An Academic-Community Based Partnerships to Address Vaccine Uptake in the Borderlands

THE UNIVERSITY OF ARIZONA
R. Ken Coit
College of Pharmacy

TEAM MEMBERS





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TABLE OF CONTENTS

INTRODUCTION

Misinformation

Especially in rural communities

Vaccine hesitancy

Leading to↓ coverage

Rural countries =38.9%
Urban counties =45.7%

Lack of resources

Could promotores be of use?

ACADEMIC COMMUNITY PARTNERSHI

Universities

Pros: Infrastructure, technical assistance, passionate and engaged students

Opportunities for collaboration

Communities

Pros: Trust, first hand knowledge, insight, inclusion

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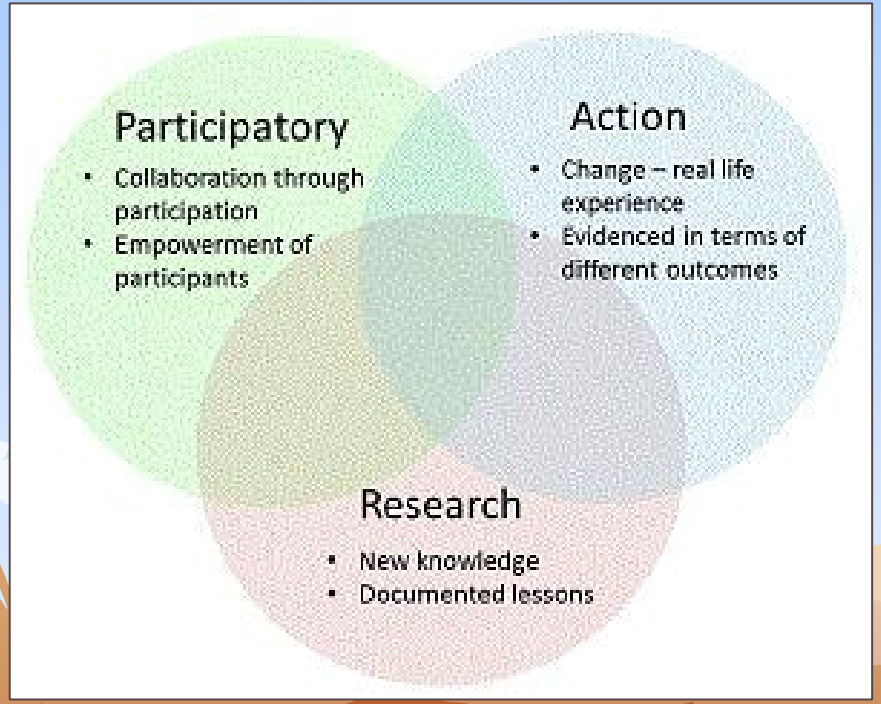
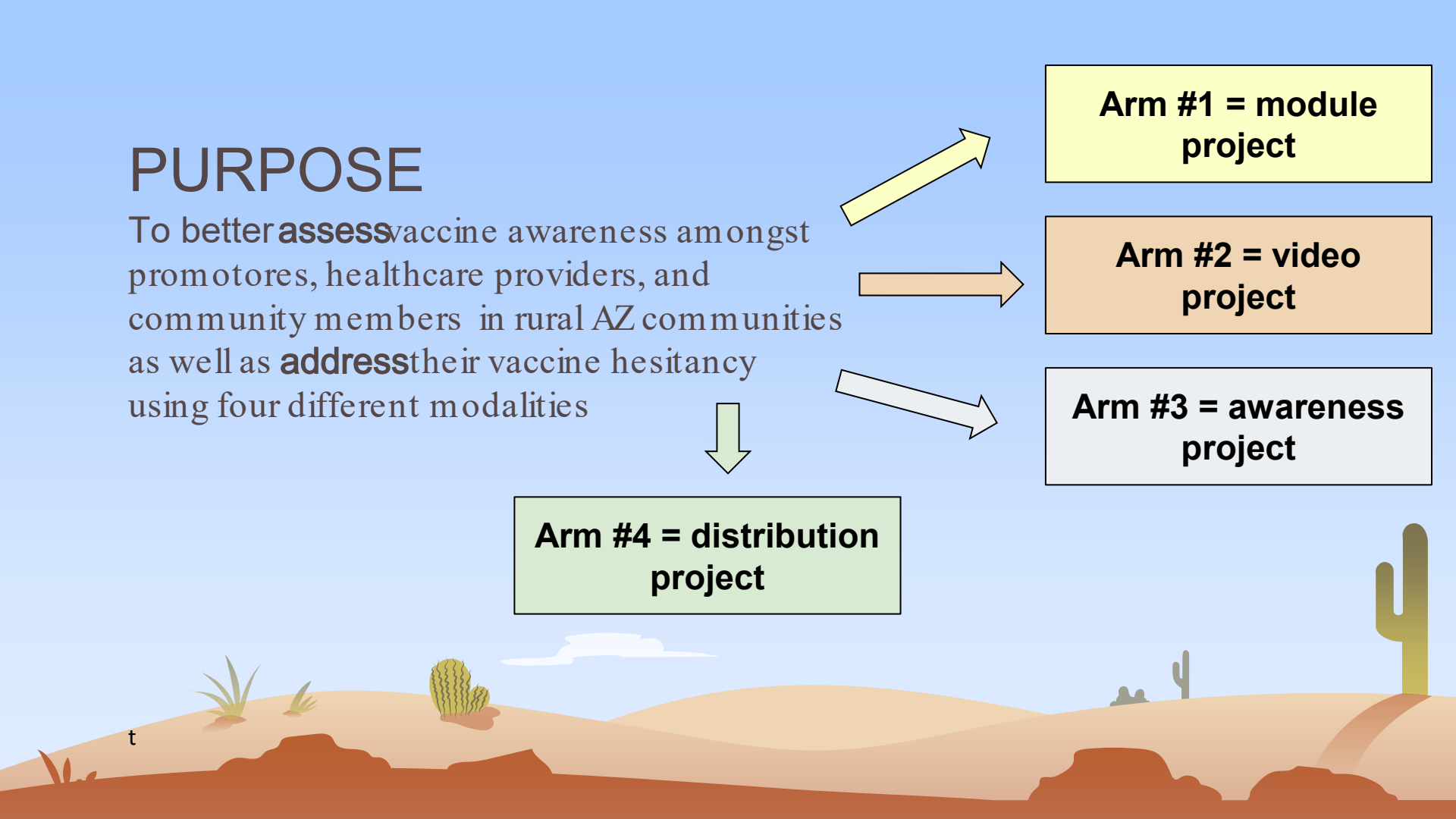
ACADEMIC COMMUNITY PARTNERSHIPS



PURPOSE

To better **assess** vaccine awareness amongst promotores, healthcare providers, and community members in rural AZ communities as well as **address** their vaccine hesitancy using four different modalities



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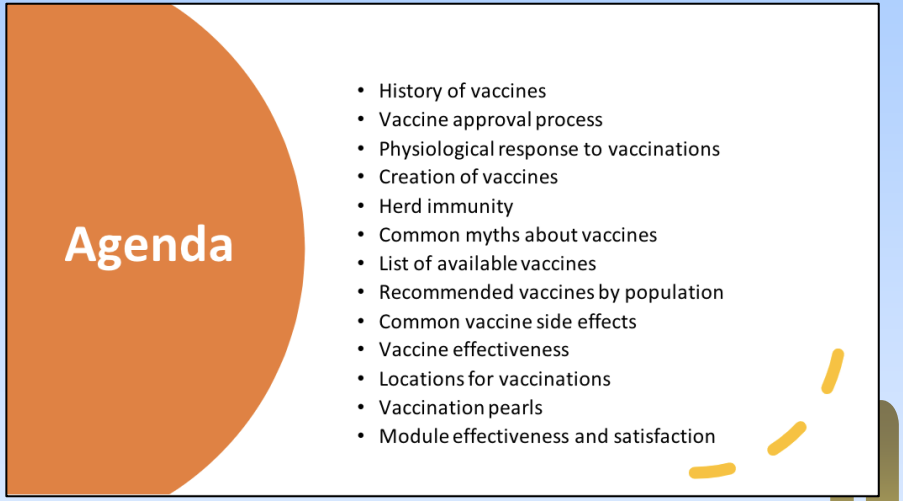
Arm #1

An academic- community partnership to train promotores to address vaccine hesitancy in rural, border communities

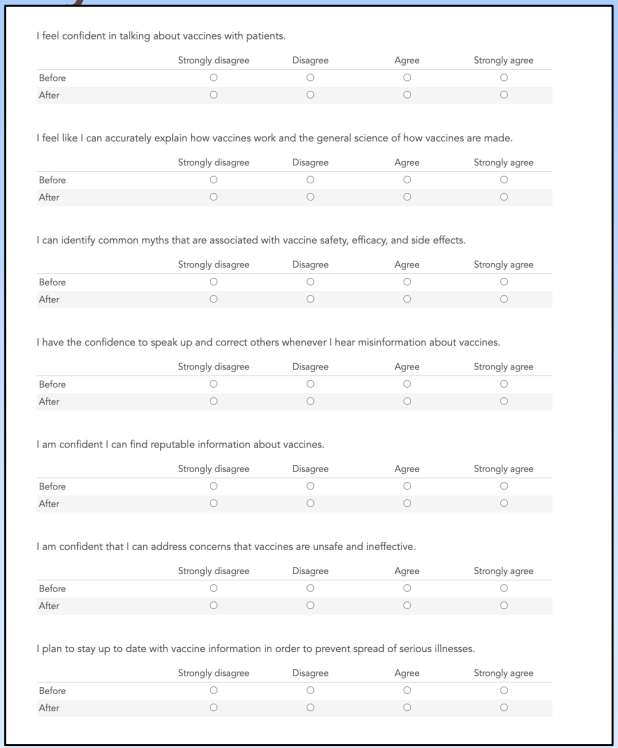
Methods to date-Training Module Creation

- Three different module slide decks
  - General vaccination topics
  - Influenza
  - COVID-19
- Address vaccine science, safety, efficacy, and misconceptions
  - Provide up-to-date
- In English and Spanish



Module presentations and surveys

- Conducted in-person or over video- streaming service
- Must be a CHW or promotore in rural AZ
- Must watch at least module → take survey
- Retrospective pre-post survey
  - Likert scale and free-response question types
  - Topics addressed
    - Knowledge of vaccines
    - Efficacy, confidence in addressing vaccine hesitancy
    - Perceived quality/satisfaction of training(s)
    - Various demographic questions



I feel confident in talking about vaccines with patients.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

I feel like I can accurately explain how vaccines work and the general science of how vaccines are made.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

I can identify common myths that are associated with vaccine safety, efficacy, and side effects.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

I have the confidence to speak up and correct others whenever I hear misinformation about vaccines.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

I am confident I can find reputable information about vaccines.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

I am confident that I can address concerns that vaccines are unsafe and ineffective.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

I plan to stay up to date with vaccine information in order to prevent spread of serious illnesses.

	Strongly disagree	Disagree	Agree	Strongly agree
Before	○	○	○	○
After	○	○	○	○

An academic-community partnership to train promotores to address vaccine hesitancy in rural, border communities

Adrian Acuña, PharmD Candidate; Jose Bustamante, PharmD Candidate; Danielle Chellman, PharmD Candidate; Daniel Tellez, PharmD Candidate; Elizabeth Hall-Lipsy, JD, MPH, Faculty advisor

Background

Vaccines - proven efficacy to prevent infectious disease

Vaccine hesitancy - delay in acceptance or refusal or vaccination despite availability of vaccination services
- More prevalent in rural communities (including communities along US-Mexico border)
- Leads to lower vaccination rates despite increased need due to lack of economic and healthcare resources
- Misinformation is a main cause of this hesitancy

Promotores: lay community healthcare workers that share similar socioeconomic/cultural traits as their patients

Purpose: to measure the impact of a student-developed and -delivered training program for promotores in rural and border communities of Arizona

Methods to Date

Training module creation
- Three student-developed training modules concerning general vaccination topics, influenza, COVID-19
- Provide up-to-date information addressing the science, safety and efficacy of vaccines

Survey creation
- Survey design = retrospective pre-post survey with Likert scale and free-response question types
- Topics include = knowledge of vaccines, self-efficacy and self-confidence in addressing vaccine hesitancy, perceived quality/satisfaction of the training(s) provided, various demographic questions

Next Steps / Future Direction

Present modules to promotores → survey willing promotores
- Recruited promotores from SEAHEC (Southeast Arizona Area Health Education Center)
- Modules may be presented in-person (likely at SEAHEC headquarters) or online via Zoom
- $5 Walmart gift card used for incentive for survey participation (funded by NHRA)

Analyze survey data
- Software utilized = SPSS and Qualtrics |
- Tests = descriptive statistics, Chi-Square/Fisher's Exact, Wilcoxon Rank Sum tests, logistic regressions
- When survey is considered "complete" = 75%

Implement longitudinal group
- To determine long-term retention of module information 1-3 months after the module presentation(s)

Challenges and Limitations

Consistently changing vaccine information (particularly for COVID-19 vaccines)
- Consistently need for new iterations of modules added complexity to study development
- Needed to balance accuracy and pertinence of provided information vs. desire to conduct research in in an acute time period of the COVID-19 pandemic

Survey study inherent limitations
- Balancing desire for comprehensive data vs providing only pertinent information to increase participation
- Risk of survey sharing or taking survey without significant interest (e.g. only for the gift card)
- Survey not taken by intended participants (e.g. wrong population, duplications)

Time considerations of student-driven research
- Demanding curriculum, other commitments makes time-effective research difficult for students

Acknowledgments

Acknowledgments: Brenda Sanchez, BS, BA, CHES; SEAHEC | Ycied Talavera, BS; SEAHEC

IRB approval process underway with the University of Arizona IRB

Funding to support this project was received through a grant from the National Rural Health Association to the Arizona Rural Health Association.

Contact Daniel Tellez (dctellez@pharmacy.arizona.edu) or Elizabeth Hall-Lipsy (ehall@pharmacy.arizona.edu) with any questions or comments about this study

QR Codes

Modules

Surveys

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Methods Next Steps

Present modules to promotores→ Survey willing promotores/CHWs

- Recruit Promotores/CHWs from SEAHEC
- $5 Walmart gift card used for incentive (funded by NHRA)

Analyze survey data

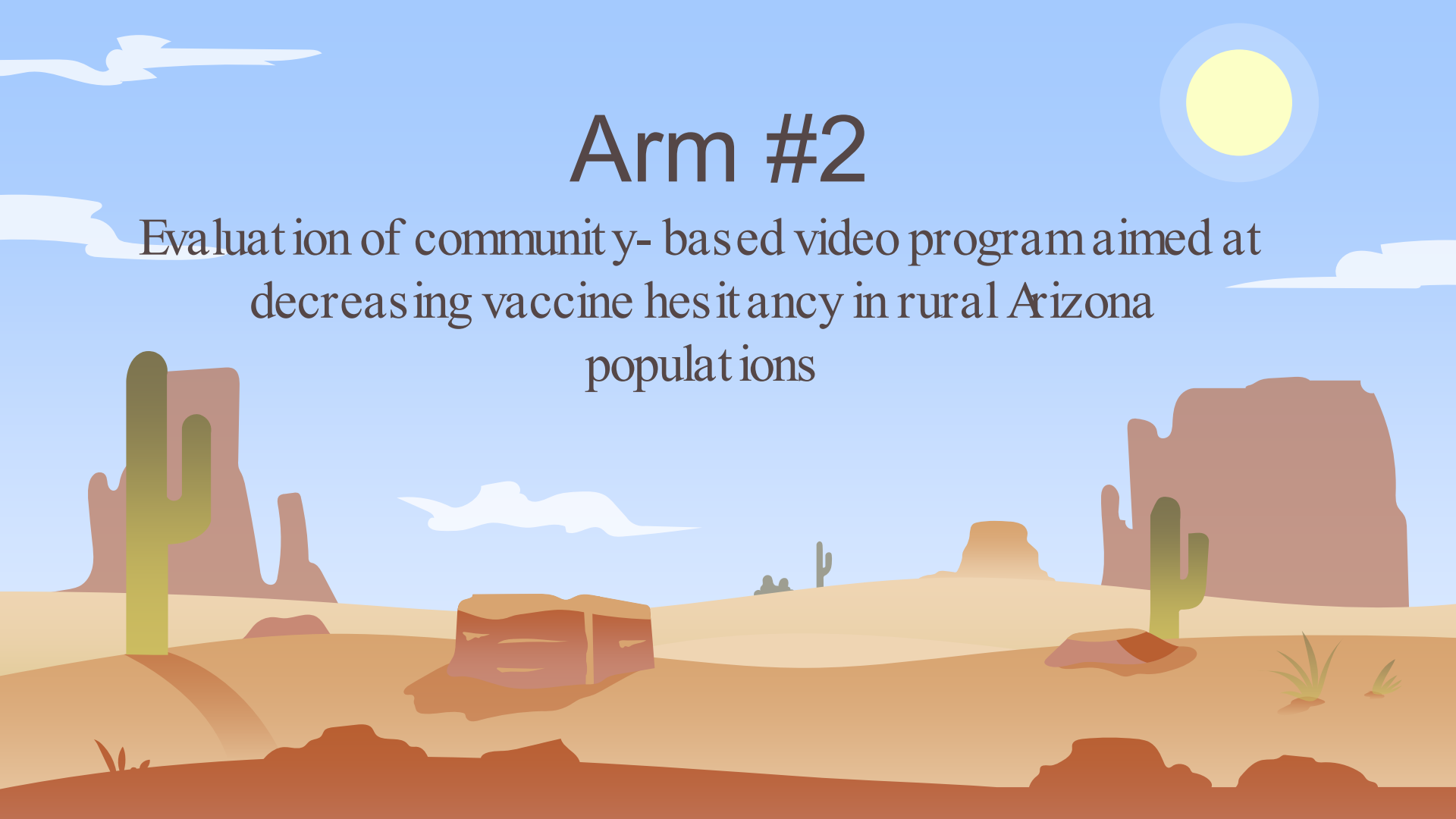
- Software utilized = SPSS and Qualtrics
- Tests = descriptive statistics, Chi-Square/Fisher's Exact, Wilcoxon Rank Sum tests, logistic regressions
- Survey is considered "complete" at 75%

Implement longitudinal group

- To determine long-term retention of module information (1-3 months after presentation)

Arm #2

Evaluation of community- based video program aimed at decreasing vaccine hesitancy in rural Arizona populations



Videos

“Vaccine Hesitancy”

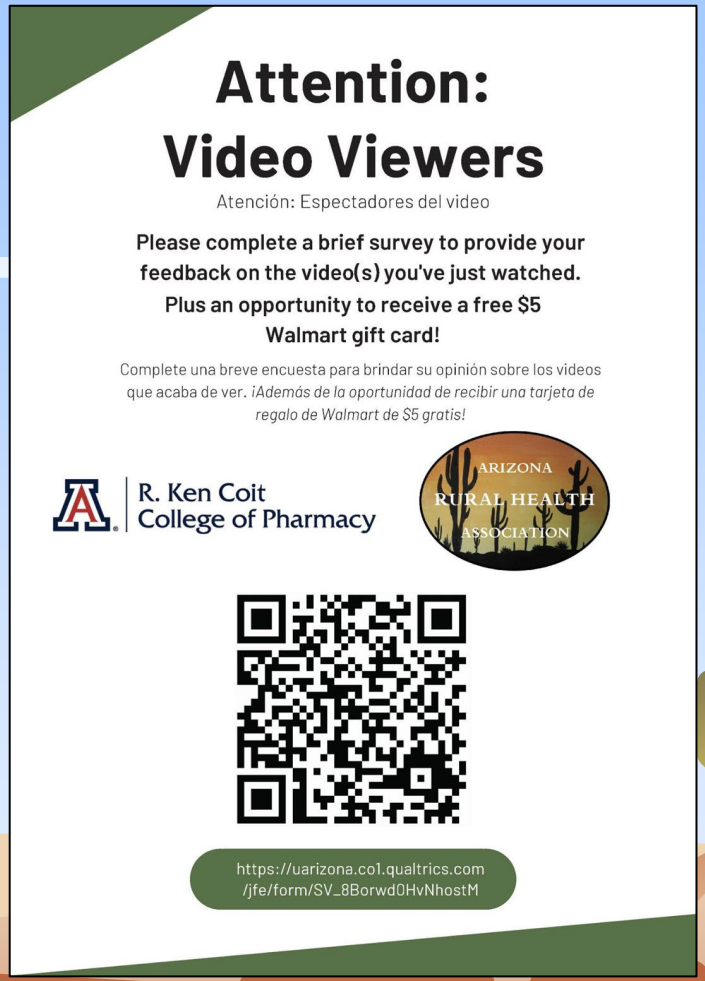
“Why I Got the Vaccine”

Surveys

- 10 pre/post questions
  - Opinions on various COVID-19 topics now and retrospectively
- 6 satisfaction questions
- Various demographic questions
- Link to outside survey for $5 Walmart electronic gift card

Data collection

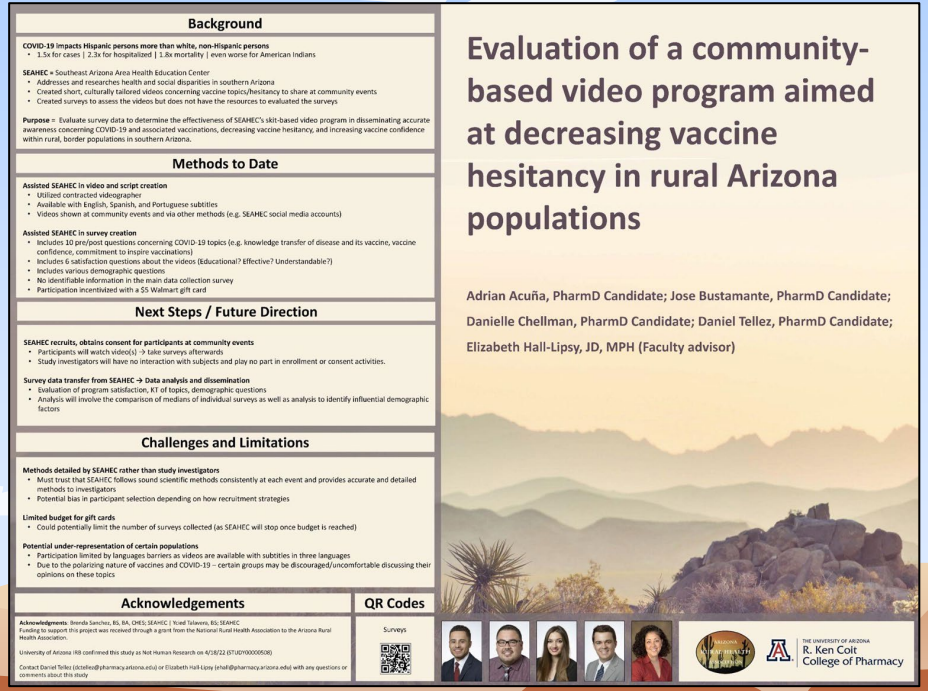
- SEAHEC in charge of recruitment, eligibility, and consent
- Participants solicited at public health events
  - Must watch at least one video
  - Must be 18 years and older
  - In Pima, Santa Cruz, Cochise, Graham, and Greenlee counties



Analysis

- Done via descriptive statistics and Wilcoxon Signed-Rank tests

Dissemination



Background

COVID-19 impacts Hispanic persons more than white, non-Hispanic persons
- 1.5x for cases | 2.3x for hospitalized | 1.8x mortality | even worse for American Indians

SEAHEC = Southeast Arizona Area Health Education Center
- Addresses and researches health and social disparities in southern Arizona
- Created short, culturally tailored videos concerning vaccine topics/hesitancy to share at community events
- Created surveys to assess the videos but does not have the resources to evaluated the surveys

Purpose = Evaluate survey data to determine the effectiveness of SEAHEC's skit-based video program in disseminating accurate awareness concerning COVID-19 and associated vaccinations, decreasing vaccine hesitancy, and increasing vaccine confidence within rural, border populations in southern Arizona.

Methods to Date

Assisted SEAHEC in video and script creation
- Utilized contracted videographer
- Available with English, Spanish, and Portuguese subtitles
- Videos shown at community events and via other methods (e.g. SEAHEC social media accounts)

Assisted SEAHEC in survey creation
- Includes 10 pre/post questions concerning COVID-19 topics (e.g. knowledge transfer of disease and its vaccine, vaccine confidence, commitment to inspire vaccinations)
- Includes 6 satisfaction questions about the videos (Educational? Effective? Understandable?)
- Includes various demographic questions
- No identifiable information in the main data collection survey
- Participation incentivized with a $5 Walmart gift card

Next Steps / Future Direction

SEAHEC recruits, obtains consent for participants at community events
- Participants will watch video(s) -> take surveys afterwards
- Study investigators will have no interaction with subjects and play no part in enrollment or consent activities.

Survey data transfer from SEAHEC -> Data analysis and dissemination
- Evaluation of program satisfaction, KT of topics, demographic questions
- Analysis will involve the comparison of medians of individual surveys as well as analysis to identify influential demographic factors

Challenges and Limitations

Methods detailed by SEAHEC rather than study investigators
- Must trust that SEAHEC follows sound scientific methods consistently at each event and provides accurate and detailed methods to investigators
- Potential bias in participant selection depending on how recruitment strategies

Limited budget for gift cards
- Could potentially limit the number of surveys collected (as SEAHEC will stop once budget is reached)

Potential under-representation of certain populations
- Participation limited by languages barriers as videos are available with subtitles in three languages
- Due to the polarizing nature of vaccines and COVID-19 – certain groups may be discouraged/uncomfortable discussing their opinions on these topics

Acknowledgements

Acknowledgments: Brenda Sanchez, BS, BA, CHES; SEAHEC | Yceil Talavera, BS; SEAHEC
Funding to support this project was received through a grant from the National Rural Health Association to the Arizona Rural Health Association.

University of Arizona IRB confirmed this study as Not Human Research on 4/18/22 (STUDY00000508)

Contact Daniel Telles (dctelles@pharmacy.arizona.edu) or Elizabeth Hall-Lipsy (ehall@pharmacy.arizona.edu) with any questions or comments about this study

QR Codes

Surveys

Evaluation of a community-based video program aimed at decreasing vaccine hesitancy in rural Arizona populations

Adrian Acuña, PharmD Candidate; Jose Bustamante, PharmD Candidate; Danielle Chellman, PharmD Candidate; Daniel Tellez, PharmD Candidate; Elizabeth Hall-Lipsy, JD, MPH (Faculty advisor)

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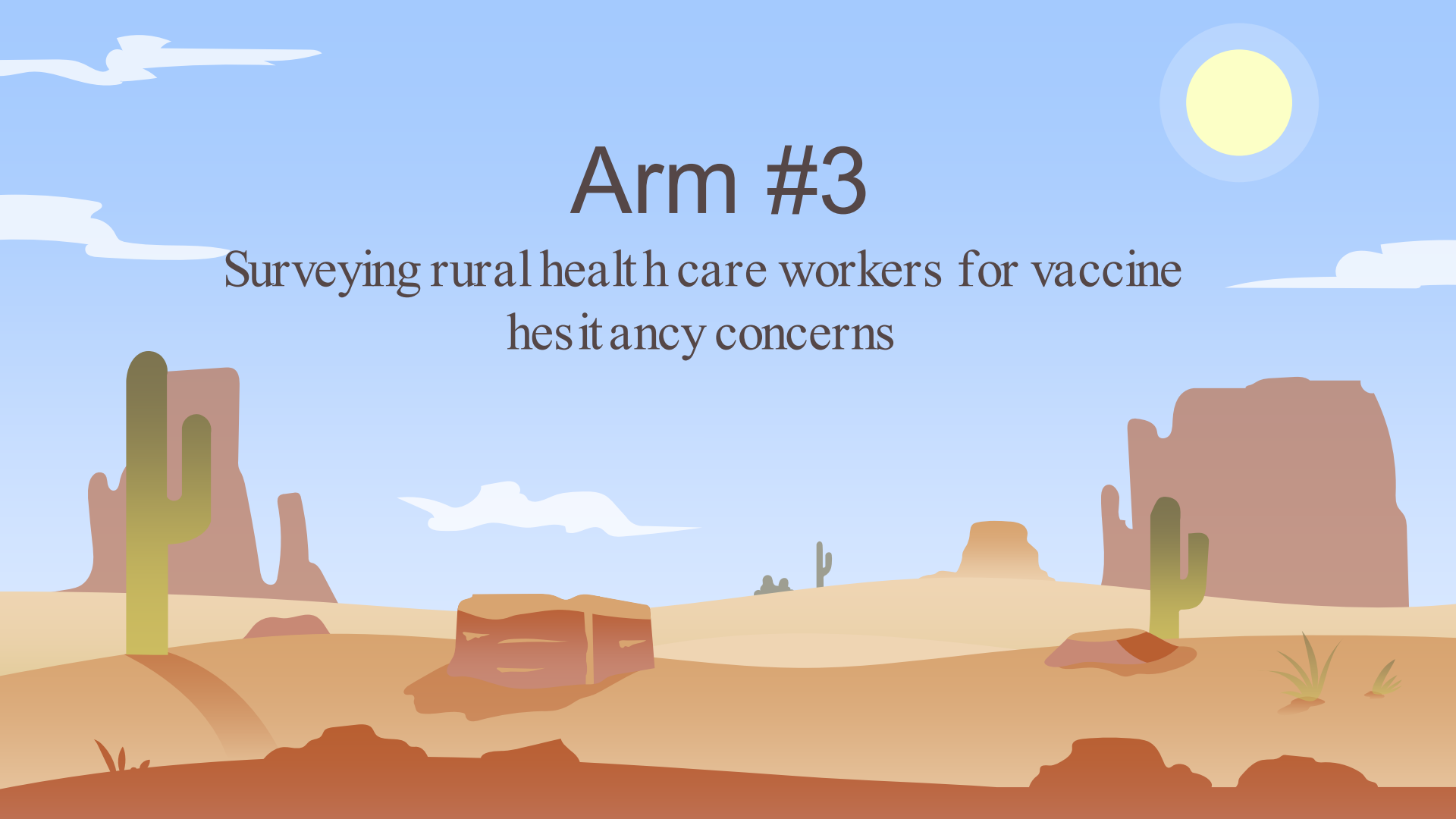
Arm #3

Surveying rural health care workers for vaccine hesitancy concerns

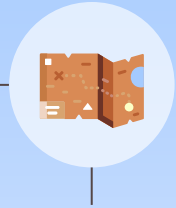


METHODS

Survey creation

Participant recruitment

Data Collection



Data Analysis

SURVEY CREATION

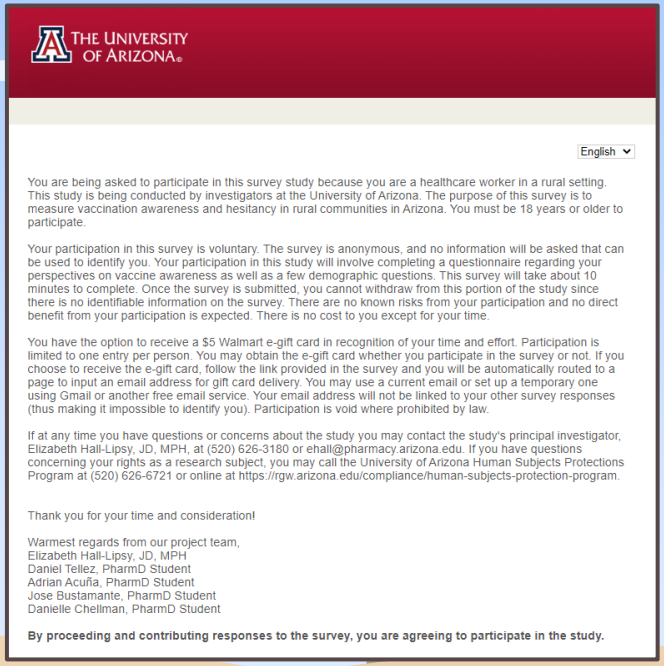
Data collection surveys

- One for HCWs | one for promotores
- Includes introduction (with consent)
- Vaccine questions - Likert scale, free-text
- Demographic questions

Electronic gift card survey - $5 at Walmart

- Incentive to participate
- Requires name and email

Both available in English and Spanish



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English

You are being asked to participate in this survey study because you are a healthcare worker in a rural setting. This study is being conducted by investigators at the University of Arizona. The purpose of this survey is to measure vaccination awareness and hesitancy in rural communities in Arizona. You must be 18 years or older to participate.

Your participation in this survey is voluntary. The survey is anonymous, and no information will be asked that can be used to identify you. Your participation in this study will involve completing a questionnaire regarding your perspectives on vaccine awareness as well as a few demographic questions. This survey will take about 10 minutes to complete. Once the survey is submitted, you cannot withdraw from this portion of the study since there is no identifiable information on the survey. There are no known risks from your participation and no direct benefit from your participation is expected. There is no cost to you except for your time.

You have the option to receive a $5 Walmart e-gift card in recognition of your time and effort. Participation is limited to one entry per person. You may obtain the e-gift card whether you participate in the survey or not. If you choose to receive the e-gift card, follow the link provided in the survey and you will be automatically routed to a page to input an email address for gift card delivery. You may use a current email or set up a temporary one using Gmail or another free email service. Your email address will not be linked to your other survey responses (thus making it impossible to identify you). Participation is void where prohibited by law.

If at any time you have questions or concerns about the study you may contact the study's principal investigator, Elizabeth Hall-Lipsy, JD, MPH, at (520) 626-3180 or ehall@pharmacy.arizona.edu. If you have questions concerning your rights as a research subject, you may call the University of Arizona Human Subjects Protections Program at (520) 626-6721 or online at https://rgw.arizona.edu/compliance/human-subjects-protection-program.

Thank you for your time and consideration!

Warmest regards from our project team,
Elizabeth Hall-Lipsy, JD, MPH
Daniel Tellez, PharmD Student
Adrian Acuña, PharmD Student
Jose Bustamante, PharmD Student
Danielle Chellman, PharmD Student

By proceeding and contributing responses to the survey, you are agreeing to participate in the study.

Participant recruitment and data collection

Locations = CHCs in rural, southern AZ

- Mariposa Community Health Center
- Chiricahua Community Health Centers

Recruitment strategies

- Email | face-to-face | flyers
- Provided link/QR code to survey

Time to take survey(s) ~ 5-10 minutes

- Data stored on Qualtrics and Box @UA

RESULTS - MARIPOSA

	Providers	Promotores	X^2 P value
Participants (N)	24	25	
Demographics			
Local resident/non-commuter	20 (83%)	25 (100%)	**p=0.016***
Gender - Female	16 (67%)	23 (92%)	**p=0.028***
Ethnicity - Hispanic	12 (50%)	24 (96%)	**p<0.001***
Education - College or higher	21 (88%)	11 (44%)	**p=0.008***
Age - Over 45 years old	10 (42%)	17 (68%)	p=0.064
Vaccine update			
>80% of colleagues are vaccinated	22	21	p=0.413
>80% of community is vaccinated	11	15	**p=0.0321***
>80% of community has received booster	7	9	p= 0.610
>70% of children are vaccinated	6	8	p=0.767
Vaccine attitude/knowledge			
Agree vaccines are safe and effective	23	21	p=0.171
Comfortable disucssing vaccine topics	22	17	**p=0.04***
Rural communities aren't as dense thus don't need vaccines	4	6	p=0.524
Health information sources			
Health professionals	22	22	p=0.966
Family and friends	2	7	p=0.076
Internet	17	12	p=0.104
Social media	3	5	p=0.478

RESULTS: PREVALENCE OF COVID-19 VACCINATIONS

Percent of **colleagues** with primary series	88% (43/49) = 80%+
Percent of **community** with primary series	27% (13/49) = 70% 53% (26/49) = 80%+
Percent of **community** with a booster	24% (12/49) = 60% 20% (10/49) = 70% 33% (16/49) = 80%+
Percent of **children** with primary series	33% (16/49) = 50% All other options with lower frequencies

RESULTS: QUALITATIVE QUESTIONS

Most important reasons to get vaccinated

- Protection =57% (27/47)
- Prevention of COVID-19 =51% (24/47)
- Minimize death =28% (13/47)
- Limit hospitalizations =28% (13/47)

Most common reasons not to get vaccinated

- Misinformation =53% (25/47)
- Fear and lack of trust =42% (20/47)
- Side effects =32% (15/47)
- Personal beliefs =30% (14/47)

Demographic groups where education is targeted

- Less than 18 years old = 37% (17/46)
- Minority groups = 33% (15/46)
- Older population = 22% (10/46)
- Parents = 20% (9/46)

DEMOGRAPHIC TABLE

Age Range	Plurality = 35-44 years
Race/Ethnicity	Hispanic 73% overall (36/49) Almost all promotores (24/25)
Gender	39 female, 10 male Almost all promotores (23/25)
Level of Education	Doctoral degree = 5/49 (only providers) Graduate degree = 7/49 (mostly providers) Promotores = 13/25 w/ some college or high scho equivalent degree
Local/non-commuter	100% of promotores 83% (20/24) of providers

Discussion→ ideas for intervention

Rural communities are not as densely populated as larger cities so vaccines are not as necessary.

- 20% (10/49) = agree or strongly agree
- 63% (31/49) = strongly disagree

I am comfortable discussing vaccine topics with patients.

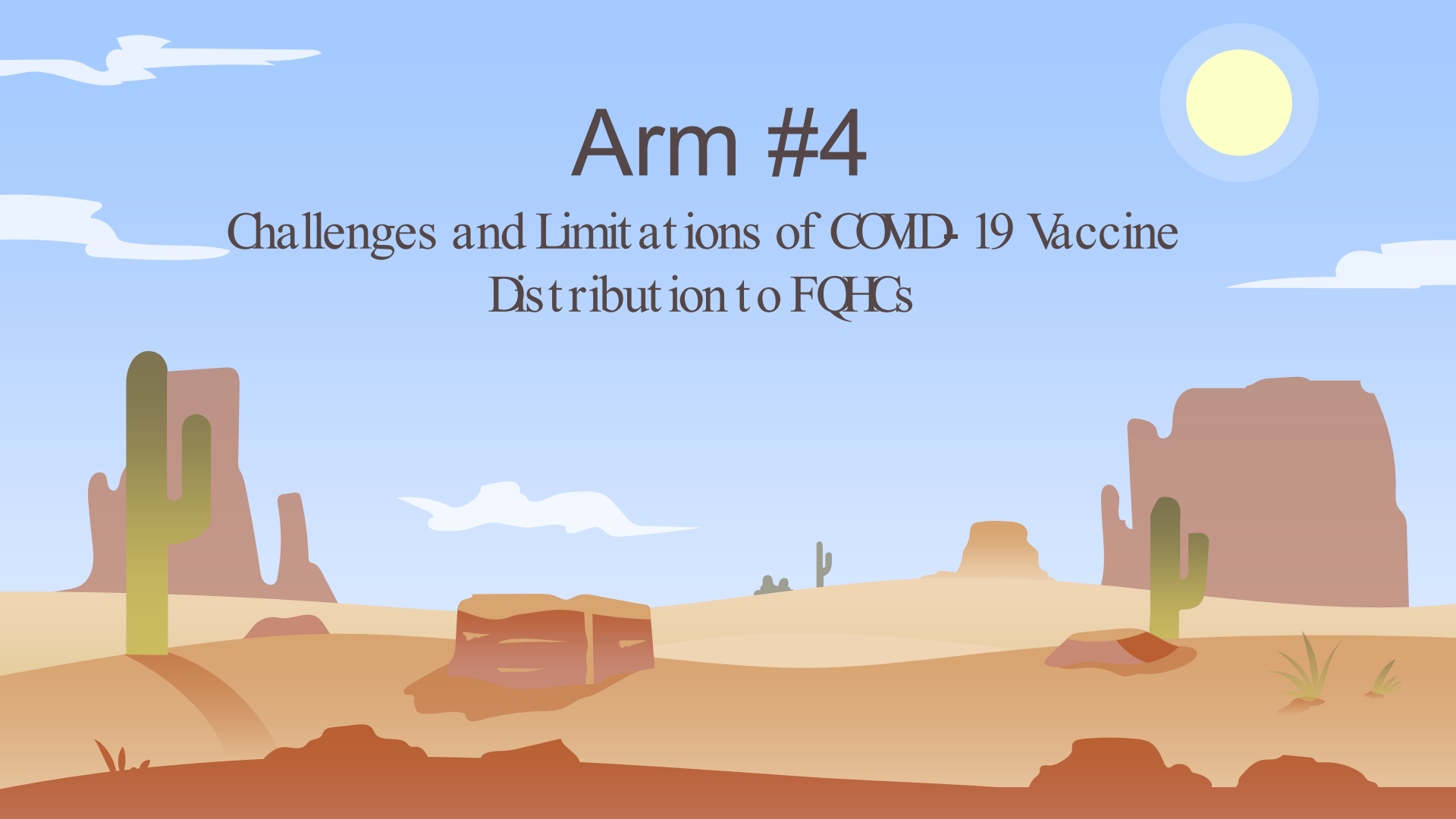
- 27% (13/49) = strongly agree | 53% (26/49) = agree
- 20% (10/49) = disagree or strongly disagree
- *Pearson ChiSquare significance = 0.04

Vaccinations are safe and effective in preventing outbreaks of serious illnesses.

- 59% (29/49) = strongly agree | 31% (15/49) = agree
- 10% (5/49) = disagree or strongly disagree
- *Pearson ChiSquare significance ~ 0.007

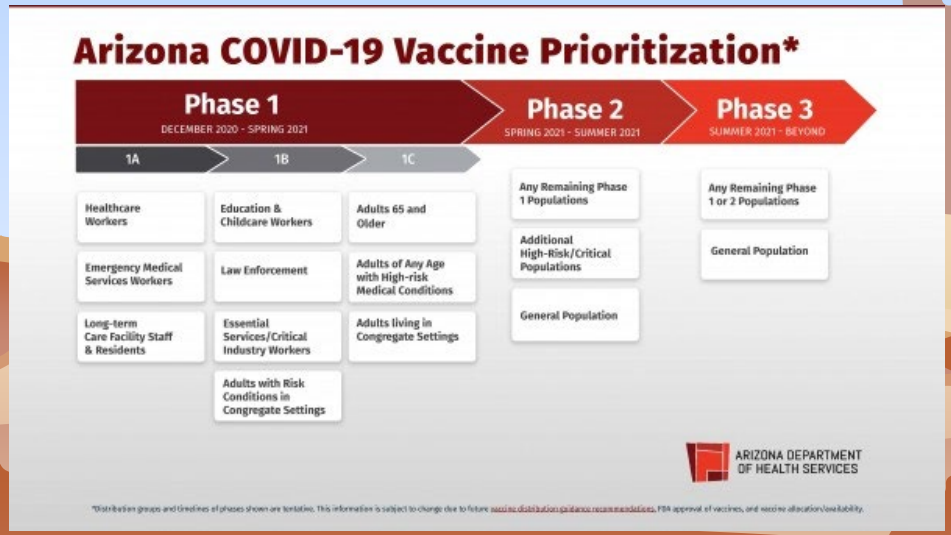
Arm #4

Challenges and Limitations of COVID-19 Vaccine Distribution to FQHCs



Overview:

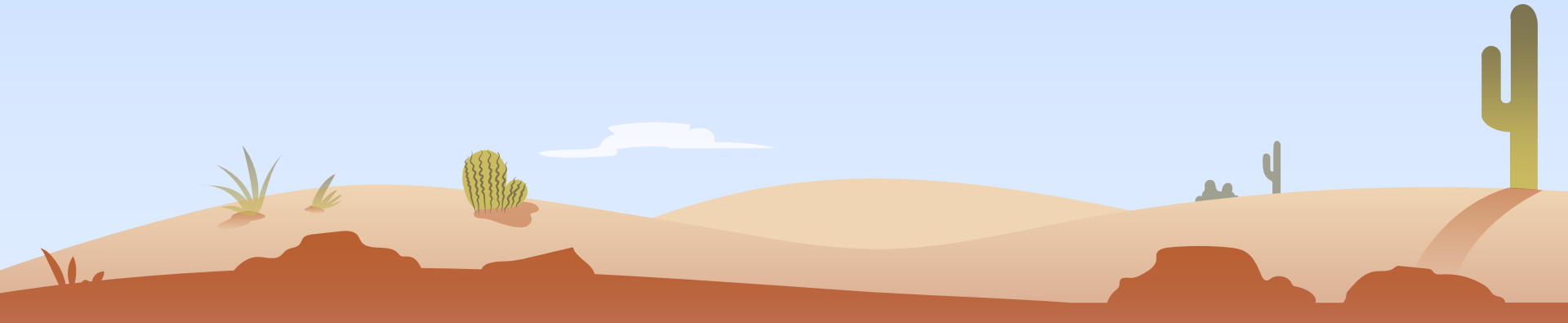
- In early 2021, vaccination efforts began in earnest and the federal government provided vaccines to the states
- States each individually developed their own distribution and allocation plans.
- This framework for vaccine prioritization was intended to support local and tribal health departments to get their communities vaccinated.



Vaccine distribution and access challenges

- State run distribution centers:
  - Maricopa County– State Farm Stadium | Arizona State's Phoenix Municipal Stadium
  - Pima County– University of Arizona Main Campus and South Campus

- Challenges with using online system for registration
- Insufficient and inconsistent vaccine supply
- Confusing eligibility criteria
- Rigid storage requirements, and a short period between vaccine preparation and expiration



Methods = to identify and compare challenges and opportunities described by FQHC clinics during vaccine roll out

- **Design**: Crosssectional study used structured telephonic interviews and electronic surveys.
- **Subjects**: Vaccine coordinators from FQHCs
- **Measures** Data was collected using a 24 item questionnaire / semi-structured interview.
  - The questionnaire/guide was separated into 4 sections; general, challenges, effective strategies, and future recommendations
- **Analysis**: The themes seen among rural and urban FQHCs were compared by:
  - Reviewing the written transcripts and identified codes within the responses
  - Comparing themes across investigators for consistency and congruence
  - Categorizing themes and calculated the number of participants that fall in each theme.

Results Five overarching themes

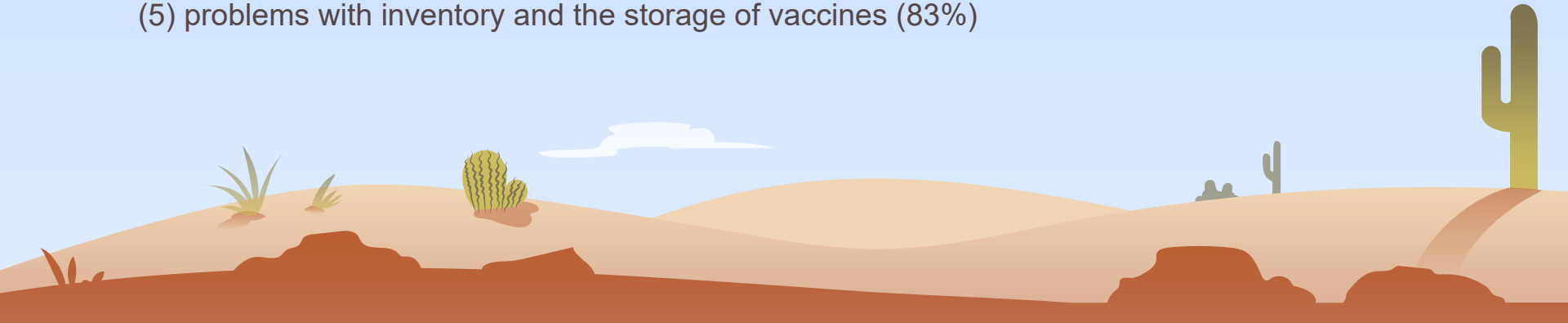
(1) the lack of public health communication channels (83%)

(2) vaccine hesitancy and misinformation (83%)

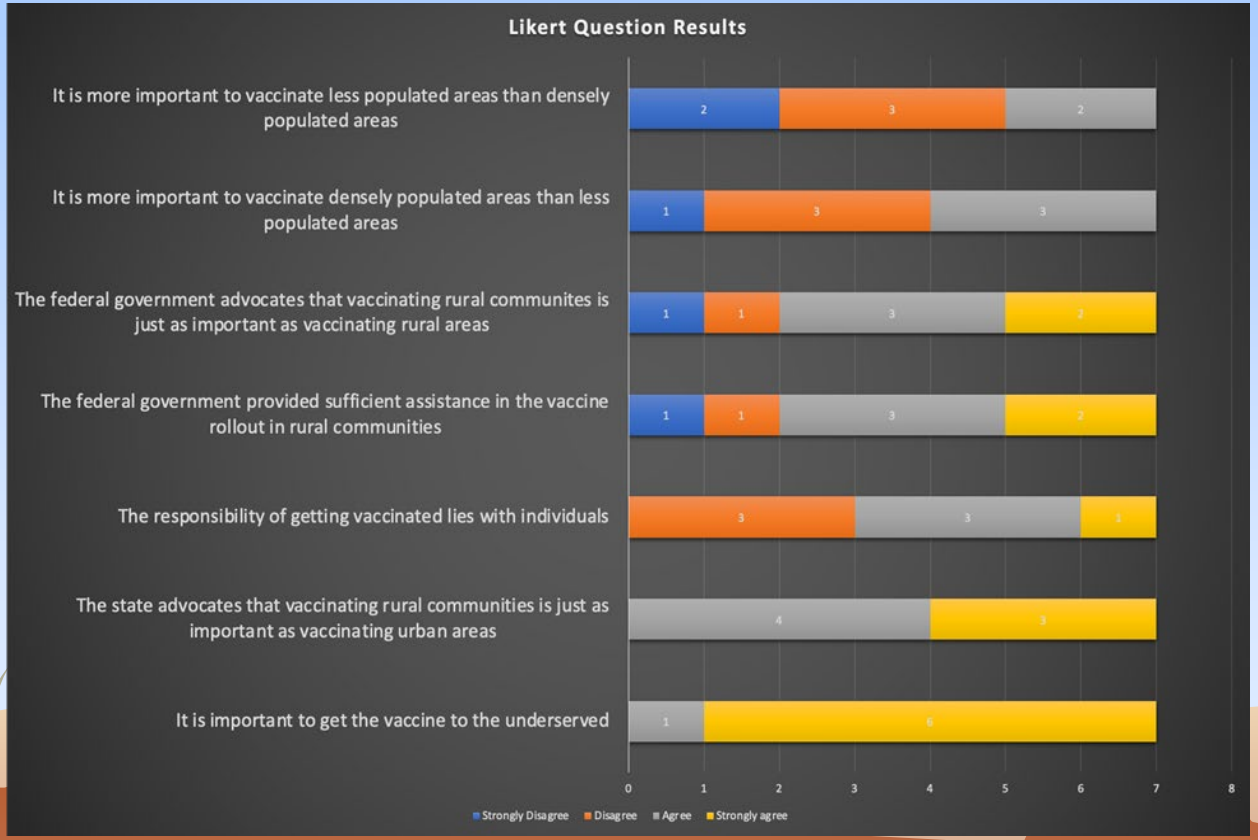
(3) workflow and staffing difficulties (100%)

(4) ineffective state distribution and management (67%), and

(5) problems with inventory and the storage of vaccines (83%)



Results


Likert Question Results
It is more important to vaccinate less populated areas than densely populated areas
It is more important to vaccinate densely populated areas than less populated areas
The federal government advocates that vaccinating rural communites is just as important as vaccinating rural areas
The federal government provided sufficient assistance in the vaccine rollout in rural communities
The responsibility of getting vaccinated lies with individuals
The state advocates that vaccinating rural communities is just as important as vaccinating urban areas
It is important to get the vaccine to the underserved
0
1
2
3
4
5
6
7
8
Strongly Disagree
Disagree
Agree
Strongly agree

Challenges

	Survey Responses
Lack of public health communication channels	"I believe we have not yet done enough to address communicating correct information" "We have also tried to utilize our social media platforms to communicate [accurate] information about COVID vaccines"
Vaccine hesitancy and misinformation	"Public fear of 'under tested' vaccine" "One of the biggest challenges we faced was vaccine hesitancy" "..growing spread of misinformation, disinformation, conspiracy theories, & rumors through online platforms..."
Workflow and staffing difficulty	"Pharmacy initially given the job [to vaccinate] with little support/extra help" "Lack of staffing then and now"
Ineffective state distribution and management	"...the organization we went through would change the amount [of vaccines] we would get" "...distribution could have been better if the COVID vaccines had been added to Drug Distribution channels sooner"
Problems with inventory and storage of vaccines	"Smaller sites had more trouble with wasting Moderna vaccines because they come in packs of 10, whereas Pfizer was groups of 6" "One challenge anticipated was cold storage"

Clinic identified effective strategies

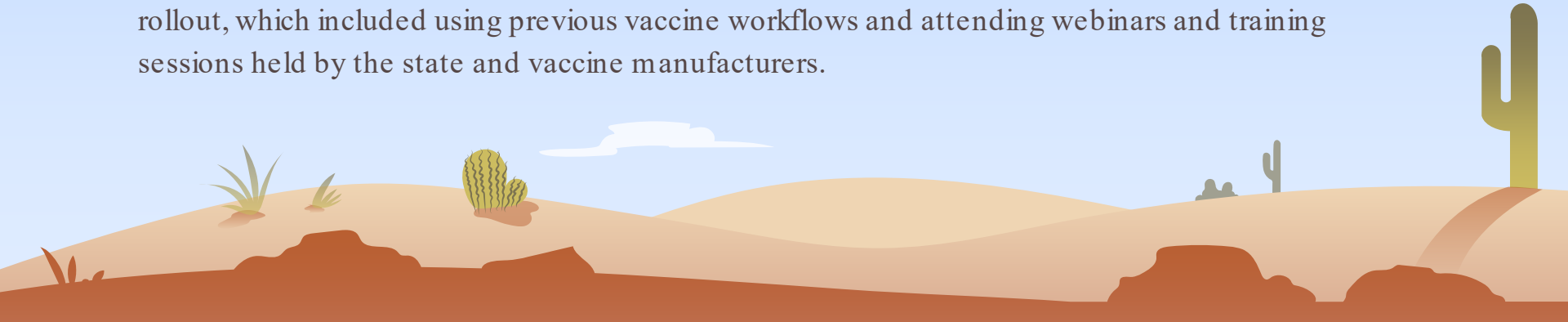
- **Rural Clinic 1:** Partnering with county, use of volunteers, help from different departments within the clinic
- **Urban Clinic 1:** Using previous workflow strategies, drive-thru flu vaccine, which became drive-thru COVID-19 testing and vaccines
- **Rural Clinic 2:** Developing efficient vaccine administration workflows, public announcements via social media platforms, opening to both Chiricahua patients and non-Chiricahua patients, allowing walk-in vaccinations
- **Rural Clinic 3:** Vaccine cards and drive-thru vaccine clinics
- **Urban Clinic 2:** Scheduling doses in pairs (Moderna and Pfizer); one way flow in the clinic (entered, get vaccinated, be observed,exit in a one way flow manner)
- **Rural Clinic 4:** Created a COVID-19 team where they have staff dedicated to performing all COVID-19 duties (vaccinations or swabbing). Having scheduled times to perform the duties as well has helped keep the program organized.

Conclusion-stake away points

Most of the challenges experienced during the COVID-19 vaccine rollout between urban and rural Federally Qualified Health Centers in Arizona were different.

Many of the rural clinics came across issues with ordering the vaccines, administering the vaccines to the public in rural areas, and finding the staff, whereas the urban clinic

reported trouble with storing, minimizing waste, and reporting. There were several similarities seen between the rural and urban clinics when it came to strategies used for the vaccine rollout, which included using previous vaccine workflows and attending webinars and training sessions held by the state and vaccine manufacturers.



LIMITATIONS -

Vaccines/COVID-19 = polarizing

Inherent survey limitations

Vaccines/COVID = transient

Limitations of single state research: limited by geography and populations

CONCLUSIONS -

Acknowledgements

MCHC staff, and specifically:
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THANKS!

DO YOU HAVE ANY QUESTIONS?