

In Study 1, LOKELMA 10 g tid demonstrated a greater reduction in serum K levels vs placebo at 48 hours and started to work as early as 1 hour in patients with hyperkalemia not on dialysis.¹²
In Study 2, LOKELMA-treated patients with hyperkalemia not on dialysis who achieved normokalemia at 48 hours maintained mean serum K at lower levels than placebo at all 3 daily doses (5 g, 10 g, 15 g) in the 28-day randomized withdrawal phase. Patients in Study 2 who continued into the open-label, 11-month extension phase sustained normokalemia with continued LOKELMA dosing.¹²
K*=potassium; tid=3 times a day.

Individual is a hypothetical patient, not an actual patient.

INDICATION AND LIMITATION OF USE

LOKELMA is indicated for the treatment of hyperkalemia in adults.

LOKELMA should not be used as an emergency treatment for life-threatening hyperkalemia because of its delayed onset of action.



Have you considered K⁺ binders for your patients...

...across all settings?



NEW DATA: DIALYSIS

TIM Age 58, ESRD, diabetes **Pre-dialysis serum K**⁺ **after** the LIDI: 6.2 mEq/L

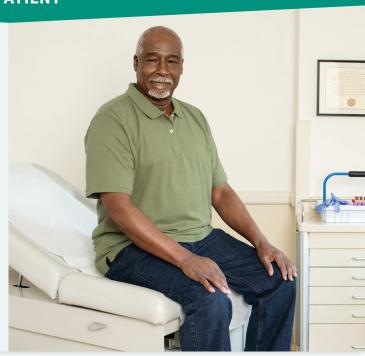
- ▶ On chronic hemodialysis with persistent hyperkalemia
- Previously hospitalized for hyperkalemia

OUTPATIENT

STEVEN Age 62, CHF

Serum K⁺: 5.8 mEq/L

- ► Recurrent hyperkalemia over the past year requiring continued K⁺ reduction
- ► Taking ACEi and MRA



*In LOKELMA clinical trials (Studies 1-4), the mean age of patients studied was 58-66 years. 1,3,4 Individuals are hypothetical patients, not actual patients. ACEi=angiotensin-converting enzyme inhibitor; CHF=congestive heart failure; ESRD=end-stage renal disease; LIDI=long interdialytic interval; MRA=mineralocorticoid receptor agonist

EMERGENCY DEPARTMENT/INPATIENT

JULIA

Age 70, CKD

Serum K⁺: 6.1 mEq/L

- Received temporizing agent after admission to ED and is now stable but still hyperkalemic
- ► Previous episodes were treated with SPS, resulting in GI disturbances

LONG-TERM CARE

JOHN Age 79*, CKD, CHF, T2D Serum K⁺: 5.7 mEq/L

- ▶ Discharged back to long-term care facility from ED after a K+ spike
- ▶ Discontinued ACEi but still taking an MRA



Individuals are hypothetical patients, not actual patients.

ACEi=angiotensin-converting enzyme inhibitor; CHF=congestive heart failure; CKD=chronic kidney disease; ED=emergency department; GI=gastrointestinal; MRA-mineralocorticoid receptor agonist; SPS=sodium polystyrene sulfonate; T2D=type 2 diabetes

LOKELMA is a highly selective, innovative K⁺ binder...

LOKELMA is a modern K' binder that preferentially captures K* and exchanges it for hydrogen and sodium.^{1,5} LOKELMA has a unique crystal lattice structure.⁵ LOKELMA is insoluble and does not expand in water, so it is not expected to swell within the GI tract.⁵ H For illustrative purposes only.

IMPORTANT SAFETY INFORMATION FOR LOKELMA WARNINGS AND PRECAUTIONS:

- ► Gastrointestinal Adverse Events in Patients with Motility Disorders: Avoid LOKELMA in patients with severe constipation, bowel obstruction or impaction, including abnormal post-operative bowel motility disorders. LOKELMA has not been studied in patients with these conditions and it may be ineffective and may worsen gastrointestinal conditions.
- ▶ Edema: Each 5-g dose of LOKELMA contains approximately 400 mg of sodium, but the extent of absorption by the patient is unknown. In clinical trials of LOKELMA in patients who were not on dialysis, edema was observed and was generally mild to moderate in severity and was more commonly seen in patients treated with 15 g once daily. Monitor for signs of edema, particularly in patients who should restrict their sodium intake or are prone to fluid overload (eg, heart failure or renal disease). Advise patients to adjust dietary sodium, if appropriate. Increase the dose of diuretics as needed.

In a clinical trial of LOKELMA in patients on chronic hemodialysis in which most patients were treated with doses of 5 g to 10 g once daily on non-dialysis days, there was no difference in the mean change from baseline in interdialytic weight gain (a measure of fluid retention) between the LOKELMA and placebo groups.

► **Hypokalemia in Patients on Hemodialysis:** Patients on hemodialysis may be prone to acute illness that can increase the risk of hypokalemia on LOKELMA (eg, illnesses associated with decreased oral intake, diarrhea). Consider adjusting LOKELMA dose based on potassium levels in these settings.

...that is different than other K⁺ binders^{1,5}

	LOKELMA®	SPS (sodium polystyrene sulfonate)*6	Veltassa® (patiromer) for oral suspension ⁷
Selectivity	Binds K++1	Binds K ⁺ , Ca ⁺ , and Mg ⁺⁶	Binds K ⁺ and Mg ⁺⁷
Site of K ⁺ capture in lumen of GI tract	Small and large intestines ^{‡5}	Primarily large intestine ⁸	Primarily colon ^{§8}
Calcium content	0 g ⁹	0 g ⁹ 1.6 g per 8.4 of patirome	
Sodium content for recommended maintenance dose range	400 mg qod- 1200 mg daily ^{∥1}	1500 mg- 6000 mg daily ^{¶11,12}	
Molecular composition	Non-polymer ¹³	Polymer ¹³ Polymer ¹³	

^{*}Brand names for sodium polystyrene sulfonate (SPS) include Kayexalate® and Kionex®.

Clinical pharmacology does not correlate with efficacy or safety.

LOKELMA causes a small dose-dependent increase in serum bicarbonate concentrations (1.1 mEq/L at 5 g once daily, 2.3 mEq/L at 10 g once daily and 2.6 mEq/L at 15 g once daily as compared with a mean increase of 0.6 mEq/L in patients treated with placebo). The clinical significance of this finding is unclear.¹

Veltassa is a registered trademark of Relypsa, Inc., a Vifor Pharma Group Company. Kayexalate is a registered trademark of Concordia Pharmaceuticals, Inc. Kionex is a registered trademark of Paddock Laboratories, LLC. GI=gastrointestinal; qod=every other day.



[†]In vitro, LOKELMA has a high affinity for K⁺, even in the presence of other cations such as calcium and magnesium.¹

[‡]In vitro study; based on simulated intestinal fluid.5

[§]Based on nonclinical and early phase studies.14

[&]quot;The sodium content/unit dose of LOKELMA is 400 mg/5 g. The recommended maintenance dose range for non-dialysis patients is 5 g qod to 15 g daily (sodium content: 400 mg qod-1200 mg daily) and for dialysis patients is 5 g to 15 g once daily, on non-dialysis days (sodium content: 400 mg-1200 mg once daily on non-dialysis days).

¹The sodium content/unit dose of SPS is 1500 mg/15 g. The in vivo efficiency of sodium-potassium exchange for SPS is approximately 33%; hence, about one-third of the actual sodium content is delivered to the body.⁶ The recommended dose for SPS is 15 g 1 to 4 times daily.^{6,11,12}

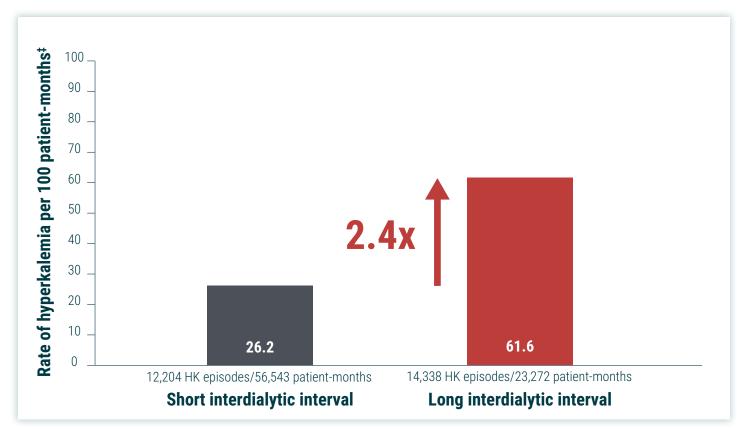
Hyperkalemia is prevalent in patients on hemodialysis...

38% of patients

Despite receiving in-center hemodialysis, 38% of patients presented at US dialysis centers in August 2019 with hyperkalemia (n=7938)*15

In a retrospective observational study, where hyperkalemia was defined as $K^* \ge 5.5$ mEq/L

Prevalence of hyperkalemia was found to be 2.4x higher in hemodialysis patients during the day after the long interdialytic interval vs the day after the short interdialytic interval^{†17}



The short interdialytic interval was defined as a single day between sessions. The long interdialytic interval was defined as multiple days between sessions.

Data from the DOPPS Practice Monitor using the most recent (single) monthly pre-dialysis values of serum potassium levels from the national sample of >11,000 patients in >200 US hemodialysis centers. Note: Hyperkalemia is defined as K ≥ 5.0 mEq/L. Timing of K* measurement in relation to the hemodialysis schedule, whether after a long or short interdialytic interval, is unknown.¹⁵

[†]A retrospective observational study from the USRDS of hemodialysis patients (N=36,888) during 2010 with ≥6 hemodialysis sessions and ≥1 potassium measurement. Timing of K⁺ measurement in relation to the hemodialysis cycle was not described in the study but was typically measured once a month during routine sessions. The hemodialysis schedule was defined as Monday-Wednesday-Friday (M-W-F) or Tuesday-Thursday-Saturday (T-Th-Sa). The day after the long 3-day interval between sessions (long interdialytic interval) was defined as Monday for patients on a M-W-F schedule and as Tuesday for patients on a T-Th-Sa schedule, and the other days were referred to as the short interdialytic interval.¹⁷

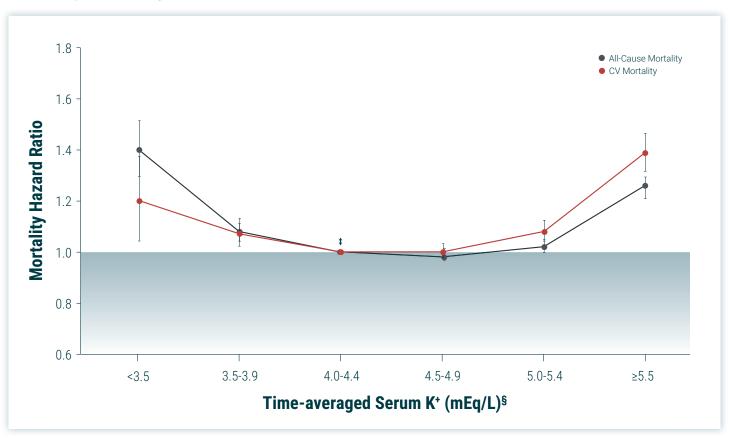
‡Rate of hyperkalemia was computed as a ratio of total number of hyperkalemia episodes and cumulative follow-up time in months. The LIDI rate was calculated based on hyperkalemia episodes identified on the day after the LIDI and the SIDI rate was calculated based on hyperkalemia episodes identified on the day after the SIDI.¹⁷
DOPPS=Dialysis Outcomes and Practice Patterns Study; HK=hyperkalemia; LIDI=long interdialytic interval; SIDI=short interdialytic interval; USRDS=United States Renal Data System.

...and poses risks of hospitalization and mortality^{15,16}



In a retrospective observational study of ESRD patients receiving thrice-weekly hemodialysis (n=52,734), serum K⁺ ≥5.5 mEq/L was associated with increased adjusted risk of all-cause hospitalization*¹⁸

Hyperkalemia is associated with an increased risk of all-cause and CV mortality in patients receiving hemodialysis^{†16}



Graph reproduced from Torlén et al. 2012.

LOKELMA® (sodium zirconium cyclosilicate) is not indicated to reduce the risk of death or hospitalizations.1

Based on an analysis of 533,889 qualifying serum K measurements from US Medicare adult patients at a large dialysis organization with at least 1 potassium measurement between January 2010 and December 2011. Serum K* measurements were generally performed monthly immediately prior to HD on the first or second treatment day after the long weekend (ie, Monday or Wednesday for a Monday-Wednesday-Friday schedule). Analyses were adjusted for covariates including demographics, comorbidities, and laboratory values.¹⁸

†Analysis of 111,434 hemodialysis patients with follow-up data from an observational cohort study conducted in US DaVita facilities between July 2001 and June 2006. Hyperkalemia defined as $K^* \ge 5.0$ mEq/L. The timing of K^* measurement in relation to the hemodialysis cycle and schedule was not described in the study. Data was adjusted for demographics, comorbidities, and laboratory values.¹6

 $^{\ddagger}Reference$ group was hemodialysis patients with serum K $^{\!\star}$ between 4.0 and 4.5 mEq/L. $^{\!16}$

§Each patient had K* measurements performed at least monthly. The average of all repeated measures was done quarterly for 20 calendar quarters to calculate the time-averaged serum K*.16

CV=cardiovascular; ESRD=end-stage renal disease; HD=hemodialysis.

NEW DATA

LOKELMA is the only FDA-approved K⁺ binder with results and dosing in the label...

STUDY 4: Met its primary endpoint of a proportion of patients classified as responders, defined as patients who maintained a pre-dialysis serum potassium between 4.0-5.0 mEq/L on at least 3 out of 4 dialysis treatments after the long interdialytic interval and who did not receive rescue therapy* during the evaluation period.¹



41% of patients treated with LOKELMA (n=97) were responders compared to 1% of patients in the placebo group (n=99) (P<0.001)¹

41% of patients

STUDY DESIGN 4: DIALIZE was a **double-blind**, **placebo-controlled trial** of 196 subjects (mean age 58 years, range 20 to 86 years) with end-stage renal disease on chronic hemodialysis for at least 3 months and persistent pre-dialysis hyperkalemia[†] who were randomized to receive LOKELMA 5 g or placebo once daily on non-dialysis days. At randomization, mean serum potassium levels were 5.8 mEq/L (**range 4.2-7.3 mEq/L**) in the LOKELMA group and 5.9 mEq/L (range 4.2-7.3 mEq/L) in the placebo group.^{1,19}

To achieve pre-dialysis serum potassium level between 4.0 and 5.0 mEq/L during the dose adjustment period (initial 4 weeks), the dose could be adjusted weekly in 5-g increments up to 15 g once daily based on pre-dialysis serum potassium measurement after the LIDI. The dose reached at the end of the dose-adjustment period was maintained throughout the subsequent 4-week evaluation period.¹

Rescue therapy was defined as any urgent therapeutic intervention considered necessary to reduce serum K in the setting of severe hyperkalemia (defined by protocol as >6.0 mEq/L). Use of rescue therapy was not strictly protocolized, and it was left to the investigator's clinical judgment to be given in accordance with local practice patterns.¹⁹

†Persistent hyperkalemia defined as predialysis serum K* >5.4 mEq/L after the LIDI.¹⁹

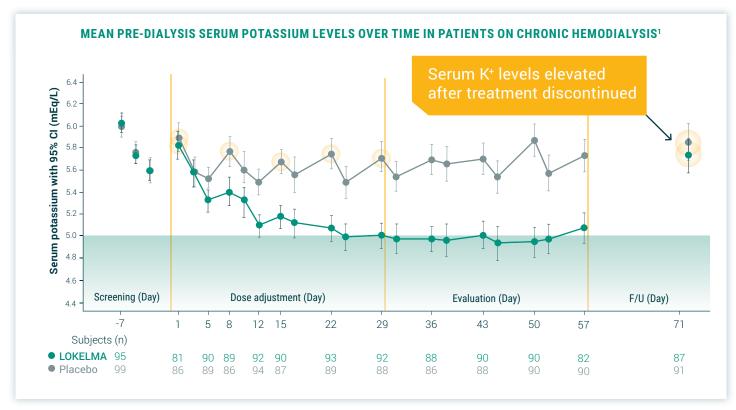
LIDI=long interdialytic interval.

IMPORTANT SAFETY INFORMATION FOR LOKELMA (cont'd)

ADVERSE REACTIONS: The most common adverse reaction in non-dialysis patients with LOKELMA was mild to moderate edema. In placebo-controlled trials up to 28 days, edema was reported in 4.4%, 5.9%, 16.1% of non-dialysis patients treated with 5 g, 10 g, and 15 g of LOKELMA once daily, respectively vs 2.4% of non-dialysis patients receiving placebo.

...for adult patients with hyperkalemia on chronic hemodialysis¹

LOKELMA sustained pre-dialysis K⁺ levels in patients on hemodialysis with continued treatment¹



F/U=follow-up period.

The displayed error bars correspond to 95% confidence intervals.

n=Number of patients with non-missing potassium measurements at a particular visit.

LOKELMA®
(sodium zirconium cyclosilicate)
5g | 10 g for oral suspension

NEW DATA

In adult chronic hemodialysis patients with hyperkalemia,

In Study 4, the safety of LOKELMA was comparable to placebo¹⁹

Overall, 40 patients in the LOKELMA group (41.7%) reported adverse events, compared to 46 patients in the placebo group (46.5%)^{1,19}

	LOKELMA Placebo (n=97) (n=99)	
GI disorders	19.8%	17.2%
Infections	12.5%	9.1%
Overall SAEs	7.3%	8.1%

- ► In Study 4 in which most patients were treated with doses of 5 g to 10 g once daily on non-dialysis days, there was no difference in the mean change from baseline in interdialytic weight gain (a measure of fluid retention) between the LOKELMA and placebo groups¹
- ► 5% of patients developed pre-dialysis hypokalemia (serum K⁺ <3.5 mEq/L) in both the LOKELMA and placebo groups; 3% and 1% of patients developed a serum K⁺ <3.0 mEq/L in the LOKELMA and placebo groups, respectively¹
- ► The most common SAEs were angina pectoris (2.1%) in the LOKELMA group and hyperkalemia requiring rescue therapy (3%)* and fluid overload (2%) in the placebo group¹⁹
- None of the SAEs were related to study drug¹⁹

Use of rescue therapy included but was not limited to insulin/glucose, sodium bicarbonate, β-adrenergic agonists, potassium binders (SPS, CPS, patiromer), and any other form of renal replacement therapy including additional dialysis or reduction in dialysate K concentration.¹⁹

 $CPS = calcium\ polystyrene\ sulfonate;\ GI = gastrointestinal;\ IDWG = interdialytic\ weight\ gain;\ SAEs = serious\ adverse\ events;\ SPS = sodium\ polystyrene\ sulfonate.$

IMPORTANT SAFETY INFORMATION FOR LOKELMA (cont'd)

DRUG INTERACTIONS: LOKELMA can transiently increase gastric pH. In general, oral medications with pH-dependent solubility should be administered at least 2 hours before or 2 hours after LOKELMA. Spacing is not needed if it has been determined the concomitant medication does not exhibit pH-dependent solubility.

WARNINGS AND PRECAUTIONS:

► **Hypokalemia in Patients on Hemodialysis:** Patients on hemodialysis may be prone to acute illness that can increase the risk of hypokalemia on LOKELMA (eg, illnesses associated with decreased oral intake, diarrhea). Consider adjusting LOKELMA dose based on potassium levels in these settings.

NEW DOSING

For patients on chronic hemodialysis, LOKELMA should only be dosed on non-dialysis days¹

TAKE ONE

5 g PACKET

1X/DAY

ON NON-DIALYSIS DAYS¹

- ► The recommended starting dose is 5 g once daily on non-dialysis days¹
- ► Consider a starting dose of 10 g once daily on non-dialysis days in patients with serum potassium >6.5 mEq/L¹
- ► Monitor serum K⁺ and adjust the dose of LOKELMA based on the pre-dialysis serum K⁺ value after the LIDI and desired target range¹
- ▶ During initiation and after a dose adjustment, assess serum potassium after 1 week¹
- ► Recommended maintenance dose range is from 5 g to 15 g once daily, on non-dialysis days¹
- ▶ Discontinue or decrease the dose of LOKELMA if:
 - Serum K⁺ falls below the desired target range based on the pre-dialysis value after the LIDI,¹ or
- The patient develops clinically significant hypokalemia¹

Patients:

- ▶ Should be advised to adjust dietary sodium, if appropriate¹
- ► Can take LOKELMA with or without food¹
- ► Do not need to refrigerate LOKELMA¹



How to dose LOKELMA

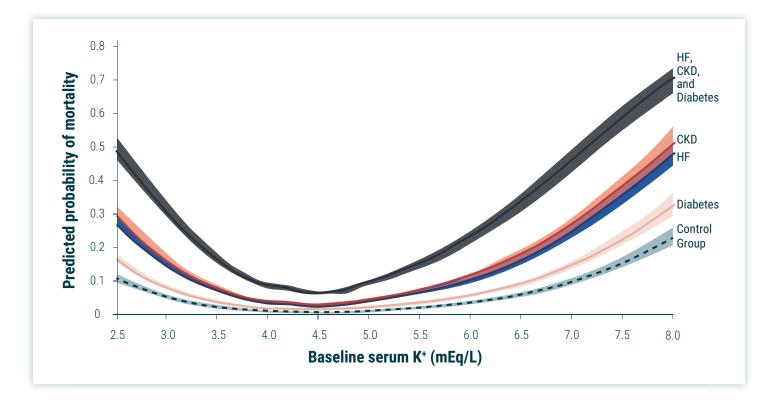
- ► LOKELMA is a white powder available as 5 g or 10 g foil-lined packet for oral suspension¹
- ► Administer LOKELMA orally as a suspension in water¹
- ► Empty the entire contents of the packet(s) into a drinking glass containing approximately 3 tablespoons of water or more if desired¹
- ► Stir well and drink immediately¹
- ▶ If powder remains in the glass, add water, stir, and drink immediately. Repeat until no powder remains¹
- ▶ In general, other oral medications should be administered at least 2 hours before or 2 hours after taking LOKELMA¹

LIDI=long interdialytic interval.



Hyperkalemia poses an increased risk of mortality²⁰

In a study of almost 1 million patients, hyperkalemia was an independent risk factor for all-cause mortality²⁰



LOKELMA® (sodium zirconium cyclosilicate) is not indicated to reduce the risk of death.1

Serum K⁺ ≥5.0 mEq/L was associated with an increased risk of all-cause mortality in patients with CKD, HF, diabetes, all 3, or none of these comorbidities²⁰

▶ Even mild hyperkalemia (5.0-<5.5 mEq/L) was associated with increased all-cause mortality over an average 18-month follow-up²⁰

guideline-recommended treatment²¹

Reducing or discontinuing RAAS inhibitor therapy to manage hyperkalemia may compromise

The American Diabetes Association, KDIGO, and the American College of Cardiology/ **American Heart Association Task Force on Clinical Practice Guidelines/Heart Failure** Society of America all recommend RAAS inhibitor therapy for patients with diabetes, CKD, and HF, respectively²²⁻²⁴

Despite guideline recommendations, RAAS inhibitor therapy was frequently reduced or discontinued to manage hyperkalemia²¹



▶ In 1 study, almost 50% of patients who experienced a moderate-to-severe* hyperkalemia event had their RAAS inhibitor stopped or reduced²¹

In this analysis from the Humedica database of health records, medical data were analyzed for 66,862 patients with hyperkalemia. Patients with at least 1 outpatient RAAS inhibitor prescription were included in the 12-month analysis. Patients with end-stage renal disease, CKD stage 5,

Retrospective study of 911,698 patients from multiple integrated health delivery networks (Humedica). Control group included 338,297 individuals without known HF, CKD, diabetes, cardiovascular disease, or hypertension. Patient data came from private insurers, Medicare and Medicaid users, and uninsured individuals.20 CKD=chronic kidney disease; HF=heart failure.

LOKELMA led to rapid reduction in serum K⁺ levels¹

STUDY 1: Reduction in serum K⁺ levels were observed in patients within 1 hour after initiation of LOKELMA 10 g tid and continued to decline over the 48-hour treatment period^{1,2}

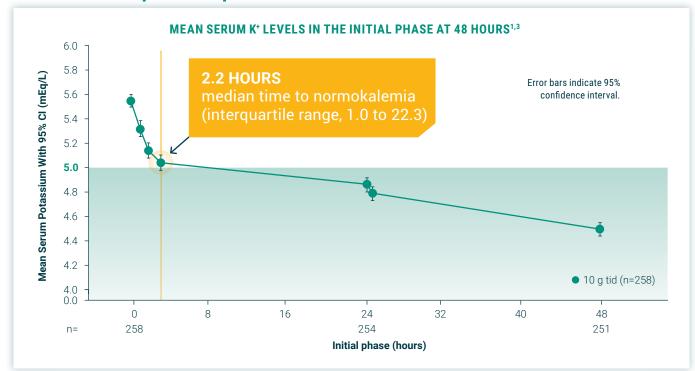
- ► The study met its primary endpoint: difference in exponential rate of change in serum K⁺ levels during the initial 48 hours of LOKELMA vs placebo¹
- ► LOKELMA demonstrated a greater reduction in serum K⁺ levels compared to placebo (P<0.001)¹



STUDY 2: Of the patients enrolled (n=258), 92% achieved normal K* levels within 48 hours from baseline¹

Average serum K^+ levels decreased from 5.6 mEq/L to 4.5 mEq/L (with LOKELMA 10 g tid for 48 hours with meals)¹

STUDY 2: Initial open-label phase^{1,3}



LIMITATION OF USE: LOKELMA should not be used as an emergency treatment for life-threatening hyperkalemia because of its delayed onset of action.¹

STUDY 1 DESIGN: In the initial phase of a multicenter, 2-part, double-blind, randomized, placebo-controlled, phase 3 trial, 753 patients received placebo or 1.25 g, 2.5 g, 5 g, or 10 g LOKELMA tid with meals for the initial 48 hours.^{1,2}

STUDY 2 DESIGN: After the open-label initial phase of a multicenter, 2-part, phase 3 trial, in which 258 patients received 10 g LOKELMA administered tid with meals for 48 hours, patients who achieved a K* level between 3.5 and 5.0 mEq/L were randomized (4:4:4:7) to receive 5 g, 10 g, or 15 g LOKELMA or placebo once daily taken just before breakfast for 28 days in the withdrawal phase. 123 patients who completed the withdrawal phase participated in the 11-month, open-label extension study.^{1,3} tid=3 times a day.

IMPORTANT SAFETY INFORMATION FOR LOKELMA (cont'd)

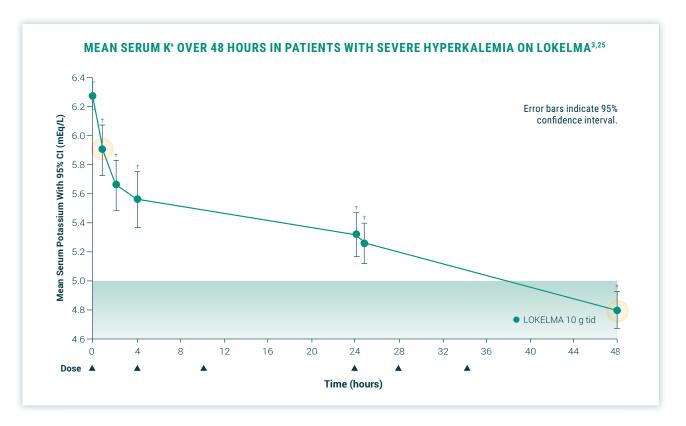
DRUG INTERACTIONS: LOKELMA can transiently increase gastric pH. In general, oral medications with pH-dependent solubility should be administered at least 2 hours before or 2 hours after LOKELMA. Spacing is not needed if it has been determined the concomitant medication does not exhibit pH-dependent solubility.

In adult patients with hyperkalemia who are not on dialysis,

Patients with severe hyperkalemia* exhibited a greater response to LOKELMA^{1,25}

STUDY 1 AND STUDY 2: Post-hoc pooled analysis²⁵

- 45 patients with baseline serum K⁺ ≥6.0 mEq/L received LOKELMA 10 g tid for 48 hours²⁵
- ► The median time to K⁺ <6 mEq/L was **1.1 hours**, and the majority of patients achieved K⁺ levels ≤5.5 mEq/L by 4 hours²⁵



- ► The mean baseline serum K⁺ level among patients with severe hyperkalemia (n=45) was 6.27 mEq/L²⁵
- ► Serum K⁺ levels at 1, 2, 4, 24, and 48 hours were -0.4, -0.6, -0.7, -0.9, and -1.5 mEq/L, respectively²⁵

This data analysis was for initial phase only. There is limited experience in 45 patients with serum K⁺ concentrations \geq 6.0 mEq/L.²⁵ Note: Normal serum potassium: 3.5-5.0 mEq/L.¹



^{*}Severe hyperkalemia was defined as serum K $^+$ \ge 6.0 mEq/L. 25 $^+$ P<0.0001. 25 tid=3 times a day.

SUSTAINED

In adult patients with hyperkalemia who are not on dialysis,

LOKELMA sustained normokalemia* for up to 1 year with continued treatment¹

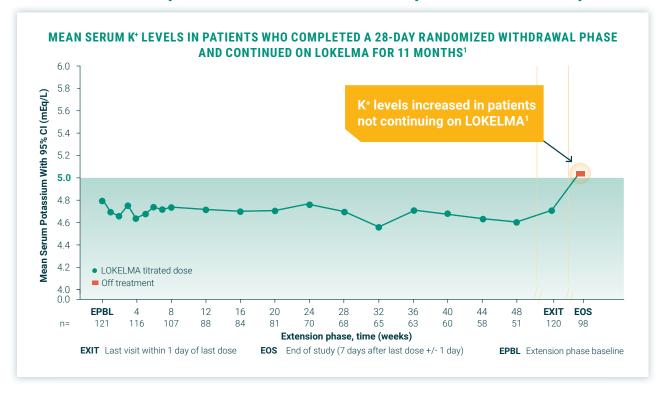
In a 1-month study, LOKELMA sustained mean K⁺ at lower levels than placebo^{1,3} IN STUDY 2^{1,3}:

- ► LOKELMA-treated patients with hyperkalemia who achieved normokalemia at 48 hours were enrolled in the double-blind, randomized withdrawal phase of the study^{1,3}
- Primary endpoint was met: mean serum K⁺ value over Days 8-29 with LOKELMA 5 g, 10 g, and 15 g maintaining lower mean serum K⁺ levels than placebo (4.8 mEg/L, 4.5 mEg/L, and 4.4 mEg/L vs 5.1 mEg/L, respectively; P≤0.001 for all doses)^{1,3}

For maintenance treatment¹:

- ► The recommended dose of LOKELMA is 10 g gd¹
- Monitor serum potassium and adjust dose of LOKELMA at 1-week intervals or longer in increments of 5 g¹
- ► The recommended maintenance dose range is from 5 g god to 15 g gd¹

STUDY 2 EXTENSION: For 11 months, LOKELMA sustained normal serum K⁺ levels with continued treatment in patients who remained in the open-label extension phase.¹



► The mean dose of LOKELMA was 10 g qd in 73.2% (90/123) of patients; >10 g qd in 13.0% (16/123) of patients, and <10 g qd in 13.8% (17/123) of patients²⁶

STUDY 2 EXTENSION DESIGN: 123 patients who were included in the 28-day randomized withdrawal phase of Study 2 had the option to continue treatment with LOKELMA, taken just before breakfast, in an open-label extension phase for up to 11 months (N=123). Patients who had i-STAT K* values between 3.5 and 5.5 mEq/L at Day 29 started on open-label LOKELMA at 10 g qd. Patients with i-STAT K* values >5.5 mEq/L at Day 29 received LOKELMA 10 g tid for up to 48 hours, and those who achieved normokalemia* entered into the open-label extended dosing phase and received LOKELMA at 10 g qd. Patients had their K* level monitored periodically during the study and the dose of LOKELMA was titrated in 5-g increments to 5 g qod up to 15 g qd, based on i-STAT K* values.^{1,26}

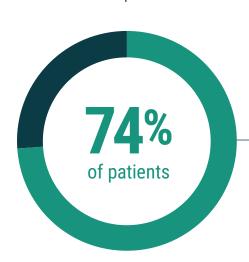
CI=confidence interval; qd=once daily; qod=every other day; tid=3 times a day.

In a retrospective analysis of Study 3,

A majority of patients maintained their RAAS inhibitor use*4



Among patients on RAAS inhibitor therapy (n=520) during the maintenance phase[†] of Study 3, a 12-month, open-label study evaluating LOKELMA in patients with hyperkalemia, 37 initiated therapy during the maintenance phase and 483 were on therapy at baseline. Of those 483 patients⁴:



No change in RAAS inhibitor therapy4

- ▶ 13% of patients increased their RAAS inhibitor dose^{‡4}
- ▶ 14% of patients decreased their dose^{‡4}
- ► 11% of patients discontinued their dose⁴

LOKELMA was administered in clinical trials without the requirement of low-potassium diet modification^{1,2-4,26}

STUDY 3 DESIGN: LOKELMA was evaluated for long-term efficacy in 751 patients with hyperkalemia in an open-label, single-arm, 12-month, phase 3 study. Following the initial phase treatment of LOKELMA 10 g tid, patients who achieved normokalemia[§] within 72 hours (n=746; 99%) entered the maintenance phase. For maintenance treatment, the initial dose of LOKELMA was 5 g qd and was adjusted to a minimum of 5 g qod up to a maximum of 15 g qd, based on serum potassium level. The primary endpoints included the percentage of patients who achieved normokalemia[§] during the initial phase and the percentage of patients who maintained mean serum potassium ≤ 5.1 mEq/L during Months 3-12 of the maintenance phase. ^{1,4}

*Based on a retrospective analysis of the changes in RAAS inhibitor use during the maintenance phase of a 12-month, open-label study.

†Excluded 5 patients who discontinued RAAS inhibitor therapy prior to their first dose of the study drug.⁴

[‡]Patients were counted more than once if they required more than 1 RAAS inhibitor adjustment, so the total percentage across all 4 categories may exceed 100%.

 § Normokalemia was defined as serum potassium levels between 3.5 and 5.0 mEq/L. §

qd=once daily; qod=every other day; RAAS=renin-angiotensin-aldosterone system; tid=3 times a day.

IMPORTANT SAFETY INFORMATION FOR LOKELMA WARNINGS AND PRECAUTIONS:

Gastrointestinal Adverse Events in Patients with Motility Disorders: Avoid LOKELMA in patients with severe constipation, bowel obstruction or impaction, including abnormal post-operative bowel motility disorders. LOKELMA has not been studied in patients with these conditions and it may be ineffective and may worsen gastrointestinal conditions.



^{*}Normokalemia (normal serum K* levels) was defined as serum potassium levels between 3.5 mEq/L and 5 mEq/L.

[†]Normokalemia was defined as iSTAT potassium levels between 3.5 mEq/L and 5.0 mEq/L.

LOKELMA was shown to be safe and generally well tolerated¹



Safety was evaluated in clinical trials with more than 1700 patients not on dialysis with hyperkalemia and comorbidities including CKD, DM, and CHF, with 507 patients treated for at least 1 year¹



► There are no GI side
effects listed in the
LOKELMA Prescribing
Information; however,
there were GI adverse
events observed in the
clinical studies¹-4,26

Adverse events in non-dialysis patients

Edema

- ▶ In clinical trials of LOKELMA, edema was generally mild to moderate in severity
- ▶ In placebo-controlled trials in which patients were treated with once-daily doses of LOKELMA for up to 28 days:

LOKELMA			Placebo
5 g qd	10 g qd	15 g qd	Placebo
4.4%	5.9%	16.1%	2.4%

- 0.2% of patients (1/479) discontinued LOKELMA due to edema*27
- ► In longer-term, uncontrolled trials, in which most patients were maintained on doses <15 g qd, edema (including edema, generalized edema, and peripheral edema) was reported in 8% to 11% of patients¹

Hypokalemia

► 4.1% of LOKELMA-treated patients developed hypokalemia with a serum K⁺ value <3.5 mEq/L, which resolved with dose reduction or discontinuation of LOKELMA¹

*During the maintenance phase, 1 patient who received 15 g LOKELMA qd was withdrawn due to general edema. There were no patient discontinuations due to edema for the initial phases of the trials.²⁷

CHF=congestive heart failure; CKD=chronic kidney disease; DM=diabetes mellitus; Gl=gastrointestinal; qd= once daily.

IMPORTANT SAFETY INFORMATION FOR LOKELMA WARNINGS AND PRECAUTIONS:

- ► Gastrointestinal Adverse Events in Patients with Motility Disorders: Avoid LOKELMA in patients with severe constipation, bowel obstruction or impaction, including abnormal post-operative bowel motility disorders. LOKELMA has not been studied in patients with these conditions and it may be ineffective and may worsen gastrointestinal conditions.
- ▶ Edema: Each 5-g dose of LOKELMA contains approximately 400 mg of sodium, but the extent of absorption by the patient is unknown. In clinical trials of LOKELMA in patients who were not on dialysis, edema was observed and was generally mild to moderate in severity and was more commonly seen in patients treated with 15 g once daily. Monitor for signs of edema, particularly in patients who should restrict their sodium intake or are prone to fluid overload (eg, heart failure or renal disease). Advise patients to adjust dietary sodium, if appropriate. Increase the dose of diuretics as needed.

Please read additional Important Safety Information on page 22 and accompanying full Prescribing Information.

Treatment-emergent adverse events in LOKELMA Studies 1 and 2²⁷

TEAEs in ≥2.0% of patients in the pooled analysis for the initial phases of Studies 1 and 2, in which patients were dosed with placebo or LOKELMA 10 g tid for 48 hours*†27

- ► The only TEAE reported by ≥2.0% of patients in any treatment group was diarrhea, which was experienced in 2.1% of patients in the placebo group and 1.2% of patients in the LOKELMA 10 g tid group²⁷
- ► The overall incidence of gastrointestinal disorders experienced by patients was 5.3% in the placebo group and 4.5% in the LOKELMA 10 g tid treatment group²⁷

TEAES REPORTED BY ≥2.0% OF PATIENTS IN ANY TREATMENT GROUP DURING THE WITHDRAWAL PHASE OF STUDIES 1 AND 2 FOR UP TO 28 DAYS^{‡§27}

	Placebo ^{II} (n=301)	STARTING DOSE O	STARTING DOSE OF LOKELMA DURING THE WITHDRAWAL PH		
		5 g qd (n=110)	10 g qd (n=114)	15 g qd (n=56)	
Any event	26.6%	34.5%	31.6%	44.6%	
System organ class preferred term, (%)					
Blood and lymphatic system disorders	0.3%	3.6%	0.0%	5.4%	
Anemia	0.0%	0.9%	0.0%	5.4%	
Gastrointestinal disorders	6.6%	7.3%	3.5%	8.9%	
Constipation	2.3%	0.0%	2.6%	1.8%	
Diarrhea	2.0%	1.8%	0.0%	3.6%	
Dyspepsia	0.0%	3.6%	0.0%	0.0%	
Nausea	0.7%	0.0%	0.9%	1.8%	
Vomiting	0.7%	3.6%	0.0%	0.0%	
General disorders and administration site conditions	2.3%	1.8%	8.8%	17.9%	
Fatigue	0.0%	0.0%	0.9%	3.6%	
Generalized edema	0.0%	0.0%	0.0%	3.6%	
Edema peripheral	1.7%	0.0%	4.4%	10.7%	
Infections and infestations	7.3%	11.8%	7.9%	16.1%	
Influenza	0.0%	0.0%	0.9%	3.6%	
Nasopharyngitis	0.3%	0.0%	0.0%	5.4%	
Upper respiratory tract infection	1.0%	2.7%	1.8%	1.8%	
Urinary tract infection	1.3%	5.5%	3.5%	0.0%	
Investigations	3.3%	3.6%	2.6%	3.6%	
Electrocardiogram QT prolonged	0.0%	0.9%	0.0%	3.6%	
Renal and urinary disorders	2.0%	6.4%	0.9%	3.6%	
Renal failure	0.0%	2.7%	0.0%	0.0%	
Vascular disorders	1.3%	2.7%	1.8%	5.4%	
Hypertension	1.3%	1.8%	1.8%	3.6%	

[‡]In a pooled analysis of Study 1 and Study 2 in which patients were treated across all LOKELMA doses for up to 28 days.²⁷



^{*}The initial phase of Study 2 was not placebo controlled.1

 $^{^{\}dagger}$ In the pooled analysis for the initial phases of Studies 1 and 2, the overall incidence of TEAEs was 10.6% in the placebo group and 10.4% in the LOKELMA 10 g tid group. 27

^{\$}Study 1 was placebo controlled in the initial phase; in Study 2 all patients received LOKELMA 10 g tid for 48 hours in the initial phase. 27

[&]quot;Following treatment with LOKELMA tid during the initial phase. 27

qd=once daily; QT=QT interval; TEAE=treatment-emergent adverse event; tid=3 times a day.

Following an initial treatment period of up to 48 hours, LOKELMA is a once-daily option¹



3 tbsp
of water

Patients:

- Are not required to make changes in potassium-lowering diets¹⁻³
 - Advise patients to adjust dietary sodium, if appropriate¹
- Can take LOKELMA with or without food¹
- ► Do not need to refrigerate LOKELMA¹

How to dose LOKELMA

- ▶ LOKELMA is a white powder available as 5 g or 10 g foil-lined packet for oral suspension¹
- ► Administer LOKELMA orally as a suspension in water¹
- ▶ Empty the entire contents of the packet(s) into a drinking glass containing approximately 3 tablespoons of water or more if desired¹

LOKELMA'

- ► Stir well and drink immediately¹
- ▶ If powder remains in the glass, add water, stir, and drink immediately. Repeat until no powder remains¹
- ▶ In general, other oral medications should be administered at least 2 hours before or 2 hours after taking LOKELMA¹

IMPORTANT SAFETY INFORMATION FOR LOKELMA (cont'd) WARNINGS AND PRECAUTIONS (cont'd):

- ▶ Edema (cont'd): In a clinical trial of LOKELMA in patients on chronic hemodialysis in which most patients were treated with doses of 5 g to 10 g once daily on non-dialysis days, there was no difference in the mean change from baseline in interdialytic weight gain (a measure of fluid retention) between the LOKELMA and placebo groups.
- ► **Hypokalemia in Patients on Hemodialysis:** Patients on hemodialysis may be prone to acute illness that can increase the risk of hypokalemia on LOKELMA (eg, illnesses associated with decreased oral intake, diarrhea). Consider adjusting LOKELMA dose based on potassium levels in these settings.

Recommended dosing for initial treatment and maintenance therapy for hyperkalemia in non-dialysis patients¹

RECOMMENDED STARTING DOSE

TAKE ONE

10 g PACKET

3X/DAY

FOR UP TO 48 HOURS (2 DAYS)

MAINTENANCE TREATMENT

TAKE ONE

10 g PACKET

1X/DAY

- ► Monitor serum potassium and adjust the dose of LOKELMA based on the serum potassium level and desired target range¹
- ▶ During maintenance treatment, up-titrate based on the serum potassium level at intervals of 1 week or longer and in increments of 5 g¹
- ► The recommended maintenance dose range is from 5 g god to 15 g daily¹
- ► Decrease the dose of LOKELMA or discontinue if the serum potassium is below the desired target range¹

qod=every other day.



Important Safety Information

References



IMPORTANT SAFETY INFORMATION FOR LOKELMA® (sodium zirconium cyclosilicate)

WARNINGS AND PRECAUTIONS:

- Gastrointestinal Adverse Events in Patients with Motility Disorders: Avoid LOKELMA in patients with severe constipation, bowel obstruction or impaction, including abnormal post-operative bowel motility disorders. LOKELMA has not been studied in patients with these conditions and it may be ineffective and may worsen gastrointestinal conditions.
- ▶ **Edema:** Each 5-g dose of LOKELMA contains approximately 400 mg of sodium, but the extent of absorption by the patient is unknown. In clinical trials of LOKELMA in patients who were not on dialysis, edema was observed and was generally mild to moderate in severity and was more commonly seen in patients treated with 15 g once daily. Monitor for signs of edema, particularly in patients who should restrict their sodium intake or are prone to fluid overload (eg, heart failure or renal disease). Advise patients to adjust dietary sodium, if appropriate. Increase the dose of diuretics as needed.
- In a clinical trial of LOKELMA in patients on chronic hemodialysis in which most patients were treated with doses of 5 g to 10 g once daily on non-dialysis days, there was no difference in the mean change from baseline in interdialytic weight gain (a measure of fluid retention) between the LOKELMA and placebo groups.
- ► **Hypokalemia in Patients on Hemodialysis:** Patients on hemodialysis may be prone to acute illness that can increase the risk of hypokalemia on LOKELMA (eg, illnesses associated with decreased oral intake, diarrhea). Consider adjusting LOKELMA dose based on potassium levels in these settings.

ADVERSE REACTIONS: The most common adverse reaction in non-dialysis patients with LOKELMA was mild to moderate edema. In placebo-controlled trials up to 28 days, edema was reported in 4.4%, 5.9%, 16.1% of non-dialysis patients treated with 5 g, 10 g, and 15 g of LOKELMA once daily, respectively vs 2.4% of non-dialysis patients receiving placebo.

DRUG INTERACTIONS: LOKELMA can transiently increase gastric pH. In general, oral medications with pH-dependent solubility should be administered at least 2 hours before or 2 hours after LOKELMA. Spacing is not needed if it has been determined the concomitant medication does not exhibit pH-dependent solubility.

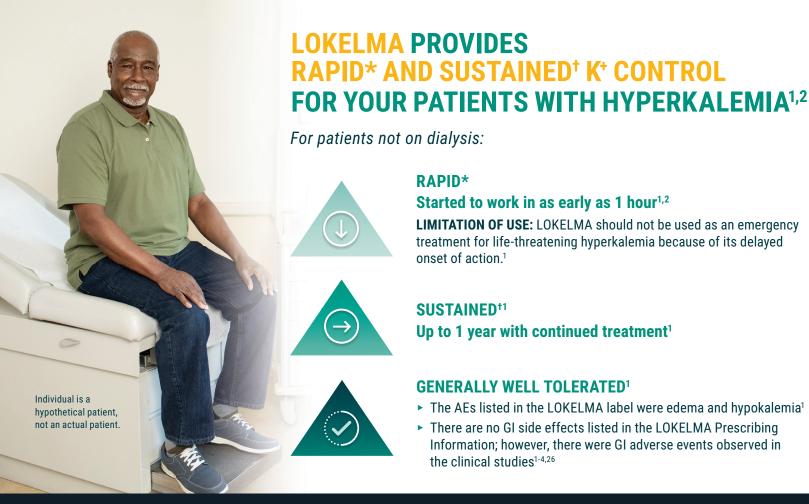
INDICATION AND LIMITATION OF USE

LOKELMA is indicated for the treatment of hyperkalemia in adults.

LOKELMA should not be used as an emergency treatment for life-threatening hyperkalemia because of its delayed onset of action.

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RAPID* Started to work in as early as 1 hour^{1,2}

LIMITATION OF USE: LOKELMA should not be used as an emergency treatment for life-threatening hyperkalemia because of its delayed

SUSTAINED^{†1}

Up to 1 year with continued treatment¹

GENERALLY WELL TOLERATED¹

- The AEs listed in the LOKELMA label were edema and hypokalemia¹
- There are no GI side effects listed in the LOKELMA Prescribing Information; however, there were GI adverse events observed in the clinical studies1-4,26

Adverse reactions reported in LOKELMA label in non-dialysis patients

Edema

- In clinical trials of LOKELMA, edema was generally mild to moderate in severity1
- In placebo-controlled trials in which patients were treated with once-daily doses of LOKELMA for up to 28 days, edema was reported in 4.4%, 5.9%, and 16.1% of patients receiving 5 g, 10 g, and 15 g LOKELMA, respectively, compared with 2.4% of patients receiving placebo1
- In longer-term, uncontrolled trials, in which most patients were maintained on doses <15 g gd, edema (including edema, generalized edema, and peripheral edema) was reported in 8% to 11% of patients1
- In a pooled analysis of placebo-controlled trials in which patients were treated across all LOKELMA doses for up to 28 days, 0.2% of patients (1/479) discontinued LOKELMA

Hypokalemia

not on dialysis.1,2

▶ 4.1% of LOKELMA-treated patients developed hypokalemia with a serum K⁺ value <3.5 mEq/L, which resolved with dose reduction or discontinuation of LOKELMA1

if appropriate. Increase the dose of diuretics as needed. due to edema^{‡27}

*In Study 1, LOKELMA 10 g tid demonstrated a greater reduction in serum K+ levels vs placebo at 48 hours and started to work as early as 1 hour in patients with hyperkalemia

†In Study 2, LOKELMA-treated patients with hyperkalemia not on dialysis who achieved normokalemia at 48 hours maintained mean serum K* at lower levels than placebo at all 3 daily doses (5 g, 10 g, 15 g) in the 28-day randomized withdrawal phase. Patients in Study 2 who continued into the open-label, 11-month extension phase sustained normokalemia with continued LOKELMA dosing.^{1,2}

You are encouraged to report negative side effects of AstraZeneca prescription drugs by calling 1-800-236-9933. If you prefer to report these to the FDA, either visit www.FDA.gov/medwatch or call 1-800-FDA-1088.

IMPORTANT SAFETY INFORMATION FOR LOKELMA WARNINGS AND PRECAUTIONS:

- Gastrointestinal Adverse Events in Patients with Motility **Disorders:** Avoid LOKELMA in patients with severe constipation, bowel obstruction or impaction, including abnormal post-operative bowel motility disorders. LOKELMA has not been studied in patients with these conditions and it may be ineffective and may worsen gastrointestinal conditions.
- Edema: Each 5-g dose of LOKELMA contains approximately 400 mg of sodium, but the extent of absorption by the patient is unknown. In clinical trials of LOKELMA in patients who were not on dialysis, edema was observed and was generally mild to moderate in severity and was more commonly seen in patients treated with 15 g once daily. Monitor for signs of edema, particularly in patients who should restrict their sodium intake or are prone to fluid overload (eg, heart failure or renal disease). Advise patients to adjust dietary sodium,

Please read additional Important Safety Information on page 22 and accompanying full Prescribing Information.

‡Edema, in the discontinuation rate analysis, includes generalized edema, peripheral edema, fluid overload, and fluid retention. During the maintenance phase, 1 patient who received 15 g LOKELMA qd was withdrawn due to general edema. There were no patient discontinuations due to edema for the initial phases of the trials.2

AEs=adverse events; GI=gastrointestinal; gd=once daily; tid=3 times a day.



(sodium zirconium cyclosilicate) 5q 10q for oral suspension



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