Nutritional Risk for Individuals throughout the Care Continuum

Important Information

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Learning Objectives

- Identify nutritional risks for various populations
- Impact of nutrition on various chronic conditions
- Understand how compromised nutrition impacts the healthcare system
- Identify options to make an impact on individuals in need

Overview

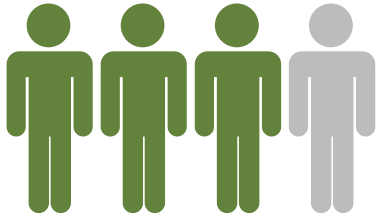
Understanding the Challenge:

Call to Action for Nutritional Support

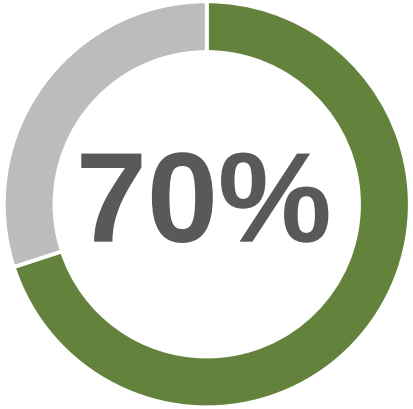
2016

1 in 4 Americans have a chronic condition

2012



3 in 4 Americans 65 and older have a chronic condition



of American deaths are due to a chronic condition

Chronic conditions costs the American economy excess of **$1 trillion** per year with growth expectations to hit excess of **$6 trillion** per year by mid century

> “Inadequate nutrition is a self-perpetuating problem because it can be both a cause and consequence of poor health and poverty”

The American Geriatrics Society Ethnogeriatrics Committee. Achieving high-quality multicultural geriatric care. Journal of the American Geriatrics Society. 2016;64(2):255-260.
Centers for Medicare & Medicaid Services. Chronic Conditions Among Medicare Beneficiaries, Chart Book. 2012. Baltimore, MD; Centers for Medicare & Medicaid Services.
Food as Medicine, February 2013.

Impact on Patients: Case Examples

Man called 911 asking for food

An 81-year-old man who lived alone called 911 asking for food after being discharged home from a rehabilitation center for cancer treatment. Weighing only 115 lbs. and unable to get out of his chair, he reported being hungry and had returned home to an empty refrigerator.

Woman readmitted after relying on convenience foods

A 78-year-old woman with diabetes and heart failure was discharged home from the hospital after an exacerbation. She lived at home with her husband, but was use to doing the cooking and did not feel up to it. The couple relied on processed and take-out foods, which are often high in sodium. She experienced swelling and other symptoms and was readmitted 15 days later.

Understanding the Impact of Malnutrition

The Epidemic of Malnutrition & Food Insecurity

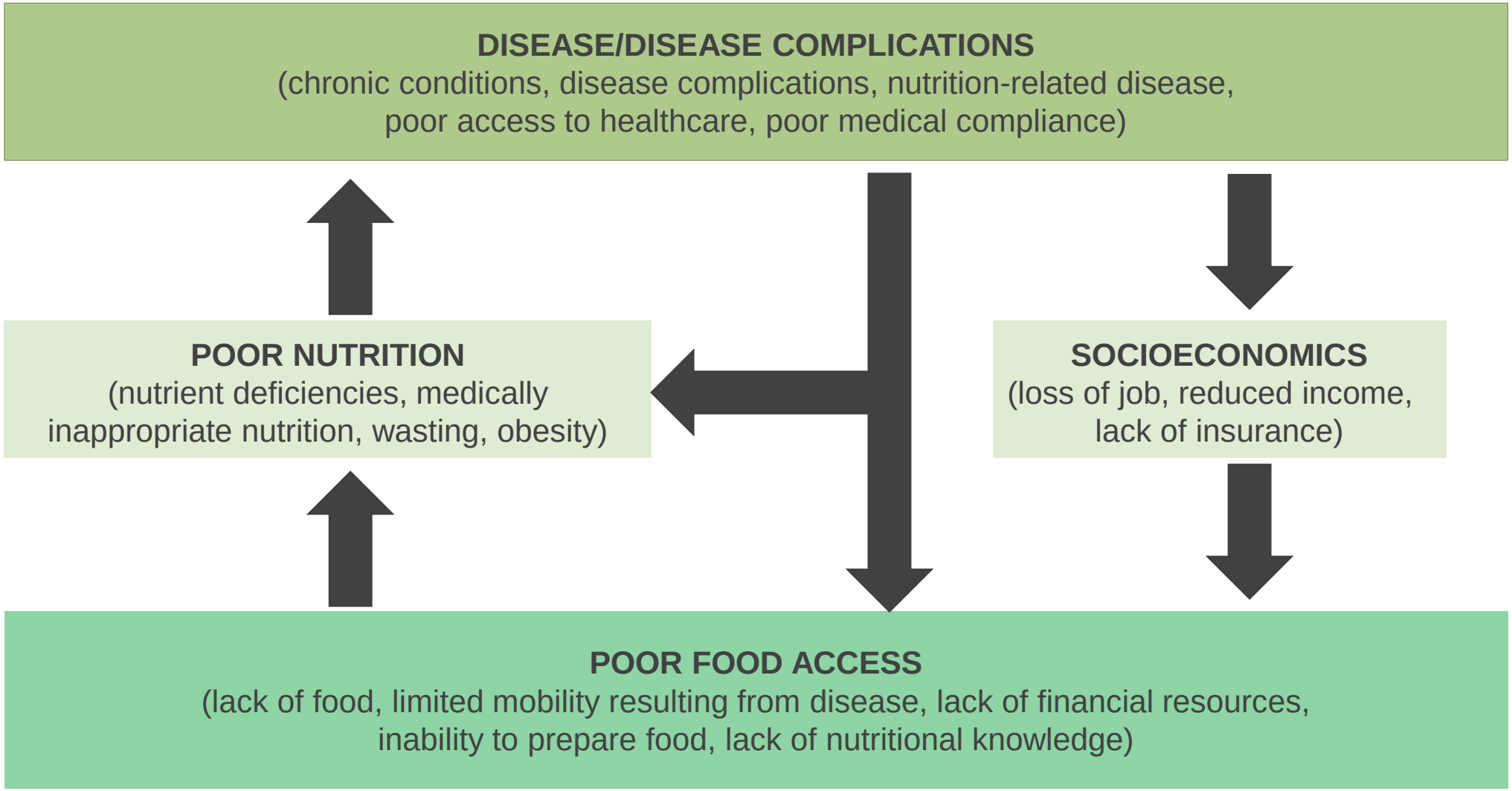
Impact: Poor Outcomes and Increased Costs

- Slower healing and recovery
- More medical, surgical complications
- Longer hospital stay
- Increased readmission rates
- Higher use LTC and rehab
- Increased Mortality

2010	Up to **1 in 2** older adults are either at risk of becoming or are malnourished.
2016	Approximately **20% to 50%** of admitted hospital patients are malnourished.
2010	Malnutrition can increase length of hospital stay by **4-6** days.
2003	More than **1 in 11** older adults struggle with food insecurity.

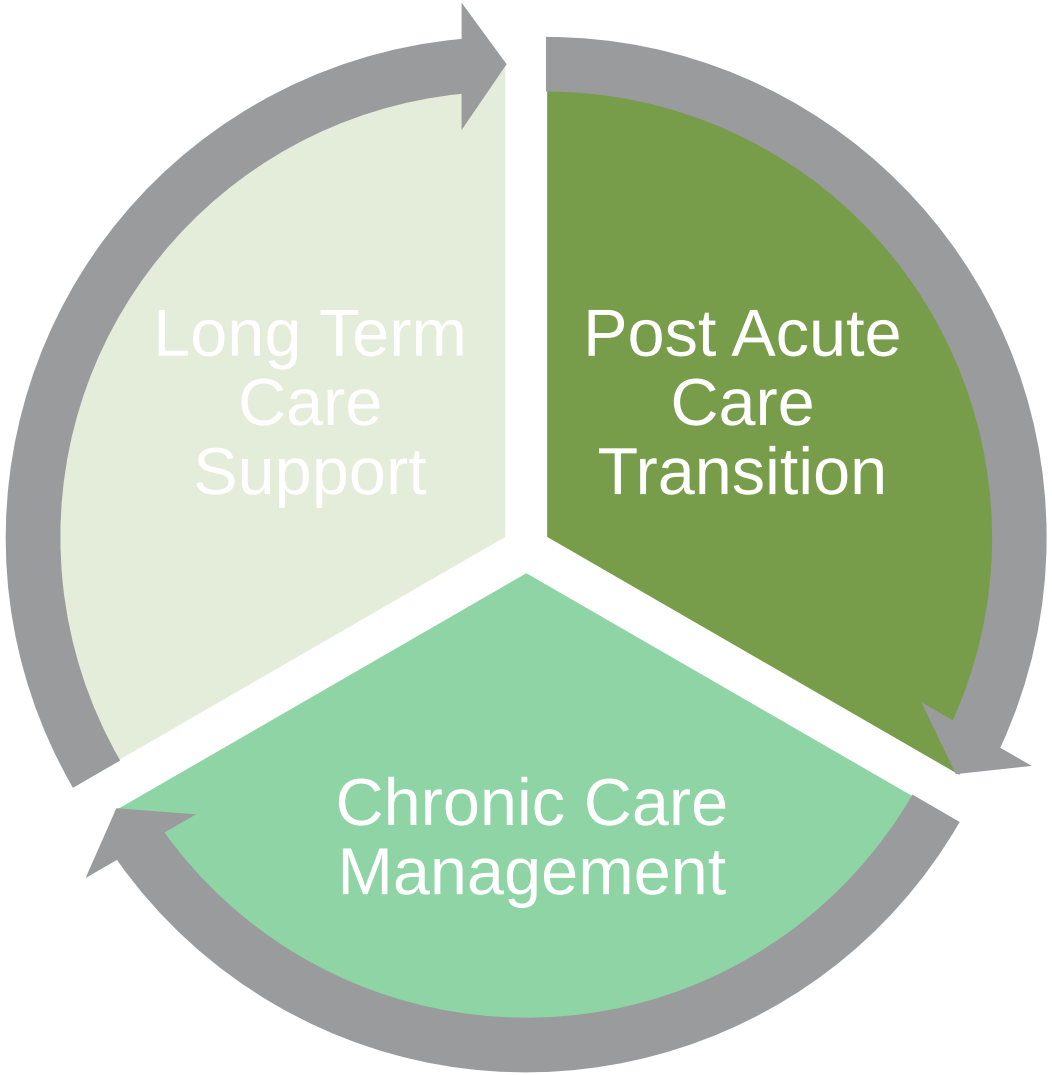
Kaiser MJ, Bauer JM, et al. Frequency of malnutrition in older adults: a multinational perspective using the mini nutritional assessment. Journal of the American Geriatrics Society. 2010;58(9):1734-1738.
Agency for Healthcare Research and Quality. Statistical Brief #210: Characteristics of hospital stays involving malnutrition, 2013. Rockville, MD: Agency for Healthcare Research and Quality. December 13, 2016.
Wolfe WS, Frongillo EA, et al. Understanding the experience of food insecurity by elders suggests ways to improve its measurement. The Journal of Nutrition. 2003;133(9):2762-2769.

Cycle of Poor Nutrition and Health

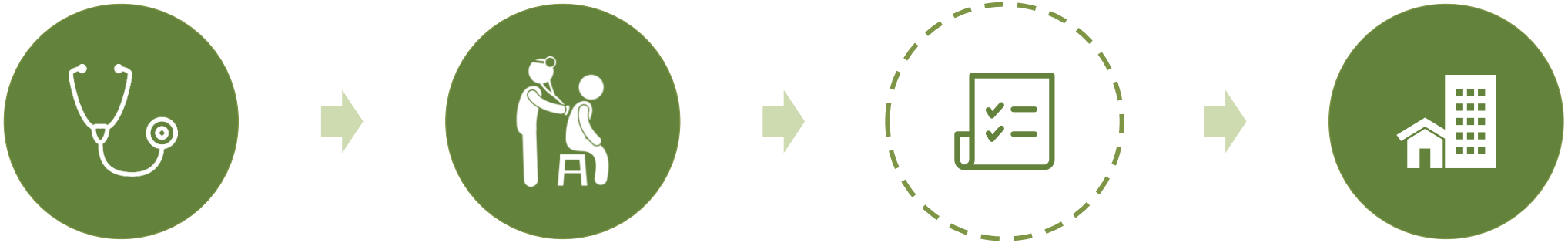


Food as Medicine. February 2013.

Home-Based Nutritional Life Cycle



Nutrition Screening Process: Variability in Timing and Tools



Key parameters included in most nutritional screening tools: weight change, BMI, food intake, appetite, acute disease, multiple medications, multiple chronic diseases

Validated Nutrition Screening Tools

Tool	Recommended Setting	Reference
DETERMINE checklist	Non-institutionalized older adults	http://nutritionandaging.org/toolkit-the-nutrition-screening-initiatives/
Malnutrition Screening Tool (MST)	Acute; general med/surg and oncology patients	Ferguson et al. Nutrition. 1999.
Malnutrition Universal Screen Tool (MUST)	Hospitals and Long term care facilities	Malnutrition Advisory Group of the British Association of Parenteral and Enteral Nutrition (BAPEN) http://www.bapen.org.uk/
Mini Nutrition Assessment – Short Form (MNA-SF)	Elderly patients in hospitals, long term care and community settings	http://www.mna-elderly.com/
Nutritional Risk Screening 2002 (NRS-2002)	Hospitalized patients	Kondrup et al. Clinical Nutrition. 2003.
Short Nutritional Assessment Questionnaire (SNAQ)	Hospital Inpatient and Outpatient as well as residential patients	http://www.fightmalnutrition.eu/fight-malnutrition/screening-tools/
Subjective Global Assessment Questionnaire (SGA)	Hospital inpatient or critical care and long term care	Detsky, A.S. et al. Journal of Parenteral and Enteral Nutrition. 1987.

How Individuals Qualify for Meals

Option 1

Home and Community Based Services (HCBS) Medicaid Waivers, Older American's Act, State/Local

- 1915C Waiver HCBS to remain at home
- Area Agencies on Aging, Case Management Agencies or Managed Care Organizations administer

Option 2

Long-term Services and Support (LTSS) via Medicaid Managed Care

- Varies by health plan and state/region
- May include Dual Eligibles
- Ongoing or Post-Discharge meals

Option 3

Medicare Advantage

- Varies by plan, expanding
- Post-Discharge or Chronic Care Management meals

Emerging Option:

Chronic Care Management

- Health Plans choosing to help manage high-cost members with meal benefit
- Integrated Delivery Systems focused on population health

Considerations

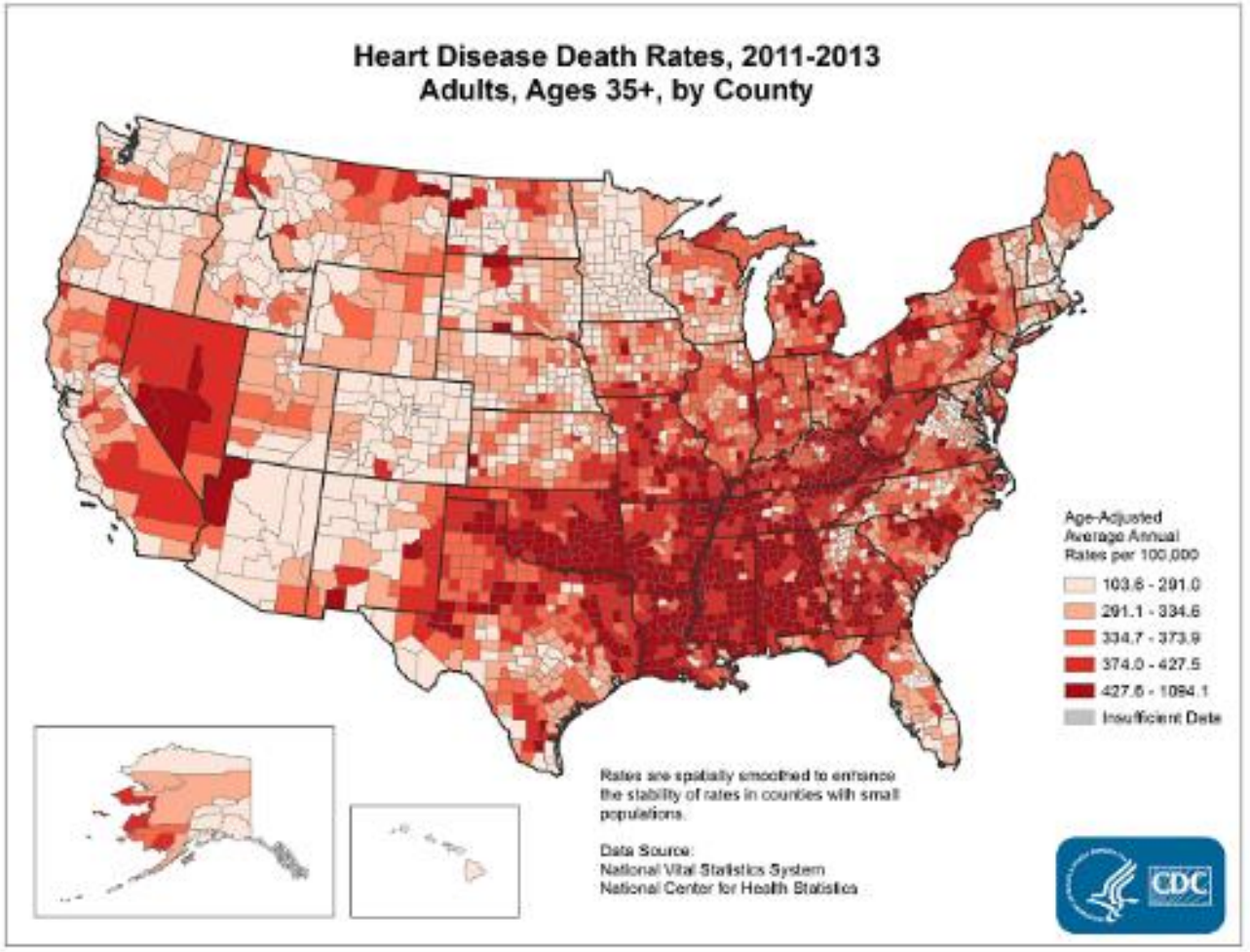
Chronic Conditions Impact:

Nutritional Guidelines by Condition

Condition	Leading Guidelines	Key Focus
Cancer Support	American Inst. Of Cancer Research (AICR) Patient's Oncologist or RD's guidelines	Protein and Calorie levels
Diabetes	American Diabetes Association	Consistent Carbohydrate Intake and Glycemic Control
Dysphagia (difficulty chewing or swallowing due to stroke, neuromuscular disorder, cancer, etc.)	American Speech, Language and Hearing Association (ASHA)	Texture or foods
Heart Disease (including CHF, High Blood Pressure and CAD)	American Heart Association Dietary Approach to Stop Hypertension (DASH diet)	Sodium and Fat levels
Malnutrition/ Undernutrition (e.g. Post-hospital discharge)	Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition (ASPEN)	Protein and Calorie levels
Renal Disease (Stages 1-5 ESRD)	National Kidney Foundation Kidney Disease Outcomes Quality Initiative (KDOQI)	Sodium, Potassium, Phosphates, Protein

Impact of Heart Disease

- About **610,000 people** die of heart disease in the United States every year–that's **1 in every 4 deaths.**
- Heart disease is the leading cause of death for both men and women. **More than half** of the deaths due to heart disease in 2009 were in men.
- Heart disease is the leading cause of death for people of most ethnicities in the United States, including African Americans, Hispanics, and whites.



Source: CDC, NCHS https://wonder.cdc.gov/
Multiple Cause of Death Files, 1999-2013, released 2015

Leading Risk Factors for Heart Disease Management

1. **High Blood Pressure**
2. **High Cholesterol**
3. Smoking
4. **Diabetes**
5. **Obesity/Overweight**
6. **Poor Diet**
7. Physical Inactivity
8. Excessive Alcohol Use

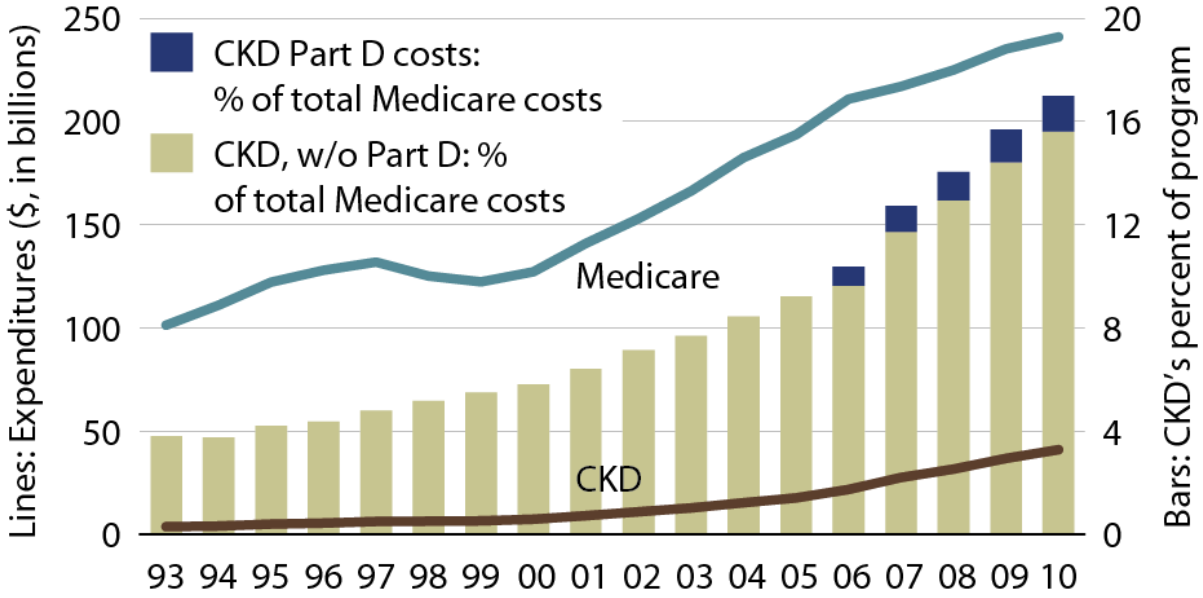
Compliance impacts disease progression and exacerbation

Proper nutrition and diet has direct impact on 5 of the 8 leading factors

Source: CDC, NCHS https://www.cdc.gov/nchs/products/databriefs/db103.htm

Impact of Renal and Kidney Disease

- The overall prevalence of CKD in the general population is approximately 14 percent.
- High blood pressure and diabetes are the main causes of CKD.
- Almost half of individuals with CKD also have diabetes and/or self-reported cardiovascular disease (CVD).
- Each year, kidney disease kills more people than breast or prostate cancer. In 2013, more than 47,000 Americans died from kidney disease.



Overall Expenditures for CKD in Medicare Population

Source: NIDDK
https://www.niddk.nih.gov/health-information/health-statistics/Pages/kidney-disease-statistics-united-states.aspx

Leading Risk Factors for Kidney Disease Management

1. **Diabetes**
2. **Heart Disease**
3. **Obesity**
4. **High Blood Pressure**
5. Smoking
6. **High Cholesterol**
7. Age (Over 65)

Compliance impacts disease progression and exacerbation

Proper nutrition and diet has direct impact on 5 of the 7 leading factors

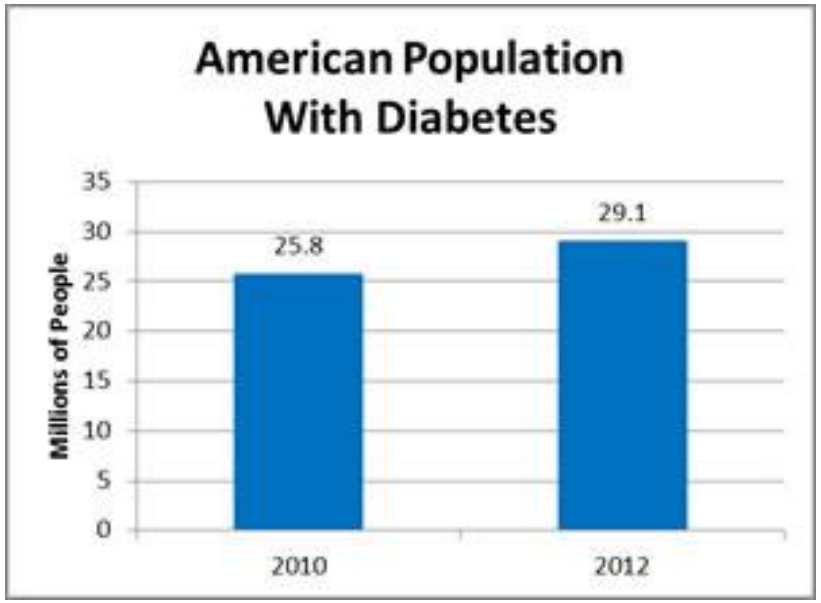
Source: Reference
https://www.reference.com/health/risk-factors-developing-kidney-disease-582622f93f3e49c8?qo=cdpArticles#

Impact of Diabetes

- 9.3% of the US population has been diagnosed with diabetes (29.1 million)
  - 21 million diagnosed
  - 8.1 million undiagnosed

- Prevalence in Seniors: The percentage of Americans age 65 and older remains high, at 25.9%, or 11.8 million seniors (diagnosed and undiagnosed). - See more at: http://www.diabetes.org/diabetesbasics/statistics/#sthash.kIUtFWFh.dpuf

- In 2012, 86 million people in the U.S. age 20 and older had pre-diabetes up from 79 million in 2010



- Deaths: Diabetes remains the 7th leading cause of death in the United States in 2010, with 69,071 death certificates listing it as the underlying cause of death, and a total of 234,051 death certificates listing diabetes as an underlying or contributing cause of death. – See more at: http://www.diabetes.org/diabetesbasics/statistics/#sthash.kIUtFWFh.dpuf

Source: ADA
http://www.diabetes.org/diabetes-basics/statistics/

Leading Risk Factors for Diabetes Management

1. **Weight/Obesity**
2. **Glucose Levels And Insulin Resistance**
3. Insulin/Medication Adherence
4. Inactivity
5. Gestational Diabetes
6. **High Blood Pressure**
7. **Abnormal Cholesterol Levels**

Compliance impacts disease progression and exacerbation

Proper nutrition and diet has direct impact on 4 of the 7 leading factors

Source: Mayo Clinic
http://www.mayoclinic.org/diseases-conditions/diabetes/basics/risk-factors/CON-20033091
http://www.webmd.com/diabetes/guide/risk-factors-for-diabetes#1

Clinical, Quality, Cost, Satisfaction

Nutrition’s Impact

Long-term Meal Benefits: Published Studies

Home delivered meals reduce cost of care:

1% increase in members receiving home delivered meals can yield big savings

Analysis of home-delivered meal services and cost benefits to Medicaid found that if all states increased by 1% the number of adults 65+ receiving meals, annual savings could exceed $109M[1]

Savings primarily from older adults with low care needs who would no longer require nursing home care, but could remain at home

Home delivered meals improve variety of indicators:

Review of more than 80 home-delivered meals studies.

Analysis of studies show many positive impacts of meals, including:[2]

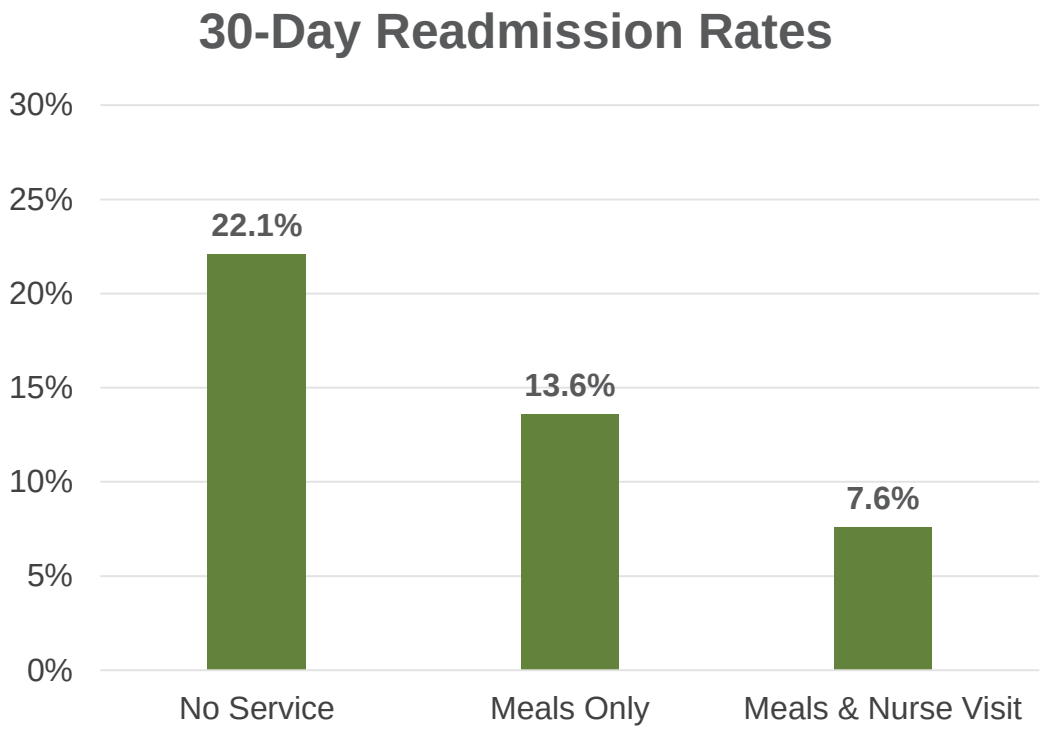
- Improved nutrition, quality of life
- Reduced symptoms, mortality
- Reduced nursing home placement, hospital admissions and readmissions

(1) Thomas K, Mor V. Providing More Home-delivered Meals is One Way to Keep Older Adults with Low Care Needs Out of Nursing Homes. Health Affairs. 2013; 32:1796-1802.
(2) Campbell A, Godfryd A, Buys D, Locher J. Does Participation in Home-delivered Meals Programs Improve Outcomes for Older Adults? Results of a Systematic Review. J Nutr Gerontol Geriatr. 2015;34:124-167.

Avoiding Readmissions: Published Studies

Malnourished patients were **2x more** likely to be readmitted to the hospital[1]

39% fewer people were readmitted with post-discharge meals[2]



(1) Thomas, et al. Malnutrition in subacute care. Am J Clin Nutr 2002;75:308-13. Evaluation of 837 patients admitted over 14 months to a sub-acute care center. Nutritional status was assessed by anthropometric measurements, biochemical markers and Mini Nutritional Assessment (MNA) score. In malnourished patients, 25% required readmission to acute-care hospital compared with 11% of the well-nourished group.
(2) FMQAI, the Medicare Quality Improvement Organization of Florida under contract with the Centers for Medicare & Medicaid Services, **Presentation: Results from the ACL 2010 ADRC Care Transition Program and CMS Investments

Chronic Care: Published Studies

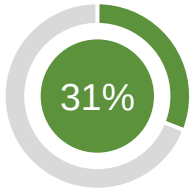
92% of older adults have at least one chronic disease, and **77%** have at least two[1]

Individuals receiving meals showed significant drops in readmission and total cost of care

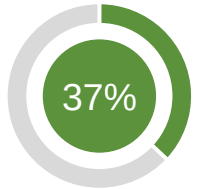
65

Clients at acute nutritional risk and battling chronic illness, receiving home delivered meal service.

Meal group versus control group showed:[2]



lower average monthly health care costs



shorter length of inpatient stay

less hospital admissions

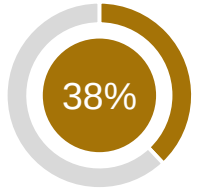
Individuals receiving meals showed better condition control and fewer readmissions

79

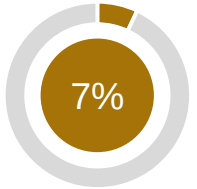
Clients with diabetes receiving home delivered meal services compared to waiting list control group.

Meal group versus control group showed:[3]

reduced food insecurity, greater diet variety



fewer cases of uncontrolled diabetes (38% vs 52%)



fewer hospital admissions (7% vs 22%)

(1) Source: https://www.ncoa.org/news/resources-for-reporters/get-the-facts/healthy-aging-facts/
(2) Journal of Primary Care and community Health 4(4) 311-317; "Examining Health Care Costs Among MANNA Clients and a Comparison Group; J Gurvey,et al.; 9/9/13. MANNA 65 clients at acute nutritional risk and battling life-threatening illness, receiving 21 meals per week vs control.
(3) Edwards DL, Frongillo EA Jr, Rauschenback F, Roe DA. Home-delivered meals benefit the diabetic elderly. J Am Diet Assoc. 1993; 93: 587-588.

Collaborations and Pilot Studies

NIH funded Clinical Study with the University of Michigan, New York-Presbyterian and the Veteran's Administration[1]

- 60 subjects (age 65+): 28 day DASH-compliant meal benefit after CHF discharge

Clinical Study with Stony Brook School of Medicine[2]

- 50 subjects: 12 week meal benefit with either 1500 mg or 3000 mg sodium per day 2-4 weeks after HF discharge

Medicaid Managed Care Plan Pilot Study

- Pre-diabetic & uncontrolled diabetes pilot program proved 90 days of our meals were more successful than other interventions in maintaining or reducing weight, BMI and HbA1c's
- Early results: over half lost weight, nearly all lowered A1c

Large National Health Plan Controlled Pilot Study

- Post-discharge meals to Medicaid beneficiaries with diabetes and other chronic condition (COPD, HF). Will evaluate claims, readmissions and outcomes data

(1) Clinical trial registered with the FDA at clinicaltrials.gov locator is NCT02148679 (https://clinicaltrials.gov/ct2/show/NCT02148679).
(2) https://clinicaltrials.gov/ct2/show/NCT02467296

Return on Investment

ROI Range: **2:1-4:1**

Based on Benefit Design

Patient discharges

10K

Qualifying **10% of highest-risk patients** (1,000) for 4 weeks of meals with 2 meals/day

	Without Meals	With Meals
Total Discharges	10,000	10,000
Pts receiving meals	0	1,000
Investment	0	~$400,000
Readmissions	2,100	2,020
Readmissions cost	$23,100,000	$22,220,000
Cost savings	**0**	**$880,000***

*Does not include additional cost savings from reduced complications, reduced length of stay for admissions of people receiving meals, due to their improved nutritional status.

Conclusion

Impacting Nutritional Risk

Summary

Meals can provide dignity, independence and improve the clinical outcomes and quality of life for many homebound seniors.[1]

Maintaining a healthy and positive nutritional status is critical for healthy aging, quick and full recovery after acute illnesses and for successful management of most chronic conditions.

Providing home-delivered meals is a cost effective way to allow older adults to remain in the community instead of a nursing home or longer hospital stay, and to avoid 30-day hospital readmissions and the cost and financial penalties that accompany them.

(1) Thomas, K and Mor, V Health Aff (Millwood). 2013 Oct; 32(10): 1796–1802; Buys and Locher; Journal of Nutrition in Gerontology and Geriatirs 34:2; 81084; .

Case Manager Survey:

Most Important Capabilities of Home Meal Delivery Providers

"I just completed an assessment with a member who indicated she was able to discontinue one of her HTN medications."

T. M., LSWA
Care Coach, Large Medicaid Managed Care Plan
March 2017