|  |
| --- |
| Microbiology / Virology Computer Training |
| **Purpose** | This procedure provides instructions for the MICROBIOLOGY/VIROLOGY COMPUTER SYSTEM. This policy applies to all Laboratory personnel that order/receive specimens for the Microbiology, Molecular Biology and Virology sections.Specimen ordering and receiving is a crucial step in specimen processing. Placing an order correctly prevents multiple errors ranging from improper set-up of the culture, incorrect billing, results not posting in the EMR (Cerner), and results not being sent to the correct provider. Orders are placed by the provider. They may be done by:* **Electronic request** and received in Lab in the Sunquest OER or ORM function
* **Manual request** and received in lab in the Sunquest GUI Order Entry function.

Occasionally an inappropriate culture code will be selected by the ordering provider and appear in Sunquest OER, ORM or on the manual order request form. **Lab staff are the experts in laboratory testing.** We need to utilize our expertise to order the right test to provide the intended result. Unfortunately this sometimes puts us in the role of gatekeepers. It may be necessary to modify/reorder the culture using the correct code to obtain the correct culture set-up information on the specimen label.* If the specimen has arrived within a short period of time of collection, and has been ordered in the Cerner system, it can be modified in Sunquest OER, by typing in the accession number but not appending the test code onto the accession number. Modify field #9 as well as fields 4,5,6,10,11.
* If the order comes on a manual request form, modify the order code as appropriate.
* If the specimen was ordered with Clinical Collect, you will need to reorder the test. You cannot modify the order in ORM.

This does NOT mean we need to get the ordering provider to put in a new order. The order has been written, we are just correcting the test order code.**Contact the provider if orders are not clear and understandable.** |
| **Policy Statements** |
| **Principle**  |
|  |
|  | Examples of frequently mis-ordered specimens are as follows:* Diagnosis: **Pilonidial abscess**, specimen comes as a syringe of pus, the provider ordered the culture as a **BF**. This culture code should be changed to **Abscess culture** (AC).
* **Sinus cultures**: (Swabs or fluid) These are collected in surgery and are considered a surgical wound. Order a **Wound culture** (WDC).
* If the specimen is abody **fluid** from a fluid space in human anatomy, such as a PD, hip aspirate, joint fluid, pleural fluid, etc., order a **Body Fluid** culture (BF). It is important to order these correctly because most require a blood culture bottle to be set up. You will not get this information in the media field if it is ordered incorrectly.
* If the specimen comes on a swab, it is most likely a culture of a surgical wound site; the correct order is **Wound culture** (WDC). To qualify for a Body fluid culture, you must actually receive fluid in a sterile container, and it must be from a fluid space, such as joint, pericardial, pleural etc.
* **Superficial wound cultures should be ordered as Skin cultures (SKIC).** These sources are not appropriate for anaerobic culture and anaerobic media-ASB2, AKV will not appear on the SKIC label.
* Tissue from surgery or Histology should be ordered as **Tissue culture (TISC).**
* **Pathology tissue** **reviewal is REQUIRED for ALL tissue submitted to Micro**.
* **ALWAYS,** when a tissue comes from the O.R. to Micro, contact Histology to make sure they do not need the specimen. There are times when the specimen somehow bypasses Histology and if Micro processes the culture without pathology consultation, then there can be no Histological exam.
* **Shunt tubing** should be ordered and cultured as **Micro Miscellaneous Culture (MMC**);

**NOT** Cath Tip culture. Shunt tubing is a drain from the brain into the peritoneal cavity. By ordering **MMC**, the media field will include gram stain, CHOC, SB, ASB2 and THIO.* Cath tips from: IV catheters, Broviac, Hickman, other central lines, are from vascular sources and should be ordered as **Cath Tip cultures (CTC).** By ordering CTC, the media field ONLY includes SB.
* Respiratory source ordered for Viral Culture (VIRC). Culture code should be reordered to Viral Respiratory Culture (VRSP) .
* Viral Culture (VIRC) ordered for blood viral culture. Reorder with code Blood Culture, Viral (BCV).
 |
| **Choosing the Correct Encounter** | **Choosing the correct encounter*** Patients can have multiple encounters for the same day of service. Choose the correct encounter in Sunquest
* Order Entry to place an order to or scan orders to requires care.

  Example above: WEST and RLABW/RLAB, WEST does not perform labs, they send their specimens to us. We are their Reference Lab. So choose **RLABW/OP**.* Encounters dates **MUST** be the **SAME** as the date of specimen collection or billing will fail.

In the example above, two stool samples were received, one collected 5/23 and another 5/24. Tests must be ordered by selected the corresponding matching “Start Date” and the specimen collection date, and ordering tests on each date of collection.**Patients can have encounters for future orders, future appointments.** Today, being 5/24/2011, the 5/31/2011 is a preregistration, chose the 5/24 start date. |
| **Choosing the Correct Encounter****cont.****Modification of** **Collect Date/Time** | **Patients can have encounters for future orders, future appointments.** Today, being 5/24/2011, the 5/31/2011 is a preregistration, chose the 5/24 start date.It is very important that the date/time be modified when accessioning a specimen in the Laboratory. Results are displayed in the EMR (Cerner) by collect date/time. If the date/time is not modified, the results will display in the incorrect flow cell.If two specimens with the same test code, (example: BC from red port and white port), are received in the lab for the same collection time, change the collect time of the second specimen by one minute. By making this time modification, the second culture will display in a separate flowcell in PowerChart. Because of this change physicians will be able to find the culture results more readily.     |
| **SDES Codes** | Correct specimen description (**SDES**), and special request (**SREQ**) are essential to culture set-up. The correct **SDES** is the “driver” for the Media field of the Micro label. And the correct SDES format **MUST** **BE USED** to prevent errors in result posting to the EMR (Cerner).The ITS dept. will notify Microbiology of the failures so that they can be corrected.

|  |
| --- |
| **Examples of Site Codes to be Used—“FREE TEXT” IS NOT ALLOWED** |
| **Blood Cultures** |
| ARL | Art line |  | PORT | Port-a-Cath (PAC) |
| BLDN | Blood, collect site not specified | REDL | Red lumen |
| BLUL | Blue lumen |  | WHL | White lumen |
| BROV | Broviac |  | UART | Umbilical arterial catheter (UAC) |
| CENL | Central venous line | ARTP | Arterial puncture |
| CORD | Cord Blood |  | MEDL | Mecomp line |
| CVP | CVP line |  | FEM | Femoral |
| HICK | Hickman |  | IVS | IV start |
| LD | Line draw |  | UVC | UVC Line |
| PEBL | Peripheral Blood | PICL | PIC line |
| PERC | Perc line |  |  |  |
|  |  |  |  |  |
| **Urine Cultures** |
| BLAD | Bladder urine |  | SUPR | Suprapubic urine |
| CATH | Catheterized urine | UR | Urine, collect method not specified |
| CYST | Cystostomy urine | URES | Ureteral stint |
| IUR | Intraoperative urine | URET | Ureter |
| KID | Kidney urine |  | VESI | Vesicostomy urine |
| NEPH | Nephrostomy urine | VOID | Voided urine |
|  |  |  |  |  |
| **CSF Culture** |
| CSF | Cerebrospinal fluid | VEN | Ventriculostomy |
| SHF | VP shunt fluid |  | SUB | Subdural fluid |
| SHU | Shunt fluid (other than VP) | RST | Reservoir tap CSF |
| VF | Ventricular fluid |  | LCSF | Lumbar puncture CSF |
|  |  |  |  |  |
| **Bronch Cultures** |
| BAL | Bronchial alveolar lavage | LUL | Left upper lobe |
| BASP | Bronchial aspirate | RLL | Right lower lobe |
| BR | Bronch |  | RMA | Right mainstem |
| BRW | Bronchial washing | RML | Right middle lobe |
| LLL | Left lower lobe |  | RUL | Right upper lobe |
| LMA | Left mainstem |  |  |  |
|  |  |  |  |  |
| Source Codes:  |  | Descriptive Codes |
| **DO NOT USE AS FIRST CODE** |  | **DO NOT USE AS FIRST CODE** |
| ABSC | Abscess |  | LT | Left |
| AUT | Autopsy |  | RT | Right |
| BLD | Blood |  | LOW | Lower |
| ASP | Aspirate |  | UP | Upper |
| FLD | Fluid |  | CLEA | Clear |
| GENI | Genital |  | BLDY | Bloody |
| TIS | Tissue |  | CLDY | Cloudy |
| WND | Wound |  | YLW | Yellow |
| Free Text NOT ALLOWED! |  |  |  |

 |

**SDES codes continued.**

If non-specific codes are used as the first code, a failure will occur in the EMR (Cerner) and the specimen site will not post in the patient’s chart. These codes can however be used as a **SECOND** code appended to the first code with the hyphen, i.e. ABD-ABSC (abdominal abscess). **Free text** can also be used as a **SECOND** code appended to the first code, free text is recognized by the system by using the semi-colon before the text, i.e. correct code hyphen semicolon free text. Example: BRA-; PARIETAL ASPIRATE.

* The following are considered non-specific source codes and cannot be used as the first code:

They can, however, be used as second codes, i.e., HAND-ABSC (Hand, abscess)

 **ABSC** – Abscess

 **AUT** – Autopsy

 **BLD** – Blood

 **ASP** - Aspirate

 **FLD** – Fluid

 **GENI** – Genital

 **TIS** – Tissue

 **WND** – Wound

* Descriptive codes must be appended to the first code, i.e., HAND-LT (Hand, left) and should always be used as the second code. If one of these codes is used as the first code in SDES, it will create a failure in the EMR (Cerner) and results will not post. These codes would include:

 **LT** – Left

 **RT** – Right

 **LOW** – Lower

 **UP** – Upper

 **CLEA** – Clear

 **BLDY** – Body

 **CLDY** – Cloudy

 **YLW** – Yellow

* If a specimen site is not specified with the order and the information is not available, the code **BSNS** (Body site not specified) may be used. However, an attempt must be made to obtain the site information because the extent of culture work-up and susceptibility testing would be dependent upon this information. If the specimen is from an off-site clinic, leave communication so that the day shift can follow-up with the provider.
* The defaults will remain in cultures and tests such as SSCR, TCS, SPUC, STLC, EARC, EYEC, REIA, DFLU etc.
* SSCR can only be performed on throat swabs,
* REIA, DFLU can only be performed on nasal wash
* TCS- Strep Group A culture is only performed on rectal and vaginal sources, throat specimens for group A strep detection are tested by Molecular Biology: GASD,
* If throat specimens are submitted for culture, order TC

**SREQ “**Special requests” is a field that the ordering provider may use to add information pertaining to the culture or patient. Care must be taken to check for special requests with each order. Occasionally, lab must again be the “gatekeeper”. This field is sometimes used to request additional cultures, which then MUST be placed correctly by Lab. An example would be if SREQ is “Mycobacterium”, lab would need to order AFBB. If SREQ is for “Mycoplasma” lab would need to order MPPC.

Again, remember this does NOT mean we need to get the ordering provider to put in a new order. The order has been written, we are just correcting the test order code.

**And ALWAYS contact the provider if orders are not clear and understandable.**

**Supplementary and corrected reports**

* **If there is a labeling error or specimen mix-up**, refer to the MISLABELED / UNLABELED SPECIMEN PROCESS GL 2.0 in the Laboratory Department Manual
* If a culture is unfinalled and brought back to the preliminary status for additional testing, the code **SRPT** (supplementary report) must be used in SREQ or CULTURE RESULTS.

 Example 1:

[SDES]: CATHETERIZED URINE

[SREQ]: \*\*Supplementary report: SUSCEPTIBILITIES REQUESTED PER DR. SPRING

 Example 2:

ORG #? 1. \*\*Supplementary report: GRAM POSITIVE COCCI BEING ISOLATED

 AND IDENTIFIED FROM BROTH ONLY

 Using the code **SRPT** will change the status in the Cerner flowcell to display

 Prelim (s) or Final (s) and alerts the user of additional information.

* If a culture requires a correction, the code **CORR** (corrected report) must be used in CULTURE RESULTS. The code CORRwill change the report status in the Cerner flowcell to display Prelim (c) or Final (c) and alerts the user of corrected information. Refer to procedure **MCVI 5.1.**

Example: CULTURE RESULTS

 1. POSITIVE FOR GROUP A STREPTOCOCCAL ANTIGEN

 2. \*\*Corrected report: Previously reported as NEGATIVE FOR

 GROUP A STREPTOCOCCAL ANTIGEN

 3. \*\*Called to DR. SPRING 3/13/00 1300

* If a culture is changed back to the preliminary status and further testing needs to be done, SRPT or CORR must be used in SREQ or CULTURE RESULTS. This will change the report status in the EMR (Cerner) to Prelim (s) or Prelim (c). If these codes are not used, a posting failure will occur in the EMR and the culture will not post in the patient’s chart. The ITS dept. will notify Microbiology of the failures so that they can be corrected.
* If a culture is unfinalled and refinalled in the same session (with-out filing and saving) and no modifications have been made to the report, SRPT or CORR do not need to be used for the report to post correctly in Cerner.

 Example: The addition of PFGE results from the MDH or an additional work-up.

**Continued Reports**

Six different order codes are used when the culture has more than 10 lines and needs a continued report for display purposes in Cerner. The tests are listed alphabetically in the Cerner and it is necessary to use these codes to display the continued information in the adjacent flowcells. The new codes are as follows:

 ACC – Abscess continued report

 BRCC – Bronch continued repot

 MMCC – Misc continued report

 SPCC – Sputum continued report

 WDCC – Wound continued report

 ETCC – ETT continued report

Two codes are needed to bring together the original report and the continued report.

The codes are as follows:

 **SEEC** – SEE CONTINUED REPORT FROM THIS SPECIMEN COLLECTED ON

 ; [free text the date/time and the newly created accession number]

 **Place this code on line #9 of original report.**

 **RCON** – REPORT CONTINUED FROM THE SPECIMEN COLLECTED ON

 : [free text the date/time and the previous accession number]

 **Place this code on line #1 of continued report.**

**Susceptibility Reporting and Billing**

Fungal, anaerobic and AFB susceptibilities are entered into the culture using the susceptibility tab in Sunquest Micro Result Entry. In order to link to the correct information the following keyboards must be selected in the **keyboard** drop down menu:

 FMIC – Fungal MIC

 AFMC – Acid-fast MIC

 ANMC – Anaerobic MIC

Example: ORG #? (Highlight the row) **Candida albicans**

 SUSC KEYBOARD:  **FMIC**

Choose the correct drop-down and the correct drugs will appear for resulting. If additional drugs, not listed, need to be resulted, use the look-up function, (ellipses).

The susceptibilities are billed on the billing tab in Sunquest GUI Micro Result Entry. Refer to [MCVI 5.31 Add on Micro UM Bill codes](MCVI%205.31%20Add%20on%20micro%20UM%20bill%20codes.%202015.xlsx) for correct codes.

Additional codes can be found in Function MIQ # 1.The codes are as follows:

 FMT1 – Fungal MIC Texas drug 1

 FMT2 – Fungal MIC Texas drug 2

 FMT3 – Fungal MIC Texas drug 3

 AFB2 – *M. fort/chelonae* rapid grower –15 drug MIC, Nat. Jewish code NTM4

 AFB3 – *M. avium* complex --10 drug MIC, Nat. Jewish code NTM10

The billing must be done as soon as the susceptibility is requested before the patient’s account is closed. If more drugs are tested than there are bill codes for, submit manual billing form to LIS.

|  |  |  |
| --- | --- | --- |
| **Training Plan** | **Training Plan** | **Initial Competency Assessment** |
| 1. Employee must read the procedure
2. Employee will observe trainer performing the procedure.
3. Employee will demonstrate the ability to perform procedure, record results and document corrective action after instruction by the trainer.
 | 1. Direct observation
2. Complete written exam
 |
|  |  |
|  |  |  |  |  |
| **Historical Record** | **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
| 1 | Pat Ackerman | 3/31/1999 | Initial Version |
| 1.1 | Pat Ackerman | 1/10/2002 |  |
| 1.2 | Pat Ackerman | 3/31/05 |  |
|  | 1.3 | Becky Carlson | 4/8/2010 | Revised Mislabeled/Unlabeled process, now standardized lab- wide. |  |  |
| 1.4 | Becky Carlson | 5/20/2011 | Added instructions for choosing the correct encounter in Sunquest Order Entry |
| 1.5 | Becky Carlson | 3/28/2015 | Removed AFB1 charge code, updated AFB2, AFB3 to National Jewish Lab |
| 2 | Becky CarlsonHelen Stefan | 4/4/2015 | Reformatted to CMS and re-numbered from MC 1228, added virology examples in frequently misordered test section  |
| 3 | Susan DeMeyere | 10/13/2017 | Changed logo and added ORM receipt of specimens. Added hyperlink for billing codes.  |
| **Archived by:** |  | **Archived Date:** |  |