

Outpatient Parenteral Antimicrobial Therapy (OPAT)
Physician Performance Measurement Set

September 2007

OPAT Work Group

Alan Tice, MD (Co-Chair)
Raj Behal, MD, MPH (Co-Chair)

Donald R. Graham, MD
Cynthia Helstad, PhD
Lawrence Martinelli, MD
Barbara Nolet, RN, MA
Russell Petrak, MD
James C. Pile, MD
Mobeen Rathore, MD, FAAP
Nabin Shrestha, MD

Infectious Diseases Society of America

Jennifer J. Padberg, MPH

American Medical Association

Karen Kmetik, PhD
Erin O. Kaleba, MPH

Centers for Medicare and Medicaid Services

Sylvia Publ, MBA, RHIA

Consortium Consultants

Timothy Kresowik, MD
Becky Kresowik

Physician Performance Measures (Measures) and related data specifications, developed by the Physician Consortium for Performance Improvement™ (the Consortium), are intended to facilitate quality improvement activities by physicians.

These Measures are intended to assist physicians in enhancing quality of care. Measures are designed for use by any physician who manages the care of a patient for a specific condition or for prevention. These performance Measures are not clinical guidelines and do not establish a standard of medical care. The Consortium has not tested its Measures for all potential applications. The Consortium encourages the testing and evaluation of its Measures.

Measures are subject to review and may be revised or rescinded at any time by the Consortium. The Measures may not be altered without the prior written approval of the Consortium. Measures developed by the Consortium, while copyrighted, can be reproduced and distributed, without modification, for noncommercial purposes, e.g., use by health care providers in connection with their practices. Commercial use is defined as the sale, license, or distribution of the Measures for commercial gain, or incorporation of the Measures into a product or service that is sold, licensed or distributed for commercial gain. Commercial uses of the Measures require a license agreement between the user and American Medical Association, on behalf of the Consortium. Neither the Consortium nor its members shall be responsible for any use of these Measures.

THE MEASURES ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND

© 2007 American Medical Association. All Rights Reserved

Limited proprietary coding is contained in the Measure specifications for convenience. Users of the proprietary code sets should obtain all necessary licenses from the owners of these code sets. The AMA, the Consortium and its members disclaim all liability for use or accuracy of any Current Procedural Terminology (CPT®) or other coding contained in the specifications.

THE SPECIFICATIONS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND

Intended Audience and Patient Population:

These measures are intended for any physician managing the on-going care of patients receiving outpatient parenteral antimicrobial therapy (OPAT) in an office setting (ie, not at home). These measures are appropriate for patients of all ages.

These clinical performance measures are designed for individual quality improvement.

Measures for Quality Improvement Purposes Only:

1. Plan of care documentation at initial visit
2. Maintenance Visit – History
3. Maintenance Visit – Physical Examination
4. Laboratory Testing – CBC
5. Laboratory Testing – Creatinine or GFR

OPAT

Measure #1: Plan of care documentation at initial visit

This measure may be used as a Quality Improvement measure only.

Clinical Performance Measure
<p>Numerator: Patient visit in which there is a documented plan of care which includes, at a minimum:</p> <ul style="list-style-type: none">• Route of administration including location and type of vascular access• Antimicrobial name, dose, and anticipated duration of therapy• Plans for initial laboratory testing• Plans for next follow-up visit to physician• Documentation of patient education about infection, antimicrobial, and possible adverse effects
<p>Denominator: All initial patient visits for patients receiving an in-office antimicrobial infusion</p>
<p>Denominator Exclusion: None</p>
<p>Measure: Percentage of initial patient visits for patients receiving an in-office antimicrobial infusion in which a plan of care is in place which includes, at a minimum:</p> <ul style="list-style-type: none">• Route of administration including location and type of vascular access;• Antimicrobial name, dose, and anticipated duration of therapy• Plans for initial laboratory testing• Plans for next follow-up visit to physician <p>Documentation of patient education about infection, antimicrobial, and possible adverse effects</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>The role of the physician in OPAT has several unique aspects, and includes establishment of a diagnosis, determination of whether OPAT is appropriate, selection of antimicrobials, ordering of monitoring tests, and assessment at follow up visits. The frequency of patient follow-up visits with the supervising physician needs to be determined when a patient begins a course of OPAT. (Not ranked). (IDSA)</p>
<p>Rationale for the measure: To ensure coordinated, safe, effective care of a patient receiving OPAT, a detailed plan should be place at the initial visit. This measure assesses whether a plan with a minimum number of details (eg, route of administration, laboratory testing) is documented by the initial visit.</p>

OPAT

Measure #2: Maintenance Visit – History

This measure may be used as a Quality Improvement measure only.

Clinical Performance Measure
<p>Numerator: Patient visits during which the following symptoms (fever, rash, and diarrhea) were assessed and a history was taken which included asking about the following: pain at site, leakage, swelling (site or extremity), and erythema</p> <p>Denominator: All patient visits with a physician during which patient received an in-office antimicrobial infusion</p> <p>Denominator Exclusions: Documentation of medical reason(s) for not assessing the following symptoms: fever, rash, and diarrhea</p> <p>Measure: Percentage of patient visits for patients receiving an in-office antimicrobial infusion during which the following symptoms (fever, rash, and diarrhea) were assessed and a history was taken which included asking about the following: pain at site, leakage, swelling (site or extremity), and erythema</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>Patients or their caregivers must be able to assume responsibility for the infusion, the care of the vascular access device (VAD), and the care of the catheter infusion site, and be able to recognize and report new problems, such as rash, diarrhea, or fever. (Not ranked). (IDSA¹)</p> <p>The development of ipsilateral edema of the neck or arm in association with a PICC or other central catheter should prompt evaluation for a deep venous thrombosis, which usually requires removal of the device. (Not ranked). (IDSA¹)</p>
<p>Rationale for the measure: The intent of this measure is to assess whether and how often a patient receiving OPAT is being assessed for complications related to their therapy. It is suspected that OPAT patients are not always receiving a thorough history for symptoms related to therapy (such as leakage, swelling).</p>

OPAT

Measure #3: Maintenance Visit – Physical Examination

This measure may be used as a Quality Improvement measure only.

Clinical Performance Measure
<p>Numerator: Patient visits during which the patient's entrance site for OPAT was inspected for the following: leakage, swelling at site, extremity swelling, erythema, and tenderness <i>and</i> the patient's vital signs (temperature, pulse, respirations and blood pressure) were recorded</p> <p>Denominator: All patient visits during which patient received an in-office antimicrobial infusion</p> <p>Denominator Exclusion: None</p> <p>Measure: Percentage of patient visits for patients receiving an in-office antimicrobial infusion the patient's entrance site for OPAT was inspected for the following: leakage, swelling at site, extremity swelling, erythema, and tenderness <i>and</i> the patient's vital signs (temperature, pulse, respirations and blood pressure) were recorded</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>The entrance site should be examined for evidence of local phlebitis, induration, erythema, tenderness, and leakage. A health care practitioner should examine short and midline catheters at least twice per week and central catheters at least weekly. (Not ranked). (IDSA¹)</p> <p>The development of ipsilateral edema of the neck or arm in association with a PICC or other central catheter should prompt evaluation for a deep venous thrombosis, which usually requires removal of the device. (Not ranked). (IDSA¹)</p>
<p>Rationale for the measure: The intent of this measure is to assess whether and how often a patient receiving OPAT receives a physical examination of the entrance site to identify complications related to their therapy. It is suspected that OPAT patients are not optimally examined for entrance site signs of complication.</p>

OPAT

Measure #4: Laboratory Testing – CBC

This measure may be used as a Quality Improvement measure only.

Clinical Performance Measure
<p>Numerator: Number of calendar weeks during which a CBC panel is reviewed</p> <p>Denominator: Calendar weeks for all patients receiving an in-office antimicrobial infusion</p> <p>Denominator exclusions: Documentation of medical reason(s) for not reviewing a CBC panel Documentation of patient reason(s) for not reviewing a CBC panel</p> <p>Measure: Percentage of calendar weeks for all patients receiving an in-office antimicrobial infusion during which a CBC panel is reviewed</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>Even though an infection is responding, the need for regular laboratory monitoring remains. (Not ranked). (IDSA¹)</p> <p>Suggestions for laboratory parameters that should be monitored weekly during outpatient parenteral antimicrobial therapy (<i>see Table 1 at the end of this document</i>) (Not ranked). (IDSA¹)</p>
<p>Rationale for the measure: This measure is intended to assess whether or not a CBC test is reviewed on a weekly basis for patients receiving OPAT. It is insufficient for the managing physician to simply order the laboratory test; the critical aspect of this measure is that the results are <i>reviewed</i>.</p>

OPAT

Measure #5: Laboratory Testing – Creatinine or GFR

This measure may be used as a Quality Improvement measure only.

Clinical Performance Measure
<p>Numerator: Number of calendar weeks during which creatinine or GFR results are reviewed</p> <p>Denominator: Calendar weeks for all patients receiving an in-office antimicrobial infusion</p> <p>Denominator exclusions: Documentation of medical reason(s) for not reviewing creatinine or GFR results Documentation of patient reason(s) for not reviewing creatinine or GFR results</p> <p>Measure: Percentage of calendar weeks for all patients receiving an in-office antimicrobial infusion during which creatinine or GFR results are reviewed</p>
<p>The following clinical recommendation statements are quoted <u>verbatim</u> from the referenced clinical guidelines and represent the evidence base for the measure:</p> <p>Even though an infection is responding, the need for regular laboratory monitoring remains. (Not ranked). (IDSA¹)</p> <p>Suggestions for laboratory parameters that should be monitored weekly during outpatient parenteral antimicrobial therapy (<i>see Table 1 at the end of this document</i>) (Not ranked). (IDSA¹)</p>
<p>Rationale for the measure: This measure is intended to assess whether or not creatinine or GFR testing is reviewed on a weekly basis for patients receiving OPAT. It is insufficient for the managing physician to simply order the laboratory tests; the critical aspect of this measure is that the results are <i>reviewed</i>.</p> <p>Since this measure is appropriate for all patients receiving OPAT (without specifying which antibiotic they are receiving), creatinine and/or GFR were determined to be the most important components of a chemistry profile to monitor.</p>

Table 1. Suggestions for parameters that should be monitored weekly during outpatient parenteral antimicrobial therapy (OPAT)¹

Antimicrobial agents, by class	Frequency of testing, no. of times per week				Other
	Complete blood count ^a	Renal function tests ^b	Potassium level	Liver enzyme levels	
Aminoglycosides (gentamicin, tobramycin, amikacin)	Once	Twice	...	...	Clinical monitoring for vestibular and hearing dysfunction at each visit; serum concentrations as clinically indicated
β-Lactams (penicillins, cephalosporins, aztreonam, carbapenems)	Once	Once	...	...^c	
Antipseudomonal penicillins	Once	Once	Once	...	
Fluoroquinolones	...	...	...	Once	
Miscellaneous					
Clindamycin	Once	Once	...	Once	CPK at least weekly
Daptomycin	Once	Once	...	Once	
Linezolid	Once	...	...	...	Blood glucose level daily; chemistry profile ^d twice per week
Pentamidine	Twice	Twice	Twice	...	
Quinupristin-dalfopristin	...	...	...	Once	
Trimethoprim-sulfamethoxazole	Once	Once	Once	...	Monitor for arthralgias
Vancomycin	Once	Once	...	...	Serum levels as clinically indicated
Antifungals					
Amphotericin B, including lipid formulations	Once	Twice	Twice	Once	Magnesium level once per week
Azole antifungal agents	Once	Once	...	Once	
Caspofungin	...	...	...	Once	
Antifungals					
Amphotericin B, including lipid formulations	Once	Twice	Twice	Once	Magnesium level once per week
Azole antifungal agents	Once	Once	...	Once	
Caspofungin	...	...	...	Once	
Antivirals					
Ganciclovir	Twice	Once	...	...	Magnesium level once per week
Acyclovir	Once	Once	...	...
Foscarnet	Once	Twice	Twice	Once	
Cidofovir	Once	Once	Once	...	Chemistry profile ^c with calcium and magnesium level once per week
					Urinalysis and chemistry profile ^c once per week

NOTE. Frequencies are minimal criteria for patients with normal or stable renal function. Different criteria may apply for children.

- a. Should include a differential count of leukocytes and platelet count.
- b. Renal function tests may include serum creatinine and blood urea nitrogen levels and urinalysis. Trough levels appear to be the earliest indication of aminoglycoside toxicity.
- c. Weekly liver enzyme tests with oxacillin, nafcillin, and carbapenems.
- d. A chemistry profile should include liver enzyme levels as well as electrolyte levels

References

1 Tice AD, Rehm SJ, Dalovisio JR, Bradley JS, Martinelli LP, Graham DR, Brooks Gainer R, Kunkel MJ, Yancey RW, Williams DN. Practice guidelines for outpatient parenteral antimicrobial therapy. *Clin Infect Dis*. 2004 Jun 15;38(12):1651-72.