



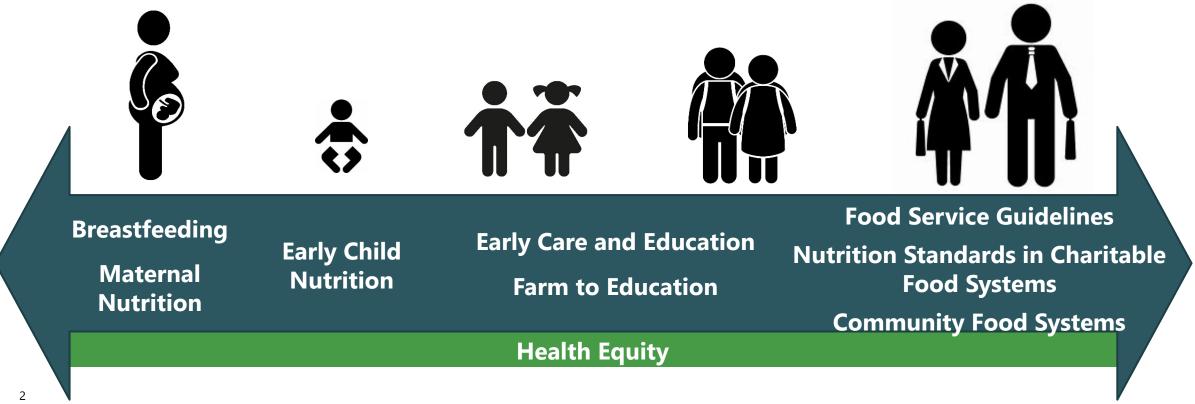
# FOOD SERVICE GUIDELINES: EASY ACCESS TO HEALTHY FOOD

AMY LOWRY WARNOCK HEALTHY FOOD ENVIRONMENT TEAM, DNPAO, CDC



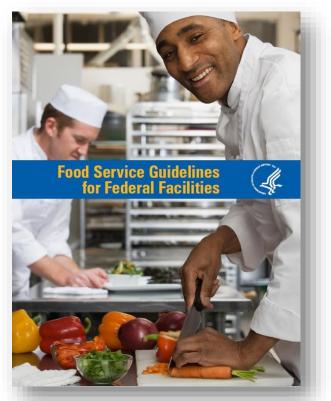
# OPTIMAL NUTRITION ACROSS THE LIFECOURSE

### DNPAO works at multiple levels to establish healthier food environments for all



#### Food Service Guidelines Created for Federal Venues –

### Can be Adapted for State, Local, & Facility Level Use



Developed by 9 federal departments and 60+ Scientists and Operators

#### **FSG Has Four Pillars of Impact:**

- 1. Food Standards (aligns with current DGA nutrition science)
- 2. Facility Efficiency, Environmental Support, Community Development Standards
- 3. Food Safety Standards
- 4. Behavioral Design Standards

#### **Goals:**

- Healthy foods and beverages are available and encouraged
- Use of environmentally responsible food service practices and communities economically supported via local food sourcing
- Food safety practices followed to minimize risk of foodborne illnesses

# FSG STANDARDS

### STANDARD AND INNOVATIVE

*https://www.cdc.gov/obesity/downl oads/guidelines\_for\_federal\_concess ions\_and\_vending\_operations.pdf* 

- Food and Nutrition
  - Prepared Foods, Packaged Snacks, Beverages
    - Mainly whole food-based standards
- Facility Efficiency, Environmental Support, and Community Development Standards
  - Purchasing
    - Just-in-time ordering, compostable serving products, bulk-serve condiments, locally sourced, sourcing from socially disadvantaged producers
  - Food Service Management and Consumer Engagement
    - Reusable beverage containers and serving ware, energy and water-efficient equipment
  - Waste Diversion
    - Back-of-house and front-of-house operations, monitoring, repurpose/donate food
- Food Safety
  - Best practices beyond FDA Food Code
- Behavioral Design
  - Placement and Layout; Product Innovations and Defaults; Pricing and Promotion; Tableware; Information

# **FSG Implementation**

#### Wherever Foods are Sold or Served

#### Community Anchor Institutions:

- State or Local Government Buildings or worksites
- Private sector worksites
- Hospitals
- Universities and Colleges
- Parks and Recreation Centers
- Food Banks & Pantries
- Juvenile Detention
- Corrections

- Food venues:
  - Cafeterias
  - Cafes
  - Snack bars
  - Grills
  - Concession stands
  - Sundry shops
  - Micro markets
  - Vending machines
  - Meals served



#### Fiscal Year 2021

#### State Physical Activity and Nutrition Program (SPAN)

 16 state and local recipients strengthening efforts to implement interventions that support healthy nutrition, safe and accessible physical activity, and breastfeeding

#### High Obesity Program (HOP)

 15 land grant universities leveraging community extension services to increase access to healthier foods and opportunities for physical activity in counties that have more than 40% of adults with obesity

#### Racial and Ethnic Approaches to Community Health (REACH) Program

 40 organizations aiming to improve health, prevent chronic diseases, and reduce health disparities among racial and ethnic populations with the highest risk, or burden, of chronic disease

# DNPAO'S FUNDED PROGRAM RECIPIENTS

# POTENTIAL REACH AND IMPACT OF FSG

- Provides a model normalizing healthy food service for all government facilities and worksites
  - Over 2 million federal civilian employees
  - State and local governments alone employ 20 million civilian employees
  - Since 2007, 11 states and Washington D.C. have (in total) adopted 20 FSG policies!
- Promote FSG as best business practice for private sector employers

### Power of food procurement

- Millions of dollars of food purchased by county, state, and federal gov
- Potential impact on the food system is huge





Implementing federal food service guidelines (FFSG) in federal

and private worksite cafeterias in the United States leads to improved health outcomes and is cost saving

Shafika Abrahams-Gessel, DrPH

Research Scientist,

Center for Health Decision Science Department of Health Policy and Management, Harvard T.H. Chan School of Public Health

September 12, 2022





Journal of Public Health Policy https://doi.org/10.1057/s41271-022-00344-y

**ORIGINAL ARTICLE** 



Implementing federal food service guidelines in federal and private worksite cafeterias in the United States leads to improved health outcomes and is cost saving

Shafika Abrahams-Gessel<sup>1</sup> · Parke Wilde<sup>2</sup> · Fang Fang Zhang<sup>2</sup> · Lauren Lizewski<sup>3</sup> · Stephen Sy<sup>1</sup> · Junxiu Liu<sup>2</sup> · Mengyuan Ruan<sup>4</sup> · Yujin Lee<sup>5</sup> · Dariush Mozaffarian<sup>2</sup> · Renata Micha<sup>2</sup> · Thomas Gaziano<sup>1,6</sup>

Accepted: 8 March 2022

This research was supported by the NIH, the National Institutes of Health, National Heart, Lung, and Blood Institute *(R01 HL130735, PI Micha)*, Washington, DC.

The funders did not contribute to design or conduct of the study; collection, management, analysis, or interpretation of the data; preparation, review, or approval of the manuscript; or decision to submit the manuscript for publication. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

### Background

- Obesity is highly prevalent (<u>~</u> 45%) among workers aged 40-59 (<u>~</u> 40% of working adult population)
- Established etiologic link between diet quality and cardiometabolic diseases (CMD)
- CMD costs \$50 billion (Jardim et al., PLoS Med, 2019)
- FFSG → improve food and nutrition standards for cafeteria and vending machine foods



# Objective

Understand the impact of implementing FFSG (*the intervention*) on health outcomes and its cost effectiveness in

(1) federal workplace cafeterias

(2) large private employer settings



# **Main Analysis**

VS.

Base case – No FFSG implementation

Intervention – FFSG implementation

- Estimate health outcomes and cost-effectiveness using validated microsimulation model (CVD PREDICT)
- Model populations (NHANES 2009-2016)
  - representative model population #1: 1 million government workers aged 35-65 and working > 35 hrs/week
  - representative model population #2: 1 million private industry workers aged 35-65 and working <u>></u> 35 hrs/week

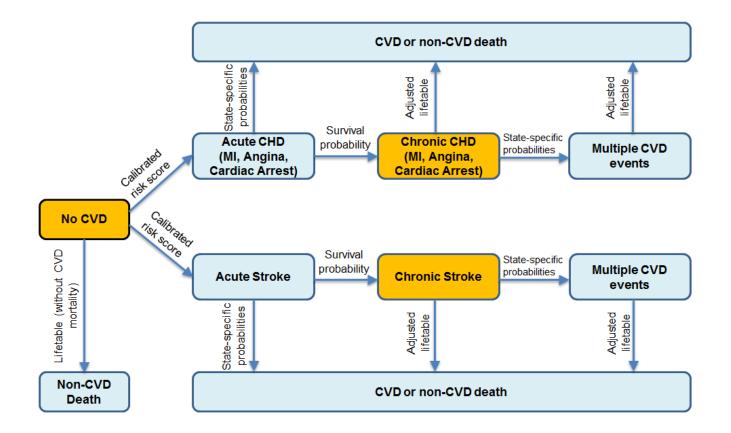


### Main Analysis (continued)

- Analytic time horizons
  - 5 years
  - Lifetime (through death or age 70)
- Perspective
  - Government (as payer)



# CVD state transitions used in the CVD PREDICT model





SCHOOL OF PUBLIC HEALTH

# **Key Analytic Assumptions**

#### **Dietary consumption patterns**

- The average purchase of 2 meals/week in workplace cafeterias in the Capital Region 11 in 2015 reflects the typical per capita consumption in all federal regions
- We converted effect sizes reported as per-meal changes to changes in % daily consumption and adjusted to reflect the 2 meals/week purchase assumption
- Processed meat intake based on workplace dietary sodium intake
- Whole grains intake based on WIC consumption patterns



#### Key Inputs: Intervention Effect Sizes and Range of Age-Specific Relative Risks in Analysis

Dietary Targets (units of consumption) and FFSG Requirements for Foods Offered for Sale in Cafeterias	Expected Change in Daily Consumption in Workplace Cafeteria Foods	Sources	Range of Age-Specific Relative Risks of Cardiometabolic Diseases (units)
Fruits (grams/day): Offer at least 3 fruits (no added sugar).	3.50%	Lassen	0.64 - 0.97 (100g/day)
Vegetables (grams/day): Offer at least 3 vegetables (not fried).	3.50%	Lassen	0.77 - 0.98 (100g/day)
<ul> <li>Sugar sweetened beverages (8-oz servings):</li> <li>Mild and fortified soy beverage: low-fat without added sugars.</li> <li>100% juice only with no added sugars.</li> <li>≥ 50% of beverage choices contain &lt;40 kcal per 8 fluid ounces (excluding 100% fruit juice).</li> </ul>	-2.40%	French	0.66 - 0.92 (8 oz/day)
Whole grains (grams/day): Offer half of total grains as whole grain products.	1.30%	Odoms-Young	0.83 – 0.98 (50g/day)
Processed meat (grams/day): None.	-1.20%	NHANES	0.55 - 0.86 (50g/day)
<b>Sodium</b> <sup>g</sup> (mg/day): < 600 mg/entree or < 800 mg/meal (with the potential of affecting processed meat provision at the cafeteria).	-0.80%	NHANES	SBP Change (mmHg)           1.87 – 5.84           (2,300 mg/day)

	Change in daily consumption in cafeteria foods (%)	Outcome	Range of Age-Specific Relative Risks of Cardiometabolic Diseases
		Coronary Heart Disease	
FRUITS 3.5%	3.5%	Ischemic stroke 0.64	0.64 – 0.97 (100g/day)
		Hemorrhagic stroke	

GRAINS	Change in daily consumption in cafeteria foods (%)	Outcome	Range of Age-Specific Relative Risks of Cardiometabolic Diseases	
	4.0%	CVD		
1.3%	Diabetes	0.83 – 0.98 (50g/day)		

# **Key Analytic Assumptions**

#### **Government Intervention costs**

- No vendor FFSG implementation costs due to 'no-cost' government contracts
- Government incurs only program administration costs (<u>~</u> 0.7637% of client costs)
- Ratio of meals sold per employee in Capitol Region 11 (2 meals/week) is similar to other regions in the U.S.

#### **Client Intervention costs\***

- Federal employees would purchase an average of 2 meals per week in the base case
- An average cost of \$4.61 per meal
- A price per meal increase of 8.1% (\$0.37) due to the intervention

\*Based on National School Lunch Program (NSLP) experience of implementation, using costs average over 5 years and including overall cost changes, food, labor, and state administrative costs.



### **CVD PREDICT model outcomes**

- # ischemic events
- # cerebrovascular events (morbidity)
- related mortality (# deaths)
- quality-adjusted life years (QALYs)
- costs associated with the intervention (FFSG implementation)
- Cost of medical care and acute events
- Cost effectiveness = incremental cost-effectiveness ratio (ICER)\*

(<u>costs of intervention group – costs of usual care) \$</u> (health of intervention – health of base case) QALY

\*Both costs and health benefits were discounted at an annual rate of 3%



### RESULTS

Cardiometabolic events averted and cardiovascular deaths in the model government employee population, per million.

Lifetime Model	Usual Care	Intervention	Difference
MI Events	70,180	70,073	-107
CVA Events	63,407	63,377	-30
Diabetes Events	170,150	170,016	-134
IHD Deaths	59,354	59,298	-56
CVA Deaths	19,490	19,482	-8
Five-Year Model	Usual Care	Intervention	Difference
MI Events	13,158	13,148	-10
CVA Events	12,122	12,113	-9
Diabetes Events	112,943	112,921	-22
IHD Deaths	6,139	6,137	-2
CVA Deaths	1,613	1,610	-3
MI: Myocardial infarction			

CVA: cerebrovascular accident IHD: Ischemic Heart Disease HARVARD T.H. CHAN

SCHOOL OF PUBLIC HEALTH

Cost effectiveness of implementing federal food service guidelines (2018 \$U.S.), per person.

#### MAIN ANALYSIS: GOVERNMENT EMPLOYEES ONLY

LIFETIME MODEL	<b>Discounted Cost</b>	Discounted QALY	<u>ICER</u>		
Usual Care	20,124.97	13.5158			
Intervention	20,111.16	13.5161	Cost saving		
5-YEAR MODEL	Discounted Cost	Discounted QALY	<u>ICER</u>		
Usual Care	5,656.05	4.62			
Intervention	5,655.74	4.62	Cost saving		
EXPANDED ANALYSIS: ALL FULL-TIME EMPLOYEES <sup>e</sup>					
LIFETIME MODEL	Discounted Cost	Discounted QALY	<u>ICER</u>		
Usual Care	26,050.35	14.7658			
Intervention	26,019.32	14.7667	Cost saving		



Estimated average discounted health care costs savings over 5 years and lifetime, by employment sector, in

millions of \$US (2018), compared to base case (no implementation of FFSG).

	GOVERNMENT	PRIVATE SECTOR	TOTAL
	EMPLOYEES	EMPLOYEES	IUIAL
	Lifet	time Model	
Total Savings	\$212,260,877	\$539,809,707	\$752,070,585
Acute (savings)	\$116,966,349	\$297,462,120	\$414,428,469
Chronic (savings)	\$151,702,741	\$385,801,724	\$537,504,466
Drug (savings)	\$2,305,513	\$5,863,248	\$8,168,761
Intervention (costs)	-\$58,713,726	-\$149,317,385	-\$208,031,110
	Five-	Year Model	
Total Savings	\$4,611,026	\$11,726,496	\$16,337,522
Acute (savings)	\$17,521,897	\$44,560,685	\$62,082,583
Chronic (savings)	\$6,455,436	\$16,417,095	\$22,872,530
Drug (savings)	\$153,701	\$390,883	\$544,584
Intervention (costs)	-\$19,520,008	-\$49,642,167	-\$69,162,175
		T.H. CH	SCHOOL OF PUBLIC HEALTH

#### **INCREASE OF 25% IN NUMBER OF MEALS PURCHASED (CONSUMPTION)**

LIFETIME MODEL	Discounted Cost	Discounted QALY	ICER	
Usual Care	20,124.97	13.5158		
Intervention	20,107.07	13.5162	Cost saving compared to usual	
INCREA	ASE OF 50% IN NUMBER C	F MEALS PURCHASED	(CONSUMPTION)	
LIFETIME MODEL	Discounted Cost	Discounted QALY	<u>ICER</u>	
Usual Care	20,124.97	13.5158		
Intervention	20,102.06	13.5163	Cost saving compared to usual	
ANNUAL 8.1% INCREASE IN COST PER MEAL ADDED TO INTERVENTION COST (BASE CASE)				
LIFETIME MODEL	Discounted Cost	Discounted QALY	ICER	
Usual Care	20,124.97	13.5158		
Intervention	20,610.78	13.5161	1,619,366.67	

<sup>a</sup> Time from age of entry into the model until death or age 70.

<sup>b</sup> Discounted Cost in 2018 \$U.S.

<sup>c</sup> Discounted Quality Adjusted Life Years.

<sup>d</sup> Incremental Cost-Effectiveness Ratio.



SCHOOL OF PUBLIC HEALTH

### **Strengths and Limitations**

- Use of the CVD PREDICT microsimulation model
- RRs from studies that address measurement error due to:
  - independent and joint effects of dietary targets on health outcomes
  - multivariate-adjusted RRs derived from meta-analyses of prospective studies and studies with assessments of measurement validity
- Intervention costs exclude startup costs
- Excluding consumption of healthier foods from vending machines
- There is limited evidence on the etiologic effects of dietary changes in workplace settings
- We did not include an assessment of dietary intake on cancer risk in this analysis

# CONCLUSIONS

Implementing FFSG leads to modest improvements in cardiometabolic health and is cost saving but more work on costing is needed.

The impact of healthier foods from vending machines on health also needs to be evaluated and work on costing is needed.

Given that American workers consume almost twice as much free food as purchased food at work, future work should also evaluate the effects of extending FFSG to workplace events with catered food.







SCHOOL OF PUBLIC HEALTH

Thank you.



SCHOOL OF PUBLIC HEALTH

COLORADO HEALTHY HOSPITAL COMPACT

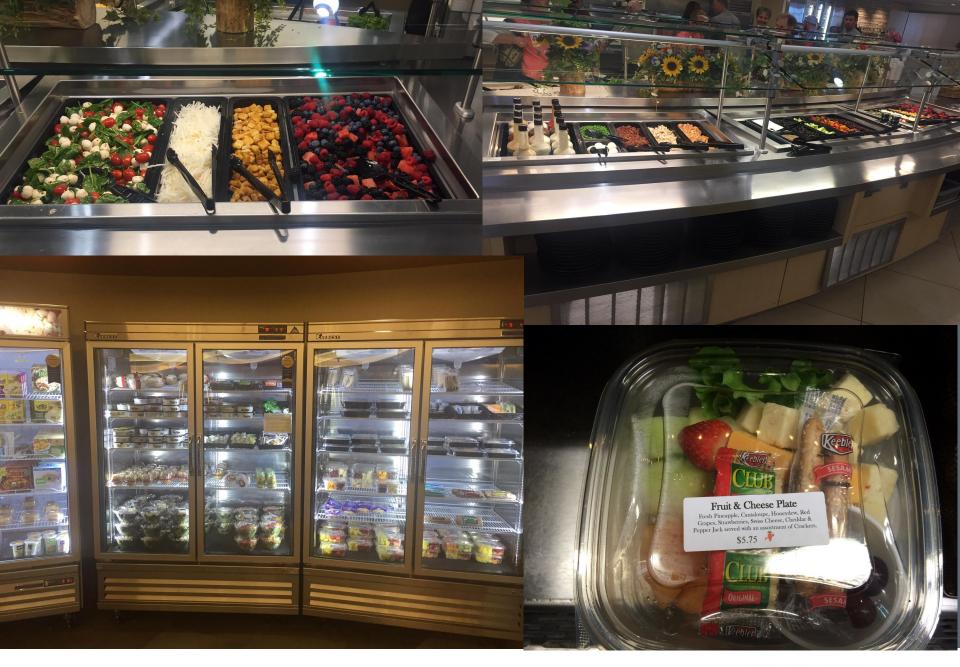
# healthier food

# healthier beverages

# breastfeeding support

Ynke de Koe, MS, RD, CLC Nutrition Integration Specialist Amy Meyering, PhD Senior Evaluator

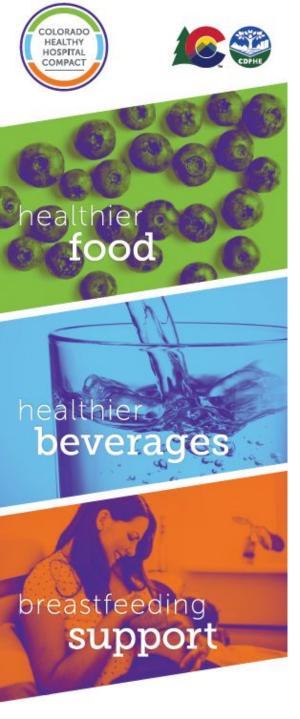












# Colorado Healthy Hospital Compact

- Voluntary agreement by hospitals to improve their nutrition environments.
- Created in 2014
  - $\circ$  Funding from CDC
    - 1305 Chronic Disease and School Health
    - 1807 State Physical Activity and Nutrition Program (SPAN)
  - The Compact is the intervention for implementing <u>Food Service Guidelines</u> <u>in worksites.</u>
  - Long Term Evaluation

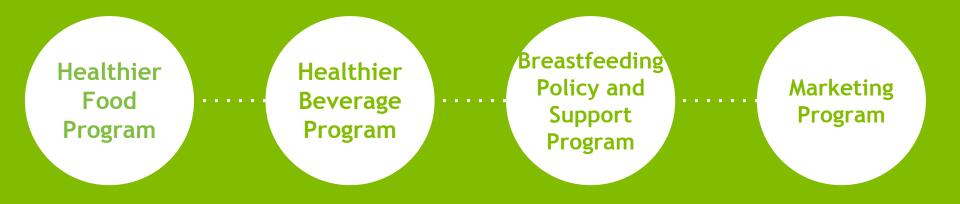


# Why hospitals?





# Four Programs





# How to join the Compact

### Partner Agreement

Includes a signed statement from hospital leadership committing to the Compact.

Partner Hospital Agreement

## Standards

Hospitals use the <u>Assessment Tool</u> to identify if they are meeting Food Service Guidelines.

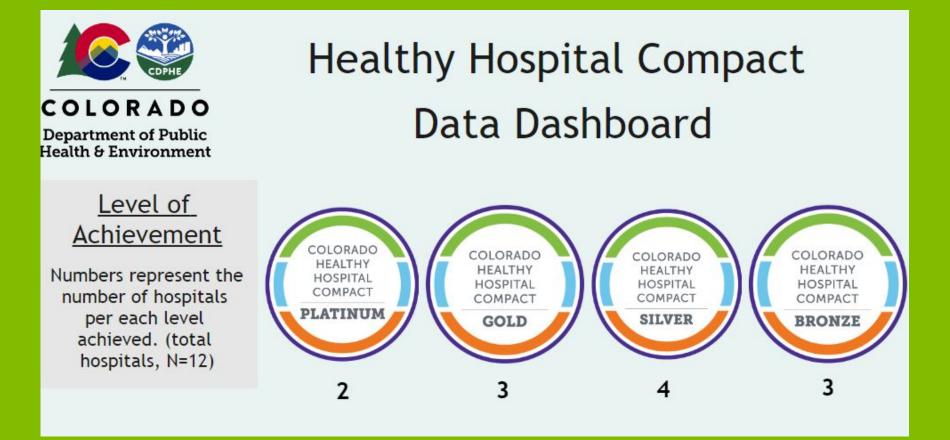
Submit their Assessment using an Online Survey and attach relevant documents as proof.

## Recognition

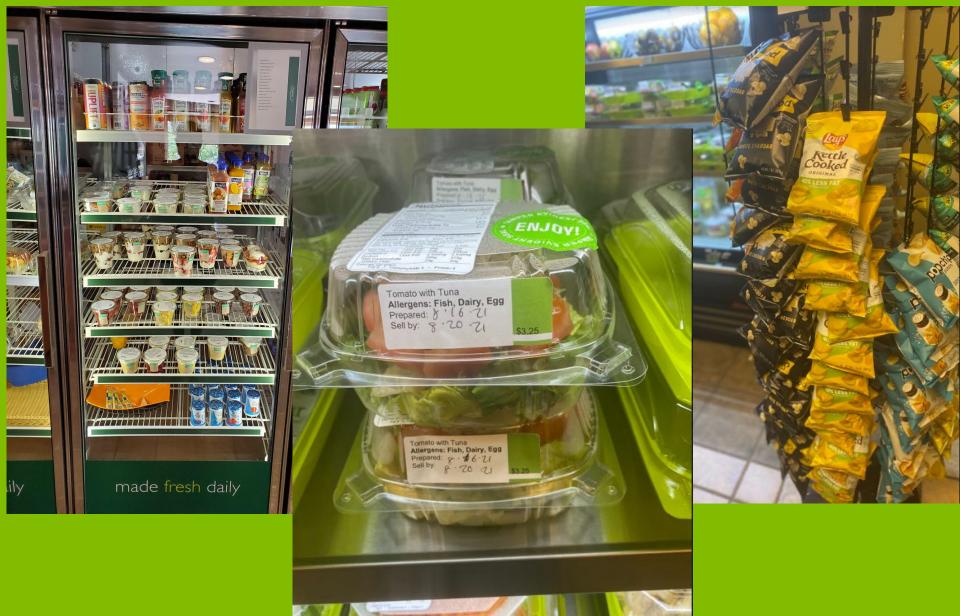
The <u>Recognition and</u> <u>Rewards Program</u> recognizes achievements at all levels.





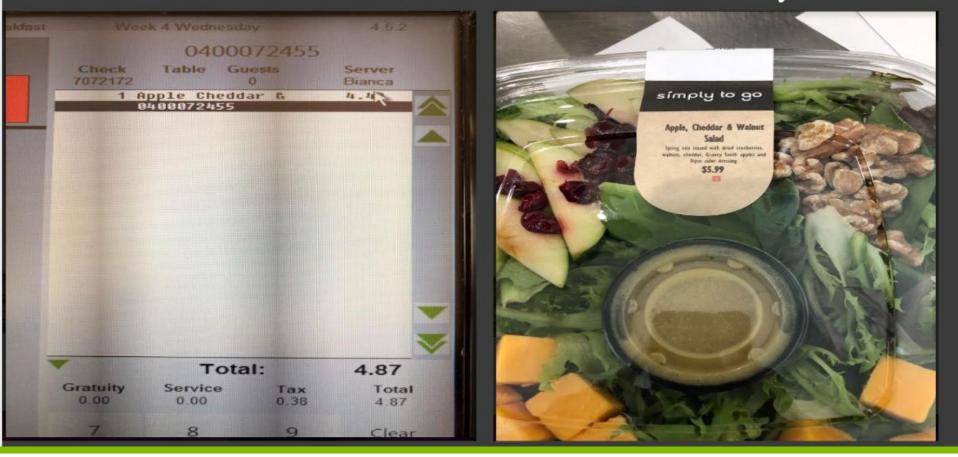








# We offer a 25% for all healthy items in the café. We don't offer discounts for unhealthy items.





### Please join CDC's Division of Nutrition, Physical Activity, and Obesity:

### SPAN/HOP/REACH Food Service Guidelines/ Healthy Nutrition Standards \*\*Behavioral Design: Putting Theory into Practice\*\*

Thursday, July 28, 2022 2:00-3:30 pm EDT

Link To The Recording



**Benefits** 01 Participation in the Compact

- Provides a framework
- Use of Compact brand
- Access to learning community of partners
  - Steering Committee
  - Best practices
  - Lessons learned
  - Implementation strategies
- Collaboration in change process
- Public recognition



# Recognition

There are four Levels of Recognition based on the cumulative number of points:

- Platinum
- Gold
- Silver
- Bronze







## **Participating Hospitals**

### Platinum:

- Denver Health Medical Center.
- Good Samaritan Medical Center.
- Lutheran Medical Center.

### Gold:

- Boulder Community Health.
- Grand River Health.
- St. Anthony Summit Medical Center.
- St. Mary's Medical Center.
- West Springs Hospital.

### Silver:

- Heart of Rockies Regional Medical Center.
- Platte Valley Medical Center.
- St Joseph Hospital.

### Bronze:

- UCHealth Medical Center of the Rockies.
- UCHealth Poudre Valley Hospital.
- Parkview Health System.

### Partner hospitals:

- Avista Adventist Hospital.
- Banner Fort Collins Medical Center.
- Children's Hospital South Campus.
- Colorado Canyons Hospital and Medical Center.
- Medical Center of Aurora.
- Littleton Adventist Hospital.
- Longmont United Hospital.
- Presbyterian / St. Luke's Medical Center.
- Penrose Hospital.
- Prowers Medical Center.
- Rocky Mountain Hospital for Children.
- Sky Ridge Medical Center.
- St. Anthony Hospital.
- St. Anthony North Health Campus.
- St. Francis Medical Center.
- UCHealth Broomfield Hospital.
- UCHealth Longs Peak Hospital.
- UCHealth University of Colorado Hospital.
- Yampa Valley Medical Center.

# Role of State Health Department



- Overall program management
- Facilitate Steering Committee meetings
- Provide technical assistance
- Create assessment tool and guidance
- Review assessment submissions
- Manage recognition
   process



# Evaluation Strategy

- Mixed methods approach
- Qualitative data:
  - Key informant interviews
  - Focus groups
- Quantitative data:
  - Assessment results
    - Online submission to collect hospitals' food, beverage, marketing, and breastfeeding data.



# **Assessment Tool**



### COLORADO

Department of Public Health & Environment

Colorado Healthy Hospital Compact Scoring Summary				
Healthier Food Program	0			
Healthier Beverage Program	0			
	0			
Marketing Program	0			
Breastfeeding Program	0			
Overall Score:	0			
Level of Recognition Based on Overall Score:	0			

Points Achieved per Program and Standards

#### **Healthier Food Program**

<u>1. Daily Healthy Meal</u>		
Standard: On a daily basis, offer a minimum of one healthy meal in the ca nutrition requirements:	eteria and on the patient menu that meets the followin	g
NUTRITION CRITERIA • Under 700 calories • Less than 10% calories from saturated fat* • No trans fat • Less than 800 milligrams sodium *Fresh/Frozen, non-breaded, non-fried fish cooked in healthy fat is exempt from this ru	e.	
Scoring Detail		
Total Days Healthy Meal offered (Patient Menu)	0	
Total Days Healthy Meal offered (Cafeteria)	0	
Points Earned	0	
To achieve 3 points for this standard, input the nutrition analysis for each daily meal for	2-week period or 14- consecutive days in the Daily Healthy Meal t	ab.

#### 2. Daily Healthy Children's Meal

Standard: On a daily basis, offer a minimum of one healthy children's meal in the cafeteria and on the pediatric patient menu (if children are served) that meets the following nutrition requirements:

Daily Healthy Meal Daily H



#### Food Program Standard 3: Daily Healthy Entrées (2 or 5 points)

Instructions: To achieve 2 or 5 points for this standard, input the nutrition analysis for all a la carte entrées served during a 2-week period or 14- consecutive days. T 60% or more of entrées served in this 2 week period in the cafeteria and on the patient menu must meet the nutrition requirements. Points achieved will auto-calcu tab located at the front of this workbook.

\*\*Please only input information into white cells. Blue cells will auto-calculate based on information input in white cells.

Link to Scoring Summary

Location:	Cafeteria							
DATE	: 	ENTREE ITEM	CALORIES (kcal)	SATURATED FAT (g)	SODIUM (mg)	TRANS Fat [Y/N]	% CALORIE SATURATE FAT	
-	37		<= 525	N	<600	-	<10%	- 20
							#DIV/0!	N
							#DIV/0!	N
-							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
-							#DIV/0!	N
							#DIV/0!	N
-							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
-							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
1							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
						-	#DIV/0!	N
						-	#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
							#DIV/0!	N
							#DIV/01	N
< •	Scoring Summa	nry General Inform	mation Dai	ly Healthy Mea	Daily Health	y Children's	Meal	Daily Healthy E



# **Online Submission**



## COLORADO

Department of Public Health & Environment

### Daily Healthy Meal

On a daily basis, are you offering a minimum of one healthy meal in the cafeteria and on the patient menu that meets the nutrition requirements?

(Refer to "Daily Healthy Meal" section on the Scoring Summary Tab of the Assessment Tool)



O No



# **Online Submission**



## **COLORADO** Department of Public Health & Environment

Using your Assessment Tool, please refer to the "Daily Healthy Entrees" section of <u>Scoring Summary</u> <u>tab</u> and enter the percent of entrees that meet the nutrition criteria for the cafeteria and patient menus:

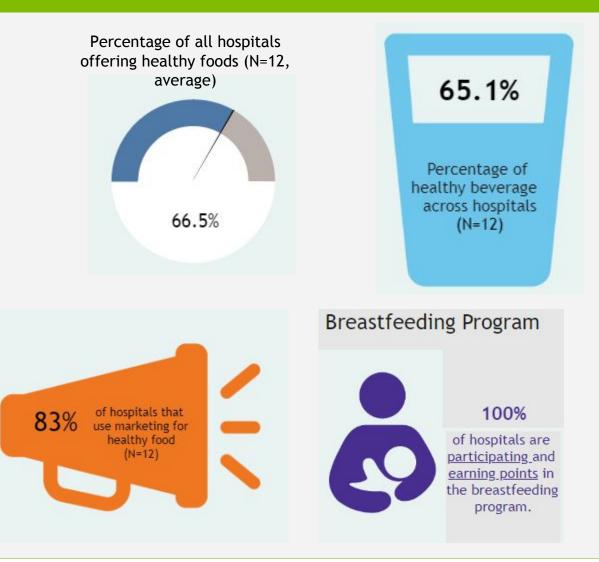
% Entrees in Cafeteria % Entrees on Patient Menu

-	
 -	



# **Baseline Hospital Data**

- This data is from 2021 Assessments/Online Submissions collected from hospital.
- Follow-up data will be collected in 2023
- Changes in their healthy food offerings will be analyzed once this data is received in 2023.





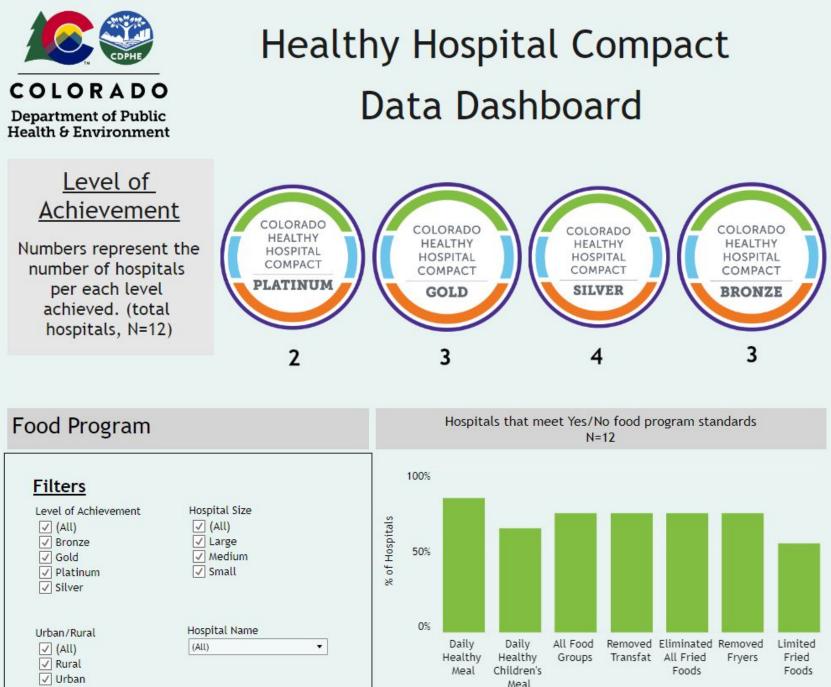
# **Baseline Hospital Data**

• The baseline assessment data also shows many hospitals already offer healthy meals.



By 2023 we hope to see improvements in data, as this graph also shows there are 20-30% of hospitals that are not offering daily healthy meals or removing trans fats/fryers/fried foods.





Division

0

# Thank you!

https://cdphe.colorado.gov/colorado-healthy-hospital-compact Contact us if you have questions!

> Amy Meyering, PhD CDPHE SPAN Evaluator Email: <u>amy.meyering@state.co.us</u>

Ynke de Koe, MS, RD, CLC CDPHE Nutrition Integration Specialist Email: <u>vnke.dekoe@state.co.us</u>

