HCHS/SOL PULMONARY ABSTRACTION FORM
QUESTION BY QUESTION (QXQ) INSTRUCTIONS
ASTHMA/COPD EXACERBATIONS HOSPITALIZATIONS
AND EMERGENCY ROOM VISITS

GENERAL INSTRUCTIONS

The PUL form will be used for a subset of hospitalizations and/or Emergency Department (ED) visits as indicated by the Event Eligibility Form (EEF).

The purpose of these instructions is to make sure all HCHS/SOL medical record abstractors are collecting information in a standardized way. The more specific information you have about each item on the form--and the more you know about where to find the "answers" and how to record them--the more uniform and useful the data will be. Although you may have ample experience in medical record abstraction and medical terminology, these instructions provide many definitions that will help ensure everyone is using the same "tools".

For each item on the form, the instructions will tell you where in the medical record, and in what order, to look for the required information. When consulting several sections of the medical record, you may find that they provide different or even contradictory information. It is, therefore, very important to consult all sections of the medical record listed for a given item.

If you are unable to complete an item on the form because of missing or contradictory information in the medical record, consult your physician reviewer for advice.

ER Visits and Transfers: Separate admissions (e.g., b/c of transfers) are abstracted on separate Pulmonary/Heart Failure Abstraction forms, even though both abstractions can be scanned into a single HCHS/SOL investigation at the judgment of the Events staff. Since an ER visit alone is not an actual admission, there is no need to do two separate abstractions in a situation where a participant has an ER visit at one hospital but is then admitted at a different hospital. In such a situation, though, the records of the ER visit should be abstracted as part of the admission at the second hospitalization.

Multiple Care Locations: In general, there are three different options to make sure everything is abstracted when care is received in two locations:

(a) Two entirely separate investigations, each with its own abstraction form. (Use this method for two events separated by 24 hours, though the Events staff has the option of collapsing events into a single investigation if conditions are directly related and admissions are within 30-day span.

(b) One investigation with two or more abstraction forms. (Use for single event involving two admissions linked by a transfer.)

(c) One investigation with one abstraction form, even though care was received in two locations. (Use for one event that involves multiple locations but only one actual admission, such as ER visit at one hospital followed by admission to a different hospital.)

Sections and Content of the Medical Record Used for Abstraction
You need to consult all of the following sections of the medical record, as appropriate, in order to gather adequate information to complete the form. If the entire chart is available, these sections should be reviewed first. It is a good idea to read through these sections (and others, if possible), before you begin recording information on the form, in order to familiarize yourself with the course of events that occurred from admission to discharge. Although the instructions for each individual form item sometimes list the **most likely** sources for finding the information sought by that particular question, you can use documentation from anywhere in the chart if these sources do not provide the information you need. Although keep in mind questions related to the time of event.

The **Face Sheet** provides participant demographic information and admission and discharge information (dates, treating physician(s), discharge diagnosis(es), and ICD-9-CM codes). Also contains charges for certain medications, and tests.

The **Emergency Department (ED) Record** and **Emergency Medical Technician (EMT) or Ambulance Report** describe symptoms, dates and times of symptoms, vital signs, initial treatment during transportation to the hospital, ED treatment and response, and disposition. In the ED there will be a triage note from initial assessment of the patient, then notes from the nurse and a note from the physician. The triage note is particularly valuable for initial vital signs.

The **Admission History and Physical Exam** (H&P) is a detailed description of symptoms leading to admission, condition of participant on admission, current medication use, and past medical history; it also includes a physical exam, results of tests and procedures done in the ER or upon admission, provisional diagnosis(es), and treatment plan. Patients who stay in the hospital for < 24 hours may be designated as **Observation care** which is considered outpatient care even though it may be overnight in the hospital. For these stays, you may only see a short stay note which is the admission note and discharge note combined.

The **Discharge Summary** summarizes the entire hospitalization, including admission and discharge dates, treating physician(s), admission H&P, hospital course, treatments and procedures, and discharge disposition. (If the hospitalization is prolonged or if residents or attending physicians rotate while a participant is admitted, there may also be an **interim summary.**)

The **Death Summary** may replace or augment the discharge summary, in the event of a participant's death. It may contain, or be attached to, autopsy information or an autopsy report.

The **Consults** section contains typed or handwritten notes made by specialists (e.g., infectious disease, rehabilitation medicine) consulted while the participant was hospitalized. Handwritten consults may also be found in the physician progress notes section

Laboratory Results. This section will include chemistries and BNP levels.

The **Radiology** (or diagnostic tests) section contains reports of chest x-rays, VQ scans, echocardiograms, CTs, and other imaging procedures.

The **Operative** section contains operative and pathology reports and may contain autopsy reports.

Outpatient Records, if available, may be used if they can provide more information about the event in question. If within a week of the ED or hospital visit, then outpatient records may help to confirm recent signs and symptoms.

Rules on hierarchy and use of qualitative reports: The underlying purpose of these rules is to capture information rather than to miss it, as long as the information appears accurate.

If there are conflicting sources of information, take information in this priority: resident, cardiologist, attending physician, ED physician, nurse. However, if there is disagreement regarding diagnosis between physicians, the subspecialist for that diagnosis takes superiority. For example, for a pulmonary issue, the pulmonologist is considered more correct, but for a cardiac issue, the cardiologist should be more correct than the non-cardiologist.

Rules for Physical Exam and Symptoms:
In general the goal is to capture any presence of an abnormal exam finding. For signs and symptoms, any documented description of an abnormal finding by any physician is sufficient unless stated otherwise in the QXQ as at the time of event. In the case where an exam finding is specifically requested for any one point in time and there is disagreement about the presence of that physical finding at that specific time point (e.g., at the time of the event), take information in this priority: the pulmonologist (any type of note), the attending physician (any type of note) the resident, ED physician, and nurse. Time of event is meant to include approximately 24 hours after time of arrival or event onset if happened after arrival.

Please avoid using the following secondary sources to gather information, unless primary sources are incomplete or unavailable: physician orders, nurse's or multidisciplinary notes, vital sign logs, or physician progress notes, unless there is **no other way** to reconstruct the event.

Rules for Vital Signs at Time of Admission:
Use the first in time for admissions (not necessarily the H&P) to complete in Section E. Physical Exam.

Rules for Diagnostic Tests: Qualitative vs Quantitative reports
Generally, physician's qualitative data take precedence over quantitative (technician's) data. If there is a discrepancy between data in qualitative description and data in the conclusion, use data in the qualitative section (i.e. go with text not test). History and physical notes rank higher than emergency room notes.

Definitions of Terms
Some questions have response categories of "yes," "no," and "unknown." If nothing is written down that definitely answers the question, generally record "unknown." The following table lists terms you may encounter in the medical record that, when in doubt, should be recorded on the form as "yes," "no," or "unknown." (Obviously, the entire content of the event should be considered as well.)

Yes	No	Unknown
Present	Not present	Rule out(R/O)
Likely	Low probability	Cannot Rule Out
Apparent	Unlikely	Suggestive
Consistent with		Equivocal
Compatible with		Suspicious
Definite		Questionable
Probable		Possible
Highly suspicious		Uncertain
Presumed		Reportedly
Borderline		Perhaps
Thought to be		Could be
Minimal		Might be
Representing		May be
Mild or trace		May represent
Scant		

The table below contains time-of-day and length-of-time terms that you may encounter in the medical record and how they should be interpreted and/or recorded on the form. (Use 12-hour clock, not 24-hour clock).

If the medical record says this…	You record this…
[If no time is listed]	12:00p.m.
Middle of the night	1:00 a.m.
Early morning	6:00 a.m.
Morning	8:00 a.m.
Late morning	10:00 a.m.
Mid-day or noon	12:00 p.m.
Early afternoon	2:00 p.m.
Afternoon or mid-afternoon	3:00 p.m.
Late afternoon	4:00 p.m.
Early evening	7:00 p.m.
Late evening	11:00 p.m.
Midnight	12:00 a.m.
Several days	≥3 days
A few days	≥ 2 but < 4 days
Several hours	≥ 4 but < 6 hours
A few hours	≥ 2 but < 4 hours

Chronic obstructive pulmonary disease (COPD) is permanent lung damage in which air flow is obstructed during exhalation. Emphysema is the most common form of COPD, but chronic bronchitis is also a cause. Sometimes called chronic obstructive lung disease (COLD).

Asthma is a lung disease caused by increased responsiveness of the tracheobronchial tree to various stimuli, with resultant paroxysmal constriction of the bronchial airways. Clinical presentation is wheeze, dyspnea, and cough. Those with allergic asthma may also have eosinophilia.

Bronchitis

Acute bronchitis is characterized by a transient inflammation of mucous membrane of the bronchial tubes. Infection may be viral or bacterial. Cough is usually productive mucopurulent expectoration. Acute bronchitis can precede pneumonia.

Chronic bronchitis a very common, debilitating pulmonary disease, characterized by increased production of mucus in the trachea and bronchi resulting in a cough with expectoration for at least 3 months of the year for more than 2 consecutive years.

SPECIFIC ITEMS

Event ID and event date are primarily for assisting the abstractor in confirming the medical record being abstracted matches the EEF form. Once these fields have been entered on the EEF they can be duplicated in the corresponding fields on the PHF using the "dup key" feature, if the forms have been entered in the same data session.

SECTION A: GENERAL INFORMATION

Item 1. Choose one. Enter "1" if the event was in hospital only without a visit to the same hospitals ED, "2" if ED visit only, "3" for both ED visit followed by a hospitalization, "4" if observation care only without a prior ED visit, or enter "5" if an observation visit only without prior ED visit. Observation care is an administrative term for certain overnight visits (usually <24 hours) to the hospital that do not meet criteria to be a full admission. For observation visits, you may see a "short stay summary" or "admit to obs". If you are not sure if an overnight visit is observation or full admission then assume that it was a full admission and choose either "1" or "3". If response is "2" (ED) skip to Item 3. Patients that are In hospital only or observation care only without a ED visit first, will have usually been admitted as a direct admit from a physician's office or for elective surgery/procedure.

Item 2. Record yes (Y), no (N) or NR (if the information is not specified in the documentation provided). Hospital stay refers to the time from admission to the hospital (or observation) to the time of discharge – this time does not include the time in the ED. On the administrative face sheet, you may see LOS for length of stay which will tell you if it was greater than 1 day. Alternatively, you can look at your answers to questions 3b and 4b to determine if the stay was >24 hours, although keep in mind that this includes time spent in the ED which should not be included here. If it is not clear then choose "Not Recorded". **Note:** You may see a statement that this patient "requires > 24 hours of evaluation and treatment." Do not use this statement alone to answer this question. This is an administrative determination that occurs in the ED that the patient needs full admission rather than observation care, however they still may have been discharged <24 hours later.

Item 3. Record the date of arrival at the hospital; if includes an ED visit then it would be date of arrival at ED or the first date recorded for this visit. Enter as mm/dd/yyyy.

Item 3a. Record the time of arrival at the emergency department or hospital. If time provided in military time then convert to time in AM or PM and then choose '1' for AM or '2' for PM. If uncertain of time of arrival, then provide closest time available on the day of arrival. ED triage would likely be the earliest time. Other places to consider looking for the earliest time could be the RN notes, or time of 1st lab work. If no time available from the day of arrival, then give "=" across all blanks.

Item 3b. Record the date of admission to the hospital or observation care. This should be on the admission history and physical and the discharge summary as the "date of admission". If date not available or this is an ED visit only, then give "=" across all blanks. Look for validation that the date of admission is correct on the H and P, especially on hand written notes in which the admission date is not automatically filled in. Admission date may also be on the face sheet.

Item 4. Record the date of discharge (or date of death). Enter as mm/dd/yyyy. If the participant was transferred from acute care to rehabilitation or chronic care in the same hospital, count the date of transfer as the discharge date. If the patient died, then record the date of death.
Sources: Discharge or death summary or autopsy report.

Item 4a. Record the time of discharge (or date of death). If time provided in military time then convert to time in AM or PM and then choose '1' for AM or '2' for PM. If uncertain of time of discharge, then provide closest time available on the day of discharge. RN discharge note would likely be the latest and most accurate time. If no time available from the day of discharge, then give "=" across all blanks. Do not use time from the physicians discharge note as this is likely the time the doctor dictated the note.

For questions 5 and 6, you will be entering an ICD code. There is one hospital that does not put periods in the ICD codes, so you will need to add them. All ICD codes are in the format XXX.X, so if there is no period then add one after the first 3 places.

Item 5. Primary admitting diagnosis code: Enter the primary admitting diagnosis code. This is the ICD-9 code assigned to the main reason for the hospital admission or ED visit. The primary admitting diagnosis is the main reason a patient is admitted, however once admitted and tested the original diagnosis may change or be ruled out. It may be the same as the primary discharge diagnosis code, but not always. ED visits that do not result in admission will only have discharge codes, since the patient was not admitted. If this is an ED visit only, then give "=" across all blanks. Be sure to list the admitting diagnosis code from the face sheet. Occasionally if there is not a face sheet then you may see an assigned ICD code on the ED report, or H&P or other sources listed below. Note: Do not assign an ICD code to the admitting diagnosis, if there is no ICD code assigned already then enter "=". Do NOT use the codes listed on the 2nd page of the HCHS/SOL Medical Records Documents Shipping Cover Form.

Sources: Face sheet, ED report, H&P, hospital transfer documents, physicians' notes.

Item 6. Primary discharge diagnosis code. This is the ICD-9 code assigned to the main reason for the admission, usually found on the ICD-9 summary page for every hospital admission. In the absence of an ICD-9 summary page, refer to the discharge report.

HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

The admission diagnosis and discharge diagnosis may not be the same. The primary discharge diagnosis will be conclusive, based on all testing and treatment per admission or ED visit. Be sure to list the discharge diagnosis code from the face sheet. Occasionally if there is not a face sheet then you may use an assigned ICD code if there is one on the discharge summary or other sources listed below. If there is not, an actual ICD-9 code then do not code diagnoses yourself, and instead put '=' if there are no ICD-9 codes present. Do NOT use the codes listed on the 2nd page of the HCHS/SOL Medical Records Documents Shipping Cover Form.
Sources: ICD summary page, Face sheet, ED report, hospital transfer documents, physicians' notes.

Item 7. Emergency medical service unit transport? Record yes (Y), no (N) or NR (if the information is not specified in the documentation provided). **Note**: A participant may travel to the hospital for an elective admission by ambulance because of a pre-existing condition or disability that requires special transportation (so the answer here is "Y"). An EMS unit may be public or private and staffed by EMTs or paramedics. ("EMS Unit" includes helicopters but excludes private vehicle or taxi.)

Sources: Face sheet, EMT/ambulance report, ED report, discharge or death summary, H&P.

Item 8. Transferred from another hospital? Record yes (Y), no (N) or NR (if the information is not specified in the documentation provided). "Another hospital" means an acute-care facility to which the participant had been admitted. If the participant was transferred from a nursing home, skilled care facility, rehabilitation center, or another hospital's ER or outpatient clinic, answer "no" to this question. If you answer "yes" to this question, you may need to complete a separate HCHS/SOL form for the other hospitalization -- if the participant was admitted to the other hospital for a possible event (cardiac, pulmonary or stroke) or suffered such a possible event while in the other hospital.

Sources: EMT/ambulance report, ED report, discharge or death summary, H&P, hospital transfer documents, physician's and/or nurses' notes.

Item 9. Ever a "no-code" or "DNR" (do not resuscitate)? "Ever" means either in the ED or at any time during the admission for this visit only. "No code" means that no cardioversion, intubation, or mechanical ventilation will be used in a life-threatening emergency. If on the face sheet, it reports that there are no advance directives, then can answer NO here if you do not later see evidence of DNR. IF see in the MDs note "Disposition: FC" then can answer NO as FC stands for "Full Code". Synonyms include: Supportive care only, DNR (do not resuscitate), comfort measures only, palliative measures only, chemical care only, or "no extreme or heroic efforts". This is often a required administrative question that is asked of everyone admitted to hospital so it may be in the admitting nurse's note.

Sources: Discharge or death summary, ED report, H&P, physician orders or notes.

Item 10. Alive at discharge? Enter Yes or No or NR. This information can be found in the discharge summary or face sheet, or on the ED report (if patient died in the ED).

SECTION B: SIGNS AND SYMPTOMS

I. **Signs and Symptoms**

For the following questions, use the worse outcomes presented in either the physical exam or symptoms expressed by the patient.

Items 11a.-h. refer to signs and symptoms that are either increasing in severity or are new, not chronic stable conditions. In most situations, if this sign or symptom is the primary reason for the ED or hospital visit then it is likely new and/or increasing. For example, if the medical record indicates the patient reports shortness of breath as a secondary problem but that it was not increasing (within the past 2 months) or new record NO to Item 11h. However, record YES if there was worsening of symptoms even if it happened after admission. For example, a patient might have been admitted for hip replacement and developed shortness of breath three days after the surgery. In summary, items regarding "increasing or new onset" all follow the same rule: we are interested in new onset or increasing symptoms either before admission or at any time during the hospitalization. For the purpose of items 11a.-h., Record YES if increased or new onset is reported in the medical record at time of ED, hospital arrival or at an earlier evaluation immediately preceding admission (e.g. a note from a physician's office prior to a direct admit to the hospital), or at any time during the hospitalization. Record NO if there is clear indication that a condition was NOT present. Record NOT RECORDED if there is no documentation in the medical records for the item or if it is unclear based on the medical record that a condition was or wasn't present. In general, any documented description by any physician or nurse of an abnormal finding at the time of the event (although it needs to be new or increasing) for items 11a.-h. is sufficient to record YES (hierarchy rules do not apply here). At the time of event should generally be within approximately 1 day of presentation. If not sure of the timing of the signs or symptoms then use your judgement as to whether you think the signs or symptoms were temporarily related to the event.

For items 11i.-m., these do not need to be new or increasing, so record YES if they occurred anytime during the ED visit, or hospitalization. Record NO if there is clear indication that a condition was not present. Record NOT RECORDED if there is no documentation in the medical records for the item or if it is unclear based on the medical record that a condition was or wasn't present. In general, any documented description by any physician or nurse of an abnormal finding at the time of the event for items 11i.-m. is sufficient to record YES (hierarchy rules do not apply here).

I. Signs and Symptoms Associated with This Episode

Item 11a. New onset or increase in cough? Record YES if new onset or an increase in cough is reported at the time of hospital arrival, or at an earlier evaluation (e.g. at physician's office for a patient directly admitted to the hospital – for example within 24 hours of the Dr.'s office or urgent care visit), or at any time in the hospital (i.e.: record YES if the patient complained of new or increase in cough). Cough is a complaint, rather than a physical examination finding.

Item 11b. New onset or increase in sputum production reported?   Record YES if new onset or an increase in sputum production is reported at the time of hospital arrival, or at an earlier evaluation (e.g. at physician's office for a patient directly admitted to the hospital), or at any time in the hospital (i.e.: record YES if the patient complained of new or increase in sputum production or it was found upon assessment by a physician or nurse anytime during hospitalization).

Item 11c. New onset or an increase in sputum purulence? Purulence refers to the state of containing pus, the liquid product of inflammation; generally yellow in color, but may be green, indicating infection or rusty or gray in appearance also indicating pathology. Record YES if new onset or an increase in sputum purulence (or change in sputum color from clear to yellow or green) is reported. If there is increase in sputum production, but then it is not specified if there is a change in color or consistency then record NOT RECORDED.

Item 11d. New onset or increase in wheezing? Wheezing is a whistling or sighing sound that occurs with breathing, usually exhalation, resulting from narrowing of the lumen of respiratory passageways during difficult breathing such as occurs in asthma and other respiratory disorders. Record YES if new onset or an increase in wheezing is reported. It will not be adequate to note wheezing on physical examination to record YES here, instead there should be an increase in wheezing which is more likely from history rather than the physical examination. Your response to this item also does not depend on your response to any items about asthma and/or COPD. For example, it is possible to record No or NR for asthma and/or COPD and still record YES here.

Item 11e. New onset or increase in chest tightness or chest pain? This would include cardiac as well as non-cardiac chest pain. Record YES if new onset or an increase in chest pain (e.g.: chest pressure, tightness, discomfort, heaviness, or ischemic pain) is recorded or if the medical record mentions any of the following: pleuritic chest pain, musculoskeletal chest pain, angina, angina pectoris, crescendo angina, unstable angina, angina like pain or *syndrome x.* If uncertain whether chest pain is new, then assume that it is new since most chest pain will be. Chest pain may be recorded as "CP" in the medical record. For this to be YES, the patient must have complained of chest pain. Do not include angina that presents with symptoms other than chest pain. Do not include epigastric pain.

Item 11f. New onset or increase in leg edema (unilateral/bilateral)? Edema here refers to the accumulation of fluid in extra-vascular spaces of body tissues in various parts of the body outside of the heart and lungs, and here only includes swelling of the legs. Peripheral edema refers to swelling of the legs. Edema here does not refer to pulmonary edema, which is the accumulation of fluid in the extra-vascular spaces of the lung. Record YES if there is a complaint of increased or new onset leg swelling. Record YES if the complaint of swelling is unilateral or bilateral. This would be self-reported (unless noted mid hospitalization) and therefore will be noted in the review of systems or history of present illness. Record NO or NR (depending on most appropriate response) if lower extremity is noted on the physical examination, but there is not a complaint of lower extremity edema.

Item 11g. New onset or increase in use of rescue bronchodilator? Record YES if the patient reports the addition of rescue bronchodilators or a recent (last 1-2 months)

increase in the use of a rescue bronchodilator. Rescue bronchodilators include atrovent, albuterol, and xopenex. Inhalers are often abbreviated as MDI for multidose inhaler. Also record YES if rescue bronchodilators are added or increased during the hospitalization. ALSO If an increase or addition of a nebulized rescue bronchodilator is required prior to the event then record YES for this question as well. If uncertain, whether the dosage or frequency of inhalers is increased from usual regimen then choose NOT RECORDED. If a medication list is provided and it does not include bronchodilators then record NO. IF nebs or inhalers are being used every 4 hours scheduled then assume this is increased from baseline or if using without relief of symptoms then assume use is increased also.

Item 11h. New onset or increase in dyspnea (shortness of breath)? Record YES if increased or new onset of dyspnea (shortness of breath, SOB) is reported in the medical record at the time of hospital arrival, or at an earlier evaluation (e.g. at physician's office for a patient directly admitted to the hospital), or at any time in the hospital (i.e.: record YES if the patient complained of new or increasing shortness of breath or it was found upon assessment by a physician or nurse anytime during hospitalization. Evidence of new or increasing tachypnea, which may be defined as respiratory rate (RR) >22, should be considered YES for this question. If a patient was placed on CPAP or BIPAP, arrived on a ventilator, or was placed on a ventilator for respiratory distress or respiratory failure record YES for this item. If there was no evidence of new onset or increased dyspnea at any time, record No or Not Recorded. If on exam, patient is noted to appear tachypneic at rest or while talking then answer YES.

Item 11i. Dyspnea (at rest)? Dyspnea at rest refers to difficulty breathing that is not related to physical exertion. YES if dyspnea at rest is noted during the H&P anytime or during hospitalization, otherwise record No or N/R. Also, if a patient is on a ventilator, or observed to be tachypneic at rest or while talking (have a fast respiratory rate, e.g., $\geq$ 22 breaths per minute), then answer YES. If dyspnea is listed without any qualifier, then assume the patient has dyspnea on exertion AND not dyspnea at rest unless there are other indications of dyspnea at rest.

Item 11j. Dyspnea (walking or on exertion)? Record YES if dyspnea while walking or on exertion (e.g.: climbing) is noted in the ED, or on the H&P or anytime during hospitalization. This will most likely be found in the patient history as something like 'shortness of breath with climbing stairs'. Also, if observed to be tachypneic with exertion then answer, 'YES'. If dyspnea is listed without any qualifier, then assume the patient has dyspnea with exertion (e.g., walking, climbing, etc.), BUT not dyspnea at rest. **Note** - if dyspnea at rest is recorded (item 11i.), then the item for dyspnea with exertion - will automatically be recorded as 'YES'. If dyspnea is described with minimal exertion (e.g., change in position, eating, transferring from bed to chair), then record YES to the exertional dyspnea item.

Item 11k. Woken up at night by shortness of breath? Paroxysmal nocturnal dyspnea (PND) is a complaint of waking up in the middle of the night feeling shortness of breath. Classically, people sit straight up in bed and open a window or turn on a fan to try and get "air". Paroxysmal nocturnal dyspnea is often abbreviated as PND. Record YES if shortness of breath at night or waking up short of breath (paroxysmal nocturnal dyspnea, PND), or unable to sleep due to shortness of breath is noted in the medical record. Waking up short of breath (SOB) is sufficient to record YES. **Note:** Orthopnea is not a synonym for PND.

Item 11l. Fever? Record YES if fever is recorded in the medical record. Record YES if the patient had a documented fever (or complained of chills or rigors) within 48 hours of presentation to ED/hospital, or it was found upon assessment during ED visit or hospitalization. Fever is defined as Fahrenheit > 100.4 or Celsius >38.0. Do not include subjective fever or chills or report of fever at home that was not measured, but do include a reported fever from home that was measured and was > 100.4.

Item 11m. Delirium or altered mental status (AMS)? Delirium or altered mental status refers to a change in behavior that is usually temporary and may be due to hypoxia, or infection, or medications etc. Record YES if delirium or AMS is a presenting complaint (usually from a family member or nursing home) or is noted anytime during the ED visit or hospitalization. Record NO if on physical examination it says alert and oriented X3, or alert and oriented (may be abbreviated as AXO). Also if the note reports that patient responds to questions appropriately then answer NO.

II. Evidence in Physician's Notes of Reason for Event

The goal of these questions is to determine whether **a** reason for this hospitalization may be asthma, COPD, chronic bronchitis or emphysema. Focus on the admitting or differential diagnoses rather than the final discharge diagnosis. If upon review of the doctor's notes there is no indication that any of these conditions was a reason for this hospitalization, record NO. By "a reason for this hospitalization" we mean not only "a reason for admission to the hospital" but also if instead there was evidence of new onset or progression during the hospital course.

Item 12. Exacerbation of COPD, chronic bronchitis or emphysema? Record YES if there is evidence in the physician's notes stating that the reason for the event is: a) COPD, b) chronic bronchitis, c) emphysema. Most important is that the physician note states that the reason for the event is one or more of these conditions. Note: Chronic obstructive pulmonary disease (COPD): Words that may be indicators of COPD-related hospitalization include but are not limited to: COPD exacerbation, emphysema exacerbation, exacerbation of chronic bronchitis, or worsening of underlying COPD, emphysema or chronic bronchitis. Chronic Bronchitis: State YES if the physician notes the reason for the event is worsening or exacerbation of chronic bronchitis. Chronic bronchitis is sometimes called chronic obstructive lung disease (COLD). Do not record YES if only acute bronchitis is noted.

Item 13. Exacerbation of asthma? Record YES if evidence in the Physician's notes states that the reason for the event is asthma. Asthma: Words that may be indicators of asthma-related hospitalization are asthma exacerbation, or worsening of underlying asthma. Synonyms include reactive airway disease (RAD) and obstructive airway disease (but NOT chronic obstructive pulmonary disease). Record NO or NR if the patient has mild asthma (on no medications or inhalers for this condition), and there is no evidence that this condition caused the event. An abbreviation for asthma exacerbation is "AE" or "BAE" for bronchial asthma exacerbation.

Item 14. New onset or progressive pulmonary-related signs/symptoms prior to presentation in ED or hospital?   Record YES if evidence in the medical record states new onset or progression of symptoms of the conditions defined above immediately prior to this hospitalization (i.e.: at home or in doctor's office or clinic preceding presentation

to the ED or hospital admission). Answer NO if signs and symptoms of this exacerbation began after admission.

C. MEDICAL HISTORY

The purpose of this section is to record relevant past medical history items. "History of" (h/o) is synonymous with a documented history of the disease that was present as a "pre-event" diagnosis prior to the hospitalization, e.g., most often listed under past medical history section of the history & physical note. History is defined as more than 1 month prior to the event. So for example, if the record indicates that the only previous event was within 1 month, this would not be considered as a history. The patient's past history may be found in the physician's history and physical section, the admission note, the discharge report, or the ED report of the medical records. Conditions noted as newly present with the current hospitalization for which there was not a prior diagnosis should not be considered historical diagnosis and should not be counted in this section.

15a-s. Record YES if evidence in the medical record of a prior history of diseases listed in Items 15a-s. Otherwise record NO/NR.

Item 15a. Asthma.--- a lung disease caused by increased responsiveness of the tracheobronchial tree to various stimuli, with resultant paroxysmal constriction of the bronchial airways. Clinical presentation may include wheeze, dyspnea, and cough. Record YES if admitted for asthma exacerbation as this presumably indicates a history of asthma. Record YES if evidence in the medical record of a prior history of asthma, or a history of moderate to severe asthma. Synonyms include reactive airway disease (RAD) and obstructive airway disease (but NOT chronic obstructive pulmonary disease). Record NO/NR if the patient has mild asthma (and on no medications or inhalers for this condition), does not have a history of asthma or if a history of asthma cannot be determined from the medical record.

Item 15b. Chronic bronchitis is characterized by increased production of mucus in the trachea and bronchi resulting in a cough with expectoration for at least 3 months of the year for more than 2 consecutive years. Record YES only if chronic bronchitis is mentioned. Do not record YES if only COPD, emphysema or asthma is mentioned without specifically stating chronic bronchitis. Bronchitis alone without specification if chronic or not, or 'acute bronchitis' are not sufficient to record YES here.

Item 15c. Emphysema. Record YES if emphysema is mentioned as part of the patient's medical history. It is not sufficient if emphysema is noted on the CT scan or Chest x-ray, but not reported as a historical diagnosis.

Item 15d. Chronic Obstructive Pulmonary Disease (COPD). Given that Chronic is part of the name of COPD, if there is an indication of COPD during the hospitalization or as a part of the past medical history then that would be sufficient to answer YES. Words that may be indicators of COPD-related hospitalization include but are not limited to: COPD exacerbation, emphysema exacerbation, exacerbation of chronic bronchitis, or worsening of underlying COPD, emphysema or chronic bronchitis. Record YES if any of the following is mentioned as part of the patient's medical history: chronic obstructive pulmonary disease (COPD), emphysema or chronic bronchitis. Asthma exacerbation or history of asthma is not sufficient to answer YES.

Item 15e. Pulmonary Fibrosis. Pulmonary fibrosis is scarring and thickening of the lungs without a known cause. Record YES if evidence of prior history of pulmonary fibrosis is present in the medical record. Synonyms include idiopathic pulmonary fibrosis (IPF). Do not include fibrosis noted on CT scan or Chest X-ray if not also noted as a diagnosis.

Item 15f. Sarcoidosis. Sarcoidosis is a systemic disease in which inflammation may occur in the lymph nodes, lungs, kidney, eye, skin, lungs, liver, and other tissues. Record YES if evidence of prior history of pulmonary sarcoidosis is present in the medical record. Do not include sarcoidosis if it is not referring to sarcoidosis that affects the lungs. Most severely affected patient have respiratory problems due to sarcoid.

Item 15g. Lung Cancer. Record YES if there is evidence in the medical record that the patient currently has or has a history of lung cancer. Cancer in remission (through chemotherapy, surgery or both), should be considered as a positive history of cancer (record YES). Metastatic and non-metastatic lung cancer should be considered as YES.

Item 15h. Lung resection or lobectomy. Record YES if patient has a prior history of lung surgery which resulted in a lung resection (partial removal of a part of the lung) or a lobectomy (removal of a lobe of the lung). A biopsy of the lung is not sufficient to answer YES. Record YES for prior history of lung surgery to remove lung cancer or prior lung reduction surgery (for COPD). Record NO if the patient is being admitted for this condition without a prior history.

Item 15i. Home Oxygen (do not include CPAP). Record YES if patient has a history of using home oxygen. It may be written as "home O2 by NC" (for nasal cannula) or "2L NC at home". Do not include home CPAP (even if used with oxygen) as it is often used for obstructive sleep apnea.

Item 15j. Pulmonary Embolus (PE) is the obstruction of the pulmonary artery or one of its branches by an embolus (a clot that formed in another blood vessel, usually the deep veins of the upper leg, and then traveled in the venous system to the lung). PE may be documented in a ventilation-perfusion lung scan, arteriogram, or high resolution computed tomography (CT scan), however for this question we only want prior history. Prior history of deep venous thrombosis is not adequate for YES. Synonyms: Lung clot, pulmonary clot, lung embolus. Record YES if the patient has a history of pulmonary emboli.

Item 15k. Pulmonary Hypertension refers to high blood pressure in the pulmonary arteries that supply the lungs. PH leads to right-sided heart failure (i.e. cor pulmonale). Pulmonary hypertension may be primary (idiopathic or of unknown cause) or secondary as secondary to another pre-existing disease. Record YES if there is prior history of either primary or secondary pulmonary hypertension. Abbreviations may include: Pulm HTN, PHT, PAH (for pulmonary artery hypertension), or PH. If the only mention of pulmonary hypertension is in an echocardiogram (echo) report, record NO/NR. Pulmonary hypertension may be mentioned in a cardiac catheterization report in which case answer YES.

Item 15l. Cor Pulmonale refers to failure of the right side of the heart caused by long term high blood pressure in the pulmonary arteries. Right sided heart failure then can also lead to left sided heart failure. Record YES if patient has a history of Cor pulmonale.

HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

Item 15m. Obstructive Sleep Apnea (OSA). Record YES if there is evidence of history of OSA, or use of CPAP at bedtime.

Item 15n. Coronary artery disease (ever). Record YES if there is evidence in the medical record of a history of coronary heart disease (CHD), coronary artery disease (CAD), or ischemic heart disease (IHD). Also record YES to item 15l. if there is a history of any of the following conditions:

>   Angina, Angina pectoris, Crescendo angina
>   Atherosclerotic cardiovascular disease
>   Atherosclerotic heart disease
>   Coronary atherosclerosis
>   Coronary insufficiency
>   Myocardial infarction (MI)
>   Nonobstructive coronary atherosclerosis
>   Coronary artery bypass graft (CABG) surgery
>   Percutaneous transluminal coronary angioplasty (PTCA)
>   Coronary angioplasty
>   Directional coronary angioplasty (DCA)
>   Percutaneous coronary Intervention (PCI)
>   Coronary atherectomy
>   Prinzmetal angina
>   Stable or chronic angina
>   Unstable angina
>   Variant angina
>   Anginal equivalent
>   Syndrome X
>   Acute coronary syndrome

Item 15o.   Heart Failure.   Review the physician's notes, history and physical, and the discharge summary for evidence of a prior diagnosis of heart failure. For the purpose of this question, a mention that the patient has a history of heart failure diagnosed and treated as an out-patient is sufficient evidence to record YES.

Item 15p.   Atrial Fibrillation or Atrial Flutter ("A-fib") is a condition of rapid, uncoordinated contractions (350–600/minute) of the muscles in the atria. Atrial flutter ("a flutter" or "AF") is a condition of organized, rapid contractions (200–400/minutes) of the atria. An ECG may be read as showing flutter waves (has a sawtooth appearance) which is adequate to record YES. AF (referring to both conditions) may be persistent or intermittent and may be symptomatic or asymptomatic. Record YES if there is evidence of history in the medical record of either atrial fibrillation ("a fib") or atrial flutter ("a flutter"). Include here "supraventricular tachycardia (SVT)", "atrial tachycardia (AT)", and "paroxysmal atrial tachycardia (PAT)".
Note: Record YES if evidence of history of ablation to treat atrial arrhythmias. Ablation may be a surgery or non-surgery in which something is destroyed, however here record YES for a heart related ablation which is used to treat arrhythmias

(specifically atrial fibrillation/flutter). It is used to treat many different types of arrhythmias by "disconnecting" the pathway of the abnormal rhythm. It may be referred to as a radiofrequency ablation. The surgical procedure for ablation is called MAZE procedure, modified MAZE procedure, or minimally invasive surgical ablation.

Item 15q. Diabetes Mellitus (DM) refers to a group of metabolic diseases characterized by varying or persistent hyperglycemia. High blood sugars are due to either a problem with the making of insulin or the body's response to insulin. Record YES if patient has a history of Type 1, or Type 2 diabetes. A history of diabetes (Mellitus not to be confused with Diabetes Insipidus - a different condition) includes a history of previous hospitalizations for ketoacidosis, hyperosmolar coma, or out of control of glucose levels and those with juvenile onset diabetes, brittle diabetes, or diabetes treated with insulin or oral hypoglycemic drugs, a history of type I diabetes, a history of type II diabetes and current treatment with an oral hypoglycemic or insulin. It does not include patients treated with diet alone, unless they show evidence of end-organ disease. Evidence of end-organ disease includes diabetic retinopathy, diabetic nephropathy, peripheral neuropathy or diabetic gastroparesis. Record NO if the patient does not have a history of diabetes. A history of gestational diabetes, type II diabetes successfully treated with diet alone (unless have end-organ damage as above), elevated glucose during the hospital stay that is associated with steroid treatment or a possible history of impaired glucose tolerance is insufficient evidence for a history of diabetes. If newly diagnosed during this hospitalization, consider this as a historical diagnosis (record YES). Synonyms: insulin dependent diabetes (IDDM), insulin dependent diabetes mellitus (IDDM), diabetes mellitus (DM), non-insulin dependent diabetes (NIDDM), non-insulin dependent diabetes mellitus (NIDDM). May also see abbreviation of T2DM.

Item 15r. Pulmonary Tuberculosis. Record YES is there is a history of pulmonary tuberculosis. This does not include those with a +PPD, but only those who have had active pulmonary TB. This would include military TB. TB can infect areas other than the lungs, answer NO if history of TB that does not include lung infection.

Item 15s. Bronchiectasis. Record YES if a history of bronchiectasis is noted. Do not confuse with chronic bronchitis. Bronchiectasis usually is the result of injury to the walls of airways which prevents the airways from clearing mucus. Airways slowly lose ability to clear mucus. This leads to repeated, serious lung infections.

Previous Pulmonary Function Tests (PFTs)?

Item 16a. Percent predicted pre-bronchodilator FEV_1? Record value for pre and/or post-bronchodilator FEV_1 if prior pulmonary function testing is noted in the physicians note. This may be noted in the H & P or pulmonary consultant's note. If answer to 16 is YES, then record prior FEV1 if provided. If prior PFTs are provided, take any results no matter how far in the past. Rationale: If PFTs were checked and were obstructive, they are likely still obstructed and useful information. They are also helpful if normal as that usually means the patient was having enough symptoms for someone to bother to check.

IF not provided then enter "=". Do not include here PFT's that were performed during this hospitalization if unsure whether the value provided is pre- or post- bronchodilator then assume pre-bronchodilator.

16b. Percent predicted post-bronchodilator FEV_1? Record value of post-bronchodilator FEV_1 if performed prior to admission to ED visit or admission to the hospital for this event.

17. FEV_1/FVC ratio? If results of prior PFTs are available (prior to ED visit or admission), then record value of the ratio here. Record the ratio as a proportion or decimal rather than a percent (if percent, then assure not percent predicted for the ratio and put it on the form as a proportion/decimal). If not available then fill in with "===".

D. HOSPITAL COURSE

18. Current or Active Problems anytime during this visit: This section is to identify current or active problems anytime during this visit to the ED or hospital. If there is a prior history, but it is not an active problem then record NO/NR. If there is a prior history and you are not sure if currently active then record NO/NR.

Item 18a. Upper respiratory infection? Record YES if an upper respiratory infection is recorded. Note if the patient has pneumonia (YES to 18b) then answer NO here, as pneumonia could be thought of as an infection in the lower respiratory tract so deeper than the upper respiratory tract. Synonyms for Upper Respiratory Infection: URI, sinusitis, nasopharyngitis, pharyngitis, epiglottitis, laryngitis, laryngotracheitis, and acute bronchitis. Do not include influenza here.

Item 18b. Pneumonia is inflammation of the lung(s), a lower respiratory infection, usually caused by bacteria or virus. Chest x-ray will show consolidation or infiltrate— which is from the air spaces in the lung filling with exudate (material, such as fluid and cells that escapes from the blood vessels). There are many types of pneumonia (i.e., aspiration, walking pneumonia, lobar pneumonia). Record YES if pneumonia is reported during this visit. Record YES if it is recorded on a chest x-ray or Chest CT scan. Use the hierarchy rules to determine whether pneumonia is present or not. Note that 18a and 18b are mutually exclusive, so if one if present then the other is not. Pneumonia will always outrank an upper respiratory infection, so if pneumonia is present then choose YES to 18b and NO to 18a.

Item 18c. Pulmonary embolus is the obstruction of the pulmonary artery or one of its branches by an embolus (a clot that formed in another blood vessel, usually the deep veins of the upper leg, and then traveled in the venous system to the lung). Record YES if PE seen on an arteriogram, or high resolution computed tomography (CT scan). Record YES if a ventilation-perfusion lung scan (VQ scan) is interpreted as 'high probability' for PE. Record YES if a physician diagnosis PE during this visit. Deep venous thrombosis (DVT) is not adequate for YES. *Synonyms:* Lung clot, pulmonary clot, lung embolus.

Item 18d. Myocardial infarction occurs when an area of the heart is deprived of necessary oxygen-supplying blood, and the lack of oxygen causes injury or death to that

part of the *heart. Synonyms* or terms that describe myocardial infarction (MI) include: acute myocardial infarction (AMI), heart attack, cardiac infarction, coronary artery embolism, coronary artery occlusion, or coronary artery rupture, sub-endocardial infarction, infarction of any wall segment of the heart or microinfarct of the heart. Record YES if there is evidence of acute myocardial infarction. Do NOT include "cannot rule out myocardial infarction, age undetermined". However, record NO/NR if MI is only described as part of a differential diagnosis for a finding (e.g., "ST-T wave abnormality, consider ischemia, acute injury or myocardial infarction").

Item 18e. Heart failure exacerbation - Heart failure is a condition in which the heart cannot maintain the blood supply required by tissues for oxygenation leading to an accumulation of fluid in the body tissues, including the lungs. Words that may be indicators of heart failure exacerbation include but are not limited to: acute heart failure (HF), acute decompensated heart failure (ADHF), decompensation of cardiac function, pump failure, left ventricular failure, right ventricular failure, pulmonary edema, low-output heart failure, and high-output heart failure. For example, the mere presence of heart failure is insufficient; there must be an exacerbation of underlying disease to answer YES. Statements like "volume overload" are NOT equivalent to heart failure but may be sufficient if the rest of the notes suggests HF decompensation or progression. However, the mention of CHF on only a chest x-ray without further documentation of CHF during the hospitalization is not sufficient. *Synonyms* for heart failure may include the following, however additionally they will need to have one of the below and be diagnosed with having an exacerbation:

Alcohol Cardiomyopathy, Ischemic Cardiomyopathy (ICM), Amyloid Cardiomyopathy, Left ventricular failure, Apical Hypertrophic Cardiomyopathy, Left ventricular dysfunction (LVD), Biventricular failure, Peripartum Cardiomyopathy (PPCM), Cardiogenic shock, Pulmonary edema, Congestive heart failure (CHF) or HF, Pump failure, Congestive heart failure, Right ventricular failure, Cor Pulmonale, Restrictive Cardiomyopathy (RCM), Dilated Cardiomyopathy (DCM), Sarcoid cardiomyopathy, Idiopathic Cardiomyopathy, Viral Cardiomyopathy, Idiopathic hypertrophic subaortic stenosis (IHSS), Valvular cardiomyopathy, Infiltrative Cardiomyopathy, Hypertensive Cardiomyopathy, Hypertrophic Cardiomyopathy (HCM), Hypertrophic nonobstructive cardiomyopathy, Hypertrophic Obstructive Cardiomyopathy (HOCM)

Item 18f. Atrial fibrillation/atrial flutter Record YES if there is evidence of atrial fibrillation ("a fib") or atrial flutter ("a flutter") according to the ECG finding. Include only atrial fibrillation or atrial flutter documented on a 12-lead ECG tracing interpreted by a physician or confirmed in physician's notes referring to a 12-lead ECG. Atrial fibrillation is an irregular rhythm where P waves are not clearly identified; atrial flutter can be an irregular or a regular rhythm where there are several P waves for every QRS complex. Do NOT include "frequent premature atrial contractions (PAC)" if the underlying rhythm is not an "atrial" rhythm. If atrial fibrillation or atrial flutter was not seen on a 12 -lead ECG but is documented on a telemetry recording and confirmed by a physician, record YES. If there is no paper tracing but a doctor's note clearly documents that Afib or Aflutter was present, record YES.

Item 18g. Supraventricular tachycardia (SVT) or multifocal atrial tachycardia (MAT) Supraventricular tachycardia (SVT) includes all forms of tachycardia that either arise above the bifurcation of or are dependent on the bundle of His. Record YES if there is

evidence of "supraventricular tachycardia (SVT)", "atrial tachycardia (AT)", and "paroxysmal atrial tachycardia (PAT)", supraventricular tachycardia (SVT) or paroxysmal supraventricular tachycardia (PSVT). This will have to have been read from a 12 lead ECG or diagnosed by a physician that reviewed telemetry tracings.

Item 18h. Cardiac Surgery – CABG or Valvular Surgery. Record YES if the patient has CABG or valve surgery during this visit. Coronary artery bypass surgery (CABG) is heart surgery in which a blood vessel or a section of blood vessel (a bypass graft) is grafted onto one of the coronary arteries and connected to the ascending aorta to bypass a narrowing of, or blockage in a coronary artery.
Synonyms: coronary bypass, coronary artery bypass graft. Bypass grafts usually include saphenous veins (SVG), internal mammary arteries (left = LIMA, right = RIMA), radial arteries, etc.

Valve surgery includes any surgical procedure to replace or repair a valve in the heart (aortic valve, mitral valve, tricuspid valve, pulmonic/pulmonary valve). Valve replacement may be described in terms of the type of prosthetic valve without specific reference to valve surgery; e.g., mechanical valves such as St. Judes, Bjork-Shiley, ball-in-cage, tilting disc, etc.; bioprosthetic valves such as porcine valve, pig valve, cadaveric valve, tissue valve, Ross procedure, etc. Valve repair may be described using terms such as annuloplasty ring without specific reference to valve surgery.

Item 18i Non-cardiac surgery – Record YES if the patient has non-cardiac surgery during this visit. Surgery does not include procedures, such as catheter placement or biopsy drainage, unless it was performed in an operating room under anesthesia.

E. PHYSICAL EXAM

The purpose of this section is to record vital signs taken at the time of first presentation of the event (which may be at arrival or first manifestation while at the hospital). In general, record the first set of vital signs most proximal to event onset, usually at hospital arrival. First documented vital signs include those taken by EMS if the event occurred prior to presentation. If the first documented vital signs are after the date of admission or onset of event, record NR (enter ===). However, if time of arrival is late evening (near midnight) and the date changes for when the "first" vital signs are documented, record those first vital signs even if the date has changed to a day later from the official admission date. If measurements are not available, record NR (enter ===) where appropriate. If the event began after admission (i.e., in-hospital onset or progression), do not record the values from the time of admission; take the first recorded value after the onset of the event. For recording the last set of vital signs, use vital signs measured in the hospital (e.g., not vital signs recorded at the receiving hospital if patient is being transferred). In all instances, heart rate (HR or pulse rate, P), and respiration rate (RR or R) should be recorded from a single measurement time (i.e., do not record a BP from one time point and a HR from a different time point). However, weight can be from different time points from each other and from the other vital signs.

Item 19. Vital Signs at arrival to hospital or ED (or at onset of event)

If documentation of Items 19a-d are missing from the medical records, record equal signs across the data fields. The first heart rate measurement may be charted on the
HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

ambulance sheet, Emergency Department sheet, the clinical graph, the nursing flow sheet, or the nursing admission note. If not in any of those locations then vital signs noted on the admission history and physical or at the time of event from a progress note. For in-hospital onset, record the first heart rate after onset or progression of symptoms. Below are reported an expected range of observable values that you might see for each measure including in people that are normal to those very ill.

Item 19a. Record heart rate (HR) in beats per minute. If a range is given, record the highest; e.g., "HR 110-120": record "120". May also be abbreviated as 'P' for Pulse followed by the value. Expected range of observable values include 30's up to 250's.

Item 19b. Respiration Rate: Record respiration rate (RR) in breaths per minute. Expected range of observable values include 8-40 with normal at about 10-20.

Item 19c. Oxygen Saturation (SpO2/pulse oximetry): Record as a percentage. This is measured with pulse oximetry (abbreviated as pulse ox). It may be reported at the end of a list of vital signs as % or O2 sat. Expected range of observable values include 70-100%, with normal values at 95%-99%.

Item 19c1. Oxygen sats on room air? Record YES if oxygen saturation reported in 19c was recorded on room air (that is, no supplemental oxygen) and skip to item 19d. Note that room air is often abbreviated "RA". Record NO if not recorded on room air (rather on oxygen at some level) and answer item 19c2. If not documented, record UNKNOWN and skip to item 19d.

Item 19c2. If not on room air, what level oxygen? Record the level of oxygen in use during O2 Sat. measurement. Following the recording of the value, record '1' for liters per minute or '2' for percent oxygen in the checkbox following the numerical value.

Item 19d. Weight: Enter the patient's measured weight in pounds (record 1 in the checkbox following wt.) or kilograms (record 2 in the checkbox following wt.) at the time of the event. In general, record a *measured* weight, not a *reported* weight. Usually weights listed in the ambulance record are reported, so do not record these. Weight from the emergency room visit may either be measured or reported; use your best judgment to decide. If there are two weights recorded for the same day which are quite different, use your best judgment to decide which is the more accurate *measured* weight. If the event occurred after admission, record the first weight available after onset of the event. Weight is usually recorded with the vital signs on nursing flow sheets, or may be found in testing reports (e.g., catheterization report, echocardiogram report), or in medication sheets from pharmacy. Do not calculate weights; the weights must be *recorded* in the chart.

Item 20. Did the patient have any of the following signs (at the time of the event or within 24 hours of event)? Signs refer to that observed on the physical examination. *Signs are not reported but observed*.

Item 20a. Use of accessory muscles refers to use of muscles for breathing that are not usually used for that purpose. When short of breath, neck and abdominal muscles are often used to help with the work of breathing. Answer YES if you see documented +accessory muscle use. This is most likely noted in the first part of the physical examination.

HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

Item 20b. Cyanosis – a blue, gray, slate, or dark purple discoloration of the skin or mucous membranes caused by low oxygen in the blood. Most often observed on the finger tips or lips and may be acute or chronic. This would be most likely documented in the physical examination, usually under the extremity examination. For absence of cyanosis, it is often abbreviated under the extremity exam as "No C/C/E" for no cyanosis/clubbing/or edema.

Item 20c. Clubbing – enlarged terminal phalanx/phalanges of the finger/s (may be present in certain chronic lung and heart conditions, often associated with chronic low oxygen levels. Likely to find this in the extremities section of the physical examination. For absence of clubbing, it is often abbreviated under the extremity exam as "No C/C/E" for no cyanosis/clubbing/or edema.

Item 20d. Jugular venous distension is a finding in which the jugular veins in the neck are engorged (appear distended) due to back up of fluid from the heart into the venous system in the neck.   It can indicate heart failure and/or fluid overload. Record YES if jugular venous distension is noted on physical exam. If the medical record does not specify jugular venous distension per se but does describe an estimated jugular venous pressure (JVP), then use a cutoff of 6 cm H_2O: if JVP > 6 cm H_2O (includes JVP>6 above clavicle) record YES; if JVP < or equal to 6, record 'NO'. IF No JVD noted on examination then record NO. If not evidence of whether the patient was examined for JVD then record 'NR'.
Synonyms: JVD, engorged neck veins, jugular vein distension

Item 20e. Crackles/rales. Pulmonary rales (also known as crackles) is an abnormal lung sound heard with a stethoscope during physical exam. This sound may be from fluid in the lungs due to heart failure. Fluid accumulates first in the bases of the lungs (basilar aspect). Record YES if 'rales' or 'crackles' noted from the patient's physical exam. If examination around time of event states normal lung sounds then answer NO. Normal lungs sounds are often noted on the physical examination under the lung examination as "CTAB" for clear to auscultation bilaterally or if it is stated that the lung examination was normal then answer NO for 20e.   Coarse breath sounds is not adequate to record YES here. Otherwise if normal or abnormal lung sounds not explicitly stated then answer NR.

Synonyms: rales, (or crackles), right base > left base or vice versa, scattered rales occasional rales, basilar crackles, few crackles, diffuse persisting rales, fine rales, greater on one side than the other, hilar rales, inspiratory rales (unless restricted to the

bases), RUL (right upper lobe) or LUL (left upper lobe) rales, rales in upper lobes, wet and moist lungs, bilateral rales, rales in all lung fields, rales up to the axilla.

Item 20f. Wheezing or rhonchi. Wheezing is an abnormal lung sound usually heard on exhalation, sometimes audible without a stethoscope. This sound is most often associated with asthma and emphysema, but also may be from fluid in the lungs due to heart failure. Record YES if 'wheezing' noted from physical exam regardless of whether it responded/improved/resolved with bronchodilator treatment.

Rhonchi are abnormal lung sounds heard with a stethoscope during physical exam. This sound is usually from secretions in the airway, as with pneumonia. Record YES if rhonchi noted on physical exam. Do not record crackles, rales, or coarse breath sounds here. If examination around time of event states normal lung sounds then answer NO. Otherwise if normal or abnormal lung sounds not explicitly stated then answer NR.

 Synonym: rhonchus (the singular form).

Normal lungs sounds are often noted on the physical examination under the lung examination as "CTAB" for clear to auscultation bilaterally or if it is stated that the lung examination was normal then answer NO for 20f, 20g and 20h. Otherwise if normal or abnormal lung sounds not explicitly stated then answer NR.

Item 20g. Decreased <u>unilateral</u> breath sounds refers to sounds in one lung on auscultation. You may see a downward arrow followed by BS for decreased breath sounds. This may be due to severe obstructive lung disease. If not sure if unilateral or bilateral then assume bilateral and answer NO to 20g and YES to 20h.

Item 20h.   Decreased <u>bilateral</u> breath sounds refers to decreased breath sounds in both lungs on auscultation. You may see a downward arrow followed by BS for decreased breath sounds. This may be due to severe obstructive lung disease. If not sure if unilateral or bilateral then assume bilateral and answer NO to 20g and YES to 20h.

Item 20i.   Prolonged expiratory time or prolonged expiratory phase is seen in obstructive lung disease because of increased airway resistance. Air trapping is common. Record YES if prolonged expiratory phase noted. If not mentioned record NR.

Item 20j.   Egophony refers to an increased resonance of voice sounds heard on auscultation of lungs often indicative of a consolidation (such as from pneumonia). Answer YES if egophony noted on examination. If not mentioned record NR.

Item 20k. Lower extremity edema (unilateral or bilateral) - Edema refers to the accumulation of fluid in extra-vascular spaces of body tissues in various parts of the body outside of the heart and lungs, and here only includes peripheral edema or swelling of the legs. Edema here does not refer to pulmonary edema, which is the accumulation of fluid in the extra-vascular spaces of the lung. Record YES if leg swelling is noted on physical examination. Record YES if unilateral or bilateral. Leg swelling is often described as pitting or nonpitting. Pitting is an indention left in the skin after pressure is placed over the area with examiners thumb. Record 'NO' if the edema is only described as "trace" or if it is stated that there is no edema or "no c/c/e" for no cyanosis, clubbing or edema.

Synonyms: LE edema, peripheral edema, swollen ankles, 1+, 2+, 3+, 4+ pitting (edema), nonpitting edema, anasarca, generalized edema.

F. DIAGNOSTIC TESTS

The purpose of this section is to acquire the essential information from pertinent
HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

diagnostic tests. For all these tests, you only need to look at the official report (signed report). If there are no official reports, then look elsewhere in the patient's chart for a summary of the report, namely the doctor's note. Record the results of the following tests that were performed during the course of this hospitalization. If *pulmonary function tests (PFTs) were not* performed during *this* hospitalization but were performed during a *prior* hospitalization or as an *outpatient*, please record the most recent test results. Only report previous test results here if the actual PFTs report is available. For *transthoracic echocardiograms(TTE) and transesophageal echocardiograms(TEE)*, when "suggest" is seen in the reports Record as YES (in contrast to the general hierarchy rules).

Item 21 Record YES or NO/NR as to whether or not the record shows a chest X-ray was performed during this visit. If YES, then answer questions 22a-j regarding the results.

Items 22a-j Did the patient have any of the following signs on chest X-ray at any time during this hospitalization? Record YES to any of the below items present on any chest x-ray reports (or on dictated summary reports that refer to a chest X-ray if not contradicted by the official CXR report). An official CXR report is one signed (electronically or in ink) by an MD. The official CXR report takes precedence over any non-radiology MD notes. Include all chest X-rays available, performed anytime during the course of the hospitalization or ED visit, whether before or after the event. This includes chest x-rays that may have preceded the onset of the event if the event occurred during the hospitalization (but after the admission date). However, if the hospitalization for the decompensation or progression of the event was longer than 7 days, limit the review of the total number of chest X-rays to those obtained during the first 7 chest X-rays subsequent to the date of the decompensation or progression of the event. Preceding adjectives such as "suggestive", "suggesting", and "concerning for" are synonyms for YES.

Item 22a. Hyperinflation. Hyperinflation can be a result of air trapping from COPD. Record YES if you see that hyperinflation is noted on a chest x-ray report.

Item 22b. Flattened diaphragms – flattened diaphragms can occur as a result of severe COPD. Record YES if flattening or flattened diaphragms is noted on a chest x-ray report.

Item 22c. Consolidation or Infiltrate—Consolidation refers to localized infiltrates from pneumonia (for example, any amount of consolidation-such as right lower lobe consolidation, right upper lobe infiltrate, etc.), then record YES.
Synonyms include infiltrates NOS, pulmonary infiltrates, basilar infiltrates, bibasilar opacities, airspace densities, airspace opacities, acinar infiltrates and parenchymal densities or opacities. Include both unilateral and bilateral alveolar infiltrates.

Item 22d. Scarring. Record YES if there is scarring noted in the lungs on the chest x-ray.

Item 22e. Pulmonary nodule(s) or mass > 8 mm. Record YES if a pulmonary nodule or mass (in the lungs) that is >8 mm in size is noted on chest X-ray.

Item 22f. Pulmonary mass(es) > 3cm. Record YES if a pulmonary mass or nodule that is >3cm in size is noted on chest X-ray.

Item 22g. Pulmonary edema, pulmonary vascular congestion (alveolar, interstitial)—
Record Yes if "alveolar edema", "pulmonary edema", or "alveolar pulmonary edema".
Record Yes if "interstitial edema", "interstitial infiltrates, interstitial lung markings,
interstitial prominence, interstitial opacities, perivascular edema, interstitial densities, or
interstitial edema. Include both unilateral and bilateral alveolar or interstitial pulmonary
edema. Record YES if "probable" or "definite" but record NO/NR if "possible" edema.

Item 22h. Bilateral pleural effusion—A pleural effusion is fluid buildup between the layers
of tissue that line the lungs and chest cavity. Do NOT include unilateral pleural effusion
or "pericardial effusion". Record YES if probable or definite for any of the synonyms, but
NO if 'possible'. If this item is recorded as YES, then unilateral pleural effusion is
automatically recorded as NO. *Synonyms include bilateral effusion, blunting of both
costophrenic angles, basilar pleural fluid and left-sided and right-sided effusions.
Include effusions of any size (small, moderate, large).*

Item 22i. Unilateral pleural effusion—Synonyms include left-sided or right sided-pleural
effusion, and blunting of the costophrenic angle (on one side only). Include unilateral
effusions of any size (small, moderate, large). Do NOT include bilateral pleural effusions
or pericardial effusion. Record YES if 'probable' or 'definite', but record NO if 'possible'.

Item 22j. Emphysema— the most common form of COPD, permanent lung damage in
which air flow is obstructed during exhalation. Record YES for centrilobular emphysema
or any other descriptor for emphysema is noted on a chest X-ray report.

Item 22k. Cardiomegaly— *Synonyms* include "enlarged heart", "hypertrophy (of the
heart)", "ventricular hypertrophy", "LVH", "borderline heart size", "increased
cardiac/thoracic (C/T) ratio", "left ventricular enlargement (LVE)", "upper limits of normal
to mildly increased", "marked cardiomegaly", "the heart is enlarged", "cardiopericardial
silhouette is enlarged (or increased)", "heart is consistently enlarged in its transverse
diameter." (Do NOT include "magnified heart"). Other terms include "upper limits of
normal", "generous heart size", "accentuated (or prominent) cardiac silhouette", "slightly
prominent (heart)". Record YES if "probable", "definite" or "borderline" cardiomegaly, but
record NO/NR if "possible" cardiomegaly or if no evidence of cardiomegaly in the chest
x-ray report.

Item 23. Record YES if a Chest or Lung CT scan or CT angiogram (CTA) was performed
and answer Items 24a-t. Record NO/NR if not performed and skip to Item 25.

Item 24. Did the patient have any of the following signs on CT scan at anytime during
this event?

Item 24a. Emphysema — the most common form of COPD, permanent lung damage in
which air flow is obstructed during exhalation. Record YES for centrilobular emphysema
or any other descriptor for emphysema is noted.

Item 24b. Pulmonary nodule(s) > 8 mm. Record YES if a pulmonary nodule or mass
that is >8 mm in size is noted.

Item 24c. Pulmonary mass(es) > 3cm. Record YES if a pulmonary nodule or mass that
is >8 mm in size is noted.

Item 24d. Lymphadenopathy—enlargement of the lymph nodes, most often due to involvement with an infectious or inflammatory process or malignancy. Record YES if evidence of lymphadenopathy is noted.

 Item 24e. Ground glass changes or ground glass appearance. Report YES if 'ground glass' is reported. This often indicates pulmonary edema.

Item 24f. Pneumonia is inflammation of the lung(s), usually caused by bacteria or virus. Diagnostic exams of the chest will show consolidation or infiltrate—which is from the air spaces in the lung filling with exudate (material, such as fluid and cells, that escapes from the blood vessels). There are many types of pneumonia (i.e., aspiration, walking pneumonia). Record YES if pneumonia is recorded on a chest CT scan. Use the hierarchy rules to determine whether pneumonia is present or not from a radiologic report. Only report YES for the term pneumonia.

Item 24g. Fibrosis or honeycombing. Record YES if lung fibrosis or honeycombing is noted.

Item 24h. Filling defect-vascular (PE). A vascular filling defect may be a pulmonary embolus (PE). Record YES if a vascular filling defect is noted on CT scan or arteriogram.

Item 24i. Filling defect-mucus plug. Record YES if a mucous plug is noted on CT scan.

Item 24j Cysts or blebs – record YES if a cyst or bleb is reported.

Item 24k. Atelectasis — the collapse or airlessness of all or part of the lung. It may be the result of airway obstruction (e.g., by secretions or a foreign body), or more commonly a failure to breathe deeply (for example, after surgery). Atelectasis may affect either one lung (lobar or segmental atelectasis) or both (bilateral). Record YES if atelectasis is noted.

Item 24l. Calcifications—nodular densities with small deposits of calcium are seen as calcified nodules on diagnostic exams of the chest. Record YES if calcifications are noted on Chest CT.

Item 24m. Pulmonary embolus (PE) - record YES if a pulmonary embolus is noted on CT scan or arteriogram.

Item 24n. Enlarged pulmonary artery- record YES if a large or enlarged pulmonary artery is noted on chest x-ray. *Synonyms enlarged Pulmonary artery, engorged pulmonary artery, dilated pulmonary artery.*

Item 24o. Bronchiectasis—chronic dilation of the bronchi, usually in the lower portions of the lung. Record YES if bronchiectasis is noted.

Item 24p. Pulmonary edema or pulmonary vascular congestion— .Synonyms include pulmonary congestion, patchy bilateral pulmonary infiltrates suggesting pulmonary vascular congestion, marked congestion of the pulmonary vasculature, increase in

pulmonary vasculature, pulmonary vascular prominence. Synonyms also include perihilar congestion, perhilar edema, perhilar or peribronchial cuffing, perhilar vascular changes, central congestion and congestion NOS. Record YES if "alveolar edema", "pulmonary edema", or "alveolar pulmonary edema". Record YES if "interstitial edema", "interstitial infiltrates, interstitial lung markings, interstitial prominence, interstitial opacities, perivascular edema, interstitial densities, or interstitial edema. Include both unilateral and bilateral alveolar or interstitial pulmonary edema. Record YES if "probable" or "definite" but record NO if "possible" edema. Do not include perivascular congestions.

Item 24q. Cardiomegaly— *Synonyms* include "enlarged heart", "hypertrophy (of the heart)", "ventricular hypertrophy", "LVH", "borderline heart size", "increased cardiac/thoracic (C/T) ratio", "left ventricular enlargement (LVE)", "upper limits of normal to mildly increased", "marked cardiomegaly", "the heart is enlarged", "cardiopericardial silhouette is enlarged (or increased)", "heart is consistently enlarged in its transverse diameter." (Do NOT include "magnified heart"). Other terms include "upper limits of normal", "generous heart size", "accentuated (or prominent) cardiac silhouette", "slightly prominent (heart)". Record YES if "probable", "definite" or "borderline" cardiomegaly, but record NO/NR if "possible" cardiomegaly or if no evidence of cardiomegaly in the test report. Do not include cardiomegaly here that was reported from tests other than CT scan, CTA, or CT angiogram.

Item 24r. Bilateral pleural effusion—*Synonyms* include bilateral effusion, blunting of both costophrenic angles, basilar pleural fluid and left-sided and right-sided effusions. Include effusions of any size (small, moderate, large). Do NOT include unilateral pleural effusion or "pericardial effusion". Record YES if probable or definite, but NO/NR if possible. If this item is recorded as YES, then unilateral pleural effusion is automatically recorded as NO/NR.

Item 24s. Unilateral pleural effusion—Synonyms include left-sided and right sided-pleural effusion, and blunting of the costophrenic angle (on one side only). Include unilateral effusions of any size (small, moderate, large). Do NOT include bilateral pleural effusions or pericardial effusion. Record YES if probable or definite, but record NO/NR if possible.

Item 24t. Airway wall thickening-record YES if airway thickening or (bronchial) airway wall thickening is noted on chest CT.

Item 25. Was spirometry (lung function testing) performed during this hospitalization? Record YES if spirometry was performed and provide test results for items 25a1 – 25c2. Record in either liters, percent predicted or liters per second depending on the specific test. If NO/NR to Item 25, then skip to Item 27.

25.a1 FEV1 stands for Forced Expiratory Volume in 1 second. Report the actual value in Liters.

25.a2 FEV1 percent predicted is the measure of FEV1 stated in Liters in 25a1, and stated here in terms of the percent predicted.

25.b1 FVC stands for Forced Vital Capacity stated in Liters.

25.b2 FVC percent predicted is the measure of FVC stated in liters in 25b1, and now stated here in terms of the percent predicted.

25.c1 FEV_1/FVC ratio? Report the actual value as shown in the report. It might be a proportion or a percent. Do not calculate this, only use that which is available from the report or physicians summary. Do not report percent predicted here, only the actual value.

25.c2 units for FEV_1/FVC ratio.   Record the units that were used to answer question 25.c`. 1 = proportion or decimal and 2 = percent.

Item 26. Was post-bronchodilator spirometry measured? Record YES if post-bronchodilator spirometry was performed and record each of the values for pre-bronchodilator measurements for items 26.a1 – 26.c2 as was done for question 25. Record in either Liters, Percent Predicted or Liters per second depending on the specific test. If NO or NR to question 26 then skip to Item 27.

Item 27. Was peak expiratory flow rate (PEFR or PEF) obtained at the time of event? Record YES if peak expiratory flow rate (PEFR or PEF) was obtained at the time of event and answer 27a-c. If NO/NR go to Item 28.

Item 27a. Record date of first PEF(R) taken after hospital/ED arrival or at the time of the event. It should be within 24 hours of the event.

Item 27b. Record value of first PEF recording. It should not be the same as the discharge peak flow.

Item 27c. Record value of lowest (or worst) PEF recording. This may have been anytime during the hospitalization and may be the same as the admission peak flow.

Item 28. Was peak expiratory flow rate (PEFR or PEF) obtained at discharge? Record YES if peak expiratory flow rate (PEFR or PEF) was obtained at discharge or within 24 hours of discharge and answer 28a and 28b. Report NO/NR if there are not peak flows available other than those reported in item 27. If NO/NR then skip to Item 29.

Item 28a. Record date of last PEF recording. If it only states "at discharge" then record discharge date.

Item 28b. Record value of last PEF recording.

Item 29. Was a ventilation perfusion scan (VQ Scan) done? Record YES if a ventilation perfusion scan (VQ Scan) was done. Skip to 30 if answer is NO/NR.

Item 29a. If the VQ scan report is available then select results of the VQ from the choices of 1-5.

Item 30. Was an echocardiogram (TTE or TEE) performed? A transthoracic echocardiogram (TTE or ECHO) or transesophageal echocardiogram (TEE) is an ultrasound test of the heart where images are obtained through the chest wall. The TTE is the most frequent type of ECHO ordered, whereas the TEE is slightly more invasive

and requires placing the ultrasound probe through the mouth and into the esophagus to obtain images. The results of this study describe the structures of the heart and the function of the ventricles (systolic or contractile function, diastolic function or relaxation) and of the valves. Record YES if a TTE or TEE was performed during this hospitalization, otherwise record "NO/NR". If more than one ECHO study is documented in the medical record, complete the following information based on the study with the *worst* finding (defined as the echo study with the lowest LVEF) performed after the onset or progression of the event. However, if there are two studies performed on the same day with the same LVEF description, use *both* reports to complete this section; if there are discrepancies between the reports regarding abnormal findings, record the specific or more severe abnormal finding even if the other report of the same day does not note it. For example, if one report describes "regional wall motion abnormality" and the other report of same day does not, record YES for "regional wall motion abnormality". If there is only one study which was performed during this hospitalization before the onset or progression of heart failure, record YES and its information below. An official echo report is one signed (electronically or in ink) by an MD. If there is no official echo report available, record the lowest EF and the worst findings based on whatever information you have; however, if there is a disagreement that looks significant (e.g., a difference of EF by 10% or more, no regurgitation versus severe), a cardiologist's interpretation in the notes is superior to any other interpretation by a non-cardiologist.

Item 30.a. Ejection fraction in percent
This generally refers to the left ventricular ejection fraction (EF or LVEF). Record the EF in percent (%) in the space provided. If a range or multiple values are given, use the lowest (i.e., worst) value (e.g., if "30-35%", record "30"). If "greater than (>)" or "less than (<)" description is used, record the next numeric value (e.g., if ">55%", record 56; if "<20%", record "19"). In general, record the numeric value described in the text portion of the report; e.g., if there is a discrepancy between a numeric value listed in the text portion and a numeric value in the quantitative portion of the report, record the value (or lack of value) in the text. If EF is not available, enter equal signs (===). However, if the physician's interpretation states "normal" and a normal range is indicated on the report, record the lowest value of the normal range (e.g., if the normal range is between 55-90%, record "55"). If ejection fraction is described as "low" with no quantitative estimate, enter equal signs (===). If only "normal" is stated (and no range is indicated); enter equal signs (===) and do not give a normal range. An official echo report takes priority as the

official reading over any doctor's interpretation; but if there is no official echo report, use the cardiologist's interpretation (e.g., in physician notes) over a non-cardiology doctor's interpretation.

Item 30.b. Right Ventricular Systolic Pressure (RVSP/PASP). This refers to the estimated right ventricular systolic pressure (RVSP), which is usually synonymous with pulmonary arterial systolic pressure (PASP). This is a quantitative assessment of the presence or absence of pulmonary hypertension, which is usually measured in "mmHg" and described under Tricuspid Valve and/or in the conclusions.   If a range is given, use the higher (i.e., worst) estimate (e.g., if "40-45 mmHg", record "45"). If a greater than (>) or less than (<) estimate is given, record the next numeric value (e.g., if ">55", record 56; if "<20", record "19"). If the RVSP/PASP is described as a number "plus the right atrial pressure", record the next numeric value (e.g., if "55 plus RA value", record 56).   In general, record the numeric value described in the text portion of the report; e.g., if there

is a discrepancy between a numeric value listed in the text portion and a numeric value in the quantitative portion of the report, record the value (or lack of value) in the text. If a range is given in the text of the report AND there is a single number on the report that is within that range, record the single number. However, if the number is not within that range, take the highest value of the range in the text. If there is no mention of an estimated RVSP or PASP anywhere on the report, enter equal signs (===). If the estimated RVSP/PASP is just described as elevated with no quantitative measurement of the estimated pressure in mmHg, then enter equal signs (===) and skip to item 30.c. But make sure that your response to item 30.e. (pulmonary hypertension) has captured the presence or severity of pulmonary hypertension.

Item 30c. Right Ventricular Hypertrophy. This refers to increased right ventricular wall thickness. It is usually reported in the qualitative part of the report under Right Ventricle and/or in the conclusions. If R ventricular hypertrophy is described, record its severity (mild, moderate, severe). If a range is given, use the higher (i.e., worst) severity grade (e.g., if "mild-to-moderate", record "moderate"). Of note, the description of "moderately severe" should be recorded as "moderate", and "markedly" is synonymous with "severe". If R ventricular hypertrophy severity is not described but RVSP is otherwise reported (e.g., "thickened RV wall"), record "PRESENT". If there is no mention of R ventricular hypertrophy and/or right ventricular wall thickness is reported as normal or upper normal or thin, record R ventricular hypertrophy as "NONE". Record "NR" if there is no mention of R ventricular hypertrophy and no mention of RV wall thickness in the text (regardless of wall thickness measurements, i.e., do not *interpret* the quantitative part of the report). Do not include right ventricular enlargement.

Item 30.d. Impaired RV systolic function
This refers to decreased right ventricular contractile performance or systolic function. It is usually reported in the qualitative part of the report under Right Ventricle and/or in the conclusions. Synonyms for RV systolic function include "RV function", "RV contraction", "RV contractile performance", "RV contractile function". Synonyms for impaired RV systolic function include "RV dysfunction", "RV systolic dysfunction", "decreased RV contraction (or contractile performance)", etc. If the RV systolic function or contraction is decreased, record its severity (mild, moderate, severe). If a range is given, use the higher (i.e., worst) severity grade (e.g., if "mild-to-moderate", record "moderate"). Of note, the description of "moderately severe" should be recorded as "moderate", and "markedly" is synonymous with "severe". If RV systolic function is reported as "poor"; record "SEVERE"; if reported as "fair", record "PRESENT"; if reported as "good", record NONE. If the severity of the impaired RV systolic function is not described, but RV systolic dysfunction is otherwise reported, record "PRESENT". If there is no mention of impaired RV systolic function and RV contraction (or systolic function or contractile performance) is reported as normal or upper normal, record "NONE". If there is no mention of impaired RV systolic function and no mention of RV contraction (or systolic function or contractile performance), record "NR".

Item 30.e. Pulmonary hypertension
This refers to elevated pressures in the pulmonary vasculature, mainly the pulmonary arteries. It is usually reported in the qualitative part of the report under Tricuspid Valve and/or in the conclusions. Synonyms for pulmonary hypertension include "PHTN", "elevated pulmonary arterial (systolic) pressures (PASP)", "elevated right ventricular systolic pressures (RVSP)". If pulmonary hypertension is described, record its severity

HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

(mild, moderate, severe). If a range is given, use the higher (i.e., worst) severity grade (e.g., if "mild-to-moderate", record "moderate"). Of note, the description of "moderately severe" should be recorded as "moderate." If the severity is graded as "borderline" or "upper normal", record "NONE". If the severity of the pulmonary hypertension is not described, but pulmonary hypertension is otherwise reported, record "PRESENT". If there is no mention of pulmonary hypertension and there is mention of normal "(estimated) pulmonary arterial (systolic) pressures (PASP)/ right ventricular systolic pressures (RVSP)", record "NONE". If an RVSP/PASP is present, then it is assumed that those measurements were determined from calculating a TR jet, so they are giving an estimation of the pulmonary/RV pressures. It is not an interpretation but a report of what they have calculated. If there is no mention of pulmonary hypertension anywhere on the report, record "NR".

Item 30.f. Tricuspid Regurgitation
This refers to the backwards flow through the tricuspid valve, from the right ventricle back to the right atrium during systole. It is usually reported in the qualitative part of the report under Tricuspid Valve and/or in the conclusions. Synonyms for tricuspid regurgitation include "TR", "tricuspid insufficiency (TI)". Do NOT include "tricuspid valve prolapse," "prolapsed tricuspid valve", or "thickened tricuspid valve" unless there is report of concomitant tricuspid regurgitation. If tricuspid regurgitation is described, record its severity (mild, moderate, severe). "Minimal" is synonymous with "mild"; "insignificant" is synonymous with "none". If a range is given, use the higher (i.e., worst) severity grade (e.g., if "mild-to-moderate", record "moderate"). If the severity is graded as "trace" or "trivial", record "NONE". Of note, the description of "moderately severe" should be recorded as "moderate." If the severity of the tricuspid regurgitation is not described, but tricuspid regurgitation is otherwise reported, record "PRESENT". If there is evidence of no tricuspid regurgitation, record "NONE". If there is no mention of tricuspid regurgitation anywhere on the report, record "NR".

Item 30.g. Diastolic dysfunction
This refers to the impairment of left ventricular compliance or of the left ventricle's ability to relax during diastole. It is usually reported in the qualitative part of the report under Left Ventricle and/or in the conclusions (use the typewritten report if available). Synonyms for diastolic dysfunction include "diastolic LV dysfunction", "impaired LV relaxation", "prolonged relaxation", "impaired LV compliance", "impaired LV diastolic filling", "reversed E-A ratio", "late diastolic filling", "stiff ventricle", "abnormal mitral annulus tissue Doppler signal", "pseudonormalization of transmitral Doppler flow", "restrictive filling pattern", "Grade 1 diastolic dysfunction", "Grade 2 diastolic dysfunction", and "Grade 3 diastolic dysfunction". Record YES if diastolic dysfunction is described of any severity. Record "NO/Unknown/NR" if LV diastolic function/compliance/filling is described as normal, or it is unclear based on the report whether diastolic dysfunction is present. A qualitative description in the report is higher priority than conclusions.

G. BIOCHEMICAL TESTS

Introduction:
The purpose of this section is to record the results of blood laboratory values taken during the hospitalization. Separate data items refer to the worst value and the last value. For the purposes of this section, worst refers to the highest value with the

exception of item 32 (hemoglobin), item 33 (hematocrit), and item 34 (sodium). For these three items, the worst is defined as the lowest value. The last value refers to the last measurement taken during the hospitalization. If only some of the hospitalization labs are available, use the last values available even if they are not close to the discharge date. If the worst value and the last value are the same, record in both places. If no measurements are included in the medical chart, record NR (e.g., enter === in all blanks in the DMS for that laboratory value). For items 38-39, be sure to record the upper limit normal of the laboratory standard for that hospital on the day the test was run. Some of these tests may be only written in doctor's notes using a stick diagram as detailed below:

<pre>
Sodium | Chloride | BUN   / Glucose
Potassium | Bicarbonate | Creatinine \

White blood cells\ Hemoglobin / Platelets
                / Hematocrit   \
</pre>

Item 31. White Blood Cell Count— a blood test used to measure the number of white blood cells (WBCs). White blood cells help fight infections. They are also called leukocytes. Record the White Blood Cell Count (WBC) in units of microliters (mcL) (or count x10 raised to the 9th power per litre). IF WBC noted as 12K or 12,000 then record "12.0".   Reference range for total white blood cell counts is between of 4,000 - 11,000 white blood cells per microliter (mcL) or 4.0-11.0 x10 raised to the 9th power per litre or 4.0- 11.0 x 10 raised to the 3rd power per microliter.

Item 32. Hemoglobin (g/dL) —Hemoglobin (Hgb) is the oxygen-carrying pigment of erythrocytes formed by developing erythrocytes in the bone marrow. The lower value is the worse value. Record the first (at time of the event) and last values of hemoglobin (in grams per deciliter) reported in the medical record. Of note, hemoglobin values obtained from arterial blood gas (ABG) analysis can be included. Record NR (enter ===), if a value of hemoglobin was not available or performed during the course of this hospitalization.

Reference levels for hemoglobin are gender specific Men: 13.0-18.0 gm/dl Women: 12.0-16.0 gm/dl

Item 33. Hematocrit (%) Hematocrit is the volume percentage of erythrocytes in whole blood. Record the first (at time of the event) and last values of hematocrit (HCT) (as %) reported in the medical record. Record NR (enter ===), if a value for hematocrit was not available or performed during the course of this hospitalization. The lower value is the worse value. Unlike for hemoglobin, do NOT include hematocrit values obtained from arterial blood gas (ABG) analysis.

Item 34. Sodium (mEq/L) — Record the value of sodium (Na) (mEq/l) reported in the medical record. Record NR (enter ===), if a value of sodium was not available or performed during the course of this hospitalization.

Reference levels: 135-145 mEq/l. The lower value is the worse value.

Item 35. Serum creatinine (mg/dL) —Creatinine (Cr) is a marker of kidney function. Record the value of creatinine (mg/dl) reported in the medical record. Record NR (enter ===), if a value of creatinine was not available or performed during the course of this hospitalization.

Reference range: 0.6 - 1.2 mg/dL The higher value is the worse value.

Item 36.BUN (mg/dL) —Urea nitrogen is the urea concentration of serum or plasma conventionally specified in terms of nitrogen content and called blood urea nitrogen (BUN) or serum urea nitrogen (SUN). Record the first (at time of the event) and last values of urea nitrogen (mg/dl) reported in the medical record. Record NR (enter ===), if a value of urea nitrogen was not available or performed during the course of this hospitalization.

 Reference level: 7 - 18 mg/dL

Item 37. Bicarbonate (total CO2) —CO2 is carbon dioxide. A total CO2 (or TCO2) test measures the amount of carbon dioxide in the liquid part of the blood (or serum). More than 90% of the CO2 in serum exists in the form of bicarbonate (HCO3) in the form of a substance called bicarbonate (HCO3). The remainder of the carbon dioxide is either dissolved carbon dioxide gas (CO2) or carbonic acid (H2CO3). Therefore, the CO2 blood test is really a measure of the serum bicarbonate level. The kidneys and lungs balance the levels of carbon dioxide, bicarbonate, and carbonic acid in the blood. The kidneys are mainly responsible for maintaining the normal bicarbonate levels. The CO2 test is most often done as part of an electrolyte or basic metabolic panel. It is usually done at the same time as an arterial blood gas test.   Changes in the CO2 level may suggest that there is a loss or retention of fluid, which causes an imbalance in your body's electrolytes.

The normal reference range for Bicarbonate is 23–30 mEq/L (milliequivalent per liter) or 23–30 mmol/L (millimoles/liter).

Item 38a. BNP (pg/mL)—Brain natriuretic peptide is a cardiac neurohormone specifically secreted from the cardiac ventricles as a response to ventricular volume expansion, pressure overload, and resultant increased wall tension. For item 38a record the first value of BNP (as pg/ml) reported in the medical record at the time of the event. Record NR (enter ===) if a value for BNP was not available or performed during the course of this hospitalization.

Item 38b. Record the upper limit of normal for BNP noted in the laboratory records. If there is no '<' sign (ex: 900 rather than <900) then use one number less than the highest given for the top # for the upper limit of normal on BNP and ProBNP. In the example given this would be 899.

Item 39a. ProBNP (pg/mL) -- N-terminal prohormone brain natriuretic peptide (pro-BNP or NT-proBNP) is a slightly different measure of BNP than in item 38. Usually hospitals measure either BNP or ProBNP. Record the first value of proBNP (as pg/ml) reported in the medical record at the time of the event. Record NR (enter ===) if a value for proBNP was not available or performed during the course of this hospitalization.

Item 39b. Record the upper limit of normal for ProBNP in the laboratory records. Record NR (enter ===) if a value for proBNP was not available or performed during the course of this hospitalization.
Reference levels: 0–99 picograms per milliliter (normal)

Reference levels for ProBNP are age and gender specific, e.g.:

Age	Male	Female
<45 yrs	0-93	0-178
45-54	0-138	0-192
55-64	0-177	0-226
65-74	0-229	0-353
75+	0-852	0-624

Item 40. Were arterial blood gases (ABGs) obtained? — Record YES if Arterial Blood Gases (ABGs) were obtained during admission, NO/NR if not recorded (skip to Item 41). Provide first blood gas results (at time of event) for items 40.a.1-4.

Item 40.a1. Record pH

Item 40.a2 Record PaCO2

Item 40.a3 Record PaO2

Item 40.a4 Record Oxygen saturation noted on blood gas. Do not include oxygen saturation form pulse oximetry measurements.

For items 40.b1-b4. Same as for items 40.a1-a4 except use the values from the last blood gas obtained. If only one blood gas documented then record ===. This blood gas should not be the same as the one reported in 40.a1-a4.

Item 40.c. Blood gas on room air? — Record YES or NO or NR as to whether blood gases were obtained on room air. If participant was on oxygen, CPAP or BiPAP, or mechanical ventilation then record NO. IF ABG report shows "therapy" as "none" then record YES for on room air. If YES or NR, move to Item 41. If NO for not on room air then answer 40.c.1.

Item 40.c1 What level of oxygen. Record in Liters or Percent, then document 1 for Liters and 2 for Percent.

Item 41. — Record YES if a sputum culture was done, NO/NR if not. If NO skip to Item 42. A culture can be from an expectorated sample OR a bronchoscopy sample (a bronchial wash, bronchial brush or bronchoalveolar lavage - BAL).

Item 41a. Record if the sputum culture results were negative, positive (show growth of bacteria) or NR (not recorded). Note that "no growth to date" is abbreviated as "NGTD".

Item 41b. If the sputum culture was positive, answer YES or NO as to whether the microorganisms listed grew in the blood culture in 41b1-41b10. If a microorganism found in the sputum culture is not listed here, then enter in 41.b.10. "Other"_____.

Item 42. Record YES if a blood culture was done, NO/NR if not. If NO/NR skip to Item 43.

Item 42a. Record if the blood culture results were negative, positive (show growth of bacteria) or NR (not recorded). Note that "no growth to date" is abbreviated as "NGTD".

Item 42b. If the blood culture was positive, answer YES or NO as to whether the microorganisms listed grew in the blood culture. If a microorganism found in the blood culture is not listed here, then enter in 42.b.6. "Other"_____.

Item 43. Record if influenza swab was negative, positive or not recorded (NR). Note that results may be recorded as FLU A (+) and FLU (B (-) etc. H1N1 is also an influenza.
H. TREATMENTS/MEDICATIONS

Items 44-63. — Record YES or NO/NR as to whether each treatment or medication listed was given during this hospitalization or ED visit.

Item 44. — CPAP or BiPap—Continuous positive airway pressure (CPAP) or Bilevel positive airway pressure (BiPap) refers to respiratory treatments used to treat acute respiratory conditions such as pulmonary edema (cardiac and non-cardiac) and COPD exacerbation. It is often used to try to prevent intubation/mechanical ventilation and can also be used to treat obstructive sleep apnea. Answer YES if patient was on CPAP or BIPAP during this visit. Do not answer YES if CPAP only used for treatment of obstructive sleep apnea.

Item 45. — Mechanical ventilation refers to intubation and placement on a ventilator. Answer YES if patient was intubated and/or on mechanical ventilation during this visit. Do not include elective intubation for surgery unless they fail to wean off the vent after surgery then answer YES.

Item 46. Inhaled short-acting beta-agonists (i.e. albuterol, xopenex). Were any medications from this class given during this visit? May have been given by multidose inhaler MDI, discus, or nebulizer.
    Generic - Trade
    albuterol - Proventil
    salbutamol – Ventolin
    levalbuterol - xopenex

Item 47. Inhaled short-acting anticholinergics (i.e. atrovent, ipratropium). Were any medications from this class given during this visit? May have been given by multidose inhaler MDI, discus, or nebulizer.
    Generic – Trade
    ipratropium – atrovent

Item 48. Nebulized bronchodilators. Was medication delivered by nebulizer at any point during this visit? Nebulizers deliver bronchodilators in the form of a mist and can be given at higher dosages than given by MDI. For short may be called "nebs". They are used to treat asthma and COPD exacerbations. Nebs may be given by a nurse or respiratory therapist, so look for details in respiratory therapy notes. If only given as with multi-dose inhaler (MDI), then do not report NO. IF the record shows albuterol or
HCHS/SOL PUL Abstraction Form Version B (PULB) QxQ 02/23/2015

atrovent X some number then assume the patient was given back to back neb treatments and answer YES. Bronchodilators that may be given by nebulizer include:

Generic - Trade
ipratropium – atrovent
albuterol - Proventil
salbutamol – Ventolin
levalbuterol – xopenex

Item 49. Magnesium injections in ED. For treatment of asthma exacerbation, there is some evidence that IV form of magnesium sulfate ($MgSO_4$) can provide additional bronchodilation when given in conjunction with standard bronchodilating agents and corticosteroids. Therefore $MgSO_4$ injections are sometimes used as an adjunct agent to prevent intubation and assisted ventilation in the treatment of patients with acute respiratory failure complicating asthma.   It is usually used in the ED setting. Answer YES if IV magnesium was given. Answer NO if it is clear that magnesium was only given to replace low magnesium.

Synonyms include $MgSO_4$ or IV mag. (Note: Take care not to confuse with morphine which is MSO_4).

Item 50 Oxygen (continuous or prn). Answer YES if patient was placed on oxygen for any reason either continuously or as needed (prn). Oxygen may be noted as NC for oxygen by nasal cannula. Other ways that oxygen is delivered is by face mask or venturi mask. Answer YES if you answered YES to item 44 for CPAP or Bipap or item 45 for mechanical ventilation. Record YES if patient was on a ventilator or face mask or venturi mask or BIPAP or CPAP, or nasal cannula.

Items 51-53 These medications here are for medications given intravenous (IV) during this visit. These medications will be noted on medication sheets from pharmacy, physician notes, nursing notes, and nursing flow sheets. Record the administration of these medications if given IV at any time during the hospitalization (unless otherwise specified below). IF you are not sure if the mediation was given IV or orally then record NO/NR.

Item 51 IV antibiotics— refers to intravenous (IV) forms of these antibiotics only. The list of antibiotics is long, but the most common IV antibiotics for pneumonia/bronchitis are listed below.

Generic – Trade
Levofloxacin – levoquin
Ceftriaxone – rocephin
Azithromycin
Moxifloxicen
Cefotaxime
Ceftazadime
Erthromycin
Piperacillen
Ampicillin/sulbactam - Unasyn
Imipenem
Oxacillen
Ticarcillen-clavulanic acid

Piperacillen - Tazobactam
Cefipime
Aztreonam

Item 52 Systemic corticosteroids (IV or po) refers to intravenous or oral steroids**.**

Generic - Trade
Prednisone - Deltasone
Medrol dosepak
Solumedrol

Item 53 IV Lasix or Furosemide. Lasix and furosemide are diuretics which promote the excretion of urine. They are used as an anti-hypertensive and in people who are fluid overloaded, or have a history of heart failure or liver failure. These medications may be administered either as bolus injections or as a continuous infusion. Record yes if these were given anytime during the hospitalization.

Generic - Trade
Bumetanide - Bumex
Torsemide - Demadex
Ethacrynic acid - Diuril
Hydrochlorothiazide - Edecrin
Furosemide – Lasix

Medications at the time of event and at discharge

The purpose of this section is to determine what medications were prescribed to the patient. Record separately whether any of the medications were being used by patient "At the time of the event" (questions a) or "at discharge" (questions b). IF the event led to the patient coming into the ED then for "At the time of the event" we are interested in medications taken at the time the event started. *So if they are in the ED then the event likely started at home*. Do not include medications given in the ambulance pre-hospital as the event would have started before 911 was called. You would then list their prescribed home medications, regardless of whether they have been compliant. You may use the medication list form the nurse triage note, if medications are not listed elsewhere. If the patient was transferred from another hospital and the event started prior to their arrival at that hospital then document their home medications. If they are transferred from another hospital, and the event began in the hospital there, then document their meds given at that hospital. Of note, if the patient is hospitalized for a condition unrelated to pulmonary problems but develops pulmonary problems in the hospital, record the medications given to the patient in the hospital immediately prior to the progression.

If the patient is transferred out to another hospital, and no discharge summary is available, record the medications that were being taken (not just ordered) by patient on day of discharge, which may be found on the medication administration sheets. If the patient died during the hospitalization, record NO/NR (not recorded) for all drugs "At hospital discharge". Medications given in the ambulance count as in-hospital medications and should not be included for "at the time of event". Sources for

abstracting medications include medication administration records (MAR), physician notes, and orders. If possible, the medications should be confirmed as being given; if that is not possible, use your best judgement. Note that in MARs, nursing notation of a circle (with or without a "H" sign) around a time indicates that the medication was held during that time; a documented subsequent time indicates that the medication was given at that later time.

Items 54-63—Report whether medications were given prior to hospitalization or progression in-hospital (at the time of event) and then whether medications were prescribed at discharge from the ED or hospital.

Item 54. Antibiotics - oral— may be used for treatment of bronchitis and pneumonia. Only antibiotics given orally should be included here. The list of antibiotics is too extensive to list here. Below are commonly used oral antibiotics for bronchitis/pneumonia.

    Generic – Trade
    Amoxicillen
    Amoxicillen/clavulanate – Augmentin
    Levofloxacin – Levaquin
    Bactrim
    Azithromycin – Z-pack
    Doxycycline
    Erythromycin

Item 55. Systemic corticosteroids)— may be given orally or intravenously, but not inhaled or by nebulizer.

    Generic - Trade
    Prednisone - Deltasone
    Medrol dosepak
    Solumedrol

Item 56. Inhaled short-acting beta-agonists - may be given by MDI or nebulizer. If Albuterol is not mentioned but patient was noted to have been given a nebulizer treatment in-hospital, may choose YES to item 61.

    Generic - Trade
    albuterol - Proventil
    salbutamol – Ventolin, ProAir
    levalbuterol - xopenex

Item 57. Inhaled long-acting beta-agonists—Serevent and Advair are available as metered dose inhalers (MDIs) and as "disk-styled" inhalers (DISKUS) that releases a powdered form of the drug (dry powder inhaler). It is inhaled orally and prescribed for the treatment of asthma and chronic obstructive pulmonary disease (COPD).Foradil is available in several forms: a dry-powder inhaler (DPI), a metered-dose inhaler (MDI), an oral tablet, and an inhalation solution.

    Generic – Trade
    Salmeterol – Serevent

Formeterol – Foradil
Vilanterol—Anoro

Item 58. Inhaled short-acting anticholinergics— may be given by MDI or nebulizer.

Generic – Trade
ipratropium – atrovent

Item 59. Inhaled long-acting anticholinergics —

Generic – Trade
Tiotropium – Spiriva
Aclidinium bromide—Tudorza Pressair
Umeclidinium--Incruse

Item 60. Inhaled corticosteroids— are used to prevent COPD and asthma exacerbations.
They are given multi-dose inhaler (MDI) only. Make sure to distinguish inhaled
corticosteroids from nasal corticosteroids (usually end in –ase).

Generic – Trade
Flunisolide – Aerobid
Fluticasone – Flovent
Beclomethosone – Qvar - Vanceril
Budesonide - Pulmocort
Fluticasone/salmeterol – Advair
Triamcinolone – Azmacort
Mometasone - Asmanex

Item 61. Nebulized bronchodilators— Nebulizers deliver bronchodilators in the form of a
mist and can be given at higher dosages than given by MDI. For short may be called
"nebs". They are used to treat asthma and COPD exacerbations. Nebs may be given by
a nurse or respiratory therapist, so look for details in respiratory therapy notes. If only
given as with multi-dose inhaler (MDI), then do not report YES. Bronchodilators include:

Generic - Trade
ipratropium – Atrovent, Ipraxa, Aerovent
albuterol– Ventolin, Proventil, salbutamol
levalbuterol – xopenex

Combination Drugs: Generic--Trade
Fluticasone/salmeterol – Advair
Fluticasone/vilanterol—Breo
Budesonide/formoterol—Symbicort
Mometosone/fomoterol—Dulera
Umeclidinium/vilanterol--Anoro

Item 62. Leukotriene antagonists—These medications inhibit leukotrienes, which are potent inflammatory mediators. They are available in pill form and are primarily used to treat asthma.

Generic - Trade
Montelukast – Singulair
Zafirlukast – Accolaten
Zileuton – Zyflo

Item 63. Home oxygen—Oxygen is widely available and commonly prescribed by medical staff in a broad range of conditions to relieve or prevent tissue hypoxia. Many patients with chronic respiratory problems are prescribed oxygen for therapy at home. Record YES, NO or NR depending on evidence available in the medical record regarding the use of home oxygen. It may be listed as home O2.