

# DISEASE AND OUTBREAK MANAGEMENT SYSTEM

Comprehensive solution  
built by epidemiologists  
for epidemiologists



## THE POWER OF BEING UNDERSTOOD

### DISEASE AND OUTBREAK MANAGEMENT SYSTEM

Patient data entry, interoperability and analytics to improve case management, patient care and public health

Quick access to quality data is critical to an effective disease prevention and control application. The ability to accurately collect and analyze data in a timely fashion is a key part of making correct decisions regarding individual patient care and case management. To aid in this effort, RSM offers the Disease and Outbreak Management System for state and county government agencies to use in connection with electronic health records (EHRs), laboratory information management systems (LIMS) and other data sources.

#### Experience you can count on

Our health and technology consulting professionals have a deep knowledge of Dynamics 365, the U.S. Department of Health and Human Services processes and the public sector. Working with epidemiologists at clients and on our staff we have modeled over 70 diseases from the CDC case definitions and update the system as new diseases are identified.

Our experience and capabilities give us a unique ability to help state and local organizations like yours streamline and redesign processes, reduce manual workloads and increase efficiency, while also adding to the bottom line.

#### How it works

Based on the Microsoft Dynamics 365 platform, the Disease and Outbreak Management System provides comprehensive disease surveillance capabilities for state and local level agencies. The solution provides scalable technology

that is easy to use; eliminates manual, time-consuming processes; and facilitates data collection, data analysis, interpretation, data dissemination and data-driven decision-making. The system can be used to track signs and symptoms of patients, and to guide epidemiologists or other public health workers through the process of documenting additional exposures, travel history and other demographic data. Laboratory records can be entered manually or connected electronically via the health information exchange (HIE).



## What you can expect

The Disease and Outbreak Management System integrates with Microsoft Dynamics 365 to provide:

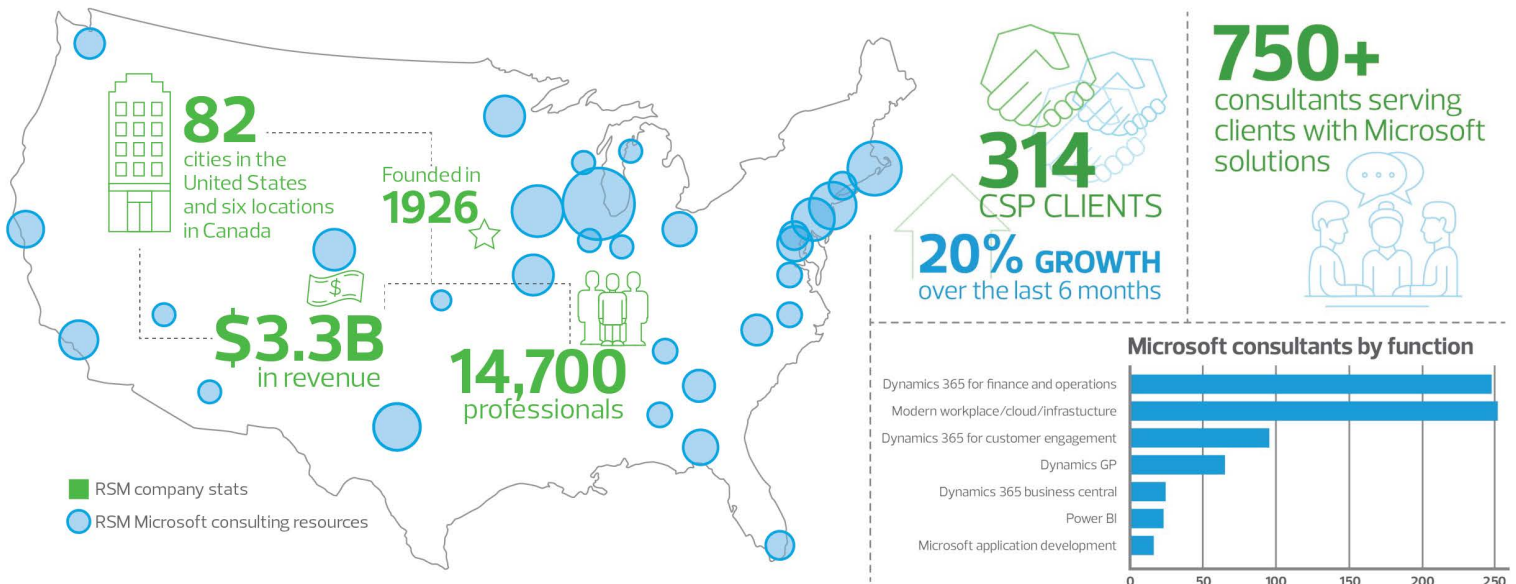
- Case management and contact tracing for all reportable conditions including Novel Coronavirus
- Mobile or web-based intake application
- Outbreak surveillance and monitoring
- Vaccine management
- Isolation/Quarantine
- Integrated disease surveillance and response
- Role-based security
- Heat mapping capabilities
- Guided business process flows and built-in business rules
- Dashboards, alerts and notifications
- Government regulation and policy compliance
- Laboratory document repository
- Simplified report creation
- Access for local health departments via secure web-based interface
- Mobile and offline capability
- Customizable solution to meet your needs
- On-premise or cloud-based solution availability
- HIE incorporated into solution set
- Location reporting to assist in the monitoring of healthcare-associated infections

## What RSM can provide

- Effective and affordable solutions to inform public health policy and set guidelines for tracking infectious diseases
- Ability to systematically collect, monitor and report important health data for notifiable diseases in order to empower organizations

## RSM's background

- 30 years of experience providing technology services
- Several thousand technology clients nationwide
- Microsoft partner since 1984
- Microsoft Dynamics' top ranking national provider
- Successful implementation of over 400 Microsoft customer relationship management (CRM) systems over 15 years







## DISEASE AND OUTBREAK MANAGEMENT

Comprehensive disease surveillance capabilities for state and local level agencies. This scalable technology is easy-to-use, eliminates manual, time-consuming processes and facilitates data collection, contact tracing, surveillance and analysis and broad reporting capabilities.

### COVID-19

### CONTACT TRACING



A simpler solution to address state and county health department's immediate needs allowing them to solve a near-term problem with the potential to have a long-term state-of-the-art full-featured disease and outbreak management system to assist with the health department's general operations.

Full contact tracing feature set includes patient and provider portals, allowing patients to record daily symptoms into a web-based home-monitoring log and providers to update and access patient records, test results and other critical data.

### VACCINE MANAGEMENT

### ISOLATION/QUARANTINE



Securely manage vaccine distribution, planning and administration at scale empowering state and county health departments to make data-driven decisions efficiently and effectively.

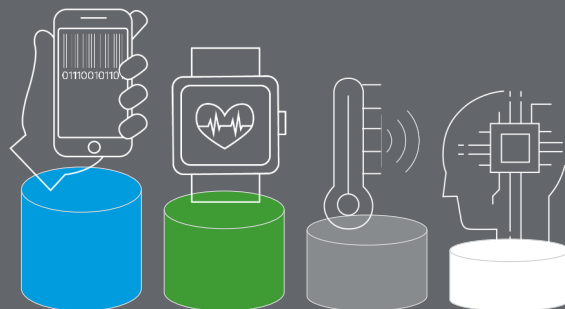
Facility management, patient information, triage, case management and follow up related to isolation and quarantine are contained in a single system, allowing state and county agencies to better serve the community to stop the spread of COVID-19.



# MODERN APPLICATION DELIVERS LEADING-EDGE FUNCTIONALITY AND USER EXPERIENCE



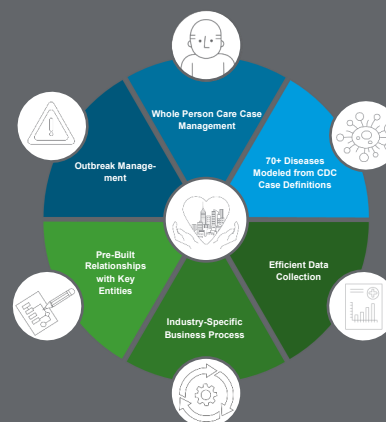
Intake of laboratory results and electronic health record data is processed by an automated workflow engine to streamline user interaction. For local health staff a mobile intake application allows for screening and case investigation



Leverage integrated touchless technologies including connection to IoT enabled devices, QR scanning, mobile applications, and facial recognition, built using Microsoft's cognitive services



Case investigation, contact tracing, follow-up and monitoring are linked in this end-to-end solution that automates key pieces of the process and includes real-time reports and dashboards to improve the public health response



360° view of patients, diseases, outbreaks, and operations gives public health agencies and providers the data they need to make critical decisions and provide essential services across diseases



## WHAT OUR CUSTOMERS ARE SAYING

*"The state of Hawaii has approximately 950,000 residents on Oahu eligible for services for Isolation/Quarantine stay and community support services. This system has replaced multiple spreadsheets, calls, and messaging mechanisms for sending data provided by the Department of Health Behavioral Health Administration BHA and has allowed all the guest information to be easily accessible and in one place for the first time, to better serve families and stop the spread of COVID-19."*

– Derek Vale, Health Systems Management Office Chief,  
State of Hawaii Department of Health, Behavioral Health  
Administration, Child and Adolescent Mental Health Division



# CORONAVIRUS RESOURCES



COVID-19 FULL  
FEATURED MODULE



CONTACT TRACING  
FEATURE SET



MOBILE AND WEB-  
BASED SCREENING  
AND INTAKE TOOLS



VACCINE  
MANAGEMENT

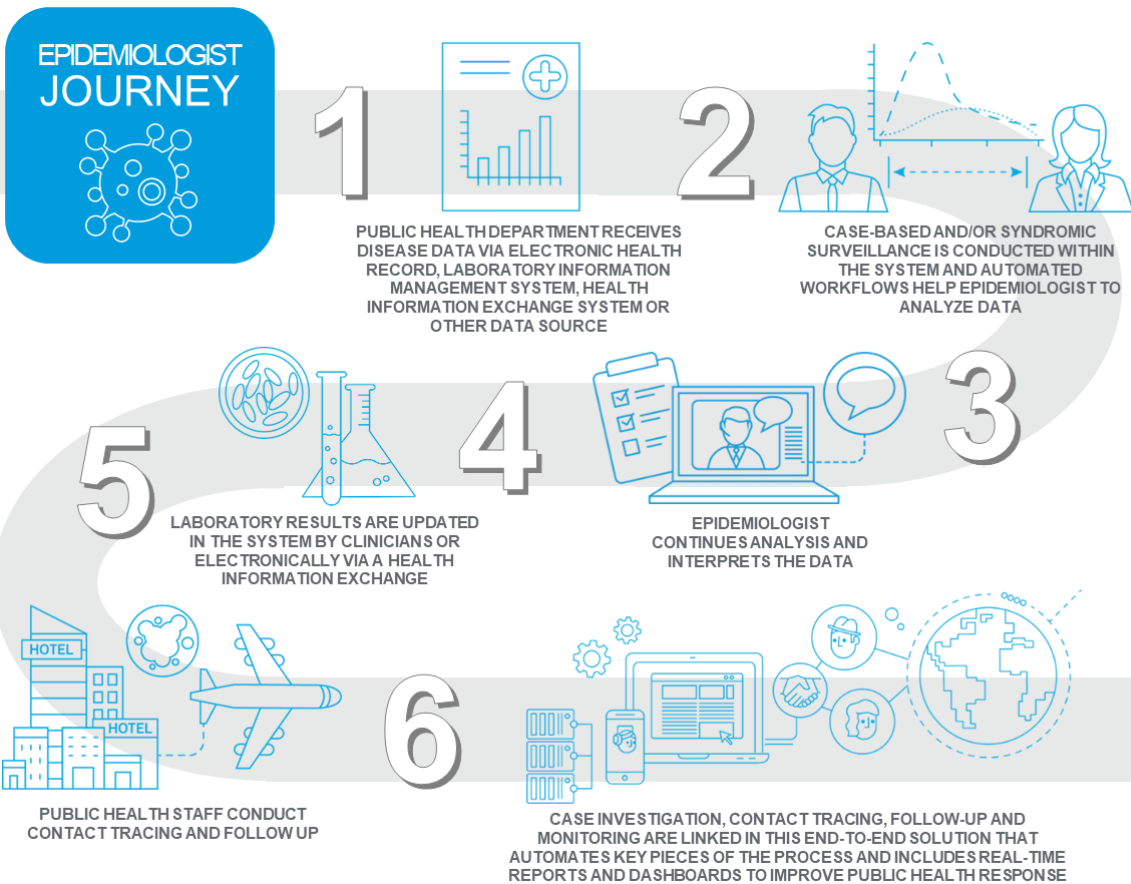


WEB-BASED  
PATIENT PORTAL

# HOW RSM IS HELPING IMPROVE PUBLIC HEALTH RESPONSE RELATED TO COVID-19

Case investigation, contact tracing, follow-up and monitoring are linked in this end-to-end solution that automates key pieces of the process and includes real-time reports and dashboards to improve the public health response

During this global pandemic and time of high need, RSM is offering its assistance with the management of the COVID-19 response. RSM has produced a COVID-19 module that provides a simpler solution to address the immediate need. The solution consists of three elements: the Microsoft Dynamics 365 platform, the RSM Disease and Outbreak Management System, and service to configure the data sources. This solution allows state and county agencies to solve a near-term problem with the potential to have a long-term state-of-the-art solution to assist with the health department's general operations.



*The Disease and Outbreak Management System integrates with Dynamics 365 to provide:*

- HL7 integration into Laboratory Information Management Systems and Health Information Exchange Systems
- Easily configured for positive and negative case identification
- Contact tracing visualizations and continuous remote patient observations/symptom-monitoring log





THE POWER  
OF BEING  
UNDERSTOOD

## HOW RSM HELPS ORGANIZATIONS PERFORM CONTACT TRACING

Simplified contact tracing to support organizations in the effort to keep individuals safe

RSM offers the Contact Tracing module within the Disease and Outbreak Management System, designed to help organizations track and evaluate employee, student, and consumer health and coronavirus (COVID-19) related symptoms in a secure web-based interface. Based on the Microsoft Dynamics 365 platform, the module provides scalable technology that is easy to use, eliminates manual, time-consuming processes and facilitates comprehensive data collection, contact tracing, surveillance and analysis, and broad reporting capabilities.

### CONTACT TRACING: THREE BASIC STEPS



IDENTIFY INFECTED INDIVIDUALS



GATHER A LIST OF INDIVIDUALS  
WHO HAD CONTACT WITH THE  
INFECTED PERSON

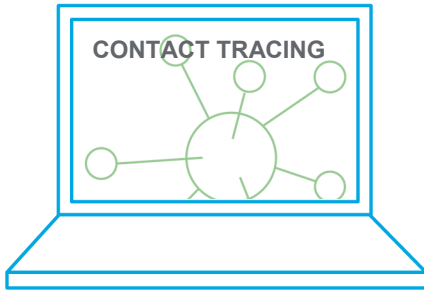


PERFORM FOLLOW-UPS TO  
MONITOR HEALTH AND ASSESS  
ONGOING RISK OF EXPOSURE  
TO OTHERS

Infection identification is performed in one of two ways. Individuals complete daily screenings using a mobile or web-based application based on Centers for Disease Control and Prevention (CDC) guidelines and screening results are used to immediately identify at risk individuals based on symptoms or exposures. Alternatively, individuals who develop symptoms notify the organization and are advised not to enter the facility until they have met the criteria to discontinue home isolation.

Automated workflows send real-time notifications and create follow-up tasks and alert lists when an infected individual has been identified. If an individual is confirmed to have COVID-19, organizations inform contacts of their possible exposure while maintaining confidentiality as required by the Americans with Disabilities Act. Close monitoring of these individuals after exposure will help the contacts to get care and treatment if needed, and will prevent further transmission of the virus.

## KNOW WHEN TO INITIATE CONTACT TRACING



To successfully reopen, organizations must immediately implement a scalable contact tracing solution to halt the spread of the virus and inform ongoing remediation and containment strategies. Knowing when to initiate contact tracing protocol starts with understanding which real-life scenarios elicit action.

### Proximity Alert

An individual who recently entered a facility is diagnosed with COVID-19. Using prior screening data, automated workflows generate an alert list and assign risk level for persons who were in the same facility during the time of infectiousness and may be at risk of infection.

### Clinical Encounter

A patient visits their primary care physician after experiencing breathlessness for several days. Clinical evaluation leads the clinician to believe the individual has been infected with COVID-19 and a nasal swab is performed and sent to a local laboratory for testing. Test results confirm the individual is positive for COVID-19 and notifies the clinic and local health department, who create a Patient record, open a Case for investigation, and perform contact tracing.

### Bulk Import

An individual is diagnosed with COVID-19 shortly after attending a large conference or event. The event organizer provides a spreadsheet containing a list of attendees and staff to the local health department which is uploaded into the Disease and Outbreak Management System using the D365 Data Import Wizard.

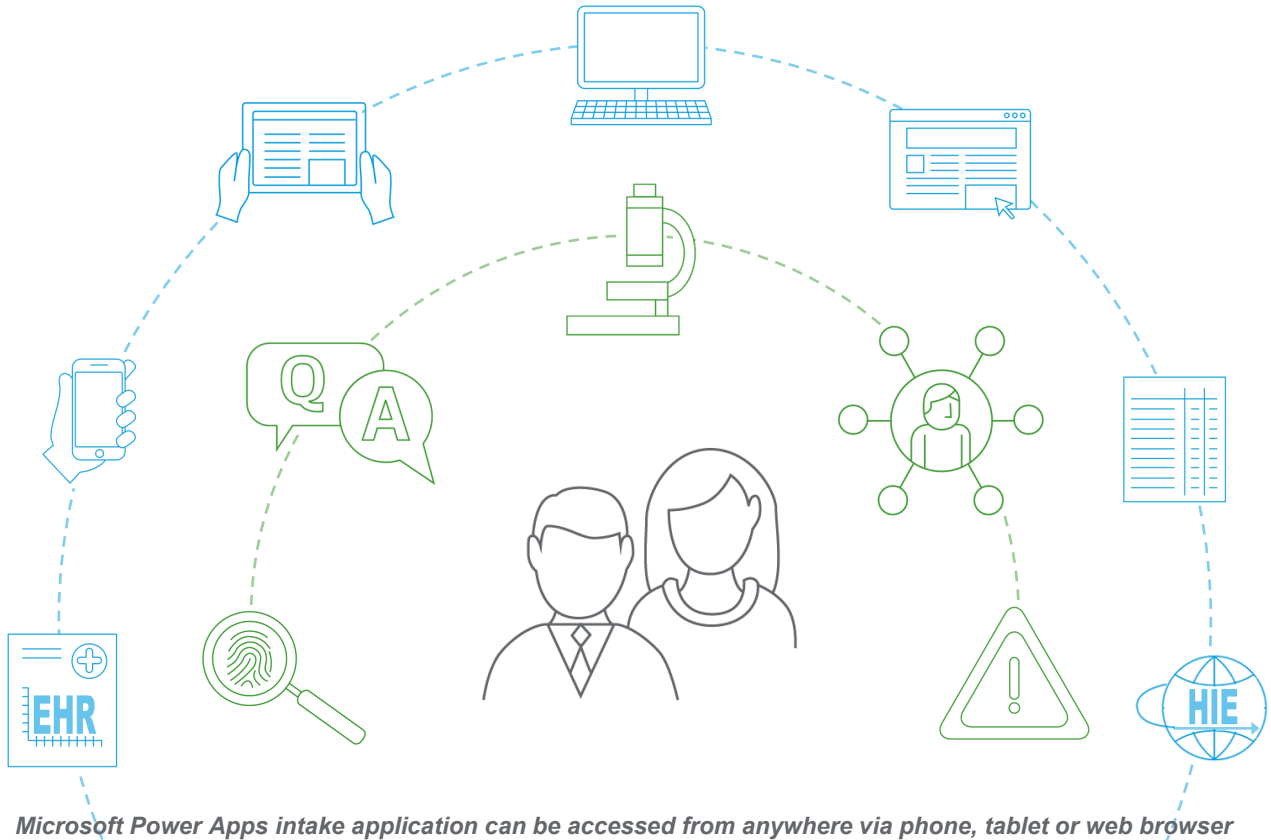
## GETTING INDIVIDUALS BACK INTO WORKPLACES SCHOOLS RESTAURANTS SHOPPING CENTERS

*RSM's Disease and Outbreak Management System provides organizations with the tools required to reopen and protect individuals while maintaining operations*



## FLEXIBLE INTAKE OPTIONS

Intake is performed manually; using the intake application on a phone, tablet, or in a web browser; importing a spreadsheet using the Dynamics 365 data import wizard; or through integration with an electronic health record (EHR) or health information exchange (HIE) system. Individuals are identified by first name, last name, date of birth, or by using facial recognition, built using Microsoft's cognitive services. Within the application, the individual record displays high level demographics as well as associated intakes, laboratory orders, and known contacts and exposures reported by the individual.



*Microsoft Power Apps intake application can be accessed from anywhere via phone, tablet or web browser*

Patients	Oxley, Keelia	Intake	Laboratory Order	Contact Exposure
<b>Abett, Brendan</b> 4/21/1994 Confirmed	<b>Confirmed</b> First: Keelia Last: Oxley DOB: 3/21/1987 Gender: Female Address Type: Residential Address Street 1: 10611 Baltimore St NE City: Minneapolis State: MN Zip Code: 55402	<b>Initial Questions</b> Is the patient experiencing any symptoms? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Does the patient have any pre-existing medical conditions? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Does the patient have any other exposures or risk factors? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did the patient travel during the 14 days prior to symptom onset? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>Patient Symptoms</b> Symptom onset date: <input type="text"/> Fever >100.4F (38C) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Subjective fever (felt feverish) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Chills <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Muscle aches <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Runny nose <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Sore throat <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>Laboratory Order</b> Status Reason: <input type="text"/> * Date Labs Ordered: 6/8/2020 Requesting Physician: <input type="text"/> Lab Facility: <input type="text"/> Barcode: <input type="text"/> Accession Number: <input type="text"/> Lab Test Local Code: <input type="text"/> LOINC Code: <input type="text"/>	<b>Contact Exposure</b> <b>Contact Details</b> Existing Contact: <input type="text"/> First Name: <input type="text"/> Last Name: <input type="text"/> Date of Birth: <input type="text"/> Gender: <input type="text"/> Home Phone: <input type="text"/> Work Phone: <input type="text"/>
<b>Abett, John</b> 1/3/2005 Suspect	<b>Intakes</b> 4/27/2020 3:21 PM 5/21/2020 4:52 PM			
<b>Abett, Jill</b> 1/3/2004 Suspect	<b>Lab Orders</b> *Sample Ship - 4/27/2020			
<b>Adam, Louisa</b> 5/2/1954	<b>Contact Exposures</b> Nafziger, Michael Oxley, John Peyton, Reed			
<b>Adams, Amy</b> 1/12/1950 Probable				
<b>Adams, Ashley</b> 9/10/1939				
<b>Adams, Adam</b> 1/12/1943 Suspect				
<b>Al, Fred</b> 3/6/1944				



# A WALK THROUGH THE PATIENT JOURNEY

The patient journey highlights key steps for patients encountered in an infectious disease screening or who have been identified as a suspected case. Public health staff are guided through patient intake and assessment, identification of contacts and exposures, and remote patient follow-up through a web-based patient portal.



1



PATIENT HAS CLINICAL ENCOUNTER FOR INFECTIOUS DISEASE SCREENING, OR IS SUSPECTED CASE

2



INTAKE PERSONNEL OR CLINICAL STAFF ENTERS BASIC DEMOGRAPHIC DATA TO SEE IF PATIENT HAS ALREADY BEEN IDENTIFIED IN THE SYSTEM

3



PATIENT IS ASKED INTAKE QUESTIONS RELATED TO SYMPTOMS, PRE-EXISTING MEDICAL CONDITIONS, OTHER EXPOSURES OR RISK FACTORS, AND RECENT TRAVEL HISTORY

4



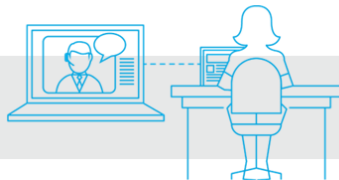
INTAKE PERSONNEL OR CLINICAL STAFF RECORDS LABORATORY TESTS PERFORMED DURING INTAKE

5



INTAKE PERSONNEL OR CLINICAL STAFF WORKS WITH PATIENT TO HELP THEM RECALL EVERYONE WITH WHOM THEY HAVE HAD CLOSE CONTACT DURING THE TIME THEY MAY HAVE BEEN INFECTIOUS

6



PATIENT GOES HOME AND LOGS INTO PATIENT PORTAL WHERE THEY RECORD ADDITIONAL DEMOGRAPHIC DATA, NEW CONTACT EXPOSURES, AND DAILY OBSERVATIONS USED FOR MEDICAL MONITORING

7



PATIENT REMAINS IN THE COMFORT OF THEIR HOME DURING ISOLATION UNTIL THERE IS NO FURTHER RISK OF COMPLICATIONS OR EXPOSURE TO OTHERS

*The Disease and Outbreak Management System integrates with Dynamics 365 to provide:*

- Mobile intake app to quickly identify patients, collect demographic details, perform assessments, and record known contacts/exposures
- Web-based portal for patients to manage their demographic details, add symptom observations to a home-monitoring log, and record additional contacts/exposures from the comfort of their home

# END-TO-END COVID-19 VACCINE MANAGEMENT

Securely manage COVID-19 vaccine distribution, planning and administration at scale empowering state and county health departments to make data-driven decisions efficiently and effectively. The end-to-end solution, integrated directly into the Disease and Outbreak Management System, allows:

**State and local public health authorities** to track and monitor vaccine orders distributed to providers

**Vaccine providers** to search and update scheduled vaccination appointments using the Vaccine Management application on a phone, tablet, or in a web browser

**Patients** to submit a vaccine registration, complete a pre-vaccination questionnaire, request and manage vaccination appointments, report side effects experienced after receiving a vaccine, and access electronic vaccination records

## ADVERSE EVENT REPORTING

Notifications are sent to investigators for follow up

## REGISTRATION

Patient completes vaccination registration

## PRE-SCREENING

Patient fills out pre-vaccination questionnaire

## SCHEDULING

Patient can request and manage COVID-19 vaccination appointments

## MONITORING

Patient reports any side effects experienced after receiving the COVID-19 vaccine

# REMOTE PATIENT FOLLOW-UP AND MONITORING

Web-based portal keeps patients and staff safe through continuous remote monitoring

The patient portal within the Disease and Outbreak Management System is designed to help epidemiologists perform continuous remote monitoring of patients during isolation. Patients access the web-based portal on any device to manage demographic data, add new contacts, record daily symptom observations into the home-monitoring log, and communicate with staff until there is no further risk of complication or exposure to others.



Home > Patient Overview

**Jane Doe** 03/21/1987 (33) Female

10611 Baltimore St NE  
Minneapolis, MN 55402  
Jane.Doe@samplemail.com  
[Edit](#)

Preferred method of contact: **Email**  
Address type: **Residential Address**  
Occupation: **Consultant**  
Primary care provider

Patient Overview	
<b>Details</b>	
First name	Jane
Last name	Doe
Gender	Female
Current gender	Female
Identity	Female
Date of birth	3/21/1987
Date of death	—
Marital status	Married
Ethnicity	Not Hispanic or Latino
Primary care provider	—
Primary language	English
<b>Contact Information</b>	
Preferred method of contact	Email
Email address	Jane.Doe@samplemail.com
Home phone	—
Mobile phone	888.888.8888
Business phone	—
Address type	Residential Address
Street 1	10611 Baltimore St NE
Street 2	—
City	Minneapolis
County	Anoka County
State	MN
Zip code	55402
<b>Occupation</b>	
Occupation	Consultant
History of military service?	No
Work/school	RSM US LLP
Work/school address type (ie, Corporate Headquarters)	RSM US LLP Minneapolis
Street 1	801 Nicolet Mall
City	Minneapolis
State	MN
Zip code	55402

Messaging		
<b>New Message</b>		
From	Date	Subject
Public Health Official	4/19/2020	Test Results
Public Health Official	4/19/2020	Wellness Check

Home Monitoring Log	
<b>New Entry</b>	
Symptom date	Status Reason
5/9/2020	Submitted
5/8/2020	Submitted
5/7/2020	Submitted
5/6/2020	Submitted

Contacts				
<b>New Contact</b>				
Contact	Date Exposed	Location Type	Relationship to Patient	Same Household
Contact A	4/19/2020	Residential	Relative	No
Contact B	4/19/2020	Business	Coworker	No

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Disease and Outbreak Management System\_Full Solution