The American College of Radiology

Lung Cancer Screening Registry

(LCSR)

Data Dictionary

February 20, 2020

American College of Radiology
1891 Preston White Drive
Reston, VA 20191-4397

Copyright © 2019, American College of Radiology. All rights reserved.
Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Revisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 4, 2016</td>
<td>Original issue</td>
</tr>
<tr>
<td>February 24, 2016</td>
<td>168, 169, and 170 definition changes from &quot;Required, if tissue diagnosis is &quot;Malignant&quot; to &quot;Usage: Required, if tissue diagnosis is anything other than &quot;Benign&quot; or &quot;Malignant – Non-lung cancer&quot;</td>
</tr>
<tr>
<td>March 28, 2016</td>
<td>Reformatted the Table of Contents Reformatted headers and footers Item 184 corrected to 'COPD' and removed ‘lung cancer’ Items 144 through 150, provided additional definitions</td>
</tr>
<tr>
<td>April 14, 2017</td>
<td>153 Correction: CT_Exam_Result_Lung_RADS should not have the ‘Unknown’, U, option. The ‘Unknown’ option was added to Reason_For_Recall</td>
</tr>
<tr>
<td>April 17, 2017</td>
<td>107 Added optional attribute 'New_Medicare_Beneficiary_ID' and Refused_New_Medicare_ID</td>
</tr>
<tr>
<td>April 17, 2018</td>
<td>101 File Version Number</td>
</tr>
<tr>
<td>April 17, 2017</td>
<td>102 Added optional attributes: Facility ID</td>
</tr>
<tr>
<td>April 26, 2016</td>
<td>120 Invasive detailed definition provided</td>
</tr>
<tr>
<td>May 13, 2016</td>
<td>134 changed from Required to Optional 135 changed from Required to Optional</td>
</tr>
<tr>
<td>March 24, 2017</td>
<td>124 Number of pack-years of smoking, Unknown = 999 125 Number of years since quit, unknown = 99 110 Patient Sex – added &quot;indicate patient’s sex at birth&quot; 184 COPD – removed Family history …other than first degree relative</td>
</tr>
<tr>
<td>April 21, 2017</td>
<td>173 M1c = Additional nodule in contralateral lung</td>
</tr>
<tr>
<td>May 16, 2017</td>
<td>170 Changed N3 option to Unknown</td>
</tr>
<tr>
<td>July 10, 2017</td>
<td>134 is now, Ordering Practitioner NPI (was Ordering Practitioner First Name) 135 is now, Ordering Practitioner First Name (was Ordering Practitioner Last Name) 136 is now, Ordering Practitioner Last Name (was Ordering Practitioner NPI)</td>
</tr>
<tr>
<td>October 18, 2017</td>
<td>Combining Case Registration and Exam Forms</td>
</tr>
</tbody>
</table>
| October 18, 2017 | 107 Patient_Height and Patient_Weight: added 2 decimal points. Valid values have been updated to 0.00<=Patient_Height<=99.99, 0.00<=Patient_Weight<=999.99. Integer value can be used (without decimal points).  
 Tube_Current_Time: format have been updated to 'nnn.n' (added decimal points). Valid values: 0.0-999.9. Integer value can be used (without decimal points).  
 CT_Exam_Result_Lung_RADS: option U= 'Unknown' has been added as one of Valid Values.  
 What_Were_The_Other_Findings: 5 ('Other clinically significant abnormalities') and 9 ('Unknown') options have been added to the set of Valid Values.  
 Tissue_Diagnosis: 8 ('Clinical – without histology') and 99 ('Unknown') options have been added to the set of Valid Values.  |
| January 3, 2018  | 151 'Unknown' added to “CT exam result by Lung-RADS category” 154 ‘Other clinically significant abnormalities’ and “Unknown” added to “What were the other findings?” 163 ‘Clinical – without histology’ and “Unknown” added to “Tissue diagnosis” |
| October 25, 2018 | 100 Added Version Number 104 Changed Patient Social Security Number usage 105 Changed "Medicare Beneficiary ID" to "Old Medicare Beneficiary ID". Changed usage. 105.1 Added "New Medicare Beneficiary ID".  
 145 Added "Do not include topogram."
 146 Added "Do not include topogram."
| November 7, 2018 | 105/105.1 If both the old Medicare Beneficiary ID and the new Medicare Beneficiary ID fields are null, the exam will not be submitted to CMS. If the patient is a Medicare patient, and the patient’s Medicare Beneficiary ID is not available, it is acceptable to enter the patient’s insurance number in the old Medicare Beneficiary ID field. |
| January 10, 2019 | 135 changed from Optional to Required 137 changed from Required to Optional                                                                                                                                               |
| January 22, 2019 | 125 Number of packs-years of smoking changed to 0.1 to 999.9                                                                                                                                                                |
| January 31, 2019 | 132 Added "Other, specify" 151 Added "Lung-RADS version used to report details- 1.0, 1.1, Other/unknown" 159.1 Added "Follow-up Unique ID" 171 Added additional descriptors: IA1, IA2, IA3, IIIC, IVA, and IVB  
 172 Added additional descriptors: Tis, T1mi and T1c 175 is now AJCC Cancer Staging Manual edition used for staging (was ‘Not used’) 180 Added “Other, specify” |
<table>
<thead>
<tr>
<th>Date</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 26, 2019</td>
<td>151.1 Added optional attributes: Reason for Recall</td>
</tr>
<tr>
<td></td>
<td>151.2 Added optional attributes: Reason for Recall, other, specify</td>
</tr>
<tr>
<td></td>
<td>175 changed from required to required if overall stage or T, N, or M status reported</td>
</tr>
<tr>
<td>May 15, 2019</td>
<td>102 No longer used, previously Facility NPI</td>
</tr>
<tr>
<td></td>
<td>131.1 Added &quot;Other comorbidities, please specify&quot;</td>
</tr>
<tr>
<td></td>
<td>132.1 Added &quot;Cancer related history, other cancer specify&quot;</td>
</tr>
<tr>
<td></td>
<td>152 No longer used, previously Reason for Recall (now 151.1)</td>
</tr>
<tr>
<td></td>
<td>179.1 Added &quot;Occupational exposures to agents that are identified specifically as carcinogens targeting the lungs – Other&quot;</td>
</tr>
<tr>
<td>May 29, 2019</td>
<td>125 changed from Optional to Required</td>
</tr>
<tr>
<td></td>
<td>177 changed from Optional to Required</td>
</tr>
<tr>
<td>May 30, 2019</td>
<td>154 changed from Required to Optional</td>
</tr>
<tr>
<td>July 11, 2019</td>
<td>105, &quot;Old Medicare Beneficiary ID&quot;, description changed</td>
</tr>
<tr>
<td></td>
<td>105.1, “New Medicare Beneficiary ID”, description changed</td>
</tr>
<tr>
<td></td>
<td>126, &quot;Number of years since quit&quot;, format changed from 1 to 2 decimal places</td>
</tr>
<tr>
<td></td>
<td>127, &quot;Did physician provide smoking cessation guidance to patient?&quot;, clarified</td>
</tr>
<tr>
<td></td>
<td>128, &quot;Is there documentation of shared decision making?&quot;, clarified</td>
</tr>
<tr>
<td>October 8, 2019</td>
<td>140.1, “CT scanner name”, added</td>
</tr>
<tr>
<td></td>
<td>143, “CTDivol”, 0 added to indicate “unknown”</td>
</tr>
<tr>
<td></td>
<td>144, “DLP”; 0 added to indicate “unknown”</td>
</tr>
<tr>
<td>December 17, 2019</td>
<td>158, &quot;Prior history of lung cancer – CT exam result modifier C&quot;, changed to optional if Lung-RADS version used to report results not = 1.0</td>
</tr>
<tr>
<td></td>
<td>170, “Stage – clinical or pathologic”, changed to optional if “Follow-up diagnostic” = &quot;PET/CT&quot;</td>
</tr>
<tr>
<td></td>
<td>171, “Overall stage”, changed to optional if “Follow-up diagnostic” = &quot;PET/CT&quot;</td>
</tr>
<tr>
<td></td>
<td>172, “T status”, changed to optional if “Follow-up diagnostic” = &quot;PET/CT&quot;</td>
</tr>
<tr>
<td></td>
<td>173, “N status”, changed to optional if “Follow-up diagnostic” = &quot;PET/CT&quot;</td>
</tr>
<tr>
<td></td>
<td>174, “M status”, changed to optional if “Follow-up diagnostic” = &quot;PET/CT&quot;</td>
</tr>
<tr>
<td>February 7, 2020</td>
<td>129, Values changed to between 0 and 99.99</td>
</tr>
<tr>
<td>February 20, 2020</td>
<td>150 Values changed to between 0.00 and 9.99</td>
</tr>
<tr>
<td>CONTENTS</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>EXAM FORM: FACILITY AND PATIENT INFORMATION</td>
<td>5</td>
</tr>
<tr>
<td>EXAM FORM: GENERAL, APPROPRIATENESS OF SCREENING (6A1-6A7)</td>
<td>6</td>
</tr>
<tr>
<td>EXAM FORM: STUDY DATA – ABOUT THE EXAM (SECTION 6A8-6A17)</td>
<td>12</td>
</tr>
<tr>
<td>EXAM FORM: FOLLOW-UP WITHIN 1 YEAR (SECTION 6B)</td>
<td>16</td>
</tr>
<tr>
<td>EXAM FORM: FOLLOW-UP – LUNG CANCER INDICIDENCE (SECTION 6B3 – 6B11)</td>
<td>23</td>
</tr>
<tr>
<td>EXAM FORM: ADDITIONAL RISK FACTORS (SECTION 6C)</td>
<td>24</td>
</tr>
<tr>
<td>GLOSSARY</td>
<td>29</td>
</tr>
</tbody>
</table>

Content ends here.
Important Notice:

LCSR Data Submission for Retrospective and Current Cases:
We will submit your data to CMS if we have information on all the CMS required fields even if you do not have the additional required fields in LCSR. While it is true that any case you provide may appear as a saved record and not as a submitted one, the record will still be transmitted to CMS.

Rationale for Additional Measures:
In order to approve our registry, CMS assessed our performance as a quality registry and had more requirements than simply collecting the fields for CMS reporting. Our physician oversight committee recommended the list of required fields as what was needed to monitor quality appropriately.

Exam Form: Facility and Patient Information

<table>
<thead>
<tr>
<th>Field Number</th>
<th>Field Name</th>
<th>Usage and Type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>File Version Number</td>
<td>Must be 1.2</td>
<td>Usage: Required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type of Response: Numeric</td>
</tr>
<tr>
<td>101</td>
<td>Facility ID number</td>
<td>Unique facility identifier within NRDR; a 6-digit number generated by NRDR</td>
<td>Usage: Required.</td>
</tr>
<tr>
<td>102</td>
<td>NO LONGER USED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>Patient ID</td>
<td>Field for NRDR Patient ID to support searching of records by facility</td>
<td>Usage: (auto-generated by NRDR)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This is specific to manual submission only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type of Response: Text</td>
</tr>
<tr>
<td>104</td>
<td>Patient Social Security Number</td>
<td></td>
<td>Usage: Optional if “Old Medicare Beneficiary ID, New Medicare Beneficiary ID or Other Identification” (#105, 105.1 or 106) is provided; required otherwise.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type of Response:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Refused to answer, select, Y/N.*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If not refused, then enter text in the field.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*Y = None/Refused to answer. The data field will be disabled and will prevent entry of the SSN.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*N = The patient did not refuse to answer. The data field will ‘open’ to allow you to type in the SSN.</td>
</tr>
</tbody>
</table>
105  **Old Medicare Beneficiary ID (issued before April 1, 2018)**

Usage: Either Old Medicare Beneficiary ID or New Medicare Beneficiary ID is required for Medicare reimbursement. Old Medicare Beneficiary ID is required if neither Patient Social Security Number, New Medicare Beneficiary ID or Other Patient Identifier is provided.

If both the old Medicare Beneficiary ID and the new Medicare Beneficiary ID fields are null, and “Medicare” is not reported under “Health Insurance” (#113), the exam will not be submitted to CMS. If the patient is a Medicare patient, and the patient’s Medicare Beneficiary ID is not available, it is acceptable to enter the patient’s insurance number in the Old Medicare Beneficiary ID field.

Type of Response:
- Refused to answer, select, Y/N.*
- If not refused, then enter text in the field, up to 12 characters *(the field will allow an alpha-numeric answer)*.

*Y = None/Refused to answer. The data field will be disabled and will prevent entry of the SSN.
*N = The patient did not refuse to answer. The data field will ‘open’ to allow you to type in the SSN.

105.1  **New Medicare Beneficiary ID (issued on April 1, 2018, or later)**

Usage: Either Old Medicare Beneficiary ID or New Medicare Beneficiary ID is required for Medicare reimbursement. New Medicare Beneficiary ID is required if neither Patient Social Security Number, Old Medicare Beneficiary ID or Other Patient Identifier is provided.

If both the old Medicare Beneficiary ID and the new Medicare Beneficiary ID fields are null, and “Medicare” is not reported under “Health Insurance” (#113), the exam will not be submitted to CMS. If the patient is a Medicare patient, and the patient’s Medicare Beneficiary ID is not available, it is acceptable to enter the patient’s insurance number in the New Medicare Beneficiary ID field.

Type of Response:
- Refused to answer, select, Y/N.*
- If not refused, then enter text in the field. Must be alphanumeric formatted as either xxxx-xxx-xxxx or xxxxxxxxxxx

*Y = None/Refused to answer. The data field will be disabled and will prevent entry of the SSN.
*N = The patient did not refuse to answer. The data field will ‘open’ to allow you to type in the SSN.

106  **Other Identification**

Unique patient ID

Usage: Optional if “Patient Social Security Number, Old Medicare Beneficiary ID, or New Medicare Beneficiary ID” (#104, 105 or 105.1) is provided; required otherwise. *Must be a unique patient identifier, such as Medical Record Number.*

Type of Response: Text
107 **Patient’s First Name**  
Field to help local facility search for a patient record  
Usage: Optional.  
Type of Response: Text

108 **Patient’s Middle Name**  
Field to help local facility search for a patient record  
Usage: Optional.  
Type of Response: Text

109 **Patient’s Last Name**  
Field to help local facility search for a patient record  
Usage: Optional.  
Type of Response: Text

110 **Patient Sex**  
Indicate patient’s sex at birth  
Usage: Required.  
Type of Response: Select One:  
- Male  
- Female  
- Other  
- Unknown

111 **Patient Race**  
Usage: Optional.  
Type of Response: Select all that apply:  
- American Indian  
- Alaska Native  
- Asian  
- Black or African American  
- Native Hawaiian or Pacific Islander  
- White  
- Not reported  
- Unknown
112 Patient Ethnicity (Hispanic origin)

Usage: Optional.

Type of Response: Select One:
• Hispanic or Latino
• Not Hispanic or Latino
• Not reported
• Unknown

113 Health Insurance

Usage: Optional.

Type of Response: Select all that apply:
• Medicare
• Medicaid
• Private insurance
• Self-pay
• Unknown

114 Patient's Date of Birth

Usage: Required.

Type of Response:
• mm/dd/yyyy format; cannot be a future date. Must be less than or equal to date of death.

115 Patient's Date of Death

Usage: Optional.

Type of Response:
• mm/dd/yyyy format; cannot be a future date. Must be greater than or equal to date of birth.
116 How the Cause of Death Was Determined

Usage: Applicable if date of death is provided.

Type of Response:
Select One:
- Autopsy Report
- Death Certificate
- Medical Record
- Physician
- Relative or Friend
- Social Security Death Index
- Other

117 How Cause of Death Was Determined ‘Other’

Usage: Applicable if “Other” is selected for how cause of death was determined (#116); otherwise this field should be left blank.

Type of Response: Text

118 Cause of Death

Usage: Required if "Patient date of death" (#115) is provided; otherwise this field should be left blank.

Type of Response:
Select One:
- Lung cancer
- Non-lung cancer cause, specify if known
- Cannot determine

119 Non-lung cancer cause of death, specify if known

Usage: Only applicable if "Cause of Death" (#118) = "Non-lung cancer cause, specify if known"; otherwise, this field is not applicable.

Type of Response: Text
120  **Invasive procedure within 30 days prior to death**

Was there an invasive procedure on the patient during the 30 day period preceding the patient's death?

**Usage:** Required if "Patient date of death" (#115) is provided. Include only invasive procedures as they relate to lung cancer screening abnormalities that may be cancer and are being evaluated.

For example:
- a) Percutaneous biopsy lung, liver, adrenal, lymph node
- b) Thoracoscopy, with or without biopsy or lung resection
- c) Thoracotomy, with or without biopsy or lung resection
- d) Mediastinoscopy, with or without biopsy or lung resection
- e) Bronchoscopy with or without biopsy
- f) Thoracentesis

Do not include invasive procedures in other body parts or to work up diseases, symptoms, etc., that are not related to lung cancer screening / lung cancer.

**Type of Response:**
Select One:
- Yes
- No
- Unknown

121  **Examination Date**

**Usage:** Required. *Cannot be a future date*

**Type of Response:** mm/dd/yyyy

122  **Name of person who completed this paper form – First name**

Indicate the first name of the person who completed the paper form.

**Usage:** Required. *Only applicable for manual data entry. For other data entry methods, these fields are auto-populated.*

**Type of Response:** Text

123  **Name of person who completed this paper form – Last name**

Indicate the last name of the person who completed the paper form.

**Usage:** Required. *Only applicable for manual data entry. For other data entry methods, these fields are auto-populated.*

**Type of Response:** Text
124  **Smoking Status**

1. **Current smoker, C67147**  
   An adult who has smoked 100 cigarettes in his or her lifetime and who currently smokes cigarettes. Includes daily smokers and non-daily smokers (also known as occasional smokers).

2. **Former smoker, C67148**  
   A person who was not smoking at the time of the interview but has smoked at least 100 cigarettes in their life.

3. **Never smoker, C65108**  
   A person who was not smoking at the time of the interview and has smoked less than 100 cigarettes in their life.

4. **Smoker, Current Status Unknown, C67150**  
   Indicates a person who is known to have smoked but whose current smoking status is unknown.

5. **Unknown If Ever Smoked, C67151**  
   Indicates that a person's smoking is unknown

Usage: Required.

Type of Response: Select One:
- Current smoker
- Former smoker
- Never smoker
- Smoker, current status unknown
- Unknown if ever smoked

125  **Number of packs-year of smoking (cigarettes)**

Pack-years as reported by the ordering practitioner on the order form. Pack-years defined as number of packs per day x total years smoked.

Usage: Required if Smoking Status (#124) = “Current Smoker, Former Smoker, or Smoker, current status unknown”; otherwise, this field should be left blank.

Type of Response: number between 0.1 and 999.9

If unknown = 999

*Pack years should not include cigars, e-cigs, or chewing tobacco. Calculate the pack-years for cigarettes only.*
126  **Number of years since quit**

Usage: Conditional. Required if "Smoking status" (#124) = "Former smoker"; otherwise, this field is not applicable.

Type of Response: number between 0.01 and 99.99. If less than 1.0, the leading 0 must be entered. For example:

1/12=0.08  
2/12=0.17  
3/12=0.25  
4/12=0.33  
5/12=0.42  
6/12=0.5  
7/12=0.58  
8/12=0.67  
9/12=0.75  
10/12=0.83  
11/12=0.92  
12/12=1

If unknown= 99

127  **Did physician provide smoking cessation guidance to patient?**

This applies to guidance provided by either the ordering or imaging physician. For annual exams, for which no additional guidance has been provided other than at the baseline exam, enter “no”.

Usage: Required.

Type of Response: Select One:
- Yes
- No
- Unknown

128  **Is there documentation of shared decision making?**

For annual exams, for which no additional shared decision making visit has occurred other than the visit for the baseline exam, enter “no”.

Usage: Required.

Type of Response: Select One:
- Yes
- No
- Unknown

129  **Patient’s height (inches)**

Usage: Required.

Type of Response: numeric value in nn.nn format. Unknown = 0 or any number between 0 and 99.00
130 Patient's weight (lbs)

Usage: Required.

Type of Response: numeric value in nnn.nn format. Unknown = 0 or any number between 0 and 999.99

131 Other comorbidities listed on patient record that limit life expectancy

Usage: Optional.

Type of Response: Select all that apply:
- COPD
- Emphysema
- Pulmonary Fibrosis
- Coronary Artery Disease
- Congestive Heart Failure
- Peripheral Vascular Disease
- Lung Cancer
- Cancer other than lung cancer
- Other, please specify

131.1 Other comorbidities, please specify

Usage: Required if “Other comorbidities” (#131) = “Other, specify”; otherwise, this field is not applicable.

Type of Response: Text

132 Cancer related history

Usage: Optional.

Type of Response: Select all that apply:
- Prior history of lung cancer
- lymphoma
- H&N cancer
- bladder cancer
- esophageal cancer
- Pulmonary fibrosis
- Other cancer, specify
- Other, specify

132.1 Cancer related history, Other Cancer specify

Usage: Required if “Cancer related history” (#132) = “Other cancer, specify”; otherwise, this field is not applicable.

Type of response: Text
133 Cancer related history, Other specify

Usage: Required if "Cancer related history" (#132) = “Other, specify”; otherwise, this field is not applicable.

Type of Response: Text
134 Radiologist (reading) NPI*

Usage: Required.

Type of Response: 10 digit integer

*Add all reading radiologists to the Manage Physicians list in the NRDR portal in order for the NPI, last, and first name to auto-fill.

135 Ordering practitioner NPI

Usage: Required.

Type of Response: 10 digit integer

136 Ordering practitioner’s first name

Usage: Optional.

Type of Response: Text

*Ordering practitioners cannot be added to the Manage Physicians list within the NRDR.

137 Ordering practitioner’s last name

Usage: Optional.

Type of Response: Text

138 Indication for Exam: Are there are signs or symptoms of lung cancers:
Baseline scan indicates the patient has had no prior lung cancer screening CTs. Annual screen indicates the patient is in a screening program and has had at least one prior screening exam.

Usage: Required.

Type of Response: Select One:
- No
- Yes

139 Indication for Exam: Are there any signs or symptoms of lung cancers – If ‘No”

Usage: Required if “Indication for Exam: Signs and Symptoms of Lung Cancer” (#138) = “No”; otherwise, this field is not applicable.

If answer to "Signs or symptoms of lung cancer" is "N" then select baseline or annual:
- Baseline scan (prevalence screen)
- Annual screen (incidence screen)
140  **Modality**  
Usage: Required.  
Type of Response: Select One:  
- Low dose chest CT  
- Routine chest CT  

140.1  **CT scanner name**  
If a scanner has been added for LCSR using the “Manage Scanners” link in the NRDR portal, then it will appear on a drop-down menu for this field. If selected, Fields 141 (CT scanner manufacturer) and 142 (CT scanner model) will be automatically populated.  
Usage: Optional.  
Type of Response: Text  

141  **CT scanner manufacturer**  
Usage: Required.  
Type of Response: Text  

142  **CT scanner model**  
Usage: Required.  
Type of Response: Text  

143  **CTDiving (mGy)**  
Volume Computed Tomography Dose Index- standardized parameter to measure scanner radiation output. *Obtained from scanner dose report (patient protocol page or similar) or operator console (after completion of scan). Typically less than 3.0 mGy for a standard sized patient, but can be lower for small patients and higher for larger patients. Do not include the topogram.  
Usage: Required.  
Type of Response: numeric value, any number between 0.01 and 999.99. If unknown, enter 0. Note, however, that CMS requires CTDIvol to be reported as a condition for reimbursement.
144  **DLP (mGy·cm)**
Dose Length Product- product of the length of the irradiated scan volume and the average CTDIvol over that distance. Obtained from scanner dose report (patient protocol page or similar) or operator console (after completion of scan). Do not include the topogram.

Usage: Required.

Type of Response: numeric value, any number between 0.01 and 9999.99. If unknown, enter 0.

145  **Tube current-time (mAs)**
The product of tube current and exposure time per rotation, expressed in units of millampere x seconds (mAs) (average across scan). This may be obtained from scanner dose report (patient protocol page or similar), from the scanner operator console or the DICOM header of screening CT images. Do not include the topogram.

Usage: Optional.

Type of Response: numeric value, any number between 0.0 and 999.9.

146  **Tube voltage (kV)**
The electric potential applied across an x-ray tube to accelerate electrons towards a target material, expressed in units of kilovolts (kV).

Usage: Optional.

Type of Response: numeric value, any number between 0 and 999.

147  **Scanning time (s)**
Total time it takes to complete the scan from beam ‘on’ to beam ‘of’. This may be obtained from the scanner operator console (typically not contained in DICOM header of screening CT images or dose report). Round up to the next integer to avoid entering a decimal, which may result in an error. Rotation time over the entire scan refers to the helical scan and does not include the topogram.

Usage: Optional.

Type of Response: numeric value, any number between 0.01 and 999.99.

148  **Scanning volume (cm)**
The full length or extent of the scan (Total scan range from head to foot). Round up to the next integer to avoid entering a decimal which may result in an error. This may be obtained from the scanner operator console (typically not contained in the DICOM header of the screening CT images or dose report (RDSR)). Do not include the topogram.

Usage: Optional.

Type of Response: numeric value, any number between 0.01 and 999.99.
149 Pitch
Unitless parameter used to describe table travel during helical scan; equal to table travel (mm) per gantry rotation / total nominal beam width (mm). This may be obtained from the scanner operator console, the DICOM header of the screening CT images or the dose report (RDSR).

Usage: Optional.

Type of Response: numeric value, any number between 0.000 and 99.999.

150 Reconstructed image width (nominal width of reconstructed image along z-axis) (mm)
The thickness of each slice post processing (slice thickness) in mm. This may be obtained from the scanner operator console, the DICOM header of the screening CT images or dose report (RDSR).

Usage: Required.

Type of Response: numeric value where 0 is unknown, any number between 0.00 and 9.99.

151 CT exam result by Lung-RADS category
This is a quality assurance tool designed to standardize lung cancer screening CT reporting and management recommendations, reduce confusion in lung cancer screening CT interpretations and facilitate outcome monitoring. *It is our recommendation that the CT report contain the Lung-RADS category. If the category is not specifically stated in the report, then assign a category to the LCSR registry case record. This is sufficient documentation from the registry perspective.

Usage: Required.

Type of Response: Select One:
- 0: recalls (incomplete screen)
- 1: normal, continue annual screening
- 2: benign appearance or behavior, continue annual screening
- 3: 6 month CT recommended
- 4A: 3 month CT recommended; may consider PET/CT
- 4B: Additional diagnostics and/or tissue sampling recommended
- 4X: Additional diagnostics and/or tissue sampling recommended – increased suspicion of malignancy
151.1  Reason for Recall

Usage: Required if “CT exam result by Lung-RADS category” (#151) = “0: recalls (incomplete screen)”.

Type of Response: Select One:
- I: Incomplete coverage
- N: Noise
- M: Respiratory motion
- E: Expiration
- OBa: Obscured by acute abnormality
- UC: Unable to complete, please specify
- U: Unknown

151.2  Reason for recall, Unable to complete, please specify

Usage: Required if “Reason for Recall” (#151.1) = “UC: Unable to complete”; otherwise, this field is not applicable.

Type of response: Text

151.3  Lung-RADS version used to report results

Usage: Required.

Type of response: Select One:
- 1.0
- 1.1
- Other/unknown

152  NO LONGER USED

153  Other clinically significant or potentially significant abnormalities – CT exam result modifier S:

Usage: Required.

Type of Response: Select One:
- Yes
- No
154 If yes, what were the other findings?

Usage: Optional if “Other clinically significant or potentially significant abnormalities” (#153) = “Yes”; otherwise, this field is not applicable.

Type of Response (select all that apply):
- Aortic aneurysm
- Coronary arterial calcification moderate or severe
- Pulmonary fibrosis
- Mass, please specify, e.g., neck, mediastinum, liver, kidneys, other
- Other interstitial lung disease, specify type if known
- Other clinically significant abnormalities
- Unknown

155 Mass, please specify, e.g., neck, mediastinum, liver, kidneys

Usage: Required if “If yes, what were the other findings” (#154) = “Mass, specify”; otherwise, this field is not applicable.

Type of Response: Text

156 Other interstitial lung disease, select type if known

Usage: Optional if “If yes, what were the other findings” (#154) = “Other interstitial lung disease”; otherwise, this field is not applicable.

Type of Response: Select One:
- UIP/IPF
- ILD, other, please specify
- ILD, unknown

157 Other Interstitial Lung Disease, ILD, other, please specify

Usage: Required if “Other interstitial lung disease” (#156) = “ILD, other”; otherwise, this field is not applicable.

Type of Response: Text

158 Prior history of lung cancer - CT exam result modifier C

Usage: Required if Lung-RADS version used to report results (#151.3) = 1.0; optional otherwise

Type of Response: Select One:
- Yes
- No
- Unknown
159  Years since prior diagnosis of lung cancer (years)

Usage: Optional.

Type of Response: Integer between 1 and 99
The following fields need to be collected for any follow up imaging, biopsy, or surgical procedure for a patient who is in the screening program. There can be multiple follow up records for each patient during the same year. Please complete a follow up record for each procedure, even if the procedures occur on the same day. If a patient has a percutaneous (non-surgical) biopsy and a bronchoscopy, there should be a record for each of these.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>159.1</td>
<td><strong>Follow-up Unique ID</strong>&lt;br&gt;Usage: Optional; you may provide an identifier to link back to your internal follow up record.  &lt;br&gt;Type of Response: Text  &lt;br&gt;*Only applicable to electronic transmissions</td>
</tr>
<tr>
<td>160</td>
<td><strong>Date of follow-up</strong>&lt;br&gt;Usage: Required when submitting a follow-up for a case.  &lt;br&gt;Type of Response: mm/dd/yyyy format; cannot be a future date</td>
</tr>
<tr>
<td>161</td>
<td><strong>Follow-up diagnostic</strong>&lt;br&gt;Usage: Required when submitting a follow-up for a case.  &lt;br&gt;Type of Response: Select One:&lt;br&gt;• low dose chest CT  &lt;br&gt;• routine chest CT  &lt;br&gt;• PET/CT  &lt;br&gt;• Bronchoscopy  &lt;br&gt;• Non-surgical biopsy  &lt;br&gt;• Surgical resection  &lt;br&gt;• Other, please specify</td>
</tr>
<tr>
<td>162</td>
<td><strong>Follow-up diagnostic - Other, please specify</strong>&lt;br&gt;Usage: Required if “Follow-up diagnostic” (#161) = “Other, please specify”; otherwise, this field is not applicable.  &lt;br&gt;Type of Response: Text</td>
</tr>
</tbody>
</table>
The following fields need to be collected for any follow up imaging, biopsy, or surgical procedure for a patient who is in the screening program. There can be multiple follow up records for each patient during the same year. Please complete a follow up record for each procedure, even if the procedures occur on the same day. If a patient has a percutaneous (non-surgical) biopsy and a bronchoscopy, there should be a record for each of these.

163  Tissue diagnosis

Usage: Required if "Follow-up diagnostic" (#161) = "Bronchoscopy, Non-surgical biopsy, or Surgical resection". Optional if "Follow-up diagnostic" = "Other, please specify"; otherwise, this field is not applicable.

Type of Response: Select One:
- Benign
- Malignant - invasive lung cancer
- Malignant - Minimally invasive lung cancer
- Malignant - Non-lung cancer
- Malignant - adenocarcinoma in situ
- Premalignancy - atypical adenomatous hyperplasia
- Non-diagnostic
- Clinical – without histology
- Unknown

164  Tissue diagnosis method

Usage: Required if there is a “Tissue diagnosis” (#163); otherwise, this field is not applicable.

Type of Response: Select one:
- Percutaneous (non-surgical)
- Bronchoscopic
- Surgical
- Unknown

165  Location from which sample was obtained

Usage: Required if there is a “Tissue diagnosis” (#163); otherwise, this field is not applicable.

Type of Response: Select One:
- L hilium - Left Hilum
- Lingula - Lingula of the Lung
- LLL - Left Lower Lobe of Lung
- LUL - Left Upper Lobe of Lung
- R hilium - Right Hilum
- RLL - Right Lower Lobe of Lung
- RML - Right Middle Lobe of Lung
- RML/RLL - Right Middle and Right Lower Lobes of Lung
- RU/RM - Right Upper and Right Middle Lobes of Lung
- RUL - Right Upper Lobe of Lung
- Other, please specify
- Unknown
The following fields need to be collected for any follow up imaging, biopsy, or surgical procedure for a patient who is in the screening program. There can be multiple follow up records for each patient during the same year. Please complete a follow up record for each procedure, even if the procedures occur on the same day. If a patient has a percutaneous (non-surgical) biopsy and a bronchoscopy, there should be a record for each of these.

166 Location Other, Please specify

Usage: Required if "Location from which sample was obtained" (#165) = “Other, please specify”; otherwise, this field is not applicable.

Type of Response: text

167 Histology


Type of Response: Select One:

- Non-small cell lung cancer, (select one)
- High grade neuroendocrine tumor (small cell lung cancer)
- Low grade neuroendocrine tumor (carcinoid)
- Intermediate grade neuroendocrine tumor (Atypical carcinoid)
- Unknown

168 Histology – Non-small cell lung cancer, Select One

Usage: Required if "Histology" (#167) = "Non-small cell lung cancer"; otherwise, this field is not applicable.

Type of Response: Select One:

- Invasive adenocarcinoma
- Squamous cell carcinoma
- Adenosquamous cell carcinoma
- Undifferentiated or poorly differentiated carcinoma
- Large cell carcinoma
- Other, please specify

169 Other Non-small cell lung cancer histology, please specify

Usage: Required if “Histology – Non-small cell lung cancer” (#168) = “Other, please specify”; otherwise, this field is not applicable.

Type of Response: text
The following fields need to be collected for any follow up imaging, biopsy, or surgical procedure for a patient who is in the screening program. There can be multiple follow up records for each patient during the same year. Please complete a follow up record for each procedure, even if the procedures occur on the same day. If a patient has a percutaneous (non-surgical) biopsy and a bronchoscopy, there should be a record for each of these.

### 170 Stage - Clinical or pathologic?

Usage: Required if “Tissue Diagnosis” (#163) = “Malignant – invasive lung cancer, Malignant – Minimally invasive lung cancer or Malignant – adenocarcinoma in situ”. Optional if “Tissue Diagnosis” = “Malignant – Non-lung cancer or Non-diagnostic” or if “Follow-up diagnostic (#161)” = “PET/CT”; otherwise, this field is not applicable.

Type of Response: Select one:
- Clinical
- Pathologic
- Unknown

### 171 Overall stage

Usage: Required if “Tissue Diagnosis” (#163) = “Malignant – invasive lung cancer, Malignant – Minimally invasive lung cancer or Malignant – adenocarcinoma in situ”; Optional if “Tissue Diagnosis” = “Malignant – Non-lung cancer or Non-diagnostic” or if “Follow-up diagnostic (#161)” = “PET/CT”; otherwise, this field is not applicable.

Type of Response: Select one
- 0
- IA
- IA1
- IA2
- IA3
- IB
- IIA
- IIB
- IIIA
- IIIB
- IIIC
- IV
- IVA
- IVB
- Unknown
The following fields need to be collected for any follow up imaging, biopsy, or surgical procedure for a patient who is in the screening program. There can be multiple follow up records for each patient during the same year. Please complete a follow up record for each procedure, even if the procedures occur on the same day. If a patient has a percutaneous (non-surgical) biopsy and a bronchoscopy, there should be a record for each of these.

### 172 T Status

As defined by the [AJCC Cancer Staging Manual](#). Report pathologic if procedure is surgical resection, clinical otherwise.

Usage: Optional if “Tissue Diagnosis” (#163) is populated or if “Follow-up diagnostic (161)” = “PET/CT”; otherwise, this field is not applicable.

**Type of Response:** Select One:
- TX
- T1a
- T1b
- T1c
- T1mi
- T2a
- T2b
- T3
- T4
- Tis
- unknown

### 173 N Status

As defined by the [AJCC Cancer Staging Manual](#). Report pathologic if procedure is surgical resection, clinical otherwise.

Usage: Optional if “Tissue Diagnosis” (#163) is populated or if “Follow-up diagnostic (161)” = “PET/CT”; otherwise, this field is not applicable.

**Type of Response:** Select One:
- NX
- N0
- N1
- N2
- N3
### Exam Form: Follow-Up within 1 Year (Section 6B)

The following fields need to be collected for any follow up imaging, biopsy, or surgical procedure for a patient who is in the screening program. There can be multiple follow up records for each patient during the same year. Please complete a follow up record for each procedure, even if the procedures occur on the same day. If a patient has a percutaneous (non-surgical) biopsy and a bronchoscopy, there should be a record for each of these.

#### 174 M Status

As defined by the [AJCC Cancer Staging Manual](https://www.cancerstaging.org/). Report pathologic if procedure is surgical resection, clinical otherwise.

Usage: Optional if “Tissue Diagnosis” (#163) is populated or if “Follow-up diagnostic (#161)” = “PET/CT”; otherwise, this field is not applicable.

Type of Response: Select One:
- MX
- M0
- M1a
- M1b
- M1c

#### 175 AJCC Cancer Staging Manual edition used for staging

Usage: Required if overall stage or T, N, or M status reported.

Type of Response: Select One:
- 7th Edition
- 8th Edition
- Other/Unknown
The Additional Evidence for Collection section contains optional fields that may be used for risk adjustment.

176 Education level

Usage: Optional.

Type of Response: Select One:
- 8th grade or less
- 9-11th grade
- High school graduate or high school equivalency
- Post high school training, other than college (for example, Vocational/technical school)
- Associate degree / some college
- Bachelor’s degree
- Graduate or Professional school
- Other, please specify
- Unknown / Refused to answer

177 Education level, other

Usage: Required if “Education level” (#176) = “Other, please specify”; otherwise, this field is not applicable.

Type of Response: text

178 Radon exposure - documented high exposure levels

Usage: Optional.

Type of Response: Select One:
- Yes
- No
The Additional Evidence for Collection section contains optional fields that may be used for risk adjustment.

179 Occupational exposures to agents that are identified specifically as carcinogens targeting the lungs

Usage: Optional. Type of Response: Select all that apply:
- Silica
- Cadmium
- Asbestos
- Arsenic
- Beryllium
- Chromium
- Diesel fumes
- Nickel
- Other, specify

179.1 Occupational exposures to agents that are identified specifically as carcinogens targeting the lungs – Other

Usage: Required if “Occupational exposures to agents that are identified specifically as carcinogens targeting the lungs” (#179) = “Other, please specify”; otherwise, this field is not applicable.

Type of Response: text

179.2 History of cancers that are associated with an increased risk of developing a new primary lung cancer

Usage: Optional.

Type of Response: Select all that apply:
- prior lung cancer
- lymphoma
- head and neck
- bladder cancer
- other smoking-related cancers, please specify

180 History of cancers that are associated with an increased risk of developing a new primary lung cancer - other smoking-related cancers, please specify

Usage: Required if "History of cancers that are associated...” = "other smoking-related cancers, please specify"; otherwise, this field should be left blank

Type of Response: text
The Additional Evidence for Collection section contains optional fields that may be used for risk adjustment.

181 Lung cancer in first-degree relative (mother, father, sister, brother, daughter or son with history of lung cancer)

Usage: Optional.
Type of Response: Select one:
- Yes
- No
- Not sure/unknown

182 Family history of lung cancer, other than first-degree relative

Usage: Optional.
Type of Response: Select One:
- Yes
- No
- Not sure/unknown

183 COPD
Has the patient been told by a medical health care professional that he/she has COPD (chronic obstructive pulmonary disease), emphysema, or smoking-related chronic bronchitis?

Usage: Optional.
Type of Response: Select One:
- Yes
- No

184 Pulmonary fibrosis
Has the patient been told by a health care professional that he/she has any form of interstitial lung fibrosis, or scarring of the lung?

Usage: Optional.
Type of Response: Select One:
- Yes
- No
The Additional Evidence for Collection section contains optional fields that may be used for risk adjustment.

185  Second hand smoke exposure

Usage: Optional.

Type of Response: Select One:
- Yes
- No
- Not sure/unknown
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACR</td>
<td>American College of Radiology</td>
</tr>
<tr>
<td>CT</td>
<td>Computed Tomography</td>
</tr>
<tr>
<td>CTDI_vol</td>
<td>Volume CT dose index</td>
</tr>
<tr>
<td>Lbs</td>
<td>Pounds</td>
</tr>
<tr>
<td>LCSR</td>
<td>Lung Cancer Screening Registry</td>
</tr>
<tr>
<td>mGy</td>
<td>milligray</td>
</tr>
<tr>
<td>N/A</td>
<td>Not applicable</td>
</tr>
<tr>
<td>NRDR</td>
<td>National Radiology Data Registry</td>
</tr>
<tr>
<td>SSN</td>
<td>Social Security Number</td>
</tr>
<tr>
<td>RDSR</td>
<td>Radiation Dose Structured Report</td>
</tr>
</tbody>
</table>