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Jeannie Belinda Concha
PhD, MPH
Assistant Professor

The University of Texas at El Paso,
Department of Public Health Sciences
El Paso, TX



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Michael F. Maldonado
O.D., MBA
Faculty Associate

Texas Tech University Health Science Center El Paso
El Paso, TX




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Terry M. Sanchez
 BSN, RN, CDE
 Certified Diabetes Educator
 El Paso Diabetes Association
 El Paso, TX




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Daniel J. Montes II
 Director
 Automotive/Diesel Technology Programs
 Southwest University
 El Paso, TX



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The Diabetes Garage™:
Remodeling DSMES
From Concept to Assembly



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 - Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours
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Acknowledgements

- Texas Department of State Health Services funding 2019-2021



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Learning Objectives

- Describe how the Community Based Participatory Research guidelines were used to tailor a DSMES program for Hispanic men in the El Paso TX region.
- Identify the process by which an interdisciplinary team was established to tailor a DSMES Hispanic men’s program
- Describe how local culture was used to market and attract men to participate in DSMES



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Presentation Overview

- The Diabetes Garage Conceptualization
 - Jeannie B. Concha
- Steering Committee: Navigating the program design and establishing the "pit crew"
 - Michael F. Maldonado
- The Remodel: DSMES overhaul
 - Terry M. Sanchez & Daniel J. Montes
- The Diabetes Garage acceptability and feasibility
 - Jeannie B. Concha

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How many of you here today own or use an automobile on a daily basis?



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What is The Diabetes Garage™

- Integrate automotive maintenance and repair analogies programmatically:
 - to engage men in diabetes education programs
- A tailored Diabetes Self Management and Education Support (DSMES) program

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American Diabetes Association Standards of Medical Care 2019 Recommendations

➤ Tailor Treatment to Reduce Disparities in Diabetes

- Providers should assess social context, including potential food insecurity, housing stability, and financial barriers (A-grade)
- Patients should be referred to local community resources (B-grade)
- Provide patients with self-management support from lay health coaches, navigators, or community health workers (A-grade)

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What is The Diabetes Garage™

Three Delivery Modes

- (1) **Educational Workshops:** four 2-hour weekly educational sessions with a Certified Diabetes Educator (CDE) and automotive instructor, and a Diabetes Maintenance Manual and Diabetes Essentials Toolbox
- (2) **Website:** a website with informational videos and Facebook private group page,
- (3) **Open Garage:** a quarterly mock garage to consult with a CDE or diabetes educator engage in diabetes “shop talk”

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Why is it important to engage Hispanic men?

Hispanic men compared to white males and women:

- 150% higher diabetes prevalence compared to white males (200% higher for Mexican American men)

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Dominguez, 2015; Davis, 2017; Graham 2012; Macrahton, 2008; Vaccaro, 2016; Livingston, 2008; CDC 2019

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- >

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- > Contribute to high US \$\$ medical cost

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- > More likely to face diabetes-related complications.
- > Contribute to high US \$\$ medical cost
- > Among participants in Diabetes Education programs 25% are men 75% are women

Dominguez, 2015; Davis, 2017; Graham 2012; Macnaughton, 2008; Vaccaro, 2016; Livingston, 2008, CDC 2019



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The Diabetes Garage Conceptualization

- Use of automotive maintenance repair analogies
- Knowing your community

– El Paso, TX



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El Paso County Texas

Population

- El Paso County Population = 835,593
- El Paso City Population = 683,080
- 82% Hispanic (Mexican-American)

Education (25 yrs. or more)

- High School or more = 78%
- Bachelor's degree or more = 28%

Economic Profile

- Median Household Income = \$42,000
- 21% persons in poverty

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Why The Diabetes Garage for men in El Paso, TX?

Diabetes Prevalence

- 16.5% - Texas Health Department
- 30% - Medicaid/Medicare beneficiaries have diabetes
- 26% - Ages 18 to 65 are uninsured
- Age adjusted mortality rate in El Paso
 - 27% **Females**
 - 39% **Males**

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The Diabetes Garage Conceptualization

Knowing your community's assets

- El Paso car culture:
 - Car enthusiast
 - 60-100 car events each year
 - Over 60 car groups/organization
 - Car events used to gather community together for causes

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Car Shows Bring People Together for a Cause

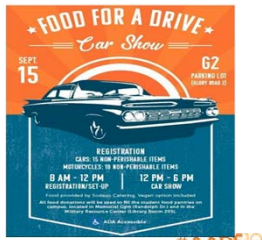
- Fallen Officers Memorial Car Show – Southwest University



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Car Shows Bring People Together for a Cause

- Fallen Officers Memorial Car Show – Southwest University
- The University of Texas at El Paso – Student Association



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Car Shows Bring People Together for a Cause

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- El Paso Children's Hospital Miracle on Wheels Car Show



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Car Shows Bring People Together for a Cause

- Fallen Officers Memorial Car Show
-Southwest University
- The University of Texas at El Paso
-Student Association
- El Paso Children's Hospital Miracle on Wheels Car Show
- Celebrating Mexican American Culture Car Show



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Car Shows Bring People Together for a Cause

- Father's Day Out Car Show
- Basset Place Mall



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Car Shows Bring People Together for a Cause

- Father's Day Out Car Show
- Basset Place Mall
- Human Society Adoptions at Car Shows



Humane Society of El Paso is with Raul Sanchez and Rosa Carbajal
September 22, 2018

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Car Shows Bring People Together for a Cause

- Father's Day Out Car Show
- Basset Place Mall
- Human Society Adoptions at Car Shows
- St. Marks Catholic Church Car Show



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History of Car Culture in Mexican American Communities

- 1960s: Mexican-American culture not represented in mainstream US culture
- Mexican-Americans illustrated own culture & pride through customizing cars with cultural symbols
- "Car culture" brought people together and viewed as a form of family identification via
"family project or that their car connects them to their family or community"

(Chappell, B. Aesthetics and Politics of Mexican American Custom Cars. 2012 University of Texas Press)

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Examples of Illustrating Pride, Family, Service, and Religion



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Putting the Program Together

Community Based Participatory Research (CBPR)

- Engage diabetes advocacy stakeholders as a strategy that focuses on social, structural, and physical environmental inequities through active involvement of community members, organizations, and researchers in all aspects of the research process

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Putting the Program Together

Community Based Participatory Research (CBPR)

- Recognizes community as an unit of identity
- Builds on strengths and resources within the community
- Facilitates collaborative involvement of all partners in all phases of the research
- Integrates knowledge and intervention for mutual benefit of all partners
- Involves a cyclical and iterative process

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Why The Diabetes Garage Appealed to me...

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Windshield vs Eye

Diabetic Retinopathy #AADE19

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Head light vs Eye

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**Establishing The Diabetes Garage
"Pit Crew"**

Interdisciplinary and Community Based Participatory Research

- Key Community Partners and Roles
 - The University of Texas at El Paso – Initiation/Direction of Project
 - El Paso Diabetes Association - Program Delivery
 - Southwest University
 - Automotive and Diesel Technology Program – Technical Consultants and Program Delivery
 - YMCA Diabetes Prevention Program
 - University Medical Center Diabetes Program/Patient Education
 - Texas Tech University Health Science Center, Ophthalmology Clinic
 - NAPA Auto part retailer
 - Interdisciplinary evaluation research team from the University of Texas at El Paso

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Establishing The Diabetes Garage "Pit Crew"

1. Steering Committee (14 representatives)
 - Established March 2017 --- meets monthly
 - Role is to guide and provide consultation on the planning, implementation, and evaluation of the Diabetes Garage
2. Automotive and Diabetes Translation work group
 - Established May 2017 – met 2/month over 5 months
 - Role is to design and plan the Diabetes Garage program
3. Program Evaluation work group
 - Established August 2017 – met 2/month over 4 months
 - Role is to guide and provide consultation on the planning and implementation of the Diabetes Garage

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Establishing The Diabetes Garage "Pit Crew"

Advisory Groups

1. Patient advisory group
 - First met October 2018
 - Role is to guide and develop strategies for improving men's engagement in clinical care.
2. Provider advisory group
 - Planned for 2019-2020
 - Role is to work with local hospitals and physicians for program recruitment strategies

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El Paso Diabetes Association (EPDA)

Celebrating 51 Years of Service to El Paso

- Non-Profit Agency –all funds remain in El Paso
- Summer camp for children and teens with type 1 diabetes
- Has AADE certification to deliver English and Spanish DSMES program
- Delivers the MOVE® diabetes prevention/management education program in the community
- Provides social support meetings for people with diabetes
- In past 15 years, EPDA sponsors a Faces of Diabetes conference for health professionals and community health workers



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The Diabetes/Automotive Translation workgroup "Pit Crew"



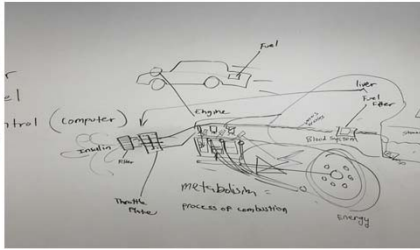
Summer 2018

- Learning Exchange
 - First 3 weeks: Diabetes 101
 - Second 3 weeks: Automotive Technology 101
 - Third 3 weeks: Collaborative Contribution of Diabetes-Automotive Analogies

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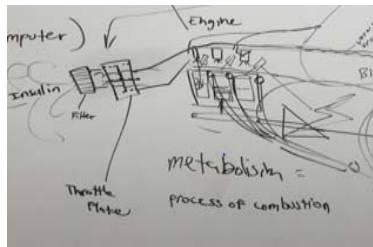
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The Diabetes/Automotive Translation "Pit Crew"



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The Diabetes/Automotive Translation "Pit Crew"



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The Remodel: DSMES overhaul

DSMES

(AADE 7 self-care behaviors)

- Healthy eating
- Being active
- Glucose monitoring
- Taking medication
- Problem Solving
- Reducing risks
- Healthy coping

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The Remodel: DSMES overhaul

Diabetes Maintenance Manual/ Curriculum

Module 1- Features of your body & diabetes

Check your gauges (Signs/Symptoms)

(AADE-Glucose monitoring & Problem solving)

Module 2- Mileage by steps (AADE-Being active)

Full throttle (AADE-Healthy coping)

Module 3- **Keep your battery charged** (AADE-Taking medications)

Catastrophic Failure (AADE-Complications, Reducing risks)

Tune-ups/Inspections (AADE-Reducing risks)

Module 4- **Fuel** (AADE-Healthy eating) + Celebratory lunch/graduation with certificate of completion + toolbox gift

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Module 1- Features of your body & diabetes Check your gauges



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**Module 2- Mileage by steps
Full throttle**

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What happens to your car if it is left unused?

- Battery goes flat/drains
- Belts & hoses decompose, become brittle
- Fuel can gum up & clog injectors, all fluids can gum up, oil separates
- Flat, warped, rotten tires-flat spots, dry rot
- Brakes lose grip, seize up, rust
- Rubber seals dry up & crack




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Full Throttle (Stress)

- "The higher the stress the shorter the engine will live"
- "Even metal has a fatigue limit"
- Driving your car "pedal to the metal" over time puts stress on the car leading to wear & tear
- Always driving at high speed is not good for the car engine
- Driving full throttle can affect the whole car- puts stress on the whole car



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Module 3- Keep your battery charged
Catastrophic Failure
Tune-ups/Inspections

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Keeping your Battery Charged (Medication Use)



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Frayed Wires



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Keeping your car at High Performance

- Things you need to keep your car running well
 - Tire and wheel inspection
 - Fluid level inspection (oil, coolant, brake fluid, transmission fluid)
 - Check filters and keep clean
 - Following routine maintenance schedule

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Module 4- Fuel
Celebratory lunch/graduation
Certificate of completion
Diabetes Maintenance Manual
Toolbox gift

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Gas Tank Fuel Plan



Different tank sizes need different types and different quantities

- A semi-tractor truck needs diesel fuel and much more gas to run efficiently vs a Toyota Hybrid/Tesla

What is your plan for fueling your own car?

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Diabetes Essential Toolbox & Diabetes Maintenance Manual



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Feasibility Pilot Study Recruitment

Pilot 1

Outreach to men with/without diabetes

- Car shows, health fairs, diabetes research studies, worksites
- 23 men recruited
- 10 men scheduled
- 3 men attended
- Mean age = 51.33 years
- 66% retention rate

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Feasibility Pilot Study Recruitment

Pilot 1

Outreach to men with/without diabetes

- Car shows, health fairs, diabetes research studies, worksites
- 10 men scheduled
- 3 men attended
- 2 men completed
- Mean age = 51.33 years

Pilot 2

Outreach to men with diabetes

- Health fairs, clinics, car shows, diabetes research study
- 10 men scheduled
- 8 men attended
- 6 men completed
- Mean age = 63.86 years

Incentive: Men receive \$20 cash and \$10 gas card for participating

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Methods

1. Investigate whether men's diabetes knowledge, intent to engage in preventative self-care, diabetes management behaviors and physical health outcomes improved after participating in The Diabetes Garage™

a. Pre- post survey and clinical health assessments:

- Diabetes knowledge: Modified Starr County Diabetes Knowledge Questionnaire
- Diabetes Health Belief Scale on Perceived a) risk, b) severity, c) benefits and d) barriers
- Diabetes management self-efficacy (National Diabetes Education Program)
- Diabetes management behaviors (portion size, carbohydrate counting, physical activity)
- Physical health outcomes (Glycosylated Hemoglobin A1c, non-Fasting glucose, Blood Pressure, Weight, Waist Circumference)

b. Analysis: Non-parametric descriptive statistics and pre-post trend observation. Small sample size and lack of normal distribution does not allow for t-test analysis as it increases a chance of false positive statistically significant results. (Winter, 2013) Thus we present observational data only.

Winter, J. C. F. de. (2013). "Using the Student's "t"-Test with Extremely Small Sample Sizes." *Practical Assessment, Research & Evaluation*, 18(10), 1-12.

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Methods

2. Assess the acceptability and determine the feasibility of The Diabetes Garage™

a. Two appreciative inquiry group discussions with participants of the Diabetes Garage pilot classes.

b. Interview Guide:

- 1) Why men chose to attend class
- 2) Likes and Dislikes
- 3) Why men would/would not attend classes
- 4) Thoughts about Diabetes Garage concept for engaging men
- 5) Recommendations Suggestions

c. Transcription of audio and transcription quality check

d. Four individuals coded data based on questions

e. Group consensus meeting on codes

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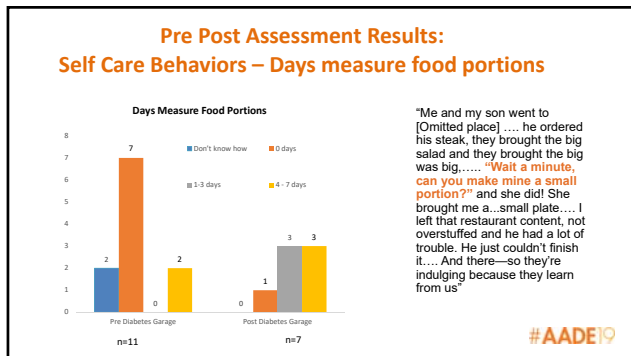
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Results: Total Participant Characteristics (N=11)

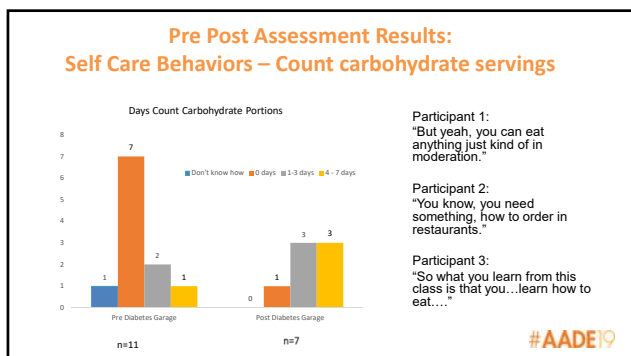
- Mean age = 60.10 years
- Mean years diagnosed w/ diabetes = 3.11 years
- 64 % married/member of unmarried couple
- 70% Hispanic/Latino

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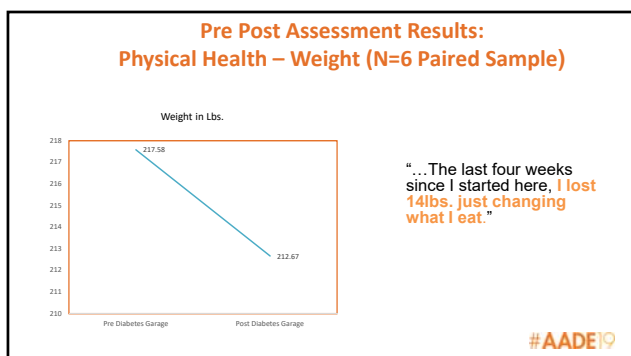
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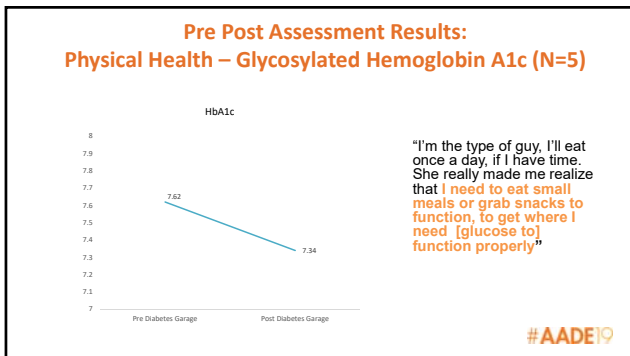
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**Appreciative Inquiry Focus Groups:
The Diabetes Garage Concept**

- "The car, the garage was a good hook for me" "Typically men, ...take pride in what they drive ...it's a good catch point."
- "One of the reasons I'm here is that I saw that toolbox. That's what really attracted me to come to class, the toolbox"
- "I mean I know I'm mechanically inclined and just comparing—made a lot of sense, it's tremendous. I really enjoyed it, I really enjoyed it. I would do it all over again."
- "Just the fact of, changing from you know learning diabetes to the comparisons, to engines and so forth. "

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**Appreciative Inquiry Focus Groups:
The Diabetes Garage Concept**

"... I think,.... if you, just concentrated on one area like, the basic of diabetes and that's all you talk about you're gonna get a bunch of people that really not going to listen. But if you intertwine with, ok, this is how it affects the car and this is how your body runs and so forth and so on, then it provided...more of an interest for me! To not only know about diabetes but to also know about cars too."

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Participant Testimonial



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Conclusion

1. The Diabetes Garage™ shows the potential to improve men's self-care behaviors and physical health outcomes
2. The concept of using automotive maintenance/repair analogies is reported to be an acceptable approach for engaging men
 - Suggestions to include sports analogies for non-car guys
3. Roll-out of The Diabetes Open Garage in Fall 2019
3. We are now working to secure funding to conduct a randomized trial between non-tailored diabetes education programs and The Diabetes Garage™

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Limitations and Strengths

Limitations

1. Small sample size does not allow assessing accurate impact of The Diabetes Garage™ or generalizability
2. Convenience sample and selection bias may exist where men who more apt to attend classes participated in The Diabetes Garage™.

Strengths

3. Quantitative and qualitative data collected
4. Support: Momentum to plan, prepare curriculum-garage, and implement pilot studies occurred within 1 year time frame.
5. Valuable lessons learned via pilot studies

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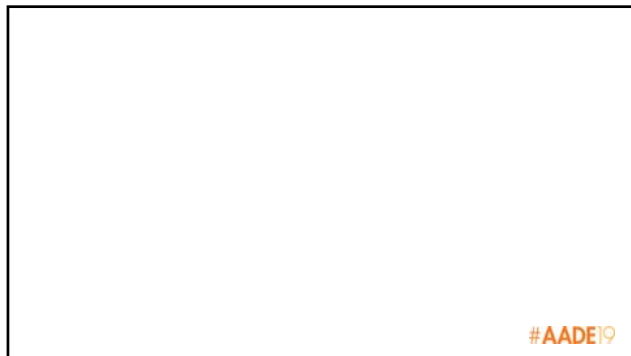
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**Thank you
From The Diabetes Garage**



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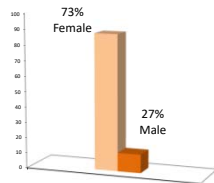
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**Men's Engagement in
Diabetes Education Programs**

2017 Diabetes Assessment

- 11 diabetes program
- 15 Certified Diabetes Educators
- DSMES and DPP programs
 - El Paso Diabetes Association
 - YMCA DPP



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Men's Engagement in Diabetes Education Programs

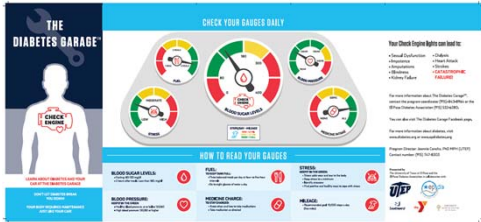
2018 Community Diabetes Assessment Survey

- 180 males completed survey, Ages 19-51
- 25% at risk for diabetes
- Why would men not follow their Dr.'s advice
 - 51% Not motivated
 - 48% No insurance
 - 43% Do not like visiting doctor's office
- Reason's to follow Dr.'s advice
 - 35% Severity of disease (death)
 - 30% Values health



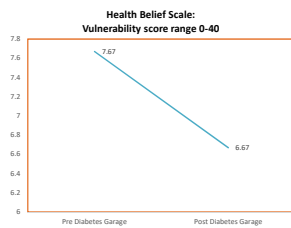
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Module 1- Features of your body & diabetes Check your gauges (Signs/Symptoms)



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Pre Post Assessment Results: Health Belief Scale – Vulnerability (N=6 Paired Sample)



Note: Score range = 0 to 40



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The Diabetes Garage Acceptability and Feasibility

Language / Technical Acceptability Focus Groups

— 2 Focus Groups (n=16 males)

“Definitely trying to relate that to an automobile, or a garage.
It’s a good concept”

“Yeah, metaphors is a great way of transmitting information.
It makes more sense.”

“So all these gauges, these visual aides, can help you understand
everything better. I like it a lot.”

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