



Delivering Nourishment.  
Improving Health.



**Mission-driven, non-profit organization**

Majority funded by philanthropy  
and fundraising events

Approximately 35% covered by insurers

**>30 years of treating diet-related diseases**

- Medically Tailored Meals
- Medical Nutrition Therapy
- Nutrition Counseling



**FOUNDING MEMBER**

# Malnutrition Encompasses Many Health Conditions

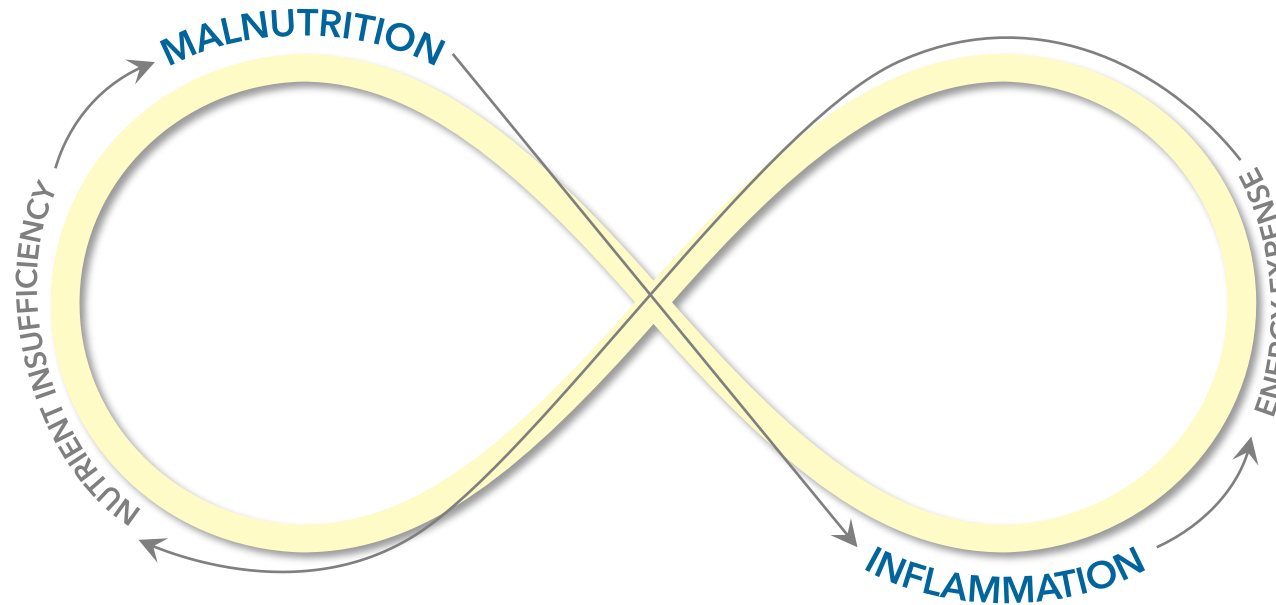
**Malnutrition** includes any condition where a person is not receiving the nutrients needed to support health and recovery



## DID YOU KNOW?

 Even obese patients can experience worsened disease outcomes due to unintentional weight loss.

# Malnutrition Drives and Is Driven by Inflammation



**Malnutrition** is a common comorbidity of chronic diseases such as cardiovascular disease and diabetes and is frequently associated with acute infections

## DID YOU KNOW?



Many clinical practice guidelines for chronic diseases recommend a specific dietary pattern.

# Malnutrition Affects Costs and Quality Measures



**Costs per readmission** have been found to be **30% higher** in patients with malnutrition



**30-day readmissions** were more frequent in patients with malnutrition (**40% vs 23%,  $P < 0.0001$** ) according to an EMR-based analysis of 3907 patients



Nutrition-focused quality improvement interventions have been found to help **lower readmission rates by ~20%** which is a CMS measure target

## HEDIS and CAHPS measures associated with nutrition

- Hospitalization following discharge (30-day rate)
- Plan all-cause readmissions
- Emergency department utilization
- Hospitalization for potentially preventable complications
- Osteoporosis management
- Comprehensive diabetes care
- Falls risk management
- Cardiac rehabilitation
- Controlling high blood pressure
- Access to preventive health services

CMS Meaningful Measures



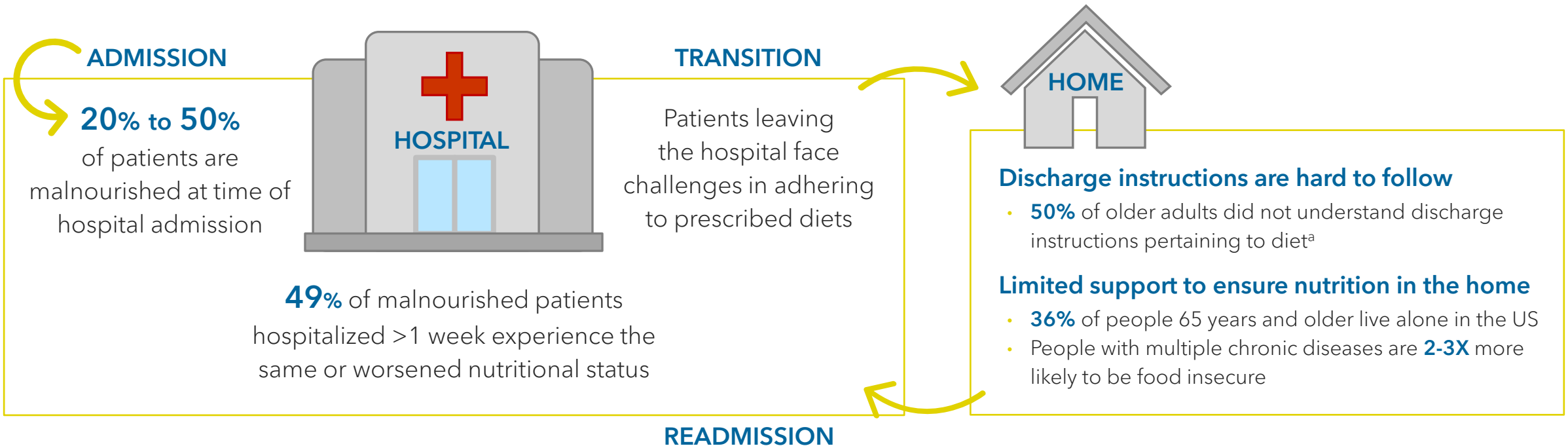
CAHPS=Consumer Assessment of Healthcare Providers and Systems; HEDIS=Healthcare Effectiveness Data and Information Set.

# Nutrition Helps Fulfill *CMS Meaningful Measures*




For more information about CMS Meaningful Measures, visit [cms.gov](https://www.cms.gov)

# Malnourished Patients Are at Risk of Readmission



## DID YOU KNOW?

 17.4% of patients with malnutrition were readmitted within 30 days vs 11.6% of those without malnutrition ( $P < 0.01$ ).

<sup>a</sup>In a study of English-speaking patients (N=450).

Discharge Diet Example





# Example Discharge Diet Instructions

## Hospital Course

### Brief Summary of Hospital Course and Important Follow up Information

You were admitted to Jefferson after experiencing shortness of breath. The cause of your shortness of breath was found to be multifactorial, including underlying chronic obstructive pulmonary disease, an acute exacerbation of your heart failure, and sleep apnea. You underwent cardiac catheterization to assess the function of your heart. You were given diuretics (water pills) to help take some of the extra fluid out of your body. You will be sent home with an inhaler (S

It is important for you to weight yourself every day. You should start taking your water pill twice a day and

### Diet Instructions

**Cardiac Diet; LowFat, 2000mg Na**

Core Diet: Cardiac Diet

Cardiac Restriction: LowFat  
2000mg Na

Fluid Restriction total / 24h: 2000 mL Fluid

Vague diet prescriptions at discharge leave preparation, combination, and portion control to the individual

### Diet Instructions

**Cardiac Diet; LowFat, 2000mg Na**

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Fluid Restriction total / 24h: 2000 mL Fluid



# Medically Tailored Meals (MTMs)

MTMs are tailored for the recipient's medical needs by a registered dietitian

FIMC Standards 

In studies of MTMs...


**70%** of MTM recipients were **adherent** to medication vs **47%** at baseline ( $P=0.046$ )<sup>a</sup>

**71** **healthy eating** index score with MTMs vs **40** in those not on meals ( $P<0.0001$ )

**52%** lower inpatient admissions in an MTM intervention group vs control ( $P<0.05$ )

Reduced HCU with MTMs 

## DID YOU KNOW?

 MTMs could avert **>500k** hospitalizations and reduce health care expenditures by **\$13 billion** in 1 year, with a net policy cost savings of **\$5.5 billion**<sup>b</sup>

<sup>a</sup>Medication adherence defined as  $\geq 95\%$ .

<sup>b</sup>Representative sample of 6,309,998 US adults aged 18 years or older who had Medicare, Medicaid, or private payer insurance and at least 1 diet-sensitive condition and 1 limitation in ADL.





# Food is Medicine Coalition Standards

BASED ON MORE THAN 30 YEARS OF EXPERIENCE WITH MTMS



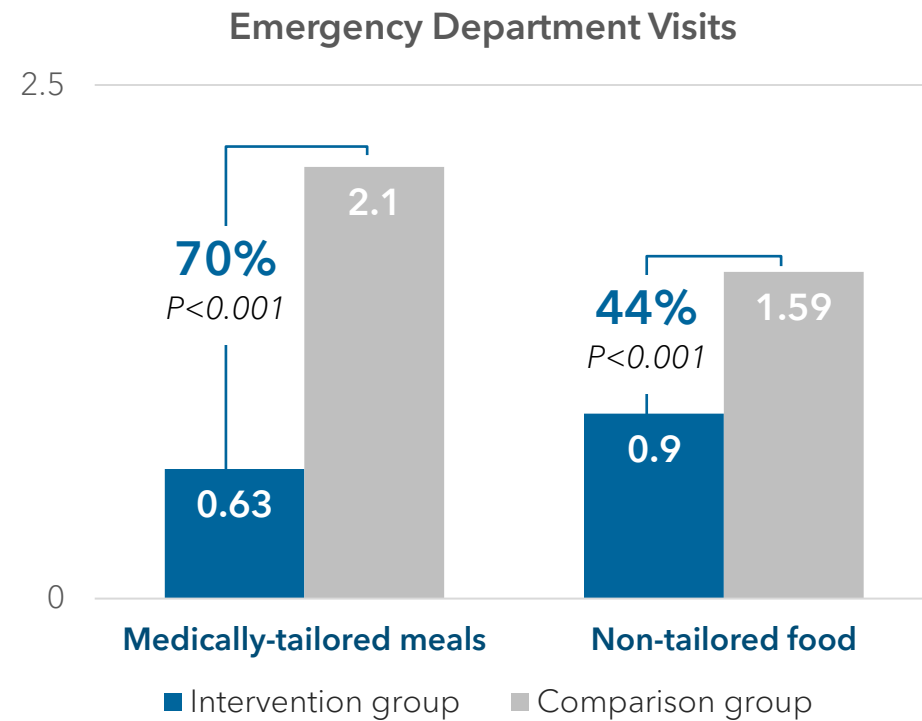
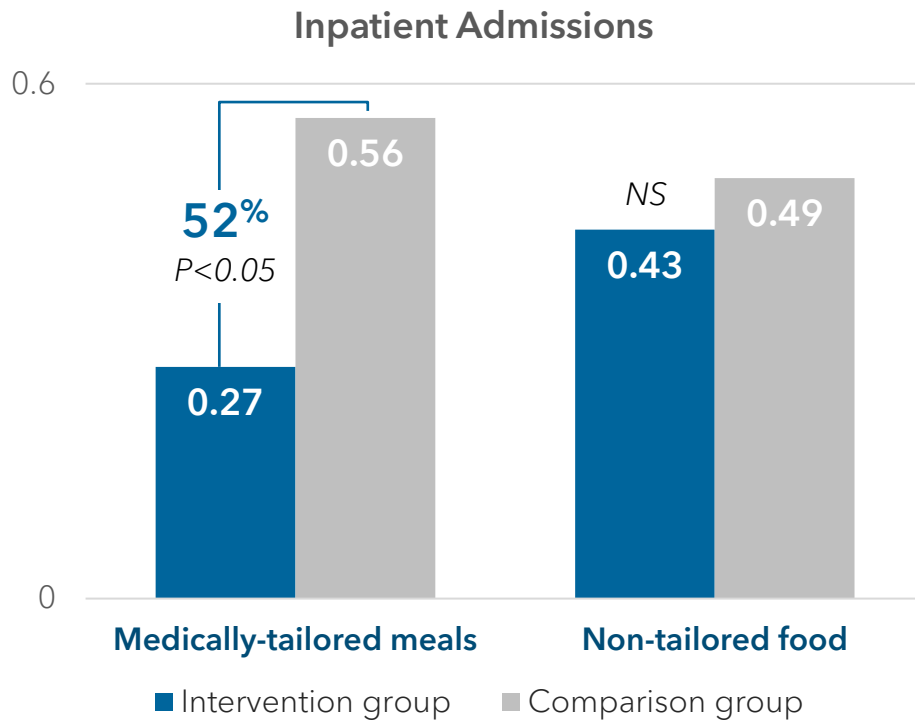
Nutrient	HIV/AIDS	HIV/AIDS +HLD (hyperlipidemia)	Elderly	Kidney Chronic Stages 3-4 (non-dialysis)	Kidney Stage 4-5 ESRD/Dialysis	Diabetes Pre-diabetes	Heart Failure	DASH TLC Heart Healthy
Calories	Needs vary similar to healthy individuals	Needs vary	Needs vary	23-35 kcal/kg	25-35 kcal/kg	Needs vary	Higher if catabolic	As per individual needs
Protein % of total daily calories	*10-35% of daily calories Individualized (RDA*)	10-35% of daily calories individualized	N/A	0.55-0.6 g/kg W/ diabetes: 0.6-0.8 g/kg	1.0-1.2g/kg With or without diabetes	Individualized macronutrient composition	N/A	18% Daily calories Lean meats/plant-based sources
Protein g/kg body weight	N/A	N/A	1-1.25g/kg (NCM)	< 64 g /day	HD 1.2 g/kg PD 1.2-1.3 g/kg	*See MTM Meal Guidelines for nutrient target values	1.1g/kg is stable 1.3 g/kg if depleted for CHF	N/A
Carbohydrate % total daily calories	45-65% (RDA*) Added sugar <10%	N/A	45-65% daily calories	N/A	N/A		N/A	55% daily calories Emphasize whole grains + vegetables
Total Fat % total daily calories	20-35% (AMDR)	25-35% of total daily calories	20-35% of daily calories	N/A	N/A		N/A	25-35% daily calories
Saturated Fat % total daily calories	<10% of kcal (DGA)	<7% total daily calories	<10% daily calories (DGA)	N/A	N/A	<7%	<7%	6-7% daily calories
Sodium (mg)	DGA CDDR: 2300 mg	DGA	</= 2300 mg/day CDDR	</= 2100 mg	<2100 mg/day	<2300 mg/day	CHF: 2000-3000 mg/day	</= 2300 mg for standard </= 1500 mg for lower NA DASH
Cholesterol	DGA	<200 mg/day	<300 mg/day	N/A	N/A	N/A	<200mg/day	150
Fiber (g)	14g/1000 (DGA)	14g/1000 (DGA)	30g/day Male 21g/day Female 14g/1000 kcal	N/A	N/A	N/A	Female: 21-25 g Male: 25-28 g Soluble fiber 7-13 g	25-31 g
Vitamin D (IU)	600 IU (RDA)	600 IU (RDA)	800 IU (RDA)	N/A	N/A	RDA	600 IU	N/A
Calcium (mg)	1000 mg (RDA)	1000 mg (RDA)	1200 mg (RDA)	Stages 3-5 not to exceed 2000 mg/day	N/A	RDA	1000 mg	1000-1200 mg
Potassium	Male: 3400 mg Female: 2600 mg (Adequate Intake)	DGA	3400 mg/day	</= 3500 mg/day	2400-2700 mg/day	DGA	N/A	4700 mg
Phosphorus	700 mg (RDA)	N/A	700 mg (RDA)	No limit but pay attention to sources due to bio-availability. Limit to 2 dairy exchanges/day (4 oz fluid milk or 1 oz cheese). Avoid foods with phosphoric additives.	Limit to <1200 mg/day	RDA	N/A	N/A
Reference for Evidence Based Guidelines	EAL; DGA (link); Dietary patterns for adults should be incorporated	EAL	NCM	NKF-KDOQI EAL; AND Nutrition Care Manual	NKF-KDOQI EAL AND Nutrition Care Manual	ADA EAL	EAL	DASH TLC; Dietary patterns for adults should be incorporated.

N/A= not applicable because guidelines do not exist for this value, is not relevant for condition or listed elsewhere on chart; NCM=Academy of Nutrition and Dietetics Nutrition Care Manual (member only site); AI=Adequate Intake; CDDR=Chronic Disease Risk Reduction Level; AMDR = Acceptable Macronutrient Ranges and Recommendations, [www.nutritioncaremanual.org](http://www.nutritioncaremanual.org); DGA=Dietary Guidelines for Americans, [www.dietaryguidelines.gov/NKF](http://www.dietaryguidelines.gov/NKF); KDOQI=National Kidney Foundation Kidney Disease Quality Initiative, [www.kidney.org/professionals/guidelines](http://www.kidney.org/professionals/guidelines) RDA/DRI Reports, [www.nal.usda.gov/fnic/dri-nutrient-reports](http://www.nal.usda.gov/fnic/dri-nutrient-reports); DRI's Interactive, [www.nal.usda.gov/fnic/interactiveDRI](http://www.nal.usda.gov/fnic/interactiveDRI); EAL=Evidence Analysis Library and the Evidence-based Nutrition Practice Guideline (member only access), <https://www.andeal.org>; ADA Standards of Medical Care for Diabetes, Volume 46 Issue Supplement\_1, Diabetes Care, American Diabetes Association ([diabetesjournals.org](http://diabetesjournals.org)); TLC=Therapeutic Lifestyle Changes (NIH/NHLBI), Therapeutic Lifestyle Changes (TLC) To Lower Cholesterol, NHLBI, NIH DASH Eating Plan, DASH Eating Plan, NHLBI, NIH



# Reduction in Healthcare Utilization With MTMs

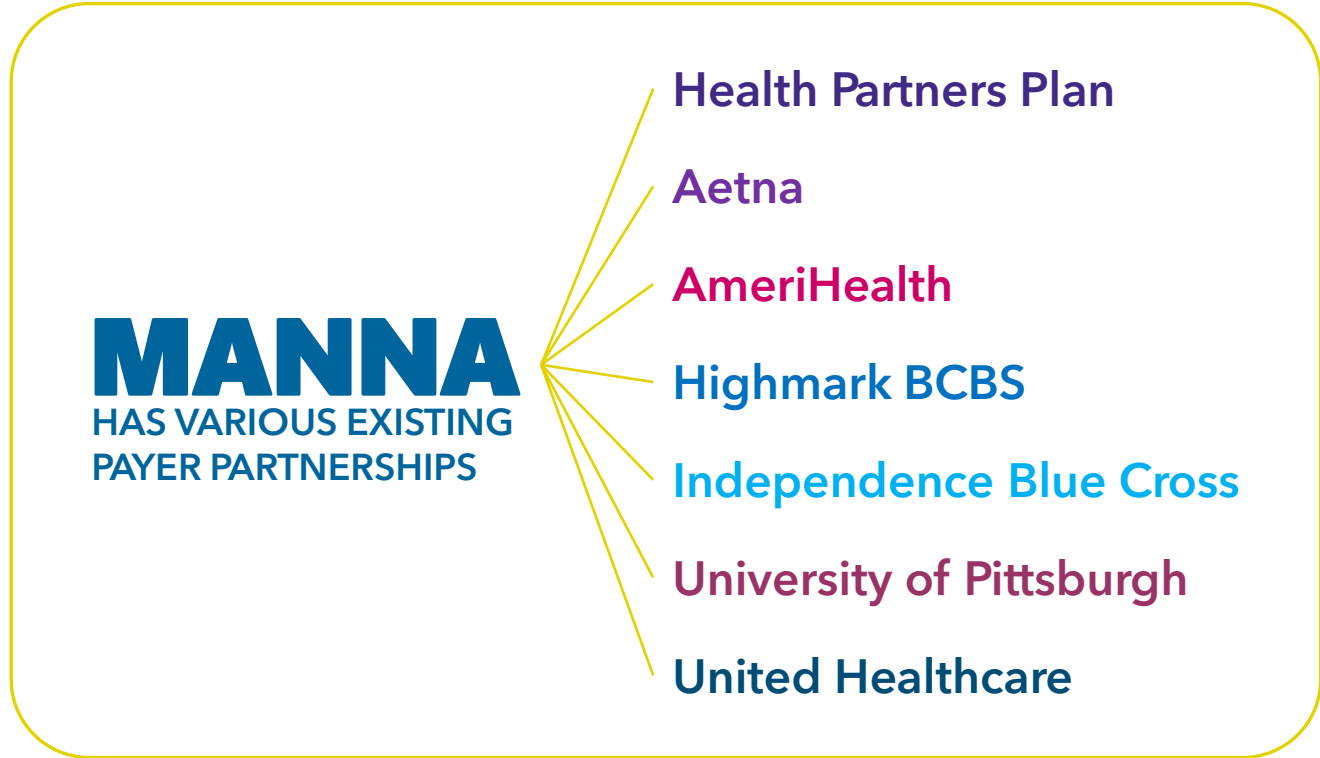
Average savings of \$220 in the medically-tailored meal group and \$10 in the non-tailored food group after subtracting intervention costs



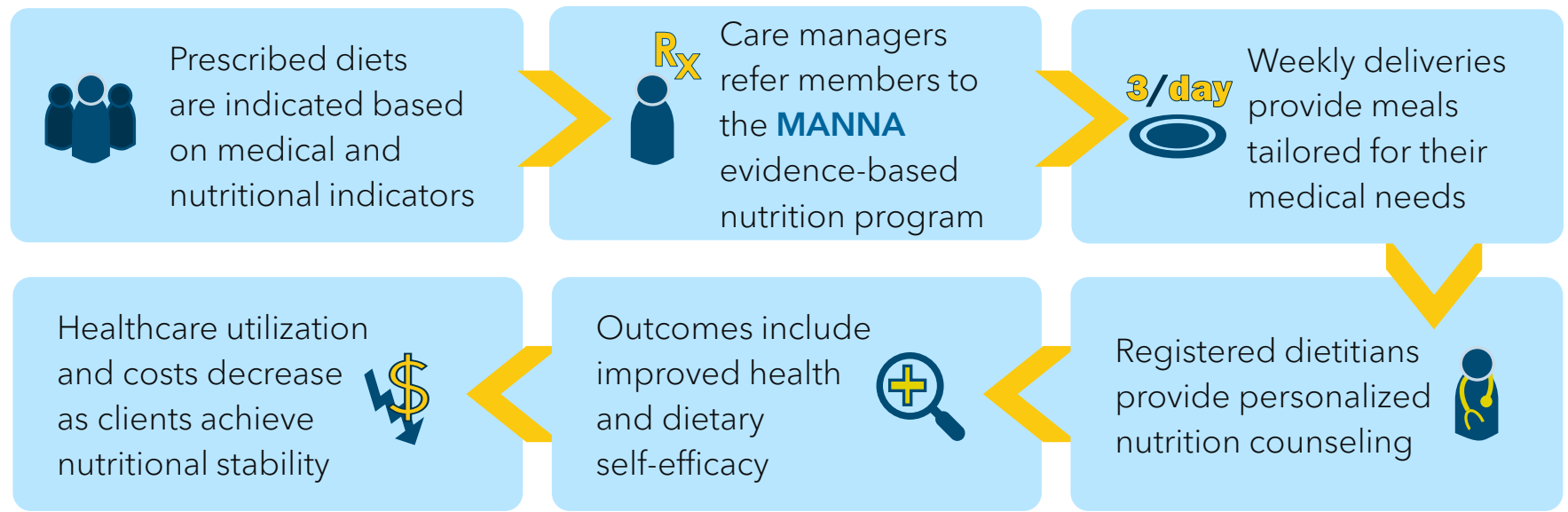
MTM Control N=1002; MTM Intervention N=133; NTF Control N=1318; NTF Intervention N=624.

# Growing Coverage of Food As Medicine

**71%** of all Medicare Advantage plans have a meal benefit as of 2023



# MANNA MTMs Treat And Prevent Malnutrition



## MANNA enables self-efficacy after program enrollment ends

- Clients learn appropriate portion sizes and how to recreate MTMs themselves
- Clients receive free nutritional coaching anytime after program ends

### DID YOU KNOW?

MANNA regularly provides meals for dependents of MTM recipients through its philanthropic arm.



# MANNA MTMs treat diet-related chronic diseases

## 11 diet modifications

- **Kidney Friendly:** low potassium, low phosphorus, low sodium
- **Diabetic/Heart Healthy:** carbohydrate and sodium controlled
- **Low Lactose:** low in dairy
- **High Calorie/High Protein:** includes additional healthy snack
- **GI Friendly:** low fiber and mild spice
- **Mechanical Soft:** easy to chew and swallow
- Pureed
- No Pork
- No Beef
- No Seafood
- Children's Menu

Clients can layer up to 3 modifications



### Nutrition Facts

Chicken Salad Sandwich with Applesauce

Serving size - 1 Serving

Amount Per Serving

**Calories** **270**

% Daily Value\*

<b>Total Fat</b> 5g	6%
<b>Cholesterol</b> 55mg	18%
<b>Sodium</b> 320mg	14%
<b>Potassium</b> 286mg	6%
<b>Total Carbohydrate</b> 30g	11%
Dietary Fiber 3g	11%
Total Sugars 15g	
<b>Protein</b> 26g	52%

\*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

MANNA MTMs are based on guidelines from the American Heart Association, American Cancer Society, and other nutrition experts



# Sample Weekly Menu

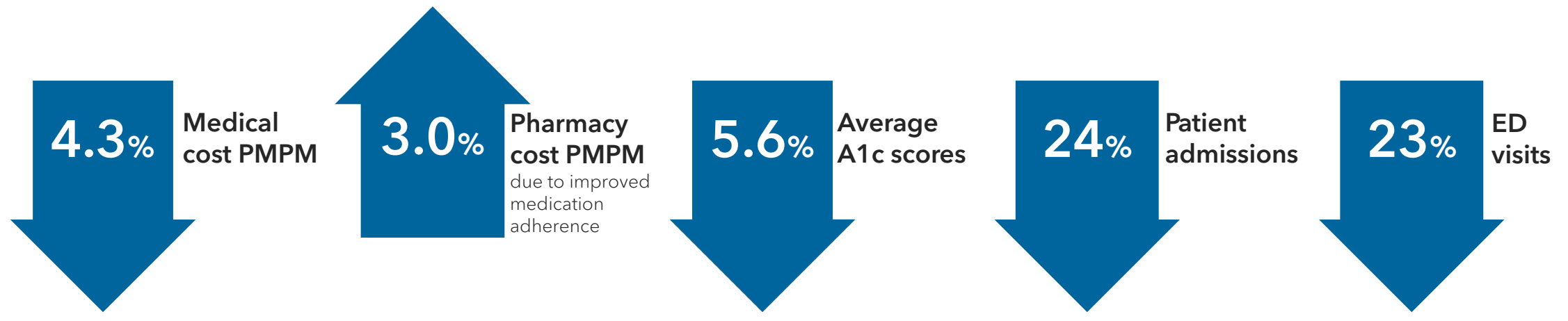
	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
BREAKFAST	<b>Breakfast Burrito</b> on a wholewheat wrap Potato Wedges Spiced Apples	<b>Apple cinnamon hot cereal</b> Yogurt Fruit cup	<b>Egg &amp; Cheese Sandwich</b> on English muffin Turkey Sausage Applesauce	<b>French Toast Sticks</b> Veggie Sausage Fruit	<b>Cold Cereal</b> with 2% milk Fruit Cup	<b>Western Omelet</b> Home Fries Fruit Salad	<b>Whole Grain Pancakes</b> Turkey Bacon Applesauce
LUNCH	<b>Mushroom Barley Soup</b> Roll Orange	<b>Beef Mac &amp; Cheese</b> Green Beans Apple	<b>Turkey Bean Chili</b> Roll Fruit Cup	<b>Corn Chowder</b> Roll Orange	<b>Tempeh Sloppy Joes</b> Pasta Salad Pear	<b>Sweet Potato &amp; Crab Bisque</b> Roll Fruit Cup	<b>Grilled Chicken Sandwich</b> Pasta Salad Apple
DINNER	<b>Vegetarian Stuffed Peppers</b> Dinner Roll Sautéed Zucchini	<b>Chicken &amp; Dumplings</b> Baby Carrots Sautéed Peas	<b>Penne &amp; Meatballs</b> Green Beans	<b>Stuffed Flounder</b> with Lobster Sauce White Rice California Vegetable Blend	<b>Sweet &amp; Sour Pork</b> Wild Rice Broccoli	<b>Oven Fried Chicken</b> Whipped Sweet Potatoes Collard Greens	<b>Turkey Meatloaf</b> with Gravy Mashed Potatoes Spinach

# The MANNA Model Is a Proven Treatment Approach

## Real World Outcomes

6 MONTHS BEFORE VS 6 MONTHS AFTER MANNA

699 Medicare dual special needs members who completed a 4-week program



### DID YOU KNOW?



After completing the MANNA program, **30%** fewer participants were at risk of malnutrition<sup>a</sup>

<sup>a</sup>MANNA used the Malnutrition Screening Tool (MST), a validated tool, to understand clients' nutritional status pre- and post-services to gather sample data from 121 newly enrolled clients. Average length of program: 4.2 months.

Cost Offsets With MANNA 





# Significant Evidence of Lower Healthcare Costs

	MANNA Client Group (n=65)	Comparison Group (n=633)	
Monthly costs	\$28,268	\$40,906	P=0.0006
Monthly inpatient length of stay	10.7	17.1	P=0.0008
Individuals discharged directly home instead of to an acute care facility	93%	72%	P=0.0001

Figures are means.

MANNA clients received services between 2008 and 2010 for  $\geq 3$  months without interruption and were members of a local Medicaid organization.

Comparison group categorized through the Charlson Comorbidity Index and further narrowed to match 8 nutrition related diagnosis codes.

# MANNA Partnership Case Study

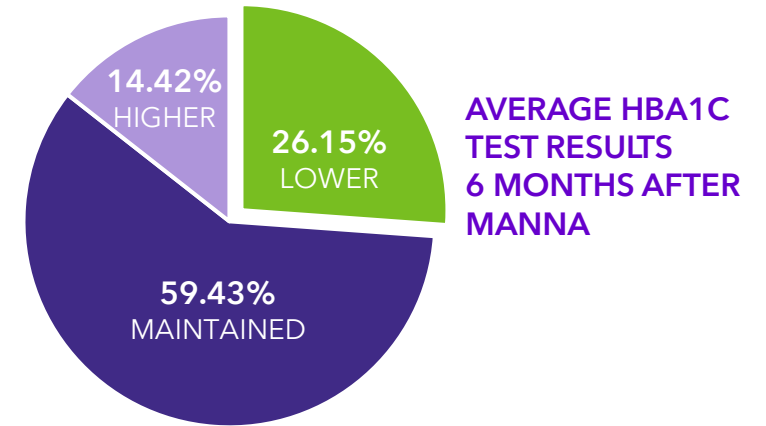
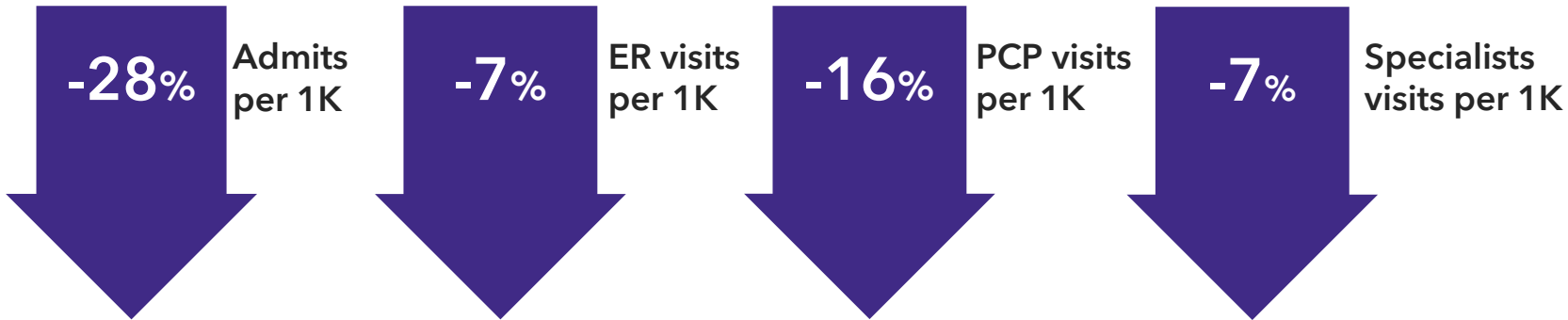


Health Partners Plans



Health Partners Plans delivered more than 470,000 MANNA MTMs to members from 2015 to 2017

## MEDICAL UTILIZATION COSTS SIX MONTHS AFTER MANNA



## MEMBER OUTCOMES AFTER MANNA



### Diabetes

- Lost 32 pounds
- HbA1c decreased from 9 to 6 in 4.5 months
- Felt able to self-manage disease



### History of asthma, COPD, osteoarthritis, peripheral vascular disease, and diabetes

- Lost 11 pounds
- Doctor lowered medications doses
- Greater ability to control portions and choose healthy foods

Member Survey



# Member Survey



**100%**

Stated the food met their medical needs

**100%**

Were better prepared to make healthy food choices

**97%**

Stated MANNA helped achieve health goals

**95%**

Had better comprehension of portion control

**75%**

Made lifestyle changes after program end

Survey conducted in 2017.



Health Partners Plans






Delivering Nourishment.  
Improving Health.

# MANNA Is a Cost-Effective Intervention

MANNA has a set **\$11** price per meal

## Cost includes

-  Dietitian counseling
-  Local delivery<sup>a</sup>
-  Educational materials



The average cost of a single readmission is **\$15,200**



12 weeks of MTMs is **<\$3000**



<sup>a</sup>For FedEx deliveries, MANNA typically charges the actual cost of the delivery plus packaging materials.

# MANNA Can Support Payer Contracts

## Ability to scale and fulfill member needs



## Extensive policies ensure adherence to regulations

- Continuous Quality Improvement group addresses client concerns and issues
- Significant investments in technology to enhance security and ensure HIPAA compliance
- Passed two CORL audits and Independence Blue Cross Delegation Oversight Department Review for CMS compliance



The MANNA  
Institute






# THE MANNA INSTITUTE


the science of food as medicine


The MANNA Institute explores the impact of nutrition on health for people with serious illnesses


	Evaluation & Research	Education	Dissemination
OUTPUTS	Evaluation of stakeholder outcomes and experiences Internal research External research	Student internships and fellowships Healthcare professional lectures Patient education	Presentations at conferences and lectures White papers Scientific literature
OUTCOMES	High quality evidence-based services	Direct provider and consumer education	Information sharing and awareness of best practices
	<b>THOUGHT LEADERSHIP</b>		
IMPACT	<b>IMPROVED SERVICE DELIVERY AND HEALTHCARE TRANSFORMATION</b>		

# Implementing MANNA at Your Organization


 Key staff person for monthly check-in calls

 Guidance on selecting members most likely to benefit

 Notification of change of condition or emergency situations

 Ongoing training for payer staff members

 Monthly reporting on enrollment and deliveries

 Collaboration for educational materials for members

**MANNA** Independence Blue Cross/Strive Referral for Services

Name (First, M, Last): \_\_\_\_\_ Date of Birth: \_\_\_\_\_  
 Street Address: \_\_\_\_\_ Unit Number (if needed): \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Alt. Phone: \_\_\_\_\_ Email: \_\_\_\_\_  
 Gender:  Male  Female Ethnicity:  Hispanic  Non-Hispanic  
 Race (please check all that apply):  American Indian/Alaska Native  Asian  Black/African American  
 Native Hawaiian/Pacific Islander  White  Other: \_\_\_\_\_  
 Language:  English  Spanish  Other: \_\_\_\_\_  
 Emergency Contact Name: \_\_\_\_\_ Emergency Contact Phone: \_\_\_\_\_  
 Member ID: \_\_\_\_\_  
 Primary Diagnosis: \_\_\_\_\_ ICD Code: \_\_\_\_\_ Date of Diagnosis: \_\_\_\_\_  
 Food Allergies?  Yes  No Describe: \_\_\_\_\_  
 Coexisting Conditions: \_\_\_\_\_  
 Recent Hospitalizations/ER Visits (Dates/Reasons): \_\_\_\_\_  
 Current Height: \_\_\_\_\_ Current Weight: \_\_\_\_\_ Date Weighed: \_\_\_\_\_  
 Weight History (including dates): \_\_\_\_\_  
 Significant Lab Values (if available):

Test	Albumin	CD4	Chol.	Glucose	HbA1c	Hgb.	Kidney or Liver Tests	TG
Value								
Date Month/Year								

Current Medications or Supplements: \_\_\_\_\_  
 Ambulation or Living Environment Concerns: \_\_\_\_\_  
 Referrer Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_ Date of Referral: \_\_\_\_\_

Please email form to IBX@manna.org or fax to (215) 496-9102. Please call Client Services at (215) 496-2662, option 5, with any questions or concerns.

Electronic referral form facilitates a streamlined and HIPAA-compliant process

Identifying Members 





# MTM-Eligible Members

Recipients with complex, often diet-related, severe and chronic illnesses are eligible to receive MTMs after being referred by a care manager

MTMs help the **5%** of patients who generate **50%** of healthcare costs

