking intersections throughout St. Mary's County and return contact info for assigned apparatus and OIC of each intersection. (cell/unit ID):

1. St. Mary's Side TJ Bridge
2. Route 2-4/Patuxent Blvd
3. Route 2-4/Route 235
4. Route 235/First Colony
5. Route 235/Old Rolling Rd.
6. Route 235/Miramar (North)
7. Route 235/Miramar (South)/Town Creek Dr.
8. Route 235/Chancellors Run Rd
9. Route 235/MacArthur Blvd.
10. Route 235/Buck Hewitt Rd.
11. Route 235/Exploration Dr./Expedition Dr.
12. Route 235/Pegg Rd./Buse Rd.
13. Route 235/Corporate Dr.
14. Route 235/Franklin Delano Roosevelt Blvd.
15. Route 235/N. Shangri-La Dr.
16. Route 235/Great Mills Rd.
17. Great Mills/N. Shangri-La Dr.

We will end in the in rear parking area of Bay District VFD. Short dedication ceremony for immediate family from both Baltimore City/Charles County DES Representatives. Note all apparatus personnel will remain at apparatus lined throughout parking area. Small staging area for family should be set up at the rear bay door apron of BDVFD Station 3. This is where the family vehicle will park and ceremony will take place. During the ceremony, all personnel again will remain at assigned apparatus maintaining 6 feet physical distancing and adhering to face covering mandate. After the ceremony has completed all personnel and apparatus will disperse and return to their respective jurisdictions. At no point will any apparatus blocking intersections join in behind the procession.

As we gather the information requested above, the IAP will be completed and disseminated to all included in this email. Please feel free to reach out to me directly if any questions arise. We would truly like to extend our sincere gratitude to each of you for stepping up and fulfilling the roles you all have.

Respectfully,

Kenneth N Miller II, NRP
Lieutenant, Charles County Emergency Services
10425 Audie Lane
LaPlata, MD 20646
Office-301-609-3426
Cell-443-624-9010
Email-millerk@charlescountymd.gov

DHS SCIENCE AND TECHNOLOGY

Master Question List for COVID-19 (caused by SARS-CoV-2)

Weekly Report

21 April 2020

For comments or questions related to the contents of this document, please contact the DHS S&T Hazard Awareness & Characterization Technology Center at HACTechnologyCenter@hq.dhs.gov.

Homeland Security

Science and Technology

FOREWORD

The Department of Homeland Security (DHS) is paying close attention to the evolving Coronavirus Infectious Disease (COVID-19) situation in order to protect our nation. DHS is working very closely with the Centers for Disease Control and Prevention (CDC), other federal agencies, and public health officials to implement public health control measures related to travelers and materials crossing our borders from the affected regions.

Based on the response to a similar product generated in 2014 in response to the Ebolavirus outbreak in West Africa, the DHS Science and Technology Directorate (DHS S&T) developed the following "master question list" that quickly summarizes what is known, what additional information is needed, and who may be working to address such fundamental questions as, "What is the infectious dose?" and "How long does the virus persist in the environment?" The Master Question List (MQL) is intended to quickly present the current state of available information to government decision makers in the operational response to COVID-19 and allow structured and scientifically guided discussions across the federal government without burdening them with the need to review scientific reports, and to prevent duplication of efforts by highlighting and coordinating research.

The information contained in the following table has been assembled and evaluated by experts from publicly available sources to include reports and articles found in scientific and technical journals, selected sources on the internet, and various media reports. It is intended to serve as a "quick reference" tool and should not be regarded as comprehensive source of information, nor as necessarily representing the official policies, either expressed or implied, of the DHS or the U.S. Government. DHS does not endorse any products or commercial services mentioned in this document. All sources of the information provided are cited so that individual users of this document may independently evaluate the source of that information and its suitability for any particular use. This document is a "living document" that will be updated as needed when new information becomes available.

Table of Contents

SARS-CoV-2 (COVID-19)	Infectious Dose – How much agent will make a healthy individual ill?
What do we know?	**The human infectious dose of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is unknown by all exposure routes. SARS-CoV-2 is the cause of coronavirus disease 19 (COVID-19).** *Work using SARS-CoV-2* • A total dose of approximately 700,000 plaque-forming units (PFU) of the novel coronavirus SARS-CoV-2 infected cynomolgus macaques via combination intranasal and intratracheal exposure (10^6 $TCID_{50}$ total dose).[201] Macaques did not exhibit clinical symptoms, but virus was shed from the nose and throat.[201] • Rhesus macaques are effectively infected with SARS-CoV-2 via the ocular conjunctival and intratracheal route at a dose of approximately 700,000 PFU (10^6 $TCID_{50}$).[83] • Rhesus macaques infected with 2,600,000 $TCID_{50}$ of SARS-CoV-2 by the intranasal, intratracheal, oral and ocular routes combined recapitulate moderate disease observed in the majority of human cases.[170] • Ferrets infected with 316,000 $TCID_{50}$[124] or 600,000 $TCID_{50}$[195] of SARS-CoV-2 by the intranasal route show similar symptoms to human disease.[124, 195] Uninfected ferrets in direct contact with infected ferrets test positive and show disease as early as 2 days post-contact.[124] In one study, direct contact was required to transfer infection between ferrets,[124] however, transmission without direct contact was found in another study.[195] • Syrian Golden Hamsters infected with 100,000 PFU via the intranasal route closely resemble human respiratory infection. Uninfected hamsters in close contact with infected hamsters show symptoms within 4 days of exposure.[53] • Domestic cats exposed to 100,000 PFU of SARS-CoV-2 via the intranasal route developed severe pathological symptoms including lesions in the nose, throat, and lungs.[213] Juvenile cats exhibited more severe symptoms than subadults.[213] *Related Coronaviruses* • The infectious dose for severe acute respiratory syndrome (SARS) coronavirus 1 (SARS-CoV-1) in mice is estimated to be between 67-540 PFU (average 240 PFU, intranasal route).[80, 82] • Genetically modified mice exposed intranasally to doses of Middle East respiratory syndrome (MERS) coronavirus (MERS-CoV) between 100 and 500,000 PFU show signs of infection. Infection with higher doses result in severe syndromes.[13, 67, 141, 263]
What do we need to know?	**Identifying the infectious dose for humans by the various routes through which individuals become infected is critical to the effective development of computational models to predict risk, develop diagnostics and countermeasures, and effective decontamination strategies. Animal studies are a plausible surrogate.** • Human infectious dose by aerosol route • Human infectious dose by surface contact (fomite) • Human infectious dose by fecal-oral route

SARS-CoV-2 (COVID-19)	Transmissibility – How does it spread from one host to another? How easily is it spread?
What do we know?	**SARS-CoV-2 is passed easily between humans, likely through close contact with relatively large droplets and possibly through smaller aerosolized particles.** • Pandemic COVID-19 has caused 2,501,156 infections and 171,810 deaths[118] in at least 185 countries and territories (as of 4/21/2020).[44, 209, 241] • In the US there are 788,920 confirmed SARS-CoV-2 cases across all 50 US states, with 42,458 deaths (as of 4/21/2020).[118] • High-quality estimates of human transmissibility (R_0) range from 2.2 to 3.1.[159, 183, 197, 249, 262] • SARS-CoV-2 is believed to spread through close contact and droplet transmission,[48] with fomite transmission likely[119] and close-contact aerosol transmission plausible[34, 103] but unconfirmed.[240] • Aerosolized virus has been detected in COVID-19 patient rooms, with particle sizes within the human respirable range (0.25 – 2.5 µm).[151] • Extensive contamination of patient rooms indicates the potential for airborne transmission, though to date infectious virus has not been isolated from aerosol samples.[206] Contamination may be worse in intensive care rooms, with viral RNA detected up to 4 meters from patient beds.[106] • Limited evidence suggests that SARS-CoV-2 may be spread by conversation and exhalation in the absence of cough, however more work is needed.[7, 11, 140, 206] • Experimentally infected ferrets were able to transmit SARS-CoV-2 to other ferrets by both direct contact (another ferret in same enclosure) as well as through the air (ferrets in an adjacent enclosure, separated by 10 cm).[195] **Individuals can transmit SARS-CoV-2 to others before they have symptoms.** • SARS-CoV-2 replicates in the upper respiratory tract (e.g., throat), and infectious virus is detectable in throat and lung tissue for at least 8 days.[244] • Pre-symptomatic[265] or asymptomatic[22] patients can transmit SARS-CoV-2. 12%[86] of all cases are estimated to be due to asymptomatic transmission, and between 23%[150] and 44%[107] of infections may be caused by pre-symptomatic transmission. • Individuals may be infectious for 1-3 days prior to symptom onset.[233] • Severe cases are more likely to transmit disease, and most new infections are within households of infected patients.[156] In China, it is estimated that infected individuals transmit COVID-19 to 16.7% of their household contacts.[144] • Asymptomatic individuals are estimated to be infectious for a median of 9.5 days.[113] **Undetected cases play a major role in transmission, and most cases are not reported.** • Models suggest up to 86% of early COVID-19 cases in China were undetected, and these infections were the source for 79% of reported cases.[143] • Models estimate that the true number of cases may be approximately 11 times greater than the reported number of cases in the UK,[258] and 5 to 10 times greater than the reported number of cases in the US.[120] • Assuming a case fatality rate of 1.4%, researchers estimate that only 12% of cases in the US are confirmed and reported.[204] • Preliminary estimates of the case reporting rate vary widely among countries, from roughly 1 reported case for every 3 actual cases (in Germany), to 1 in 149 (in China).[128] Additional estimates of the level of reporting are needed. • In Ohio, every inmate at each of three prisons was tested for COVID-19 regardless of symptoms. Rates of infection were 21%, 58%, and 78%. The percentage of inmates that presented with symptoms is unknown.[73]

SARS-CoV-2 (COVID-19)	**Transmissibility – How does it spread from one host to another? How easily is it spread?**
What do we need to know?	**Identifying the contribution of asymptomatic or pre-symptomatic transmission is important for implementing control measures. Additionally, the relative contribution of different infection sources – fomites, droplets, aerosols, and potentially feces – is unknown.** • Capability of SARS-CoV-2 to be transmitted by contact with fomites (phones, doorknobs, surfaces, clothing, etc.) – see also Experimental Stability • Updated person to person transmission rates (e.g., R_0) as control measures take effect. • Can individuals become re-infected with SARS-CoV-2? • Is the R_0 estimate higher in healthcare or long-term care facilities? • When will infections peak in various cities and countries? • Are small aerosol exposures capable of infecting humans? • How far do infectious small aerosols travel?

SARS-CoV-2 (COVID-19)	Host Range – How many species does it infect? Can it transfer from species to species?
What do we know?	**SARS-CoV-2 is closely related to other coronaviruses circulating in bats in Southeast Asia. Previous coronaviruses have passed through an intermediate mammal host before infecting humans, but the identity of the SARS-CoV-2 intermediate host is unknown.** • Early genomic analysis indicates similarities to SARS-CoV-1,[268] with a suggested bat origin.[5,68,268] • Positive samples from the South China Seafood Market strongly suggests a wildlife source,[50] though it is possible that the virus was circulating in humans before the disease was associated with the seafood market.[27,70,252,260] • Analysis of SARS-CoV-2 genomes suggests that a non-bat intermediate species is responsible for the beginning of the outbreak.[200] The identity of the intermediate host remains unknown.[145,147-148] • Viruses similar to SARS-CoV-2 were present in pangolin samples collected several years ago.[132] **SARS-CoV-2 uses the same receptor for cell entry as the SARS-CoV-1 coronavirus that circulated in 2002/2003.** • Experiments show that SARS-CoV-2 Spike (S) receptor-binding domain binds to the human cell receptor (ACE2) stronger than SARS-CoV-1,[247] potentially explaining its high transmissibility. The same work suggests that differences between SARS-CoV-2 and SARS-CoV-1 Spike proteins may limit the therapeutic ability of SARS antibody treatments.[247] • Modeling of SARS-CoV-2 Spike and ACE2 proteins suggests that SARS-CoV-2 can bind and infect human, bat, civet, monkey and swine cells.[227] • Genetic and protein analysis of primates suggests that the apes and monkeys from Africa and Asia share the same amino acids as the human ACE2 receptor, indicating plausible susceptibility to SARS-CoV-2 infection.[165] This reiterates the importance of identifying potential SARS-CoV-2 animal reservoirs. • Receptor binding is not the only feature of coronaviruses that facilitate cell entry, however, changes in proteolytic cleavage of Spike protein can also affect animal host range.[166] **To date, ferrets, hamsters, cats, and primates have been shown to be susceptible to SARS-CoV-2 infection. Cats can transmit infection to other cats. It is unknown whether these animals can transmit infection to humans.** • Animal model studies suggest that Golden Syrian hamsters, primates, and ferrets may be susceptible to infection.[53,124] • Domestic cats are susceptible to infection with SARS-CoV-2 (100,000 PFU via the intranasal route), and can transmit the virus to other cats via droplet or short-distance aerosol.[213] Dogs exposed to SARS-CoV-2 showed limited evidence of infection, producing anti-SARS-CoV-2 antibodies but exhibited no clinical symptoms.[213] • Wild cats (tigers)[232] can be infected with SARS-CoV-2, although their ability to spread to humans is unknown.[161,261] • Ducks, chickens, and pigs remained uninfected after experimental SARS-CoV-2 inoculation (30,000 CFU for ducks and chickens, 100,000 PFU for pigs, all via intranasal route).[213] There is currently no evidence that SARS-CoV-2 infects livestock.[116]
What do we need to know?	**Several animal models have been developed to recreate human-like illness, though to date they have been infected with high dose exposures. Lower dose studies may better replicate human disease acquisition.** • What is the intermediate host(s)? • What are the mutations in SARS-CoV-2 that allowed human infection and transmission? • What other animals can SARS-CoV-2 infect (e.g., pet cats and dogs, potential wildlife reservoirs)? • Can infected animals transmit to humans (e.g., pet cats and dogs to humans)?

SARS-CoV-2 (COVID-19)	**Incubation period – How long after infection do symptoms appear? Are people infectious during this time?**
What do we know?	**The majority of individuals develop symptoms within 14 days of exposure. For most people, it takes at least 2 days to develop symptoms, and on average symptoms develop 5 days after exposure. Some individuals never develop symptoms but can still transmit disease.** • The best current estimate of the COVID-19 incubation period is 5.1 days, with 99% of individuals exhibiting symptoms within 14 days of exposure.[136] Fewer than 2.5% of infected individuals show symptoms sooner than 2 days after exposure.[136] • Individuals can test positive for COVID-19 even if they lack clinical symptoms.[22, 52, 104, 218, 265] • Individuals can be infectious while asymptomatic,[48, 202, 218, 265] and asymptomatic individuals can have similar amounts of virus in their nose and throat as symptomatic individuals.[270] • Peak infectiousness may be during the incubation period one day before symptoms develop.[107] • Infectious period is unknown, but possibly up to 10-14 days.[10, 143, 209] • On average, there are approximately 4[86] to 7.5[142] days between symptom onset in successive cases of a single transmission chain. • Most hospitalized individuals are admitted within 8-14 days of symptom onset.[267]
What do we need to know?	**While the incubation period is well-characterized, less is known about how long individuals are infectious before, during, and after symptoms. Additionally, the possibility of reinfection warrants more research.** • What is the average infectious period during which individuals can transmit the disease? • Are individuals infectious after hospital discharge and clinical recovery, or are positive PCR tests only detecting non-infectious virus?

SARS-CoV-2 (COVID-19)	Clinical presentation – What are the signs and symptoms of an infected person?
What do we know?	**Most COVID-19 cases are mild, but severe disease can be found in any age group. Older individuals and those with underlying medical conditions are at higher risk of serious illness and death.** • The majority of COVID-19 cases are mild (81%, n=44,000 cases).[218] • Initial COVID-19 symptoms include fever (87.9% overall, but only 44-52% present with fever initially),[18, 104] cough (67.7%),[104] fatigue, shortness of breath, headache, and reduced lymphocyte count.[49, 56, 114] Headache is uncommon.[55] Diarrhea may be uncommon,[114, 142] though lack of appetite may be an early symptom.[181] • Complications include acute respiratory distress (ARDS, 17-29% of hospitalized patients, leading to death in 4-15% of cases),[60, 114, 228] pneumonia,[180] cardiac injury (20%),[214] secondary infection, kidney failure, arrhythmia, sepsis, and shock.[104, 114, 228, 267] • Most deaths are caused by respiratory failure or respiratory failure combined with myocardial (heart) damage.[203] • Approximately 15% of hospitalized patients are classified as severe,[104, 218] and approximately 5% of patients are admitted to the ICU.[104, 218] Of the patients requiring mechanical ventilation, 70% required supplemental oxygen upon hospital admission, suggesting rapid deterioration with respiratory failure.[101] • Loss of taste and smell appears in 5-30% of patients who test positive, however, approximately 18% of individuals who test negative also report this symptom. Survey results indicate higher self-reported rates of smell and taste loss in COVID-19 positive patients (up to 68% and 71%, respectively), and only 16%-17% self-reported in COVID-19 negative patients.[256] More work is needed.[21, 65, 98] • Several studies suggest that SARS-CoV-2 is not transmitted from mother to child during birth,[59, 61, 208, 257] however larger studies are needed. • Ocular symptoms such as conjunctivitis have been seen in severe COVID-19 cases,[251] and blood clots appear more common in COVID-19 patients in intensive care than the general population.[126] • Kidney damage may be relatively common in patients with severe COVID-19, and there is evidence of SARS-CoV-2 presence in kidney tissue.[215] • Up to 67% of patients with clinically asymptomatic infection may still show CT evidence of pneumonia.[230] • Almost 50% of hospitalized patients in the US have either hypertension or obesity as comorbidities, and approximately 25% experienced diarrhea or nausea and vomiting.[97] **Current modeling suggests the overall case fatality rate (CFR) of COVID-19 is approximately 2.4%,[17] but varies substantially by patient age and underlying comorbidities.** • The CFR depends on comorbidities, and cardiovascular disease, hypertension, diabetes, and respiratory conditions all increase the CFR.[218, 267] • The CFR increases with age, and individuals >60 are at higher risk of death.[218, 267] In the US, 34% of hospitalizations have been individuals younger than 44 years old.[8] Over >60% of confirmed fatalities have been male.[218] • Variation in the CFR between countries may be due to demographics, testing criteria, and how COVID-19 related deaths are defined.[175] **Evidence suggests that African Americans are at elevated risk of severe symptoms. Additional data on vulnerable subpopulations is needed.** • A review of US COVID-19 patients revealed that African Americans are disproportionately represented in hospitalized populations (comprising 33% of hospitalized patients compared to only 18% of the base study population).[97] Additional research highlighting potentially vulnerable subpopulations is needed. **Children of all ages are susceptible to COVID-19,[85] though generally show milder[57, 155] or no symptoms.** • Up to 28% of children may be asymptomatic.[186] • Severe symptoms in children are possible,[149] and infant deaths have been recorded.[36, 155]
What do we need to know?	**The true case fatality rate is unknown, as the exact number of cases is uncertain. Testing priorities and case definitions vary by location.** • How long does it take for infected individuals to recover outside of a healthcare setting? • Are pregnant women at greater risk of complications during labor?[146]

SARS-CoV-2 (COVID-19)	**Protective Immunity – How long does the immune response provide protection from reinfection?**
What do we know?	**Infected patients show productive immune responses, however more data is needed.** • In a limited study (n=9), hospitalized patients shed high levels of infectious virus for 7 days via the nasal-pharyngeal route, 50% of patients produced antibodies within 7 days, and all patients produced antibodies by 14 days. Antibody production did not correlate with lower viral load.[244] • In a larger study (n=175), most patients developed neutralizing antibodies within 10-15 days after disease onset. Elderly patients had significantly higher neutralizing antibody titers than younger patients.[248] • Based on one patient, a productive immune response was generated and sustained for at least 7 days.[219] Previous studies on coronavirus immunity suggest that neutralizing antibodies may wane after several years.[38, 250] More data is needed. • A small subset of COVID-19 patients in China (8%) did not develop a serological response to infection, however, the potential for reinfection in these patients is unknown.[248] Interestingly, the majority of patients that failed to develop a quantifiable immune response was < 40 years old. **Currently, there is no evidence that recovered patients can be reinfected with SARS-CoV-2.** • Experimentally infected macaques were not capable of being reinfected after their primary infection resolved.[24] • According to the WHO, there is no evidence of re-infection with SARS-CoV-2 after recovery.[135] • Patients can test positive via PCR for up to 37 days after symptoms appear,[267] and after recovery and hospital discharge.[133] The ability of these individuals to infect others is unknown.
What do we need to know?	**Understanding the duration of protective immunity is limited by small sample sizes. Animal models are plausible surrogates. Additional research to quantify the risk of reinfection after weeks, months, and years is needed.** • How long does the immune response last? • Is there evidence of waning immunity? • Can humans become reinfected? • Are patients who test positive weeks after discharge from hospital capable of transmitting infection? • How does the patient immune response vary by age or disease severity?

SARS-CoV-2 (COVID-19)	Clinical Diagnosis – Are there tools to diagnose infected individuals? When during infection are they effective?
What do we know?	**Diagnosis relies on identifying the genetic signature of the virus in patient nose, throat, or sputum samples. These tests are relatively accurate. Confirmed cases are still underreported.** • US CDC has expanded patient testing criteria to include symptomatic patients at clinician discretion.[26] • PCR protocols and primers have been widely shared internationally.[43, 72, 142, 212, 237, 242] PCR-based diagnostic assays are unable to differentiate between active and inactive virus. • Broad testing in Iceland suggests that approximately 50% of those who test positive are symptom-free at the time of testing.[19, 168] • A combination of pharyngeal (throat) RT-PCR and chest tomography are the most effective diagnostic criteria (correctly diagnose 91.9% of infections).[193] A single throat swab detects 78.2% of infections, and duplicate tests identify 86.2% of infections.[193] • Nasal and pharyngeal swabs may be less effective as diagnostic specimens than sputum and bronchoalveolar lavage fluid,[229] although recent evidence suggests this may not always be the case.[244] More work is needed. • RT-PCR tests can identify asymptomatic cases, and SARS-CoV-2 infection was identified in 2/114 individuals cleared by clinical assessment.[112] • Combination RT-PCR and serology (antibody) testing may increase the ability to diagnose patients with mild symptoms, or identify patients at higher risk of severe disease.[264] • The FDA released an Emergency Use Authorization enabling laboratories to develop and use tests in-house for patient diagnosis.[94] • Updated tests from the US CDC are available to states.[43, 48] • Multiple rapid or real-time test kits have been produced by universities and industry, including the Wuhan Institute of Virology,[76] BGI,[30] Cepheid,[226] Abbot,[92] and Mesa Biotech.[31] • The US CDC is developing serological tests to determine what proportion of the population has been exposed to SARS-CoV-2.[122] A rapid antibody test by Cellex is now authorized by the FDA.[111, 235] • Home tests are being developed, however none are FDA approved, nor are they useable as a diagnostic.[171-172, 182] • Interleukin-6 levels of ≥80 pg/mL were associated with respiratory failure in a small study (n=41).[108] More work is needed. **Validated serological (antibody) assays are being developed to help determine who has been exposed to SARS-CoV-2.** • Researchers have tested a variety of enzyme-linked immunosorbent assays (ELISA) to determine their sensitivity and specificity to SARS-CoV-2 as well as other coronaviruses. Results show high specificity, though sample sizes for SARS-CoV-2 patients were small.[174] • In one German town, serological testing has been used to identify the percent of the population already exposed to SARS-CoV-2 (14%), which can assist in public health response planning.[191] • A preliminary study in Santa Clara, California used serological testing to estimate that between 2.5-4.1% of the population has already been exposed to SARS-CoV-2 since the first confirmed cases in January.[29] The study population (n=3,330), however, was not a random sample, potentially biasing estimates upwards.[29] Additionally, the false positive rate of the diagnostic assay used may account for a substantial portion of the reported infections.[29] • Preliminary, unpublished serological results from Los Angeles, California, also suggest an underlying infection rate of 4.1% (n=896), approximately 55 times larger than the number of reported cases;[162] false positives are still a potential issue. Results from larger, randomized serological surveys are necessary to infer population-level trends. Additionally, positive serological tests do not necessarily indicate the presence of neutralizing antibodies.
What do we need to know?	**In general, PCR tests appear to be sensitive and specific, though confirmation of symptoms via chest CT is recommended. The efficacy of serological testing should be confirmed.** • Eclipse phase of infection (time between infection and detectable disease) in an individual • With limited testing in many locations, how accurate are clinical diagnoses compared to genetic tests? • How effective are different swab specimens as diagnostic samples? • How many serological tests need to be done to obtain an accurate picture of underlying exposure?

SARS-CoV-2 (COVID-19)	Pharmaceutical Interventions – Are there effective treatments? Vaccines?
What do we know?	**Treatment for COVID-19 is primarily supportive care including ventilation if necessary.[104, 163] Over 332[4] clinical trials are ongoing, but results are preliminary. [28, 66] Convalescent sera is being tested at multiple sites across the US.[164]** • The WHO is tracking >50 potential vaccines,[69] and has begun two global clinical trials: Solidarity and Discovery[130] that include remdesivir, hydroxychloroquine and chloroquine, ritonavir/lopinavir, and ritonavir/lopinavir and interferon-beta.[130] • Remdesivir given to macaques within 12 hours of SARS-CoV-2 inoculation reduced clinical symptoms and viral replication in the lower respiratory tract compared to controls. Viral replication in the upper respiratory tract was not reduced, suggesting a clinical benefit but limited ability to reduce transmission.[243] • Compassionate use of remdesivir in critically ill patients resulted in increases in clinical outcome, based on oxygen-support class, though the data were not compared to a control group.[102] • Anecdotal reports suggest some benefit of remdesivir in humans with severe disease, though the corresponding clinical trial lacks a control group and has not reported final results.[96] • Limited, preliminary evidence from clinical trials supports the efficacy of favipiravir,[58] tocilizumab,[253] intravenous immunoglobulin,[40] and hydroxychloroquine with azithromycin.[99, 152] *Additional work including sufficiently powered clinical trials are necessary to confirm therapeutic efficacy of any of these compounds.* • Limited, preliminary evidence shows mixed efficacy of chloroquine alone,[3] and no efficacy from combination ritonavir and lopinavir.[39] *Additional work is necessary to confirm these results.* • A study of 181 COVID-19 patients in France found that hydroxychloroquine (600 mg/day) did not reduce the need for intensive care or reduce mortality compared to a control group.[158] Additionally, 9% of the treatment group suffered cardiac arrhythmias that necessitated premature withdrawal of treatment, though it is possible these patients received azithromycin or another antibiotic concurrently.[158] • Favipiravir has been approved to treat COVID-19 in China.[1] • Teams across the USA are testing passive antibody therapy (convalescent serum)[41] to patients (FDA Investigational New Drug approval).[93] In a small trial (5 patients),[211] convalescent sera administration was followed by clinical improvement.[211] • Corticosteroids are commonly given to COVID-19 patients[267] at risk of ARDS,[254] but their use is not recommended by the US CDC.[45] • Laboratory testing identified 17 repurposed drugs and remdesivir-like nucleoside inhibitors[210] with significant antiviral activity, however more research is needed to confirm efficacy.[234] • Additional clinical trials involving anti-inflammatory drugs are recruiting patients (interleukin-6 inhibitors, sarilumab[2] and tocilizumab[9]). • A blood-cleaning device has been approved by the FDA under an Emergency Use Authorization to filter cytokines from severely ill COVID-19 patients.[167] • For patients with ARDS, prone positioning (placing patients on their stomachs and sides rather than their backs) may aid oxygenation and reduce mortality.[23, 105] **Work is ongoing to develop a SARS-CoV-2 vaccine in human and animal trials. No preliminary results are available.** • Multiple entities are working to produce a SARS-CoV-2 vaccine,[14] including HHS/NIH/NIAID,[109, 139] CEPI, Moderna Therapeutics, Pfizer,[89] Gilead Sciences,[5-6, 173] Sanofi,[32] and Johnson and Johnson.[121] Moderna has begun phase 1 clinical vaccine trials.[199]
What do we need to know?	**In general, the efficacy of various therapeutic options for COVID-19 is unknown, though clinical trial results are beginning to be released.** • Is the GLS-5000 MERS vaccine[259] cross-reactive against SARS-CoV-2? • Efficacy of antibody treatments developed for SARS[74, 217] and MERS[51] • Are convalescent plasma treatments effective in humans or animals? • What is the efficacy of various MERS and SARS Phase I/II vaccines and other therapeutics? • Are viral replicase inhibitors such as beta-D-N4-hydroxycytidine effective against SARS-CoV-2?[25]

SARS-CoV-2 (COVID-19)	**Non-pharmaceutical Interventions – Are public health control measures effective at reducing spread?**
What do we know?	**Broad-scale control measures such as stay-at-home orders are effective at reducing movement, and modeling shows evidence that they reduce transmission.** • Social distancing and other policies are estimated to have reduced COVID-19 spread by 44% in Hong Kong[75] and reduced spread in China.[127, 153] • Modeling demonstrates that multifaceted restrictions and quarantines in China reduced the R_0 of SARS-CoV-2 from greater than 3 to less than 1 between January 23rd and February 5th.[179] • Models indicate that a combination of school closures, work restrictions, and other measures are required to effectively limit transmission.[95] • Preliminary modeling results from Japan suggest that school closures alone were not sufficient to limit COVID-19 spread, though the school closures in questions only applied to students between 6 and 18 years of age.[117] • Globally, there is some evidence that implementing social distancing measures has reduced the amount individuals travel, though the data are based on planned rather than actual trips.[160] Mobility in major US cities declined after each public health intervention implemented.[134] • Restrictive lockdowns in China are estimated to have reduced disease transmission within only a few days.[269] • Non-pharmaceutical interventions in China did not reduce transmission equally across all groups; transmission rates in younger individuals, particularly infants, as well as hospital workers continued to increase even while overall transmission rates declined.[179] **The effect of relaxing control measures is unknown, and research is needed to help plan for easing of restrictions.** • Modeling indicates that COVID-19 is likely to become endemic in the US population, with regular, periodic outbreaks, and that additional social or physical distancing measures may be required for several years to keep cases below critical care capacity in absence of a vaccine or effective therapeutic.[125] Results depend critically on the duration of immunity after exposure.[125] • Modeling suggests that premature lifting of social distancing measures will substantially increase the number of local COVID-19 cases in Wuhan, China.[184] • Similarly, forecasts in the US estimate a resumption of exponential case growth if social distancing measures are relaxed.[77] • In the UK, modelers are assessing the efficacy of rolling interventions, whereby social distancing measures are put into place every few weeks to keep healthcare demand below a critical point.[258] • A modeling study using Chinese data estimated the impact of relaxing social distancing measures after an initial reduction in disease transmission. Results suggest that if R_0 is allowed to rise above 1, tightening controls may not be enough to keep transmission low; rather, additional effort would be needed to drive R_0 below 1 again, suggesting that carefully balancing control measures to maintain R_0 below 1 would be more efficient than allowing R_0 to increase again in the first place.[137] • Robust contact tracing and case finding may be needed to control COVID-19 in the US, but would require additional staff and resources to conduct effectively.[231] • The WHO released guidelines on a public health strategy, focusing on controlling transmission, ensuring public health capacity is robust, and engaging local communities.[236] • Johns Hopkins released a report outlining how to re-open certain categories of activities (e.g., schools, restaurants, events) while reducing COVID-19 risk. The report also ranks certain activities by their contact intensity, number of contacts, and the potential to modify them to reduce risk.[198]
What do we need to know?	**As different US states have implemented differing control measures at various times, a comprehensive analysis of social distancing efficacy has not yet been conducted.** • How many cases in the US have been averted due to social distancing restrictions? • How long does it take for various non-pharmaceutical interventions to show effects? • What are effective surrogate measures of social distancing efficacy (e.g., reduction in travel, contact, traffic, etc.)? • What are plausible options for relaxing social distancing and other intervention measures without resulting in a resurgence of COVID-19 cases?

SARS-CoV-2 (COVID-19)	Environmental Stability – How long does the agent live in the environment?
What do we know?	**SARS-CoV-2 can persist on surfaces for at least 3 days and on the surface of a surgical mask for up to 7 days depending on conditions. If aerosolized intentionally, SARS-CoV-2 is stable for at least several hours. The seasonality of COVID-19 transmission is unknown.** *SARS-CoV-2 Data* • SARS-CoV-2 can persist on plastic and metal surfaces between 3 days (21-23°C, 40% RH)[224] and 7 days (22°C, 65% RH). Infectious virus can be recovered from a surgical mask after 7 days (22°C, 65% RH).[63] • SARS-CoV-2 has an aerosol half-life of 2.7 hours (particles <5 µm, tested at 21-23°C and 65% RH).[224] • SARS-CoV-2 is susceptible to heat treatment (70°C) but can persist for at least two weeks at refrigerated temperatures (4°C).[63, 190] • SARS-CoV-2 genetic material (RNA) was detected in symptomatic and asymptomatic cruise ship passenger rooms up to 17 days after cabins were vacated. The infectiousness of this material is not known.[169] *Surrogate Coronavirus data*: • Studies suggest that other coronaviruses can survive on non-porous surfaces up to 9-10 days (MHV, SARS-CoV),[42, 54] and porous surfaces for up to 3-5 days (SARS-CoV)[88] in air conditioned environments (20-25°C, 40-50% RH). • Coronavirus survival tends to be higher at lower temperatures and lower relative humidity (RH),[42, 54, 188, 225] though infectious virus can persist on surfaces for several days in typical office or hospital conditions.[225] • SARS can persist with trace infectivity for up to 28 days at refrigerated temperatures (4°C) on surfaces.[42] • No strong evidence exists showing reduction in transmission with seasonal increase in temperature and humidity.[157] • One hour after aerosolization approximately 63% of airborne MERS virus remained viable in a simulated office environment (25°C, 75% RH).[185] • Porous hospital materials, including paper and cotton cloth, maintain infectious SARS-CoV for a shorter time than non-porous material.[131]
What do we need to know?	**Additional testing on SARS-CoV-2, as opposed to surrogate viruses, is needed to support initial estimates of stability.** • Stability of SARS-CoV-2 in aerosol, droplets, and other matrices (mucus/sputum, feces) • Particle size distribution (e.g., droplet, large droplet, and true aerosol distribution) • Duration of SARS-CoV-2 infectivity via fomites and surface (contact hazard) • Stability of SARS-CoV-2 on PPE (e.g., Tyvek, nitrile, etc.)

SARS-CoV-2 (COVID-19)	Decontamination – What are effective methods to kill the agent in the environment?
What do we know?	**Soap and water, as well as common alcohol and chlorine-based cleaners, hand sanitizers, and disinfectants are effective at inactivating SARS-CoV-2 on hands and surfaces.** *SARS-CoV-2* • Alcohol-based hand rubs are effective at inactivating SARS-CoV-2.[129] • Chlorine bleach (1%, 2%), 70% ethanol and 0.05% chlorhexidine are effective against live virus in lab tests.[62] • Twice-daily cleaning with sodium dichloroisocyanurate decontaminated surfaces in COVID-19 patient hospital rooms.[176] • EPA has released a list of SARS-CoV-2 disinfectants, but solutions were not tested on live virus.[12] *Other Coronaviruses* • Chlorine-based[239] and ethanol-based[71] solutions are recommended. • Heat treatment (56°C) is sufficient to kill coronaviruses,[188, 266] though effectiveness depends partly on protein in the sample.[188] • 70% ethanol, 50% isopropanol, sodium hypochlorite (0.02% bleach), and UV radiation can inactivate several coronaviruses (MHV and CCV).[205] • Ethanol-based biocides effectively disinfect coronaviruses dried on surfaces, including ethanol containing gels similar to hand sanitizer.[115, 245] • Surface spray disinfectants such as Mikrobac, Dismozon, and Korsolex are effective at reducing infectivity of the closely related SARS-CoV after 30 minutes of contact.[187] • Coronaviruses may be resistant to thermal inactivation for up to 7 days when stabilized in stool.[220-221] • Coronaviruses are more stable in matrixes such as respiratory sputum.[87] **Methods for decontaminating N95 masks have been approved by the FDA under an Emergency Use Authorization (EUA).** • Hydrogen peroxide vapor can repeatedly decontaminate N95 respirators.[196] Devices capable of decontaminating 80,000 masks per day have been granted Emergency Use Authorization from the FDA.[90] • The FDA has issued an Emergency Use Authorization for a system capable of decontaminating 10 N95 masks at a time using devices already present in many US hospitals.[33]
What do we need to know?	**Additional decontamination studies, particularly with regard to PPE and other items in short supply, are needed.** • What is the minimal contact time for disinfectants? • Does contamination with human fluids/waste alter disinfectant efficacy profiles? • How effective is air filtration at reducing transmission in healthcare, airplanes, and public spaces? • Are landfills and wastewater treatment plants effective at inactivating SARS-CoV-2? • Is heat or UV decontamination effective to clean N95 respirators and other types of PPE for multi-use?

SARS-CoV-2 (COVID-19)	PPE – What PPE is effective, and who should be using it?
What do we know?	**The effectiveness of PPE for SARS-CoV-2 is currently unknown, and data from other related coronaviruses are used for guidance. Healthcare workers are at high risk of acquiring COVID-19, even with recommended PPE.** • Healthcare worker illnesses (over 1,000)[218] demonstrates human-to-human transmission despite isolation, PPE, and infection control.[207] • Risk of transmission to healthcare workers appears high, with up to 20% of healthcare workers in Lombardy, Italy becoming infected.[192] • Over 50% of US healthcare workers infected with COVID-19 report work in a healthcare setting as their single source of exposure.[37] • Healthcare personnel entering the room [of SARS-CoV-2 patients] should use standard precautions, contact precautions, airborne precautions, and use eye protection (e.g., goggles or a face shield).[46] • WHO indicates healthcare workers should wear clean long-sleeve gowns as well as gloves.[238] • Respirators (NIOSH-certified N95, EUFFP2 or equivalent) are recommended for those dealing with possible aerosols.[239] Additional protection, such as a Powered Air Purifying Respirator (PAPR) with a full hood, should be considered for high-risk procedures (i.e., intubation, ventilation).[35] • Particular attention should be paid to the potential for transmission via exhaled air during supportive respiratory procedures.[103] • There is evidence both for[151] and against[176] the detection of SARS-CoV-2 RNA via air sampling in patient rooms and other hospital areas. • Research at Johns Hopkins Center for Health Security has provided initial estimates of PPE needs in the US: 7.8 billion gloves, 668 million gowns, 360 million surgical masks, and 136 million N95 or similar respirators.[222] • KN95 respirators are, under certain conditions, approved for use under FDA Emergency Use Authorization.[91] **Masks may be effective at slowing transmission.** • Surgical face masks, respirators and homemade face masks may prevent transmission of coronaviruses from infectious individuals (with or without symptoms) to other individuals. [79, 138, 223] More work is needed. • On 4/3/2020, the US CDC recommended wearing cloth face masks in public where social distancing measures are difficult to maintain.[47] • The efficacy of homemade PPE, made with T-shirts, bandanas, or similar materials, is less than standard PPE, but may offer some protection if no other options are available.[64, 78, 194] • A very small study, involving only 4 patients, found no substantial reduction in physical spread of virus from wearing surgical or cloth masks, and also documented contamination on the inner and outer surfaces of masks.[20] Additional work should be done to determine the amount that PPE reduces physical spread of SARS-CoV-2, as the sample size of this study (n=4) was very small.
What do we need to know?	**Most PPE recommendations have not been made on SARS-CoV-2 data, and comparative efficacy of different PPE for different tasks (e.g., intubation) is unknown. Identification of efficacious PPE for healthcare workers is critical due to their high rates of infection.** • What is the importance of aerosol transmission? What is the effective distance of spread via droplet or aerosol? • How effective are barriers such as N95 respirators or surgical masks? • What is the appropriate PPE for first responders? Airport screeners? • What are proper procedures for reducing spread and transmission rates in medical facilities? • How effective are homemade masks at reducing transmission?

SARS-CoV-2 (COVID-19)	**Forensics – Natural vs intentional use? Tests to be used for attribution.**
What do we know?	**All current evidence supports the natural emergence of SARS-CoV-2 via a bat and possible intermediate mammal species.** • Genomic analysis places SARS-CoV-2 into the beta-coronavirus clade, with a close relationship to bat coronaviruses. The SARS-CoV-2 virus is distinct from SARS-CoV-1 and MERS viruses.[84] • Genomic analysis suggests that SARS-CoV-2 is a natural variant and is unlikely to be human-derived or otherwise created by "recombination" with other circulating strains of coronavirus.[15, 268] • Genomic data support at least two plausible origins of SARS-CoV-2: (i) natural selection in a non-human animal host prior to zoonotic transfer, and (ii) natural selection in humans following zoonotic transfer.[15] Both scenarios are consistent with the observed genetic changes found in all known SARS-CoV-2 isolates. • Some SARS-CoV-2 genomic evidence indicates a close relationship with pangolin coronaviruses,[246] and data suggests that pangolins may be a natural host for beta-coronaviruses.[147-148] Additional research is needed. • Additionally, "[…] SARS-CoV-2 is not derived from any previously used virus backbone," reducing the likelihood of laboratory origination,[15] and "[…] genomic evidence does not support the idea that SARS-CoV-2 is a laboratory construct, [though] it is currently impossible to prove or disprove the other theories of its origin."[15] • Work with other coronaviruses has indicated that heparan sulfate dependence can be an indicator of prior cell passage, due to a mutation in the previous furin enzyme recognition motif.[81]
What do we need to know?	**Identifying the intermediate species between bats and humans would aid in reducing potential spillover from a natural source.** • What tests for attribution exist for coronavirus emergence? • What is the identity of the intermediate species? • Are there closely related circulating coronaviruses in bats or other animals with the novel PRRA cleavage site found in SARS-CoV-2?

SARS-CoV-2 (COVID-19)	Genomics – How does the disease agent compare to previous strains?
What do we know?	**Current evidence suggests that SARS-CoV-2 accumulates substitutions and mutations at a rate similar to other coronaviruses. Mutations and deletions in specific portions of the SARS-CoV-2 genome have not been linked to any changes in transmission or disease severity, though modeling work is attempting to identify possible changes.** • There have been no documented cases of SARS-CoV-2 prior to December 2019. • Preliminary genomic analyses, however, suggest that the first human cases of SARS-CoV-2 emerged between 10/19/2019 – 12/17/2019.[16, 27, 189] • The mutation rate of SARS-CoV-2 is estimated to be similar to other RNA viruses (e.g., SARS, Ebola, Zika), and is currently calculated to be 1.04×10^{-3} substitutions per site per year (n=116 genomes).[110] • Pangolin coronaviruses are closely related to both SARS-CoV-2 and closely related bat coronaviruses. Phylogenetic analysis suggests that SARS-CoV-2 is of bat origin, but is closely related to pangolin coronavirus.[147-148] • The SARS-CoV-2 Spike protein, which mediates entry into host cells and is the major determinant of host range, and is very similar to the SARS-CoV-1 Spike protein.[154] The rest of the genome is more closely related to two separate bat[154] and pangolin[148] coronaviruses. • Analysis of SARS-CoV-2 sequences from Singapore has identified a large nucleotide (382 bp) deletion in ORF-8.[216] The effect of this deletion on transmission or virulence is unknown. • A recent report of virus mutations within patients needs more research.[123] Additional analysis of data suggests that the results may be due to experimental methods.[100, 255] • Structural modeling suggests that specific changes in the genetic sequence of the SARS-CoV-2 Spike protein may enhance binding of the virus to human ACE2 receptors.[177] More specifically, changes to two residues (Q493 and N501) are linked with improving the stability of the virus-receptor binding complex.[177] Additionally, structural modeling identified several mutations found in naturally circulating SARS-CoV-2 genomes that may enhance the stability of the receptor binding domain, potentially increasing binding efficacy.[178] Infectivity assays are needed to validate the genotypic changes and possible phenotypic results identified in these studies.
What do we need to know?	**Research linking genetic changes to differences in phenotype (e.g., transmissibility, virulence, progression in patients) is needed.** • Are there similar genomic differences in the progression of coronavirus strains from bat to intermediate species to human? • Are there different strains or clades of circulating virus? If so, do they differ in virulence?

Table 1. Definitions of commonly-used acronyms

Acronym/ Term	Definition	Description
ACE2	Angiotensin-converting enzyme 2	Acts as a receptor for SARS-CoV, allowing entry into human cells
Airborne transmission	Aerosolization of infectious particles	Aerosolized particles can spread for long distances (e.g., between hospital rooms via HVAC systems)
ARDS	Acute respiratory distress syndrome	Leakage of fluid into the lungs which inhibits respiration and leads to death
Attack rate	Proportion of "at-risk" individuals who develop infection	Defined in terms of "at-risk" population such as schools or households, defines the proportion of individuals in those populations who become infected after contact with an infectious individual
CCV	Canine coronavirus	Canine coronavirus
CFR	Case Fatality Rate	Number of deaths divided by confirmed patients
CoV	Coronavirus	Virus typified by crown-like structures when viewed under electron microscope
COVID-19	Coronavirus disease 19	Official name for the disease caused by the SARS-CoV-2 virus.
Droplet transmission	Sneezing, coughing	Transmission via droplets requires relatively close contact (e.g., within 6 feet)
Fomite	Inanimate vector of disease	Surfaces such as hospital beds, doorknobs, healthcare worker gowns, faucets, etc.
HCW	Healthcare worker	Doctors, nurses, technicians dealing with patients or samples
Incubation period	Time between infection and symptom onset	Time between infection and onset of symptoms typically establishes guidelines for isolating patients before transmission is possible
Infectious period	Length of time an individual can transmit infection to others	Reducing the infectious period is a key method of reducing overall transmission; hospitalization, isolation, and quarantine are all effective methods
Intranasal	Agent deposited into external nares of subject	Simulates inhalation exposure by depositing liquid solution of pathogen/virus into the nose of a test animal, where it is then taken up by the respiratory system.
MERS	Middle-East Respiratory Syndrome	Coronavirus with over 2,000 cases in regional outbreak since 2012
MHV	Mouse hepatitis virus	Coronavirus surrogate
Nosocomial	Healthcare- or hospital-associated infections	Characteristic of SARS and MERS outbreaks, lead to refinement of infection control procedures
PCR	Polymerase chain reaction	PCR (or real-time [RT] or quantitative [Q] PCR) is a method of increasing the amount of genetic material in a sample, which is then used for diagnostic testing to confirm the presence of SARS-CoV-2
PFU	Plaque forming unit	Measurement of the number of infectious virus particles as determined by plaque forming assay. A measurement of sample infectivity.
PPE	Personal protective equipment	Gowns, masks, gloves, and any other measures used to prevent spread between individuals
R_0	Basic reproduction number	A measure of transmissibility. Specifically, the average number of new infections caused by a typical infectious individual in a wholly susceptible population.
SARS	Severe Acute Respiratory Syndrome	Coronavirus with over 8,000 cases in global 2002-2003 outbreak
SARS-CoV-2	Severe acute respiratory syndrome coronavirus 2	Official name for the virus previously known as 2019-nCoV.

Acronym/ Term	Definition	Description
Serial interval	Length of time between symptom onset of successive cases in a transmission chain	The serial interval can be used to estimate R_0, and is useful for estimating the rate of outbreak spread
Superspreading	One individual responsible for an abnormally large number of secondary infections	Superspreading can be caused by high variance in the distribution of secondary cases caused by a single individual; most individuals infect very few people, while some infect a large number, even with the same average number of secondary infections
$TCID_{50}$	50% Tissue Culture Infectious Dose	The number of infectious units which will infect 50% of tissue culture monolayers. A measurement of sample infectivity.
Transgenic	Genetically modified	In this case, animal models modified to be more susceptible to MERS and/or SARS by adding proteins or receptors necessary for infection

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Charles County Public Schools Briefing 4-28-2020
COVID Charles County

48-hour Priorities:

- Maintaining instructional continuity
- Expanding and maintaining food service
- Expanding and maintaining WiFi service

Meals:

On Monday, 4/27/20, CCPS served 5097 meals at the 11 meal distribution sites.

Closure:

Charles County Public Schools (CCPS) now remains closed through May 15. All schools, buildings and centers will remain closed to the public.

Instruction:

CCPS is in stage three, and final stage, of its distance learning and continuity of learning.

Community Wifi:

All four sites are up and running and seeing use. CCPS in process of 3 other additional WiFi sites. Expansion of our WiFi into extended sites to hopefully begin May 4th depending on shipping of materials.

Misc:

CCPS donated mobile devices and technology to Hospice of Charles County to allow family members to communicate during this time of isolation.

Respectfully submitted by Jason Stoddard and Michael Meiser

Charles County
Volunteer Firemen's Association, Inc.

Post Office Box #21, La Plata, Maryland 20646

April 28th, 2020

Re: Volunteer Fire/EMS Brief

Items Being Worked On:

- Reduction of Force Policy – *Information gathering occurring.*

Stations/Apparatus:

- No Station's with contamination issues.
- No Apparatus with any contamination issues.
- No Service Deliverability Issues with Apparatus O.O.S.

Personnel - 27 Members across 4 Stations (6 Positive / 5 Negative):

- Fire Station 3 – 1 Member in 14 Day Isolation – Tested Positive 4/16/2020
- Fire / EMS Station 11 - 2 Members -2 Due to Family Members being Quarantined
  - - 3 Members Due to potential exposure from another patient.
- Fire / EMS Station 12 – 17 members due to a Positive Member in the Station (Currently 5 Positive/5 Negative)
- Fire Station 4 – 2 Family Members Quarantined due to a Family Member testing positive.
- ***Providers are slowly making improvement health wise.***

Incidents/Call Volume:

- No Major Incidents to Report related to COVID-19
- Yesterday's EMS Call Volume was average, and Fire Call Volume was below average
  52 Ems Related Incidents ----- 15 Fire Related Incidents

Other Information:

- Continue to push out information about Social Distancing in the Stations.
- Continue to push out Peer Support Information.

Respectfully Submitted,

Mark A. Kaufmann, Jr
County Fire Chief, Charles County Maryland