Multi-Drug Resistant Organism Investigation Form Instructions

The NBS Data Entry Guide already ‘provides guidance on what data should be entered for investigations and laboratory reports,’ these instructions are designed to assist in areas new for investigations or for filling out the form, prior to entry into NBS.

Each section of the form is divided up and includes a snap-shot of that particular section. Fields are response dependent, not all fields may need to be filled out. Items not detailed follow the same instructions as the NBS Data Entry Guide. All information should be collected by the investigator.

PUBLIC HEALTH USE ONLY SECTION:

Check the appropriate box(es) to categorize this case. Use the following definitions:

- **Confirmed:** Acinetobacter species or Klebsiella species or E. coli from any body site/source that meets the confirmed laboratory criteria for MDRA or CRE, respectively.

- **Probable:** A Klebsiella species or E. coli from any body site/source that meets the probable laboratory criteria for CRE.

- **Active surveillance (culture):** Acinetobacter species, Klebsiella species or E. coli isolated from a specimen or clinical specimen collected within ≤3 days of admission in which the specimen was collected specifically for active surveillance. Also select whether it meets the confirmed or probable case definition.

PATIENT INFORMATION SECTION:

- **Homeless:** Check this box if the patient is homeless. Patient may state they are homeless or it may be stated in the medical record. If investigator is unsure, homelessness is defined as:
  a. An individual who lacks a fixed, regular, and adequate nighttime residence; or
  b. An individual who has a primary nighttime residence that is not meant or design for human habitation or sleeping; or
  c. An individual living in a publicly or privately operated shelter designed to provide temporary living accommodations.

Created: 01/10/2014, Updated: 05/12/2014, 5/29/2015
- **Occupation:** Enter the patient’s primary occupation. Try to be specific as possible, example: nurse instead of healthcare worker; high school teacher instead of education. If retired, document ‘retired’.

### REPORTER INFORMATION SECTION:

- **Jurisdiction:** enter name of health department, health service region (HSR), etc... that is completing the investigation.
- **Investigation start date:** can be the date the local/region received the initial report of the notifiable condition.
- **Email:** Enter the email address of the person who completed the investigation or the person who could answer NBS data entry inquiries.
- **Reporting source type:** this is the facility type that reported the initial case. (ie: hospital, LTAC, nursing home.)
- **Reporting Organization:** enter the name of the facility that reported the initial case
- **Reporting Provider:** enter the name of the physician that reported the initial case. If unknown leave blank.
- **Reported by:** Enter the first and last name of the individual reporting the case to the health department. This would most likely be the contact the investigator is working with. (i.e. Infection Preventionist)

### HOSPITAL/ FACILITY INFORMATION SECTION:

<table>
<thead>
<tr>
<th>HOSPITAL/ FACILITY INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Was the patient hospitalized?</strong></td>
</tr>
<tr>
<td><strong>Date of hospital admission:</strong> / /</td>
</tr>
<tr>
<td><strong>Were control measures (per MDRO Guidance) implemented at the admitting hospital?</strong></td>
</tr>
<tr>
<td><strong>Chief complaint or reason for admission/visit:</strong></td>
</tr>
<tr>
<td><strong>Facility patient came from:</strong></td>
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<tr>
<td><strong>Name of facility:</strong></td>
</tr>
<tr>
<td><strong>Were control measures (per MDRO Guidance) implemented at the facility the patient came from?</strong></td>
</tr>
<tr>
<td><strong>Discharged to:</strong></td>
</tr>
<tr>
<td><strong>Name of facility:</strong></td>
</tr>
<tr>
<td><strong>Were control measures (per MDRO Guidance) implemented at the facility the patient was discharged to?</strong></td>
</tr>
</tbody>
</table>
Was the patient hospitalized (any healthcare facility)? Check “Yes” if the patient was admitted to a healthcare facility (HCF) for any reason (including nursing homes, long term care facilities, etc.) at the time the MDRO was cultured and enter the name of the HCF where the patient was admitted.

a. Check “No” if the case is being reported from an outpatient location where there are no admissions (e.g., emergency department, observation unit, clinic, doctor’s office, lab, etc.).

b. NOTE: this is not reflected on the paper form but has been updated in NBS as of May 2015.

Date of hospital (HCF) admission: enter the date of admission to the above mentioned healthcare facility.

Date of hospital (HCF) discharge: enter the date the patient was discharged from the above mentioned healthcare facility or the date of death.

Date of Outpatient visit: If patient was not admitted to a healthcare facility, enter the date of the outpatient visit, emergency department visit, clinic visit, etc., as well as the name of the facility visited.

a. NOTE: this is not reflected on the paper form but has been updated in NBS as of May 2015.

Were control measures (per MDRO Guidance) implemented at the admitting hospital?: this question applies to the admitting hospital name above. Check the box for “Yes” if control measures were implemented. Check “no” if control measures were not implemented. Check “UNK” if it is unknown whether any control measures were implemented.

Chief complaint or reason for admission/visit: Enter the patient’s primary reason for presenting to the healthcare facility. If unknown, enter the primary diagnosis or reason for admission to facility.

Facility patient came from: Select the location where patient came from prior to being admitted or prior to outpatient visit.

a. Home: This category includes additional home-like settings such as a group home
b. Acute care hospital
c. LTAC: long term acute care hospital
d. LTCF/NH: long-term care facility/nursing home
e. Rehab: rehabilitation hospital
f. UNK: If it is unknown where the patient came from prior to visit
g. Other: check this box if the type of location the patient was transferred from is not listed and enter the type of location and name in the space provided. Ex: Jail

Was this facility notified of MDRO?: Either investigator or transferring facility may have communicated this information; enter Yes, No or Unknown.

a. If no or unknown, the facility the patient came from must be informed about the MDRO condition. Investigator may call or ask facility to communicate this.
b. There is no NA choice and in some instances this question might not be applicable, so just leave blank.

Were control measures (per MDRO Guidance) implemented at the facility the patient came from?: this question applies to where the patient came from or where the patient was prior to being admitted to the hospital. Check the box for “Yes” if control measures were implemented. Check “no” if control measures were not implemented. Check “UNK” if it is unknown whether any control measures were implemented.

Discharged to:

a. Home: check this box if the patient was not transferred to another facility.
b. Acute care hospital
c. LTAC: long term acute care hospital

Created: 01/10/2014, Updated: 05/12/2014, 5/29/2015
d. LTCF/NH: long-term care facility/nursing home  

Rehab: rehabilitation hospital  

f. Hospice  
g. UNK: check this box if the location the patient was transferred to is unknown.  
h. Other: check this box if the type of location the patient was transferred to is not listed and enter the type of location and name in the space provided.

• **Was this facility notified of MDRO?:** Either investigator or transferring facility may have communicated this information; enter Yes, No or Unknown.  
  a. If no or unknown, the facility the patient is being transferred to/discharged to must be informed of the MDRO condition. Investigator may call or ask the facility to communicate this.

• **Were control measures (per MDRO Guidance) implemented at the facility the patient was discharged to?:** this question applies to where the patient is being transferred to/discharged to after leaving the hospital. Check the box for “Yes” if control measures were implemented. Check “no” if control measures were not implemented. Check “UNK” if it is unknown whether any control measures were implemented.

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**CLINICAL DATA SECTION:**

![Clinical Data Form]

- **Date of symptom onset:** Enter the date that the symptoms first appeared (same as illness onset date in NBS). Leave blank if onset date is unknown.  
  a. If patient has an asymptomatic infection or colonization, check “Asymptomatic”. This would also apply if an “active surveillance culture” is done on the patient.

- **Did patient die?** Check “Yes” if the patient died during the above mentioned hospital stay and enter the date of death. Check “No” if the patient did not die. Check “UNK” if it is unknown whether the patient died.

- **Did the MDRO contribute to death?** Check “Yes” if the patient died AND the MDRO contributed to their death. Check “No” if the MDRO did not contribute to death. Check “UNK” if unknown.

- **Was the patient admitted to an intensive care unit (ICU)?** Check “Yes” if the patient was admitted to an ICU or Critical Care Unit (CCU) and enter the date the patient was first admitted to an ICU/CCU. If patient was in a mixed acuity bed, enter the date that the patient required intensive care. Check “No” if the patient was not admitted to an ICU/CCU. Check “UNK” if unknown.
• Did patient have indwelling/invasive devices at time of positive culture? Check “Yes” if patient had an indwelling/invasive device. Device examples: surgical drain, central venous catheter, dialysis lines, PICCs, indwelling urinary catheter, tracheostomy tube or ventilator. If so, list which devices the patient had.
  a. List all devices that apply that the patient had.

• Underlying Medical Conditions: List any underlying medical conditions in the space provided. Examples include diabetes, immune-compromised, and end stage renal disease.
  a. Note: if the condition is not listed, choose “other, or other prior illness”

OTHER INFORMATION SECTION:

• Was patient previously hospitalized within past 6 months? If “Yes” capture all hospitals names and dates.
  a. Note: only go back 6 months from the culture that is being investigated at the current time and not from a prior history.

• Did patient travel outside the United States within past 6 months? This includes travel to Mexico and Canada. If “Yes” list the locations

• Did patient receive medical treatment outside the United States within past 6 months? This includes clinic, physician, or hospital visits when outside the US. This also includes the purchase of medications or antibiotics with or without a prescription, by mail from another country, or while in another country for medicinal use. If “yes” list the reasons or medications

LABORATORY DATA SECTION:
LABORATORY DATA

Date collected: __/__/____ Pathogen: □ MDR-Acinetobacter □ CRE-E. coli □ CRE-K. pneumoniae □ CRE-K. oxytoca □ Other: CRE-K. _________

Specimen source: __________________ Test Method: □ Culture □ PCR □ MHT □ Other: ___________________ Specimen site (specific): __________________

Location/unit at time of positive culture: __________________ Date admitted to this unit: __/__/____

Lab able to save isolate for up to 3 months? □ Yes □ No □ Already discarded

CRE-E. coli or Klebsiella species only: Resistant or Intermediate to Imipenem, Meropenem, or Doripenem (check all results that apply)

<table>
<thead>
<tr>
<th>CLSI Breakpoints used:</th>
<th>Pos</th>
<th>Neg</th>
<th>Not tested</th>
<th>UNK</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ M90-S19 (v. 19 or earlier)</td>
<td>□ M100-S22 (v. 20 or later)</td>
<td>MIC</td>
<td>Modified Hodge Test (MHT)</td>
<td>□</td>
</tr>
<tr>
<td>Imipenem</td>
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<td></td>
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<tr>
<td>Meropenem</td>
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<tr>
<td>Doripenem</td>
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<tr>
<td>Ertapenem</td>
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<tr>
<td>Carbapenems (Imipenem, Meropenem, Doripenem)</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>Aminoglycosides (Amikacin, Gentamicin, Tobramycin)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MDR-Acinetobacter only: Resistant or Intermediate to at least 1 agent in at least 3 of the 6 antimicrobial classes below (check all that apply)

<table>
<thead>
<tr>
<th>Beta Lactam (Piperacillin, Piperacillin/Tazobactam)</th>
<th>Cephalosporins (Cefotaxime, Ceftazidime)</th>
<th>Carbapenems (Imipenem, Meropenem, Doripenem)</th>
<th>Fluoroquinolones (Ciprofloxacin, Levofloxacin)</th>
<th>Sulbactam (Ampicillin/Sulbactam)</th>
<th>Aminoglycosides (Amikacin, Gentamicin, Tobramycin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Beta Lactam (Piperacillin, Piperacillin/Tazobactam)</td>
<td>□ Cephalosporins (Cefotaxime, Ceftazidime)</td>
<td>□ Carbapenems (Imipenem, Meropenem, Doripenem)</td>
<td>□ Fluoroquinolones (Ciprofloxacin, Levofloxacin)</td>
<td>□ Sulbactam (Ampicillin/Sulbactam)</td>
<td>□ Aminoglycosides (Amikacin, Gentamicin, Tobramycin)</td>
</tr>
</tbody>
</table>

- **Date collected**: this is the date the culture was collected from the patient.
- **Pathogen**: Check the appropriate box to indicate which pathogen was identified. Enter an additional lab report if additional tests are positive. If a patient has more than one pathogen identified in the same lab check all that apply.
  a. MDR-Acinetobacter: If known, enter the species name in the space available.
  b. CR-E. coli
  c. CR-K. pneumoniae
  d. CR-K. oxytoca
  e. Other CR-Klebsiella: Fill in the species in the space provided.

- **Specimen source**: Enter the source from which the specimen was taken. It is acceptable to use what is printed on the lab report from the reporting facility. Example: Blood, sputum, urine, etc.

- **Specimen site (specific)**: Enter the site from which the specimen was taken, be as specific as possible. It is acceptable to use what was printed on the lab report. Example: CVC, left jugular, foley catheter, etc.

- **Test Method**: Select the test method for identifying the pathogen, options include: Culture, PCR, Modified Hodge Test (MHT), Other. If “Other” is selected, provide the test method used.

- **Location/unit at time of positive culture**: this is the specific place the patient is at when the culture was taken. Example: ICU, NICU, med/surg unit, etc. This will help identify clusters/outbreaks if additional cases are noted.

- **Date admitted to this unit**: Enter the date the patient was admitted to the unit the culture was collected from. If outpatient, leave blank.

- **Lab able to save isolate for up to 3 months**: Check “Yes” if the healthcare facility is able to save the isolate for up to 3 months; this included anything under 3 months. Example: 1 week, 1 month, etc. Check “No” if they are not. Check “Already discarded” if the isolate has been discarded.
a. Isolates may be needed later if additional cases are noted and can be sent to DSHS lab for analysis.

**CR-E. coli or CR-Klebsiella species only:**
(this section should ONLY be filled out if the above pathogen was a CRE)

- **CLSI Breakpoints used:** Check the box corresponding to the CLSI breakpoints used by the facility’s laboratory. This answer should not change frequently but it is important to ask each time when conducting an investigation.
  - a. M100-S19 if using version 19 or earlier
  - b. M100-S22 if using version 20 or later (Version 22 is becoming more commonly used)

- **Susceptibility Results:** Indicate whether the *E. coli* or *Klebsiella* isolates are resistant or intermediate to the antibiotic. Enter the MIC (minimum inhibitory concentration) if known.
  - a. Imipenem
  - b. Meropenem
  - c. Doripenem
  - d. Ertapenem
  
    ▪ **NOTE:** Although MIC levels are requested for Ertapenem, it is not considered for case classification.
  
  - e. 3rd Gen Cephalosporin*. Enter the name of the 3rd generation cephalosporins tested in the 1st blank and the MIC in the 2nd blank. Generally up to 2 are tested:
    
    ▪ *The following are current 3rd generation cephalosporins used to treat Enterobacteriaceae infections, alphabetically listed, with the commonly used in bold:
      - Cefdinir
      - Cefetamet
      - Cefixime
      - Cefmenoxime
      - Cefodizime
      - Cefoperazone
      - **Cefotaxime**
      - Cepodoxime
      - **Ceftazidime**
      - Ceftibuten
      - Ceftizoxime
      - **Ceftriaxone**
    
    ▪ **NOTE:** Cephalosporin information is requested but is not part of the case classification for CRE cases.

- **Additional CRE Test Results:** Indicate whether the *E. coli* or Klebsiella isolates tested were positive (Pos), negative (Neg), not tested or if it is unknown (UNK) whether they were tested using the following tests:
  - a. Modified Hodge Test (MHT)
  - b. KPC PCR
  - c. NDM PCR
  - d. VIM PCR
  - e. IMP PCR
  - f. OVA48-like PCR

Created: 01/10/2014, Updated: 05/12/2014, 5/29/2015
MDR Acinetobacter only:
(this section should ONLY be filled out if the above pathogen was a MDR-A)

- Check all the antimicrobial classes that the specimen is either resistant or intermediate to:
  a. There are six antimicrobial classes listed. The generic names of the antibiotics that fall into these six classes are provided in parenthesis.
    1) Beta-Lactam (Piperacillin, Piperacillin/Tazobactam)
    2) Cephalosporins (Cefepime, Ceftazidime)
    3) Carbapenems (Imipenem, Meropenem, Doripenem)
    4) Fluoroquinolones (Ciprofloxacin, Levofloxacin)
    5) Sulbactam (Ampicillin/Sulbactam)
    6) Aminoglycosides (Amikacin, Gentamicin, Tobramycin)

Questions at any point can be directed to MDROTexas@dshs.texas.gov