

# Infection Control



## **MULTI-CUSTOMER INFECTION CONTROL CASE STUDY**

COVID-19 changed care delivery, prompting health systems to explore new ways to manage contagion exposure in both outpatient and inpatient environments. Health systems leaned on real-time locating system (RTLS) technology during the crisis, and continue to use it to aid in infection control.

Health systems that use Midmark CareFlow™ RTLS technology for Patient Flow or Nurse Call Automation can also automate contact tracing and quickly identify exposure risks. Outpatient facilities can also rely on RTLS to facilitate self-rooming and direct-rooming models that successfully distance patients by eliminating waiting areas and patient-to-patient interactions.

### **CareFlow RTLS Facilitates:**

- Automated contact tracing
- Self rooming
- Direct rooming
- Room disinfection status

### **COVID-19: A FIRST CASE WALKS THROUGH THE DOOR**

Washington-based Columbia Basin Health Association was one of the first to diagnose a COVID-positive patient in an outpatient facility.<sup>1</sup> Normally they would have conducted time-consuming staff interviews and record reviews to find who had been exposed. Instead, they identified the appropriate staff within minutes.

“[CareFlow] RTLS has proven to be a valuable tool in tracking COVID-19 exposure touch points,” shares Tawni Solberg, MHA, Risk Manager at Columbia Basin. “It allows us to improve how we manage infection control and keep our patients and staff as safe as possible.”

In 2017, Columbia Basin implemented CareFlow™ Patient Flow to reduce patient wait times and improve overall efficiencies in their multi-specialty clinic. Staff and patients wear locator badges that communicate locations and interactions. Real-time cues in the software alert caregivers to exam room status and next steps in the typical patient visit, while retrospective reporting supports operational improvements such as exam room utilization.

When COVID showed up at Columbia Basin, staff were able to run a CareFlow report to identify each of the staff members who entered the patient’s room, as well as anyone else who was in proximity of those caregivers.

Further, the clinic’s direct-rooming model, enabled by CareFlow, allows patients to bypass a traditional waiting room and directly claim an exam room. Although this design was originally

implemented to improve flow and enhance the patient experience, its ability to limit patient exposure to contagions has been an asset when social distancing measures are required.

## Outpatient Spotlight

### SELF-ROOMING: FACILITATING SOCIAL DISTANCING

For outpatient facilities that struggled with patient queuing for in-person visits, asking patients to wait in cars or investing in expensive waiting room partitions were not the only ways to regain patient confidence. Instead, a self-rooming or direct-rooming model allows patients to check in and move directly to an available exam room, bypassing the traditional waiting area.

At Brooklyn Health Center, staff refer to CareFlow software that automatically updates exam room status—available, occupied or needing turnover—simply directing each patient to an open exam room and eliminating the risk of exposure in group waiting spaces.<sup>2</sup> As a bonus, patients are less stressed and report greater satisfaction with the overall care experience.

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**Tawni Solberg, MHA**  
Risk Manager  
Columbia Basin Health Association

### ONCOLOGY CARE: KEEPING AT-RISK PATIENTS + STAFF SAFE

At a cancer center located in the northeast, a patient arrived for an exam and infusion treatment, exhibiting no unusual symptoms. Days later, word came that the patient tested positive for COVID-19. The Director of Nursing shared that staff were concerned about who was involved with this patient’s care and who was at risk.

“Within five minutes, I knew that eight employees were in contact with this patient. I could also see time frames—anyone exposed for more than 15 minutes has greater risk. The one staff member who was with the patient for longer than 15 minutes was also wearing a mask and eye protection. I was able to reassure her that her risk was minimal because she was wearing proper protection.

“[CareFlow] RTLS is very efficient at getting us information for follow up to exposures. We can find the interactions, reassure staff in a very expeditious manner and not have to alarm everyone in the building.”

### DEGREE OF EXPOSURE: DOCUMENTING AN INVISIBLE TRAIL

When faced with highly infectious diseases such as *Mycobacterium tuberculosis* (TB), it is essential to accurately identify secondary exposures and implement the right precautions.

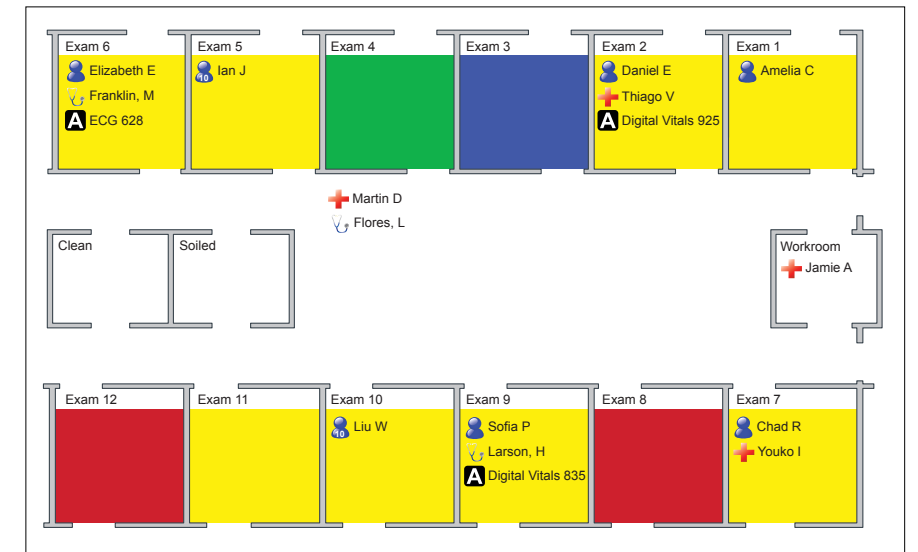
“A patient presented with shortness of breath and coughing blood,” shared a Risk Manager in the northwest. “The patient had a history of bleeding ulcers, so TB was not the first consideration. It was 38 minutes into the visit before we suspected TB and full precautions were implemented. The RTLS exposure report identified six individuals who interacted with the patient—IVs were started, labs were drawn, and chest X-rays were taken—yet three of them did not have a reason to document in the EMR. They could have been missed without the Midmark RTLS report.”

Staff were also concerned for other teammates who were exposed to those directly caring for the patient, especially in the 38 minutes before PPE was put on. Secondary reporting accurately identified the additional staff exposures, allowing them to monitor for symptoms.

### BEYOND PANDEMICS: FIGHTING COMMON CONTAGIONS

Prior to COVID-19, more than 15.5 million adults are diagnosed each year with infectious diseases such as chickenpox and influenza.<sup>3</sup> According to one Clinical Operations Manager in the midwest, exposure reporting helps staff quickly identify exposures to these common illnesses.

“A patient came into our urgent care with chickenpox and staff were not wearing proper PPE. Within three minutes, I was able to pull a list of the patients and team members who were exposed. [CareFlow] RTLS is very precise and saves a tremendous amount of time.”



Visual management tools like the CareFlow Enterprise View® Floorplan give staff a bird’s-eye view of everything happening within the clinic. Color-coded exam room status enables efficient patient rooming and flow, while automatically indicating which rooms need disinfecting.

## Inpatient Spotlight

### MERS: ONE HOSPITAL BLAZES A TRAIL IN CONTAGION RESPONSE

Although COVID-19 is the most recent virus to gain the world’s attention, there have been other contagion scares in recent years. When the first case of Middle East Respiratory Syndrome (MERS) walked through the doors of Community Hospital in Munster, Indiana in 2014, it was a nationally publicized event.<sup>4</sup> The hospital turned what could have been a health and public relations crisis into a playbook for quickly identifying and mitigating risk.

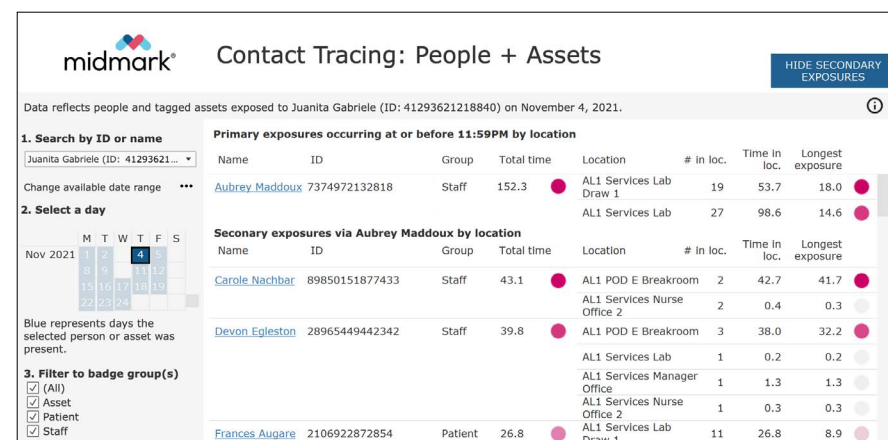
Once the patient was diagnosed, hospital staff were immediately on task with uncovering how many people had been exposed. CareFlow location data, interfaced to the hospital’s nurse call system, showed all staff members who had been in the patient’s room and for how long. This automated contact tracing was vitally important—caregivers who self-reported their visits to the patient’s room underestimated 39 visits, an average of 58 percent.

Additional data that proved helpful was how long each staff member was in contact with the patient. The Centers for Disease Control (CDC) data revealed that the least amount of time to be in contact with a contagious person before contracting a flu-like virus such as MERS is 11 minutes. Because all people wearing RTLS badges had their interactions recorded, reports showed Community Hospital what they needed to know: no employees had been in contact with the MERS patient for more than seven minutes.

“We knew who was exposed, how long they were exposed, and who was not exposed,” shares John Olmstead, Director of Surgical Services. “We were able to confidently communicate that to the public, which was a big deal. We never would have had (that information) without the RTLS badges and the nurse call reports.”

### INPATIENT CONTAGIONS: ACTING QUICKLY TO MITIGATE RISKS

Inpatient contact tracing can be a complex endeavor, especially when the patient’s infectious diagnosis occurs



CareFlow data enables administrators to quickly locate, notify, test and treat those who encounter contagious individuals within their facility. Primary and secondary interactions are captured and used for treatment protocols that may vary based on the specific contagion, exposure levels and times.

several days into an admission. Acting quickly to enact isolation precautions and identify additional exposures is an essential defense strategy.

In 2012, a Michigan-based hospital using RTLS to automate its nurse call system relied on the same technology for contact tracing.

"I was working in an intensive care unit (ICU) when a patient was diagnosed with bacterial meningitis several days into their admission," shared Emily Schrider, RN.

"What if one of our nurses who was with that patient wore her scrubs home and exposed her family? Instead, RTLS contact tracing helped us notify the right staff, implement protocols and direct them on what to do if they developed symptoms. It was powerful information that made us feel safer."

## Infection control throughout the health system

### **AUTOMATED DATA COLLECTION: SEEING BEYOND THE EMR**

The risk of contagion spread prompted some organizations to consider suspending patient badging during the height of COVID-19, citing RTLS badges as additional items to disinfect. One clinic in the northwest took a data-based approach, comparing CareFlow data with electronic medical record (EMR) documentation to

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Operations Manager  
Primary Care Clinic in the Midwest

determine if they could rely solely on their EMR for contact tracing.

In one case, five staff members entered the room of a yet-to-be-diagnosed COVID-positive patient but did not have a need to document their presence in the chart. Although each was exposed, none would have been identified through the EMR. Leadership quickly determined that suspending CareFlow would compromise exposure reporting accuracy and impact staff and patient safety.

### **DISINFECTION STATUS: REAL-TIME VISIBILITY TO ROOM AVAILABILITY**

The CDC indicates that environmental contaminations can also play a role in the transmission of viruses such as norovirus, coronaviruses and influenza.<sup>5</sup> This can challenge caregivers to adequately disinfect physical spaces or ensure proper wait times before another patient can occupy the space.

Real-time cues provided by the CareFlow™ Enterprise View® Floorplan give staff at-a-glance visibility to which rooms need disinfecting and which are ready for the next patient, eliminating the stress of keeping up with turnover status and room availability.

### **ESSENTIAL DATA: FACILITATING PATIENT AND STAFF SAFETY**

Automatically capturing patient and staff locations and interactions is essential information in the battle against contagions.

"We can clearly identify and isolate the appropriate team members," shared one Clinic Operations Manager. "Especially now, with COVID, that precision has allowed our facility to safely stay open during these difficult times."

One thing is certain: care delivery is evolving. From automated contact tracing to self-rooming or direct-rooming models and visual cues that support disinfection protocols, CareFlow RTLS can facilitate a safer care environment for patients and staff.

1 CareFlow RTLS Customer Presentation, [Columbia Basin Health Association](#)

2 CareFlow RTLS Customer Success Story, [Brooklyn Health Center](#)

3 National Ambulatory Medical Care Survey, [2016 National Summary Tables](#)

4 CareFlow RTLS Customer Success Story, [Community Hospital](#)

5 Microbial transmission in an outpatient clinic and impact of an intervention with an ethanol-based disinfectant. American Journal of Infection Control, <https://doi.org/10.1016/j.ajic.2018.06.017>