Importance of Self-Monitoring in Management of Diabetes and Hypertension

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Disclosure :

I have no actual or potential conflict of interest in relation to any product or service mentioned in this program or presentation.

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Learning Objectives

1) Understand the impact of uncontrolled chronic diseases (HTN, DM)

2) Understand parameters and guidelines for BP & DM control and maintenance

3) Understand the importance of health literacy and medication management education through self monitoring

5) Understand how self monitoring can improve HEDIS Measures gap closure and patient care

6) Understand the value of shared decision making (SDM) and patient engagement

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Agenda
1) Key points to know about chronic diseases high blood pressure and diabetes
2) HEDIS Measures for Tx Medicaid
3) Importance of Self Monitoring/Health Literacy
4) Medication Adherence/Shared decision making
5) How to order and resources available
6) Questions/Comments

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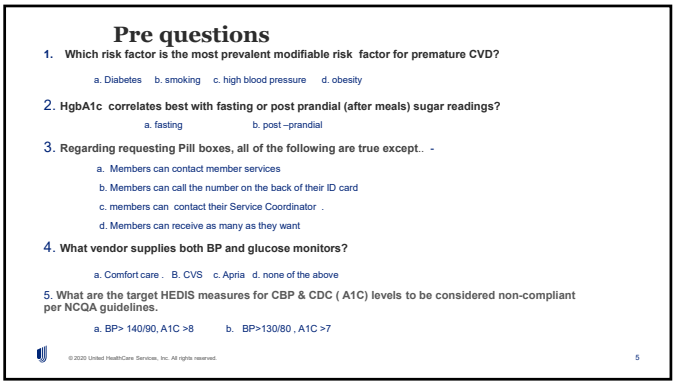
Pre questions
1. Which risk factor is the most prevalent modifiable risk factor for premature CVD?
a. Diabetes b. smoking c. high blood pressure d. obesity
2. HgbA1c correlates best with fasting or post prandial (after meals) sugar readings?
a. fasting b. post –prandial
3. Regarding requesting Pill boxes, all of the following are true except.. -
a. Members can contact member services
b. Members can call the number on the back of their ID card
c. members can contact their Service Coordinator .
d. Members can receive as many as they want
4. What vendor supplies both BP and glucose monitors?
a. Comfort care . B. CVS c. Apria d. none of the above
5. What are the target HEDIS measures for CBP & CDC (A1C) levels to be considered non-compliant per NCQA guidelines.
a. BP> 140/90, A1C >8 b. BP>130/80 , A1C >7
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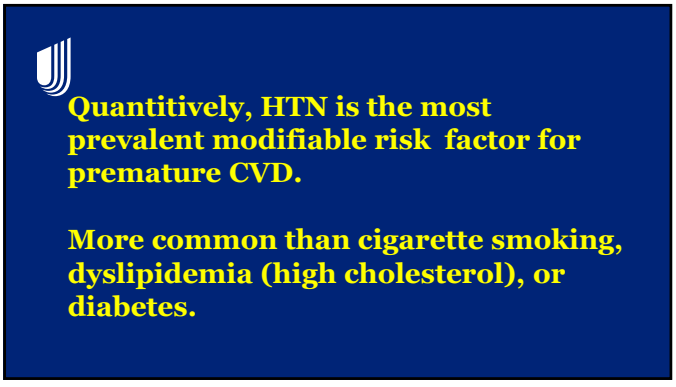
Quantitively, HTN is the most prevalent modifiable risk factor for premature CVD.
More common than cigarette smoking, dyslipidemia (high cholesterol), or diabetes.

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- Treatment of HTN is the most common reason for office visits & for the use of chronic prescription medications.

- @ 50% of hypertensive individuals DO NOT HAVE ADEQUATE BLOOD PRESSURE CONTROL

- HTN as a risk factor is more common than cigarette smoking, dyslipidemia (high cholesterol), or diabetes. ACC/AHA high blood pressure guidelines circulation 2018:137:109

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Complications of High blood pressure

1) Left ventricular hypertrophy (thick left heart wall muscle)
2) Heart failure (reduced or preserved EF)
3) Ischemic stroke (due to low blood flow to the brain)
4) Hemorrhagic stroke (due to brain bleed)
5) Ischemic heart disease (due to low blood flow to the heart, including heart attack)
6) Chronic kidney ds & End stage kidney disease

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Hypertension – method for diagnosis

- Meeting one or more of these criteria using the APBM qualifies as HTN -
  - 1 24-hr mean of >/125mmHg SBP or >/75mmHg DBP
  - Daytime (awake) mean of >/130 mmHg SBP or >/80 mmHg DBP
  - Nighttime (asleep) mean of >/110 SBP or >/65 mmHg DBP
  - Dx without further confirmation *IF* , the presenting BP is >/160 SBP or >/100mmHg DBP ***PLUS*** known target organ damage (LVH – thick Left heart muscle; HTNive-retinopathy (eye damage), ischemic CVDisease (angina)

- The daytime (awake) average of >/130 mmHg SBP or >/80mmHg DBP is the most useful of these definitions.

Best conditions

- Quiet room
- After 5 min of rest in the seated position w back and arm supported, legs uncrossed
- At least 12-14 measurements should be obtained
- Take morning and evening measurements over a period of 1 week each month

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Blood Pressure levels

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120 – 129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130 – 139	or	80 – 89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

** American Heart Association

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Controlling Blood Pressure (CBP)

- ***The dx of HTN requires integration of home and ambulatory blood pressure(BP) monitoring (ABPM) in addition to measurements made in the clinical setting***
- Proper technique and interpretation of the BP is essential to dx and management
- To measure at home - use a validated oscillometric device that measures the BP in the brachial artery (upper arm)
- Most with an elevated BP in the office should be confirmed using out-of-office BP measurements whenever possible.
- ***APBM is considered the "gold standard" in determining out-of–office blood pressure.***
- APBM is useful if there is a doubt about the validity of home readings or a large discrepancy between office and home readings

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Diabetes facts

- **-Type 2 Diabetes (T2D)** – accounts for >90% of cases of DM in the US, Canada and Europe.
- **-Type 1 diabetes** accounts for another 5-10% (with the remainder due to other causes)
- **-MORBIDITY** – is caused by macrovascular (atherosclerosis) and Microvascular (retinopathy, nephropathy, neuropathy) disease.
- **-Glycemic (blood sugar) control** can minimize microvascular ds risks in both T1DM and T2DM, and macrovascular (cardiovascular) ds in T1DM
- **-Prevent Hypoglycemia** – balancing the improvement of microvascular complications with the risk of hypoglycemia is important (thus A1C goal for elderly is <8 not \<7)

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What is Hgb A1C? (or A1C)- Hemoglobin A1C

- **Hgb A1c** – a blood test that shows what the average blood sugar level has been for the past 2-3 months
  - it is the POST-PRANDIAL blood sugar level that correlates more with the A1C (DCCT)
- **Blood sugars checks** – tell what the blood sugar is doing from moment to moment
  - Lets the patient know if medications or lifestyle changes are needed.
- **A1C is Used to:**
  - Diagnose new diabetes
  - To monitor treatments, compliance & efficacy of medications

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HgbA1C and Blood Glucose level

A1C AND BLOOD GLUCOSE NORMAL, ELEVATED AND SEVERALY ELEVATED LEVEL CHARTS

	A1C LEVELS	GLUCOSE LEVELS
SEVERALY ELEVATED Levels. Risk of serious complications such as Heart Attack, Stroke, Blindness, Kidney failure, Amputations etc.	13	380
	12	345
	11	310
	10	275
ELEVATED and POORLY Controlled levels	9	240
	8	205
	* 7	170
NORMAL Levels	* 6	135
	5	100
	4	65

An A1C Diabetes test above 5.9 is considered Pre-Diabetic.

Under 7 is considered normal or "GOOD" if you already have Diabetes.

Stay under 5.9 to play safe to avoid Prediabetes and under 7 if you already have a Diabetic.

If you are in Elevated or Severely Elevated Levels above, or getting close to 5.9 Prediabetics level, it is extremely important that you **Lose weight, Exercise,** and see a **Doctor** and **Nutritionist!**

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How often should you check A1C?

- **With Dx of DM and controlled blood sugars:**
  - check A1C every 6 months
- **With Dx of DM and uncontrolled blood sugars or recent changes in medications:**
  - check A1C every 3 months

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When there is A1C & blood sugars discordance – why is this and what to do?

there are biologic and patient specific factors that influence A1C and blood sugar

Discordance can occur in these situations:

Falsely high A1C –

- Low red cell turnover , causing old red cells that hang around longer (eg B12 def & folate def anemia)
- Hgb variants

Falsely Low A1C –

- Rapid red cell turn over due to damage etc leads to too many young cells (hemolysis – SSD, thalassemia, G6PD) & treatment with B12 and Folate or EPO
- Hgb variants *** most labs now have adjusted for these variants and rarely is an issue*
- (most common) CKD, Hemodialysis and EPO treatment

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If the HgbA1c is HIGHER……

Reasons:

1. the member if falsifying the blood glucose reading
2. Blood glucose concentration readings between measurement, ie Post-prandial peaks are much higher than the pre-prandial (fasting) test results that members usually record.

How to fix this?:

- **Check finger stick blood glucose measures between meals**
- **use of continuous glucose monitoring to evaluate the patterns**
- **be aware of possible medical causes as mentioned prior**

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If the HgbA1c is LOWER….

Reasons:

1. Blood glucose concentration readings drop during times not being tested such as undetected nocturnal hypoglycemia.

How to fix this?:

- **adjust the timing if the blood glucose checking**
- **use of continuous glucose monitoring (CGM) to detect nighttime sugar levels**
- **be aware of possible medical causes as mentioned prior (eg. Recent blood transfusion)**

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When there is discordance between A1C values and Blood glucose values –

ALWAYS RELY ON THE BLOOD GLUCOSE LEVELS.

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When to refer to an endocrinologist

- -**Type 1 Diabetes (T1D)** – who are on intensive insulin therapy.
- -**Type 2 diabetes (T2D) – >90% DO NOT need to be seen by an endocrinologist and CARE CAN BE DELIVERED BY A PCP & TEAMS**
- -**Type 2 diabetes** – who are on multiple daily injections of insulin therapy should be managed by or in consultation with an endocrinologist IF possible
- -**The decision to refer depends on:**
  - **- complexity of the patient**
  - **- ability of the PCP/team to achieve established goals of care**
  - **- the need to manage diverse complications**
  - **- Other factors eg. Capacity of the PCP to teach self–monitoring skills and insulin injections**

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Case

Ms. Smith Is 67 year black female who is married and has Tx Medicaid through UHC and who is diagnosed with Hypertension, diabetes and high cholesterol and other disease conditions including arthritis, etc.

During her Dr's visit which was in June 2021 :

- Her BP - 150/90
- A1C - 9

Medications :

- Metformin 500mg , 1 tablet twice daily
- Losartan 100mg, 1 tablet twice daily
- Amlodipine 5mg 1 tablet daily
- Atorvastatin 20mg, 1 tablet daily

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How to reach Mrs. Smith?

Tools and techniques to use when speaking with patients :

- *Reflective listening* – listen and have leading questions
- *Motivational interviewing* – motivate and encourage
- *Ensure Health Literacy* – what does health mean to you?
- *Member centric approach with focused conversations* - find out how they feel about their disease /health, what's important to them, their goals
- *Goal directed* - find out about barriers to achieving goals
- *Solutions to achieving goals* - How *can we help the patient* achieve their goals?

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How we helped Ms. Smith ?

Goal directed individual intervention-

- ✓ **Helped her order a blood pressure machine** to help improve her blood pressure levels
- ✓ **Helped her order a glucose meter** – to help manage her glucose levels /sugars
- ✓ **Educated patient about the goals** – to help motivate to comply with sugar and blood pressure
- ✓ **Educated about using a pillbox** (part of their benefit as of 9/1/21).

Outcome : Patient was followed up in 1 month and her BP and BS levels improved and member is using pillbox to organize her meds.

Patient satisfaction: patient appreciated that UHC is concerned about her health and resources and benefits UHC has to offer. She understands the importance of being in charge of her health

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Prevention is Cure – a call to action!

- Chronic diseases—such as heart disease, and type 2 diabetes—are the leading causes of death and disability in the United States.

Promoting self monitoring and awareness are key!

- Promoting health literacy and education about their disease conditions and how to prevent these conditions & consequences or prevent worsening should be a target.

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2021 Incentivized HEDIS Measures for CP-PCPi program

- Controlling High Blood Pressure (CBP) – less than 140/90
- Comprehensive Diabetes Care- HBA1c Control (CDC) - < 8%
- *** with highest incentives

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Importance Of Self Monitoring

"Having patients measure their own blood pressure at home can improve diagnosis of hypertension, and for those patients who have it, can help get their hypertension under control."

**AMA

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The benefit - Self-Monitoring BP

- SMBP can be used to assess BP control
- Aid in diagnosing of hypertension.
- Allow patients to actively participate in the management of their BP
- Predicts cardiovascular morbidity and mortality better than office BP measurements.
- Has been shown to improve adherence to antihypertensive medications.[1]

- It is recommended to be used in conjunction with telehealth counseling or clinical interventions for the titration of BP-lowering medication.[2]

[1] Centers for Disease Control and Prevention. *Self-measured blood pressure monitoring: Actions steps for clinicians*, Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2014.

[2] Whelton PK, Carey RM, Aronow WS, Casey DE Jr, Collins KJ, Dennison Himmelfarb C, et al. 2017 ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation and management of high blood pressure in adults: A report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. J Am Coll Cardiol

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The correct machine matters ..

What to look for:

- **use automated (oscillometric) devices**. With this type, the patient wraps a cuff around his or her arm and presses a button to get a digital BP reading.
- **Make sure the device is validated**, that is meant for the upper arm.

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Self Monitoring Blood Glucose (SMBG)

The American Diabetes Association's position statement highlights the role of SMBG in T2DM.[60]

SMBG is considered as a useful guide to management:

In patients using:-

- less-frequent insulin injections,
- non-insulin therapies, or
- medical nutrition therapy alone.

Proper interpretation of the data is emphasized as a prerequisite for optimal use of SMBG.

60. American Diabetes Association. Standards of medical care in diabetes--2012. *Diabetes Care*. 2012;35(Suppl 1):S11–63.

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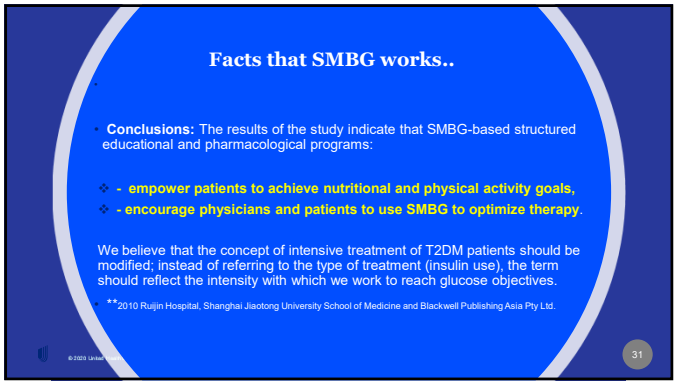
Facts that SMBG works..
• Conclusions: The results of the study indicate that SMBG-based structured educational and pharmacological programs:
❖ - empower patients to achieve nutritional and physical activity goals,
❖ - encourage physicians and patients to use SMBG to optimize therapy.
We believe that the concept of intensive treatment of T2DM patients should be modified; instead of referring to the type of treatment (insulin use), the term should reflect the intensity with which we work to reach glucose objectives.
• **2010 Ruijin Hospital, Shanghai Jiaotong University School of Medicine and Blackwell Publishing Asia Pty Ltd.
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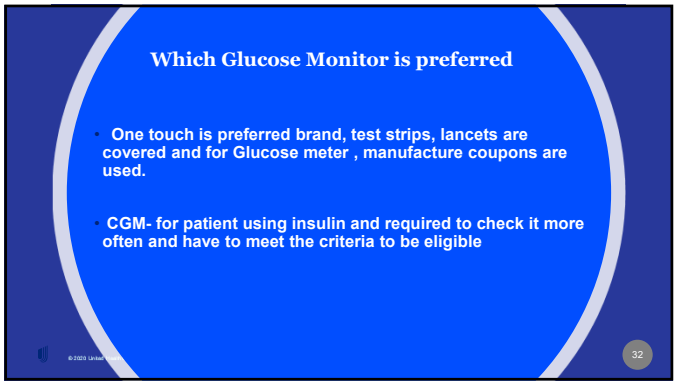
Which Glucose Monitor is preferred
• One touch is preferred brand, test strips, lancets are covered and for Glucose meter , manufacture coupons are used.
• CGM- for patient using insulin and required to check it more often and have to meet the criteria to be eligible
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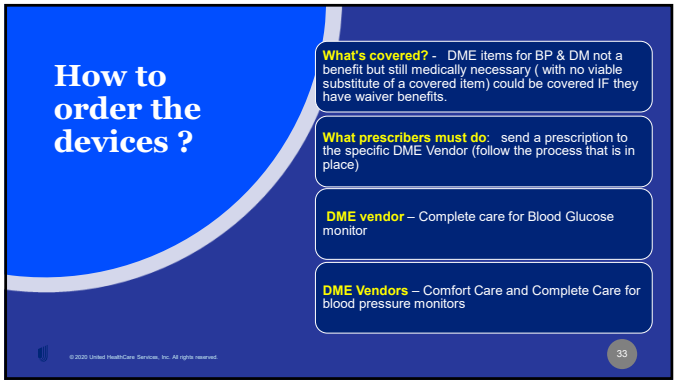
How to order the devices ?
What's covered? - DME items for BP & DM not a benefit but still medically necessary (with no viable substitute of a covered item) could be covered IF they have waiver benefits.
What prescribers must do: send a prescription to the specific DME Vendor (follow the process that is in place)
DME vendor – Complete care for Blood Glucose monitor
DME Vendors – Comfort Care and Complete Care for blood pressure monitors
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Medication Adherence

- **Provide active medication list** at each visit and making sure patients are taking only active medications
- **Reminding patients** to bring all of their medications
- **Look for the refill dates** and non-compliance history and get patient involve in their health by self monitoring , identifying barriers and providing solution, simplifying regimen to help with pill burden
- **Educate** patients or their caregivers about chronic disease conditions
- **Pill boxes and health organizers** (to track their bp /glucose levels, medications, dr's appt, dr's name ,phone) are included so educate members to take advantage of it
- *- Members can contact member services, the number on the back of their ID card, or their Service Coordinator to request the Pillbox. Members can only receive one per year.*

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Shared Decision-making (SDM) in Healthcare

A process in which both the patient & physician :

- contribute to the medical decision-making process
- agree on treatment decisions.
- Health care providers explain treatments and alternatives to patients
- Healthcare providers help patients choose the treatment option that best aligns with their preferences as well as their unique cultural and personal beliefs.

--AHRG.gov

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Managing disease conditions through education and shared decision making

- Shared decision making
- Patient engagement through self monitoring ,education, health literacy, discussing treatment plan
- Medication management and re –evaluating and assessing medications
- Re- evaluating and reassessing medications and treatment plans when levels are abnormal
- Considering telehealth and video appointments for patients who have transportation barrier
- Lifestyle modification

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Pre questions

1. **Which risk factor is the most prevalent modifiable risk factor for premature CVD?**

   a. Diabetes b. smoking c. high blood pressure d. obesity

2. **HgbA1c correlates best with fasting or post prandial (after meals) sugar readings?**

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   a. BP> 140/90, A1C >8 b. BP>130/80 , A1C >7

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Thank you!

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Comprehensive Diabetes Care- HBA1c Control (CDC)

Non-compliant members with A1C less than 8 :

- Rx for glucose meter is covered self monitoring ,
- pill boxes included as of 9/1
- Provide chronic disease education and glucose level reading education in 6th grade level
- Access their medication history/compliance and providing education on staying adherent to bp meds
- F/U visits as needed to document bp before the end of the measurement year

Non-compliant members with no Dr visits & no blood sugar/A1C reading:

- SC outreach calls to Schedule Dr's appt
- Record/document BP using the CPT2 code

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