



# HYBRIDIZING MUSCULOSKELETAL HEALTH EDUCATION FOR COMMUNITY HEALTH WORKERS AND AGRICULTURAL WORKERS

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# A bit about me

- Physical Therapist for 20 years in the area musculoskeletal health and prevention
- Lived and taught physical therapy in Bolivia from 2003-2005
- Educator in the Physical Therapy Department at Western Carolina University (WCU) for 8 years
- Collaborated with multiple farmworker and agricultural health agencies since 2012 and serve as a PT provider for Vecinos Farmworker Health Program
- Completing educational leadership doctorate from Western Carolina University in the area of hybridized public health education





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SOUTHEAST  
CENTER  
FOR AGRICULTURAL HEALTH  
AND INJURY PREVENTION



UK  
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KENTUCKY  
College of Public Health



# Learning objective for today's session

1. Discuss strategies to increase MSAW access to newly developed musculoskeletal health education resources in various hybrid delivery formats.
2. Identify primary means of accessing and distributing existing musculoskeletal health education resources for key stakeholders in agricultural worker health
3. Discuss potential utilization and application of the hybrid health educational delivery model to the participant-specific work settings

# BACKGROUND: HIGH MUSCULOSKELETAL HEALTH RISKS ASSOCIATED WITH FARMWORK

- Farm work is consistently ranked among the most dangerous occupations in the U.S.
- Farmworkers are at increased risk for developing musculoskeletal (MSK) symptoms and injuries due to repetitive, physically demanding tasks.

# LIMITED ACCESS TO HEALTH EDUCATION FOR MSAW



- High incidence of musculoskeletal conditions
- Limited access to healthcare and health education
- Commonly live/work in remote areas, have low health and general literacy, limited English, limited financial resources

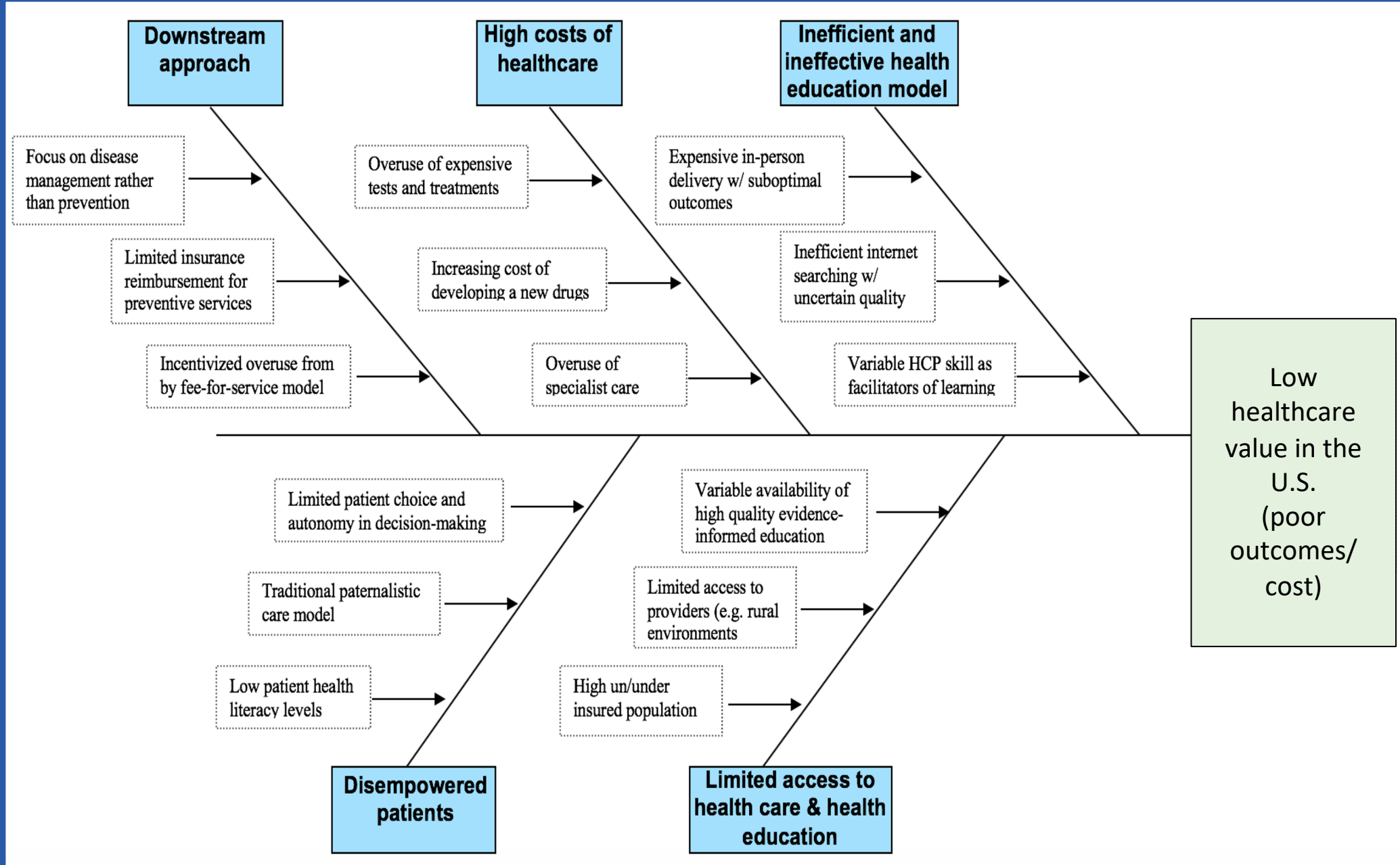
# AN INSTITUTIONAL PROBLEM OF SUBOPTIMAL HEALTHCARE VALUE

## WHAT DOES A SOLUTION LOOK LIKE?

**VALUE-BASED  
HEALTHCARE**



# CONTRIBUTING FACTORS TO LOW VALUE HEALTHCARE IN THE U.S.





# LOW HEALTHCARE VALUE

- Downstream approach
- High cost of healthcare
- Inefficient/ineffective health education model
- Limited access to healthcare & health education
- Disempowered patients

# EQUITY & JUSTICE CONSIDERATIONS

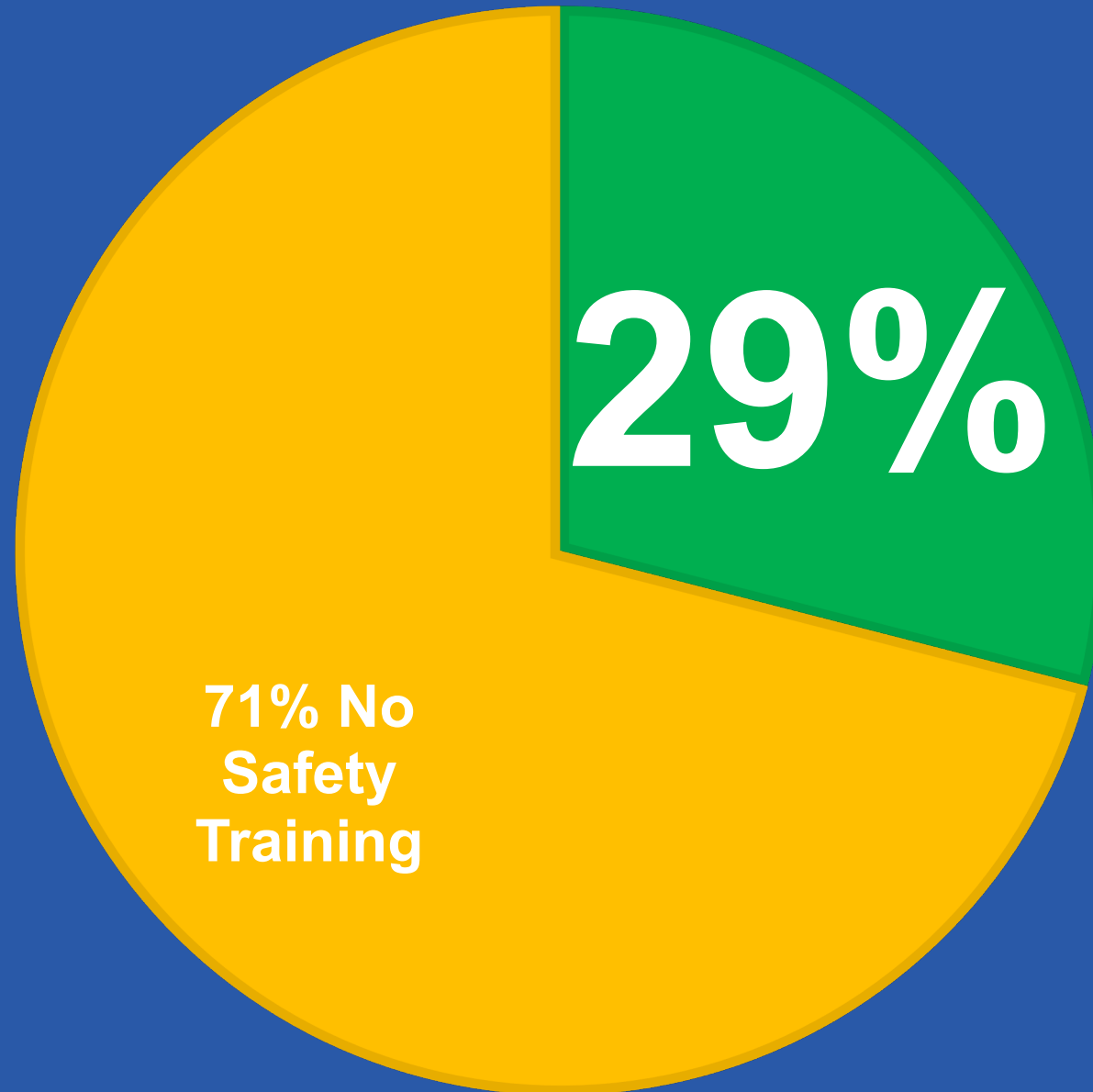
- Greater health disparities (health outcomes, access to care) in:
  - minority racial groups (Thomas et al., 2014)
  - lower socioeconomic levels (Thomas et al., 2014)
  - more rural areas (Artiga et al., 2016)
- With the link between better education and improved health, improving access to quality health education may help address disparities in the most vulnerable populations.

# CURRENT MODEL OF HEALTH EDUCATION WITH COMMUNITY HEALTH WORKERS (CHW) AND MSAW

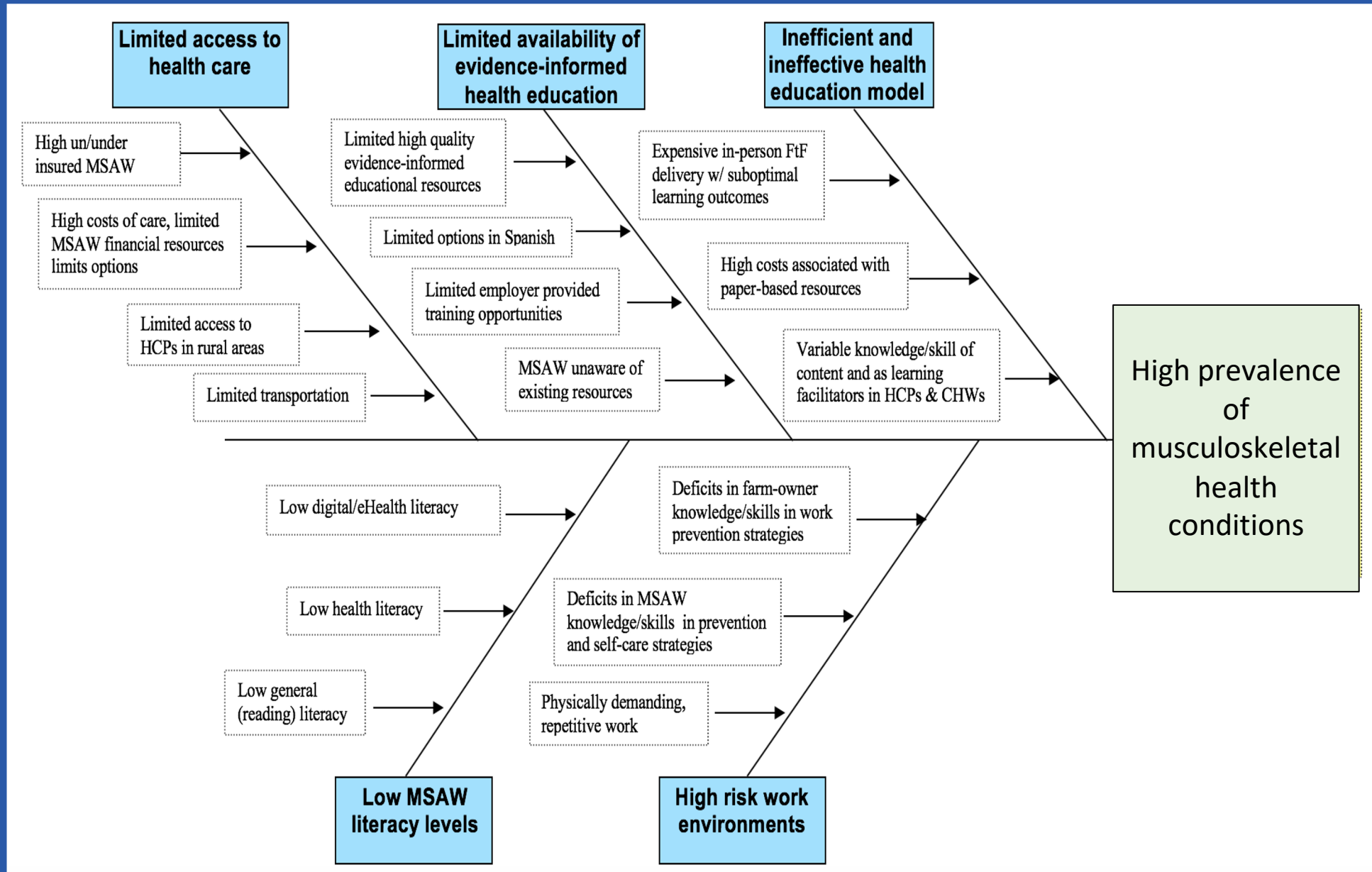


- Limited opportunities for CHW training specifically in the musculoskeletal health area
- Excellent paper-based resources intended for MSAW “Cuidate”. Some costs associated with printing and dissemination.

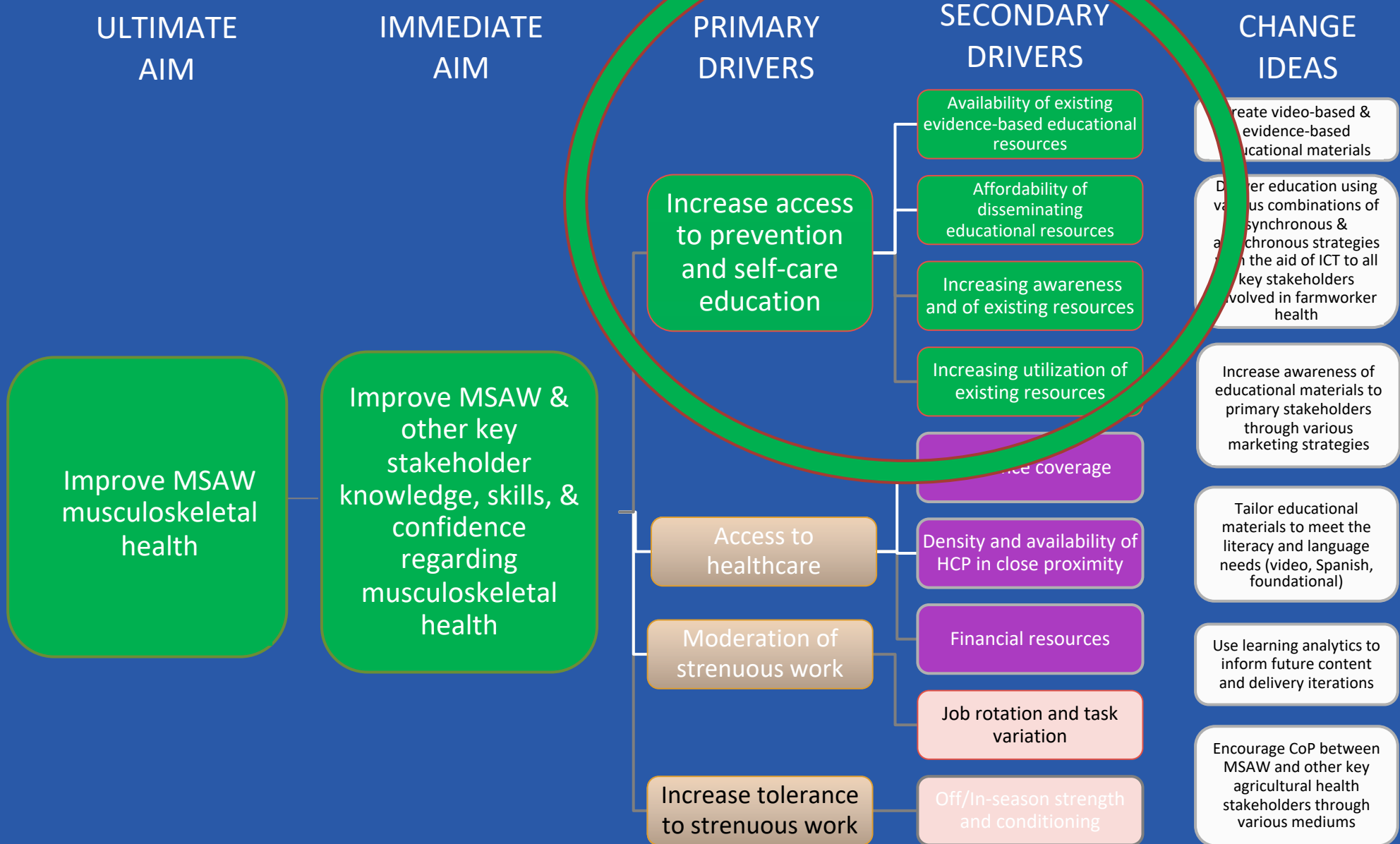
# % OF FARMWORKERS WHO REPORTED RECEIVING SOME TYPE OF SAFETY TRAINING



# CONTRIBUTING FACTORS TO MUSCULOSKELETAL HEALTH IN MSAW



# Driver Diagram





## PRIMARY DRIVERS

Increase access to prevention and self-care education

## SECONDARY DRIVERS

Availability of existing evidence-based educational resources

Affordability of disseminating educational resources

Increasing awareness and of existing resources

Increasing utilization of existing resources

&

# THEORY OF IMPROVEMENT – GLOBAL HEALTHCARE CONTEXT

This Theory of Improvement holds that hybridizing the health education component of healthcare by using various combinations of face-to-face (F2F) and synchronous and asynchronous video-based education using technology will ultimately improve health outcomes by:

- (a) increasing access to evidence-informed health education
- (b) enhancing patient/client learning outcomes
- (c) demonstrating value with respect to health outcomes and patient perceptions of care per dollar spent

# THEORY OF IMPROVEMENT (ToI) – MSAW CONTEXT

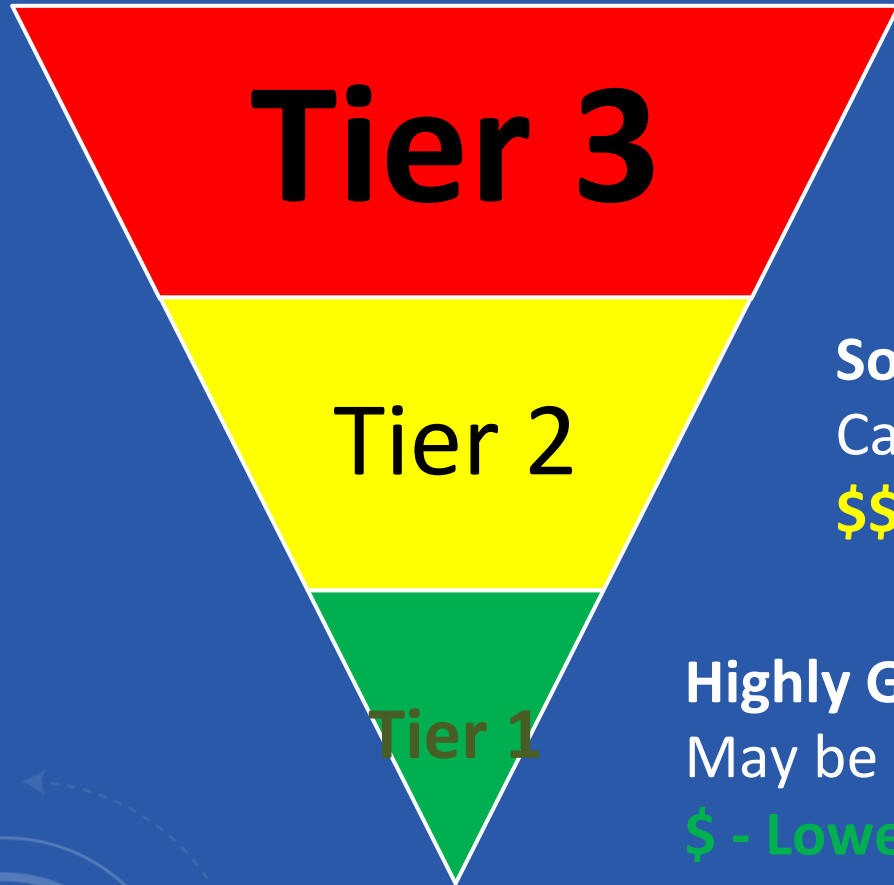
This ToI holds that hybridizing musculoskeletal health education for:

1. MSAW
2. CHWs, farm owners, agriculture crew leaders

will:

- (a) increase access to evidence-informed health education
- (b) enhance learning outcomes (knowledge, skills, and confidence)
- (c) demonstrate value (health outcomes + perceptions / cost)

# CONCEPT FRAMEWORK: CURRENT LOWER VALUE HEALTHCARE AND HEALTH EDUCATION MODEL



**Highly Individualized/Personalized Education**

May be more effective delivered FtF

**\$\$\$ - Highest costs**

**Somewhat Individualized/Personalized**

Can be delivered FtF or remotely

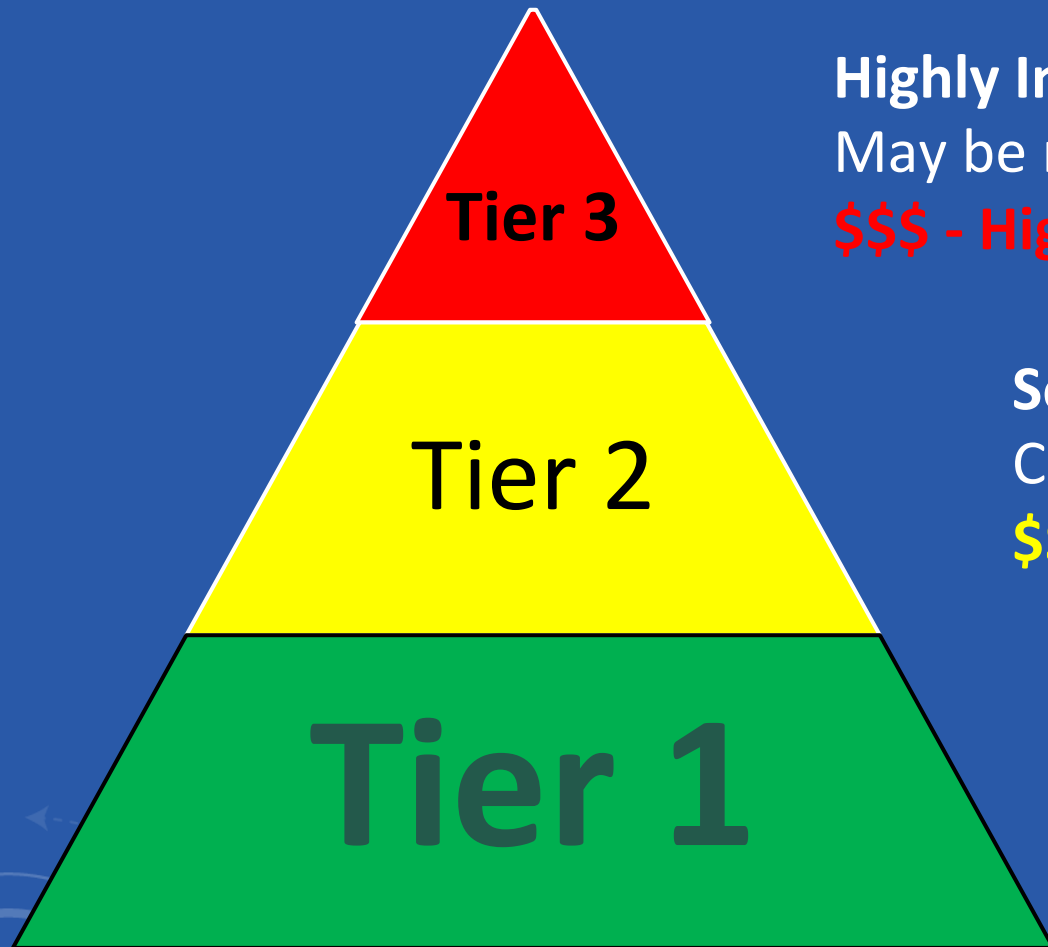
**\$\$ - Moderate costs**

**Highly Generalizable/Foundational Education**

May be more effective delivered asynchronously

**\$ - Lowest costs**

# CONCEPT FRAMEWORK: PROPOSED HIGHER VALUE HEALTH EDUCATION MODEL



**Highly Individualized/Personalized Education**  
May be more effective delivered FtF  
**\$\$\$ - Highest costs**

**Somewhat Individualized/Personalized**  
Can be delivered FtF or remotely  
**\$\$ - Moderate costs**

**Highly Generalizable/Foundational Education**  
May be more effective delivered asynchronously  
**\$ - Lowest costs**

# EVIDENCE FOR IMPROVEMENT INITIATIVE

- Strong evidence for the efficacy of eLearning in various educational environments (Nguyen, 2015; Stack, 2015)
- Limited but growing evidence for the use of eLearning in healthcare targeting consumers/patients (Rush et al., 2018), including historically underserved and minority populations (Anderson-Lewis et al., 2018)
- Minimal published studies evaluating the educational efficacy using more sophisticated educational delivery modes like Learning Management Systems (LMS)



# Aims

1. To **improve access** to educational materials related to MSK injury risk reduction associated with agricultural work via electronic learning (eLearning) series
2. Assess the eLearning series on the following factors:
  - Learning outcomes
  - Perceptions of content and delivery mode



# INTERVENTION PLAN

- Use a Learning Management System to improve the delivery of 2 developed courses related to musculoskeletal health issues in agriculture for two key agricultural stakeholder groups:

- 1. CHWs, Healthcare Providers, Farm owners, and Crew leaders**
- 2. MSAW**

- Collect data to inform changes in the educational delivery and dissemination, including consideration of hybridizing with F2F or synchronous online sessions (eg. webinars)

# Creating an Engaging, Evidence-informed Educational Videos

What does it mean to be **engaging**?

- Research suggests that humor can lead to higher learner retention and participation
- Storytelling
- Content in Spanish by native speakers

**Evidence-informed**

- Evidence-informed literature and stakeholder feedback informed educational content and delivery (eg. risk factors, movement strategies, and prevention)





# Why Video-Based?

- Employed principles of **popular education**
  - The relationship between learner and teacher is circular
  - Learning occurs between peers, not from experts to passive learners
- Video for farmworkers was designed to be informal, fun, and culturally relevant



# eLearning

- eLearning is the integration of electronic technology, including media and devices, in the delivery of education
  - May include both synchronous (FtF or remote) and asynchronous strategies
- May be an effective method for wide dissemination of education to individuals involved in agricultural work
- Easily accessible
  - High value (outcomes/cost of delivery)

# Educational Materials

- English video for CHW
  - Piloted evidence-based video series with 30 CHWs
  - Results: positive knowledge retention and perceptions of learning with video-based format
- Spanish video for MSAW
  - Development of evidence-based video (per NCFHP request) using hybrid delivery method among 28 participants
  - Results: positive knowledge retention and perceptions of learning and mode of delivery



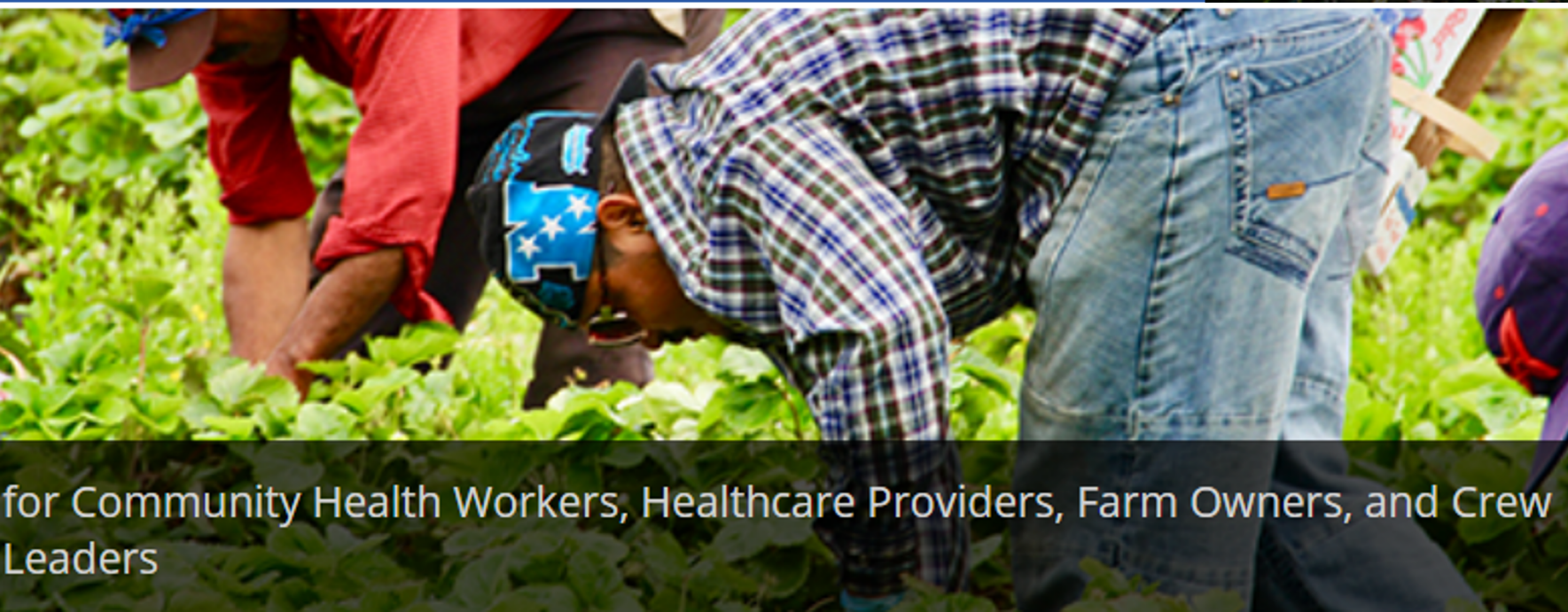
# Literature Review

- Limited research available regarding efficacy of health education via eLearning in lay populations
  - Video-based vs pamphlet-based delivery resulted in:
    - Higher improvements in knowledge retention
    - Greater adherence to positive health habits
  - eLearning used with in both average and lower literacy populations resulted in positive perceptions of learning and mode of delivery

# Targeted Populations



para Trabajadores Agrícolas



for Community Health Workers, Healthcare Providers, Farm Owners, and Crew Leaders

# Series for MSAW in Spanish



- Topics
  - Physical risk factors for musculoskeletal conditions
  - Optimal movement and work task performance
  - Personal preventative measures and self-care
- Culturally and linguistically appropriate and relevant
  - Narrated by native Spanish speaker
  - Emphasis on importance of peer-to-peer learning
  - Addition of humor to enhance learner engagement





<https://farmworker.expertlearning.net/mod/page/view.php?id=84&inpopup=1> or [https://youtu.be/mjm4Qw\\_1Tg4](https://youtu.be/mjm4Qw_1Tg4)










# Series for CHW Topics

1. Introduction to Musculoskeletal Health in Agricultural Workers
2. Physical Risk Factors in Agricultural Work
3. Protective Factors: Strategies to Reduce Risk
4. Screening and Basic First Aid
5. Review



**Red Flags**

- Radiating numbness, tingling or pain
- Difficulty urinating
- Night pain
- History of cancer
- Prolonged fever
- Unexplained weight loss

A photograph of a woman with long brown hair, wearing a dark red top, speaking.

# Learning Management System (LMS)

- Medium for delivering our resources while simultaneously tracking access, usage, and other learning analytics
- Extensive process for choosing an LMS for dissemination and sustainability
- Receiving of grant → Moodle (an open-source LMS)
- Ability to track participant usage and learning analytics



## Physical Health Promotion in Agriculture

Complete an online learning series below aimed at better prevention and care of musculoskeletal health conditions associated with agricultural work





# How will we know if this improvement effort is effective?

- Primary analyses:
  - Learning Outcomes
    - Knowledge retention
    - Changes in confidence & self-efficacy
  - Access
    - # of course participants
    - Completion rate
  - Participant Perceptions
    - Course content
    - Mode of delivery



# What's next? We need your feedback!

- Optimal combinations of synchronous and asynchronous delivery for learning and participation outcomes
- Iterations after improvements to content/delivery based on outcome data & stakeholder feedback



# Questions for you....(provide responses in chat)

1. What do you see as potential benefits the asynchronous online educational courses in meeting the needs of your organization?
2. What barriers/challenges associated with the asynchronous online educational courses in meeting the needs of your organization?
3. Describe your perceptions of how the potential addition of a synchronous F2F and or webinar educational session could enhance or hinder the asynchronous online courses?
4. What have you found to be most/least helpful in working to increase access and to quality education for community health workers and farmworkers?
5. What are your thoughts on how to enhance the use of technology to improve access to quality, evidence-based education for CHW and MSAW?



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A photograph of a vineyard. In the foreground, two workers are kneeling in a row of grapevines, tending to the plants. One worker is on the left, wearing a dark shirt and a cap, and the other is on the right, wearing a light-colored shirt and a wide-brimmed hat. A wooden basket sits on the ground near the worker on the right. In the background, a tractor is visible, working in a field. The text "¿Preguntas?" is overlaid in the center of the image.

¿Preguntas?