PRESENTED BY: Allegheny Health Network

September 2024

AHN 2nd Annual Advanced Practice Provider Conference

AHN

Attendance and Credits

This activity has been planned and implemented in accordance with the essential areas and policies of the Accreditation Council for Continuing Medical Education (ACCME).

Allegheny General Hospital is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Allegheny General Hospital designates this live activity for a maximum of 6.5 AMA PRA Category 1 Credit ™

Disclosures:

The following speakers have nothing to disclose:

- Abby Bayus, PA-C
- Dawn Ball, CRNP
- Thomas Campbell, MD, MPH
- Debra Carse, CRNP
- Jamie Cornali, CRNP
- Samantha Devine, PA-C
- Craig Giger, PA-C
- M. Scott Halbreiner, MD
- Aimee Herrington, PA-C
- Courtney Hippert, MPAS, PA-C
- Jason Homer, MPAS, PA-C
- Stephen Hunter, MBA
- Amanda Mace, MSPAS, PA-C
- Susan Manzi, MD, MPH
- Jennifer McDanel, PA-C
- Kyla Morphy, CGC
- Tara Orgon - Stamper, CRNP
- William Post, PA-C
- Eugene Scioscia, MD
- Kathy Scutella, MSN, CRNP
- DeeAnne Seeger, CRNP
- Justine Sicari, DNP, FNP, MSNed
- Kimberly Smith, CRNP
- Michael Talotta, PA-C
- Wissinger Vanessa, PA-C
- Megan Watts, MS, RDN, LDN, CDCES
- Donald M. Whiting, M.D., M.S., FACS
- Mark Wilson, PA-C

AHN 2nd Annual APP Conference - Reminders

Breakout Sessions

Don't miss your hands-on learning session!

Here's the schedule:

- **Suturing 101:** 11:05 am - 12:10 pm
- **EKG Readings:** 1:15 pm - 2:15 pm
- **Joint Injections:** 3:05 pm - 3:35 pm

Please arrive on time to ensure you get the most out of your session.

We appreciate your cooperation in keeping to the schedule.

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Visit each vendor table and get your passport stamped! Once you've collected all the stamps, submit your completed passport for a chance to win the Door Prize!

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Don't Miss Out! Raffle Time!

Choose your favorite basket and enter to win!

Here's how:
1.Scan the QR code to submit your entry.
2.Complete the short form and include your phone number so we can reach you quickly if you win!

Raffle submission closes at 3:00 pm today (9/14/2024). Winners will be contacted by 3:30 pm today to claim their prize before the conference ends!

Good luck!

Post-Conference CME Email

What's Next?

- Complete your Evaluation – you will receive an email in a 3-5 days with further instructions
- Claim your credit – this conference is worth 6.5 credits; refer to the email for further instructions

Further questions? Please contact ahncme@ahn.org

Opening Remarks

PRESENTED BY: Allegheny Health Network

September 2024

AHN Clinical Roadmap

AHN

Illustrative examples are not collectively exhaustive and represent items which can be differentiated in a pay-vider eco-system

Build a fully orchestrated and integrated digital/physical/home ecosystem for AHN patients, providers and operators…

Healthcare engagement is with **augmented humans**

Bedside nurse efficiency increases 50% with a digital nurse completing admin tasks and ambient listening. Liberate keyboards from all rooms and bring joy to practice. E.g.

- Care.ai smart rooms
- Ambient clinical intelligence
- Aidoc imaging AI platform

100% of clinical teams are augmented with digital and AI tools

- Admin cost reduction
- Better clinical outcomes

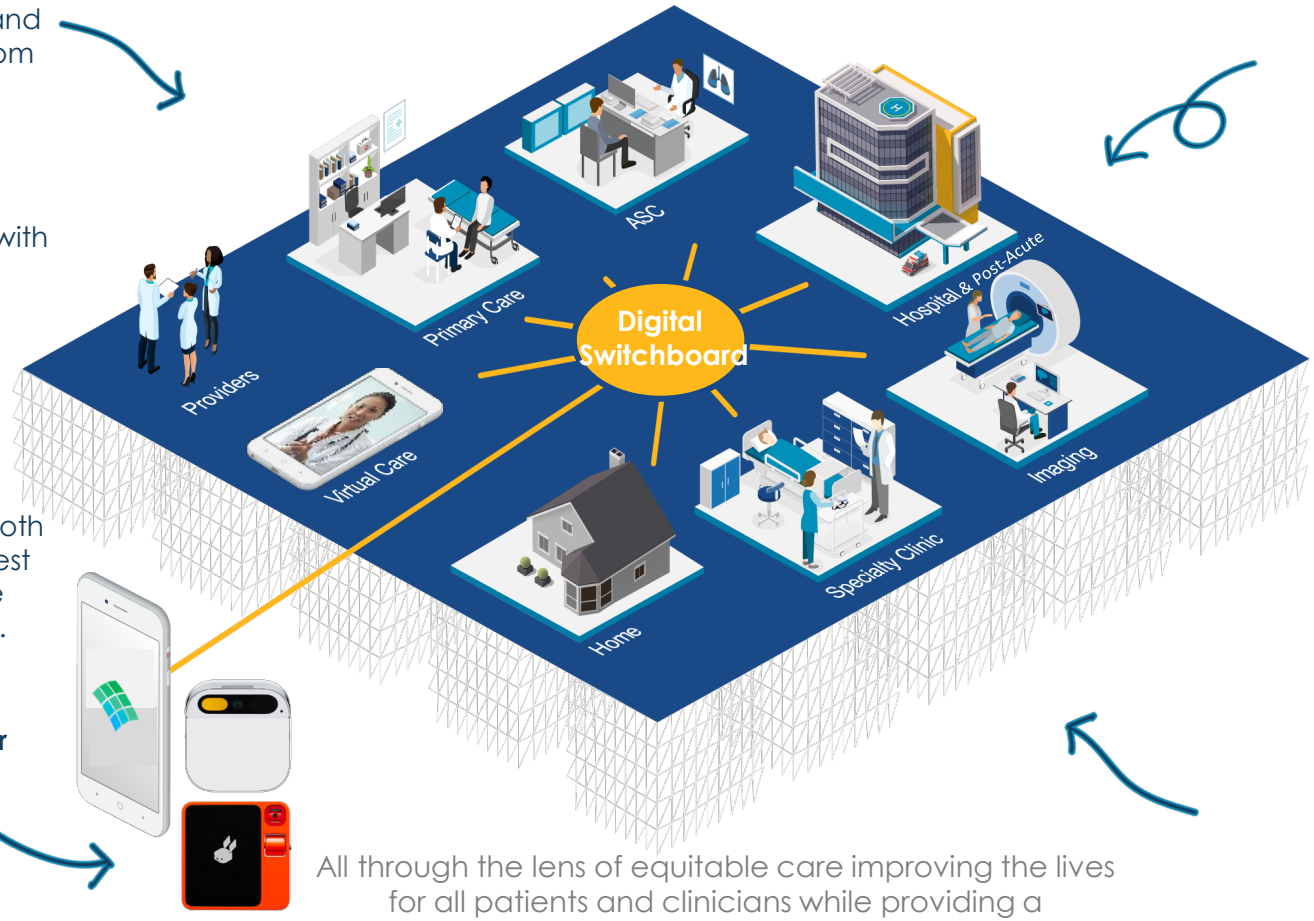
Plug and play onboard partners

Create the clinical living laboratory for both mature and developing companies to test and learn with new products making the health system a clinical pace-setter. E.g.

- RadAI
- Care orchestration digital tool

New partners are **on-boarded 75% faster**

- Improved experience
- Faster value realization



All through the lens of equitable care improving the lives for all patients and clinicians while providing a differentiated experience for **Highmark Members** at **AHN**

More clinical care will be delivered asynchronously than synchronously and will be augmented diagnosis

Patient admitted to St. Vincent Hospital ICU in Erie for a hemorrhagic stroke has access to tele-stroke and receives care locally without transfer. E.g.

- Care Navigation (right care, right time, right place)
- Virtual Care Services
- Epic Payer Platform

Improved access and care retention through **50% increase in efficiency**

- Admin cost reduction
- Better experience

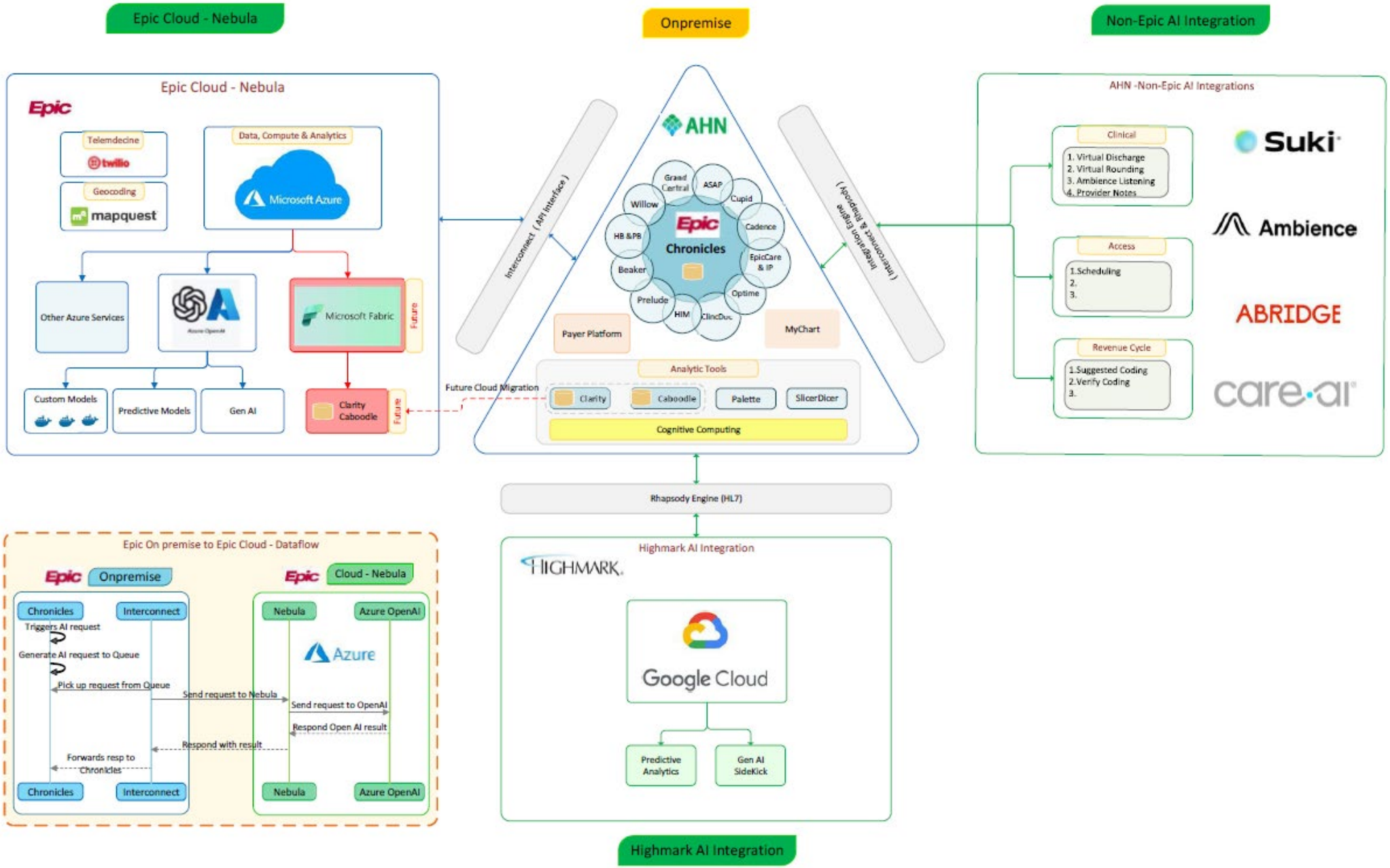
Digitization does not happen within the existing workflow – **it revolutionizes them**

AI matching patient demand with right care setting with right staffing based on predictive analytics. E.g.

- Rev Cycle Transformation
- Virtual Command Center
- Workforce Management and Supply Chain

Administrative shared services **decrease by 50%**

Clinical Artificial Intelligence Technical Ecosystem



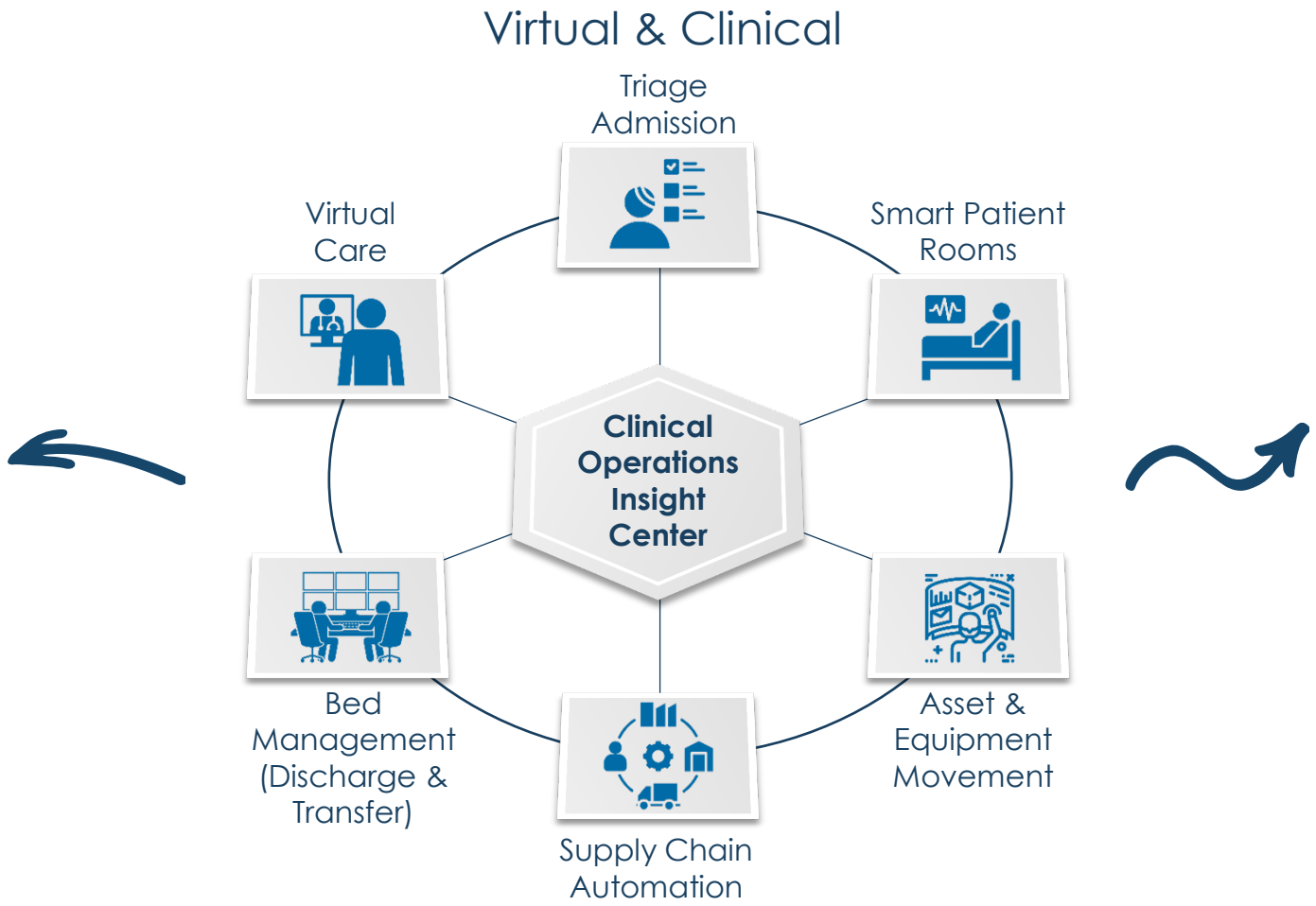
Clinical Operations Insight Center

Centralization of services such as bed availability, staff assignments, medical equipment and supplies distribution, will optimize resources by predicting staff needs and filling gaps; this ensures that patients receive the best care and outcomes while reducing clinical variability through both augmentation and automation

Logistical & Management

Create the logistics capability the health systems by helping coordinate patient care, automate flow, and improve operations across care networks.
Focus Areas:

- Inpatient Through-put
- Bed-turn Over
- Emergency Department Boarding
- Transfer Volume
- Operating Room Utilization
- Scheduling/Registration
- On-site Inventory Management System



Virtual & Clinical

Move beyond the traditional care delivery model through augmentation of bed-side staffing with artificial intelligence and digital solutions.
Focus Areas:

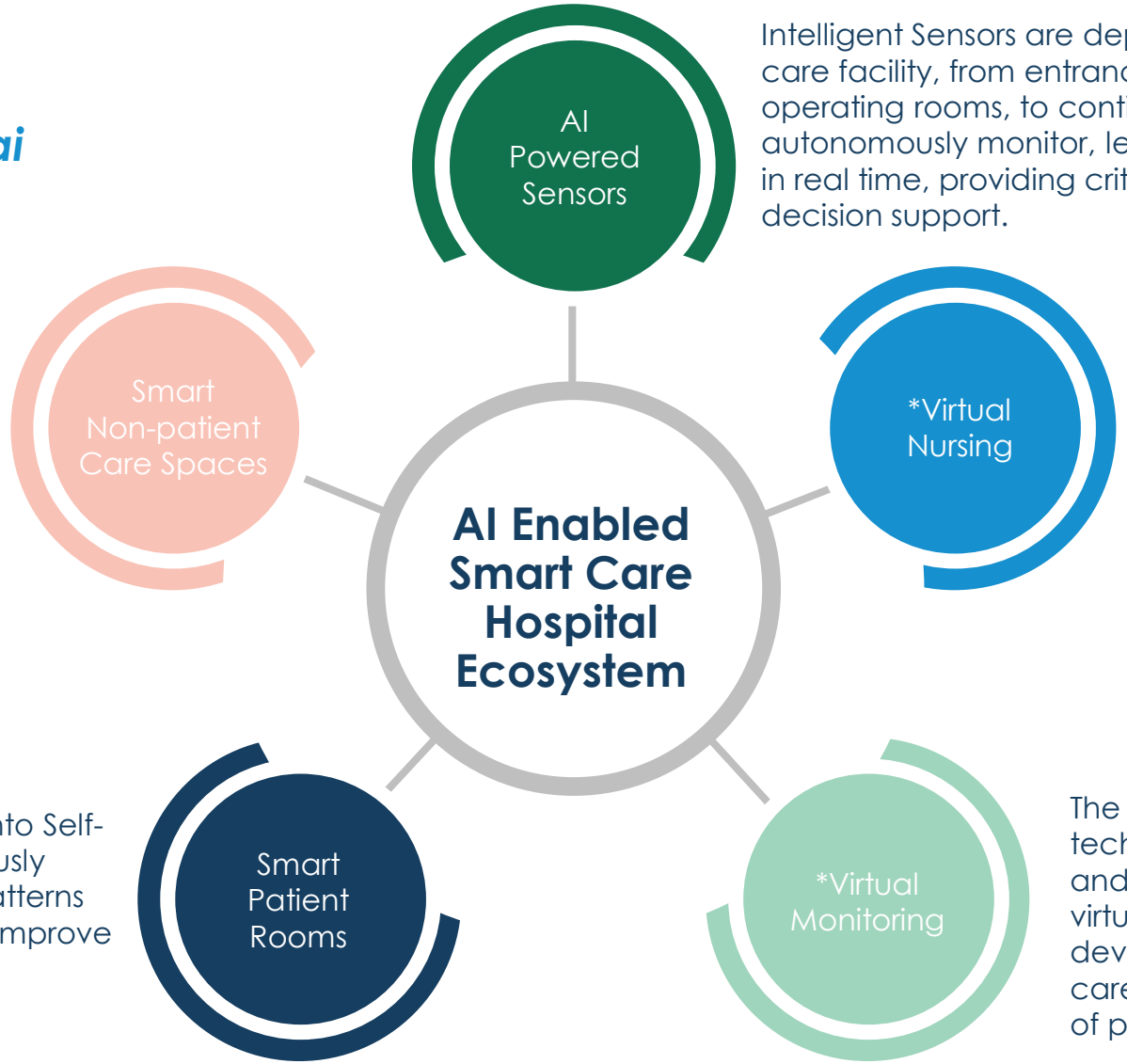
- ICU
- Sitting
- Tele-stroke
- Admit/Discharge
- Bed-side Nursing
- Primacy Care
- Virtual Products
- Nurse Rounding+
- Monitor Tech+
- Pharmacy+
- RPM+
- Specialty Real-time Consult+
- Rooming+

+ - areas of differentiation against competitors and anchor partners

AI Smart Care Platform

Building out a platform within the inpatient setting which provided multiple augmentation opportunities for clinicians through AI tools at the bedside and throughout the hospital setting

** - Focus area of in-flight pilot with **Care.ai***



Intelligent Sensors are deployed throughout the care facility, from entrances to hallways and operating rooms, to continuously and autonomously monitor, learn, and infer in real time, providing critical insights for real-time decision support.

Track and trace core activities and conditions across the care setting, empowering operators and clinicians with real-time context-aware intelligence.

Enable Virtual Nursing by leveraging the most advanced in-room sensors, AI, and automated documentation capture to power virtual admission, virtual rounding and virtual discharge workflows.

- Initial pilot has created **~2.5 hours** of timing savings per floor nurse for each 8-hour shift (**approx. 30%** increase in efficiency)

Transform ordinary rooms into Self-Aware Rooms by continuously monitoring and inferring patterns and trends in behavior, to improve clinical quality and safety.

The use of AI and advanced sensor technology bring and enhanced clinical and operation experience to traditional virtual sitting and live monitoring. Future developments in pharmacy, social work, care management, and others (outside of pilot).

Ambient Clinical Intelligence

Addressing burnout across our clinical workforce by implementing both augmentation and automation AI platform that will assist with administrative tasks, improve efficiencies, with a human at the helm

** - Focus area of in-flight pilot with **Suki***

*Documentation

Generate comprehensive and accurate medical documentation from patient-clinician conversations based on specialty and visit context. Precisely tailored for nearly every ambulatory and acute care specialty, it meets compliance requirements and improves reimbursement, authorization, and claim outcomes.

⬇

Documentation time has **dropped ~1.5 minutes per encounter** per clinician (resulting in **~17 hour average decrease** in pajama time and **~13 hour average decrease** in Time Outside Scheduled Hours per month)

*Pre-Charting

Assist clinicians in reviewing and preparing for upcoming visits. Clinicians can vocalize any aspects of the chart that are relevant to the visit, and ambient intelligence will capture this information to be included at the time of the visit.

Integrated CDI Models

Ensures accurate and optimal coding and documentation of patient care by identifying and suggesting relevant and specific ICD-10 & CPT codes. This supports compliance and payment integrity initiatives for revenue cycle management and payor teams alike. Has financial ROI and benefits both FFS and VBC models.

Clinician Nudges

Intelligent "suspecting" within Risk Based arrangements. These intelligent "nudging" features will help improve utilization management efforts by supporting clinicians as they provide the right level of care at the right time to patients.

This technology will be used to support conversation and workflow types across all outpatient specialties, ED, nursing, care management, health coaches, LCSWs, revenue cycle, front desk staff in their environments. Additionally, will enhance equitable care and health literacy initiatives with workflows and translations in multiple languages (English, Arabic, Chinese (Mandarin), Spanish amongst many others).

Provider Data Management, Call Center, and Chat

Digital AI platform that aims to close the gap between patient expectations and workforce capacity; utilizes an adaptive AI approach based off knowledge and linguistics to shorten the typical time to value for the customer

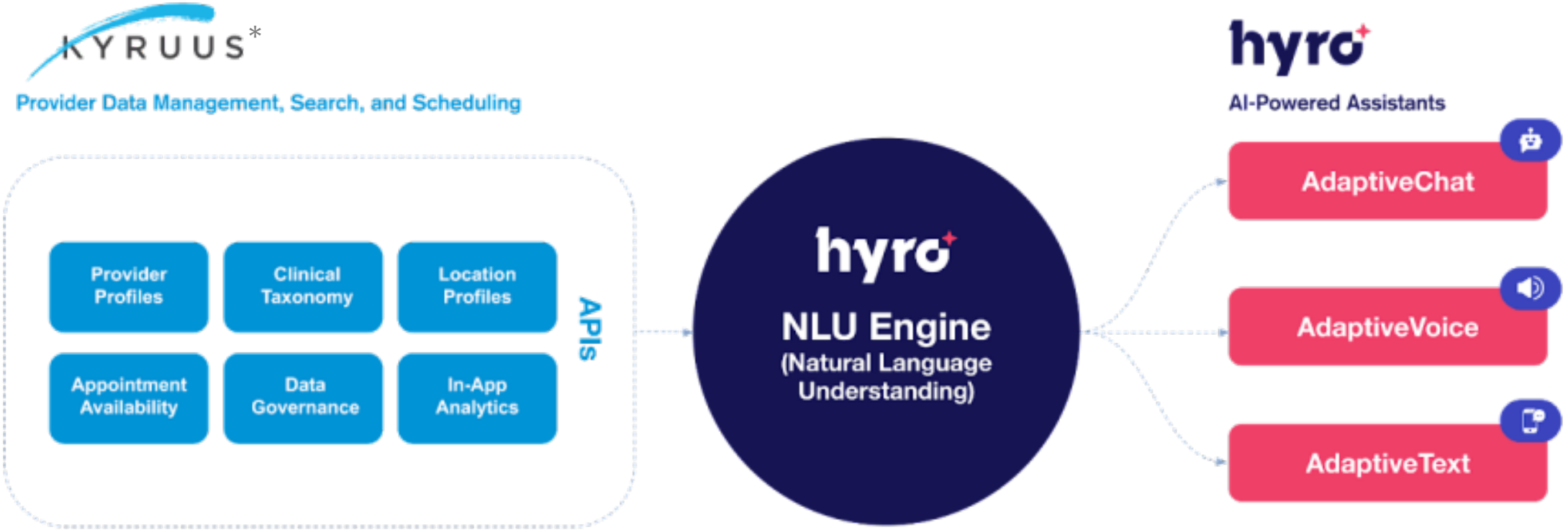
AI Assistant for Call Centers (412DOCTORS, Epic Direct Service Center*)

- **Patient Self Service Appointment Management** – allow patients to book and manage (cancel, re-schedule, confirm) appointments without having to wait on hold or discuss with an agent.
- **Smart Routing** – eliminate endless IVR menu and route callers directly to the correct point of care agent or self-serve option via SMS.

AI Assistant for Web & Mobile (AHN Find Care Website)

- **Self Service Information and Care Management –** allow patients to access information about providers, facilities, receive instant answers to inquiries, manage their appointment, and refill their prescriptions all online via a Chatbot.

** - Highmark/AHN will be the first integrated pay-vider with payer APIs for **Direct Clinical Scheduling***



Radiology and Artificial Intelligence

Utilizing natural language processing and generative AI to improve efficiencies by augmenting our workforce and having fully automated AI platforms that find expected and unexpected findings

Rad AI

Live in July 2024
100 Radiologists

Improved efficiencies for Radiologists
Increased Patient Safety and Quality

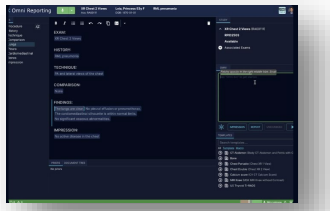
Radiologist dictates findings using voice recognition (Solventum)

↓

Rad AI automatically generates customized impressions and report is presented back to staff

↓

Radiologist reviews the impression and finalizes



Google Cloud

Implementation Underway

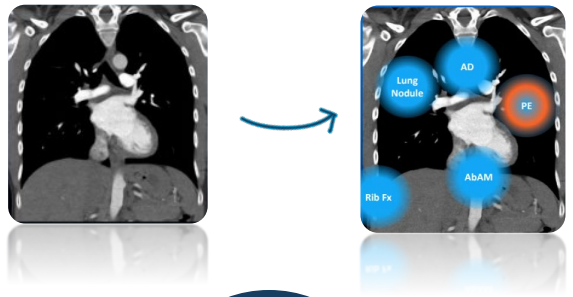
Google Medical Imaging Suite (cloud-based Imaging ML Platform) that will leverage imaging data available from Allegheny Health Network (AHN)'s to perform ML Operationalization for clinical use cases.

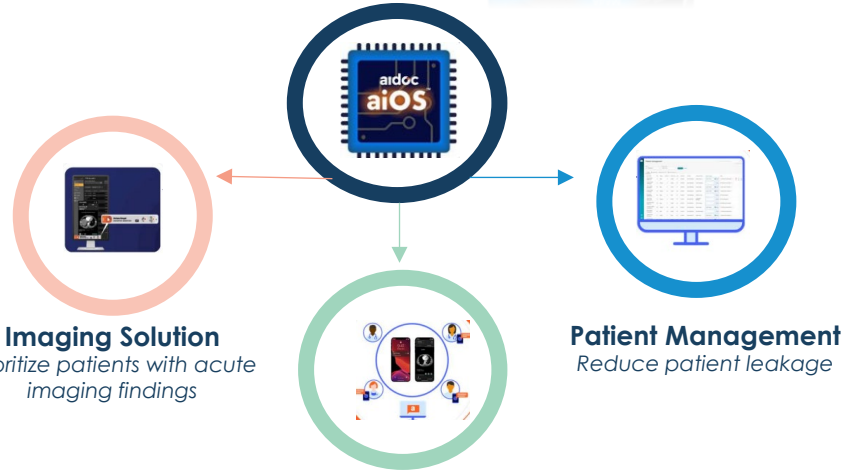
Use Cases Targets Include:

- Transitional Anatomy
- Detection of breast lesions & risk score for cancer vs. normal
- Brain Tumor / selling around brain
- Incorporate Digital Pathology to digitize pathology slides
- Selecting best image for accreditation (breast cancer: mammogramm, MRI, ultrasound)

aidoc

** Under Business Case Evaluation*





Imaging Solution
Prioritize patients with acute imaging findings

Patient Management
Reduce patient leakage

Care Coordination
Close the loop fast, alert the right clinicians at the right time.

Epic Development Road Map

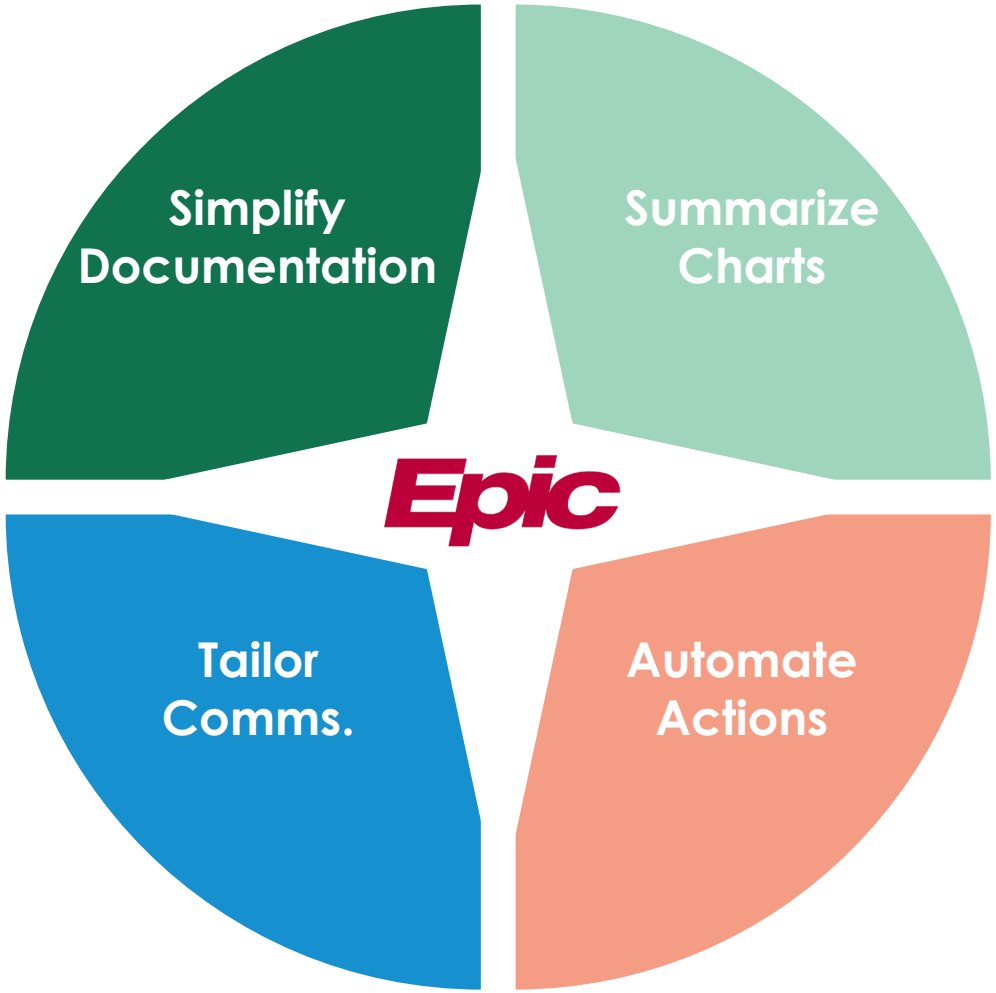
AI is built directly into Epic and ready for use; many of these AI–assisted workflows are designed to augment the clinician in the existing workflow built directly into the EHR to help quickly drive adoption

Reduce time spend at the keyboards:

- Generate in basket responses to MyChart messages
- Generate care plan notes for nurses
- Adjust notes, correspondence, and patient education for factors like brevity and reading level

Communicate better:

- Help translate clinical and scheduling questionnaires into additional languages
- Transform questions into reporting queries
- Simplify note text to patient-friendly language



Reduce time spend searching the chart:

- Summarize recent notes before visit
- Analyze dashboards for key takeaways
- Provide a review of the previous shift

Reduce staff time spend on admin work:

- Extract follow-ups from imaging reports
- Recommend codes from clinical details
- Find clinical documentation improvement opportunities and prioritize reviews
- Answer patient questions, schedule follow-ups, and address patient questions with chat bots

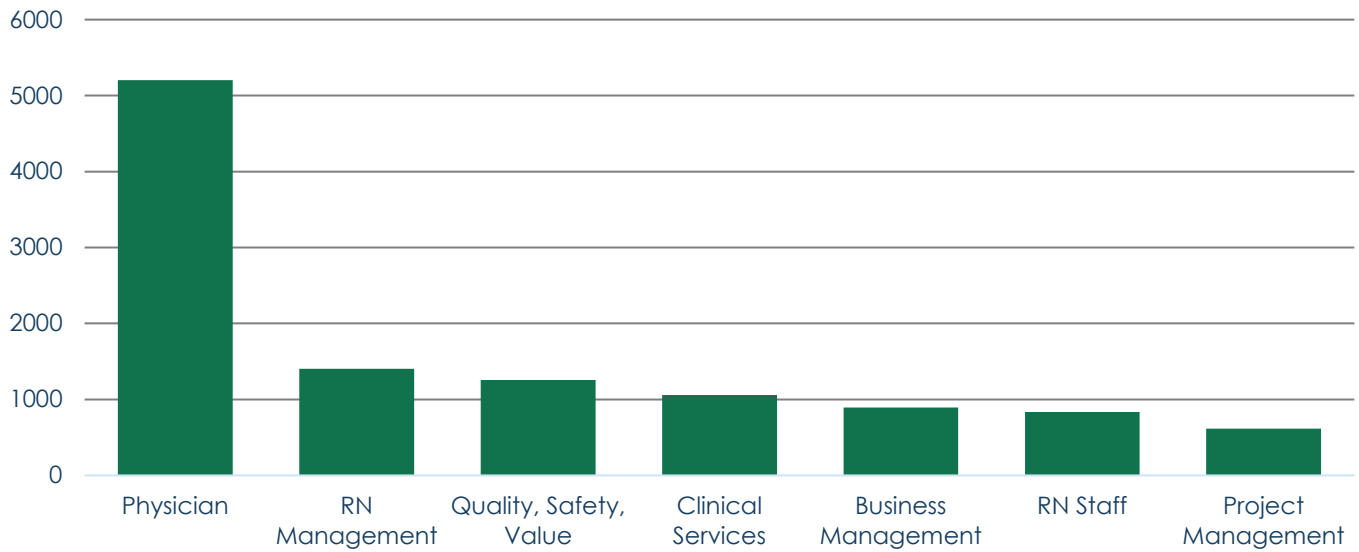
- Currently Available
- MVP Near-term deployment (<1 year)

** Through Epic Nebula AHN has*
10 predictive models

Sidekick at AHN

Since roll-out Sidekick has quickly drive a wide range of adoption helping with productivity across all parts of the business – multiple townhall and all-hands meetings have included sections with the

Highest Utilization by Job Type



Highest Individual Utilizers

Business Area	Total Prompts	% of total
RN Staff	719	4%
Quality, Safety, Value	653	4%
Administrative Gen	476	3%
Physician	305	2%
Physician	295	2%

Other highlights (through the month of July):

- >17000 prompts
- >650 unique individuals
- >4900 prompts from shared assets (WOWs)

Panel Discussion

CME opportunity

AHN Advanced Practice Providers Annual Conference 2024

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Break
10:00 am – 10:25 am

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2nd Annual AHN APP Conference 2024

SEPTEMBER 14TH, 2024 – THE REGIONAL LEARNING ALLIANCE

	Great Room A	Great Room B	*Breakout Rooms *(15 registrants per session)*
10:30 am - 11:00 am ***Session 1***	*Diabetes and Pregnancy: Before, During & After / Diabetes Technology updates and AHN Diabetes Resources* Debra Carse, CRNP & Megan Watts, RD	*Pint-sized Problems: A Review of Common Pediatric Illnesses for the Adult Provider* Mike Talotta, PA-C	
11:05 am - 11:35 am ***Session 2***	*Pre-Conceptual Counseling: Preparing for a Healthy Mom & Baby* Jennifer McDanel, PA-C	*Primary Care for the Specialty Provider* Dawn Ball, CRNP	**Suturing 101** (1 hour)
11:40 am - 12:10 pm ***Session 3***	*Genetic Counseling – Hereditary Cancers* Kyla Morphy, CGC	*Mental Health: Burn out in healthcare and what you can do to reduce your risk* Jamie Cornali, CRNP	
12:10 pm - 1:10pm	**Lunch & Exhibitor Fair**		
1:15 pm - 1:45 pm ***Session 4***	*Treating for Two: Managing Headaches During Pregnancy* Amanda Mace, MSPAS, PA-C	*Supplement Support: Evidence-Based Review* Kimberly Smith, CRNP	**EKG Readings Overview** (1 hour)
1:45 pm - 2:15 pm ***Session 5***	*Heart Failure – Palliative Medicine* Tara Orgon Stamper, CRNP	*Regional Cancer Therapies for GI Malignancies* Samantha Devine, PA-C	
2:20 pm - 3:00 pm	**Break & Exhibitor Fair**		
3:05 pm - 3:35 pm ***Session 6***	*Un-Break My Heart: Developments & Devices in Heart Failure* Courtney Hippert, PA-C	*Difficult to Treat Asthma Patient, and When to Refer* Justine Sicari, DNP, FNP, MSNed	**Joint Injections** (30 minutes)
3:40 pm - 4:10 pm ***Session 7***	*Weight Loss* Kathy Scutella, MSN, CRNP	***Please remain seated as we prepare for the final presentation and closing remarks. The room divider will be removed shortly to accommodate all attendees.***	

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Great Room A

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September 2024

Diabetes in Pregnancy: Before, During and After

Debra S. Carse, MSN,FNP-C,RNC ~ CRNP Maternal-Fetal Medicine
Megan Watts, MS, RDN, LDN, CDCES ~ Diabetes Educator, AHN Center for Diabetes and Endocrine Health

AHN

Diabetes in Pregnancy

According to the CDC, 5-9% of all US pregnancies will develop gestational diabetes

This Phot o by

Risk Factors

BMI>30	Previous pregnancy GDM Baby>9 lbs	Food insecurity	Age, >35, >40
Gastric Bypass	Eating disorders	Family history of Type 2 Diabetes	PCOS
African American, Hispanic/ Latino, American Indian	Alaska Native	Native Hawaiian	Pacific Islander person

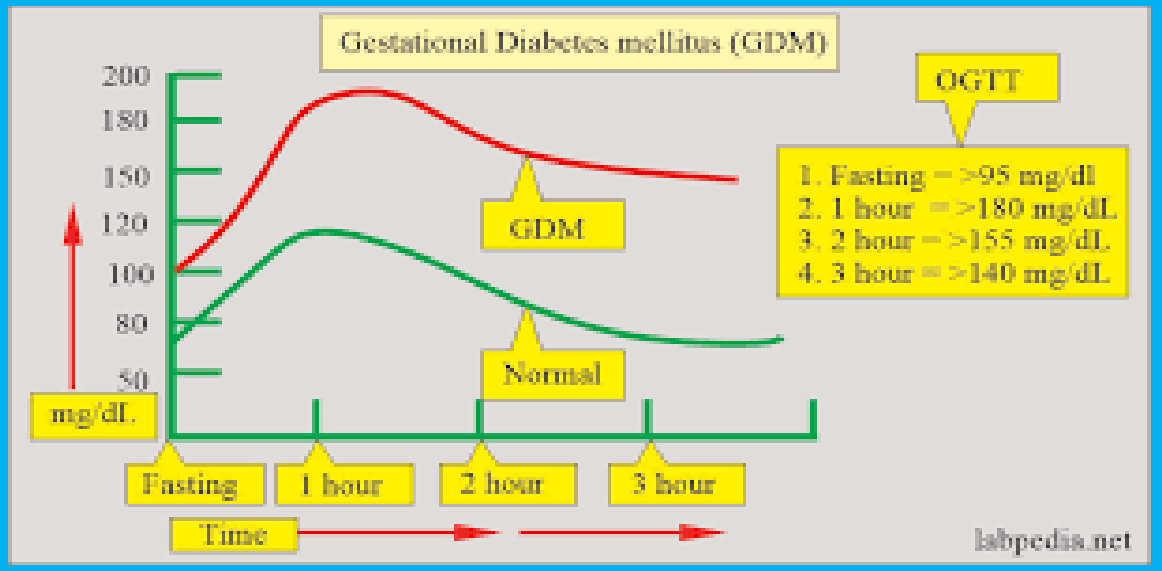
Screening for GDM or pre-existing Type 2 or impaired glucose tolerance

Greater than 20 weeks pregnancy:

- 2 step approach = 1 hour GTT /3 hour GTT (need to have 2 values elevated to be abnormal)

Less than 20 weeks of pregnancy

- HGBA1C
- 2 hour GTT
- *no longer using 2 step approach



Obstetric Risks

- Miscarriage
- Hypertensive Disorders of Pregnancy
- Preterm Birth
- Cesarean section
- Postpartum hemorrhage
- Postpartum infection

Maternal Risks

- DKA
- Hospitalization, ICU admission
- Cardiovascular disease
- End-organ damage
- Severe Morbidity and mortality
- Type 2 Diabetes risk later in life

Fetal/Newborn Risks

- Congenital Anomalies (mainly heart)
- Macrosomia (10-90% normal)
  - Shoulder dystocia/broken clavicle
    Increased risk of c/s
- Hypoglycemia after birth
- Respiratory issues
- Hyperbilirubinemia
- Polycythemia
- Cardiomegaly
- Preterm birth
- NICU admission
- Stillbirth or neonatal demise

Who do we manage?

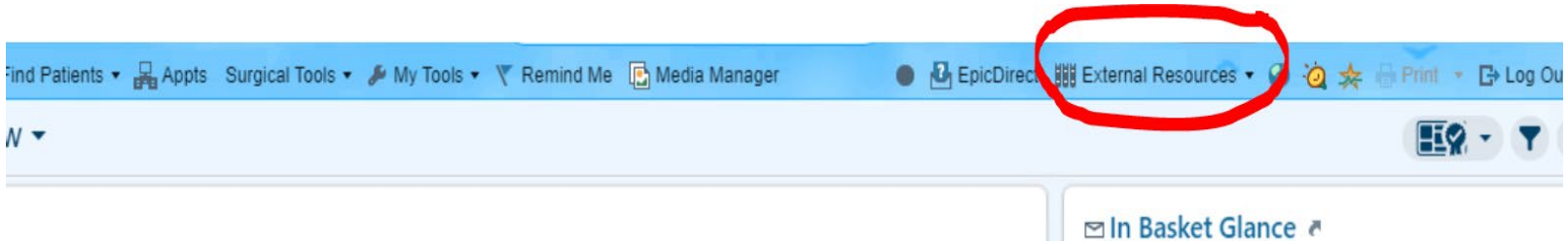
- Type 1
- Type 2 (known or presumed)
- GDMA1 (diet)
- GDMA2 (medication)
- Early glucose intolerance in pregnancy

Risks of not achieving optimal blood sugar management: later in life

- Type 1
- Type 2 (known or presumed)
- GDMA1 (diet)
- GDMA2 (medication)
- Early glucose intolerance in pregnancy

Screening Guidelines

- Epic: upper right corner- open in this order
  - External Resources



  - Clinical Guidelines
  - MFM
  - Diabetes Tip Sheet (good resource)
  - Antenatal Testing guidelines
  - Fetal Echocardiogram guidelines

Referral Process

- Referral: Ambulatory Diabetic Education (with CDE not MD)
- Perinatology Consult: Diabetes consult with NP

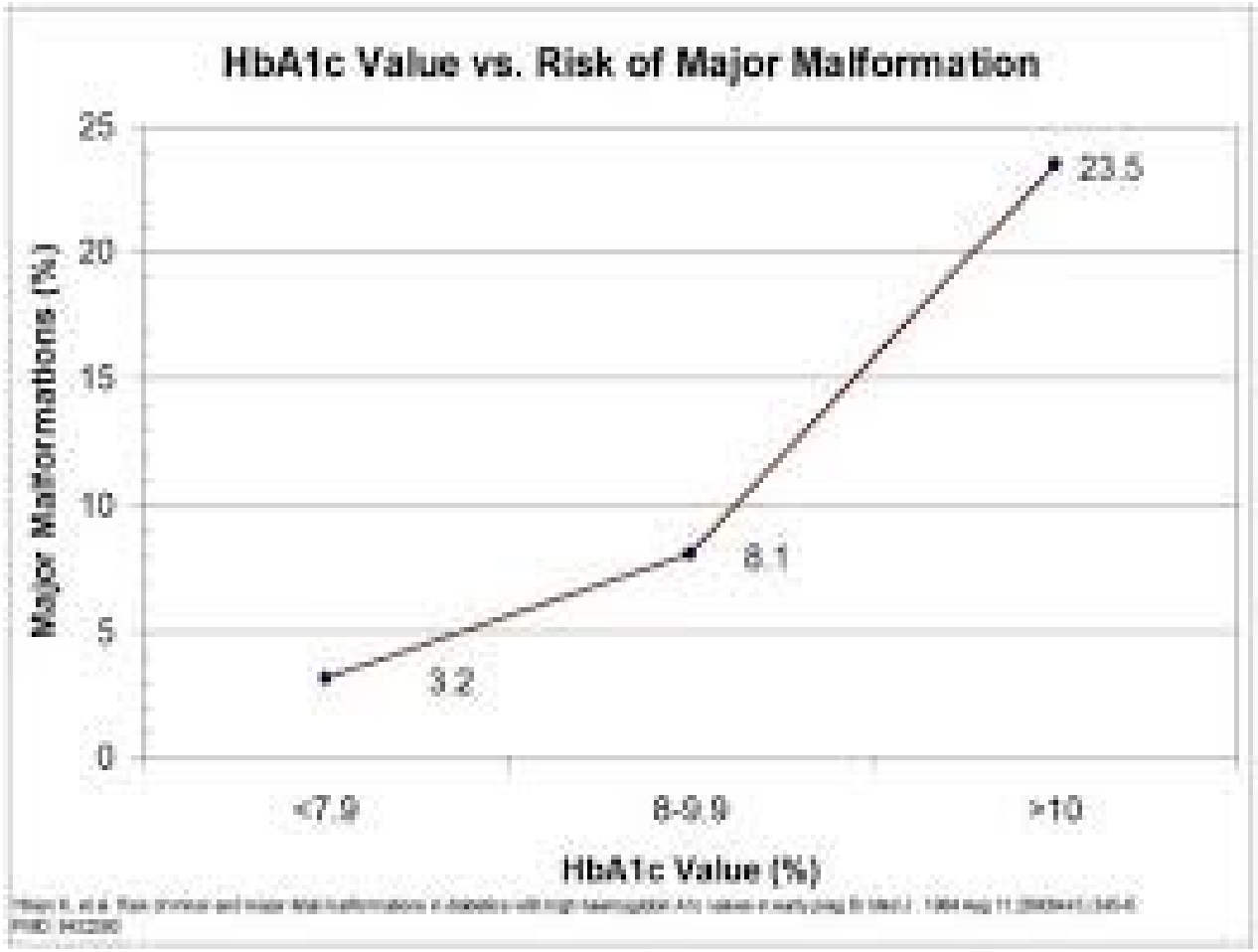
NP/CDE management

- Initial consult for diabetic education
- One week later: MFM NP consult
- Order treatment as needed
- Review of data and recommendations for changes in treatment plan
- Nurse navigator type role for ensuring pt is getting antepartum testing, growth ultrasounds, fetal echo, labs, A1C every trimester and delivery timing recommendations
- **Would prefer all diabetics see MFM at least once for a consult in early pregnancy** (Type 1 and Type 2) or at time of diagnosis (GDM).
- Some offices will review GDMA1 logs if deemed appropriate by MFM

What can you do?

- Pre conception counseling (A1C <6.0, weight loss, new drugs – Ozempic etc, exercise)
- Referrals to OB and/or MFM ASAP

- Encourage follow through with 2 hour GTT postpartum if recently had a baby or planning another baby and had GDM => early screening



1. Ylinen K, et al. Risk of minor and major fetal malformations in diabetics with high haemoglobin A1c values in early pregnancy.Br Med J (Clin Res Ed). 1984 Aug 11;289(6441):345-6. PMID:6432090
2. Wender-Ozegowska E, et al. Threshold values of maternal blood glucose in early diabetic pregnancy--prediction of fetal malformations.Acta Obstet Gynecol Scand. 2005 Jan.;84(1):17-25.PMID: PMID:15603562

Outside of Pregnancy: Diabetes Review

Diabetes Diagnosis Method	Prediabetes	Diabetes
Hemoglobin A1c	5.7% to 6.4%	6.5% or higher
Fasting Blood Glucose	100 - 125 mg/dL	126 mg/dL or higher
Glucose Tolerance Test	140-199 mg/dL	200 mg/dL or higher

Outside of Pregnancy: Diabetes Review

General Glucose Targets for Non-Pregnant Patients with Diabetes

- A1c: < 7%
- Fasting / Pre-meal: 80-130 mg/dL
- Post-meal: <180 mg/dL
- Time in target range (70-180 mg/dL): > 70%
  - Patients using CGM

Diabetes Technology Updates

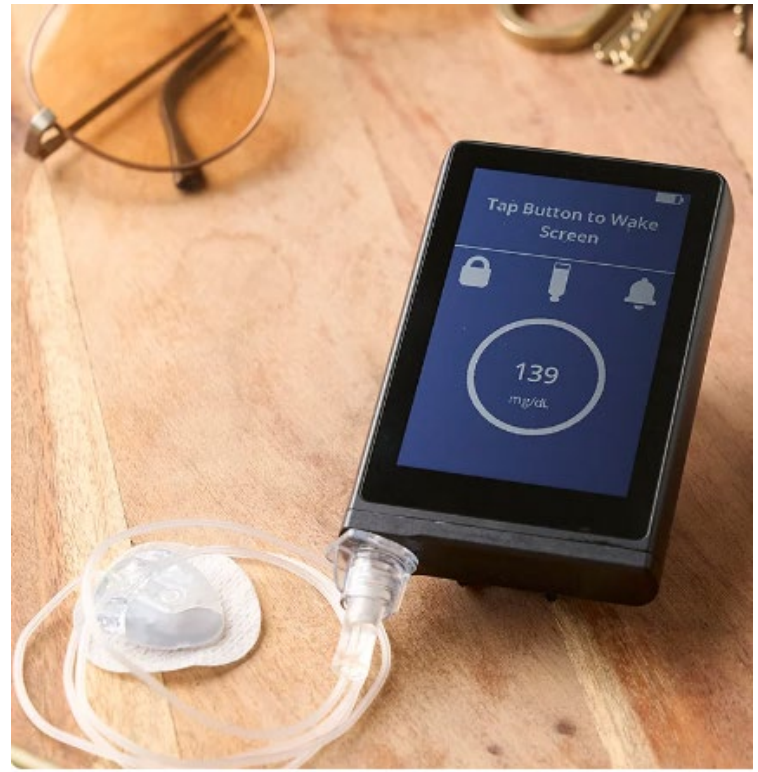
Accessibility of devices / technology

- Continuous Glucose Monitors (CGMs)
- Smart Insulin Pens
- Insulin Pumps
- Automated Insulin Delivery (AID) Devices
  - Pump + CGM
  - CGM-informed algorithms modulate insulin delivery

Diabetes Technology Updates: CGMs

Diabetes Technology Updates: Smart Pens

Diabetes Technology Updates: Pumps, AID Systems



AHN Diabetes Resources

Center for Diabetes & Endocrine Health (CDEH)

- Forbes / Premier - Monroeville
- Allegheny Valley - New Kensington
- West Penn - Mellon Pavilion
- Canonsburg - McMurray
- Jefferson
- McCandless
- North Fayette
- Saint Vincent - Erie

AHN Diabetes Resources

AHN Center for Diabetes and Endocrine Health CDCES Team

- Diabetes education visits
  - Must have diabetes diagnosis
- Medical Nutrition Therapy (MNT) visits
  - Medicare patients: only covered for renal disease and diabetes
  - Commercial patients: covered for variety diagnoses, but not prediabetes or overweight

AHN Diabetes Resources

Enhanced Community Care Management (ECCM)

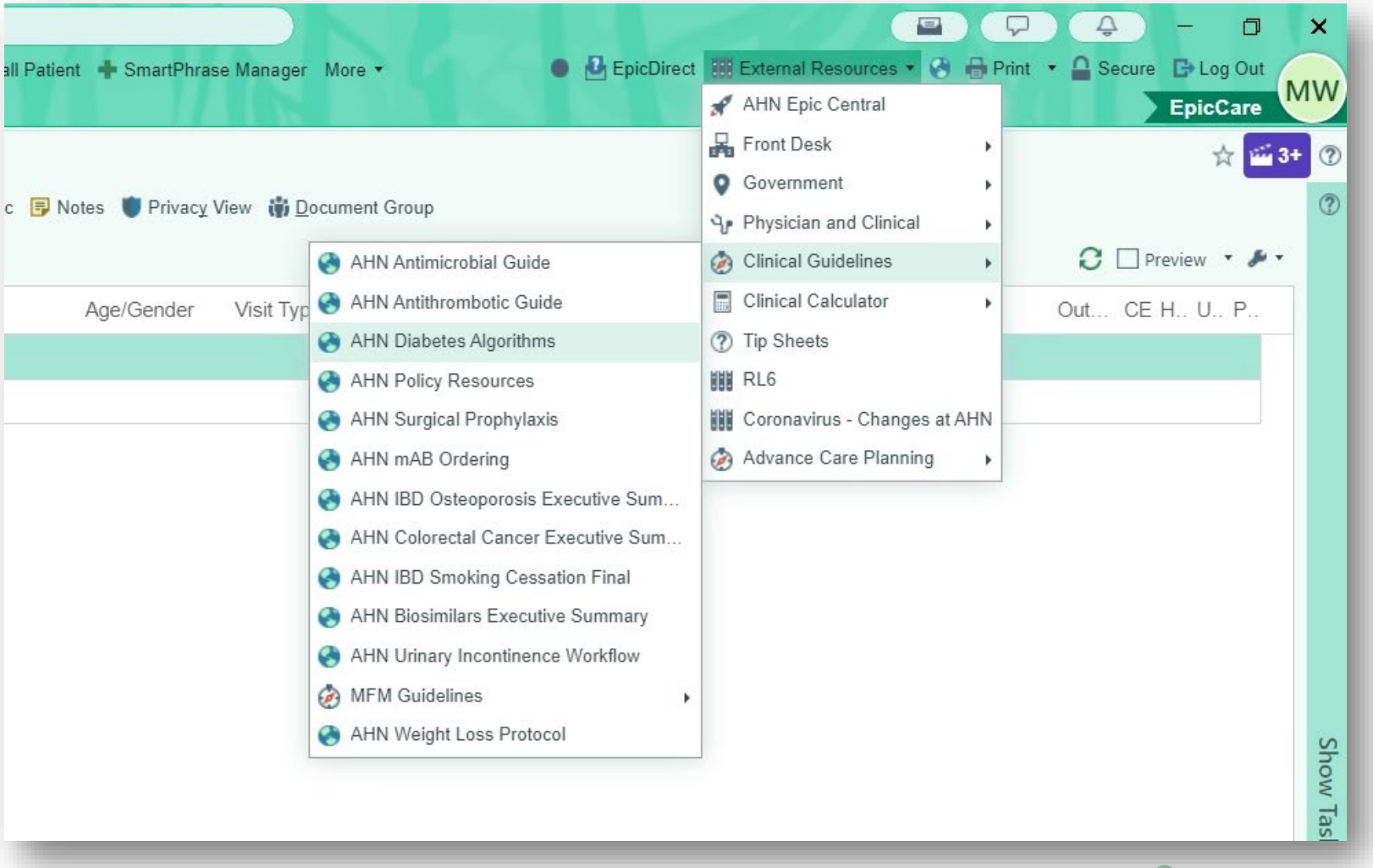
- Highmark, Medicare Fee for Service
- Free non-billable high risk population management & community-based palliative care

Chronic Care Specialty Team

- Medicine Institute patients only
- Support from Nutrition, Behavioral Health, Social Work, and Pharmacy while providing case management to high cost/need patients

AHN Diabetes Resources: Epic

External Resources → AHN Diabetes Algorithms



Insulin Prescribing Chart – Pen (BD Nano pen needles 32g 4 mm (5/32”)

Type of med	Units/day	30 days	Units/day	90 days	Other
U-100 Insulin Pens (3mL/pen) (5 Pens/box = 15 mL) *Levemir ǂ* *Humalog (& Insulin lispro) ** *Lantus ǂ* *Novolog (& Insulin aspart)** *Basaglar ǂ* *Apidra ǂ* *Semglee ǂ* *Admelog ǂ* *Semglee* *Fiasp ǂ* *Tresiba u100 ǂ* *Lyumjev** *HumuLIN-N** *HumuLIN-R** *HumuLIN 70/30** *NovoLOG 70/30** *HumaLOG 75/25** *HumaLOG 50/50** *Insulin aspart protamine/aspart 70/30** *Insulin lispro protamine/lispro 75/25** * Pen dials to 60 units (dials by 1 unit) ǂ Pen dials to 80 units (dials by 1 unit)	1-50	15 mL	1-16	15 mL § - 30 mL	§ Expires 10 days (opened): HumaLOG® 75/25 pen (& generic pen) HumaLOG® 50/50 pen HumuLIN® 70/30 pen § Expires 14 days (opened):
	51-100	30 mL	17-33	30 mL	
	101-150	45 mL	34-50	45 mL	
	151-200	60 mL	51-66	60 mL	
			67-83	75 mL	
			84-100	90 mL	

AHN Glycemic Control Algorithm For Diabetes Type 2 (DM2)

(Evidenced-based guidelines for use with physician discretion) *FOR INTERNAL USE ONLY – NOT FOR DISTRIBUTION* (A1C goals should be individualized)

Implement lifestyle interventions (Order of medications listed below is suggested hierarchy of usage)

A1c < 1.5% above goal → MONOTHERAPY | A1c > 1.5% above goal → DUAL THERAPY | A1c ≥ 10% ǂ

Glucose Goal

GLP-1 RA or GIP/GLP1 RA x ‡ — 1st line
- Dulaglutide high dose (Trulicity)
- Semaglutide (Ozempic)
- Semaglutide (Rybelsus)
- Tirzepatide (Mounjaro)

Combination oral or injectables*

GLP-1 RA x ‡ — 2nd line
- Dulaglutide low dose (Trulicity)
- Exenatide XR (Bydureon)
- Liraglutide (Victoza)

Metformin

SGLT2i
- Canagliflozin (Invokana)
- Dapagliflozin (Farxiga)
- Empagliflozin (Jardiance)

SU: use with caution

TZD: pioglitazone (low-med dose)

DPP4i x — 3rd line
- Linagliptin (Tradjenta)
- Saxagliptin (Onglyza)
- Sitagliptin (Januvia)

Weight Management Goal

GLP-1 RA or GIP/GLP1 RA x ‡ — 1st line
- Semaglutide (Ozempic)
- Semaglutide (Rybelsus)
- Tirzepatide (Mounjaro)

GLP-1 RA x ‡ — 2nd line
- Dulaglutide (Trulicity)
- Liraglutide (Victoza)

GLP-1 RA x ‡ — 3rd line
- Exenatide XR (Bydureon)

SGLT2i
- Canagliflozin (Invokana)
- Dapagliflozin (Farxiga)
- Empagliflozin (Jardiance)

Metformin — 4th line

DPP4i x
- Linagliptin (Tradjenta)
- Saxagliptin (Onglyza)
- Sitagliptin (Januvia)

CKD (GFR< 60 OR albuminuria (ACR > 30mg/g)

SGLT2i (GFR > 20) — 1st line
- Canagliflozin (Invokana)
- Dapagliflozin (Farxiga)
- Empagliflozin (Jardiance)

GLP-1 RA ‡ — 2nd line
- Dulaglutide (Trulicity)
- Liraglutide (Victoza)
- Semaglutide (Ozempic)

CVD or high CVD risk

GLP-1 RA ‡
- Dulaglutide (Trulicity)
- Liraglutide (Victoza)
- Semaglutide (Ozempic)

1st line

SGLT2i
- Canagliflozin (Invokana)
- Empagliflozin (Jardiance)

Heart Failure

SGLT2i
- Canagliflozin (Invokana)
- Dapagliflozin (Farxiga)
- Empagliflozin (Jardiance)

Insulin Therapy

Refer to Insulin Algorithm
- Symptoms of hyperglycemia
- Catabolic features (weight loss, hyper-triglyceridemia, ketosis)

LEGEND

X-NOT TO BE USED TOGETHER (DPP4i + GLP1a)
‡ Should be titrated according to package insert
ǂ A1c > 10% → Consider Endocrinology E-consult

Combination Options*

Combination oral options:
- Canagliflozin/ metformin (Invokamet and XR)
- Dapagliflozin/ metformin (Xigduo and XR)
- Empagliflozin/ metformin (Synjardy and XR)
- Linaglipitin/ metformin (Jentadueto) x
- Empagliflozin/ linagliptin (Glyxambi) x
- Empagliflozin/ linagliptin /metformin (Trijardy XR) x

Combination injectable options: ‡
- Insulin degludec/ liraglutide (Xultophy) x
- Insulin glargine / lixisenatide (Soliqua) x

Progression of Disease

AHN Diabetes Resources

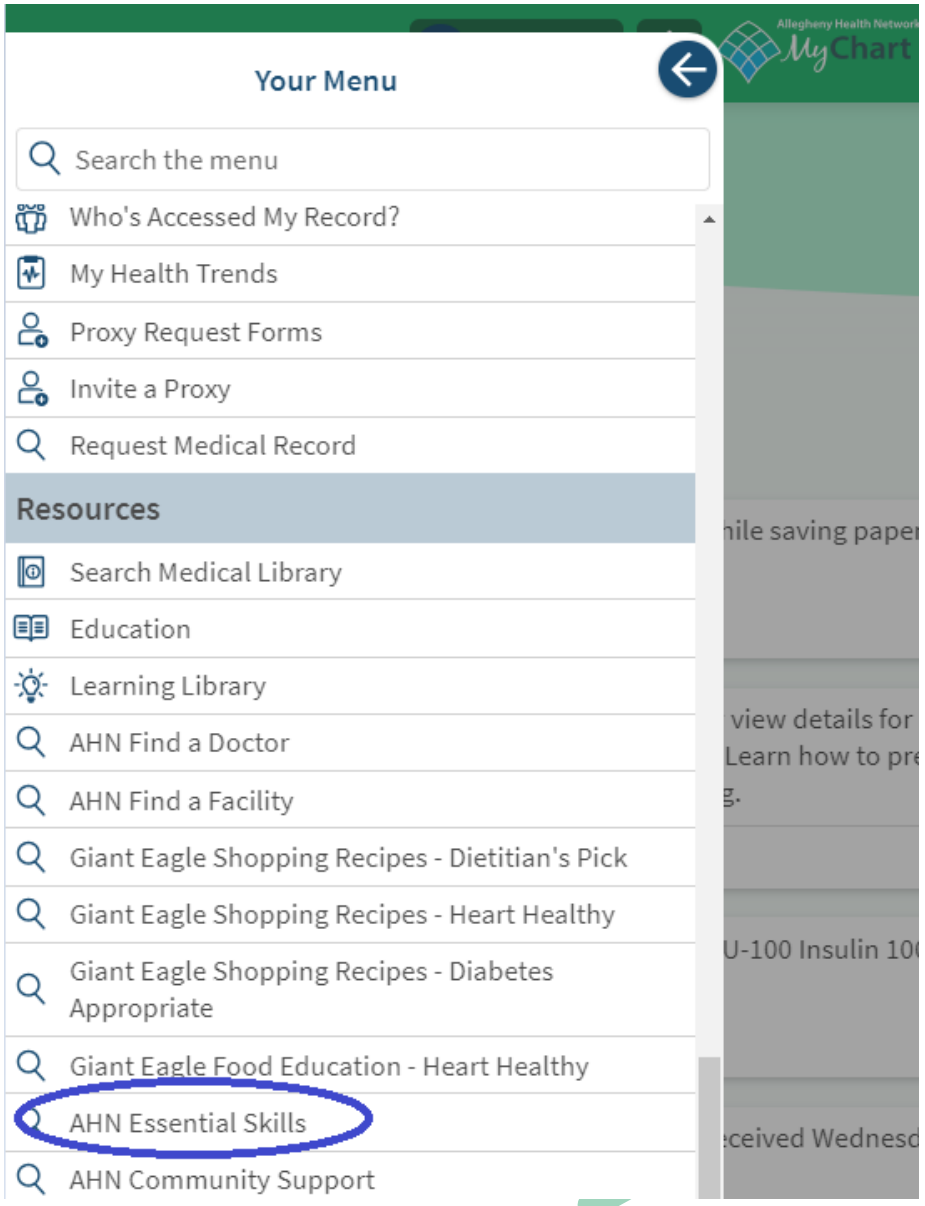
Free Diabetes Community Classes

- Free virtual classes via Teams led by our educators
- Scheduled through Epic / Care Connect

Medrespond

- Online interactive learning tool
- https://www.ahnessentialskills-diabetesedu.com/login

Accessing Medrespond in MyChart



AHN AHN Essential Skills for Living Well with Chronic Illness

Welcome

We *Educate* and *Engage* to *Energize* your healthcare journey

Allegheny Health Network's Essential Skills platforms are easy-to-use interactive programs that support patients and their caregivers in better understanding and managing their health. Knowledgeable patients make informed treatment decisions and are active participants in their own healthcare. Conversational interactions, customized content, and links to tools and resources engage patients and provide support for each individual's healthcare journey.

Powered by medrespond Conversational℠ Healthcare

Start learning and living well today!

Living Well with Diabetes

Learn how to manage your diabetes with support for lifestyle changes, medication use, and monitoring.

Living Well with Heart Failure

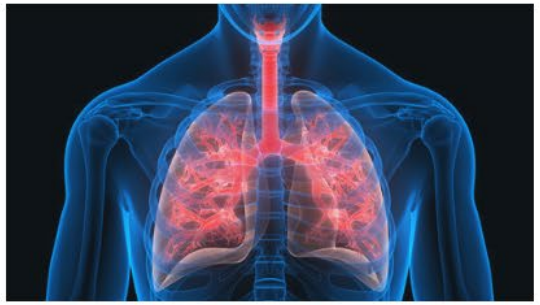
Education and support for managing heart failure symptoms and preventing flare-ups.

Living Well with Chronic Kidney Disease

Manage CKD progression through education and support for lifestyle changes.

Living Well While Managing Excess Weight and Obesity

You can live a full life while addressing issues with excess weight. Learn how to eat healthy and be safely active.



Living Well with COPD

Prevent flare-ups, make lifestyle changes, and learn breathing techniques to help you stay active.

Other Diabetes Resources

Diabetes Prevention Programs (Prediabetes)

- CDC.gov/diabetes-prevention
- Example: adagiohealth.org/education/diabetes/
- Patients can call insurance to check for included programs

American Diabetes Association

- Diabetes.org
- DiabetesFoodHub.org

Breakthrough T1D (formerly JDRF)

- BreakthroughT1D.org

Association of Diabetes Care & Education Specialists

- ADCES.org
- Danatech.org

PRESENTED BY: Allegheny Health Network

September 2024

Pre-Conceptual Counseling: Preparing for a Healthy Mom & Baby

Jennifer McDanel, PA-C
Surgical Physician Assistant, Labor & Delivery, Forbes Campus

AHN

Introduction

- In 2022, there were 22 maternal deaths for every 100,000 live births in the U.S. – more than double, sometimes triple the rate for most other high-income countries
- Pre-existing conditions increase patient risks for complications in pregnancy and the postpartum period
- Pregnancy planning can greatly improve outcomes
  - According to the CDC, 35.7% of pregnancies were unplanned in 2019

How do I help my patient plan for pregnancy?

- ❑ Review sexual activity with all women of childbearing age
- ❑ Recommend methods of prevention or discuss planning around their medical needs and overall health
- ❑ A quick review of contraceptive methods and their safety with co-morbidities can be found on the CDC website.

Common Conditions Complicating Pregnancy

- ❑ Diabetes: Type 1, Type 2 and pre-diabetes
- ❑ Hypertension
- ❑ Depression/anxiety/bipolar disorder
- ❑ Obesity
- ❑ Substance use disorder

Diabetes:
Type 1/Type 2/Pre-diabetes

Diabetes

- Diabetes that is not under good control has significant risks for both mom and baby
  - Congenital malformation
  - Early pregnancy loss
  - Preterm birth
  - Pre-Eclampsia
  - Fetal macrosomia
  - Peri-natal mortality
- Commonly, patients with pre-diabetes, develop gestational diabetes in pregnancy
- Early education and control prior to conception is the key!

Diabetes

- Congenital anomaly risk increases with Hgb A1C
  - Hgb A1C 5.5% = 2-3% risk
  - Hgb A1C 7.6% = 4% risk
  - Hgb A1C 14% or greater = 20% risk
- Rates of pregnancy loss are two to threefold higher in pregnant persons with pre-gestational diabetes
- The risk of hypertensive disease in pregnancy is three to fourfold higher
- Maternal hyperglycemia can lead to fetal hyperinsulinemia, a major risk factor for fetal macrosomia

Diabetes

- Optimizing glucose control prior to conception is ideal
- Utilization of CGMs, when available and affordable for your patients can significantly increase compliance
- Consult diabetic educators and dieticians to set patients up for success
- Insulin is the preferred drug to manage glucose in pregnancy and pre-conception
- GLP-1 therapy should be avoided in pregnancy!

Hypertension

Hypertension

- Maternal risks
  - Severe hypertension
  - Superimposed preeclampsia
  - Abruption
  - Cesarean delivery
  - Postpartum hemorrhage
  - Renal insufficiency/failure
  - Stroke
  - Myocardial infarction
  - Pulmonary edema
  - Death

Hypertension

- Fetal/Neonatal risks
  - Fetal growth restriction/small for gestational age infant
  - Preterm delivery
  - Congenital anomalies
  - Stillbirth
  - Neonatal death

Hypertension

- Criteria for hypertension in pregnancy
  - Mild range: ≥ 140 mmHg and/or ≥90 mmHg
  - Severe range: ≥ 160 mmHg and/or ≥ 110 mmHg

- Counseling prior to conception can help patient anticipate the increased need for surveillance and possible adjustment in medication
- Baseline labs: CMP, urine P/C ratio and CBC
- Review anti-hypertensive medications
  - ACE and ARBs should be discontinued before pregnancy
  - Labetalol and nifedipine are most commonly used medication in pregnancy
  - An MFM consult can help in the development of a treatment plan

Depression, Anxiety and Bipolar disorder

Depression, Anxiety and Bipolar Disorder

- Recent data from maternal mortality review committees reveals that perinatal mental health conditions are the leading cause of pregnancy-related deaths (23%)
- Perinatal mental health conditions are the most common complication of pregnancy and in the first year postpartum
- Untreated or undertreated mental health disorders have adverse maternal, fetal, and neonatal outcomes like preterm birth, difficulty bonding with baby and even developmental issues for the child

Depression, Anxiety and Bipolar Disorder

- Optimize your patient's condition prior to pregnancy
  - Medication regimes as well as therapy and resources
  - Review the expectations with your patient – they often do not need to stop their medications
  - Empower patient to learn about risks and outcomes of their medications and make the decision that is best for them
  - Mothertobaby.org is a great resource for providers and patients
  - AHN Women's Behavioral Health referral – start early!

Obesity

Obesity

- It is estimated that 25% of pregnancy complications are attributable to maternal obesity
- Severe complications include: hemorrhage requiring transfusion, cardiac complications, VTE, sepsis, shock, hepatic failure, renal failure, anesthesia related complications and uterine rupture
- BMI ≥50 have a very high risk of adverse maternal and perinatal outcomes – these patients are usually referred out of the community hospitals for delivery at West Penn

Obesity

- Preconception counseling
  - Information on obesity effects on fertility
  - Review potential pregnancy complications and their increase risk in obese patients
  - Evaluation of obesity related co-morbidities and optimization of treatment
  - Counseling on pre-conception weight loss
    - Weight loss medications should be stopped prior to conception
    - Bariatric surgery patients are usually recommended to wait 1-2 years after surgery to conceive

Substance Use Disorder

Substance Use Disorder

- The incidence of substance use disorder in pregnancy continues to rise
- Fatal overdose has become a leading cause of pregnancy-associated mortality
- Substance use disorders include: opioids, alcohol, amphetamines, cocaine and marijuana
- More recently we have also see “Tranq” – a veterinary tranquilizer, Xylazine laced in fentanyl
- Screening patients for substance use/abuse is a vital first step in identifying patients and getting them the help they need if they are accepting
- **Pregnancy prevention** is optimal in these patients until recovery is established

Substance Use Disorder

- Pregnancy complications associated with SUD
  - Placental abruption
  - Fetal death
  - Hyperemesis
  - Intra-amniotic infection
  - Pre-term birth
  - Placental insufficiency
  - Miscarriage
  - Postpartum hemorrhage

Substance Use Disorder

- Fetal/Neonatal Risks Associated with SUD
  - Neonatal Abstinence Syndrome
  - Neurodevelopmental impairments
  - Mental health disorders
  - Maltreatment and trauma
  - Fetal alcohol spectrum disorder

Substance Use Disorder

- Identification of SUD prior to conception greatly improves outcomes and increases available treatment options
- Medication for Opioid Use Disorder (MOUD) is the preferred treatment over medically-assisted withdrawal
  - Methadone or buprenorphine are preferred approaches

- Treatment of underlying psychosocial concerns and supportive care is, as always, key to a meaningful recovery
- Perinatal Hope (https://www.ahn.org/services/womens-health/pregnancy-newborn/pregnancy-and-addiction) is a great resource for patients and providers

Questions?

PRESENTED BY: Allegheny Health Network

September 2024

BRCA and Beyond: Family History Risk Assessment, Cancer Risks & Medical Management

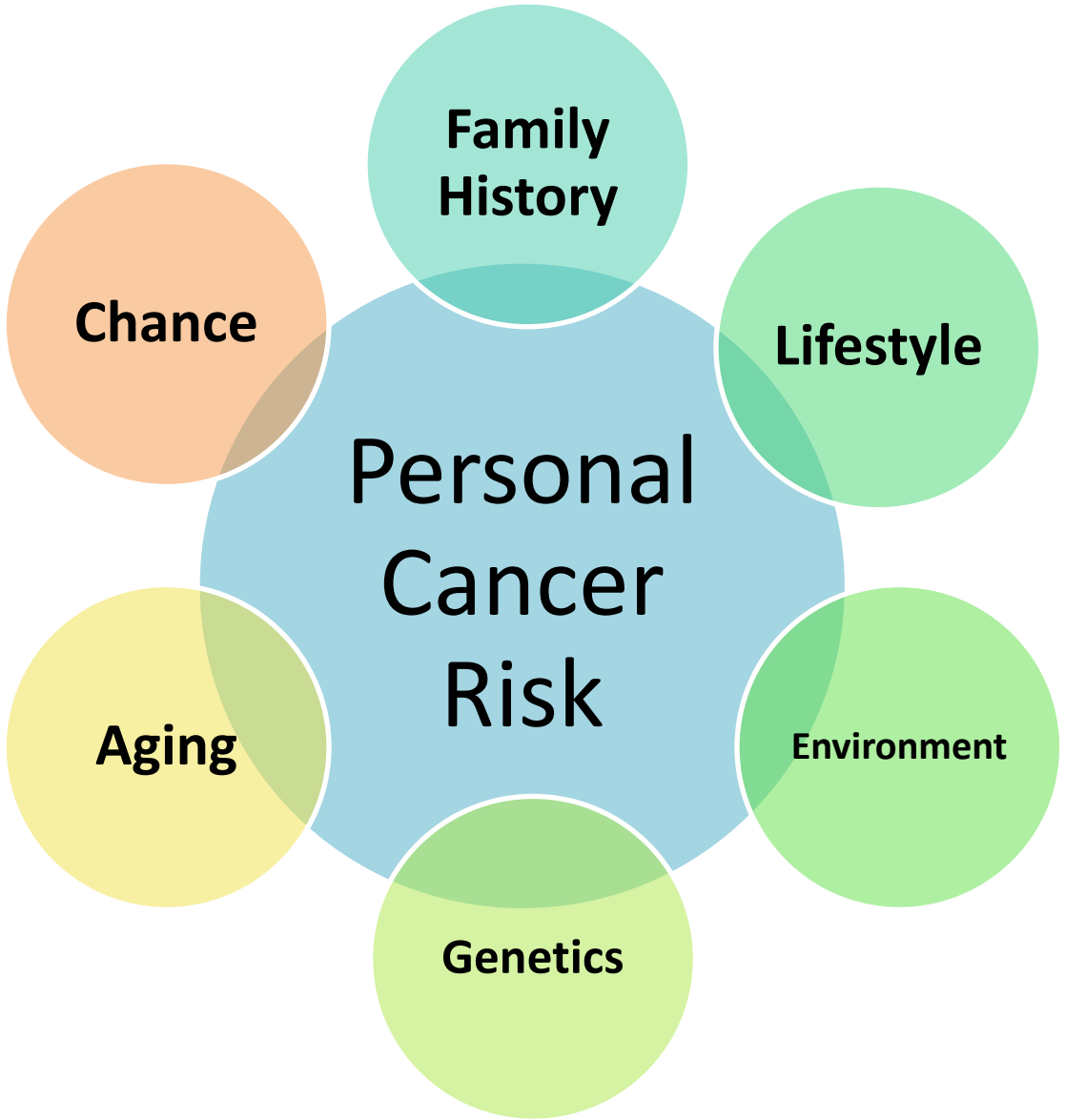
Kyla Morphy, CGC
Manager, Oncology Genetic for AHN

AHN

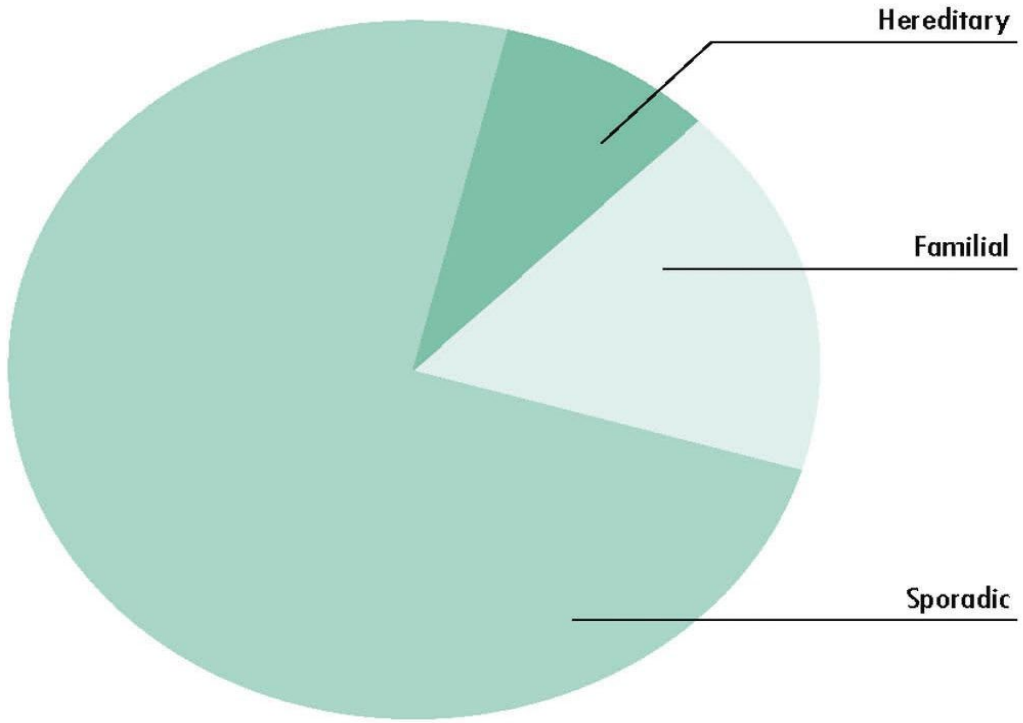
Components of Cancer Risk Assessment

- *Qualitative Risk Assessment-Pedigree*
  - Probability of an inherited single gene cancer predisposition
    - Family history assessment
    - Published Criteria
      - Clinical diagnostic criteria
      - Genetic testing guidelines
      - Consensus statements or other published recommendations

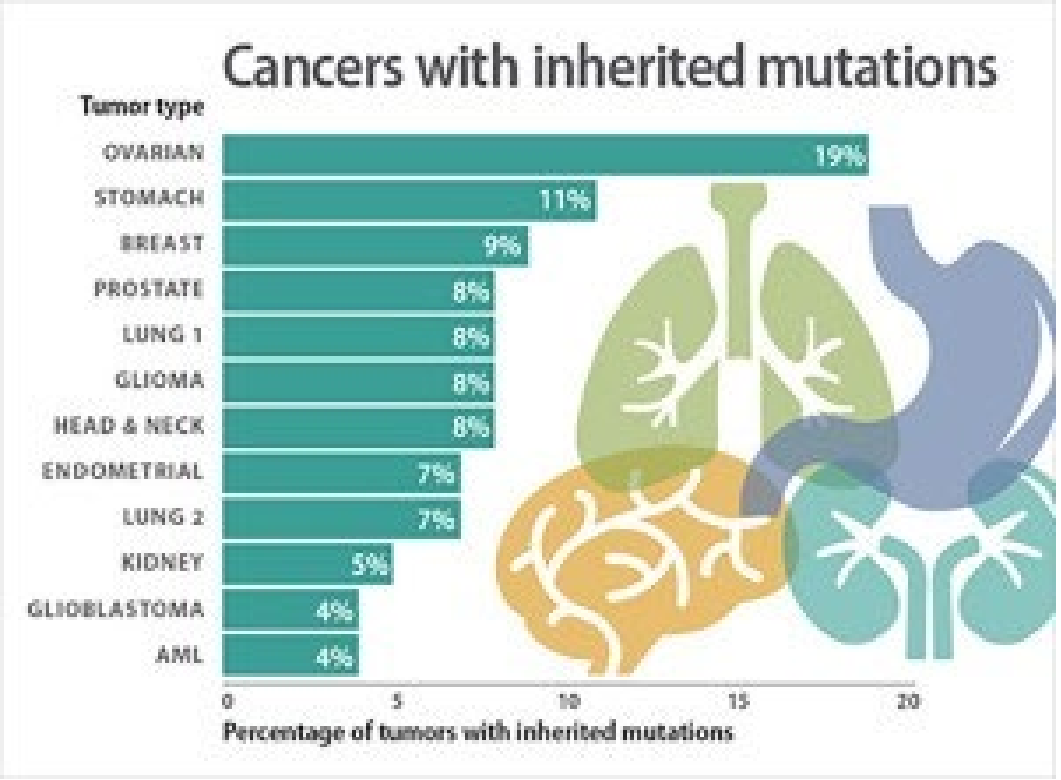
- *Quantitative Risk Assessment – Risk Models*
  - Probability of an inherited single gene cancer predisposition
  - Probability of developing cancer
    - Inherited risk
    - Personal risk factors


Family History
Chance
Lifestyle
Personal Cancer Risk
Aging
Environment
Genetics

Hereditary cancer only makes up a small proportion of causes of cancer



How much of cancer IS hereditary?

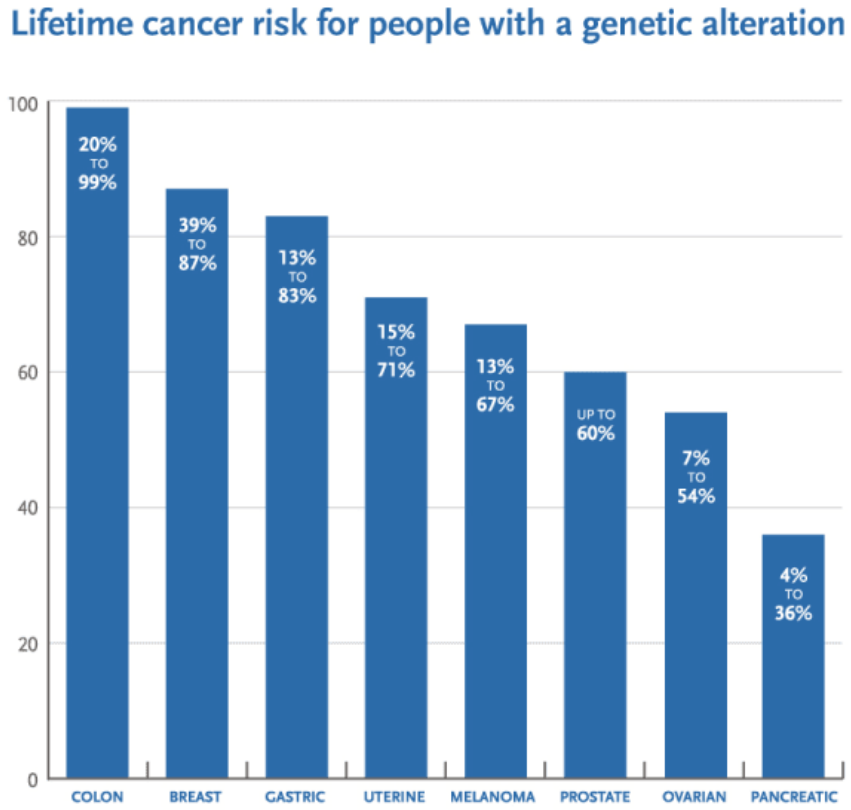


Lung 1 is lung squamous cell carcinoma, and Lung 2 is lung adenocarcinoma

Lu C, et al. Patterns and functional implications of rare germline variants across 12 cancer types. Nature Communications. Dec. 22, 2015.

What is the risk of developing cancer with a genetic mutation?

- HOWEVER, those with an inherited genetic mutation have an increased lifetime risk of cancer.



https://www.invitae.com/en/individuals/diagnostic-genetic-testing/cancer/

Who is a good candidate for cancer genetic counseling?

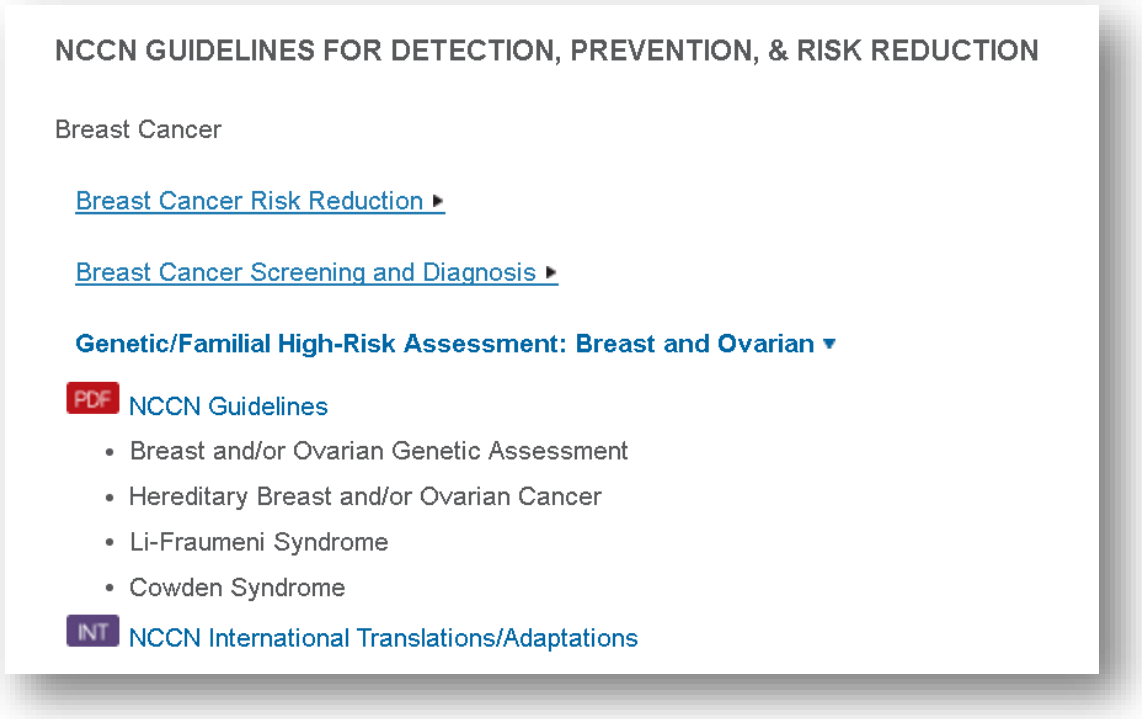
- Cancers that have a **higher chance of being hereditary**
  - Ovarian, fallopian tube, peritoneal (25%)
  - Metastatic prostate cancer (12%)
  - Pancreatic (10%)
  - Male breast cancer (10%)
  - Rare: Adrenal cancer, medullary-type thyroid cancer (30%) pheochromocytomas, paragangliomas, hemangioblastomas

- Common cancers that are **diagnosed at a younger age than usual**
  - Breast cancer (< age 50)
  - GI (colon, rectal, stomach) cancer (< age 50)
  - Uterine cancer (< age 50)
  - Kidney cancer (< age 50)

- Families with **multiple people having the same types of cancer**

Who is a good candidate for cancer genetic counseling?

- There are exceptions - when in doubt, give us a call or refer
- Reference NCCN Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic v3.2024 and Genetic/Familial High-Risk Assessment: Colorectal, Endometrial, and Gastric v1.2024 guidelines for indications and management of mutation carriers



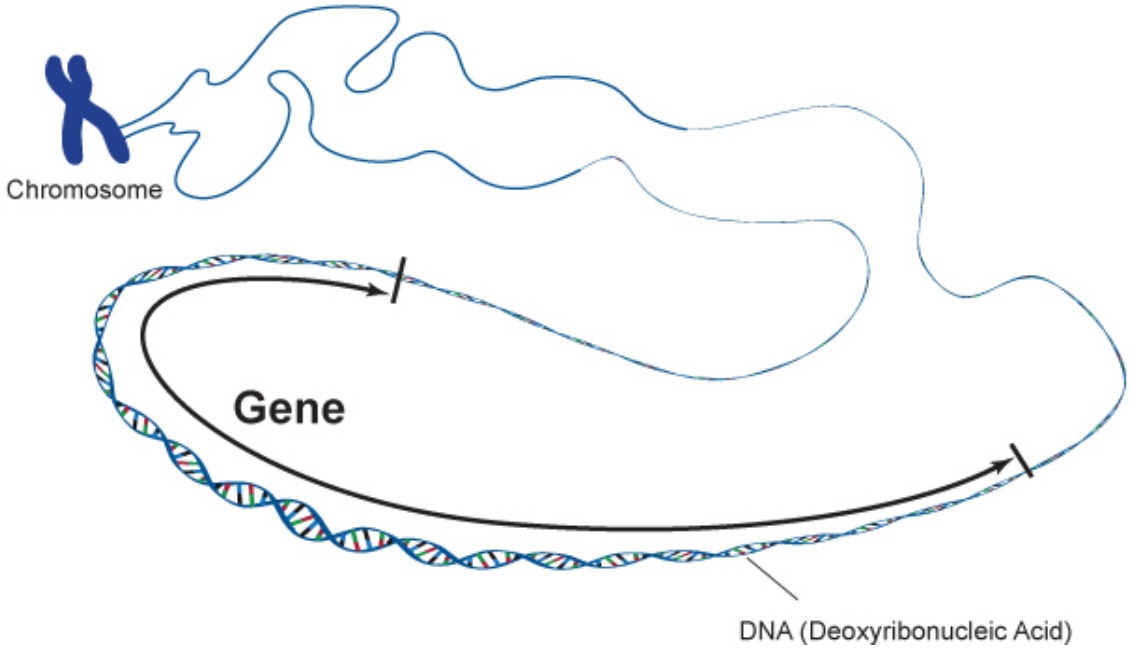
Cancers that are not usually hereditary*

- Environmental or have known non-genetic risk factor:
  - Lung, Mesothelioma
  - Esophageal
  - Cervical
  - “Head and Neck”
  - Anal
  - Skin cancer
  - Kidney, bladder

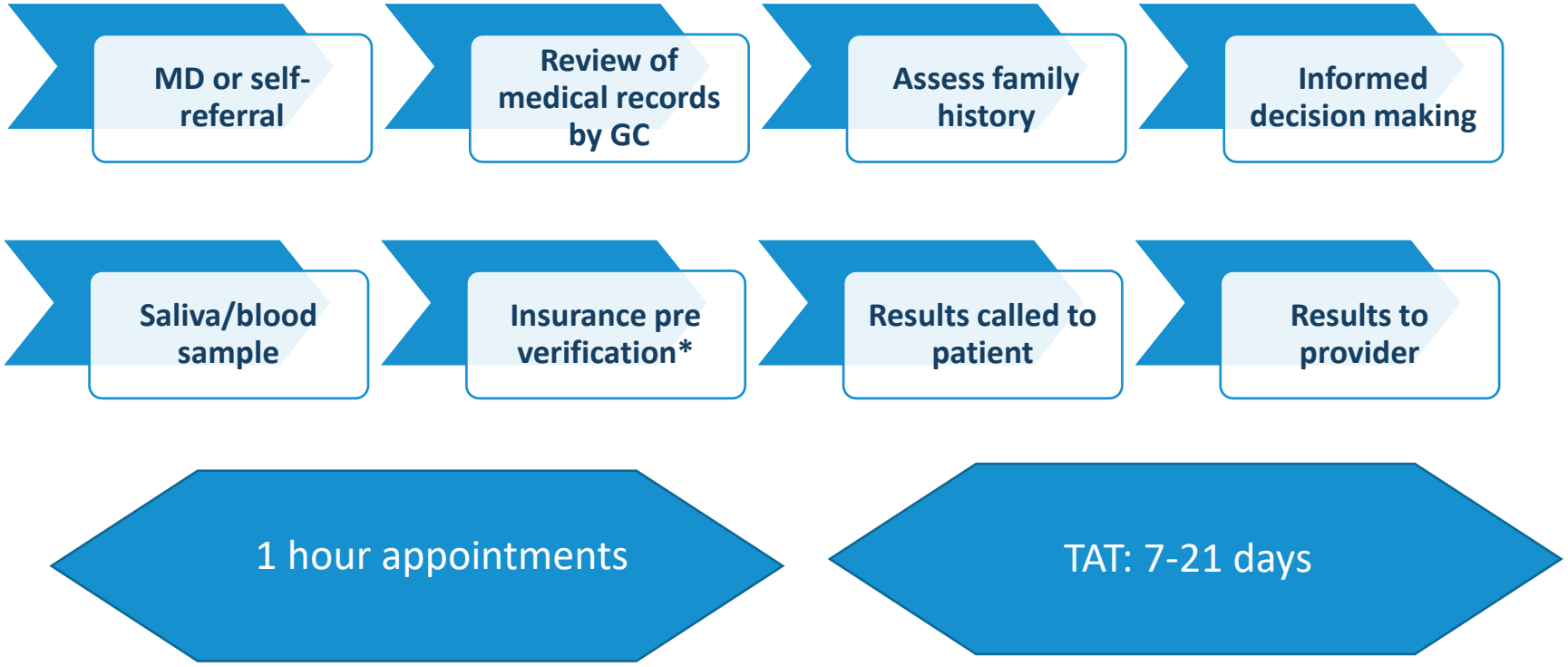
- Sporadic
  - Primary brain/brain tumors
  - Leukemia/lymphoma/multiple myeloma
  - Primary bone
  - Primary liver
  - Testicular
  - Thyroid (papillary, follicular, anaplastic)

Clinical Oncology Genetic Counseling

- Review detailed family and medical history
- Help determine the likelihood of an inherited predisposition to cancer in a family
- Discuss the availability, cost, benefits, and limitations of genetic testing
- Coordinate testing and disclose results
- Discuss appropriate screening options for patient and family
- Serve as a source of ongoing support

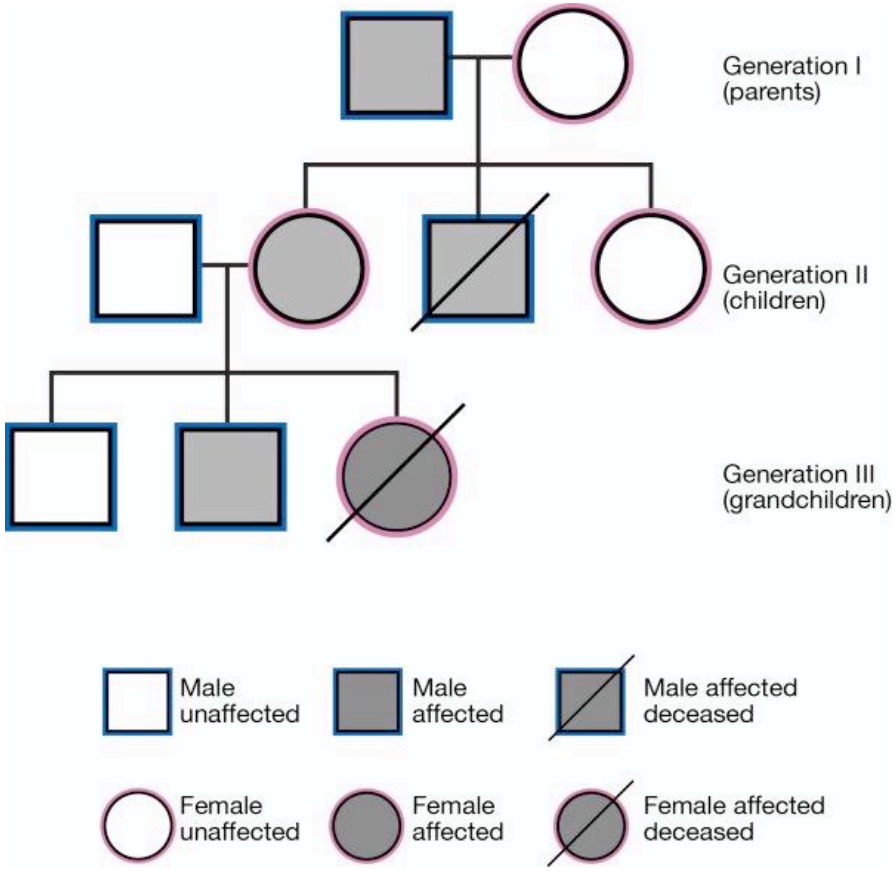


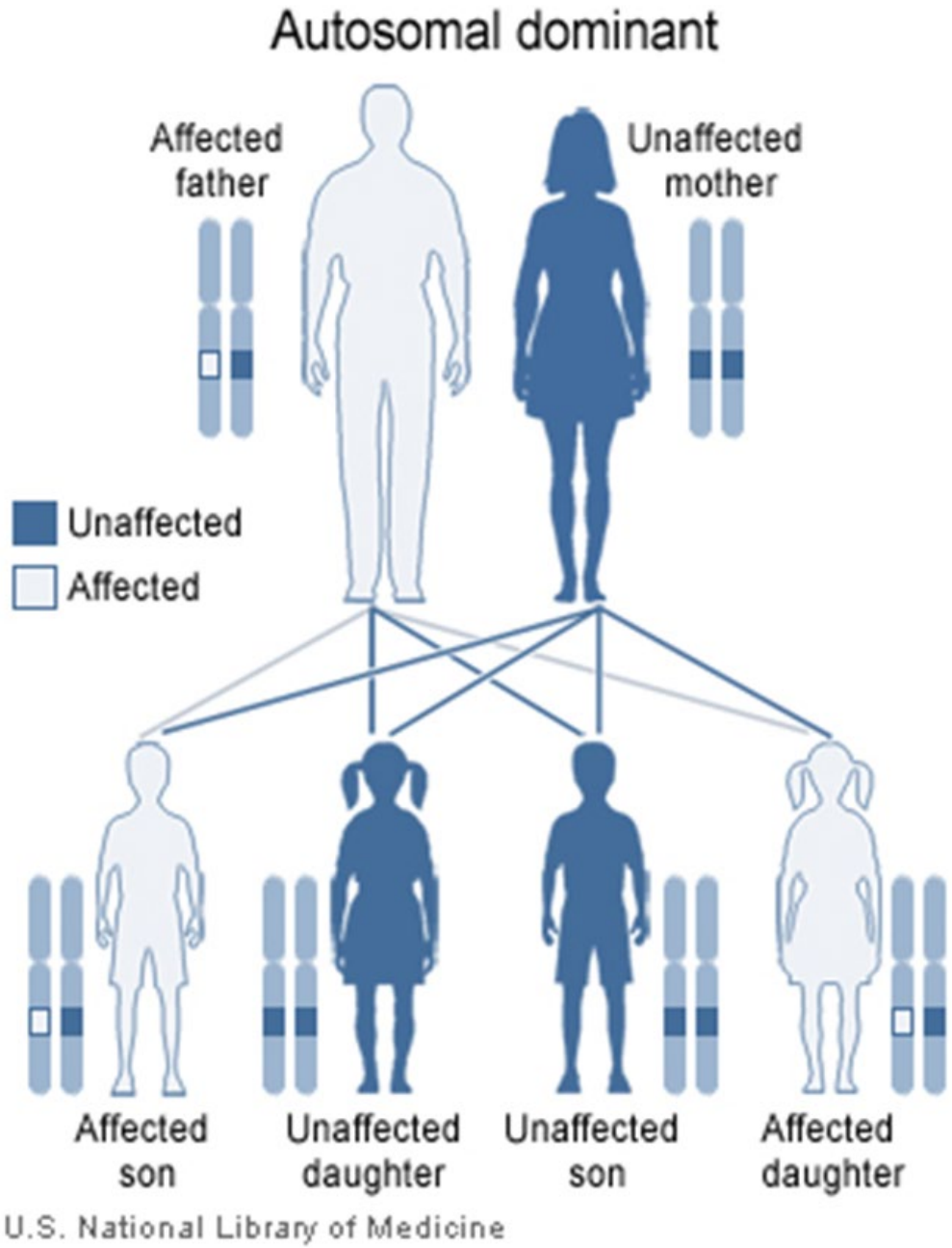
Genetic Counseling and Testing Process



Historical approach to molecular genetic testing

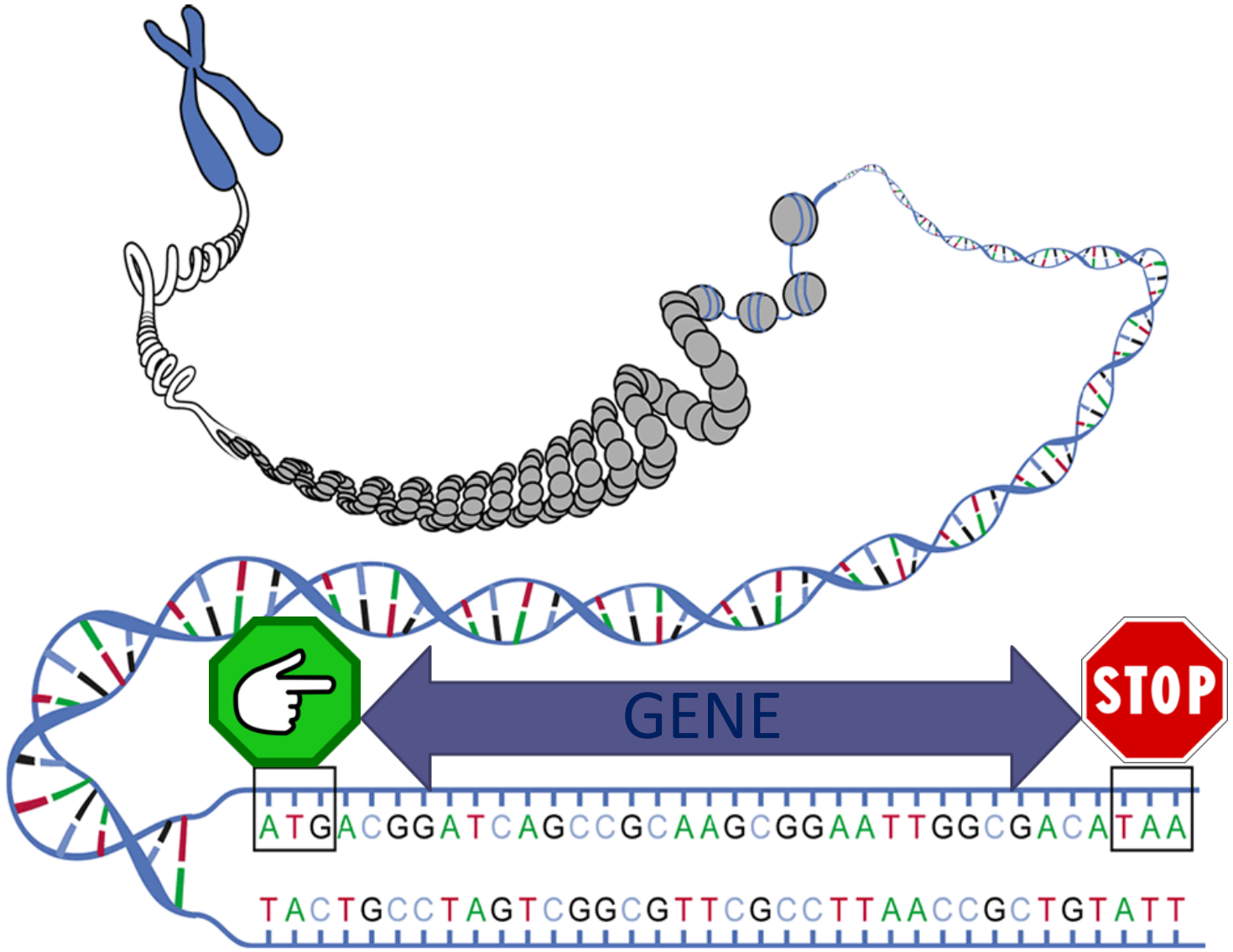
- Classify family history as sporadic, familial, or hereditary
- Identify the syndrome most likely to explain the family history





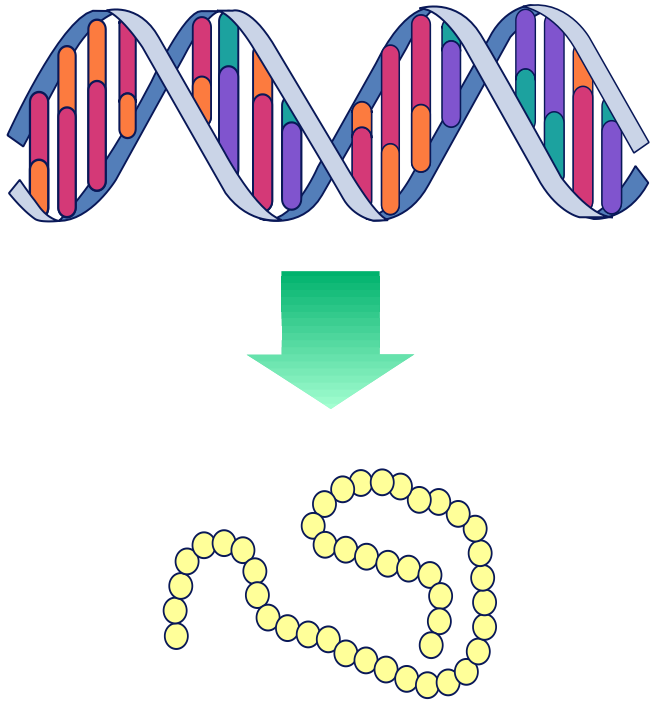
- Reduced penetrance
- Transmission through males and females
- Both maternal and **paternal** history is relevant

Genetic testing looks for differences in the genetic code ("mutations")

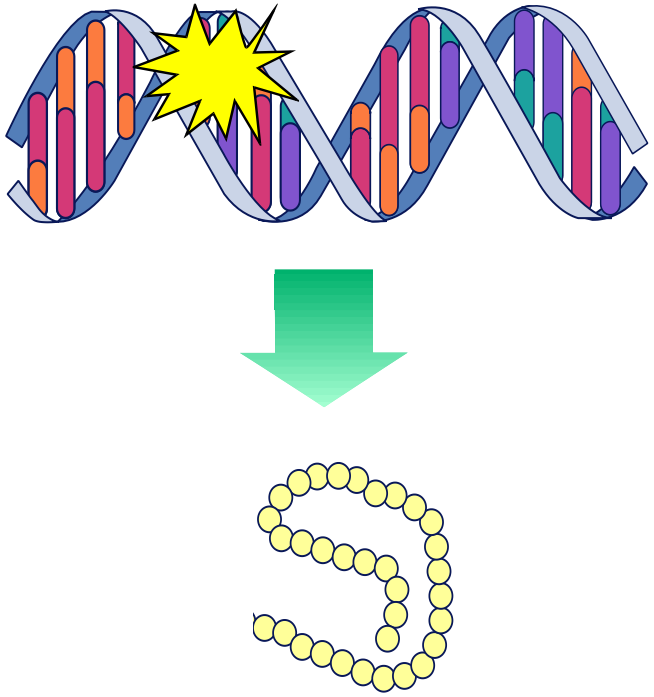


http://www.genome.gov/Images/EdKit/bio2b_large.gif

Mutations/Pathogenic variants alter gene function



Functional protein

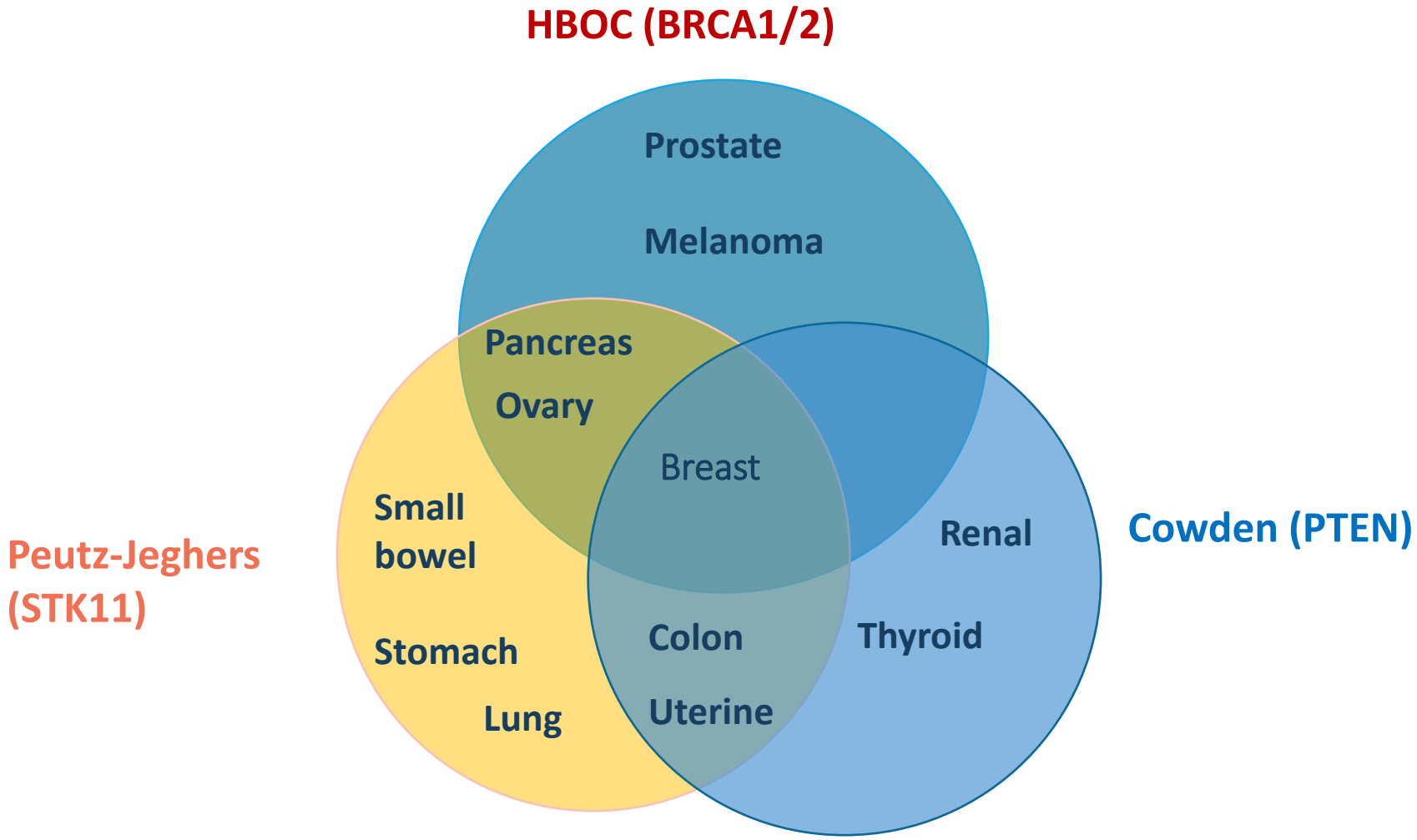


Nonfunctional or missing protein

Which types of genes cause cancer?

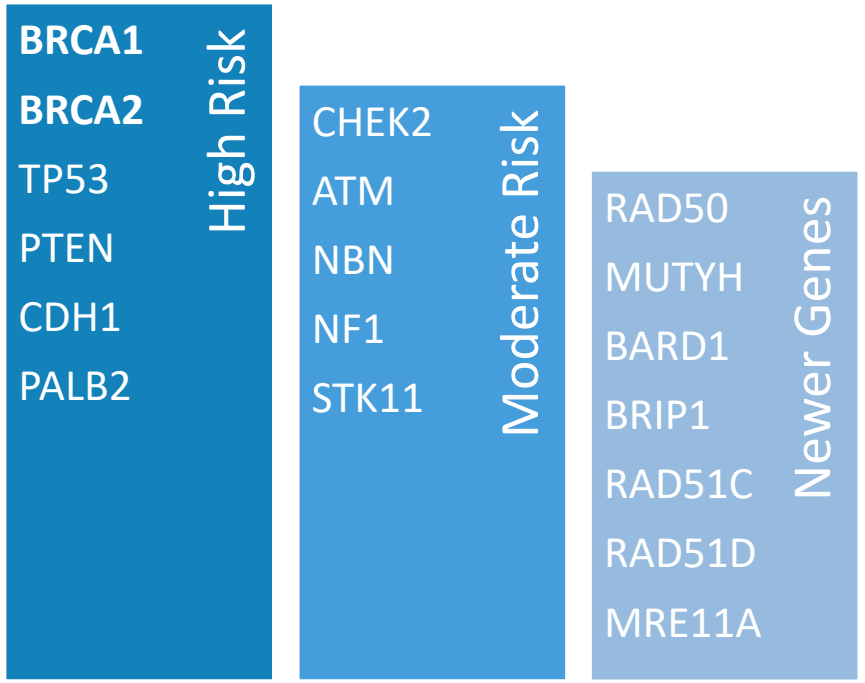
Tumor Suppressor Genes	Proto-oncogenes	DNA Repair Genes
• "Brakes in a car" • Keep cells from multiplying too quickly • Mutations cause "loss of function" • Example: BRCA1/2 (Hereditary Breast and Ovarian Cancer syndrome)	• "Gas pedal" • Signals to a cell to multiply • Mutations cause "gain of function" • Example: RET gene (Multiple Endocrine Neoplasia Type 2)	• Help to correct any mistakes in a cell's DNA made during cell division • Accumulation of mistakes in DNA can cause cells to growth irregularly • Ex: mismatch repair genes (Lynch syndrome)

Which test? Which genes?



Breast Cancer Panels (“updated genetic testing”)

- Typically covered if patient is having genetic testing for the first time
- Options to customize panel
  - Other indications outside of breast cancer
  - With or without newer genes
- NCCN 03.2024 provides guidelines for management
- Offering a panel rather than BRCA1/2 is now standard of care
  - Patient still needs to meet BRCA1/2 or other high risk gene criteria



How does genetic testing affect treatment/screening?

Surgical management and surveillance

Chemotherapy selection & prognosis

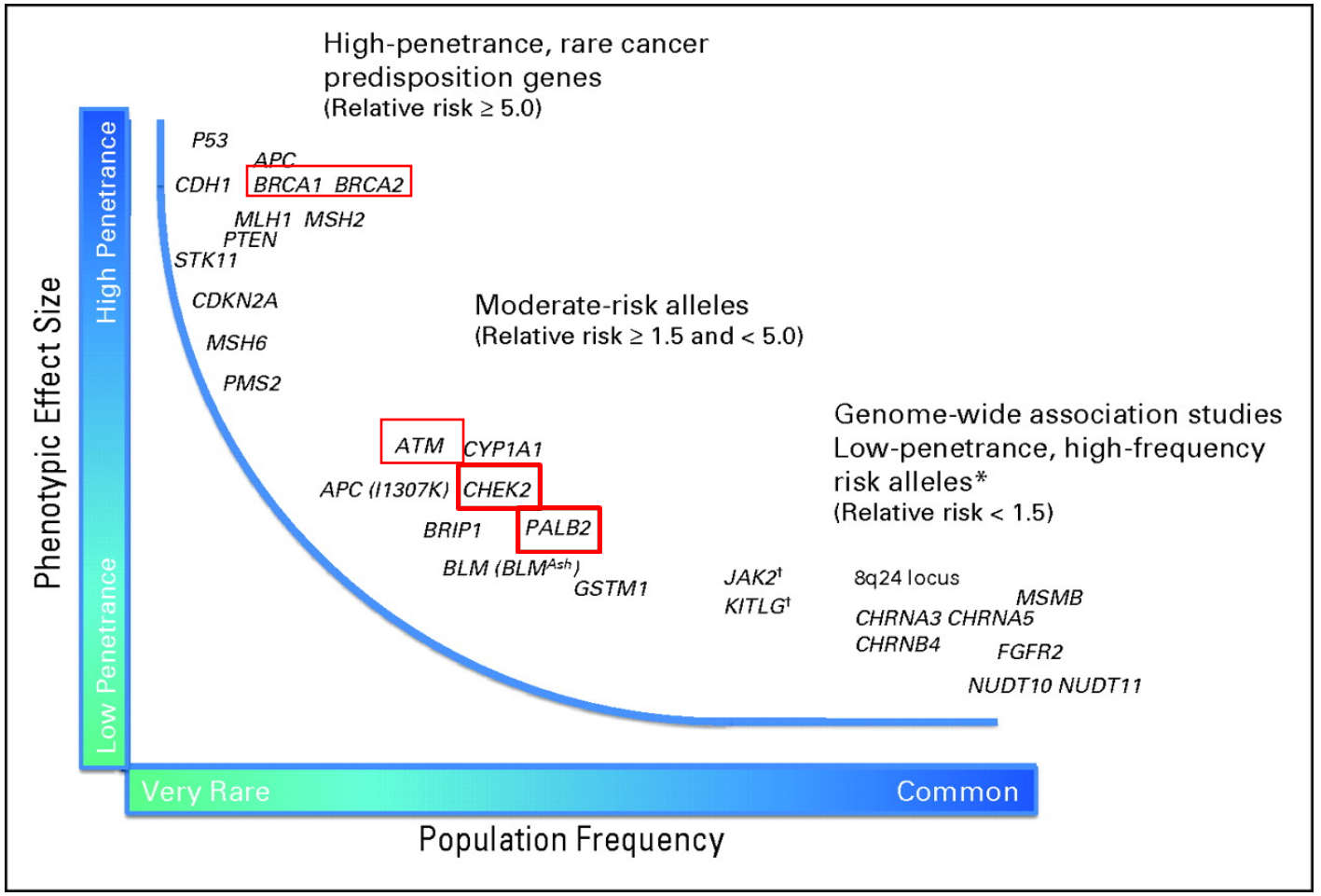
Other cancer risks

How does genetic testing affect treatment/screening?

Surgical management and surveillance

Other Cancer Risks

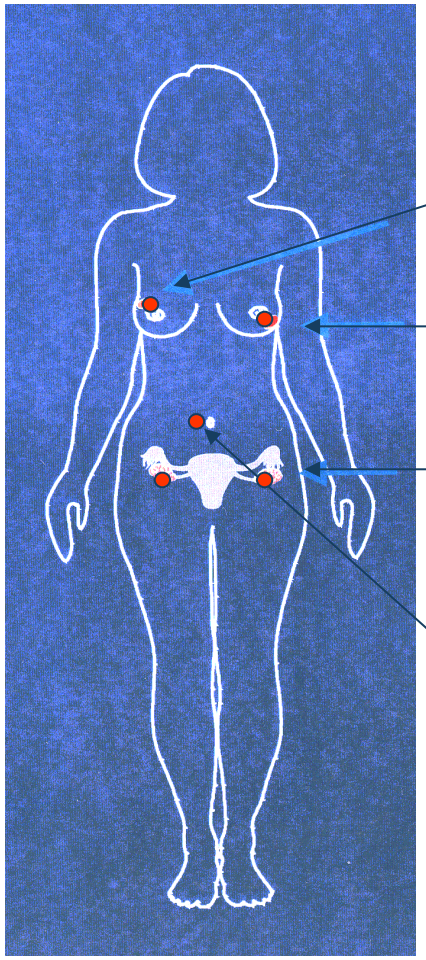
Phenotypic effect size and frequency of occurrence.



Stadler Z K et al. JCO 2010;28:4255-4267

JOURNAL OF CLINICAL ONCOLOGY

BRCA-Associated Cancers: Lifetime Risk



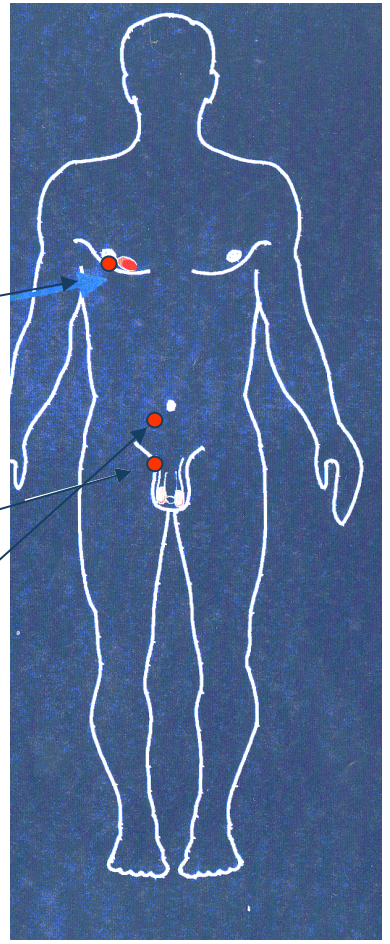
Breast Cancer
40-85%

Second Primary
Breast Cancer
40-60%

Ovarian Cancer
27-44%

Male
Breast
Cancer
~7%

Prostate
Cancer
~30%



Colon
Cancer?

Melanoma, Pancreatic Cancer

BRCA+ management (females)

	Increased Surveillance	Chemoprevention	Preventive Surgery
Breast Cancer	• Breast awareness beginning at age 18 • Semi-annual clinical breast exams beginning at age 25 • Annual **MRI** beginning at age 25 • Annual mammogram + MRI at 30	• Medications like Tamoxifen may reduce the risk of breast cancer by as much as 50% when taken for 5 years • Efficacy for Tamoxifen for BRCA1 carriers is uncertain	• *Option* of RRM • Include discussion of degree of protection, complications, reconstructive options
Ovarian Cancer	• *Semi-annual transvaginal ultrasound beginning at age 30* • *Semi-annual blood testing for CA-125 beginning at age 30* • Neither is sufficiently sensitive or specific; FDA warns against; clinician discretion	• Oral contraceptives may reduce risk for ovarian cancer by as much as 60% when taken for at least 6 years	• *Recommend* RRBSO between ages 35-40, consideration of RRSO between 40-45 for BRCA2 + • Removal of ovaries before menopause may also reduce the risk for breast cancer by as much as 50%

BRCA + management (males)

	Increased Surveillance
Breast	• Monthly self breast exam beginning at age 35 • Clinical breast exam every 6-12 months beginning at age 35 • Consider baseline mammogram at age 40 • Annual mammogram if indicated by quantity and density of breast tissue
Prostate	• Annual prostate-specific antigen (PSA) test and digital rectal exam (DRE) beginning at age 45, esp for BRCA2

BRCA+ management for men and women

- Pancreatic cancer screening
  - Referral to a pancreatic cancer screening program in the presence of a family history of pancreatic cancer
  - Endoscopic ultrasound

- Melanoma screening
  - Annual dermatologic evaluation

Risks of Other Cancers

- Male breast cancer (*BRCA2*>*BRCA1*)
  - Up to 7% by age 70
- Prostate cancer (*BRCA2*>*BRCA1*)
  - 20-32% by age 80
  - Increased risk for early onset diagnosis (<55y)
- Pancreatic cancer (*BRCA2*>*BRCA1*)
  - 3-5% by age 80
- Melanoma (*BRCA2*)
  - Up to 5% lifetime risk

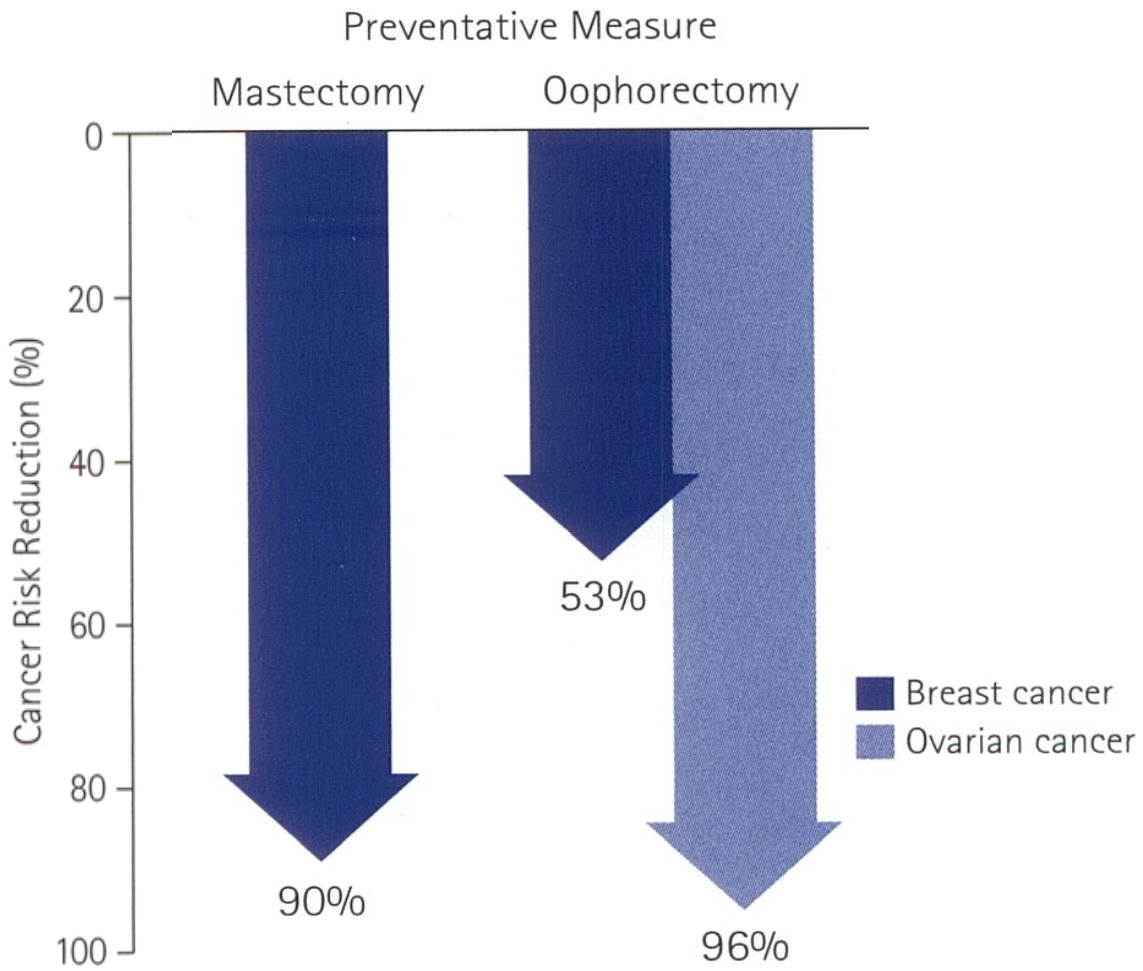
Risks of second malignancy

- Second breast cancer
  - 2-3% per year, with a lifetime risk of up to 64%

Years from diagnosis	Contralateral	Ipsilateral
5	13.1%	5.8%
10	22.0%	12.9%
15	33.8%	15.8%

*varies based on oophorectomy, family history, age of initial diagnosis, chemotherapy, radiation

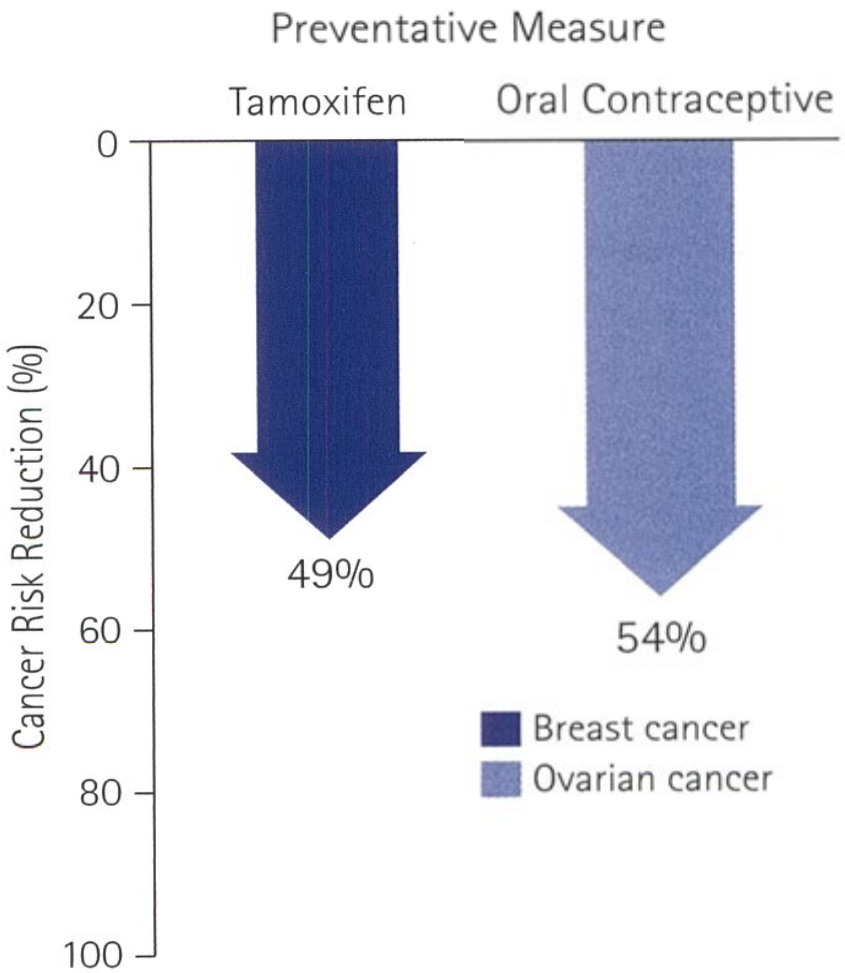
- Ovarian cancer following breast cancer
  - At least 16%



Myriad Genetic Laboratories 2004

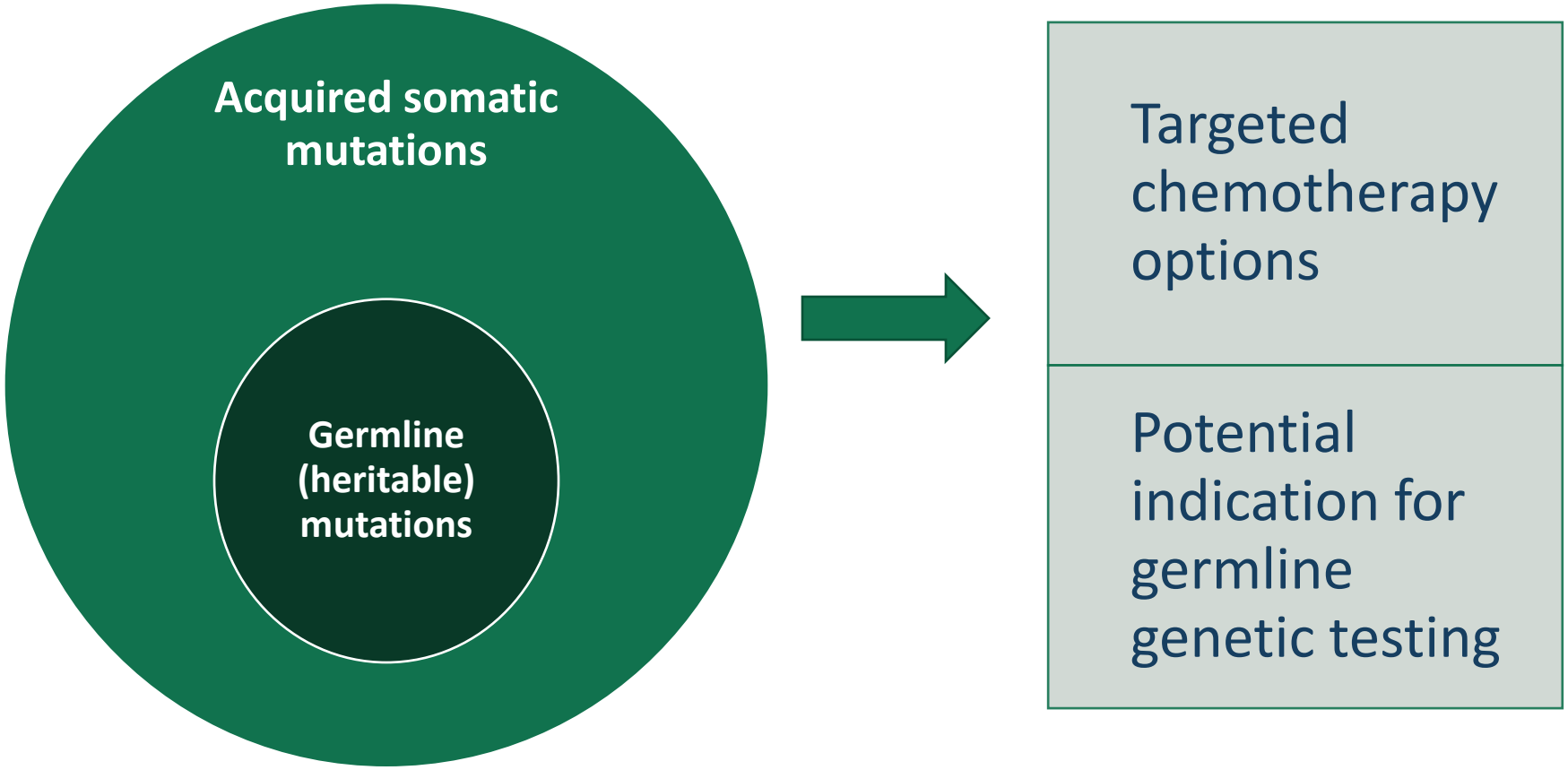
How does genetic testing inform treatment

Chemotherapy selection & prognosis

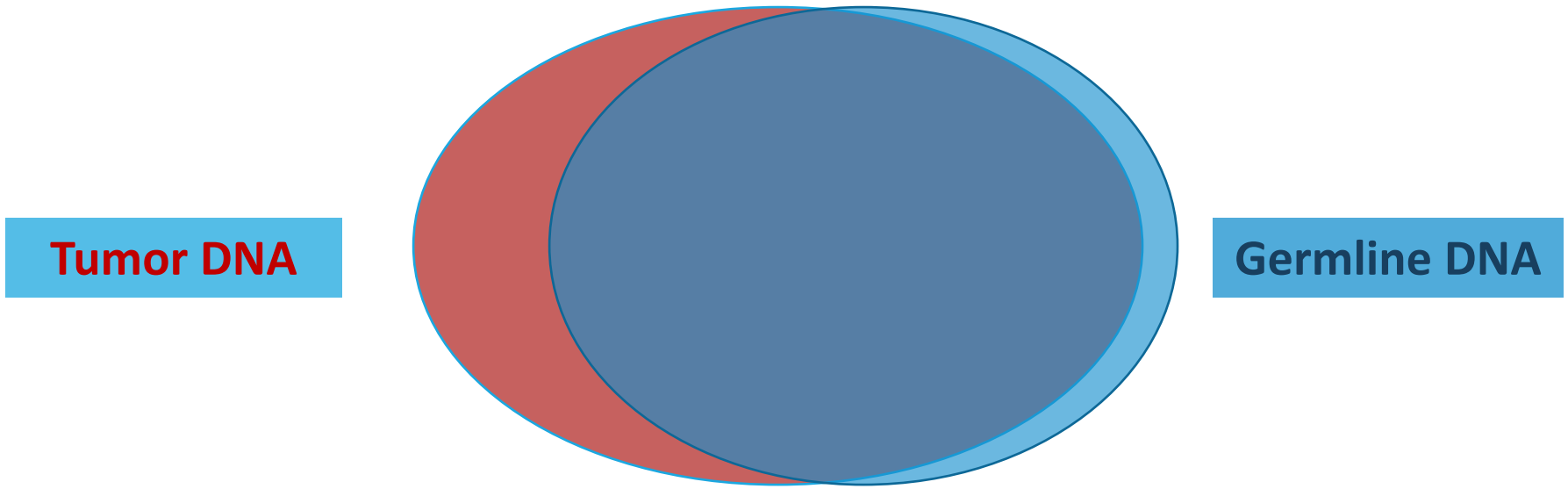


Myriad Genetic Laboratories 2004

Somatic tumor mutations are a reflection of a patient's germline



Tumor genome vs Germline genome



Does insurance cover genetic testing?

Usually, yes!

- Determined based on assessment of the patient and/or family (i.e. high risk criteria)
- A copay/deductible may apply
- BRCA1/2 testing 100% covered under the ACA/Obamacare
- A genetic counselor is familiar with what is in-network and what insurances will likely cover based on personal history and family history
- Testing can range from $250 – several thousands of dollars if not covered by insurance

Why do patients chose not to test?

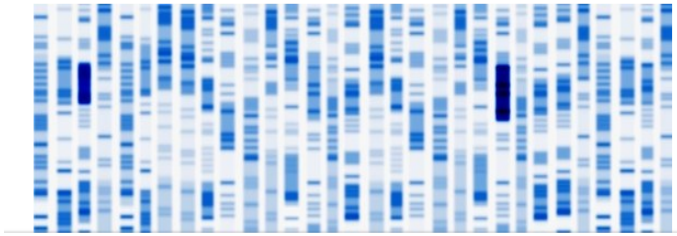
- Self
  - Overwhelmed with treatment or other appointments
  - Not interested in changes to medical management or changes in medical management would not apply
  - Anxiety and fear
  - Stigmatization
  - Discrimination and privacy
  - Cost (though this is becoming much less of an issue)

- Family members
  - Guilt or shame
  - “Protecting” others
  - Changes in family dynamics

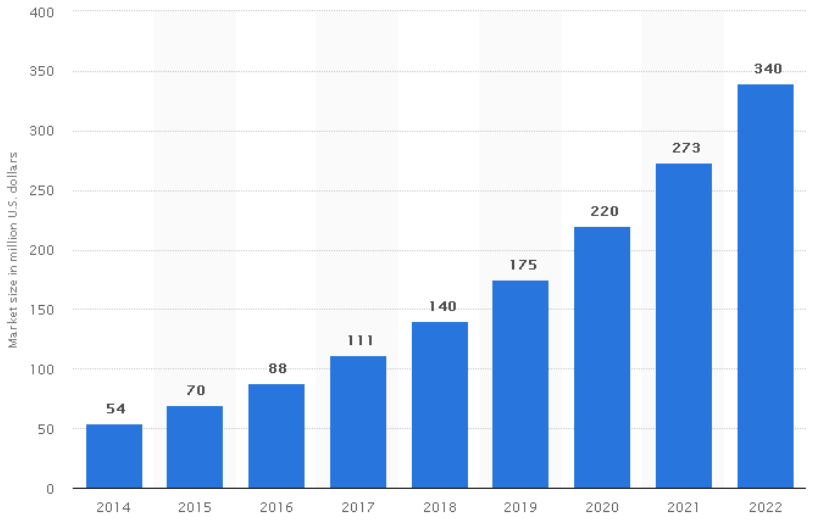
Direct to Consumer (DTC) Genetic Testing

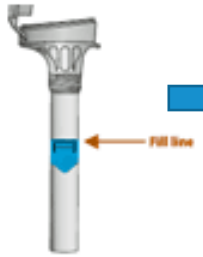
MEGAN MOLTENI SCIENCE 12.01.17 07:00 AM

ANCESTRY'S GENETIC TESTING KITS ARE HEADING FOR YOUR STOCKING THIS YEAR



Size of the global direct-to-consumer (DTC) genetic tes
2022 (in million U.S. dollars)



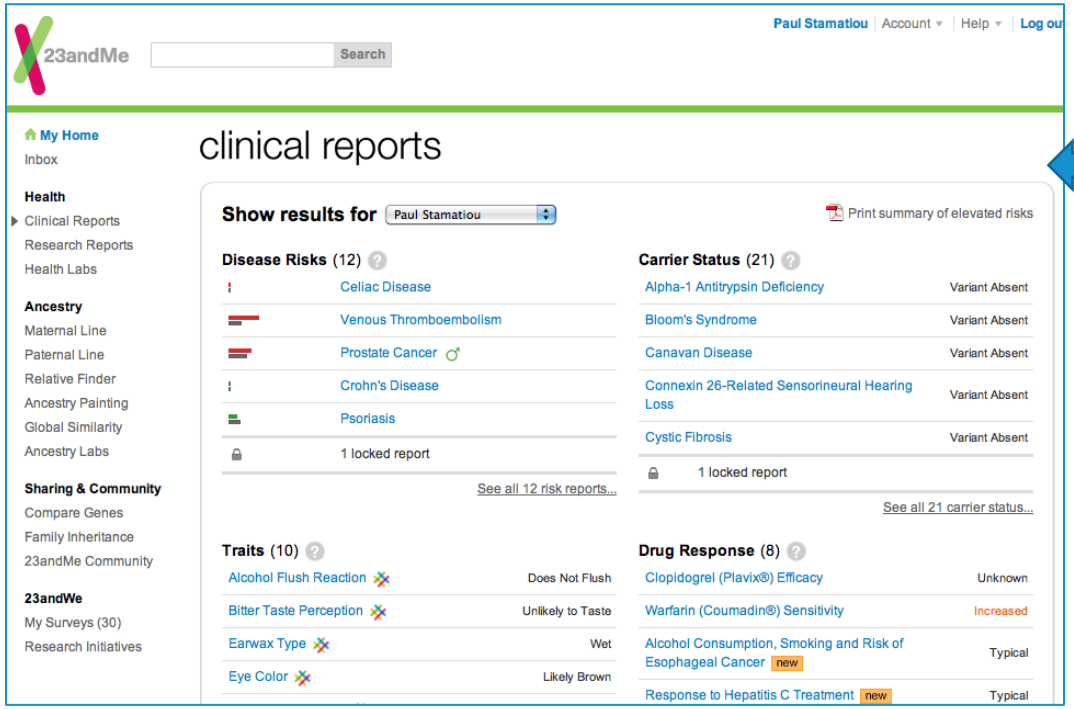


ancestry

GENE BY GENE

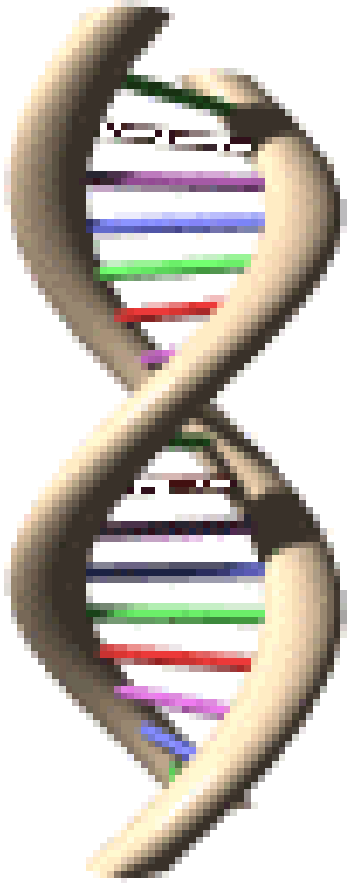
23andMe

European	**99.5%**
Northwestern European	67.5%
British & Irish	24.5%
French & German	8.0%
Scandinavian	6.7%
Broadly Northwestern European	28.3%
Eastern European	23.8%
Southern European	2.6%
Balkan	1.1%
Italian	< 0.1%
Broadly Southern European	1.5%
Broadly European	5.7%
East Asian & Native American	**0.4%**
East Asian	0.4%
Broadly East Asian	0.4%
Unassigned	**< 0.1%**
No Data Available	**--**



…The Bottom Line

- Important to ask family history
- Options for cancer prevention and early detection are available for those at high hereditary risk
- Genetic counseling provides families with:
  - Opportunity to learn about cancer risk
  - Discussion of emotions about living with this risk
  - Options for cancer risk reduction and prevention



Questions ?

Lunch & Exhibitor Fair
12:10 pm – 1:10 pm

AHN 2nd Annual APP Conference - Reminders

Breakout Sessions

Don't miss your hands-on learning session!

Here's the schedule:

- **Suturing 101:** 11:05 am - 12:10 pm
- **EKG Readings:** 1:15 pm - 2:15 pm
- **Joint Injections:** 3:05 pm - 3:35 pm

Please arrive on time to ensure you get the most out of your session.

We appreciate your cooperation in keeping to the schedule.

Update Your Professional Photo!

AHN Employees, it's time to refresh your professional photo!

Highmark Photography will be on the upper level today from 7:30 am - 1:30 pm to capture your best look.

Don't miss this opportunity to update your photo for internal directories and other official uses.

Submit Your Vendor Passport for a Chance to Win!

Have you completed your Vendor Passport?

Visit each vendor table and get your passport stamped! Once you've collected all the stamps, submit your completed passport for a chance to win the Door Prize!

The winner will be contacted before the conference ends today to claim their prize.

Don't miss out!

Don't Miss Out! Raffle Time!

Choose your favorite basket and enter to win!

Here's how:
1.Scan the QR code to submit your entry.
2.Complete the short form and include your phone number so we can reach you quickly if you win!

Raffle submission closes at 3:00 pm today (9/14/2024). Winners will be contacted by 3:30 pm today to claim their prize before the conference ends!

Good luck!

2nd Annual AHN APP Conference 2024

SEPTEMBER 14TH, 2024 – THE REGIONAL LEARNING ALLIANCE

	Great Room A	Great Room B	*Breakout Rooms *(15 registrants per session)*
10:30 am - 11:00 am ***Session 1***	*Diabetes and Pregnancy: Before, During & After / Diabetes Technology updates and AHN Diabetes Resources* Debra Carse, CRNP & Megan Watts, RD	*Pint-sized Problems: A Review of Common Pediatric Illnesses for the Adult Provider* Mike Talotta, PA-C	
11:05 am - 11:35 am ***Session 2***	*Pre-Conceptual Counseling: Preparing for a Healthy Mom & Baby* Jennifer McDanel, PA-C	*Primary Care for the Specialty Provider* Dawn Ball, CRNP	**Suturing 101** (1 hour)
11:40 am - 12:10 pm ***Session 3***	*Genetic Counseling – Hereditary Cancers* Kyla Morphy, CGC	*Mental Health: Burn out in healthcare and what you can do to reduce your risk* Jamie Cornali, CRNP	
12:10 pm - 1:10pm	**Lunch & Exhibitor Fair**		
1:15 pm - 1:45 pm ***Session 4***	*Treating for Two: Managing Headaches During Pregnancy* Amanda Mace, MSPAS, PA-C	*Supplement Support: Evidence-Based Review* Kimberly Smith, CRNP	**EKG Readings Overview** (1 hour)
1:45 pm - 2:15 pm ***Session 5***	*Heart Failure – Palliative Medicine* Tara Orgon Stamper, CRNP	*Regional Cancer Therapies for GI Malignancies* Samantha Devine, PA-C	
2:20 pm - 3:00 pm	**Break & Exhibitor Fair**		
3:05 pm - 3:35 pm ***Session 6***	*Un-Break My Heart: Developments & Devices in Heart Failure* Courtney Hippert, PA-C	*Difficult to Treat Asthma Patient, and When to Refer* Justine Sicari, DNP, FNP, MSNed	**Joint Injections** (30 minutes)
3:40 pm - 4:10 pm ***Session 7***	*Weight Loss* Kathy Scutella, MSN, CRNP	***Please remain seated as we prepare for the final presentation and closing remarks. The room divider will be removed shortly to accommodate all attendees.***	

Accreditation

This activity has been planned and implemented in accordance with the essential areas and policies of the Accreditation Council for Continuing Medical Education (ACCME). Allegheny General

Hospital is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Allegheny General Hospital designates this live activity for a maximum of 6.5 AMA PRA Category 1 Credit ™

PRESENTED BY: Allegheny Health Network

September 2024

Treating for Two
Managing Headaches in Pregnancy

Amanda Mace, MSPAS, PA-C
AHN Headache Center
West Penn Hospital

AHN

Objectives

- Review the prevalence of primary headache disorders, specifically migraine, in the general population and in pregnancy
- Discuss screening for secondary headache
- Identify secondary headache disorders that can occur in pregnancy and the post-partum period
- Review pregnancy-safe preventive and acute treatment for migraine

What is migraine? International Classification of Headache Disorders (ICHD-3) definition

Recurrent (5+ lifetime attacks)

Last 4–72 hours if untreated

At least two of the following characteristics:

- Unilateral
- Throbbing/pulsating quality
- Moderate to severe in intensity
- Worse with routine physical activity

At least one of the following characteristics:

- Nausea and/or vomiting
- Photophobia and phonophobia

Ihs classification. 1.1 Migraine without aura - ICHD-3 The International Classification of Headache Disorders 3rd edition. ICHD-3 The International Classification of Headache Disorders 3rd edition. Published 2016. https://ichd-3.org/1-migraine/1-1-migraine-without-aura/

What is migraine?

"PIN the diagnosis!"

At least 2 of the following:

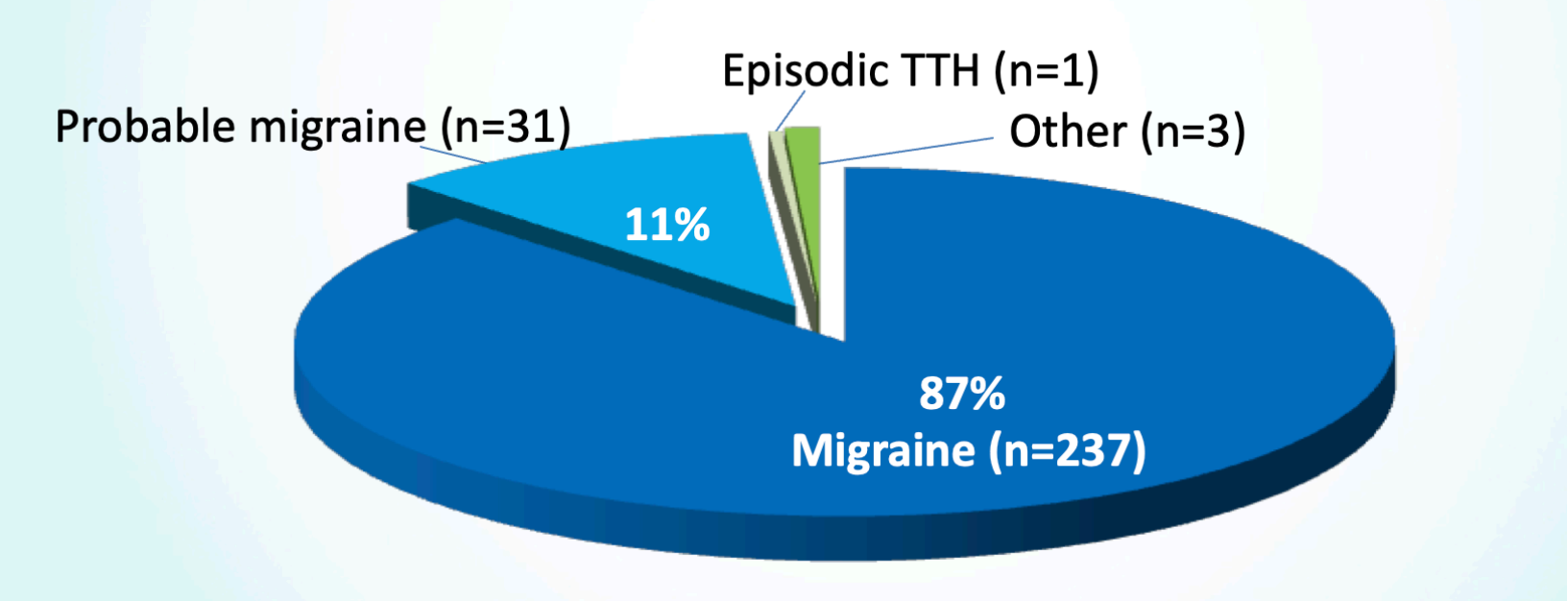
- Photophobia?
- Inability to perform or limitations to routine daily activities?
- Nausea?

Sensitivity of 0.81, specificity of 0.75 in the primary care setting

Cutter E. *How to Diagnose Migraine*. https://americanheadachesociety.org/wp-content/uploads/2021/01/AHS-First-Contact-Diagnosing-Migraine-.pdf

"It's probably migraine"

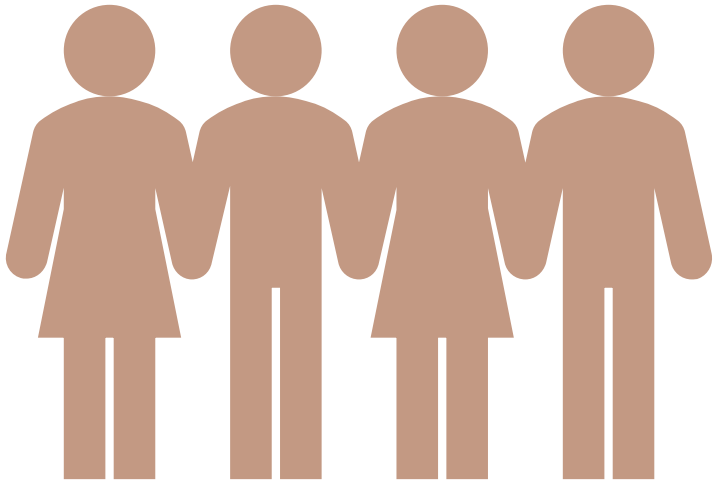
87% of patients presenting to their PCP with recurrent headaches met diagnostic criteria for migraine



Tepper SJ, Dahlöf CGH, Dowson A, et al. Prevalence and diagnosis of migraine in patients consulting their physician with a complaint of headache: data from the Landmark Study. *Headache*. 2004;44(9):856-864. doi:https://doi.org/10.1111/j.1526-4610.2004.04167.x

Migraine Prevalence

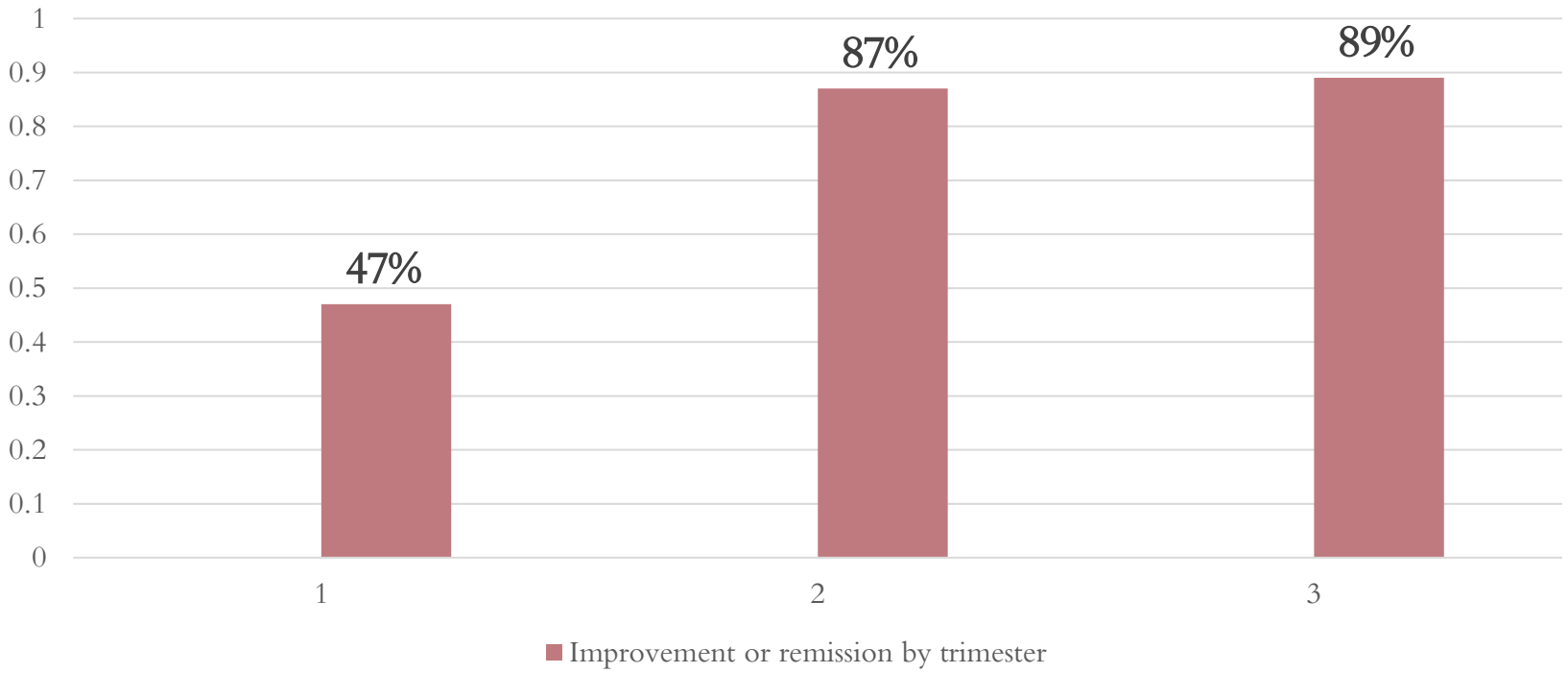
- In a study about the prevalence and impact of migraine in the US, over a 3 month period
  - 1 in 6 Americans reported migraine
  - 1 in 5 women reported migraine
- In women of childbearing age, headache is the 3rd leading cause of ER visits



Burch R, Rizzoli P, Loder E. The Prevalence and Impact of Migraine and Severe Headache in the United States: Figures and Trends From Government Health Studies. *Headache*. 2018;58(4):496-505. doi:10.1111/head.13281

Migraine Prevalence in Pregnancy

Migraine without aura typically improves dramatically in pregnancy



Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn).* 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

Migraine Prevalence in Pregnancy

- Migraine with aura also improves, but not as dramatically
- New onset migraine with aura/migraine aura without head pain may occur during the first time during pregnancy
  - In a study of 91 woman with diagnosed headache disorders 39.6% presented with aura while pregnant.
  - Of that group, 69.4% had no history of previous auras.

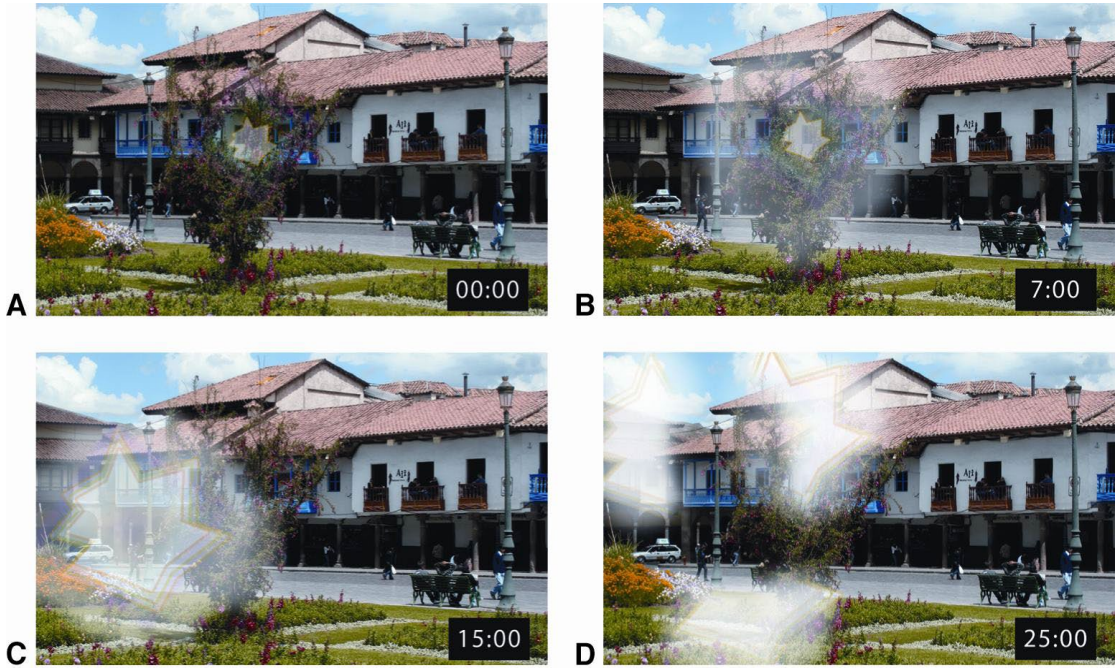
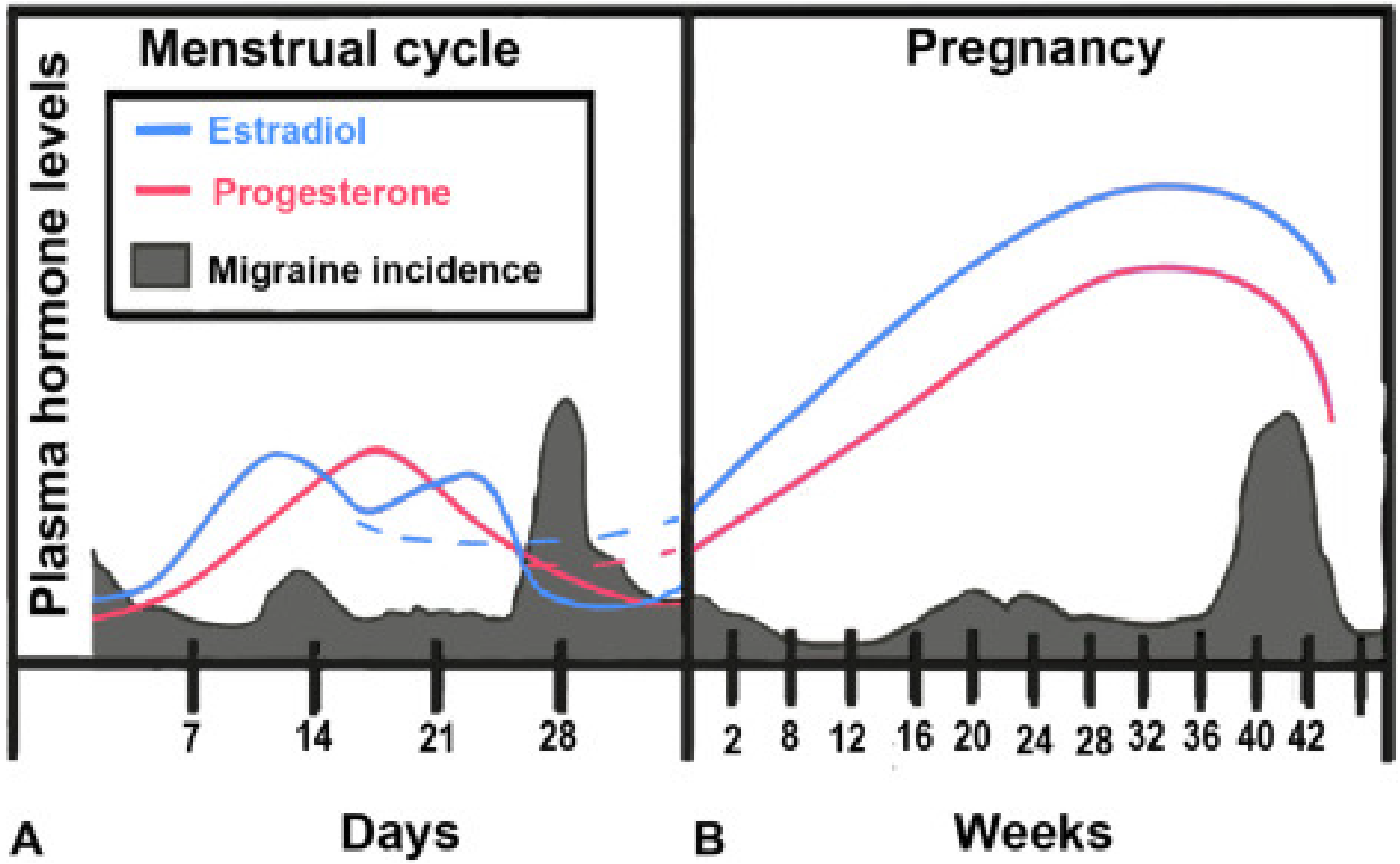


Figure 10. Scintillating scotoma or fortification spectrum.

Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn).* 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

Migraine Prevalence in Pregnancy

Improvement due to increased estradiol levels and lack of cycling resulting in estrogen withdrawal



Migraine and other headache disorders in pregnancy. *Handbook of Clinical Neurology*. 2020;172:187-199. doi:https://doi.org/10.1016/B978-0-444-64240-0.00011-8

Screening for Secondary Headache

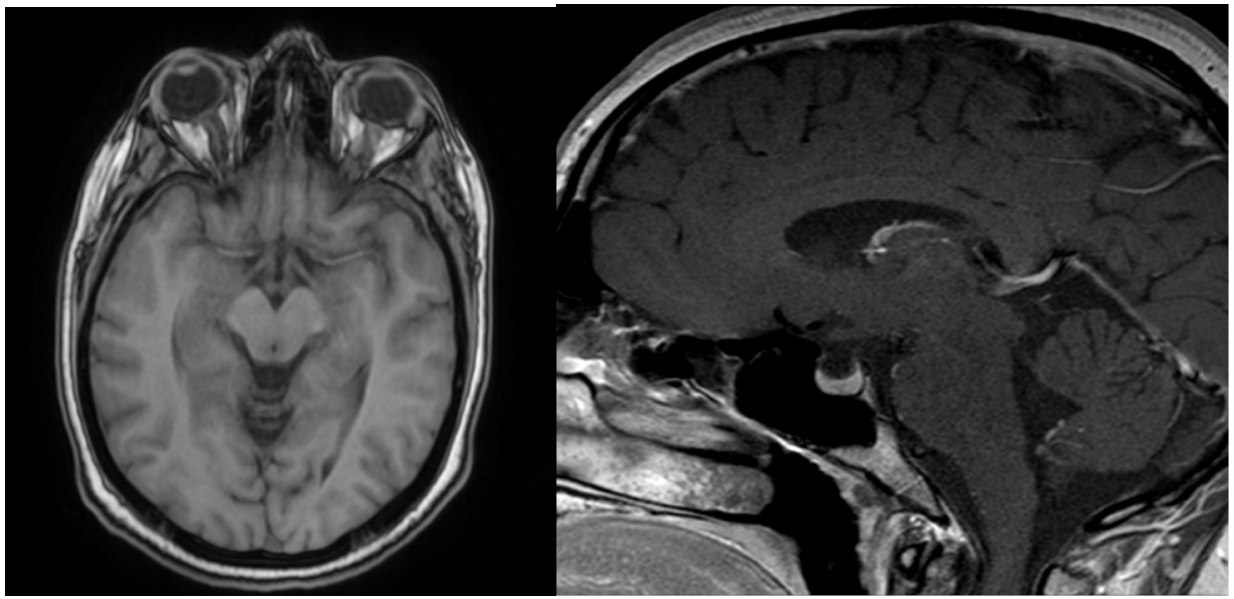
TABLE. THE SNOOP MNEMONIC FOR SECONDARY HEADACHE DISORDER RED FLAGS		
Mnemonic	**History features**	**Physical examination features**
Systemic	History of malignancy, immunosuppression, or HIV or complaints of fever, chills, night sweats, myalgias, weight loss, or jaw claudication	Abnormal systemic examination, including blood pressure and temperature
Neurologic	Focal or global neurologic symptoms, including change in behavior or personality, diplopia, transient visual obscurations, pulsatile tinnitus, motor weakness, sensory loss, or ataxia	Abnormal neurologic examination
Onset, sudden	Headache reaches peak intensity in less than 1 minute (thunderclap)	
Onset age <5 or >65	New-onset headache before age 5 years New-onset headache after age 65	
Pattern change	Progressive headache (evolution to daily headache) or change in headache characteristics	
	Precipitated by Valsalva maneuver	
	Postural aggravation	
Papilledema	n/a	Papilledema
Pregnancy	New-onset headache during pregnancy Change in headache during pregnancy	
Phenotype of rare headache	Trigeminal autonomic cephalalgia; hypnic; exercise-, cough-, or sex-induced	

Secondary Headache in Pregnancy

Idiopathic intracranial hypertension (IIH)

- AKA "pseudotumor cerebri"

- Elevated intracranial pressure, pathophysiology not clear
- Weight gain is a known risk factor
- Presenting symptoms: headache (worse with or triggered by Valsalva), pulsatile tinnitus, visual field restriction/transient visual obscurations

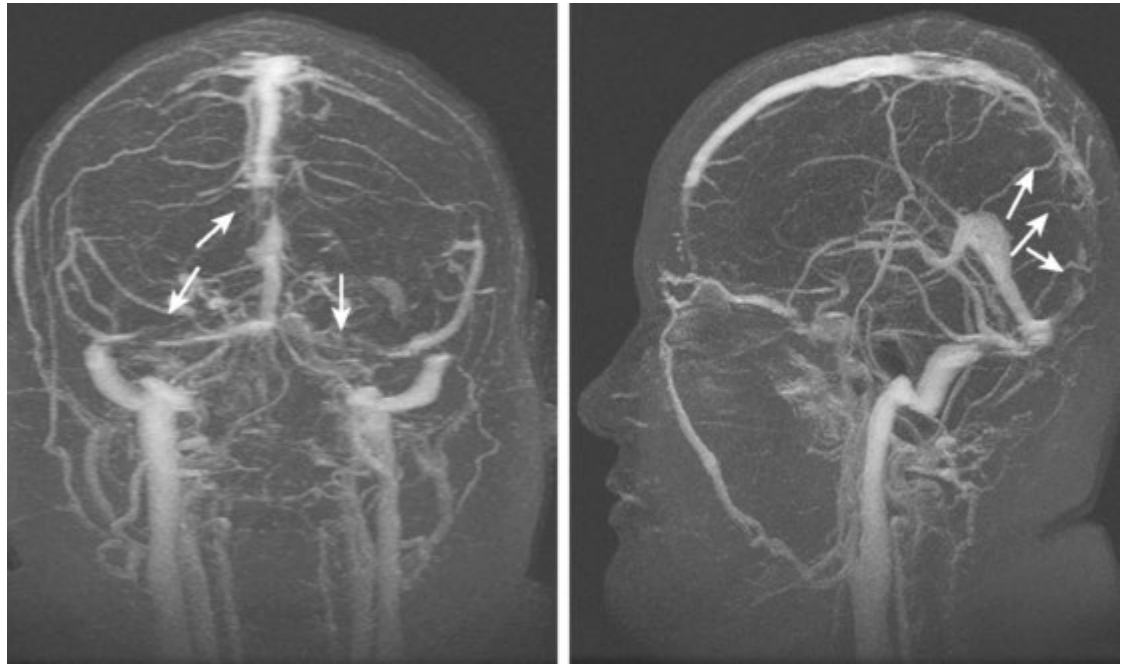


LEFT: MRI demonstrating optic nerve tortuosity, flattening of the posterior globes. RIGHT: MRI showing partially empty sella.

Secondary Headache in Pregnancy

Cerebral venous thrombosis (CVT)

- Thrombosis of cerebral veins/dural sinuses creates an outflow obstruction
- Greatest risk during pregnancy in the 3rd trimester
- Presenting symptoms: headache similar to IIH (high pressure features), confusion, altered consciousness, focal neurologic deficits



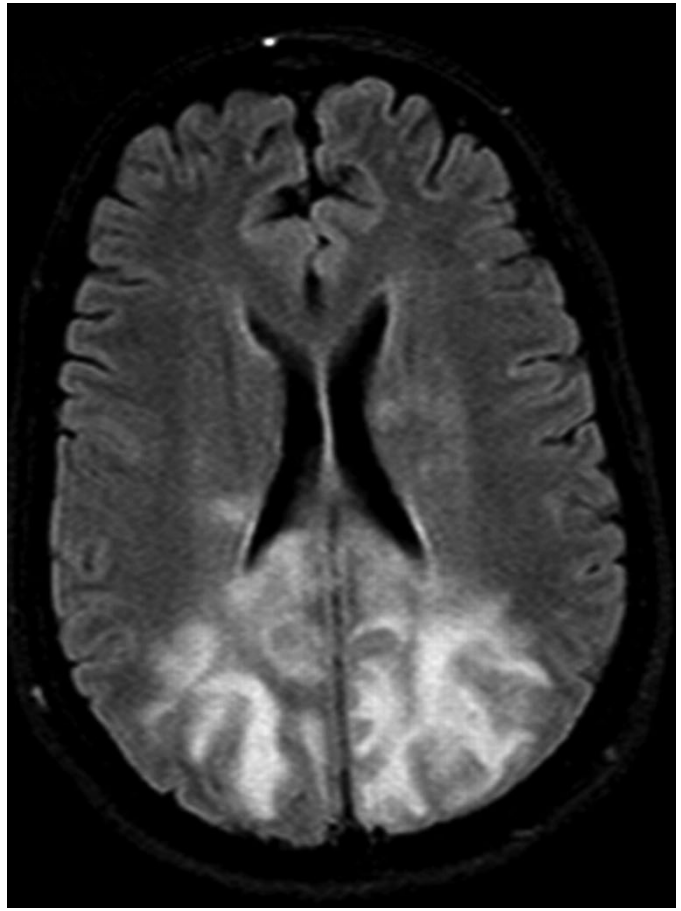
Secondary Headache in Pregnancy

Pre-eclampsia/eclampsia

- Typically occurs after 20 weeks or postpartum.
- Presenting symptoms: severe, persistent headache, hypertension, proteinuria, abdominal pain, visual abnormalities (scotoma, blurred vision, vision loss), confusion, agitation

ACOG Committee Opinion:

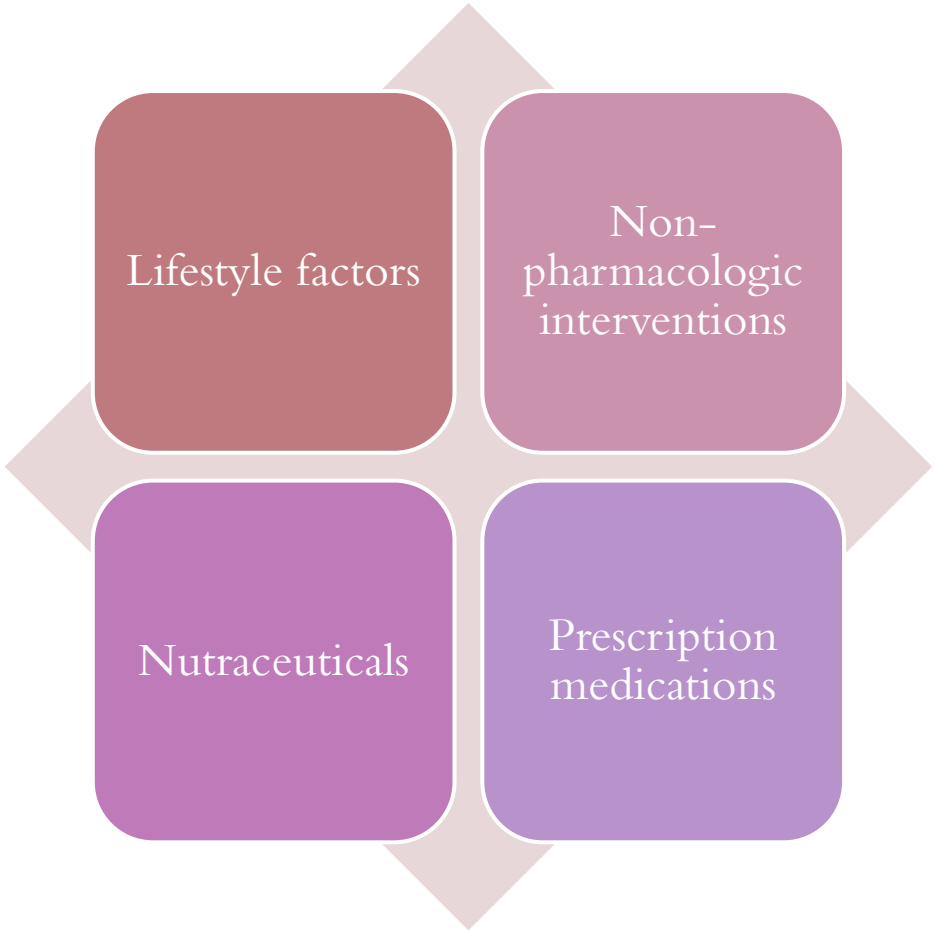
- Low-dose aspirin (81 mg/day) prophylaxis is recommended in women at high risk of preeclampsia and should be initiated between 12 weeks and 28 weeks of gestation (optimally before 16 weeks) and continued daily until delivery.
- Low-dose aspirin prophylaxis should be considered for women with more than one of several moderate risk factors for preeclampsia.



MRI image of posterior reversible encephalopathy syndrome (PRES), which can result from uncontrolled hypertension

Low-dose aspirin use during pregnancy. ACOG Committee Opinion No. 743. American College of Obstetricians and Gynecologists. Obstet Gynecol 2018;132:e44–52.

Migraine Prevention in Pregnancy



Migraine Prevention in Pregnancy

Lifestyle factors

Adequate sleep, education on sleep hygiene

Hydration

Caffeine intake

Regular exercise

Avoid overusing analgesics

Non-pharmacologic interventions

Relaxation strategies

Biofeedback

Cognitive-behavioral therapy

Medication Overuse Headache (MOH)

- AKA "rebound headache" or analgesic overuse headache
- Worsening of a pre-existing migraine disorder from frequent acute treatment

Simple analgesics (acetaminophen): 15+ treatment days/month over 3+ months

Triptans, combination analgesics (Excedrin migraine): 10+ treatment days/month over 3+ months

Butalbital containing medications (Fioricet): 4+ treatment days/month over 3+ months

Prevention: Nutraceuticals

Magnesium oxide

- Generally considered safe pregnancy
- Prolonged IV mag sulfate associated with fetal bone demineralization
- Dose reduction from 400 mg daily to 250 mg daily or avoid

Riboflavin (vitamin B2)

- Also generally considered safe during pregnancy
- 400 mg daily, no dose reduction needed

Prevention: Medications

Preventive Headache Therapies and Their Potential Safety Concerns in Pregnant Women TABLE 7-3

Agent	Class	US Food and Drug Administration (FDA) Class[a]	Potential Risks and Comments
Magnesium oxide	Nutraceutical	Not ranked	Neonatal hypotonia, bone demineralization associated with IV use
Riboflavin	Nutraceutical	Not ranked	Largely unknown in typical migraine doses of 400 mg/d
Memantine	*N*-methyl-D-aspartate (NMDA) receptor antagonist	B	Unknown
Cyproheptadine	Antihistamine/serotonergic	B	Unknown
Propranolol (pindolol)	Beta-blocker	C (B)[b]	Intrauterine growth restriction
Amitriptyline	Tricyclic antidepressant	C	Limb reduction, cardiac defects, neonatal withdrawal
Verapamil	Calcium channel blocker	C	Intrauterine growth restriction, fetal bradycardia, tocolysis
Gabapentin	Antiepileptic	C	Unknown, but crosses placenta
OnabotulinumtoxinA	Neurotoxin	C	Largely unknown
Aspirin	Cyclooxygenase inhibitor	C/D	Safe <150 mg/d
Candesartan	Angiotensin receptor blocker	D	Renal agenesis, oligohydramnios, craniofacial and limb deformities
Topiramate	Antiepileptic	D	Oral cleft, hypospadias, low birth weight
Valproic acid	Antiepileptic	X	Neural tube defects, clefts, lower IQ and developmental delay, autism, cardiovascular and genitourinary abnormalities

IQ = intelligence quotient; IV = intravenous.

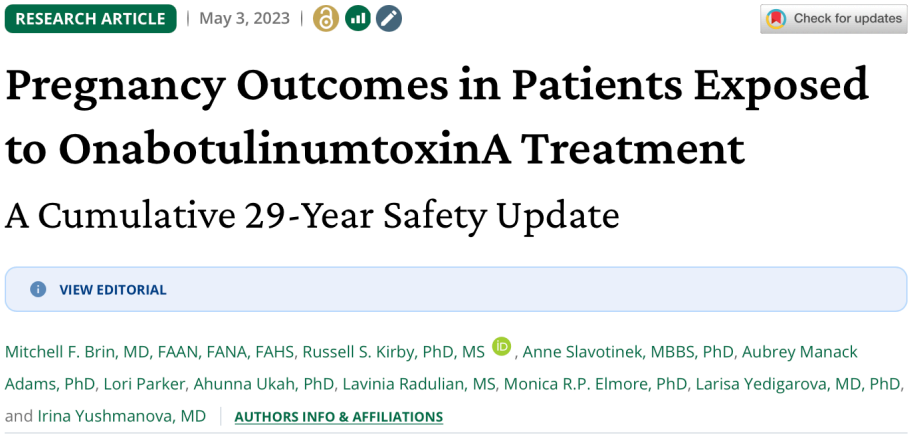
[a] Although the FDA ratings have not been continued past 2015, for now they remain a useful hierarchical scheme in the organization of drug safety in pregnant women.

[b] Class B refers only to pindolol.

Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn)*. 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

OnaboulinumtoxinA

- High molecular weight
- Theoretically should not cross the placenta
- Reported cases of botulism during pregnancy have not been associated with adverse fetal outcomes
- A 29-year retrospective analysis of safety data showed rate of fetal malformations in patients who received Botox during pregnancy was consistent with the rate in the general population
  - Included Botox used to treat other conditions
  - Most exposures were in the 3 months prior to pregnancy or in the 1st trimester
  - Less safety information is available in 2nd and 3rd trimesters


RESEARCH ARTICLE | May 3, 2023 | Check for updates

Pregnancy Outcomes in Patients Exposed to OnabotulinumtoxinA Treatment

A Cumulative 29-Year Safety Update

VIEW EDITORIAL

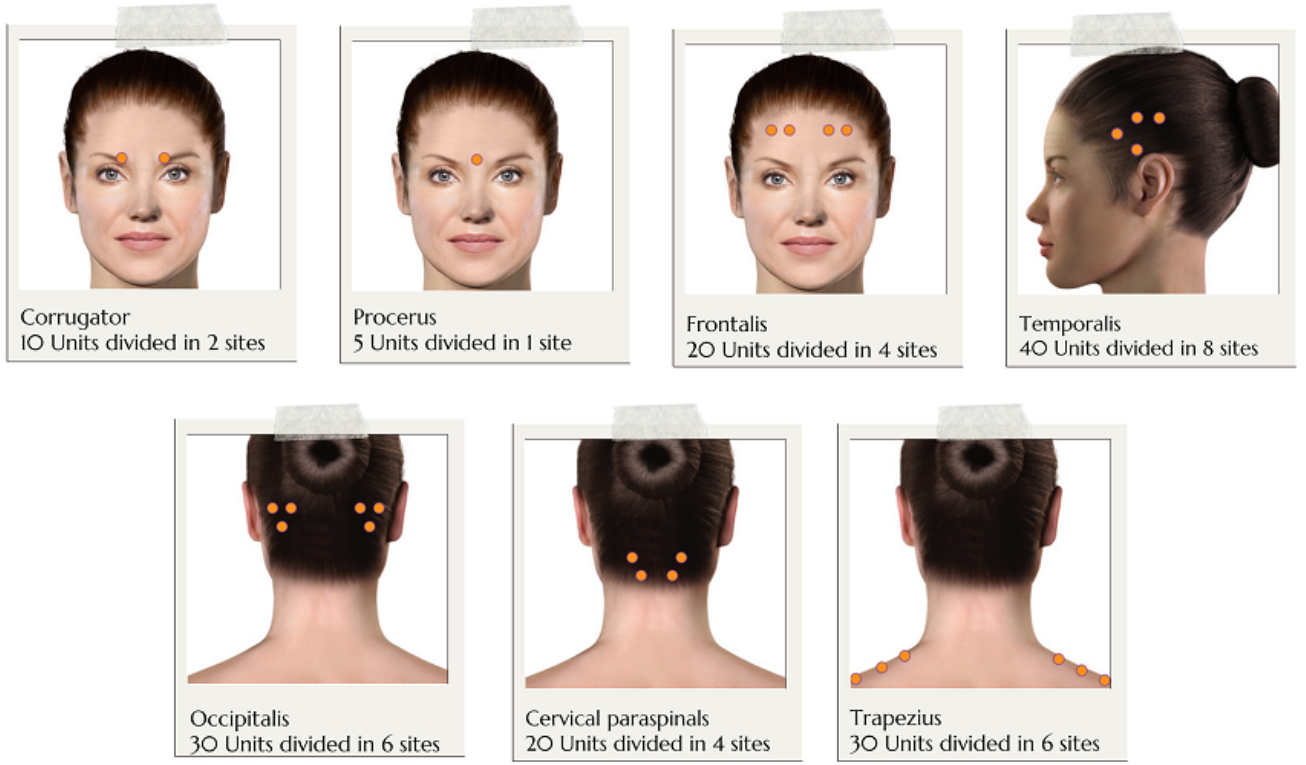
Mitchell F. Brin, MD, FAAN, FANA, FAHS, Russell S. Kirby, PhD, MS, Anne Slavotinek, MBBS, PhD, Aubrey Manack Adams, PhD, Lori Parker, Ahunna Ukah, PhD, Lavinia Radulian, MS, Monica R.P. Elmore, PhD, Larisa Yedigarova, MD, PhD, and Irina Yushmanova, MD | AUTHORS INFO & AFFILIATIONS

Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn)*. 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

Brin, Mitchell F, et al. "Pregnancy Outcomes in Patients Exposed to OnabotulinumtoxinA Treatment: A Cumulative 29-Year Safety Update." *Neurology*, vol. 101, no. 2, 11 July 2023, pp. e103–e113, https://doi.org/10.1212/wnl.0000000000207375.

BOTOX FOR MIGRAINE
INJECTION SITES

ParentingWithMigraine.com



TOTAL DOSE: 155 Units divided between 31 sites
Document and discard the 45-Unit wastage.
Source: BotoxOne.com

Acute Treatment in Pregnancy

Acute Headache Therapies and Their Potential Safety Concerns in Pregnant Women TABLE 7-2

Agent or Class	US Food and Drug Administration (FDA) Class[a]	Some Potential Risks and Comments
Acetaminophen	B	Attention deficit hyperactivity disorder
Lidocaine	B	Safety data largely from peripheral injection and not IV use, central nervous system depression
Ondansetron	B	Cleft palate
Dopamine antagonists (metoclopramide)	C (B)[b]	Prolonged QTc interval on ECG, extrapyramidal symptoms
Opiates (oxycodone)	C (B)[c]	All cross placenta, neonatal respiratory suppression (dependence [maternal and fetal])
Butalbital compounds	C	Congenital heart defects
Triptans	C	Preterm labor, uterine atony, postpartum hemorrhage
Bupivacaine	C	Maternal cardiac conduction abnormalities
Prednisone, methylprednisolone (dexamethasone)	C (D)[d]	Orofacial clefts, intrauterine growth restriction, some cross placenta
Nonsteroidal anti-inflammatory drugs	C (first trimester/second trimester)	First trimester: inhibit implantation, cardiac abnormalities, gastroschisis
	D (third trimester)	Third trimester: premature ductus arteriosus closure, oligohydramnios, periventricular hemorrhage
Magnesium sulfate	D	Bone loss[a]
Valproate	X	Neural tube defects, clefts, lower IQ and developmental delay, autism, cardiovascular and genitourinary abnormalities
Dihydroergotamine	X	Uterine ischemia, increased uterine contractility, prematurity

ECG = electrocardiogram; IQ = intelligence quotient; IV = intravenous; QTc = corrected QT interval.
[a] Although the FDA ratings have not been continued past 2015, for now they remain a useful hierarchical scheme in the organization of drug safety in pregnant women.
[b] Class B refers only to metoclopramide.
[c] Class B refers only to oxycodone.
[d] Class D refers only to dexamethasone.

Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn)*. 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

Triptans in Pregnancy

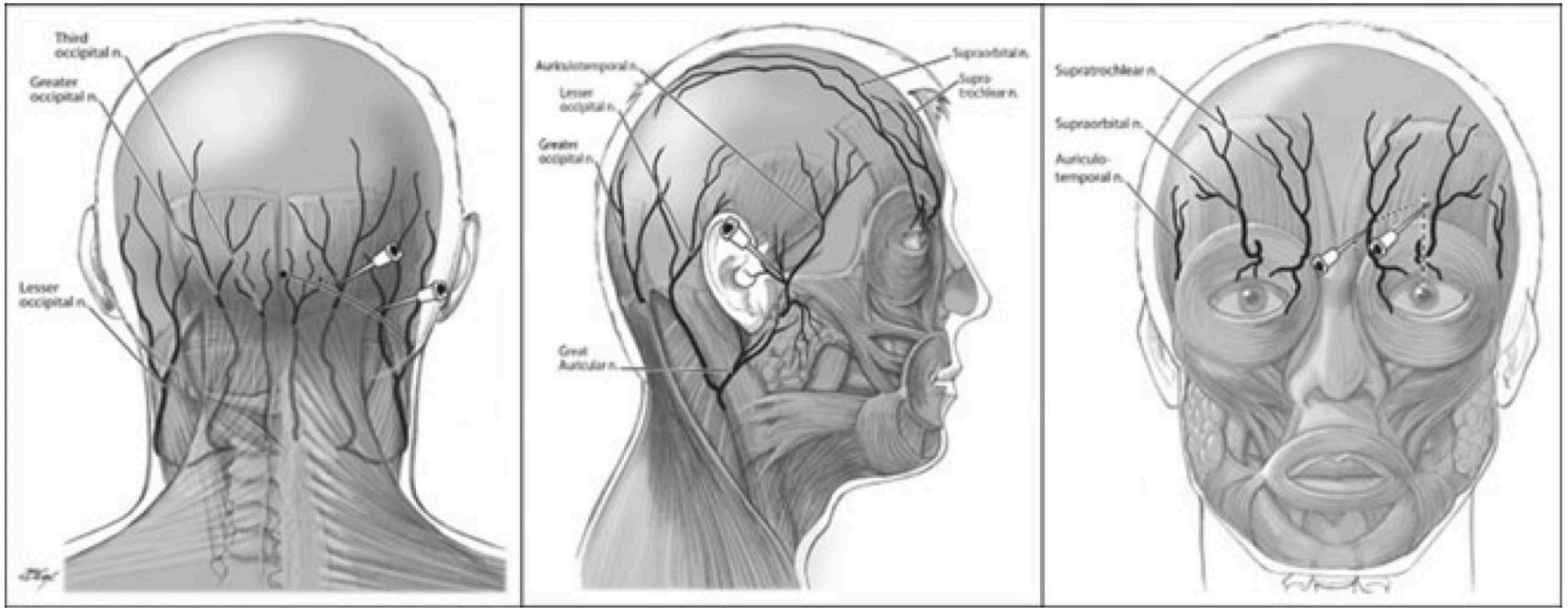
Pregnancy registry data are available for sumatriptan (Imitrex), rizatriptan (Maxalt) and naratriptan (Amerge)

Risk of fetal malformations comparable to general population

Lack of large scale controlled human studies

Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn).* 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

Pericranial Nerve Blocks



Neurostimulation/Neuromodulation

- All FDA approved for preventive and acute management of migraine except Relivion

- **gammaCore** (non-invasive vagus nerve stimulator)
- **Nerivio** (remote electrical neuromodulation)
- **Cefaly** (transcutaneous supraorbital neurostimulator)
- **SpringTMS** (single pulse transcranial magnetic stimulator)
- **Relivion** (transcutaneous trigeminal and occipital nerve stimulator) – acute only

Robbins MS. Headache in Pregnancy. *Continuum (Minneap Minn).* 2018;24(4, Headache):1092-1107. doi:10.1212/CON.0000000000000642

Thank You!

PRESENTED BY: Allegheny Health Network

September 2024

Palliative Medicine in Heart Failure

Tara Orgon Stamper DNP, RN, CRNP
Assistant Professor of Nursing, Chatham University
Heart Failure Palliative Medicine Nurse Practitioner

AHN

Agenda

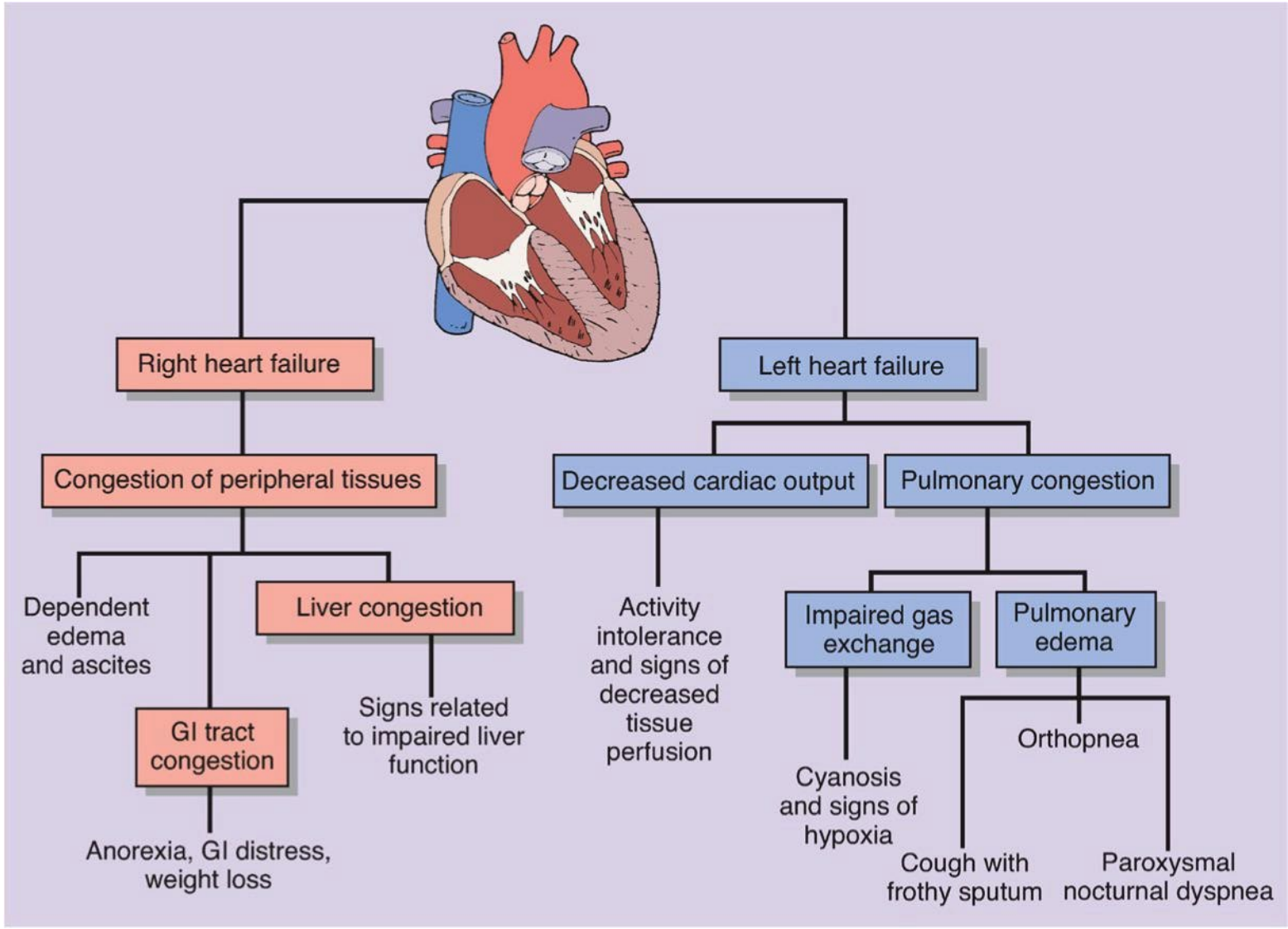
- Palliative Care Myths
- Heart Failure Overview
- Palliative Care Overview
- Palliative Care in Heart Failure Overview
  - Literature Support
  - Knowing/Understanding your Patient and Morals/Ethics/Values
  - Common Symptom Management
  - Support for Treatment Decisions
  - Complex Situations in Heart Failure Palliative Care

Palliative Care Myths

1. Palliative care is only for people close to death.
2. Palliative care discussions are really only about establishing code status.
3. A patient who is DNR/DNI should not be admitted to the ICU.
4. When discussing goals of care for a patient with a dire prognosis, partiality in treatment options should be avoided.
5. People receiving active treatment for their disease can not be receiving palliative care.

https://www.nuemblog.com/blog/palliative-care;
https://www.samaritannj.org/hospice-blog-and-events/hospice-palliative-care-blog/palliative-care-myths-misconceptions/

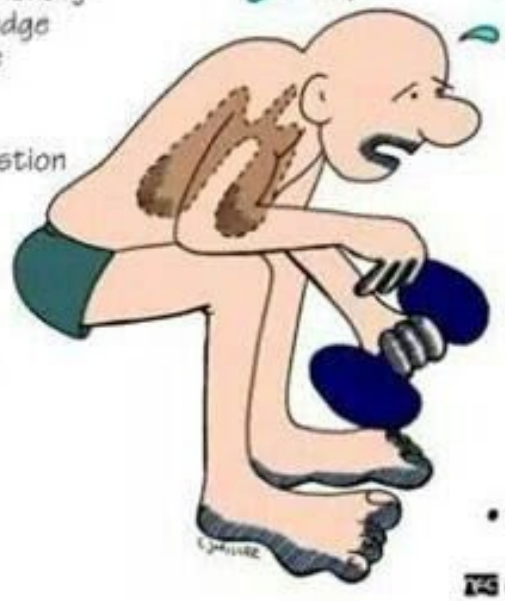
Heart Failure (HF)



https://www.reddit.com/r/nursing/comments/jo5f5g/the_real_left_vs_right_is_hf/?rdt=43958

LEFT SIDED ♥ FAILURE

- Paroxysmal Nocturnal Dyspnea
- Elevated Pulmonary Capillary Wedge Pressure
- Pulmonary Congestion
  - Cough
  - Crackles
  - Wheezes
  - Blood-Tinged Sputum
  - Tachypnea
- Restlessness
- Confusion
- Orthopnea
- Tachycardia
- Exertional Dyspnea
- Fatigue
- Cyanosis



RIGHT SIDED ♥ FAILURE

(Cor Pulmonale)

- Fatigue
- ↑ Peripheral Venous Pressure
- Ascites
- Enlarged Liver & Spleen
- May be secondary to chronic pulmonary problems
- Distended Jugular Veins
- Anorexia & Complaints of GI Distress
- Weight Gain
- Dependent Edema

Heart Failure

Disease trajectory

Treatment recommendations

Advanced Care Planning

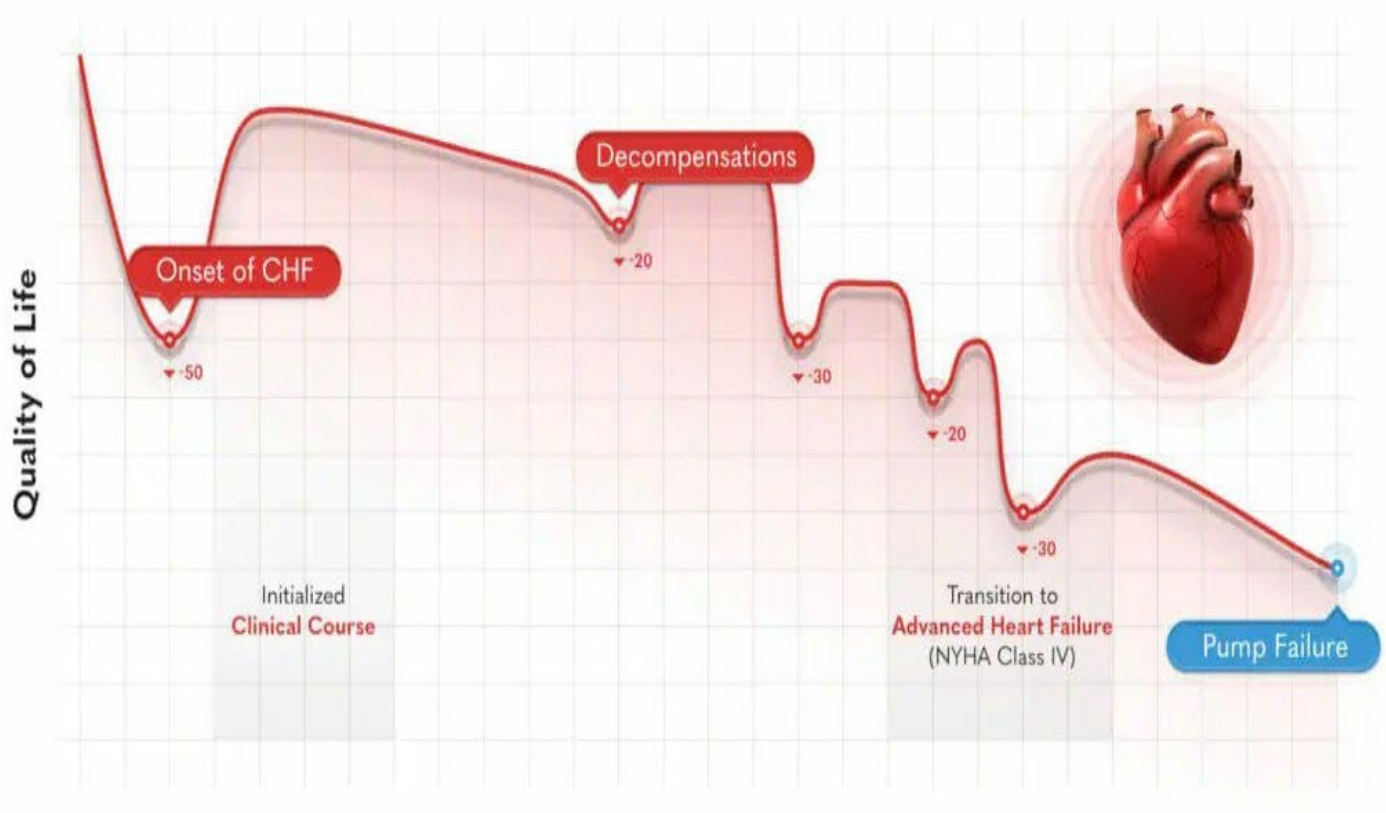
Symptom Management

Quality of Life

Mental/emotional/spiritual well being

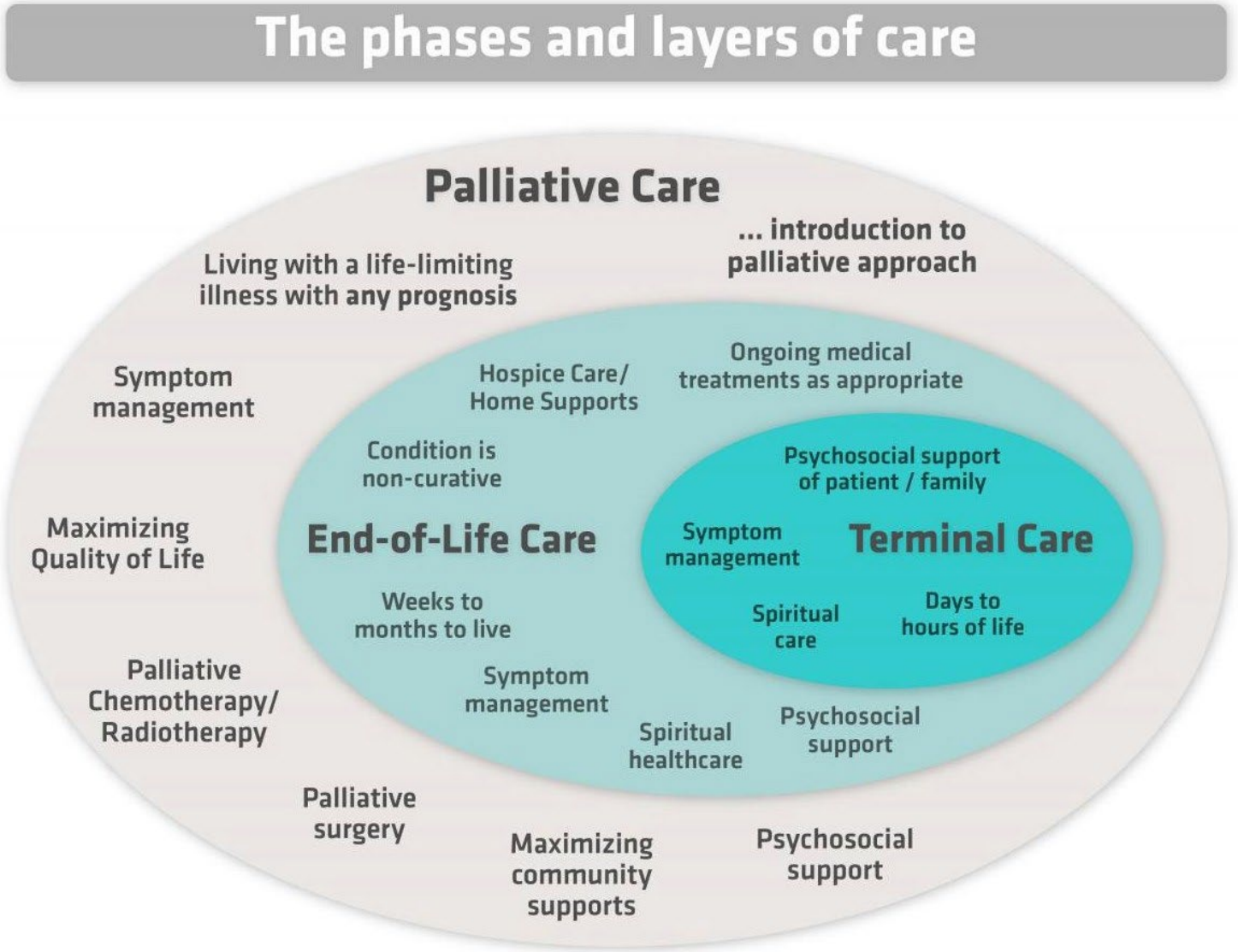
Caregiver support

End of life planning



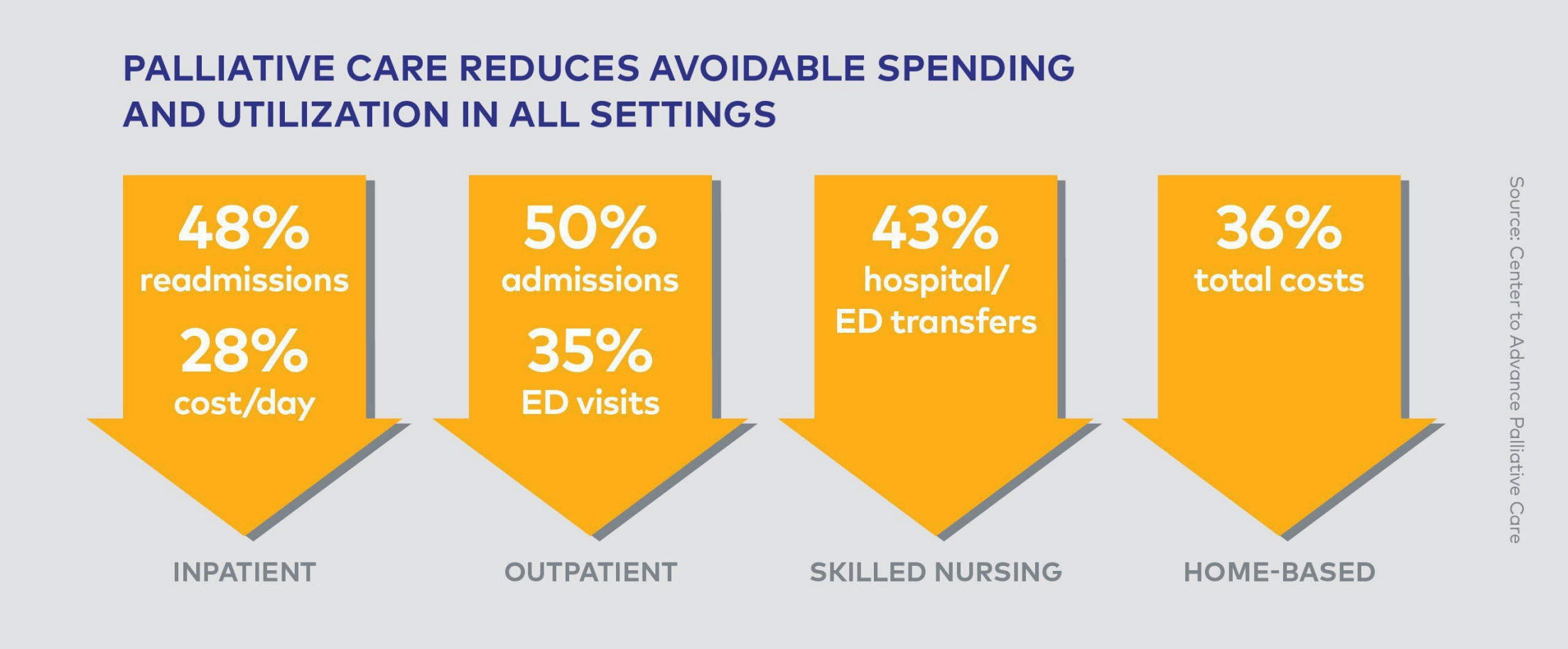
https://www.activehhh.com/home-health-blog/hospice-for-heart-failure/

Palliative Medicine

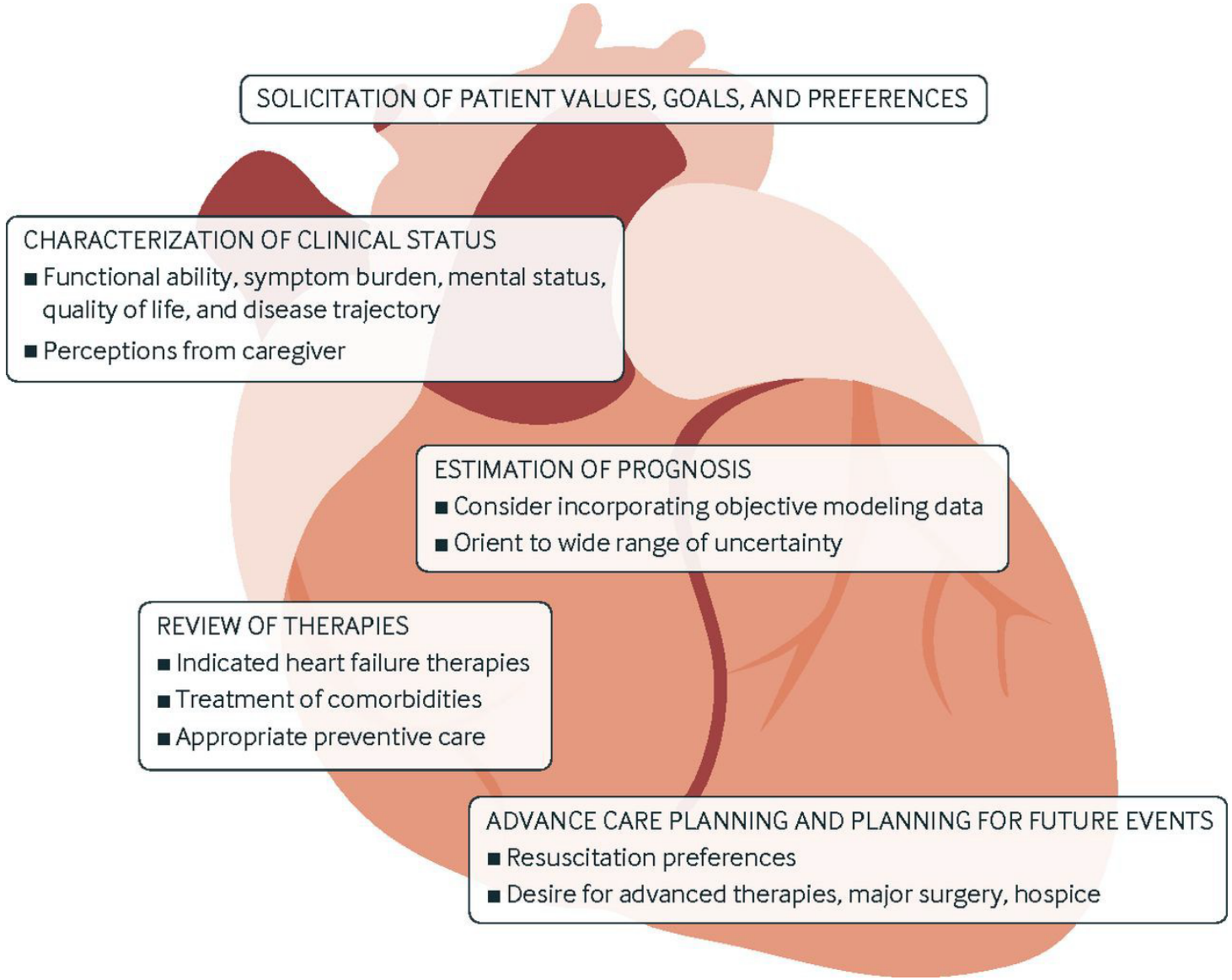


https://hpc.providencehealthcare.org/about/what-palliative-care

Palliative Medicine



Palliative Medicine in Heart Failure



https://www.bmj.com/content/353/bmj.i1010

Literature Support: Palliative Medicine in HF

- “Caregivers expressed happiness and gratitude after seeing patient symptom relief and empowerment; …less worried because patient was being cared for.” (Alvariza, et al., 2018)
- Symptom relief most common in “dyspnea, sleep quality, depression and anxiety.” (Diop, et al., 2017)
- Systematic review showed increase in advanced care planning, POLST, end of life planning; greater hospice enrollment and increase life expectancy 81 days in some studies (Dope, et al., 2017)
- PAL-HF study: Landmark trial showing increased QOL, symptom management and spiritual well being in patients with heart failure receiving palliative care (Rogers, et al., 2017)

Know Your Patient

- Assess their disease, trajectory understanding
- Define care facets specific to patient
  - Quality
  - Recovery
  - Normal
- What is important to them, what gives them strength
- Pass at home versus in hospital
- Help patient define functioning in quantifiable terms
- Facilitate communication between patient and caregivers/medical decision makers

Common Symptom Management

Dyspnea	Difficulty Sleeping	Depression/Anxiety	Decreased Appetite	Neuropathy/Cramping
• Rule out pulmonary etiology before initiating • Oxycodone 2.5 mg po Q6 prn	• Nonpharmacological – sound machines, decrease screen times, aromatherapy, journaling • Pharmacological – melatonin, trazodone, remeron	• SSRI – prozac, Zoloft, Celexa; SNRI – • Concomitant talking therapy	• Remeron • Megace	• Gabapentin • Lyrica • Cymbalta

Complex Situations in Heart Failure

- Advanced Therapies
  - Inotrope therapy
    - Intended for symptomatic relief
    - Not intended to prolong life but does by alleviating work of heart
    - Average life expectancy with inotrope 18 months; atypical > 3 years
  - Left Ventricular Assist Device (LVAD)
    - Destination therapy
    - Bridge to Transplant
    - Right ventricular failure
  - Orthotopic Heart Transplant
    - Immunosuppression complications

Complex Situations in Heart Failure

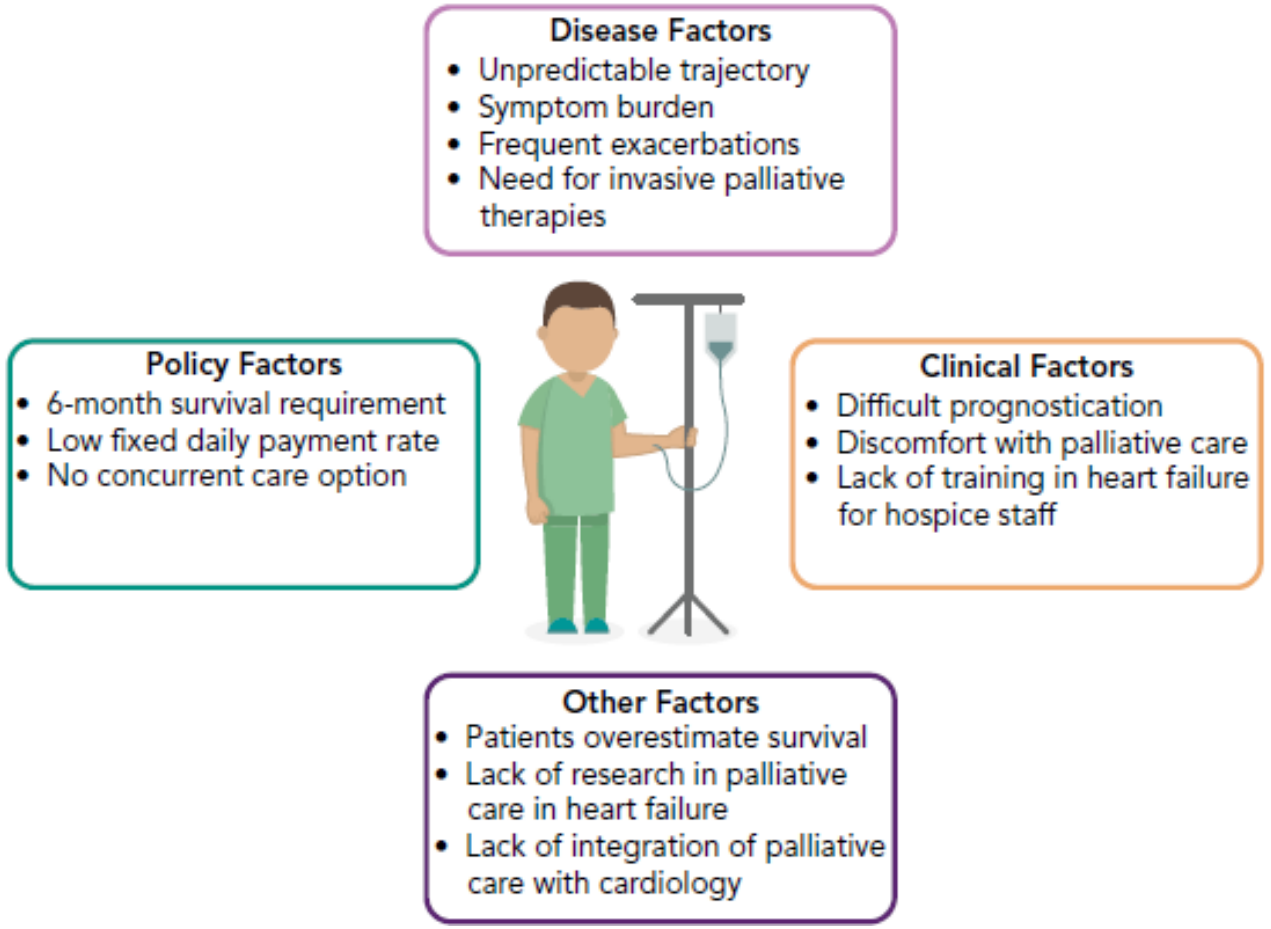
- Tachytherapies
  - Stand alone
    - Placed in setting of reduced EF, no history of arrhythmia
    - Placed for arrhythmia prevention
  - In the setting of LVAD
  - Deactivation
    - When is it appropriate
    - Having the conversation
    - Stoevelaar, et al. (2020) – 35% patients discussed deactivation, 45% were deactivated prior to end of life, 9% experienced a shock within the last month of life distressing to patient and family
    - Stoevelaar, et al. (2020) – Barriers were not comfortable with conversation, focusing on curative nature of ICD, afraid of taking away hope, not knowing who should have this conversation, stressful work environment and high workload

End of Life in Heart Failure

- Hospice
  - Founded in the US in 1974 by Florence Wald
  - Medicare accepts patients with terminal diagnosis and < 6 months life expectancy
  - Used primarily in oncology patients until last ~ 10 years

  - Underutilized by end stage heart failure patients
  - Difficult to assess prognosis

Figure 1: Barriers to Hospice Use in Patients with Heart Failure



https://www.radcliffecardiology.com/image-gallery/10721/9398/barriers-to-hospice-use-in-patients-with-heart-failure

End of Life in Heart Failure

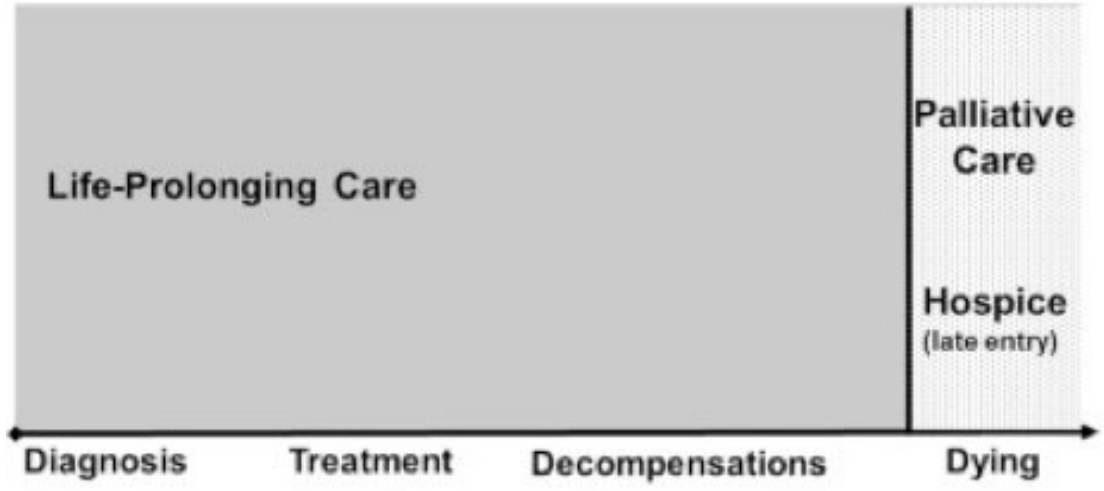
- Logistically explain family responsibility during home hospice care
- Diuretics are considered comfort
- +/- IV diuresis as needed/if desired
- Deactivating LVAD
  - Preemptive deactivation
  - Patient passing while pump intact
- Weaning inotropic therapy
- Control symptoms during deactivation, weaning process

Improving Patient Outcomes

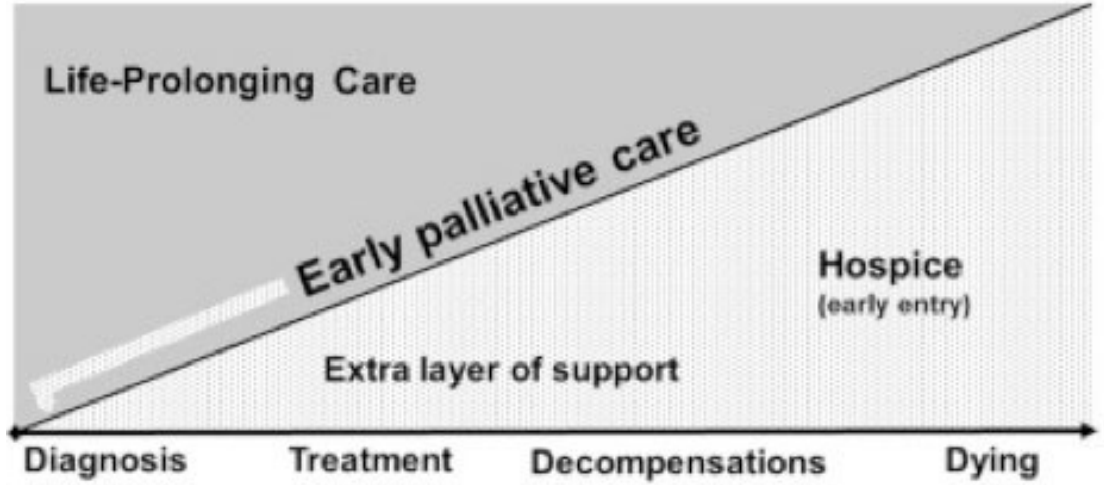
Early Palliative Care intervention

Normalize palliative care in life limiting illnesses

Initiate primary palliative care when able; refer to a specialist when needed



Current Paradigm: Disease Trajectory with **Late** Palliative Care Intervention



Ideal Paradigm: Disease Trajectory with **Early** Palliative Care Intervention

(Wang, 2017)

Take Home Points

- Difficult conversations → open-ended questions
  - I'm concerned…
  - I'm worried…
  - I'm afraid…
- Advanced Care Planning → **EVERYONE SHOULD HAVE**
- Life limiting illness → Palliative Care **NORMALIZE IT**
- **tara.orgon-stamper@ahn.org/513-312-7455**

References

- Alvariza, A., Arestedt, K., Boman, K. & Brannstorm, M. (2018). Family members' experiences of integrated palliative advanced home and heart failure care: A qualitative study of the PREFER intervention. *Palliative and Supportive Care 16*, 278-285 doi:10.1017/S1478951517000256
- Diop, M., Rudolph, J., Zimmerman, K., Richter, M. & Skarf, L. (2017). Palliative care interventions for patients with heart failure: A systematic review and meta-analysis. *Journal of Palliative Medicine 20,* 84-92 DOI: 10.1089/jpm.2016.0330
- Rogers, J., Patel, C., Mentz, R., Granger, B., Steinhauser, K., Fiuzat, M., Adams, P., Speck, A., Johnson, K., Krishnamoorthy, A., Yang, H., Anstrom, K., Dodson, G., Taylor, D., Kirchner, J., Mark, D., O'Connor, C. & Tulsky, J. (2017). Palliative care in heart failure: The PAL-HF randomized, controlled clinical trial. *Journal of the American College of Cardiology 70*(3), 331-341 https://doi.org/10.1016/j.jacc.2017.05.030
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- Wang, D. (2017). Beyond code status: Palliative care begins in the emergency department. *Annals of Emergency Medicine 69*(4), 437-443 DOI: 10.1016/j.annemergmed.2016.10.027

Break
2:20 pm – 3:00 pm

AHN 2nd Annual APP Conference - Reminders

Breakout Sessions

Don't miss your hands-on learning session!

Here's the schedule:

- **Suturing 101:** 11:05 am - 12:10 pm
- **EKG Readings:** 1:15 pm - 2:15 pm
- **Joint Injections:** 3:05 pm - 3:35 pm

Please arrive on time to ensure you get the most out of your session.

We appreciate your cooperation in keeping to the schedule.

Update Your Professional Photo!

AHN Employees, it's time to refresh your professional photo!

Highmark Photography will be on the upper level today from 7:30 am - 1:30 pm to capture your best look.

Don't miss this opportunity to update your photo for internal directories and other official uses.

Submit Your Vendor Passport for a Chance to Win!

Have you completed your Vendor Passport?

Visit each vendor table and get your passport stamped! Once you've collected all the stamps, submit your completed passport for a chance to win the Door Prize!

The winner will be contacted before the conference ends today to claim their prize.

Don't miss out!

Don't Miss Out! Raffle Time!

Choose your favorite basket and enter to win!

Here's how:
1.Scan the QR code to submit your entry.
2.Complete the short form and include your phone number so we can reach you quickly if you win!

Raffle submission closes at 3:00 pm today (9/14/2024). Winners will be contacted by 3:30 pm today to claim their prize before the conference ends!

Good luck!

2nd Annual AHN APP Conference 2024

SEPTEMBER 14TH, 2024 – THE REGIONAL LEARNING ALLIANCE

	Great Room A	Great Room B	*Breakout Rooms *(15 registrants per session)*
10:30 am - 11:00 am ***Session 1***	*Diabetes and Pregnancy: Before, During & After / Diabetes Technology updates and AHN Diabetes Resources* Debra Carse, CRNP & Megan Watts, RD	*Pint-sized Problems: A Review of Common Pediatric Illnesses for the Adult Provider* Mike Talotta, PA-C	
11:05 am - 11:35 am ***Session 2***	*Pre-Conceptual Counseling: Preparing for a Healthy Mom & Baby* Jennifer McDanel, PA-C	*Primary Care for the Specialty Provider* Dawn Ball, CRNP	**Suturing 101** (1 hour)
11:40 am - 12:10 pm ***Session 3***	*Genetic Counseling – Hereditary Cancers* Kyla Morphy, CGC	*Mental Health: Burn out in healthcare and what you can do to reduce your risk* Jamie Cornali, CRNP	
12:10 pm - 1:10pm	**Lunch & Exhibitor Fair**		
1:15 pm - 1:45 pm ***Session 4***	*Treating for Two: Managing Headaches During Pregnancy* Amanda Mace, MSPAS, PA-C	*Supplement Support: Evidence-Based Review* Kimberly Smith, CRNP	**EKG Readings Overview** (1 hour)
1:45 pm - 2:15 pm ***Session 5***	*Heart Failure – Palliative Medicine* Tara Orgon Stamper, CRNP	*Regional Cancer Therapies for GI Malignancies* Samantha Devine, PA-C	
2:20 pm - 3:00 pm	**Break & Exhibitor Fair**		
3:05 pm - 3:35 pm ***Session 6***	*Un-Break My Heart: Developments & Devices in Heart Failure* Courtney Hippert, PA-C	*Difficult to Treat Asthma Patient, and When to Refer* Justine Sicari, DNP, FNP, MSNed	**Joint Injections** (30 minutes)
3:40 pm - 4:10 pm ***Session 7***	*Weight Loss* Kathy Scutella, MSN, CRNP	***Please remain seated as we prepare for the final presentation and closing remarks. The room divider will be removed shortly to accommodate all attendees.***	

Accreditation

This activity has been planned and implemented in accordance with the essential areas and policies of the Accreditation Council for Continuing Medical Education (ACCME). Allegheny General

Hospital is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Allegheny General Hospital designates this live activity for a maximum of 6.5 AMA PRA Category 1 Credit ™

PRESENTED BY: Allegheny Health Network

September 2024

Un-Break My Heart:
Developments & Devices in Heart Failure

Courtney Hippert, PA-C MPAS
Advanced Heart Failure & Transplant Cardiology Physician Assistant at
Allegheny Health Network

DISCLOSURES

I HAVE NO RELEVANT DISCLOSURES

OBJECTIVES

- Tips to identify and categorize heart failure
- Review updates to staging and classification of heart failure
- Outline guideline-directed medical therapy (GDMT) and strategies for optimal implementation
- Discuss options for heart failure management with device therapies
- Provide risk stratification techniques for early recognition/referral

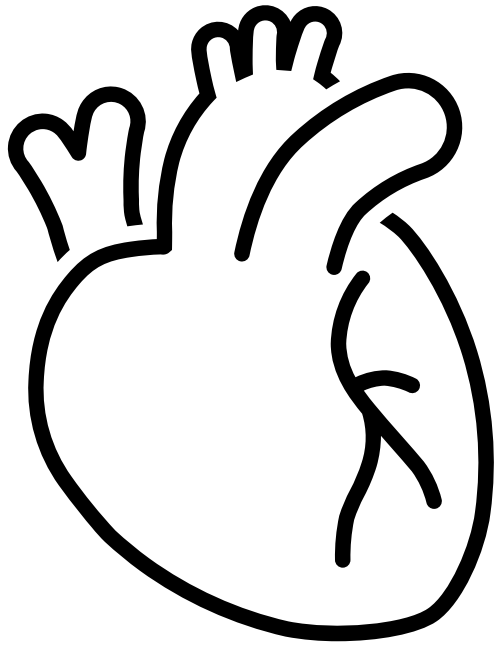
HEART FAILURE FACTS

Heart Failure is…

- A leading cause of morbidity and mortality globally
- Affects more than 6 million Americans (estimated to grow to 8 million Americans by 2030)
- Most common cause of hospitalization in older adults, with a 1-year hospitalization rate of 31.9% in patients with chronic heart failure
- Health care expenditure is expected to increase to $69.7 billion USD by 2030

Nguyen AH et al. JSCAI 2023.

DEFINITION



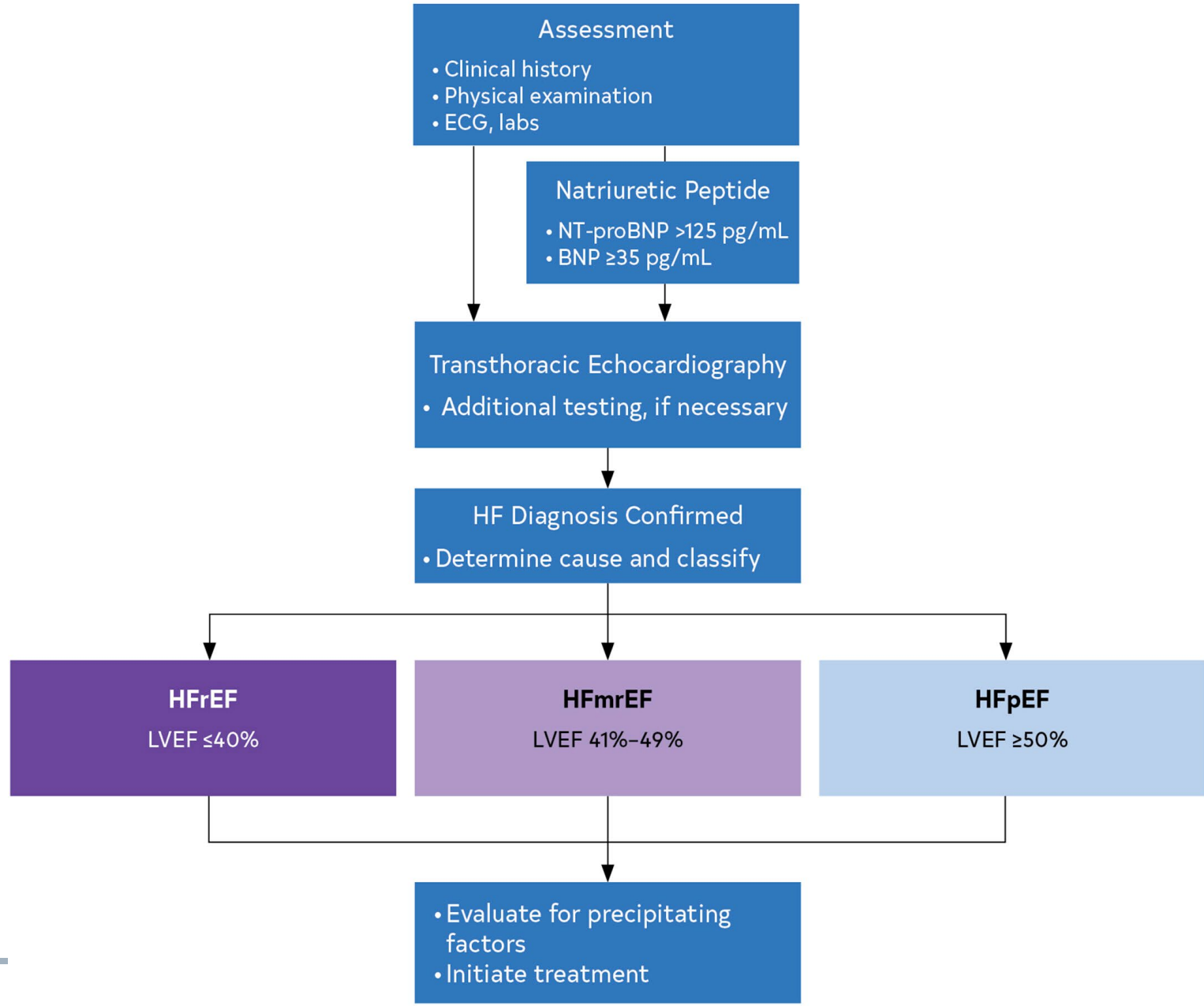
A clinical syndrome that results from any structural or functional impairment of ventricular filling or ejection of blood

The heart is unable to maintain an adequate cardiac output to meet the physiologic demands of the circulatory system

Heidenreich et al. JACC 2022.

CLINICAL EVALUATION

Diagnostic Algorithm for Patients With Suspected HF



Heidenreich et al. JACC 2022.

THE ART OF H&P

ANATOMY, SIGNS, SYMPTOMS

VENA CAVA → RIGHT ATRIUM → (TRICUSPID VALVE) → RIGHT VENTRICLE → (PULMONIC VALVE) → PULMONARY ARTERIES → LUNGS → PULMONARY VEINS → LEFT ATRIUM → (MITRAL VALVE) → LEFT VENTRICLE → (AORTIC VALVE) → AORTA → BODY TISSUES

SIGNS:

- CONGESTION
  - JUGULAR VENOUS DISTENTION*
  - HEPATOJUGULAR REFLEX*
  - MURMURS
  - GALLOP*
  - CRACKLES/RALES*
  - DECREASED BREATH SOUNDS AT BASES (PLEURAL EFFUSIONS)
  - LOWER EXTREMITY EDEMA (TRUNCAL EDEMA)
- PERFUSION
  - TACHYCARDIA (REGULAR OR IRREGULAR)
  - COOL EXTREMITIES
  - DECREASED CAPILLARY REFILL
  - CYANOSIS
  - ALTERED MENTAL STATUS

SYMPTOMS:

SHORTNESS OF BREATH
ORTHOPNEA*
PAROXYSMAL NOCTURNAL DYSPNEA*

LOWER EXTREMITY EDEMA
ABDOMINAL DISTENTION
RIGHT UPPER QUADRANT TENDERNESS
NAUSEA
EARLY SATIETY
ANOREXIA

FATIGUE
WEAKNESS
LIGHTHEADEDNESS
CHEST PAIN

*HIGHLY SPECIFIC

Heidenreich et al. JACC 2022.

INITIAL TESTING

- EKG
  - Assessment of ischemic changes, arrhythmias
- LAB WORK
  - CMP (assess renal function, liver function, electrolytes)
  - CBC (assess for other etiologies of symptoms or exacerbating comorbidities to heart failure ie anemia, infection)
  - BNP/pro-BNP
  - TFTs (hyper/hypothyroid exacerbate heart failure)
  - Troponin
- CXR
  - Pulmonary edema, Pleural effusions, Cardiomegaly
- TTE
  - Assess biventricular systolic function, diastolic function, valvulopathies

Heidenreich et al. JACC 2022.

ETIOLOGIES

Ischemic:

- Coronary artery disease
- Acute Coronary Syndromes
- Acute Myocardial Infarction/Ischemia
- Ischemic Mitral Regurgitation

Nonischemic:

- Familial
- Myocarditis
- Viral
- Valvular (acute/chronic)
- Tachycardia-mediated
- Hypertension
- Stress-induced (Takotsubo)
- Drug induced (chemotherapy)
- Alcohol induced
- Infiltrative disease (amyloidosis/sarcoidosis)

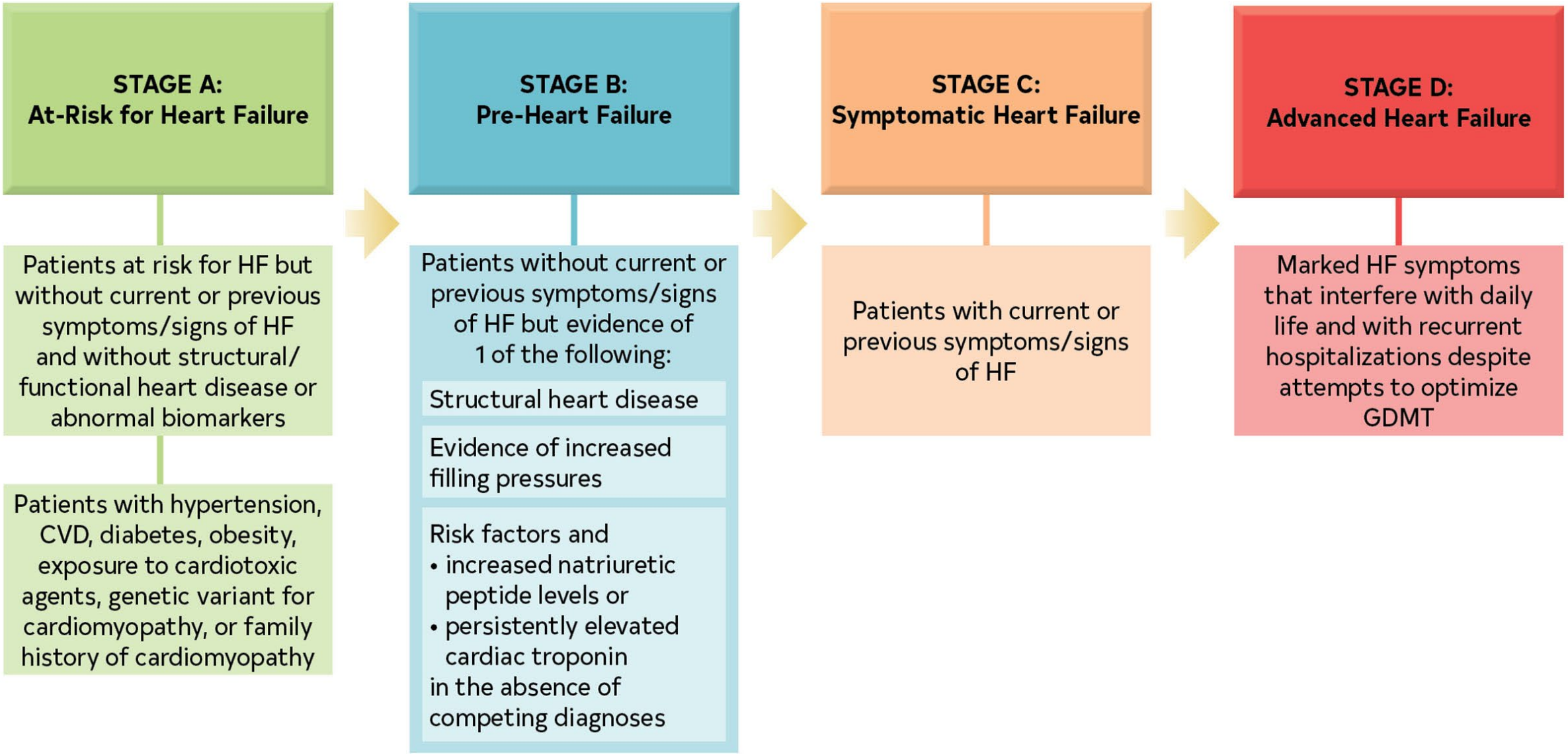
CLASSIFICATION

EJECTION FRACTION

- Systolic heart failure → **Heart Failure with reduced Ejection Fraction (HFrEF)**
  - LVEF ≤40%
- Diastolic heart failure → **Heart Failure with preserved Ejection Fraction (HFpEF)**
  - LVEF ≥50%
  - Evidence of spontaneous or provokable increased LV filling pressure (eg, elevated natriuretic peptide, noninvasive and invasive hemodynamic measurement)
- **Heart Failure with mildly-reduced Ejection Fraction (HFmrEF)**
  - LVEF 41-49%
  - Evidence of spontaneous or provokable increased LV filling pressure (eg, elevated natriuretic peptide, noninvasive and invasive hemodynamic measurement)
- **Heart Failure with improved Ejection Fraction (HFimpEF)**
  - Previous LVEF ≤40% and a follow-up measurement of LVEF >40%

Heidenreich et al. JACC 2022.

ACC/AHA STAGING



Heidenreich et al. JACC 2022.

NYHA FUNCTIONAL CLASS

CLASS	SYMPTOMS
I	No limitation in physical activity. Ordinary physical activity does not cause symptoms of HF.
II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in symptoms of HF.
III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes symptoms of HF.
IV	Unable to perform any physical activity without symptoms of HF, or symptoms of HF at rest.

Heidenreich et al. JACC 2022.

MEDICAL MANAGEMENT

LETTERS & LINGO

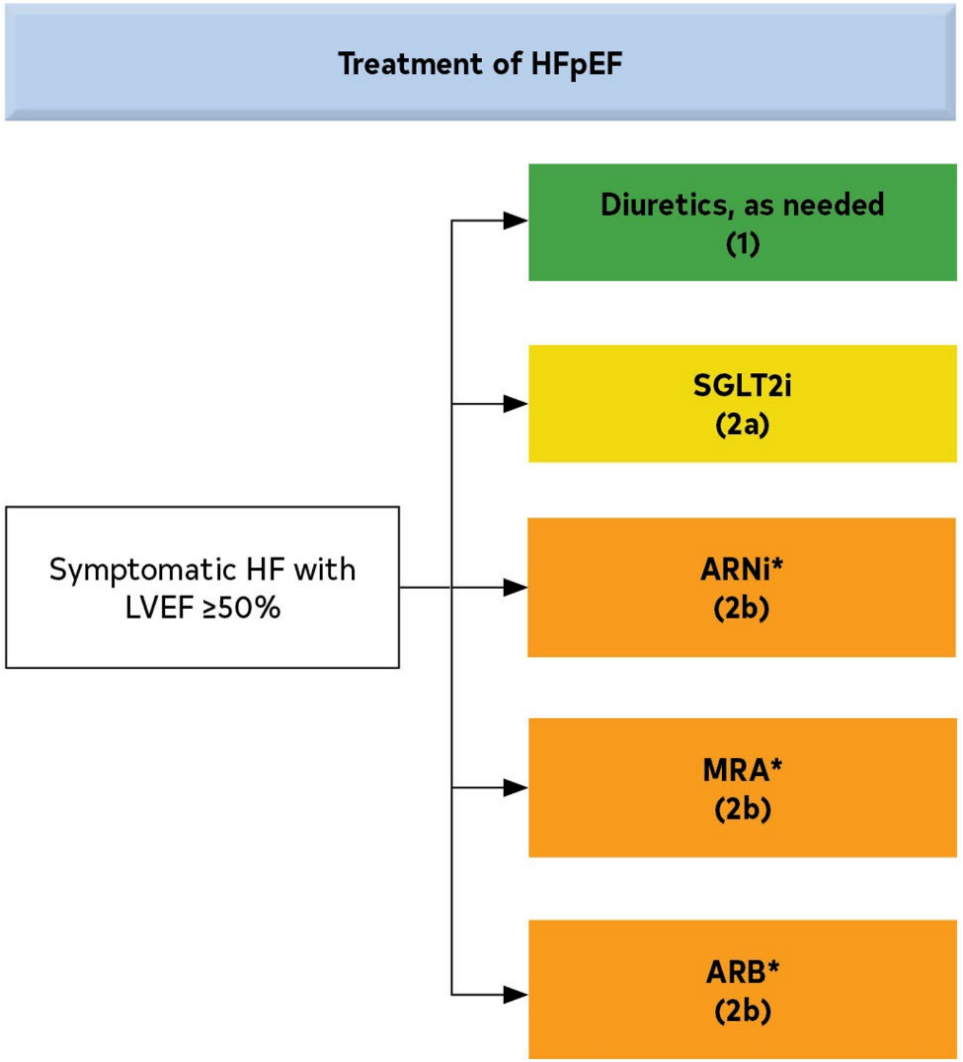
TABLE 1 Starting and Target Doses of GDMT for HF (Choice and timing of each therapy and who should have them added are discussed in the text)*

	Starting Dose	Target Dose
Beta-blockers		
Bisoprolol	1.25 mg once daily	10 mg once daily
Carvedilol	3.125 mg twice daily	25 mg twice daily for weight <85 kg and 50 mg twice daily for weight ≥85 kg
Metoprolol succinate	12.5-25 mg daily	200 mg daily
ARNI		
Sacubitril/valsartan	24/26 mg to 49/51 mg twice daily	97/103 mg twice daily
ACE inhibitors		
Captopril	6.25 mg 3× daily	50 mg 3× daily
Enalapril	2.5 mg twice daily	10-20 mg twice daily
Lisinopril	2.5-5 mg daily	20-40 mg daily
Ramipril	1.25 mg daily	10 mg daily
ARBs		
Candesartan	4-8 mg daily	32 mg daily
Losartan	25-50 mg daily	150 mg daily
Valsartan	40 mg twice daily	160 mg twice daily
Mineralocorticoid antagonists		
Eplerenone	25 mg daily	50 mg daily
Spironolactone	12.5-25 mg daily	25-50 mg daily
SGLT inhibitors		
Dapagliflozin	10 mg daily	10 mg daily
Empagliflozin	10 mg daily	10 mg daily
Sotagliflozin	200 mg daily	400 mg daily

Maddox T et al. JACC 2024.

Heart Failure with PRESERVED Ejection Fraction (LVEF ≥ 50)

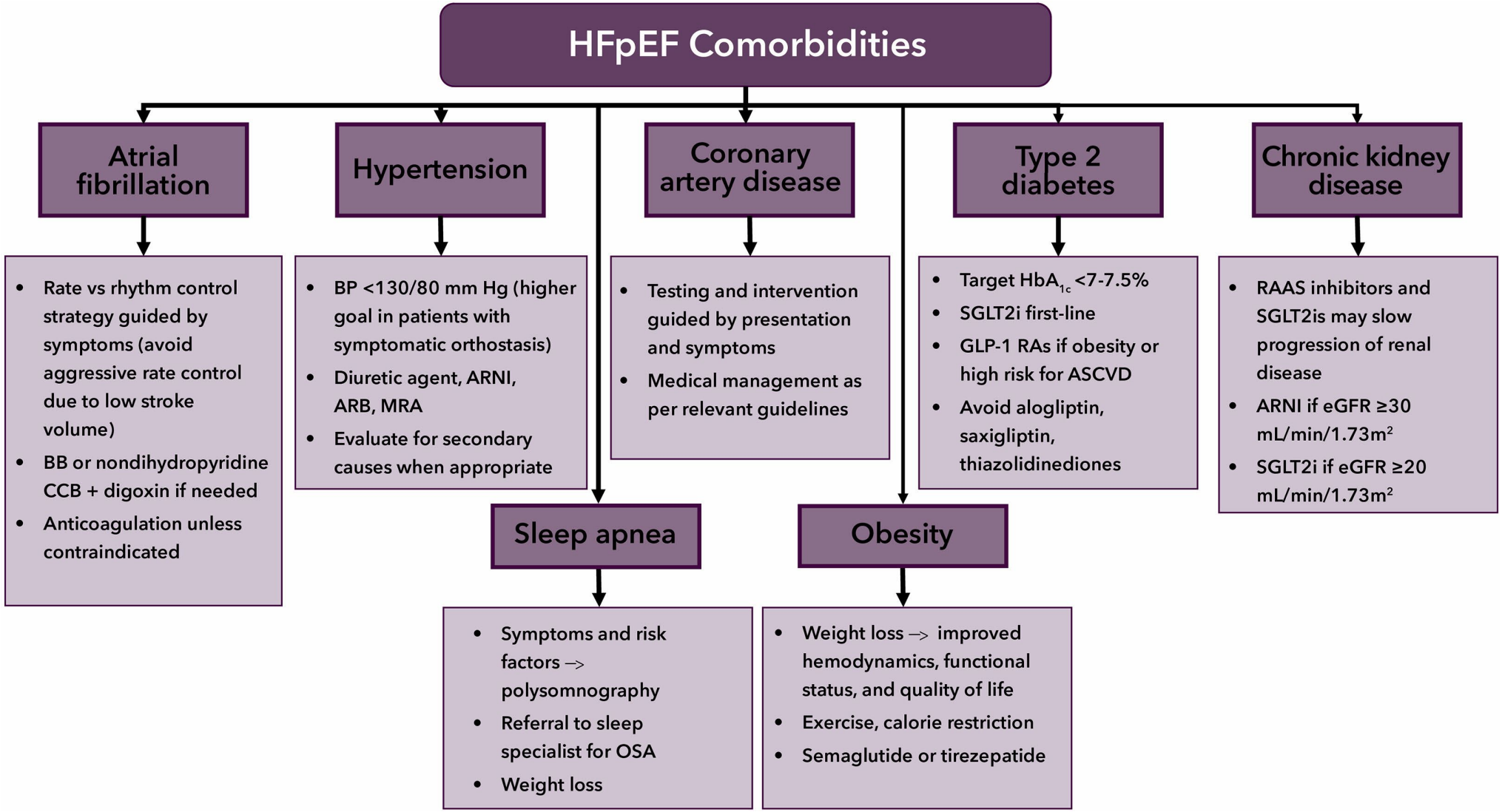
COR	LOE	Recommendations
1	C-LD	1. Patients with HFpEF and hypertension should have medication titrated to attain blood pressure targets in accordance with published clinical practice guidelines to prevent morbidity.[1–3]
2a	B-R	2. In patients with HFpEF, SGLT2i can be beneficial in decreasing HF hospitalizations and cardiovascular mortality.[4]
2a	C-EO	3. In patients with HFpEF, management of AF can be useful to improve symptoms.
2b	B-R	4. In selected patients with HFpEF, MRAs may be considered to decrease hospitalizations, particularly among patients with LVEF on the lower end of this spectrum.[5–7]
2b	B-R	5. In selected patients with HFpEF, the use of ARB may be considered to decrease hospitalizations, particularly among patients with LVEF on the lower end of this spectrum.[8,9]
2b	B-R	6. In selected patients with HFpEF, ARNi may be considered to decrease hospitalizations, particularly among patients with LVEF on the lower end of this spectrum.[10,11]
3: No-Benefit	B-R	7. In patients with HFpEF, routine use of nitrates or phosphodiesterase-5 inhibitors to increase activity or QOL is ineffective.[12,13]



Treat the underlying comorbidities!

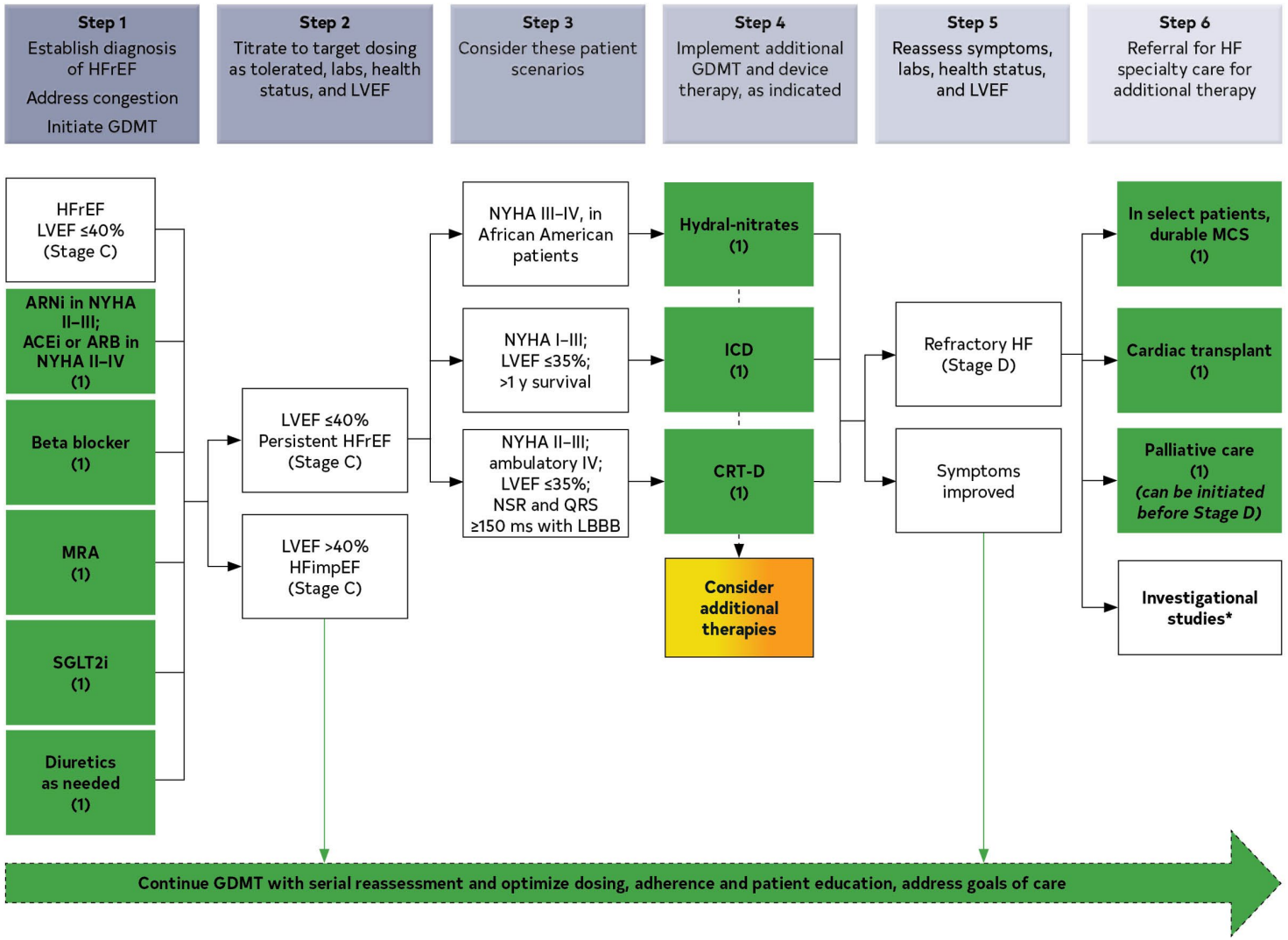
Heidenreich et al. JACC 2022.

Optimize management of the underlying comorbidities!



Kittleson, et al. JACC 2023.

Heart Failure with REDUCED Ejection Fraction (LVEF ≤ 40)

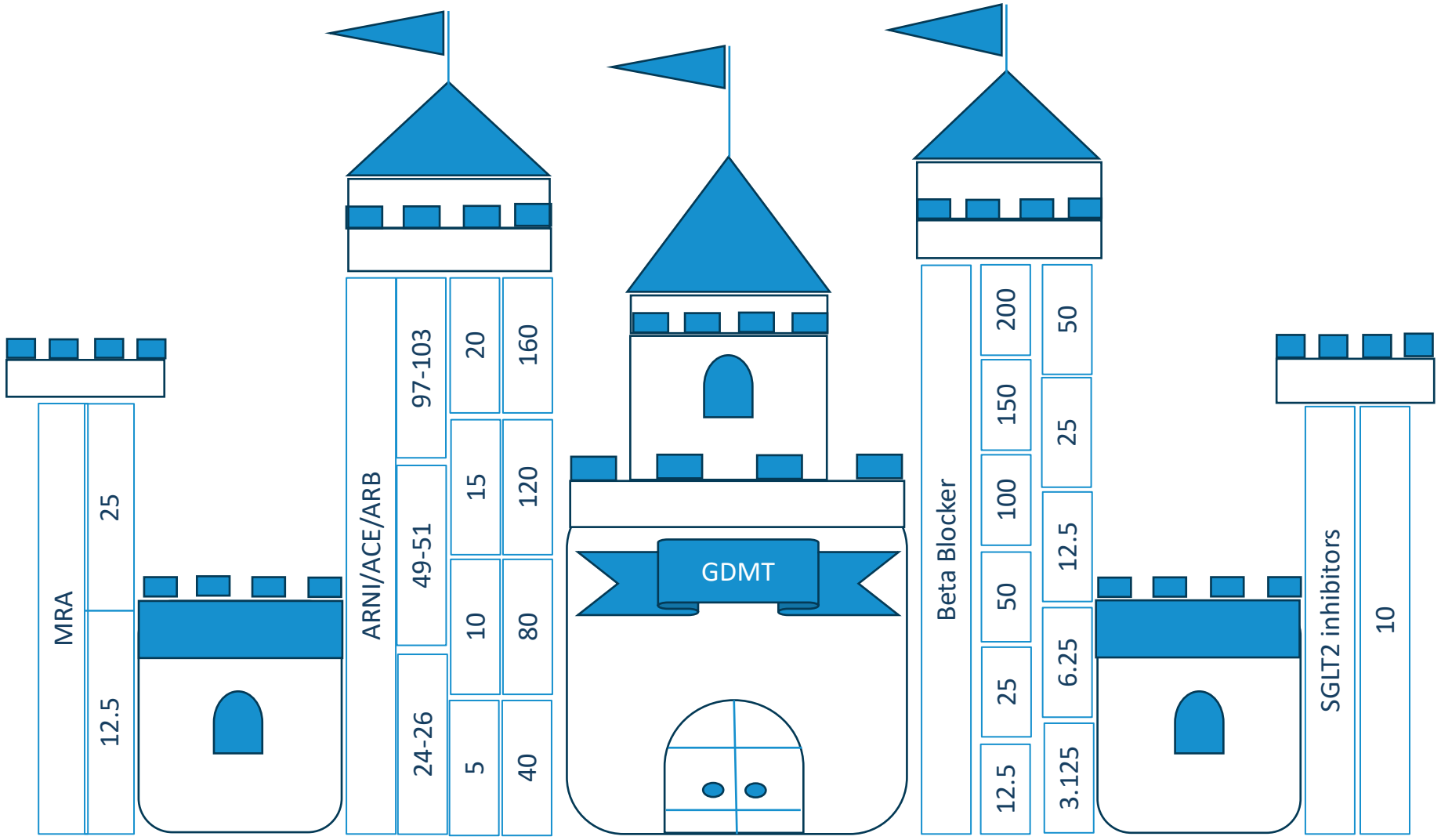


Heidenreich et al. JACC 2022.

4 FOUNDATIONAL PILLARS OF GUIDELINE DIRECTED MEDICAL THERAPY

First Line Regimen for HFrEF: 1. ARNI, 2. BB, 3. MRA, 4. SGLTi

Concurrent use of all 4 drug classes has been estimated to reduce all-cause mortality by 73%!



Reduce all-cause mortality 30%
Reduce HFH by 35%

Reduce CV mortality/HFH 20%
Reduce pro-BNP

Reduce HFH
Reduce all-cause mortality
Improved functional capacity
Improved LVEF

Reduce HFH
Reduce CV mortality

Nguyen AH et al. JSCAI 2023.

Maddox T et al. JACC 2024.

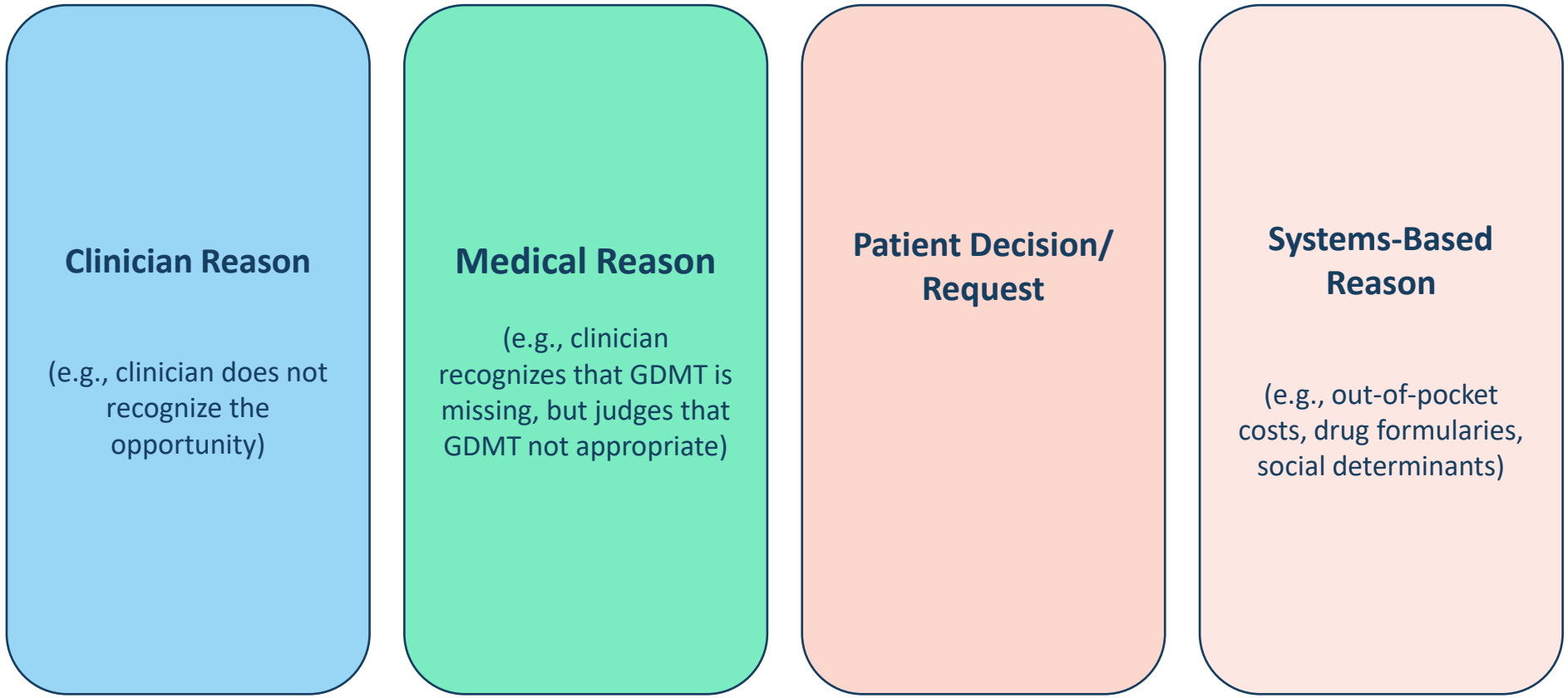
TRUE OR FALSE

Only 10% of patients who qualify for guideline directed therapy with BB, ACEi/ARB/ARNi, and MRA reach “stable target dosing”

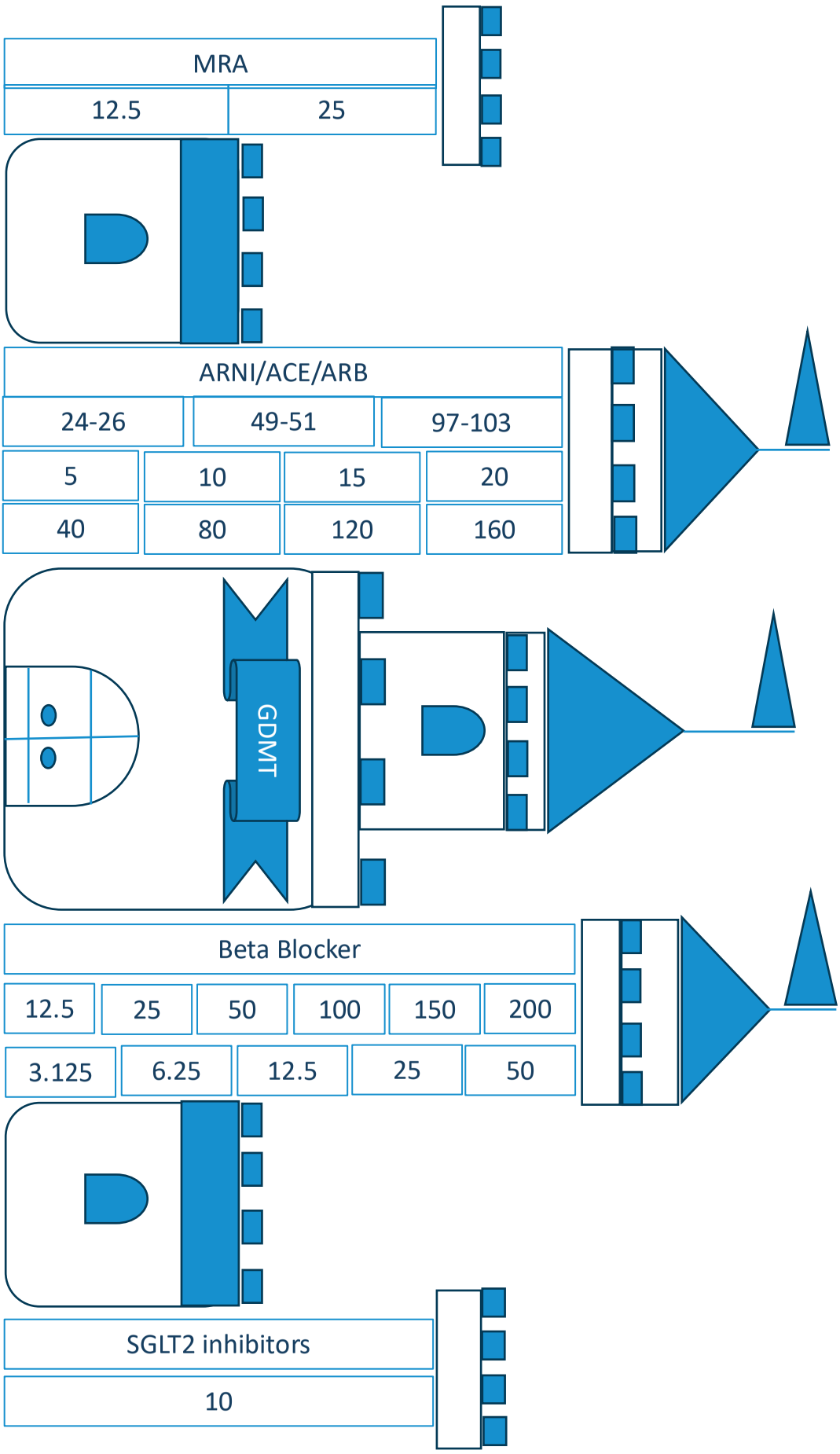
FALSE - - only **ONE PERCENT** of patients reach stable target dosing of guideline directed medical therapy

Greene et al. JACC. 2018.

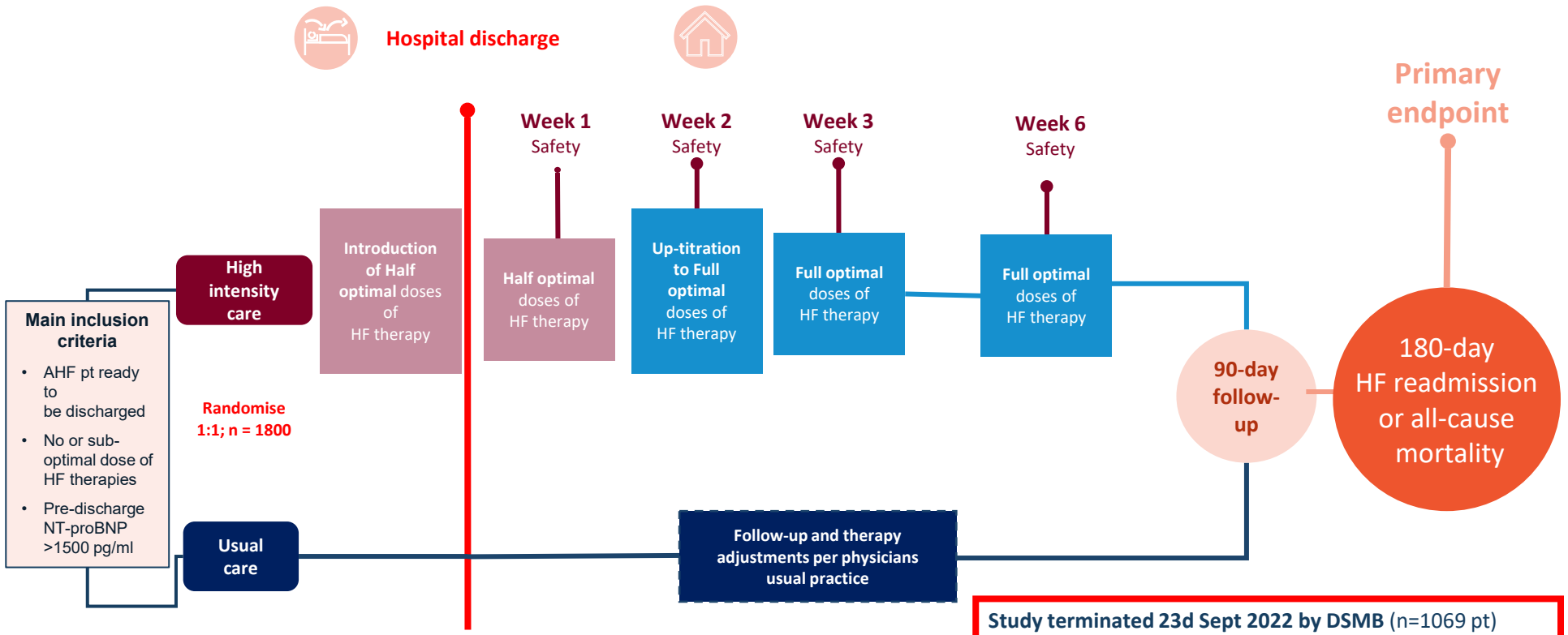
Potential Barriers to GDMT



Greene SJ et al. *JACC* 2019


MRA
12.5
25
ARNI/ACE/ARB
24-26
49-51
97-103
5
10
15
20
40
80
120
160
GDMT
Beta Blocker
12.5
25
50
100
150
200
3.125
6.25
12.5
25
50
SGLT2 inhibitors
10

STRONG-HF Trial



Study terminated 23d Sept 2022 by DSMB (n=1069 pt)
- larger than expected difference in primary endpoint
- unethical to keep patients in usual care

HF therapy: combining ACEi/ARB/ARNi & BB & MRA

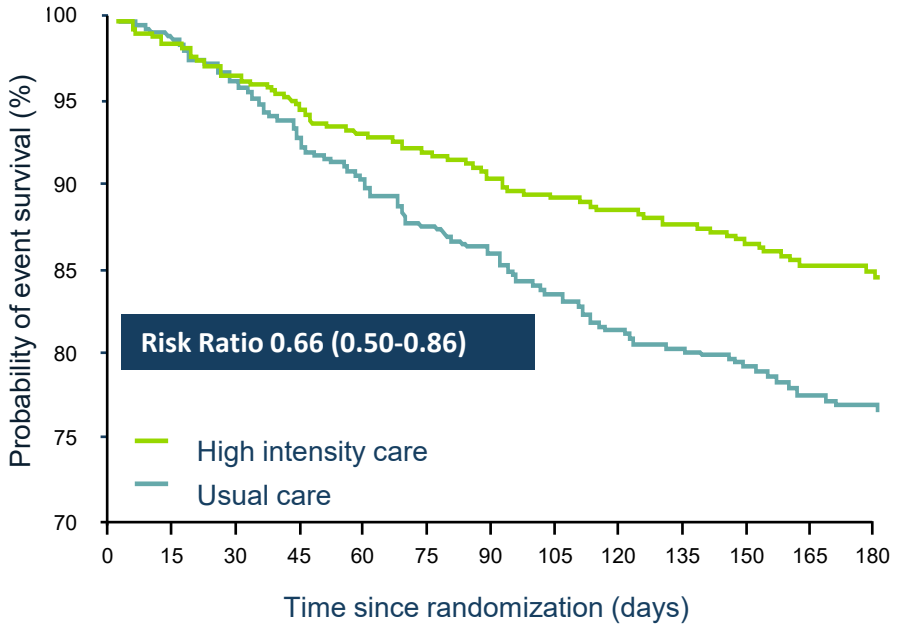
Safety = clinical exam & biology (NT-proBNP, K, Creat, hemoglobin)

ACEi, angiotensin converting enzyme inhibitors; AHF, acute heart failure; ARB, angiotensin receptor blockers; BB, beta blockers; HF, heart failure; MRA, mineralcorticoid receptor antagonists; NT-proBNP, N-terminal pro B-type natriuretic peptide

Mebazaa A et al. *Lancet* 2022

Primary endpoint:

180-Day Readmission for HF or All-Cause Death



Absolute risk reduction = 8.1%

Number needed to treat to prevent one death or HF hospitalization over 6 months = **12**

Secondary endpoints:

Change from Baseline to Day 90 in EQ-5D VAS

High Intensity	Usual Care	Treatment effect	P value
10.7 (0.9)	7.2 (0.9)	**3.5 (1.7 to 5.2)**	< 0.0001

STRONG-HF Summary

- ✓ Reduced death/HF hospitalization, with large absolute risk reduction
- ✓ Improved patient-reported health status and NYHA class
- ✓ Improved congestion
- ✓ **No significant difference in serious adverse events compared with usual care**

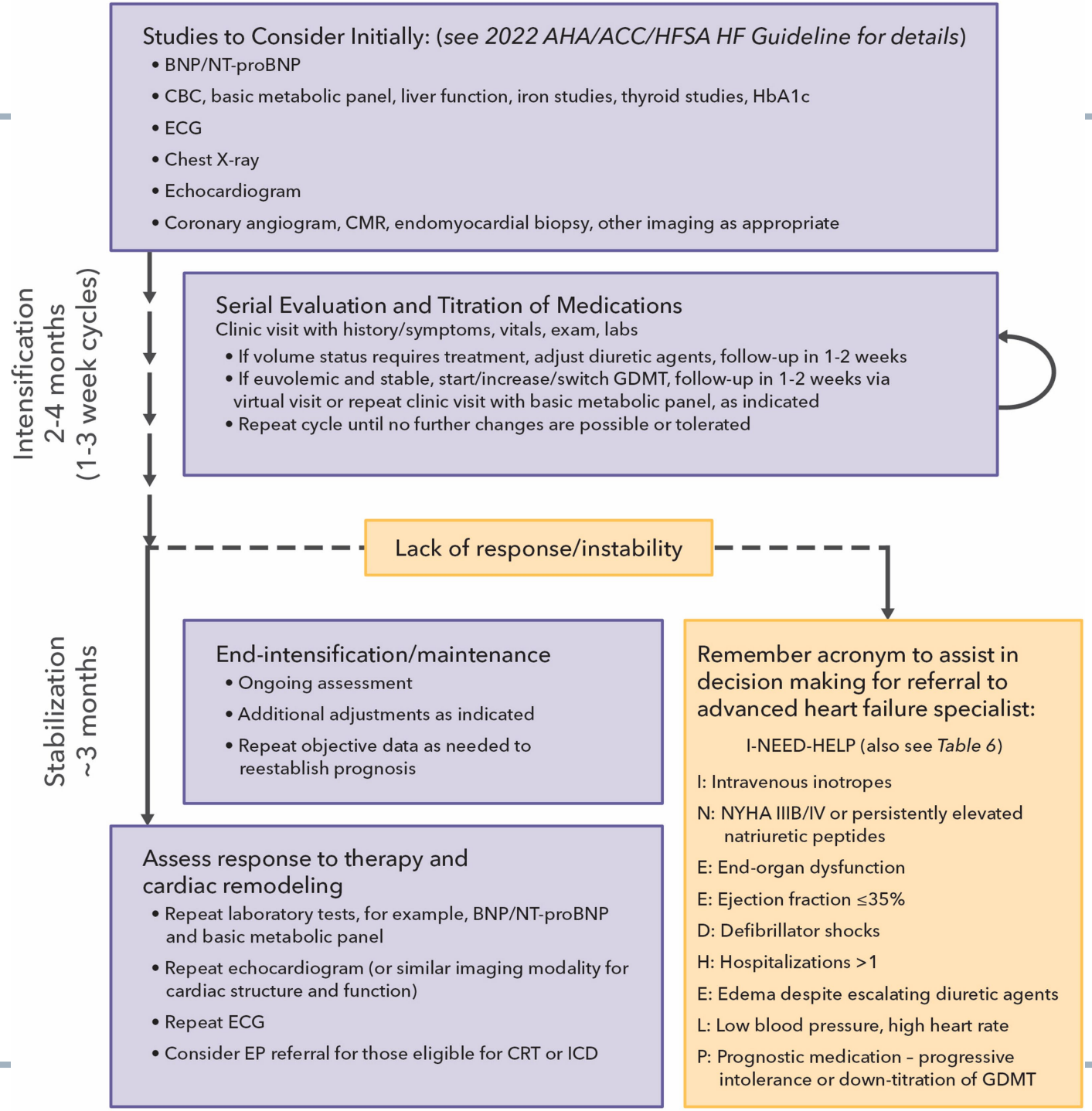
Mebazaa A et al. *Lancet* 2022

Heart Failure with IMPROVED Ejection Fraction

Recommendation for HF With Improved EF (HFimpEF)
Referenced studies that support the recommendation are summarized in the Online Data Supplements.

COR	LOE	RECOMMENDATION
1	B-R	1. In patients with HFimpEF after treatment, GDMT should be continued to prevent relapse of HF and left ventricular dysfunction, even in patients who may become asymptomatic (36).

Heidenreich et al. JACC 2022.



Maddox et al. JACC. 2024. 83(15)

DEVICE MANAGEMENT

DEVICES IN HEART FAILURE

- Cardiovascular Implantable Electronic Devices (CIEDs)
  - Implantable Cardioverter Defibrillator (ICD)
    - Primary prevention sudden cardiac death with LVEF≤35%
  - Cardiac Resynchronization Therapy (CRT)
    - LVEF≤35%, NSR with QRS ≥150ms with LBBB
    - Morbidity & Mortality benefit with reverse remodeling
- Continuous Implantable Pulmonary Artery Pressure Monitoring (CardioMEMS)
  - Increased intracardiac pressures precede overt signs/symptoms of HF
  - Reduce HF hospitalizations
- Cardiac Contractility Modulation (CCM) (Optimizer)
  - Delivers high voltage, nonexcitatory electrical signals to RV septal wall during refractory period, enhancing myocardial contractility of LV
  - Improved functional capacity, quality of life, reduction in HF hospitalizations
- Baroreceptor Activation Therapy (BAT) (Barostim)
  - Stimulates carotid baroreceptors, increasing parasympathetic activation, reducing sympathetic activation to rebalance autonomic input
  - Improved functional capacity, quality of life
- Percutaneous Transcatheter Edge-to-Edge Repair (TEER)
  - MitraClip
    - Reduce HF hospitalization and all-cause mortality

Nguyen AH et al. *JSCAI* 2023.

TAKE HOME MESSAGES

- Rapid Sequential Titration of GDMT is safe, well-tolerated, and associated with reduced risk of all-cause death/HF hospitalization – help us be better than the 1%, fellow APPs!!
- After optimization of GDMT, consider addition of therapeutic device interventions and/or remote monitoring devices
- Recognize poor prognostic signs early and consider referral to cardiology or heart failure specialty center

THANK YOU!

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2024 AHN APP Annual Conference

Allegheny Health Network

The “Weight” is Over

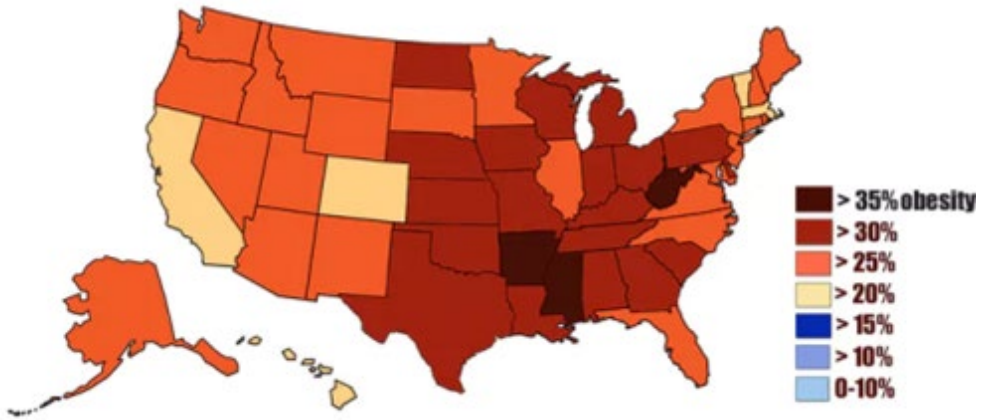
Kathy Scutella, CRNP
AHN Saint Vincent Bariatric and Metabolic Institute

Disclosure

I have no financial disclosure or conflicts of interest with the presented material.

Obesity Epidemic in USA

- Obesity is a MAJOR health problem in the USA
- 2/3 adults in USA are overweight or obese
- 500K people die every year from medical complications related to Obesity
- Only 1% of people who are eligible for bariatric surgery receive it → WHY?
- Limited medication coverage



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What is Obesity

Defined by WHO as “abnormal or excessive fat accumulation that presents a risk to health.”

Defined by the OMA as a “chronic, progressive, relapsing, and treatable multi-factorial, neurobehavioral disease, wherein an increase in body fat promotes adipose tissue dysfunction and abnormal fat mass physical forces, resulting in adverse metabolic, biomechanical, and psychosocial health consequences.”

BMI >30 kg/m2

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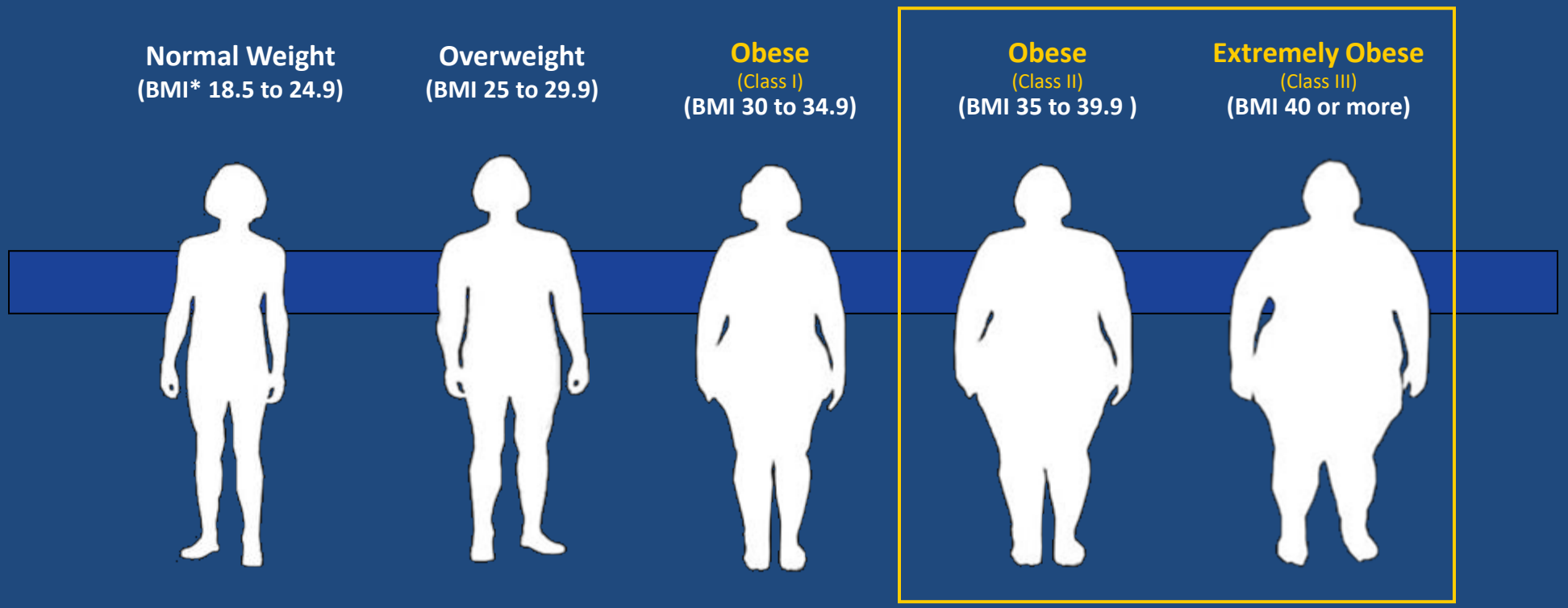
OBESITY FACTS

- ** Obesity is a Chronic **Disease** **
- Cause: Genetics & Environment
- Life long, progressive, and life threatening
- We should treat obesity similar to heart disease, joint disease, & cancer

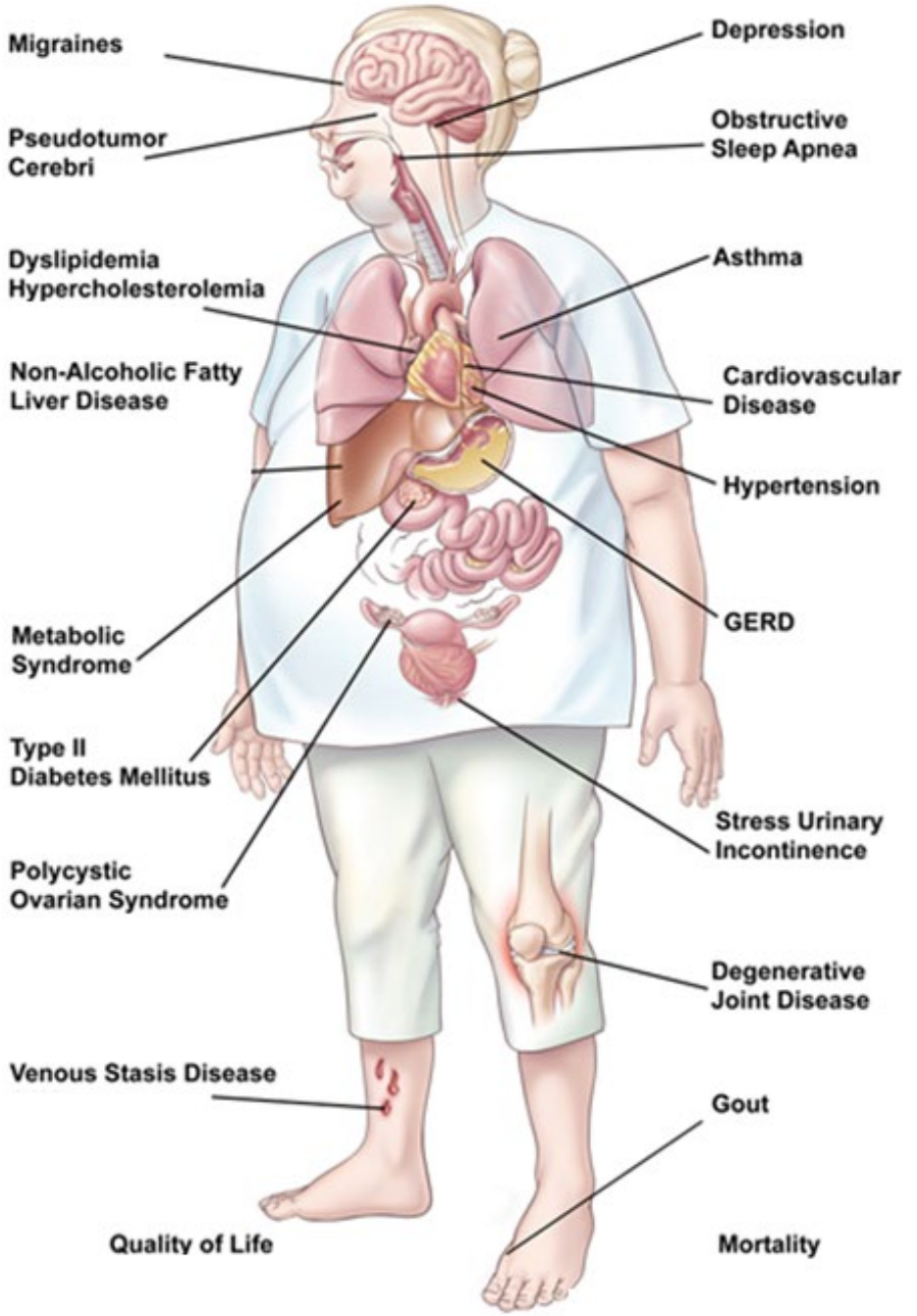
How is Obesity Measured?

BMI = Body Mass Index (kg/m2)



**BMI 35+ benefit the most from surgery

Obesity Related Health Conditions



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Diet & Exercise Alone …

- Average weight loss is very modest
- Weight lost is commonly regained plus more
- **95%** of people are unable to achieve a healthy weight if starting BMI is > 35 kg/m^2

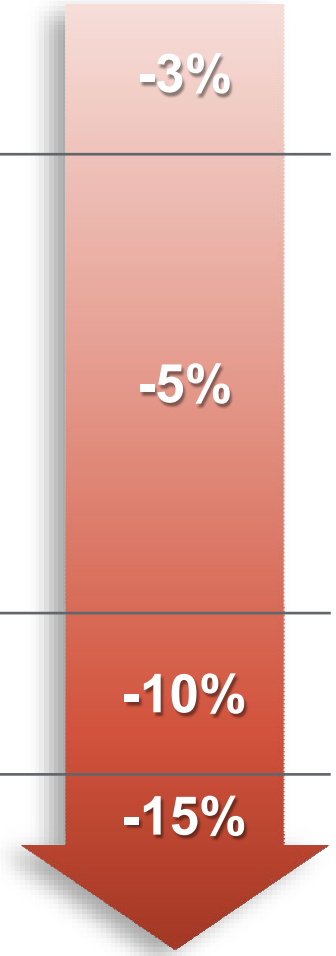
Benefits of Modest Weight Loss

Improved glucose levels
Decreased cholesterol Triglycerides

Increase in HDL “good” cholesterol
Improved blood pressure
Decreased fatty liver disease
Lower symptoms of urinary incontinence
Improved reported sexual function
Improved reported quality of life

Improved Sleep Apnea

Reduction in heart attack and death rate



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Bariatric and Metabolic Institute

Weight Bias - Is it in your Practice???

- Weight bias is negative attitudes, beliefs, judgments, stereotypes, and discriminatory acts aimed at individuals simply because of their weight. It can be overt or subtle and occur in any setting, including employment, healthcare, education, mass media and relationships with family and friends

- Bias against patients with weight issues can make a provider less kind, supportive, and compassionate—which compromises the level of care they deliver. In addition, perceived provider discrimination may make people living with obesity reluctant to seek medical help for health problems

Where Do We Start??

- Start with the conversation
- Assess the insight and readiness of the patient to change
- Avoid bias
- Refer when needed

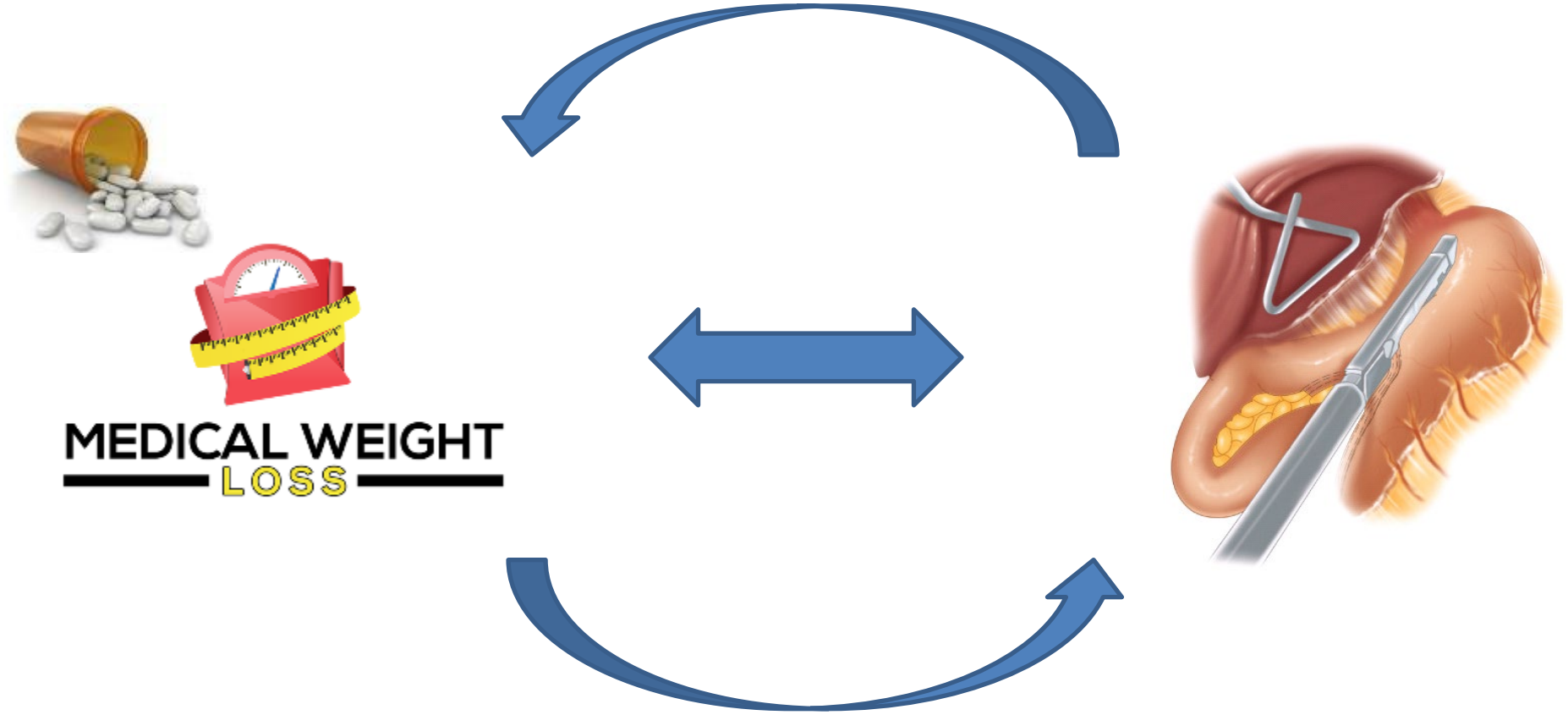
  - Ask permission to discuss their weight
  - Sensitive topic for most, approach with compassion
  - Patients want to be heard
  - Ask if they have tried to lose weight before, what worked, what didn't
  - Find out what their motivators are for losing weight

Bariatric Consult – Pathway Decision

- Provider or self referrals are accepted
- Our practice determines Bariatric insurance benefits
- Patient is seen as a consult
- Thorough exam, health history, and diet history
- Discuss all options
- Determine what patient is comfortable with regarding treatments
- Surgical vs Nonsurgical approach. This can be fluid and cross paths
- Workup as indicated
  - What does insurance require prior to surgery
  - Tests, bloodwork

AHN Bariatric & Metabolic Institute

Medical AND Surgical Weight Loss Pathways



Treatment Plan

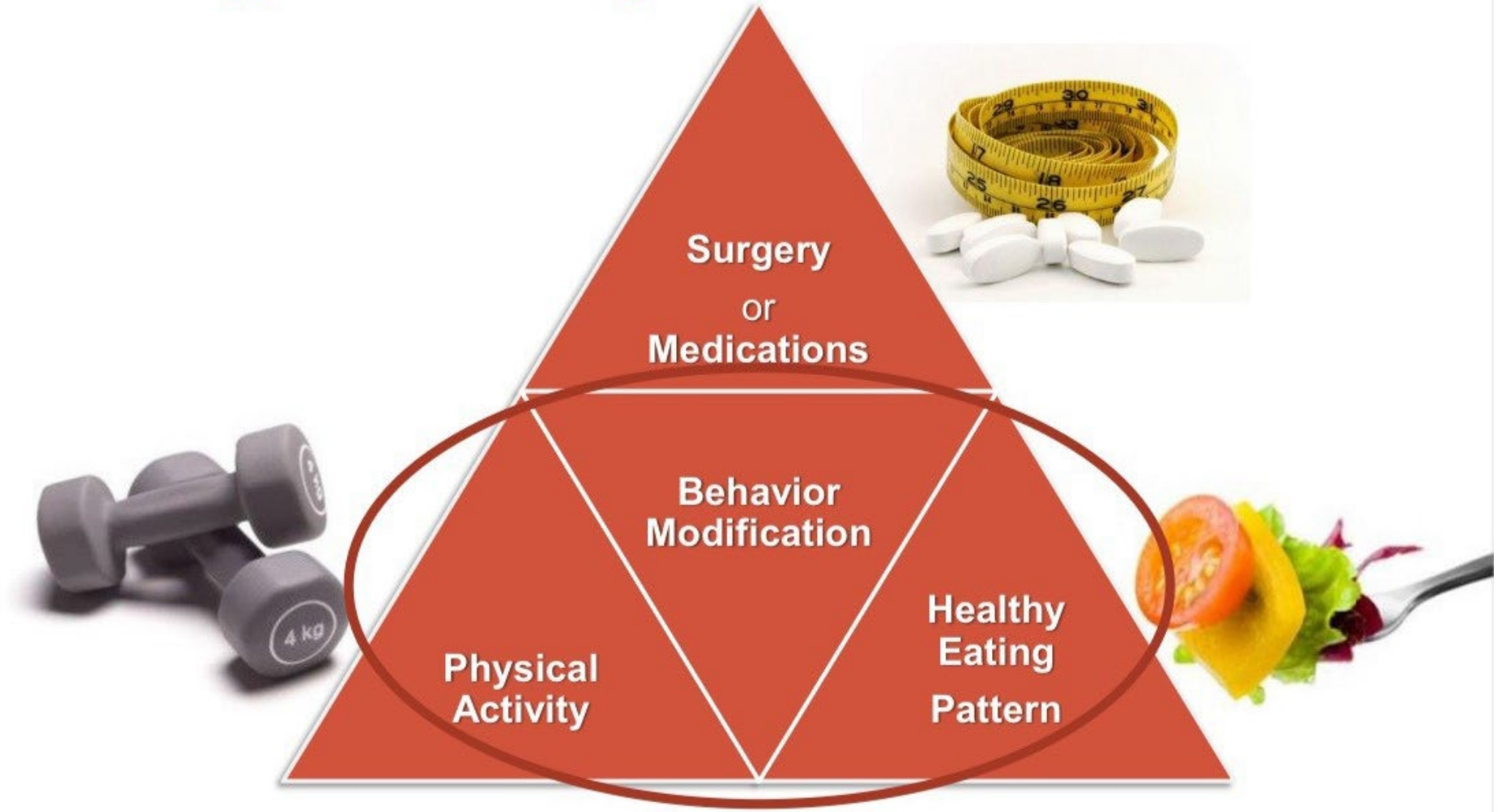
- Looks different for every patient, should be individualized
- Need permanent lifestyle changes for long term success, but start small
- Set realistic and progressive goals
- May need to revisit treatment plan and goals as patient progresses through the program

Medication Impacts

Category	Drugs That May Cause Weight Gain	Possible Alternatives
Neuroleptics	Thioridazine, haloperidol, olanzapine, quetiapine, risperidone, clozapine	Ziprasidone, aripiprazole
Antidiabetic agents	Insulin, sulfonylureas, thiazolidinediones	AGIs, DPP-4i, SGLT2i, GLP-1 RAs, metformin
Steroid hormones	Contraceptives, glucocorticoids, progestational steroids	Barrier methods, NSAIDs
Tricyclics (ADs)	Amitriptyline, nortriptyline, imipramine, doxepin	Protriptyline, bupropion, nefazodone
MAOIs (ADs)	Phenelzine	
SSRIs (ADs)	Paroxetine	Fluoxetine, sertraline
Other (ADs)	Mirtazapine, duloxetine	Bupropion
Anticonvulsants	Valproate, carbamazepine, gabapentin, pregabalin, vigabatrin	Topiramate, lamotrigine, zonisamide, felbamate
Antihistamines	Cyproheptadine	Inhalers, decongestants
β- and α-adrenergic blockers	Propranolol, doxazosin	ACEIs, CCBs

Kushner RF, et al. *JAMA*. 2014;312(9):943-52; Apovian CM, et al. *J Clin Endocrinol Metab*. 2015;100(2):342-62.

Components of an Effective Obesity Management Program



Wadden TA, Foster GD. Behavioral treatment of obesity. *Med Clin North Am*. 2000;84:441-461.
Stumbo, PH, et. al. Dietary and medical therapy of obesity. *Surg Clin N Am* 85(2005)703-723.

Options

Surgical vs Nonsurgical

Common Factors

Diet basics are important for both surgical and nonsurgical approaches

- **Changing food choices, eating habits and patterns for long term success**

Exercise if a vital component of weight management however you must set small realistic goals

- **The best amount of exercise is the amount the patient is comfortable with AND capable of doing**

Allegheny Health Network

Why Surgery? - Benefits

- **Surgery is statistically the most effective approach for long-term weight loss among severely obese patients**

- Fewer Medical Problems
- Less Prescription Medications
- Better Mobility
- Increased Life Expectancy
- Better Quality of Life
- Decreased Cancer Risk

Pre-Surgical Requirements

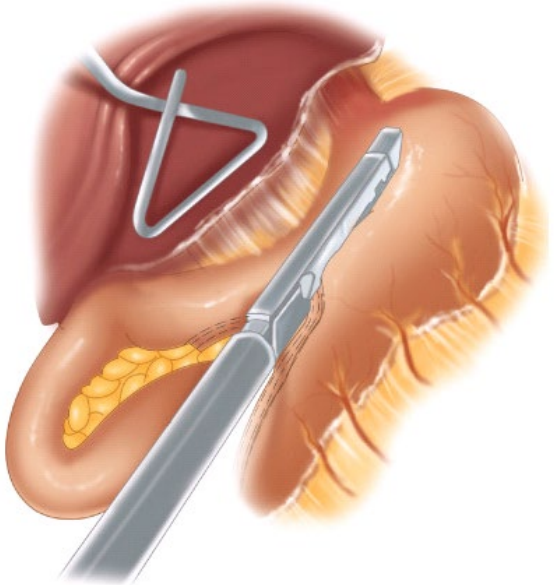
- Initial Surgeon Consult
- Meet BMI requirements
- Monthly provider weight supervised diet (3-6 months)
- Initial blood tests
- No Smoking (No Nicotine)
- Medical testing & clearances
- Endoscopy (EGD) scope
- Mental Health evaluation
- Nutrition evaluation
- Insurance approval

Which Surgery??

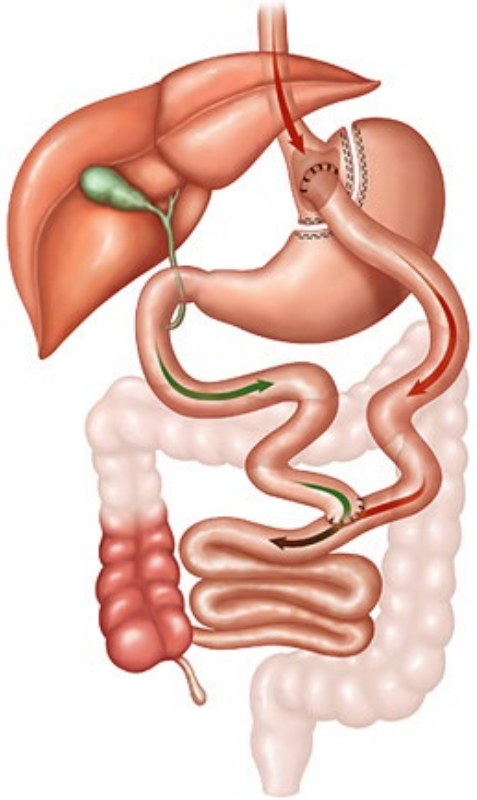
- ** Joint decision making between patient and surgeon**
- Sleeve & Bypass weight loss differences?
- Bypass
  - Better for reflux, diabetes, metabolic disease
- Sleeve
  - Better for extremes of age (older/younger)
  - Quicker OR time, less perioperative risk
  - Many more options for revision

Most Common Surgical Options

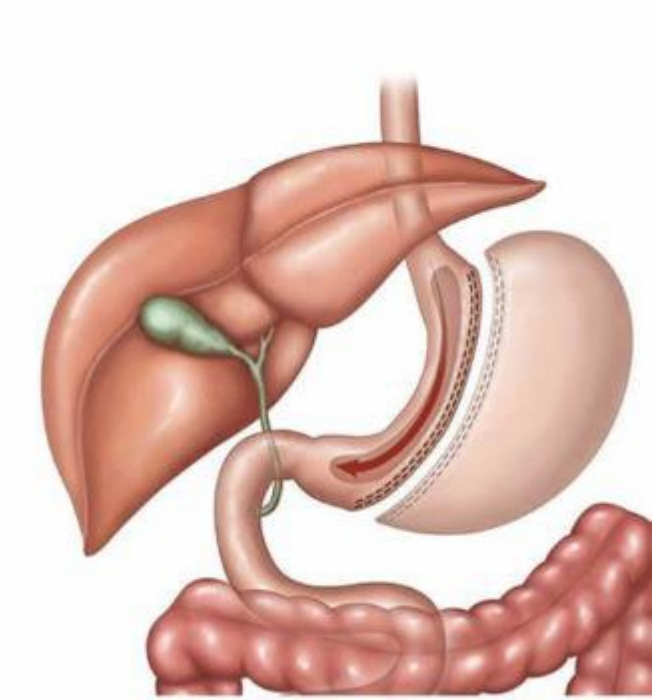
Sleeve Gastrectomy (SG)



Gastric Bypass (RYGB)



Sleeve Gastrectomy (SG)



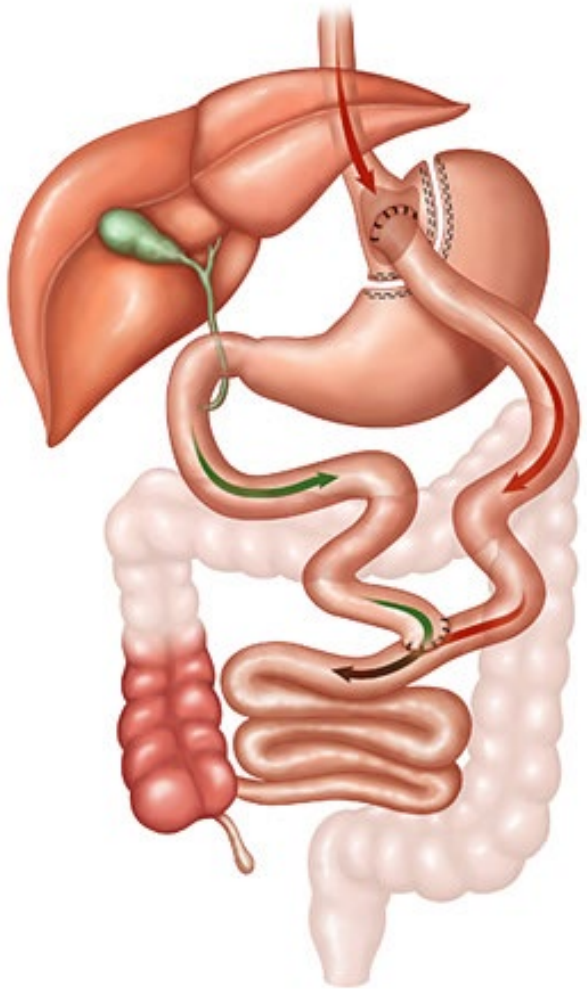
Advantages:

- Stomach only operation
  - No intestinal re-routing
  - Normal GI tract continuity
- Shorter operating time
- More revision options

Disadvantages:

- May worsen Reflux
- Nausea & Dehydration

Gastric Bypass (RYGB)



Advantages:

- Gold Standard - longest proven data
- Most effective for Diabetes & Reflux
- “Dumping syndrome” – sweet eaters

Disadvantages:

- Longer operation time
- Risk of vitamin & nutrient deficiency
- Lifetime risks:
  - Marginal Ulcers
  - Internal Hernia bowel obstruction
- Lifetime NSAID avoidance

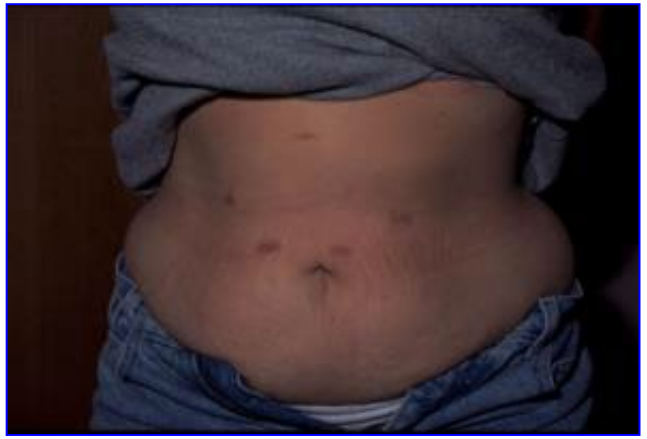
Bariatric Surgery Complications

- **Myth**: Bariatric Surgery is NOT Safe

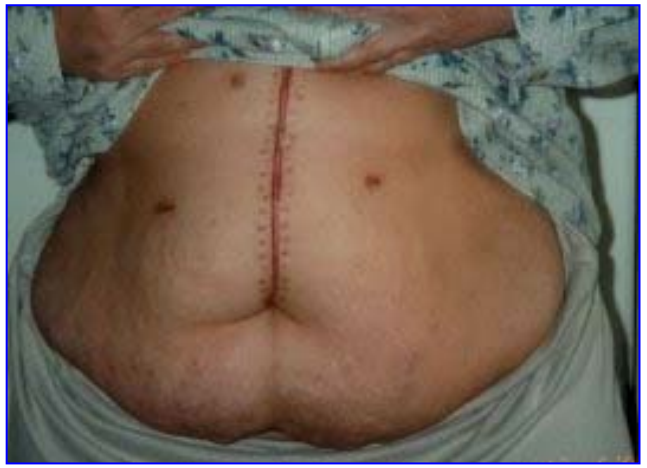
- **Truth**: Bariatric Surgery IS very Safe
  - Similar: Hysterectomy, Gallbladder, Appendix
  - 4x safer than Colon resection
  - 6x safer than Joint replacement
  - 14x safer than Heart surgery

Laparoscopic vs. Open Surgery

- Faster recovery
- Less pain
- Smaller scars
- Fewer wound infections
- Fewer hernias
- Decreased adhesions



Laparoscopic



Open

Revision Surgery Options

- Poor Weight Loss??
- Anatomical complications (Ulcer/Stricture)
- Second stage procedures for High BMI
- LapBand conversion to Sleeve/Bypass
- Sleeve conversion to Bypass for Reflux
- Sleeve conversion to Duodenal Switch for failed weight loss or metabolic disease
- **Medical Weight Loss Drugs** are a good second line therapy after surgery!

Additional Surgery Considerations

- No Smoking (No Nicotine)!!
- Bypass: No NSAIDS (Ibuprofen, Naproxen)
- Body Contouring after weight loss
- No pregnancies for 18-24 months
- Hospital stay: Typically 1 night
- Return to work/school: 3 days to 1 week
- Lifelong Vitamin supplements
- Follow-up visits important

Not a Magic Bullet!

- **Surgery is only a "Tool"**
- Surgery causes rapid weight loss (6-12 months)
- Long term success depends on adherence to good habits developed
  - Diet, Exercise, Behavior Modification
- Weight Regain is possible

Medical Weight Loss Options

❖ Medication

- Costs
- Side effects
- Efficacy
- Patient compliance

❖ Behavioral Changes

- Slower results
- Patient willingness to change
- Patient compliance and motivation

Pharmacotherapy for Obesity Management

Indications for Anti-Obesity Medications

BMI of 27 kg/m2 or greater with adiposity related co-morbidity (HTN, HLD/Dyslipidemia (including HDL<50 females, <40 males), CAD, DM2, OSA, symptomatic arthritis of lower extremities, or GERD)

BMI of 30 kg/m2 or greater

Not used to “kick start” weight loss

Obesity is considered to be a chronic disease that requires chronic treatment and when treatment is stopped, regain is likely

Used **in combination** with dietary changes, behavioral changes, and exercise

All Anti-Obesity Medications are contraindicated in pregnancy and when breastfeeding

Delay initiating pharmacotherapy when patients have active eating disorders or drug/alcohol abuse

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Choosing an AOM: The 5 C's

- Coverage
- Contraindications
- Comorbidities
- Cues
- Combinations

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Tips to Remember and Relay

- Obesity is a chronic disease
- It is not the patient's "fault"
- It takes time
- Manage expectations

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FDA-approved* Options

Short term use:

Phentermine (Lomaira/Adipex) and other non-adrenergic agents

Long term use:

- Phentermine/Topiramate ER (Qsymia)
- Naltrexone/Bupropion (Contrave)
- Semaglutide 2.4 mg (Wegovy)
- Tirzepatide 15mg (Zepbound)
- Plenity
- Orlistat (Alli/Xenical)

Phentermine

-Approved in 1959 (brands Adipex and Lomaira)

-Schedule IV stimulant approved for short term use

-Mechanism of Action: Sympathomimetic. Upregulation of norepinephrine, weak upregulation of serotonin and dopamine. Increases satiety via activation of neurons in arcuate nucleus.

-Side Effects: Dry mouth, Increased blood pressure/heart rate, Palpitations, Anxiety, Agitation, Insomnia, Constipation, and Headache.

-Exclusion criteria: CAD, Arrhythmia, CHF, Stroke, Uncontrolled BP, hyperthyroidism, glaucoma, MAOI use within 14 days

Qsymia

-Phentermine HCL/Topiramate Extended Release

-Approved in 2012

-Schedule IV drug

-Mechanism of Action

Phentermine- sympathomimetic effect on the hypothalamus

Topiramate- GABA system

-Increased risk of congenital malformations (cleft lip and palate) in infants exposed in first trimester of pregnancy. Two forms of birth control recommended.

-Side Effects: Paresthesias, Changes the taste of certain foods and beverages, Brain fog, Word finding issues (in addition to those previously discussed with phentermine).

-Exclusion Criteria: Hx of Kidney stones (in addition to those previously discussed with phentermine).

Contrave

-Bupropion/Naltrexone ER

-Approved in 2014

-Mechanism of Action: Decreases cravings by blocking norepinephrine and dopamine reuptake in the appetite center and actions on the reward center

-Side Effects: Nausea, Dizziness, Insomnia, Increased blood pressure, Increased heart rate, Headache, Constipation, Diarrhea. Monitor for depression or suicidal thoughts.

-Exclusion Criteria: Concurrent opioid use, Seizure disorder, Uncontrolled Hypertension, Bulimia or Anorexia Nervosa, MAOI use within 14 days

GLP-Receptor Agonists

-Mechanism of Action: Glucagon-like Peptide-1 Receptor Agonist; slows gastric emptying, decreases appetite, increases satiety, and promotes glucose-dependent insulin secretion

-Side Effects: Nausea, Vomiting, Diarrhea, Constipation

-Exclusion Criteria: Personal or Family History of Medullary Thyroid Cancer or MEN Type 2 syndrome, History of Pancreatitis*, and Gastroparesis*

Saxenda (liraglutide) **NO LONGER AVAILABLE

- Approved in 2015
- Daily SQ injectable

Wegovy (semaglutide)

- Approved in 2021
- Weekly SQ injectable

Tirzepatide* (Zepbound)

-Mounjaro approved for treatment of Type 2 Diabetes Mellitus in 2022

-Zepbound approved for treatment of Weight Loss in January 2024

-Mechanism of Action: Dual hormone receptor agonist for GLP-1 and GIP (gastric inhibitory polypeptide receptor); GLP benefits plus increased glucose and lipid metabolism

- Weight loss trial showed mean loss of 21% on max dose vs placebo

-Side Effects: Nausea, Vomiting, Diarrhea, Constipation

-Exclusion Criteria: Personal or Family History of Medullary Thyroid Cancer or MEN Type 2 syndrome, History of Pancreatitis*, and Gastroparesis*

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Plenity

-Cellulose and Citric Acid

-Approved in 2019

-Considered a medical device since it is not systemically absorbed

-Indication for treatment is a BMI of **25**-40 kg/m2

-Mechanism of Action: Non absorbent hydrogel

-Side effects: Comparable to placebo. Mild GI side effects.

-Exclusion Criteria: History of bariatric surgery due to volume restriction and stricturing bowel disease

Orlistat

-Alli and Xenical

-Approved in 1999

-Mechanism of Action: Gastrointestinal Lipase Inhibitor. Impairs digestion of dietary fat. Works primarily within the GI wall with minimal systemic absorption.

-Side Effects: Upset stomach, Bloating, Oily stools, Diarrhea, Fecal incontinence/leakage, Malabsorption of fat soluble vitamins (A, D, E, K). Increased side effects with high fat meals.

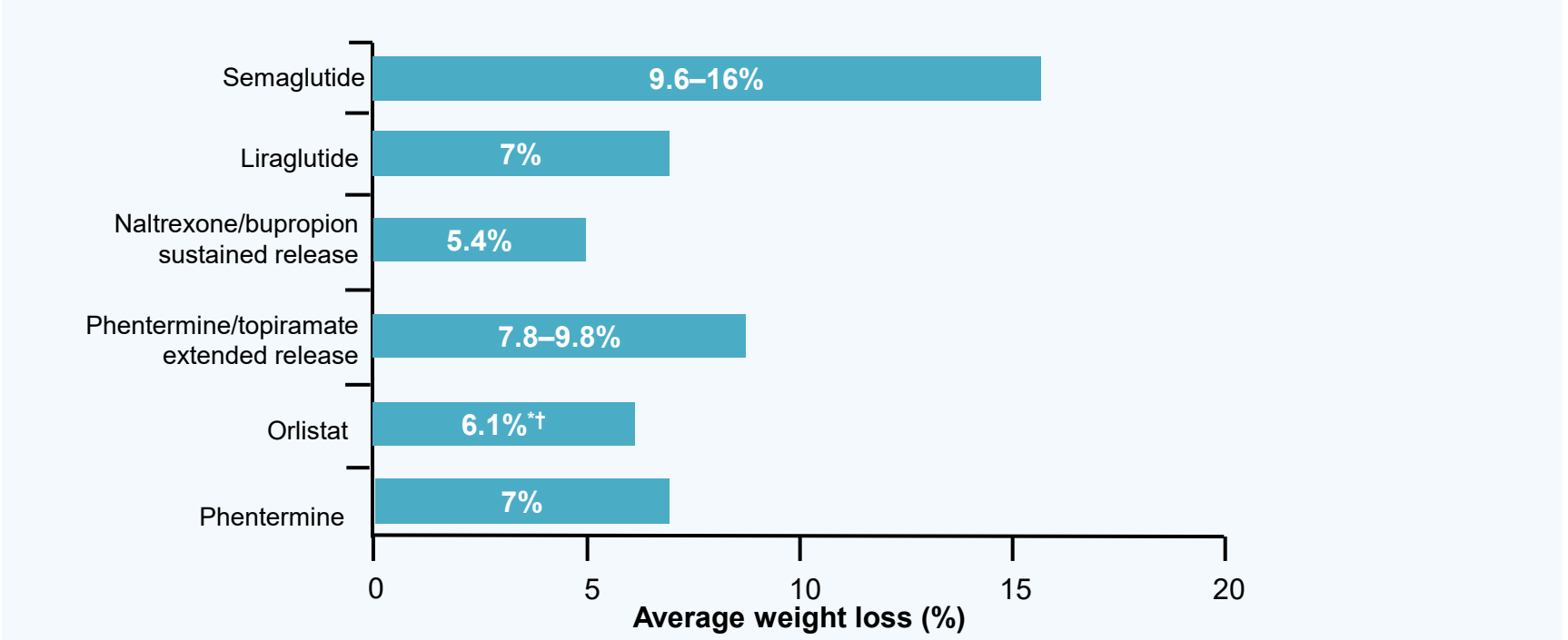
-Exclusion Criteria: Chronic Malabsorption (prior bariatric surgery)/GI issues (IBS-D), med induced diarrhea, cholestasis

-Multivitamin that contains fat soluble vitamins should be added 2 hours before or after taking orlistat.

-Attention to timing of concurrent medications

- Levothyroxine (4 hours)
- Cyclosporine (2 hours)

Current Pharmacotherapy Overview



The data supporting these tables are derived from the Prescribing Information labeling approved by the U.S. Food and Drug Administration.
*Data from randomized controlled trials >52 weeks in duration; †Assuming the average patient in the orlistat and placebo groups weighed 100 kg at baseline.
Adapted from Bray GA et al. Lancet 2016;387:1947–56. Additional references in slide notes.

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Follow Up

Very much provider and patient-dependent

Monitoring for higher risk meds (phentermine)

Mindful of insurance authorization timelines

More frequent at the beginning improves patient outcomes!

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Your body

ACHIEVES

what your mind

BELIEVES

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Journey is Important: “Winning and losing isn’t everything; sometimes, the journey is just as important as the outcome”

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Moving Forward Together

"Alone we can do so little; together we can do so much"....Helen Keller

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Thank You!

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Please remain seated as we prepare for the final presentation and closing remarks.

The room divider will be removed shortly to accommodate all attendees.

Thank You!

- Allegheny Health Network
- CME Office
- AHN APP Conference Planning Committee
- APP Conference Speakers
- Kathy Scutella, CRNP
- Jason Homer, PA-C
- Dr. Don Whiting
- Dr. Sue Manzi
- Cassidy Emery
- Nicole Lo Cascio
- Emily Naples
- Morgan Meehan
- Laura Figurski

Save The Date!

AHN 3rd Annual Advanced Practice Provider Conference on **Friday May 2nd, 2025**

Great Room B

AHN 2nd Annual APP Conference - Reminders

Breakout Sessions

Don't miss your hands-on learning session!

Here's the schedule:

- **Suturing 101:** 11:05 am - 12:10 pm
- **EKG Readings:** 1:15 pm - 2:15 pm
- **Joint Injections:** 3:05 pm - 3:35 pm

Please arrive on time to ensure you get the most out of your session.

We appreciate your cooperation in keeping to the schedule.

Update Your Professional Photo!

AHN Employees, it's time to refresh your professional photo!

Highmark Photography will be on the upper level today from 7:30 am - 1:30 pm to capture your best look.

Don't miss this opportunity to update your photo for internal directories and other official uses.

Submit Your Vendor Passport for a Chance to Win!

Have you completed your Vendor Passport?

Visit each vendor table and get your passport stamped! Once you've collected all the stamps, submit your completed passport for a chance to win the Door Prize!

The winner will be contacted before the conference ends today to claim their prize.

Don't miss out!

Don't Miss Out! Raffle Time!

Choose your favorite basket and enter to win!

Here's how:
1.Scan the QR code to submit your entry.
2.Complete the short form and include your phone number so we can reach you quickly if you win!

Raffle submission closes at 3:00 pm today (9/14/2024). Winners will be contacted by 3:30 pm today to claim their prize before the conference ends!

Good luck!

PRESENTED BY: Allegheny Health Network

September 2024

Pint-sized problems:
A review of common pediatric illnesses for the adult provider

Michael Talotta, PC-C, DMSc, MPAS
Pediatric Institute APP Officer
Ambulatory Pediatrics APP Supervisor

AHN

Agenda

- Introduction
- Overview of Respiratory Illnesses
- Gastrointestinal Illnesses
- Other common illnesses
- Red-flag symptoms
- Conclusion

Disclosures

I have no financial interests or relationships to disclose

Respiratory Conditions

Bronchiolitis

Pathophysiology

- Inflammation of the epithelial cells of the small airways, which leads to mucous secretion, inflammation, and airway obstruction

Etiology

- 80% of cases are associated with RSV
- Other viruses: adenovirus, human metapneumovirus, influenza, parainfluenza

Risk Factors

- Preterm, lung disease, congenital heart disease, age < 3 months, smoke exposure, cockroaches, dust, and dander exposure

Bronchiolitis

Clinical Manifestations	Management	Prevention

• URI symptoms
• Respiratory distress
  • Tachypnea, accessory muscles, retractions, nasal flaring
• Wheezing
• Hypoxia
• Respiratory failure
	• Supportive/symptom management
	  • Hydration, suction
	• Close monitoring
	• O2 supplementation
		• Synagis (palivizumab)
		• Beyfortus (nirsevimab-alip)
		• RSV vaccine for expecting mothers

Croup

Pathophysiology

- Inflammation of the epithelial cells in the airways of children 0-2 years of age
- Airway restriction causes “Barking” cough

Etiology

- Viruses:
  - Parainfluenza, Influenza, measle, adenovirus, and RSV
- Bacteria:
  - Diphtheria*, S. aureus, S. pneumoniae, H. influenzae*, and *M. catarrhalis*

Epidemiology

- Accounts for 7% of hospitalization in children younger than 5
- Affects 3% of children per year

Croup

Clinical Manifestations

Cough/barking

Hoarseness

Difficulty breathing

+/- fever

URI symptoms

Evaluation

Diagnosis made by H&P

Westley Score

- <2 – Mild
- 3-5 – Moderate
- 6-11 – Severe
- > 12 – Impending respiratory failure

Management

Mild:

- Dexamethasone 0.6mg/kg single dose

Moderate to Severe:

- Dexamethasone with racemic epinephrine

Severe or limited improvement with observation:

- Admission for O2 supplementation

May consider antibiotics if suspecting bacterial cause

Pneumonia

Etiology

- Neonates (early onset)
  - Group B Strep, *Klebsiella, E.Coli, Listeria*
- Neonates (late onset)
  - *S. pneumoniae, S. pyogenes, S. aureus*
- Infants and Toddlers
  - Viruses, *S. pneumoniae, H. flu*
- Children 5-13
  - *S. Pneumo* and *mycoplasma*

Epidemiology

- 2.5 million cases in developed countries yearly
- 1/3 lead to hospitalizations
- Incidence significantly decreased due to vaccinations

Pneumonia

Clinical Manifestations

- Cough
- Fever
- Difficulty breathing
- Abdominal pain/vomiting
- Difficulty feeding

Evaluation

- Respiratory distress
- Hypoxia
- Rales/rhonchi
- X-ray may show consolidation

Management

- Supportive therapies
  - O2
  - Antipyretics
  - Fluids
- Neonates:
  - Ampicillin/Gentamicin
- Children < 5
  - Amoxicillin 90mg/kg/day
  - Azithromycin 10mg/kg/day on day 1, followed by 5mg/kg/day on days 2-5

Gastrointestinal Conditions

Gastroenteritis

Clinical Manifestations

Vomiting

Diarrhea – watery vs bloody

Dehydration

+/- Fever

Treatment

Supportive

- Rehydration – Oral vs IV
- Zofran
- Antibiotics NOT routinely indicated for bloody diarrhea for otherwise well appearing children

Functional Constipation

Etiology

- Stool withholding
- Post-infectious
- Diet related

Clinical manifestations

- Firm/painful stools
- Abdominal pain
- Dysuria
- Fissures
- Encopresis
- Fecal streaking
- Decreased appetite
- Nausea

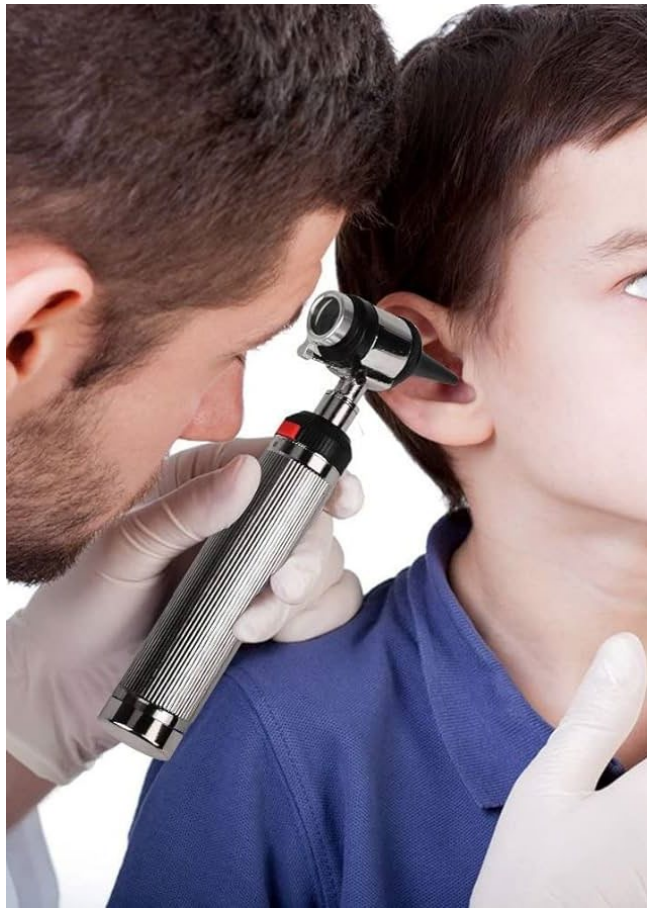
Functional Constipation

Management

- Depends on age, severity
- May use osmotic laxatives, stimulant laxatives, suppositories, or a combination.
- Often require a “Cleanout” followed by a maintenance regimen
- Seattle Children’s Cleanout: https://www.seattlechildrens.org/globalassets/documents/for-patients-and-families/pfe/pe1755.pdf

Other Common Illnesses

Otitis Media



Epidemiology

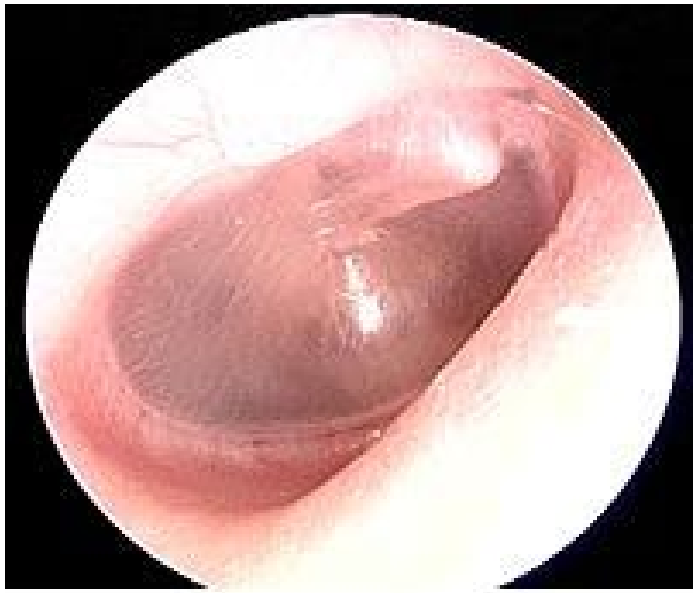
- Common in children 6mo-24mo
- < 5 yrs: 45-60%
- 5-14 yrs: 19-22%
- 15-24 yrs: 3%
- < 25 yrs: 1-2%

Microbiology

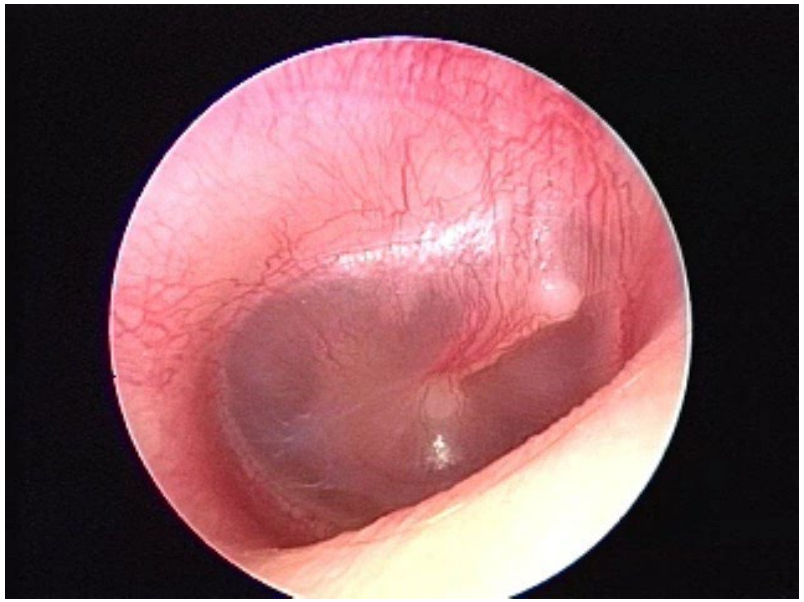
- S. pneuomoniae
- H. influenzae
- M. catarrhalis
- S. aureus
- Group A streptococcus
- Viral pathogens

Otitis Media

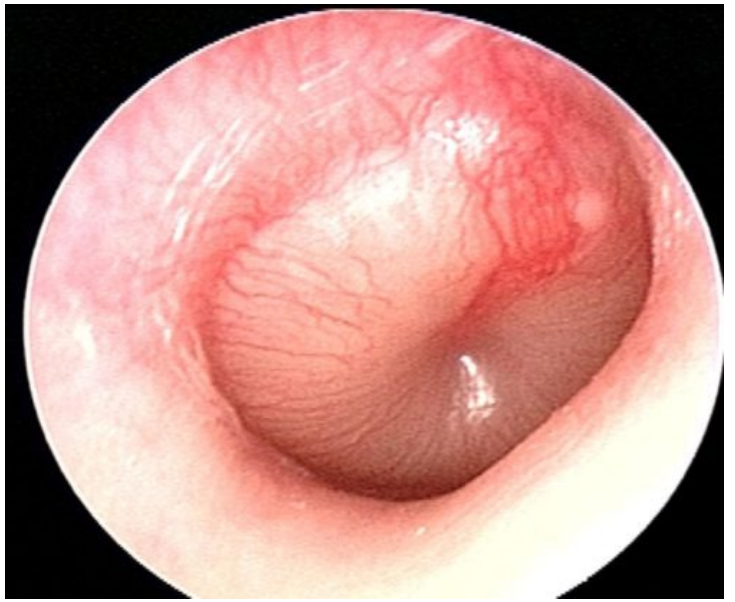
Normal TM



Otitis Media with Effusion

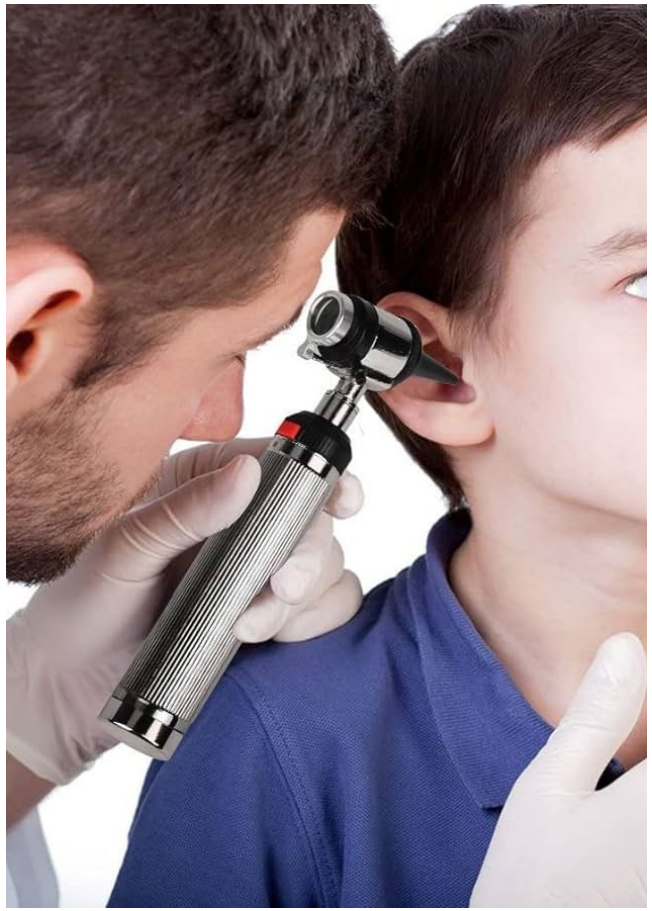


Acute Otitis Media



University of Wisconsin School of Medicine and Public Health. https://www.pediatrics.wisc.edu/education/acute-otitis-media/exercises/images/

Otitis Media



Treatment

- Amoxicillin 90mg/kg/day divided twice per day
- Augmentin 90mg/kg/day divided twice per day
- Ceftriaxone 50mg/kg daily x 1-3 days
- Cefdinir 14mg/kg daily

Acute Bacterial Rhinosinusitis

Epidemiology

- Increased incidence in children aged 2-5 years

Microbiology

- M. Catarrhalis – 44%
- H. Influenzae – 29%
- S. Pneumoniae – 26%

Acute Bacterial Rhinosinusitis (con't)

Diagnostic Criteria

- Cough and nasal congestion/discharge
  AND
- Fever > 102°F for 3 days
  OR
- Persistently worsening symptoms > 10 days
  OR
- "Double sickening"

Treatment

- Amox/Clav (Augmentin) 45mg/kg BID x 10 days
- PCN Allergy: Cefdinir 14mg/kg daily x 10 days
- Symptomatic therapies

UTI

Epidemiology

- 6-7% females by 6-7 years of age
- 1-2% males by 6 to 6 years of age

Risk Factors:

- Age
- Anatomic Disorders (Vesicoureteral reflux, cystic kidney disease)
- Bowel/bladder dysfunction
- Sexual activity

Microbiology:

- E. coli (50-83%)
- Enterococcus (5-17%)

UTI (con't)

Clinical manifestations

PREVERBAL CHILDREN

- Fever
- Poor feeding
- Vomiting
- Decreased Urine Output
- Lethargy
- Irritability
- Jaundice

VERBAL CHILDREN

- Dysuria
- Suprapubic or nonlocalized abdominal pain
- Urinary frequency
- Urgency
- Enuresis
- Hematuria

UTI (con't)

Testing

- UA:
  - Pyuria (>10 WBC or leukocyte esterase)
  - Nitrites
  - Bacteriuria (microscopy)
- Urine Culture (>50,000 CFU)

Treatment

- 1month to 2 years
  - Cephalexin 75mg/kg/day divided 3 times daily
- > 2 years
  - Cefdinir 14mg/kg daily
  - Nitrofurantoin

Duration

- Afebrile – 3-4 days
- Febrile – 7 days

Red Flag Symptoms

Respiratory Distress

- Tachypnea
- Nasal flaring
- Retractions
- Accessory muscles
- Belly breathing
- Expiratory grunting (singing)
- Cyanosis (central vs acro)
- Poor feeding
- Poor peripheral perfusion
- Tripoding

Bloody or bilious emesis

May indicate:

-Necrotizing enterocolitis
-Duodenal atresia
-Malrotation with volvulus
-Bowel obstruction

High Fever or Prolonged

Treat the child, not the number!

Questions to ask:

- Well or ill appearing?
- Does it respond to Tylenol/Motrin?
- Is the child hydrated?

Failure to Thrive

Lack of adequate weight gain

Possible causes:

- Inadequate caloric intake
- Malabsorption
- Increased systemic caloric demand

Length/Height Z-score:

- -1 to -1.9 : mild malnutrition
- -2 to -2.9: moderate malnutrition
- < -3: severe malnutrition

These children require thorough evaluation and close follow-up

Unexplained bruising

May indicate

-Non-accidental trauma

-ITP

-Bleeding disorder

-Malignancy

Non-traumatic back/leg pain

Why?!

Things to think about:

- Infection (Lyme's, mono, fever)
- Malignancy

Questions

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Thank You!

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PRESENTED BY: Allegheny Health Network

September 2024

Basic Principles of Primary Care Medicine for Specialists:

a summary for enhanced collaboration

Dawn Ball, DNP
APP Officer Primary Care Institute
APP Supervisor Primary Care Institute

AHN

What do PCPs do?

- Starting with the basics of prevention, PCPs educate, order, and assist patients in completing preventative screenings! Prevention and health promotion is the heart and soul of primary care!

The Importance of Understanding Primary Care

Primary care providers (PCPs) are the first point of contact for most patients.

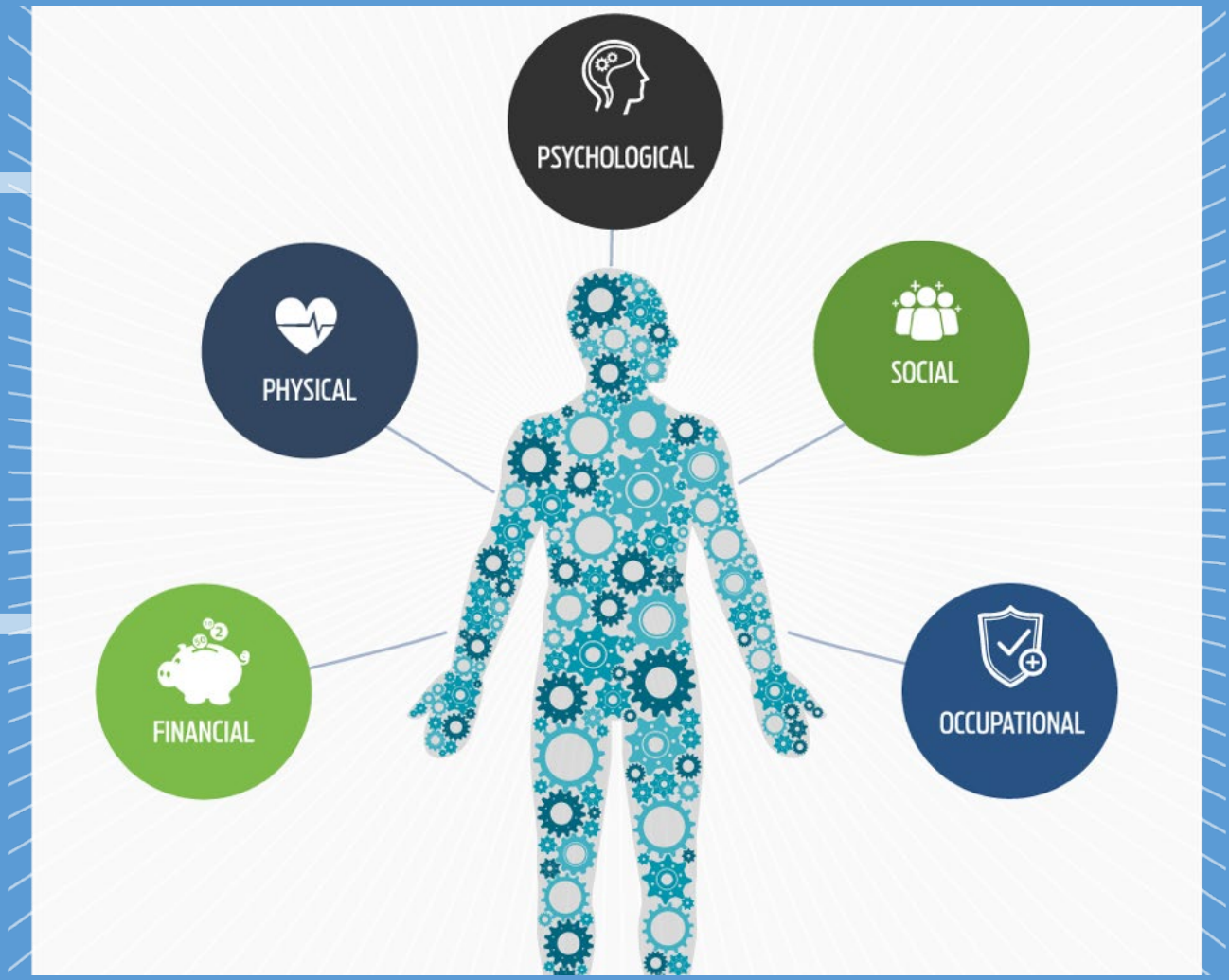
They play a crucial role in maintaining health and managing chronic conditions.

Specialists can benefit from understanding the principles guiding primary care.

Holistic approach: Viewing the patient as a whole

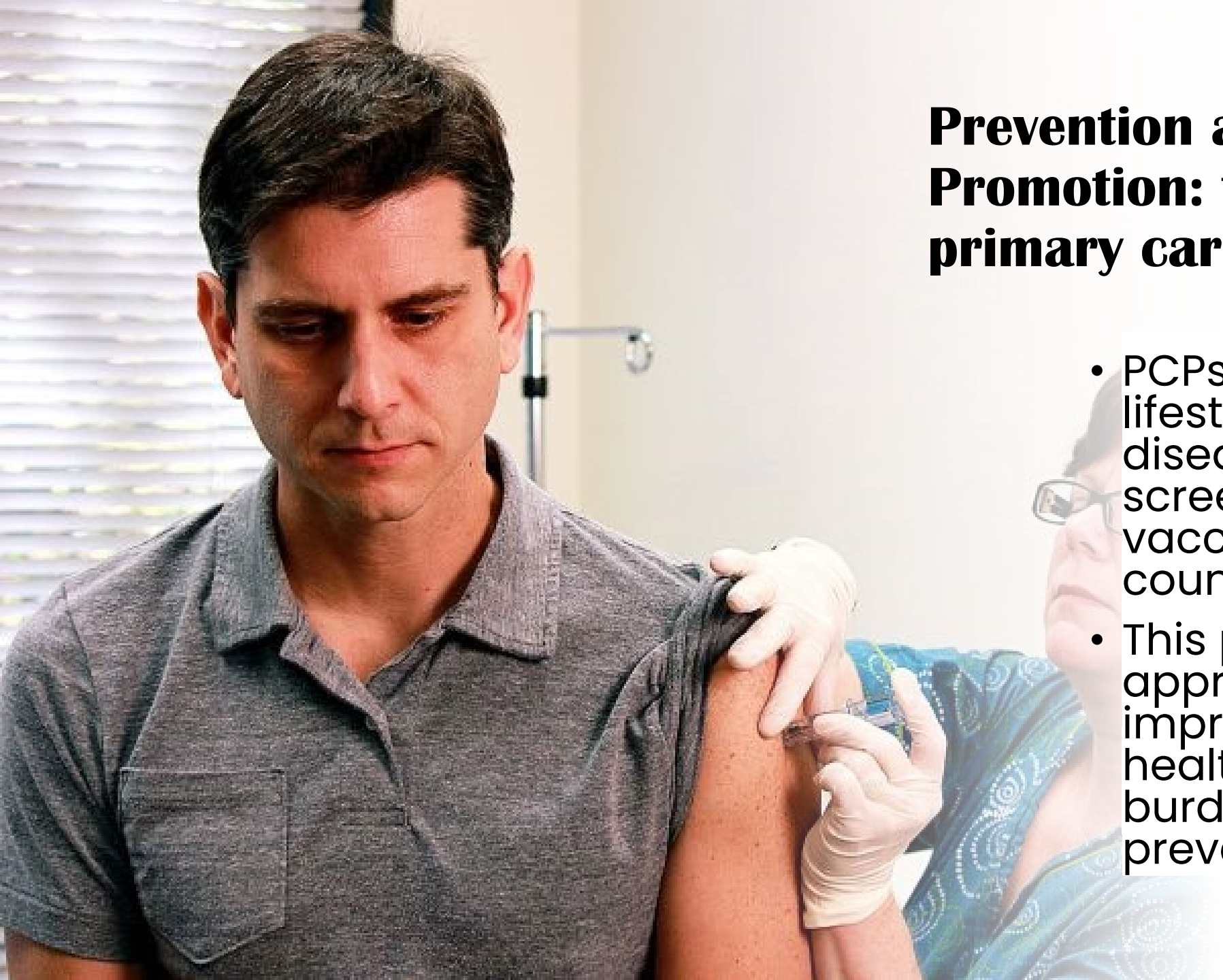
- PCPs consider the patient's physical, mental, and social health.
- They understand the patient's context and address their needs comprehensively.

- Example: A PCP might consider a patient's work stress when managing their hypertension
- Example: A patient going through a divorce, new baby, death, of a loved one, job change, or a move, can have an impact on their mental health, or be a causative factor in their anxiety and depression
- Example: A job loss can impact a patient's ability to afford their diabetes medication and supplies



Continuity of Care: Building long term relationships

- PCPs provide ongoing care for their patients, fostering trust.
- This continuity allows for better understanding of individual needs.
- It facilitates early detection and management of chronic conditions.

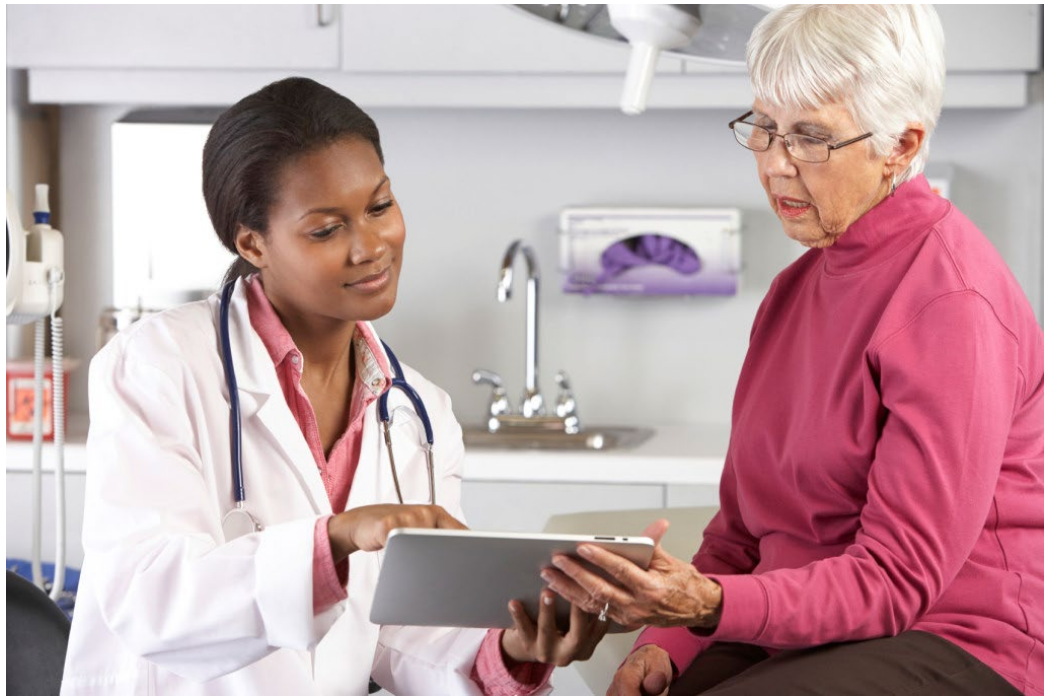


Prevention and Health Promotion: the heart of primary care

- PCPs promote healthy lifestyles and prevent disease through screenings, vaccinations, and counseling.
- This proactive approach aims to improve overall health and reduce the burden of preventable illnesses.

Management of chronic conditions:

Partnering with patients for a lifetime of care



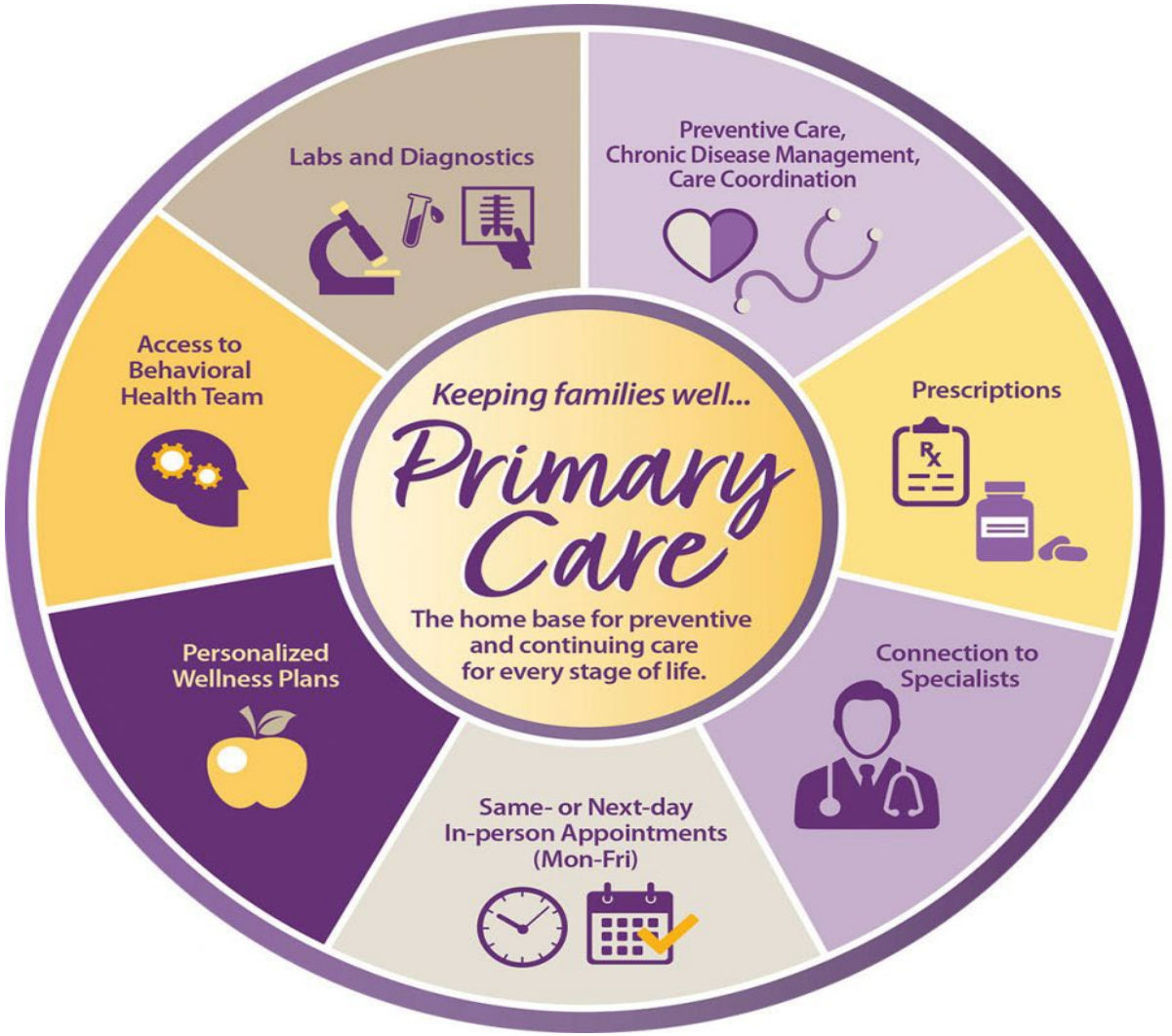
PCPs manage chronic diseases like diabetes, hypertension, and heart disease.

They work with patients to develop individualized treatment plans and monitor progress.

They adjust therapies as needed, ensuring optimal patient outcomes.

Collaboration and Referral: coordinating care across a network to improve outcomes

- PCPs act as gatekeepers to the healthcare system, coordinating care with specialists.
- They refer patients to specialists when necessary and ensure smooth transitions between different levels of care.



Patient education and empowerment: teaching patients to take ownership of their health

- PCPs prioritize patient education, empowering individuals to take an active role in their health.
- They provide clear explanations of diagnoses, treatment options, and lifestyle modifications.

Advocacy and Social Determinants of Health: Addressing the Root Causes of Health Disparities

- PCPs advocate for their patients' needs and address social determinants of health.
- They recognize the influence of factors like poverty, housing, and access to education on health outcomes.

Working Together for Better Patient Care

- Understanding these principles can enhance collaboration between specialists and PCPs.
- This collaboration leads to better patient care, improved outcomes, and a more efficient healthcare system.

Getting back to the basics

Primary Care Pearls: for Specialty Providers

- Specialists see patients at specific points in their health journey
- Understanding the broader context of their primary care management can greatly enhance the specialist's ability to provide comprehensive care which ultimately, is more effective care.

Common management strategies used by primary care can not only be helpful for specialists to know; they can be game changing in helping a patient as a whole person and not just "their problem"

Common Primary care concerns and their impact

- Chronic Disease Management: Many patients with specialty conditions also manage chronic illnesses like diabetes, hypertension, or heart disease. Understanding their management plan and potential interactions with their specialty care is essential.
- Mental Health and Social Determinants: Mental health conditions and social determinants of health can significantly impact a patient's overall well-being and adherence to treatment. Being aware of these factors can help us tailor our approach.
- Medication Management: Primary care providers often manage a complex medication regimen. Understanding potential drug interactions and side effects is crucial for safe and effective care.

The importance of obtaining a comprehensive medical history

- Beyond the Referral: While we receive a referral with specific details, a thorough understanding of the patient's overall medical history is crucial. This includes past illnesses, surgeries, medications, allergies, and family history.
- Uncovering Hidden Clues: A seemingly unrelated past medical history can sometimes hold the key to understanding a patient's current condition. For example, a history of autoimmune disease could influence the diagnosis and treatment of what may appear to be an unrelated condition.
- Patient-Centered Approach: Taking the time to gather a comprehensive history demonstrates a patient-centered approach, fostering trust and building a strong provider-patient relationship.

The power of the “Social history”

- Beyond the Basics: Don't just ask about smoking and alcohol. Inquire about housing stability, food security, transportation, social support, and access to healthcare. These factors significantly impact health outcomes.
- Uncovering Barriers: A patient's social circumstances can explain non-adherence, missed appointments, and even disease progression.
- Empowering Action: Understanding social determinants allows you to advocate for resources, connect patients with community support, and tailor treatment plans accordingly.

Medication Management: A Collaborative Effort

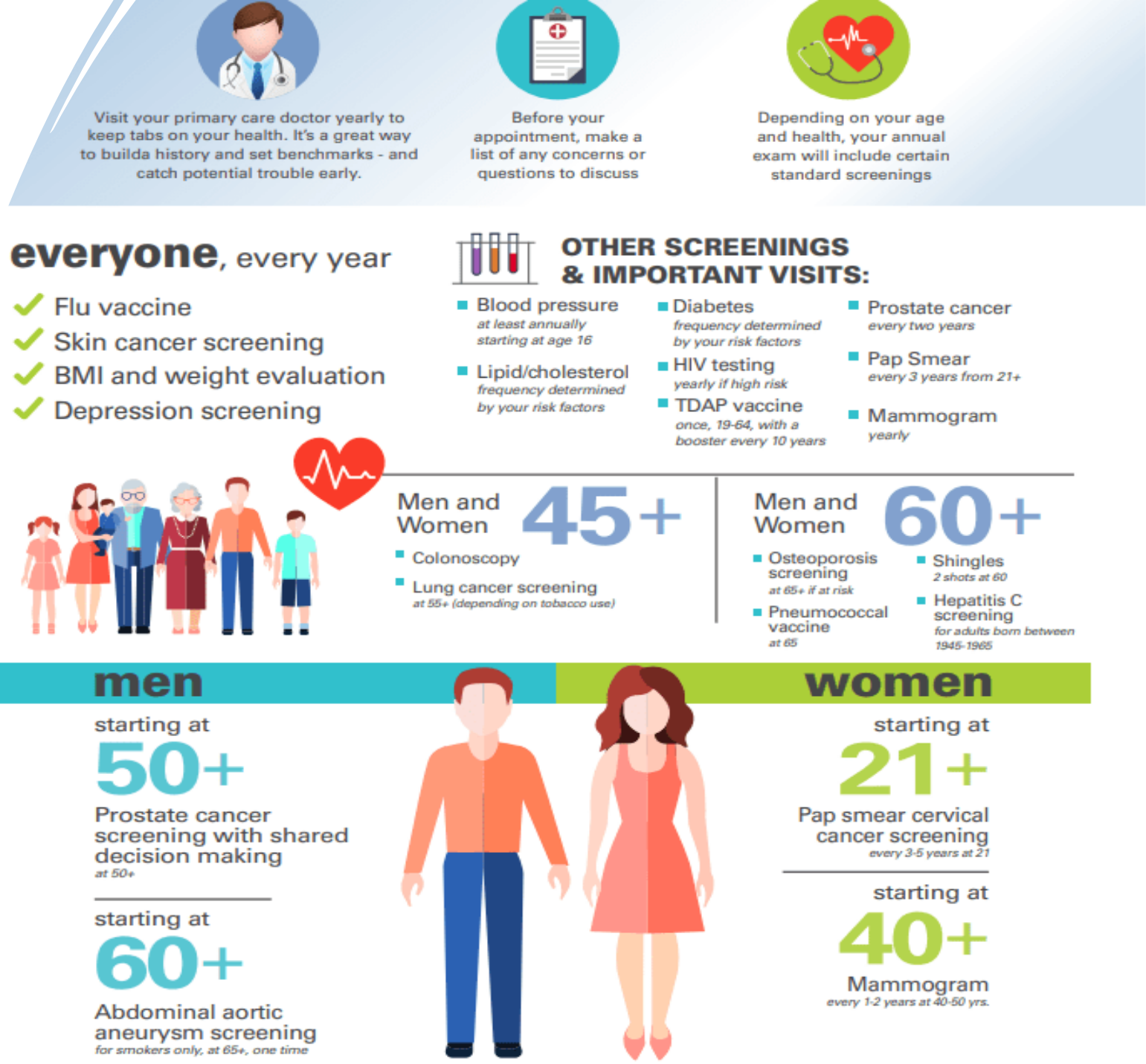
- The "Pill Burden": Patients often manage multiple medications prescribed by different specialists. Be aware of potential interactions, side effects, and adherence challenges.
- Communication is Key: Regularly communicate with the primary care provider about medication changes, especially when adding or discontinuing medications.
- Simplify When Possible: Consider if a patient's medication regimen can be simplified or consolidated, especially for those with cognitive impairment or limited health literacy.
-

The Value of Routine Screening

- Beyond Specialty Care: Remember that patients need routine screenings for conditions like hypertension, diabetes, cholesterol, and cancer.
- Early Detection is Key: Encourage patients to follow recommended screening guidelines, even if they are primarily focused on their specialty condition.
- Collaboration is Essential: Work with primary care providers to ensure patients receive appropriate screenings and follow-up care.

Current Preventative Guidelines

- Refresher for specialty
- Know the numbers
- Educate and promote screens
- The bread and butter of PCI



Patient education & the “whole" person approach

Patient Education

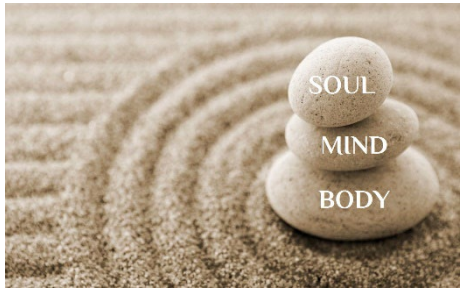
Beyond the Diagnosis: Explain the implications of their condition on their overall health and well-being.

Empowerment Through Knowledge: Provide patients with clear and concise information about their condition, treatment options, and lifestyle modifications.

Encourage Questions: Create a safe space for patients to ask questions and express concerns.

Factoring in the whole person

- Beyond the Disease: Remember that patients are individuals with unique needs, goals, and values.
- Patient-Centered Care: Tailor treatment plans to individual preferences, considering their lifestyle, support system, and cultural background.
- Building Trust and Relationships: Develop a strong provider-patient relationship based on open communication, empathy, and respect.



The “Red Flags” of Primary care concerns

- Unexplained Weight Loss: Could indicate underlying conditions like cancer, diabetes, or thyroid disorders.
- Persistent Fatigue: May signal anemia, depression, or chronic illness.
- New-Onset Pain: Could be a sign of musculoskeletal issues, infection, or even a serious underlying condition.
- Frequent Infections: May point to immune deficiency, diabetes, or other chronic conditions.
- Changes in Bowel Habits: Could indicate gastrointestinal issues, including inflammatory bowel disease or colon cancer.

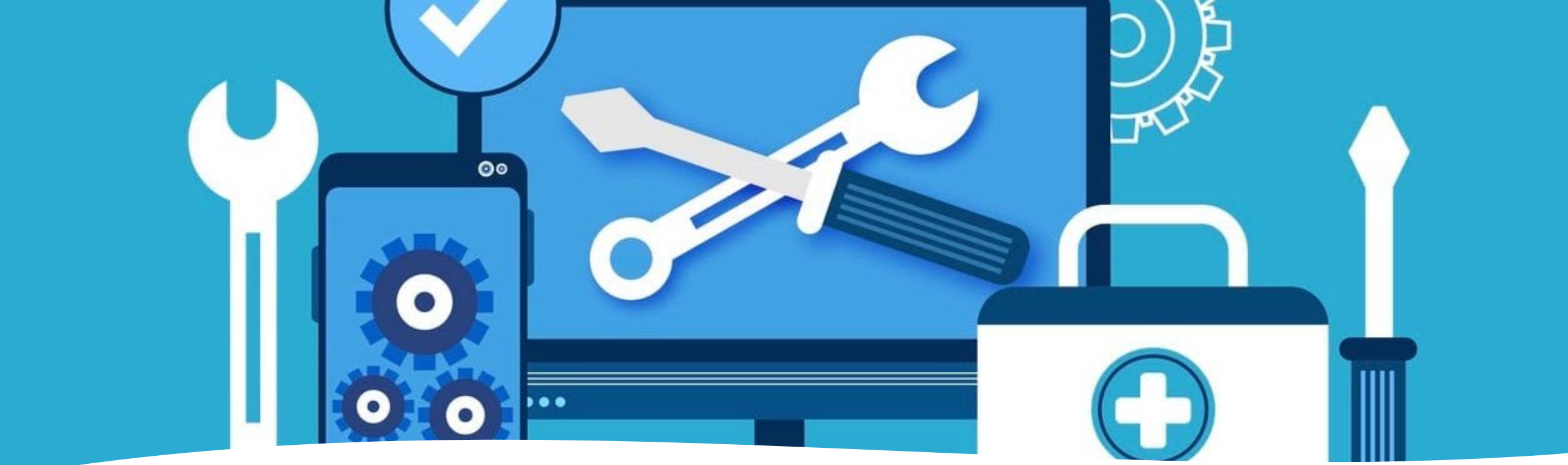
The value of communication and referral

Collaboration & communication

- The Value of Open Communication: Regular communication with primary care providers is essential for seamless care transitions and avoiding potential conflicts.
- Shared Decision-Making: Involving primary care providers in treatment decisions can lead to more comprehensive and patient-centered care plans.
- Clear and Concise Communication: Using clear and concise language, avoiding medical jargon, and providing concise summaries of patient information are crucial for effective communication.

Referral

- When to Refer: Recognize when a patient's needs extend beyond your specialty and refer them to appropriate primary care providers or specialists.
- Clear Communication: Provide a concise and informative referral letter outlining the patient's history, current condition, and specific concerns.
- Follow-Up: Ensure that the patient receives timely and appropriate care after referral.
- Remember: By incorporating these primary care pearls into your practice, you can provide more comprehensive and patient-centered care, leading to better health outcomes for your patients.



Resources and Tools

- Electronic Health Records (EHRs): EHRs can provide valuable insights into a patient's medical history, medications, and previous consultations.
- Patient Portals (MY CHART): Patient portals allow patients to access their medical records, communicate with their providers, and schedule appointments.
- Primary Care Provider Contact Information: Having easy access to the patient's primary care provider's contact information facilitates communication and collaboration. Take advantage of EPIC messaging between providers to enhance care.

Common Primary Care Conditions: Specialists often see patients with complex conditions but understanding common primary care issues can help identify potential underlying factors or co-morbidities.

- **Examples:**
  - **Hypertension:** A common condition that can contribute to cardiovascular disease, stroke, and kidney disease.
  - **Diabetes:** A chronic condition that can lead to complications like neuropathy, retinopathy, and amputations.
  - **Anxiety and Depression:** Mental health conditions that can impact physical health and treatment adherence.

Hypertension: American Academy of Family Physicians

- AAFP uses definition for HTN 140/90, affects approx. 32% Americans, remains one of USA's leading cause of death and costs range approx. 131 to 198 billion.
- Effects of uncontrolled HTN include CVD, renal disease, cerebrovascular disease, and death
- Diagnosis: two or more elevated BP readings on 2 or more occasions
- Treatment goals:AAFP recommends a goal of treating BP to lower <135 systolic and <85 diastolic; reduce morbidity and mortality while minimizing risk of harms from medical intervention.
- Approach to care: lowering blood pressure utilizing lifestyle modifications such as weight loss, dietary modifications, physical activity, and antihypertensive medications.
- Medications: The most common pharmacologic treatments for reducing blood pressure: include angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, thiazide diuretics, calcium channel blockers, and beta blockers.
- Consider cost, ease of use, adverse side effects, and comorbid conditions.
- Patient education: accurate BP tracking is essential for both diagnosis and treatment. Have patient obtain their own cuff and bring to appointment to verify accuracy, avoid wrist cuffs, have them record readings at home, OMRON 3 good recommendation for home BP cuff.

- *"Significant debate exists as to the ideal blood pressure targets for treatment of hypertension, and clinicians and patients are faced with conflicting recommendations from different organizations. The AAFP endorsed the Eighth Joint National Committee (JNC 8) guidelines for the management of hypertension in 2014 and reaffirmed it in 2019 as part of its five-year review process however now considered out of date.. Additionally, the AAFP developed a joint guideline with the American College of Physicians in 2017 that provided evidence-based recommendations for blood pressure treatment targets in adults older than 60 years. However, both guidelines are now considered out of date, and given the availability of new evidence, updated guidance from the AAFP was identified as a need. Multiple other guidelines have been published with differing recommendations. Identifying evidence-based blood pressure treatment targets using shared decision-making that incorporates patient risks and values will improve patient-oriented outcomes while minimizing harms"*

Type 2 Diabetes:

1in 3 adults will have this diagnosis by 2050

DX criteria: A1c >6.5%, FPG>126mg/dl,2hr PG>200mg/dl, or random PG>200mg/dl

Gold standard for diagnosis is Hemoglobin A1c

Goal of A1c<7% ideal, check A1c every 3mos if at goal, if >7% q3mos

Upon diagnosis, start statin (most diabetics die of cardiac disease), if on BP medication (ACE or ARB for renal protection)

Yearly diabetic eye exams and foot exams

Control of diabetes is key and includes lifestyle changes of diet and exercise, weight reduction, and medication

Hard lifestyle to maintain, affected by socioeconomic status; can impact mental health

Metformin historically the first- line medication however with glp-1s in the forefront of efficacy in A1c & weight reduction, as well as new findings with cardiac & renal protection, it also has become a first line approach. Two most common (Ozempic and Mounjaro). You will even see cardiology initiating this medications.

- **Table 6.1**
- Equivalent A1C levels and estimated average glucose (eAG)

A1C (%)	mg/dL*	mmol/L
5	97 (76–120)	5.4 (4.2–6.7)
6	126 (100–152)	7.0 (5.5–8.5)
7	154 (123–185)	8.6 (6.8–10.3)
8	183 (147–217)	10.2 (8.1–12.1)
9	212 (170–249)	11.8 (9.4–13.9)
10	240 (193–282)	13.4 (10.7–15.7)
11	269 (217–314)	14.9 (12.0–17.5)
12	298 (240–347)	16.5 (13.3–19.3)

Anxiety and Depression: often first identified or treatment begun in primary care setting

- Affects approx. 18% of all Americans
- 15.7 million people will have a depressive episode each year, half of which will not seek care
- Barriers to mental health access/Primary care has had to help fill the gaps
- Utilize AHN BHC's, often embedded in PCP offices
- PHQ9 and GAD7 with all rooming to screen and identify positive markers for depression or anxiety
- Antidepressants: Most prescribed medications in ages 20-59; works well for anxiety also
- selective serotonin reuptake inhibitors(SSRIs, serotonin-norepinephrine reuptake inhibitors, serotonin modulators, atypical antidepressants are all front-line choices) Often paired with other first-line treatment; psychotherapy (cognitive behavioral therapy as well as group and/or individual counseling)
- Lexapro safest medication with least amount of drug interactions, weight neutrality
- Fluoxetine and paroxetine should be avoided in elderly; Cymbalta, sertraline, and Lexapro better choices
- Prn medication for anxiety (hydroxyzine, avoid in elderly) Buspar, avoid benzos
- 1 month follow up to initiating medication
- Never abruptly stop/ Must taper over 7-10 days

WHAT'S NEW ON THIS TOPIC

Pharmacologic Treatment of Depression

Between 2015 and 2018, the percentage of U.S. adults who reported taking an antidepressant medication in the past 30 days was 13.2%, compared with 2.4% between 1988 and 1994.

Modest evidence shows that escitalopram, mirtazapine, paroxetine, venlafaxine, and amitriptyline are the most effective antidepressants for reducing acute depressive symptoms by greater than 50% at eight weeks.

A 2021 network meta-analysis demonstrated a low risk of ventricular arrhythmia or sudden cardiac death in those taking selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, or tricyclic antidepressants.

Typical symptoms of antidepressant discontinuation syndrome can be described using the FINISH mnemonic (flulike symptoms, insomnia, nausea, imbalance, sensory disturbances, hyperarousal).

BARRIERS TO ACCESS FOR PATIENTS SEEKING CARE FOR ANXIETY AND DEPRESSION

Access variable	Patient experience
Availability	It may be difficult to find a clinician taking new patients.
Accessibility	The clinic may not be easy to get to or close to where the patient is used to going for care.
Accommodation	Seeing the clinician requires making a new appointment at a new facility. The hours of operation may not be flexible for patients. Mental health providers may not have convenient technology or patient portals for scheduling.
Affordability	Mental health benefits may include high deductibles or limit the choice of providers. Cash pay rates for mental health services can be high. Benefit information is hard to access and difficult to understand.
Acceptability	It may be difficult for a patient to connect with a clinician on multiple levels, such as age, gender, ethnicity, type of facility, or religion. This is a new relationship, separate from the family physician, and finding someone the patient likes and trusts may be difficult.

Anxiety & depression

TABLE 1

Adverse Effects Associated With Antidepressant Medications

Adverse effect	Risk	Associated medications	Time to onset	Evidence
Gastrointestinal bleeding	Odds ratio = 1.55 (95% CI, 1.35 to 1.78)	SSRIs, especially when used with nonsteroidal anti-inflammatory drugs or antiplatelet drugs; risk mitigated by acid-suppressing medications	Anytime during treatment	Meta-analysis[27]
Hepatotoxicity	Incidence = 0.5% to 3%	Nefazodone, bupropion, duloxetine (Cymbalta), trazodone	Anytime during treatment	Literature review[28]
Hyponatremia (sodium < 130 mEq per L [130 mmol per L])	Incidence = 0.06% to 2.6%	SSRIs, SNRIs, mirtazapine, TCAs	Within the first month	Literature review[29]
Osteoporosis and fractures	Hazard ratio = 1.88 (95% CI, 1.48 to 2.39) for fragility fracture	SSRIs, SNRIs	Over 10 years	Prospective cohort[30]
QT prolongation	Dose dependent	Citalopram, escitalopram, amitriptyline U.S. Food and Drug Administration warns against exceeding recommended dose of citalopram (≤ 60 years of age, 40 mg per day; > 60 years, 20 mg per day)	At initiation Typically dependent on coexisting risk factors	Cross-sectional retrospective studies[31,32]
Sexual adverse effects	Weighted mean incidence = 40% (95% CI, 28.3 to 52.6) across observational studies	Trend toward increased risk with escitalopram and paroxetine; decreased risk with bupropion	Within the first week	Meta-analysis[33,34]
Suicidality	Age-related risk < 18 years: odds ratio = 2.39 (95% CI, 1.31 to 4.3) ≥ 18 years: odds ratio = 0.81 (95% CI, 0.51 to 1.2)	Duloxetine, fluoxetine, paroxetine, sertraline, venlafaxine	Not defined	Systematic review, meta-analysis of clinical reports[35]
Weight gain (> 5%)	Rate ratio 1.21 (95% CI, 1.20 to 1.23) for SSRIs 1.17 (95% CI, 1.13 to 1.21) for SNRIs 1.16 (95% CI, 1.14 to 1.18) for TCAs	SSRIs, SNRIs, TCAs Decreased risk with bupropion	Over 10 years (highest risk in first two years)	Population-based cohort study, systematic review[23,36]

SNRI = serotonin-norepinephrine reuptake inhibitor; SSRI = selective serotonin reuptake inhibitor; TCA = tricyclic antidepressant.

Information from references 23 and 27-36.

TABLE 3

Tapering Strategies for Antidepressant Medications

Strategy	Description	Example		Comments
10% reduction per week	Reduce dose every four weeks to match 10% reduction in serotonin transporter occupancy	Citalopram: 40 mg for four weeks 20 mg for four weeks 19 mg for four weeks 9.1 mg for four weeks 5.4 mg for four weeks 3.4 mg for four weeks 2.3 mg for four weeks 1.5 mg for four weeks 0.8 mg for four weeks 0.37 mg for four weeks		Formulated using pharmacokinetic data but difficult to precisely implement
Three- to four-month taper	Reduce dose by 25% every four weeks or by 12.5% every two weeks	Citalopram: 40 mg for four weeks 30 mg for four weeks 20 mg for four weeks 15 mg for four weeks 10 mg for four weeks 7.5 mg for four weeks 5 mg for four weeks 2.5 mg for four weeks		Easier to accomplish in real-world practice, but linear dose decrease may still result in antidepressant discontinuation syndrome
Cross taper	Slowly decrease dose of the current medication while increasing dose of the new medication	Citalopram (current medication, 40-mg starting dose): 30 mg for four weeks 20 mg for four weeks 15 mg for four weeks 10 mg for four weeks 7.5 mg for four weeks 5 mg for four weeks 2.5 mg for four weeks	Sertraline (new medication): 12.5 mg for four weeks 18.75 mg for four weeks 25 mg for four weeks 37.5 mg for four weeks 50 mg for four weeks 75 mg for four weeks 100 mg for four weeks	Exposure to multiple serotonergic agents has inherent risks Potential for cytochrome P450–mediated drug reactions depending on drug choice Increased pill burden and financial strain for patients
Direct switch	Start a new medication immediately after discontinuing the current one	Discontinue citalopram, 20 mg	Initiate sertraline, 50 mg	May be difficult to determine if patient-reported adverse effects are due to the new agent or antidepressant discontinuation syndrome
Moderate switch	Current medication is tapered down, followed by a washout period of two or three days New medication is initiated at a conservative dose, then increased	Citalopram (current medication): 20 mg for four weeks 15 mg for four weeks 10 mg for four weeks 7.5 mg for four weeks 5 mg for four weeks 2.5 mg for four weeks Discontinue for two- to three-day washout period Start sertraline: 25 mg for four weeks 37.5 mg for four weeks 50 mg for four weeks		Potential for antidepressant discontinuation syndrome due to drug-free period More time-consuming but considered to be safer
Conservative switch	Current medication is tapered down, followed by a washout period of four or five half-lives New medication is initiated at a conservative dose, then increased	Same as moderate switch but with longer washout period (seven days for most drugs, except those with long half-lives [e.g., fluoxetine])		Potential for antidepressant discontinuation syndrome due to drug-free period Patients must wait longer for treatment benefit from new medication

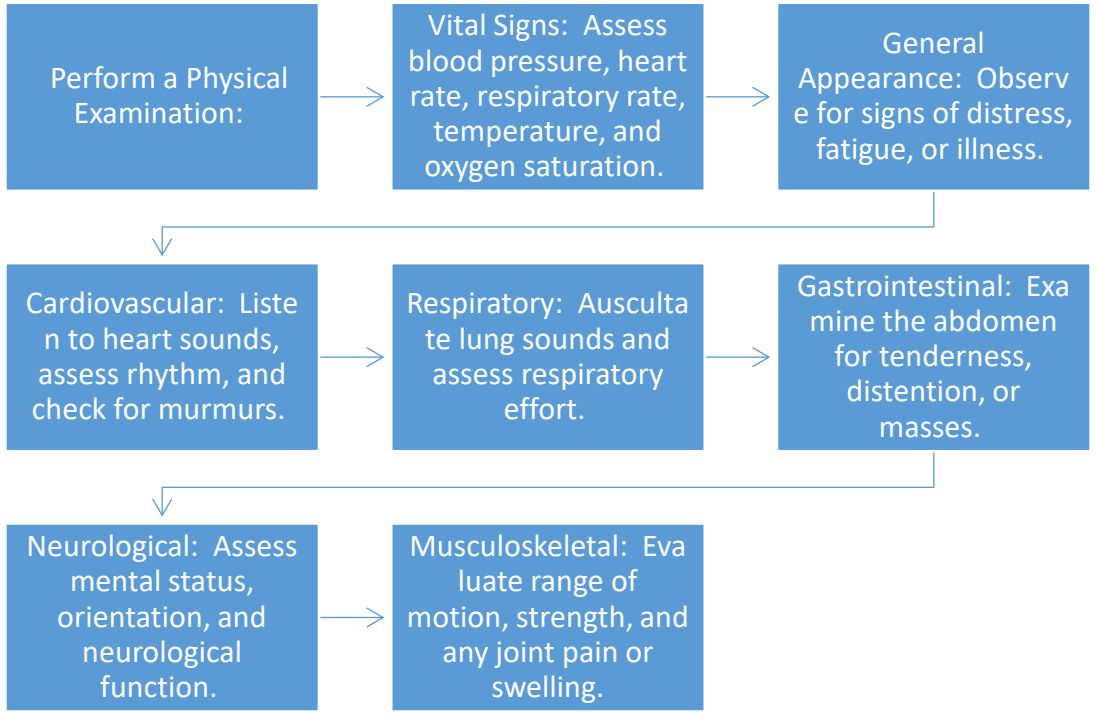
Information from references 51-53.

PREOP Clearance: Why risk assessment matters

- Patient Safety: Pre-operative risk assessment helps us identify patients at higher risk for complications, allowing us to take proactive steps to minimize those risks.
- Informed Decision-Making: By understanding the potential risks, patients can make informed decisions about their surgery, including weighing the benefits against the potential downsides.
- Resource Allocation: Risk assessment tools can help us allocate resources effectively, focusing on patients who require more intensive monitoring or interventions.

Preop Clearance: Determining Risk

- **Gather Comprehensive Patient Information:**
- Medical History: Thoroughly review past medical conditions, surgeries, hospitalizations, medications, allergies, and family history. Pay close attention to conditions that could increase surgical risk, such as cardiovascular disease, diabetes, lung disease, kidney disease, and bleeding disorders.
- Social History: Inquire about smoking, alcohol use, drug use, and social support. These factors can significantly impact recovery and overall health.
- Current Medications: Review all medications, including over-the-counter drugs and herbal supplements. Identify potential interactions or contraindications with anesthesia or surgery.
- Review of Systems: Conduct a thorough review of systems to identify any symptoms or concerns that may indicate underlying health issues.



Preop Clearance: Determining Risk

Utilize Relevant Laboratory and Imaging Studies:

Electrocardiogram (ECG): Assess for any abnormalities in heart rhythm or conduction.

Echocardiogram: Evaluate heart function, valvular function, and any structural abnormalities.

Chest X-ray: Assess for any lung abnormalities or signs of heart failure.

Blood Tests: Check for anemia, clotting disorders, kidney function, liver function, and other relevant parameters.

Other Imaging Studies: Consider additional imaging studies based on the patient's condition and the planned procedure, such as CT scans, MRIs, or ultrasounds.

- Assess Risk Factors:
- Age: Older patients generally have a higher risk of complications.
- Medical Conditions: Pre-existing conditions like diabetes, heart disease, lung disease, kidney disease, and obesity increase surgical risk.
- Medications: Certain medications, such as anticoagulants and antiplatelet agents, can increase bleeding risk.
- Lifestyle Factors: Smoking, alcohol abuse, and drug use can increase complications.
- Procedure Type: More complex procedures generally carry a higher risk.
- Anesthesia: General anesthesia carries a higher risk than regional anesthesia

Preop Clearance: Determining Risk

Utilize Risk Assessment Tools:

American Society of Anesthesiologists (ASA) Physical Status Classification System: This system classifies patients based on their overall health status, ranging from ASA 1 (healthy) to ASA 6 (brain-dead).

Cardiac Risk Index: This tool assesses the risk of cardiac complications during surgery based on patient characteristics and the type of surgery.

Revised Cardiac Risk Index: This updated tool incorporates additional risk factors, such as diabetes and renal insufficiency.

Other Risk Assessment Tools: Specific risk assessment tools are available for different types of surgery, such as the Pulmonary Embolism Prevention (PEP) score for patients undergoing orthopedic surgery.

Common Risk assessment tools

American Society of Anesthesiologists (ASA) Physical Status Classification System:

Purpose: Classifies patients based on their overall health status, ranging from ASA 1 (healthy) to ASA 6 (brain-dead).

Application: Provides a quick and easy way to assess a patient's overall health and risk.

Limitations: Doesn't account for specific surgical risks or individual patient factors.

Cardiac Risk Index:

Purpose: Assesses the risk of cardiac complications during surgery based on patient characteristics and the type of surgery.

Application: Helps identify patients at higher risk for cardiac events, allowing for appropriate pre-operative management.

Limitations: May not be accurate for all patients, especially those with complex medical histories.

- Revised Cardiac Risk Index:
- Purpose: An updated version of the Cardiac Risk Index that incorporates additional risk factors, such as diabetes and renal insufficiency.
- Application: Provides a more comprehensive assessment of cardiac risk.
- Limitations: Still relies on a limited number of risk factors and may not capture all individual variations.

Preop Clearance: Determining Risk

Develop a Pre-Operative Management Plan:

Adjust Medications: Adjust or discontinue medications that could interfere with surgery or anesthesia.

Further Testing: Order additional tests if needed to clarify the patient's health status or assess specific risks.

Optimize Medical Conditions: Address any pre-existing conditions that could increase surgical risk, such as controlling blood pressure, managing diabetes, or optimizing lung function.

Lifestyle Modifications: Encourage patients to quit smoking, reduce alcohol consumption, and lose weight if necessary.

Consultations: Consult with other specialists, such as cardiologists, pulmonologists, or endocrinologists, if necessary.

- Communicate with the Surgical Team:
- Clear and Concise Communication: Provide a detailed pre-operative clearance report outlining the patient's health status, risk factors, and management plan.
- Specific Instructions: Provide specific instructions for the surgical team, such as any necessary precautions or special considerations.
- Collaboration: Collaborate with the surgical team to ensure a safe and successful surgical outcome.

Revised Cardiac Risk Index: A Deeper Dive into Pre-Op Cardiac Risk Assessment

- 1. The Need for Cardiac Risk Assessment:
- Cardiac Complications: Cardiac events, such as myocardial infarction, heart failure, and arrhythmias, are significant causes of morbidity and mortality after surgery.
- Pre-Operative Optimization: Identifying patients at higher risk allows us to optimize their cardiac health before surgery, minimizing the likelihood of complications.
- Informed Decision-Making: Understanding the cardiac risk profile helps patients make informed decisions about their surgery, weighing the benefits against the potential risks.
- 2. Components of the Revised Cardiac Risk Index:
- The RCRI assigns points based on the presence of the following risk factors:
- High-Risk Surgery: Major vascular surgery, non-cardiac surgery with an expected duration of more than 3 hours, or emergency surgery. (1 point)
- History of Ischemic Heart Disease: Previous myocardial infarction, coronary artery bypass graft, or percutaneous coronary intervention. (1 point)
- History of Congestive Heart Failure: Documented history of heart failure. (1 point)
- History of Cerebrovascular Disease: Previous stroke or transient ischemic attack. (1 point)
- Diabetes Mellitus: Type 1 or Type 2 diabetes. (1 point)
- Renal Insufficiency: Creatinine level greater than 2.0 mg/dL. (1 point)

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- 3. Interpreting the RCRI Score:
- Low Risk: Score of 0 points.
- Intermediate Risk: Score of 1 point.
- High Risk: Score of 2 or more points.

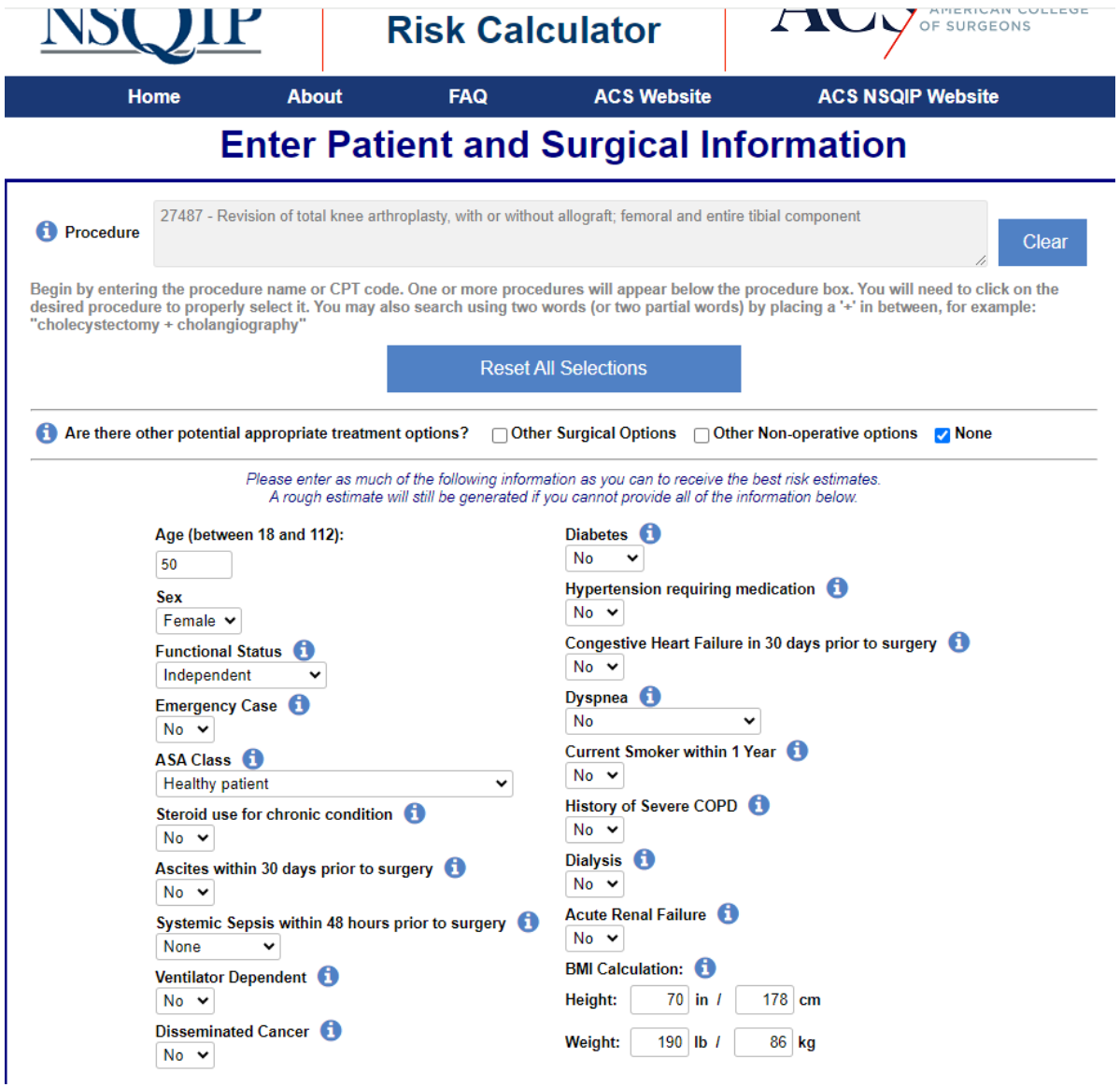
- 4. Clinical Application of the RCRI:
- Pre-Operative Evaluation: The RCRI should be calculated for all patients undergoing surgery, especially those with known cardiovascular risk factors.
- Risk Stratification: The score helps stratify patients into low, intermediate, and high-risk categories, guiding pre-operative management strategies.
- Management Strategies: For patients at higher risk, consider:
- Optimizing cardiac medications.
- Addressing modifiable risk factors, such as smoking, hypertension, and diabetes.
- Performing additional cardiac testing, such as an echocardiogram or stress test.
- Consulting with a cardiologist for further evaluation and management.

Revised Cardiac Risk Index: A Deeper Dive into Pre-Op Cardiac Risk Assessment

- **5. Limitations of the RCRI:**
- Not a Predictive Tool: The RCRI is not a perfect predictor of cardiac events. It provides a relative risk assessment, but individual patient factors can influence outcomes.
- Limited Scope: The RCRI focuses primarily on cardiac risk factors and does not account for other potential complications, such as pulmonary embolism or stroke.
- Overestimation of Risk: The RCRI may overestimate risk in some patients, leading to unnecessary interventions.
- 6. Beyond the RCRI:
- Clinical Judgment: The RCRI should be used in conjunction with clinical judgment and other relevant factors, such as the patient's overall health status, the type of surgery, and the surgeon's experience.
- Patient Communication: Explain the RCRI score and its implications to patients in a clear and understandable way, allowing them to make informed decisions about their care.
- Continuous Monitoring: Monitor patients closely during the pre-operative period and throughout their recovery to identify any potential complications early.
- **Conclusion:**
- The Revised Cardiac Risk Index is a valuable tool for assessing cardiac risk in patients undergoing surgery. By understanding its components, application, and limitations, we can make more informed decisions about pre-operative management, minimizing cardiac complications and improving patient outcomes.

ASA Physical Status Classification System

- The American Society of Anesthesiologists (ASA) Physical Status Classification System is a valuable tool that helps us categorize patients based on their overall health status, providing a standardized framework for assessing surgical risk.



ACS NSQIP® Surgical Risk Calculator

ACS AMERICAN COLLEGE OF SURGEONS

Home | About | FAQ | ACS Website | ACS NSQIP Website

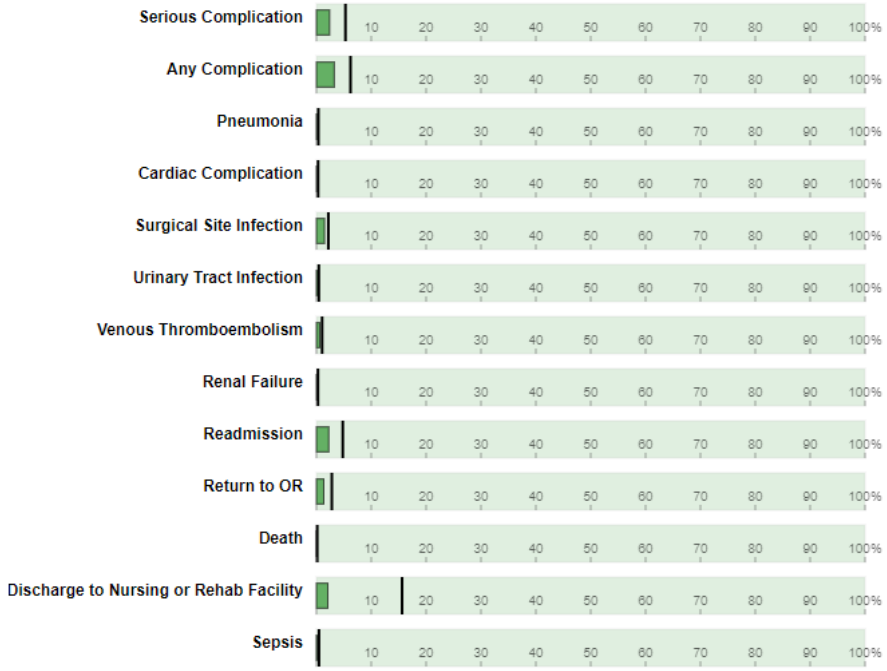
Procedure: 27487 - Revision of total knee arthroplasty, with or without allograft; femoral and entire tibial component

Risk Factors: Age (50), Female, BMI (27.26)

Change Patient Risk Factors

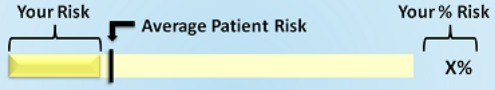
Note: Your Risk has been rounded to one decimal point.

Outcomes	Your Risk	Average Risk	Chance of Outcome
Serious Complication	2.4%	5.3%	Below Average
Any Complication	3.3%	6.2%	Below Average
Pneumonia	0.1%	0.4%	Below Average
Cardiac Complication	0.0%	0.3%	Below Average
Surgical Site Infection	1.5%	2.2%	Below Average
Urinary Tract Infection	0.2%	0.4%	Below Average
Venous Thromboembolism	0.6%	1.0%	Below Average
Renal Failure	0.0%	0.3%	Below Average
Readmission	2.3%	4.8%	Below Average
Return to OR	1.3%	2.8%	Below Average
Death	0.0%	0.1%	Below Average
Discharge to Nursing or Rehab Facility	2.1%	15.6%	Below Average
Sepsis	0.1%	0.5%	Below Average



Predicted Length of Hospital Stay: 2 days

How to Interpret the Graph Above:



Surgeon Adjustment of Risks

This will need to be used infrequently, but surgeons may adjust the estimated risks if they feel the calculated risks are underestimated. This should only be done if the reason for the increased risks was NOT already entered into the risk calculator.

1 - No adjustment necessary

ASA Physical Status Classification System

- **1. The Importance of Patient Health Assessment:**
- Surgical Risk: A patient's overall health significantly influences their risk for complications during and after surgery.
- Anesthesia Considerations: The ASA classification system helps anesthesiologists determine the appropriate anesthetic approach and monitor patients closely during surgery.
- Resource Allocation: The system helps allocate resources effectively, focusing on patients who require more intensive monitoring or interventions.
- **2. Components of the ASA Physical Status Classification System:**
- The ASA system classifies patients into six categories based on their overall health status:
- ASA 1: A normal healthy patient without any systemic disease.
- ASA 2: A patient with mild systemic disease or a well-controlled chronic disease.
- ASA 3: A patient with severe systemic disease that limits activity but is not incapacitating.
- ASA 4: A patient with severe systemic disease that is a constant threat to life.
- ASA 5: A moribund patient who is not expected to survive without the operation.
- ASA 6: A brain-dead patient whose organs are being harvested for donation.
- **3. Clinical Application of the ASA System:**
- Pre-Operative Evaluation: The ASA classification should be assigned to all patients undergoing surgery, providing a baseline assessment of their health status.
- Risk Stratification: The system helps stratify patients into different risk categories, guiding pre-operative management strategies.
- Anesthesia Planning: The ASA classification helps anesthesiologists determine the appropriate anesthetic approach and monitor patients closely during surgery.
- Resource Allocation: The system helps allocate resources effectively, focusing on patients who require more intensive monitoring or interventions.
- **4. Limitations of the ASA System:**
- Subjectivity: The ASA classification is subjective and relies on the clinician's judgment. Different clinicians may assign different classifications to the same patient.
- Limited Scope: The ASA system focuses on overall health status and does not account for specific surgical risks or individual patient factors.
- Oversimplification: The system can oversimplify complex health conditions, potentially overlooking important risk factors.

ASA Physical Status Classification System

- **5. Beyond the ASA System:**
- Clinical Judgment: The ASA classification should be used in conjunction with clinical judgment and other relevant factors, such as the patient's medical history, social history, and current medications.
- Specific Risk Assessment Tools: Consider using specific risk assessment tools, such as the Cardiac Risk Index or the Pulmonary Embolism Prevention (PEP) score, to assess additional risks.
- Patient Communication: Explain the ASA classification and its implications to patients in a clear and understandable way, allowing them to make informed decisions about their care.

- **Conclusion:**
- The ASA Physical Status Classification System is a valuable tool for assessing patient health status and guiding pre-operative management. By understanding its components, application, and limitations, we can make more informed decisions about patient care, ensuring their safety and well-being.

Which tool for which surgery?

- Table 1
- **Category of surgery and the appropriate risk calculator.**
- RCRI: Revised Cardiac Risk Index; NSQIP: National Surgical Quality Improvement Program

Category of surgery	Risk calculator
Intra-abdominal	RCRI
Vascular	RCRI
Transplant	RCRI
Neurosurgery	NSQIP
Noncardiac with biomarkers	Either or both

Conclusion

Understanding the broader context of primary care management can significantly enhance our ability to provide comprehensive and effective care for our patients.

By fostering open communication, collaborating with primary care providers, and utilizing available resources, we can bridge the gap between specialty care and primary care, ensuring the best possible outcomes for our patients.

Case Examples: when the lines blur between specialties and primary

- Example 1: A patient with diabetes is referred to cardiology for a new heart murmur. Understanding their diabetes management plan and medication list can help identify potential contributing factors to their cardiac health and risks. The correlation between CV disease and diabetes is well known and is the number one cause of death for diabetics.
- Taking this a step further: A different patient who is obesity stage 3 with a BMI>40 without dx of diabetes. Current research has show a 20% reduction in CV risk in this population with the use of semaglutide. As a result, cardiologists are starting to prescribe these medications that we previously only thought of as diabetic medications, or weight loss medications.
- Example 2: A patient with depression referred for a new diagnosis of fibromyalgia. Understanding their mental health history and current treatment can help tailor the approach to managing both conditions.

Q&A:

Questions or examples of how this has impacted your practice??

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PRESENTED BY: Allegheny Health Network

September 2024

Tackling Provider Burnout

Jamie Cornali CRNP, FNP-C, PMHNP-BC
Acting Director Inpatient Services and Crisis Response, Psychiatry and Behavioral Health Institute
Supervisor, Advanced Practice Provider

AHN

Agenda

- Understanding Provider Burnout
- Signs and Symptoms of Burnout
- Causes of Burnout
- Impact on Healthcare Professionals
- Organizational Strategies for Prevention
- Creating a Supportive Environment
- Role of Leadership in Preventing Burnout
- Individual Strategies for Managing Stress
- Mindfulness and Self-care Techniques
- Balancing Work and Personal Life
- Treatment Options for Burnout
- Case Studies of Burnout Recovery
- AHN Resources
- Future Directions in Burnout Management

Understanding Provider Burnout

Provider burnout is a state of emotional, physical, and mental exhaustion caused by prolonged and excessive stress, particularly in the healthcare profession. It manifests as feelings of cynicism, detachment, and a sense of ineffectiveness, significantly affecting the well-being of nurse practitioners and physician assistants. Recognizing and addressing provider burnout is crucial, as it can lead to decreased quality of care, increased turnover rates, and negative outcomes for both providers and patients alike.

Signs and Symptoms of Burnout

- Emotional exhaustion: Feeling drained, overwhelmed, and unable to cope.
- Depersonalization: Developing negative or cynical attitudes towards patients and colleagues.
- Reduced personal accomplishment: Feeling ineffective, incompetent, and lacking achievement in work.
- Physical symptoms: Experiencing headaches, fatigue, insomnia, or gastrointestinal issues.
- Increased irritability: Having trouble managing stress and becoming easily frustrated with others.

Causes of Burnout

High Workload-

Healthcare providers often face overwhelming patient loads, leading to excessive demands and insufficient time to meet patient needs.

Emotional Exhaustion-

Constant exposure to patient suffering and high-stress situations can result in emotional fatigue, contributing significantly to burnout.

Lack of Control-

Limited autonomy in decision-making and lack of support from administration can create feelings of helplessness, exacerbating burnout.

Impact on Healthcare Professionals

Mental Health Consequences

Burnout can lead to increased anxiety, depression, and feelings of inadequacy among nurse practitioners and physician assistants, affecting their overall mental well-being.

Physical Health Issues

Chronic stress from burnout may result in physical health problems such as fatigue, headaches, and sleep disturbances, ultimately affecting job performance.

Professional Performance Decline

Burnout negatively impacts job satisfaction, productivity, and the quality of patient care, leading to higher turnover rates among healthcare professionals.

Organizational Strategies for Prevention

Implement Flexible Scheduling

Allowing flexible work hours can help healthcare providers manage their personal and professional lives more effectively, reducing stress.

Provide Professional Development Opportunities

Invest in training and development programs to empower staff, helping them grow in their roles and feel valued within the organization.

Organizational Strategies for Prevention

Enhance Communication Channels

Establish open lines of communication to ensure healthcare providers feel heard and supported, fostering a culture of collaboration.

Encourage Team Building Activities

Organize regular team-building events to strengthen relationships among staff, promote camaraderie, and reduce feelings of isolation.

Role of Leadership in Preventing Burnout

Leadership plays a crucial role in preventing and addressing burnout among healthcare providers by fostering a culture of support and open communication. Effective leaders prioritize staff well-being, implement flexible work schedules, and encourage regular feedback to identify stressors early. Additionally, providing resources such as mental health support and professional development opportunities empowers staff to manage their workloads and seek help when needed. By actively engaging in burnout prevention strategies, leaders can create a healthier work environment that enhances job satisfaction and retention rates among healthcare professionals.

Individual Strategies for Managing Stress

- Practice regular physical activity to boost mood and reduce stress levels.
- Incorporate mindfulness techniques such as meditation or deep-breathing exercises into daily routines.
- Establish a healthy work-life balance by setting boundaries and prioritizing personal time.
- Engage in hobbies and activities outside of work to promote relaxation and joy.
- Seek professional support, such as counseling or peer support groups, when feeling overwhelmed.

Mindfulness and Self-care Techniques

Mindfulness Practices

Incorporate breathing exercises, meditation, and yoga into daily routines to enhance focus and reduce stress.

Self-care Techniques

Engage in regular physical activity, maintain a healthy diet, and ensure adequate sleep to promote overall well-being.

Balancing Work and Personal Life

Strategies for Work-Life Balance

- Set clear boundaries between work and personal time.
- Prioritize tasks and learn to say no when necessary.
- Schedule regular breaks throughout the workday.
- Engage in hobbies and activities outside of work.

Creating a Supportive Network

- Communicate your needs with family and friends.
- Join support groups for healthcare professionals.
- Seek mentorship and guidance from colleagues.
- Utilize employee assistance programs for additional support.

Treatment Options for Burnout

Individual therapy can help identify triggers and coping strategies.

Cognitive Behavioral Therapy (CBT) is effective in changing negative thought patterns.

Group therapy/support groups offers shared experiences and support from peers.

Wellness programs focus on physical health to reduce stress.

Case Studies of Burnout Recovery

Sarah Johnson, Nurse Practitioner

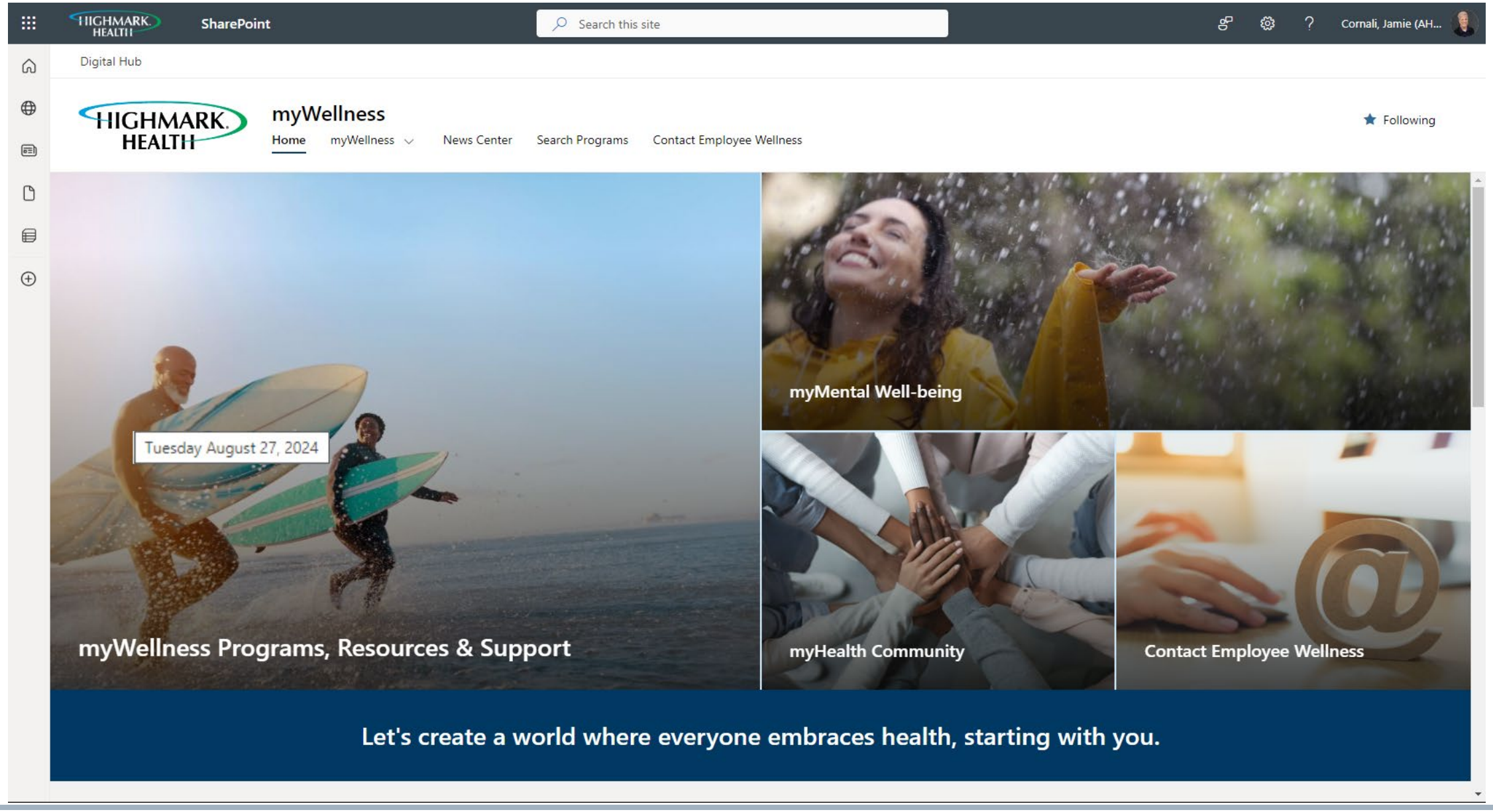
After experiencing severe burnout, Sarah implemented a structured self-care routine, which included daily mindfulness practices and regular counseling sessions. Within six months, she reported feeling more balanced and engaged in her work as a nurse practitioner. This proactive approach not only helped her recover but also enhanced her resilience against future stressors

Case Studies of Burnout Recovery

John Smith, Physician Assistant

John struggled with burnout for over a year due to high patient loads and inadequate support. After participating in an organizational wellness program that emphasized peer support and mentorship, he felt empowered to share his challenges and seek help. As a result, John regained his passion for patient care and became an advocate for mental health awareness in his clinic.

ANH Employee Resources



ANH Employee Resources

Access Magellan resources and/or NeuroFlow resources!

Magellan: Get confidential help with free counseling and work-life resources for you and your household members.

Also available by calling 800-424-5808

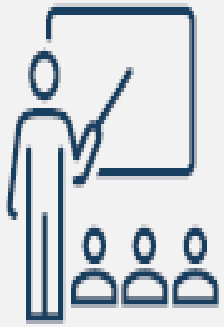
NeuroFlow: Magellan's Digital Emotional Wellbeing program helps strengthen your mind-body connection through interactive activities and education for overall wellbeing.

Onduo: Onduo Mental Health is a virtual care program to help you lower stress, increase purpose, and find more balance in your life. Access on demand digital activities, online coaching and help from a licensed Onduo therapist or doctor if additional support for depression is needed.

Must have coverage through employee health plan. Highmark Blue Cross Blue Shield.

ANH Employee Resources

Mindfulness & checking in with yourself can you help build emotional intelligence and resilience.



Mental Health Awareness Training: Brief 18-minute course educating team members on the meaning of mental health, efforts to reduce stigma, tips on self-care and resources available. *Access through MyLearning Course ID:0000061376*

Stress Management – Burnout Programs and Resources:
Discover tools to manage your stress, practice resilience and get inspired to live your best life through coaching, financial planning, or Sharecare practices.

Less Stress Program Coaching: 800-650-8442
EY Financial Planning 888-394-3578
mycare.sharecare.com

Future Directions in Burnout Management

Future directions in burnout management will focus on integrating technology, such as artificial intelligence and telehealth, to enhance provider support and mental health resources. Organizations will likely implement real-time feedback systems to monitor stress levels and job satisfaction, allowing for timely interventions. Additionally, peer support programs and resilience training will become more prevalent, emphasizing community and shared experiences among healthcare providers. Emphasizing work-life balance and flexible scheduling will also be critical in creating a healthier work environment, ultimately leading to sustained improvements in provider well-being.

Thank You

Lunch & Exhibitor Fair
12:10 pm – 1:10 pm

AHN 2nd Annual APP Conference - Reminders

Breakout Sessions

Don't miss your hands-on learning session!

Here's the schedule:

- **Suturing 101:** 11:05 am - 12:10 pm
- **EKG Readings:** 1:15 pm - 2:15 pm
- **Joint Injections:** 3:05 pm - 3:35 pm

Please arrive on time to ensure you get the most out of your session.

We appreciate your cooperation in keeping to the schedule.

Update Your Professional Photo!

AHN Employees, it's time to refresh your professional photo!

Highmark Photography will be on the upper level today from 7:30 am - 1:30 pm to capture your best look.

Don't miss this opportunity to update your photo for internal directories and other official uses.

Submit Your Vendor Passport for a Chance to Win!

Have you completed your Vendor Passport?

Visit each vendor table and get your passport stamped! Once you've collected all the stamps, submit your completed passport for a chance to win the Door Prize!

The winner will be contacted before the conference ends today to claim their prize.

Don't miss out!

Don't Miss Out! Raffle Time!

Choose your favorite basket and enter to win!

Here's how:
1.Scan the QR code to submit your entry.
2.Complete the short form and include your phone number so we can reach you quickly if you win!

Raffle submission closes at 3:00 pm today (9/14/2024). Winners will be contacted by 3:30 pm today to claim their prize before the conference ends!

Good luck!

2nd Annual AHN APP Conference 2024

SEPTEMBER 14TH, 2024 – THE REGIONAL LEARNING ALLIANCE

	Great Room A	Great Room B	*Breakout Rooms *(15 registrants per session)*
10:30 am - 11:00 am ***Session 1***	*Diabetes and Pregnancy: Before, During & After / Diabetes Technology updates and AHN Diabetes Resources* Debra Carse, CRNP & Megan Watts, RD	*Pint-sized Problems: A Review of Common Pediatric Illnesses for the Adult Provider* Mike Talotta, PA-C	
11:05 am - 11:35 am ***Session 2***	*Pre-Conceptual Counseling: Preparing for a Healthy Mom & Baby* Jennifer McDanel, PA-C	*Primary Care for the Specialty Provider* Dawn Ball, CRNP	**Suturing 101** (1 hour)
11:40 am - 12:10 pm ***Session 3***	*Genetic Counseling – Hereditary Cancers* Kyla Morphy, CGC	*Mental Health: Burn out in healthcare and what you can do to reduce your risk* Jamie Cornali, CRNP	
12:10 pm - 1:10pm	**Lunch & Exhibitor Fair**		
1:15 pm - 1:45 pm ***Session 4***	*Treating for Two: Managing Headaches During Pregnancy* Amanda Mace, MSPAS, PA-C	*Supplement Support: Evidence-Based Review* Kimberly Smith, CRNP	**EKG Readings Overview** (1 hour)
1:45 pm - 2:15 pm ***Session 5***	*Heart Failure – Palliative Medicine* Tara Orgon Stamper, CRNP	*Regional Cancer Therapies for GI Malignancies* Samantha Devine, PA-C	
2:20 pm - 3:00 pm	**Break & Exhibitor Fair**		
3:05 pm - 3:35 pm ***Session 6***	*Un-Break My Heart: Developments & Devices in Heart Failure* Courtney Hippert, PA-C	*Difficult to Treat Asthma Patient, and When to Refer* Justine Sicari, DNP, FNP, MSNed	**Joint Injections** (30 minutes)
3:40 pm - 4:10 pm ***Session 7***	*Weight Loss* Kathy Scutella, MSN, CRNP	***Please remain seated as we prepare for the final presentation and closing remarks. The room divider will be removed shortly to accommodate all attendees.***	

Accreditation

This activity has been planned and implemented in accordance with the essential areas and policies of the Accreditation Council for Continuing Medical Education (ACCME). Allegheny General

Hospital is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Allegheny General Hospital designates this live activity for a maximum of 6.5 AMA PRA Category 1 Credit ™

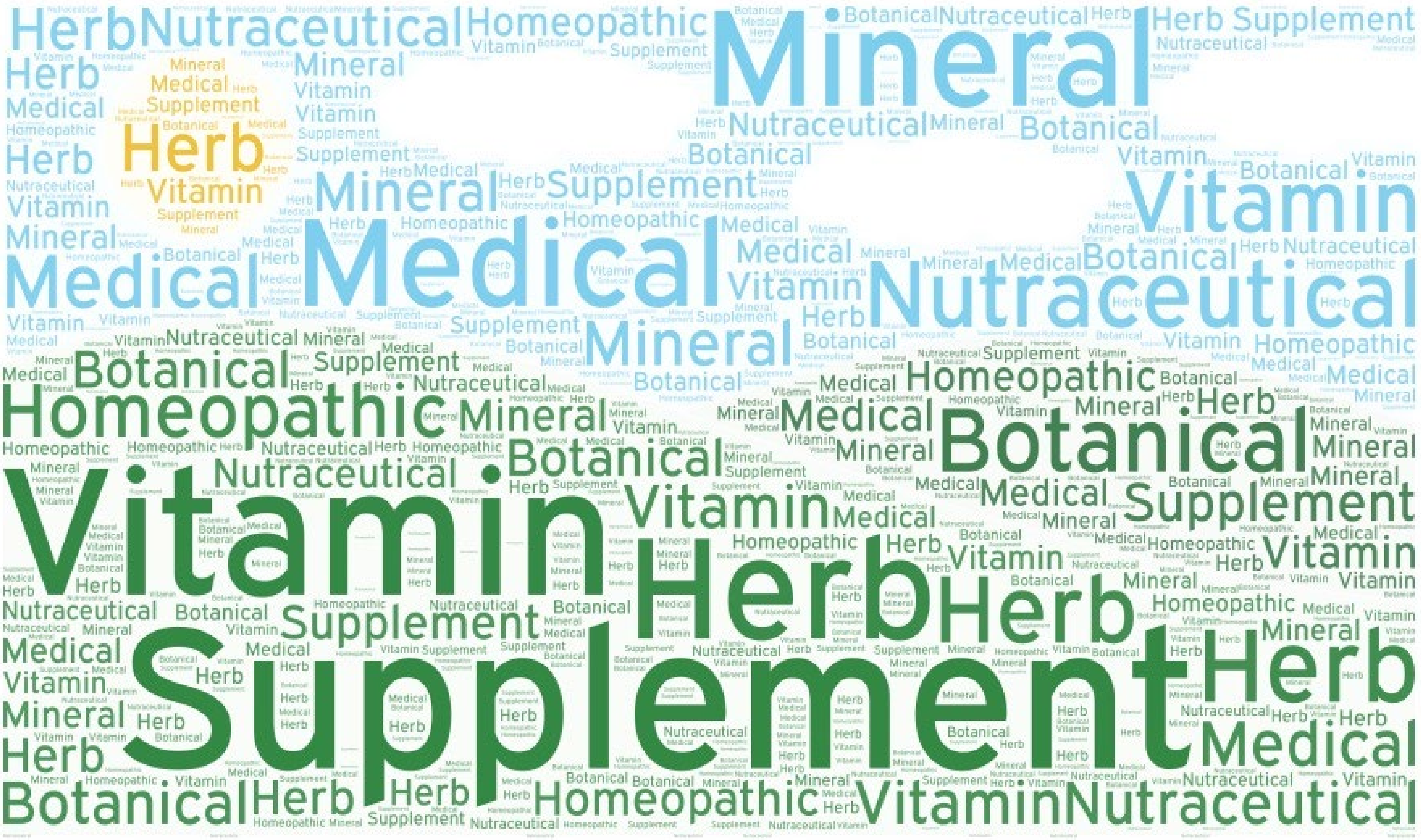
PRESENTED BY: Allegheny Health Network

September 2024

Supplement Support: Evidence Based Review

Kimberly Smith, MSN FNP-C
Primary Care Institute
Allegheny Health Network

AHN


Mineral
Medical
Nutraceutical
Vitamin
Herb
Homeopathic
Botanical
Supplement

Supplements

- Why do patients take supplements? (1,3)
  - Restore or maintain wellness
  - Influenced by others
  - Hesitant to start a medication
  - Cost of medication

Supplements

- Objectives
  - Introduction to several common supplements
  - Introduction to a high risk substance
  - Highlight research (or lack of) on these supplements
  - Discuss safety, interactions, and/or side effects
  - Recognize potential bias or misconceptions
  - Improve provider confidence

Supplements

- Providers lack training regarding supplements
  - Important to educate ourselves on supplements (6)
- Patients do not often think of supplements as a medication (1)
  - Ask patients: “are you taking any vitamins, minerals, supplements?”
  - Many do not seek advice from their medical provider before starting supplements
  - Some may want your “ok”

Supplements

CODE 219912

AXG

DIRECTIONS: As a dietary supplement, take the contents of one pack daily with food. Do not take prior to bedtime.

Each pack contains:

Mega Men® Energy & Metabolism Multivitamin

Supplement Facts

Serving Size Two Beige Caplets

Amount Per Serving		% Daily Value
Vitamin A (50% as beta-Carotene & 50% as Retinyl Acetate)	1500 mcg RAE	167%
Vitamin C (as Ascorbic Acid & Calcium Ascorbate)	300 mg	333%
Vitamin D (as Cholecalciferol)	40 mcg	200%
Vitamin E (as d-alpha Tocopheryl Acetate)	20.1 mg	134%
Vitamin K (as Phytonadione)	80 mcg	67%
Thiamin (Vitamin B-1)(as Thiamin Mononitrate)	50 mg	4167%
Riboflavin (Vitamin B-2)	50 mg	3846%
Niacin (as Niacinamide & Niacin)	50 mg	313%
Vitamin B-6 (as Pyridoxine Hydrochloride)	50 mg	2941%
Folate	680 mcg DFE (400 mcg Folic Acid)	170%
Vitamin B-12 (as Cyanocobalamin)	50 mcg	2083%
Biotin	300 mcg	1000%
Pantothenic Acid (as Calcium d-Pantothenate)	50 mg	1000%
Choline (as Choline Bitartrate)	10 mg	2%
Calcium (as Calcium Carbonate, Calcium d-Pantothenate & Calcium Ascorbate)	200 mg	15%
Iodine (as Potassium Iodide)	150 mcg	100%
Magnesium (as Magnesium Oxide)	100 mg	24%
Zinc (as Zinc Oxide)	25 mg	227%
Selenium (as L-Selenomethionine)	200 mcg	364%
Copper (as Cupric Sulfate)	2 mg	222%
Manganese (as Manganese Sulfate)	2 mg	87%
Chromium (as Chromium Chloride)	120 mcg	343%
Molybdenum (as Sodium Molybdate)	75 mcg	167%
Energy & Metabolism Blend	**150 mg**	*
Caffeine Anhydrous, Green Tea (*Camellia sinensis*) Leaf Extract, Eleuthero (*Eleutherococcus senticosus*) Root Powder, Capsicum (*Capsicum annum*) Fruit Extract, Black Pepper (*Piper nigrum*) Fruit Extract (Standardized to Piperine)		
Super Antioxidant Blend	**28.95 mg**	*
alpha-Lipoic Acid	25 mg	*
Lutein (from *Tagetes erecta* Flower Extract)	2 mg	*
Lycopene	1 mg	*
Turmeric (*Curcuma longa*) Root Extract (20% Curcuminoids = 100 mcg)	500 mcg	*
Zeaxanthin (as Zeaxanthin Isomers)	400 mcg	*
Astaxanthin (from *Haematococcus pluvialis*)	50 mcg	*
Inositol	10 mg	*
Silicon Dioxide	4 mg	*
Boron (as Sodium Borate)	2 mg	*
Vanadium (as Sodium Metavanadate)	10 mcg	*

* Daily Value not established.

OTHER INGREDIENTS: Microcrystalline Cellulose, Cellulose, Hydroxypropyl Methylcellulose, Dicalcium Phosphate, Hydroxyproylcellulose, Maltodextrin, Magnesium Stearate Vegetable Source, Sucrose, Modified Food Starch, Mannitol, Gelatin (Porcine, Fish), Corn Starch, Calcium Silicate, Shellac, dl-alpha Tocopherol, Methylcellulose, Glucose Syrup, Stevia Leaf Extract, Vegetable Oil, Sodium Ascorbate, Gum Arabic, Natural Vanilla Mint Flavor, Mixed Carotenoids, BHA/BHT, Tricalcium Phosphate, Cryptoxanthin, Povidone, Mixed Tocopherols, Ascorbyl Palmitate, Caramel Color, Dextrin, Medium Chain Triglycerides, Modified Starch, Polyethylene Glycol, Polyglycerol Fatty Acid Esters, Sodium Aluminum Silicate, Sodium Carboxymethylcellulose, Talc, Titanium Dioxide (Mineral Whitener).

CONTAINS: Soybeans, Fish (Anchovy, Mackerel, Sardine, Smelt, Salmon, Tuna, Cod or a Combination Thereof).

Distributed by: GNC Holdings, LLC, Pittsburgh, PA 15222 USA

Contains a bioengineered food ingredient. Contains 100 mg of caffeine.

ACTUAL SIZE

Energy & Metabolism Generator

Supplement Facts

Serving Size One Capsule

Amount Per Serving		% Daily Value
Niacin	20 mg	125%
Caffeine Anhydrous	200 mg	*
Garcinia cambogia Fruit Extract	100 mg	*
Green Tea (*Camellia sinensis*) Leaf Extract	50 mg	*
Green Coffee (*Coffea spp.*) Bean Extract	50 mg	*
Capsicum (*Capsicum annum*) Fruit Extract (as Capsimax®)	33.4 mg	*
Lychee (*Litchi chinensis*) Fruit Extract	25 mg	*
Black Pepper (*Piper nigrum*) Fruit Extract (50% Piperine = 5 mg)	10 mg	*

* Daily Value not established.

OTHER INGREDIENTS: Gelatin, Microcrystalline Cellulose, Sugar, Hydroxypropylcellulose, Calcium Silicate, Magnesium Stearate Vegetable Source, Talc, Silica, Chlorophyllin (Color).

Contains 200 mg of caffeine.

ACTUAL SIZE

Carnitine

Supplement Facts

Serving Size One Capsule

Amount Per Serving	
L-Carnitine (as L-Carnitine L-Tartrate)	500 mg*

* Daily Value not established.

OTHER INGREDIENTS: Gelatin, Stearic Acid Vegetable Source, Talc, Magnesium Stearate Vegetable Source, Silica.

ACTUAL SIZE

High Potency Omega-3

Supplement Facts

Serving Size One Softgel Capsule

Amount Per Serving		% Daily Value
Calories	10	
Total Fat	1 g	1%†
Total Omega-3s	882 mg	*
EPA (Eicosapentaenoic Acid) Omega-3	700 mg	*
DHA (Docosahexaenoic Acid) Omega-3	100 mg	*
Other Omega-3s	82 mg	*
Palmitic Acid Monoethanolamide	25 mg	*

† Percent Daily Values are based on a 2,000 calorie diet.

* Daily Value not established.

OTHER INGREDIENTS: Fish Body Oil, Gelatin, Glycerin, Silicon Dioxide, Caramel Color, Mixed Tocopherols.

CONTAINS: Soybeans, Fish (Anchovy, Mackerel, Pollack, Sardine, Smelt, Salmon, Tuna, Whiting, Cod or a Combination Thereof).

ACTUAL SIZE

⚠ WARNING: Cancer and Reproductive Harm – www.P65Warnings.ca.gov. Consult your physician prior to using this product if you are pregnant, nursing, taking medication or have a medical condition. Discontinue use two weeks prior to surgery. Inform your physician of this product's biotin content before any lab test. Niacin may cause a temporary flushing reaction. This product contains EGCG from green tea.

No Artificial Flavors.

KEEP OUT OF REACH OF CHILDREN.
Store in a cool, dry place.

For More Information:
1-888-462-2548
GNC.com

Capsimax® Capsimax® trademark belongs to OmniActive Health Technologies.

Staminol®

Supplement Facts

Serving Size One Capsule

Amount Per Serving		% Daily Value
Calcium	38 mg	3%
Proprietary Blend	100 mg	*
L-Arginine, Epimedium (*Epimedium spp.*) (Whole Plant) Extract, Maca (*Lepidium meyenii*) Root Powder		
Oat Straw (*Avena sativa*) Stems Powder	75 mg	*
GABA (gamma-Aminobutyric Acid)	50 mg	*
Yohimbe (*Pausinystalia johimbe*) Bark Extract	30 mg	*
Horny Goat Weed (*Epimedium sagittatum*) (Aerial Parts) Powder	10 mg	*
Muira Puama (*Ptychopetalum olacoides*) Root Powder	5 mg	*
Damiana (*Turnera diffusa*) Leaf Powder	5 mg	*
Saw Palmetto (*Serenoa repens*) Berries Powder	5 mg	*

* Daily Value not established.

OTHER INGREDIENTS: Dicalcium Phosphate, Gelatin, Water, Stearic Acid Vegetable Source, Magnesium Stearate Vegetable Source, Silicon Dioxide, Sodium Lauryl Sulfate.

ACTUAL SIZE

CONTAINS: Wheat.

WARNING: Use only as directed. Do not exceed recommended daily intake.

^In a randomized, double-blind, placebo-controlled study of 112 healthy volunteers, subjects taking the GNC vitamin and mineral blends for six weeks experienced significant improvements in serum levels of certain key nutrients compared to a placebo and a leading multivitamin formula based upon multivariate statistical analyses of a group of B vitamins (thiamin, niacin, riboflavin, pantothenic acid, biotin, folic acid and vitamins B-6 and B-12) and key antioxidants and carotenoids (a group of beta-carotene, alpha-tocopherol, selenium, lutein and lycopene). Statistical improvements in SF-36 Vitality and Mental Health scores were also observed compared to placebo.

Supplements

- Regulations
  - Over the counter vitamins and supplements are not regulated by the FDA
    - 1994 Dietary Supplement Health Education Act (1,5)
      - Dietary supplements are classified as food
      - Not regulated by the FDA or subject to any premarket approval
      - FDA can remove unsafe supplements, and they can be reported to the FDA
      - https://www.fda.gov/food/dietary-supplements

Supplements

- Safety
  - Important to educate our patients that just because something is sold over the counter does not necessarily mean that it is safe
  - Study by CDC found approximately 23,000 ED visits and more than 2100 hospitalizations per year in the United States related to dietary supplements (5).
  - Educate Patients on choosing safe supplements (4)
  - Be cautious of supplements with
    - Many ingredients
    - outrageous claims

Supplements

- Safety
  - Look for supplements that are 3rd party verified (7)

Supplements

- Supplement research
  - Most clinical trials/research of supplements is done outside of the United States (6)
    - China, India, Iran and Russia
      - Strong tradition of herbal medicine
  - Clinical Research in US is improving
    - National Institute of Health- Office of Dietary Supplements
    - National Center for Complimentary and Integrative health (NCCIH)

Supplements

Rapid Supplement Review

- Ashwagandha
- Biotin
- Berberine
- Creatine
- Kratom
- Omega 3 Fatty Acids
- Turmeric
- Valerian Root

Ashwagandha

Ashwagandha

- What is it?
  - Evergreen shrub native to Asia and Africa

- Claims
  - Treatment of stress, anxiety, depression, sleep, concentration, and memory

Ashwagandha

- Evidence
  - Good evidence that it can help with the body's stress response and mild anxiety
  - A randomized, double-blind placebo-controlled study showed that ashwagandha root significant improved perceived stress scales (PSS) and generalized anxiety disorder (GAD-7) scores (9)
  - some evidence that it improves depression and sleep (more studies needed)
  - Minimal evidence that it helps with concentration or memory (10)

- Dosage:
  - Composition varies by manufacturer
  - Up to 300 mg bid for up to 3 months (8, 11)
  - High doses may lead to cholestatic liver injury

Ashwagandha

- Safety:
  - One RCT showed no adverse effects or changes in CBC, CMP, or TSH (11)
  - Avoid in pregnancy and breastfeeding (8)
  - Avoid in prostate cancer (6)
  - Do not take along with other serotonergic medications
  - Be mindful that this could increase risk of serotonin syndrome if multiple medications/supplements with serotonergic effects are combined (10)

- Takeaway:
  - May be useful for mild anxiety in low-risk patients

Biotin

Biotin

- What is it?
  - Water soluble B complex
  - Many foods contain biotin
  - Beef, egg, salmon, pork, sweet potatoes, almonds, tuna, spinach, broccoli, cheese, milk, yogurt, oatmeal, bananas, apples, etc (12)

- Claims:
  - Decreases hair loss and improves strength of nails
  - Treatment of brittle nail disease

Biotin

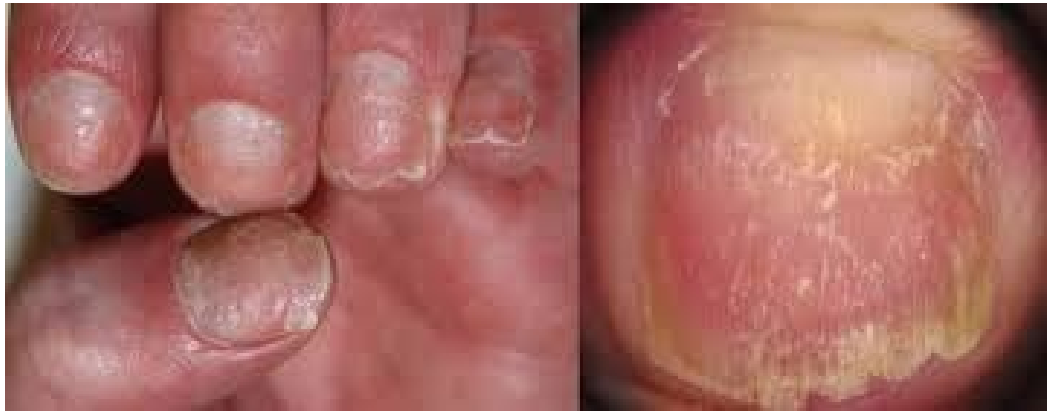
- Evidence:
  - Only works for hair loss biotin deficient (14)
  - There is evidence that it treats brittle nail disease
  - Risk factors for biotin deficiency include inflammatory bowel disease or medications that interfere with biotin metabolism
  - Antiepileptics, long term antibiotics, oral tretinoin (13)

- Dosage
  - NIH recommends 30 mcg daily for adults (12)
  - Many supplements offer doses of 10,000 mcg daily

Biotin

- Safety: No known toxicity.

- Takeaway:
  - Only helpful in hair loss if biotin deficient
  - Can interfere with thyroid assays but not thyroid function itself
  - Can interfere with vitamin D assays (15)
    - stop biotin 7 days before testing thyroid function and vit D levels



Berberine

Berberine

- What is it?
  - Compound found in goldenseal, philodendron, Oregon grape and European barberry plants

- Claims:
  - Thought to help with weight loss and metabolic syndrome
  - “Natures Ozempic”

- Evidence:
  - Some studies show indication for diabetes, hyperlipidemia, HTN, PCOS (16, 19)
  - Can improve insulin resistance, decrease lipid levels and help with weight loss (17, 18)

Berberine

- Dosage
  - Max of 1.5 grams daily, safe for max of 6 months
  - Often found in other OTC weight loss supplements

- Safety:
  - Minimal human trials, minimal evidence
  - Avoid in pregnancy, breastfeeding, and children
  - Significant drug/drug interactions (20)
    - Cyclosporin
    - Dextromethorphan
    - Cytochrome P450 activity

- Takeaway:
  - Many drug interactions, minimal studies, best to avoid

Creatine

Creatine

- What is it?
  - Most popular sports performance enhancing supplement on the market (21)
  - Derived from three amino acids: methionine, glycine, and arginine
  - Stored in skeletal muscle in the form of phosphocreatine which is a source for rapid resynthesis of adenosine triphosphate (ATP).
  - Muscle relies on ATP for energy especially in high intensity, short duration exercise (25)

- Claims:
  - Improves muscle energy for improved sports performance
  - Creatine increase the rate of phosphocreatine resynthesis during recovery so that more ATP is available for the rapid energy expenditure (21,22,25)

Creatine

- Evidence:
  - Strong evidence that creatine improves repeated short bursts of high intensity exercise (6 – 30 seconds) such as sprinting and weightlifting (22)
  - Studies show that it is effective for younger adult males (less than 36 years of age) (26)
  - Minimal or no improvement in women or older men
  - Inconsistent evidence regarding endurance sports (26)
  - May be beneficial for thermoregulation and reduced heart rate in those exercising in hot, humid conditions (28)

Creatine

- Dosage
  - Recommended formulation is creatine monohydrate
    - Is available in other formulations as well but they may contain impurities or other untested/unsafe ingredients
  - Acute loading over 5-day period less beneficial than chronic loading with 28-day period
  - Acute loading is dosed at 5 grams four times daily for 5 days
  - Chronic loading involves 3 grams per day over 28 days
  - Continue at 2-3 grams per day thereafter (27)

Creatine

- Safety:
  - Side effects include weight gain due to water retention, nausea, headaches
  - Limited evidence that creatine is harmful to kidneys in those with normal baseline renal function (28,29)
  - Serum creatine may increase slightly during use (30)

- Takeaway:
  - May be helpful in young male athletes with normal baseline renal function who compete in high intensity short interval sports such as sprinting, football, rugby, racquet sports, etc.

Kratom

Kratom

- What is it?
  - Derived from a tropical evergreen tree native to Southeast Asia
  - Street name “gas station heroin”
  - Commonly taken as a tea or juice, capsule or extract

- Claims:
  - Improved energy, alertness and provide analgesic effects
  - Control opioid withdrawal symptoms
  - Primarily used for chronic pain

Kratom

- Evidence:
  - Associated with acute adverse events
    - Can lead to psychosis, hallucinations, confusion
    - Dependance with chronic use (31)
  - The US National Institute on Drug Abuse currently researching kratom for its dependence and withdrawal symptoms (33)

- Dosage
  - There is no safe dosage

Kratom

- Safety:
  - Drug and Chemical of Concern by DEA
  - Prohibited in some US states and some countries
  - Liver toxicity, seizures, dependance
  - Can lead to withdrawal symptoms.
    - Withdrawal symptoms range from mild to severe (32)

- Takeaway:
  - Dangerous
  - Do not recommend that patients manage opioid withdrawal on their own

Omega 3 Fatty Acids

Omega 3 Fatty Acids

- What are they?
  - Essential fatty acids
    - alpha-linolenic acid (ALA),
    - eicosapentaenoic acid (EPA)
    - docosahexaenoic acid (DHA)
  - Found naturally in fatty fishes (salmon, sardines, herring, maceral, trout), flax seed, hemp seed, eggs, some dairy products (34, 35)

- Claims:
  - Lowers triglycerides, reduces hypertension and reduce heart disease
  - Improve ADHD, bipolar and depression symptoms

Omega 3 Fatty Acids

- Evidence:
  - Proven to be effective at reducing triglyceride levels by 20-50% depending on the supplement vs medication (36, 37)
  - Can raise total cholesterol and LDL cholesterol
  - More research is needed to know if supplementation helps with psychological disorders
- Dosage
  - 1 – 12 grams daily (1 -3 grams of that being EPA and DHA) (38)
  - Can be supplemented as fish oil, krill oil or algae supplements
  - Prescription forms:
    - Icosapent ethyl (vascepa)
    - Omega-3-acid ethyl esters (Lovaza)

Omega 3 Fatty Acids

- Safety:
  - Relatively safe
  - Side effects include upset stomach, fish burps
  - Reduces platelet aggregation
  - May be safe in pregnancy in low dosage
  - May be beneficial in pregnancy due to increased consumption of DHA for brain development (38)
    - Chia, hemp, and flax may be safer

- Takeaway:
  - Helpful to reduce triglyceride levels
  - Recommend holding prior to surgery to reduce theoretical risk for increased bleeding

Turmeric

Supplements

- What is it?
  - Flowering plant from ginger family
  - Active ingredient is curcumin
  - Native to southeast Asia
  - Common spice, key ingredient in curry

- Claims:
  - Thought to help with inflammatory conditions such as arthritis, inflammatory bowel disease, respiratory infections, allergies and liver disease, and hyperlipidemia

Supplements

- Evidence:
  - Can help to reduce LDL and triglycerides
  - No improvement in HDL
  - 2019 systematic review showed no reduction in CRP in patients with chronic inflammatory disease (48)
  - 2017 small RCT showed analgesic and ani-inflammatory effects in patients with osteo and rheumatoid arthritis (45, 46, 49)
  - Research is lacking due to the instability of curcumin and low bioavailability when ingested (43, 44)
  - Improving bioavailability research underway
  - National Center for Complimentary and Integrative health (NCCIH) is currently funding research on curcumin and bone health (43)

Supplements

- Dosage:
  - Can be taken orally or applied to the skin as a paste
  - 100 mg to 1000 mg daily (43, 44)
  - The Arthritis Foundation recommends 500 mg bid (6)
  - Products containing black pepper or piperine may enhance absorption of turmeric (44)

Supplements

- Safety:
  - Well tolerated, no adverse events in studies done, low risk for harm
  - Safe in pregnancy in low doses, may be harmful in higher doses
  - If taken in pregnancy best to consume doses equal to or less than those found in food.

- Takeaway:
  - May be a good option for those who cannot take NSAIDs or Tylenol.
  - Good option to reduce LDL and triglyceride reduction in those unwilling or unable to take a statin

Valerian Root

Valerian Root

- What is it?
  - Plant native to Europe and Asia.
  - Supplement is extracted from roots, underground stem and upright stem
  - Often made into teas and tinctures
  - Dried plant materials made into capsules

- Claims:
  - Thought to help with insomnia, anxiety, depression, palpitations, PMS and menstrual symptoms, and headaches

Valerian Root

- Evidence:
  - Minimal, inconclusive

- Side effects:
  - Side effects include headache, upset stomach, agitation, cardiac disturbances, drowsiness, dry mouth, vivid dreams (6, 51)

Valerian Root

- Safety:
  - Extraction methods very widely
  - Active ingredient thought to be safe for short term use,
  - Many extracts or supplements sold do not actually contain the active ingredient (52)
  - long term safety is unknown
  - Unclear if safe in pregnancy
  - Interacts with and has additive effects on benzodiazepines, barbiturates, St. John's wart, melatonin (54)

- Takeaway:
  - Because it has interactions and many side effects similar to the conditions it aims to treat, it is probably best to avoid

Resources

- Book:
  - Medicinal Herbs in Primary Care: An Evidence-Guided Reference for Healthcare Providers. Jean M. Bokelmann, MD

- Websites:
  - Council for responsible nutrition. www.crnusa.org
  - National Institute of Health: Office of Dietary Supplements
  - National Center for Complimentary and Integrative Health
  - Natural Medicines Database

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Regional Cancer Therapies for GI Malignancies

Presented by: Samantha Devine, MPAS, PA-C

Division of Surgical Oncology

September 2024

PRESENTED BY: Allegheny Health Network

GI Malignancies

Group1:

- Metastatic cancer to the liver
- Intrahepatic cholangiocarcinoma

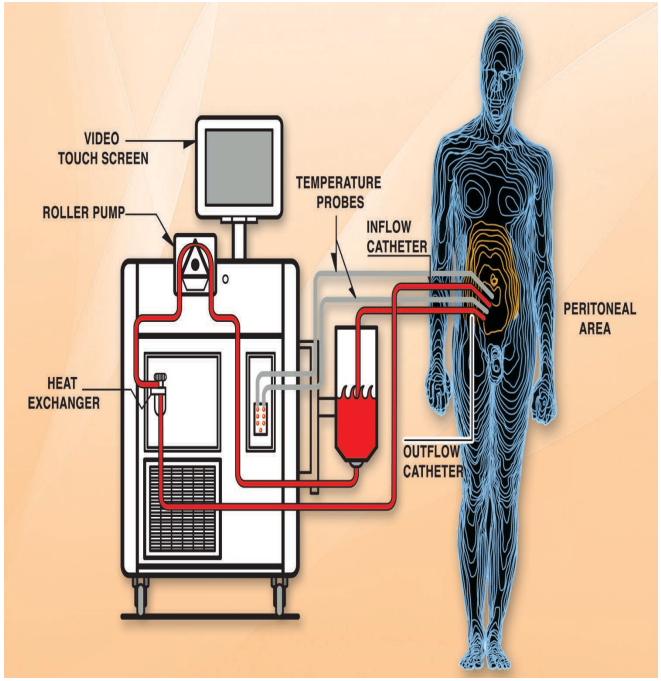
Group 2:

- Peritoneal Surface Malignancies from
  - Appendix Cancer
  - Colon Cancer
  - Gastric
  - Ovarian Cancer
  - Mesothelioma

Types of Regional Therapies for GI Malignancies

Hepatic Artery Infusion (HAI) Pump

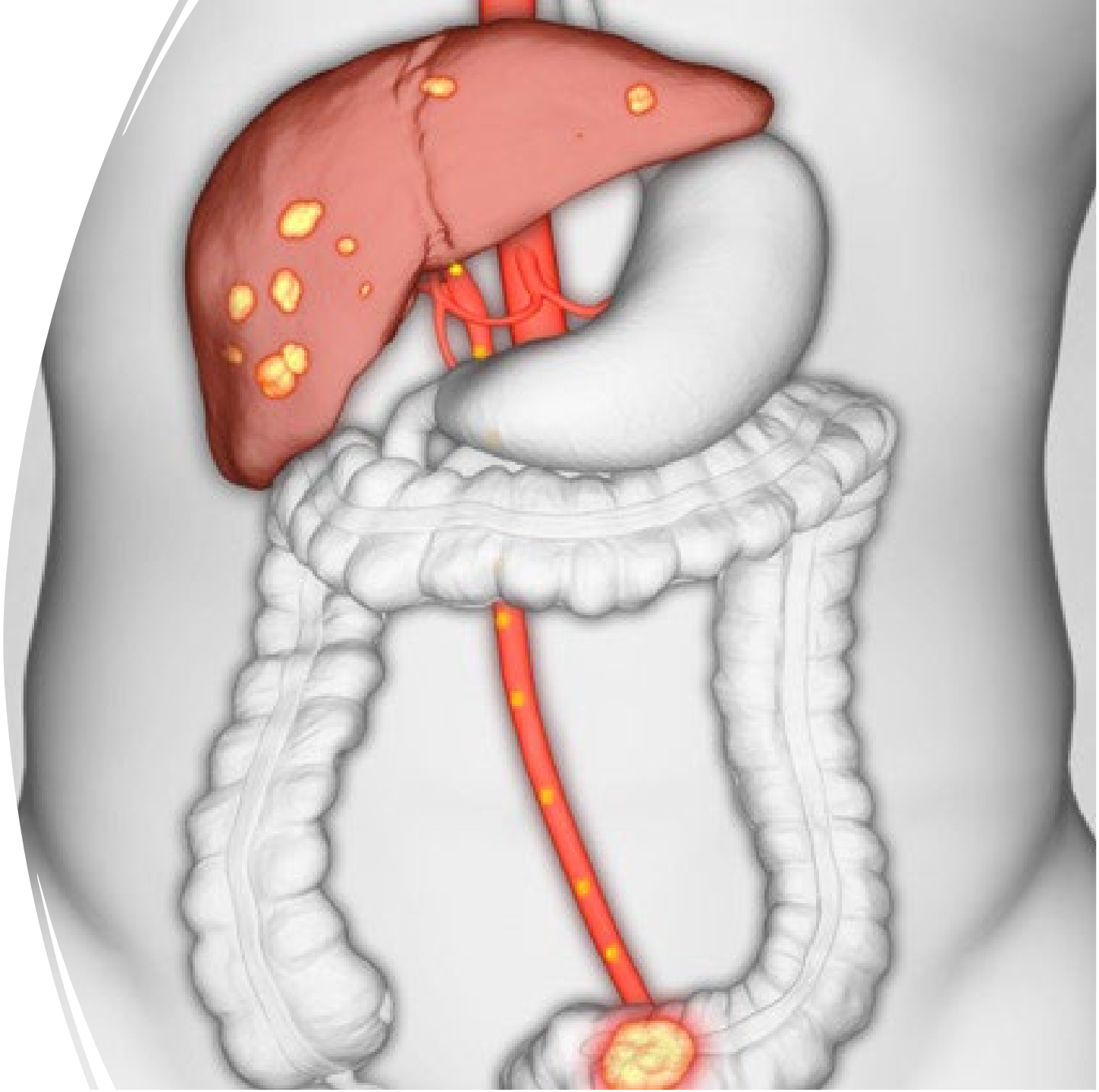
Heated Intraperitoneal Chemotherapy (HIPEC)

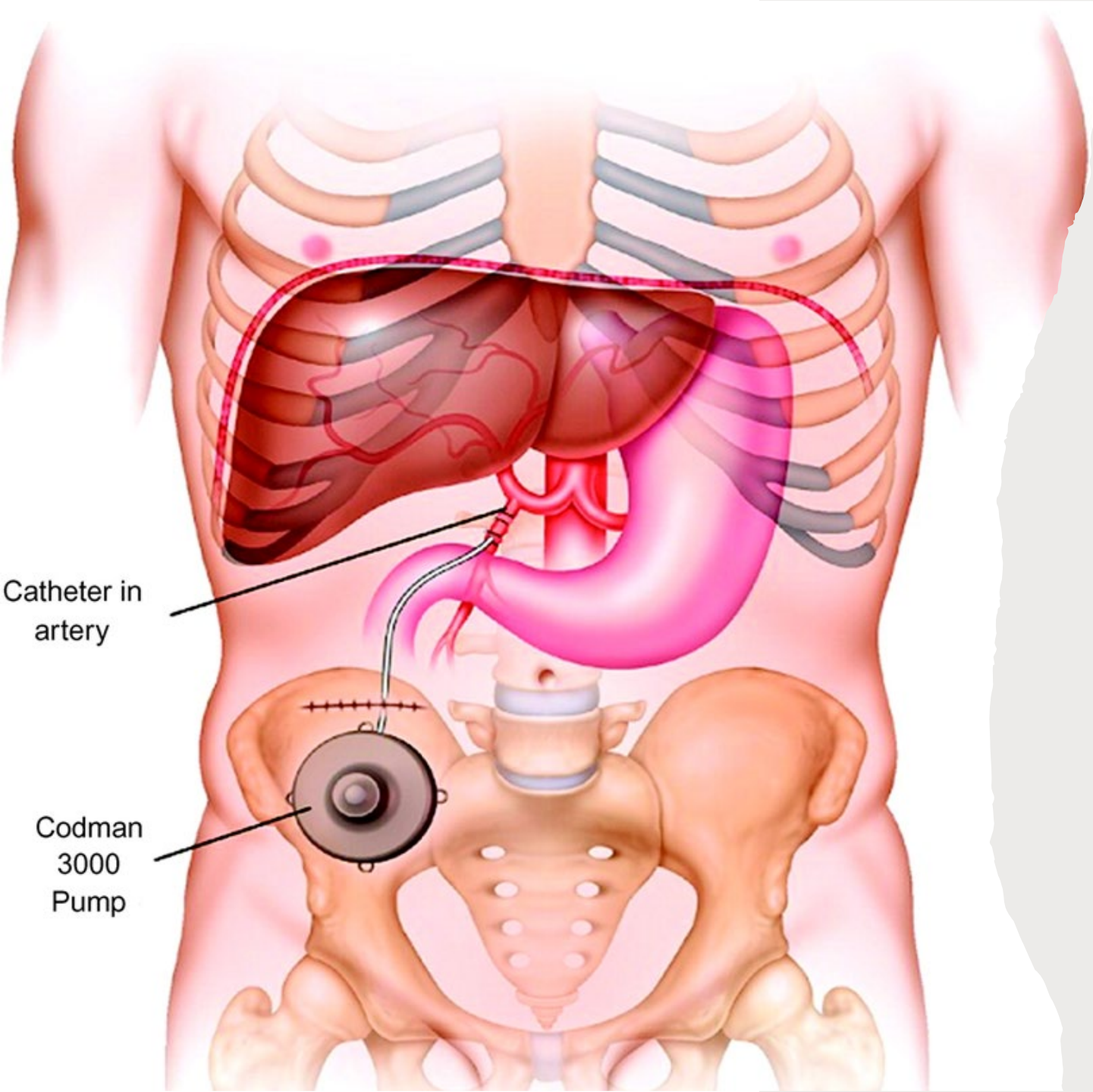


Hepatic Artery Infusion (HAI) Pump

HAI Therapy Indications

- Resectable colorectal liver metastases (adjuvant therapy)
- Unresectable colorectal liver metastases
  - Convert patient to resection candidate
- Intrahepatic Cholangiocarcinoma



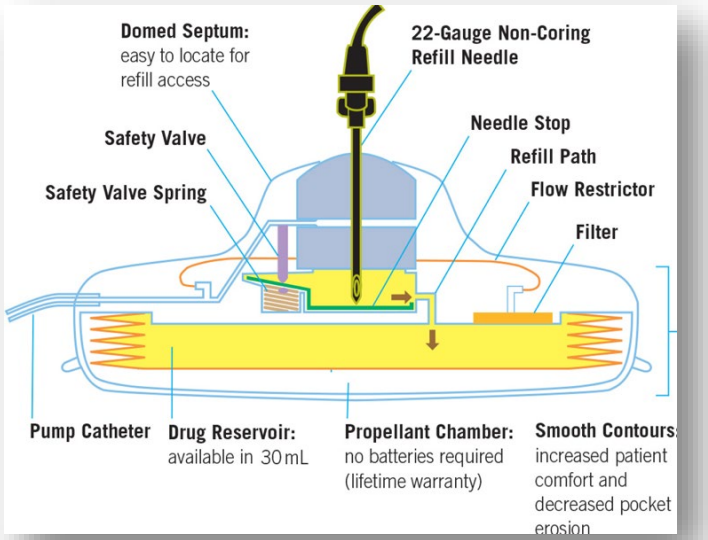


Implantation of HAI Pump

- Implanted during an operation by an experienced Surgical Oncologist
- Techniques:
  - Open
  - Laparoscopic
  - Robotic
- Catheter placed into gastroduodenal artery
- HAI pump can be placed with or without:
  - Primary tumor resection
  - Liver Resection/ RFA

How does the HAI Pump Work?

- Access similar to port
- Body heat enables delivery of drug
  - FUDR, Heparin, Glycerin
  - No batteries, motors, or gears within system
- Safe to use with MRI
- Special Bolus
  - Direct administration to liver that bypasses reservoir
  - Interrogation of HAI pump
    - Pump Study
- Only FDA approved device on the market



HAI Therapy

Active Treatment

- Floxuridine (FUDR) / Heparin
  - Pump refills every 2 weeks
  - Drug concentrations ~400 times higher than those achieved by IV administration[1]
  - Has high first pass extraction (94-99%) and ½ life of ~10 minutes
- Given in combination with systemic chemotherapy regimen
  - Both FUDR and IV chemo is dosed reduced to avoid toxicity

Maintenance

- Glycerin used upon completion of treatment to keep catheter patent
  - Pump refills every 8 weeks

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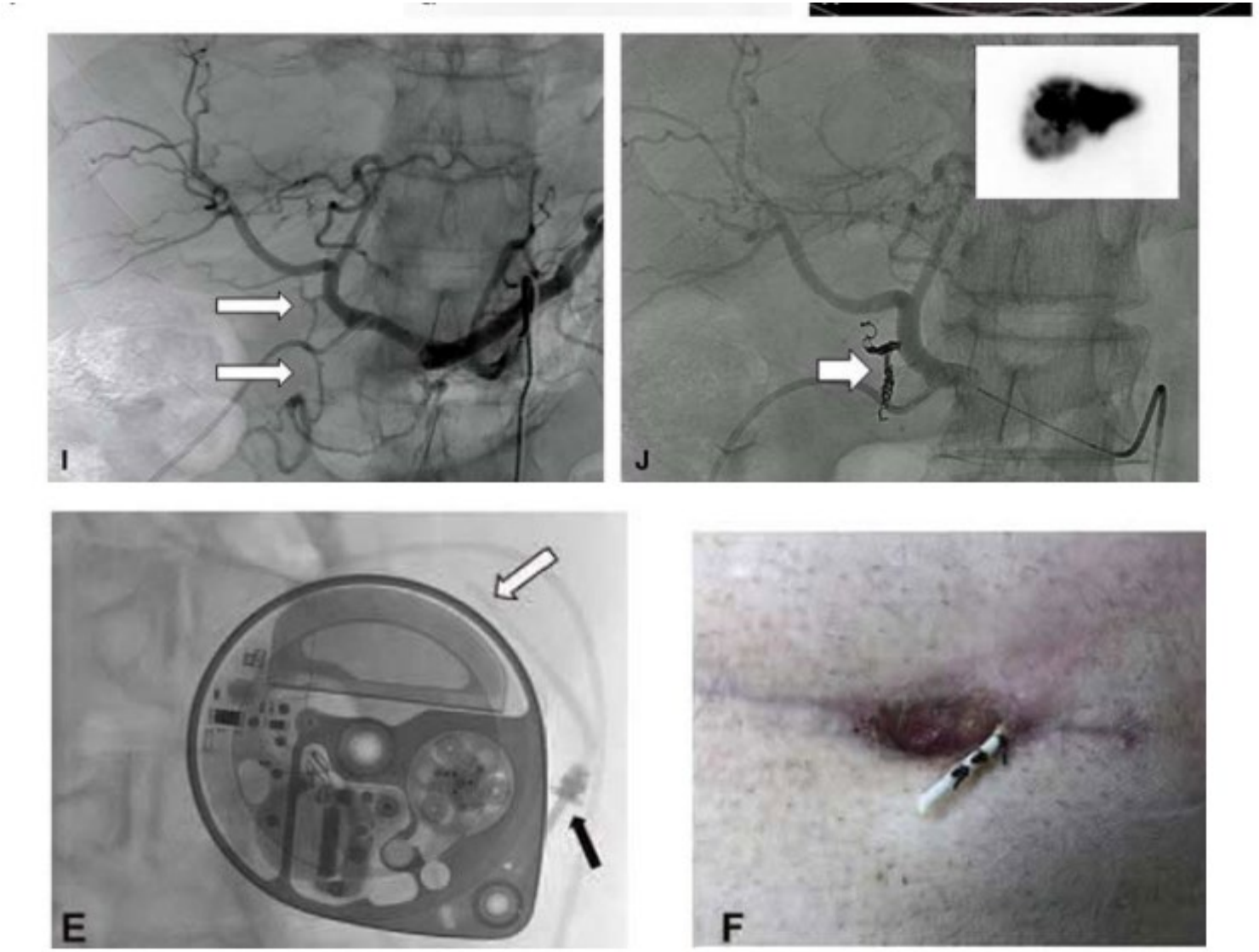
Complications of HAI Pump

- Incomplete/ Non/ Extrahepatic Perfusion
- Pump Pocket hematoma/ seroma/ exposure, breakdown, “flipping”
- Cather occlusion/ migration/ erosion
- Dissection/ thrombosis/ pseudoaneurysm
- Ulceration stomach/ duodenum
- Biliary Sclerosis



Clinical Data for HAI Treatment Outcomes

Unresectable CRLM: HAI may reduce tumor burden, improve disease control in the liver and increase likelihood of conversion to surgical resection

- HAI therapy + systemic chemo resulted in high tumor response rates and 52% of previously unresectable patients achieved conversion to resection [1]
- HAI therapy + systemic modern chemo doubled OS (33 months vs. 15 months respectively) independent of conversion to resectability in the second and third line setting [2]

Adjuvant CRLM: HAI may prevent or delay recurrence post resection, and improve OS

- The only adjuvant therapy for resected CRLM shown to improve 2-year survival in a randomized trial [3]
- HAI therapy reduced the likelihood of recurrence post-resection without increasing systemic side effects [3]
- Adjuvant HAI after resection improved 10-year OS by 60% and demonstrated superior mOS (67 mo vs 44 mo) [4]

Unresectable iCCA: HAI may increase overall survival

- HAI combined with systemic chemotherapy was **shown to extend overall survival** for patients with unresectable iCCA, reporting 25 months median overall survival and 39.5% of patients alive at 3 years [5, 6]

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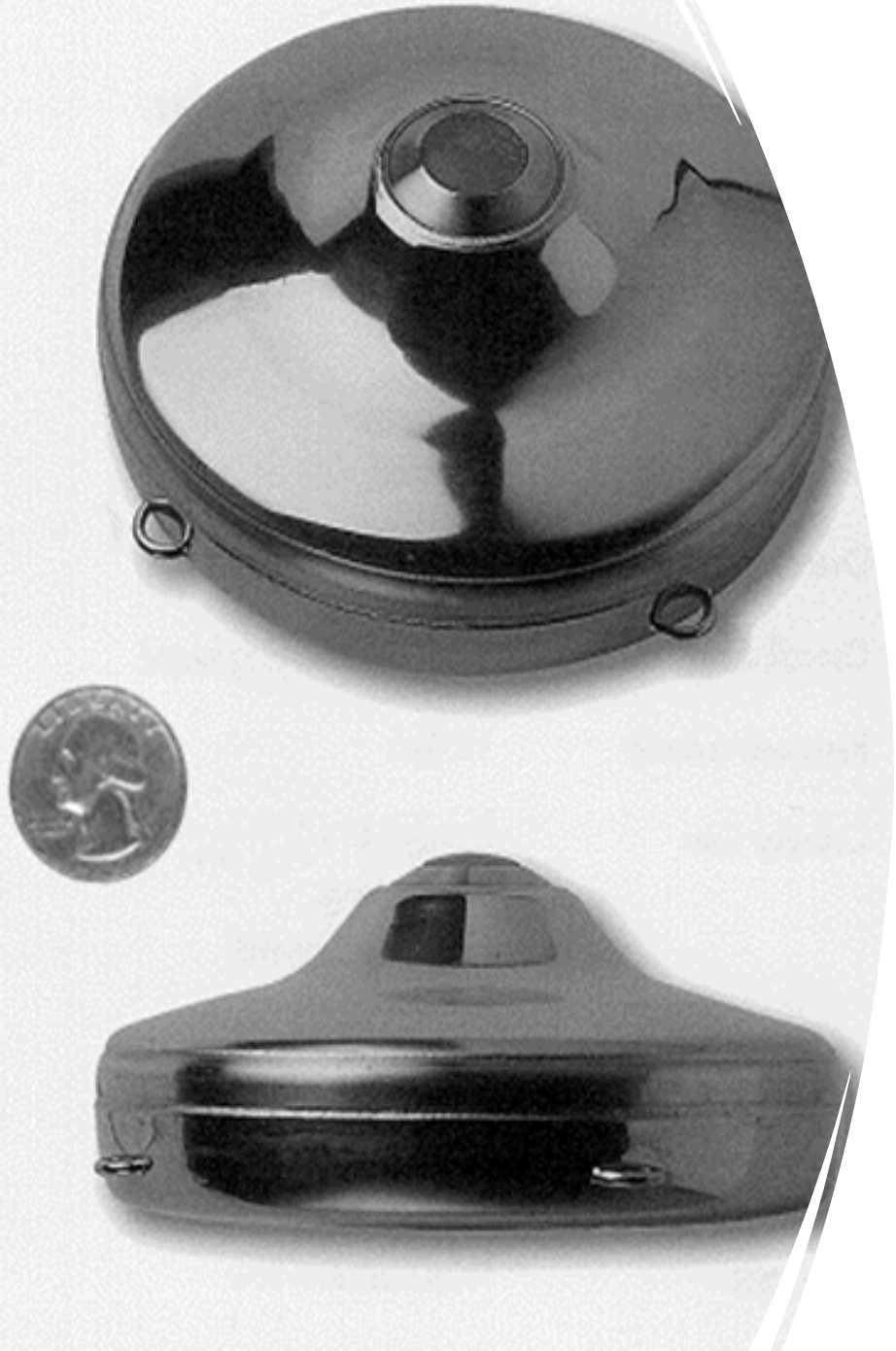
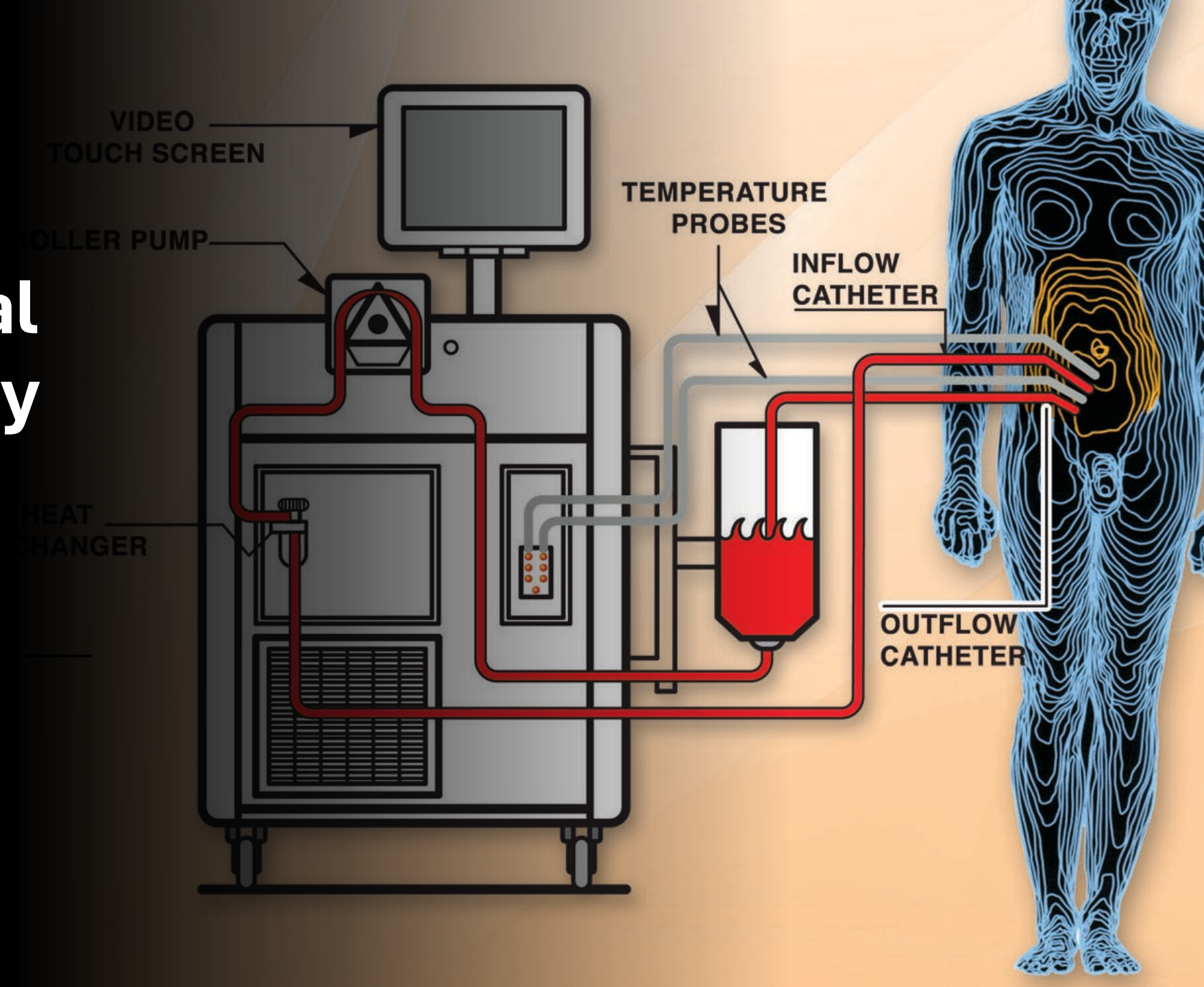


Issues to Look Out for in Patients with HAI Pumps

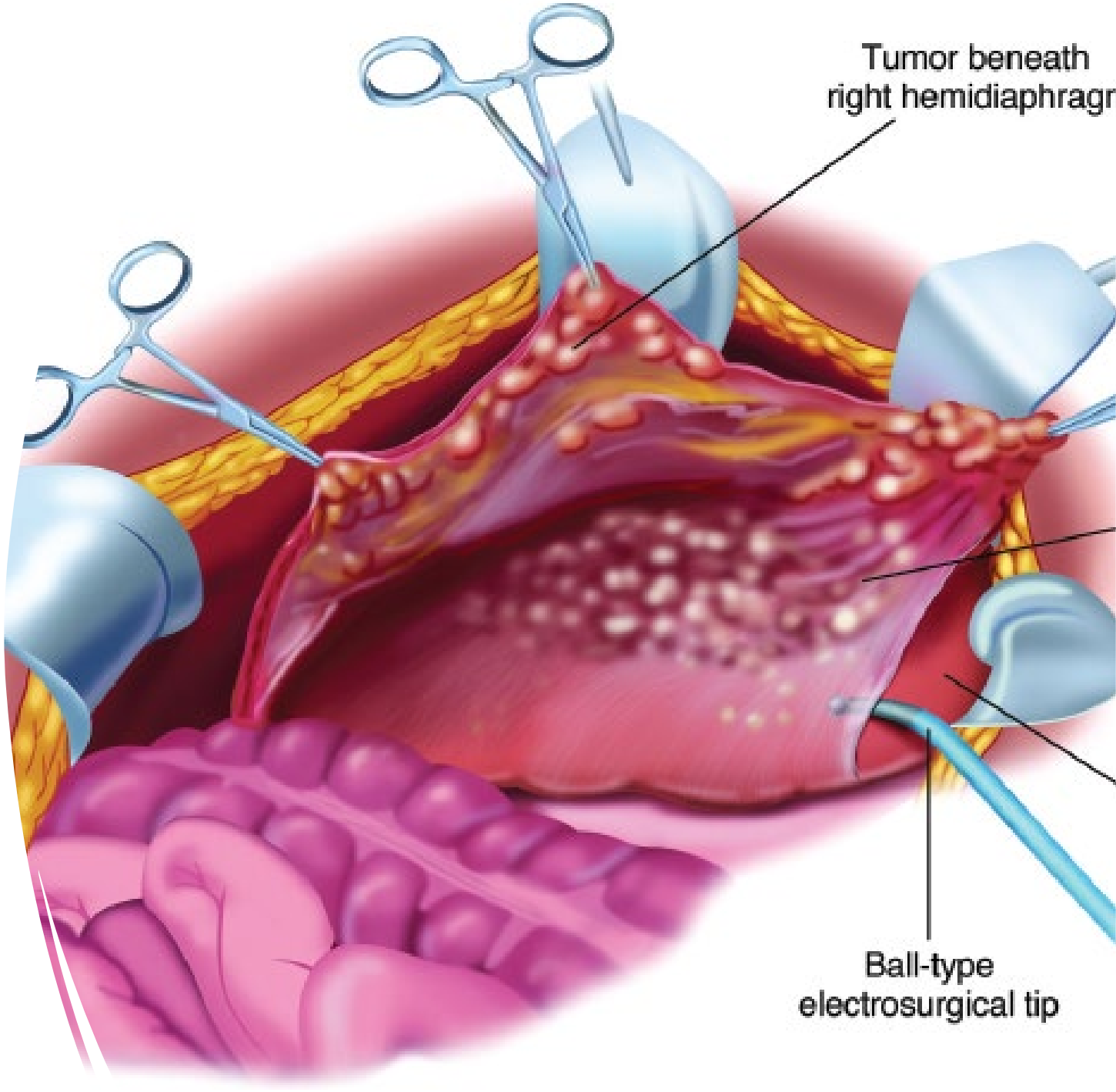
- Persistent Fever
- Unexplained, new onset GERD
- Erythema/ edema/ drainage/ trauma over HAI pump pocket site
- Sudden drop in H/H
- Rise in LFTs
- Upcoming Travel

Heated Intraperitoneal Chemotherapy (HIPEC)



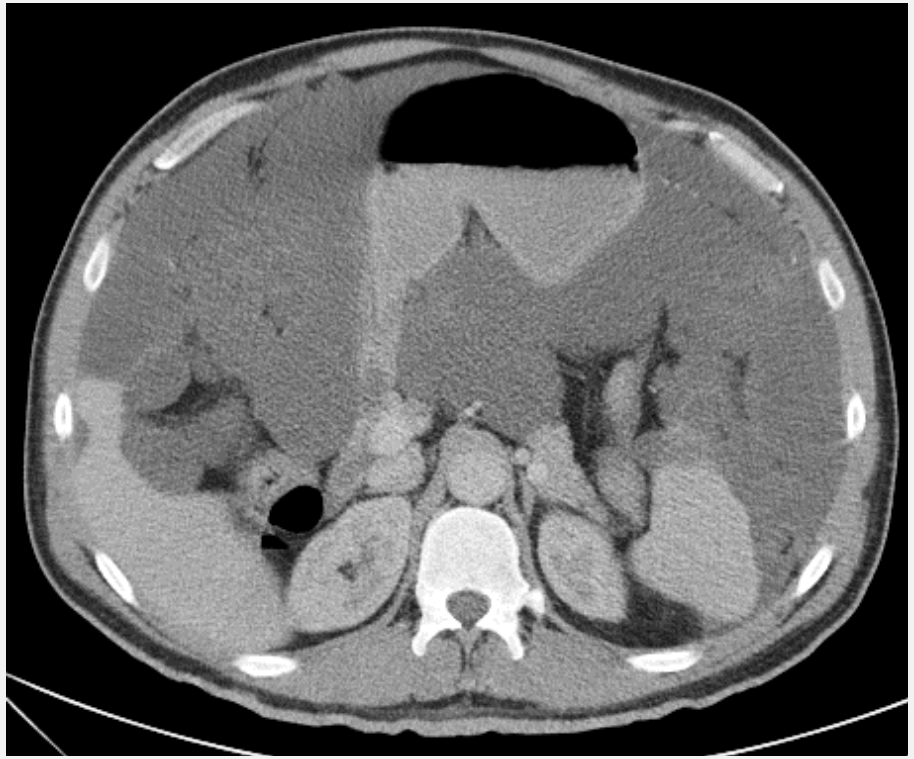
What is Peritoneal Surface Malignancy?

- Infiltration of malignant cells into the serous membrane that lines the abdominal cavity, viscera
- Primary vs Secondary



Indications for CRS/ HIPEC

- Appendix cancer/ PMP
- Colon cancer with peritoneal spread
- Gastric cancer with peritoneal spread
- Ovarian cancer with peritoneal spread
- Peritoneal mesothelioma



What is CRS/ HIPEC?

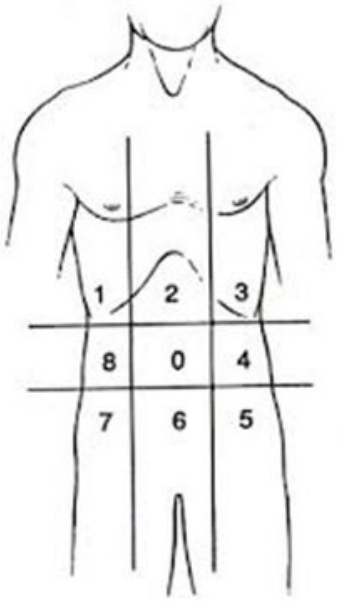
- **Cytoreductive Surgery (CRS)**
  - Surgically removing all disease that a surgeon can see or feel
    - Pancreatectomy
    - Splenectomy
    - Diaphragm stripping
    - Gastrectomy
    - Cholecystectomy
    - Bowel resection
      - With or with ileostomy/ colostomy creation

- **Heated Intraperitoneal Chemotherapy (HIPEC)**
  - Delivery of chemotherapy into the peritoneal cavity
    - Open vs Laparoscopic
  - Chemotherapy Options
    - Mitomycin-C
    - Cisplatin
  - ~90 minutes
  - Temp to 41-43 Celsius
  - Eliminate microscopic residual disease
    - Penetration of chemotherapeutic agent limited to 2 to 5 mm

Who is a Candidate for CRS/ HIPEC?

- ECOG Status 0-1
- Pathologic Grade of Tumor
  - Low vs Intermediate vs High
- Extent of Disease and Resectability
  - Peritoneal Cancer Index Score (PCI) Score
  - Completeness of Cytoreduction (CC) Score
- Previous chemotherapy treatment history

Peritoneal Cancer Index

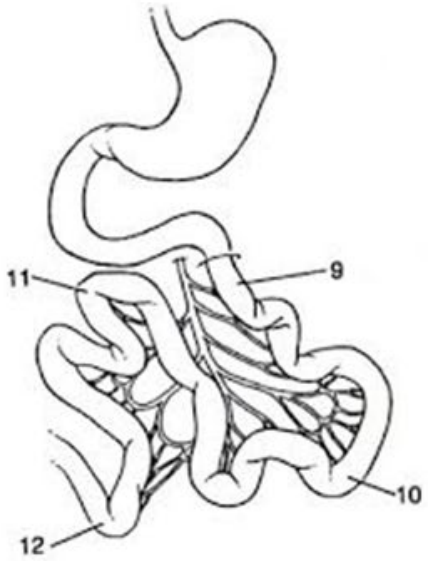


Regions		Lesion Size
0	Central	____
1	Right Upper	____
2	Epigastrium	____
3	Left Upper	____
4	Left Flank	____
5	Left Lower	____
6	Pelvis	____
7	Right Lower	____
8	Right Flank	____
9	Upper Jejunum	____
10	Lower Jejunum	____
11	Upper Ileum	____
12	Lower Ileum	____

PCI ☐

Lesion Size Score

LS 0 No tumor seen
LS 1 Tumor up to 0.5 cm
LS 2 Tumor up to 5.0 cm
LS 3 Tumor > 5.0 cm or confluence



Note: CC-0 indicates no macroscopic disease after cytoreduction.
CC-1 indicates tumor residue less than 2.5 mm,
CC-2 indicates tumor residue of 2.5mm to 2.5 cm and
CC-3 indicates tumor greater than 2.5 cm

0 Central
Greater omentum & Transverse Colon
1 Right upper
Superior surface of the right lobe of the liver, undersurface of the right hemidiaphragm, right retrohepatic space
2 Epigastrium
Epigastric fat pad, left lobe of the liver, lesser omentum, falciform ligament
3 Left upper
Undersurface of the left hemidiaphragm, spleen, tail of pancreas anterior and posterior surfaces of stomach
4 Left flank
Descending colon, left abdominal gutter
5 Left lower
Pelvic sidewall lateral to the sigmoid colon, sigmoid colon
6 Pelvis
Female internal genitalia with ovaries, tubes and uterus , bladder, Douglas pouch, rectosigmoid colon
7 Right lower
Right pelvic sidewall, cecum, appendix
8 Right flank
Ascending colon, right abdominal gutter
9 Upper jejunum
Including both bowel and its mesentery
10 Lower jejunum
Including both bowel and its mesentery
11 Upper ileum
Including both bowel and its mesentery
12 Lower ileum
Including both bowel and its mesentery

Surgical Complications

- Infection
- Bleeding
- Scarring
- Bowel Injury/ Leak/ Ileus/ Fistula
- Poor Wound Healing
- Anorexia/ TPN Dependency
- Recurrent Disease
- Bladder Injury/ Dysfunction
- DVT or PE
- Re-operation for complications
- Prolonged Hospital Stay

Recovery

PO Inpatient Stay

- Step down/ ICU: 1-5 days
- Surgical Floor: 5-10 days
- Tubes
  - NG, Chest, JP drains
  - Foley/ ureteral stents
- Wound/ Ostomy Care
  - Teaching prior to discharge
- Nutritional Status
  - Diet Advancement, TPN, etc
- Pain Control
- Post Splenectomy Vaccines

After Discharge

- At Home Recovery for 6-8 weeks
- Home Nursing/ PT/ OT
- Prophylactic vs Therapeutic Anticoagulation
- Wound/ Ostomy Care
- TPN maintenance
- Pain Control
- Splenectomy Vaccine
- PO visits with:
  - Surgeon
  - Med onc
  - Palliative Care

Clinical Data for CRS/ HIPEC

- HIPEC with Curative Intent
  - RCT by Verwaal et al: Overall survival (OS) 22.2 months vs 12.6 months[1]
    - Limits:
      - Extensive PC included in both cohorts →poorer outcomes regardless of treatment→First reports that disease burden could predict long-term outcomes for CRS/ HIPEC[1]
      - Minority of patients with CC0 → 5 year survival at 45% with CC0 vs 8-10% incomplete CRS[1]
  - PRODIGE 7: French study that did not demonstrate benefit of CRS/ HIPEC vs CRS alone
    - Limits: Used Oxaliplatin as HIPEC agent and/or systemic chemotherapy agent
- HIPEC for Palliation
  - Indication: control malignant ascites
  - Laparoscopic approach
- HIPEC for Prevention of Disease Recurrence
  - Prophylactic HIPEC vs second-look surgery

1. Harper M, Kim J, and Pandalai P. Current Trends in Cytoreductive Surgery (CRS) and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) for Peritoneal Disease from Appendiceal and Colorectal Malignancies. J. Clin. Med. 2022, 11, 2840. https://doi.org/10.3390/jcm11102840

Alternatives to Intraperitoneal Therapies

- Early Postoperative Intraperitoneal Chemotherapy (EPIC)
- Normothermic Intraperitoneal Chemotherapy (NIPEC)
- Pressurized Intraperitoneal Aerosal Chemotherapy (PIPAC)
- Neoadjuvant Intraperitoneal and Systemic Chemotherapy (NIPS)

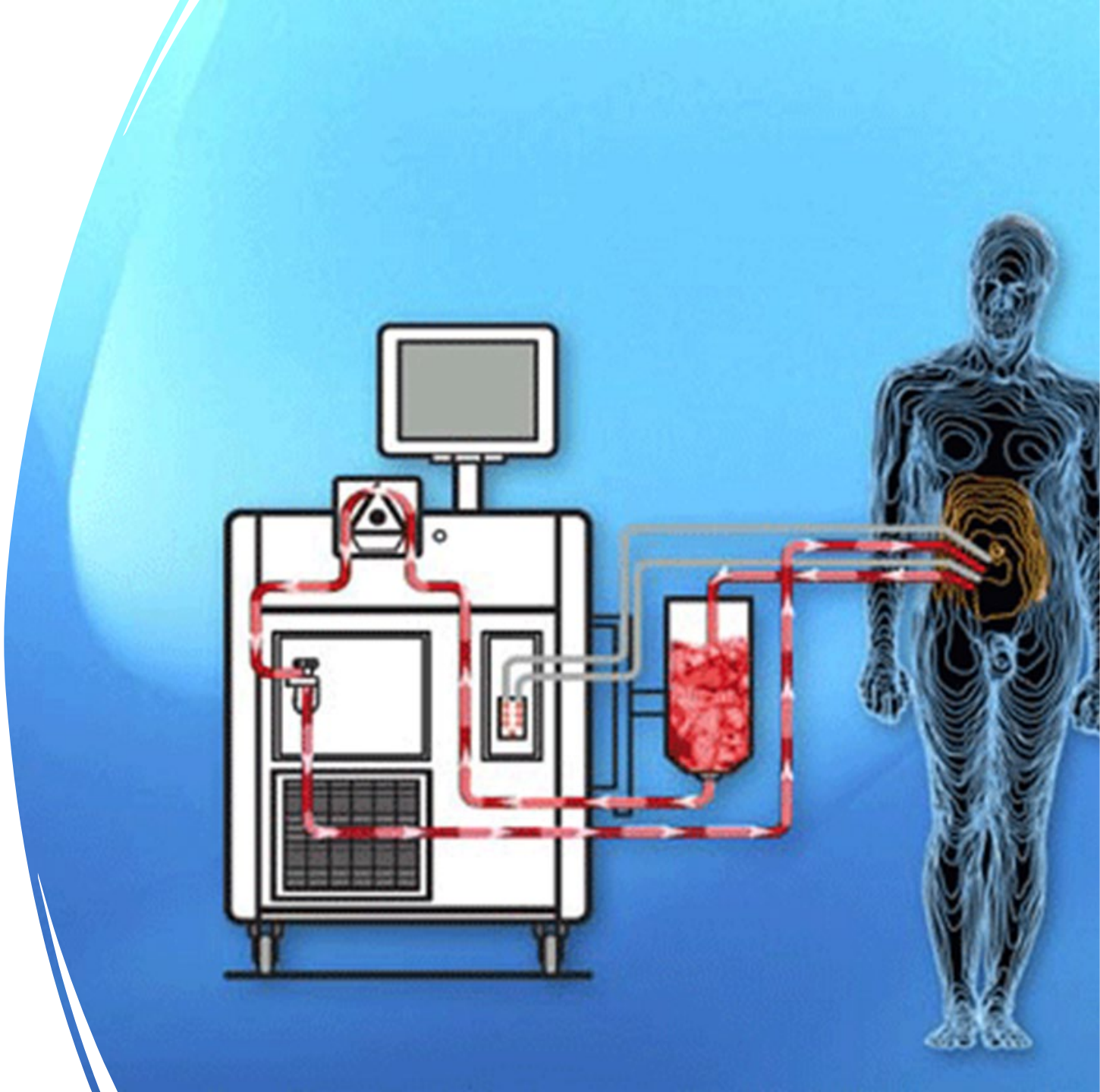
Where do We Go from Here?

New cytotoxic HIPEC Agents

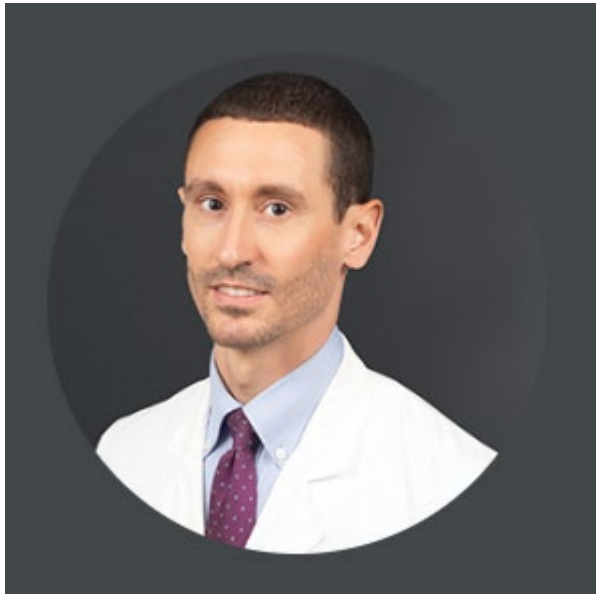
Immuno-oncologic therapies (IO)

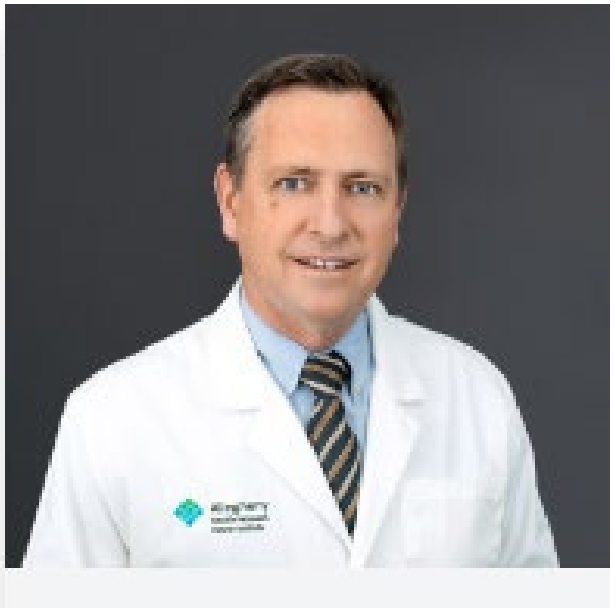
Issues to Look Out for in Patients Post CRS/ HIPEC

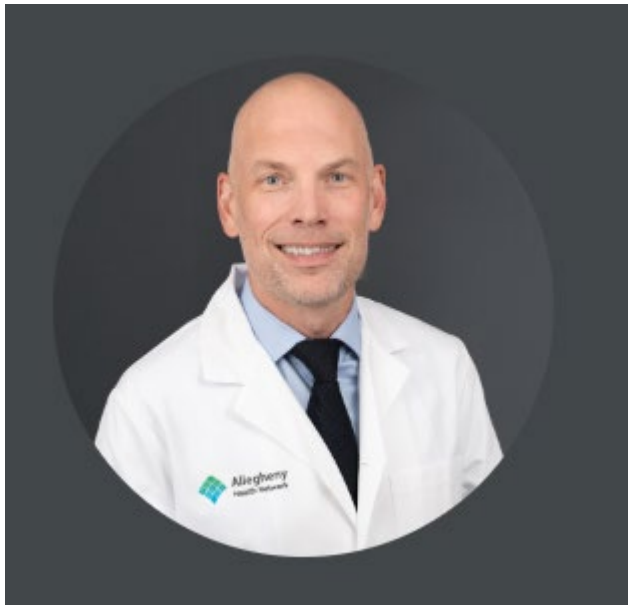
- Persistent Fever
- High/ Low Ileostomy Output
- Wound Complications
- Persistent Nausea/ Vomiting
- Nutritional Issues
- Lab Abnormalities
- New onset SOB/ or Pain/ Swelling in Calf
- Pain Management
- Supportive Services



Thank You!







Special Thanks to Dr. Casey Allen, Dr. David Bartlett, and Dr. Patrick Wagner - attendings in the Division of Surgical Oncology

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- *2 Zarour LR, et al. Colorectal Cancer Liver Metastasis: Evolving Paradigms and Future Directions. Cell Mol Gastroenterol Hepatol. 2017 Jan 20;3(2):163-173.*
- *3 Schoellhammer HF, Singh G, Leong L. Synchronous metastatic rectal cancer completely resected after multidisciplinary planning and treatment: a case report. J Natl Compr Canc Netw. 2013 Sep;11 Suppl S3-8.*
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- *5 Adam R, Vinet E. Regional treatment of metastasis: surgery of colorectal liver metastases. Ann Oncol. 2004;15(Suppl 4):iv103-6*
- *6 Venook AP, Curley SA. Management of potentially resectable colorectal cancer liver metastases. UpToDate. April 23, 2018.*
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- *8 Massarweh NN, El-Serag HB. Cancer Control. 2017;24(3):1073274817729245.*
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- *10 Bekki Y, et al. Front Oncol. 2021;11:776863.*
- *11 Yamashita S, et al. Cancer. 2017;123(8):1354-1362.*
- *12 Thiels C, D'Angelica M. J Surg Oncol. 2020 July ; 122 (1): 70-77. doi:10.1002/jso.25913*

Break
2:20 pm – 3:00 pm

AHN 2nd Annual APP Conference - Reminders

Breakout Sessions

Don't miss your hands-on learning session!

Here's the schedule:

- **Suturing 101:** 11:05 am - 12:10 pm
- **EKG Readings:** 1:15 pm - 2:15 pm
- **Joint Injections:** 3:05 pm - 3:35 pm

Please arrive on time to ensure you get the most out of your session.

We appreciate your cooperation in keeping to the schedule.

Update Your Professional Photo!

AHN Employees, it's time to refresh your professional photo!

Highmark Photography will be on the upper level today from 7:30 am - 1:30 pm to capture your best look.

Don't miss this opportunity to update your photo for internal directories and other official uses.

Submit Your Vendor Passport for a Chance to Win!

Have you completed your Vendor Passport?

Visit each vendor table and get your passport stamped! Once you've collected all the stamps, submit your completed passport for a chance to win the Door Prize!

The winner will be contacted before the conference ends today to claim their prize.

Don't miss out!

Don't Miss Out! Raffle Time!

Choose your favorite basket and enter to win!

Here's how:
1.Scan the QR code to submit your entry.
2.Complete the short form and include your phone number so we can reach you quickly if you win!

Raffle submission closes at 3:00 pm today (9/14/2024). Winners will be contacted by 3:30 pm today to claim their prize before the conference ends!

Good luck!

2nd Annual AHN APP Conference 2024

SEPTEMBER 14TH, 2024 – THE REGIONAL LEARNING ALLIANCE

	Great Room A	Great Room B	*Breakout Rooms *(15 registrants per session)*
10:30 am - 11:00 am ***Session 1***	*Diabetes and Pregnancy: Before, During & After / Diabetes Technology updates and AHN Diabetes Resources* Debra Carse, CRNP & Megan Watts, RD	*Pint-sized Problems: A Review of Common Pediatric Illnesses for the Adult Provider* Mike Talotta, PA-C	
11:05 am - 11:35 am ***Session 2***	*Pre-Conceptual Counseling: Preparing for a Healthy Mom & Baby* Jennifer McDanel, PA-C	*Primary Care for the Specialty Provider* Dawn Ball, CRNP	**Suturing 101** (1 hour)
11:40 am - 12:10 pm ***Session 3***	*Genetic Counseling – Hereditary Cancers* Kyla Morphy, CGC	*Mental Health: Burn out in healthcare and what you can do to reduce your risk* Jamie Cornali, CRNP	
12:10 pm - 1:10pm	**Lunch & Exhibitor Fair**		
1:15 pm - 1:45 pm ***Session 4***	*Treating for Two: Managing Headaches During Pregnancy* Amanda Mace, MSPAS, PA-C	*Supplement Support: Evidence-Based Review* Kimberly Smith, CRNP	**EKG Readings Overview** (1 hour)
1:45 pm - 2:15 pm ***Session 5***	*Heart Failure – Palliative Medicine* Tara Orgon Stamper, CRNP	*Regional Cancer Therapies for GI Malignancies* Samantha Devine, PA-C	
2:20 pm - 3:00 pm	**Break & Exhibitor Fair**		
3:05 pm - 3:35 pm ***Session 6***	*Un-Break My Heart: Developments & Devices in Heart Failure* Courtney Hippert, PA-C	*Difficult to Treat Asthma Patient, and When to Refer* Justine Sicari, DNP, FNP, MSNed	**Joint Injections** (30 minutes)
3:40 pm - 4:10 pm ***Session 7***	*Weight Loss* Kathy Scutella, MSN, CRNP	***Please remain seated as we prepare for the final presentation and closing remarks. The room divider will be removed shortly to accommodate all attendees.***	

Accreditation

This activity has been planned and implemented in accordance with the essential areas and policies of the Accreditation Council for Continuing Medical Education (ACCME). Allegheny General

Hospital is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

Allegheny General Hospital designates this live activity for a maximum of 6.5 AMA PRA Category 1 Credit ™

PRESENTED BY: Allegheny Health Network

September 2024

The Difficult to Treat Asthma Patient, and When to Refer

Justine Sicari, DNP,FNP-BC,MSN
Outpatient Family Nurse Practitioner for Pulmonary and Critical Care

AHN

Disclosures

I have no disclosures

Learning Objectives

- Define asthma
- Discuss prevalence of disease
- Review anatomy & pathophysiology
- Categorize asthma
- Describe common tools to assess symptoms
- Diagnostic testing
- Define severe persistent asthma
- Review goals of treatment
- Discuss recommendations from Global Initiative for Asthma (GINA)
- Referring the patient
- Case study review

What is Asthma?

- Asthma is a heterogeneous disease characterized by airway inflammation
- Defined by history of respiratory symptoms (i.e. wheezing, sob, chest tightness, and cough) that vary over time and intensity
- Recognizable clusters of demographic, clinical, and/or pathophysiological characteristics are often called “asthma phenotypes”
  - Allergic, non-allergic, adult-onset, asthma with persistent airflow limitation, and asthma with obesity
- Evidence suggests asthma “phenotypes” are hereditary

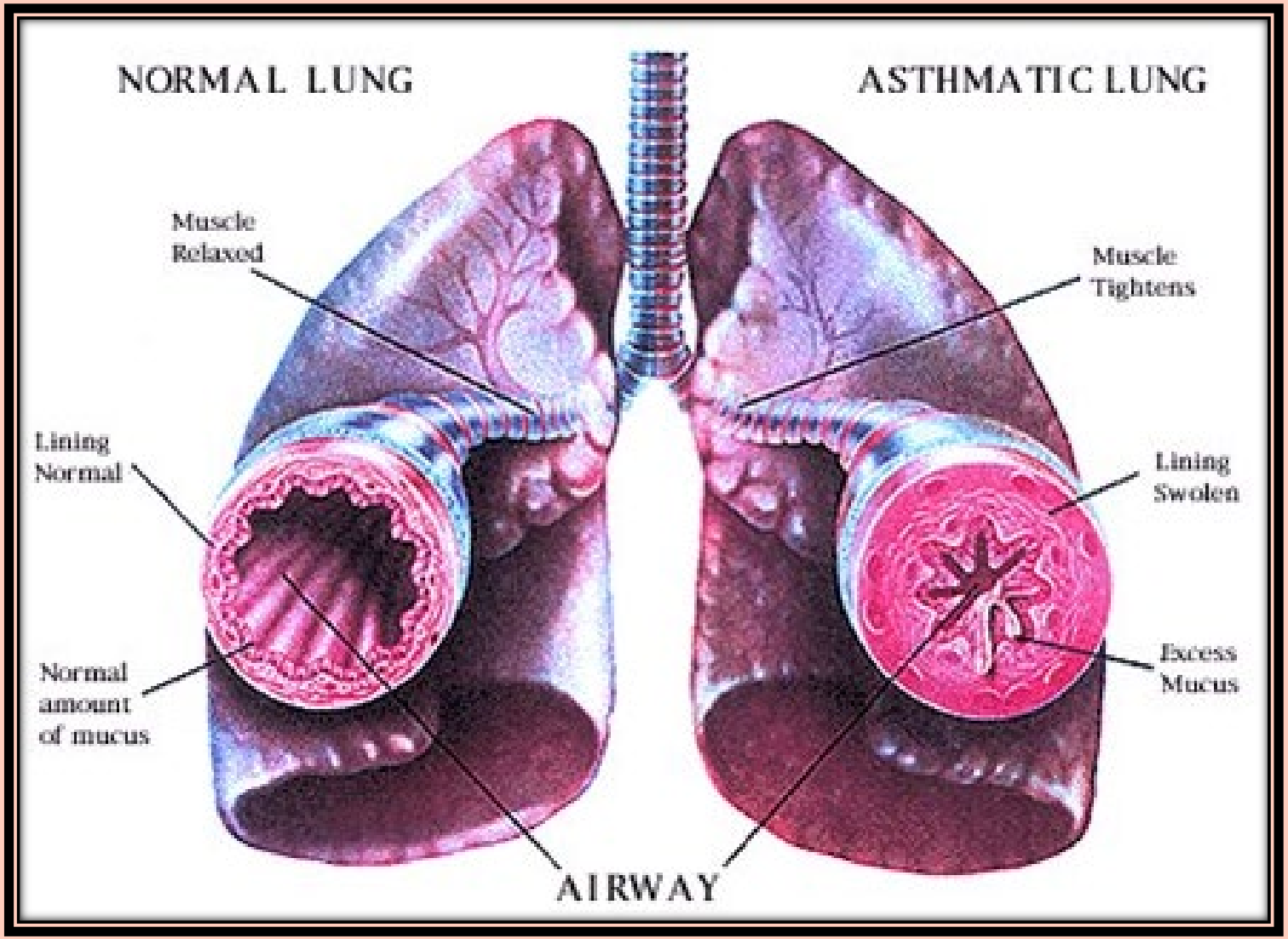
GINA, 2024

Disease Prevalence

- Asthma is a chronic disease that affects people of all ages, impacting about 339 million people worldwide (1)
- In the U.S., over 27 million people have asthma, which equals about 1 in 12 people (2)
- Lifetime prevalence rates for adults ages 18-55 years are 16.8% (3)
- Asthma affects 8% of adults and 6.5% of children in the United States (4)

(1) WHO, 2004 (2) AAFA, 2024 (3) lung.org, 2024 (4) allergyasthmanetwork, 2024

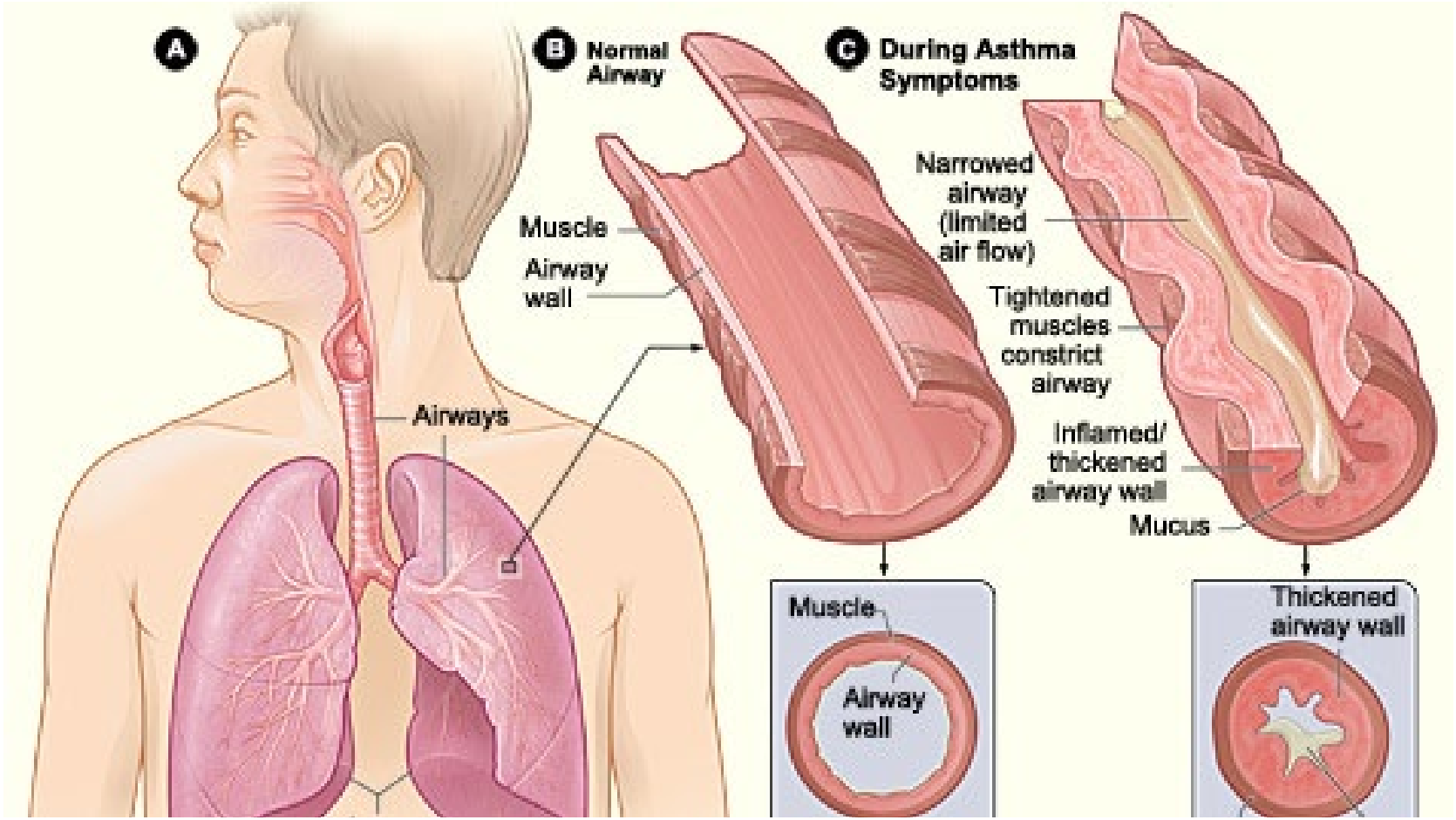
Review of Anatomy and Physiology



- Asthma is primarily involved in the bronchial tree, which distributes air throughout the lungs to the alveolar sacs
- Bronchi stem from end of the trachea dividing and forming the left and right bronchi
  - Bronchi contain smooth muscle and elastic fibers to maintain wall integrity
- In asthma, inflammation changes the physiology, decreasing radius of the airway

https://asthmaallergyclinic.in/asthma/

Airway Hyperresponsiveness



Asthma is characterized by recurring symptoms of reversible airflow obstruction, bronchial hyperresponsiveness and **airway inflammation**

https://commons.wikimedia.org/wiki/File:Asthma_attack-illustration_NIH.jpg

Categorizing Asthma

- The National Asthma Education and Prevention Program classifies asthma into four categories based on severity, which is determined by symptoms and lung function tests:

- **Intermittent:** The mildest form of asthma, with little impact on daily life. Patients are asymptomatic and have normal peak expiratory flow (PEF) between attacks, less than once a week

- **Mild persistent:** May have a minor impact on daily life and physical activity, more than once a week but less than once a day

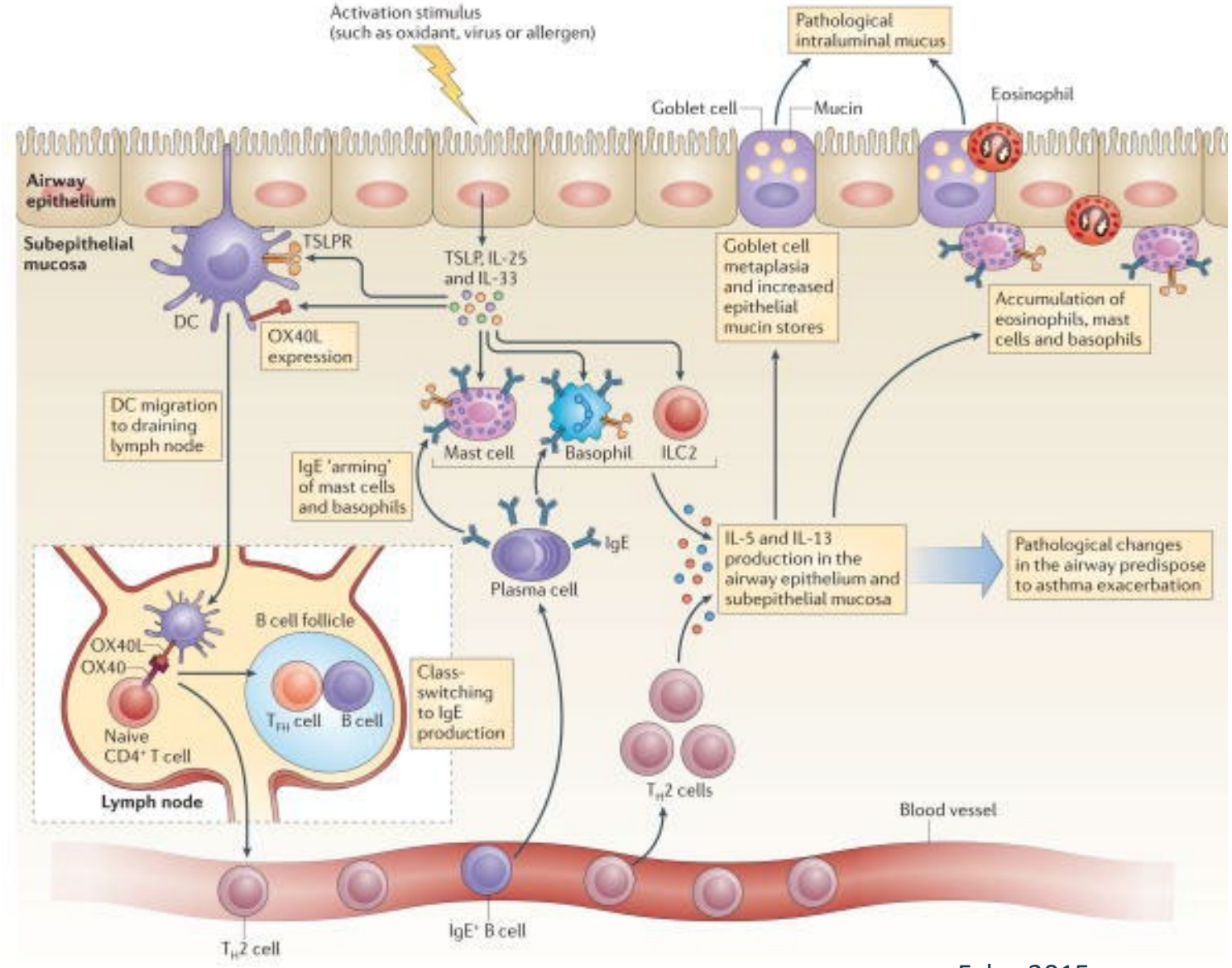
- **Moderate persistent:** Daily attacks, that affect activity more than once a week

- **Severe persistent:** Frequent attacks that limit physical activity, less than 60% PEF

GINA, 2024

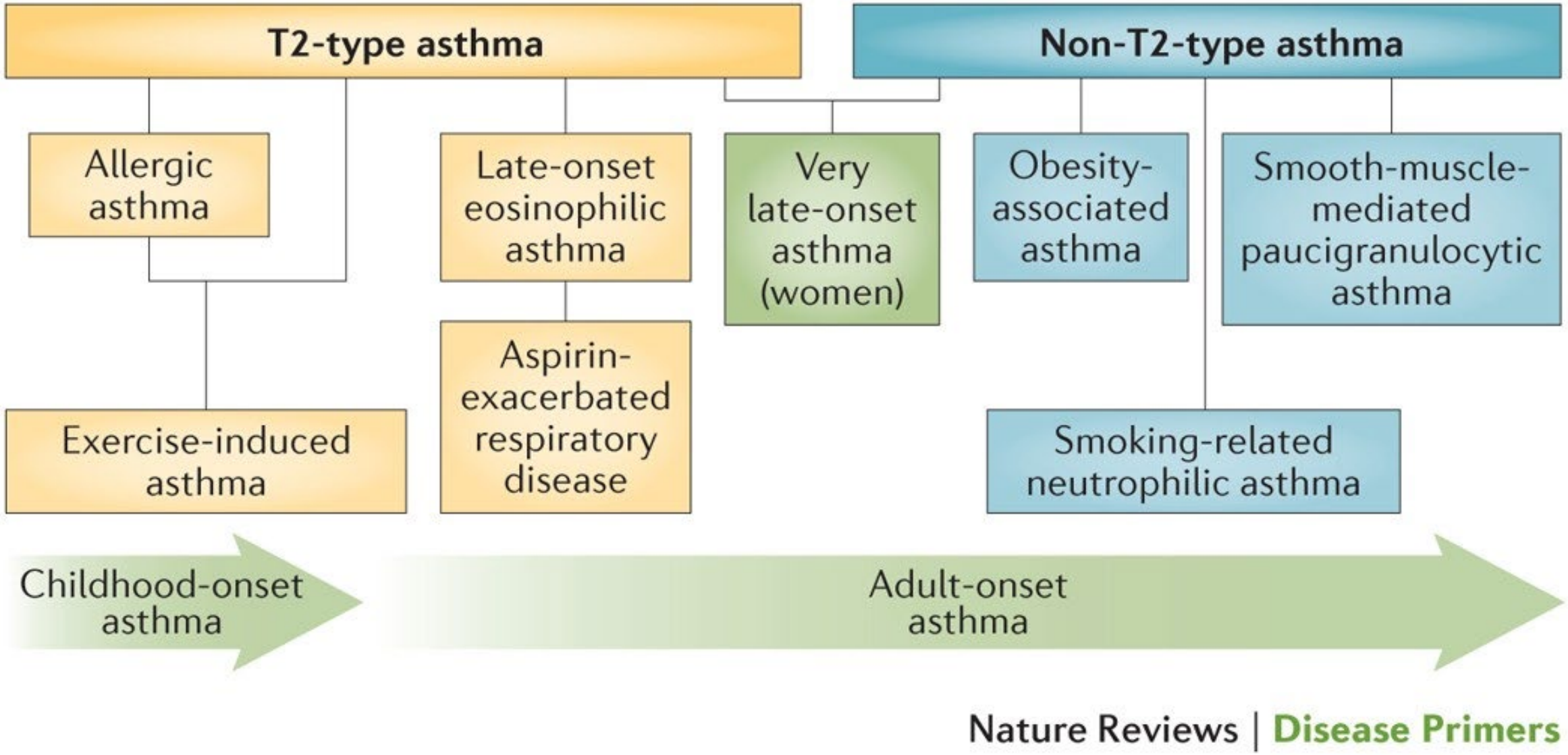
Inflammatory Cascade

- Airway type 2 immune responses are mainly mediated by eosinophils, mast cells, basophils, and IgE-producing B cells
- Type 2 immune responses are characteristic of allergic rhinitis in the upper airways and asthma in the lower
- Up to 84% of adults with asthma have type 2 inflammation



Fahy, 2015

Different Phenotypes of Asthma



Nature Reviews | Disease Primers

Useful Tools for Screening

Asthma Control Test (ACT):

- Assesses the frequency of shortness of breath and general asthma symptoms
- Frequency of use of rescue medications, the effect of asthma on daily functioning
- Overall self-assessment of asthma control (1)

The Asthma Impairment and Risk Questionnaire (AIRQ):

- 10-item yes/no questionnaire
- Addresses factors relevant to patients with asthma of all disease severities (1)

Asthma Control Questionnaire (ACQ):

- Simple questionnaire to measure the adequacy of asthma control and change in asthma control (1)

Asthma Therapy Assessment Questionnaire (ATAQ):

- 20-item questionnaire that identifies potential care problems, including symptoms, behavior and attitude barriers, self-efficacy barriers, and communication gaps (2)

(1) ATS, 2024; (2) Skinner et al., 2004

Diagnosis

- The Medical History is key!

- Pulmonary function testing **WITH** bronchodilator
  - Reversibility: >12% improvement in FEV1

- Bronchoprovocation testing
  - Methacholine, exercise, histamine

- Fractional concentration of exhaled nitric oxide (FeNO)
  - Modestly associated with levels of sputum and blood eosinophils

- Chest Imaging

- Allergy tests

Learning Objectives

Define asthma and review anatomy & pathophysiology
Discuss prevalence of disease
Categorizing asthma
Defining severe persistent asthma
Review goals of treatment
Discuss recommendations from Global Initiative for Asthma
Referring the patient
Case study Review

What is Severe Persistent Asthma?

- **American Thoracic Society (ATS) defines severe asthma as:**
  - Asthma that requires treatment with high dose inhaled corticosteroids plus a second controller and/or systemic corticosteroids to prevent it from becoming “uncontrolled” despite this therapy (1)

- **GINA defines severe asthma as:**
  - Asthma is uncontrolled despite adherence with maximal optimized high dose ICS-LABA treatment and management of contributory factors (2)

(1) Holguin et al., 2019; (2) GINA 2024

Goals of Treatment

- Prevent asthma deaths and minimize burden
- Achieve long-term asthma symptom control
  - Few/no symptoms
  - No sleep disturbances
  - Unimpaired physical activity

- Long-term asthma risk minimization
  - No exacerbations
  - Improved or stable lung function
  - No requirement for maintenance OCS
  - No medication side-effects

Treatment Guideline Updates: Global Initiative for Asthma (GINA)

- Depending on the inflammatory phenotype and other clinical features, add-on treatments for severe asthma include long-acting muscarinic antagonists (LAMA), leukotriene receptor antagonists (LTRAs), low-dose azithromycin (adults), and biologic agents

- **Consider add-on-Type 2- targeted biologic therapy** for patients with exacerbations or poor symptom control on high dose inhaled corticosteroids and long-acting beta agonist (ICS-LABA), who have evidence of Type 2 inflammation

- Optimize care by collaboration with PCP and consider patient's social and emotional needs

GINA, 2024

Categories of Asthma Medications

- Controller Medications
  - Medications containing ICS used to reduce airway inflammation, control symptoms, and reduce risks of exacerbations

- Reliever Medications
  - To support “as-needed-relief” of breakthrough symptoms
  - Relievers include the anti-inflammatory relievers
  - Over-use of short-acting beta agonists (SABA) can increase the risk of asthma exacerbations

- Add on therapies for severe persistent asthma

GINA, 2024

Non-Pharmacological Therapy

- Education is key!
- Identify and avoid triggers
- Maintain healthy weight
- Smoking cessation
- Address social barriers
- Anti-inflammatory foods
- Air purification/ HEPA filters
- Removal of carpets

Referring the Patient

When to Refer:

- Difficulty confirming the diagnosis of asthma
  - Symptoms of chronic infection, or non-pulmonary features
  - Diagnosis unclear, even after trial of ICS or systemic OC
  - Features of Asthma and COPD
- Suspected occupational asthma
- **Persistent or severely uncontrolled asthma or frequent exacerbations**
  - Multiple ED visits or urgent care primary visits
- Any risk for asthma-related death
  - Suspected or confirmed anaphylaxis or food allergy in a patient with asthma
- Symptoms suggesting complications or subtypes of asthma
  - Aspirin-exacerbated respiratory disease / allergic bronchopulmonary aspergillosis (ABPA)
- Evidence or risk of significant treatment side-effects
  - Need for long-term oral corticosteroid use
  - Frequent courses of oral corticosteroids (e.g., two or more courses in a year)

Referring the Patient

Why to Refer:

- It is estimated that 3-4% of patients may not achieve adequate asthma control with inhaled regimens
- Significant burden of exacerbations despite high-intensity inhaled and or chronic oral corticosteroids
- Chronic use of oral corticosteroids has been associated with comorbidities including diabetes, CVD, infections, ocular abnormalities, osteoporosis, and psychiatric disorders
- If symptoms remain uncontrolled refer to a specialist for phenotypic assessment and consider add-on therapy including biologics

Learning Objectives

Define asthma and review anatomy & pathophysiology
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Case Study Presentation

- 50-year-old Caucasian Male referred by PCP
- CC: Ongoing wheezing and cough
- PMH: mild intermittent asthma, OSA compliant with CPAP, Covid-19 (2022) and hypothyroidism
- NKDA, never smoker, fam hx + asthma, no pets, no occupational hazards

Initial Visit Findings

Objective findings

BMI: 32.41

$Sp0_2$: 96% RA

Lung sounds: Expiratory wheezing throughout

PFT 2014 WNL

Multiple 2 view CXR no Pneumonia

Subjective findings

Nasal congestion

Cough

SOB

Wheezing

Sleep disturbance

Treatment Plan

- Completing 9 day of prednisone
- Start ICS-LABA, 1 puff twice daily
- Rescue inhaler provided
- Continue Nasal steroids / oral anti-histamine
- Update PFTs
- Close follow up

Diagnostic Testing

- PFT 2014: No obstruction, No restriction, No significant BR, Normal DLCO, FEV1 98%
- PFT 2023: No obstruction, No restriction, No significant BR, Normal DLCO, FEV1 93%
- CXR: Mild Peribronchial cuffing, no focal lung consolidation. No significant pleural effusion or pneumothorax

Next Visit (2-Months)

- CC: “Sick visit”
- HPI: Tested positive for Influenza A, CXR + bronchial wall thickening
  - Med-express prescribed Tamiflu, prednisone taper, ICS-LABA escalated to triple therapy ICS-LABA-LAMA
- ROS: Dry non-productive cough, ear pain, sob, and wheezing, rhinitis
- RV: 1 month

Third Visit

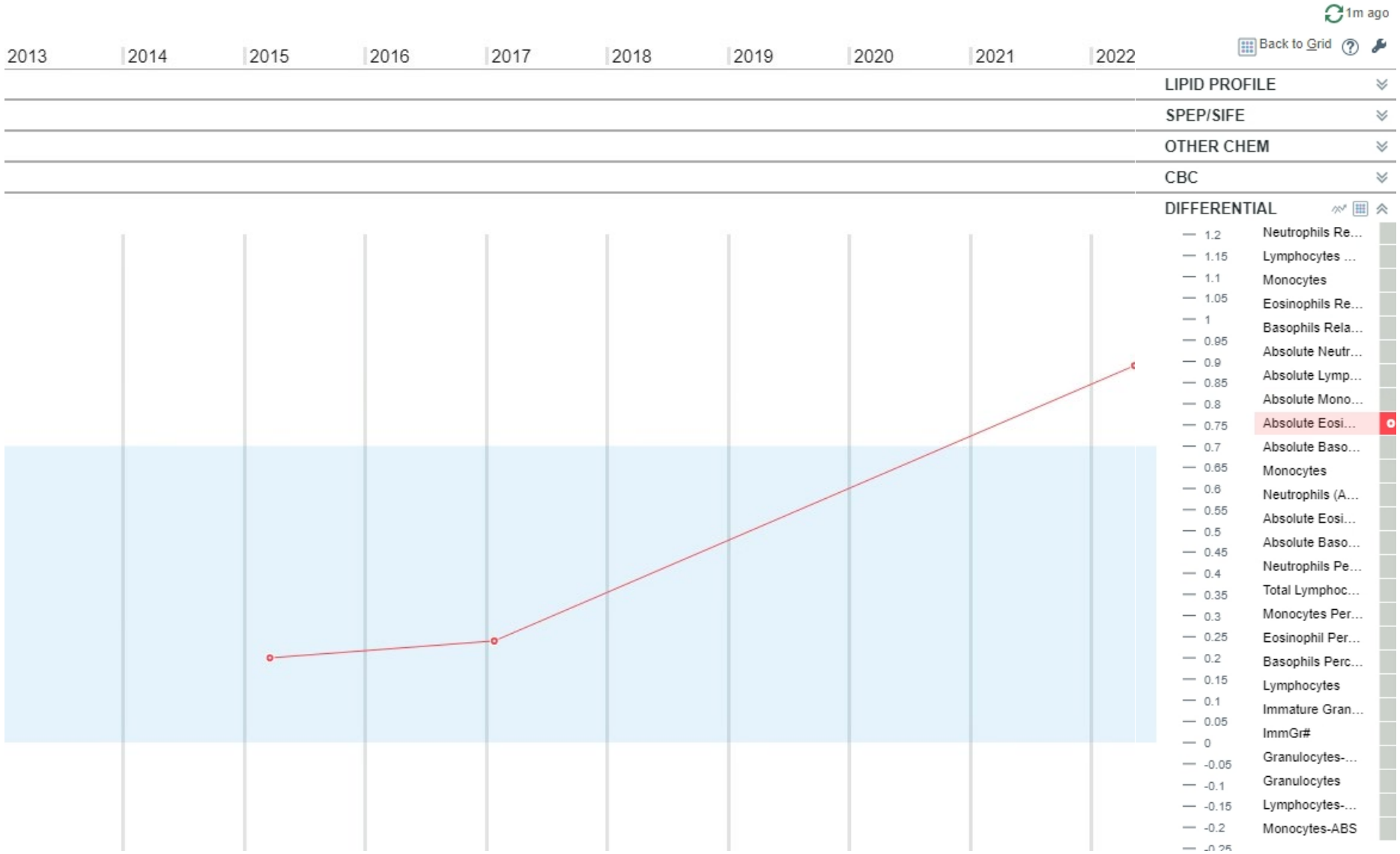
- CC: Continued wheezing and chest tightness
- Back on ICS-LABA because high-dose ICS-LABA-LAMA and multiple courses of steroids caused oral thrush
- Start Leukotriene receptor
- Prescribed another 5 days of Prednisone
- Check IgE/RAST/ CBC w diff

Lab Work

- Normal IgE 117
- + RAST Dust Mites otherwise normal

	2022	2023	2024
Eosinophils relative %	16	19	22
Absolute eosinophil k/mcl	0.89	0.62	0.85

Absolute Eosinophil Count



Patient Wrap Up

- Initiation of Anti-IL5 (anti-eosinophil therapy) monthly, now self injecting at home
- **5 months free of asthma exacerbation, meaning no oral steroids!**
- **Improvement of upper airway symptoms**
- **No albuterol use**
- **No interruptions in day-to-day ADLS and no work sick days**

Conclusion

- Understanding class and phenotype in asthma is imperative to the treatment and risk stratification
- Assessment for type 2 inflammation can spare the patient of repeated and chronic steroid use
- The use of screening tools such as ACT or AIRQ can help to easily monitor symptom control
- Ongoing education is needed to optimize asthma care
- Identification to barriers to treatment (i.e., social dynamics, financial status)
- Referral to Pulmonologist for advanced treatment


Thank You For Your
Attention

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Thank you!

Please remain seated as we prepare for the final presentation and closing remarks.

The room divider will be removed shortly to accommodate all attendees.