



Complete Summary

TITLE

Advanced chronic kidney disease (CKD): percent of patients with serum bicarbonate greater than or equal to 22 mmol/L.

SOURCE(S)

Renal Physicians Association. Appropriate patient preparation for renal replacement therapy. Rockville (MD): Renal Physicians Association; 2002 Oct 1. 78 p. (Clinical Practice Guideline; no. 3).

Brief Abstract

DESCRIPTION

This measure assesses the percent of patients with serum bicarbonate greater than or equal to 22 mmol/L among patients with advanced chronic kidney disease (CKD) and bicarbonate less than 22 mmol/L three months ago.

RATIONALE

Renal osteodystrophy is a complex and multifaceted disease process that begins early in the course of chronic kidney disease (CKD) and is a major, long-term complication associated with high rates of morbidity. The metabolic and skeletal derangements associated with renal osteodystrophy are not easily reversed and, therefore, early interventions are crucial.

Low serum bicarbonate levels have been associated with changes in bone histomorphometry among populations with differing glomerular filtration rates (GFRs). It is presumed that correction of serum bicarbonate leads to prevention of bone disease and preservation of bone buffering. One prospective clinical trial showed short-term improvements in surrogate measures of bone turnover after rapid correction of serum bicarbonate levels above the baseline mean of 18 mmol/L. However, evidence from patients receiving continuous ambulatory peritoneal dialysis reveals an increase in weight and muscle with full correction of metabolic acidosis. Therefore, a goal bicarbonate of 22 mmol/L appears reasonable since treatment carries a low risk and may decrease the incidence of other complications such as hyperkalemia and their clinical consequences.

PRIMARY CLINICAL COMPONENT

Advanced chronic kidney disease; renal osteodystrophy; metabolic acidosis; serum bicarbonate

DENOMINATOR DESCRIPTION

The number of adult patients with advanced chronic kidney disease (CKD), not currently receiving renal replacement therapy, with bicarbonate less than 22 mmol/L 3 months (90 days) ago

NUMERATOR DESCRIPTION

The number of patients from the denominator with serum bicarbonate greater than or equal to 22 mmol/L

Evidence Supporting the Measure

PRIMARY MEASURE DOMAIN

Outcome

SECONDARY MEASURE DOMAIN

Not applicable

EVIDENCE SUPPORTING THE MEASURE

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence

A formal consensus procedure involving experts in relevant clinical, methodological, and organizational sciences

A systematic review of the clinical literature

NATIONAL GUIDELINE CLEARINGHOUSE LINK

- [Appropriate patient preparation for renal replacement therapy.](#)

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Unspecified

State of Use of the Measure

STATE OF USE

Pilot testing

CURRENT USE

Internal quality improvement

Application of Measure in its Current Use

CARE SETTING

Ambulatory Care
Physician Group Practices/Clinics

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Individual Clinicians

TARGET POPULATION AGE

Age greater than or equal to 18 years

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Unspecified

ASSOCIATION WITH VULNERABLE POPULATIONS

Unspecified

BURDEN OF ILLNESS

Subjects with chronic kidney disease (CKD) are susceptible to developing acidosis. Acidosis may cause increased risk for bone disease as well as multiple other complications (i.e., cardiovascular disease and malnutrition).

EVIDENCE FOR BURDEN OF ILLNESS

Bushinsky DA. The contribution of acidosis to renal osteodystrophy. *Kidney Int* 1995 Jun; 47(6):1816-32. [PubMed](#)

Lin YF, Shieh SD, Diang LK, Lin SH, Chyr SH, Li BL, Lu KC. Influence of rapid correction of metabolic acidosis on serum osteocalcin level in chronic renal failure. ASAIO J 1994 Jul-Sep; 40(3):M440-4. [PubMed](#)

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

Data Collection for the Measure

CASE FINDING

Users of care only

DESCRIPTION OF CASE FINDING

Adult patients 18 years and older with advanced chronic kidney disease (CKD) and bicarbonate less than 22 mmol/L 3 months ago

DENOMINATOR (INDEX) EVENT

Clinical Condition

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions

Adult patients age 18 years and older with chronic kidney disease stage 4 or 5 (glomerular filtration rate [GFR] less than or equal to 30 mL/min/1.73 m²), not currently receiving renal replacement therapy, with bicarbonate less than 22 mmol/L 3 months (90 days) ago*

* Index date is the first date serum bicarbonate is measured and identified to be less than 22 mmol/L.

Exclusions
Unspecified

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
The number of patients from the denominator with serum bicarbonate greater than or equal to 22 mmol/L

Exclusions
Unspecified

DENOMINATOR TIME WINDOW

Time window precedes index event

NUMERATOR TIME WINDOW

Episode of care

DATA SOURCE

Administrative data
Laboratory data
Medical record

LEVEL OF DETERMINATION OF QUALITY

Individual Case

OUTCOME TYPE

Clinical Outcome

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a higher score

ALLOWANCE FOR PATIENT FACTORS

Unspecified

STANDARD OF COMPARISON

Internal time comparison

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Unspecified

Identifying Information

ORIGINAL TITLE

Number of patients with serum bicarbonate greater than or equal to 22 mmol/L / number of patients in advanced CKD and bicarbonate less than 22 mmol/L 3 months ago.

MEASURE COLLECTION

[Renal Physicians Association Clinical Performance Measures on Appropriate Patient Preparation for Renal Replacement Therapy](#)

MEASURE SET NAME

[Renal Physicians Association Clinical Performance Measures for Bone Disease Recommendations](#)

DEVELOPER

Renal Physicians Association

ADAPTATION

Measure was not adapted from another source.

RELEASE DATE

2002 Oct

MEASURE STATUS

This is the current release of the measure.

SOURCE(S)

Renal Physicians Association. Appropriate patient preparation for renal replacement therapy. Rockville (MD): Renal Physicians Association; 2002 Oct 1. 78 p. (Clinical Practice Guideline; no. 3).

MEASURE AVAILABILITY

The individual measure, "Number of patients with serum bicarbonate greater than or equal to 22 mmol/L / number of patients in advanced CKD and bicarbonate less than 22 mmol/L 3 months ago," is published in "Renal Physicians Association Clinical Practice Guideline #3: Appropriate Patient Preparation for Renal Replacement Therapy."

For more information, contact RPA at 1700 Rockville Pike, Suite 220, Rockville, MD 20852; phone: 301-468-3515; fax: 301-468-3511; Web site: www.renalmd.org; e-mail: rpa@renalmd.org.

NQMC STATUS

This NQMC summary was completed by ECRI on May 23, 2003. The information was verified by the Renal Physicians Association on June 17, 2003.

COPYRIGHT STATEMENT

This NQMC summary is based on the original measure, which is subject to the measure developer's copyright restrictions.

For more information, contact RPA at 1700 Rockville Pike, Suite 220, Rockville, MD 20852; phone: 301-468-3515; fax: 301-468-3511; Web site: www.renalmd.org; e-mail: rpa@renalmd.org.

© 2004 National Quality Measures Clearinghouse

Date Modified: 10/25/2004

FIRSTGOV

