

WELCOME

NC DIABETES ADVISORY COUNCIL
QUARTERLY MEETING

OCTOBER 6, 2017



North Carolina Diabetes Advisory Council



OCTOBER 6, 2017

Hearing and Balance Disorders from Diabetes

Dr. Kathryn Dowd, AuD
Executive Director
The Audiology Project, Inc.

Hearing Loss: the silent epidemic

- **Average time to diagnosis and treatment: 7 years**
- **Largest unmet medical need: only 20% of hearing impaired ID and treated**
- **Link to chronic diseases and infectious diseases: unknown to many MDs and health organizations: the invisible handicap**

Anosognosia

A confounding factor

"denial of illness" by patient.

a deficit of self-awareness, a condition in which a person who suffers some disability seems unaware of the existence of his or her disability...Wikipedia

the lack of awareness of the deficits, signs and symptoms of an illness. It is not merely a denial; it is an actual neurological deficit.

Diseases affecting hearing

- **Diabetes**
- **Chronic Renal Disease**
- **Cardiovascular Disease**
- **Hypothyroidism**
- **Alzheimer's disease**
- **Paget's disease**
- **Chron's disease**
- **Infectious diseases**

Diabetic Ear Disease

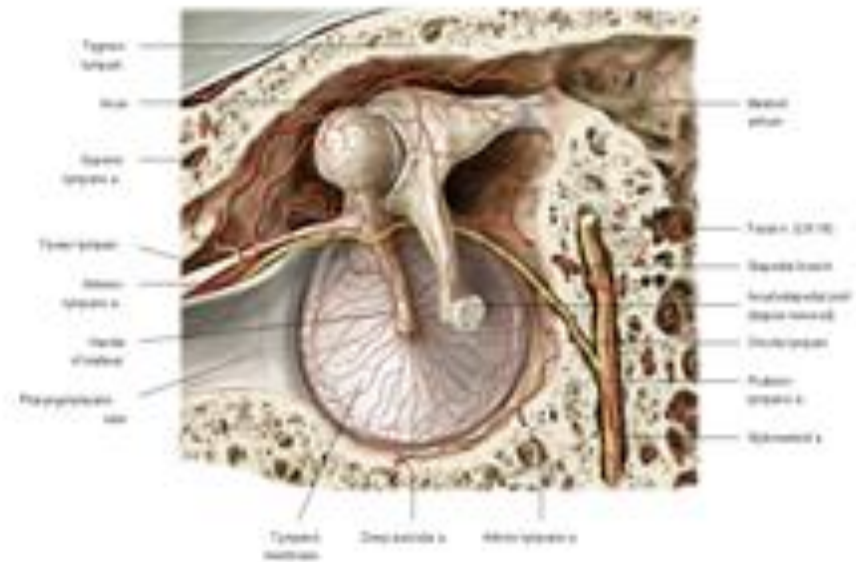
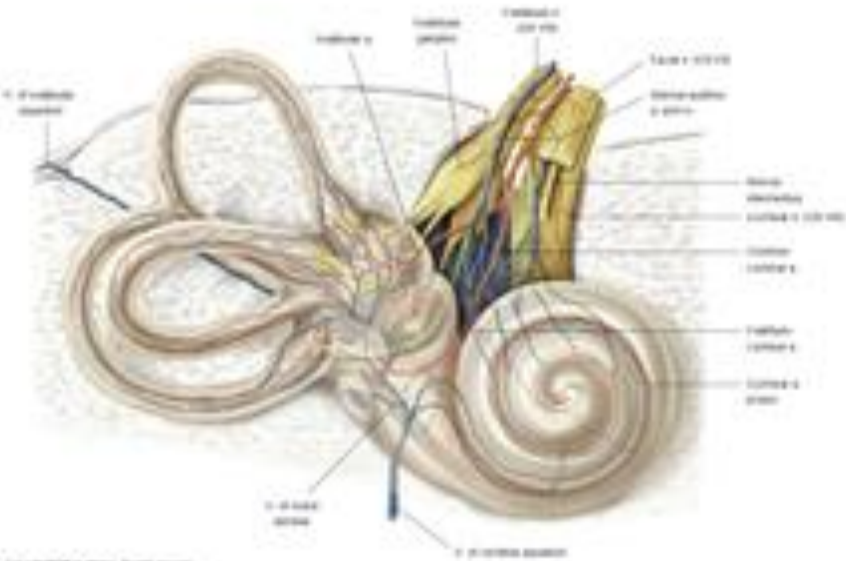
- **Impact on Hearing**

- **Cochlear microangiopathy** Diabetes affects the vascular system. Delicate stria vascularis blood system in cochlea may be implicated
- **Neuronal degeneration** The nervous system of the ear, 8th nerve and spiral ganglia is affected
- Up to 30% of adults with diabetes will experience hearing loss

VASCULATURE OF THE EAR

Blood Vessels of the Inner Ear

Arteries of the Middle Ear



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Diabetic Retinopathy



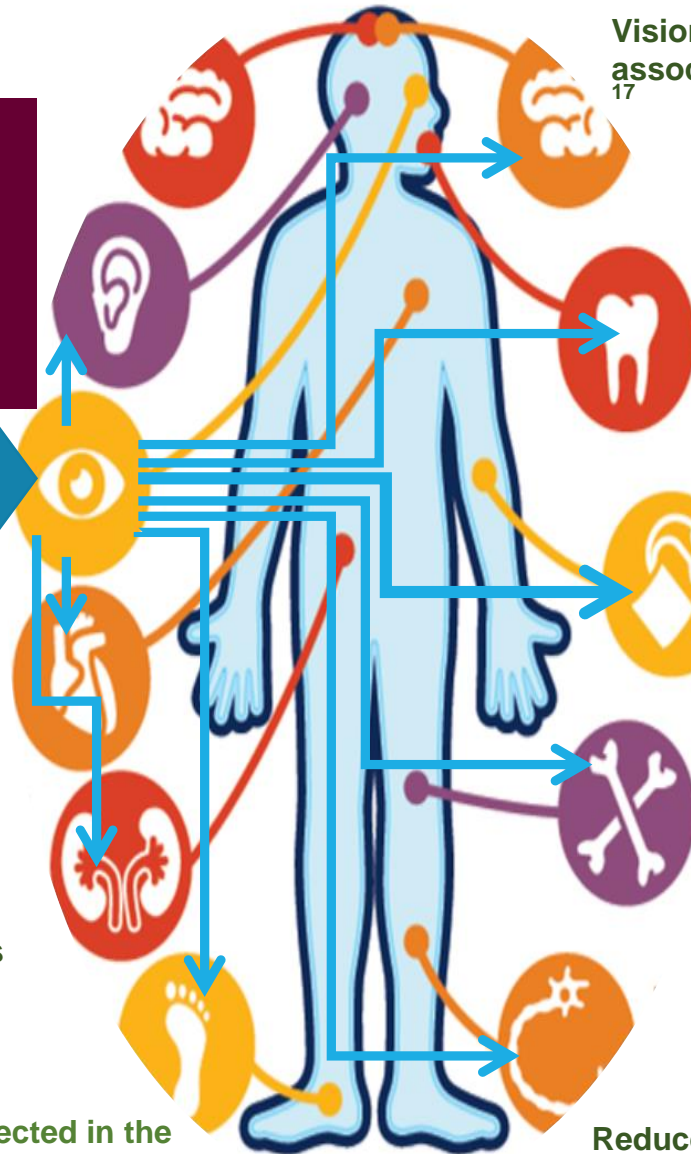
Hearing loss is higher among individuals with diabetic retinopathy. ²⁵

Comprehensive Eye Exam

Retinal plaque signals obstructive vascular disease of the heart or carotid artery. ²⁴

Diabetic retinopathy is associated with early kidney disease-Albuminuria. ²³

Signs of diabetes detected in the eye are associated with peripheral neuropathies of the foot and foot ulcers. ²²



Vision loss due to diabetes is associated with major depression. ¹⁷

Diabetic retinopathy is associated with periodontal disease. ¹⁸

Worsening diabetic retinopathy is associated with elevated diastolic blood pressure. ¹⁹

65% of individuals with Vision Impairment could achieve normal vision with an eye exam and new glasses, reducing falls leading to fractures. ²⁰

Reduced corneal sensitivity, dry eye, and ocular muscle palsies are early indicators of diabetes and associated neuropathies. ²¹



Diabetes and Hearing Loss

- Cochlear microangiopathy
- Neural degeneration



Balance and Fall Prevention

- Foot neuropathy and vision effects
- Vestibular effects of diabetes



Diabetic Pain and Infection Control

- Ototoxicity
- Vestibulotoxicity

Cardio Vascular Disease



Hearing Loss

- Strokes: CVA
- DVT, PE, HBP



Balance/Risk of Falls

- Fluid build up in extremities: loss of feeling
- Hypertension related (44% in NHANES)



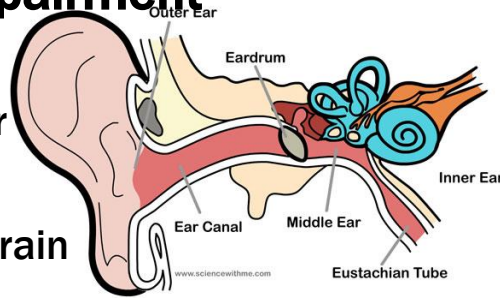
Medication

- Loop inhibiting diuretics
- Pain Rx

Diabetes and Hearing Disorders

- **Hearing impairment**

- Outer ear
- Middle ear
- Inner ear
- Auditory brain



- Pathophysiology that causes diabetes can also cause **progressive and permanent hearing loss.**
- Hearing loss in the inner ear has **no cure**, but can be treated with amplification and rehabilitation.

- Other serious concerns with impact of hearing loss:
 - Reduced **sensitivity** to sound
 - Reduced **clarity** of words
 - Reduced **communication**
 - Impairs **employment**
 - Impairs **social life**
 - Impairs **medical management**



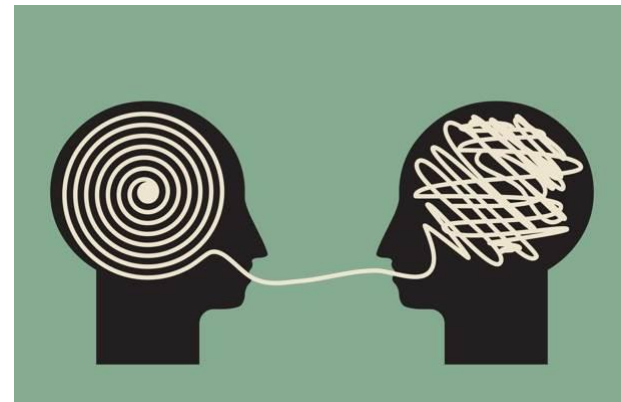
Impact of Hearing Loss on Understanding

Symptoms for You to Observe

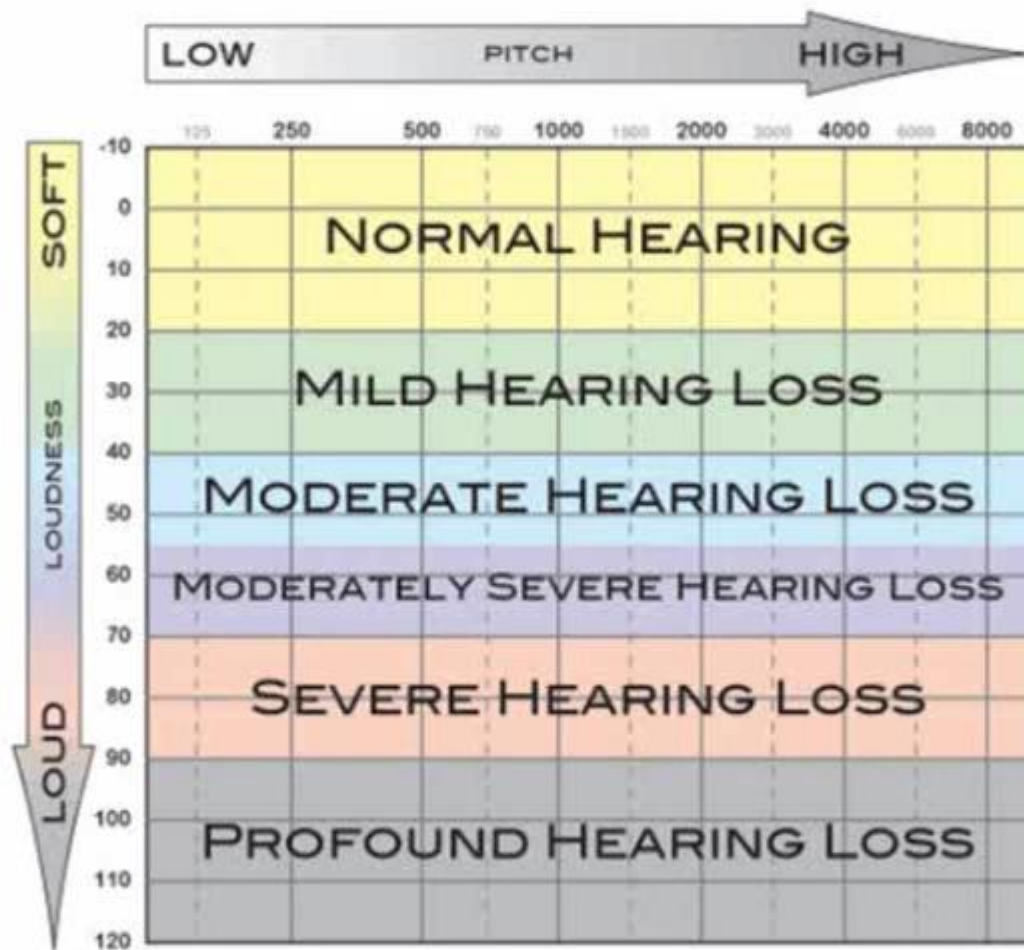
- Patient repeatedly saying 'huh?' or 'what?'
- "I can hear you but I can't understand you."
- Cues to watch for:
 - Cupped hand behind ear
 - Interpreter (3rd party)
 - Confusion
- Strongly associated with **decline in mental health** and with **depression**
 - Cognitive decline
 - Confusion
 - Isolation
 - Stress

Consequences for Management

- Failure to understand verbal instructions.
- Real-world consequences
 - Misunderstandings
 - **Noncompliance**

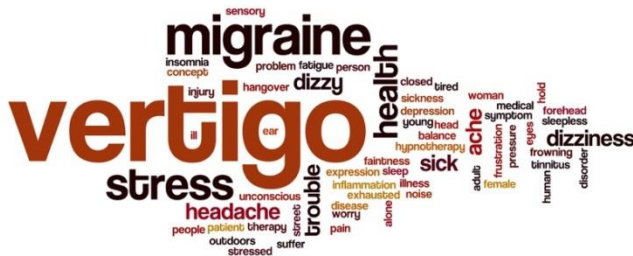


The stages of losing hearing



Diabetes and Vestibular Disorders

- **Vestibular impairment** can result from problems in the inner ear or the central vestibular system.
- The pathophysiology that causes diabetes can also cause **vestibular disorders**.
- Some vestibular problems can be resolved with **physical therapy**; the impact of other vestibular disorders can be reduced through **medication**.
- **Reduced ability** to freely move about the environment without assistance of some kind.
- Impact **worsened** by the diabetic impact on contributors to balance system:
 - vision & proprioception
- Increased **fall risk** with subsequent injuries such as bone fractures.
- Also associated with decline of **mental health**

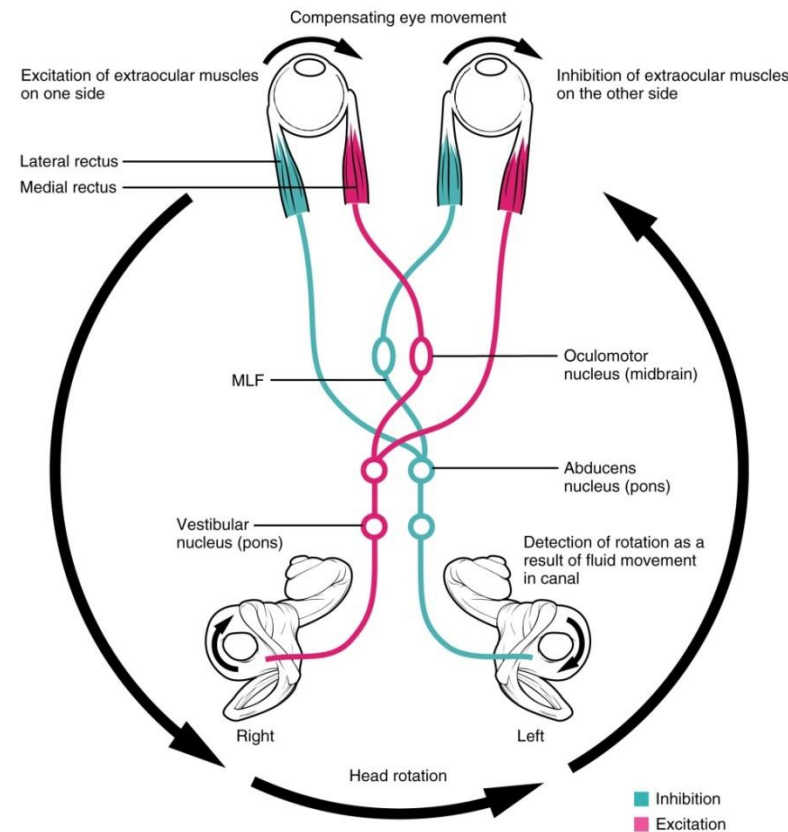


Vestibular Symptoms

Vestibulo-Ocular Reflex (VOR)

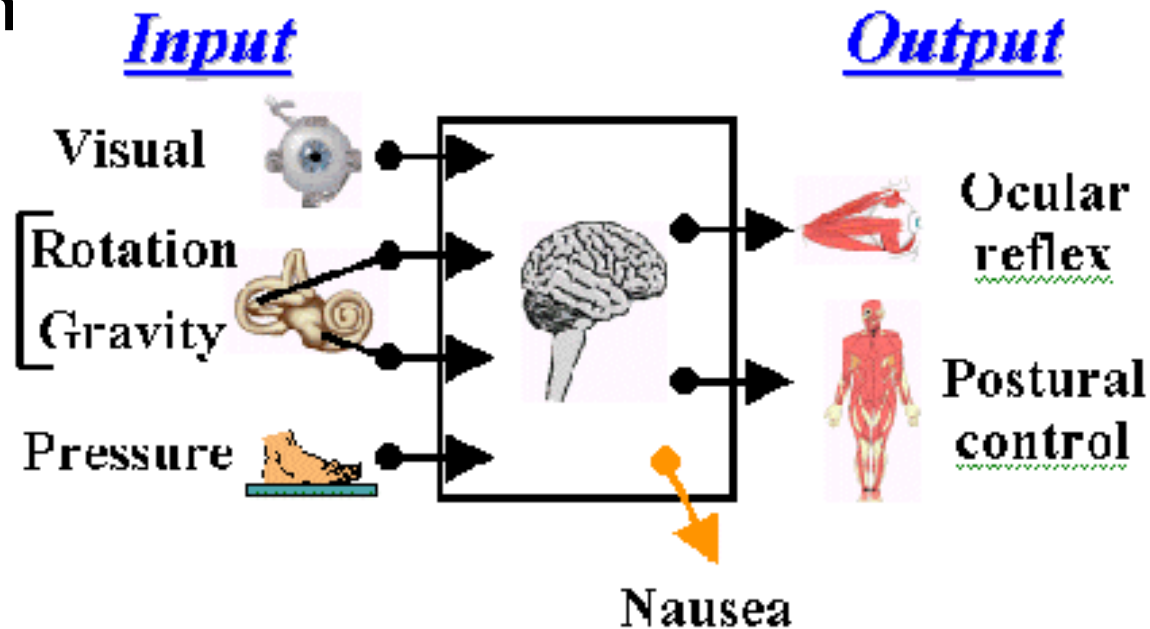
- **Nystagmus** is an involuntary, rapid and repetitive movement of the eyes
- Usually the movement is **side-to-side**, but it can also be up and down or circular
- Presence of nystagmus is reason for **referral** of the diabetic patient

Eyes and Ears are Connected!



Vestibular Symptoms

- **Inability to stand or walk, unsupported, with eyes-open or eyes-closed can be a sign of a vestibular disorder and reason for referral of the diabetic patient***



Audiology Disorders and Diabetes

- **Auditory System Complications**

- NHANES: 30% with diabetes ≈ increased **hearing loss**
- Skilled Nursing Facilities: 80% of residents have hearing loss
- 27% of diabetic medications ≈ side-effects on **hearing/tinnitus**

- **Vestibular System Complications**

- AIB: 70% with diabetes ≈ increased **vestibular disorders**
- Comorbidity with retinopathy and neuropathy increase ‘falls risk’
- 81% of diabetic medications ≈ side-effects on **balance**

- **Cognitive System Complications**

- **Co-morbid** with auditory and vestibular disorders and medications
- 61% of diabetic medications ≈ side-effects on **cognition**.

Who Evaluates Hearing Loss?

Audiologists are the Experts

- Degrees
 - Masters, **AuD**, PhD
- Certifications
 - ABA, CCC-A
- Perform audiological and vestibular evaluations
- Audiologists refer to physicians when medical or surgical need is found

Diagnosis and Treatment

- Audiological management of hearing due to chronic disease or medications
- Aural rehabilitation including hearing aids
- Counseling for family, job, school communication
- Tinnitus evaluation and treatment methods

Vestibular / Falls Risk Management

Screening Protocols

- Interview for history of falls or elevated self-report fear of falling
- Timed up-and-go test
- Functional reach test
- Dynamic gain index
- Clinical test of sensory integration of balance
- Modified Hallpike (BPPV)

Advanced Assessments

- Computerized dynamic posturography (CDP)
- Videonystagmography (VNG)
- Cervical vestibular evoked myogenic potential (cVEMP)
- Rotary chair

Auditory / Hearing Management

Screening Protocols

- Interview
 - Patient & Family Members
- Standardized Questionnaires (HHIE)
- Otoscopy
- Pure-tone screening
- Otoacoustic Emissions (OAE) screen

Advanced Assessments

- Audiometry
- Tympanometry
- Acoustic Reflexes
- OAE (full battery)
- Speech Intelligibility
- Auditory Brainstem Response (ABR)

Insurance Coverage: Procedures & Devices

- **Adult Medicaid coverage** of hearing aids *varies state by state.*
- Children *always* covered by Medicaid and insurance.
- Find your state:
 - <http://www.hearingloss.org/content/medicaid-regulations>
- Most insurances cover diagnostic audiological testing for hearing and vestibular assessment
- Some Employer insurances also have plans for hearing aid coverage (FedEx, Federal Employees, UPS, etc.)
- Medicare Advantage plans may cover part of hearing aids. Regular Medicare has no coverage for hearing aids

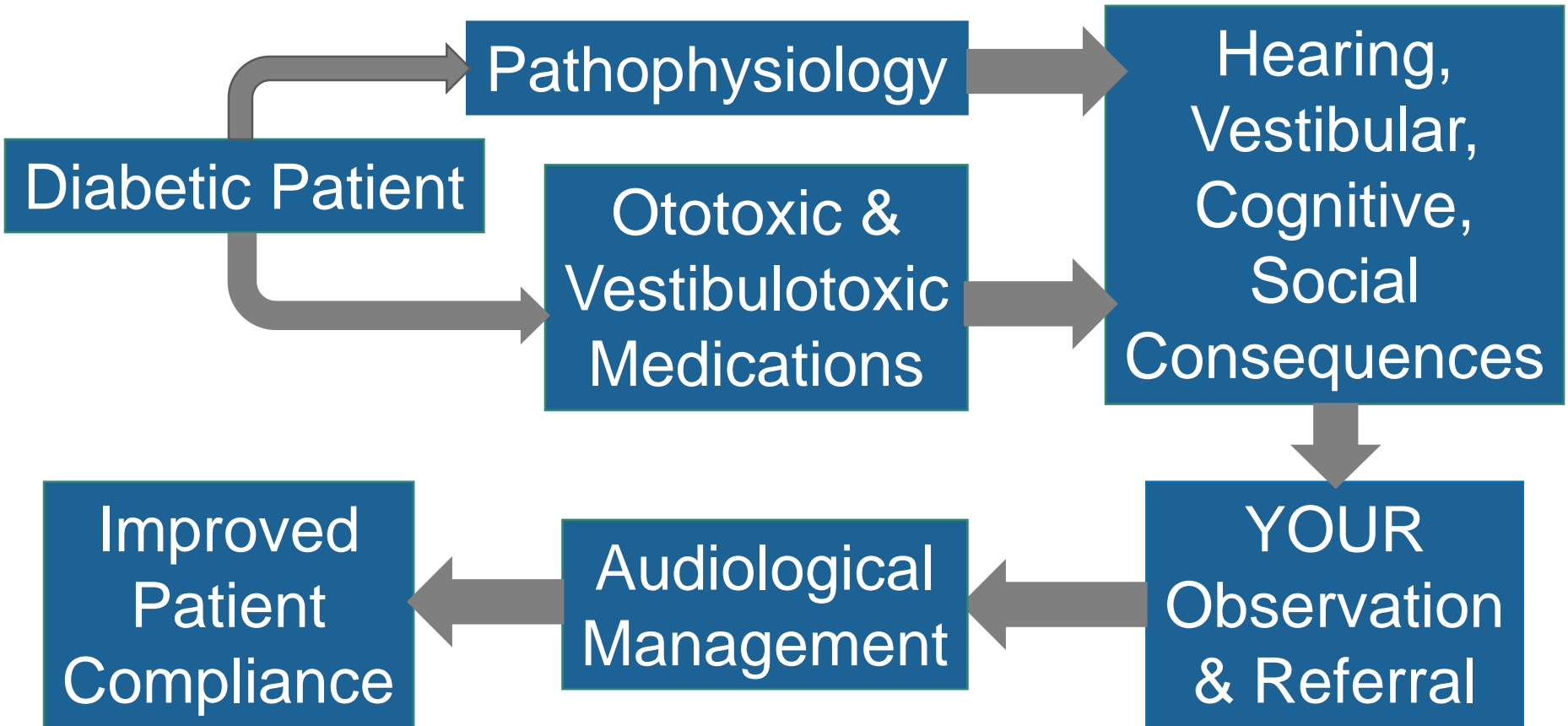
Cost for Uninsured

- **Children** always covered for test and devices in all states
- **Adults:** in absence of coverage go to **Vocational Rehabilitation**
 - Independent Living
 - Mental Health
 - Hearing Impaired Svcs

Adult out-of-pocket

- Audiological evaluation
- Vestibular evaluation
- Rehabilitation
 - Hearing / Balance
- Hearing aids
 - Cost depends on lifestyle choices/needs.
 - Normal recommendation is both ears

Summary of Presentation



POSTER SESSION R15

SESSION R13

Can you hear me? The Link Between Diabetes, Hearing Loss and Depression

Screening Tools

Depression Screening Two Question Screen

A quick way of screening patients you think may be depressed requires asking patients these two questions:

During the past month, have you often been bothered by:

1. Little interest or pleasure in doing things [] Yes [] No

2. Feeling down, depressed or hopeless? [] Yes [] No

• If the patient's response to both questions is "yes", the screen is positive.

• If the patient responds "yes" to either question, consider asking these detailed questions or using PHQ-9 patient questionnaire.

Effects of Hearing Loss:
(from National Council on Aging)

- sadness and depression
- worry and anxiety
- paranoia
- less social activity
- emotional turmoil and insecurity

Treatment

- 1. Hearing aids and the benefit of hearing better can improve symptoms of depression.
- 2. Medical treatment (therapy or medications) will alleviate hearing problems for about 50% of patients who have hearing loss.
- 3. Counseling for hearing loss and depression.
- 4. Medications for depression if needed.

Other facts:

Incidence of hearing loss in adult Patients with Diabetes **30%**

Diabetes may lead to hearing loss by damaging the nerves and blood vessels of the inner ear.

Outcomes

- 1. Improved job performance
- 2. Improved memory
- 3. Improved mood
- 4. Less loneliness
- 5. Decreased alertness and ability to
- 6. Decreased risk for personal safety
- 7. Increased social activity
- 8. Less fatigue, tension, stress, mood
- 9. Better relationships with family
- 10. Better feelings about themselves
- 11. Improved mental health
- 12. Greater independence and

Referral

Referral Websites for audiologists:
Academy of Doctors of Audiology (ADA)
www.audiologist.org/audiologist-directory.html
American Academy of Audiology (AAA)
<http://webportal.audiology.org/custom/findAnAudiologist.aspx>

For psychologists use:
<http://locator.apa.org/>
And SW and psychologists:
<http://www.help4pro.com/>

Contact Us:
Kathryn K. Dowell, Director of Marketing | Marketing@AADE12.com | 704.366.4822 | @AADE12

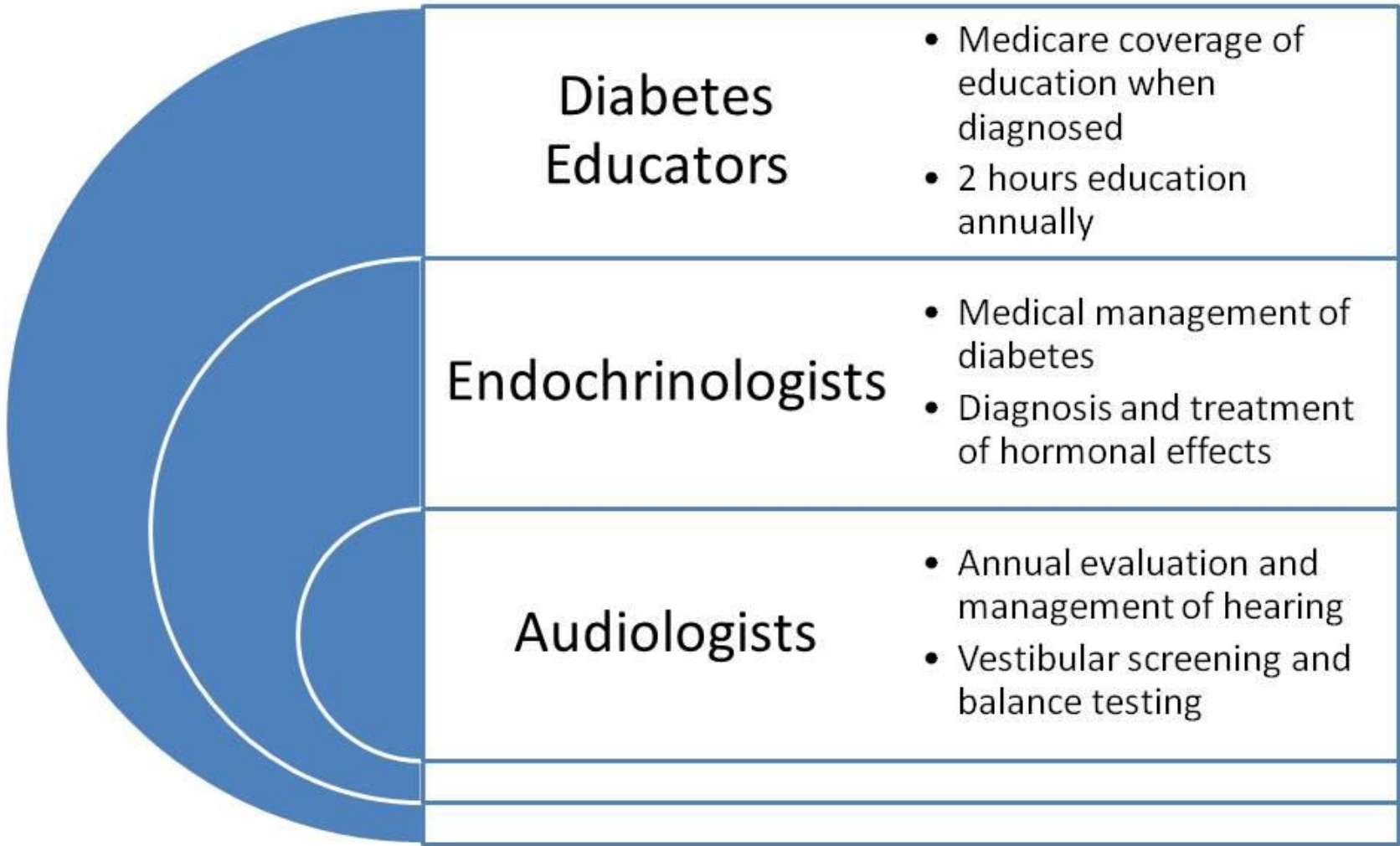
Suzanne Walker, MS, RD, CDE, CDE, CDE | 67 Oakdale Boulevard, Raleigh, NC 27605 | 919.877.1886 | www.aade12.com

AADE12





The Stakeholders Meeting 9/28/16



Diabetes Educators

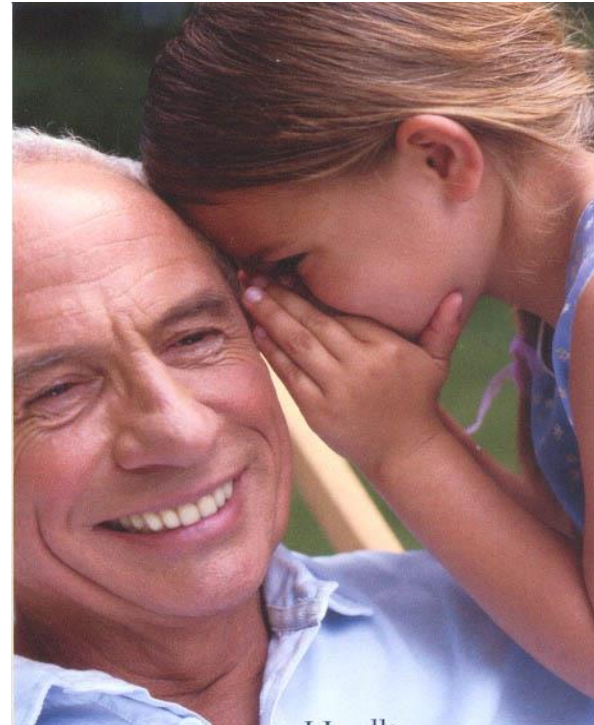
- Medicare coverage of education when diagnosed
- 2 hours education annually

Endocrinologists

- Medical management of diabetes
- Diagnosis and treatment of hormonal effects

Audiologists

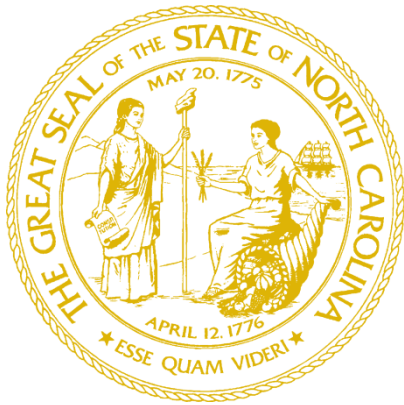
- Annual evaluation and management of hearing
- Vestibular screening and balance testing



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The Audiology Project**

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704-502-5016



Break

10:35 AM – 10:50 AM



OCTOBER 6, 2017

Diabetes Management: A new approach within Integrated Primary Care

Erin Myer, MSW, LCSW
Director of Behavioral Health
Kellie Lankford, MSN, RN
Director of Nursing

What is a Federally Qualified Health Center (FQHC)

Purpose:

To enhance the provision of primary care services in underserved urban and rural communities



Gaston Family Health Services

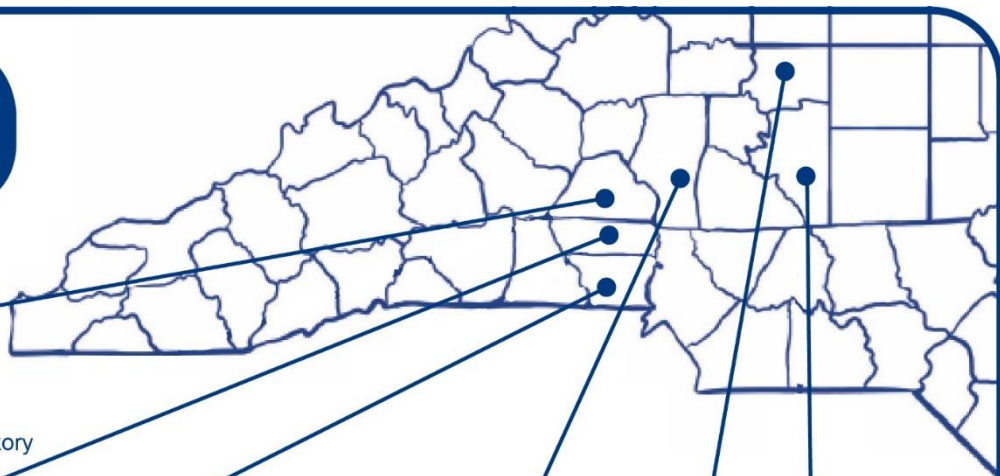
Our Mission:

Gaston Family Health Services is a community sponsored, family-centered provider of health care, health education and preventive care services without regard for the ability to pay.





Gaston Family Health Services



CATAWBA COUNTY

Catawba Family Care
Catawba Family Dentistry
Catawba Valley Family Medicine - Northeast Hickory

LINCOLN COUNTY

Helping Hands Health Center

GASTON COUNTY

Bessemer City Health Care Center
GFHS Cherryville Adult and Pediatric Medicine
Counseling Center
GFHS - Main, Hudson Blvd
Gaston Family Medical Center
GFHS General Dentistry
GFHS Pediatrics
GFHS Pediatric Dentistry
Highland Health Center
Senior TLC

IREDELL COUNTY

Statesville Children's Clinic
Statesville Family Dentistry
Statesville Family Medicine

FORSYTH COUNTY

School Health Alliance for Forsyth County

DAVIDSON COUNTY

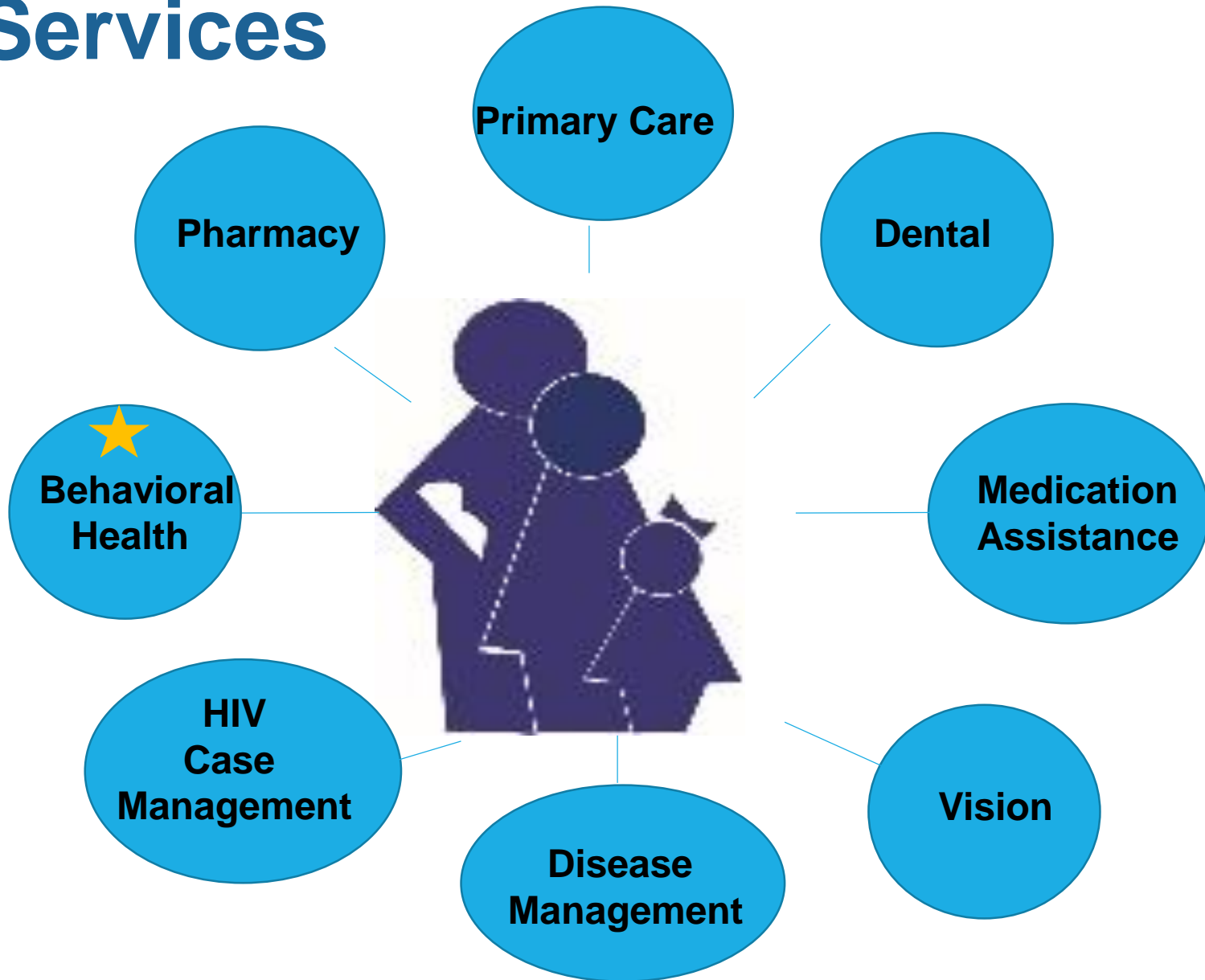
Davidson Health Services
Lexington
Thomasville
Davidson Health Services General Dentistry



Mobile Dental Access Program Serving:
Catawba County
Iredell County
Lincoln County



Services



Integrated Primary Care

- **SAMHSA Definition**

- “the systematic coordination of general and behavioral healthcare. Integrating mental health, substance abuse, and primary care services produces the best outcomes and proves the most effective approach to caring for people with multiple healthcare needs”
- 25-30% office visits involve a mental health or psychosocial issue as part of initial concern (depression + diabetes)

- **SBIRT**

- Screening
- Brief Intervention
- Referral to Treatment

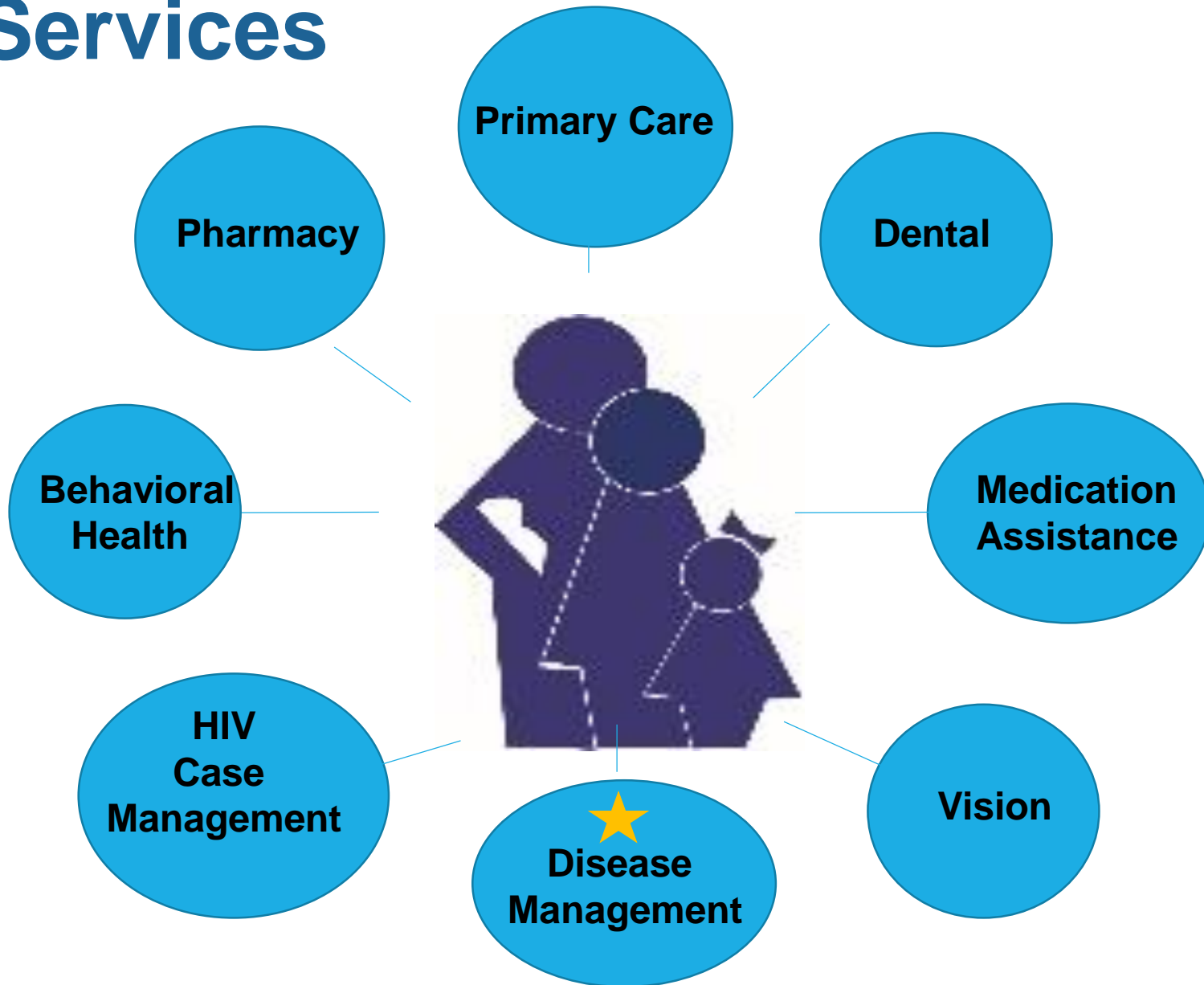
Gaston Family Health Services

• **Our Integrated Model of Care**

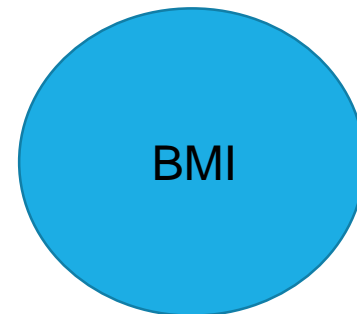
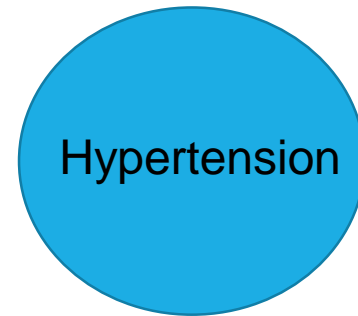
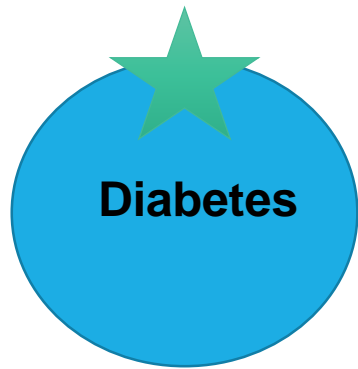
- Emphasis on same-day, same-location service
- Full-time Behavioral Health Provider in each clinic
- Team-based model of care
- Panel Manager
- Screening
- Huddles
- Shared EMR



Services



Disease Management Services



Chronic Disease

- **The rates of Diabetes in our region and clinics are far greater than those seen at the national and state level.**
 - US – 8.9%
 - NC – 9.8%
 - Our region – 13.5%
 - GFHS patients (adults) – 21%
- **Our region has similarly high rates of hypertension, hyperlipidemia, and chronic respiratory illness**

A new approach

- **GFHS has leveraged lessons learned through the development of its thriving integrated behavioral health program to create a new multidisciplinary program available to patients in all GFHS family medicine clinics**



GFHS Diabetes Program

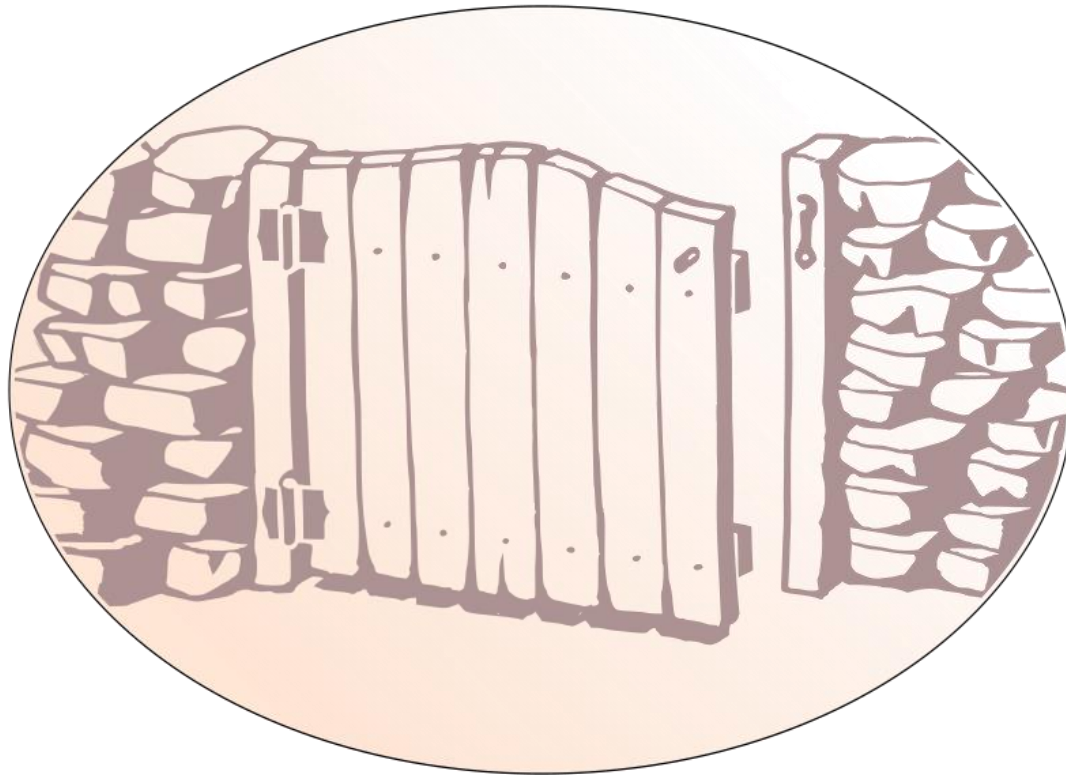
- **Diabetes committee meets bi-weekly**
 - Policy and Protocols (referrals, tracking)
 - Campaign (Rethink your Drink)
- **Committee includes:**
 - CDE, RD
 - Behavioral Health Provider
 - Site Administrator
 - Director of Behavioral Health
 - Director of Nursing
 - Behavioral Health Administrative Support

GFHS Diabetes Team

- Director of Nursing
- Director of Behavioral Health
- Diabetes Educator
- RD
- 7 Behavioral Health Providers:
 - AADE Diabetes Level I Certificate
 - CDE preparation and readiness for exam
 - Support in clinic: Medical providers, Medical Assistants, Panel Managers, Patient Service Representatives



Behavioral Health is changing delivery of service at GFHS



Behavioral Health Gatekeeper

- **Level 1-** Brief Intervention in clinic
- **Level 2-** Brief intervention with solution focused follow up 8-10 sessions
- **Level 3-** Brief intervention in clinic with referral to Diabetes Educator
- **Level 4-** Brief intervention in clinic with referral to Diabetes Educator →
Diabetes Educator referral to Endo clinic

Care continues → Behavioral Health remains engaged in all levels and support is ongoing from all core team members



Level 1 example

- **Prediabetes**
 - Weight loss and exercise delaying or preventing type 2
- **Healthy At Every Size**
- **Newly diagnoses DM- Type 2**
- **Medication changes**
- **Adherence issues**
- **Nutrition**
- **Daily activity**



Level 2

- Multiple medications
- Oral Rx to IM medication
- Initiation of pump
- Recent or multiple hospitalizations
- Adherence
- Uncontrolled A1C
- Amputation
- Dual diagnosis (Behavioral Health/Substance Abuse)



Level 3

- Multiple medications
- Multiple hypoglycemic events reoccurring
- New DM- T1 diagnosis and DM- T2 complicated
- Multiple or complex medical conditions/co-morbidities
- Enhanced nutritional counseling
 - ie: BMI greater than 40 without wt loss trends past 6 months and had BH involvement, dosing meal time insulin based on carb intake
- Diabetes with additional nutrition needs (example: Celiac, gastroparesis)
- Hospitalization with complexities
- Concern with repeat infections and higher level consultation needed



Level 4

- **Co-occurring medical conditions, multiple morbidities**

- Unresponsive to traditional treatment
- Cardiovascular complexities
- Kidney disease
- thyroid conditions

***Patients are seen quarterly, follow up with Diabetes Educator or BH team 2 weeks, 4 weeks, or as needed to support care plan**



More than education...

Evidence shows that in order to provide quality diabetes and chronic disease management there must be more than just education provided.

There needs to be:

- A motivation to change
- Ongoing problems solving
- Behavior modification
- Social support
- Goal setting
- Accountability



Motivational Interviewing

• **Guiding Principles**

- **Affirm Autonomy** - “People are most able to change when they feel free not to.”
- **Listen to Understand** - “You have two ears and one mouth. Use them in that ratio.”
- **Working with Ambivalence** – “People only change when the pain of change is less than the pain of staying the same.”
- **Evoke Change Talk** – “I learn what I believe as I hear myself speak.”



Motivational Interviewing

- **The Process**

- Engaging with the patient
- Focusing on the topic
- Evoking change talk
- Planning for change

- **The Method**

- **O**pen-ended Questions
- **A**ffirmations
- **R**eflective Listening
- **S**ummary Statements



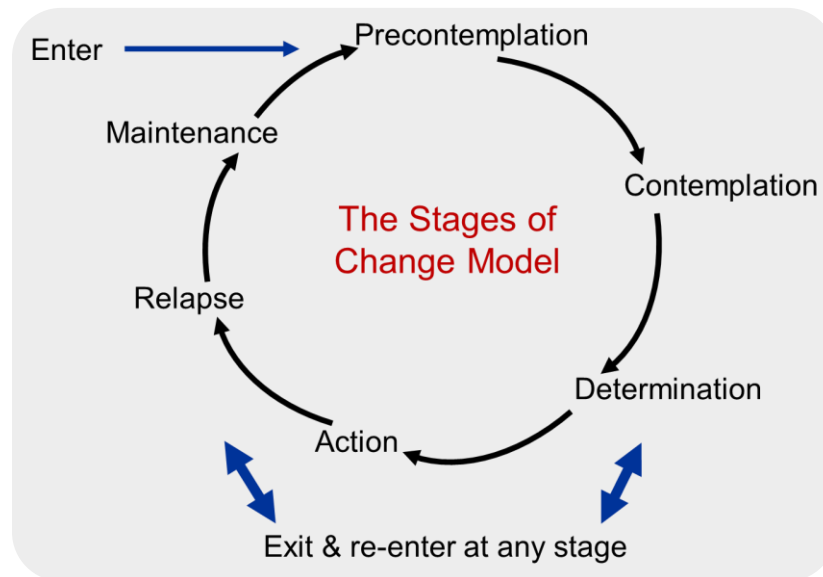
Motivational Interviewing

• How is it different?

- No advice-giving
- “Roll with Resistance”
- Finding what *actually* motivates the patient
- 1-10 scales.....”why not lower?”

• Change Talk

- **D**esirability of change
- **A**bility to change
- **R**easons to change
- **N**eeding to change



It takes a village...

- Nutrition classes at GFHS
- Nutrition counseling
- MAP program- pharmacy
- HUB- SPMI population
- Walk with Doctor
- Modeling through our Wellness Program- community events
- Collaboration within the community:
 - Community (YMCA)
 - Lay community support groups
 - Hospital initiatives and programs



Questions??

• Contact Information

- Erin Myer, MSW, LCSW

emyer@gfhs.info

- Kellie Lankford, MSN, RN

klankford@gfhs.info





North Carolina Diabetes Advisory Council



Categories:

- ❖ **John Bowdish Community Award**
- ❖ **Mryna Miller Employer Award**
- ❖ **Health Care Provider Award**

