NATIONAL QUALITY FORUM
Driving measurable health improvements together

Primary Care and Chronic Illness, Spring 2021 Cycle: CDP Report

TECHNICAL REPORT
FEBRUARY 14, 2022

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https://www.qualityforum.org

Contents

Executive Summary

The National Quality Forum (NQF) has a body of endorsed measures related to the provision of primary care and the management of chronic disease, which is overseen by the Primary Care and Chronic Illness (PCCI) Standing Committee. This Standing Committee is convened with the recognition that the most common contact point for many people within the United States (U.S.) healthcare system is their primary care provider. Primary care practitioners work with each patient to manage the health of that individual. In the primary care setting, diagnosis and treatment focus on the health of the entire patient and not a single disease. At present, there are 61 NQF-endorsed PCCI measures. Further information regarding PCCI Standing Committee meetings can be found on NQF's PCCI project webpage. This Standing Committee oversees the measurement portfolio used to advance accountability and quality in the delivery of primary care services.

The patient-clinician relationship is a central feature of primary care, and recent developments in the delivery of healthcare have tended to limit continuity of care.[1] Continuity is a benefit in healthcare and an important part of patient-centric care, the goal of which is to provide healthcare that is responsive to a patient's needs and respectful of their preferences and values. The *Journal of Family Practice* defines *continuity of care* as "care over time by a single individual or team of healthcare professionals and to effective and timely communication of health information."[2] It is influenced by multiple factors, including demographics; interprofessional, organizational, and patient-healthcare professional relationships; the role of receptionists; and more.

For this project, the Standing Committee evaluated one newly submitted measure against NQF's standard evaluation criteria. The Standing Committee recommended the measure for endorsement. The Consensus Standards Approval Committee (CSAC) upheld the Standing Committee's recommendation and endorsed the measure.

The endorsed measure is listed below:

- **NQF #3617** Measuring the Value-Functions of Primary Care: Provider Level Continuity of Care Measure (American Board of Family Medicine [ABFM])

A brief summary of the measure is included in the body of the report; a detailed summary of the Standing Committee's discussion and ratings of the criteria for the measure is in Appendix A.

Introduction

High quality performance measurement that captures the complexity of primary care and chronic illnesses is essential to improve the diagnosis, treatment, and management of conditions. Chronic illnesses are long-lasting or persistent health conditions or diseases that patients and providers must manage on an ongoing basis. For the spring 2021 cycle, the Standing Committee reviewed one measure related to continuity of care.

Primary care providers serve as the most common contact point for many people within the U.S. healthcare system. As such, primary care has a central role in improving the health of people and populations. Continuity of care is an essential element of primary care; it involves collaborative care management, including the patient and their care team, with the goal of achieving high quality medical care over time.[3] Studies have shown that continuity of care reduces care utilization, hospitalizations, and costs.[4] Continuity is a benefit in healthcare and an important part of patient-centric care, the goal of which is to provide healthcare that is responsive to a patient's needs and respectful of their preferences and values. The *Journal of Family Practice* defines *continuity of care* as "care over time by a single individual or team of healthcare professionals and to effective and timely communication of health information. "[2] It is influenced by multiple factors, including demographics; interprofessional, organizational, and patient-healthcare professional relationships; the role of receptionists; and more.

NQF Portfolio of Performance Measures for Primary Care and Chronic Illness Conditions

The PCCI Standing Committee (Appendix C) oversees NQF's portfolio of PCCI measures (Appendix B), which includes measures on ears, nose, throat, and eye care; endocrinology; infectious disease; musculoskeletal care; and pulmonology. This portfolio contains 61 measures: 46 process measures, five outcome measures, one patient-reported outcome performance measure (PRO-PM), four intermediate outcome measures, three trial use, and two composite measures.

Other measures related to Primary Care and Chronic Illness have been assigned to other portfolios. These include functional status measures (Patient Experience and Function), opioid use measures (Patient Safety, Behavioral Health and Substance Use), diabetes-related admission rate measures (Prevention and Population Health), and a variety of condition- or population-specific measures (Cardiovascular, Geriatrics and Palliative Care, etc.).

Primary Care and Chronic Illness Measure Evaluation

On July 8, 2021, the PCCI Standing Committee evaluated one new measure against NQF's standard measure evaluation criteria.

Table 1. Primary Care and Chronic Illness Measure Evaluation Summary

Measure Summary	Maintenance	New	Total
Measures under review	0	1	1
Endorsed measures	0	1	1

Measure Summary	Maintenance	New	Total
Measures withdrawn from consideration	1	0	1

Comments Received Prior to Standing Committee Evaluation

NQF accepts comments on endorsed measures on an ongoing basis through the Quality Positioning System (QPS). In addition, NQF solicits comments for a continuous 16-week period during each evaluation cycle via an online tool located on the project webpage. For this evaluation cycle, the commenting period opened on April 29, 2021, and pre-commenting closed on June 10, 2021. As of June 10, 2021, no comments were submitted or shared with the Standing Committee prior to the measure evaluation meeting (Appendix F).

Comments Received After Standing Committee Evaluation

The continuous 16-week public commenting period closed on September 17, 2021. Following the Standing Committee's evaluation of the measure under review, NQF received one comment from one organization pertaining to the draft report and to the measure under review (Appendix G). The comment on the measure under review has also been summarized in Appendix A. Throughout the 16-week continuous public commenting period, NQF members have the opportunity to express their support ("support" or "do not support") for the measure to inform the Standing Committee's recommendations during the commenting period. During the 16-week public commenting period, NQF did not receive any expressions of support for the measure under endorsement consideration for the current cycle.

Summary of Measure Evaluation

The following brief summary of the measure evaluation highlights the major issues that the Standing Committee considered. Details of the Standing Committee's discussion and ratings of the criteria for the measure are included in Appendix A.

NQF #3617 Measuring the Value-Functions of Primary Care: Provider Level Continuity of Care (ABFM): Endorsed

Description: This is a process measure evaluating primary care physicians (PCPs); for each physician, their denominator is all of the patients they saw during the evaluation period who had at least two PCP visits (could include visits to other PCPs), and the numerator is the number of those patients whose Bice-Boxerman Continuity of Care Index is greater than or equal to 0.7. The Bice-Boxerman index is a validated measure of patient-level care continuity that ranges from 0 to 1; "0" reflects completely disjointed care (a different provider for each visit), and "1" reflects complete continuity with the same provider for all visits; **Measure Type**: Process; **Level of Analysis**: Clinician: Individual; **Setting of Care**: Outpatient Services; **Data Source**: Claims

This clinician-level measure was newly submitted for endorsement. It is publicly reported nationally in the Quality Payment Program's (QPP) Merit-Based Incentive Payment System (MIPS). Concerns were raised regarding the evidence that the developer submitted and that it was largely related to U.S.

Medicare patients and could impede patient choice. In response to these concerns, the developer noted that several U.S.-based studies with broader populations existed and although they were not included in the submission, these studies could still be provided for additional support. Additionally, the developer noted that a number of studies show that measuring continuity of care can enable change, which would ultimately improve outcomes. The developer reiterated that there was evidence showing that continuity of care should be complementary to patient choice and does not necessarily impede access. After hearing from the developer, the Standing Committee agreed that the evidence provided supported this measure and passed the measure on the evidence criterion. There were also concerns regarding the performance gap that the developer submitted, namely that it was largely related to patient panel size, the frequency of patient visits, and the role of nurse practitioners/physician assistants. After some discussion, the Standing Committee agreed that substantial gaps exist and voted to pass the measure on the performance gap criterion. The Standing Committee had no further discussion or comments and passed the measure on validity as well as feasibility and use. During the discussion on usability, concerns were raised regarding the 12-month measurement period, and that it may penalize primary care providers who either work part-time or take extended leave. The Standing Committee passed the measure on usability during offline voting and recommended the measure for endorsement. No comments were received prior to the measure evaluation meeting.

NQF received one post-evaluation comment (Appendix G) on the Standing Committee's recommendations and Draft Technical Report. The comment, which was submitted by the measure developer, posited that further research is needed on primary care continuity, specifically healthcare resources utilization, but that existing evidence has proven to be sufficient to indicate that future policy should promote primary care continuity and build upon the efforts of prior healthcare policy. The developer furnished additional evidence to support that assertion. Specifically, the developer made a reference towards a substantial number of studies that demonstrate the extent to which patients value the measure itself and continuity of care; the relationship between continuity of care and improved primary care utilization; and the relationship between continuity of care and decreased hospitalizations, emergency department (ED) utilization, and overall cost. The post-comment meeting was cancelled because no comments were received that were authored by stakeholders external to the developer. Furthermore, the comment that the developer submitted did not require further discussion or adjudication from the Standing Committee. The CSAC did not have any concerns and upheld the Standing Committee's recommendation to endorse the measure.

Measures Withdrawn From Consideration

One measure previously endorsed by NQF was not resubmitted for maintenance of endorsement or was withdrawn during the endorsement evaluation process. Endorsement for this measure was removed.

Table 2. Measure Withdrawn From Consideration

Measure	Reason for Withdrawal
#3153 Continuity of Primary Care for Children With Medical Complexity	Developer can no longer support the measure.

References

1 Continuity of Care | Advanced Medical Reviews. https://www.admere.com/amr-blog/continuity-of-care-improving-patient-outcomes. Last accessed July 2021.

2 Fan VS, Burman M, McDonell MB, et al. Continuity of care and other determinants of patient satisfaction with primary care. *J Gen Intern Med*. 2005;20(3):226-233.

3 Continuity of Care, Definition of. https://www.aafp.org/about/policies/all/continuity-of-care-definition.html. Last accessed July 2021.

4 Bazemore A, Petterson S, Peterson LE, et al. Higher Primary Care Physician Continuity is Associated With Lower Costs and Hospitalizations. *The Annals of Family Medicine*. 2018;16(6):492-497.

Appendix A: Details of Measure Evaluation

Rating Scale: H=High; **M**=Moderate; **L**=Low; **I**=Insufficient; **NA**=Not Applicable

Vote totals may differ between measure criteria and between measures as Standing Committee members often have to join calls late or leave calls early. NQF ensures that quorum is maintained for all live voting. All voting outcomes are calculated using the number of Standing Committee members present during the meeting for that vote as the denominator. Denominator vote counts may vary throughout the criteria due to intermittent Standing Committee attendance fluctuation. The vote totals reflect members present and eligible to vote at the time of the vote. Quorum (a minimum of 16 out of 23 active Standing Committee members present) was reached and maintained for the duration of the measure evaluation meeting on July 8, 2021.

Measure Endorsed

NQF #3617 Measuring the Value-Functions of Primary Care: Provider Level Continuity of Care Measure

Measure Worksheet | Specifications

Description: This is a process measure evaluating primary care physicians (PCPs); for each physician, their denominator is all of the patients they saw during the evaluation period who had at least 2 PCP visits (could include visits to other PCPs), and the numerator is the number of those patients whose Bice-Boxerman Continuity of Care Index is >= 0.7.

The Bice-Boxerman index is a validated measure of patient-level care continuity that ranges from 0 to 1; "0" reflects completely disjointed care (a different provider for each visit), and "1" reflects complete continuity with the same provider for all visits.

Numerator Statement: The numerator is the number of patients with a continuity index of at least 0.7.

Denominator Statement: The denominator is the total number of patients with continuous enrollment with at least 2 visits to any PCP during the measurement period. The requirement of continuous enrollment ensures that all of the patient encounters will be captured in the data, and the requirement of at least 2 visits is necessary to calculate a Continuity of Care index (the notion of "continuity" is not applicable to someone who only has 1 physician visit [i.e., there needs to be at least 2 visits to determine whether they consistently visit the same or different physicians]).

Exclusions: Since Continuity of Care is about seeing the same clinician, we did not consider patients with only one visit as an exclusion; therefore, we do not have any denominator exclusions.

Adjustment/Stratification: No risk adjustment or risk stratification occurred. No stratification of measure results is required.

Level of Analysis: Clinician: Individual

Setting of Care: Outpatient Services

Type of Measure: Process

Data Source: Claims

Measure Steward: American Board of Family Medicine (ABFM)

STANDING COMMITTEE MEETING: July 8, 2021

1. Importance to Measure and Report: The measure meets the Importance criteria.

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Total Votes = 17; H-0; M-11; L-6; I-0**; 1b. Performance Gap: **Total Votes = 16; H-0; M-13; L-3; I-0**

Rationale

- The Standing Committee noted that the developer provided seven studies published between 2007 and 2019.
- The Standing Committee noted that only two studies were conducted in the U.S., and both studies focused on the Medicare population, which was a fraction of the population included in

the measure. The developer noted that several U.S.-based studies with broader populations existed; although they were not included in the submission, these studies could still be provided for additional support.
- The Standing Committee stated it was unclear whether tracking continuity of care would result in better outcomes. The developer noted that a number of studies show that measuring continuity of care can enable change, which would ultimately improve outcomes.
- The Standing Committee questioned whether the studies quoted in the measure submission included all patients or only patients with chronic illnesses. The developer clarified that the studies included both groups.
- The Standing Committee expressed concern with the structure of the measure, which prioritized continuity of care over access and patient convenience. According to the developer, existing evidence shows that continuity of care should be complementary to patient choice; the developer also highlighted another study showing that continuity of care does not necessarily impede access.
- The Standing Committee agreed that the evidence provided supported the measure.
- The Standing Committee noted the mean performance of 0.2763 with a standard deviation of 0.3058 based on Optum claims data, which indicated low performance. The Standing Committee also noted that disparities in care data were not included; in contrast, literature addressing disparities in care on the specific focus of measurement was included.
- The Standing Committee agreed that the performance gap was enough to warrant a national performance measure.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria.

(2a. Reliability precise specifications, testing; 2b. Validity testing, threats to validity)

2a. Reliability: **Total Votes = 18; H-2; M-12; L-4; I-0**; 2b. Validity: **Total Votes = 17; H-2; M-9; L-6; I-0**

Rationale

- The Standing Committee noted the focus of the measure: PCPs; however, primary care is often team based. A patient may see a different physician, nurse practitioner, or physician assistant at the same practice. The Standing Committee requested more information on how team-based care would be accounted for and whether the patient seeing another member of the team at the same practice would count against the primary physician.
- The Standing Committee also questioned whether teaching hospitals would be at a disadvantage due to the use of residents to provide care.
- The developer acknowledged that many PCPs utilize a team-based approach but reassured the Standing Committee that it would not count against the physician. The developer further clarified that the data are pulled using claims data. While the measure does focus on PCPs, it could be easily altered to review a broader group if a practice wanted to use the measure for internal improvement purposes. The developer added that many teaching hospitals are able to code using the resident's information, and the use of residents should not affect/have an impact on the measure.
- The Standing Committee noted that reliability testing was conducted at the performance-score level using a beta-binomial model to determine signal-to-noise; they also highlighted that as the sample size increased, the reliability scores improved, which further suggested that the low reliability values may be a function of small sample sizes as opposed to the inherent reliability of the measure itself.
- The Standing Committee noted that validity testing was conducted at the measure-score level using empirical validity testing.
- The Standing Committee expressed concern that clinicians with a small number of patients might be penalized because they do not see patients frequently. The developer stated that 12

months was chosen due to public reporting criteria; however, practices can extend the window of measurement for quality improvement.

3. Feasibility: Total Votes = 17; H-3; M-10; L-4; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale

- The Standing Committee noted that the measure's data elements are generated or collected and used by healthcare personnel during the provision of care; all data elements are in defined fields in electronic clinical data.

4. Use and Usability

(4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Total Votes = 17; Pass-15; No Pass-2** 4b. Usability: **Total Votes = 17; H-2; M-10; L-4; I-1**

Rationale

- The Standing Committee noted the measure has been approved for use in the Centers for Medicare & Medicaid Services' (CMS) MIPS program and has been used in the PRIME Qualified Clinical Data Registry (QCDR) since the 2018 measurement period.
- The Standing Committee stated that users of the measure are able to provide feedback and noted that the developer has received mostly positive feedback. The Standing Committee noted that the developer reported a recent update to the measure specifications; however, current data cannot be used to compare performance over time.

5. Related and Competing Measures

- No related or competing measures were noted.

6. Standing Committee Recommendation for Endorsement: **Total Votes = 17; Yes-13; No-4**

7. Public and Member Comment

- The measure developer posited that further research is needed on primary care continuity, specifically utilization. The developer also asserted that existing evidence has proven to be sufficient to indicate that future policy should promote primary care continuity and build upon the efforts of prior healthcare policy. As a result, the developer provided substantial secondary evidence that demonstrates the extent to which patients value the measure itself and continuity of care; the relationship between continuity of care and improved primary care utilization; and the relationship between continuity of care and decreased hospitalizations, ED utilization, and overall cost.
- Because the Standing Committee recommended the measure for endorsement, the only comment received was submitted by the developer; however, the comment did not require deliberation from the Standing Committee. As a result, the spring 2021 post-comment meeting was not convened.

8. Consensus Standards Approval Committee (CSAC) Vote: Y-10; N-0 (December 1, 2021): Endorsed

- The CSAC upheld the Standing Committee's decision to recommend the measure for endorsement.

9. Appeals

- No appeals were received.

Appendix B: Primary Care and Chronic Illness Portfolio—Use in Federal Programs*

NQF	Title	Federal Programs (Finalized or Implemented)
0046	Screening for Osteoporosis for Women 65-85 Years of Age	Healthcare Effectiveness Data and Information Set (HEDIS) Quality Measure Rating System Merit-Based Incentive Payment System (MIPS) Program Physician Compare
0047	Asthma: Pharmacologic Therapy for Persistent Asthma	None
0053	Osteoporosis Management in Women Who Had a Fracture	HEDIS Quality Measure Rating System Medicare Part C Star Rating Merit-Based Incentive Payment System (MIPS) Program
0055	Comprehensive Diabetes Care: Eye Exam (Retinal) Performed	HEDIS Quality Measure Rating System Marketplace Quality Rating System (QRS) Medicare Part C Star Rating)
0056	Comprehensive Diabetes Care: Foot Exam	None
0057	Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) Testing	HEDIS Quality Measure Rating System
0058	Avoidance of Antibiotic Treatment in Adults With Acute Bronchitis (AAB)	None
0059	Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) Poor Control (>9.0%)	HEDIS Quality Measure Rating System Medicaid Medicare Shared Savings Program Merit-Based Incentive Payment System (MIPS) Program
0061	Comprehensive Diabetes Care: Blood Pressure Control (<140/90 mm Hg)	HEDIS Quality Measure Rating System
0062	Comprehensive Diabetes Care: Medical Attention for Nephropathy	HEDIS Quality Measure Rating System Medicare Part C Star Rating

NQF	Title	**Federal Programs** (Finalized or Implemented)
0069	Appropriate Treatment for Children With Upper Respiratory Infection (URI)	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program Marketplace Quality Rating System (QRS) HEDIS Quality Measure Rating System
0086	Primary Open-Angle Glaucoma (POAG): Optic Nerve Evaluation	Physicians Compare
0086e	Primary Open-Angle Glaucoma (POAG): Optic Nerve Evaluation	None
0087	Age-Related Macular Degeneration: Dilated Macular Examination	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
0088	Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy	None
0088e	Diabetic Retinopathy: Documentation of Presence or Absence of Macular Edema and Level of Severity of Retinopathy	None
0091	COPD: Spirometry Evaluation	Physicians Compare HEDIS Quality Measure Rating System
0102	COPD: Inhaled Bronchodilator Therapy	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
0118	Anti-Lipid Treatment Discharge	None
0405	HIV/AIDS: Pneumocystis Jiroveci Pneumonia (PCP) Prophylaxis	None
0409	HIV/AIDS: Sexually Transmitted Diseases – Screening for Chlamydia, Gonorrhea, and Syphilis	None
0416	Diabetic Foot & Ankle Care, Ulcer Prevention – Evaluation of Footwear	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
0417	Diabetic Foot & Ankle Care, Peripheral Neuropathy – Neurological Evaluation	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
0541	Proportion of Days Covered (PDC): Three Rates by Therapeutic Category	Marketplace Quality Rating System Medicare Part D Star Rating

NQF	Title	**Federal Programs** (Finalized or Implemented)
0563	Primary Open-Angle Glaucoma: Reduction of Intraocular Pressure by 15% or Documentation of a Plan of Care	Merit-Based Incentive Payment System (MIPS) Program
0565	Cataracts: 20/40 or Better Visual Acuity Within 90 Days Following Cataract Surgery	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
0565e	Cataracts: 20/40 or Better Visual Acuity Within 90 Days Following Cataract Surgery	None
0566	Age-Related Macular Degeneration (AMD): Counseling on Antioxidant Supplement	None
0575	Comprehensive Diabetes Care: Hemoglobin A1c (HbA1c) Control (<8.0%)	HEDIS Quality Measure Rating System Marketplace Quality Rating System (QRS))
0577	Use of Spirometry Testing in the Assessment and Diagnosis of COPD	None
0653	Acute Otitis Externa: Topical Therapy	Physicians Compare
0654	Acute Otitis Externa: Systemic Antimicrobial Therapy – Avoidance of Inappropriate Use	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
0655	Otitis Media With Effusion: Antihistamines or Decongestants – Avoidance of Inappropriate Use	None
0657	Otitis Media With Effusion: Systemic Antimicrobials – Avoidance of Inappropriate Use	Merit-Based Incentive Payment System (MIPS) Program
0729	Optimal Diabetes Care	Physicians Compare
1800	Asthma Medication Ratio	HEDIS Quality Measure Rating System Marketplace Quality Rating System Medicaid
2079	HIV Medical Visit Frequency	Physicians Compare Merit-Based Incentive Payment System (MIPS) Program
2080	Gap in HIV Medical Visits	None
2082	HIV Viral Load Suppression	Medicaid Merit-Based Incentive Payment System (MIPS) Program
2083	Prescription of HIV Antiretroviral Therapy	None

NQF	Title	**Federal Programs** (Finalized or Implemented)
2522	Rheumatoid Arthritis: Tuberculosis Screening (Recommended for eMeasure Trial Approval)	None
2523	Rheumatoid Arthritis: Assessment of Disease Activity	Merit-Based Incentive Payment System (MIPS) Program Physician Compare
2524e	Rheumatoid Arthritis: Patient-Reported Functional Status Assessment	None
2525e	Rheumatoid Arthritis: Disease Modifying Anti-Rheumatic Drug (DMARD) Therapy (Recommended for eMeasure Trial Approval)	None
2797	Transcranial Doppler Ultrasonography Screening Among Children With Sickle Cell Anemia	None
2811e	Acute Otitis Media - Appropriate First-Line Antibiotics	None
2856	Pharmacotherapy Management of COPD Exacerbation	Medicare Shared Savings Program Physician Compare
3059e	One-Time Screening for Hepatitis C Virus (HCV) for Patients at Risk (Recommended for eMeasure Trial Approval)	None
3086	Population Level HIV Viral Load Suppression	None
3166	Antibiotic Prophylaxis Among Children With Sickle Cell Anemia	None
3209e	HIV Medical Visit Frequency	None
3210e	HIV Viral Load Suppression	None
3211e	Prescription of HIV Antiretroviral Therapy	None
3294	STS Lobectomy for Lung Cancer Composite Score	None
3332	Psychosocial Screening Using the Pediatric Symptom Checklist-Tool (PSC-Tool)	None
3475e	Appropriate Use of DXA Scans in Women Under 65 Years Who Do Not Meet the Risk Factor Profile for Osteoporotic Fracture	Medicaid Promoting Interoperability Program for Eligible Professionals Merit-Based Incentive Payment System (MIPS)

NQF	Title	**Federal Programs** (Finalized or Implemented)
3532	Discouraging the Routine Use of Occupational and/or Supervised Physical Therapy After Carpal Tunnel Release	None
3568	Person-Centered Primary Care Measure PRO-PM	None
3595	Hydroxyurea Use Among Children With Sickle Cell Anemia	None
3599	Pediatric Asthma Emergency Department Use	None
3617	Measuring the Value-Functions of Primary Care: Provider Level Continuity of Care Measure	None

*CMS Measures Inventory Tool Last Accessed February 4, 2022

Appendix C: Primary Care and Chronic Illness Standing Committee and NQF Staff

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Appendix D: Measure Specifications

NQF #3617 Measuring the Value-Functions of Primary Care: Provider Level Continuity of Care Measure

STEWARD

American Board of Family Medicine

DESCRIPTION

This is a process measure evaluating primary care physicians; for each physician, their denominator is all of the patients they saw during the evaluation period who had at least 2 PCP visits (could include visits to other PCPs), and the numerator is the number of those patients whose Bice-Boxerman Continuity of Care Index is >= 0.7.

The Bice-Boxerman index is a validated measure of patient-level care continuity that ranges from 0 to 1; 0 reflects completely disjointed care (a different provider for each visit) and 1 reflects complete continuity with the same provider for all visits.

TYPE

Process

DATA SOURCE

Claims Administrative claims data.

LEVEL

Clinician: Individual

SETTING

Outpatient Services

NUMERATOR STATEMENT

The numerator is the number of patients with a continuity index of at least 0.7.

NUMERATOR DETAILS

The numerator equals the number of eligible patients who have a Bice-Boxerman continuity index score of at least 0.7 during the measurement time period.
For each patient, the continuity index score is calculated using the Bice-Boxerman Continuity of Care calculated as follows: Bice Boxerman-Continuity of Care Patient = See Appendix A.1 page 2 for calculation (since the NQF system only allows HTML text, it strips “special characters” in formulas, thus we had to add the calculation to the appendix).

Where k is the number of providers, n_i is the number of visits to provider i, and N is the total number of visits. (Note that it is necessary that the patient has at least two visits.)
The index can range from 0 to 1, the higher the number the greater the Continuity of Care. If someone has all of their visits with a single provider, their index would equal 1; while someone who saw a different provider for each visit (e.g., 1 visit each to 2 or more providers) would have an index of 0. Someone who saw one provider 5 times and a second provider 1 time would have an index equal to 0.67.

Compared to lower scores (e.g., 0.6 or lower), continuity index scores of 0.7 or higher have been associated significantly lower Medicare expenditures and significantly lower odds of hospitalization1.

1. Higher Primary Care Physician Continuity is Associated with Lower Costs and Hospitalizations. Bazemore et al. Annals of Family Medicine. 2018. 16, 492-497..

DENOMINATOR STATEMENT

The denominator is the total number of patients with continuous enrollment with at least 2 visits to any primary care physicians in the measurement period. The requirement of continuous enrollment ensures that all of the patient encounters will be captured in the data, and the requirement of at least 2 visits is necessary to calculate a Continuity of Care index (the notion of "continuity" isn't applicable to someone who only has 1 physician visit (i.e., there needs to be at least 2 visits to determine if they consistently visit the same or different physicians).

DENOMINATOR DETAILS

For each physician, the denominator is calculated by summing the total number of patients with two or more primary care visits who had at least one of those visits with that physician. This means if a patient saw more than one PCP, they would be in the denominator for each of those PCPs. When using claims, patients must have continuous enrollment over the measurement period (i.e., from 2018-07-01 to 2019-06-30).

EXCLUSIONS

Since Continuity of Care is about seeing the same clinician, we did not consider patients with only one visit as an exclusion; therefore, we do not have any denominator exclusions.

EXCLUSION DETAILS

Not applicable.

RISK ADJUSTMENT

No risk adjustment or risk stratification

STRATIFICATION

No stratification of measure results is required.

TYPE SCORE

Rate/proportion/better quality = higher score

ALGORITHM

Step 1: Identify all patients with at least 2 visits to a Primary Care Provider in either the office or outpatient setting. In the Optum data, this reflects the situation where a claim indicates that a primary care physician was seen and the place of service is in office or other outpatient place of service. This is done using the health care services categorization code (i.e., HCCC=01) to identify primary care physicians and the place of service codes
(i.e., POS= 01,02,03,04,11,12,13,14,15,16,17,41,42,49,50,53,57,60, or 71). More detail is provided in the data dictionary.

Step 2: Retain the unique physician identifier (NPI) associated with each visit for the patients in step 1. A patient will appear in the denominator for each physician they see during the time period (i.e., if someone sees Dr. "A" once and Dr. "B" three times, that patient will appear in the denominator for Dr. A and the denominator for Dr. B).

Step3: Calculate patient continuity index score using the Bice-Boxerman calculation as follows: Bice-Boxerman-Continuity of Care Patient = See Appendix A.1 page 2 for calculation (since the NQF system only allows HTML text, it strips "special characters" in formulas; thus, we had to add the calculation to the appendix).

Where k is the number of providers, n_i is the number of visits to provider i, and N is the total number of visits. Note that it is necessary that the patient has at least two visits.

So, in the example above, the patient who saw Dr. A once and Dr. B three times would have a Bice-Boxerman Continuity of Care index of: [(12 + 3^2)] – 4 / 12 = 0.5. Some simple calculations would show that if this person had only seen Dr. B for all 4 visits their Continuity of Care index would be = 1.0, and similarly, if another visit was added to another PCP (Dr. C), their Continuity of Care index would be less than 0.5, reflecting their experience of more disparate care.

Step 4: Determine if the patient level continuity has Met or Not Met the 0.7 threshold. For each patient, if their index is >=0.7, then they are included in the numerator. In the above example, the patient (using the original scenario) would be in the denominator for both Dr. A and Dr. B but would NOT be in either numerator.

Step 5: Divide the numerator by the denominator. This reflects the proportion of patients that provider saw who have a Continuity of Care index of at least 0.7. 151674| 150289

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None

Appendix E: Related and Competing Measures

No related or competing measures were identified.

Appendix F: Pre-Evaluation Comments

No comments were received as of June 10, 2021.

Appendix G: Post-Evaluation Comments

Comment received as of June 3, 2021. One pre-evaluation comment was submitted for NQF #3617.

American Board of Family Medicine

Continuity of care is considered a crucial aspect of family medicine, which makes it an important variable to investigate in order to assess its impact. Interpersonal continuity of care can be defined as the ongoing relationship between the physician and the patient.

The American Board of Family Medicine (ABFM) identified 66 studies since 2002 that examine continuity and outcomes, analyzing either healthcare costs or some form of healthcare utilization. A wide variety of study types and sample sizes have been used to measure this concept. Continuity itself is measured using both pre-existing developed measures, such as the Bice-Boxerman, Patient-sided continuity/Usual provider continuity index (UPC), Sequential Continuity (SECON) and others, as well as study-specific measures using survey responses. The pre-existing scales tend to examine either the density, dispersion, or sequence of physician visits. In general, more visits to a single primary care physician will result in a higher continuity score.

Existing research on primary care continuity's impact on healthcare policy outcomes can be grouped into two categories: cost and utilization. As it pertains to cost, the vast majority of studies found that improved primary care continuity reduces a variety of healthcare costs. This includes total costs, ED costs, inpatient costs, primary care costs, and costs for specific conditions or treatments. Drug and pharmaceutical costs were the only form of costs that didn't uniformly decrease as continuity increased across each study that examined it.

Many different forms of healthcare utilization were assessed, but most commonly hospitalizations or emergency department (ED) utilization were analyzed. For hospitalizations, Ambulatory Care Sensitive Conditions (ACSC) hospitalizations, diabetes-related hospitalizations, and all-cause hospitalizations were most frequently analyzed. Most studies that measured it found that continuity decreased the likelihood or rate of hospitalizations. ED visits showed a similar pattern, with continuity reducing ED utilization. There was some variation in these studies' outcomes, with one study finding that continuity had a greater impact on urban populations, and others analyzing the likelihood of using the ED as compared to other healthcare services, such as primary care.

Many studies did not limit their utilization to hospitalizations and ED visits. Several studies analyzed the impact of continuity on the likelihood of receiving desirable utilization, such as utilization for a variety of cancer screenings, testing for other diseases, and immunizations, among others. Continuity appeared to be less related to this form of utilization, with only approximately half of the 12 studies that examined it finding that continuity increased desirable utilization. However, this could possibly be due to a lack of volume of studies analyzing it, as ED utilization and hospitalizations were examined in a significantly greater number of studies. Similarly, other forms of undesirable utilization were also analyzed by several

studies. This type of utilization includes measurements of overuse of medical procedures, over-prescribing medications, and total inpatient and outpatient days, among others. These also revealed conflicting results, with studies finding that continuity reduced utilization of some forms of undesirable utilization, but had no effect on some, and even increased utilization for a few procedures. Lastly, 11 studies analyzed some form of primary care utilization. These measures included, but were not limited to, using primary care resources during scheduled or out-of-hours times, the frequency of primary care visits, and the likelihood of using primary care over other healthcare services. Overall, about half of the studies found that better continuity led to improved primary care utilization.

In summary, the majority of the evidence indicates that continuity of care will improve policy outcomes, though the association may differ for different types of outcomes. Continuity has been heavily researched throughout the past 2 decades. The findings of such studies overwhelmingly indicate that primary care continuity should be promoted. More research should continue to be conducted to improve our understanding of primary care continuity, specifically in the areas of utilization where less research has been conducted (desirable utilization and primary care utilization). However, the existing evidence has proven to be sufficient to indicate that future policy should promote primary care continuity and build on the efforts of prior healthcare policy.

The following studies demonstrates the relationship between Continuity of Care and Decreased Hospitalizations:

1. Lin W, Huang I-C, Wang S-L, Yang M-C, Yaung C-L. Continuity of diabetes care is associated with avoidable hospitalizations: evidence from Taiwan's National Health Insurance scheme.International Journal for Quality in Health Care. 2010;22(1):3-8. doi:10.1093/intqhc/mzp059

2. Enlow E, Passarella M, Lorch SA. Continuity of care in infancy and early childhood health outcomes. Pediatrics. 2017;140(1). doi:10.1542/peds.2017-0339

3. Reddy A, Wong E, Canamucio A, et al. Association between continuity and team-based care and health care utilization: an observational study of medicare-eligible veterans in VA patient aligned care team. Health Serv Res. 2018;53(Suppl Suppl 3):5201-5218. doi:10.1111/1475-6773.13042

4. Menec VH, Sirski M, Attawar D, Katz A. Does continuity of care with a family physician reduce hospitalizations among older adults? Journal of Health Services Research & Policy. 2006;11(4):196-201. doi:10.1258/135581906778476562

5. Johnston KJ, Hockenberry JM. Are two heads better than one or do too many cooks spoil the broth? The trade-off between physician division of labor and patient continuity of care for older adults with complex chronic conditions. Health Serv Res. 2016;51(6):2176-2205. doi:10.1111/1475-6773.12600

6. Skarshaug LJ, Kaspersen SL, Bjørngaard JH, Pape K. How does general practitioner discontinuity affect healthcare utilisation? An observational cohort study of 2.4 million Norwegians 2007-2017. BMJ Open. 2021;11(2):e042391. Published 2021 Feb 16. doi:10.1136/bmjopen-2020-042391

7. Van Loenen T, Faber MJ, Westert GP, Van den Berg MJ. The impact of primary care organization on avoidable hospital admissions for diabetes in 23 countries. Scand J Prim Health Care. 2016;34(1):5-12. do i:10.3109/02813432.2015.1132883

8. Jacobs R, Aylott L, Dare C, et al. The association between primary care quality and hospital care utilisation. NIHR Journals Library; 2020. Accessed March 4, 2021. Chapter 4 https://www.ncbi.nlm.nih.gov/books/NBK558195/

9. Cree M, Bell N r., Johnson D, Carriere K c. Increased continuity of care associated with decreased hospital care and emergency department visits for patients with asthma. Disease Management. 2006;9(1):63-71. doi:10.1089/dis.2006.9.63

10. Ride J, Kasteridis P, Gutacker N, et al. Impact of family practice continuity of care on unplanned hospital use for people with serious mental illness. Health Serv Res. 2019;54(6):1316-1325. doi:10.1111/1475-6773.1

11. Bentler SE, Morgan RO, Virnig BA, Wolinsky FD. The association of longitudinal and interpersonal continuity of care with emergency department use, hospitalization, and mortality among medicare beneficiaries. PLoS One. 2014;9(12). doi:10.1371/journal.pone.0115088

12. Cheng SH, Chen CC, Hou YF. A longitudinal examination of continuity of care and avoidable hospitalization: evidence from a universal coverage health care system. Arch Intern Med. 2010;170(18):1671-1677. doi:10.1001/ archinternmed.2010.340

13. Knight JC, Dowden JJ, Worrall GJ, Gadag VG, Murphy MM. Does higher continuity of family physician care reduce hospitalizations in elderly people with diabetes? Population Health Management. 2009;12(2):81-86. doi:10.1089/pop.2008.0020

14. Kuo H-C, Cheng S-F, Hung J-L, Xiong J-H, Tang P-L. Continuity of care and multiple chronic conditions impact frequent use of outpatient services. Health Informatics J. 2020;26(1):318-327. doi:10.1177/1460458218824720

15. Gudzune KA, Bleich SN, Richards TM, Weiner JP, Hodges K, Clark JM. Doctor shopping by overweight and obese patients is associated with increased healthcare utilization. Obesity (Silver Spring). 2013;21(7):1328- 1334. doi:10.1002/oby.20189

16. Katz DA, McCoy KD, Vaughan-Sarrazin MS. Does greater continuity of Veterans Administration primary care reduce emergency department visits and hospitalization in older veterans? J Am Geriatr Soc. 2015;63(12):2510-2518. doi:10.1111/jgs.13841

17. Bayliss EA, Ellis JL, Shoup JA, Zeng C, McQuillan DB, Steiner JF. Effect of continuity of care on hospital utilization for seniors with multiple medical conditions in an integrated health care system. Ann Fam Med. 2015;13(2):123-129. doi:10.1370/afm.1739

18. Chen Y-Y, Hsieh C-I, Chung K-P. Continuity of care, follow-up care, and outcomes among breast cancer survivors. Int J Environ Res Public Health. 2019;16(17):3050. doi:10.3390/ijerph16173050

19. Barker I, Steventon A, Deeny SR. Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross sectional study of routinely collected, person level data. BMJ. 2017;356:j84. doi:10.1136/bmj.j84

20. Nyweide DJ, Anthony DL, Bynum JP, et al. Continuity of care and the risk of preventable hospitalization in older adults. JAMA Intern Med. 2013;173(20):1879-1885. doi:10.1001/jamainternmed.2013.10059

21. Solomon SR, Gooding HC, Reyes Nieva H, Linder JA. Acute care utilization by patients after graduation of their resident primary care physicians. J Gen Intern Med. 2015;30(11):1611-1617. doi:10.1007/s11606-015- 3305-7

The following studies demonstrate Continuity of Care and Decreased ED Utilization:

1. Enlow E, Passarella M, Lorch SA. Continuity of care in infancy and early childhood health outcomes. Pediatrics. 2017;140(1). doi:10.1542/peds.2017-0339

2. Reddy A, Wong E, Canamucio A, et al. Association between continuity and team-based care and health care utilization: an observational study of medicare-eligible veterans in VA patient aligned care team. Health Serv Res. 2018;53(Suppl Suppl 3):5201-5218. doi:10.1111/1475-6773.13042

3. Huang ST, Wu SC, Hung YN, Lin IP. Effects of continuity of care on emergency department utilization in children with asthma. Am J Manag Care. 2016;22(1):e31-e37. Published 2016 Jan 1.

4. Johnston KJ, Hockenberry JM. Are two heads better than one or do too many cooks spoil the broth? The trade-off between physician division of labor and patient continuity of care for older adults with complex chronic conditions. Health Serv Res. 2016;51(6):2176-2205. doi:10.1111/1475-6773.12600

5. Brousseau DC, Meurer JR, Isenberg ML, Kuhn EM, Gorelick MH. Association between infant continuity of care and pediatric emergency department utilization. Pediatrics. 2004;113(4):738-741. doi:10.1542/peds.113.4.738

6. Ionescu-Ittu R, McCusker J, Ciampi A, et al. Continuity of primary care and emergency department utilization among elderly people. CMAJ. 2007;177(11):1362-1368. doi:10.1503/cmaj.061615

7. Burge F, Lawson B, Johnston G. Family physician continuity of care and emergency department use in end-of-life cancer care. Med Care. 2003;41(8):992-1001. doi:10.1097/00005650-200308000-00012

8. Arthur KC, Mangione-Smith R, Burkhart Q, et al. Quality of care for children with medical complexity: An analysis of continuity of care as a potential quality indicator. Academic Pediatrics. 2018;18(6):669-676. doi:10.1016/j.acap.2018.04.009

9. Holderness H, Angier H, Huguet N, et al. Where do Oregon Medicaid enrollees seek outpatient care post-Affordable Care Act Medicaid expansion? Med Care. 2019;57(10):788-794. doi:10.1097/MLR.0000000000001189

10. Chaiyachati KH, Gordon K, Long T, et al. Continuity in a VA patient-centered medical home reduces emergency department visits. PLoS One. 2014;9(5). doi:10.1371/journal.pone.0096356

11. Nyweide DJ, Anthony DL, Bynum JP, et al. Continuity of care and the risk of preventable hospitalization in older adults. JAMA Intern Med. 2013;173(20):1879-1885. doi:10.1001/jamainternmed.2013.10059

12. Jacobs R, Aylott L, Dare C, et al. The association between primary care quality and hospital care utilisation. NIHR Journals Library; 2020. Accessed March 4, 2021. Chapter 4 https://www.ncbi.nlm.nih.gov/books/NBK558195/

13. Cree M, Bell N r., Johnson D, Carriere K c. Increased continuity of care associated with decreased hospital care and emergency department visits for patients with asthma. Disease Management. 2006;9(1):63-71. doi:10.1089/dis.2006.9.63

14. Ride J, Kasteridis P, Gutacker N, et al. Impact of family practice continuity of care on unplanned hospital use for people with serious mental illness. Health Serv Res. 2019;54(6):1316-1325. doi:10.1111/1475-6773.1

15. Bentler SE, Morgan RO, Virnig BA, Wolinsky FD. The association of longitudinal and interpersonal continuity of care with emergency department use, hospitalization, and mortality among medicare beneficiaries. PLoS One. 2014;9(12). doi:10.1371/journal.pone.0115088

16. Kuo H-C, Cheng S-F, Hung J-L, Xiong J-H, Tang P-L. Continuity of care and multiple chronic conditions impact frequent use of outpatient services. Health Informatics J. 2020;26(1):318-327. doi:10.1177/1460458218824720

17. Gudzune KA, Bleich SN, Richards TM, Weiner JP, Hodges K, Clark JM. Doctor shopping by overweight and obese patients is associated with increased healthcare utilization. Obesity (Silver Spring). 2013;21(7):1328- 1334. doi:10.1002/oby.20189

18. Katz DA, McCoy KD, Vaughan-Sarrazin MS. Does greater continuity of Veterans Administration primary care reduce emergency department visits and hospitalization in older veterans? J Am Geriatr Soc. 2015;63(12):2510-2518. doi:10.1111/jgs.13841

19. Bayliss EA, Ellis JL, Shoup JA, Zeng C, McQuillan DB, Steiner JF. Effect of continuity of care on hospital utilization for seniors with multiple medical conditions in an integrated health care system. Ann Fam Med. 2015;13(2):123-129. doi:10.1370/afm.1739

20. Chen Y-Y, Hsieh C-I, Chung K-P. Continuity of care, follow-up care, and outcomes among breast cancer survivors. Int J Environ Res Public Health. 2019;16(17):3050. doi:10.3390/ijerph16173050

21. Solomon SR, Gooding HC, Reyes Nieva H, Linder JA. Acute care utilization by patients after graduation of their resident primary care physicians. J Gen Intern Med. 2015;30(11):1611-1617. doi:10.1007/s11606-015- 3305-7

22. Coleman K, Reid RJ, Johnson E, et al. Implications of reassigning patients for the medical home: a case study. Ann Fam Med. 2010;8(6):493-498. doi:10.1370/afm.1190

23. Stein A, Harzheim E, Costa M, Busnello E, Rodrigues L. The relevance of continuity of care: a solution for the chaos in the emergency services. Family Practice. 2002;19(2):207-210. doi:10.1093/fampra/19.2.207

24. Pourat N, Davis AC, Chen X, Vrungos S, Kominski GF. In California, primary care continuity was associated with reduced emergency department use and fewer hospitalizations. Health Aff (Millwood). 2015;34(7):1113- 1120. doi:10.1377/hlthaff.2014.1165

25. Romaire MA, Haber SG, Wensky SG, McCall N. Primary care and specialty providers: an assessment of continuity of care, utilization, and expenditures. Medical Care. 2014;52(12):1042-1049. doi:10.1097/ MLR.0000000000000246

26. Amjad H, Carmichael D, Austin AM, Chang C-H, Bynum JP. Continuity of care and healthcare utilization in older adults with dementia in fee-for-service Medicare. JAMA Intern Med. 2016;176(9):1371-1378. doi:10.1001/ jamainternmed.2016.3553

27. Hussey PS, Schneider EC, Rudin RS, Fox DS, Lai J, Pollack CE. Continuity and the costs of care for chronic disease. JAMA Intern Med. 2014;174(5):742-748. doi:10.1001/jamainternmed.2014.245

28. Dreiher J, Comaneshter DS, Rosenbluth Y, Battat E, Bitterman H, Cohen AD. The association between continuity of care in the community and health outcomes: a population-based study. Isr J Health Policy Res. 2012;1:21. doi:10.1186/2045-4015-1-21

29. McBurney PG, Simpson KN, Darden PM. Potential cost savings of decreased emergency department visits through increased continuity in a pediatric medical home. Ambulatory Pediatrics. 2004;4(3):204-208. doi:10.1367/A03-069R.1

30. Anderson LH, Flottemesch TJ, Fontaine P, Solberg LI, Asche SE. Patient medical group continuity and healthcare utilization. Am J Manag Care. 2012;18(8):450-457

31. Cheng SH, Chen CC, Hou YF. A longitudinal examination of continuity of care and avoidable hospitalization: evidence from a universal coverage health care system. Arch Intern Med. 2010;170(18):1671-1677. doi:10.1001/ archinternmed.2010.340

32. Chen AY, Chen B, Kuo CC. Better continuity of care improves the quality of end-of-life care among elderly patients with end-stage renal disease. Sci Rep. 2020;10(1):19716. Published 2020 Nov 12. doi:10.1038/ s41598-020-76707-w

The following studies demonstrate Continuity of Care and Increased Desirable Utilization:

1. Enlow E, Passarella M, Lorch SA. Continuity of care in infancy and early childhood health outcomes. Pediatrics. 2017;140(1). doi:10.1542/peds.2017-0339

2. Johnston KJ, Hockenberry JM. Are two heads better than one or do too many cooks spoil the broth? The trade-off between physician division of labor and patient continuity of care for older adults with complex chronic conditions. Health Serv Res. 2016;51(6):2176-2205. doi:10.1111/1475-6773.12600

3. Fenton JJ, Franks P, Reid RJ, Elmore JG, Baldwin L-M. Continuity of care and cancer screening among health plan enrollees. Medical Care. 2008;46(1):58-62. doi:10.1097/MLR.0b013e318148493a

4. Reid RJ, Scholes D, Grothaus L, et al. Is provider continuity associated with chlamydia screening for adolescent and young adult women? Preventive Medicine. 2005;41(5):865-872. doi:10.1016/j.ypmed.2005.08.005

5. Meyers DJ, Cole MB, Rahman M, et al. The association of provider and practice factors with HIV ART adherence. AIDS. 2019;33(13):2081-2089. doi:10.1097/QAD.0000000000002316

6. Irigoyen M, Findley SE, Chen S, et al. Early continuity of care and immunization coverage. Ambulatory Pediatrics. 2004;4(3):199-203. doi:10.1367/A03-138R1.1

7. Warren JR, Falster MO, Tran B, Jorm L. Association of continuity of primary care and statin adherence. PLoS One. 2015;10(10). doi:10.1371/journal.pone.0140008

8. Bradford WD, Kaste LM, Nietert PJ. Continuity of medical care, health insurance, and nonmedical advice in the first 3 years of life. Medical Care. 2004;42(1):91-98. doi:10.1097/01.mlr.0000102368.39193.5a

9. Flores AI, Bilker WB, Alessandrini EA. Effects of continuity of care in infancy on receipt of lead, anemia, and tuberculosis Screening. Pediatrics. 2008;121(3):e399-e406. doi:10.1542/peds.2007-1497

10. Mendoza-Sassi R, Béria JU. Prevalence of having a regular doctor, associated factors, and the effect on health services utilization: a population-based study in Southern Brazil. Cadernos de Saúde Pública. 2003;19(5):1257-1266. doi:10.1590/S0102-311X2003000500004

11. Koopman RJ, Mainous III AG, Baker R, Gill JM, Gilbert GE. Continuity of care and recognition of diabetes, hypertension, and hypercholesterolemia. Arch Intern Med. 2003;163(11):1357. doi:10.1001/archinte.163.11.1357

12. Robles S, Anderson GF. Continuity of care and its effect on prescription drug use among Medicare beneficiaries with hypertension. Medical Care. 2011;49(5):516-521. doi:10.1097/MLR.0b013e31820fb10c

The following studies demonstrate Continuity of Care and Improved Primary Care Utilization:

1. Enlow E, Passarella M, Lorch SA. Continuity of care in infancy and early childhood health outcomes. Pediatrics. 2017;140(1). doi:10.1542/peds.2017-0339

2. Menec VH, Sirski M, Attawar D, Katz A. Does continuity of care with a family physician reduce hospitalizations among older adults? Journal of Health Services Research & Policy. 2006;11(4):196-201. doi:10.1258/135581906778476562

3. McDermott A, Sanderson E, Metcalfe C, et al. Continuity of care as a predictor of ongoing frequent attendance in primary care: a retrospective cohort study. BJGP Open. 2020;4(5). doi:10.3399/bjgpopen20X101083

4. Skarshaug LJ, Kaspersen SL, Bjørngaard JH, Pape K. How does general practitioner discontinuity affect healthcare utilisation? An observational cohort study of 2.4 million Norwegians 2007-2017. BMJ Open. 2021;11(2):e042391. Published 2021 Feb 16. doi:10.1136/bmjopen-2020-042391

5. Kuo H-C, Cheng S-F, Hung J-L, Xiong J-H, Tang P-L. Continuity of care and multiple chronic conditions impact frequent use of outpatient services. Health Informatics J. 2020;26(1):318-327. doi:10.1177/1460458218824720

6. Solomon SR, Gooding HC, Reyes Nieva H, Linder JA. Acute care utilization by patients after graduation of their resident primary care physicians. J Gen Intern Med. 2015;30(11):1611-1617. doi:10.1007/s11606-015- 3305-7

7. Coleman K, Reid RJ, Johnson E, et al. Implications of reassigning patients for the medical home: a case study. Ann Fam Med. 2010;8(6):493-498. doi:10.1370/afm.1190

8. Thanh NX, Rapoport J. Health services utilization of people having and not having a regular doctor in Canada. The International Journal of Health Planning and Management. 2017;32(2):180-188. doi:https:// doi.org/10.1002/hpm.2338

9. Tsai J, Shi L, Yu W-L, Lebrun LA. Usual source of care and the quality of medical care experiences: a cross-sectional survey of patients from a Taiwanese community. Medical Care. 2010;48(7):628-634. doi:10.1097/ MLR.0b013e3181dbdf76

10. Langton JM, Wong ST, Burge F, et al. Population segments as a tool for health care performance reporting: an exploratory study in the Canadian province of British Columbia. BMC Fam Pract. 2020;21:98. doi:10.1186/ s12875-020-01141-w

11. Dreiher J, Comaneshter DS, Rosenbluth Y, Battat E, Bitterman H, Cohen AD. The association between continuity of care in the community and health outcomes: a population-based study. Isr J Health Policy Res. 2012;1:21. doi:10.1186/2045-4015-1-21

The following studies demonstrate Continuity of Care and Decreased Cost:

1. Lei L, Intrator O, Conwell Y, Fortinsky RH, Cai S. Continuity of care and health care cost among community-dwelling older adult veterans living with dementia. Health Serv Res. 2021;56(3):378-388. doi:10.1111/1475- 6773.13541

2. Hollander MJ, Kadlec H. Financial implications of the continuity of primary care. Perm J. 2015;19(1):4-10. doi:10.7812/TPP/14-107

3. De Maeseneer JM, De Prins L, Gosset C, Heyerick J. Provider continuity in family medicine: does it make a difference for total health care costs? Ann Fam Med. 2003;1(3):144-148. doi:10.1370/afm.75

4. Jacobs R, Aylott L, Dare C, et al. The association between primary care quality and multisector costs. NIHR Journals Library; 2020. Accessed March 15, 2021. Chapter 7 [1]https://www.ncbi.nlm.nih.gov/books/NBK55818

5. Langton JM, Wong ST, Burge F, et al. Population segments as a tool for health care performance reporting: an exploratory study in the Canadian province of British Columbia. BMC Fam Pract. 2020;21:98. doi:10.1186/ s12875-020-01141-w

6. Romaire MA, Haber SG, Wensky SG, McCall N. Primary care and specialty providers: an assessment of continuity of care, utilization, and expenditures. Medical Care. 2014;52(12):1042-1049. doi:10.1097/ MLR.0000000000000246

7. Robles S, Anderson GF. Continuity of care and its effect on prescription drug use among Medicare beneficiaries with hypertension. Medical Care. 2011;49(5):516-521. doi:10.1097/MLR.0b013e31820fb10c

8. Jung B, Cho KH, Lee DH, Kim S. The effects of continuity of care on hospital utilization in patients with knee osteoarthritis: analysis of Nationwide insurance data. BMC Health Serv Res. 2018;18:152. doi:10.1186/ s12913-018-2951-y

9. Hong J-S, Kang H-C. Continuity of ambulatory care and health outcomes in adult patients with type 2 diabetes in Korea. Health Policy. 2013;109(2):158-165. doi:10.1016/j.healthpol.2012.09.009

10. Amjad H, Carmichael D, Austin AM, Chang C-H, Bynum JP. Continuity of care and healthcare utilization in older adults with dementia in fee-for-service Medicare. JAMA Intern Med. 2016;176(9):1371-1378. doi:10.1001/ jamainternmed.2016.3553

11. Hussey PS, Schneider EC, Rudin RS, Fox DS, Lai J, Pollack CE. Continuity and the costs of care for chronic disease. JAMA Intern Med. 2014;174(5):742-748. doi:10.1001/jamainternmed.2014.245

12. Shin DW, Cho J, Yang HK, et al. Impact of continuity of care on mortality and health care costs: a nationwide cohort study in Korea. Ann Fam Med. 2014;12(6):534-541. doi:10.1370/afm.1685

13. Bazemore A, Petterson S, Peterson LE, Bruno R, Chung Y, Phillips RL. Higher primary care physician continuity is associated with lower costs and hospitalizations. Ann Fam Med. 2018;16(6):492-497. doi:10.1370/ afm.2308

14. Dreiher J, Comaneshter DS, Rosenbluth Y, Battat E, Bitterman H, Cohen AD. The association between continuity of care in the community and health outcomes: a population-based study. Isr J Health Policy Res. 2012;1:21. doi:10.1186/2045-4015-1-21

15. McBurney PG, Simpson KN, Darden PM. Potential cost savings of decreased emergency department visits through increased continuity in a pediatric medical home. Ambulatory Pediatrics. 2004;4(3):204-208. doi:10.1367/A03-069R.1

16. Anderson LH, Flottemesch TJ, Fontaine P, Solberg LI, Asche SE. Patient medical group continuity and healthcare utilization. Am J Manag Care. 2012;18(8):450-457

17. Cheng SH, Chen CC, Hou YF. A longitudinal examination of continuity of care and avoidable hospitalization: evidence from a universal coverage health care system. Arch Intern Med. 2010;170(18):1671-1677. doi:10.1001/ archinternmed.2010.340

18. Chen AY, Chen B, Kuo CC. Better continuity of care improves the quality of end-of-life care among elderly patients with end-stage renal disease. Sci Rep. 2020;10(1):19716. Published 2020 Nov 12. doi:10.1038/ s41598-020-76707-w

References

1. https://www.ncbi.nlm.nih.gov/books/NBK55818

Evidence that Continuity of Care is Valued by Patients:

The Continuity of Care quality measure was developed with extensive input from patients and physicians during measure development, implementation, and testing. Crowd-sourced samples of 412 patients, 525 primary care physicians, and 85 healthcare payers were asked to describe what value in primary care means to them and the same question was asked in a 2 1/2-day international conference consisting of 70 primary care and health services experts (with funding by AHRQ)—Continuity of Care was clearly identified as a primary care function of critical importance to both patients and physicians. There is more evidence over three decades to support Continuity of Care's value to clinicians, patients, and our healthcare system than for most other current measures in CMS' portfolio.

The following journal articles demonstrate that patients value this measure:

1. A UK study found that seeing a known and trusted doctor was especially important to patients with chronic, complex, and emotional problems. doi:10.1186/1471-2296-7-11

2. Other recent research in primary care in Europe has found that patients seek interpersonal continuity of care with a GP in order to have sense of security based on four core foundations – (1) coherence (2) confidence in care (3) trusting relationship and (4) access. 10.1093/fampra/cmi103.

3. Earlier studies confirm the importance of empathy, relationship, and a sense of partnership. PMID: 8517195

4. Consulting the regular doctor, trust and satisfaction with consultations are associated, and patients who consult a doctor they trust report the highest levels of satisfaction with consultations. https://doi.org/10.1080/0283430310000528

5. A group studied priorities for care among 225 patients attending the medical clinics of a university teaching hospital. Eight attributes of medical care were considered: continuity, coordination, comprehensiveness, availability, convenience, cost, expertise, and compassion. Continuity of care was the highest priority for these patients, while cost and convenience were lowest. https://doi.org/10.1097/00005650-198302000-00010

6. A study demonstrated consistent and significant positive relationship exists between interpersonal continuity of care and patient satisfaction. 10.1370/afm.91

7. Self-reported continuity of care is strongly associated with higher patient satisfaction. This suggests that improving continuity of care may improve patient satisfaction with physicians as well as with their health care organization. 10.1111/j.1525-1497.2005.40135.x

8. Available literature reflects it is likely a significant association exists between interpersonal continuity and improved preventive care and reduced hospitalizations. 10.1370/afm.285

9. A study demonstrated evidence of relationships between the attributes of FM and the service outcomes measured by indicators of satisfaction, health, and cost. User satisfaction was associated with accessibility, continuity of care, consultation time and the doctor–patient relationship. Improvement in patient's health was related to continuity, consultation time, doctor–patient relationship and the implementation of preventive activities. Coordination of care showed mixed results with health outcomes. Continuity, consultation time, doctor–patient communication and prevention were cost-effective in the primary care setting. doi:10.1093/fampra/cmi112

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