



# MDH Interoperability Webinar Series: Infectious Disease Lab Electronic Test Orders/Results Use Case

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January 27, 2022

PROTECTING, MAINTAINING AND IMPROVING THE HEALTH OF ALL MINNESOTANS

# MDH Overall Data Strategy

# Join any or all MDH Interoperability Webinars in this Series:

Date	Public Health Reporting Use Case
January 27	Laboratory Orders/Results – Infectious Disease Lab (IDL)
February 3	Laboratory Orders/Results – Newborn Screening Blood Spot (NBS)

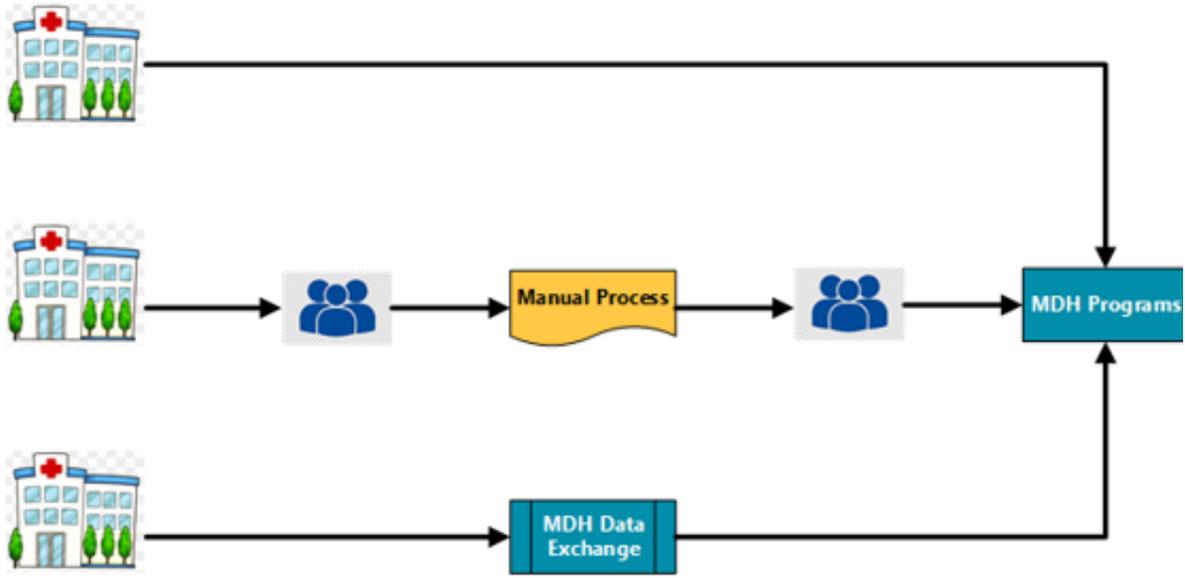
Webinar materials: [DSI website](https://www.health.state.mn.us/data/interoperability/webinar.html)  
(<https://www.health.state.mn.us/data/interoperability/webinar.html>)

# Webinar providing information towards:

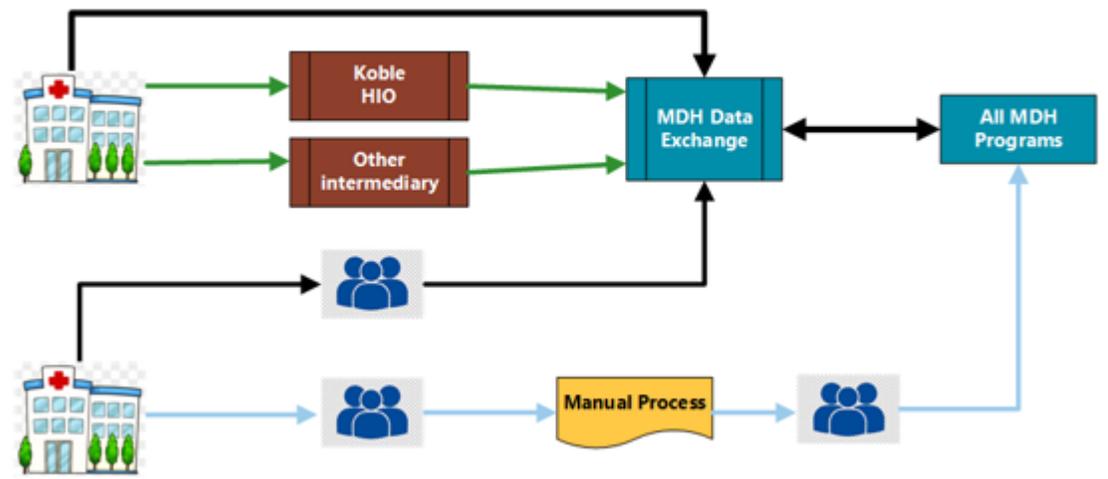
- ✓ Reducing your reporting administrative burden
- ✓ Meeting the CMS public health reporting requirements
- ✓ Improving data quality so information shared with MDH can better address future emerging threats and address population health issues
- ✓ Learning how you, your organization, and your patients benefit from improved public health reporting

# MDH Interoperability Strategy: Overall

### Current MDH Data Exchange



### Planned MDH Data Exchange



# MDH Request of External Partners

- ✓ **Schedule meeting with DSI** to discuss more details related to health system needs
  - Determine your organizations' public health reporting priorities for implementation and share with DSI (checklist)
  - Discuss any barriers or opportunities for electronic implementation with MDH
- [Consider Participation Agreement with Koble](https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972_dddba6a5436949e5952abe8094b9c778.pdf)  
[\(\[https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972\\\_dddba6a5436949e5952abe8094b9c778.pdf\]\(https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972\_dddba6a5436949e5952abe8094b9c778.pdf\)\)](https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972_dddba6a5436949e5952abe8094b9c778.pdf)
- Plan and coordinate MDH public health reporting improvements through DSI and provide feedback to processes

# Minnesota State Public Health Lab

# Minnesota State Public Health Lab

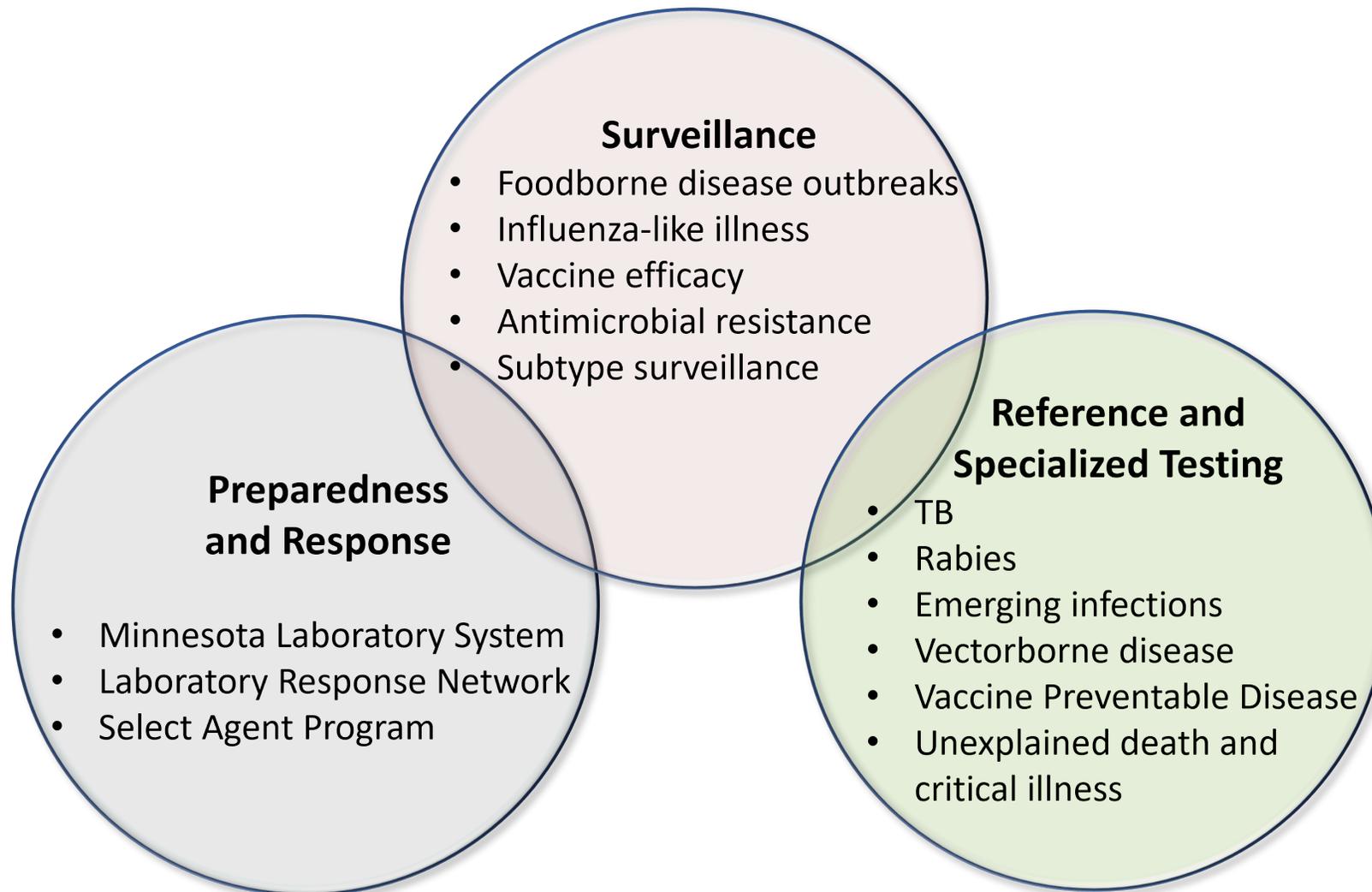


Infectious Disease  
Laboratory

Environmental  
Health Laboratory

Newborn Screening  
Laboratory

# Role of the Infectious Disease Laboratory



# Reportable Disease Rule

## Diseases Reportable to the Minnesota Department of Health

651-201-5414 or 1-877-676-5414

24 hours a day, 7 days a week

### REPORT IMMEDIATELY BY TELEPHONE

Anthrax ( <i>Bacillus anthracis</i> ) ①	Middle East Respiratory Syndrome (MERS) ①
Botulism ( <i>Clostridium botulinum</i> )	Orthopox virus ①
Brucellosis ( <i>Brucella</i> spp.) ①	Plague ( <i>Yersinia pestis</i> ) ①
Cholera ( <i>Vibrio cholerae</i> ) ①	Polioomyelitis ①
Diphtheria ( <i>Corynebacterium diphtheriae</i> ) ①	Q fever ( <i>Coxiella burnetii</i> ) ①
Free-living amebic infection ① (including at least: <i>Acanthamoeba</i> spp., <i>Naegleria fowleri</i> , <i>Balamuthia</i> spp., <i>Sappinia</i> spp.)	Rabies (animal and human cases and suspected cases)
Glanders ( <i>Burkholderia mallei</i> ) ①	Rubella and congenital rubella syndrome ①
Hemolytic uremic syndrome ①	Severe Acute Respiratory Syndrome (SARS) ①④
Measles (rubeola) ①	Smallpox (variola) ①
Melioidosis ( <i>Burkholderia pseudomallei</i> ) ①	Tularemia ( <i>Francisella tularensis</i> ) ①
Meningococcal disease ( <i>Neisseria meningitidis</i> ) (invasive) ①⑤	Unusual or increased case incidence of any suspect infectious illness ①
	Viral hemorrhagic fever ① (including but not limited to Ebola virus disease and Lassa fever)

### REPORT WITHIN ONE WORKING DAY

Amebiasis ( <i>Entamoeba histolytica/dispar</i> )	Listeriosis ( <i>Listeria monocytogenes</i> ) ①
Anaplasmosis ( <i>Anaplasma phagocytophilum</i> )	Lyme disease ( <i>Borrelia burgdorferi</i> , and other <i>Borrelia</i> spp.)
Arboviral disease (including, but not limited to, La Crosse encephalitis, eastern equine encephalitis, western equine encephalitis, St. Louis encephalitis, West Nile virus disease, Powassan virus disease, and Jamestown Canyon virus disease)	Malaria ( <i>Plasmodium</i> spp.)
Babesiosis ( <i>Babesia</i> spp.)	Meningitis (caused by viral agents)
Blastomycosis ( <i>Blastomyces dermatitidis</i> )	Mumps ①
Campylobacteriosis ( <i>Campylobacter</i> spp.) ①	Neonatal sepsis ①⑤ (bacteria isolated from a sterile site, excluding coagulase-negative <i>Staphylococcus</i> less than seven days after birth)
<i>Candida auris</i> ①	Pertussis ( <i>Bordetella pertussis</i> ) ①
Carbapenem-resistant Enterobacteriaceae (CRE) ①	Psittacosis ( <i>Chlamydia psittaci</i> )
Cat scratch disease (infection caused by <i>Bartonella</i> species)	Retrovirus infections
Chancroid ( <i>Haemophilus ducreyi</i> )	Salmonellosis, including typhoid ( <i>Salmonella</i> spp.) ①
Chikungunya virus disease	Shigellosis ( <i>Shigella</i> spp.) ①
<i>Chlamydia trachomatis</i> infections	Spotted fever rickettsiosis ( <i>Rickettsia</i> spp. infections, including Rocky Mountain spotted fever)
Coccidioidomycosis	<i>Staphylococcus aureus</i> ① (only vancomycin-intermediate <i>Staphylococcus aureus</i> [VISA], vancomycin-resistant <i>Staphylococcus aureus</i> [VRSA], and death or critical illness due to community-associated <i>Staphylococcus aureus</i> in a previously healthy individual)
<i>Cronobacter sakazakii</i> in infants under one year of age ①	Streptococcal disease - invasive disease caused by Groups A and B streptococci and <i>S. pneumoniae</i> ①⑤
Cryptosporidiosis ( <i>Cryptosporidium</i> spp.) ①	Streptococcal disease - non-invasive <i>S. pneumoniae</i> (urine antigen laboratory-confirmed pneumonia)
Cyclosporiasis ( <i>Cyclospora</i> spp.) ①	
Dengue virus infection	
<i>Diphyllobothrium latum</i> infection	
Ehrlichiosis ( <i>Ehrlichia</i> spp.)	

# Test Orders and Result Receipt with the IDL

# IDL Test Ordering and Reporting

- ✓ The IDL currently offers **3 options** for facilities to submit orders to the lab for specimen testing:
- ✓ **Option 1:**
  - IDL Paper Submission Forms
- ✓ **Option 2:**
  - Web portal (Copia) entry with automatic result receipt via web portal
- ✓ **Option 3:**
  - Electronic HL7 messaging

# IDL Submission Form

## ✓ Option 1: MDH Infectious Disease Lab (IDL)

submission form:

- ✓ Submitting facilities can add patient information and test orders into PDF and print out to send with the specimen to IDL.
- ✓ Forms available at:

- <https://www.health.state.mn.us/diseases/idlab/forms.html>

**DEPARTMENT OF HEALTH**  
 MN Public Health Laboratory  
 Infectious Disease Lab  
 601 Robert St. N  
 St. Paul, MN 55155

Phone (651) 201-9200  
 Fax (651) 201-5070  
 Specimen Receiving (651) 201-4993  
 CLIA# 24D0691409

Condition: MDH Lab Use Only  
 Room Temp Barcode Sticker  
 Frozen  
 Cool Pack

**Infectious Disease Laboratory Submission Form**

\* Required Fields

**Submitter**  
 \*Submitting Facility:  
 \*Address:  
 City: State: Zip:  
 Name of Person Filling Out Form:  
 Phone:  
 Originating Facility:  
 Ordering Provider:  
 Project Number if Known:

**Patient**  
 \*Last Name:  
 \*First Name:  
 Address:  
 City: State: Zip:  
 Patient MRN #: Sex:  
 \*Date of Birth (mm/dd/yyyy) Ethnicity:  
 Race:

**Specimen**  
 \*Submitter Sample ID:  
 \*Date of Collection (mm/dd/yyyy):  
 Time of Collection (##:##) AM  PM

**Reportable Disease/Referral**  
**Reportable Disease Specimen (Test assigned by MDH)**  
 Source: Site:  
 CIDT Platform:  
 Organism 1:  
 Organism 2:  
 Organism 3:  
 Organism 4 / Specify Other:  
**Reportable Disease Isolate (Test assigned by MDH)**  
 Source: Site:  
 Organism:  
**Referral Testing at CDC:**  
 CDC Test:  
 Submitting Laboratory - Specify Any Other Organism/Test Info or Comments:

**Test and Epidemiology Information**  
**Virology**  
 Source: Site:  
 Test Requested:  
 Date of Symptom Onset:  
 Vaccination Date:  
**Serology**  
 Source: Site:  
 Test Requested:  
 Date of Symptom Onset:  
 Previous Result:  
**Influenza**  
 Source: Site:  
 Test Requested:  
 Date of Symptom Onset: Date of Vaccination:  
 Result/Subtype: Test by Submitter:  
**Microbiology**  
 Source: Site:  
 Test Requested:  
 \*Prior MDH Notification #Prior MDH Authorization  
**Mycobacteria**  
 Source: Site:  
 Test Requested:  
 AFB Isolate Media Submitted:  
 M.TB Complex PCR only Smear Result:  
 M.TB Complex PCR only Specimen Condition:  
**Parasitology**  
 Source: Site:  
 Test Requested:  
**Mycology**  
 Source: Site:  
 Test Requested:  
 Probe:  Blast  Histo  Cocci  
**Other**  
 Source: Site:  
 Test Requested:

Apr 2020 v1.6

# Viewing Results (Copia)

## ✓ Option 2: Copia entry



View Results

Location Inbox

My Preferences

Quick Links

### Location Inbox

Location Recipient

Result Reports Other Reports

Reports for MDH Human Entry [\(show filter\)](#)

Acknowledge Selected

Print Selected

Acknowledge & Print Selected

Delete Selected

Reprint Past Print Jobs

Refresh

Total rows selected: 0

Show 20 entries 1 Showing 1 to 5 of 5 entries

Status	Order ID	Patient	Order Choices	Results Received <sup>1</sup>	Order Date <sup>2</sup>	Recipient	Select	Ack'd	Severity
Complete	<a href="#">01003-ry-20220</a>	TESTPATIENT, MDHIDL001	COVID-19 PCR, PDF Report, TaqPath Combo PCR	08/07/2020 12:20 PM	08/07/2020 10:34 AM	MDH Human Entry	<input type="checkbox"/>		Abnormal
Complete	<a href="#">01002-ry-20220</a>	TESTPATIENT, MDHIDL003	COVID-19 PCR, PDF Report, TaqPath Combo PCR	08/07/2020 12:19 PM	08/07/2020 10:26 AM	MDH Human Entry	<input type="checkbox"/>		-
Complete	<a href="#">01000-ry-20220</a>	TESTPATIENT, MDHIDL001	COVID-19 PCR, PDF Report, TaqPath Combo PCR	08/07/2020 12:18 PM	08/07/2020 10:20 AM	MDH Human Entry	<input type="checkbox"/>		-
Complete	<a href="#">01004-ry-20220</a>	TESTPATIENT, MDHIDL011	COVID-19 PCR, PDF Report, TaqPath Combo PCR	08/07/2020 10:50 AM	08/07/2020 10:47 AM	MDH Human Entry	<input type="checkbox"/>		-
Complete	<a href="#">01001-ry-20220</a>	TESTPATIENT, MDHIDL001	COVID-19 PCR, PDF Report, TaqPath Combo PCR	08/07/2020 10:42 AM	08/07/2020 10:23 AM	MDH Human Entry	<input type="checkbox"/>		-



Public Health Laboratory Division  
Infectious Disease Laboratory

601 North Robert Street  
Saint Paul, Minnesota 55164-0899  
(651) 201-5200  
www.health.state.mn.us

CLIA ID# 24D0651409  
Lab Director:  
Sara Vetter, Ph.D.

<b>Last Name:</b> TESTPATIENT	<b>MDH Sample ID:</b> 210098331	<b>Provider:</b> DO_NOT_MSG, MISC
<b>First Name:</b> MDHIDL002	<b>Submitter Sample ID:</b>	
<b>DOB (Age):</b> 1/1/2010 (11y)	<b>Collection Date:</b> 7/25/2021	<b>Originating Facility:</b> NOT GIVEN
<b>Gender:</b> Unknown	<b>Received Date:</b> 7/25/2021	
<b>Patient MRN:</b> 5	<b>Report Date:</b> 7/25/2021	<b>Submitting Facility:</b> MDH Human Entry
<b>MDH ID:</b> 20-099-0000097	<b>Report Time:</b> 2:00 PM	

**COVID-19 PCR**  
Final Report 7/25/2021

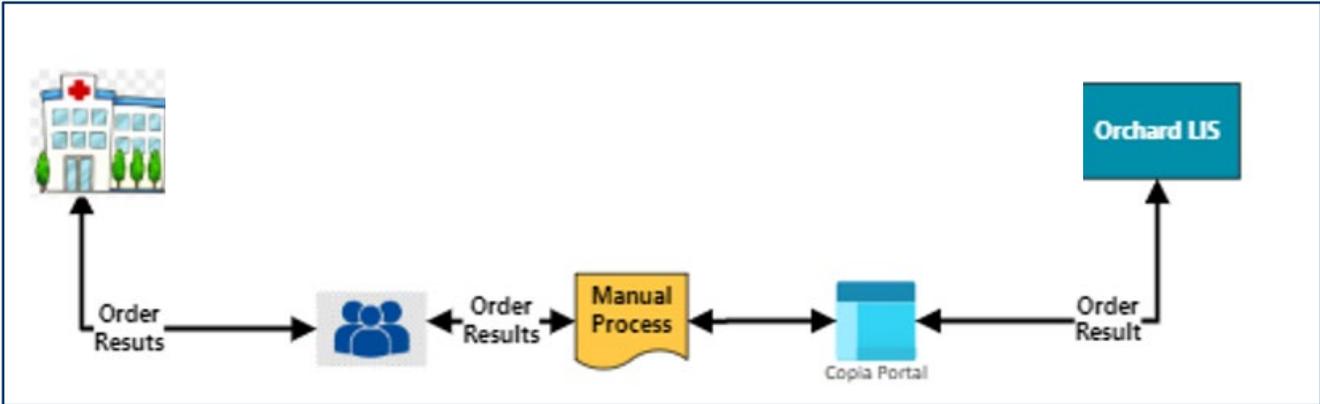
This test has been cleared by the Food and Drug Administration under an Emergency Use Authorization. A fact sheet for patients and a fact sheet for health care providers pertaining to the emergency use of the authorized rRT-PCR for SARS-CoV-2 assay can be found at <https://www.fda.gov/MedicalDevices/Safety/EmergencySituations/ucm161496.htm>.

Test	Result	Ref Range
Source	Dual NP/OP swab	
SARS-CoV-2 NAA Result	POSITIVE for SARS-CoV-2 RNA	negative

# IDL Web Portal (Copia)

## Count

- Number of Facilities Onboarded to Copia Web Portal **9**
- Number of Non-IDL Users **16**
- Number of Electronic Reports Retrieved Since 2020 **>24,000**

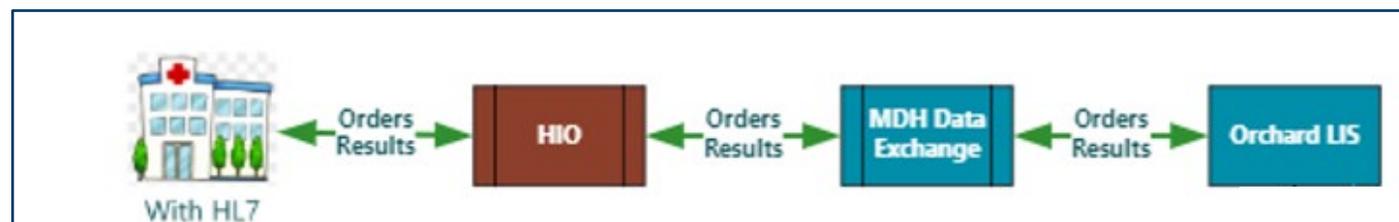


# Electronic Test Order/Results (ETOR) with the IDL

# What is ETOR?

- ✓ Electronic Test Orders and Results
- ✓ Allows the ability to directly and electronically exchange test orders and results across different facilities and laboratory information systems (LIS)
  - ✓ Near real-time access to results
  - ✓ Potential for automatic population of data in facility's LIS
  - ✓ Paperless!

- **Option 3**
  - ✓ Electronic HL7 messaging
- IDL is currently accepting submitters to onboard for ETOR via HL7 messaging
  - ✓ Intended for all partners with HL7 capability
  - ✓ Streamlines ordering/results process
  - ✓ Standardized codes for orders and results
  - ✓ Paperless!
- Pilot phase - select order choices available



# IDL order choices available for interoperability

- Available order choices include:
  - ✓ AFB Smear and Culture
  - ✓ Vaccine Preventable Diseases testing
  - ✓ Influenza + SARS-CoV-2
  - ✓ Reportable Disease Rule Submissions
  - ✓ Whole Genome Sequencing
  
- Full list will be available on the MDH Interoperability webpage
  - ✓ [MDH Interoperability Webinar Series \(state.mn.us\)](https://state.mn.us)

List of Order Choices for Electronic Ordering at MDH IDL – January 2022

Test Name
Acid Fast Bacillus Identification - Isolate
Adenovirus Isolation and Identification - Specimen
Aerobic Bacteria Identification
Antimicrobial Susceptibility - M. tuberculosis, First-line Drugs
Bordetella PCR
Campylobacter Identification - Isolate
Candida auris PCR
Carbapenemase Detection in Acinetobacter - Isolate
Carbapenemase Detection in Enterobacteriaceae - Isolate
Carbapenemase Detection in Pseudomonas - Isolate
Carbapenemase PCR, CarbaR - Specimen
Cryptosporidium Identification - Stool
E. coli O157 Identification - Isolate
Fungal Identification - Isolate
Influenza SARS-CoV-2 (FluSC2) Multiplex PCR
Legionella Culture - Specimen
M. tuberculosis Complex and M. avium Complex PCR
Measles Virus PCR
MRSA Isolate Submission
MSSA Isolate Submission
Mumps Virus PCR
Mycobacterium Culture and Acid Fast Smear
Mycobacterium tuberculosis Isolate Submission
Rubella Virus PCR
Salmonella Identification - Isolate
SARS-CoV-2 Sequencing
Shigella Identification - Isolate
Specimen-Reportable Disease Rule Submission
Streptococcus pneumoniae Serotyping - Isolate
Syphilis Confirmation by TPPA - Serum
Syphilis Screen by USR - Serum
Varicella-zoster Virus PCR
Vibrio Identification - Isolate
Yeast Identification - Isolate

- New Test Catalog
  - ✓ Turn Around Time
  - ✓ Interface Codes
- New site live in February 2022

[Infectious Disease Laboratory Home](#)

[Back to Search](#) → Brucella PCR - Isolate

## Brucella PCR - Isolate

**T** Test Name  
Brucella PCR - Isolate

**△** Test Code  
BRUPCRISO

**∞** Aliases

**📄** Methodology  
Real-time PCR

**▲** Overview/Supplementary

**🕒** Turn Around Time  
One to three days

**🛑** Epi Approval Status  
No

**🧴** Specimen Requirements  
Isolate

**🚚** Transport/Stability  
Store Refrigerated Ship Room Temp

**S** Interface/Codes  
LOINCCode 41626-3

# Example test: Salmonella Identification - Isolate

- Facility Details (ORC segment)
  - Originating Facility
  - Originating Provider
- Patient demographics (PID segment)
  - First Name
  - Last Name
  - Sex
  - Date of Birth
- Test Ordered (OBR segment)
  - Specimen Source (SPM segment)

The screenshot displays a laboratory information system interface for a test titled "TEST, TEST". The patient information includes: 01/01/1982 F, PID: 20-246-0000109, MRN: [redacted], Originating Facility: MDH Laboratory - TEST, Ordering Provider: DO\_NOT\_MSG, MISC, Patient: TEST, TEST, and Submitter Sample ID: [redacted]. The collection and order dates are both 01/25/2022. The test is "Salmonella Identification - Isolate".

The "Clinical Information" window is open, showing a table with columns for Order Choices, Clinical Info, and Response. The table contains one entry: SALMID, with the clinical info "Enterics: What is the specimen source?\*" and a dropdown response field. There is also an "Additional Note" field.

Buttons for "Print Labels", "Lab Report", "Clinical Info", and "Linked Docs" are visible at the bottom of the main interface. A "Sign Out" button is at the bottom left, and "Save" and "Cancel" buttons are at the bottom right of the clinical information window.

# Example test: Reportable Disease Rule

- Facility Details (ORC segment)
  - Originating Facility
  - Originating Provider
- Patient demographics (PID segment)
  - First Name
  - Last Name
  - Sex
  - Date of Birth
- Test Ordered (OBR segment)
  - Specimen/isolate source (SPM segment)
  - Organism identified (OBX segment)

**TEST, TEST**  
01/01/1982 F  
PID: 20-246-0000109 MRN:

Originating Facility\* NOT GIVEN  
Ordering Provider\* DO\_NOT\_MSG, MISC  
Patient\* TEST, TEST  
Submitter Sample ID  
Collection Date\* 01 / 25 / 2022 03 :  
Order Date\* 01 / 25 / 2022 03 :  
Project Number  
Domain

Comments  
Results to...

**Order Choices**

Order Choice	Abbreviation list	Order Choice Search
Specimen-Reportable Disease Rule Submission[i]		

**Documentation and Actions**

Print Labels Lab Report  
Clinical Info Linked Docs

Sign Out

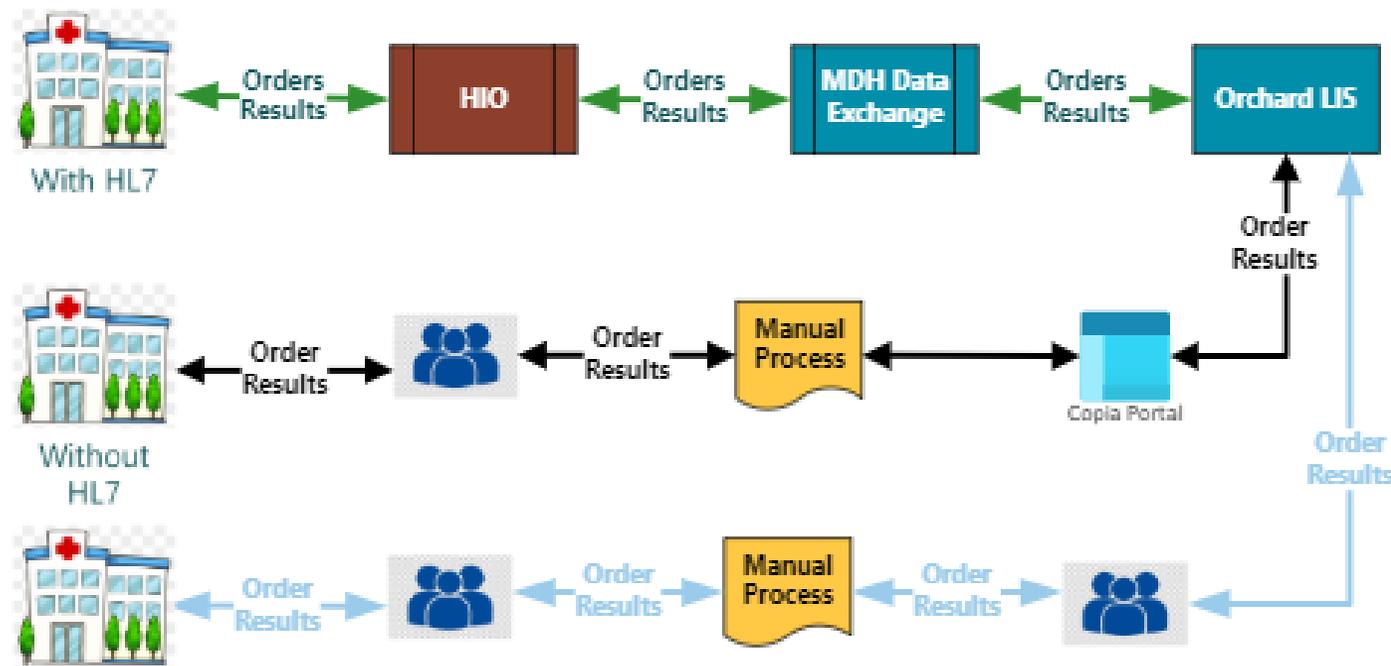
**Clinical Information**

Order Choices	Clinical Info	Response
RDRSPEC	RDR[i]: What is the source?*	<input type="text"/>
	Additional Note	<input type="text"/>
		...
RDRSPEC	What organism(s) were identified in the sample?*	<input type="checkbox"/> Adenovirus <input type="checkbox"/> Arboviruses from CSF <input type="checkbox"/> Arboviruses from Serum <input type="checkbox"/> Campylobacter species <input type="checkbox"/> Clostridium difficile toxin A/B <input type="checkbox"/> Cryptococcus neoformans/gattii <input type="checkbox"/> Cryptosporidium <input type="checkbox"/> Cyclospora cayetanensis <input type="checkbox"/> Cytomegalovirus <input type="checkbox"/> Escherichia coli K1 <input type="checkbox"/> EAEC <input type="checkbox"/> EPEC <input type="checkbox"/> ETEC <input type="checkbox"/> Entamoeba <input type="checkbox"/> Giardia <input type="checkbox"/> Haemophilus influenzae <input type="checkbox"/> Human Enterovirus

Save Cancel

# MDH Interoperability Strategy: IDL Electronic Orders/Results Use Case

## Planned IDL Orders/Results



# Highlights from IDL Interoperability

- Intended for all hospital and health system partners
- Uses same laboratory standards as currently used for reference labs
- IDL shares appropriate information meeting Electronic Lab Reporting (ELR) requirements used for other reference labs
- For Reportable Disease Rule (RDR) specimens, result message indicates that the specimen was received and the RDR requirement was met.
- Setting up the infrastructure for IDL Interoperability allows easy updates for new or emerging tests/threats in public health and lab work.

# Next Steps

# MDH Request of External Partners

- ✓ **Schedule meeting with DSI** to discuss more details related to health system needs
  - Determine your organizations' public health reporting priorities for implementation and share with DSI (checklist)
  - Discuss any barriers or opportunities for electronic implementation with MDH
- [Consider Participation Agreement with Koble](https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972_dddba6a5436949e5952abe8094b9c778.pdf)  
[https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972\\_dddba6a5436949e5952abe8094b9c778.pdf](https://3b54d489-fb07-4eda-b01d-8169cc695bc4.filesusr.com/ugd/64a972_dddba6a5436949e5952abe8094b9c778.pdf)
- Plan and coordinate MDH public health reporting improvements through DSI and provide feedback to processes

# Q&A

# Thank you.

Webinar materials: [DSI website](https://www.health.state.mn.us/data/interoperability/webinar.html)  
(<https://www.health.state.mn.us/data/interoperability/webinar.html>)

Further questions: [health.dsi@state.mn.us](mailto:health.dsi@state.mn.us)