



# 2024 CMS Web Interface

## HTN-2: Controlling High Blood Pressure

Measure Steward: NCQA

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## **INTRODUCTION**

There are a total of 10 individual measures included in the 2024 CMS Web Interface targeting high-cost chronic conditions, preventive care, and patient safety. The measures documents are represented individually and contain measure specific information. The corresponding coding documents are posted separately in an Excel format.

The measure documents are being provided to allow organizations an opportunity to better understand each of the 10 individual measures included in the 2024 CMS Web Interface data submission method. Each measure document contains information necessary to submit data through the CMS Web Interface.

Narrative specifications, supporting submission documentation, and calculation flows are provided within each document. Please review all of the measure documentation in its entirety to ensure complete understanding of these measures.

**CMS WEB INTERFACE SAMPLING INFORMATION**

**BENEFICIARY SAMPLING**

For more information on the sampling process and methodology please refer to the 2024 CMS Web Interface Sampling Document, which will be made available during the performance year at CMS.gov.

**NARRATIVE MEASURE SPECIFICATION**

**DESCRIPTION:**

Percentage of patients 18-85 years of age who had a diagnosis of essential hypertension starting before and continuing into, or starting during the first six months of the measurement period, and whose most recent blood pressure was adequately controlled (<140/90 mmHg) during the measurement period

**IMPROVEMENT NOTATION:**

Higher score indicates better quality

**INITIAL POPULATION:**

Patients 18-85 years of age who had a visit during the measurement period and diagnosis of essential hypertension starting before and continuing into, or starting during the first six months of the measurement period

**DENOMINATOR:**

Equals Initial Population

**DENOMINATOR EXCLUSIONS:**

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

**OR**

Patients age 66 and older in Institutional Special Needs Plans (SNP) or residing in long-term care with a POS code 32, 33, 34, 54 or 56 for more than 90 consecutive days during the measurement period

**OR**

Patients 66-80 years of age with at least one claim/encounter for frailty during the measurement period AND a dispensed medication for dementia during the measurement period or the year prior to the measurement period

**OR**

Patients 66-80 years of age with at least one claim/encounter for frailty during the measurement period AND either one acute inpatient encounter with a diagnosis of advanced illness or two outpatient, observation, ED or nonacute inpatient encounters on different dates of service with an advanced illness diagnosis during the measurement period or the year prior to the measurement period

**OR**

Patients 81 years of age and older with at least one claim/encounter for frailty during the measurement period

**Table: Dementia Exclusion Medications**

Description	Prescription
Cholinesterase inhibitors	Donepezil Galantamine Rivastigmine
Miscellaneous central nervous system agents	Memantine
Dementia combinations	Donepezil-memantine

**DENOMINATOR EXCEPTIONS:**

None

**NUMERATOR:**

Patients whose most recent blood pressure is adequately controlled (systolic blood pressure < 140 mmHg and diastolic blood pressure < 90 mmHg) during the measurement period

**NUMERATOR EXCLUSIONS:**

Not Applicable

**DEFINITION:**

None

**GUIDANCE:**

In reference to the numerator element, only blood pressure readings performed by a clinician or an automated blood pressure monitor or device are acceptable for numerator compliance with this measure. This includes blood pressures taken in person by a clinician and blood pressures measured remotely by electronic monitoring devices capable of transmitting the blood pressure data to the clinician. Blood pressure readings taken by an automated blood pressure monitor or device and conveyed by the patient to the clinician are also acceptable. It is the clinician's responsibility and discretion to confirm the automated blood pressure monitor or device used to obtain the blood pressure is considered acceptable and reliable and whether the blood pressure reading is considered accurate before documenting it in the patient's medical record.

Do not include BP readings:

- 1) Taken during an acute inpatient stay or an ED visit
- 2) Taken on the same day as a diagnostic test or diagnostic or therapeutic procedure that requires a change in diet or change in medication on or one day before the day of the test or procedure, with the exception of fasting blood tests. BP readings taken on the same day that the member receives a common low-intensity or preventive procedure are eligible for use. For example, the following procedures are considered common low intensity or preventive (this list is just for reference, and is not exhaustive):
  - Vaccinations.
  - Injections (e.g., allergy, vitamin B-12, insulin, steroid, toradol, Depo-Provera, testosterone, lidocaine).
  - TB test.
  - IUD insertion.
  - Eye exam with dilating agents.
  - Wart or mole removal.
- 3) Taken by the patient using a non-digital device such as with a manual blood pressure cuff and a stethoscope.

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. Ranges and thresholds do not meet criteria for this measure. A distinct numeric result for both the systolic and diastolic BP reading is required for numerator compliance.

## SUBMISSION GUIDANCE

### PATIENT CONFIRMATION

Establishing patient eligibility for submission requires the following:

- Determine if the patient's medical record can be found.
  - If you can locate the medical record select "Yes."
- OR**
- If you cannot locate the medical record select "No - Medical Record Not Found."
- OR**
- Determine if the patient is qualified for the sample.
  - If the patient is deceased, in hospice, moved out of the country or did not have Fee-for-Service (FFS) Medicare as their primary payer select "Not Qualified for Sample", select the applicable reason from the provided drop-down menu, and enter the date the patient became ineligible.

### **Guidance** Patient Confirmation

**If "No – Medical Record Not Found" or "Not Qualified for Sample" is selected, the patient is completed but not confirmed. The patient will be "skipped" and another patient must be reported in their place, if available. The CMS Web Interface will automatically skip any patient for whom "No – Medical Record Not Found" or "Not Qualified for Sample" is selected in all other measures into which they have been sampled.**

**If "Not Qualified for Sample" is selected and the date is unknown, you may enter the last date of the measurement period (i.e., 12/31/2024).**

**The Measurement Period is defined as January 1 – December 31, 2024.**

#### **NOTE:**

- **In Hospice:** Select this option if the patient is not qualified for sample due to being in hospice care at any time during the measurement period (this includes non-hospice patients receiving palliative goals or comfort care).
- **Moved out of Country:** Select this option if the patient is not qualified for sample because they moved out of the country any time during the measurement period.
- **Deceased:** Select this option if the patient died during the measurement period.
- **Non-FFS Medicare:** Select this option if the patient was enrolled in Non-FFS Medicare at any time during the measurement period (i.e., commercial payers, Medicare Advantage, Non-FFS Medicare, HMOs, etc.) This exclusion is intended to remove beneficiaries for whom Fee-for-Service Medicare is not the primary payer.

## SUBMISSION GUIDANCE

### DENOMINATOR CONFIRMATION

- Determine if the patient has a documented diagnosis of essential HTN starting before and continuing into, or starting during the first six months of the measurement period.
  - If the patient has a documented diagnosis of essential HTN starting before and continuing into, or starting during the first six months of the measurement period (January 1, 2024 – June 30, 2024) select “Yes.”
- OR**
- If you are unable to confirm a diagnosis of essential HTN starting before and continuing into, or starting during the first six months of the measurement period (January 1, 2024 – June 30, 2024) select “Not Confirmed – Diagnosis.”
- OR**
- If there is a denominator exclusion for patient disqualification from the measure select “[Denominator Exclusion.](#)”
- OR**
- If there is an “other” CMS approved reason for patient disqualification from the measure select “No-Other CMS Approved Reason.”

Denominator, Denominator Exclusion, and Denominator Exclusion Drug codes can be found in the 2024 CMS Web Interface HTN Coding Document. The Downloadable Resource Mapping Table can be located in Appendix II of this document.

### **Guidance** Denominator

**If “Not Confirmed – Diagnosis” or “Denominator Exclusion” or “No – Other CMS Approved Reason” is selected, the patient will be “skipped” and another patient must be reported in their place, if available. The patient will only be removed from the measure for which one of these options was selected, not all CMS Web Interface measures.**

**Other CMS Approved Reason** is reserved for unique cases that are not covered by any of the above stated skip reasons. To gain CMS approval, submit a skip request by selecting Request Other CMS Approved Reason in the patient qualification question for the measure. Note that skip requests can only be submitted manually through the CMS Web Interface.

To submit a skip request, follow these steps:

1. After confirming the beneficiary for the sample, scroll to the measure you would like to skip.
2. When confirming if the beneficiary is qualified for the measure, select Request Other CMS Approved Reason.
3. In the skip request modal, review the organization you are reporting for and provide the submitter's email address. CMS uses this email to send status updates and/or reach out if further information is needed to resolve the skip request. You also need to provide specific information about the beneficiary's condition and why it disqualifies the beneficiary from this measure. Never include Personally Identifiable Information (PII) or Protected Health Information (PHI) in the case.

Beneficiaries remain incomplete until CMS resolves the skip request. The CMS Web Interface automatically updates the resolution of a skip request, either approved or denied. Beneficiaries for whom a CMS Approved Reason is approved are marked as Skipped and another beneficiary must be reported in their place, if available.

**The intent of the exclusion** for individuals age 66 and older residing in long-term care facilities, including nursing

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homes, is to exclude individuals who may have limited life expectancy and increased frailty where the benefit of the process may not exceed the risks. This exclusion is not intended as a clinical recommendation regarding whether the measure's process is inappropriate for specific populations, instead the exclusions allow clinicians to engage in shared decision making with patients about the benefits and risks of screening when an individual has limited life expectancy. To assess the age for exclusions, the patient's age on the date of the encounter should be used.

**NOTE:**

- **Essential hypertension** is high blood pressure that doesn't have a known secondary cause. It is also referred to as primary hypertension.
  - **The following denominator exclusions** cannot end before the start of the measurement period: Pregnancy, CKD stage 5.
  - **The following denominator exclusions** can start before or during the measurement period: Patients with evidence of ESRD, undergoing dialysis, or history of renal transplant.
-

## SUBMISSION GUIDANCE

### NUMERATOR SUBMISSION

- Determine if the patient's most recent BP was documented during the measurement period.

- If the patient's BP was documented select "Yes."

#### IF YES

- Record the date of the most recent BP in **MM/DD/YYYY** format.

#### AND

- Enter the systolic and diastolic BP documented in mmHg.

#### OR

- If the patient's BP measurement was not documented select "No."

Numerator codes can be found in the 2024 CMS Web Interface HTN Coding Document. The Downloadable Resource Mapping Table can be located in Appendix II of this document.

### **Guidance** Numerator

#### **NOTE:**

*In reference to the numerator element, only blood pressure readings performed by a clinician or an automated blood pressure monitor or device are acceptable for numerator compliance with this measure.: This includes blood pressures taken in person by a clinician and blood pressures measured remotely by electronic monitoring devices capable of transmitting the blood pressure data to the clinician. Blood pressure readings taken by an automated blood pressure monitor or device and conveyed by the patient to the clinician are also acceptable. It is the clinician's responsibility and discretion to confirm the automated blood pressure monitor or device used to obtain the blood pressure is considered acceptable and reliable and whether the blood pressure reading is considered accurate before documenting it in the patient's medical record.*

*Do not include BP readings:*

*1) Taken during an acute inpatient stay or an ED visit*  
*2) Taken on the same day as a diagnostic test or diagnostic or therapeutic procedure that requires a change in diet or change in medication on or one day before the day of the test or procedure, with the exception of fasting blood tests. BP readings taken on the same day that the member receives a common low-intensity or preventive procedure are eligible for use. For example, the following procedures are considered common low intensity or preventive (this list is just for reference, and is not exhaustive):*

- Vaccinations.
- Injections (e.g., allergy, vitamin B-12, insulin, steroid, toradol, Depo-Provera, testosterone, lidocaine).
- TB test.
- IUD insertion.
- Eye exam with dilating agents.
- Wart or mole removal.

*3) Taken by the patient using a non-digital device such as with a manual blood pressure cuff and a stethoscope.*

*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. Ranges and thresholds do not meet criteria for this*

*measure. A distinct numeric result for both the systolic and diastolic BP reading is required for numerator compliance.*

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## **DOCUMENTATION REQUIREMENTS**

When submitting data through the CMS Web Interface, the expectation is that medical record documentation is available that supports the action reported in the CMS Web Interface i.e., medical record documentation is necessary to support the information that has been submitted.

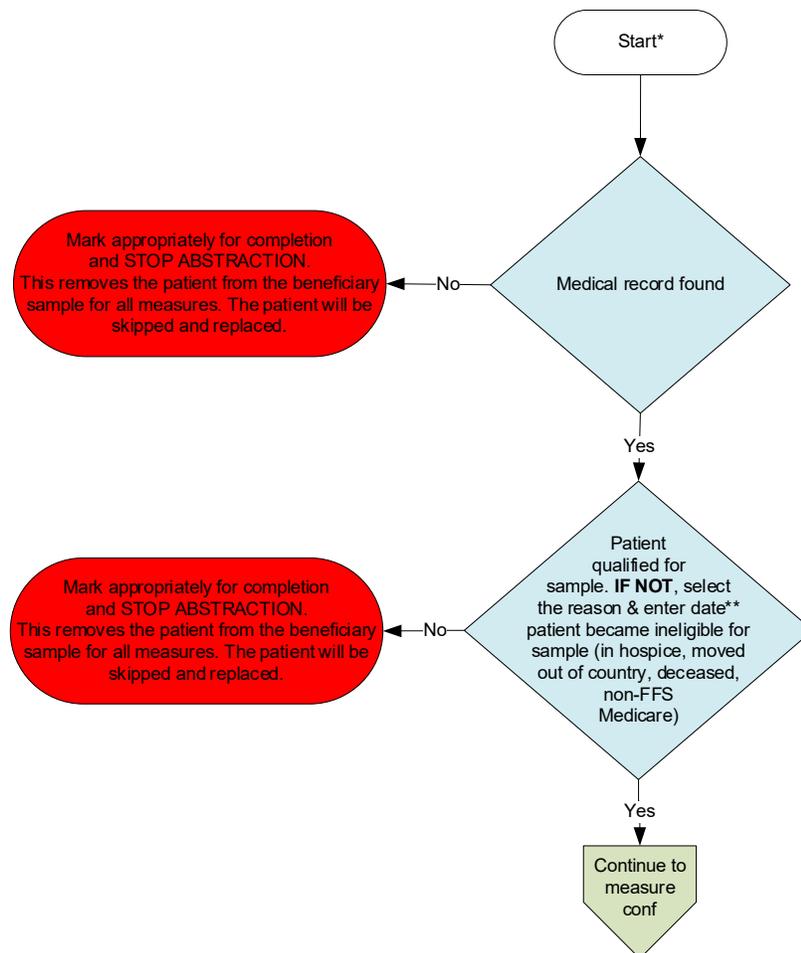
Claims data cannot be used to confirm a diagnosis (DM, HTN etc.) used for sampling purposes as claims are the original source of the diagnosis sampling. Claims data can be used to prepare the CMS Web Interface Excel, but supporting medical record documentation will be required to substantiate what is reported in the event of an audit.

Appendix I: Performance Calculation Flow

**Disclaimer:** Refer to the measure submission document for specific coding and instructions to submit this measure.

## Patient Confirmation Flow

Confirmation of the "Medical Record Found", or indicating the patient is "Not Qualified for Sample" with a reason of "In Hospice", "Moved out of Country", "Deceased", or "Non-FFS Medicare", will only need to be done **once** per patient.

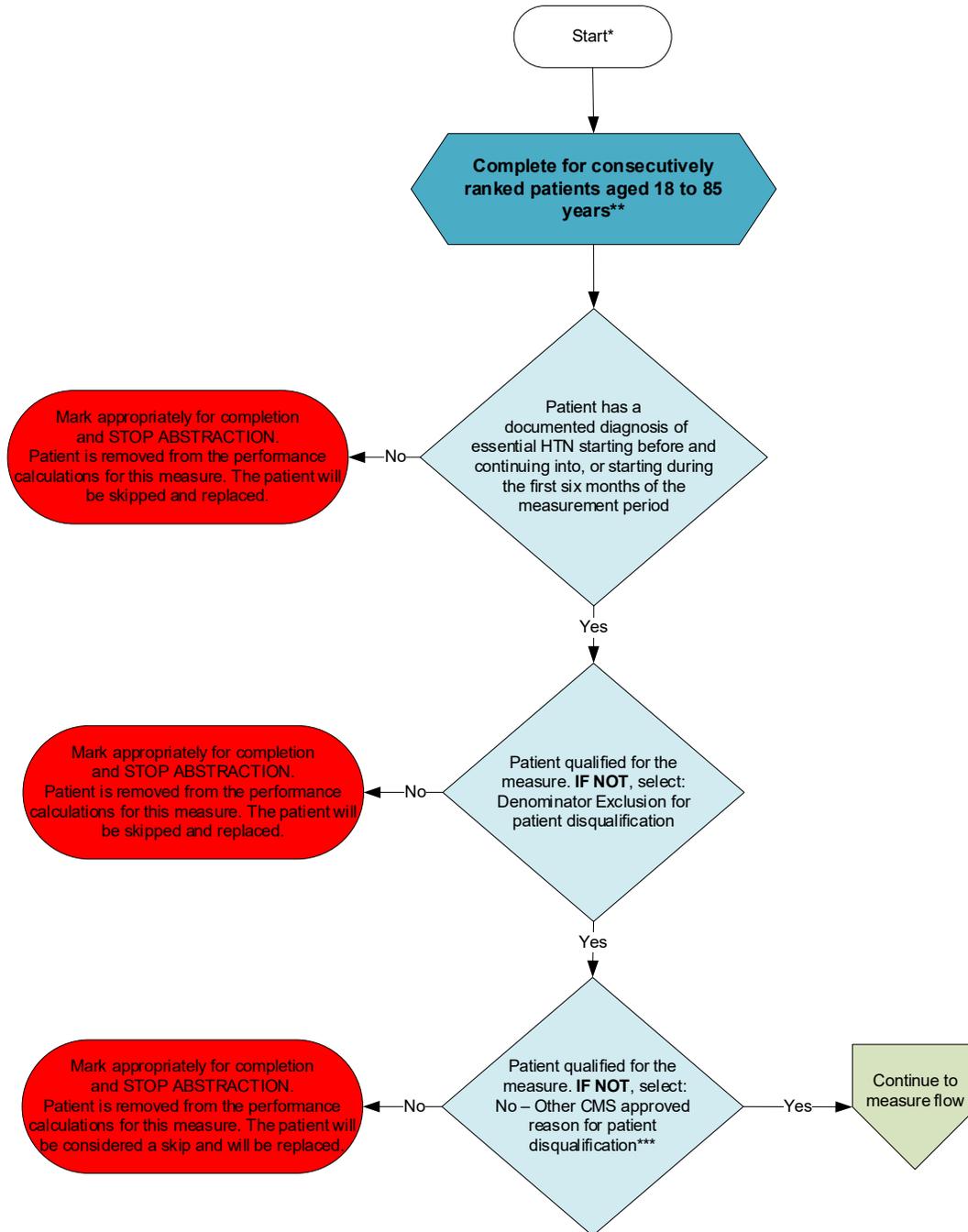


\*See the posted measure submission document for specific coding and instructions to submit this measure.

\*\*If date is unknown, enter 12/31/2024

# Measure Confirmation Flow for HTN-2

Measure specific reasons a patient is "Not Confirmed" or excluded for "Denominator Exclusion" or "Other CMS Approved Reason" should be evaluated for each measure where the patient appears.

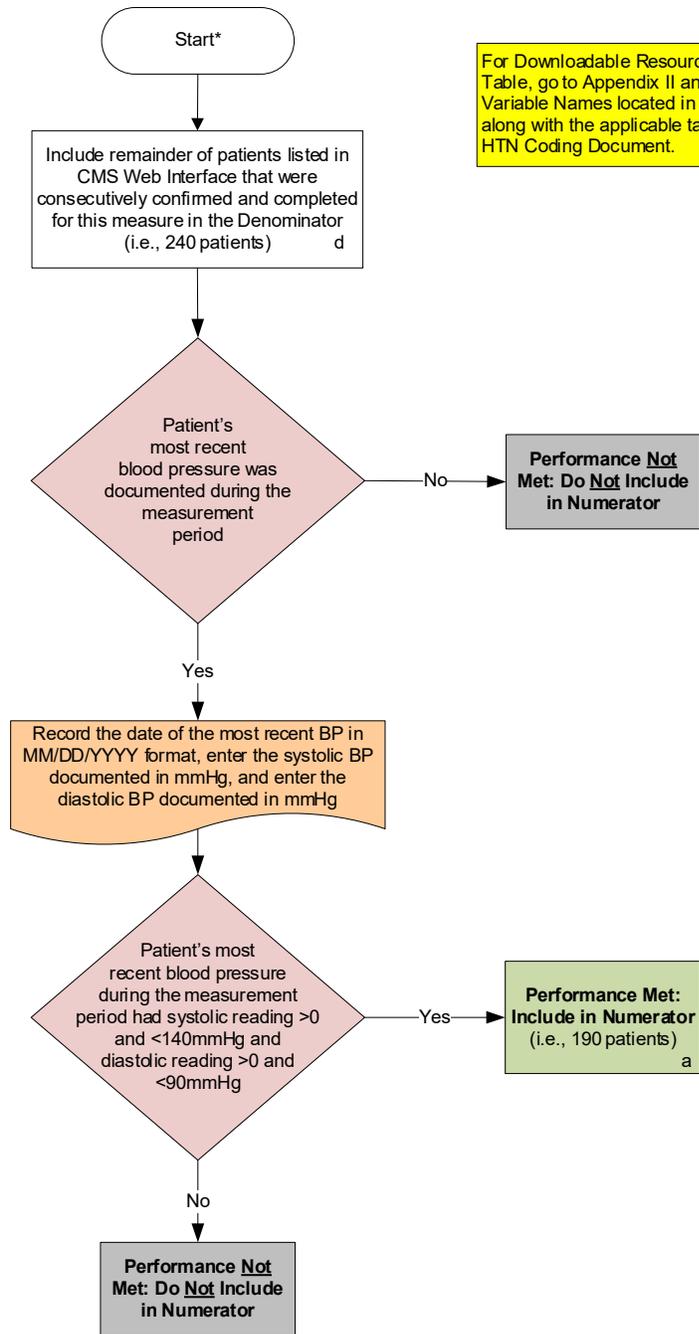


\*See the posted measure submission document for specific coding and instructions to submit this measure.

\*\*Further information regarding patient selection for specific disease and patient care measures can be found in the CMS Web Interface Sampling Methodology Document. For patients who have the incorrect date of birth listed, a change of the patient date of birth by the abstractor may result in the patient no longer qualifying for the HTN-2 measure. If this is the case, the system will automatically remove the patient from the measure requirements.

\*\*\*"Other CMS Approved Reason" may only be selected if the CMS Web Interface updated the resolution of the skip request to be "Approved".

# Measure Flow for HTN-2



For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the HTN Coding Document.

**SAMPLE CALCULATION:**

Performance Rate=  $\frac{\text{Performance Met (a=190 patients)}}{\text{Denominator (d=240 patients)}} = \frac{190 \text{ patients}}{240 \text{ patients}} = 79.17\%$

CALCULATION MAY CHANGE PENDING PERFORMANCE MET ABOVE

\*See the posted measure submission document for specific coding and instructions to submit this measure

### Patient Confirmation Flow

For 2024, confirmation of the “Medical Record Found”, or indicating the patient is “Not Qualified for Sample” with a reason of “In Hospice”, “Moved out of Country”, “Deceased”, or “Non-FFS Medicare”, will only need to be done **once** per patient. Refer to the Measure Submission Document for further instructions.

1. Start Patient Confirmation Flow.
2. Check to determine if Medical Record can be found.
  - a. If no, Medical Record not found, mark appropriately for completion and stop abstraction. This removes the patient from the beneficiary sample for all measures. The patient will be skipped and replaced. Stop processing.
  - b. If yes, Medical Record found, continue processing.
3. Check to determine if Patient Qualified for the sample.
  - a. If no, the patient does not qualify for the sample, select the reason why and enter the date (if date is unknown, enter 12/31/2024) the patient became ineligible for sample. For example; In Hospice, Moved out of Country, Deceased, Non-FFS Medicare. Mark appropriately for completion and stop abstraction. This removes the patient from the beneficiary sample for all measures. The patient will be skipped and replaced. Stop processing.
  - b. If yes, the patient does qualify for the sample; continue to the Measure Confirmation Flow for HTN-2.

### Measure Confirmation Flow for HTN-2

For 2024, measure specific reasons a patient is “Not Confirmed” or excluded for “Denominator Exclusion” or “Other CMS Approved Reason” will need to be done for each measure where the patient appears. Refer to the Measure Submission Document for further instructions.

1. Start Measure Confirmation Flow for HTN-2. Complete for consecutively ranked patients aged 18 to 85 years. Further information regarding patient selection for specific disease and patient care measures can be found in the CMS Web Interface Sampling Methodology Document. For patients who have the incorrect date of birth listed, a change of the patient date of birth by the abstractor may result in the patient no longer qualifying for the HTN-2 measure. If this is the case, the system will automatically remove the patient from the measure requirements.
2. Check to determine if the patient has a documented diagnosis of essential HTN starting before and continuing into, or starting during the first six months of the measurement period.
  - a. If no, the patient does not have a documented diagnosis of essential HTN starting before and continuing into, or starting during the first six months of the measurement period, mark appropriately for completion and stop abstraction. Patient is removed from the performance calculations for this measure. The patient will be skipped and replaced. Stop processing.
  - b. If yes, the patient does have a documented diagnosis of essential HTN starting before and continuing into, or starting during the first six months of the measurement period, continue processing.
3. Check to determine if the patient qualifies for the measure (Denominator Exclusion).
  - a. If no, the patient does not qualify for the measure, select: Denominator Exclusion for patient disqualification. Mark appropriately for completion and stop abstraction. Patient is removed from the performance calculations for this measure. The patient will be skipped and replaced. Stop processing.
  - b. If yes, the patient does qualify for the measure, continue processing.
4. Check to determine if the patient qualifies for the measure (Other CMS Approved Reason).
  - a. If no, the patient does not qualify for the measure, select: No – Other CMS Approved Reason for patient disqualification. Mark appropriately for completion and stop abstraction. Patient is removed from the performance calculations for this measure. The patient will be skipped and replaced. “Other CMS Approved Reason may only be selected if the CMS Web Interface updated the resolution of the skip request to be “Approved”. Stop processing.
  - b. If yes, the patient does qualify for the measure, continue to HTN-2 measure flow.

### Measure Flow for HTN-2

For Downloadable Resource Mapping Table, go to Appendix II and use the Variable Names located in the appendix along with the applicable tabs within the HTN Coding Document.

1. Start processing 2024 HTN-2 Flow for the patients that qualified for sample in the Patient Confirmation Flow and the Measure Confirmation Flow for HTN-2. **Note:** Include remainder of patients listed in the CMS Web Interface that were consecutively confirmed and completed for this measure in the denominator. For the sample calculation in the flow these patients would fall into the 'd' category (eligible denominator, i.e. 240 patients).
2. Check to determine if the patient's most recent blood pressure was documented during the measurement period.
  - a. If no, the patient's most recent blood pressure was not documented during the measurement period, performance is not met and the patient should not be included in the numerator. Stop processing.
  - b. If yes, the patient's most recent blood pressure was documented during the measurement period, record the date of the most recent BP in MM/DD/YYYY format, enter the systolic BP documented in mmHg, and enter the diastolic BP documented in mmHg. Continue processing.
3. Check to determine if the patient's most recent blood pressure during the measurement period was greater than zero but less than 140 over 90 mmHg.
  - a. If no, the patient's most recent blood pressure during the measurement period was less than zero or greater than or equal to 140 over 90 mmHg, performance is not met and the patient should not be included in the numerator. Stop processing.
  - b. If yes, the patient's most recent blood pressure during the measurement period was greater than zero but less than 140 over 90 mmHg, performance is met and the patient will be included in the numerator. For the sample calculation in the flow these patients would fall into the 'a' category (numerator, i.e. 190 patients). Stop processing.

#### **Sample Calculation:**

Performance Rate equals Performance Met (a equals 190 patients) divided by Denominator (d equals 240 patients). All equals 190 patients divided by 240 patients. All equals 79.17 percent.

CALCULATION MAY CHANGE PENDING PERFORMANCE MET ABOVE.

**Appendix II: Downloadable Resource Mapping Table**

Each data element within this measure’s denominator or numerator is defined as a pre-determined set of clinical codes. These codes can be found in the 2024 CMS Web Interface HTN Coding Document.

**\*HTN-2: Controlling High Blood Pressure**

Measure Component/Excel Tab	Data Element	Variable Name	Coding System(s)
Denominator/Denominator Codes	Hypertension Diagnosis	HTN_DX_CODE	I9 I10 SNM
Denominator Exclusion/Denominator Exclusion Codes/Denominator Exclusion Drug Codes	Exclusion	CKD_STAGE5_CODE	I10 SNM
		DIALYSIS_SERVICES_CODE	C4 HCPCS SNM
		ESRD_CODE	I10 SNM
		<u>OR</u> ESRD_MTHLY_OUTPT_SERV_CODE	<u>OR</u> C4
		KIDNEY_TRANS_CODE	C4 I10 HCPCS SNM
		KIDNEY_TRANS_RECIP_CODE	I10 I9
		PREGNANCY_CODE	I10 SNM
	Exclusion/66 years and older residing longer than 90 consecutive days in long-term care	HOUSING_STATUS_CODE <u>AND</u> NURSING_HOME_CODE	LN <u>AND</u> SNM <u>AND</u> residing longer than 90 consecutive days

Measure Component/Excel Tab	Data Element	Variable Name	Coding System(s)
	Exclusion/66-80years with at least one claim/encounter for frailty <u>AND</u> dispensed dementia medication	FRAILTY_DEVICE_CODE  <u>OR</u> MEDICAL_EQUIPMENT_CODE  <u>AND</u> FRAILTY_DEVICE_CODE  <u>OR</u> FRAILTY_DIAGNOSIS_CODE  <u>OR</u> FRAILTY_ENCOUNTER_CODE  <u>OR</u> FRAILTY_SYMPTOM_CODE  <u>AND</u> DEMENTIA_DRUG_CODE	SNM  <u>OR</u> LN  <u>AND</u> SNM  <u>OR</u> I10 SNM  <u>OR</u> C4 HCPCS  <u>OR</u> I10 SNM  <u>AND</u> RxNorm(Drug EX=Y)
	Exclusion/66-80 years with at least one claim/encounter for frailty <u>AND EITHER</u> <b>one</b> acute inpatient encounter <u>WITH</u> advanced illness <u>OR</u> <b>two</b> outpatient, observation, ED or nonacute inpatient encounters on different dates <u>WITH</u> advanced illness	FRAILTY_DEVICE_CODE  <u>OR</u> MEDICAL_EQUIPMENT_CODE  <u>AND</u> FRAILTY_DEVICE_CODE  <u>OR</u> FRAILTY_DIAGNOSIS_CODE  <u>OR</u> FRAILTY_ENCOUNTER_CODE  <u>OR</u> FRAILTY_SYMPTOM_CODE  <u>AND EITHER</u> ACUTE_INPATIENT_CODE	SNM  <u>OR</u> LN  <u>AND</u> SNM  <u>OR</u> I10 SNM  <u>OR</u> C4 HCPCS  <u>OR</u> I10 SNM  <u>AND EITHER</u> C4 SNM

Measure Component/Excel Tab	Data Element	Variable Name	Coding System(s)
		<u>WITH</u> ADVANCED_ILLNESS_CODE  <u>OR</u> OUTPATIENT_CODE  <u>OR</u> EMERGENCY_DEPT_CODE  <u>OR</u> NONACUTE_INPATIENT_CODE  <u>WITH</u> ADVANCED_ILLNESS_CODE	<u>WITH</u> I10 SNM  <u>OR</u> C4 HCPCS SNM  <u>OR</u> C4 SNM  <u>OR</u> C4 SNM  <u>WITH</u> I10 SNM
	Exclusion/81 years and older with at least one claim/encounter for frailty	FRAILTY_DEVICE_CODE  <u>OR</u> MEDICAL_EQUIPMENT_CODE <u>AND</u> FRAILTY_DEVICE_CODE  <u>OR</u> FRAILTY_DIAGNOSIS_CODE  <u>OR</u> FRAILTY_ENCOUNTER_CODE  <u>OR</u> FRAILTY_SYMPTOM_CODE	SNM  <u>OR</u> LN <u>AND</u> SNM  <u>OR</u> I10 SNM  <u>OR</u> C4 HCPCS  <u>OR</u> I10 SNM
Numerator/Numerator Codes	Blood Pressure	SYSTOLIC_CODE <u>AND</u> DIASTOLIC_CODE	LN <u>AND</u> LN <u>WITH</u> most recent blood pressure date and systolic and diastolic value

\*For EHR mapping, the coding within HTN-2 is considered to be all inclusive

**Appendix III: Measure Rationale and Clinical Recommendation Statements****RATIONALE:**

High blood pressure (HBP), also known as hypertension, is when the pressure in blood vessels is higher than normal (Centers for Disease Control and Prevention [CDC], 2021). The causes of hypertension are multiple and multifaceted and can be based on genetic predisposition, environmental risk factors, being overweight and obese, sodium intake, potassium intake, physical activity, and alcohol use. High blood pressure is common; according to the American Heart Association, between 2013-2016, approximately 121.5 million US adults  $\geq$  20 years of age had HBP and the prevalence of hypertension among US adults 65 and older was 77.0 percent (Virani et al, 2021). In an analysis of adults with hypertension in NHANES, the estimated age-adjusted proportion with controlled BP increased from 31.8 percent in 1999 to 53.8 percent in 2014. However, that proportion declined to 43.7 percent in 2017 to 2018 (Tsao et al., 2022).

HBP, known as the “silent killer,” increases risks of heart disease and stroke which are two of the leading causes of death in the U.S. A person who has HBP is four times more likely to die from a stroke and three times more likely to die from heart disease (CDC, 2012). The National Center for Health Statistics reported that in 2020 there were over 670,000 deaths with HBP as a primary or contributing cause (CDC, 2022). Between 2009 and 2019 the number of deaths due to HBP rose by 65 percent (Tsao et al, 2022). Managing and treating HBP would reduce cardiovascular disease mortality for males and females by 30.4 percent and 38.0 percent, respectively (Patel et al., 2015). Age-adjusted death rates attributable to HBP in 2019 were more than twice as high in non-Hispanic Black males (56.7 percent) when compared to rates for non-Hispanic White males (25.7 percent) (Tsao et al., 2022).

HBP costs the U.S. approximately 131 billion dollars each year, averaged over 12 years from 2003 to 2014 (Kirkland et al., 2018). A study on cost-effectiveness on treating hypertension found that controlling HBP in patients with cardiovascular disease and systolic blood pressures of  $\geq$  160 mm Hg could be effective and cost-saving (Moran, 2015).

Many studies have shown that controlling high blood pressure reduces cardiovascular events and mortality. The Systolic Blood Pressure Intervention Trial (SPRINT) investigated the impact of obtaining a SBP goal of  $<$ 120 mm Hg compared to a SBP goal of  $<$ 140 mm Hg among patients 50 and older with established cardiovascular disease and found that the patients with the former goal had reduced cardiovascular events and mortality (SPRINT Research Group et al., 2015).

Controlling HBP will significantly reduce the risks of cardiovascular disease mortality and lead to better health outcomes like reduction of heart attacks, stroke, and kidney disease (James et al., 2014). Thus, the relationship between the measure (control of hypertension) and the long-term clinical outcomes listed is well established.

**CLINICAL RECOMMENDATION STATEMENTS:**

U.S. Preventive Services Task Force (USPSTF) (2021):

- The USPSTF recommends screening for hypertension in adults 18 years or older with office blood pressure measurement (OBPM). The USPSTF recommends obtaining blood pressure measurements outside of the clinical setting for diagnostic confirmation before starting treatment. This is a grade A recommendation.

American College of Cardiology/American Heart Association (2017)

- For adults with confirmed hypertension and known CVD or 10-year ASCVD event risk of 10% or higher, a blood pressure target of less than 130/80 mmHg is recommended (Level of evidence: B-R (for systolic blood pressures), Level of evidence: C-EO (for diastolic blood pressure)).
- For adults with confirmed hypertension, without additional markers of increased CVD risk, a blood pressure target of less than 130/80 mmHg may be reasonable (Note: clinical trial evidence is strongest for a target blood pressure of 140/90 mmHg in this population. However observational studies suggest that these individuals often have a high

lifetime risk and would benefit from blood pressure control earlier in life) (Level of evidence: B-NR (for systolic blood pressure), Level of evidence: C-EO (for diastolic blood pressure)).

American College of Physicians and the American Academy of Family Physicians (2017):

-Initiate intensifying pharmacologic treatment in adults aged 60 and older at high cardiovascular risk, based on individualized assessment, to achieve a target systolic blood pressure of less than 140 mmHg (Grade: weak recommendation, Quality of evidence: low).

-Initiate intensifying pharmacologic treatment in adults aged 60 and older with a history of stroke or transient ischemic attack to achieve a target systolic blood pressure of less than 140 mmHg to reduce the risk of recurrent stroke (Grade: weak recommendation, Quality of evidence: moderate).

American Diabetes Association (2021):

-For individuals with diabetes and hypertension at higher cardiovascular risk (existing atherosclerotic cardiovascular disease or 10-year atherosclerotic cardiovascular disease risk  $\geq 15\%$ ), a blood pressure target of  $<130/80$  mmHg may be appropriate, if it can be safely attained (Level of evidence: C).

For individuals with diabetes and hypertension at lower risk for cardiovascular disease (10-year atherosclerotic cardiovascular disease risk  $<15\%$ ), treat to a blood pressure target of  $<140/90$  mmHg (Level of evidence: A).

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