Responding to the COVID 19 Pandemic

Boston Medical Center

Nursing Informatics Team

Ambulatory Nursing Leadership

Presenters

Tami Chase, BSN RN

Ambulatory Director of Nursing, Pediatrics & Family Medicine

Lois Howry, MSN RN MSN

Nursing Informaticist: Ambulatory & OB

Geralyn Saunders, MSN RN

Chief Nursing Information Officer

Objective for tonight

Describe 4 BMC innovations in informatics, that have been implemented to address patient needs during the COVID19 pandemic

1. Pediatrics Delivered Alternative Care Models
2. Nurse Telephone Triage Improved
3. Inpatient Innovations
4. Opened COVID Respite Hospital (in 4 days)

About BMC

- Boston Medical Center (BMC) was formed in 1996 by a merger between Boston City Hospital and University Hospital. Today we are a private, full service not-for-profit, 514-bed, academic medical center

- Our mission is to provide exceptional care, without exception for our patients of which
  - More than 65% identify as a racial or ethnic minority
  - More than 50% have an annual household income below FPL
  - More than 30% speak a primary language other than English

- System:
  - Epic: Inpatient, Ambulatory & Revenue Cycle: version May 2019

BOSTON MEDICAL CENTER

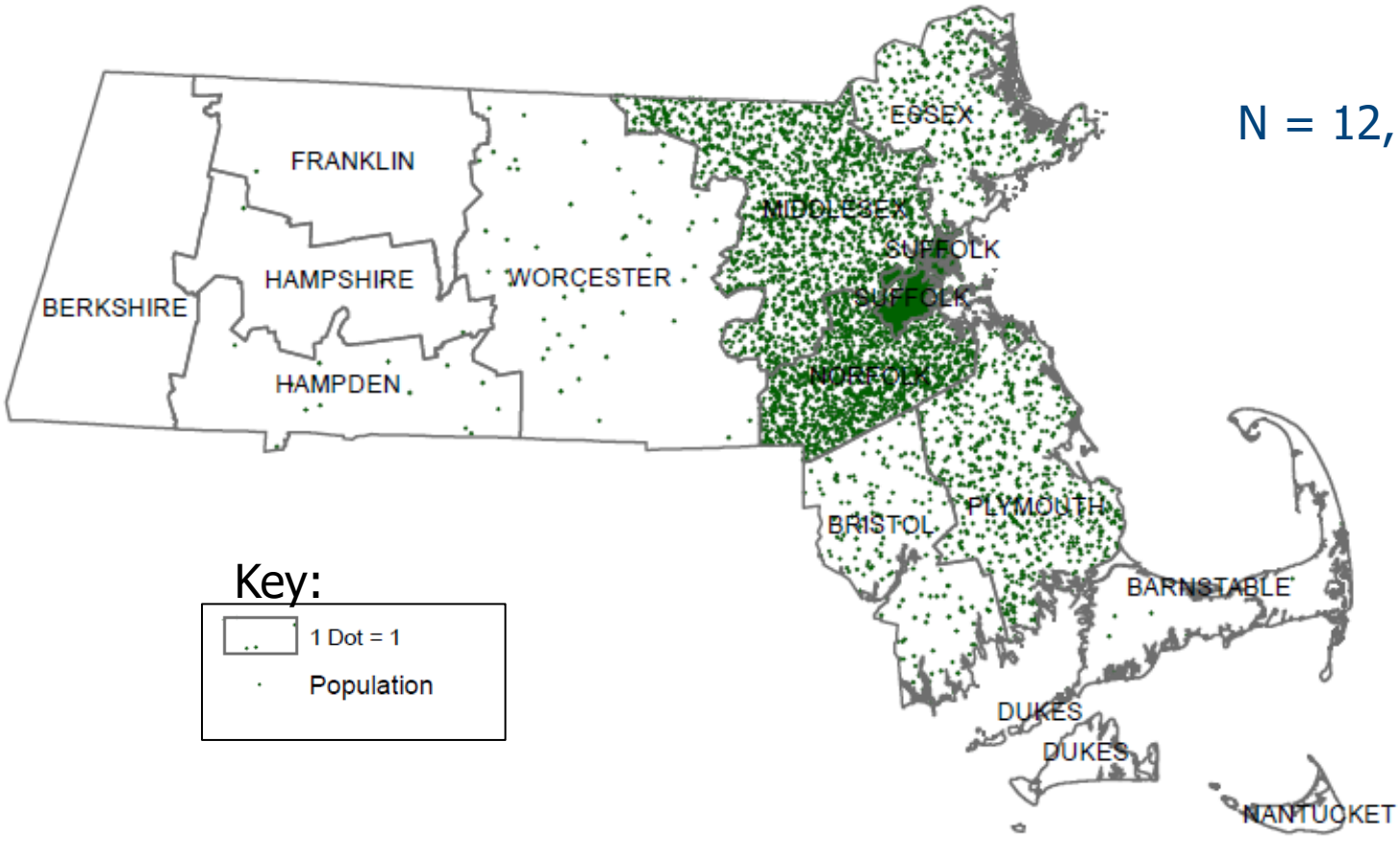
Bringing Pediatric Primary Care and Vaccinations to the Community during the COVID Pandemic

Tami Chase, RN, BSN

BMC Pediatric Primary Care

- Ambulatory pediatric primary care clinic serves 14,000 children
- 35,000 visits per year
- 85-90% on public insurance
- Significant proportion of non-English speaking families
  - Spanish
  - Haitian Creole
  - Cape Verdean Creole

BMC Pediatric Primary Care Population



N = 12,194

Source: BMC Pediatric PCMH Registry as of 6/22/2018

In March 2020, BMC's Ambulatory Services are impacted by state wide "stay at home" order and preparation for the surge of COVID 19 patients

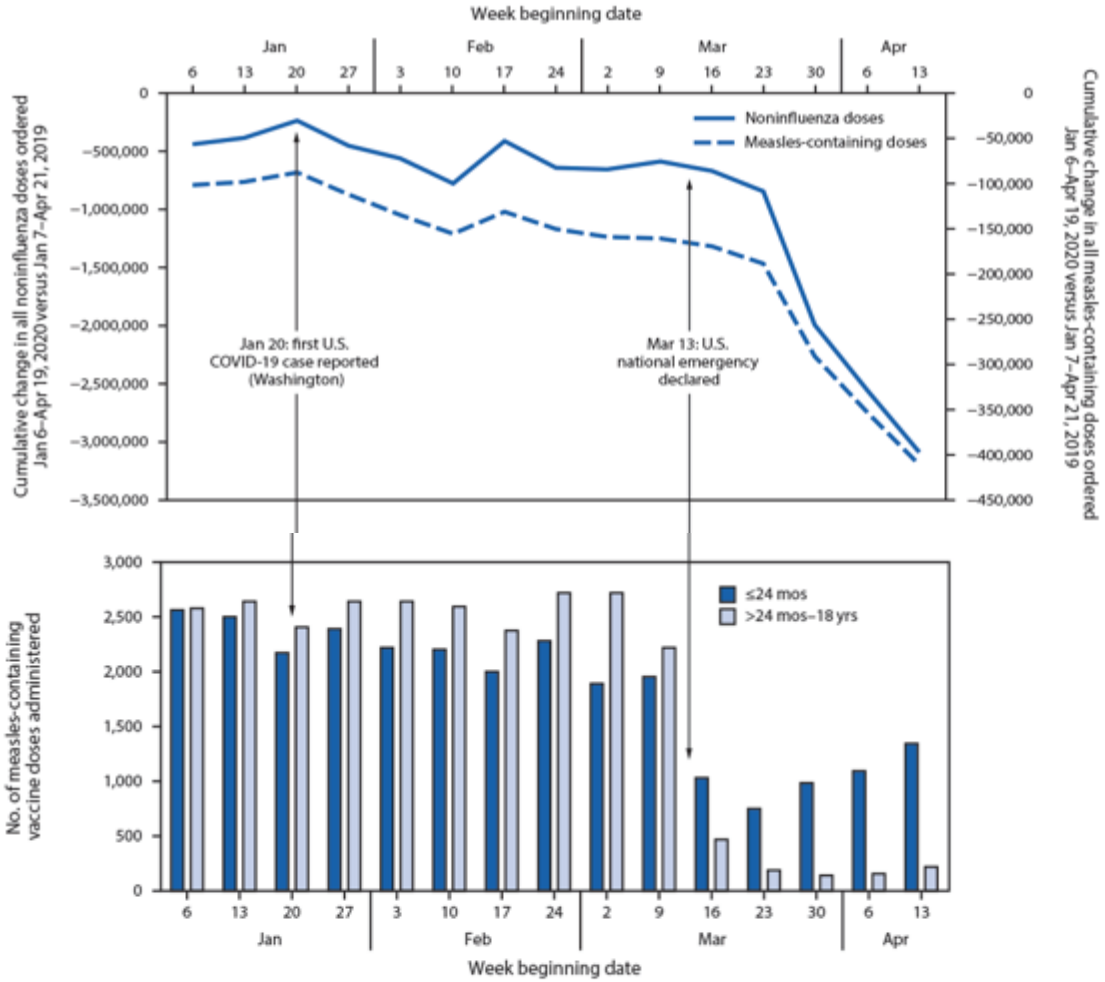
- Massachusetts governor announces stay at home order
- Reduction in ambulatory visits all over hospital
- Elective surgeries cancelled
- 750 staff furloughed
- Disproportionate number of Boston's adult COVID 19 inpatient burden
- Pediatric inpatient and PICU units closed to care for adult patients only
- Pediatric inpatients diverted elsewhere for hospitalization
- Pediatricians and pediatric nurses deployed to COVID inpatient teams
- Condensed clinic space due to need to expand inpatient beds
- Newborns of COVID + moms
  - No VNA or home health services available for COVID + households
  - Weight checks and bilirubin checks

Impact of Pandemic on Pediatric Primary Care

- Outpatient pediatric volume decreased dramatically in mid-March
- Plan A: “essential” visits in clinic
  - Newborns
  - Well child visits in first 2 years of life when vaccine series is not complete
- Symptomatic infants and children diverted to pediatric ER
- Fear ensued in patients and staff
- Nonetheless, families reluctant to bring infants and children into clinical spaces
- 20% of usual volume starting on March 16th, 2020
- Reduction in vaccination rates increasing risk for kids
- National data indicates a 40-50% reduction in vaccination rates first week of April compared to February data

On May 8, 2020, CDC Morbidity Mortality Weekly Reports Decline in vaccine orders and administration

FIGURE. Weekly changes in Vaccines for Children Program (VFC) provider orders* and Vaccine Safety Datalink (VSD) doses administered† for routine pediatric vaccines — United States, January 6–April 19, 2020



* VFC data represent the difference in cumulative doses of VFC-funded noninfluenza and measles-containing vaccines ordered by health care providers at weekly intervals between Jan 7–Apr 21, 2019, and Jan 6–Apr 19, 2020.

Santoli JM, Lindley MC, DeSilva MB, et al. Effects of the COVID-19 Pandemic on Routine Pediatric Vaccine Ordering and Administration — United States, 2020. MMWR Morb Mortal Wkly Rep 2020;69:591–593. DOI: http://dx.doi.org/10.15585/mmwr.mm6919e2external.

As Telemedicine visits launched, gaps in care were identified.

- Lack of primary care and care for chronic conditions for our patients
- First step communication over telemedicine platforms
- Disproportionate COVID burden on communities of color increasing anxiety
- Co-morbid conditions among family members
- Families expressing fear, media attention on BMC as a “COVID hospital”
- Increased risk of vaccine-preventable illnesses if we reach a tipping point
  - 95% immunization rate required for measles immunity
- Children immunized against 14 organisms by age 2
- These illnesses more ominous than COVID 19 for otherwise health children

Finding Innovative & creative ways to safely provide care in a pandemic

- **Bring vaccines to the patients!**
- Brainstorming process of clinical leadership, families
- Philanthropic outreach to our hospital
- Local ambulance company offered use of ambulance and driver

We engaged key stakeholders both internally to BMC as well as our community partners

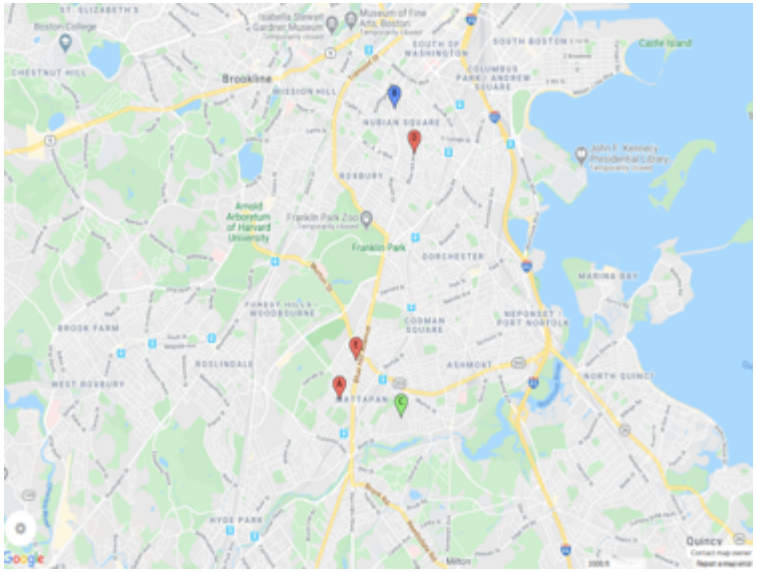
- Department Chair and Hospital Leadership
- BMC Legal
- Regulatory Department re: infection control, safety and clinical compliance
- Public Safety
- Command Central
- MA Department of Public Health Immunization division
- Boston Public Health Commission
- Human Resources
- Nursing Leadership
- Nursing Union
- Laboratory services
- Pharmacy services
- IT

Population Health and panel management was used to identify patients overdue for vaccines

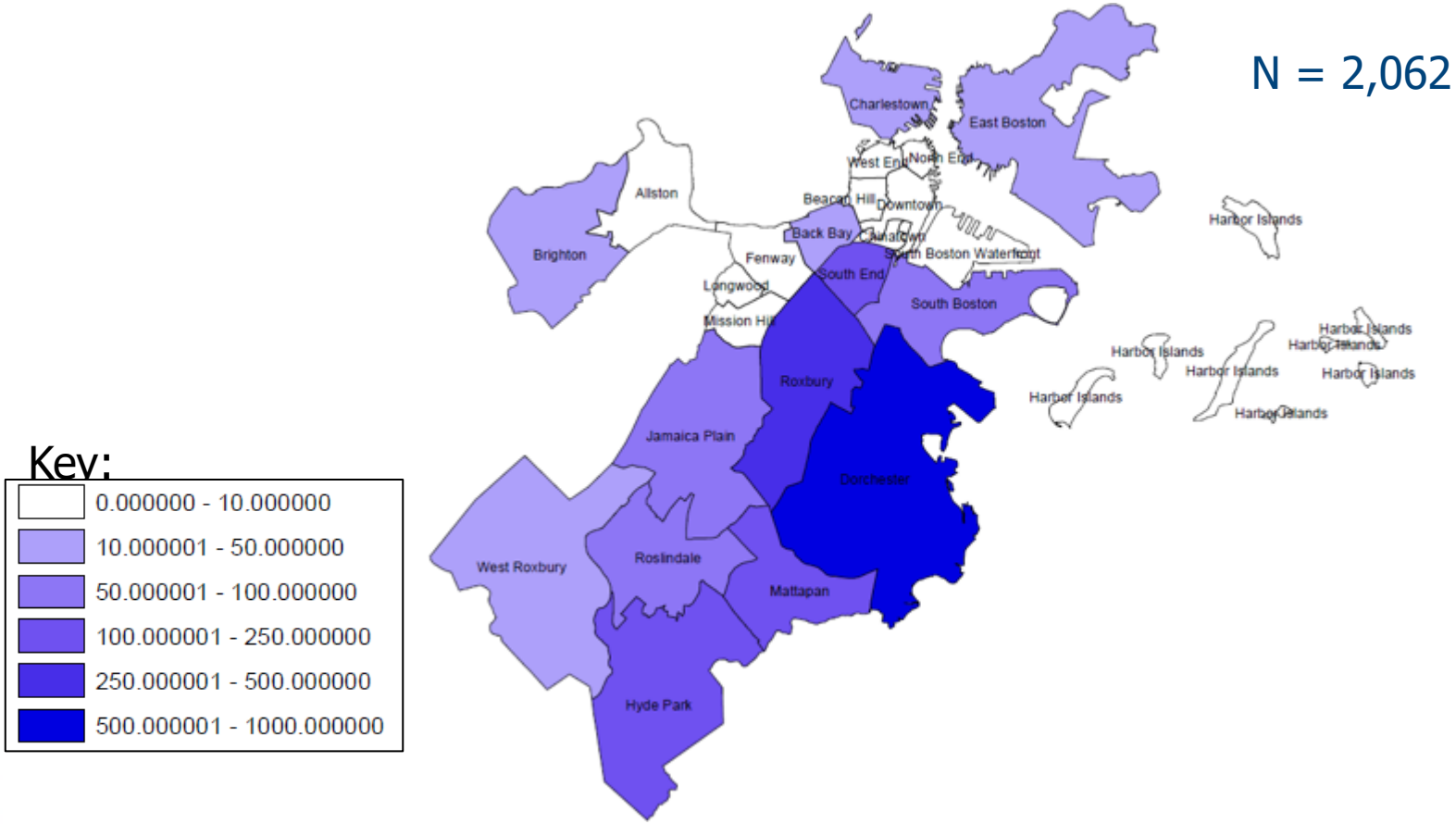
- Reviewed missed appointment over the first weeks of the pandemic to identify missed opportunities to vaccinate
- Primary Care Immunization Registry
- Data platform with combined claims and EHR of ACO patient panel
- Panel management
- Telehealth visits
- Zip Codes used to determine dates of service and scheduling
- Care Management and Navigators outreached families
- Symptom/Travel screener in Epic used to schedule
- Social Needs screening (food, diapers, formula, etc.)

Mapping was used to schedule home visits

- Filtered identified patient lists by zip code.
- Designated which neighborhoods we should go to first based on our volume
- Offered appointments to families in one geographic area over a morning or afternoon
- 5-6 patients per morning or afternoon, more efficient when sibling visits!
- Boston city neighborhoods first
- Next stop outlying areas where we have geographic clusters
- Heat Map used to guide the team



Our Pediatric Primary Care population for ages 0-5 years by Boston neighborhoods



Source: BMC Pediatric PCMH Registry as of 6/22/2018

Our vaccine storage and handling aligns with CDC and VFC requirements

- MA immunization rates historically very high due to state's investment in vaccines for all children up to age 19
- BMC is a Vaccine For Children (VFC) provider site
- MDPH Immunization Program guidance and approval to take vaccines out into the field
- Preparing Vaccines:
  - "travel pack" is used to store vaccines. Prepare according to CDC guidelines.
  - Approved Data Logger and thermometer used in travel pack
  - Temperature parameters monitored visually every 2 hours
  - Data uploaded to the Immunization program

Vaccine Packing guidelines helped maintain temperature ranges for 8 hours

Packing Vaccines for Transport during Emergencies

Be ready BEFORE the emergency

Equipment failures, power outages, natural disasters—these and other emergency situations can compromise vaccine storage conditions and damage your vaccine supply. **It's critical to have an up-to-date emergency plan with steps you should take to protect your vaccine.** In any emergency event, activate your emergency plan immediately. Ideally, vaccine should be transported using a portable vaccine refrigerator or qualified pack-out. However, if these options are not available, you can follow the emergency packing procedures for refrigerated vaccines below:

1 Gather the Supplies

Hard-sided coolers or Styrofoam™ vaccine shipping containers

- Coolers should be large enough for your location's typical supply of refrigerated vaccines.
- Can use original shipping boxes from manufacturers if available.
- Do NOT use soft-sided collapsible coolers.

Conditioned frozen water bottles

- Use 16.9 oz. bottles for medium/large coolers or 8 oz. bottles for small coolers (enough for 2 layers inside cooler).
- Do NOT reuse coolant packs from original vaccine shipping container, as they increase risk of freezing vaccines.
- Freeze water bottles (can help regulate the temperature in your freezer).
- Before use, you must condition the frozen water bottles. Put them in a sink filled with several inches of cool or lukewarm water until you see a layer of water forming near the surface of bottle. The bottle is properly conditioned if ice block inside spins freely when rotated in your hand (this normally takes less than 5 minutes.

Insulating material — You will need two of each layer

- **Insulating cushioning material** – Bubble wrap, packing foam, or Styrofoam™ for a layer above and below the vaccines, at least 1 in thick. Make sure it covers the cardboard completely. Do NOT use packing peanuts or other loose material that might shift during transport.
- **Corrugated cardboard** – Two pieces cut to fit interior dimensions of cooler(s) to be placed between insulating cushioning material and conditioned frozen water bottles.

Temperature monitoring device – Digital data logger (DDL) with buffered probe. Accuracy of +/-1°F (+/-0.5°C) with a current and valid certificate of calibration testing. Pre-chill buffered probe for at least 5 hours in refrigerator. Temperature monitoring device currently stored in refrigerator can be used, as long as there is a device to measure temperatures for any remaining vaccines.

Why do you need cardboard, bubble wrap, and conditioned frozen water bottles?

Conditioned frozen water bottles and corrugated cardboard used along with one inch of insulating cushioning material such as bubble wrap keeps refrigerated vaccines at the right temperature and prevents them from freezing. **Reusing vaccine coolant packs from original vaccine shipping containers can freeze and damage refrigerated vaccines.**

CS240975-A August 2015

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Distributed by

Visit www.cdc.gov/vaccines/SandH for more information, or your state health department.

Packing Vaccines for Transport during Emergencies

2 Pack for Transport

Conditioning frozen water bottles (this normally takes less than 5 minutes)

- Put frozen water bottles in sink filled with several inches of cool or lukewarm water or under running tap water until you see a layer of water forming near surface of bottle.
- The bottle is properly conditioned if ice block inside spins freely when rotated in your hand.
- If ice "sticks," put bottle back in water for another minute.
- Dry each bottle.
- Line the bottom and top of cooler with a single layer of conditioned water bottles.
- Do NOT reuse coolant packs from original vaccine shipping container.

Close lid – Close the lid and attach DDL display and temperature log to the top of the lid.

Conditioned frozen water bottles – Fill the remaining space in the cooler with an additional layer of conditioned frozen water bottles.

Insulating material – Another sheet of cardboard may be needed to support top layer of water bottles.

Insulating cushioning material – Cover vaccines with another 1 in. layer of bubble wrap, packing foam, or Styrofoam™

Vaccines – Add remaining vaccines and diluents to cooler, covering DDL probe.
Temperature monitoring device – When cooler is halfway full, place DDL buffered probe in center of vaccines, but keep DDL display outside cooler until finished loading.
Vaccines – Stack boxes of vaccines and diluents on top of insulating material.

Insulating cushioning material – Place a layer of bubble wrap, packing foam, or Styrofoam™ on top (layer must be at least 1 in. thick and must cover cardboard completely).

Insulating material – Place 1 sheet of corrugated cardboard over water bottles to cover them completely.

Conditioned frozen water bottles – Line bottom of the cooler with a single layer of conditioned water bottles.

NOTE:
This pack-out can maintain appropriate temperatures for up to 8 hours, but the container should not be opened or closed repeatedly.

3 Arrive at Destination

Before opening cooler – Record date, time, temperature, and your initials on vaccine temperature log.
Storage – Transfer boxes of vaccines quickly to storage refrigerator.
Troubleshooting – If there has been a temperature excursion, contact vaccine manufacturer(s) and/or your immunization program before using vaccines. Label vaccines "Do Not Use" and store at appropriate temperatures until a determination can be made.

https://www.cdc.gov/vaccines/recs/storage/downloads/emergency-transport.pdf

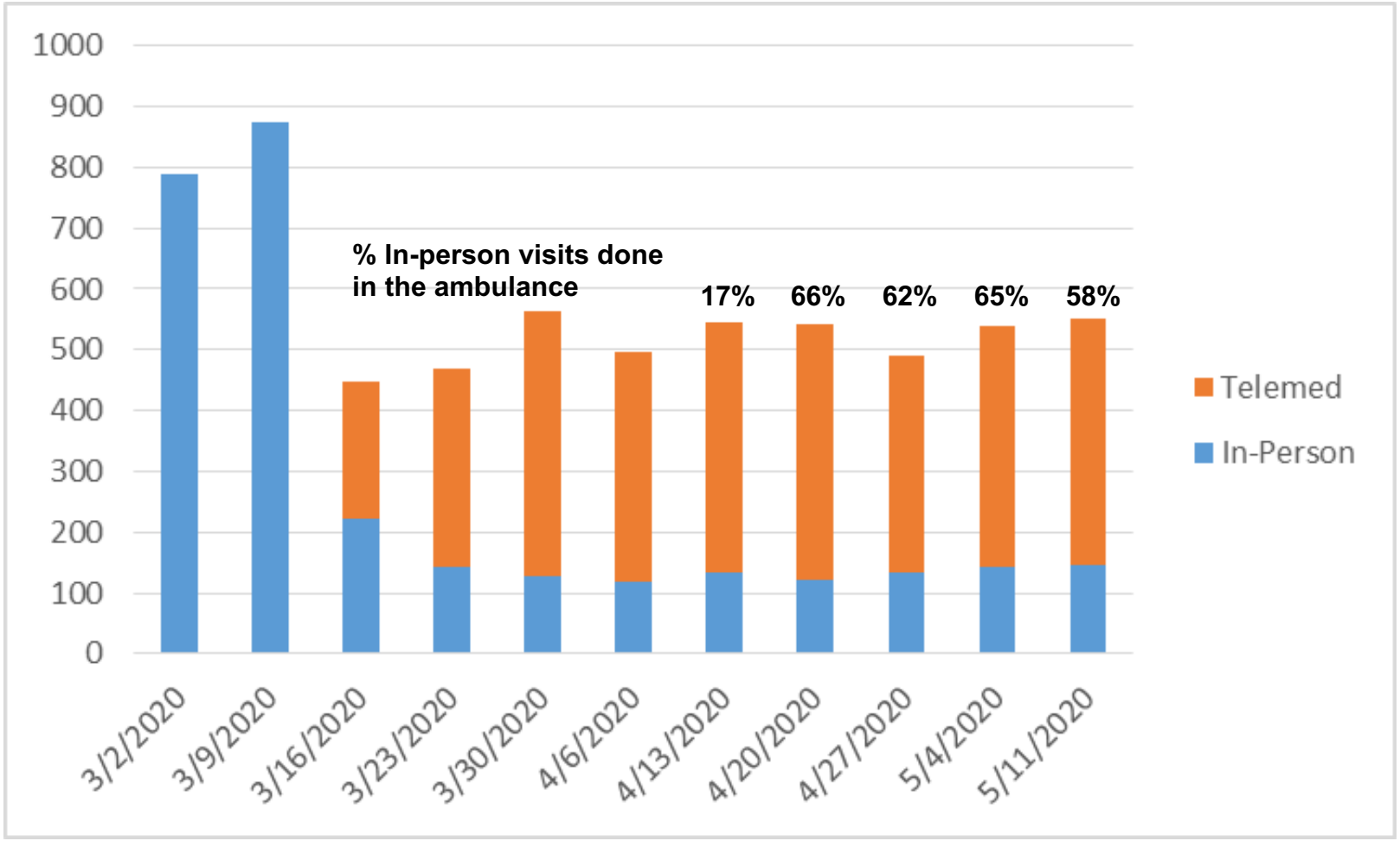
Pre-visit Planning is vital to provide care safely and efficiently

Scheduling	Pre-visit Planning 1 day prior	Day of Visit
▪ Outreach to patient via referral from the PCP or population health list ▪ Script used to prepare the family for the visit ▪ Symptom/Travel screener conducted for household members ▪ Inform patient of the day of visit with time-frame. ▪ Identify any additional social needs (food, diapers, etc.)	▪ Providers review lists the day before ▪ Nurses review vaccine count for the day ▪ Review and plan for following day ▪ Final schedule and Heat map is sent ▪ Additional resource needs gathered. (diapers, dental) ▪ Reach Out Read books ▪ Supply check list completed for next day	▪ Vaccine cooler packed ▪ Supply check list completed ▪ Mini huddle to review all patients needs and verify supplies ▪ Team Lead phones the patient to inform of estimated time of arrival. ▪ Symptom/Travel screener conducted for household members ▪ Complete all visits. ▪ Return to document ▪ Unpack vaccine cooler

Providers seeing their own patients at the curbside has promoted continuity

- Providers reviewing their panels
- Identifying their own patients who require a visit
- Nurses review schedules and plan
- Daily Huddles
- Debrief time and report given
- Great experience for all involved

Pediatric Primary Care transitioned to providing telemedicine but in-person visits were still necessary e.g., pts due for immunizations. Patients/parents reported fear of exposure to COVID and declined coming into the hospital. We "took to the streets" and now over 50% of in-person visits are provided in the ambulance



Our Drive-Up Tent outside of the hospital is made available to patients/families residing in distances outside of our catchment area

- For families who do not want or for whom it's not practical to do a curbside visit
- Large tent outside hospital with convenient and quick parking
- Set up as a pediatric exam room with exam table, scale, lab supplies if blood draws required
- Families scheduled in advance, call as they are approaching
- Symptom screening and Temps upon arrival at tent

We turned a hazmat tent into a pediatric friendly drive-up exam room equipped with medical supplies, reach out and read books & stickers

This new model of care required IT support for scheduling, documentation, and billing enhancements

- Home visit
  - Scheduling Template
  - Visit types
  - Billing codes
- Location of Care determined by legal and compliance in order to submit billing
- IT team set up providers and nurses to access home visit template for documentation
- Implement on site chart review and documentation- Haiku, lap tops, hot spots
- Doximity
- Interpreter services

We debrief after each trip into the community and are determining our next steps

Lessons Learned

- Reduced no-show rate
- High cost even with donated vehicle
- We are keeping our kids vaccinated!
- Morale booster staff: this is fun
- Families appreciative
- PCPs learn, gain new insights about our families from seeing them in their own homes/communities
- Future directions for primary care: more telemed/zoom/ mobile visits
- Pre-visit planning to complete developmental screenings prior to visit

Next Steps

- Expansion of age targets (4 and 11 years)
- Children with chronic illnesses
- Blood draws
- Medication injections: antibiotics, Vivitrol, Depoprovera
- Evaluate charges and reimbursements
- Survey families
- Proposal to DPH for mobile unit
- IRB submitted for evaluation of model

Inside look at our families

- 23 month old not seen since 9 months: 4 year old brother in hospice with brain tumor
- Young mom with post-partum depression
- Domestic violence with elder as perpetrator
- Many multi-generational families in one apartment (other BMC patients)
- Congregate living environments
- Social Isolation increasing risk
- Displacement
- Anxiety and loss around COVID
- No outdoor space for kids
- Digital divide
- Other social needs: food, diapers, mental health support (Project REACH)

“The care of our patients and families is not contained to the walls of our clinic. Our families need us.” ~Priscilla Stout, RN

We are thinking about how we will continue to provide this model of care for our patients and families.

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Nurse Telephone Triage
A project just in time for Covid-19

Nurse Telephone Triage – background

For more than a year, BMC Primary Care nurse leaders (Family Medicine, General Internal Medicine and Pediatrics) struggled with telephone encounter documentation:

- No standardized telephone documentation or note format
- We also knew that if patients did not get adequate advice and reassurance from their doctor's office, they often went to the ER with low acuity symptoms.
- Reporting on volume of calls was difficult to determine due to missing documentation, unclosed encounters, and passing of the call from one clinician to another

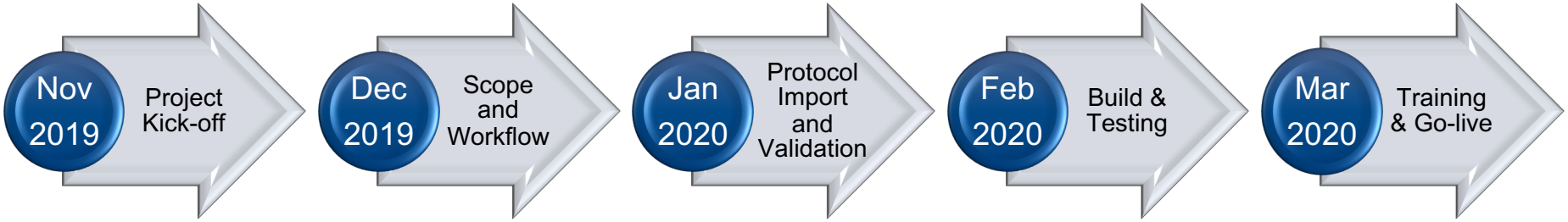
Nurse Telephone Triage – Identifying Resources

Starting in August 2019, nursing leaders in primary care clinics started discussing the importance of Telephone Triage to nursing practice with staff

- Showed Carol Rutenberg's video series on nurse telephone triage at staff meetings
- Reviewed Schmitt (Pedi) and Thompson (Adult) protocols with staff. Books were available for use

Since we already used Epic's telephone module, it made sense to add telephone triage protocols to our existing module (which was built as a stripped down version for use by the Call Center)

Telephone Nurse Triage Timeline



- **Project plan was submitted in summer of 2019**
- **VP governance gave approval to start project over the first two quarters of FY 2020**
- **Of all the projects that were approved to go live over the next two quarters, there were only three that were allowed to continue. Not only was this one approved to continue, we were asked to go-live earlier than planned**

Nurse Telephone Triage – Kickoff STAKEHOLDERS

Name	Position
John Cyzon	Manager, Epic Clinical Teams
Malinda Farrin and Brittany Lynch	Team Leads, Epic Ambulatory IT
Stephanie Martinez, RN	Director Ambulatory Nursing Services
Geralyn Saunders, RN	Chief Nursing Informatics Officer
Sophia Thornton Pamela Nettles-Gomez	Operations Manager, Primary Care Operations Manager, Pedi and Family Medicine
Patric Takagi	Epic technical support

Nurse Telephone Triage – Kickoff: WORKGROUP

Name	Position
Tami Chase, RN	Nurse Manager, Pediatrics and Family Medicine
Sherry Brink, RN	Nurse Manager, Primary Care clinics
Marlaina (Marne) Woyat	Analyst, Ambulatory Team
Lois Howry, RN	Ambulatory Clinical Lead, Informatics Team
Mary Angelides, RN	Staff nurse, Pediatric clinics
Carlie Depina, RN	Staff nurse, General Internal Medicine clinics
Maureen Brean, RN	Staff nurse, Family Medicine clinic
Epic Instructional Designer	Transition in the role during the project
Robert (Bob) Michaud	Analyst, Reporting Team

Nurse Telephone Triage protocols – Scope and workflow

Provide Standardized approach to telephone triage	• Improve consistency of the home care advice given by the nurse • Provide a consensus tool for physicians across the healthcare system regarding how telephone care will be delivered
Reduce telephone errors and legal liability	• Prevent omission of important questions • Provide a focus for review of nurse performance (dashboards) • Allow physicians to safely delegate calls to nurses
Improve efficiency	• Keep the assessment process thorough and logical • Simplify training and education of staff • Allow documentation by exception

Nurse Telephone Triage – Scope and workflow

Goals:

- Standardize documentation of nurse telephone encounters, and assist with data collection, triage, decision-making, disposition selection and advice-giving processes
- Reduce the number of Low-Acuity ED visits

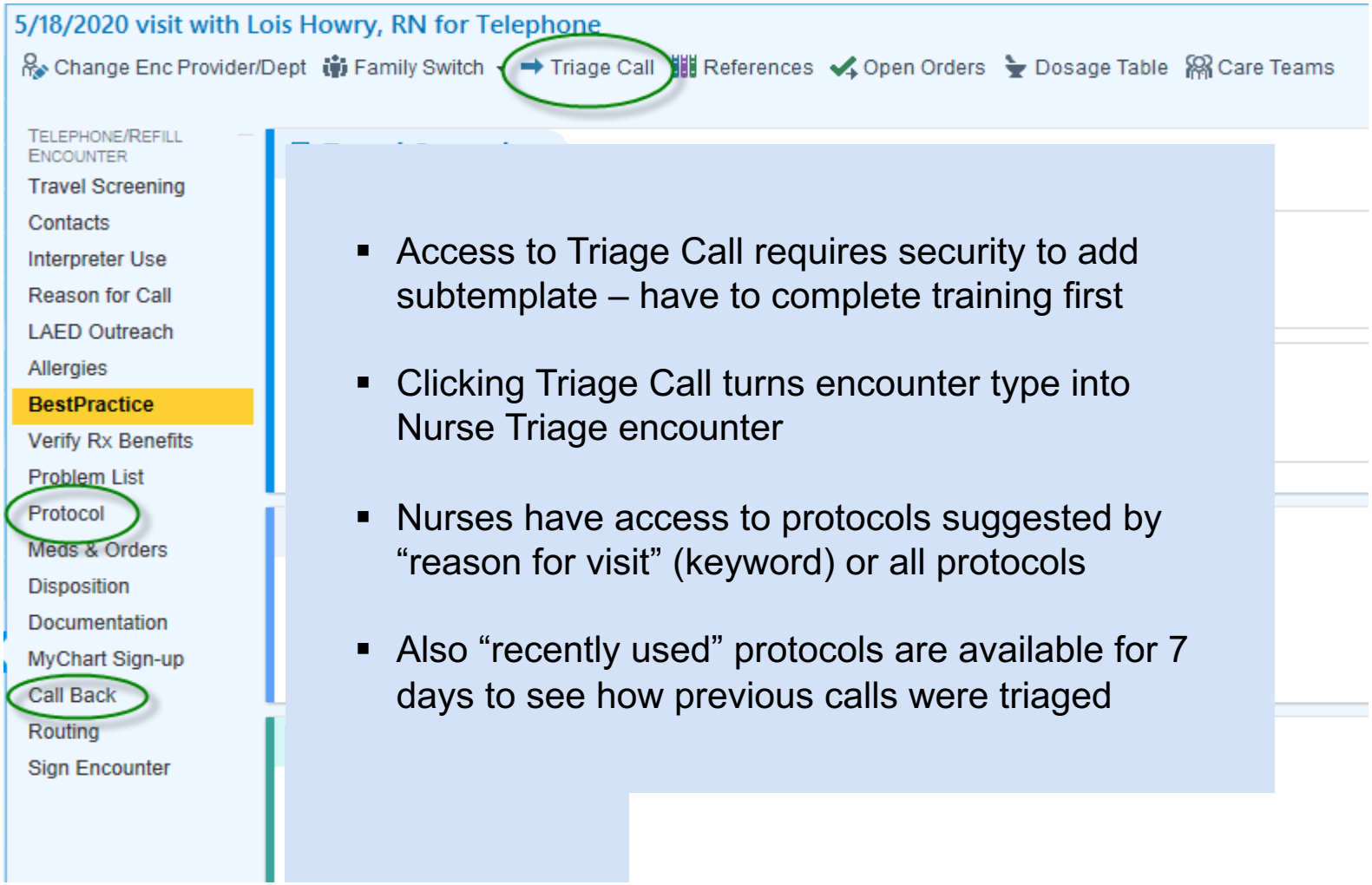
Process standards:

- Document of EVERY encounter
- "Paint a picture" to enhance communication between nurses and other team members
- Include pertinent symptoms present and not present
- Document in real time

Nurse Telephone Triage – Protocol Import and Validation

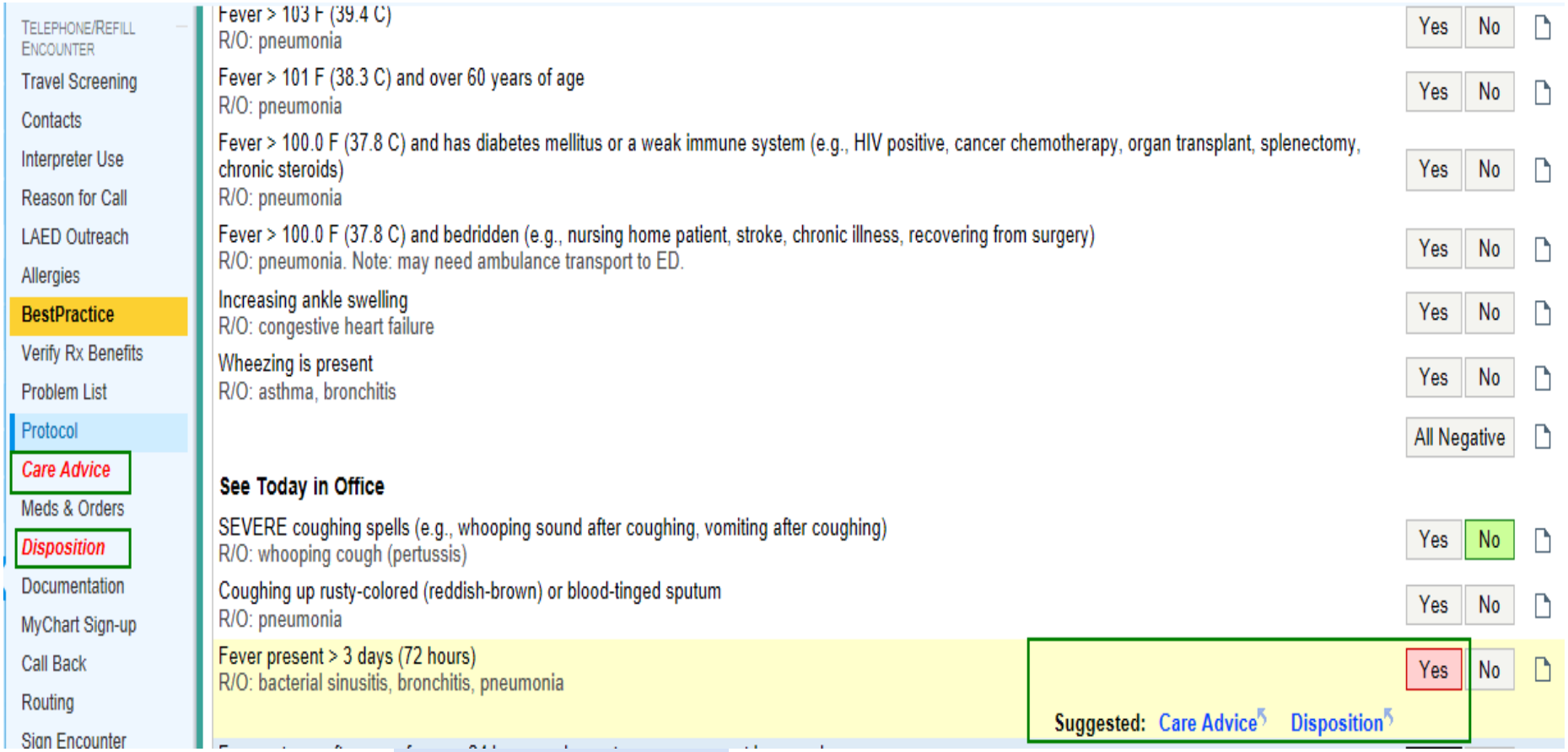
- Epic uses Schmitt (pedi) and Thompson (adult) protocols
- Epic licensing is based on number of concurrent users using the triage protocols
- We limited the protocol use to primary care areas (pediatrics, general internal medicine and family med)
- Workgroup began reviewing protocols and care advice and becoming familiar with the dispositions and workflow
- We decided to only implement Office-Hours protocols at this time

Nurse Telephone Triage – Build and Testing



- Access to Triage Call requires security to add subtemplate – have to complete training first
- Clicking Triage Call turns encounter type into Nurse Triage encounter
- Nurses have access to protocols suggested by "reason for visit" (keyword) or all protocols
- Also "recently used" protocols are available for 7 days to see how previous calls were triaged

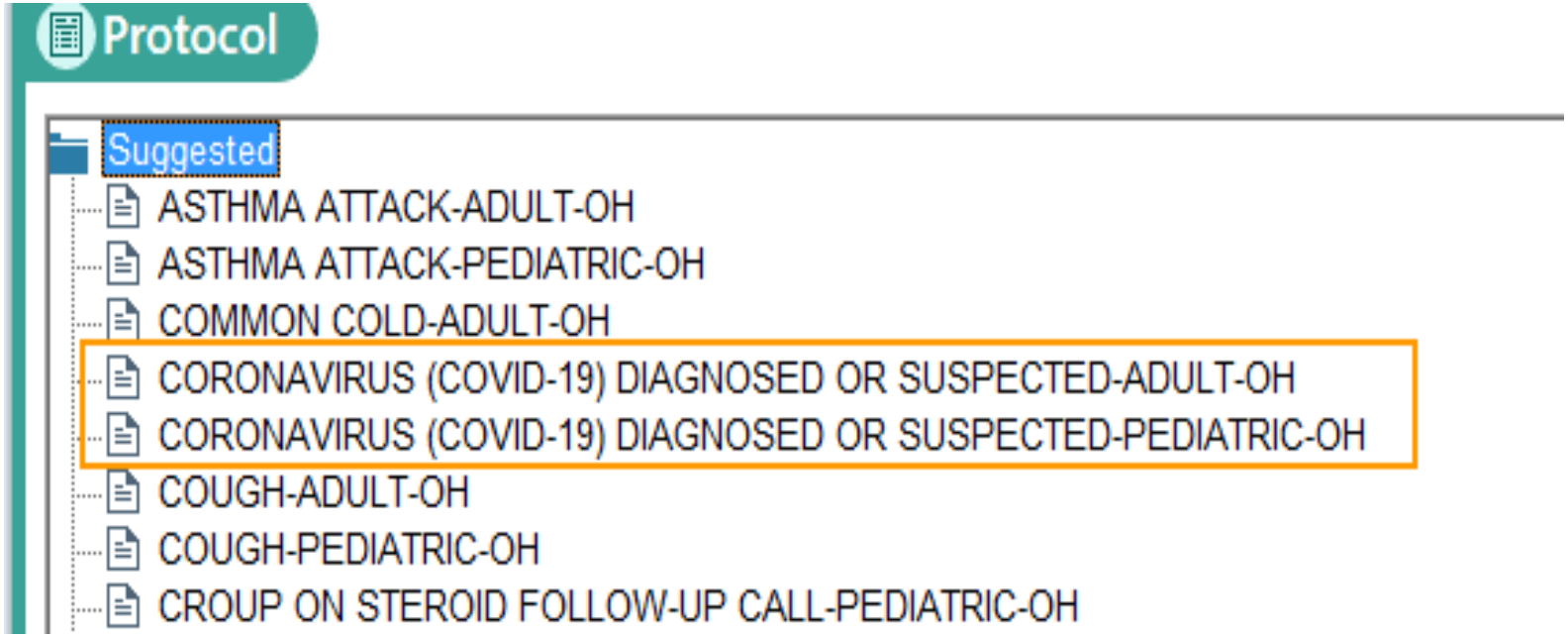
Nurse Telephone Triage – Build and Testing



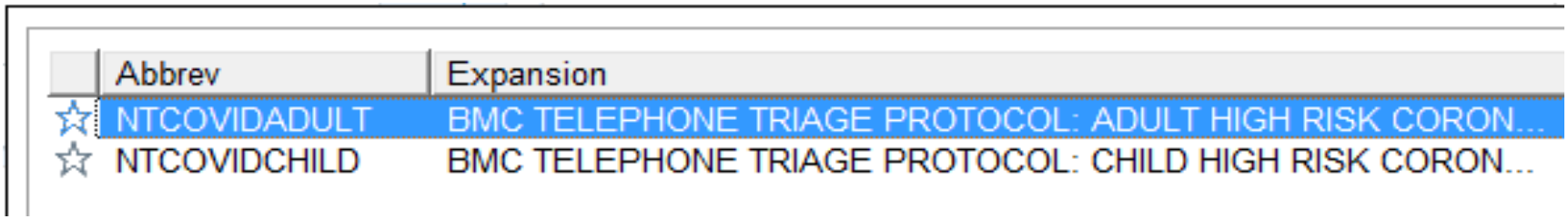
Nurse Telephone Triage – Training and go-live

- Initially training consisted of two hours
  - One hour of didactic review summarizing the importance of telephone triage, the standards, and the desired workflow
  - Second hour was in Epic, including a demo of the workflow and hands-on time in the computer lab.
  - When we were asked to move up the go-live date, we condensed training into a one hour class in the lab
- Quick start guide was distributed by email and printed out for distribution in class.
- Super users and instructional designers assisted the Ambulatory Clinical Lead in providing at-the-elbow support for go-live

Nurse Telephone Triage – Training and Go-Live



- Analysts also build smart phrases for non-primary care areas:



Nurse Telephone Triage – After Go Live – unexpected events

- Weekly revisions were needed to custom covid-19 protocols and for smart-phrases to keep current with CDC guidelines and BMC practices
  - Set up of ILI (influenza-like clinic) at BMC
  - Reduced in-clinic visits which made some triage sections irrelevant
  - Push for provider tele-medicine (including video) visits for non-Covid symptom follow-up

- Many nurses working remotely
  - New location – learning how to access Epic remotely
  - Managers needed to follow productivity while nurses not physically in the clinic

Nurse Telephone Triage – After Go Live: Reporting

Manager Dashboard

Nurse Triage Manager Dashboard

Department: YAW PEDIATRIC CLI...

Department Quality Metrics — Pediatric Primary Care

	Nov 19	Dec 19	Jan	Feb	Mar	Apr	MTD
Work Duration	-	-	-	-	17m	18m	22m
Emergent Disposition Rate	-	-	-	-	13 %	11 %	16 %
Appointment Disposition Rate	-	-	-	-	20 %	21 %	19 %
Follows Care Advice Recorded Rate	-	-	-	-	82 %	92 %	97 %
Follows Disposition Recorded Rate	-	-	-	-	0 %	16 %	40 %
User Daily Call Volume	-	-	-	-	5.4	5.8	5.4
Total Daily Call Volume	-	-	-	-	16.7	18.2	16.2
Protocols Viewed Per Encounter	-	-	-	-	1.3	1.2	1.2

Users In This Department Last Week

	Work Duration	Emergent Disposition Rate	Appointment Disposition Rate	Follows Care Advice Recorded Rate	Follows Disposition Recorded Rate	Daily Call Volume	Protocols Viewed Per Encounter
RN	16m	19 %	24 %	100 %	0 %	7.3	1.2
RN	33m	10 %	20 %	94 %	0 %	7.0	1.2
RN	21m	12 %	10 %	95 %	93 %	9.2	1.2
RN	13m	0 %	33 %	100 %	0 %	6.0	1.0
RN	9m	0 %	0 %	100 %	0 %	1.8	1.0
RN	22m	0 %	0 %	100 %	0 %	2.0	1.0
RN	29m	0 %	0 %	-	0 %	1.0	1.0

Be Exceptional
BOSTON MEDICAL CENTER'S STRATEGIC PLAN

1

Nurse Telephone Triage – After Go-Live Results

- From 3/23 to 5/8 we created just under 5,000 (4,738) NT encounters in all primary care departments

- Initial goals:
  - Reduce Low Acuity ED Visits (Report: Nurse Triage Low Acuity ED Visits)
  - We can also look at whether we reduced admissions within 24 hours after NT calls (Report: Admission 24 hours after NT Call w/ Non-urgent Disposition

- Lessons learned:
  - Critical to include nurse super users in working group – they were instrumental in training and at-the-elbow support
  - Closing encounters increased reliability of operational reports
  - Zoom training in small group of 2-3 was very effective
  - Call-in number to analyst was heavily utilized during the first week of go-live
  - Much easier to train new or reassigned ambulatory nurses to triage using the protocol workflow.
  - Increased confidence of doctors in the information nurses were providing to patients

BMC Innovations during Covid-19

Inpatient Innovations

Inpatient Solutions

Surge Support

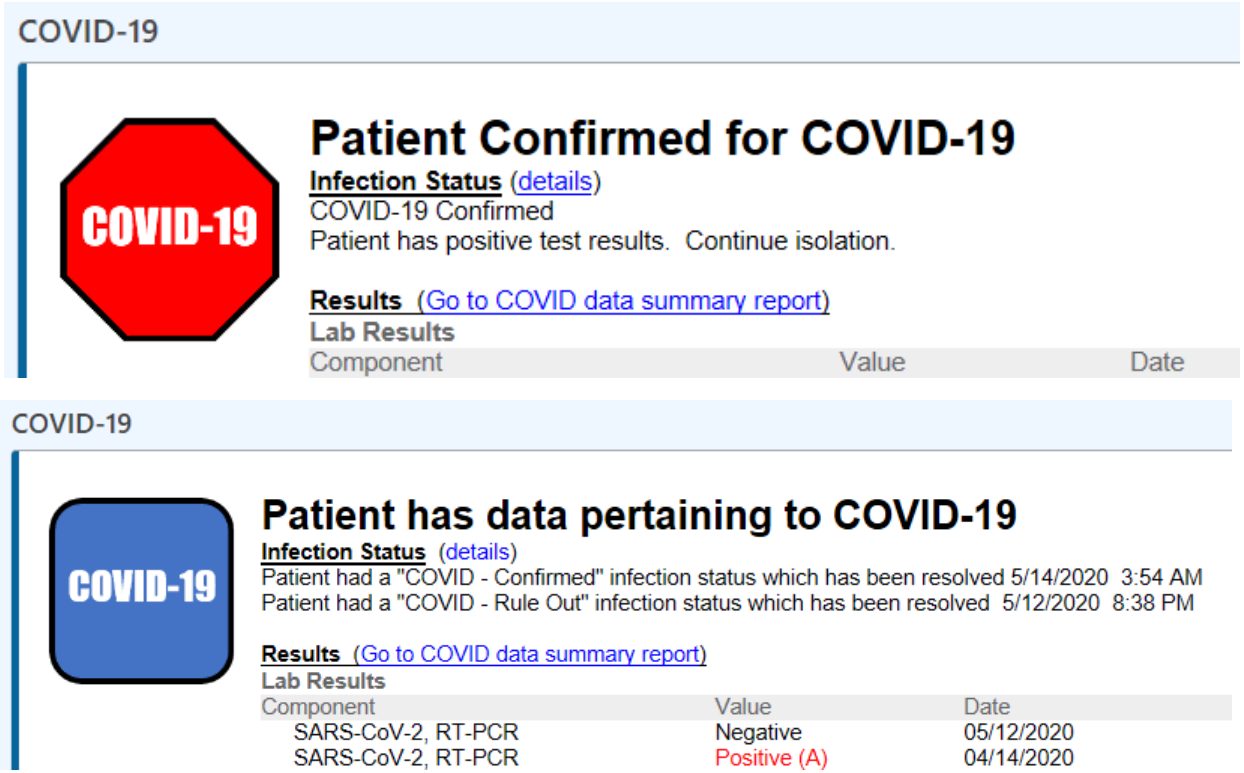
- Created new inpatient areas in nontraditional spaces
  - Critical Care: **+23 beds** (could add 9 more)
  - IMCU: **+28 beds**
  - Med/Surg: **+72 beds** (could add 33 more)
  - PICU: combo area with 4 to 8 beds
- Surge into:
  - Procedural areas & Preop/PACU
  - Ambulatory clinics (OB space)
  - Pediatric inpatient (critical care & floor)
  - Emergency Room & Radiology (never used)
- Specialty needs
  - Device integration & monitoring equipment
  - Clinic collect or Phlebotomy draws
- Expanding the use of telesitter equipment (12 cameras & 2 monitors) to monitor critical care patients in a nontraditional ICU space

Capacity Management

Surge Support

- COVID vs. Non COVID needs
  - Bed planning
  - COVID banner
- Multidisciplinary surge planning meetings
  - Lead by project manager
  - Checklist created and updated
  - Ancillary departments involved and needed
- Room & Bed build
  - Type of unit: ICU, IMCU & MedSurg
  - Built out multiple care types per location
  - Creation of new bed control buckets & status board icons
  - Driven by Bed Control
- Set up a Respite Hospital (in less than 1 week)

Patient Summary banners



Training & Support

Training:

Drivers: reassigned staff and new hires (permanent & travelers)

Revised new hire lesson plans

Improve test out options (for experienced Epic new hires)

Partnered Principal Trainer with Clinical Staff

Numbers:

403 employees trained (in 3 weeks)

81 new tip sheets created

Support:

Confirm necessary security updates: providing correct tools

Resource for clinical staff & leaders on workflow & system functionality

Devise Activities

Device deployment

- Deployment of iPads to impact communication
  - Between care givers
  - Between patients & families
- Deployment of MS Surfaces with Zoom Controller
  - Goal: monitoring patients with video conference
  - Using multiple devices (WOWs, iPhones, iPads)
  - COVID ICU areas to reduce PPE & exposure

Next steps:

- Rover on Med/Surg
  - Go Live early June
  - Long term request
- Epic Monitor
  - ICU need
  - Telesitter options

Inpatient Lessons Learned

Uncertainty of capacity needs:

- Challenges with unit type
- Availability of monitoring devices

Equipment availability challenges

- WOWs – new vendor
- Windows update – from V7 to V10

Integrated system

- Estimated DC date
- Case Management: transitioned to Epic in January

BMC Innovations during Covid-19

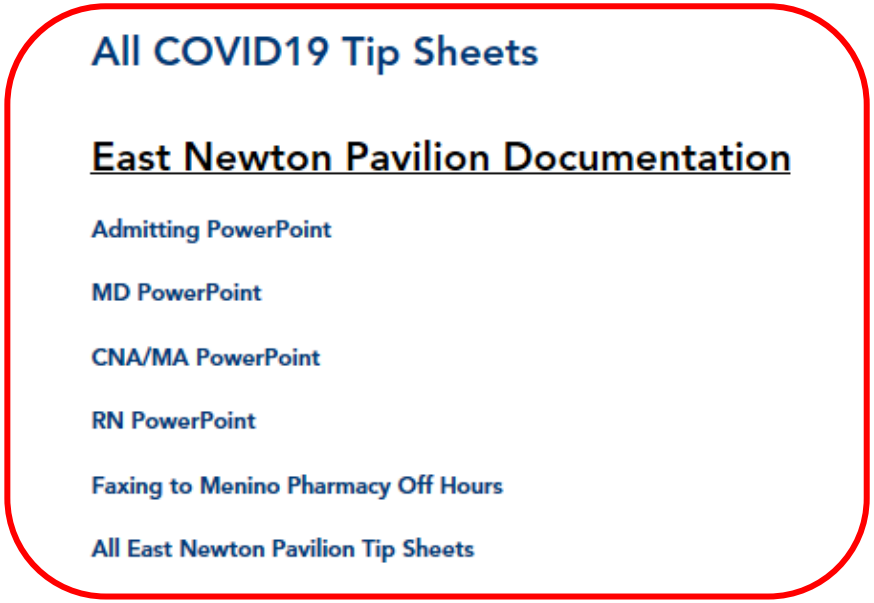
Opening COVID 19 Recovery Units (CRU) in the Newton Pavilion

Reopening East Newton Pavilion

Reopening East Newton Pavilion

- Facility is a partnership between BMC, Boston Health Care for the Homeless, the city of Boston and many homeless shelters
  - Boston 2019 census found 2,348 adults living on the streets or in emergency shelters
    - Living in close quarters provided a risk for rapid spread of the virus
- BMC IT team spent three days building out eight COVID Recovery Units
  - Much expertise in this due to our experience with all the moves required for campus consolidation
  - Three 20-bed units were ready on the 7th floor for the April 9 evening opening
    - Three more 20-bed units on the 6th floor and two more units on the 8th floor were also built for total capacity of 200 patients
  - Patient status is bedded outpatient but all EHR tools are inpatient workflows.
- Donations were received from Stop & Shop (prepared meals), Bob's Discount Furniture, Wayfair, Jofran, Ocean State Job Lots, BJs, Gap and Hanes and many others

Reopening East Newton Pavilion: Training



- Full powerpoints presentations were made with screen shots of the ENP workflow for all levels of practitioner
- Tip Sheets were designed and posted on the BMC IT intranet site.
- Epic Trainers were on-call for one-to-one instruction for the first 5 days around the clock and then on-call as needed
- Zoom personalization sessions were offered for any providers from outside BMC
- Many nursing staff had been cross-trained to inpatient role from Perioperative Services, Ambulatory clinics, and other areas
- New nurse graduate orientation was provided in small in-person classes ahead of the new graduate nurse program offered in June
- Security team provided the appropriate templates and access to the EHR in record time.

Occupancy

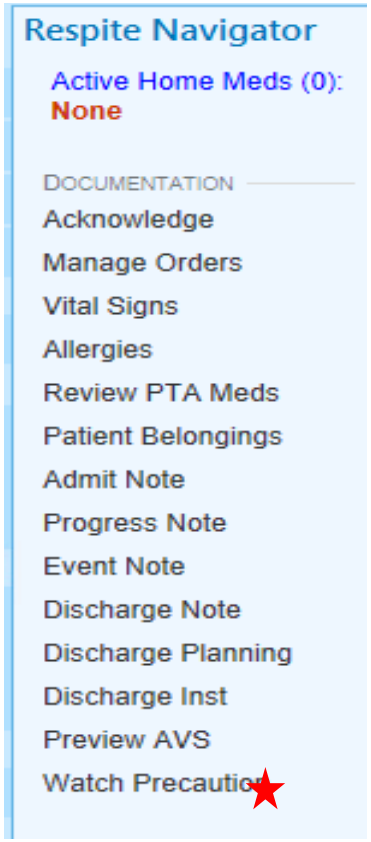
- By 6:30 pm on Thursday, April 9, we had 15 people admitted
  - Census grew to maximum of 66 patients on 5 units
  - Over 288 patients have been discharged with letters of completion
    - Meeting CDC guidelines defining recovery from Covid
    - Negative swab for some shelters
- Units separated by gender. All rooms were double occupancy
- Most patients (>60%) came from BMC Units or BMC ED. The rest came from shelters, other hospitals, or had no designated home and came to us. Some patients lived with an elderly parent or family member and would not be able to isolate in that home situation.

Occupancy

CRU care providers

Care team includes providers (MDs, DOs, NPs and PAs), Nurses, Nursing assistants, Behavioral health professionals, Addiction Specialists, Social work, Case management and security team. Staff were easily recognizable in full PPE.

CRU documentation



- Documentation is limited to notes in the EHR, use of a worklist for specimens to be collected on the unit and a respite navigator for a streamlined workflow.
- Controlled substances counts are done on paper
- Providers fill out a paper PRN medication order sheet
- Any medication administrations are documented on paper (and in a shift note)
- All vital signs are recorded in Epic
- For nursing notes, service of “nursing” defaults and there are smartphrases for CRU admission, shift note, and discharge
- An event note template includes prompts for date/time, location and summary of event). Nurses and CNAs can document event notes.
- Watch precautions fill a column (★) added to the Patient Lists to indicate which patients were sicker and might require more attention from the provider-on-site

CRU summary

Discharge Criteria

- Patients receive a “letter of completion” to document their recovery
- Letter of completion follows CDC recommendations:
  - 72 hours with fever under 99.9 without antipyretic medication
  - 72 hours symptom free defined as absence of: Fever greater 100, cough, aches/pain, loss of smell or taste, diarrhea, headache, SOB, nausea, vomiting, other
- Some shelters require a negative swab which will be done before discharge

Numbers

- Opened: April 9th
- Total number of patients seen: 288 (as of 5/15)
- ALOS: 6.7 days
- Census on 5/15: 51 on 3 areas

Overall: BMCs response to the COVID 19 Pandemic

Next Steps

Ambulatory

- Expand our outreach program (beyond pediatrics & geriatrics)
- Increase the use of telephone & video visits
- Enhance the Nurse Triage protocols by adding custom protocols & new clinical areas

Inpatient

- Decant by returning surge areas to previous specialties & return Pediatric IP care
- Monitor Critical Care challenges
- Flexibility in assigning Level of Care (Bed Control owning)
- Retool Disaster Documentation & roll out Rover!

Summary

- **Challenging Time:** allows you to be CREATIVE
- **Information Team:** highlighted the value
- **Be Productive:** address outstanding items
- **Collaboration Key: with nursing management & education**
- **NENIC Connections:** sharing with our informatics network
  - Disaster Documentation
  - Rover; Fast Install

Questions

Thank you!

Boston Medical Center: Informatics Team

Boston Medical Center Team: Contact Information

Lois Howry: Nursing Informatics/Ambulatory & OB (Lois.Howry@bmc.org)

Tami Chase: Ambulatory Director of Nursing (Tami.Chase@bmc.org)

Marlaina (Marne) Woyat: Senior Applications Analyst/Ambulatory (Marlaina.Woyat@bmc.org)

Cathy McDonough: Nursing Informatics/Inpatient & Patient Flow (Cathy.McDonough@bmc.org)

Meg Grande: Assistant CNIO (Meg.Grande@bmc.org)

Nancy Giacomozzi: Nursing Informatics/Perioperative & Procedural (Nancy.Giacomozzi@bmc.org)

Maureen Plunkett: Nurse Educator/Clinical Lead/Emergency Department (Maureen.Plunkett@bmc.org)

Geralyn Saunders: CNIO (Geralyn.Saunders@bmc.org)