

<b>eMeasure Title</b>	<b>Controlling High Blood Pressure</b>		
<b>eMeasure Identifier (Measure Authoring Tool)</b>	165	<b>eMeasure Version number</b>	5.0.000
<b>NQF Number</b>	0018	<b>GUID</b>	abdc37cc-bac6-4156-9b91-d1be2c8b7268
<b>Measurement Period</b>	January 1, 20XX through December 31, 20XX		
<b>Measure Steward</b>	National Committee for Quality Assurance		
<b>Measure Developer</b>	National Committee for Quality Assurance		
<b>Endorsed By</b>	National Quality Forum		
<b>Description</b>	Percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period		
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<b>Measure Scoring</b>	Proportion		
<b>Measure Type</b>	Process		
<b>Stratification</b>	None		
<b>Risk Adjustment</b>	None		
<b>Rate Aggregation</b>	None		
<b>Rationale</b>	<p>Hypertension, or high blood pressure, is a very common and dangerous condition that increases risk for heart disease and stroke, two of the leading causes of death for Americans (Farley et al., 2010). Compared with other dietary, lifestyle, and metabolic risk factors, high blood pressure is the leading cause of death in women and the second-leading cause of death in men, behind smoking (Danaei et al., 2011). Approximately 1 in 3 U.S. adults, or about 70 million people, have high blood pressure but only about half (52%) of these people have their high blood pressure under control. Additionally, data from NHANES 2011 to 2012 found that 17.2% of U.S. adults are not aware they have hypertension (Nwankwo et al., 2013). Projections show that by 2030, approximately 41.4% of US adults will have hypertension, an increase of 8.4% from 2012 estimates (Heidenreich et al., 2011).</p> <p>The estimated direct and indirect cost of high blood pressure for 2011 is \$46.4 billion. This total includes direct costs such as the cost of physicians and other health professionals, hospital services, prescribed medications and home health care, as well as indirect costs due to loss of productivity from premature mortality (Mozaffarian et al., 2015). Projections show that by 2030, the total cost of high blood pressure could increase to an estimated \$274 billion (Heidenreich et al., 2011).</p> <p>Better control of blood pressure has been shown to significantly reduce the probability that undesirable and costly outcomes will occur. In clinical trials, antihypertensive therapy has been associated with reductions in stroke incidence (35-40%), myocardial infarction (20-25%) and heart failure (&gt;50%) (Chobanian et al., 2003). Thus, the relationship between the measure (control of hypertension) and the long-term clinical outcomes listed is well established.</p>		
<b>Clinical</b>	The United States Preventive Services Task Force (2007) recommends screening for high blood pressure in adults age		

<b>Recommendation Statement</b>	18 years and older. This is a grade A recommendation.  Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (2003): Treating systolic blood pressure and diastolic blood pressure to targets that are <140/90 mmHg is associated with a decrease in cardiovascular disease complications.
<b>Improvement Notation</b>	Higher score indicates better quality
<b>Reference</b>	Centers for Disease Control and Prevention (CDC). Prevalence of self-reported cardiovascular disease among persons aged $\geq$ 35 years with diabetes: United States, 1997-2005. MMWR Morb Mortal Wkly Rep. 2007;56:1129-1132.
<b>Reference</b>	Chobanian AV, Bakris GL, Black HR, et al; National Heart, Lung, and Blood Institute Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure; National High Blood Pressure Education Program Coordinating Committee. The seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. JAMA. 2003;289(19):2560-2572.
<b>Reference</b>	Danaei G, Ding EL, Mozaffarian D, Taylor B, Rehm J, Murray CJ, Ezzati M. The preventable causes of death in the United States: comparative risk assessment of dietary, lifestyle, and metabolic risk factors [published correction appears in PLoS Med. 2011;8. doi: 10.1371/annotation/0ef47acd-9dcc-4296-a897-872d182cde57]. PLoS Med. 2009;6:e1000058.
<b>Reference</b>	Farley TA, Dalal MA, Mostashari F, Frieden TR. Deaths preventable in the US by improvements in the use of clinical preventive services. Am J Prev Med. 2010;38:600-9.
<b>Reference</b>	Heidenreich, P.A., J.G. Trogdon, O.A. Khavjou, et al. 2011. "Forecasting the future of cardiovascular disease in the United States: a policy statement from the American Heart Association." Circulation.123:933-944.
<b>Reference</b>	Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. 2003. "Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure." NIH Publication No. 035233.
<b>Reference</b>	Mozaffarian, D., E.J. Benjamin, A.S. Go, et al. 2015. "Heart disease and stroke statistics-2015 update: a report from the American Heart Association." Circulation. 131:e29-e322. doi: 10.1161/CIR.000000000000152
<b>Reference</b>	Nwankwo T, Yoon SS, Burt V, Gu Q. Hypertension among adults in the US: National Health and Nutrition Examination Survey, 2011-2012. NCHS Data Brief, No. 133. Hyattsville, MD: National Center for Health Statistics, Centers for Disease Control and Prevention, US Dept of Health and Human Services, 2013.
<b>Reference</b>	U.S. Preventive Services Task Force. 2007. "Screening for high blood pressure: U.S. Preventive Services Task Force reaffirmation recommendation statement." Ann Intern Med 147(11):783-6.
<b>Definition</b>	None
<b>Guidance</b>	In reference to the numerator element, only blood pressure readings performed by a clinician in the provider office are acceptable for numerator compliance with this measure. Blood pressure readings from the patient's home (including readings directly from monitoring devices) are not acceptable.  If no blood pressure is recorded during the measurement period, the patient's blood pressure is assumed "not controlled."  If there are multiple blood pressure readings on the same day, use the lowest systolic and the lowest diastolic reading as the most recent blood pressure reading.
<b>Transmission Format</b>	TBD
<b>Initial Population</b>	Patients 18-85 years of age who had a diagnosis of essential hypertension within the first six months of the measurement period or any time prior to the measurement period
<b>Denominator</b>	Equals Initial Population
<b>Denominator Exclusions</b>	Patients with evidence of end stage renal disease (ESRD), dialysis or renal transplant before or during the measurement period. Also exclude patients with a diagnosis of pregnancy during the measurement period.
<b>Numerator</b>	Patients whose blood pressure at the most recent visit is adequately controlled (systolic blood pressure < 140 mmHg and diastolic blood pressure < 90 mmHg) during the measurement period
<b>Numerator Exclusions</b>	Not Applicable
<b>Denominator Exceptions</b>	None
<b>Supplemental Data Elements</b>	For every patient evaluated by this measure also identify payer, race, ethnicity and sex

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## Population Criteria

- **Initial Population =**
  - AND: Age >= 18 year(s) at: "Measurement Period"
  - AND: Age < 85 year(s) at: "Measurement Period"
  - AND: "Occurrence A of Diagnosis: Essential Hypertension" satisfies any:
    - < 6 month(s) starts after start of "Measurement Period"
    - satisfies all:
      - starts before start of "Measurement Period"
      - overlaps "Measurement Period"
  - AND: Union of:
    - "Encounter, Performed: Office Visit"
    - "Encounter, Performed: Face-to-Face Interaction"
    - "Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up"
    - "Encounter, Performed: Preventive Care Services-Initial Office Visit, 18 and Up"
    - "Encounter, Performed: Home Healthcare Services"
    - "Encounter, Performed: Annual Wellness Visit"
    - during "Measurement Period"
- **Denominator =**
  - AND: Initial Population
- **Denominator Exclusions =**
  - OR: Union of:
    - "Diagnosis: Pregnancy"
    - "Diagnosis: End Stage Renal Disease"
    - "Diagnosis: Chronic Kidney Disease, Stage 5"
    - overlaps "Measurement Period"
  - OR: Union of:
    - "Procedure, Performed: Vascular Access for Dialysis"
    - "Encounter, Performed: ESRD Monthly Outpatient Services"
    - "Procedure, Performed: Kidney Transplant"
    - "Procedure, Performed: Dialysis Services"
    - "Intervention, Performed: Other Services Related to Dialysis"
    - "Intervention, Performed: Dialysis Education"
    - starts before end of "Measurement Period"
- **Numerator =**
  - AND: Most Recent:
    - "Occurrence A of Encounter, Performed: Adult Outpatient Visit" satisfies all:
      - overlaps "Occurrence A of Diagnosis: Essential Hypertension"
      - during "Measurement Period"
      - overlaps "Physical Exam, Performed: Diastolic Blood Pressure (result)"
      - overlaps "Physical Exam, Performed: Systolic Blood Pressure (result)"
  - AND: "Physical Exam, Performed: Diastolic Blood Pressure" satisfies all:
    - Most Recent: during "Occurrence A of Encounter, Performed: Adult Outpatient Visit"
    - (result < 90 mmHg)
  - AND: "Physical Exam, Performed: Systolic Blood Pressure" satisfies all:
    - Most Recent: during "Occurrence A of Encounter, Performed: Adult Outpatient Visit"
    - (result < 140 mmHg)
- **Numerator Exclusions =**
  - None
- **Denominator Exceptions =**
  - None
- **Stratification =**
  - None

## Data Criteria (QDM Variables)

- None

## Data Criteria (QDM Data Elements)

- "Diagnosis: Chronic Kidney Disease, Stage 5" using "Chronic Kidney Disease, Stage 5 Grouping Value Set (2.16.840.1.113883.3.526.3.1002)"
- "Diagnosis: End Stage Renal Disease" using "End Stage Renal Disease Grouping Value Set (2.16.840.1.113883.3.526.3.353)"
- "Diagnosis: Essential Hypertension" using "Essential Hypertension Grouping Value Set (2.16.840.1.113883.3.464.1003.104.12.1011)"
- "Diagnosis: Pregnancy" using "Pregnancy Grouping Value Set (2.16.840.1.113883.3.526.3.378)"
- "Encounter, Performed: Adult Outpatient Visit" using "Adult Outpatient Visit Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1065)"
- "Encounter, Performed: Annual Wellness Visit" using "Annual Wellness Visit Grouping Value Set (2.16.840.1.113883.3.526.3.1240)"
- "Encounter, Performed: ESRD Monthly Outpatient Services" using "ESRD Monthly Outpatient Services Grouping Value Set (2.16.840.1.113883.3.464.1003.109.12.1014)"

- "Encounter, Performed: Face-to-Face Interaction" using "Face-to-Face Interaction Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1048)"
- "Encounter, Performed: Home Healthcare Services" using "Home Healthcare Services Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1016)"
- "Encounter, Performed: Office Visit" using "Office Visit Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1001)"
- "Encounter, Performed: Preventive Care Services - Established Office Visit, 18 and Up" using "Preventive Care Services - Established Office Visit, 18 and Up Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1025)"
- "Encounter, Performed: Preventive Care Services-Initial Office Visit, 18 and Up" using "Preventive Care Services-Initial Office Visit, 18 and Up Grouping Value Set (2.16.840.1.113883.3.464.1003.101.12.1023)"
- "Intervention, Performed: Dialysis Education" using "Dialysis Education Grouping Value Set (2.16.840.1.113883.3.464.1003.109.12.1016)"
- "Intervention, Performed: Other Services Related to Dialysis" using "Other Services Related to Dialysis Grouping Value Set (2.16.840.1.113883.3.464.1003.109.12.1015)"
- "Physical Exam, Performed: Diastolic Blood Pressure" using "Diastolic Blood Pressure Grouping Value Set (2.16.840.1.113883.3.526.3.1033)"
- "Physical Exam, Performed: Systolic Blood Pressure" using "Systolic Blood Pressure Grouping Value Set (2.16.840.1.113883.3.526.3.1032)"
- "Procedure, Performed: Dialysis Services" using "Dialysis Services Grouping Value Set (2.16.840.1.113883.3.464.1003.109.12.1013)"
- "Procedure, Performed: Kidney Transplant" using "Kidney Transplant Grouping Value Set (2.16.840.1.113883.3.464.1003.109.12.1012)"
- "Procedure, Performed: Vascular Access for Dialysis" using "Vascular Access for Dialysis Grouping Value Set (2.16.840.1.113883.3.464.1003.109.12.1011)"

### Supplemental Data Elements

- "Patient Characteristic Ethnicity: Ethnicity" using "Ethnicity CDCREC Value Set (2.16.840.1.114222.4.11.837)"
- "Patient Characteristic Payer: Payer" using "Payer SOP Value Set (2.16.840.1.114222.4.11.3591)"
- "Patient Characteristic Race: Race" using "Race CDCREC Value Set (2.16.840.1.114222.4.11.836)"
- "Patient Characteristic Sex: ONC Administrative Sex" using "ONC Administrative Sex AdministrativeGender Value Set (2.16.840.1.113762.1.4.1)"

### Risk Adjustment Variables

- None

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Measure Set	None
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