# Tracking Employee Exposures to COVID-19

## NIEHS Worker Training Program
## April 15, 2020

Marianne Cloeren, MD, MPH
Division of Occupational & Environmental Medicine
mcloeren@som.umaryland.edu

# Disclosures

Nothing to disclose

The findings and conclusions in this report are those of the author and do not necessarily represent the views of the University of Maryland Medical Center or School of Medicine

# Acknowledgement

We acknowledge the support of the **University of Maryland, Baltimore, Institute for Clinical & Translational Research (ICTR) and the National Center for Advancing Translational Sciences (NCATS) Clinical Translational Science Award (CTSA) grant number 1UL1TR003098.**

# Brief Bio

Associate Professor

Internal Medicine and Occupational Medicine

Research on work disability risk and impact of opioids

Online instructional designer

Consultant on Occupational Health issues to UMB and College Park campuses

UMB Medical Campus Community
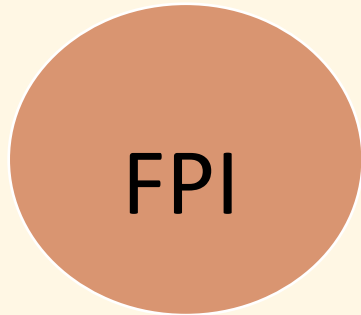
UMB

University of Maryland Medical Center – Patient Care

FPI

Faculty Physicians, Inc. – Outpatient Practices
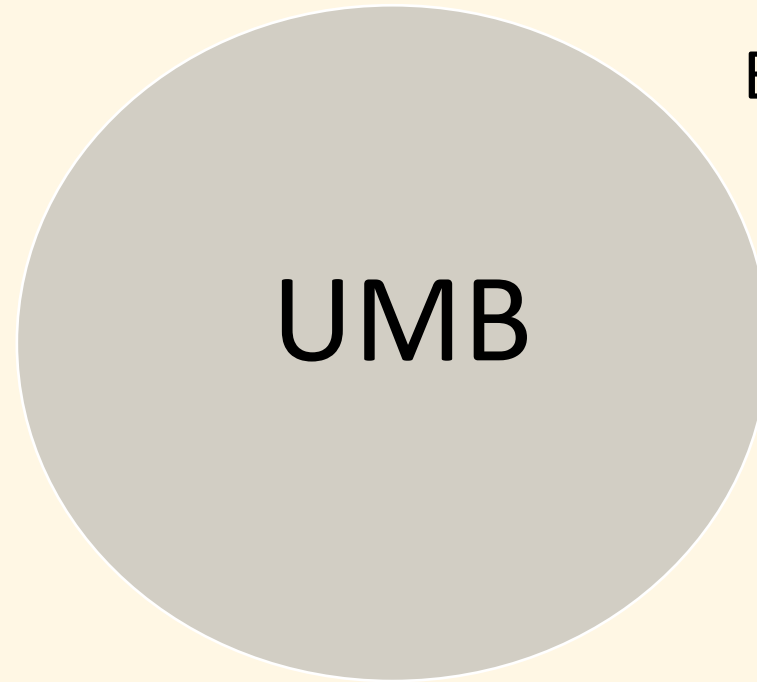
University of Maryland, Baltimore – Research & Education
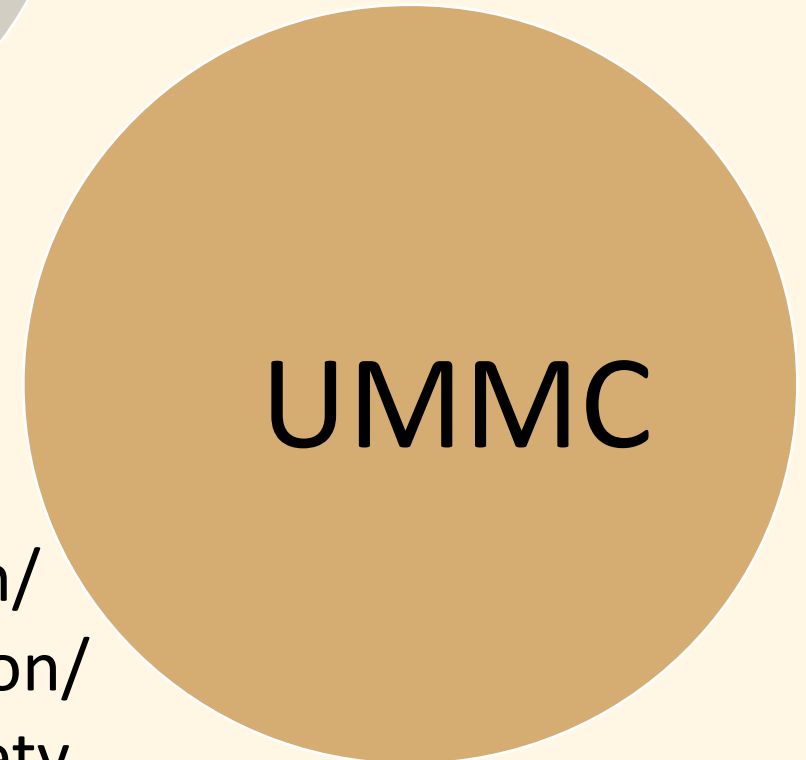
UMMC

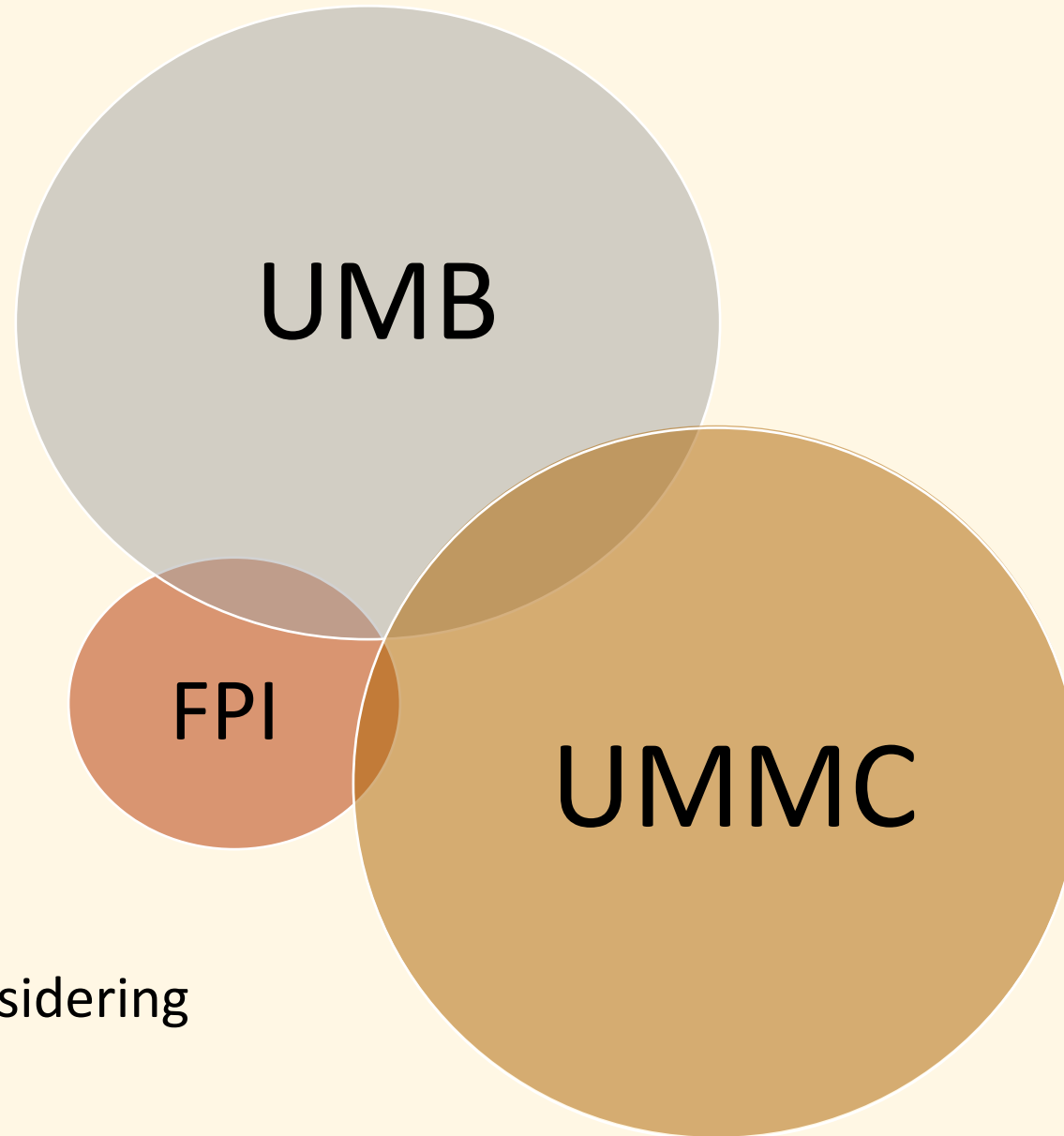*Usual Resources for Employees*

UMB
Environmental Health & Safety but No Employee Health

FPI
Occupational Health Nurse

UMMC
Employee Health/ Infection Prevention/ Occupational Safety

# Challenges in an Overlapping World

Reporting illness and exposures

Contact tracing

Communicating risk

Duplicating effort

Dropping balls
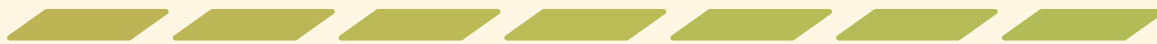
Discordant policies

Consider an infected faculty member, who practices in the hospital... with an outpatient practice ... and a research lab

How many campus organizations and people may be affected?

# Planning for a Pandemic

Brought together key experts and stakeholders from all campus organizations to:

- Plan response (staffing, space, supplies, equipment)
- Write and reconcile policies across organizations
- Decide on personal protective equipment and develop training
- Develop implementation protocols

**Tabletop Exercise**
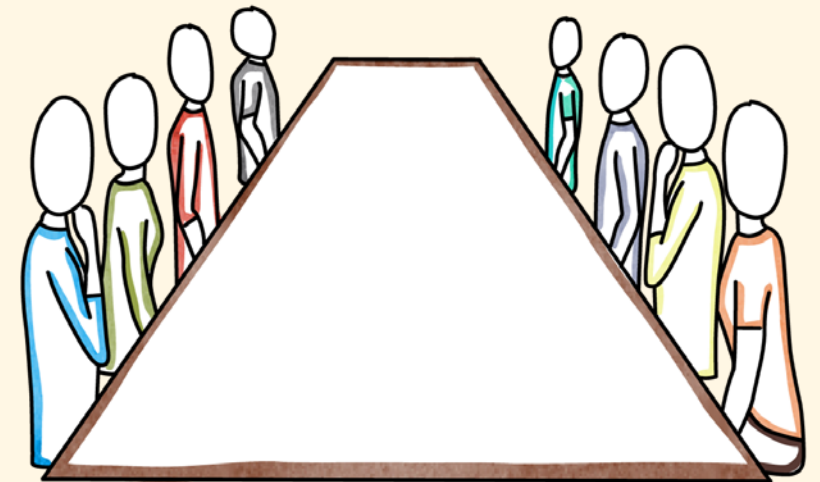
**Need to Track**

- COVID-19 Diagnosis in Employees
- Influenza-Like Illness in Employees
- Exposure to COVID-19
- Contact Tracing – Notification and Decisions
- Work Absence, Quarantine Time, RTW

Secure web application for online surveys and databases

Developed by Vanderbilt University and shared with the world

Designed to support online or offline data capture for research studies and operations

The REDCap Consortium - a vast support network of collaborators

Academic institutions and non-profit organizations share management

The UMB COVID-19 Employee Tracking System in REDCap

# The UMB COVID-19 Employee Tracking System in REDCap



Employee COVID-19 Exposure Tracking in REDCap

No Symptoms --> Exposure Report

Symptom Monitoring

Quarantine Decision Based on Risk

If Symptoms --> Illness Report
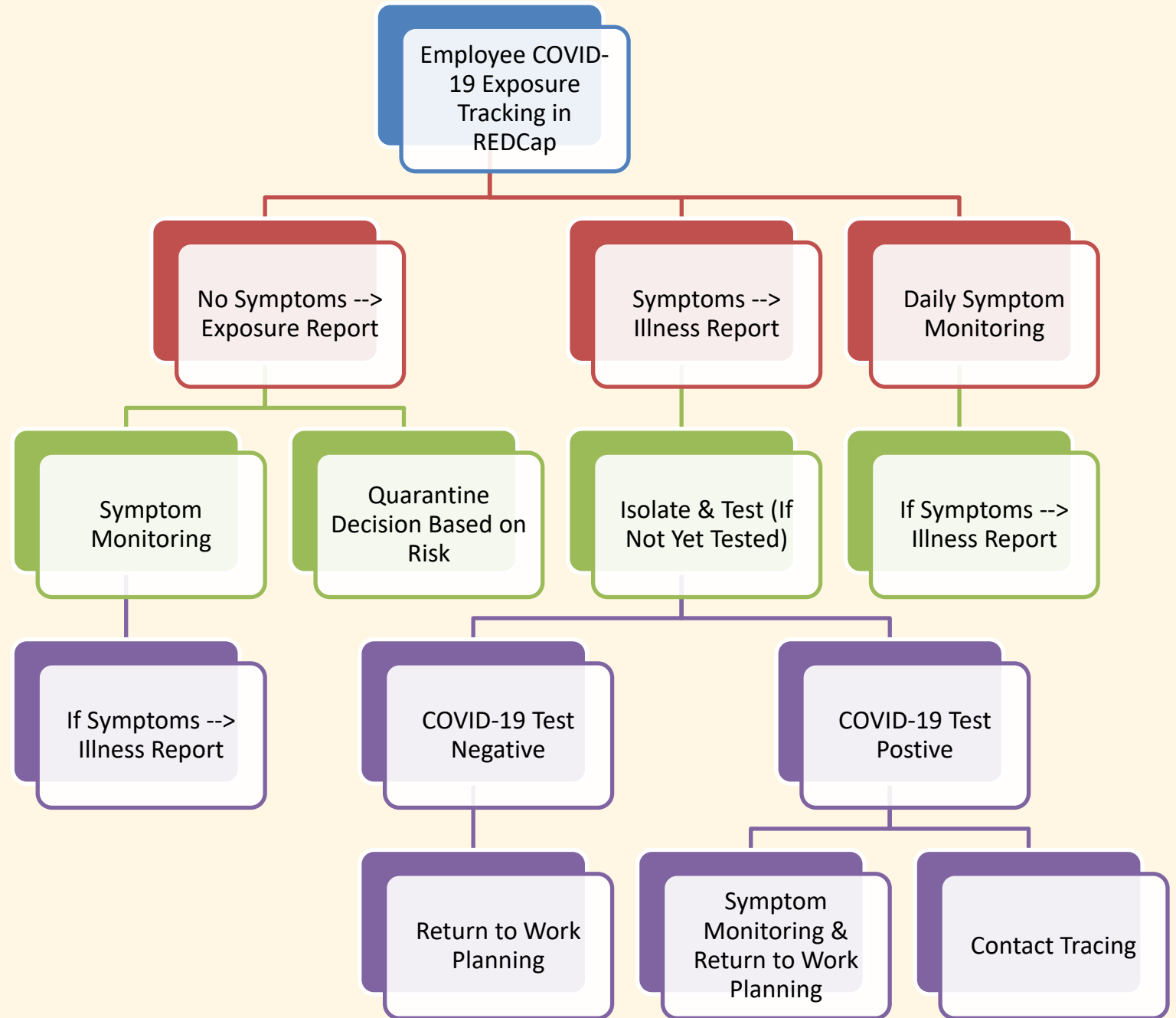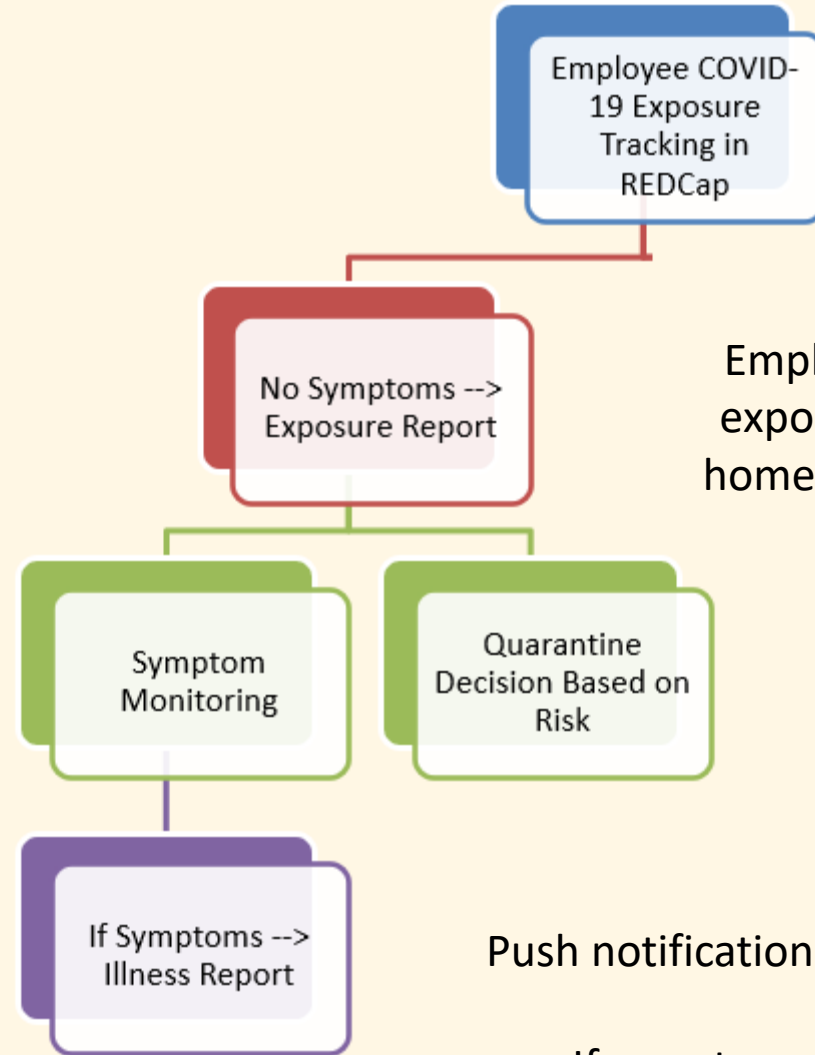
Employee enters information about exposure event – colleague at work, home/ community, patient encounter

Employee health reviews information, interviews if necessary, determines risk, triggers written notification with symptom monitoring plan and decision about quarantine or return to work

Push notifications twice a day to employee to complete symptom report
If symptoms reported, flag to employee health
Employee is directed to complete illness report and moves to illness path and decisions

# The UMB COVID-19 Employee Tracking System in REDCap

If employee is already having symptoms, completes information about symptoms, onset, testing completed and results, last time at work

Employee health reviews and decides on isolation plan, facilitates access to testing if not already done

Pathway branches depending on results of COVID-19 testing

System pushes reminders to employee to monitor and report symptoms twice a day Return to work plan is based on symptom improvement and COVID-19 status
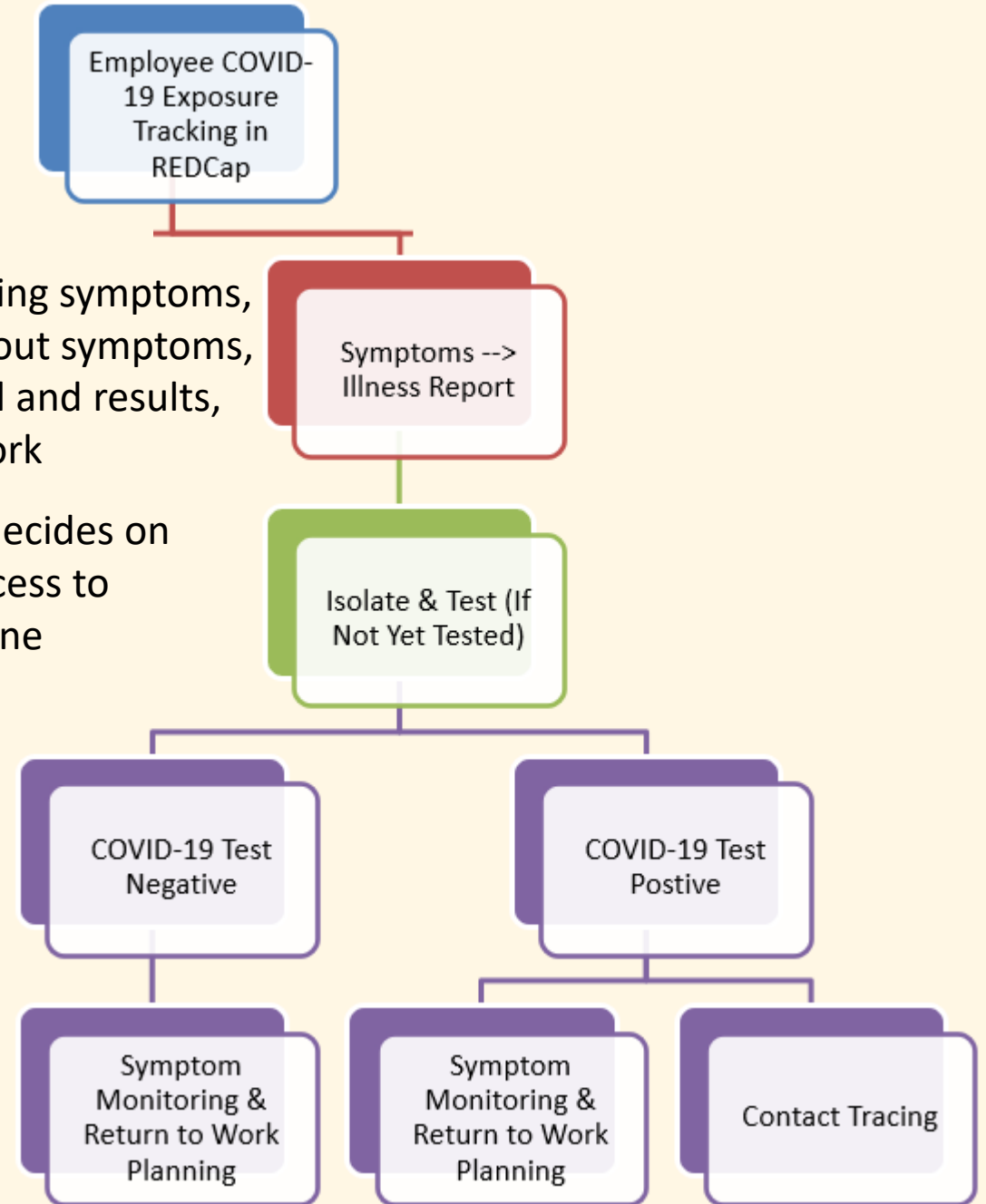
# The UMB COVID-19 Employee Tracking System in REDCap
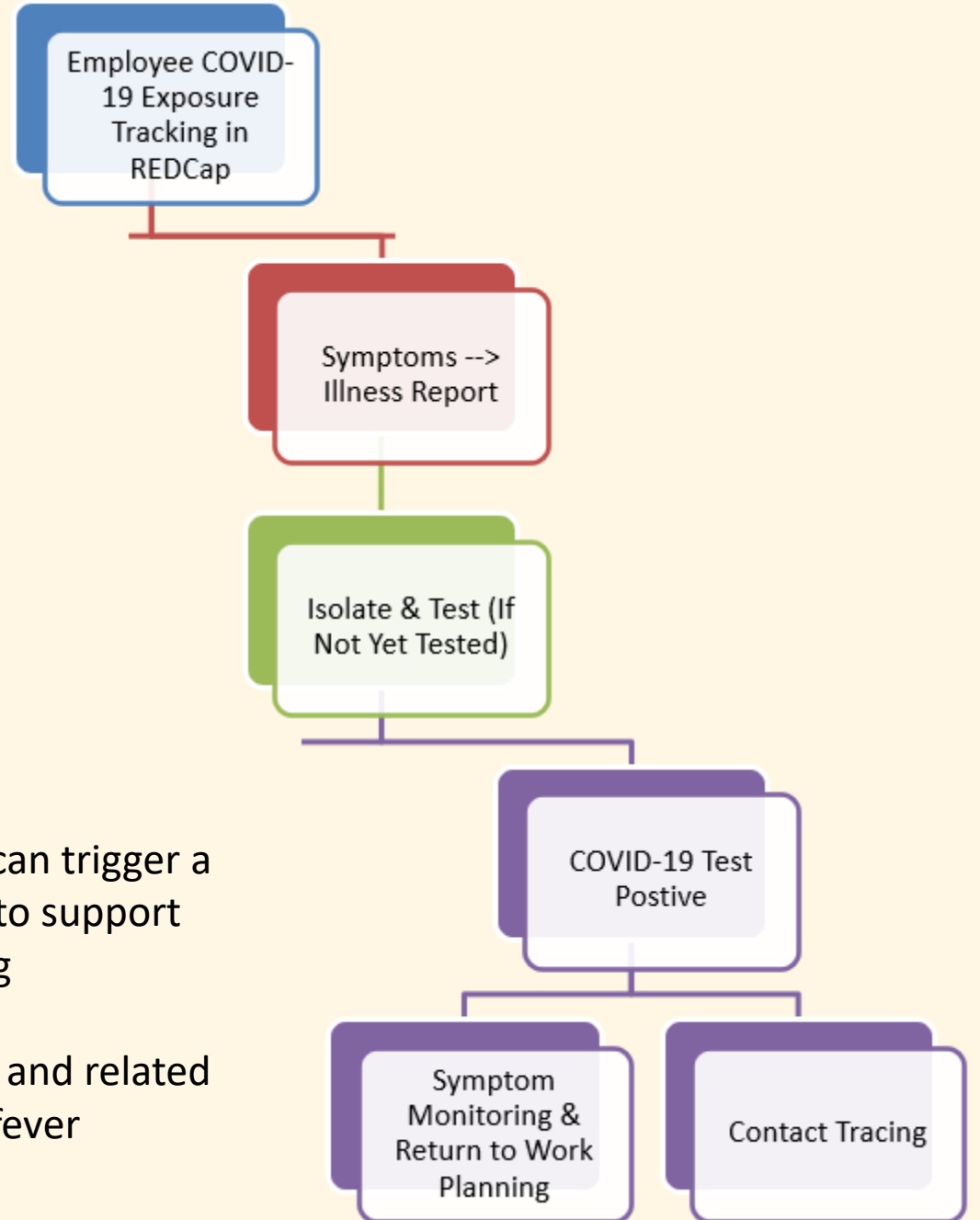
If COVID-19 positive, we can trigger a self-report on contacts to support contact tracing

Isolation period is longer, and related to days since last fever

# The UMB COVID-19 Employee Tracking System in REDCap

Employee COVID-19 Exposure Tracking in REDCap

Possible future feature

Tracking daily symptoms of frontline employees reporting to work

Daily Symptom Monitoring

If Symptoms --> Illness Report
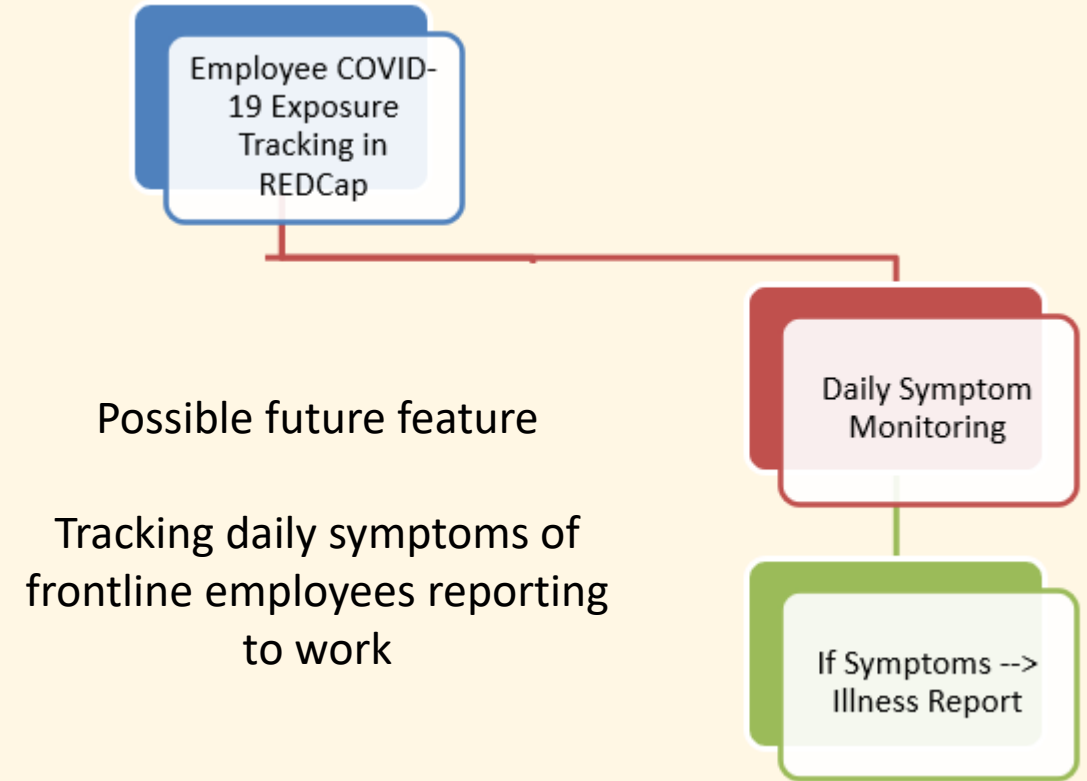
Option 1

# EXPOSURE REPORT

# Exposure Report Form

**Please complete the survey below.**

Thank you!

**Is this report an exposure or an illness?**
\* must provide value

🔴 Exposure without illness

⚪ Illness with/without known exposure

reset

## Please enter the information below:

**Report Date**
\* must provide value

04-15-2020 📅 | Today | M-D-Y

**1. Employee Last Name**
\* must provide value

Cloeren

**And additional contact info...**

## 4a. Role

- 🔴 Employee
- ⚪ Student
- ⚪ Faculty
- ⚪ Resident/Fellow
- ⚪ Other

reset

## 5. UM Affiliation
* must provide value

- ⚪ Downtown UMMC
- ⚪ Midtown UMMC
- ⚪ UMMS
- 🔴 FPI
- ⚪ UMB
- ⚪ Other

reset

## 5b. Work Location

Family Medicine

## 6. Exposure Type
* must provide value

- 🔴 Patient
- ⚪ Coworker
- ⚪ Household Member
- ⚪ Community Member
- ⚪ Travel

reset

## 6. Exposure Type
* must provide value

- 🔴 Patient
- ⚪ Coworker
- ⚪ Household Member
- ⚪ Community Member
- ⚪ Travel

reset

## 10. Date of most recent suspected or known exposure
* must provide value

04/15/2020  📅  Today  M-D-Y

## 13. Where were you working when you were exposed?
* must provide value

Exam room B

## 14. Estimated time of exposure

11:00  🕐  Now  H:M

(24 Hour Format)

## 16. Is this a suspected or laboratory-confirmed case of COVID-19?

- ⚪ Suspected Case
- 🔴 Laboratory Confirmed COVID-19 Case

reset

**19. How close did you get to the patient?**

- 🔴 Physical Contact
- ◯ Less than 3 ft
- ◯ 3-6 ft
- ◯ More than 6 ft

reset

**20. In total, how much time did you spend with the patient**

- ◯ Only momentarily
- ◯ Less than 2 minutes
- ◯ 2-5 minutes
- 🔴 5-15 minutes
- ◯ Longer than 15 minutes

reset

**21. Please describe *patient* use of mask covering nose AND mouth?**

- ◯ The patient wore a mask the whole time
- ◯ The patient put on the mask within a minute
- ◯ The patient wore a mask part of the time
- 🔴 The patient DID NOT put on a mask

## 22. Were you wearing the following personal protective equipment during the encounter?

| | Yes | No |
|---|---|---|
| **22a. A Surgical mask** | ○ | ● |
| | | reset |
| **22b. N-95 respirator that I have been fitted with** | ● | ○ |
| | | reset |
| **22c. N-95 respirator that I have not been fit tested with** | ○ | ● |
| | | reset |
| **22d. Powered Air Purifying Respirator (PAPR)** | ○ | ● |
| | | reset |
| **22e. Eye protection** | ● | ○ |
| | | reset |
| **22f. Gown** | ● | ○ |
| | | reset |
| **22g. Gloves** | ● | ○ |
| | | reset |
| **22h. Other** | ○ | ● |
| | | reset |

**23. How long do you believe that you were exposed to the patient suspected of, or diagnosed with, having COVID-19 before putting on your PPE?**

- 🔴 PPE worn for the entire encounter
- ⚪ Only momentarily
- ⚪ Less than 2 minutes
- ⚪ 2-5 minutes
- ⚪ 5-15 minutes
- ⚪ Longer than 15 minutes
- ⚪ No PPE was worn

reset

**24. Were you coughed or sneezed on by the patient suspected of, or diagnosed with, having COVID-19 prior to putting on your personal protective equipment?**

- 🔴 Yes
- ⚪ No

reset

**25. Were you otherwise exposed to the body fluids of the patient suspected of, or diagnosed with, having COVID-19?**

- ⚪ Yes
- 🔴 No

reset

**26. Please describe how you were exposed:**

Evaluating a patient for possible COVID-19. Coughed on me while getting specimen.

Expand

# Assessment of Risk and Plan

Employee health reviews, interviews employee if needed

Determines risk

Establishes plan for

    Symptom monitoring

    Return to work vs. quarantine (work at home)

    Timelines

Sends communication via REDCap with recommendations

Follow-up

# SYMPTOM MONITORING

# Symptom Monitoring

Automated prompts to measure temperature and document symptoms twice a day
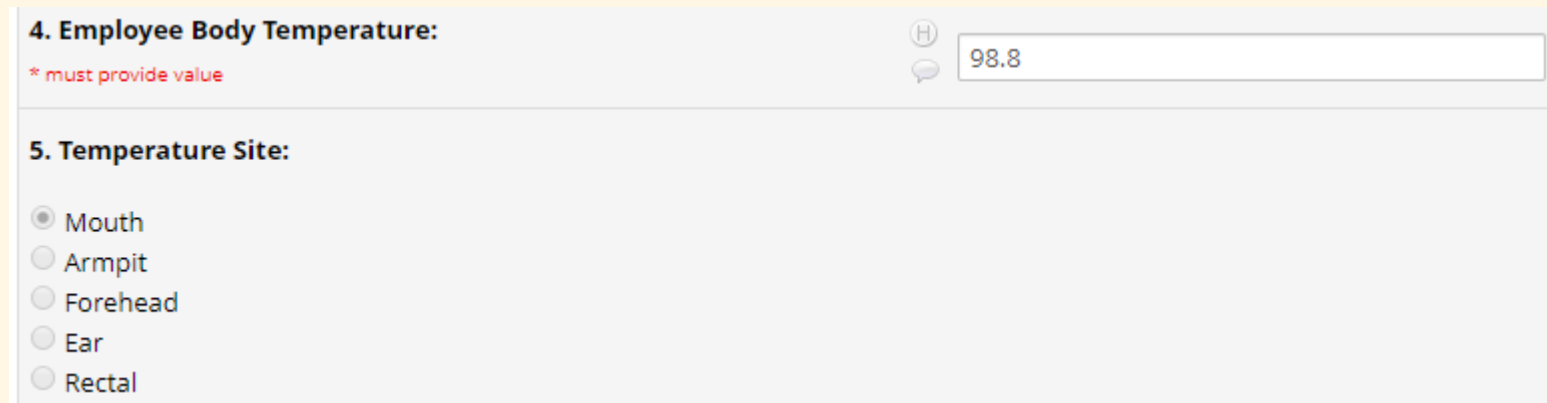
Email notification

Can be sent via phone

Logs responses

Tracks missed responses

Flags abnormal responses for employee health attention

**4. Employee Body Temperature:**

* must provide value

98.8

**5. Temperature Site:**

◉ Mouth
○ Armpit
○ Forehead
○ Ear
○ Rectal

|  | YES | NO |
|---|---|---|
| **6a. Fever (defined as ≥ 100F or ≥ 38C)** ⊕ <br> * must provide value 💬 | ○ | ● |
| **6b. Chills** ⊕ <br> * must provide value 💬 | ○ | ● |
| **6c. Cough** ⊕ <br> * must provide value 💬 | ● | ○ |
| **6d. Trouble Breathing** ⊕ <br> * must provide value 💬 | ○ | ● |
| **6e. Sore Throat** ⊕ <br> * must provide value 💬 | ● | ○ |
| **6j. Decreased sense of taste** ⊕ <br> * must provide value 💬 | ○ | ● |
| **6k. Decreased sense of smell** ⊕ <br> * must provide value 💬 | ○ | ● |
| **6f. Nausea** ⊕ 💬 | ○ | ● |
| **6g. Vomiting** ⊕ 💬 | ○ | ● |
| **6h. Diarrhea** ⊕ 💬 | ○ | ● |
| **6i. Other** ⊕ 💬 | ● | ○ |
| **6isp. Specify other symptom:** ⊕ 💬 | Runny nose | |

Symptom Monitoring Form Completed by Exposed Employee Twice a Day

Employee Health notified by e-mail ("flag") if any fever or positive symptom during post-exposure monitoring

Illness developing during post-exposure symptom monitoring triggers prompt to report illness

| 4. Employee Body Temperature: em4 | 5. Temperature Site: em5 | 6a. Fever (defined as ≥ 100F or ≥ 38C) em6a | 6b. Chills em6b | 6c. Cough em6c | 6d. Trouble Breathing em6d | 6e. Sore Throat em6e | 6f. Nausea em6f | 6g. Vomiting em6g | 6h. Diarrhea em6h | 6i. Other em6i |
|---|---|---|---|---|---|---|---|---|---|---|
| 98.7 | Ear (4) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) |
| 98.9 | Mouth (1) | No (0) | No (0) | Yes (1) | No (0) | Yes (1) | No (0) | No (0) | Yes (1) | No (0) |
| 99.0 | Mouth (1) | No (0) | No (0) | Yes (1) | No (0) | Yes (1) | No (0) | No (0) | No (0) | No (0) |
| 98.2 | Mouth (1) | No (0) | No (0) | Yes (1) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) |
| 98.6 | Mouth (1) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) | No (0) |
| 98.3 | Mouth (1) | No (0) | No (0) | No (0) | N | | | | | |
| 98.4 | Mouth (1) | No (0) | No (0) | No (0) | N | | | | | |
| 97.9 | Mouth (1) | No (0) | No (0) | No (0) | N | | | | | |
| | | | No | | | | | | | No |

Dashboard views to review aggregate employee data
Flexible report options - customizable

Option 2

# ILLNESS REPORT

# Exposure Report Form

Please complete the survey below.

Thank you!

**Is this report an exposure or an illness?**

* must provide value

○ Exposure without illness

🔴 Illness with/without known exposure

reset

## Please enter the information below:

**Report Date**

* must provide value

| 04-15-2020 | 📅 | Today | M-D-Y |

**1. Employee Last Name**

* must provide value

**Additional contact info...**

Cloeren

# Working While Sick?

**5b. Work Location**

Family Medicine

**48. Date of illness onset**
* must provide value

04/06/2020  📆  [ Today ]  M-D-Y

**49. Are you working?**

◯ Yes on site

◯ Yes at home

🔴 No

reset

**50. Last Date at Work Location**
* must provide value

04/09/2020  📆  [ Today ]  M-D-Y

## 51. Please check any symptom you have had since illness onset

|  | Yes | No |
|---|:---:|:---:|
| **51a. Fever (defined as ≥ 100F or ≥ 38C)** | ● | ○ |
|  |  | reset |
| **51b. Chills** | ○ | ● |
|  |  | reset |
| **51c. Cough** | ● | ○ |
|  |  | reset |
| **51d. Trouble Breathing** | ○ | ● |
|  |  | reset |
| **51e. Sore Throat** | ● | ○ |
|  |  | reset |
| **51f. Decreased sense of taste** | ● | ○ |
|  |  | reset |
| **51g. Decreased sense of smell** | ● | ○ |
|  |  | reset |
| **51h. Nausea** | ○ | ● |
|  |  | reset |
| **51i. Vomiting** ... | ○ | ● |

# Fever History and Known Exposures

**52. Highest measured temperature**

102.3

Enter highest measured temperature since illness onset

**52a. Date of Highest Measured Temperature**

04/12/2020 📅 [Today] M-D-Y

**53. History of exposure to someone with lab-confirmed COVID-19?**

🔴 Yes

⚪ No

reset

**54. Have you been tested for COVID-19?**

- 🔘 Yes
- ○ No
- ○ Not yet but scheduled

**54a. Date of COVID-19 Test**

04/09/2020 📅 [Today] M-D-Y

**54b. Location of COVID-19 Test**

UMB Urgent Care

**54c. Result**

- 🔘 Positive
- ○ Negative
- ○ Pending

# Assessment & Plan

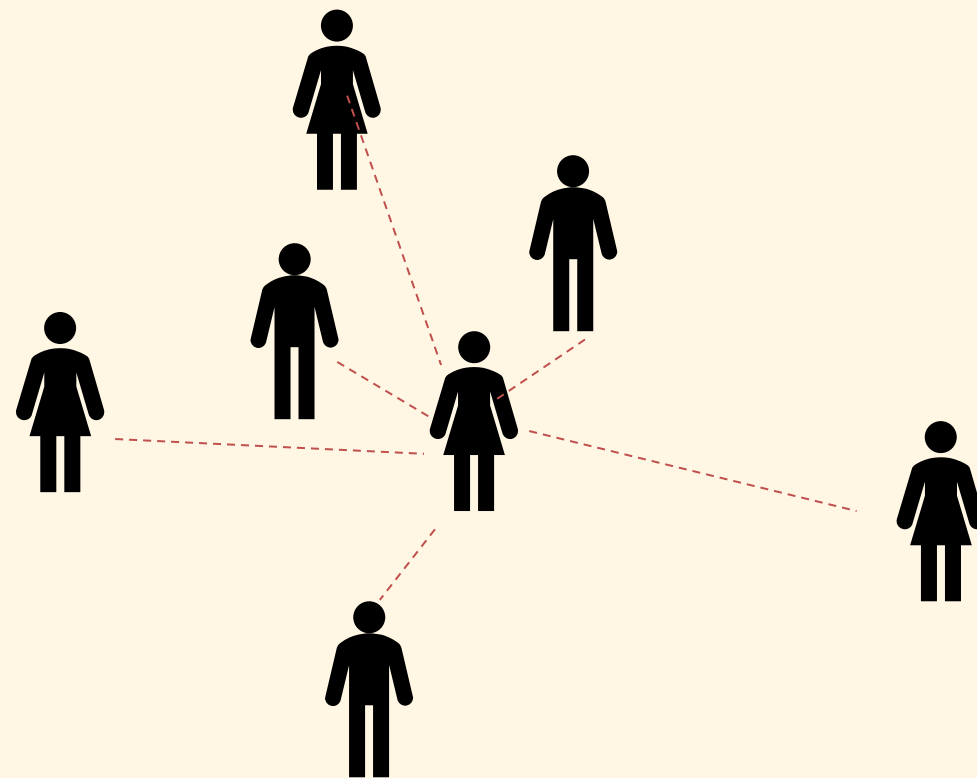Healthcare worker who worked for 3 days while sick

Tested positive

Common story

Plan:

    Isolate until 10 days fever free

    Contact tracing

# 📑 Contact Tracing

📇 Survey options ▽

✏️ Editing existing Record ID **28**

Event Name: **Exposure Report**

| | |
|---|---|
| **Record ID** | 28 |

**Date**
* must provide value

Ⓗ 💬   04-15-2020 📅  Today  M-D-Y

**Time:**
* must provide value

Ⓗ 💬   13:00 🕐  Now  H:M
(24 Hour Format)

**Person completing this form:**
* must provide value

Ⓗ 💬   Marianne Cloeren
Enter First and Last Name

## Case Information (Patient Information)

**1. First Name**
* must provide value

Ⓗ 💬   Marianne

**2. Last Name**
* must provide value

Ⓗ 💬   Cloeren

**13. Date tested for COVID-19:**
*must provide value

04/09/2020 📅 [Today] M-D-Y

**14. Date of positive result:**
*must provide value

04/11/2020 📅 [Today] M-D-Y

## Clinic Information

The following questions are to help us identify work locations where you may have been in contact with other people, exposing them before you knew you were infected with this virus. Please think back to the week before you developed symptoms and recall the work locations where you spent more than 15 minutes.

Please interpret "Work Location" as clinical practice, unit, building, department, address; for example, "phlebotomy area in 419 Redwood." Please list each of these and answer the questions that follow, to the best that you can. It is impossible to create a form like this to capture every work situation, so please share other information that will help us understand your situation in the week before you became ill, in the comments section.

**15. Number of Work Locations you have worked at in the last 7 days from your first symptom.**
*must provide value

1

(0-20)

## List of Contacts with Corresponding Information

**17. How many employees have you had close and/or prolonged contact with?**
*must provide value

2

(0-20)

**Comments: Please share any other information that will help us understand your situation in the week before you became ill:**

Working closely with occupational health nurses to don and doff PPE for training videos

**17. How many employees have you had close and/or prolonged contact with?**

* must provide value

Ⓗ 💬  `2`

(0-20)

**Employee #1**

**18. Employee #1: First Name**

Ⓗ 💬 _____

**18a. Employee #1: Last Name**

Ⓗ 💬 _____

**18b. Employee #1: Phone Number**

Ⓗ 💬 _____

**18c. Employee #1: UM Affiliation**

Ⓗ 💬 _____ ▽

**18d. Employee #1: To your knowledge, is this person sick?**

Ⓗ 💬 ○ Yes    ○ No

reset

**18e. Employee #1: Supervisor Contacted?**

Ⓗ 💬 ○ Yes    ○ No

reset

**Employee #2**

**19. Employee #2: First Name**

Ⓗ 💬 _____

**19a. Employee #2: Last Name**

Ⓗ

The UMB COVID-19 Employee Tracking System in REDCap

Used to track COVID-19 in 2/3 organizations on campus

Current features and potential uses

Opportunities for collaboration?

## REDCap Exposure Report

Triggers 14-day post-exposure symptom monitoring

Push notifications, positive symptom flags and missed reports; templated guidance

Link sent to employees reporting exposures or identified via contact tracing

## REDCap COVID-19 Illness or Diagnosis Report

Employee completes to document COVID-19 consistent illness, test results

14-day recovery symptom monitoring for planning return to work

Push notifications and missed reports; templated guidance on self-isolation

Contact tracing report to document last time at work and employee contacts

## REDCap Daily Symptom Monitoring (Future)

Surveillance for front-line clinicians (proposed approach)

Push notifications, positive symptom flags, missed report options

Templated guidance on other resources next steps if symptoms