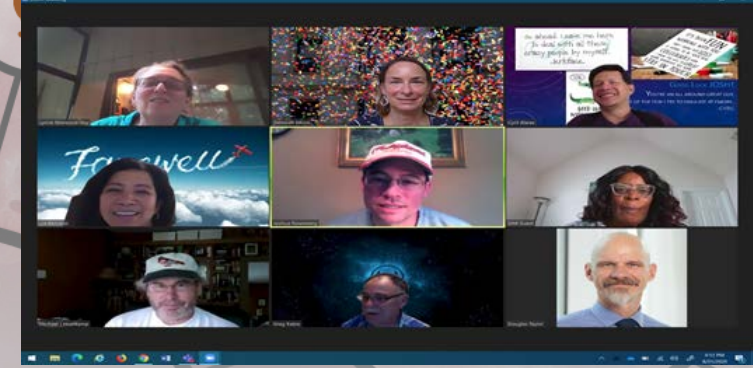
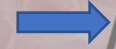
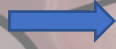


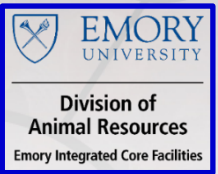


Michael J Huerkamp, D.V.M., DACLAM

Maintaining Animal Research Continuity in the time of covid-19

RAPID RESPONSE BY

LABORATORY ANIMAL RESEARCH INSTITUTIONS
DURING THE COVID-19 PANDEMIC: LESSONS LEARNED



The National Academies of
SCIENCES
ENGINEERING
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Acknowledgements

- **Drs. Jim Macy, Pat Preisig (Yale) and the Big Academe programs**
 - Meeting notes from March 27, May 1, and October 30, 2020.
- **Dr. Corina Berset**
 - “University of Zurich and COVID-19” (VOEN, 4/29/20)
- **AALAS 2020 NM (Virtual)**
 - “When the Odds Are not in Your Favor: Lessons Learned from Small-scale Disasters with Large-scale Implications” - Dr. Zitzow
 - “Overcoming Challenges: An International Perspective on Managing the COVID-19 Pandemic in Laboratory Animal Care Programs” –Drs. Zitzow, Colby, Norton, Gobbi, Chou.
 - “Overcoming Challenges: Pandemic 101: Animal Care and Use Programs Face COVID-19” –Drs. Villano, Compton, Chou, Ogden, Itter, Hutchinson.
 - PS16 “Reusable Surgical Masks in the Face of Supply Shortages” –Dr. Brannick
 - PS8 “From Vivarium to Hospital: Safeguarding Animals and People in the Face of COVID-19” –Drs. Bean, Bell, Riddle, Rose.



Agenda

Maintaining animal research continuity in the time of COVID-19

- Favorable Winds
- Emergency Preparedness Plans and Pandemics
- Activating the Plan
- Communications That Worked
- Outcomes



Favorable Winds Tradition and Culture

- Research institutions in metropolitan areas "got it"
- Programmatic advantages
 - Tradition of dedicated employees
 - Conditioned to PPE and managing outbreaks
 - Used to working alone
 - Experience managing through short staffing scenarios
 - Comfort with ambiguity, the unknown, complex problems
 - Team-oriented & collaborative
 - Adaptable, resilient facilities
- Hands-off federal & state relationships
- Required to have emergency preparedness plans

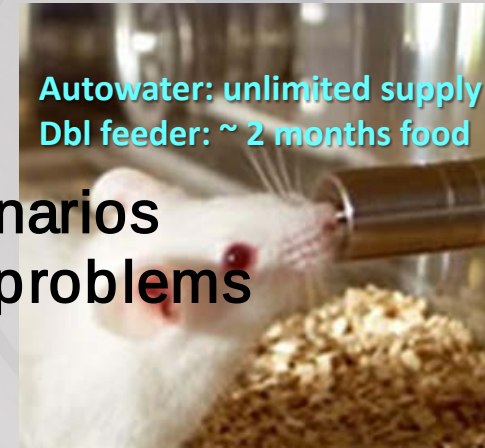


Warehouse, 3/30: 11000 Kg: >1 month
+ 5500 kg at our supplier

Food hopper, 500 g: 30 days
Water bottle: 7+ days



Autowater: unlimited supply
Dbl feeder: ~ 2 months food



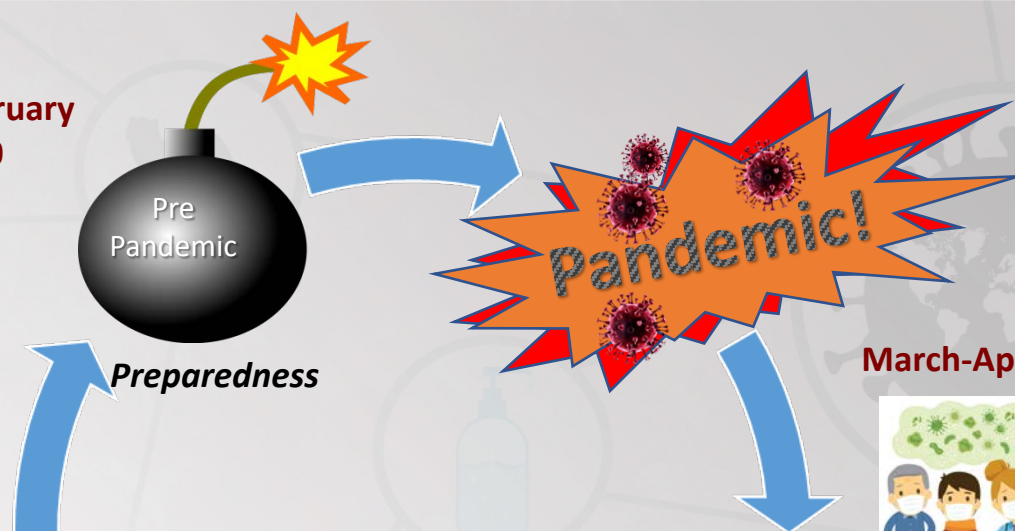
Facility reservoirs: 3 days

"Your task is not to foresee the future, but to enable it."

~Antoine de Saint Exupéry~

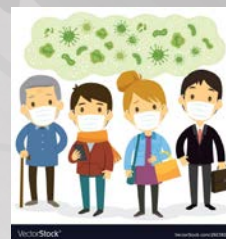


December-February
2019-2020



DISASTER AND EMERGENCY PREPAREDNESS CYCLE

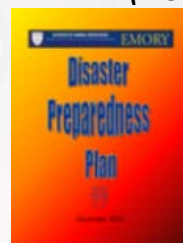
March-April+



Response
2020 Two-pronged
Ongoing

Mitigation
(Prevention/resistance)

Prior to 2020



- Resistant construction
- PM/repairs
- Improvements
- Redundancy
 - Design
 - Staff
 - Processes
- Training/table tops
- Cryopreservation
- Resiliency



- B. Pathogen-specific research**
- CDC letter of adequacy
 - IACUC protocol
 - Health & safety review/approval/oversight
 - Occupational medicine
 - Caging and SOPs
 - PIs
 - Facilities Maintenance
 - Training

- A. Institutional & program:**
- Staffing
 - Shelter at home state orders
 - Fearful/vulnerable staff
 - Finances
 - Census, leave, hazard pay
 - Slowdown/ramp-up
 - PPE, distancing, scheduling
 - Census management
- C. The Unexpected**
- Autoclave testing/validation
 - For Emory Hospital
 - Swabs/transport media donation
 - To Emory Hospital protocol
 - PPE transfers to
 - Healthcare
 - EHSO
 - Offered ventilators

**RAPID RESPONSE BY
LABORATORY ANIMAL RESEARCH INSTITUTIONS
DURING THE COVID-19 PANDEMIC: LESSONS LEARNED**

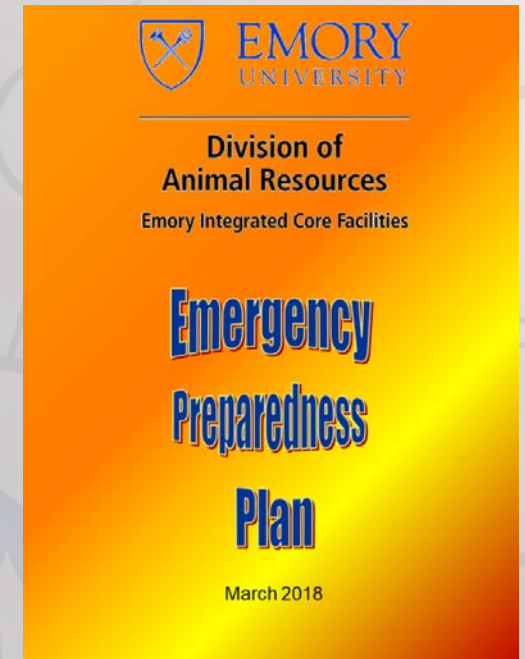
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Emergency Operations Plan

Pandemic component

- Emory plan in existence since 2004.
 - Pandemic component added 2009.
- Activated January 22, 2020: Phase 1
 1. Follow international & national developments
 - 548 cases in China (JHU CSSE); 1 US case
 2. Monitoring/messaging:
 - WW, USA and GA digests to senior staff 1/28-2/21.
 - WHO & CDC slow versus MSM, JHU CSSE
 3. Redundancy/resiliency
 - 2/5: Stock-up on food, PPE & alternate PPE; 2/12: secured PPE
 - 5-7 months N-95s, 4 months other items
 - PAPR inventory increased to 15 (from 3).
 - Cloth back-up masks & gowns



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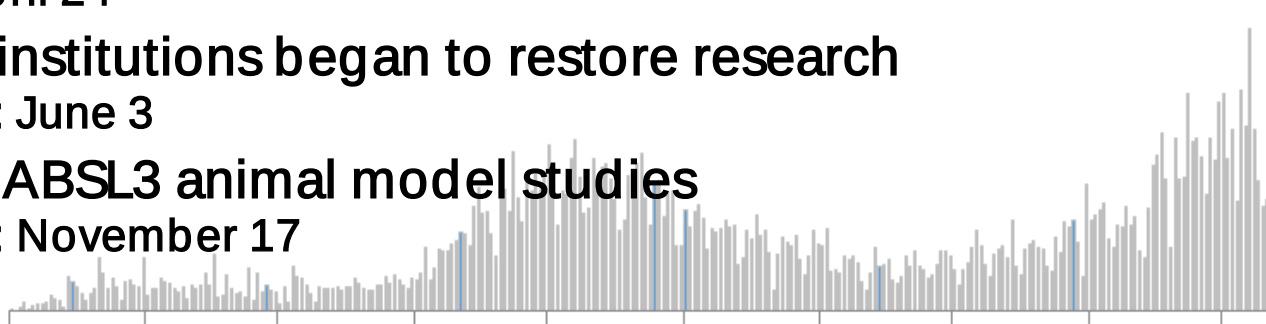
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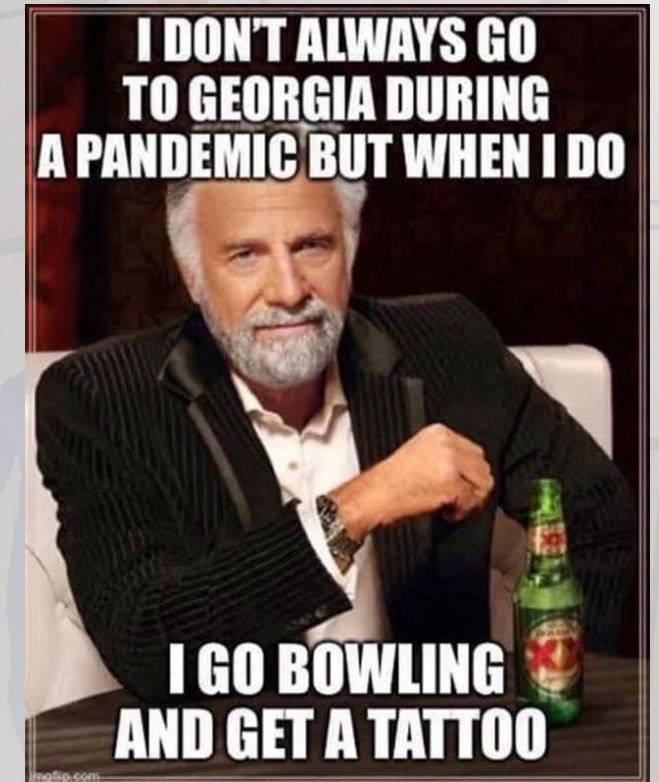


Local , Consistent Sequences

- COVID-19 Infections
 - State, GA: March 2 (Milan returnee)
 - Animal resources program, Emory: December 24
- School systems closed or went online
 - GA: March 18
- Research institutions (abruptly) ramped-down
 - Emory: March 24
- States (most) went to stay-at-home
 - GA: April 2
 - Essential employees in animal & veterinary care & IT
- States began to relax stay-at-home orders
 - GA: April 24
- Research institutions began to restore research
 - Emory: June 3
- Stood-up ABSL3 animal model studies
 - Emory: November 17



GA Cases, Mar-Dec



DAR Phase 2

---March 18, 2020 (Monday)---

- Hallmark: Human-to-human transmission found in the local community (3/14); schools open
- Focus: Maintain environment & experimental continuity
- >75% staff healthy & on-site
- Person-to-person meetings canceled (3/18)
- **No new** animal orders, requests to ship animals, receipts into quarantine (3/20).
- Large animal surgery closed (3/20).
- Experiments winding down; training halted
- More instruction from research leadership imminent.
- Establish Lab-DAR lines of communication.

DAR Phase 3

---March 24, 2020 (Tuesday)---

- Hallmark: Widespread school closures and/or community illness. → March 18, 2020
- Focus: Workforce & census maintenance
- <75% staff anticipated on-site; animal care silos.
- Essential animal care, veterinary, and IT staff on site; others at home (3/18); lab services scaled-back.
- Services focus on animal care, not research.
- Overnight team identified (3/25).
- Reduced facility access: key cards, allowable personnel lists, new safety training.
- PIs encouraged to identify the most valuable 25% of animals for preservation.

Attendance DAR Phase 3

Essential technical staff, veterinarians and senior ops leadership (n=90)

- 80% working on campus
- 20% off-site either working from home (9%), on approved leave (5%), or off d/t modified (compressed workweek) schedule (5%)
 - 4-day week, Sunday-Thursday shift
- <2% unscheduled absenteeism

Staff not essential to be on site (n=18)

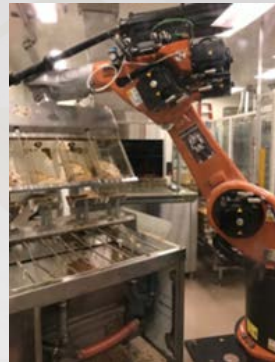
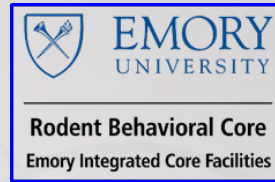
- 15 working from home consistently
- 3 worked on campus.



What Worked/Helped at Emory

Beyond Emergency Preparedness Plan With Pandemic Component

- Allied emergency functions
- Cryopreservation capability
- Rodent Behavioral Core
- DAR:
 - Teleworking culture & IT talent
 - Heavily IT connected
 - Many cell phones & tablets
 - Centralized rodent breeding service
 - Highly automated cage wash rooms
 - PPE inventory control

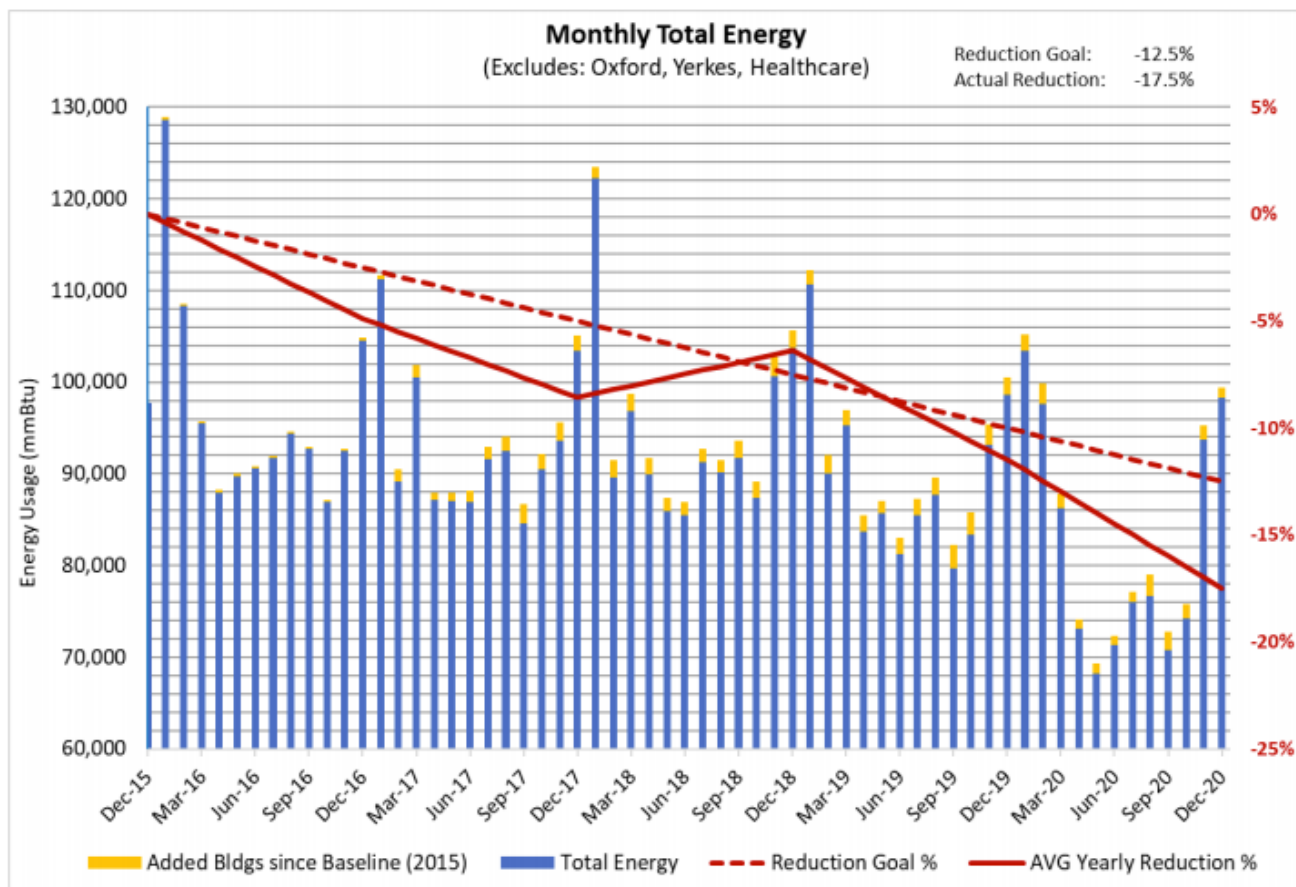


• Payroll & Finances

- March 31: +\$450K in svc core
- Focus on the vulnerable
 - Dr. Wilder-Kofie to cover
- Execs: 15% pay cut for 6 months
- If >\$75K, 5% pay cut for 4 months
- No hazard pay
- Result: no furloughs, RIF or 403(b) cuts



Utility: Monthly Total Energy



- Campus lost substantial occupancy due to COVID19 response
- In March, Campus Services began working to turn buildings down to save energy

Ubiquitous ADA Door Openers

- Enabled hands-free door handling



Communications

Doing it at a cadence and in manners that were not ignored

- Broad & out to the research community
 - DAR: Webinar (4/3), emails (8) = pdf archive on web site; 3/23-7/2
 - Topics: Preservation ID, PPE, slowdown operations, revised PPE, ramp-up, training/access, badge use, scheduling rooms/BSC/mobile stations & steps to gain access
 - Sections: <25 words, ~100 words, 500+ words (Credit: Decatur City Schools)
 - Higher Leadership
 - Fridays at Four Webinars (11): 3/16-6/5
 - Email broadcasts (18): wind down, security, essential functions, cryopreservation, postponement of investment portfolio review, continuity pay, health & safety practices (2), financial impact, research & academic restoration (7), summer leave & reduced hours, student testing
- Internal
 - Reports
 - Weekly warehouse inventory, mouse census, and card key usage
 - Daily attendance roll-call
 - Reported same day to SOM research and financial leadership
 - Messages
 - Daily Pandemic Brief (1/28-2/21) & Daily COVID-19 Digest (3/12-7/2)



**EMORY**
UNIVERSITY

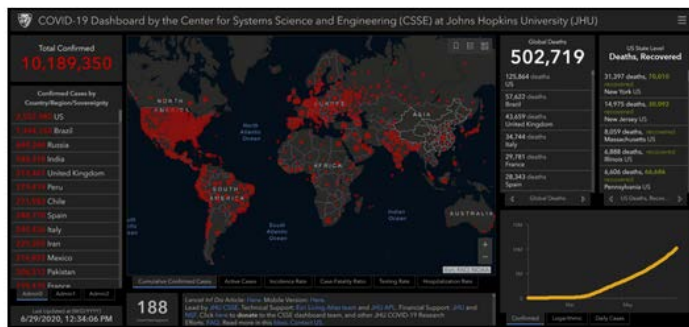
Division of Animal Resources
Emory Integrated Core Facilities

Daily Pandemic Brief

1/28-2/21/2020

DAILY NEWS SCOURING SEQUENCE

1. CDC (www.cdc.gov)
2. WHO (www.who.int)
3. GA DEPT OF PUBLIC HEALTH
4. EMORY UNIVERSITY
5. JHU CSSE (<https://systems.jhu.edu>)
 - Discovered/stumbled upon it on Feb 13
 - Tracked cases and mortality worldwide



Google

Q CORONAVIRUS

6.

The National
Academies of

SCIENCES
ENGINEERING
MEDICINE



The New York Times

The Washington Post



Bloomberg



- **Others:** Reuters (6), The Hill (3), Al Jazeera (3), Axios (3), South China Morning Post (2), CCN (2), WSJ (2), NY Post (2), Nature (2) AP (1), Financial Times (1), MSN (1), LA Times (1), The Guardian (1), USA Today (1), Yahoo Finance (1), KGTV (1), KOMO (1), WXIA (1), Honolulu News (1).



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Pandemic Brief

Daily 1/28-2/21/2020

DAR Brief 2019-nCoV for 2/5/2020

Huerkamp, Michael J
Wed 2/5/2020 7:02 AM
To: Morelock-Roy, Lynne; Kable, Gregory; Whitehead, Neville L; Howard, Marsha A; Mook, Deborah; +4 others
Cc: Jackson, Martina; Esterline, Dakota; Giergye, Crystal

Executive Summary: China continues to report escalating case and death numbers. Belgium reported a case. A cohort of Americans will be evacuated from Wuhan today. Recent news focus was significantly on global economic impacts.

1. DAR status:

- We reported maintaining inventory equivalent of 1 month's PPE use to CEPAR.
- Neville will attempt to increase PPE inventories to 4 months.
- There were discussions of using vinyl food service gloves, washable cotton surgical masks, and laboratory coats in the event that our conventional types of PPE are depleted.

2. Emory status: Nothing to report. The web site content has not been updated since 1/24/2020.

3. Atlanta status: No news

4. Georgia status: Nothing to report

5. National

- US remains at 11 diagnosed cases (CDC)
- Two cases in CA may be worsening (The Hill)
- 35 Americans were scheduled to be evacuated from Wuhan today to US quarantine sites (CBS)

6. International

- >24,324 cases and 492 or more deaths in China (WaPO)
- Add Belgium to the list of nations with a case (CDC)
- Focus recently has been on cruise ships with infected persons aboard (CNN, Reuters)
- Pieces are starting to emerge about the threat to the Tokyo Olympics.

7. Transmission and Treatment

- The 2019-nCoV surpassed SARS in lethal toll (CNN)
- The R0 = 2.2 (NBC)

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mhuerka@dar.emory.edu
www.dar.emory.edu

COVID-19 Digest

Work days 3/12-7/2/2020; Biweekly 7/31 until ...

COVID-19 DAR DAILY DIGEST: 6/11/2020



DAR-AllStaff <DAR-ALLSTAFF@LISTSERV.CC.EMORY.EDU> on
behalf of Huerkamp, Michael J
Fri 6/12/2020 10:52 AM
To: DAR-ALLSTAFF@LISTSERV.CC.EMORY.EDU

1 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

Dear Team, here are your updates:

- 1) Vacation season is upon us and we have the year's high of 12 out on approved leave today across operations and the vet staff.
- 2) We received a positive financial report with an optimistic outlook yesterday. We can come close to breaking even for the fiscal year by containing expenses and with a modest and realistic rebound of the census and technical support activity.
- 3) As the US passed 2 million diagnoses yesterday, COVID-19 cases in GA almost reached 1000 - a dramatic increase over past weeks. The rate of infection does not seem to be reduced in warm weather as many of us hoped. Please continue to stay safe.

It is nice and breezy outside, unlike here in G02H,
Mike

Select Subjects of COVID-19 Digests

- Humanity in managing attendance.
- Pandemic tracking and analysis
- Incessant reminders to stay safe & prevent infection.
- A recap of all the ways I tested to shop for groceries: senior hours, grocery stores and warehouses, online with delays and substitutions.
- One featured 15 recommendations for self-protection from infection.

Attendance Monitoring

1. Daily attendance check-in: Spreadsheet (Sharepoint)

Vet Staff: where are you?	On-Campus: OC	Telecommuting: TC				
Apr 20-24	20-Apr	21-Apr	22-Apr	23-Apr	24-Apr	
University status relevant to DAR	open/research reduced	open/research reduced	open/research reduced	open/research reduced	open/research reduced	
Other relevant status	shelter in place order	shelter in place order	shelter in place order	shelter in place order	shelter in place order	
	schools closed	schools closed	schools closed	schools closed	schools closed	
Doug	TC	OC	OC	OC		
Maya	TC	OC	TC	TC	TC	
Leela	TC	OC	OC	TC	Scheduled off	
Kristy	TC	OC/TC	OC/TC	RC	Off/ Compressed WW	
Kelli	OC	OC	OC/TC	TC	Off/ Compressed WW	
Hanson	OC	OC	TC	OC	OC	
Dakota	TC	OC 8-11 TC remainder	Vacation	Vacation	Vacation	
Martina	OC	TC	OC	TC	OC	
Crystal	TC	OC	TC	OC	Scheduled off	

2. Daily zoom 15-minute roll call from the facilities

3. Culmination email to senior research leadership ⇨⇨

Subject: DAR Roll Call: 4/24/2020

Attendance of vet staff, MBS, trainers and animal care: 72 out of 91; 1 sick, 6 on approved leave, 12 off on adjusted work schedule.

Hot Flashes

- On this the first day of Georgia's big, grand, risky experiment in relaxing social distancing and re-opening businesses, the DAR staff was reminded that they could choose to be in the control (i.e., social distanced) or out-of-control (i.e., frequent businesses and co-mingle in public) groups for the study now underway.
- We have the fixins' for our 12 gallons of home brew hand sanitizer and Neville and I will do the concocting Monday.
- There continue to be periodic confusing episodes between the personnel-associated-with-essential-projects list that Greg compiled derived from those that have DAR card keys and members of the faculty, without card keys, emerging, requesting services, and with a lack of clarity in whether their needs are essential or not. Until this can be clarified, Kristy has been told that she can check with you, Mike Z, to determine if faculty without card keys and not on Greg's list have bona fide essential needs.



Scheduling Resources Using Outlook

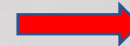
Locations: 9

AHR: 150

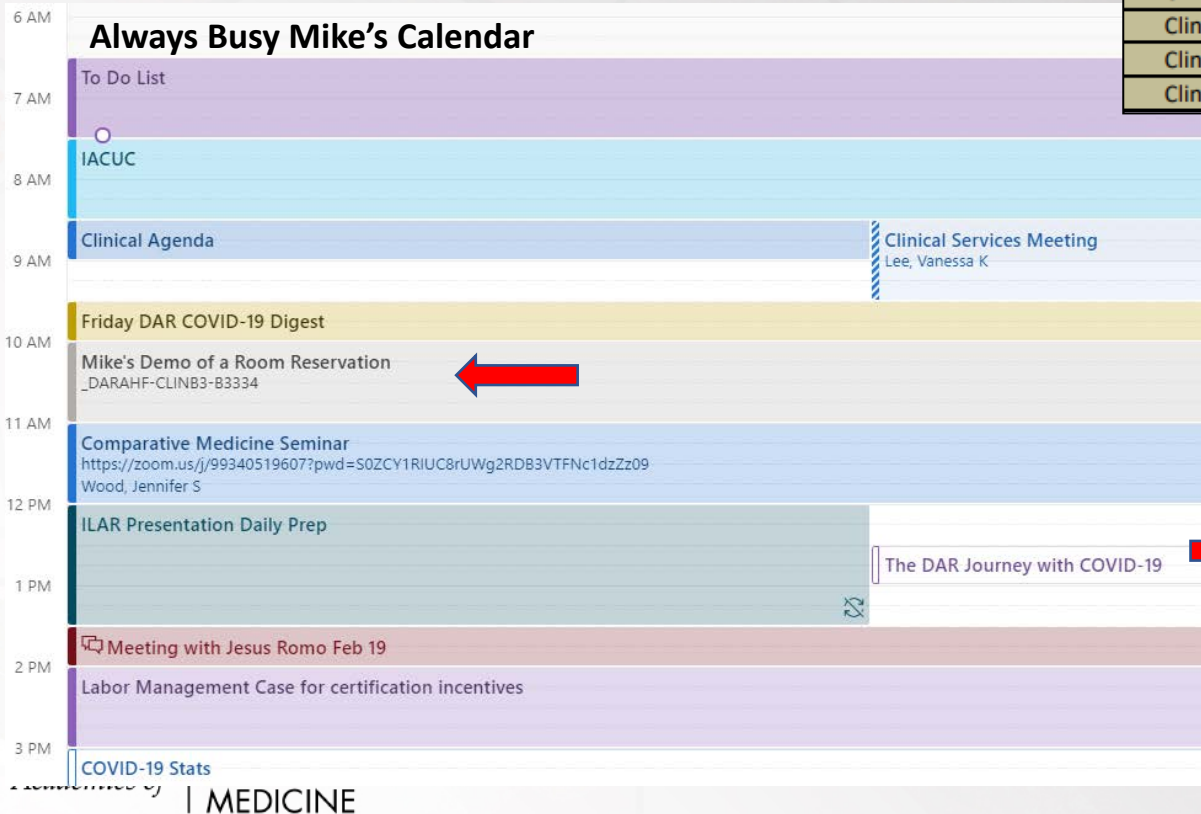
- 1-3 persons/space
- Mouse AHR have BSC

Mobile stations: 20

Procedure rooms: 24



Building	Room Type	Room Name	Office 365 Resource Name	Max Capacity
Clinic B3	Animal Room	B3312	_DARAHF-CLINB3-B3312	1
Clinic B3	Animal Room	B3315	_DARAHF-CLINB3-B3315	2
Clinic B3	Animal Room	B3317	_DARAHF-CLINB3-B3317	2
Clinic B3	Animal Room	B3332	_DARAHF-CLINB3-B3332	2
Clinic B3	Animal Room	B3333	_DARAHF-CLINB3-B3333	2
Clinic B3	Animal Room	B3334	_DARAHF-CLINB3-B3334	3
Clinic B3	Mobile Hood	B3334	_DARAHF-CLINB3-B3334mobile-a	
Clinic B3	Mobile Hood	B3334	_DARAHF-CLINB3-B3334mobile-b	
Clinic B3	Animal Room	B3335	_DARAHF-CLINB3-B3335	2
Clinic B3	Mobile Hood	B3335	_DARAHF-CLINB3-B3335mobile	
Clinic B3	Animal Room	B3337	_DARAHF-CLINB3-B3337	1
Clinic B3	Procedure Room	B3310	_DARPR-CLINB3-B3310	1



Use this location: _DARAHF-CLINB3-B333

- _DARAHF-CLINB3-B3330
Available
- _DARAHF-CLINB3-B3332
Available
- _DARAHF-CLINB3-B3333
Available
- _DARAHF-CLINB3-B3334
Available
- _DARAHF-CLINB3-B3334mobile-a
Available

SCHEDULING ROOMS

[Tutorial: Use DAR Room Calendar in Outlook on Desktop](#) PDF

[Tutorial: Use DAR Room Calendar in Outlook on the Web](#) PDF

[Tutorial: Add DAR Room Calendar in Outlook on Desktop](#) PDF

[Tutorial: Add DAR Room Calendar in Outlook on the Web](#) PDF

[List of DAR Calendar Resources Names](#) PDF

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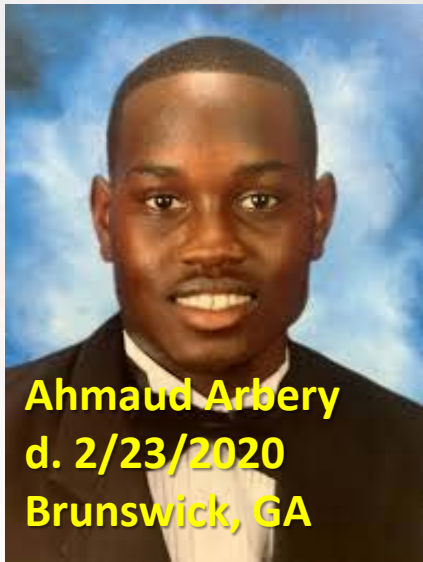
MARCH 9-10, 2021

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In the middle of a pandemic...

..America & we faced a reckoning

- Saying their names



Ahmaud Arbery
d. 2/23/2020
Brunswick, GA

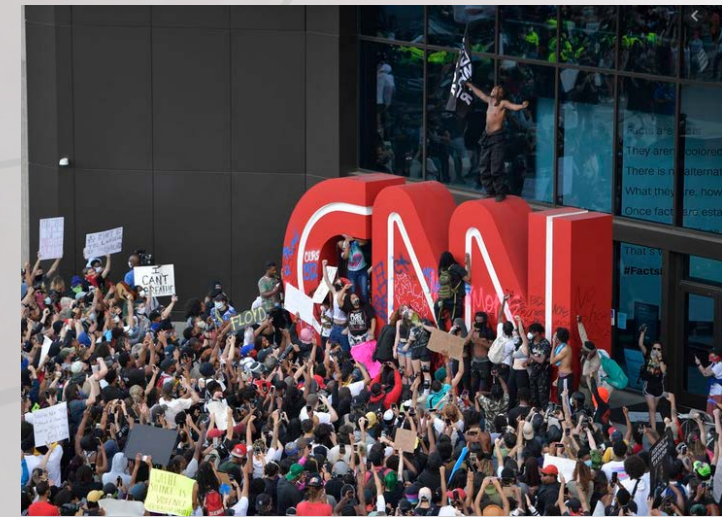


George Floyd
d. 5/25/2020
Minneapolis, MN

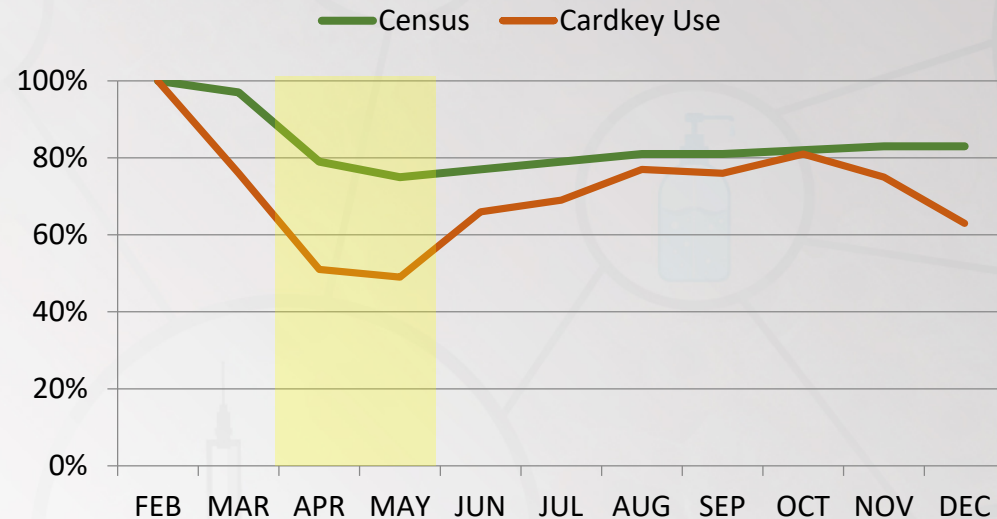


Rayshard Brooks
d. 6/12/2020
Atlanta, GA

- June 13: Violent protests in ATL (peaceful ones previous & after)
- DARZoom Listening Sessions on Racism/Social Injustice
 - June 23, 2020 – January 19, 2021 (n=19)



The expected



- **Census**

- **Mouse cages/week (mean)**

- Low, May: 16,984 (2007)
 - High, February: 23,130

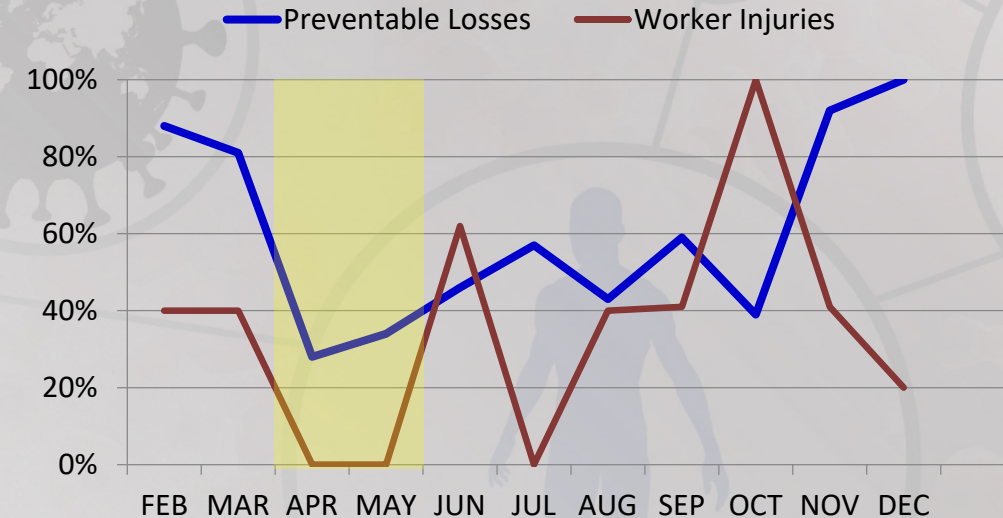
- **Cardkey uses**

- **Uses/week**

- High, February: 19,887

- **Clinical case nadir: 42% drop (May)**

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- **Worker Injuries**

- **Injuries/100 FTEs/month**

- Low, April/May/July: 0
 - High, October: 6.17
 - Mean, year: 2.2/100 FTEs/month
 - 45% OSHA reportable

- **Preventable Losses (of mice)**

- Water supply, cage set-up, socialization





**Special Thanks
To
The Division of Animal Resources
Emory University**

