The 2017 CMS Merit-based Incentive Payment System includes 2 inflammatory bowel disease (IBD) measures.

**Measure Specifications for Registry Reporting**

MIPS #271: Inflammatory Bowel Disease (IBD): Preventive Care: Corticosteroid Related Iatrogenic Injury – Bone Loss Assessment *

MIPS #275: Inflammatory Bowel Disease (IBD): Assessment of Hepatitis B Virus (HBV) Status Before Initiating Anti-TNF (Tumor Necrosis Factor) Therapy *

* AGA-owned and AGA-stewardefd measure
Measure #271: Inflammatory Bowel Disease (IBD): Preventive Care: Corticosteroid Related Iatrogenic Injury – Bone Loss Assessment – National Quality Strategy Domain: Effective Clinical Care

2017 OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

MEASURE TYPE:
Process

DESCRIPTION:
Percentage of patients aged 18 years and older with an inflammatory bowel disease encounter who were prescribed prednisone equivalents greater than or equal to 10 mg/day for 60 or greater consecutive days or a single prescription equating to 600 mg prednisone or greater for all fills and were documented for risk of bone loss once during the reporting year or the previous calendar year

INSTRUCTIONS:
This measure is to be reported a minimum of once per performance period for all patients with a diagnosis of inflammatory bowel disease seen during the performance period. This measure may be reported by eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

Measure Reporting:
The listed denominator criteria is used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure. The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:
All patients aged 18 and older with a diagnosis of inflammatory bowel disease

Definition:
Corticosteroids – Prednisone equivalents used expressly for the treatment of IBD and not for other indications (including premedication before anti-TNF therapy, non-IBD indications) can be determined using the following: 1 mg of prednisone = 1 mg of prednisolone; 5 mg of cortisone; 4 mg of hydrocortisone; 0.8 mg of triamcinolone; 0.8 mg of methylprednisolone; 0.15 mg of dexamethasone; 0.15 mg of betamethasone.

Denominator Criteria (Eligible Cases):
Patients aged ≥ 18 years on date of encounter
AND
AND
Patient encounter during the performance period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, 99406, 99407
AND
Patients who have received or are receiving corticosteroids greater than or equal to 10 mg/day of prednisone equivalents for 60 or greater consecutive days or a single prescription equating to 600 mg prednisone or greater for all fills: G9469

NUMERATOR:
Patients who have received dose of corticosteroids greater than or equal to 10 mg/day of prednisone equivalents for 60 or greater consecutive days or a single prescription equating to 600 mg prednisone or greater for all fills and who were documented for risk of bone loss during the reporting year or the previous calendar year

Definition:
Documented – Documentation that an assessment for risk of bone loss has been performed or ordered. This includes, but is not limited to, review of systems and medication history, and ordering of Central Dual-energy X-Ray Absorptiometry (DXA) scan.

Numerator Options:
Performance Met: Within the past 2 years, Central Dual-energy X-Ray Absorptiometry (DXA) ordered and documented review of systems and medication history or pharmacologic therapy (other than minerals/vitamins) for osteoporosis prescribed (G8861)

OR

Performance Not Met: Within the past 2 years, Central Dual-energy X-Ray Absorptiometry (DXA) not ordered and documented, no review of systems and no medication history or pharmacologic therapy (other than minerals/vitamins) for osteoporosis prescribed (G9472)

RATIONALE:
Patients with inflammatory bowel disease (IBD) often rely on their gastroenterologist for healthcare maintenance. In addition, the gastroenterologist also provides guidance to the patient’s primary care physician on a broad range of issues such as vaccinations, osteoporosis screening, and cancer/dysplasia surveillance. Screening for osteoporosis is based on a combination of individual risk factors, but a history of prolonged (>3 months) steroid use over 10 mg is reason enough to obtain dual-energy x-ray absorptiometry scanning. (Moscandrew M., Mahadevan U., Kane S. General Health Maintenance in IBD. Inflamm Bowel Dis. 2009; 15:1399–1409.)


The decision to measure bone density should follow an individualized approach. It should be considered when it will help the patient decide whether to institute treatment to prevent osteoporotic fracture. It should also be considered in patients receiving glucocorticoid therapy for two months or more and patients with other conditions that place them at high risk for osteoporotic fracture. (NIH)

The most commonly used measurement to diagnose osteoporosis and predict fracture risk is based on assessment of bone mineral density BMD by dual energy X-ray absorptiometry (DXA). (NIH)

Measurements of BMD made at the hip predict hip fracture better than measurements made at other sites while BMD measurement at the spine predicts spine fracture better than measures at other sites. (NIH)

CLINICAL RECOMMENDATION STATEMENTS:
IBD has only a modest effect on BMD, with a pooled Z score of -0.5 (level A evidence). (AGA, American Gastroenterological Association Medical Position Statement: Guidelines on Osteoporosis in Gastrointestinal Diseases, 2003).

Corticosteroid use is the variable most strongly associated with osteoporosis (level A evidence). However, it is difficult to distinguish corticosteroid use from disease activity in terms of causal impact on bone density, because the two are closely linked. (AGA, American Gastroenterological Association Medical Position Statement: Guidelines on Osteoporosis in Gastrointestinal Diseases. 2003.)

However there is strong evidence that those on long-term steroids of greater than three months have a significant increase risk of fracture (Papaioannou A. et al. All Patients with Inflammatory Bowel Disease Should Have Bone Density Assessment: Pro. Inflammatory Bowel Diseases. 2001.7(2):158-162) DXA screening is recommended in inflammatory bowel disease patients with one or more risk factors: history of vertebral fractures, postmenopausal, male >50 years of age, chronic corticosteroid therapy, or hypogonadism. If the initial DXA is normal, the AGA recommends repeat testing in 2-3 years. If the patient has osteoporosis, or has a history of a low trauma fracture, evaluation for secondary causes should be completed. Suggested studies include a complete blood count, serum concentrations of alkaline phosphatase level, calcium, creatinine, and 25-OH vitamin D, serum protein electrophoresis, serum calcium, and a testosterone level in males. (Bernstein CN, Leslie WD, Leboff MS. AGA technical review on osteoporosis in gastrointestinal diseases. Gastroenterology. 2003;124(3):795–841).

Data on the treatment of osteoporosis in Crohn's disease depend on studies that are not specific to IBD. The evidence levels and recommendation grades are accordingly marked down. Weight bearing, isotonic exercise [EL2b, RG B], stopping smoking [EL3b, RG C], avoiding alcohol excess [EL4, RG D], and maintaining adequate dietary calcium (>1 g/day) [EL2b, RG B] are beneficial. Hormone replacement treatment is no longer generally advised in post-menopausal women with osteoporosis [EL2b, RG B], but regular use of bisphosphonates, calcitonin and its derivatives, and raloxifene may reduce or prevent further bone loss [EL2b, RG C]. Data in men with osteoporosis are less secure but bisphosphonates are probably of value, [EL3b, RG C]. Newer data also support the use of strontium salts [EL2a, RG B]. Patients receiving systemic steroid therapy should receive calcium and vitamin D for prophylaxis [EL5, RG D]. (Assche G et al., Second European evidence-based consensus on ulcerative colitis' diagnosis and management. Journal of Crohn’s and Colitis (2013) 7, 1-33.)

Diagnosis of osteoporosis in adults is best made from at T score of less than -2.5 on radiographic bone densitometry [EL1a, RG A], all other diagnosis methods having current limitations [EL2b, RG B]. The presence of osteoporosis identifies patients at above average risk for fracture and who should receive treatment [EL2b, RG B]. Osteopenia may be a prognostic marker for future osteoporosis, but presents little direct risk [EL2b, RG C]. However if the T score is less than -1.5, treatment with calcium and vitamin D should be recommended [EL4, RG C]. Pre-existing history of fracture is of substantial adverse prognostic significance and patients should be treated for osteoporosis even if the T score is normal [EL4, RG C]. (Assche G et al., Second European evidence-based consensus on ulcerative colitis' diagnosis and management. Journal of Crohn’s and Colitis (2013) 7, 1-33.)

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#271: Inflammatory Bowel Disease (IBD): Preventive Care: Corticosteroid Related Iatrogenic Injury – Bone Loss Assessment

**2017 Registry Individual Measure Flow**

**Start**

**Denominator**

- Patient Age at Date of Service \( \geq 18 \) Years
  - No
    - Diagnosis of Inflammatory Bowel Disease as Listed in Denominator*
      - No
        - Not Included in Eligible Population/Denominator
      - Yes
        - Encounter as Listed in Denominator* (1/1/2017 thru 12/31/2017)
          - No
            - Patient Who is Receiving or had Received Prednisone Therapy \( \geq 10 \) mg/day 60 Consecutive Days OR Single Prescription \( \geq 6000\)mg for All Fills: G9469* or equivalent
              - No
                - Include in Eligible Population/Denominator (8 patients)
              - Yes
        - Yes

**Numerator**

- Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Ordered and Documented Review of Systems and Medication History or Pharmacologic Therapy for Osteoporosis Prescribed
  - Yes
    - Data Completeness Met + Performance Met G9861 or equivalent (5 patients)
      - a
  - No
    - Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Not Ordered and Documented, No Review of Systems and No Medication History or Pharmacologic Therapy for Osteoporosis Prescribed
      - Yes
        - Data Completeness Met + Performance Not Met G9472 or equivalent (2 patients)
          - c
      - No

**SAMPLE CALCULATIONS:**

- Data Completeness=
  - Performance Met (a=5 patients) + Performance Not Met (c=2 patients) = 7 patients = 87.50%
  - Eligible Population / Denominator (d=8 patients) = 8 patients
- Performance Rate=
  - Performance Met (a=5 patients) = 5 patients = 71.43%
  - Data Completeness Numerator (7 patients) = 7 patients

*See the posted Measure Specification for specific coding and instructions to report this measure.

NOTE: Reporting Frequency: Patient-process

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#271 Inflammatory Bowel Disease (IBD): Preventive Care: Corticosteroid Related Iatrogenic Injury – Bone Loss Assessment

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator

2. Check Patient Age:
   a. If the Age is greater than or equal to 18 years of age on Date of Service equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing.
   b. If the Age is greater than or equal to 18 years of age on Date of Service equals Yes during the measurement period, proceed to check Patient Diagnosis.

3. Check Patient Diagnosis:
   a. If Diagnosis of Inflammatory Bowel Disease as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Diagnosis of Inflammatory Bowel Disease as Listed in the Denominator equals Yes, proceed to check Encounter Performed.

4. Check Encounter Performed:
   a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Encounter as Listed in the Denominator equals Yes, proceed to check Patient who is Receiving or had Received Prednisone Therapy ≥ 10mg/day 60 consecutive Days OR Single prescription ≥ 600mg for All Fills.

5. Check Patient who is Receiving or had Received Prednisone Therapy ≥ 10mg/day 60 consecutive Days OR Single prescription ≥ 600mg for All Fills:
   a. If Patient who is Receiving or had Received Prednisone Therapy ≥ 10mg/day 60 consecutive Days OR Single prescription ≥ 600mg for All Fills equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Patient who is Receiving or had Received Prednisone Therapy ≥ 10mg/day 60 consecutive Days OR Single prescription ≥ 600mg for All Fills equals Yes, include in the Eligible Population.

6. Denominator Population:
   a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 episodes in the sample calculation.

7. Start Numerator

8. Check Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Ordered and Documented Review of Systems and Medication History or Pharmacologic Therapy for Osteoporosis Prescribed:
a. If Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Ordered and Documented Review of Systems and Medication History or Pharmacologic Therapy for Osteoporosis Prescribed equals Yes, include in Data Completeness Met and Performance Met.

b. Data Completeness Met and Performance Met is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a equals 5 patients in Sample Calculation.

c. If Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Ordered and Documented Review of Systems and Medication History or Pharmacologic Therapy for Osteoporosis Prescribed equals No, proceed to Check Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Not Ordered and Documented, No Review of Systems and No Medication History or Pharmacologic Therapy for Osteoporosis Prescribed.

9. Check Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Not Ordered and Documented, No Review of Systems and No Medication History or Pharmacologic Therapy for Osteoporosis Prescribed:

a. If Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Not Ordered and Documented, No Review of Systems and No Medication History or Pharmacologic Therapy for Osteoporosis Prescribed equals Yes, include in the Data Completeness Met and Performance Not Met.

b. Data Completeness Met and Performance Not Met is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter c equals 2 patients in the Sample Calculation.

c. If Within the Past 2 Years, Central Dual-Energy X-Ray Absorptiometry Not Ordered and Documented, No Review of Systems and No Medication History or Pharmacologic Therapy for Osteoporosis Prescribed equals No, proceed to Data Completeness Not Met.

10. Check Data Completeness Not Met

a. Data Completeness Not Met equals No, Quality Data Code or equivalent not reported. 1 patient has been subtracted from Data Completeness numerator in the sample calculation.

SAMPLE CALCULATIONS:

<table>
<thead>
<tr>
<th>Data Completeness</th>
<th>Performance Met (a=5 patients) + Performance Not Met (c=2 patients)</th>
<th>7 patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eligible Population / Denominator (d=8 patients)</td>
<td>8 patients</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Rate</th>
<th>Performance Met (a=5 patients)</th>
<th>5 patients</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Data Completeness Numerator (7 patients)</td>
<td>7 patients</td>
</tr>
</tbody>
</table>

87.50%  
71.43%
Measure #275: Inflammatory Bowel Disease (IBD): Assessment of Hepatitis B Virus (HBV) Status Before Initiating Anti-TNF (Tumor Necrosis Factor) Therapy – National Quality Strategy Domain: Effective Clinical Care

2017 OPTIONS FOR INDIVIDUAL MEASURES:
REGISTRY ONLY

MEASURE TYPE:
Process

DESCRIPTION:
Percentage of patients aged 18 years and older with a diagnosis of inflammatory bowel disease (IBD) who had Hepatitis B Virus (HBV) status assessed and results interpreted within one year prior to receiving a first course of anti-TNF (tumor necrosis factor) therapy

INSTRUCTIONS:
This measure is to be reported a minimum of once per performance period for all patients with a diagnosis of inflammatory bowel disease seen during the performance period. This measure may be reported by eligible clinicians who perform the quality actions described in the measure based on the services provided and the measure-specific denominator coding.

Measure Reporting:
The listed denominator criteria is used to identify the intended patient population. The numerator options included in this specification are used to submit the quality actions allowed by the measure. The quality-data codes listed do not need to be submitted for registry-based submissions; however, these codes may be submitted for those registries that utilize claims data.

DENOMINATOR:
All patients aged 18 and older with a diagnosis of inflammatory bowel disease

Denominator Criteria (Eligible Cases):
Patients aged ≥ 18 years on date of encounter
AND
AND
Patient encounter during the performance period (CPT): 99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99341, 99342, 99343, 99344, 99345, 99347, 99348, 99349, 99350, 99406, 99407

NUMERATOR:
Patients who had HBV status assessed and results interpreted within one year prior to receiving a first course of anti-TNF therapy

Numerator Instructions: HBV status must be assessed by one of the following: HBsAG, HBsAG neutralization, HBCab total, HBCab IgM, HBSab.

Definition:
First Course of anti-TNF therapy – the first (ever) course of anti-TNF therapy

**Numerator Options:**

**Performance Met:** Hepatitis B Virus (HBV) status assessed and results interpreted within one year prior to receiving a first course of anti-TNF (tumor necrosis factor) therapy (3517F)

OR

**Performance Met:** Patient has documented immunity to hepatitis B and is receiving a first course of anti-TNF therapy (G8869)

OR

**Denominator Exception:** Documented reason for not assessing Hepatitis B Virus (HBV) status (e.g. patient not receiving a first course of anti-TNF therapy, patient declined) within one year prior to first course of anti-TNF therapy (G9504)

OR

**Performance Not Met:** Hepatitis B Virus (HBV) status not assessed and results interpreted within one year prior to receiving a first course of anti-TNF (tumor necrosis factor) therapy, reason not otherwise specified (3517F with 8P)

**RATIONALE:**
Before initiating biologic anti-TNF therapy for a patient with IBD, it is essential to screen the patient for HBV, as research has documented reactivation of HBV after anti-TNF therapy. This is a patient safety measure.

Opportunity for improvement: While there are a limited number of studies that investigate gaps in care for patients with IBD, the research that does exist identifies opportunities for improvement in care areas: 1) there is a lack of adherence to documentation of HBV screening, most noticeably in the use of disease-modifying anti-TNF drugs, and variations in care by practice setting, geographic region and physician specialty.

See FDA package labeling for anti-TNF biological agents — golimumab, certolizumab pegol, infliximab and adalimumab.

Reactivation of hepatitis B virus has been reported in patients who are carriers of this virus and are taking TNF blocker medicines. (Kaiser T, Moessner J, McHutchison JG, Tillmann HG. Life threatening liver disease during treatment with monoclonal antibodies. BMJ. 2009;338:b508)

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2017 Registry Individual Measure Flow

#275: Inflammatory Bowel Disease (IBD): Assessment of Hepatitis B Virus (HBV) Status Before Initiating Anti-TNF (Tumor Necrosis Factor) Therapy

**Denominator**

Start

Patient Age at Date of Service ≥ 18 Years

No

Not Included in Eligible Population/ Denominator

Yes

Diagnosis of Inflammatory Bowel Disease as Listed in Denominator*

No

Encounter as Listed in Denominator** (1/1/2017 thru 12/31/2017)

Yes

Include in Eligible Population/ Denominator (8 patients)

**Numerator**

(HBV) Status Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy

No

Patient has Documented Immunity to Hepatitis B and is Receiving a First Course of Anti-TNF Therapy

Yes

Data Completeness Met + Performance Met 3517F or equivalent (2 patients) a

No

Documented Reason for Not Assessing Hepatitis B Virus (HBV) Status Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy

Yes

Data Completeness Met + Performance Met G8869 or equivalent (2 patients) a

No

HBV Status Not Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy, Reason Not Otherwise Specified

Yes

Data Completeness Met + Performance Not Met 3517 8P or equivalent (2 patients) c

No

Data Completeness Not Met Quality-Data Code or equivalent not reported (1 patient) d

SAMPLE CALCULATIONS:

Data Completeness =

Performance Met (a + b = 4 patients) + Denominator Exception (b = 1 patient) + Performance Not Met (c = 2 patients) + Eligible Population / Denominator (d = 8 patients) = 7 patients = 87.50%

Performance Rate =

Performance Met (a + b = 4 patients) / Data Completeness Numerator (7 patients) - Denominator Exception (b = 1 patient) = 6 patients = 66.67%

*See the posted Measure Specification for specific coding and instructions to report this measure.

NOTE: Reporting Frequency: Patient-process
2017 Registry Individual Measure Flow

#275 Inflammatory Bowel Disease (IBD): Assessment of Hepatitis B Virus (HBV) Status Before Initiating Anti-TNF (Tumor Necrosis Factor) Therapy

Please refer to the specific section of the Measure Specification to identify the denominator and numerator information for use in reporting this Individual Measure.

1. Start with Denominator

2. Check Patient Age:
   a. If the Age is greater than or equal to 18 years of age on Date of Service equals No during the measurement period, do not include in Eligible Patient Population. Stop Processing.
   b. If the Age is greater than or equal to 18 years of age on Date of Service equals Yes during the measurement period, proceed to check Patient Diagnosis.

3. Check Patient Diagnosis:
   a. If Diagnosis of Inflammatory Bowel Disease as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Diagnosis of Inflammatory Bowel Disease as Listed in the Denominator equals Yes, proceed to Check Encounter Performed.

4. Check Encounter Performed:
   a. If Encounter as Listed in the Denominator equals No, do not include in Eligible Patient Population. Stop Processing.
   b. If Encounter as Listed in the Denominator equals Yes, include in Eligible Population.

5. Denominator Population:
   a. Denominator population is all Eligible Patients in the denominator. Denominator is represented as Denominator in the Sample Calculation listed at the end of this document. Letter d equals 8 patients in the sample calculation.

6. Start Numerator

7. Check (HBV) Status Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy:
   a. If (HBV) Status Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy equals Yes, include in Data Completeness Met and Performance Met.
   b. If (HBV) Status Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy equals No, proceed to Check Patient has Documented Immunity to Hepatitis B and is Receiving a First Course of Anti-TNF Therapy.

8. Check Patient has Documented Immunity to Hepatitis B and is Receiving a First Course of Anti-TNF Therapy:
a. If Patient has Documented Immunity to Hepatitis B and is Receiving a First Course of Anti-TNF Therapy equals Yes, include in Data Completeness Met and Performance Met.

b. Data Completeness Met and Performance Met is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter a² equals 2 patients in the Sample Calculation.

c. If Patient has Documented Immunity to Hepatitis B and is Receiving a First Course of Anti-TNF Therapy equals No, proceed to check Documented Reason for Not Assessing Hepatitis B Virus (HBV) Status Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy.

9. Check Documented Reason for Not Assessing Hepatitis B Virus (HBV) Status Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy:

a. If Documented Reason for Not Assessing Hepatitis B Virus (HBV) Status Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy equals Yes, include in Data Completeness Met and Denominator Exception.

b. Data Completeness Met and Denominator Exception is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter b equals 1 patient in the Sample Calculation.

c. If Documented Reason for Not Assessing Hepatitis B Virus (HBV) Status Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy equals No, proceed to Check HBV Status Not Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy, Reason Not Specified.

10. Check HBV Status Not Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy, Reason Not Specified:

a. If HBV Status Not Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy, Reason Not Specified equals Yes, include in Data Completeness Met and Performance Not Met.

b. Data Completeness Met and Performance Not Met is represented in the Data Completeness and Performance Rate in the Sample Calculation listed at the end of this document. Letter c equals 2 patients in the Sample Calculation.

c. If HBV Status Not Assessed and Results Interpreted Within 1 Year Prior to Receiving a First Course of Anti-TNF Therapy, Reason Not Specified equals No, proceed to Data Completeness Not Met.

11. Check Data Completeness Not Met:

a. Data Completeness Not Met, the Quality Data Code or equivalent was not reported. 1 patient has been subtracted from the Data Completeness numerator in sample calculation.

### SAMPLE CALCULATIONS:

<table>
<thead>
<tr>
<th>Data Completeness =</th>
<th>Performance Met (a² + a²=4 patients) + Denominator Exception (b=1 patient) + Performance Not Met (c=2 patients)</th>
<th>Eligible Population / Denominator (d=8 patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>= 7 patients = 87.50%</td>
<td>8 patients</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Rate =</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Met (a² + a²=4 patients)</td>
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<tr>
<td>Data Completeness Numerator (7 patients) – Denominator Exception (b=1 patient)</td>
</tr>
<tr>
<td>= 4 patients = 66.67%</td>
</tr>
</tbody>
</table>

Version 1.0

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11/15/2016