



**Indian Health Service**

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**Division of Diabetes  
Treatment and Prevention**



# **The Relationship Between Food and Nutrition Insecurity and Diabetes**

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# Presenters



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# Today's Discussion

- Define Food and Nutrition Security/Insecurity
- Food Insecurity in American Indian/Alaska Native (AI/AN) Communities
- Diabetes Risk and Management When Food Insecure
- Local Strategies to Address Food and Nutrition Insecurity



# What is food security?

- Food security for a household means access by all members, at all times, to enough food for an active, healthy life.

# What is nutrition security?

- Nutrition security means all Americans have access to healthy, safe, affordable foods essential to optimal health and well-being.



## WHAT IS THE LINK BETWEEN FOOD AND NUTRITION INSECURITY?

There is a strong association between food insecurity and poor nutrition, with individuals who report being most food insecure also at a higher risk of developing diet-related diseases such as obesity, diabetes, and hypertension. Food security focuses on ensuring that everyone has enough to eat, while nutrition security ensures that everyone receives and consumes calories that contribute to their overall health. Moreover, estimates suggest that as many as a third of cancer cases could be prevented with diet and nutrition alone. USDA's nutrition assistance programs can play an important role in decreasing that risk.



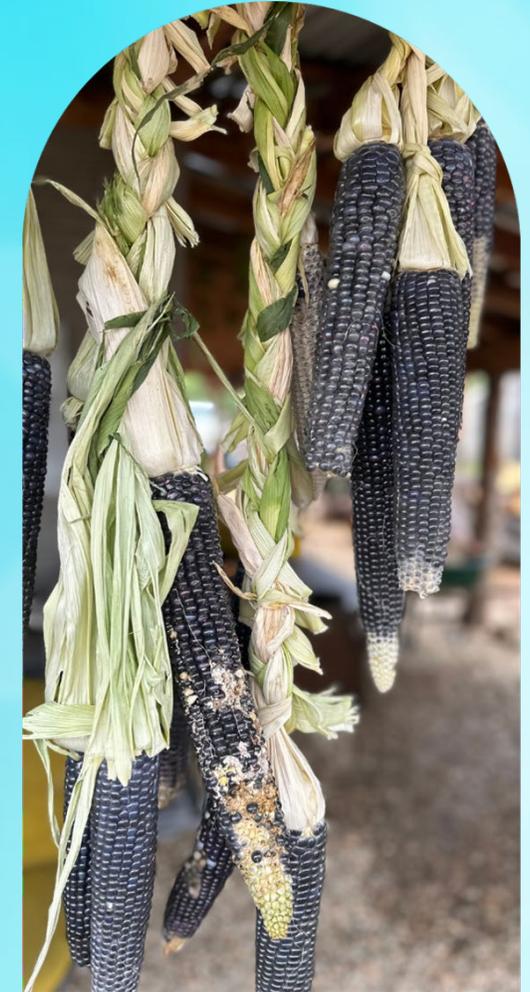
## Food Security US. Nutrition Security

Food security is having **enough** calories

Nutrition security is having **the right** calories

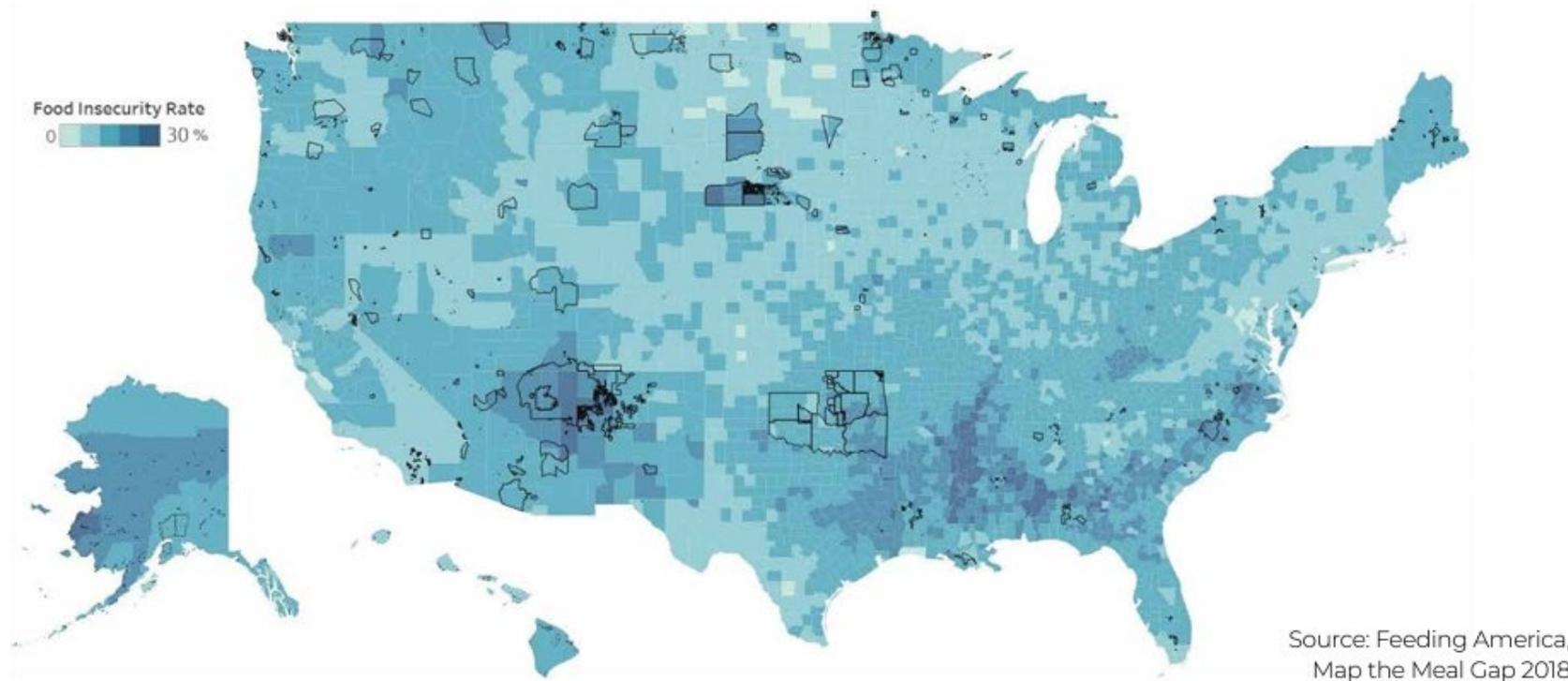
# Historical Determinants of Food Insecurity

- Treaties with Tribal Nations promised rations of food in exchange for land.
  - The rations typically consisted of food items such as lard and wheat flour, which were unfamiliar and nutritionally inadequate compared to traditional diets.
- Further generational factors came from restricting tribal communities' capability to hunt, fish, and gather the foods they had survived on for centuries.





## Food Insecurity in Tribal Communities



This map shows the food insecurity rate by county with an overlay of Tribal lands for reference. The map generally indicates higher rates of food insecurity on Tribal lands.

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# Food Insecurity Assessments Conducted by Special Diabetes Program for Indians (SDPI) Community-Directed Grant Programs

1. Are patients/community members screened for food insecurity?
  - Who conducts the screening?
  - What screening tool(s) is/are used?
2. What occurs when someone screens positive for food insecurity?



# What we learned from SDPI Programs Who Screen for Food Insecurity

- More than half reported that they screened for food insecurity in some way.
- Top three roles who conducted the screening:
  1. Dietitians
  2. Nurses
  3. Providers

## Used the two validated screening questions in various screening instruments:

Within the past 12 months,

1. We worried whether our food would run out before we got money to buy more.  
*(Often True, Sometimes True, Rarely True, Never True)*
2. The food we bought just didn't last and we didn't have money to get more.  
*(Often True, Sometimes True, Rarely True, Never True)*

- Most reported that they referred to an external or federal food assistance program.



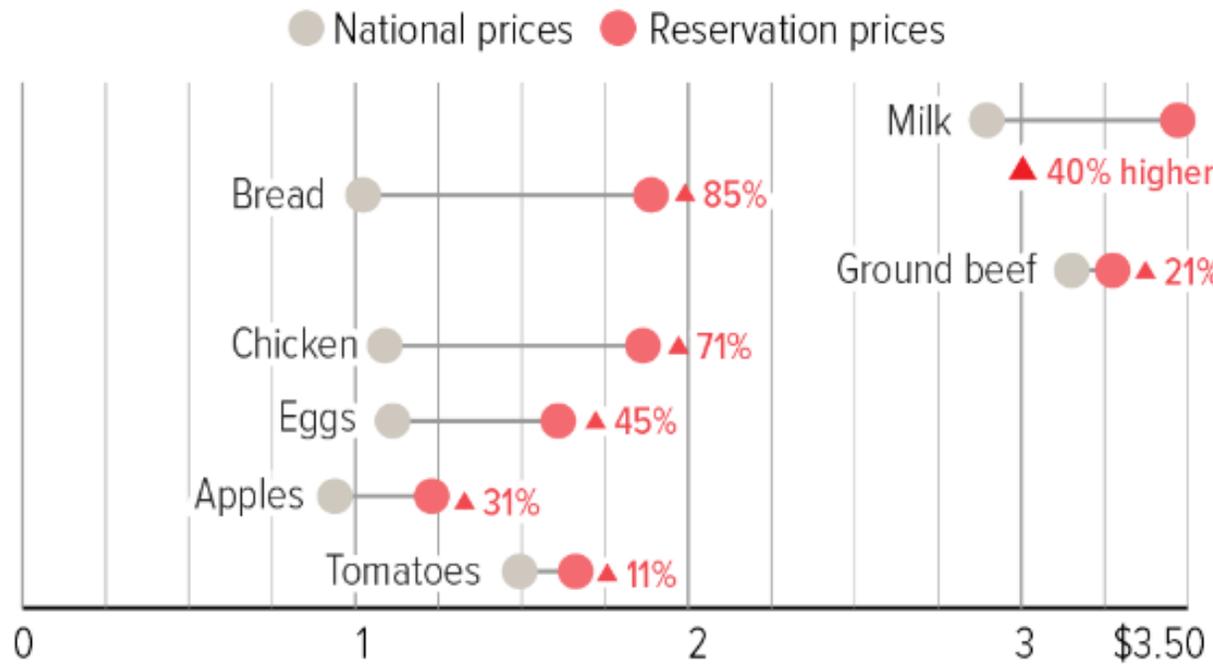
# Food and Nutrition Security in Indian Country

## *How can food and nutrition insecurity present itself?*

- Times of financial instability
  - Low, inconsistent or lost income
    - Recent job loss or reduction in hours
  - Inadequate SNAP allotment or access to gov't food programs
- Senior citizens
- Single-parent homes
- Drug and alcohol dependency
- At the end of the month
  - SNAP or income may have run out
- Holiday seasons
- Birthdays, life-cycle rituals
- Feast Days
- Ceremonies
- Summer
- Seasonal bills
- Competing housing and medical costs



## Reservation Residents Pay Higher Food Prices Than Other U.S. Consumers



Note: Prices were collected for the following units of food: a gallon of milk, a loaf of bread, a pound of ground beef, a whole chicken, a dozen eggs, a pound of apples, and a pound of tomatoes.

Source: Yadira Rivera and Raymond Foxworth, "Indian Country Food Price Index: Exploring Variation in Food Pricing Across Native Communities – A Working Paper II," First Nations Development Institute, 2018, Table 20.

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# Diabetes Risk and Management When Food Insecure

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# Food Insecurity Related to Diabetes

Report suggests that prevalence of food insecurity is much higher among adults with diabetes compared with those without diabetes (16% vs. 9%).

Diabetes Care Volume 44, June 2021

e131



## The Prevalence of Food Insecurity Is Highest Among Americans for Whom Diet Is Most Critical to Health

James B. Kirby, Didem Bernard, and Lan Liang

Diabetes Care 2021;44:e131–e132 | <https://doi.org/10.2337/dc20-3116>

Diabetes is one of the most prevalent and costly health conditions in the U.S. (1), and diet plays a fundamental role in managing the condition effectively. Yet prior research raises concerns about the “food security” of people with diabetes (i.e., whether they have access to healthy, affordable food) (2,3). It is unknown, however, how widespread food insecurity is among people with diabetes across different insurance types and, moreover, whether food assistance is adequately addressing the problem (4). This study helps to fill this gap by providing national estimates of the prevalence of food insecurity among Americans with diabetes by insurance status and receipt of Supplemental Nutrition Assistance Program (SNAP) benefits.

Our analysis estimated the prevalence of food insecurity (percent who were food insecure) across four groups: those without diabetes, those with diabetes overall, those with insulin-dependent diabetes, and those with diabetes-related eye or kidney problems. Percentages are reported across insurance categories (private coverage all year, Medicaid all year, uninsured all year, or some combination of coverage types) and by receipt of SNAP benefits. The differences discussed were all statistically significant at  $P < 0.01$ . All estimates and SEs were adjusted for the complex survey design of MEPS and are, therefore, representative of the U.S. noninstitutionalized population.

Results show that the prevalence of

Medicaid enrollees with insulin-dependent diabetes; 44% were food insecure, over six times higher than their counterparts with private insurance.

We also found that a sizable fraction of people with diabetes who were food insecure were not receiving SNAP benefits. Over 80% of people with diabetes who had private insurance coverage were not receiving SNAP benefits, likely reflecting SNAP eligibility (individuals who do not qualify for Medicaid are typically not eligible for SNAP). However, even among Medicaid enrollees, 29% of people with diabetes were not receiving SNAP benefits, and over two-thirds (68%) of the uninsured were not receiving SNAP benefits. Even among Medicaid enrollees with diabetes who were receiving

Downloaded from <http://diabetesjournals.org/care/article-pdf/44/6/e131/3103282/2020.023116.pdf>

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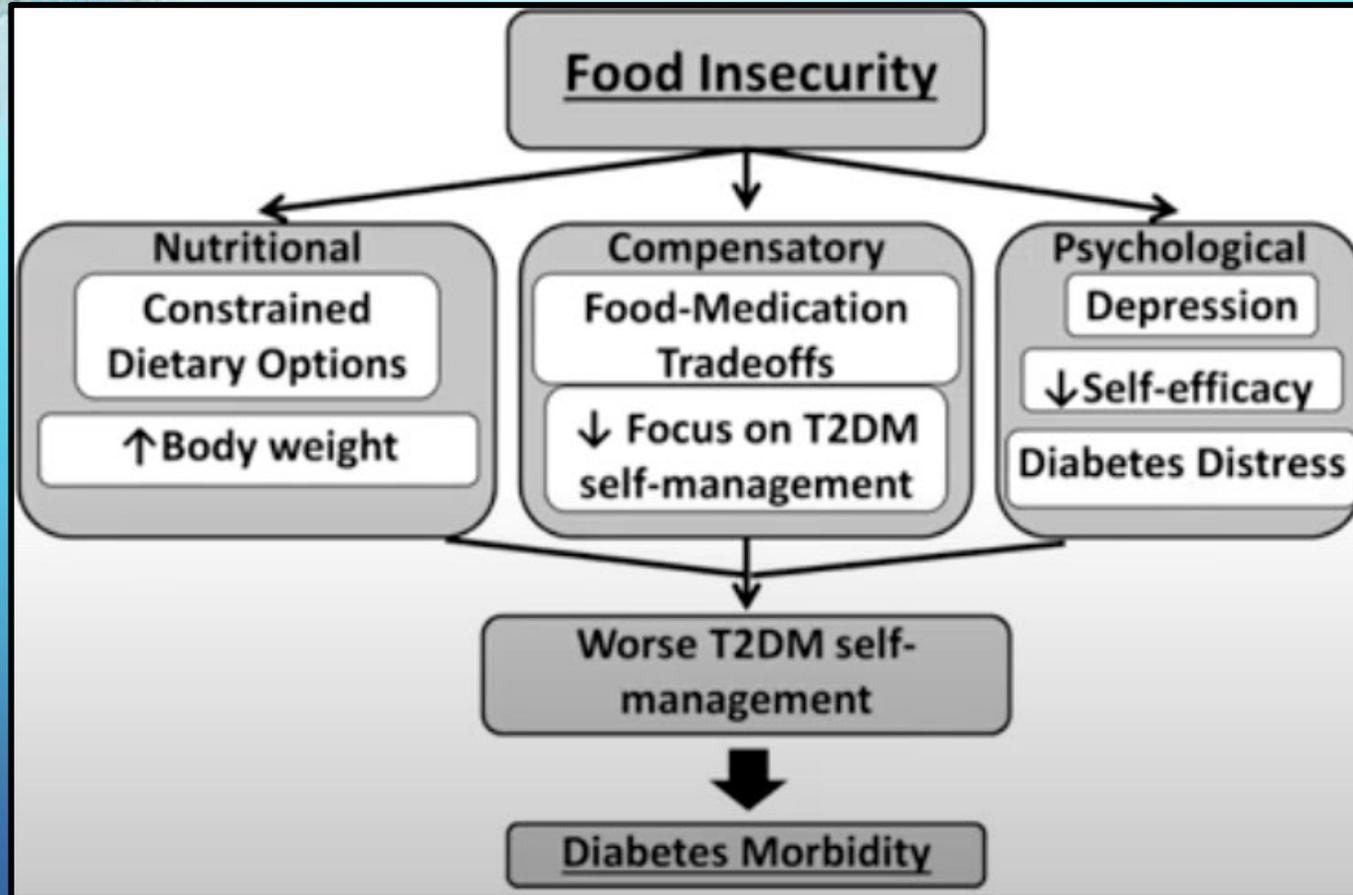
# Food Insecurity Complicates Diabetes Self-Management and Care

- Greater prevalence of type 2 diabetes
- Uncontrolled hyperglycemia
- Difficulty managing HbA1c
  - 0.5-1.0 % higher HbA1C
- Elevated blood pressure and LDL cholesterol
- More diabetes complications (micro and macro vascular)
- Severe hypoglycemia
- Depression
- Diabetes distress

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# Impacts of Food Insecurity on Type 2 Diabetes



## Nutritional Pathway

Decrease in access to nutritious foods

## Compensatory Pathway

“Get fed or get meds”

## Psychological Pathway

Increased distress, decreased self-efficacy

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# Nutrition-Related Health Disparities Amongst AI/AN Adults

- Adult obesity rates: 48.1%.
- Childhood obesity rates in some tribal communities that surpass 50%.
- AI/AN adults have almost four times the rate of diabetes than the non-Hispanic white population in the US.
- Research has found a consistent correlation between food insecurity and low self-efficacy to follow diabetes self-management recommendations.
  - AI/AN people are more than twice as likely to die from diabetes complications than those in the non-Hispanic white population.

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# Diabetes Standards of Care and Resources for Clinicians and Educators: Nutrition

## Clinical Practice Recommendations

### Recommendations for Nutrition

Open All Close A

#### — Provide Nutrition Education

- Provide Medical Nutrition Therapy (MNT) and nutrition education at diagnosis, annually, and more often, as needed.
- Offer basic nutrition education that supports healthy eating patterns, focusing on a variety of foods in appropriate amounts. Education approaches for prediabetes or diabetes include:
  - using an individualized approach to establish weight, blood sugar, and other health goals;
  - encouraging nutrient-dense foods, sugar-free beverage choices, proper portion sizes, and balanced eating patterns to help achieve optimal health;
  - considering cultural food preferences, health literacy and numeracy, and willingness and ability to make behavioral changes. Be mindful of potential competing responsibilities and stressors which may make it challenging for people to prioritize diabetes self-care;
  - considering using a diabetes plate method to balance the amounts of vegetables, protein, and carbohydrate foods in a meal. Use [My Native Plate](#) to guide conversations about eating practices, traditional foods, meal preparation, eating schedules, and portions; and [Diabetes Plate](#).
  - providing education to people about foods containing carbohydrates (carbs), including the types and amounts that are best for managing blood glucose levels. Carbs from sugars and starches can raise blood glucose more quickly and to higher levels than fats and protein do. Start the conversation about carbs using education resources, such as [Carbohydrates by Color](#) and [Find the Carbohydrates on My Native Plate](#).
- Encourage people to monitor carb intake to help reach and maintain blood glucose goals. Provide education regarding:
  - limiting intake of refined carbs and sugar-sweetened beverages;
  - benefits of consuming a moderate and consistent intake of carbs from vegetables, legumes, fruits, dairy, and whole grains throughout the day; and
  - eating 2-4 carb servings at each meal to provide consistency and moderation.

For more on the amount of carbs and serving sizes in common foods, see [Carb Choices | Diabetes | CDC](#).

#### — Screen and Address Food Insecurity

Food insecurity may be transient or long-term. Many factors impact food security, such as financial instability, transportation issues, problems with utilities, job loss, drug and alcohol dependency, and end-of-month food or income shortages.

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# Food is Medicine

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# Federal Food is Medicine Initiatives

- HHS Food Is Medicine Federal Agencies Workgroup
  - Overall goal: Develop foundational resources and tools to catalyze Food is Medicine (FIM) efforts across sectors that supports integrated policy and practice.
- IHS Food and Nutrition Security Workgroup
  - Goals and strategies include sharing resources and best practices with existing IHS programs to advance the FIM initiative.



Search

Understanding Food Is Medicine

Promising Practices and Tools

Research and Measurement

Federal Resource Hub

About This Initiative

# Food Is Medicine

Find resources to prevent, manage, and treat diet-related disease states and promote health and well-being through food and nutrition.

Read More



Search

Understanding Food Is Medicine

Promising Practices and Tools

Research and Measurement

Federal Resource Hub

About This Initiative

Food Is Medicine > Promising Practices and Tools > Real-world Examples >

Empowering Indigenous Food Sovereignty Through Collaborative Education and Action

## Empowering Indigenous Food Sovereignty Through Collaborative Education and Action

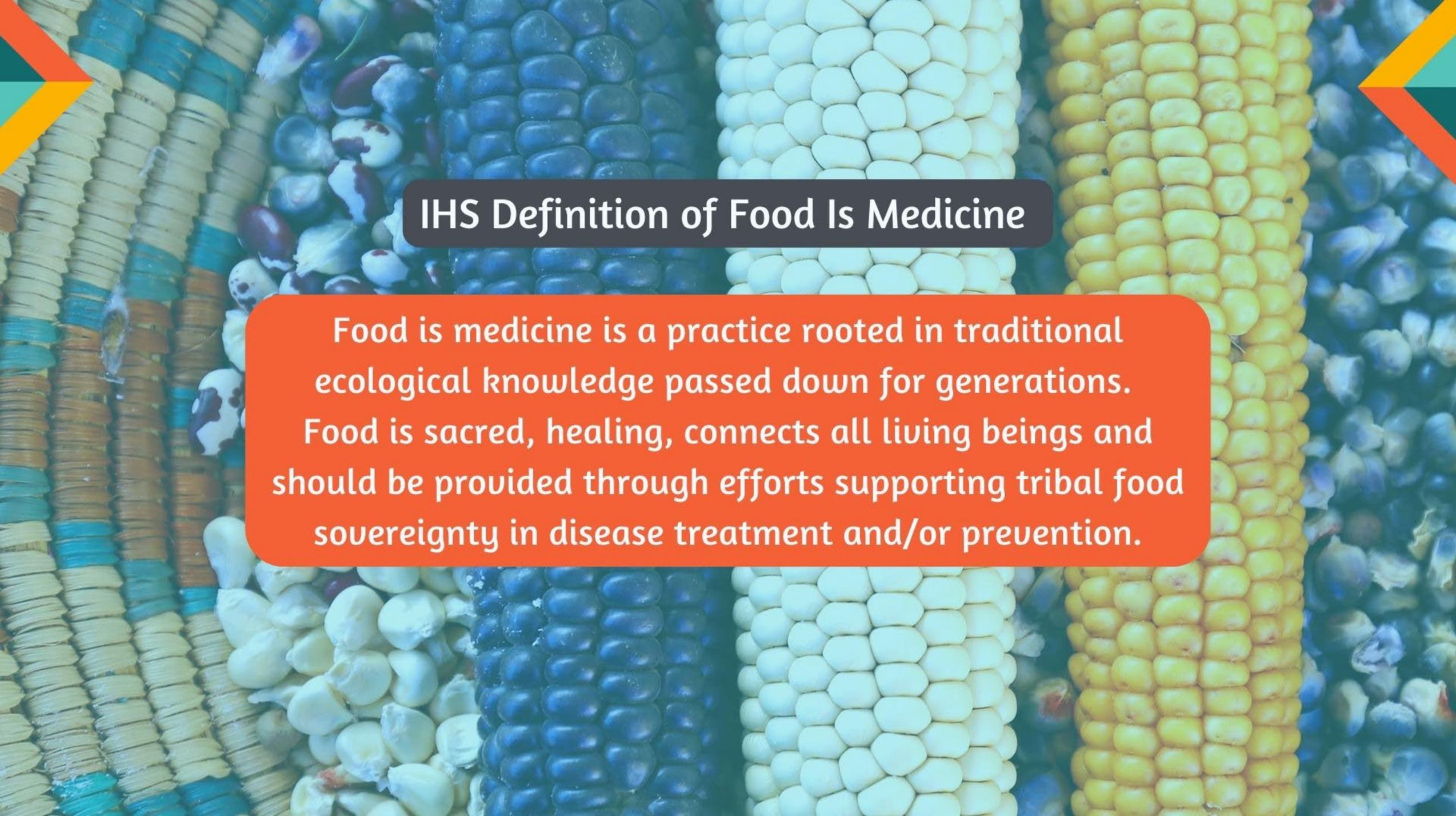
Source: Indian Health Service, Produce Prescription Pilot Program (P4)

Learn how the Indian Health Service supports an Indigenous perspective on Food Is Medicine, connecting person, community, and environment to support whole-person health.



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## IHS Definition of Food Is Medicine

Food is medicine is a practice rooted in traditional ecological knowledge passed down for generations. Food is sacred, healing, connects all living beings and should be provided through efforts supporting tribal food sovereignty in disease treatment and/or prevention.



# Strategies IHS is Implementing

- Provide greater access to:
  - nutrition services to better prevent, manage, and treat diet-related diseases.
  - nutrition-related services through private insurance and federal programs beyond Medicare and Medicaid.
- Screen for food insecurity and connect people to the services they need.
  - Universally screen for food insecurity in federal health care systems.
  - Building on VA's existing universal food insecurity screenings, IHS will implement a process to assess for food insecurity in the IHS user community and conduct referrals as needed.
- IHS will implement and evaluate a National Produce Prescription Pilot Program to increase coverage of quality health care services.

# Produce Prescription Programs

- Hager et al. study included a multisite evaluation of nine produce prescription programs in the US, utilizing pre- and post-evaluation, and individual-level data from twenty-two produce prescription locations in twelve US states from 2014 to 2020.
  - Results from the surveys included improvements in fruit and vegetable consumption, food security, self-reported health status in both adults and children, and improvements in Hemoglobin A1c, blood pressure, and body mass index (BMI) among adults.



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Produce prescription programs for patients with diabetes could save billions in health care costs, study shows | Tufts Now. Published July 7, 2023. <https://now.tufts.edu/2023/07/07/produce-prescription-programs-patients-diabetes-could-save-billions-healthcare-costs>

Hager K, Du M, Li Z, et al. Impact of produce prescriptions on diet, food security, and cardiometabolic health outcomes: a multisite evaluation of nine produce prescription programs in the United States. *Circ: Cardiovascular Quality and Outcomes*. 2023;16(9). doi:10.1161/CIRCOUTCOMES.122.009520

INDIAN HEALTH SERVICE

**AWARDS \$2.5 MILLION**

to Reduce Food Insecurity in  
Tribal Communities





# GRANTEES





# IHS Produce Prescription Pilot Program (P4) Grant Goals

To demonstrate and evaluate the impact of produce prescription programs on AI/AN people and their families, by:

- Reducing food insecurity
- Improving overall dietary health by increasing fruits, vegetables, and traditional food consumption
- Improving health care outcomes



# IHS P4: Challenges, Successes, and Lessons Learned

- #1 barrier upon implementation: Food Insecurity screening tool
  - U.S. Adult Food Security Survey Module (FSSM), developed by the USDA.
  - P4 grantees discovered that the USDA survey was not culturally relevant for AI/AN communities.
  - Some have adapted or added clarifying questions to the existing tool.
  - Incorporated a process for administering the survey which includes a more personalized approach in assisting the survey respondents with clarifying questions.



# IHS P4: Challenges, Successes, and Lessons Learned

- Adjusting initial work plans
- Common barriers/challenges
- Collaborating with both internal and external partners
- Leveraging traditional knowledge and Indigenous farming practices





Nutrition

**Nutrition**[Produce Prescription Programs](#)[Food Sovereignty](#)[Food and Nutrition Security](#)[Nutrition Education Resources](#)[Nutrition Continuing Education](#)[Nutrition in Life's Vital Stages](#)[Division of Diabetes Treatment and Prevention \(DDTP\)](#)[Special Diabetes Program for Indians \(SDPI\)](#)[Contact Us](#)**Nutrition**

Good nutrition is vital to healthy growth, development, and wellness throughout the lifespan. Healthy eating reduces the risk of chronic diseases, such as obesity, diabetes, heart disease, and some cancers. Healthy eating means consuming nutrient-dense foods and beverages across all food groups, including traditional foods.

Use this page to find information from IHS and other federal partners to help you make healthy eating choices.

See a Registered Dietitian Nutritionist (RDN) to get counseling on nutrition and eating habits. Many IHS, Tribal, or Urban Indian Organizations offer nutrition services for individuals and groups.

**STAY CONNECTED**

Join the [IHS Nutrition LISTSERV](#) to receive announcements and updates on nutrition-related training opportunities and resources for American Indian and Alaska Native communities.

Dietitians working in IHS, Tribal, and Urban Healthcare settings can also join the [Dietitian Information Network LISTSERV](#) for information sharing.

IHS Headquarters, Indian Health Service, 5600 Fishers Lane, Rockville, MD 20857 - [Find a Mail Stop](#)



## Food Insecurity Assessment Tool and Resource List

To help your patients and clients improve their health, it is important to understand food insecurity and provide them with resources to get more healthy food.

When patients/clients and their children cannot get enough healthy food, they have food insecurity. They:

- Are at greater risk for being emotionally distressed.
- Eat less expensive foods which are often unhealthy.
- Have little choice over what kinds of food to buy or receive for free, making it difficult or impossible to eat balanced meals.
- Have periods when they don't eat, then overeat when food is available. If they have diabetes, this makes it very difficult to manage blood sugar.
- Have a greater risk for being overweight or obese.
- Are more likely to get diseases like diabetes.

### To help your patients/clients lessen food insecurity, take these three steps:

1. Read each statement\* and ask your client if the statement is often true, sometimes true, rarely true, or never true.
  - Within the past 12 months, we worried whether our food would run out before we got money to buy more.  Often True  Sometimes True  Rarely True  Never True
  - Within the past 12 months, the food we bought just didn't last and we didn't have money to get more.  Often True  Sometimes True  Rarely True  Never True
2. If your client responds "often true" or "sometimes true" to either statement, they likely have food insecurity. Help them get more food by filling out the list of resources (see next page) and giving it to them.
 

You can also fill out the list, make copies, and leave them in waiting rooms and other areas for community members to pick up.
3. Advocate for nourishing foods in your community. Take steps to increase the availability of nutritious, affordable food.

\* Hager ER, Quigg AM, Black MM, Coleman SM, Heeren T, Rose-Jacobs R, et al. Development and validity of a 2-item screen to identify families at risk for food insecurity. *Pediatrics*. 2010 Jul 1; 126(1):26-32.



Produced by the IHS Division of Diabetes Treatment and Prevention, 2015. To print this, go to [www.ihs.gov/diabetes](http://www.ihs.gov/diabetes) and search **Food Insecurity** using 'exact match' on the Education Materials and Resources (Online Catalog) webpage.

## Where to Get Food Assistance in This Community

Community Name: \_\_\_\_\_ Date: \_\_\_\_\_

Not having enough food for yourself and your family is stressful. Lack of good food makes it difficult to provide nutritious meals that help children grow and adults stay healthy. The thought of not having enough food can make you worry.

There are resources to help. If you need food assistance, please don't wait to contact the programs on this list. They can help you get the food you need for yourself and your family.\*

Program Name	Contact Name	Contact Number	Other Important Information (Location, Who Can Qualify, Hours, etc.)
SNAP - Supplemental Nutrition Assistance (Food Stamps)			
Food Distribution (Commodities)			
Women, Infants, and Children (WIC)			
School Lunch and Breakfast Program			
Summer Food Service Program for Children			
Senior Center			
Meals on Wheels			
Tribal Food Program			
Farmers Markets			
Community Gardens			
Food Bank / Food Pantry			
"Mobile Grocery Store" Truck			
Church / Place of Worship			
Social Services			

\*Check with the program to see if you qualify to get food.



Produced by the IHS Division of Diabetes Treatment and Prevention, 2015. To print this, go to [www.ihs.gov/diabetes](http://www.ihs.gov/diabetes) and search **Food Insecurity** using 'exact match' on the Education Materials and Resources (Online Catalog) webpage.



# Considerations

- Community needs assessment
  - Is food and nutrition insecurity an issue in your community?
- Screening
  - What does a screening process look like for your community, clinic, or health system?
- Referral process
  - What will you do when someone screens positive for being food insecure?

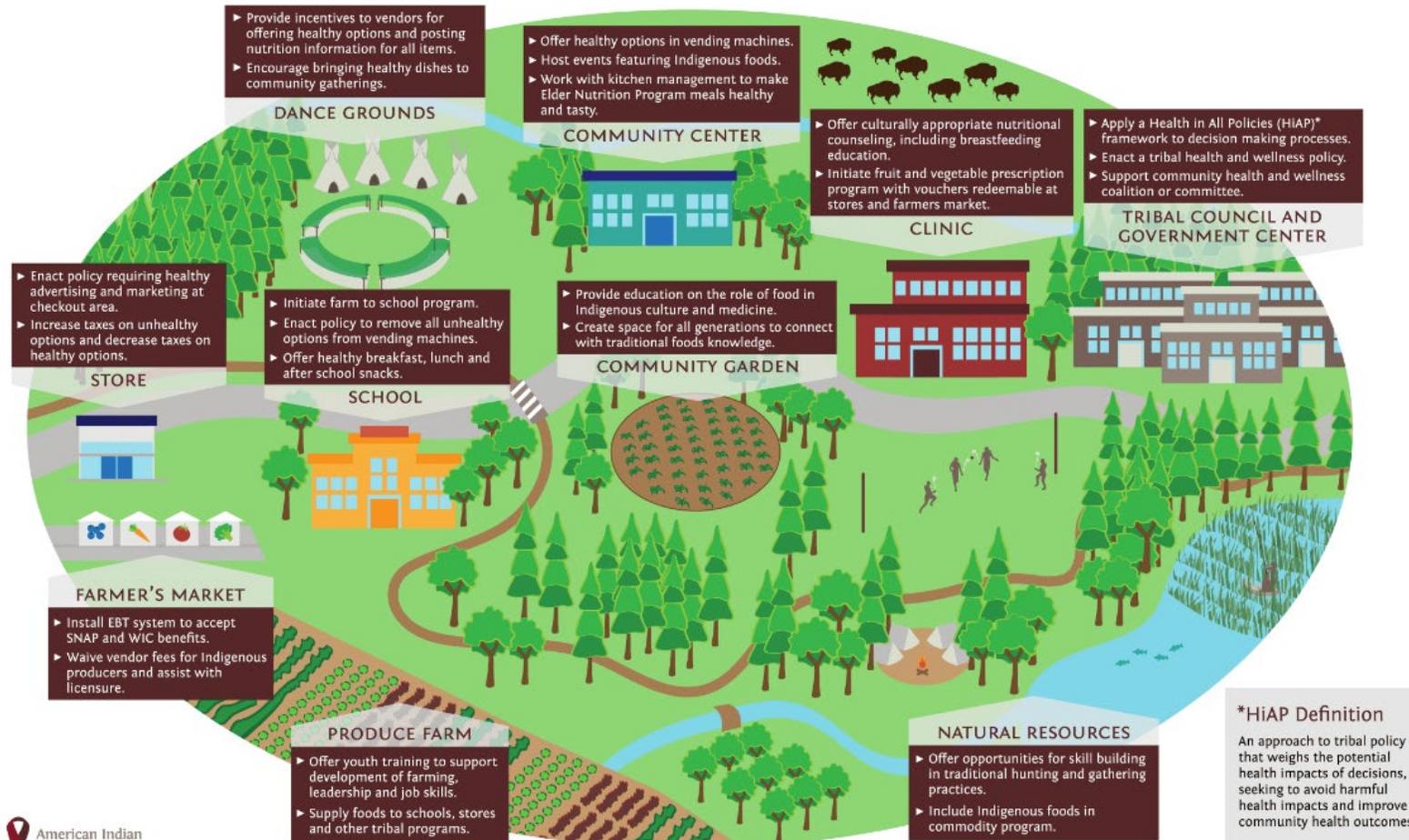
# HEALTHY EATING FOR STRONG NATIVE COMMUNITIES

## PROMOTING INDIGENOUS HEALTH

▶ Indigenous Foods: foods native to local area.

▶ Healthy Options: water, fruits, vegetables, whole grains, lean proteins, unprocessed foods.

▶ Unhealthy Options: sugary drinks and processed foods high in sugar, sodium and saturated fat.



### \*HiAP Definition

An approach to tribal policy that weighs the potential health impacts of decisions, seeking to avoid harmful health impacts and improve community health outcomes.

AmericanIndianCancer.org



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# RURAL PRODUCE PRESCRIPTION TOOLKIT

Increasing Access to Healthy Food  
for Rural Communities



UCSF Center for Vulnerable Populations  
Zuckerberg San Francisco General Hospital



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<https://bestpractices.nokidhungry.org/resource/rural-produce-prescription-toolkit>



**Pidamayaye**

**Kepechihi**

**Mvto**

**Thank You**

