

Infection Control



MULTI-CUSTOMER INFECTION CONTROL CASE STUDY

COVID-19 has changed care delivery, prompting health systems to explore new ways to manage contagion exposure in both outpatient and inpatient environments. Seeking to regain patient confidence and return to normal capacity, systems are leaning on technology to aid in reducing the spread of contagions.

Health systems that use real-time locating system (RTLS) technology for patient flow optimization or nurse call automation can also automate contact tracing and quickly identify exposure risks. At the same time, outpatient facilities are relying on RTLS to facilitate self-rooming and direct-rooming models that successfully distance patients by eliminating waiting areas and patient-to-patient interactions.

RTLS Facilitates Infection Control

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

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.¹ 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.

“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 the Midmark RTLS Patient Flow Optimization solution 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 Degree of Exposure 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 RTLS, 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 to social distancing measures.

Outpatient Spotlight

SELF-ROOMING: FACILITATING SOCIAL DISTANCING

For outpatient facilities struggling with patient queuing for in-person visits, asking patients to wait in cars or investing in expensive waiting room partitions is not the only way 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 RTLS 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.² 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.

“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 and tertiary exposures and implement the right precautions.

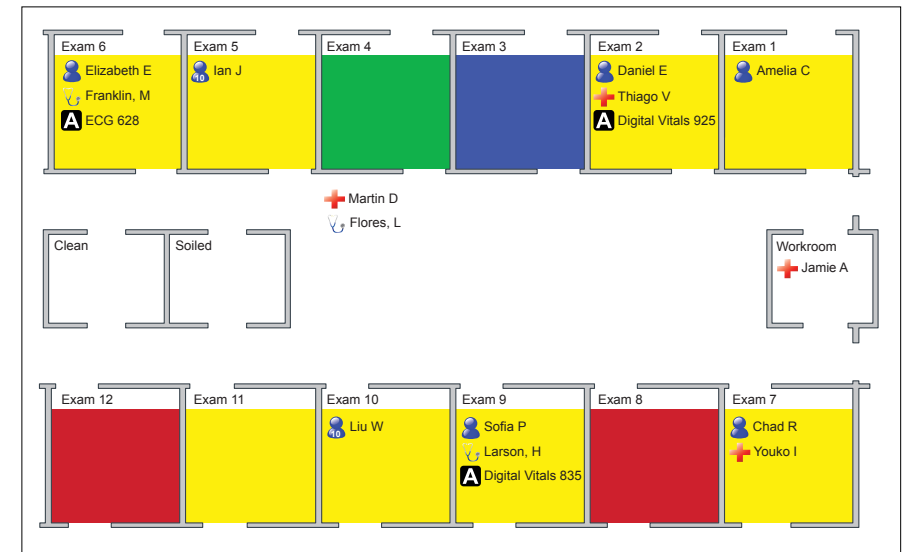
“A patient presented with shortness of breath and coughing blood,” shared a Risk Manager in the northwest. “The patient had a history of bleeding ulcers, so TB was not the first consideration. It was 38 minutes into the visit before we suspected TB and full precautions were implemented. The RTLS exposure 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 and tertiary 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.³ 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. RTLS is very precise and saves a tremendous amount of time.”



Visual management tools like the 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 currently has 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.⁴ 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. Midmark RTLS 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

Degree of Exposure						
Lists the individuals or assets that came into contact with a specified individual or asset, up to three degrees of separation.						
Date Range: Custom	Locations: All	Modify Report Criteria				
Starting: 02/03/2020 12:00 AM	Individuals and/or Assets: All					
Ending: 02/03/2020 11:59 PM						
Shift: 24x7						
Direct Contact						
ID	Name	Badge Type	First Exposed	Total Exposure	Exposed By	Location
2125847	Janet Anderson	LPN	02/03/2020 1:14PM	0:23	1488568	Ex Room 253
941357	David Parker	MA	02/03/2020 1:26PM	0:13	1488568	Ex Room 253
Secondary Contact						
ID	Name	Badge Type	First Exposed	Total Exposure	First Exposed By	Location
931379	James Mayben	MA	02/03/2020 1:25PM	0:01	2125847	Hall by Exam 252
933652	Kiyo Sato	Provider	02/03/2020 1:38PM	0:25	941357	Exam 253

RTLS data enables administrators to quickly locate, notify, test and treat those who encounter contagious individuals within their facility. Primary, secondary and tertiary 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 has 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 RTLS data with electronic

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Operations Manager
Primary Care Clinic in the Midwest

medical record (EMR) documentation to 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 RTLS 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.⁵ 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 Midmark RTLS 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," shares 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, Midmark RTLS can facilitate a safer care environment for patients and staff.

Midmark RTLS products and solutions are provided by Midmark RTLS Solutions, Inc., a wholly-owned subsidiary of Midmark Corporation and formerly known as Versus Technology, Inc.

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

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

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

4 Midmark 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>