Virtual Binder

1815/2300 MTM Pharmacy Student/ Preceptor Training

May 18, 2023

NDSU School of Pharmacy:

Elizabeth Skoy, Pharm.D., RPh
Associate Professor
School of Pharmacy
College of Health Professions
p: 701.231.5669
Elizabeth.skoy@ndsu.edu

Natasha Petry, PharmD, BCACP
Associate Professor of Practice / Pharmacy Practice
School of Pharmacy / College of Health Professions
Pharmacogenetics Clinical Pharmacist / Sanford Health Imagenetics
phone (NDSU): 701.231.6554
Natasha.Petry@ndsu.edu

ND Pharmacists Association:

Jesse Rue PharmD, BCPS
Clinical Coordinator
NDPSC/About the Patient
P: 701-430-0731
jrue@aboutthepatient.net

North Dakota Dept of Health and Human Services:

Tiffany Knauf, MAIS
Health Systems and Pharmacy Coordinator
P: 701-328-2333
tknauf@nd.gov

Brianna Monahan, MS, RD
Diabetes Prevention and Control Program Coordinator
P: 701.328.2698
bmonahan@nd.gov

1815/2300 Project Site Preceptors and Contact Information 2023/24

Carrington/New Rockford - Central Health Mart Pharmacy

Shane Wendel, PharmD, RPh

701-652-2651

centralrx@daktel.com

Dickinson - The Medicine Shoppe

Brandi Ollerman, PharmD

701-227-8265

clinicpharmacy2@gmail.com

Market Pharmacy - Minot

Brad Morrison, PharmD

701-839-8883

marketpharmacy@srt.com

Oakes - Tara's Thrifty White Pharmacy

Tara Schmitz PharmD

701-742-3824

tarasthriftywhite@yahoo.com

Rugby--Heart of America Medical Center

Tallie Schneider, PharmD or Jenn Melgaard, PharmD or Jesse Rue, PharmD

701.776.2531

tschneider@hamc.com

jmelgaard@hamc.com

jrue@aboutthepatient.net

Enhancing MTM in North Dakota: Pilot Program User Guide

2300 PROGRAM

STUDENT MANUAL

HELLO.

We’re glad you’re here!

Your #1 priority in this project is to care for the poor and vulnerable.

So go make a difference by serving the uninsured and those on North Dakota Medicaid (NDM).

Expand the clinical services provided in North Dakota pharmacies.

Go forth.

WHY WE ARE DOING THIS.

To build continuity between students and help us build an ongoing population health model in the community, to help the poor and vulnerable.

COLLABORATORS.

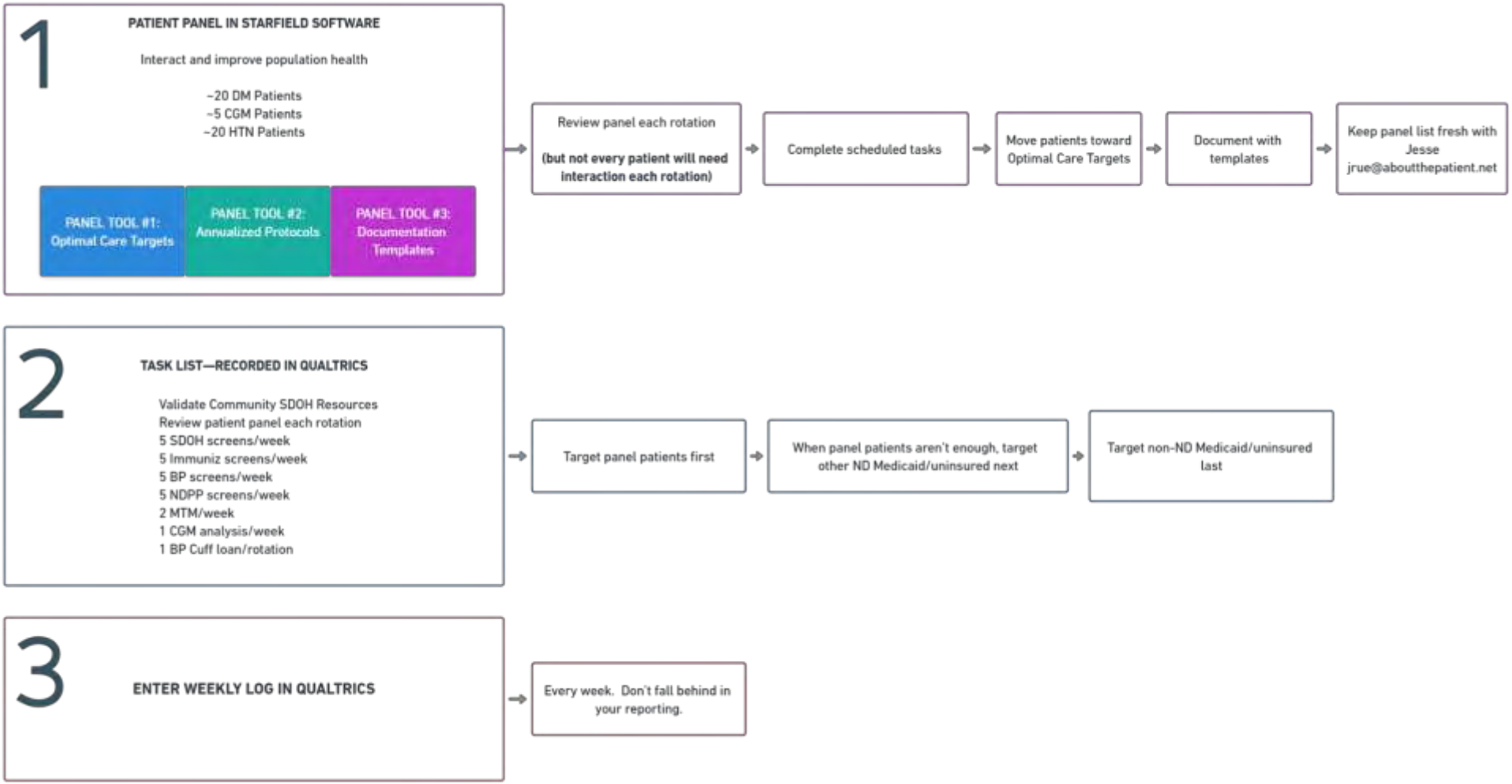
North Dakota Department of Health and Human Services (NDHHS)

North Dakota State University School of Pharmacy (NDSU SOP)

North Dakota Pharmacists Association (NDPhA)

Community pharmacies

THE PROGRAM.


1
PATIENT PANEL IN STARFIELD SOFTWARE
Interact and improve population health
~20 DM Patients
~5 CGM Patients
~20 HTN Patients
PANEL TOOL #1: Optimal Care Targets
PANEL TOOL #2: Annualized Protocols
PANEL TOOL #3: Documentation Templates
Review panel each rotation
(but not every patient will need interaction each rotation)
Complete scheduled tasks
Move patients toward Optimal Care Targets
Document with templates
Keep panel list fresh with Jesse jrue@aboutthepatient.net
2
TASK LIST—RECORDED IN QUALTRICS
Validate Community SDOH Resources
Review patient panel each rotation
5 SDOH screens/week
5 Immuniz screens/week
5 BP screens/week
5 NDPP screens/week
2 MTM/week
1 CGM analysis/week
1 BP Cuff loan/rotation
Target panel patients first
When panel patients aren't enough, target other ND Medicaid/uninsured next
Target non-ND Medicaid/uninsured last
3
ENTER WEEKLY LOG IN QUALTRICS
Every week. Don't fall behind in your reporting.

1 THE PATIENT PANEL.

Prior to your rotation, we will work with your preceptor to craft a patient panel **in the Starfield software**.

Your quest is to optimize their care. Think of this as taking amb care population health into the community pharmacy.

You need to review your entire panel of patients each rotation and do your part to make them healthier. **(Because there are multiple students throughout the year on this project, you won't need to interact with every patient on the panel during your rotation).**

Three tools were created to help with this work:

THESE ARE THE TARGETS FOR YOUR PANEL OF PATIENTS IN STARFIELD. PLEASE HELP THEM GET THERE AND STAY THERE.

OPTIMAL HTN CARE TARGETS	OPTIMAL DM CARE TARGETS	OPTIMAL CGM CARE TARGETS
• BP <130/80 for age <65 • Immunizations per CDC	• A1c <7% • BP <130/80 for age <65 • Statin prescribed for age 40-75 • Immunizations per CDC	• A1c <7% • BP <130/80 for age <65 • Statin prescribed for age 40-75 • 70% Time In Range (TIR) • Immunizations per CDC

SNIPPET OF CONTENT FOR ANNUALIZED PROTOCOLS IN STARFIELD…THESE ACTIONS WILL BE ASSIGNED PRIOR TO YOUR ROTATION FOR YOUR PANEL PATIENTS.

The patient panel will undergo routine maintenance—patients will be added and dropped throughout the year.

The tasks you see in the chart below is a good overview of what you can expect, but it is not set in stone. Not to worry, though—tasks will be assigned in Starfield for you before your rotation. You are not responsible for Actions that were not completed by a previous student.

HTN ANNUALIZED PROTOCOL	DM ANNUALIZED PROTOCOL	CGM ANNUALIZED PROTOCOL
MONTH 1 • Review patient panel each rotation • Validate referral resources each rotation • MTM • NDHIN lab review MONTH 2 • NDIIS Forecaster review + delivery • SDOH screening + refer MONTH 3 • Review patient panel each rotation • Validate referral resources each rotation	MONTH 1 • Review patient panel each rotation • Validate referral resources each rotation • MTM • NDHIN lab review MONTH 2 • NDIIS Forecaster review + delivery • SDOH screening + refer • A1c verification or POC MONTH 3 • Review patient panel each rotation • Validate referral resources each rotation	MONTH 1 • Review patient panel each rotation • Validate referral resources each rotation • MTM • NDHIN lab review • CGM Analysis MONTH 2 • NDIIS Forecaster review + delivery • SDOH screening + refer • A1c verification or POC • CGM Analysis

Documentation templates are built in Starfield.

2 TASK LIST.

WEEKLY CADENCE

You have tasks to achieve beyond tending to your patient panel. **This work is recorded in Qualtrics.**

Your site will have a general NDM/uninsured list to preferentially target for your weekly task quota.

Of course, you can just go searching for NDM and the uninsured by looking through bags or random chance, that's fine—we suggest you ask your preceptor for advice on what may work best in their community.

We strongly suggest that you identify patients who would benefit from one or more of these tasks and do multiple tasks for one patient when feasible. But you do you. Be yourself. Challenge yourself!

- 5 SDOH screenings per week
- 5 immunization screenings per week
- 5 blood pressure screenings per week
- 5 NDPP Screenings per week
- 2 MTM per week---post-hospital discharge transitions of care qualifies as an MTM
- 1 CGM analysis per week

OTHER CADENCES

- Once per rotation, validate the referral resources in their community (SDOH resources) and forward to jrue@aboutthepatient.net
- Once per rotation, loan a remote blood pressure cuff and follow patient on Diasyst
- You will have a supply of A1c Point of Care test supplies + control solution earmarked for NDM/uninsured/panel patients overdue on A1c testing (these are not for random screenings). Contact jrue@aboutthepatient.net when you require additional supplies.

3 WEEKLY LOG IN QUALTRICS.

Qualtrics is nice software. The founder bought the Utah Jazz, so you can be sure that it isn't cheap software. So what are we trying to say? Nobody knows anymore, but you **can** be sure that you need to report your stuff every week in Qualtrics. You signed an MOU. Your scholarship depends on this. This is so important that it got its own section!

You will receive a link and instructions at the beginning of your rotation.

END OF ROTATION.

At the end of your rotation, give the next student a handoff. Some key items would be how to get up to speed quickly at that location and any outstanding follow-ups that will not be completed in time.

We must hardwire some continuity and it's the sort of professionalism that will be expected of you the rest of your career.

TALK WITH US.

You are not alone! If you are struggling, tell us.

SERIOUSLY. When something isn't going well, let's talk right away.

Contact Jesse Rue at jrue@aboutthepatient.net

APPENDIX.

Unlike an actual human appendix, these items may be useful rather than a reason for a rando infection and surgery.

SDOH SCREENING—The AHC HRSN Tool

LIVING SITUATION

1. What is your living situation today?

□ I have a steady place to live
□ I have a place to live today, but I am worried about losing it in the future
□ I do not have a steady place to live (I am temporarily staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station, or in a park)

2. Think about the place you live. Do you have problems with any of the following?

CHOOSE ALL THAT APPLY

□ Pests such as bugs, ants, or mice
□ Mold
□ Lead paint or pipes
□ Lack of heat
□ Oven or stove not working
□ Smoke detectors missing or not working
□ Water leaks
□ None of the above

FOOD

Some people have made the following statements about their food situation. Please answer whether the statements were OFTEN, SOMETIMES, or NEVER true for you and your household in the last 12 months.

3. Within the past 12 months, you worried that your food would run out before you got money to buy more.

□ Often true
□ Sometimes true
□ Never true

4. Within the past 12 months, the food you bought just didn't last and you didn't have money to get more.

□ Often true
□ Sometimes true
□ Never true

TRANSPORTATION

5. In the past 12 months, has lack of reliable transportation kept you from medical appointments, meetings, work or from getting things needed for daily living?

□ Yes
□ No

UTILITIES

6. In the past 12 months has the electric, gas, oil, or water company threatened to shut off services in your home?

□ Yes
□ No
□ Already shut off

SAFETY

Because violence and abuse happens to a lot of people and affects their health we are asking the following questions.

7. How often does anyone, including family and friends, physically hurt you?

□ Never (1)
□ Rarely (2)
□ Sometimes (3)
□ Fairly often (4)
□ Frequently (5)

8. How often does anyone, including family and friends, insult or talk down to you?

□ Never (1)
□ Rarely (2)
□ Sometimes (3)
□ Fairly often (4)
□ Frequently (5)

9. How often does anyone, including family and friends, threaten you with harm?

□ Never (1)
□ Rarely (2)
□ Sometimes (3)
□ Fairly often (4)
□ Frequently (5)

10. How often does anyone, including family and friends, scream or curse at you?

□ Never (1)
□ Rarely (2)
□ Sometimes (3)
□ Fairly often (4)
□ Frequently (5)

A score of 11 or more when the numerical values for answers to questions 7-10 are added shows that the person might not be safe.

How to measure your blood pressure at home

Follow these steps for an accurate blood pressure reading

1 PREPARE

Avoid caffeine, cigarettes and other stimulants 30 minutes before you measure your blood pressure.

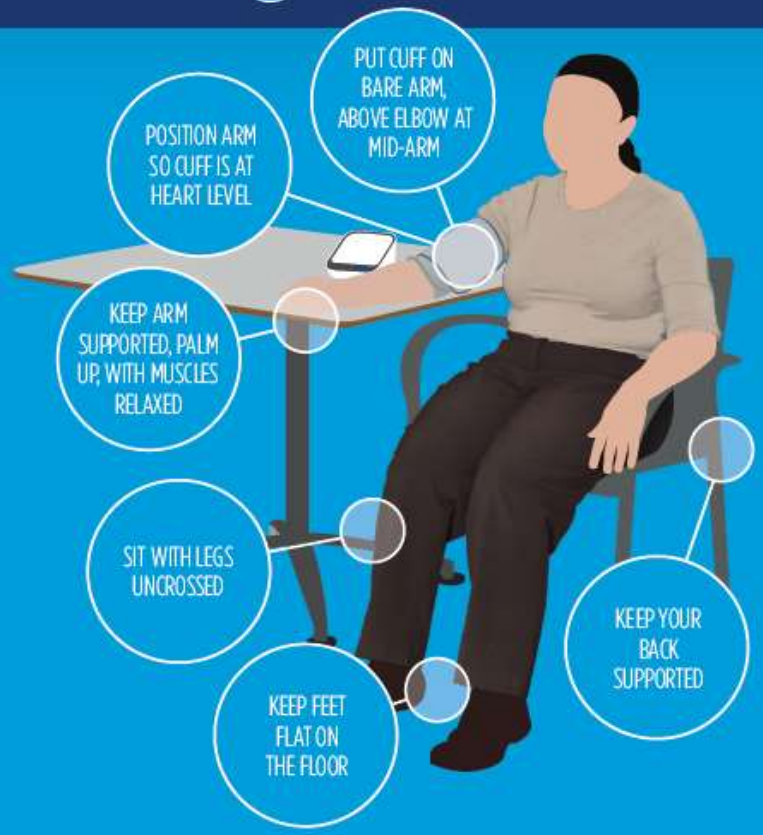
Wait at least 30 minutes after a meal.

If you're on blood pressure medication, measure your BP **before** you take your medication.

Empty your bladder beforehand.

Find a quiet space where you can sit comfortably without distraction.

2 POSITION



3 MEASURE

Rest for five minutes while in position before starting.

Take two or three measurements, one minute apart.

Keep your body relaxed and in position during measurements.

Sit quietly with no distractions during measurements—avoid conversations, TV, phones and other devices.

Record your measurements when finished.

AMA
AMERICAN MEDICAL ASSOCIATION

Prediabetes Risk Test

NATIONAL DIABETES PREVENTION PROGRAM

1. How old are you?

Write your score in the boxes below

Younger than 40 years (0 points)
40–49 years (1 point)
50–59 years (2 points)
60 years or older (3 points)

2. Are you a man or a woman?

Man (1 point) Woman (0 points)

3. If you are a woman, have you ever been diagnosed with gestational diabetes?

Yes (1 point) No (0 points)

4. Do you have a mother, father, sister, or brother with diabetes?

Yes (1 point) No (0 points)

5. Have you ever been diagnosed with high blood pressure?

Yes (1 point) No (0 points)

6. Are you physically active?

Yes (0 points) No (1 point)

7. What is your weight category?

(See chart at right)

Height	Weight (lbs.)		
4'10"	119-142	143-190	191+
4'11"	124-147	148-197	198+
5'0"	128-152	153-203	204+
5'1"	132-157	158-210	211+
5'2"	136-163	164-217	218+
5'3"	141-168	169-224	225+
5'4"	145-173	174-231	232+
5'5"	150-179	180-239	240+
5'6"	155-185	186-246	247+
5'7"	159-190	191-254	255+
5'8"	164-196	197-261	262+
5'9"	169-202	203-269	270+
5'10"	174-208	209-277	278+
5'11"	179-214	215-285	286+
6'0"	184-220	221-293	294+
6'1"	189-226	227-301	302+
6'2"	194-232	233-310	311+
6'3"	200-239	240-318	319+
6'4"	205-245	246-327	328+
	1 Point	2 Points	3 Points

You weigh less than the 1 Point column (0 points)

Total score:

Adapted from Bang et al., Ann Intern Med 151:775–783, 2009. Original algorithm was validated without gestational diabetes as part of the model.

If you scored 5 or higher

You are at increased risk for having prediabetes and are at high risk for type 2 diabetes. However, only your doctor can tell for sure if you have type 2 diabetes or prediabetes, a condition in which blood sugar levels are higher than normal but not high enough yet to be diagnosed as type 2 diabetes. **Talk to your doctor to see if additional testing is needed.**

If you are African American, Hispanic/Latino American, American Indian/Alaska Native, Asian American, or Pacific Islander, you are at higher risk for prediabetes and type 2 diabetes. Also, if you are Asian American, you are at increased risk for type 2 diabetes at a lower weight (about 15 pounds lower than weights in the 1 Point column). Talk to your doctor to see if you should have your blood sugar tested.

You can reduce your risk for type 2 diabetes

Find out how you can reverse prediabetes and prevent or delay type 2 diabetes through a **CDC-recognized lifestyle change program** at https://www.cdc.gov/diabetes/prevention/lifestyle-program.

Risk Test provided by the American Diabetes Association and the Centers for Disease Control and Prevention.

American Diabetes Association.

CDC

BASIC CGM INTERPRETATION CONCEPTS

REVIEW LAST VISIT NOTES

CONFIRM ADEQUATE DATA

- 14+ days of data best
- 70% time CGM active
- Wide variability CV goal is ≤36%

Questions to help

- What insulin dose/schedule?
- When do they wake?
- When do they eat?
- When do they exercise?
- Any illness?

REVIEW 2-4 WEEKS OF REPORTS TO DETERMINE WHEN PATTERNS OCCUR

THEN REVIEW DAILIES TO VERIFY PATTERNS AND SEE IF CLUSTERED ON SPECIFIC DAYS

ADDRESS PROBLEM PATTERNS IN THIS ORDER OF PRIORITY

1. Hypoglycemia
2. TIR Time in Range
   60% TIR reasonably good control ~A1c of 7.5%
   70% TIR good control ~A1c of 7%
3. Wide variability CV goal is ≤36%
   Inaccurate carb counting, late on mealtime bolus, exercise, stress

Review the overall glucose profile to determine time of day patterns occur, then review dailies to verify patterns and see if certain days are problematic

REVIEW PROGRESS MADE TOWARDS PREVIOUS GOALS AND DISCUSS POTENTIAL SOLUTIONS MOVING FORWARD

REINFORCE THAT CGM VALUES ARE NOT 'GOOD' OR 'BAD' THEY JUST "ARE WHAT THEY ARE"

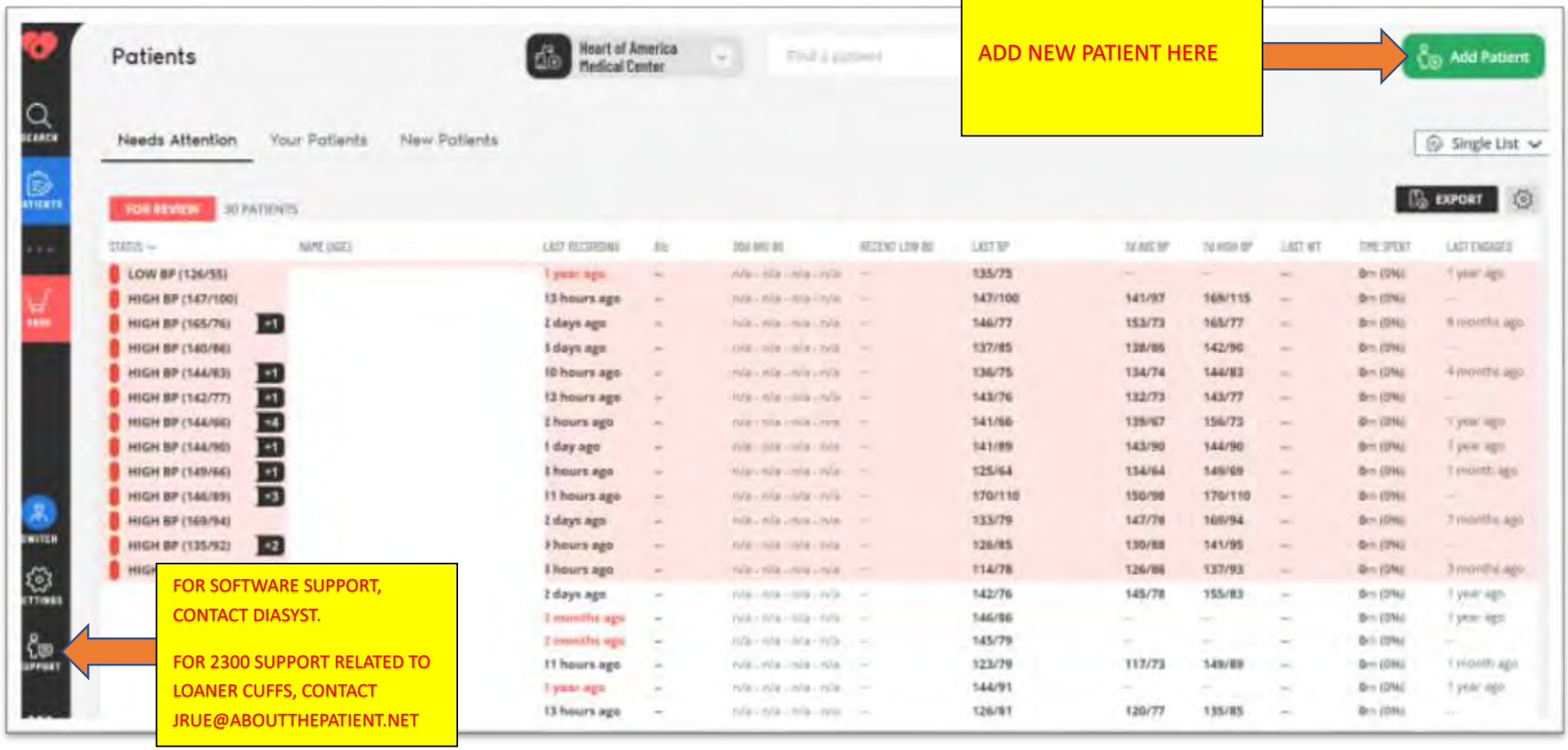
DEVELOP ACTION PLAN AND ENSURE PATIENTS UNDERSTAND AND COMMIT TO IMPLEMENT IT

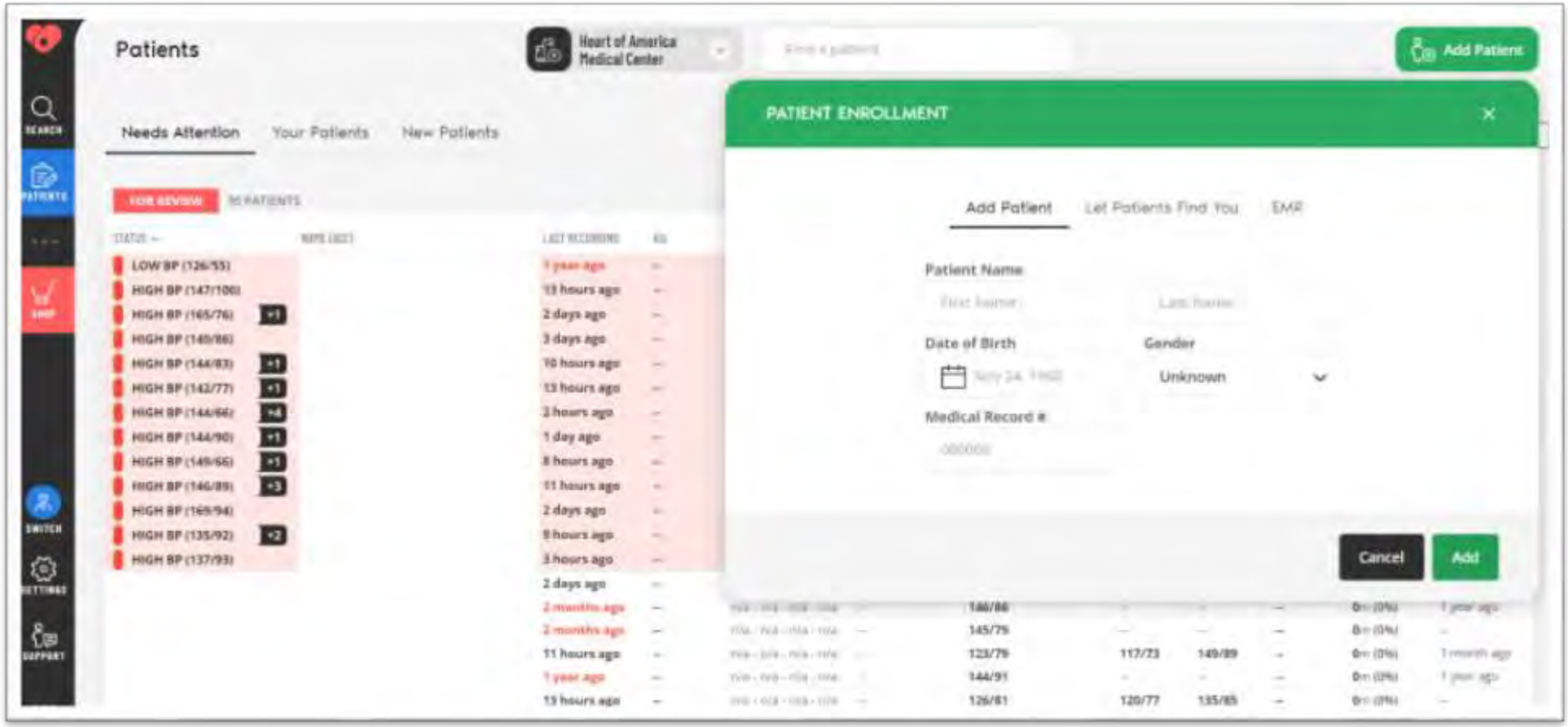
IDENTIFY ONGOING SUPPORT NEEDS

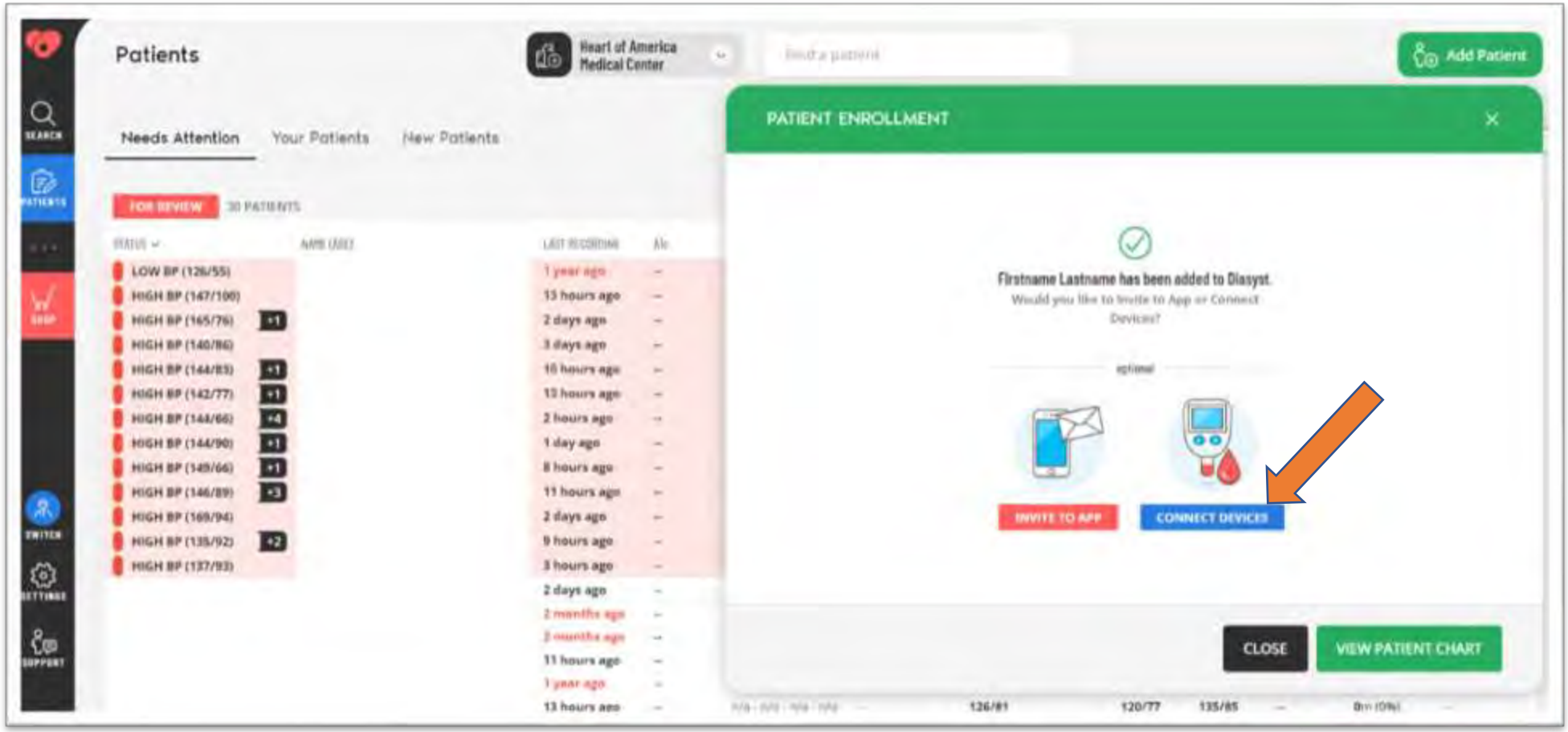
SET FOLLOW UP SCHEDULE AND APPOINTMENT IF NECESSARY

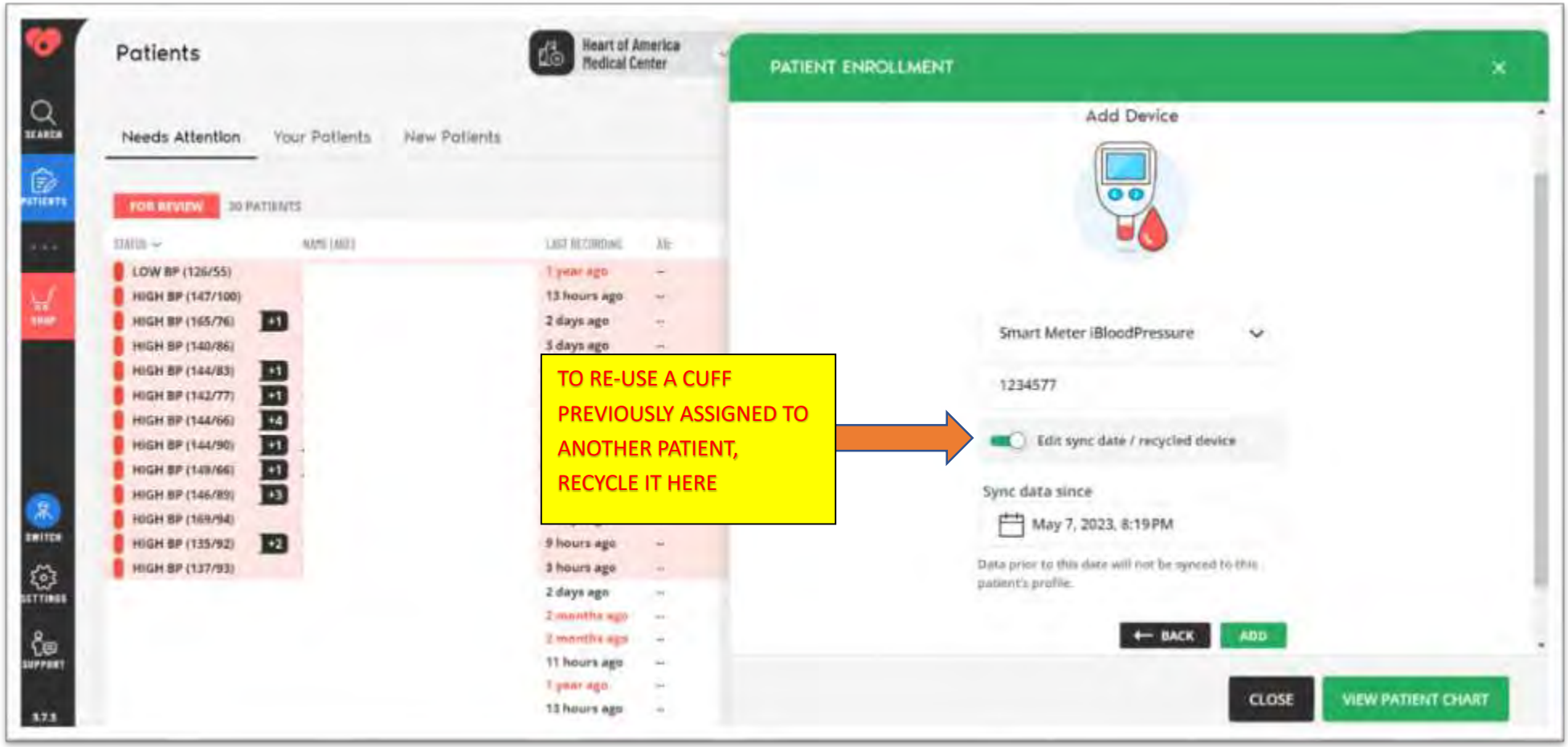
SIGN NOTE AND SUBMIT CLAIM AS APPROPRIATE

DIASYST SCREENS AND BASIC ACTIONS




Patients
Heart of America Medical Center
Add Patient
SEARCH
PATIENTS
SHOP
SWITCH
SETTINGS
SUPPORT
Needs Attention
Your Patients
New Patients
FOR REVIEW
10 PATIENTS
LOW BP (126/55)
HIGH BP (147/100)
HIGH BP (165/76) +1
HIGH BP (140/86)
HIGH BP (144/83) +1
HIGH BP (142/77) +1
HIGH BP (144/66) +4
HIGH BP (144/90) +1
HIGH BP (149/66) +1
HIGH BP (146/89) +3
HIGH BP (169/94)
HIGH BP (135/92) +2
HIGH BP (137/93)
1 year ago
13 hours ago
2 days ago
3 days ago
10 hours ago
13 hours ago
2 hours ago
1 day ago
8 hours ago
11 hours ago
2 days ago
9 hours ago
3 hours ago
2 days ago
2 months ago
2 months ago
11 hours ago
1 year ago
13 hours ago
PATIENT ENROLLMENT
Add Patient
Let Patients Find You
EMR
Patient Name
Date of Birth
Gender
Unknown
Medical Record #
Cancel
Add
146/86
145/75
123/79
117/73
149/89
144/91
126/81
120/77
135/85


Patients
Heart of America Medical Center
Add Patient
Needs Attention
Your Patients
New Patients
PATIENT ENROLLMENT
Firstname Lastname has been added to Diasyst.
INVITE TO APP
CONNECT DEVICES
CLOSE
VIEW PATIENT CHART


Patients
Heart of America Medical Center
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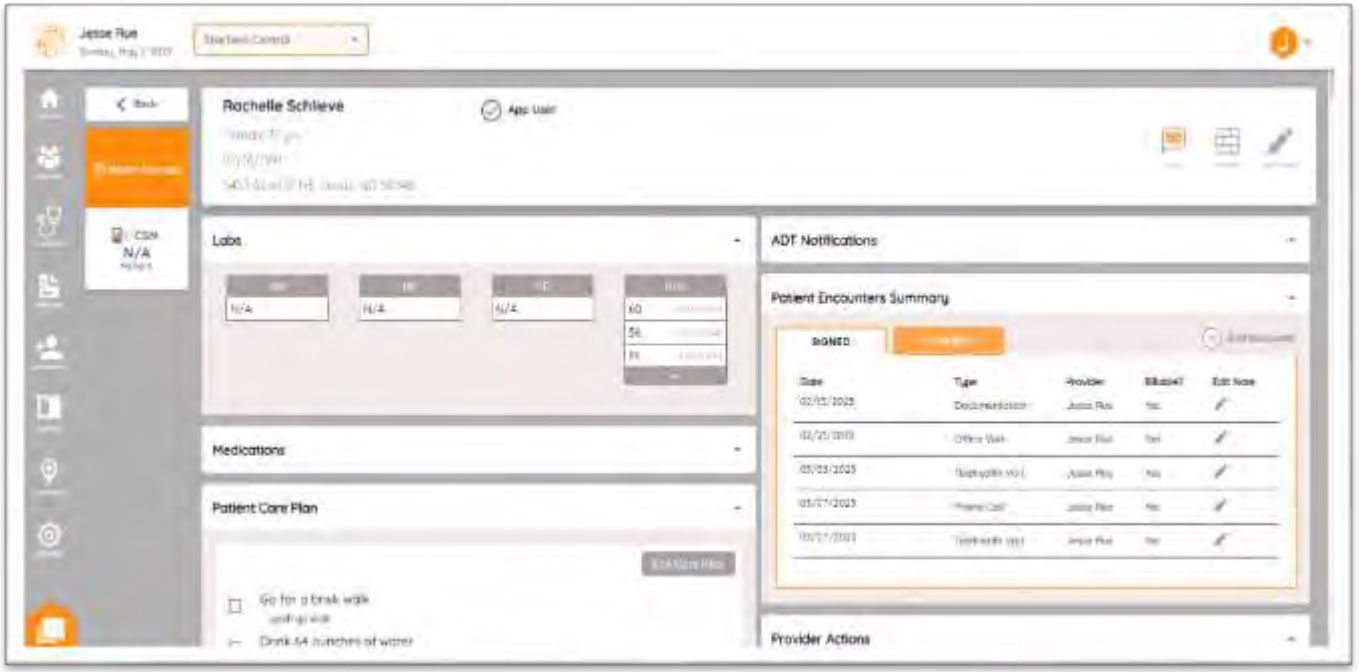
Your Patients
New Patients
FOR REVIEW
30 PATIENTS
LOW BP (126/55)
HIGH BP (147/100)
HIGH BP (165/76)
HIGH BP (140/86)
HIGH BP (144/83)
HIGH BP (142/77)
HIGH BP (144/66)
HIGH BP (144/90)
HIGH BP (149/66)
HIGH BP (146/89)
HIGH BP (169/94)
HIGH BP (135/92)
HIGH BP (137/93)
1 year ago
13 hours ago
2 days ago
3 days ago
9 hours ago
3 hours ago
2 days ago
11 hours ago
1 year ago
13 hours ago
TO RE-USE A CUFF PREVIOUSLY ASSIGNED TO ANOTHER PATIENT, RECYCLE IT HERE
PATIENT ENROLLMENT
Add Device
Smart Meter iBloodPressure
1234577
Edit sync date / recycled device
Sync data since
May 7, 2023, 8:19 PM
Data prior to this date will not be synced to this patient's profile.
BACK
ADD
CLOSE
VIEW PATIENT CHART

Starfield is software that you will be using for part of your 2300 project.

- It automatically links to NDHIN for several lab values (A1c, HDL, TC); for more lab values, you can access NDHIN directly.
- Generates notices (ADT) when patients are discharged from hospitals and emergency departments—post-discharge followup counts as an MTM for 2300.
- CGM data from Dexcom can be integrated with patient permissions, bringing more data into one place for you.
- Actions (tasks) can be assigned to both providers and patients (when using the patient mobile app).
- We will create patient lists for you to manage your panel from a population health perspective.
- Documentation and billing capabilities.

Go to app.starfield.health

Use Chrome or Safari; the provider side of the app will not work on your phone. (There is a mobile app for patients to use, but you will not be using that).


Jesse Rue
Rachelle Schlieve
App User
CSN
N/A
Labs
ADT Notifications
Patient Encounters Summary
SIGNED
Medications
Patient Care Plan
Provider Actions


Dr. Anthony Davis
Carol J. Smith
Diagnosis
Special Programs
App User
Overview Report
125
NED
Ambulatory Glucose Report
Glucose
125
Weight
190 lbs
Blood Pressure
120/60

Interacting with Your Assigned Actions (tasks)

Once you have completed the action, you can click the icon to bring up the action menu. Click **Complete this Action.**

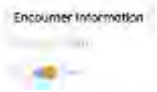
Documenting an Encounter

This tip sheet describes how to document a note in a patient's chart.

You will first begin by going to the **Patients** tab on the left-hand side and selecting the desired patient. Under **Patient Information** you will click the **Profile** icon.

Once you are in the patient's profile you will expand the **Patient Encounters Summary** tab and click on "Add Encounter" in the right-hand corner. You will then select the appropriate **Encounter Type**.

If the encounter is a billable claim, be sure to switch the **Generate Claim** to "yes".



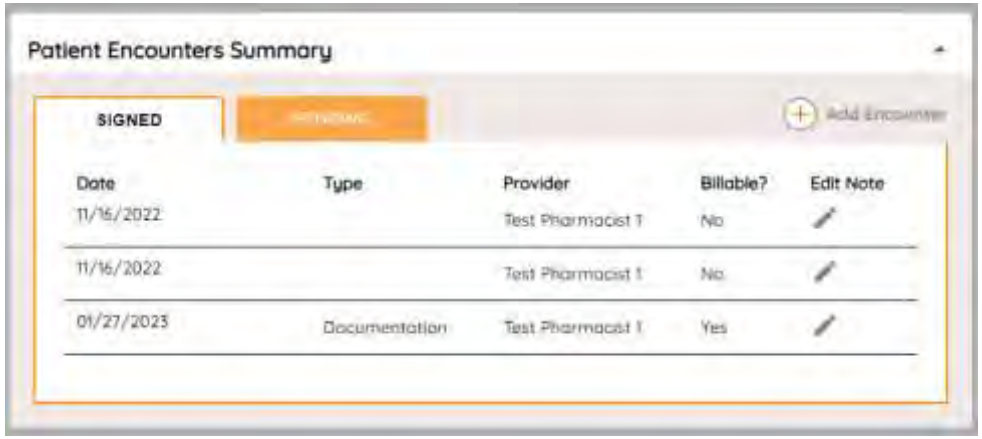
You may now document the **Encounter Note**. The **Add Template** button will allow you to choose from multiple customizable forms to help assist you with the documentation process.

When the note is complete be sure to push the **Sign Note** at the bottom of the page. If you have not completed the documentation and know that you need to finish it at a different time, push the **Pend Note** button. A note cannot be processed as a claim until it is signed.

Addend an Encounter

Once a chart note has been **signed**, it cannot be edited. If you need to add or change information to the documentation, you can create an **addendum**. A user name and timestamp will be visible at the top of the addendum.

To addend an encounter, you will navigate to the patient's profile and extend the **Patient Encounters Summary** tab. Click the pencil for the document you would like to addend.



At the bottom of the note you will be able to add the addendum. Once it is complete, click **Save.**

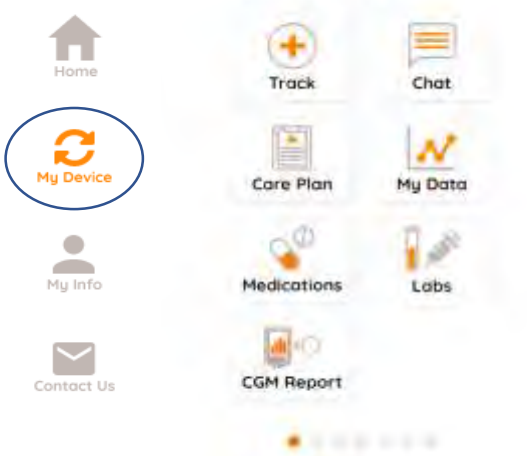
When the addendum is saved, it will be viewable at the bottom of the encounter note.

Setting up a CGM Device

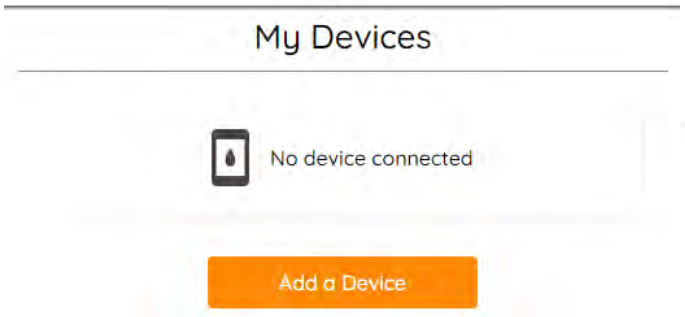
A patient's **CGM Device** can be linked to their Starfield account and monitored by the pharmacy.

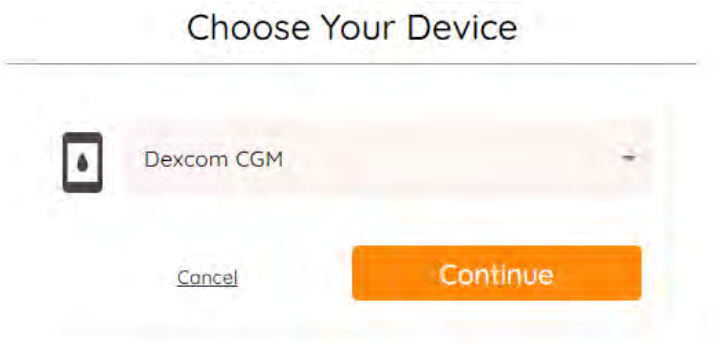
1. The patient needs to have the Dexcom G6 App on their phone prior to setting up their device to Starfield.
2. The patient must be an app user in Starfield. If there are questions, contact Jesse Rue jrue@aboutthepatient.net or 701.430.0731

The patient can link their device by logging into their account and clicking on **My Device** on the left-hand side of their screen.



After clicking on the **My Device**, the patient will then click **Add a Device**. Select the **Dexcom CGM** device from the drop-down menu. Click **Continue**.





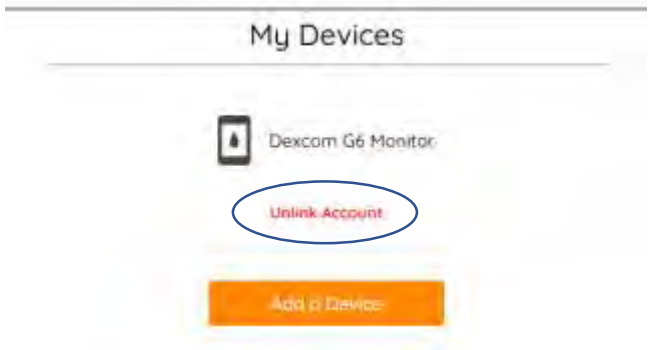
After the patient clicks **Continue**, they will then be asked to log into their Dexcom account. Click on the **Sync with Dexcom** button.

Once the patient clicks on the **Sync with Dexcom** button, it will bring them to the login page for Dexcom.

Once the patient logs into their account, it will bring them back to the Starfield **My Devices** page and will display the device. The pharmacy will now be able to see the patient's Dexcom information in their chart.

Removing a Device

If a patient no longer wishes to have their device linked to their account, they will go back to the **My Devices** page, and click **Unlink Account**.



It will then ask if the patient wishes to **Unlink Dexcom**. They will click the **Revoke Access** button.

By clicking the **Revoke Access** button, it will delete the Dexcom device attached to the account.

THE END.

Pharmacy Rotation: Forms, Documents and Data Collection

HEALTH INFORMATION FORM

North Dakota State University School of Pharmacy

PATIENT INFORMATION

First three letters of **first name**:	Age:	Gender: M / F
Telephone:	Height:	Weight:
Primary care physician:	Date of last visit:	

SOCIAL DRUG USE

Tobacco Use:	Never	Type of tobacco:	Quit date:	If currently smoking, packs per day:	If currently smoking, tried to quit_____times
Caffeine Use:	Never	Type of caffeine:		Cups/cans per day:	
Alcohol Use:	Never	Occasionally	Number of drinks/week	Do you ever drink more than three drinks per day? Yes / No	

ALLERGY INFORMATION

	Cause: Medicine/Food/Preservative	**Please Describe Reaction or Side Effect** (rash, nausea, constipation, drowsiness, dizziness, etc.)
Allergies:		

MEDICATION INFORMATION

Please list ALL prescription and non-prescription medications, vitamins, and herbs

Medication	Strength	Directions	What you use it for

PERSONAL MEDICAL HISTORY

Please indicate if you have ever experienced any of the following conditions listed.

Anxiety	Yes	No		Arthritis	Yes	No
Asthma	Yes	No		Cancer	Yes	No
Bleeding disorder	Yes	No		Depression	Yes	No
Diabetes	Yes	No		Epilepsy (seizures)	Yes	No
Glaucoma	Yes	No		Hay fever (allergies)	Yes	No
Heart attack (myocardial infarction)	Yes	No		Heart failure	Yes	No
High blood pressure (hypertension)	Yes	No		High cholesterol (Hyperlipidemia)	Yes	No
Insomnia	Yes	No		Kidney disease	Yes	No
Lung disorder (COPD/emphysema)	Yes	No		Migraine headaches	Yes	No
Osteoporosis	Yes	No		Stroke	Yes	No
Thyroid disorders	Yes	No		Ulcers or heartburn /GERD	Yes	No
Attention deficit disorder/ADHD	Yes	No		Chronic pain	Yes	No
Other:				Other:		

Do you currently exercise?	Never	Regularly	Times per week:	Average number of minutes per workout:

Immunization History: Screened by pharmacy

Review of Systems

Please circle if you are CURRENTLY experiencing any of the following.

General	Weight gain/loss Fatigue	Headache Dizziness	**Head, Ear, Eye**	Changes in vision Sore mouth Changes in hearing Bloody nose
Cardiovascular	Chest pain Dizzy when rising	Palpitations Bleeding	**Respiratory**	Shortness of breath Wheezing Chest Tightness Cough Sputum
Digestive	Heartburn Abdominal pain Constipation	Nausea/vomiting Diarrhea	**Mood**	Changes in sleep pattern Difficulty focusing Suicidal thoughts Anxiety
Extremities	Excessive bruising Rash	Numbness/tingling Foot sores	**Muscles/Bones**	Back pain Muscle weakness Muscle cramps Joint pain Muscle pain
Neuro	Memory loss Migraine headaches	Fainting	**Genitourinary**	Blood in urine Incontinence Impotence Burning

To be Completed at the Pharmacy

Immunizations needed per screening:		**Blood Pressure**	

Drug Therapy Problem Worksheet
1815 Project: Medication Therapy Management

Define each DTP using one heading and sub-heading and provide a summary of action taken and reported outcomes if available.

Drug Therapy Problem

O Dosage Too Low

- Wrong dose
- Frequency inappropriate
- Drug interaction
- Duration inappropriate
- Incorrect administration

O Dosage Too High

- Wrong dose
- Frequency inappropriate
- Duration inappropriate
- Drug interaction
- Incorrect administration

O Ineffective Medication

- More effective drug available
- Condition refractory to drug
- Dosage form inappropriate
- Not effective for condition
- Contraindication present

O Needs Additional Drug Therapy

- Untreated condition
- Preventative/prophylactic
- Immunizations
- Synergistic/additive effect

O Unnecessary Drug Therapy

- No medical indication
- Duplicate therapy
- Nondrug therapy indicated
- Addictive/recreational
- Treating avoidable ADR

O Experiencing Adverse Drug Reaction

- Undesirable effect
- Unsafe drug for patient
- Drug interaction
- Dose administered/changed too rapidly
- Allergic reaction
- Contraindications present
- Incorrect administration

O Adherence

- Directions not understood
- Patient prefers not to take
- Patient forgets to take
- Cannot swallow/administer
- Drug product not available
- Inappropriate administration technique

O Cost Containment

- Patient cannot afford
- Generic alternative available
- Pill splitting indicated
- More cost effective medication available

Summary:

Provider contacted YES / NO

2300 STUDENT WEEKLY TASK LOG

Blood Pressure Assessment Log, Target: 5+/week

Date	Initial Blood Pressure in mmHg	If BP is over 140/90, was the BP retaken? Yes still elevated, Yes no longer elevated, No, not rechecked	Action taken (see codes below and list all that apply)	Relevant notes

1. Counseled patient on medication adherence
2. Patient education on suggested lifestyle modification
3. Referred patient to primary care provider for follow-up.
4. Counseled patient on at-home BP monitoring
5. Scheduled follow-up screening at the pharmacy at a later date
6. Contacted patient's primary care provider with recommendation(s)
7. No action needed/taken.
8. Other: please describe

Prediabetes Screening Log, Target: 5+/week

Date	Prediabetes risk test score	Action taken (see codes below and list all numbers that apply)	Relevant notes

1. Referred patient to the National DPP (www.ndc3.org)
2. Patient education on suggested lifestyle modification
3. Counseled patient on risk of diabetes
4. Referred patient to primary care provider for follow-up
5. Contacted patient's primary care provider with recommendation(s)
6. Patient screened low risk. No action taken
7. Other: please describe

CGM Data Analysis, Target: 1+/week;

Date	Data Reviewed	Action taken (see codes below and list all numbers that apply)	Relevant notes
	Y/N		
	Y/N		
	Y/N		

1. Counseled patient on data
2. Patient education on proper CGM usage
3. Referred patient to primary care provider for follow-up
4. Contacted patient's primary care provider with recommendation(s)
5. Other: please describe

A1c Point of Care Log; NO TARGET, NDM+UNINSURED PRIORITY

Date POC test taken	Most recent A1c date	Patient current Diabetes diagnosis?	Action taken (see codes below - list all that apply)	Relevant notes
		Yes Not yet		
		Yes Not yet		
		Yes Not yet		

1. POC test deliveredbecause patient was overdue on A1c
2. Counseled patient on self-monitoring, blood glucose management.
3. Patient education on recommended lifestyle modifications
4. Referred patient to primary care provider for follow-up
5. Contacted patient's primary care provider with recommendation(s)
6. Contact patient's primary care provider for a DSMES referral
7. No action needed/taken
8. Other: please describe

Medication Therapy Management (Comprehensive Medication Review)
Target: 2+/week

Date	Chronic Disease(s) addressed:	Was the MTM done thru…? Medicaid, Payable Platform, Not paid.	Complete Drug Therapy Problem worksheet. Relevant notes:
	HTN DM		
	HTN DM		
	HTN DM		

SDOH Screening Log, Target: 5+/week

Date	AHC HRSN risk score	Action taken (see codes below and list all numbers that apply)	Relevant notes

1. Referred patient to specific community resource; please describe
2. Patient screened low risk. No action taken
3. Other: please describe

Immunization Screening Log, Target: 5+/week

Date	Vaccines indicated (list all that apply) COVID-19, Hep. B, influenza, PCV15, PCV20, Shingrix, Tdap, Td.	Vaccines delivered (list all that apply) COVID-19, Hep. B, influenza, PCV15, PCV20, Shingrix, Tdap, Td.	Reason for not providing vaccine (see codes below and list all that apply)	Relevant notes

1. Patient would like to speak with provider
2. Pharmacy doesn't provide needed vaccine
3. Pharmacy out of stock
4. Other/no reason provided

Blood Pressure Cuff Loaner Program Log, Target: ONCE PER ROTATION

Date	Initial Blood Pressure in mmHg	If BP is over 140/90, was the BP retaken?	Patient current HTN diagnosis?	Action taken (see codes below and list all that apply)	Relevant Notes
			Yes Not yet		
			Yes Not yet		

1. Started patient on pharmacy loaner cuff/RPM program
2. Counseled patient on self-monitoring, hypertension management.
3. Demonstrate how to use a cuff or check for cuff accuracy
4. Referred patient to primary care provider for follow-up
5. Contacted patient's primary care provider with recommendation(s)
6. Other: please describe

Community Referral Resources Validation (SDOH) Target: ONCE PER ROTATION

Date	Community Referral Resources Validated	Action taken (see codes below and list all that apply)	Relevant notes:
	Y/N		

1. Validation details sent to jrue@aboutthepatient.net
2. Spoke directly to a staff member at the community resource
3. Validated housing assistance referral resource
4. Validated food assistance referral resource
5. Validated transportation assistance referral resource
6. Validated utilities assistance referral resource
7. Validated safety assistance referral resource

Pharmacist Patient Care Process

Pharmacists' Patient Care Process

May 29, 2014

Joint Commission of Pharmacy Practitioners

The Joint Commission of Pharmacy Practitioners (JCPP) was established in 1977 and serves as a forum on matters of common interest and concern to national organizations of pharmacy practitioners and invited liaison members. JCPP Members are: the Academy of Managed Care Pharmacy, the Accreditation Council for Pharmacy Education, the American Association of Colleges of Pharmacy, the American College of Apothecaries, the American College of Clinical Pharmacy, the American Pharmacists Association, the American Society of Consultant Pharmacists, the American Society of Health-System Pharmacists, the National Alliance of State Pharmacy Associations, the National Association of Boards of Pharmacy, and the National Community Pharmacists Association.

Organizations participating on the Pharmacists' Patient Care Process Workgroup include:

- Academy of Managed Care Pharmacy
- Accreditation Council for Pharmacy Education
- American Association of Colleges of Pharmacy
- American College of Clinical Pharmacy
- American Pharmacists Association
- American Society of Consultant Pharmacists
- American Society of Health-System Pharmacists
- Food Marketing Institute
- National Association of Chain Drug Stores
- National Alliance of State Pharmacy Associations
- National Community Pharmacists Association

The Pharmacists' Patient Care Process is supported by the following organizations:

- Academy of Managed Care Pharmacy
- Accreditation Council for Pharmacy Education
- American Association of Colleges of Pharmacy
- American College of Apothecaries
- American College of Clinical Pharmacy
- American Pharmacists Association
- American Society of Consultant Pharmacists
- American Society of Health-System Pharmacists
- Food Marketing Institute
- National Alliance of State Pharmacy Associations
- National Association of Boards of Pharmacy
- National Association of Chain Drug Stores
- National Community Pharmacists Association

Pharmacists' Patient Care Process

The goal of high quality, cost-effective and accessible health care for patients is achieved through teambased patient-centered care. Pharmacists are essential members of the health care team. The profession of pharmacy is continuing its evolution from a principal focus on medication product distribution to expanded clinically-oriented patient care services. As a result of this professional evolution, the importance of, and need for, a consistent process of care in the delivery of patient care services has been increasingly recognized by the profession at large.

Pharmacists have unique training and expertise in the appropriate use of medications and provide a wide array of patient care services in many different practice settings. These services reduce adverse drug events, improve patient safety, and optimize medication use and health outcomes. Pharmacists contribute to improving patients' health by providing patient care services as authorized under their scope of practice and facilitated by collaborative practice agreements. The foundation for the pharmacist's patient care process is embedded within the pharmaceutical care model developed by Hepler and Strand in the 1990s. However, there is variability in how this process is taught and practiced. To promote consistency across the profession, national pharmacy associations used a consensus-based approach to articulate the patient care process for pharmacists to use as a framework for delivering patient care in any practice setting.

The pharmacists' patient care process described in this document was developed by examining a number of key source documents on pharmaceutical care and medication therapy management.[1-6] Patient care process components in each of these resources were catalogued and compared to create the following process that encompasses a contemporary and comprehensive approach to patient-centered care that is delivered in collaboration with other members of the health care team.

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[1] Cipolle RJ, Strand LM, Morley PC. Pharmaceutical Care Practice: The Patient Centered Approach to Medication Management, 3rd ed. New York: McGraw-Hill; 2012.

[2] McInnis T, Webb CE, Strand LM. The Patient-Centered Medical Home: Integrating Comprehensive Medication Management to Optimize Patient Outcomes, Patient-Centered Primary Care Collaborative, June 2012. Available at: http://www.pcpcc.org/sites/default/files/media/medmanagement.pdf. Accessed May 17, 2014.

[3] American Pharmacists Association; National Association of Chain Drug Stores Foundation. Medication Therapy Management in Pharmacy Practice: Core Elements of an MTM Service Model. Version 2.0. J Am Pharm Assoc (2003). 2008;48:341-353.

[4] Bluml BM. Definition of medication therapy management: development of profession wide consensus. J Am Pharm Assoc (2003).2005;45(5):566-72.

[5] Patient Protection and Affordable Care Act, Pub. L. No. 111-148, §2702, 124 Stat. 119, 318-319 (2010). http://www.gpo.gov/fdsys/pkg/PLAW-111publ148/html/PLAW-111publ148.htm. Accessed May 17, 2014.

[6] Council on Credentialing in Pharmacy. Scope of Contemporary Pharmacy Practice: Roles, Responsibilities, and Functions of Pharmacists and Pharmacy Technicians: J Am Pharm Assoc (2003). 2010;50:e35-e69.

Pharmacists' Patient Care Process

Pharmacists use a patient-centered approach in collaboration with other providers on the health care team to optimize patient health and medication outcomes. An essential first step is the establishment of a patient–pharmacist relationship that supports engagement and effective communication with patients, families, and caregivers throughout the process. In addition, at the core of the process, pharmacists continually collaborate, document, and communicate with physicians, other pharmacists, and other health care professionals in the provision of safe, effective, and coordinated care. This process is enhanced through the use of interoperable information technology systems that facilitate efficient and effective communication among all individuals involved in patient care. (Figure 1).

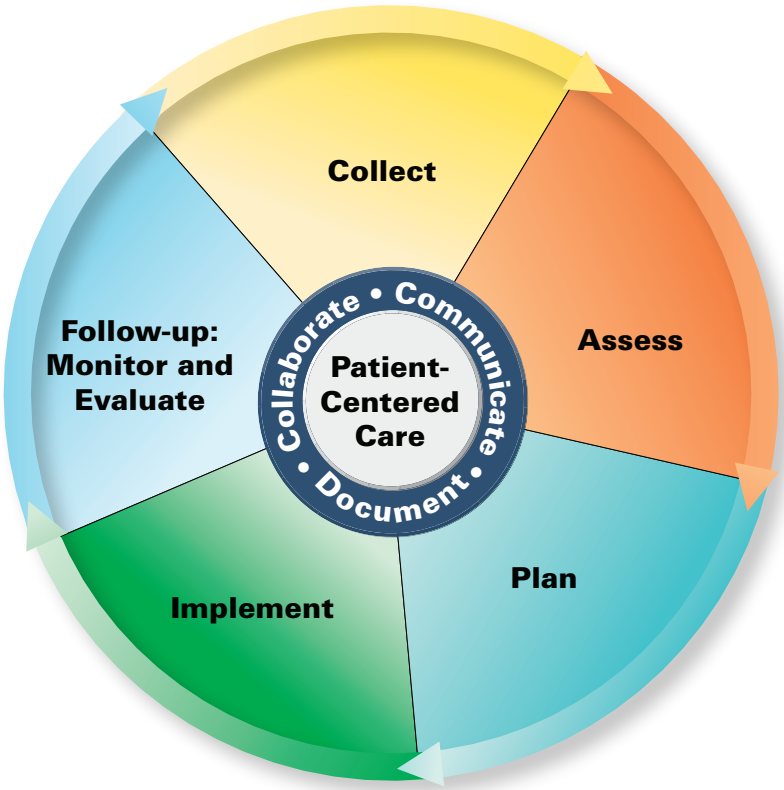

Figure 1: Pharmacists' patient care process

Pharmacists' Patient Care Process
Pharmacists use a patient-centered approach in collaboration with other providers on the health care team to optimize patient health and medication outcomes.

Using principles of evidence-based practice, pharmacists:

Collect
The pharmacist assures the collection of the necessary subjective and objective information about the patient in order to understand the relevant medical/medication history and clinical status of the patient.

Assess
The pharmacist assesses the information collected and analyzes the clinical effects of the patient's therapy in the context of the patient's overall health goals in order to identify and prioritize problems and achieve optimal care.

Plan
The pharmacist develops an individualized patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective.

Implement
The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver.

Follow-up: Monitor and Evaluate
The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed.

Using principles of evidence-based practice, pharmacists:

A. Collect

The pharmacist assures the collection of necessary subjective and objective information about the patient in order to understand the relevant medical/medication history and clinical status of the patient. Information may be gathered and verified from multiple sources including existing patient records, the patient, and other health care professionals. This process includes collecting:

- A current medication list and medication use history for prescription and nonprescription medications, herbal products, and other dietary supplements
- Relevant health data that may include medical history, health and wellness information, biometric test results, and physical assessment findings
- Patient lifestyle habits, preferences and beliefs, health and functional goals, and socioeconomic factors that affect access to medications and other aspects of care

B. Assess

The pharmacist assesses the information collected and analyzes the clinical effects of the patient's therapy in the context of the patient's overall health goals in order to identify and prioritize problems and achieve optimal care. This process includes assessing:

- Each medication for appropriateness, effectiveness, safety, and patient adherence
- Health and functional status, risk factors, health data, cultural factors, health literacy, and access to medications or other aspects of care
- Immunization status and the need for preventive care and other health care services, where appropriate

C. Plan

The pharmacist develops an individualized patient-centered care plan, in collaboration with other health care professionals and the patient or caregiver that is evidence-based and cost-effective. This process includes establishing a care plan that:

- Addresses medication-related problems and optimizes medication therapy
- Sets goals of therapy for achieving clinical outcomes in the context of the patient's overall health care goals and access to care
- Engages the patient through education, empowerment, and self-management
- Supports care continuity, including follow-up and transitions of care as appropriate

D. Implement

The pharmacist implements the care plan in collaboration with other health care professionals and the patient or caregiver. During the process of implementing the care plan, the pharmacist:

- Addresses medication- and health-related problems and engages in preventive care strategies, including vaccine administration
- Initiates, modifies, discontinues, or administers medication therapy as authorized
- Provides education and self-management training to the patient or caregiver
- Contributes to coordination of care, including the referral or transition of the patient to another health care professional
- Schedules follow-up care as needed to achieve goals of therapy

E. Follow-up: Monitor and Evaluate

The pharmacist monitors and evaluates the effectiveness of the care plan and modifies the plan in collaboration with other health care professionals and the patient or caregiver as needed. This process includes the continuous monitoring and evaluation of:

- Medication appropriateness, effectiveness, and safety and patient adherence through available health data, biometric test results, and patient feedback
- Clinical endpoints that contribute to the patient's overall health
- Outcomes of care, including progress toward or the achievement of goals of therapy

Immunization Resources

COVID-19 vaccination recommendations have changed. Find the latest recommendations at www.cdc.gov/covidschedule

Recommended Adult Immunization Schedule for ages 19 years or older 2023

How to use the adult immunization schedule

1. Determine recommended vaccinations by age **(Table 1)**
2. Assess need for additional recommended vaccinations by medical condition or other indication **(Table 2)**
3. Review vaccine types, dosing frequencies and intervals, and considerations for special situations **(Notes)**
4. Review contraindications and precautions for vaccine types **(Appendix)**

Vaccines in the Adult Immunization Schedule*

Vaccine	Abbreviation(s)	Trade name(s)
COVID-19 vaccine	1vCOV-mRNA	Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine SPIKEVAX®/Moderna COVID-19 Vaccine
	2vCOV-mRNA	Pfizer-BioNTech COVID-19 Vaccine, Bivalent Moderna COVID-19 Vaccine, Bivalent
	1vCOV-aPS	Novavax COVID-19 Vaccine
Haemophilus influenzae type b vaccine	Hib	ActHIB® Hiberix® PedvaxHIB®
Hepatitis A vaccine	HepA	Havrix® Vaqta®
Hepatitis A and hepatitis B vaccine	HepA-HepB	Twinrix®
Hepatitis B vaccine	HepB	Engerix-B® Heplisav-B® PreHevbrio® Recombivax HB®
Human papillomavirus vaccine	HPV	Gardasil 9®
Influenza vaccine (inactivated)	IIV4	Many brands
Influenza vaccine (live, attenuated)	LAIV4	FluMist® Quadrivalent
Influenza vaccine (recombinant)	RIV4	Flublok® Quadrivalent
Measles, mumps, and rubella vaccine	MMR	M-M-R II® Priorix®
Meningococcal serogroups A, C, W, Y vaccine	MenACWY-D MenACWY-CRM MenACWY-TT	Menactra® Menveo® MenQuadfi®
Meningococcal serogroup B vaccine	MenB-4C MenB-FHbp	Bexsero® Trumenba®
Pneumococcal conjugate vaccine	PCV15 PCV20	Vaxneuvance™ Prevnar 20™
Pneumococcal polysaccharide vaccine	PPSV23	Pneumovax 23®
Poliovirus vaccine	IPV	IPOL®
Tetanus and diphtheria toxoids	Td	Tenivac® Tdvax™
Tetanus and diphtheria toxoids and acellular pertussis vaccine	Tdap	Adacel® Boostrix®
Varicella vaccine	VAR	Varivax®
Zoster vaccine, recombinant	RZV	Shingrix

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American College of Physicians (www.acponline.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), American Pharmacists Association (www.pharmacist.com), and Society for Healthcare Epidemiology of America (www.shea-online.org).

Report

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to the local or state health department
- Clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or 800-822-7967

Injury claims

All vaccines included in the adult immunization schedule except PPSV23, RZV, and COVID-19 vaccines are covered by the National Vaccine Injury Compensation Program (VICP). COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

Questions or comments

Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636), in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays.

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.

Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- *General Best Practice Guidelines for Immunization* (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
- Manual for the Surveillance of Vaccine-Preventable Diseases (including case identification and outbreak response): www.cdc.gov/vaccines/pubs/surv-manual
- Travel vaccine recommendations: www.cdc.gov/travel
- Recommended Child and Adolescent Immunization Schedule, United States, 2023: www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
- ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/acip/acip-scdm-faqs.html

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Scan QR code for access to online schedule

CS310021-C

Table 1

COVID-19 vaccination recommendations have changed. Find the latest recommendations at www.cdc.gov/covidschedule

Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

Vaccine	19–26 years	27–49 years	50–64 years	≥65 years
COVID-19	2- or 3- dose primary series and booster (See Notes)			
Influenza inactivated (IIV4) or **Influenza recombinant** (RIV4)	1 dose annually			
or	or			
Influenza live, attenuated (LAIV4)	1 dose annually			
Tetanus, diphtheria, pertussis (Tdap or Td)	1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)			
	1 dose Tdap, then Td or Tdap booster every 10 years			
Measles, mumps, rubella (MMR)	1 or 2 doses depending on indication (if born in 1957 or later)			For healthcare personnel, see notes
Varicella (VAR)	2 doses (if born in 1980 or later)		2 doses	
Zoster recombinant (RZV)	2 doses for immunocompromising conditions (see notes)		2 doses	
Human papillomavirus (HPV)	2 or 3 doses depending on age at initial vaccination or condition	27 through 45 years		
Pneumococcal (PCV15, PCV20, PPSV23)	1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)			See Notes
				See Notes
Hepatitis A (HepA)	2, 3, or 4 doses depending on vaccine			
Hepatitis B (HepB)	2, 3, or 4 doses depending on vaccine or condition			
Meningococcal A, C, W, Y (MenACWY)	1 or 2 doses depending on indication, see notes for booster recommendations			
Meningococcal B (MenB)	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations			
	19 through 23 years			
***Haemophilus influenzae* type b** (Hib)	1 or 3 doses depending on indication			

- Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection
- Recommended vaccination for adults with an additional risk factor or another indication
- Recommended vaccination based on shared clinical decision-making
- No recommendation/ Not applicable

Table 2 Recommended Adult Immunization Schedule by Medical Condition or Other Indication, United States, 2023

Vaccine	Pregnancy	Immuno-compromised (excluding HIV infection)	HIV infection CD4 percentage and count		Asplenia, complement deficiencies	End-stage renal disease, or on hemodialysis	Heart or lung disease; alcoholism[a]	Chronic liver disease	Diabetes	Health care personnel[b]	Men who have sex with men
			<15% or <200 mm³	≥15% and ≥200 mm³							
COVID-19		See Notes									
IIV4 or RIV4	1 dose annually										
or										or	
LAIV4	Contraindicated							Precaution		1 dose annually	
Tdap or Td	1 dose Tdap each pregnancy	1 dose Tdap, then Td or Tdap booster every 10 years									
MMR	Contraindicated*	Contraindicated		1 or 2 doses depending on indication							
VAR	Contraindicated*	Contraindicated			2 doses						
RZV		2 doses at age ≥19 years			2 doses at age ≥50 years						
HPV	Not Recommended*	3 doses through age 26 years			2 or 3 doses through age 26 years depending on age at initial vaccination or condition						
Pneumococcal (PCV15, PCV20, PPSV23)		1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)									
HepA					2, 3, or 4 doses depending on vaccine						
HepB	3 doses (see notes)	2, 3, or 4 doses depending on vaccine or condition									
MenACWY	1 or 2 doses depending on indication, see notes for booster recommendations										
MenB	Precaution	2 or 3 doses depending on vaccine and indication, see notes for booster recommendations									
Hib		3 doses HSCT[c] recipients only			1 dose						

- Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection
- Recommended vaccination for adults with an additional risk factor or another indication
- Recommended vaccination based on shared clinical decision-making
- Precaution–vaccination might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended–vaccine should not be administered.

*Vaccinate after pregnancy.

- No recommendation/ Not applicable

a. Precaution for LAIV4 does not apply to alcoholism. **b.** See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. **c.** Hematopoietic stem cell transplant.

Notes

COVID-19 vaccination recommendations have changed. Find the latest recommendations at www.cdc.gov/covidschedule

Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

For vaccine recommendations for persons 18 years of age or younger, see the Recommended Child and Adolescent Immunization Schedule.

COVID-19 vaccination

Routine vaccination

- **Primary series:** 2-dose series at 0, 4-8 weeks (Moderna) or 2-dose series at 0, 3-8 weeks (Novavax, Pfizer-BioNTech)
- **Booster dose:** see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html

Special situations

Persons who are moderately or severely immunocompromised

- **Primary series**
  - 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)
  - 2-dose series at 0, 3 weeks (Novavax)
- **Booster dose:** see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html
- **Pre-exposure prophylaxis (e.g., monoclonal antibodies)** may be considered to complement COVID-19 vaccination. See www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#immunocompromised

For Janssen COVID-19 Vaccine recipients see COVID-19 schedule at www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html.

Note: Current COVID-19 schedule available at www.cdc.gov/vaccines/covid-19/downloads/COVID-19-immunization-schedule-ages-6months-older.pdf. For more information on Emergency Use Authorization (EUA) indications for COVID-19 vaccines, please visit www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines

Haemophilus influenzae type b vaccination

Special situations

- **Anatomical or functional asplenia (including sickle cell disease):** 1 dose if previously did not receive Hib; if elective splenectomy, 1 dose preferably at least 14 days before splenectomy
- **Hematopoietic stem cell transplant (HSCT):** 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

Routine vaccination

- **Not at risk but want protection from hepatitis A** (identification of risk factor not required): 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

Special situations

- **At risk for hepatitis A virus infection:** 2-dose series HepA or 3-dose series HepA-HepB as above
  - **Chronic liver disease** (e.g., persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - **HIV infection**
  - **Men who have sex with men**
  - **Injection or noninjection drug use**
  - **Persons experiencing homelessness**
  - **Work with hepatitis A virus** in research laboratory or with nonhuman primates with hepatitis A virus infection
  - **Travel in countries with high or intermediate endemic hepatitis A** (HepA-HepB [Twinrix] may be administered on an accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months)
  - **Close, personal contact with international adoptee** (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee's arrival)
  - **Pregnancy** if at risk for infection or severe outcome from infection during pregnancy
  - **Settings for exposure,** including health care settings targeting services to injection or noninjection drug users or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

Hepatitis B vaccination

Routine vaccination

- **Age 19 through 59 years: complete a 2- or 3- or 4-dose series**
  - 2-dose series only applies when 2 doses of Heplisav-B* are used at least 4 weeks apart
  - 3-dose series Engerix-B, PreHevbrio*, or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks])
  - 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])
  - 4-dose series HepA-HepB (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months

*__Note:__ Heplisav-B and PreHevbrio are not recommended in pregnancy due to lack of safety data in pregnant persons.

Notes

- **Age 60 years or older with** known risk factors for hepatitis B virus infection **should** complete a HepB vaccine series.
- **Age 60 years or older without** known risk factors for hepatitis B virus infection **may** complete a HepB vaccine series.
  - **Risk factors for hepatitis B virus infection include:**
    - **Chronic liver disease** (e.g., persons with hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice upper limit of normal)
    - **HIV infection**
    - **Sexual exposure risk** (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive persons; sexually active persons not in mutually monogamous relationships; persons seeking evaluation or treatment for a sexually transmitted infection; men who have sex with men)
    - **Current or recent injection drug use**
    - **Percutaneous or mucosal risk for exposure to blood** (e.g., household contacts of HBsAg-positive persons; residents and staff of facilities for developmentally disabled persons; health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids; persons on maintenance dialysis, including in-center or home hemodialysis and peritoneal dialysis, and persons who are predialysis; patients with diabetes)
    - **Incarceration**
    - **Travel in countries with high or intermediate endemic hepatitis B**

Special situations

- **Patients on dialysis:** complete a 3- or 4-dose series
  - 3-dose series Recombivax HB at 0, 1, 6 months (note: use Dialysis Formulation 1 mL = 40 mcg)
  - 4-dose series Engerix-B at 0, 1, 2, and 6 months (note: use 2 mL dose instead of the normal adult dose of 1 mL)

Human papillomavirus vaccination

Routine vaccination

- **HPV vaccination recommended for all persons through age 26 years:** 2- or 3-dose series depending on age at initial vaccination or condition:
  - **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
  - **Age 9–14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart:** 1 additional dose
  - **Age 9–14 years at initial vaccination and received 2 doses at least 5 months apart:** HPV vaccination series complete, no additional dose needed
- **Interrupted schedules:** If vaccination schedule is interrupted, the series does not need to be restarted
- **No additional dose recommended when any HPV vaccine series has been completed using the recommended dosing intervals.**

Shared clinical decision-making

- **Some adults age 27–45 years:** Based on shared clinical decision-making, 2- or 3-dose series as above

Special situations

- **Age ranges recommended above for routine and catch-up vaccination or shared clinical decision-making also apply in special situations**
  - **Immunocompromising conditions, including HIV infection**: 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
  - **Pregnancy**: Pregnancy testing is not needed before vaccination; HPV vaccination is not recommended until after pregnancy; no intervention needed if inadvertently vaccinated while pregnant

Influenza vaccination

Routine vaccination

- **Age 19 years or older:** 1 dose any influenza vaccine appropriate for age and health status annually.
  - **Age 65 years or older:** Any one of quadrivalent high-dose inactivated influenza vaccine (HD-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (aIIV4) is preferred. If none of these three vaccines is available, then any other age-appropriate influenza vaccine should be used.
- For the 2022–2023 season, see www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm
- For the 2023–2024 season, see the 2023–2024 ACIP influenza vaccine recommendations.

Special situations

- **Egg allergy, hives only:** any influenza vaccine appropriate for age and health status annually
- **Egg allergy–any symptom other than hives** (e.g., angioedema, respiratory distress or required epinephrine or another emergency medical intervention): Any influenza vaccine appropriate for age and health status may be administered. If using egg-based IIV4 or LAIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions.
- **Close contacts (e.g., caregivers, healthcare workers) of severely immunosuppressed persons who require a protected environment:** these persons should not receive LAIV4. If LAIV4 is given, they should avoid contact with/caring for such immunosuppressed persons for 7 days after vaccination.
- **Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine:** see Appendix listing contraindications and precautions

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- **History of Guillain-Barré syndrome within 6 weeks after previous dose of influenza vaccine:** Generally, should not be vaccinated unless vaccination benefits outweigh risks for those at higher risk for severe complications from influenza

Measles, mumps, and rubella vaccination

Routine vaccination

- **No evidence of immunity to measles, mumps, or rubella:** 1 dose
  - **Evidence of immunity:** Born before 1957 (health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- **Pregnancy with no evidence of immunity to rubella:** MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose
- **Nonpregnant persons of childbearing age with no evidence of immunity to rubella:** 1 dose
- **HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm³
- **Severe immunocompromising conditions:** MMR contraindicated
- **Students in postsecondary educational institutions, international travelers, and household or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR
- **In mumps outbreak settings,** for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm
- **Health care personnel:**
  - **Born before 1957 with no evidence of immunity to measles, mumps, or rubella:** Consider 2-dose series at least 4 weeks apart for protection against measles or mumps or 1 dose for protection against rubella
  - **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella:** 2-dose series at least 4 weeks apart for protection against measles or mumps or at least 1 dose for protection against rubella

Meningococcal vaccination

Special situations for MenACWY

- **Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:** 2-dose series MenACWY-D (Menactra, Menveo, or MenQuadfi) at least 8 weeks apart and revaccinate every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, or microbiologists routinely exposed to *Neisseria meningitidis*:** 1 dose MenACWY (Menactra, Menveo, or MenQuadfi) and revaccinate every 5 years if risk remains
- **First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:** 1 dose MenACWY (Menactra, Menveo, or MenQuadfi)
- For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Shared clinical decision-making for MenB

- **Adolescents and young adults age 16–23 years (age 16–18 years preferred) not at increased risk for meningococcal disease:** Based on shared clinical decision-making, 2-dose series MenB-4C (Bexsero) at least 1 month apart or 2-dose series MenB-FHbp (Trumenba) at 0, 6 months (if dose 2 was administered less than 6 months after dose 1, administer dose 3 at least 4 months after dose 2); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series)

Special situations for MenB

- **Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, or microbiologists routinely exposed to *Neisseria meningitidis*:** 2-dose primary series MenB-4C (Bexsero) at least 1 month apart or 3-dose primary series MenB-FHbp (Trumenba) at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a fourth dose should be administered at least 4 months after dose 3); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series); 1 dose MenB booster 1 year after primary series and revaccinate every 2–3 years if risk remains
- **Pregnancy:** Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks
- For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.

Notes

Pneumococcal vaccination

Routine vaccination

- **Age 65 years or older who have:**
  - **Not previously received a dose of PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown:** 1 dose PCV15 OR 1 dose PCV20. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak to minimize the risk of invasive pneumococcal disease caused by serotypes unique to PPSV23 in these vulnerable groups.
  - **Previously received only PCV7:** follow the recommendation above.
  - **Previously received only PCV13:** 1 dose PCV20 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
  - **Previously received only PPSV23:** 1 dose PCV15 OR 1 dose PCV20 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.
  - **Previously received both PCV13 and PPSV23 but NO PPSV23 was received at age 65 years or older:** 1 dose PCV20 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
  - **Previously received both PCV13 and PPSV23, AND PPSV23 was received at age 65 years or older:** Based on shared clinical decision-making, 1 dose of PCV20 at least 5 years after the last pneumococcal vaccine dose.
- For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app which can be downloaded here: www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

Special situations

- **Age 19–64 years with certain underlying medical conditions or other risk factors** who have**
  - **Not previously received a PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown:** 1 dose PCV15 OR 1 dose PCV20. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak
  - **Previously received only PCV7:** follow the recommendation above.
  - **Previously received only PCV13:** 1 dose PCV20 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
  - **Previously received only PPSV23:** 1 dose PCV15 OR 1 dose PCV20 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.
  - **Previously received both PCV13 and PPSV23 but have not completed the recommended series:** 1 dose PCV20 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.
- For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app which can be downloaded here: www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

*__Note:__ Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, human immunodeficiency virus, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplants, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies.

**__Note:__ Underlying medical conditions or other risk factors include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV, Hodgkin disease, immunodeficiency, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplants, or sickle cell disease or other hemoglobinopathies.

Polio vaccination

Routine vaccination

Routine poliovirus vaccination of adults residing in the United States is not necessary.

Special situations

- **Adults at increased risk of exposure to poliovirus with:**
  - No evidence of a complete polio vaccination series (i.e., at least 3 doses): administer remaining doses (1, 2, or 3 doses) to complete a 3-dose series
  - Evidence of completed polio vaccination series (i.e., at least 3 doses): may administer one lifetime IPV booster

For detailed information, see: www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html

Notes

Tetanus, diphtheria, and pertussis vaccination

Routine vaccination

- **Previously did not receive Tdap at or after age 11 years:** 1 dose Tdap, then Td or Tdap every 10 years

Special situations

- **Previously did not receive primary vaccination series for tetanus, diphtheria, or pertussis:** 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks later, and a third dose of Td or Tdap 6–12 months later (Tdap can be substituted for any Td dose, but preferred as first dose), Td or Tdap every 10 years thereafter
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- **Wound management:** Persons with 3 or more doses of tetanus-toxoid-containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus-toxoid-containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus-toxoid-containing vaccine. Tdap is preferred for persons who have not previously received Tdap or whose Tdap history is unknown. If a tetanus-toxoid-containing vaccine is indicated for a pregnant woman, use Tdap. For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm

Varicella vaccination

Routine vaccination

- **No evidence of immunity to varicella:** 2-dose series 4–8 weeks apart if previously did not receive varicella-containing vaccine (VAR or MMRV [measles-mumps-rubella-varicella vaccine] for children); if previously received 1 dose varicella-containing vaccine, 1 dose at least 4 weeks after first dose
  - **Evidence of immunity:** U.S.-born before 1980 (except for pregnant persons and health care personnel [see below]), documentation of 2 doses varicella-containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease

Special situations

- **Pregnancy with no evidence of immunity to varicella:** VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose if previously received 1 dose varicella-containing vaccine or dose 1 of 2-dose series (dose 2: 4–8 weeks later) if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **Health care personnel with no evidence of immunity to varicella:** 1 dose if previously received 1 dose varicella-containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- **HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm^3 with no evidence of immunity:** Vaccination may be considered (2 doses 3 months apart); VAR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm^3
- **Severe immunocompromising conditions:** VAR contraindicated

Zoster vaccination

Routine vaccination

- **Age 50 years or older*:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of zoster vaccine live (ZVL, Zostavax) vaccination.

***Note:** Serologic evidence of prior varicella is not necessary for zoster vaccination. However, if serologic evidence of varicella susceptibility becomes available, providers should follow ACIP guidelines for varicella vaccination first. RZV is not indicated for the prevention of varicella, and there are limited data on the use of RZV in persons without a history of varicella or varicella vaccination.

Special situations

- **Pregnancy:** There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy.
- **Immunocompromising conditions (including persons with HIV regardless of CD4 count)**:** 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon). For detailed information, see www.cdc.gov/shingles/vaccination/immunocompromised-adults.html

****Note:** If there is no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the clinical considerations for use of RZV in immunocompromised adults aged ≥19 years and the ACIP varicella vaccine recommendations for further guidance: www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm

Appendix Recommended Adult Immunization Schedule, United States, 2023

Guide to Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4-1 in Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html *and ACIP's Recommendations for the Prevention and Control of 2022-23 Seasonal Influenza with Vaccines available at www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm*

For COVID-19 vaccine contraindications and precautions see
www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications

Vaccine	Contraindicated or Not Recommended[1]	Precautions[2]
Influenza, egg-based, inactivated injectable (IIV4)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[3] (excluding egg)	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Moderate or severe acute illness with or without fever
Influenza, cell culture-based inactivated injectable [(ccIIV4), Flucelvax® Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component[3] of ccIIV4	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, RIV, or LAIV of any valency. If using ccIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, recombinant injectable [(RIV4), Flublok® Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component[3] of RIV4	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, live attenuated [LAIV4, Flumist® Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[3] (excluding egg) • Anatomic or functional asplenia • Immunocompromised due to any cause including, but not limited to, medications and HIV infection • Close contacts or caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Cochlear implant • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear, or any other cranial CSF leak • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days.	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons aged 5 years old or older • Persons with underlying medical conditions (other than those listed under contraindications) that might predispose to complications after wild-type influenza virus infection [e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus)] • Moderate or severe acute illness with or without fever

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states.

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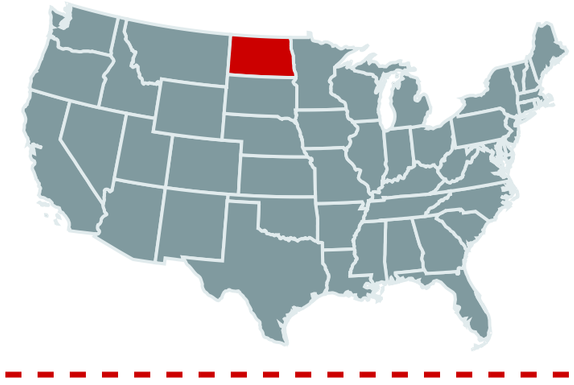
Vaccine	Contraindicated or Not Recommended[1]	Precautions[2]
Haemophilus influenzae type b (Hib)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For Hiberix, ActHib, and PedvaxHIB only: History of severe allergic reaction to dry natural latex	• Moderate or severe acute illness with or without fever
Hepatitis A (HepA)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin	• Moderate or severe acute illness with or without fever
Hepatitis B (HepB)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including yeast • *Pregnancy: Heplisav-B and PreHevbrio are not recommended due to lack of safety data in pregnant persons. Use other hepatitis B vaccines if HepB is indicated*[4]	• Moderate or severe acute illness with or without fever
Hepatitis A- Hepatitis B vaccine [HepA-HepB, (Twinrix®)]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] including neomycin and yeast	• Moderate or severe acute illness with or without fever
Human papillomavirus (HPV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • *Pregnancy: HPV vaccination not recommended*	• Moderate or severe acute illness with or without fever
Measles, mumps, rubella (MMR)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent	• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) • History of thrombocytopenia or thrombocytopenic purpura • Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing • Moderate or severe acute illness with or without fever
Meningococcal ACWY (MenACWY) [MenACWY-CRM (Menveo®); MenACWY-D (Menactra®); MenACWY-TT (MenQuadfi®)]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For MenACWY-D and MenACWY-CRM only: severe allergic reaction to any diphtheria toxoid–or CRM197–containing vaccine • For MenACWY-TT only: severe allergic reaction to a tetanus toxoid-containing vaccine	• Moderate or severe acute illness with or without fever
Meningococcal B (MenB) [MenB-4C (Bexsero); MenB-FHbp (Trumenba)]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Pregnancy • For MenB-4C only: Latex sensitivity • Moderate or severe acute illness with or without fever
Pneumococcal conjugate (PCV15, PCV20)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe allergic reaction (e.g., anaphylaxis) to any diphtheria-toxoid–containing vaccine or to its vaccine component[3]	• Moderate or severe acute illness with or without fever
Pneumococcal polysaccharide (PPSV23)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever
Tetanus, diphtheria, and acellular pertussis (Tdap) Tetanus, diphtheria (Td)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures), not attributable to another identifiable cause, within 7 days of administration of previous dose of DTP, DTaP, or Tdap	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus-toxoid–containing vaccine • History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-toxoid–containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid–containing vaccine • Moderate or severe acute illness with or without fever • For Tdap only: Progressive or unstable neurological disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized
Varicella (VAR)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3] • Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised) • Pregnancy • Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent	• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product) • Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination) • Use of aspirin or aspirin-containing products • Moderate or severe acute illness with or without fever
Zoster recombinant vaccine (RZV)	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component[3]	• Moderate or severe acute illness with or without fever • Current herpes zoster infection

1. When a contraindication is present, a vaccine should NOT be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states.
4. For information on the pregnancy exposure registries for persons who were inadvertently vaccinated with Heplisav-B or PreHevbrio while pregnant, please visit heplisavbpregnancyregistry.com/ or www.prehevbrio.com/#safety.

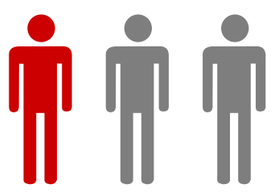
Hypertension and Self-Measured Blood Pressure Resources

Hypertension

Also known as high blood pressure and the "silent killer"



In North Dakota, 29.6% of adults have been told they have high blood pressure (2017)



1 in every 3 adults in the U.S. have high blood pressure

1 in every 5 adults in the U.S. with high blood pressure still don't know they have it

$48.6 billion is spent on high blood pressure every year in the U.S.

Keep your blood pressure in check:

Know Your Numbers

Have your blood pressure checked by a healthcare provider

Eat Healthy

Include more fruits and vegetables throughout the day and strive for 5 or more

Read food labels and limit sodium intake to:

- <2,300 mg/day (adults with normal BP)
- <1,500 mg/day (adults with high BP)

Category	Systolic		Diastolic
Normal	Less than 120	AND	Less than 80
Elevated	120-129	AND	Less than 80
Hypertension (1)	130-139	OR	80-89
Hypertension (2)	140 or higher	OR	90 or higher
Hypertension Crisis	Higher than 180	AND/OR	Higher than 120

* For adults ages 18 and older who are not on medicine for high blood pressure and do not have a short-term serious illness.
\+ If systolic and diastolic pressures fall into different categories, overall status is the higher category.
Source: 2017 Guidelines for Diagnosing, Treating and Living with High Blood Pressure, American Heart Association (AHA) Published: Nov. 13, 2017

Be Active and Maintain Healthy Weight

Physical activity helps manage blood pressure, maintain weight, and reduce stress

Quit Smoking and Reduce Alcohol Consumption

Smoking temporarily increases blood pressure for up to **20** minutes after each cigarette

Limit alcohol intake to no more than:

- 1 drink/day for women
- 2 drinks/day for men

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Heart Disease & Stroke prevention program

For more information please contact:
Heart Disease & Stroke Prevention Program
Division of Health Promotion
North Dakota Department of Health
Phone: 701.328.2367 or 800.280.5512 (in ND)
https://heartstroke.health.nd.gov

References: 1. Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System. (2017) North Dakota Core Questions Data Report.
2. Centers for Disease Control and Prevention, High Blood Pressure Facts. Retrieved from: https://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_bloodpressure.htm

Community Based Blood Pressure (BP) Screening Algorithm

Prior to Screening:

1. Individual in a seated position, legs uncrossed, and arm at heart level
2. Cuff should not be placed over any clothing
3. Observe level of noise in the room
4. Ask about previous BP dx and/or medications
5. Ask about factors affecting BP (coffee, exercise, anxiety, smoking in the last 30 minutes)

Wait 1 to 5 minutes

1st Blood Pressure Reading

Normal
<120/<80

Complete Screening
(Advise recheck again in 1 year)

Elevated BP
SBP 120-129 or DBP <80

Current HTN Diagnosis?
Discuss medication adherence and lifestyle modification.

No Diagnosis?
Discuss lifestyle modification and **schedule follow-up screening** at pharmacy.

Still elevated?
Assess patients interest in lifestyle modification. Refer patient to discuss with provider during next visit.

Hypertension Stage 1
SBP 130-139 or DBP 80-89

Current HTN Diagnosis?
Discuss medication adherence and lifestyle modification.
Schedule follow-up screening.
Recommend SMBP.

No Diagnosis?
Schedule follow-up screening at pharmacy.
If patient refuses, refer patient to provider.

Hypertension Stage 2
SBP ≥140 or DBP ≥90

Wait 1 to 5 minutes

2nd Blood Pressure Reading

Hypertension Stage 1
SBP 130-139 or DBP 80-89

Current HTN Diagnosis?
Discuss medication adherence and lifestyle modification.
Schedule follow-up screening.
Recommend SMBP.

No Diagnosis?
Schedule follow-up screening at pharmacy.
If patient refuses, refer patient to provider.

Hypertension Stage 2
SBP ≥140 or DBP ≥90

Current HTN Diagnosis?
Discuss medication adherence. Discuss SMBP with patient.
Contact provider with additional recommendations.

No Diagnosis?
Contact provider with recommendation.
Discuss SMBP with patient.

Hypertensive Crisis
SBP >180 and/or DBP >120

Contact provider immediately.
Determine if patient has a safe ride to the clinic or hospital.
If not, arrange for transportation.

Hypertensive Crisis
SBP >180 and/or DBP >120

Contact provider immediately.
Determine if patient has a safe ride to the clinic or hospital.
If not, arrange for transportation.

Did you contact a provider or need to follow-up with patient?
Ask the following questions:
- Was your health care provider seen?
- Has a new treatment plan been ordered?
- Is your blood pressure reduced or controlled?

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Heart Disease & Stroke prevention program

Measuring Blood Pressure
... the right way

Patients

1. Be Prepared

Before your appointment:

- Empty bladder and bowel
- Sit calmly for 5 minutes

Avoid 30 minutes before:

- Vigorous physical activity
- Coffee, caffeinated soda (regular or diet), alcohol or smoking

2. During Blood Pressure

Body Position:

1. Bare upper arm supported at heart level (resting on a desk or table)
2. Uncrossed legs
3. Both feet flat on the floor
4. Seated in a chair with back support

Do not talk!

Providers

Remember to:

1. Calibrate device regularly according to manufacturer's recommendations

2. Wash your hands

3. Choose the Proper Cuff Size

Cuff Sizes

Indication	Arm Circumference (in.)	Arm Circumference (cm)
Small Adult	9-10 in.	22-26 cm
Standard Adult	11-13 in.	27-34 cm
Large Adult	14-17 in.	35-44 cm
Adult Thigh	18-21 in.	45-52 cm

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BP interpretation tables
ACC/AHA 2017 Hypertension Guideline

Use this chart to reconcile in-office blood pressure (BP) and self-measured blood pressure (SMBP) measurements to classify and manage patients. All numbers are in mm Hg.

In-office BP average	SMBP average	Classification	Management
Less than 120/80	Less than 120/80	Normal blood pressure	Recheck BP in office in one year
120–129/less than 80	120–129/less than 80	Elevated BP	Healthy lifestyle changes and recheck SMBP every 3–6 months
Less than 130/80	Greater than or equal to 130/80	Masked hypertension	Manage as sustained hypertension due to increased cardiovascular risk or consider 24-hour ambulatory BP monitoring (ABPM)
Greater than or equal to 130/80	Less than 130/80	White coat hypertension	Recheck SMBP every six months
Greater than or equal to 130/80	120–129/less than 80	White coat hypertension and elevated BP	Healthy lifestyle changes and recheck SMBP every 3–6 months
Greater than or equal to 130/80	Greater than or equal to 130/80	Sustained hypertension	Manage per current hypertension guideline recommendations

What's Your Blood Pressure (BP)?

Your BP Reading Today:

Systolic Pressure
117
76
Diastolic Pressure

My Reading:

Is it right?
If your reading is higher than 120/80, follow up with your doctor.

What Your BP Numbers Mean:

Category	Systolic		Diastolic
Normal	Less than 120	AND	Less than 80
Elevated	120-129	AND	Less than 80
Hypertension (1)	130-139	OR	80-89

Keep up the great work!

If you have not been diagnosed with hypertension or have not had a doctor visit in the last 12 months: consult your doctor and consider weight reduction, physical activity, reducing salt intake, and quit smoking to lower your blood pressure.

Hypertension (2)	140 or higher	OR	90 or higher
Hypertension Crisis	Higher than 180	AND/OR	Higher than 120

If you have not been diagnosed with hypertension or have not had a doctor visit in the last 12 months:
please consult with your doctor as soon as possible.

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What is self-measured blood pressure?

Self-measured blood pressure (SMBP) is when you measure your blood pressure outside of the doctor's office or other health care settings.

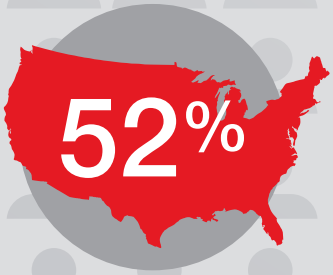
Why do I need to measure my blood pressure if it was already measured at the doctor's office?

SMBP allows you to measure at different times throughout the day and over a longer period of time, helping your doctor get a more complete picture of your blood pressure.

How does SMBP help improve my health?

By using SMBP you and your care team can come up with a treatment plan to better control your blood pressure, which can prevent more serious health problems.

The consequences of uncontrolled hypertension can be costly … and deadly.



of U.S. adults with high blood pressure do not have it under control

What do the numbers mean when I take a blood pressure reading?

Systolic blood pressure (SBP or SYS): Top number of your blood pressure measurement, indicates how much pressure your blood is exerting against your artery walls when the heart beats

Diastolic blood pressure (DBP or DIA): Bottom number of your blood pressure measurement, indicates how much pressure your blood is exerting against your artery walls while the heart is resting between beats

Pulse: Number of times the heart beats per minute

What are some important things to know before I start measuring my own blood pressure?

Use an SMBP device and blood pressure cuff that are recommended by your doctor or care team.

If you purchase your own device, ask your care team to check it for accuracy.

Understand the correct way to take a blood pressure reading.

Know when and how you will share your blood pressure readings with your doctor.

Make sure you have instructions from your care team on what to do if your blood pressure is out of the expected range.

How to measure your blood pressure at home

Follow these steps for an accurate blood pressure reading

1 PREPARE

Avoid caffeine, cigarettes and other stimulants 30 minutes before you measure your blood pressure.

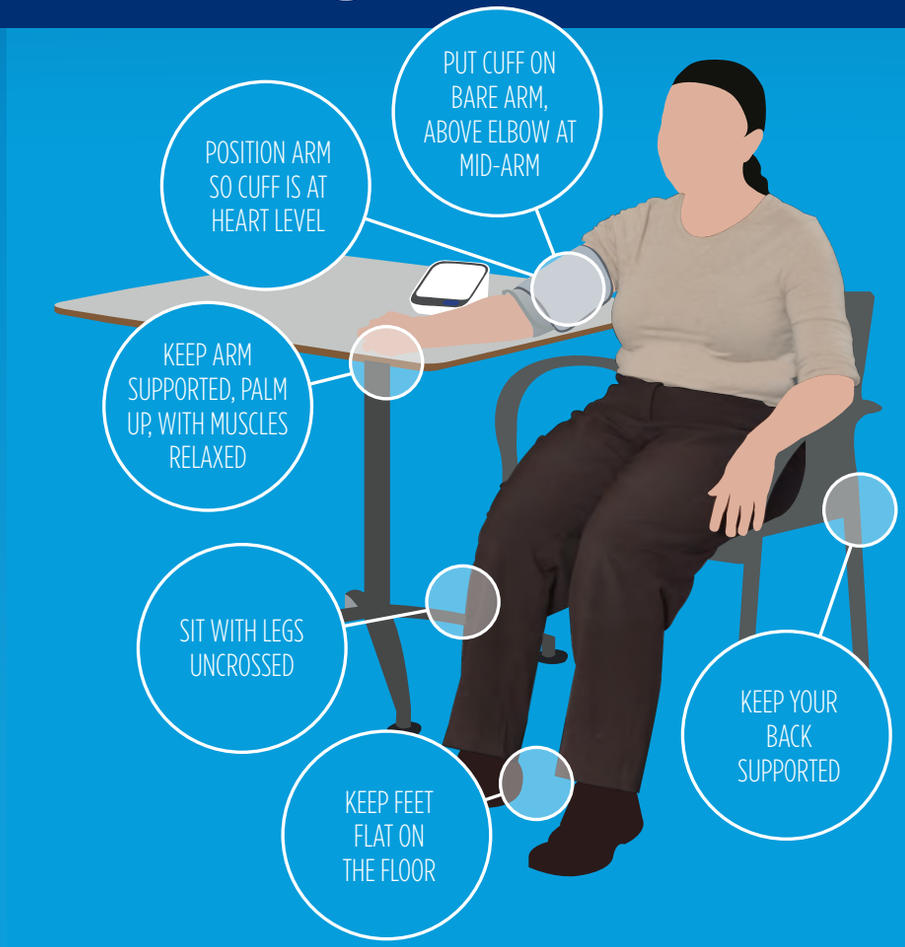
Wait at least 30 minutes after a meal.

If you're on blood pressure medication, measure your BP **before** you take your medication.

Empty your bladder beforehand.

Find a quiet space where you can sit comfortably without distraction.

2 POSITION



3 MEASURE

Rest for five minutes while in position before starting.

Take two or three measurements, one minute apart.

Keep your body relaxed and in position during measurements.

Sit quietly with no distractions during measurements—avoid conversations, TV, phones and other devices.

Record your measurements when finished.

AMA
AMERICAN MEDICAL ASSOCIATION

Self-measured blood pressure

Device accuracy test[1]

A patient's self-measured blood pressure (SMBP) monitoring device should be tested before it is used as part of an SMBP program. Also test the device annually or any time blood pressure readings are questionable.

Step 1

Complete the table below.
Care team should take five blood pressure readings using a combination of the patient's SMBP device and the office's method of blood pressure measurement.

Measurement	Device	Systolic blood pressure (SBP)
A	Patient's	
B	Patient's	
C	Office's	
D	Patient's	
E	Office's	

SBP Example
133
132
141
134
139

Step 2

Part 1: Average measurements B and D ☐

Part 2: Compare average of B and D to measurement C ☐

Part 3: If the *difference* is …

- **Less than 5 mm Hg**, this device can be used for SMBP
- **Between 6 and 10 mm Hg**, proceed to Step 3
- **Greater than 10 mm Hg**, *replace* the device before proceeding with your SMBP program

Example
Part 1: (132 + 134) / 2 = 133
Part 2: 133 - 141 = 8 (note: if the difference is a negative number, ignore the negative sign)
Part 3: Difference is 8, which is between 6 and 10 mm Hg, so proceed to Step 3

Step 3

Part 1: Average measurements C and E ☐

Part 2: Compare average of C and E to measurement D ☐

Part 3: If the *difference* is …

- **Less than or equal to 10 mm Hg**, this device can be used for SMBP
- **Greater than 10 mm Hg**, *replace* the device before proceeding with your SMBP program

Example
Part 1: (141 + 139) / 2 = 140
Part 2: 140 - 134 = 6 (note: if the difference is a negative number, ignore the negative sign)
Part 3: Difference is 6, which is less than or equal to 10 mm Hg, so proceed with SMBP program

1. Eguchi et al. A Novel and Simple Protocol for the Validation of Home Blood Pressure Monitors in Clinical Practice. *Blood Press Monit.* 2012;17(5):210-213.

Self-measured blood pressure: Seven-day recording log

Instructions: Complete the information below each time you take a measurement. It is best to take two measurements in the morning and two measurements in the evening for a week. If you miss any blood pressure measurements, leave that section blank and continue for the next time.

Blood pressure arm: Left or right (circle one)

Day 1 _____ (Date)	Day 2 _____ (Date)	Day 3 _____ (Date)	Day 4 _____ (Date)	Day 5 _____ (Date)	Day 6 _____ (Date)	Day 7 _____ (Date)
Morning ☀	Morning ☀	Morning ☀	Morning ☀	Morning ☀	Morning ☀	Morning ☀
1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA
PULSE	PULSE	PULSE	PULSE	PULSE	PULSE	PULSE
2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA
PULSE	PULSE	PULSE	PULSE	PULSE	PULSE	PULSE
Notes	Notes	Notes	Notes	Notes	Notes	Notes
Evening ☾	Evening ☾	Evening ☾	Evening ☾	Evening ☾	Evening ☾	Evening ☾
1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA	1 SYS / DIA
PULSE	PULSE	PULSE	PULSE	PULSE	PULSE	PULSE
2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA	2 SYS / DIA
PULSE	PULSE	PULSE	PULSE	PULSE	PULSE	PULSE
Notes	Notes	Notes	Notes	Notes	Notes	Notes

For office use

Patient name:

Patient ID:

PCP:

Total average: SYS / DIA

Report back results by:

- ☐ Appointment
- ☐ Phone
- ☐ Email
- ☐ Patient Portal
- ☐ Other

Important information

Please call your doctor's office if:

- **Your blood pressure is above _____ SYS or _____ DIA**
- **Your blood pressure is below _____ SYS or _____ DIA**
- **You have symptoms that concern you or have a question about your blood pressure.**

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Self-measured blood pressure

Using a wrist cuff to measure blood pressure*

*** When an upper arm cuff cannot be used, validated wrist devices can be used for blood pressure estimation.[1]**

Correct forearm position

for wrist blood pressure measurement

1. **Apply the wrist device**
2. **Keep elbow on table or desk with forearm bent**
3. **Place the wrist at heart level**
4. **Keep arm relaxed and hand resting against your body**
5. **Measure wrist blood pressure without moving arm from seated position**

Incorrect forearm position[2]

Wrist higher than heart level

Forearm in horizontal position

Forearm vertical and close to the body

1. Nerenberg K et al. Hypertension Canada's 2018 guidelines for diagnosis, risk, assessment, prevention, and treatment of hypertension in adults and children. *CJC*. www.onlinecjc.ca/article/S0828-282X(18)30183-1/fulltext. Accessed April 24, 2018.

2. Casiglia et al. Poor reliability of wrist blood pressure self-measurement at home: A population-based study. *Hypertension*. http://hyper.ahajournals.org/content/early/2016/08/22/HYPERTENSIONAHA.116.07961. Accessed April 24, 2018.

Self-measured blood pressure

Patient training checklist: Loaner device

Instructions: Use this checklist when training a patient how to perform self-measured blood pressure (SMBP) using a loaner device to ensure you cover all components.

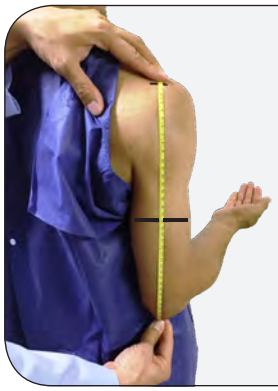
☐ **Gather supplies**
- ☐ Tape measure
- ☐ SMBP loaner device
- ☐ Blood pressure cuff
- ☐ Batteries or power cord
- ☐ What is SMBP? (PDF)
- ☐ SMBP infographic (PDF in English or Spanish)
- ☐ SMBP recording log (PDF)
- ☐ SMBP loaner device agreement (PDF)

☐ **Update "SMBP loaner device inventory management" sheet**

☐ **Provide background information on SMBP to the patient (if not explained by provider)**
- ☐ Explain how SMBP allows the provider to get a more accurate and complete picture of the patient's blood pressure outside of the office (more readings, over a longer period of time, in the patient's normal environment)

Tip: Hand out the "What is SMBP?" document.

☐ **Determine SMBP cuff size**
- ☐ Use tape measure to measure the circumference of patient's mid-upper arm in centimeters (see adjacent image)



Locate mid-upper arm

Using a measuring tape, place one end on bony prominence at the shoulder (acromion process) and measure length of arm to bony protuberance at the elbow (olecranon process). Divide this distance in half and that is the mid-upper arm where you should measure arm circumference for determining cuff size.

Source: https://wwwn.cdc.gov/nchs/data/nhanes/2017-2018/manuals/2017_Anthropometry_Procedures_Manual.pdf

☐ **Determine patient's blood pressure arm (if not currently identified)**
- ☐ Measure patient's blood pressure in each arm and use arm with higher reading for all future readings

☐ **Teach patient how to properly prepare for self-measurement**
- ☐ Avoid caffeine, tobacco and exercise for at least 30 minutes before measurement
- ☐ Empty bladder if full
- ☐ Take BP measurements before blood pressure medications

Tip: Show SMBP training video and hand out the SMBP infographic.

☐ **Teach patient proper positioning for self-measurement**

- ☐ Back supported
- ☐ Feet flat on the floor or a firm surface
- ☐ Legs uncrossed
- ☐ Cuff placed on bare upper arm
- ☐ Arm supported with middle of cuff at heart level

Tip: Refer to the SMBP video and/or infographic.

☐ **Teach patient how to use loaner device***

- ☐ How to turn on device
- ☐ How to start measurement
- ☐ How to troubleshoot

** Refer to device manual as needed.*

☐ **Teach patient how to properly self-measure**

- ☐ Rest quietly for five minutes
- ☐ Take two measurements, one minute apart
- ☐ Avoid conversations and electronic devices during measurement
- ☐ Perform this process once in the a.m. and once in the p.m. for seven consecutive days

Tip: Provide patient with link to SMBP training video to reference later (also available in Spanish).

☐ **Teach patient how to use SMBP recording log**

- ☐ Reminder: Staff to complete "For Office Use" section
- ☐ How to document systolic and diastolic blood pressure
- ☐ What to do if blood pressure is too high or too low
- ☐ What to do with log when week of measurements is complete

☐ **Use teach back or return demonstration methods to ensure patient understands how to properly self-measure**

☐ **Complete SMBP loaner device agreement**

☐ **Ensure all necessary office paperwork is complete**

Self-measured blood pressure monitoring

Loaner program agreement

FOR OFFICE STAFF

Lender information

Organization name

Address

Phone number

Equipment information

Device manufacturer and model

Device ID

Supplies (check all that apply):

- ☐ BP cuff (variable size)
- ☐ BP cuff (XL)
- ☐ Carrying case
- ☐ Batteries _____
- ☐ Power cord
- ☐ Other _____

Patient information

Name

Patient ID

Preferred contact information (phone or email)

Return by: _____/_____/_____
Month Day Year

☐ I agree to participate in the self-measured blood pressure device loaner program and follow the guidelines given to me.

☐ I agree to return this device in good working condition on or before its due date.

Patient signature Date

Self-measured blood pressure

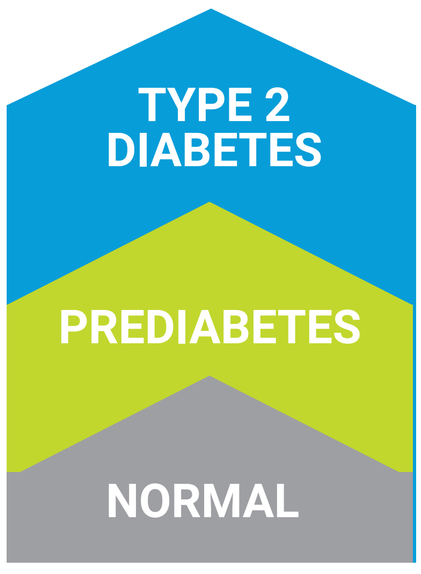
Inventory management: Loaner device tracking

For office use

Device information		Patient information			Loan information			Cleaning
Device ID	Cuff size	First name	Last name	Patient ID	Loan date	Due date	Return date	Date cleaned

Prediabetes Resources

Prediabetes THE BASICS



Prediabetes is a condition of elevated glucose above normal, but below the threshold for Type 2 Diabetes

Results Indicating Prediabetes	
A1C	5.7 - 6.4 %
Fasting Glucose	100 - 125 mg/dL
OGTT	140 - 199 mg/dL

Approximately **1:3** American adults have prediabetes
90% of those people do not know they have it

Risk Factors for Type 2 Diabetes

- Being Older than 45
- Having High Blood Pressure
- Being Overweight
- Gestational Diabetes
- Having a Family History
- Physical Inactivity

Without intervention, **5-10%** of prediabetes cases each year will progress to type 2 diabetes

Weight loss of 5-7%

can cut the risk type 2 diabetes in

HALF

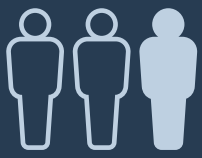
ROLE OF PHARMACY

SCREEN
patients >18 using the prediabetes risk test

CONTACT
PCP and recommend diagnostic testing

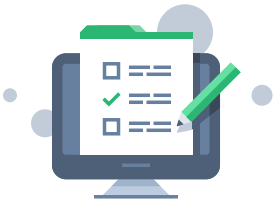
REFER
to the National DPP at www.NDC3.org

COULD YOU HAVE **PREDIABETES?**



More than **1 in 3** American adults have prediabetes, and most don't know they have it. Could this be you? Find out if you have prediabetes while waiting for your COVID-19 vaccination.

Having prediabetes means your blood glucose (sugar) levels are higher than normal but not high enough yet for a diagnosis of type 2 diabetes. Having prediabetes raises your risk of type 2 diabetes, heart disease, and stroke.



STEP 1

TAKE THE PREDIABETES RISK TEST

Take the **1-minute prediabetes risk test** today while getting your COVID-19 vaccination by using the QR code or URL below. The sooner you know you have prediabetes, the sooner you can take action to reverse it and prevent or delay type 2 diabetes.

www.cdc.gov/diabetes/risktest

SCAN ME

STEP 2

WHAT DOES YOUR SCORE MEAN?

If you scored **5 or higher** on the prediabetes risk test, you likely have prediabetes and are at increased risk for type 2 diabetes.

STEP 3

TALK TO YOUR PHARMACIST

Share your results with the pharmacist and ask about enrolling in the National DPP lifestyle change program. The best time for prevention is now!

CS323802-A

For more information, visit www.cdc.gov/diabetes/prevention

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Prediabetes Risk Test

NATIONAL DIABETES PREVENTION PROGRAM

Write your score in the boxes below

1. How old are you?

Younger than 40 years (0 points)
40–49 years (1 point)
50–59 years (2 points)
60 years or older (3 points)

2. Are you a man or a woman?

Man (1 point) Woman (0 points)

3. If you are a woman, have you ever been diagnosed with gestational diabetes?

Yes (1 point) No (0 points)

4. Do you have a mother, father, sister, or brother with diabetes?

Yes (1 point) No (0 points)

5. Have you ever been diagnosed with high blood pressure?

Yes (1 point) No (0 points)

6. Are you physically active?

Yes (0 points) No (1 point)

7. What is your weight category?

(See chart at right)

Total score:

Height	Weight (lbs.)		
4'10"	119-142	143-190	191+
4'11"	124-147	148-197	198+
5'0"	128-152	153-203	204+
5'1"	132-157	158-210	211+
5'2"	136-163	164-217	218+
5'3"	141-168	169-224	225+
5'4"	145-173	174-231	232+
5'5"	150-179	180-239	240+
5'6"	155-185	186-246	247+
5'7"	159-190	191-254	255+
5'8"	164-196	197-261	262+
5'9"	169-202	203-269	270+
5'10"	174-208	209-277	278+
5'11"	179-214	215-285	286+
6'0"	184-220	221-293	294+
6'1"	189-226	227-301	302+
6'2"	194-232	233-310	311+
6'3"	200-239	240-318	319+
6'4"	205-245	246-327	328+
	1 Point	**2 Points**	**3 Points**
	You weigh less than the 1 Point column (0 points)		

Adapted from Bang et al., Ann Intern Med 151:775-783, 2009. Original algorithm was validated without gestational diabetes as part of the model.

If you scored 5 or higher

You are at increased risk for having prediabetes and are at high risk for type 2 diabetes. However, only your doctor can tell for sure if you have type 2 diabetes or prediabetes, a condition in which blood sugar levels are higher than normal but not high enough yet to be diagnosed as type 2 diabetes. **Talk to your doctor to see if additional testing is needed.**

If you are African American, Hispanic/Latino American, American Indian/Alaska Native, Asian American, or Pacific Islander, you are at higher risk for prediabetes and type 2 diabetes. Also, if you are Asian American, you are at increased risk for type 2 diabetes at a lower weight (about 15 pounds lower than weights in the 1 Point column). Talk to your doctor to see if you should have your blood sugar tested.

You can reduce your risk for type 2 diabetes

Find out how you can reverse prediabetes and prevent or delay type 2 diabetes through a **CDC-recognized lifestyle change program** at https://www.cdc.gov/diabetes/prevention/lifestyle-program.

Risk Test provided by the American Diabetes Association and the Centers for Disease Control and Prevention.

American Diabetes Association.

CDC Centers for Disease Control and Prevention

CS300699-A

BMI calculation chart

WEIGHT	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400
HEIGHT																															
5'0"	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	72	74	76	78
5'1"	18	20	22	24	26	28	30	32	34	36	37	39	42	44	45	47	49	51	53	55	57	59	61	63	64	66	68	70	72	74	76
5'2"	18	20	22	23	25	27	29	31	33	34	36	38	40	42	44	46	48	50	51	53	55	57	59	61	62	64	66	68	70	72	73
5'3"	17	19	21	23	24	26	28	30	32	33	35	37	39	41	43	44	46	48	50	52	53	53	57	59	60	62	64	66	67	69	71
5'4"	17	18	20	22	24	25	27	29	31	32	34	36	38	40	41	43	45	46	48	50	52	53	55	57	59	60	62	64	65	67	69
5'5"	16	18	20	21	23	25	26	28	30	31	33	35	37	38	40	42	43	45	47	48	50	52	53	55	57	58	60	62	63	65	67
5'6"	16	17	19	21	22	24	25	27	29	30	32	34	36	37	39	40	42	44	45	47	49	50	52	53	55	57	58	60	62	63	65
5'7"	15	17	18	20	22	23	25	26	28	29	31	33	35	36	38	39	41	42	44	46	47	49	50	52	53	55	57	58	60	61	63
5'8"	15	16	18	19	21	22	24	25	27	28	30	32	34	35	37	38	40	41	43	44	46	47	49	50	52	53	55	56	58	59	61
5'9"	14	16	17	19	20	22	23	25	26	28	29	31	33	34	36	37	39	40	41	43	44	46	47	49	50	52	53	55	56	58	59
5'10"	14	15	17	18	20	21	23	24	25	27	28	30	32	33	35	36	37	39	40	42	43	45	46	47	49	50	52	53	55	56	58
5'11"	14	15	16	18	19	21	22	23	25	26	28	29	31	32	34	35	36	38	39	41	42	43	45	46	48	49	50	52	53	55	56
6'0"	13	14	16	17	19	20	21	23	24	25	27	28	30	31	33	34	35	37	38	39	41	42	44	45	46	48	49	50	52	53	54
6'1"	13	14	15	17	18	19	21	22	23	25	26	27	29	30	32	33	34	36	37	38	39	41	42	44	45	46	48	49	50	52	53
6'2"	12	14	15	16	18	19	20	21	23	24	25	27	28	30	31	32	33	35	36	37	39	40	41	42	44	45	46	48	49	50	51
6'3"	12	13	14	16	17	18	19	21	22	23	24	26	28	29	30	31	33	34	35	36	38	39	40	41	43	44	45	46	48	49	50
6'4"	12	13	14	15	17	18	19	20	21	23	24	26	27	28	29	31	32	33	34	35	37	38	39	40	41	43	44	45	46	48	49
6'5"	11	13	14	15	16	17	19	20	21	22	24	25	26	27	29	30	31	32	33	34	36	37	38	39	40	42	43	44	45	46	48

Blue **Underweight:** Less than 18.5

Green **Healthy Weight:** 18.5 - 24.9

Yellow **Overweight:** 25 - 29.9

Orange **Obese:** 30 - 39.9

Red **Extreme Obesity:** 40 or greater

BMI stands for "**BODY MASS INDEX**" which is an estimate of total body fat based on height and weight. It is used to screen for weight categories that may lead to health problems.

THE GOAL for most people is to have a BMI in the green area. It is usually best for your BMI to stay the same over time or to gradually move toward the green area.

Prediabetes Decision Tree

Patient Identified with Diabetes - Related Risk

Overweight or Obesity
H/o HTN
Over 45yo
Family H/o DM
Physical Inactivity

Screened >/= 5 on Prediabetes Risk Test?

- **No**
  - Counsel on lifestyle modification
  - Recommend annual screening
- **Yes**
  - Recent A1c or FBG available?
    - **Yes**
      - A1c <5.7%
        - Counsel on type 2 diabetes risk
        - Counsel on lifestyle modification
        - Refer to the National DPP
      - A1c >5.7%
        - Counsel on type 2 diabetes risk
        - Counsel on lifestyle modification
        - Refer to the National DPP
        - Contact PCP: recommend appropriate diagnosis and treatment
    - **No**
      - Risk test score 5-8
        - Counsel on type 2 diabetes risk
        - Counsel on lifestyle modification
        - Refer to the National DPP
        - Contact PCP: recommend diagnostic bloodwork
      - Risk test score 9-10
        - Counsel on type 2 diabetes risk
        - Counsel on lifestyle modification
        - Perform POC A1c
        - Refer to the National DPP
        - Contact PCP: recommend diagnostic bloodwork

So you have prediabetes … now what?

Prediabetes means your blood glucose (sugar) level is higher than normal, but not high enough to be diagnosed as diabetes. This condition raises your risk of type 2 diabetes, stroke and heart disease.

What can you do about it?

The good news is that there's a program that can help you.

The National Diabetes Prevention Program, led by the Centers for Disease Control and Prevention (CDC), uses a method proven to prevent or delay type 2 diabetes.

By improving food choices and increasing physical activity, your goal will be to lose a minimum 5 percent weight loss—that is 10 pounds for a person weighing 200 pounds.

These lifestyle changes can cut your risk of developing type 2 diabetes by more than half.

How does the program work?

As part of a group, you will work with a trained diabetes prevention coach and other participants to learn the skills you need to make lasting lifestyle changes. You will learn to eat healthy, add physical activity to your life, manage stress, stay motivated and solve problems that can get in the way of healthy changes.

The program lasts one year, with 16 sessions taking place about once a week and six to eight more sessions meeting once a month. By going through the program with others who have prediabetes you can celebrate each other's successes and work together to overcome challenges.

Some insurance plans will cover the cost of the program. Check with your insurance provider to see if it is covered. Also, some places that provide the program will adjust the fee you pay based on your income.

Why should you act now?

Without weight loss and moderate physical activity, many people with prediabetes will develop type 2 diabetes within five years. Type 2 diabetes is a serious condition that can lead to health issues such as heart attack, stroke, blindness, kidney failure, or loss of toes, feet or legs. **NOW is the time to take charge of your health and make a change.**

Features of the program:

- A trained coach to guide and encourage you
- A CDC-approved program
- Group support
- Skills to help you lose weight, be more physically active and manage stress

What participants are saying …

"I love having a lifestyle coach. She has given us great information, helped me stay on track and stay positive!"

—Bruce

"I'm so excited because I went to the doctor last week and all of my numbers were down and I officially no longer have prediabetes."

—Vivien

Sign up today for a program near you!

To find a program in our area that is part of the National Diabetes Prevention Program, visit **cdc.gov/diabetes/prevention**.

The National Diabetes Prevention Program

About the program

The National Diabetes Prevention Program (NDPP) is a Centers for Disease Control and Prevention (CDC) recognized program. Key components of the programs include:

- Facilitated by trained Lifestyle Coach using CDC-approved curriculum
- 12-month program: 16 weekly sessions, monthly maintenance sessions for 6 months
- Goal to lose 5-7% of participant's starting body weight
    - Gradually increase physical activity to 150 minutes (moderate intensity) per week
    - Gradual dietary changes to align with MyPlate guidelines
    - Track calories fat grams, and weekly weight
- Curriculum focuses on healthy eating, physical activity, stress management, and relapse prevention

When you refer your patients to a CDC-recognized program, you know they will join a research-based program, delivered by professionals, and shown to educe participants' risk of developing type 2 diabetes by up to 50%.

Who should be referred to the National DPP?

This program is designed for individuals with prediabetes or at risk for type 2 diabetes

Eligible participants must:

- Be at least 18 years of age AND
- Have a BMI of >25 OR >23 if Asian AND
- Be diagnosed with prediabetes based on one of the following:
- HBA1C: 5.7%–6.4%
- FASTING PLASMA GLUCOSE: 100–125 MG/DL
- 2-HOUR PLASMA GLUCOSE (AFTER A 75 GM GLUCOSE LOAD): 140–199 mg/dL
- Previous diagnosis of gestational diabetes OR
- Screened at 5 points or higher on the diabetes risk test

**Not for individuals who currently have a diagnosis of diabetes or are pregnant*

Other considerations:

- Participants must be motivated to lose weight, live a healthier life, and make a significant commitment to the program.
- American Indians are 2.3 times more likely to have diabetes and five times more likely to die from the disease compared their non-Hispanic white counterparts.

When talking to patients about prediabetes, focus your education on three key messages:

1. Prediabetes is a serious condition: It raises your risk of heart attack and stroke and poses a high risk of eventually progressing to full-blown diabetes.
2. Prediabetes is treatable: The good news is that most patients with prediabetes can avoid or delay developing diabetes by losing weight, becoming more active and eating more healthfully.
3. Evidence-based diabetes prevention programs are available. These programs help people with prediabetes accomplish these healthy changes, lose weight, and avoid developing diabetes.

To make a referral to The National Diabetes Prevention Program, please visit www.NDC3.org

NDC3
NORTH DAKOTA
Community Clinical Collaborative

Pharmacy Students

Tier 1. Promote Awareness of Prediabetes and the National DPP Among Patients at Risk

- **Educate patients about prediabetes:** Pharmacy students can provide general information on prediabetes and the National DPP lifestyle change program to patients.
- **Establish relationships with local organizations:** Students can build relationships with local CDC-recognized organizations that deliver the National DPP lifestyle change program. If applicable, they can ensure that local programs know that the pharmacy will be referring patients to these programs. They can support local programs by distributing or displaying their promotional materials to raise awareness among patients.

Tier 2. Screen, Test, and Refer Patients

- **Administer risk assessment screenings:** Risk assessment tests typically take about 2 minutes to complete, and students can use wait times to distribute or administer paper versions. With training, students can provide follow-up recommendations for patients found to be at risk. Students can also refer patients to a CDC-recognized lifestyle change program in the community or online. Another way to involve students and provide additional learning opportunities is to encourage them to initiate and lead screening campaigns and projects.

Tier 3. Offer the National DPP Lifestyle Change Program

- **Support lifestyle coaches:** Group sessions of the National DPP lifestyle change program are led by trained lifestyle coaches, who can motivate and educate participants and significantly enrich their experience. Students can support program delivery by helping lifestyle coaches, for example, by performing administrative tasks and coordinating program logistics.

Diabetes Resources

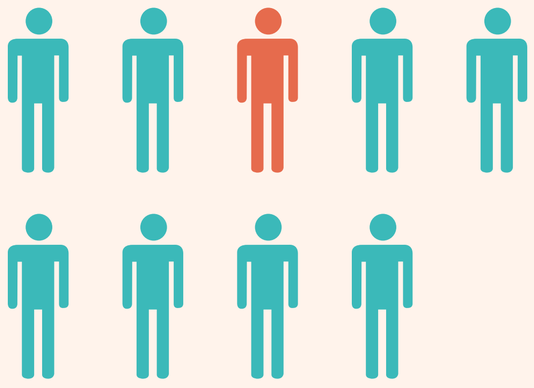
Diabetes in North Dakota

NORTH Dakota | Health
Be Legendary.™

DIABETES

55 THOUSAND

Nearly 55 thousand North Dakota adults have diabetes



That's about 1 out of every 9 people

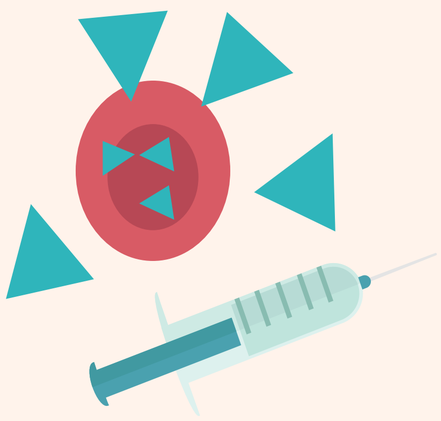
About 16 thousand adults with diabetes are undiagnosed that's

1 OUT OF 5

never having been told they have diabetes

TYPES OF DIABETES*

TYPE 1



BODY DOES NOT MAKE ENOUGH INSULIN

- Can develop at any age
- No known way to prevent it

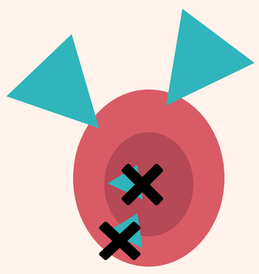
MORE THAN 18,000 YOUTH DIAGNOSED each year in 2014 and 2015

In adults, type 1 diabetes accounts for approximately

5%

OF ALL DIAGNOSED CASES OF DIABETES

TYPE 2



BODY CANNOT USE INSULIN PROPERLY

- Can develop at any age
- Most cases can be prevented

In adults, type 2 diabetes accounts for approximately

95%

of all diagnosed cases of diabetes

MORE THAN 5,000 YOUTH DIAGNOSED each year in 2014 and 2015

RISK FACTORS FOR TYPE 2 DIABETES

BEING OVERWEIGHT

BEING 45 AND OLDER

HAVING A FAMILY HISTORY

PHYSICAL INACTIVITY

HAVING HIGH BLOOD PRESSURE

HAVING HIGH CHOLESTEROL

PEOPLE WHO HAVE DIABETES ARE AT HIGHER RISK FOR SERIOUS HEALTH COMPLICATIONS

BLINDNESS

KIDNEY DISEASE

HEART DISEASE

STROKE

LOSS OF TOES, FEET OR LEGS*

proper management of diabetes can reduce risk and prevent complications

*U.S. National Data/Statistics was used to present this information

ESTIMATED COST OF DIABETES*

Medical costs for people with diabetes are TWICE AS HIGH as for people without diabetes *

Risk of death for adults with diabetes is 60 HIGHER than for adults without diabetes *

American Indian adults are 2.9 TIMES as likely to develop type 2 diabetes, and 2.3 TIMES more likely to die from the disease, compared to their white counterparts

MANAGING DIABETES

WORK WITH A HEALTH CARE TEAM ON YOUR **ABCS**

A1C
BLOOD PRESSURE
CHOLESTEROL
SMOKING CESSATION

EAT A BLANCED DIET

REDUCE
SUGAR, FAT, ACOHOL
INCREASE
FRUITS, VEGETABLE, WHOLE GRAINS

GET MOVING

FIND A BUDDY
MAKE IT FUN!

DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT **(DSMES)** Programs are available to help you live better with diabetes.

TO FIND A PROGRAM, AND START YOUR JOURNEY TO BETTER HEALTH, VISIT:

https://www.diabeteseducator.org/living-with-diabetes/find-an-education-program

REFERENCES

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Centers for Disease Control and Prevention. (2017). National diabetes statistics report, 2017. Estimates of diabetes and its burden in the United States. Retrieved from https://www.cdc.gov/diabetes/pdfs/data/statistics/national-diabetes-statistics-report.pdf.
U.S. Census Bureau, 2015 American community survey 1-year estimates.
Yang W., Dall T., Halder P., Gallo P., Kowal S., Hogan P. Economic costs of diabetes in the U.S. in 2017. Diabetes Care 2018; 41:917-928 |https://doi.org/10.2337/dci18-0007.
Infographic developed using the Piktochart infographic maker, www.piktochart.com.

LEARN MORE AT: http://www.diabetesnd.org/

Diabetes Resources:

Link to ADA diabetes guidelines: Standards of Care 2022:
https://ada.silverchair-cdn.com/ada/content_public/journal/care/issue/45/supplement_1/7/standards-of-care-2022-copyright-stamped-updated-01062022.pdf (Reminder to students: updated yearly. If you have spring semester rotations, look for ADA Standards of Care 2023)

Link to AACE/ACE Consensus Statement 2020 Executive Summary for Type 2 Diabetes Management:
https://pro.aace.com/disease-state-resources/diabetes/clinical-practice-guidelines-treatment-algorithms/comprehensive

AACE Diabetes Resource Center:
https://www.aace.com/disease-state-resources/diabetes/guidelines

2023

AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGY

AACE COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM

TABLE OF CONTENTS

COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM

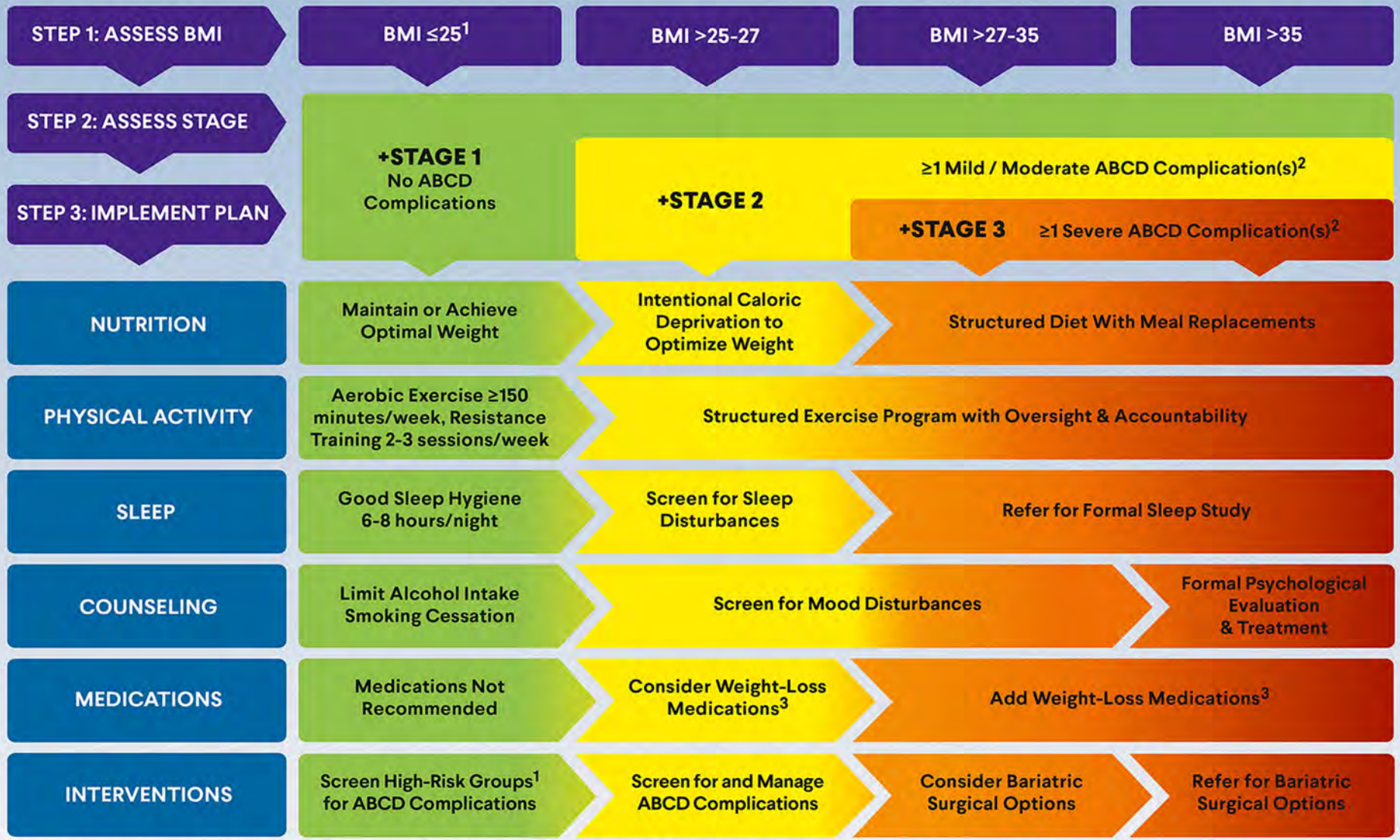
Abbreviations: AACE, American Association of Endocrinology; **ABCD**, adiposity-based chronic disease; **ABI**, ankle brachial index; **ACEi**, angiotensin-converting enzyme inhibitor; **AGI**, alpha-glucosidase inhibitor; **AKI**, acute kidney injury; **apo B**, apolipoprotein B; **ARB**, angiotensin II receptor blocker; **ASCVD**, atherosclerotic cardiovascular disease; **ATP**, Adult Treatment Panel; **A1C**, hemoglobin A1c; **BeAM**, bedtime minus a.m. pre-breakfast glucose; **BRC-QR**, bromocriptine quick release; **BG**, blood glucose; **BMI**, body mass index; **BP**, blood pressure; **CAD**, coronary artery disease; **CCB**, calcium channel blocker; **CDC**, Centers for Disease Control and Prevention; **CGM**, continuous glucose monitoring; **CHF**, congestive heart failure; **CKD**, chronic kidney disease; **COLSVL**, colesevelam; **CoQ10**, coenzyme q10; **COVID-19**, coronavirus disease 2019; **CrCl**, creatinine clearance; **CV**, cardiovascular; **CVD**, cardiovascular disease; **DA**, dopamine agonist; **DASH**, Dietary Approaches to Stop Hypertension; **DKA**, diabetic ketoacidosis; **DKD**, diabetic kidney disease; **DM**, diabetes mellitus; **DPP-4i**, dipeptidyl peptidase-4 inhibitor; **eGFR**, estimated glomerular filtration rate; **ER**, extended release; **FBG**, fasting blood glucose; **FDA**, US Food and Drug Administration; **FPG**, fasting plasma glucose; **GERD**, gastroesophageal reflux disease; **GI**, gastrointestinal; **GIP/GLP-1 RA**, glucose-dependent insulinotropic polypeptide and glucagon-like peptide-1 receptor agonist; **GLN**, glinide; **GLP-1 RA**, glucagon-like peptide-1 receptor agonist; **GMI**, glucose management indicator; **GU**, genitourinary; **HDL-C**, high-density lipoprotein cholesterol; **HF**, heart failure; **HFpEF**, heart failure with preserved ejection fraction; **HTN**, hypertension; **IFG**, impaired fasting glucose; **IGT**, impaired glucose tolerance; **LADA**, latent autoimmune diabetes in adults; **LDL-C**, low-density lipoprotein cholesterol; **Lp(a)**, lipoprotein(a); **LV**, left ventricle; **MACE**, major adverse cardiovascular events; **MEN2**, multiple endocrine neoplasia type 2; **MET**, metformin; **MI**, myocardial infarction; **MRA**, mineralocorticoid receptor antagonist; **MTC**, medullary thyroid carcinoma; **NAFLD**, nonalcoholic fatty liver disease; **NASH**, nonalcoholic steatohepatitis; **NCEP**, National Cholesterol Education Program; **NPH**, Neutral Protamine Hagedorn; **NYHA**, New York Heart Association; **OA**, osteoarthritis; **OSA**, obstructive sleep apnea; **PCOS**, polycystic ovary syndrome; **PCSK9**, proprotein convertase subtilisin/kexin type 9; **PG**, plasma glucose; **PPG**, postprandial glucose; **PRAML**, pramlintide; **PVD**, peripheral vascular disease; **RA**, receptor antagonist; **Rx**, medical prescription; **SCR**, serum creatinine; **SGLT2i**, sodium glucose cotransporter 2 inhibitor; **SU**, sulfonylurea; **TDD**, total daily dose; **TG**, triglycerides; **TIA**, transient ischemic attack; **TIR**, time in range; **TZD**, thiazolidinedione; **T1D**, type 1 diabetes; **T2D**, type 2 diabetes; **UACR**, urine albumin-to-creatinine ratio

PRINCIPLES OF THE AACE COMPREHENSIVE TYPE 2 DIABETES MANAGEMENT ALGORITHM

1.	Lifestyle modification underlies all therapy.
2.	Maintain or achieve optimal weight.
3.	Choice of antihyperglycemic therapy reflects glycemic targets, ASCVD, CHF, CKD, overweight/obesity, and NAFLD.
4.	Choice of therapy includes ease of use and access.
5.	Optimal A1C is ≤6.5% or as close to normal as is safe and achievable for most patients.
6.	Individualize all glycemic targets (A1C, GMI, TIR, FBG, PPG).
7.	Get to goal as soon as possible (adjust ≤3 months).
8.	Avoid hypoglycemia.
9.	CGM is highly recommended to assist patients in reaching goals safely.
10.	Comorbidities must be managed for comprehensive care.

Algorithm Figure 1-Principles

COMPLICATIONS-CENTRIC MODEL FOR THE CARE OF PERSONS WITH OVERWEIGHT/OBESITY (ADIPOSITY-BASED CHRONIC DISEASE)



[1]BMI 23 to 25 kg/m^2 may be considered overweight for South Asian, Southeast Asian, and East Asian adults; [2]ABCD complications can include prediabetes, dyslipidemia, hypertension, NAFLD/NASH, ASCVD, CHF and HFpEF, CKD, OSA, OA, asthma/reactive airways disease, GERD, urinary incontinence, PCOS, hypogonadism, and reduced fertility. [3]See PROFILES OF WEIGHT-LOSS MEDICATIONS table.

Algorithm Figure 2-ABCD

PREDIABETES ALGORITHM

IFG (100-125 mg/dL) | IGT (140-199 mg/dL) | A1C (5.7%-6.4%) | METABOLIC SYNDROME[1]

GOALS: Prevent Progression to Diabetes | Prevent Progression of NAFLD | Improve CVD Risk Factors | Prevent Excess Weight Gain and Promote Weight Loss | Improve Functionality and Quality of Life

LIFESTYLE INTERVENTION[2]
Nutrition | Physical Activity | Sleep Hygiene | Healthy Habits

CARDIOVASCULAR RISK REDUCTION (SIMILAR TARGETS TO T2D)
Excess Weight Reduction | Blood Pressure Control | Lipid Management

OVERWEIGHT OR OBESITY[3]

YES

GOAL: WEIGHT LOSS >7%-10%

GLP-1 RA[4]
PHENTERMINE / TOPIRAMATE ER

CONSIDER BARIATRIC SURGERY

NO

GOAL: TREAT DYSGLYCEMIA

PERSISTENT HYPERGLYCEMIA
FPG >100 | 2-hour PG >140

METFORMIN
PIOGLITAZONE
ACARBOSE

OVERT DIABETES → **GO TO GLYCEMIC CONTROL ALGORITHMS**

[1]NCEP ATP III Criteria. [2]See COMPLICATIONS-CENTRIC MODEL FOR THE CARE OF PERSONS WITH OVERWEIGHT/OBESITY. [3]If no overweight or obesity, consider T1D antibody testing for LADA. [4]Indications for weight-loss medications are obesity or overweight BMI >27 kg/m^2 with ABCD complication(s) including prediabetes. Choose GLP-1 RA for approved for weight loss. Also consider other approved weight-loss medications (phentermine [short term], orlistat, naltrexone-ER/bupropion-ER). See also PROFILES OF WEIGHT-LOSS MEDICATIONS table.

Algorithm Figure 3-Prediabetes

AACE

ASCVD RISK REDUCTION ALGORITHM: DYSLIPIDEMIA

ASSESS LIPID PANEL (LDL-C, HDL-C, Non-HDL-C, TG, Apo B)[1]

LIFESTYLE INTERVENTION: increase ↑ dietary fiber | ↑ healthy fat | ↓ saturated fat | ↓ simple carbs | ↓ added sugars | ↑ physical activity | weight management

PREDIABETES OR T2D + RISK FACTORS: USE ASCVD 10-YEAR RISK CALCULATOR
Major ASCVD Risk Factors: Age >40 | HTN | CKD >3a | Smoking | Family History of Premature ASCVD | Low HDL-C | High Non-HDL-C

INITIATE STATIN THERAPY

		HIGH RISK <10% T2D <10 years <2 other risk factors No target organ damage	VERY HIGH RISK 10%-20% T2D >10 years Age >40 years No ASCVD No target organ damage ≥2 additional risk factors	EXTREME RISK >20% T2D & ASCVD Severe target organ damage: eGFR <45 mL/min/1.73 m^2, UACR >300, ABI <0.9, LV systolic/diastolic dysfunction
		Moderate-intensity statin	High-intensity statin	
GOAL	LDL-C (mg/dL) <100		<70	<55
	Non-HDL-C (mg/dL) <130		<100	<80
	TG (mg/dL) <150		<150	<150
	Apo B (mg/dL) <90		<80	<70

Monitor and titrate therapy every 3-6 months to achieve lipid targets according to risk[2]

Intensify statin and lifestyle & optimize glycemic control

Add ezetimibe

Consider additional therapy: bile acid sequestrant, bempedoic acid, PCSK9 inhibitor, inclisiran

HYPERTRIGLYCERIDEMIA MANAGEMENT:

TG 135-199 | TG 200-499[3] | TG ≥500 | TG >1000[4]

Intensify Lifestyle & Achieve Glycemic Targets

If TG >135: Consider addition of icosapent ethyl to statin if DM and CVD or ≥2 risk factors

Fibrate or/and Rx Grade Omega-3

TG target achieved: Continue lifestyle therapy, maximally tolerated statin and achieve glucose targets

+Niacin[5]

[1] Baseline LDL-C >190 mg/dL, consider familial hypercholesterolemia. [2] Statin intolerance: Use alternative statin with lower incidence of myopathy (pitavastatin, extended-release fluvastatin) or decrease dose/frequency, use non-statin Rx, check for Rx interactions, consider CoQ10. [3] If TG >200 and HDL <40, add fibrate/omega-2 to achieve apo B and non-HDL goals. [4] Elevated triglycerides >500 mg/dL to >1000 mg/dL can cause acute pancreatitis. Urgent intervention with dietary management and fibrate/omega 3 therapy is needed. Suspect familial chylomicronemia syndrome or lipodystrophy, refer to lipid specialist. [5] For severe hypertriglyceridemia >1000 refractory to previous interventions, consider niacin to reduce the risk of pancreatitis. Niacin may lower TG and Lp(a) but does not reduce ASCVD and can promote hyperglycemia.

Algorithm Figure 4-Dyslipidemia

ASCVD RISK REDUCTION ALGORITHM: HYPERTENSION

GOAL: <130 SYSTOLIC/<80 DIASTOLIC mmHg[1]

<120 Systolic/<70 Diastolic mmHg considered for Micro/Macroalbuminuria | Moderate-to-High Risk or Established ASCVD | PVD | Retinopathy
Goal BP may be higher for Autonomic Neuropathy | Orthostatic Hypotension | Acute Coronary Syndrome | Frailty | Medication Intolerance

LIFESTYLE INTERVENTION:

Decrease Sodium Intake | Diet (DASH, Mediterranean) | Physical Activity | Achieve Optimal Weight

ARB OR ACEi[2]

For initial blood pressure >150/100 mmHg, consider starting DUAL THERAPY combined with another agent below

TITRATE MEDICATION DOSE OR ADD ON THERAPY EVERY 2-3 MONTHS TO REACH GOAL

THIAZIDE[3] | CALCIUM CHANNEL BLOCKER[4]

COMBINED α-β BLOCKER[5] | β1 SELECTIVE BLOCKER[6] | MINERALOCORTICOID RA[7]

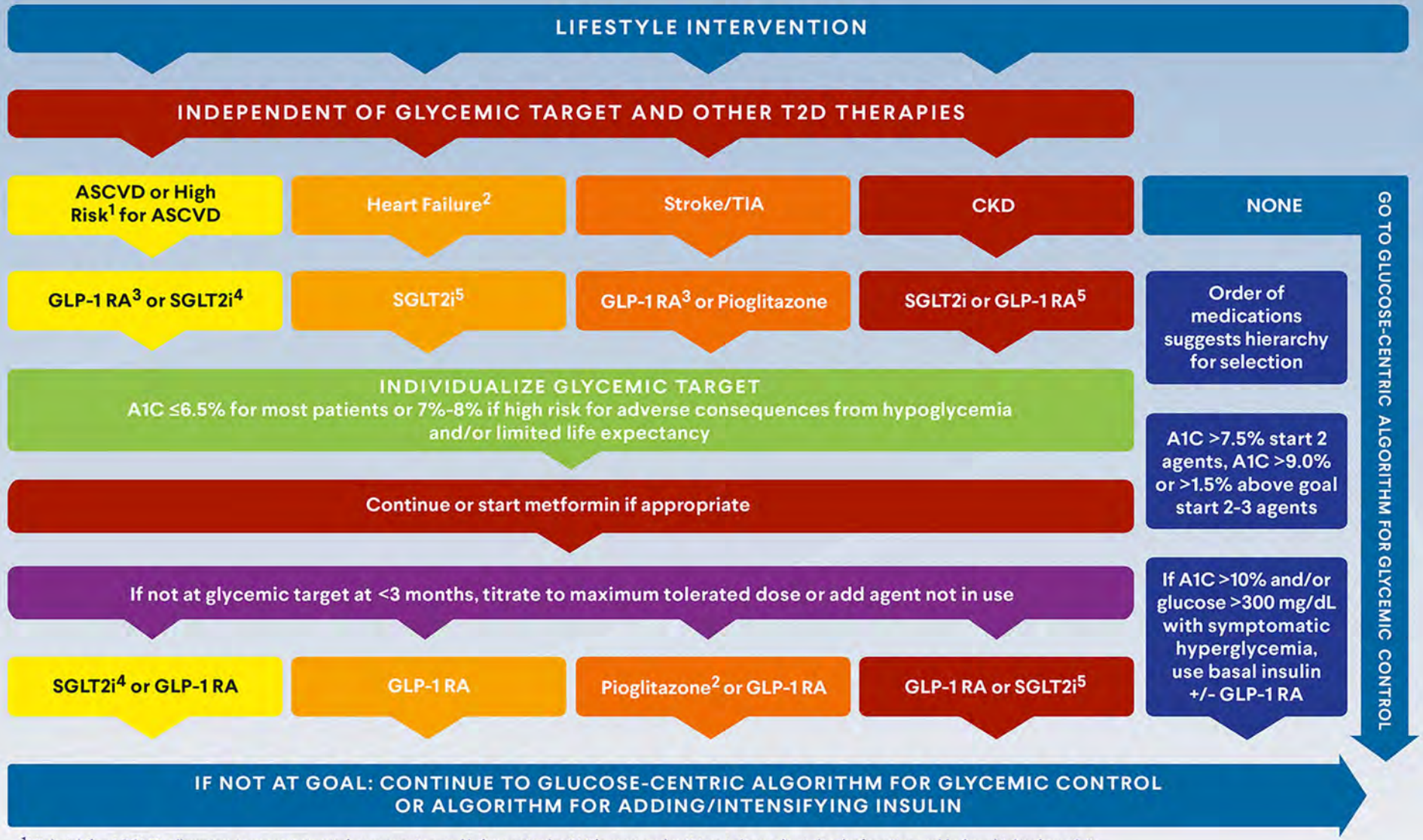
ADDITIONAL ANTIHYPERTENSIVE AGENTS[8]: CENTRAL α2 AGONIST | PERIPHERAL α1-BLOCKER | HYDRALAZINE

[1]Consider patient-specific characteristics DKD, retinopathy, ASCVD, post-MI, CHF, age, and race. [2]ACEi and ARB reduce progression of DKD. Use as first line for UACR >30 mg/g. Thiazide or CCB may also be appropriate as first line in absence of albuminuria. ACEi and ARB should not be used concomitantly. Rule out pregnancy. [3]Chlorthalidone, indapamide, hydrochlorothiazide. [4]Non-dihydropyridine amlodipine or nifedipine unless indication for dihydropyridine. [5]Carvedilol, labetalol, dilevalol. [6]Nebivolol, betaxolol. [7]Resistant hypertension with >140/90 mmHg if on ≥3 agents including maximum dose diuretic; laboratory evaluation for hyperaldosteronism is indicated. Increase laboratory monitoring for combination of ACEi or ARB with MRA due to risk of hyperkalemia or AKI. Finerenone is recommended for persons with CKD associated with diabetes and eGFR ≥25 mL/min/1.73m^2 and UACR ≥30 mg/g. [8]Initiation of SGLT2i or GLP-1 RA also may mildly lower BP.

Algorithm Figure 5-Hypertension

AACE

COMPLICATIONS-CENTRIC ALGORITHM FOR GLYCEMIC CONTROL



[1]High risk for ASCVD: albuminuria or proteinuria, hypertension and left ventricular (LV) hypertrophy, LV systolic or diastolic dysfunction, ankle-brachial index <0.9.
[2]TZDs are contraindicated in NYHA Class III/IV HF. [3]ASCVD: liraglutide/semaglutide/dulaglutide or Stroke: semaglutide/dulaglutide.
[4]canagliflozin/empagliflozin. [5]Use SGLT2i or GLP-1 RA with proven benefit.

Algorithm Figure 6-Complications-Centric Glycemic Control

GLUCOSE-CENTRIC ALGORITHM FOR GLYCEMIC CONTROL

LIFESTYLE INTERVENTION

Start or continue metformin if appropriate[1]

INDIVIDUALIZE GLYCEMIC TARGET
A1C ≤6.5% for most persons or 7%-8% if high risk for adverse consequences from hypoglycemia and/or limited life expectancy

	Overweight or Obesity[2]	Hypoglycemia Risk[3]	Access / Cost	Severe Hyperglycemia[4]	Patients may present with >1 scenario
Preferred	GLP-1 RA or GIP/GLP-1 RA or SGLT2i	GLP-1 RA or GIP/GLP-1 RA or SGLT2i	TZD or SU/GLN	Basal Insulin[5] + Prandial Insulin or + GLP-1 RA | GIP/GLP-1 RA[6]	Order of medications suggests hierarchy for selection[7]
Alternatives	DPP-4i[8] or TZD[9]	DPP-4i[8] or TZD	Insulin or DPP-4i[10]	Basal Insulin + other agent(s)	A1C >7.5% start 2 agents, A1C >9.0% or >1.5% above goal start 2-3 agents
Concerns or Not Preferred	Avoid SU/GLN	Avoid SU/GLN	GLP-1 RA | GIP/GLP-1 RA | SGLT2i | COLSVL BRC-QR	Other agents likely ineffective in the setting of glucotoxicity[5]	

Titrate to maximum tolerated dose. If not at glycemic target at ≤3 months, add best available agent not in use[7]
GLP-1 RA | GIP/GLP-1 RA | SGLT2i | TZD | DPP-4i | SU/GLN | COLSVL | BRC-QR | PRAML[11]

IF NOT AT GOAL: CONTINUE TO ALGORITHM FOR ADDING/INTENSIFYING INSULIN

[1]Take with food with dose titration for enhanced tolerance. [2]See also COMPLICATIONS-CENTRIC MODEL FOR THE CARE OF PERSONS WITH OVERWEIGHT/OBESITY and PROFILES OF WEIGHT-LOSS MEDICATIONS table. [3]Evaluate for issues leading to hypoglycemia or hypoglycemia unawareness and manage with patient-centered strategies. [4]If A1C >10% and/or BG ≥300 with symptomatic hyperglycemia, reduce glucose/A1C as promptly and safely as possible. [5]See also ALGORITHM FOR ADDING/INTENSIFYING INSULIN. [6]GLP-1 RA requires titration phase which can delay glycemic control. After glucose toxicity is resolved,consider adding other agents. [7]See also PROFILES OF ANTIHYPERGLYCEMIC MEDICATIONS table. [8]GLP-1 RA and DPP-4i should not be combined. [9]TZD can cause fluid retention but have benefit for NAFLD, CVD prevention, dyslipidemia. [10]Access/Cost are dependent on location of the market. Insulin costs vary widely with devices (e.g., pens versus vials) and formulations (e.g., analogues versus combinations such as 70/30). [11]PRAML is used as an adjunct with prandial insulin.

Algorithm Figure 7-Glucose-Centric Glycemic Control

AACE

ALGORITHM FOR ADDING/INTENSIFYING INSULIN

CONSIDER GLP-1 RA IF NOT ALREADY IN USE

IF NOT AT GOAL

START BASAL INSULIN

A1C <8%	A1C >8%
TDD 0.1-0.2 U/kg	TDD 0.2-0.3 U/kg

Insulin titration every 2-5 days to reach glycemic goal[1]

Fixed regimen: Increase TDD by 2 units
Adjustable regimen:
- FBG >180 mg/dL: add 20% of TDD
- FBG 140-180 mg/dL: add 10% of TDD
- FBG 110-139 mg/dL: add 1 unit

If hypoglycemia, reduce TDD by:
- BG <70 mg/dL: 10%-20%
- BG <40 mg/dL: 20%-40%

- Discontinue or reduce SU
- Basal analogs preferred over NPH

Glycemic goals unmet
Basal doses >0.5 units/kg/day
BeAM score (bedtime-prebreakfast glucose) >50

ADD PRANDIAL INSULIN

SEVERE HYPERGLYCEMIA WITH SYMPTOMS[2], START BASAL INSULIN +/- PRANDIAL INSULIN

Consider fixed-dose basal insulin/GLP-1 RA

IF NOT AT GOAL

START PRANDIAL INSULIN

Stepwise addition to basal:
- Begin prandial insulin before largest meal (10% of basal or 5 units)
- If not at goal, progress to injections before 2 or 3 meals

Simultaneous addition to basal at all meals:
- TDD is 50% basal and 50% prandial divided by 3 meals

- Rapid-acting analogs preferred over regular insulin

Insulin titration every 2-3 days to reach glycemic goal:

HYPERGLYCEMIA (premeal BG >110-140 mg/dL)	HYPOGLYCEMIA (premeal BG <70 mg/dL)[3]
• Increase premeal dose by 10%-20% for the previous meal	• Decrease premeal dose by 10%-20% for the previous meal

Use of CGM is recommended to reach glycemic goals safely[4]

[1]Glycemic goals: A1C ≤6.5%-7% without hypoglycemia, fasting and premeal glucose <110 mg/dL, A1C should be individualized in people with comorbidities and at high adverse consequences of hypoglycemia and/or limited life expectancy. Longer-acting basal insulins (e.g., glargine U300, degludec U100 or U200) require slower titration ≥3 days because of a longer time to steady state. [2]For symptomatic hyperglycemia with A1C >10% and/or BG ≥300 mg/dL, reduce glucose/A1C as promptly and safely as possible. Consider testing for autoimmune diabetes. GLP-1 RA requires titration phase which can delay glycemic control. [3]Oral administration of rapidly absorbed source of glucose (tablet, fruit juice) if person can safely swallow. If unresponsive or unable to swallow, subcutaneous/Intramuscular/intranasal glucagon or glucagon analogue can be given by a trained member of the household. [4]See also American Association of Clinical Endocrinology Clinical Practice Guideline: The Use of Advanced Technology in the Management of Persons with Diabetes Mellitus.

Algorithm Figure 8-Adding/Intensifying Insulin

PROFILES OF ANTIHYPERGLYCEMIC MEDICATIONS

	MET	GLP-1 RA	DUAL GIP/ GLP-1 RA	SGLT2i	TZD	INSULIN (basal & basal bolus)	DPP-4i	SU	GLN	AGi	COLSVL	BRC	PRAML
EFFICACY FOR GLUCOSE LOWERING	++	+++	+++	++	++	+++/++++	+	++	+	+	+	+	+
ASCVD MACE	Neutral	Benefit[1,3]	Safe	Benefit[2]	Neutral[3]	Neutral	Neutral	Possible Increased Risk	Neutral	Insufficient Evidence	Neutral[3]	Safe	Insufficient Evidence
ASCVD CHF		Unclear		Reduced Risk	Moderate to Severe[4]	Moderate	Moderate[4]						
ASCVD STROKE		Benefit[5]		Possible Benefit[2]	Benefit	Neutral	Neutral						
CKD	CKD3a/3b[6]	Benefit[7]	Insufficient Evidence	Benefit	Neutral	Increased hypoglycemia risk with impaired renal function	Neutral	Increased hypoglycemia risk with impaired renal function		Not recommended SCR >2 mg/dL or CrCl <25	Neutral	Neutral	Neutral
RENAL ADJUSTMENT	Not with CKD4 eGFR <30[6]	Exenatide not recommended eGFR <45		Check medication-specific eGFR thresholds[8]			Adjust Dose[9]						
HYPOGLYCEMIA RISK[14]	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate to Severe	Neutral	Moderate to Severe	Mild	Neutral	Neutral	Neutral	Neutral
WEIGHT	Slight loss	Loss	Loss	Loss	Gain[4]	Gain	Neutral	Gain	Neutral	Neutral	Neutral	Neutral	Loss
NAFLD	Neutral	Benefit	Benefit	Potential Benefit	Benefit	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Benefit
GI ADVERSE SYMPTOMS	Mild to Moderate	Moderate[10]	Moderate[10]	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral	Moderate	Mild	Moderate	Moderate
OTHER CONSIDERATIONS		Medullary Thyroid Carcinoma/ MEN2	Medullary Thyroid Carcinoma/ MEN2	GU infections DKA[11] Fracture Risk[12]	Fracture Risk		Rare Arthralgias/ Myalgias						
ACCESS/COST	$	$$$	$$$	$$$	$	$ - $$$[13]	$-$$	$	$-$$	$-$$	$$$	$$$	$$$

■ Possible benefits ■ Use with caution ■ Likelihood of adverse events ■ Neutral, not studied, insufficient evidence

[1]GLP-1 RA MACE benefits with liraglutide, semaglutide, dulaglutide. [2]SGLT2i MACE benefits with empagliflozin, canagliflozin. Possible benefit for hemorrhagic stroke. [3]GLP-1 RA, TZD, COLSVL can lower LDL. [4]TZDs increase fluid retention and edema and are contraindicated in persons with NYHA Class III/IV CHF. There is Increased risk of hospitalization for CHF with saxagliptin, and limited experience for persons with NYHA Class II/IV CHF with alogliptin [5]GLP-1 RA stroke benefits observed with semaglutide and dulaglutide. [6]CKD3a no adjustment with monitoring, CKD3b decrease dose and do not initiate, CKD4 contraindicated. Hold for acute kidney injury, IV contrast. [7]Dulaglutide, semaglutide decrease CKD progression. [8]The eGFR thresholds for initiation and/or continuation of therapy in CKD vary among SGLT2i. Check medication-specific eGFR levels. [9]Only linagliptin does not require adjustment. [10]Slow titration, portion control, and consider reducing to prior tolerated dose. [11]Precipitants include significant current illness, surgery, inappropriate or rapid insulin dose reduction. [12]Reported with canagliflozin, dapagliflozin. [13]Cost varies widely with devices (e.g., pens), formulations (e.g., analogues), and combinations (e.g., 70/30). [14]SIngle-agent risks of hypoglycemia may be low but increases when combined with other agents.

Algorithm Figure 9-Antihyperglycemic Medications

AACE

PROFILES OF WEIGHT-LOSS MEDICATIONS

	SEMAGLUTIDE	LIRAGLUTIDE	PHENTERMINE/ TOPIRAMATE-ER	NALTREXONE-ER/ BUPROPRION-ER	ORLISTAT	PHENTERMINE[1]
CLASS	GLP-1 RA	GLP-1 RA	Sympathomimetic Amine/Gabaminergic	Opioid-Receptor Antagonist/DA-Norepi Reuptake inhibitor	GI Lipase Inhibitor	Sympathomimetic
WEIGHT LOSS[2]	15%-18%	5%-6%	9%-10%	4%-6%	4%	3%[2]
MECHANISM	Decreased Appetite Delayed Gastric Emptying	Decreased Appetite Delayed Gastric Emptying	Decreased Appetite Increased Satiety	Decreased Cravings Decreased Appetite	Decreased Fat Absorption	Decreased Appetite
DELIVERY	Weekly Subcutaneous Injection	Daily Subcutaneous Injection	Oral	Oral	Oral	Oral
STARTING DOSE	0.25 mg/week	0.6 mg/day	3.75 mg/23 mg daily	8 mg/90 mg daily	120 mg three times daily	15 mg daily
TREATMENT DOSE	2.4 mg/week	3 mg/day	7.5 mg/46 mg daily (maximum 15 mg/92 mg daily)	16 mg/180 mg twice per day	120 mg three times daily	37.5 mg daily[1]
POTENTIAL SIDE EFFECTS	Nausea/Vomiting Diarrhea Constipation Headache Fatigue	Nausea/Vomiting Diarrhea Constipation Headache Fatigue	Restlessness Insomnia Headache Dry Mouth Blurred Vision Tachycardia/BP Elevation Paresthesia Dysgeusia Mental Clouding/Mood Changes	Nausea/Vomiting Diarrhea Constipation Headache Fatigue Insomnia Dry Mouth Blurred Vision Agitation/Mood Changes	Flatulence Fecal Urgency Oily Stools Fat-Soluble Vitamin Drug Malabsorption	Restlessness Insomnia Headache Dry Mouth Tachycardia/BP Elevation
CAUTIONS AND CONTRAINDICATIONS[3]	MTC/MEN2 Tachycardia Pancreatitis/ Gallbladder Disease Diabetic Retinopathy	MTC/MEN2 Tachycardia Pancreatitis/ Gallbladder Disease	Glaucoma Hyperthyroidism Urolithiasis Metabolic Acidosis	Seizure Risk Uncontrolled Hypertension Chronic Opioid Use	Organ Transplant Urolithiasis (Oxalate) Cholestasis	Active CAD Uncontrolled Hypertension Hyperthyroidism Agitated States
ACCESS/COST	$$$	$$$	$$	$$	$$	$

[1]Approved for short term ≤3 months. 15 mg / 30 mg / 37.5 mg phentermine hydrochloride = 12 mg / 24 mg / 30 mg phentermine resin.
[2]Approximate placebo-subtracted with 1 year of therapy except phentermine (12 weeks). [3]All agents are contraindicated in pregnancy/breastfeeding.

Algorithm Figure 10-Weight-Loss Medications

VACCINE RECOMMENDATIONS FOR PERSONS WITH DIABETES MELLITUS

CDC IMMUNIZATION RECOMMENDATIONS FOR PERSONS WITH DIABETES MELLITUS[1]

VACCINE	RECOMMENDATION
Age-appropriate vaccines	All persons should receive according to the CDC/ACIP immunization schedules.
COVID-19	Primary series and booster per current CDC recommendations and FDA approvals
Flu	Annually
HepB	All adults ≤59 years Based on risk and quality of immune response for adults ≥60 years
PCV	Adults with DM ages ≥19 years 1 dose PCV15 followed by PPSV23 at ≥1 year (or ≥8 weeks for adults who are immunocompromised) OR 1 dose PCV20 See also current CDC recommendations for details.
RZV	All adults ≥50 years
Tdap	Every 10 years following completion of the primary series

ACIP = Advisory Committee on Immunization Practices; **CDC** = Centers for Disease Control and Prevention; **COVID-19** = coronavirus disease 2019; **DM** = diabetes mellitus; **FDA** = Food and Drug Administration; **HepB** = hepatitis B; **PCV** = pneumococcal conjugate vaccine; **PPSV23** = pneumococcal polysaccharide vaccine; **RZV** = recombinant zoster vaccine; **TDAP** = tetanus, diphtheria, acellular pertussis

[1]https://www.cdc.gov/vaccines/schedules/index.html

For child/adolescent specific recommendations, see https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html

CDC STANDARDS FOR ADULT IMMUNIZATION PRACTICE

ASSESS	Assess immunization status of all individuals at every encounter. • Incorporate into workflow. • Stay up to date on the latest recommendations of the CDC Advisory Committee on Immunization Practices. Updated immunization schedules are released annually.
RECOMMEND	**STRONGLY** recommend vaccines based on age/risk factors. • Address questions and concerns. • Highlight positive experiences and benefits of vaccines.
ADMINISTER/ REFER	Administer or refer patients for immunization. • Stock routine vaccines or know your local vaccine providers for referral.
DOCUMENT	Document receipt of vaccine in state immunization registry and electronic health record. https://www.cdc.gov/vaccines/hcp/adults/for-practice/standards/index.html

Algorithm Figure 11-Vaccine Recommendations for Persons with DM

Diabetes Self-Management Education and Support for Adults with Type 2 Diabetes: **ALGORITHM of CARE**

ADA *Standards of Medical Care in Diabetes* recommends all patients be assessed and referred for:

NUTRITION
Registered dietitian for medical nutrition therapy

EDUCATION
Diabetes self-management education and support

EMOTIONAL HEALTH
Mental health professional if needed

FOUR CRITICAL TIMES TO ASSESS, PROVIDE, AND ADJUST DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT

1. **AT DIAGNOSIS**
2. **ANNUAL** ASSESSMENT OF EDUCATION, NUTRITION, AND EMOTIONAL NEEDS
3. WHEN NEW **COMPLICATING FACTORS** INFLUENCE SELF-MANAGEMENT
4. WHEN **TRANSITIONS** IN CARE OCCUR

WHEN PRIMARY CARE PROVIDER OR SPECIALIST SHOULD CONSIDER REFERRAL:

1 AT DIAGNOSIS

- ☐ Newly diagnosed. All newly diagnosed individuals with type 2 diabetes should receive DSME/S
- ☐ Ensure that both nutrition and emotional health are appropriately addressed in education or make separate referrals

2 ANNUAL ASSESSMENT OF EDUCATION, NUTRITION, AND EMOTIONAL NEEDS

- ☐ Needs review of knowledge, skills, and behaviors
- ☐ Long-standing diabetes with limited prior education
- ☐ Change in medication, activity, or nutritional intake
- ☐ HbA_{1c} out of target
- ☐ Maintain positive health outcomes
- ☐ Unexplained hypoglycemia or hyperglycemia
- ☐ Planning pregnancy or pregnant
- ☐ For support to attain or sustain behavior change(s)
- ☐ Weight or other nutrition concerns
- ☐ New life situations and competing demands

3 WHEN NEW COMPLICATING FACTORS INFLUENCE SELF-MANAGEMENT

CHANGE IN:

- ☐ Health conditions such as renal disease and stroke, need for steroid or complicated medication regimen
- ☐ Physical limitations such as visual impairment, dexterity issues, movement restrictions
- ☐ Emotional factors such as anxiety and clinical depression
- ☐ Basic living needs such as access to food, financial limitations

4 WHEN TRANSITIONS IN CARE OCCUR

CHANGE IN:

- ☐ Living situation such as inpatient or outpatient rehabilitation or now living alone
- ☐ Medical care team
- ☐ Insurance coverage that results in treatment change
- ☐ Age-related changes affecting cognition, self-care, etc.

Powers MA, Bardsley J, Cypress M, Duker P, Funnell MM, Fischl AH, Maryniuk MD, Siminerio L, Vivian E. Diabetes Self-management Education and Support in Type 2 Diabetes: A Joint Position Statement of the American Diabetes Association, the American Association of Diabetes Educators, and the Academy of Nutrition and Dietetics. Diabetes Care 2015; 38:1372-1382; The Diabetes Educator 2015;41:417-430; Journal of the Academy of Nutrition and Dietetics 2015;115:1323-1334. (Adapted August 2016)

American Diabetes Association. | AADE American Association of Diabetes Educators | eat right. Academy of Nutrition and Dietetics

Confirmed Diagnosis of Diabetes?

No

Assess risk using prediabetes risk test & decision tree

Yes

New Diagnosis

Yes

Contact PCP, recommend DSMES referral

No

A1c available from within last 6mo

Yes

A1c >8%

No

Perform POC A1c

Changes in:
- Care team
- Insurance
- Mental Health

Yes

New Complications or Transition of Care ?

Yes

Contact PCP, recommend DSMES referral

No

Seen a Diabetes Educator in Past 12 months?

No

Contact PCP, recommend DSMES referral

Yes

Counsel patient as appropriate on:
- Med adherence
- Lifestyle modification
- SMBG

Contact PCP with recommendations

For all patients in poor glycemic control:

Assess:

- Knowledge gaps
- Care gaps
- Adherence to treatment regimen (meds, SMBG)
- Appropriateness of therapy
- Need for lifestyle modification

Lifestyle Modification Resources

MyPlate.gov

Small Changes Matter.

Start Simple

With MyPlate Today.

Healthy eating is important at every stage of life.

Make half your plate fruits & vegetables.

Focus on whole fruits.

Make half your grains whole grains.

Vary your veggies.

Vary your protein routine.

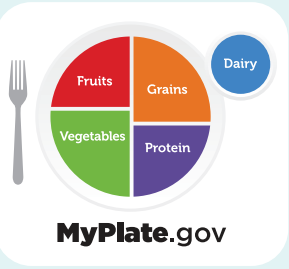
Move to low-fat or fat-free dairy milk or yogurt (or lactose-free dairy or fortified soy versions).

Limit

Choose foods and beverages with less added sugars, saturated fat, and sodium.

The benefits add up over time, bite by bite.

Make every bite count



Take a look at your current eating routine. Pick one or two ways that you can switch to choices today that are rich in nutrition.

A healthy eating routine can help boost your health now and in the years to come. Think about how your food choices come together over the course of your day or week to help you create a healthy eating routine.

It's important to eat a variety of fruits, vegetables, grains, protein foods, and dairy or fortified soy alternatives. Choose options for meals, beverages, and snacks that have limited added sugars, saturated fat, and sodium.

Choose from these simple tips to help you...

Fruits

Focus on whole fruits

- Start your day with **fruit at breakfast**. Top cereal with your favorite seasonal fruit, add bananas or chopped apples to pancakes, or mix a spoonful or two of raisins into hot oatmeal.
- Keep **ready-to-eat fruits** in the refrigerator for a quick snack.
- For dinner, chop up a combination of seasonal, frozen, or canned fruits to make a **quick fruit salsa** to top fish or chicken. Add fruit such as orange sections, apple wedges, or grapes to a **salad**.

Vegetables

Vary your veggies

- Add shredded carrots to the lettuce and tomato **in your sandwich**, make **soup** from the veggies in your vegetable drawer, and **snack on raw vegetables**.
- Try a **stir-fry** with fresh or frozen vegetables for a quick meal or easy side dish.
- Pick out a vegetable that the family has not tried and **get a new recipe** from a cookbook, website, supermarket, or friend.

Grains

Make half your grains whole grains

- For breakfast, enjoy a whole-grain-based **hot or cold cereal**. Consider trying whole-grain puffs or flakes that are new to you—you might discover a new favorite!
- Instead of sandwich bread, try a **whole-grain pita, tortillas, naan or other whole-grain flatbread, sliced breads, or rolls**.
- Create your own trail mix with whole-grain cereal or enjoy whole-grain crackers with turkey, hummus, or avocado for a **healthy whole-grain snack**.

Protein

Vary your protein routine

- **Broil lean beef cuts** like sirloin, top round, or flank steak. **Roast lean types of pork tenderloin or loin chops** and slice into strips for dinner, salads, and sandwiches.
- **Have fish or seafood twice a week**. Make a lunchtime sandwich or salad with canned tuna, grill fresh or frozen tilapia or salmon for dinner, or enjoy fish tacos.
- **Meatless meals** are tasty and budget friendly. Try bean-based vegetarian chili or lentil soup, grilled or braised tofu with vegetables, or adding nuts to salads.

Dairy

Move to low-fat or fat-free dairy milk or yogurt (or lactose-free dairy or fortified soy versions)

- **Add low-fat or fat-free dairy** to oatmeal or pureed vegetable soups instead of water, and to smoothies or scrambled eggs.
- The nutrients in dairy are **important at every stage of life**. Include foods like low-fat or fat-free dairy milk or yogurt. Need an alternative? Try lactose-free dairy milk or yogurt that's low-fat or fat-free or fortified soy versions.
- Looking for a beverage? Grab a **glass of low-fat or fat-free milk or fortified soy milk** (soy beverage). Choose the unsweetened option.

Limit

Choose foods and beverages with less added sugars, saturated fat, and sodium

Tips for Less Added Sugars

- Choose **packaged foods that have less or no added sugars**, such as canned fruit packed in 100% juice for an easy snack, plain yogurt (you can add your own fruit), and unsweetened applesauce.
- Try chilled, **plain water or sparkling water with a squeeze of fruit** for a splash of flavor. Limit sugary beverages such as soda, lemonade, sports drinks, or fruit drinks.

Tips for Less Saturated Fat

- In place of foods higher in saturated fat, **look for foods like nuts, seeds, and fatty fish** like tuna, salmon, trout, and mackerel, which are high in unsaturated fats and a healthier choice.
- Choose **canola oil, olive oil, or other vegetable oils** for cooking.

Tips for Less Salt and Sodium

- Start simple by choosing foods with less sodium. **Check the Nutrition Facts label and choose foods with a lower percent (%) Daily Value (DV) for sodium** on the label, especially if a family member has high blood pressure, diabetes, or kidney disease.
- **Cook at home!** Preparing your own food puts you in control of how much sodium goes into your meals. Add flavor to foods with herbs, spices, lemon, lime, and vinegar instead of salt or seasonings high in sodium.

The Dietary Guidelines for Americans

Developed jointly by the U.S Department of Agriculture and U.S. Department of Health and Human Services, the *Dietary Guidelines for Americans* are the Nation's science-based guidance on how to eat for good health. The Guidelines encourage all Americans to start and maintain a healthy eating routine. Along with physical activity, improving what you eat can help you reduce your risk of chronic diseases, such as diabetes, heart disease, some cancers, and obesity. Taking the steps in this brochure will help you follow the *Dietary Guidelines*.

For more information:

MyPlate.gov

DietaryGuidelines.gov

USDA

Food and Nutrition Service

USDA Publication number:
USDA-FNS-2020-2025-DGA-CP

December 2020

DGA
DietaryGuidelines.gov

Centers for Disease Control and Prevention

https://www.cdc.gov/healthyweight/index.html

Improving Your Eating Habits

When it comes to eating, we have strong habits. Some are good ("I always eat breakfast"), and some are not so good ("I always clean my plate"). Although many of our eating habits were established during childhood, it doesn't mean it's too late to change them.

Making sudden, radical changes to eating habits such as eating nothing but cabbage soup, can lead to short term weight loss. However, such radical changes are neither healthy nor a good idea, and won't be successful in the long run. Permanently improving your eating habits requires a thoughtful approach in which you Reflect, Replace, and Reinforce.

- REFLECT on all of your specific eating habits, both bad and good; and, your common triggers for unhealthy eating.
- REPLACE your unhealthy eating habits with healthier ones.
- REINFORCE your new, healthier eating habits.

Reflect:

1. **Create a list of your eating habits.** Keep a food diary for a few days. Write down everything you eat and the time of day you eat it. This will help you uncover your habits. For example, you might discover that you always seek a sweet snack to get you through the mid-afternoon energy slump. Use this diary [PDF-36KB] to help. It's good to note how you were feeling when you decided to eat, especially if you were eating when not hungry. Were you tired? Stressed out?
2. **Highlight the habits** on your list that may be leading you to overeat. Common eating habits that can lead to weight gain are:
    - Eating too fast
    - Always cleaning your plate
    - Eating when not hungry
    - Eating while standing up (may lead to eating mindlessly or too quickly)
    - Always eating dessert
    - Skipping meals (or maybe just breakfast)
3. **Look at the unhealthy eating habits** you've highlighted. Be sure you've identified all the triggers that cause you to engage in those habits. Identify a few you'd like to work on improving first. Don't forget to pat yourself on the back for the things you're doing right. Maybe you usually eat fruit for dessert, or you drink low-fat or fat-free milk. These are good habits! Recognizing your successes will help encourage you to make more changes.
4. **Create a list of "cues"** by reviewing your food diary to become more aware of when and where you're "triggered" to eat for reasons other than hunger. Note how you are typically feeling at those times. Often an environmental "cue", or a particular emotional state, is what encourages eating for non-hunger reasons.

5. **Common triggers for eating when not hungry are:**
    - Opening up the cabinet and seeing your favorite snack food.
    - Sitting at home watching television.
    - Before or after a stressful meeting or situation at work.
    - Coming home after work and having no idea what's for dinner.
    - Having someone offer you a dish they made "just for you!"
    - Walking past a candy dish on the counter.
    - Sitting in the break room beside the vending machine.
    - Seeing a plate of doughnuts at the morning staff meeting.
    - Swinging through your favorite drive-through every morning.
    - Feeling bored or tired and thinking food might offer a pick-me-up.
6. **Circle the "cues" on your list that you face on a daily or weekly basis**. While the Thanksgiving holiday may be a trigger to overeat, for now focus on cues you face more often. Eventually you want a plan for as many eating cues as you can.
7. **Ask yourself** these questions for each "cue" you've circled:
    - **Is there anything I can do to avoid the cue or situation?** This option works best for cues that don't involve others. For example, could you choose a different route to work to avoid stopping at a fast food restaurant on the way? Is there another place in the break room where you can sit so you're not next to the vending machine?
    - **For things I can't avoid, can I do something differently that would be healthier?** Obviously, you can't avoid all situations that trigger your unhealthy eating habits, like staff meetings at work. In these situations, evaluate your options. Could you suggest or bring healthier snacks or beverages? Could you offer to take notes to distract your attention? Could you sit farther away from the food so it won't be as easy to grab something? Could you plan ahead and eat a healthy snack before the meeting?

Replace:

1. **Replace unhealthy habits with new, healthy ones**. For example, in reflecting upon your eating habits, you may realize that you eat too fast when you eat alone. So, make a commitment to share a lunch each week with a colleague, or have a neighbor over for dinner one night a week. Another strategy is to put your fork down between bites. Also, minimize distractions, such as watching the news while you eat. Such distractions keep you from paying attention to how quickly and how much you're eating.
2. Eat more slowly. If you eat too quickly, you may "clean your plate" instead of paying attention to whether your hunger is satisfied.
3. Eat only when you're truly hungry instead of when you are tired, anxious, or feeling an emotion besides hunger. If you find yourself eating when you are experiencing an emotion besides hunger, such as boredom or anxiety, try to find a non-eating activity to do instead. You may find a quick walk or phone call with a friend helps you feel better.
4. Plan meals ahead of time to ensure that you eat a healthy well-balanced meal.

Reinforce:

Reinforce your new, healthy habits and be patient with yourself. Habits take time to develop. It doesn't happen overnight. When you do find yourself engaging in an unhealthy habit, stop as quickly as possible and ask yourself: Why do I do this? When did I start doing this? What changes do I need to make? Be careful not to berate yourself or think that one mistake "blows" a whole day's worth of healthy habits. You can do it! It just takes one day at a time!

Lifestyle Resources:

Link to CDC Healthy Weight, Nutrition, and Physical Activity
https://www.cdc.gov/healthyweight/index.html

Link to USDA Healthy Living and Weight
https://www.nutrition.gov/topics/healthy-living-and-weight

Motivational Interviewing Resources

Motivational Interviewing (MI) Basics

The underlying "spirit" (or philosophy) of MI is even more important than the skills. While you are an expert in health care, your client is an expert in his or her own life.

SPIRIT OF MI: CAPE

* Also known as PACE

PRINCIPLES OF MI: RULE

RESIST the "righting reflex"
The urge to "fix" the client. Arguing for change can have a paradoxical effect.

UNDERSTAND your client
The client's reasons for change are most important because these will most likely trigger behaviour change.

LISTEN to your client
MI involves as much listening as informing.

EMPOWER your client
Convey hope around the possibility of change and support patients' choice and autonomy re: change goals.

FOUNDATIONAL SKILLS IN MOTIVATIONAL INTERVIEWING: OARS

OPEN-ENDED questions encourage elaboration.

AFFIRMATIONS promote optimism and acknowledge the client's expertise, efforts and experience of the client. Affirmations are not about the practitioner's approval of the client.

RELECTIONS: the skill of accurate empathy:

- simple reflections: paraphrase, repeat the content.
- complex reflections: reflect what the client has said as well as what he or she is experiencing but has not yet verbalized (the meaning beneath the client's words).

SUMMARIES: The best are targeted and succinct, and include elements that keep the client moving forward. The goal is to help the client organize his or her experience.

Miller. W. R. and Rollnick, S. 2013. *Motivational Interviewing: Helping People Change*. New York: Guilford Press.

* Adapted from Miller & Rollnick. 2013, page 22

Motivational Interviewing (MI) Basics

MI QUICK TIPS

CHANGE AND SUSTAIN TALK

"I know I should use my medication	...but ...	.....I always misplace my asthma inhaler."
CHANGE TALK		**SUSTAIN TALK**

TYPES OF CHANGE TALK: DARN CAT

PREPARATORY CHANGE TALK (DARN)

Desire to change (wishes, hopes, wants)

Ability to change (optimism)

Reasons for change (benefits of change)

Need to change (problems with the status quo)

MOBILIZING CHANGE TALK (CAT)

Commitment ("I will . . . ," "I plan to . . .")

Activation (steps that the client is already taking in support of a goal)

Taking Steps (same as Activation; e.g., "I made an appointment to see my doctor about medication for quitting smoking.")

HOW TO ELICIT? ASK .....

"Why do you want to make this change?"

"If you decided to make a change, how might you be able to do it?"

"How would things be different if you changed?"

"How would things be better if you changed?"

When you hear change talk you know you are doing it right.

COMMITMENT LANGUAGE PREDICTS CHANGE

"What do you intend to do?"

"What are you ready or willing to do?"

"What have you already done?"

"What is your next step?'

READINESS RULERS

Readiness rulers are a tool designed to elicit change talk. Use them to explore the importance clients attach to changing, and their confidence and readiness to change (on a scale of 1 to 10). "On a scale of 1 through 10, how important is it for you to quit smoking?" "On the same scale, how confident are you feeling about your ability to quit?"

1	2	3	4	5	6	7	8	9	10

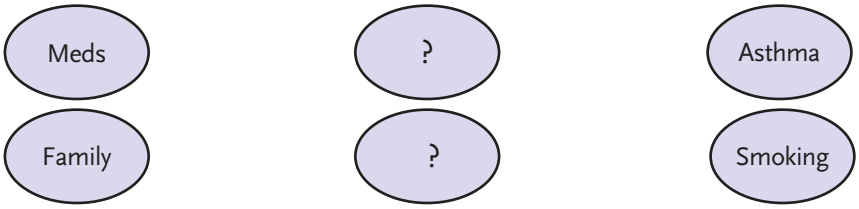
Low importantance/confidence: **Extremely important/confident**

Ask: "Why are you at __ [lower #] and not a __ [higher #]?"

"What would it take to go from [client's chosen #] to__ [one number #]?"

AGENDA MAPPING

Create a "bubble sheet" and invite the client to identify all the possible areas for change. You may choose to pre-populate some of the circles. After inviting the client to share his or her priorities, ask: "*Given these possible areas of focus, what would you like to talk about in our time together today?*"



Miller. W. R. and Rollnick, S. 2013. Motivational Interviewing: Helping People Change. New York: Guilford Press.

https://www.aafp.org/fpm/2011/0500/p21.html (includes a section called: OARS: A structure for putting motivational interviewing into practice)

Motivational Interviewing Quick Reference Sheet: https://www.med-iq.com/files/noncme/material/pdfs/XX183_ToolKit_%20QuickReferenceSheet.pdf

Motivational Interviewing (MI) Basics (Cheat Sheet): http://thehub.utoronto.ca/family/wp-content/uploads/2016/12/MI-Cheat-Sheet-copy.pdf

Using motivational interviewing to improve medicines adherence: https://www.pharmaceutical-journal.com/acute-pain/using-motivational-interviewing-to-improve-medicines-adherence/20200954.article?firstPass=false

Motivational Interviewing for Independent Pharmacy (part 1): https://www.pioneerrx.com/Web/blog/2019/04/motivational-interviewing-for-independent-pharmacy-part-1/

PSAP Motivational Interviewing (sample): https://www.accp.com/docs/bookstore/psap/p7b08.sample01.pdf

Assist ambivalent patients with motivational interviewing: https://www.pharmacytoday.org/article/S1042-0991(16)30366-8/pdf

https://www.healthcatalyst.com/insights/motivational-interviewing-healthcare-10-strategies (includes a section called: 10 Motivational Interviewing Strategies)

Motivational Interviewing in Health Care Settings, Opportunities and Limitations: https://depts.washington.edu/fammed/files/501MI.pdf

Motivational Interviewing as a Counseling Style: https://www.ncbi.nlm.nih.gov/books/NBK64964/

Motivational Interviewing Toolkit: https://ireta.org/resources/motivational-interviewing-toolkit/

Motivational Interviewing Resources from SAMHSA-HRSA: https://www.integration.samhsa.gov/clinical-practice/motivational-interviewing

Student MOU with NDSU School of Pharmacy

1815/2300 Grant Advanced Pharmacy Practice Experience Scholarship Agreement
North Dakota State University

This agreement is made and entered by and between the **School of Pharmacy, North Dakota State University**, Fargo, North Dakota, hereinafter referred to as "NDSU", and _____hereinafter referred to as "Student".

WHEREAS: The School of Pharmacy is part of the College of Health Professions, is a major academic unit of North Dakota State University and strives to serve the State of North Dakota and region through its programs in pharmaceutical education, research, patient care and public service, and

WHEREAS: The School of Pharmacy strives to provide students with the highest quality educational experiences required for entering the practice of pharmacy as competent, caring, ethical, learning health professionals and enlightened citizens, and

WHEREAS: NDSU is committed to the pharmacy profession and to society for creating, communicating and applying knowledge about drugs, drug products, and drug therapy, and

WHEREAS: The North Dakota Department of Health, the North Dakota Pharmacist Association, and the School of Pharmacy at North Dakota State University are collaborating on the 1815 grant in North Dakota to enhance pharmacy provided patient care services in North Dakota. These entities will hereafter be referred to as Collaborators of the 1815 grant.

WHEREAS: The student receiving this grant recognizes the value for providing advanced patient care services to patients in the community in which they serve.

WHEREAS: Both parties desire to seek to cooperate to ensure a valuable experiential training experience and to implement the designated patient care services in alignment with the 1815 project objectives and the 1815 designated pharmacy.

THEREFORE: It is mutually agreed upon by and between both parties:

PROGRAM OBJECTIVES:

1. Students will integrate, apply, and reinforce the patient care services which may be related, but not limited to prediabetes, diabetes, hypertension, and hyperlipidemia within the designated 1815/2300 pharmacy site to the degree allowed by the 1815/2300 pharmacy preceptor.

2. Students will communicate with Collaborators on the 1815/2300 grant as needed to ensures successful implementation of pharmacy services within the designated 1815/2300 pharmacy.

3. Students will attend the 1815/2300 Pharmacy and Student training. This training will be held virtually with a mixture of on-demand and live virtual training components.

PROGRAM STRUCTURE:

1. Students must fulfill all eligibility requirements for NSDU's experiential program.

2. The designated 1815/2300 Pharmacy will have a current experiential agreement in place with NDSU, have a current pharmacy license and be registered as an 1815/2300 site.

3. The 1815/2300 pharmacy and preceptor are to uphold all requirements by the NDSU School of Pharmacy Experiential Site Agreement.

4. Scholarship money will be dispersed to the Student upon successful completion of the 1815/2300 Pharmacy Rotation.

5. The student must complete all required assignments for the rotation, including: An evaluation of the site, preceptor, and rotation. In addition, the student will be required to complete an additional perceptions survey (pre/post) from the 1815/2300 program.

6. Students will be required submit weekly patient care logs that will be available to the collaborators on the 1815/2300 grant.

7. During the time the Student is participating in the 1815/2300 pharmacy rotation, the pharmacy shall strive to complete the weekly targets with participation of the Student as identified in the student manual and during the trainings. Weekly tasks are subject to change.

8. Failure to successfully complete items 5-7 will result in loss of scholarship funds.

9. The Student shall reply to all 1815/2300 Collaborator correspondence within 3 business days during the 1815/2300 pharmacy rotation.

10. 1815/2300 Collaborators will have access to all data from items 5, 6, and 7.

ASSURANCES:

1. Should the 1815/2300 Pharmacy no longer agree to take the Student, the 1815/2300 Collaborators will work diligently to find an alternative 1815/2300 pharmacy site for the Student to complete the scholarship requirement. However, a replacement site is not guaranteed.

2. The 1815 Collaborators will maintain the confidentiality of any educational records pertaining to students and are subject to the Family Education Rights Privacy Act (FERPA) received from the Student.

GENERAL AGREEMENTS:

1. It is understood and agreed that the Parties hereto may mutually revise or modify this Agreement only by written amendment, signed by both parties.

2. The student reserves the right to not participate in the 1815/2300 rotation, however scholarship funds will not be dispersed.

3. Notices, as required under this Agreement, shall be deemed to have been properly given or sent when made in writing and deposited in the United States mail, postage prepaid to the following addresses: (or by any other method actually resulting in delivery)

NDSU:	Student:
North Dakota State University	
Attn: Elizabeth Skoy	Name: _____
NDSU Dept 2660	
PO Box 6050	Address: _____
Fargo, ND 58108-6050	_____
Phone: (701) 231-5669	Phone:_____
Fax: (701) 231-7606	
e-mail: Elizabeth.Skoy@ndsu.edu	e-mail: _____

4. All matters relating to the validity, construction, performance, or enforcement of this Agreement shall be controlled by and determined in accordance with the laws of the State of North Dakota. All legal actions initiated with respect to or arising from this Agreement or any provision contained therein shall be initiated, filed and venued solely and exclusively in the State of North Dakota District Court located in the City of Fargo, County of Cass, State of North Dakota.

5. This Agreement contains the entire agreement between the parties and supersedes all prior oral or written agreements between the parties.

IN WITNESS THEREOF, this Agreement has been executed by and on behalf of the parties hereto, the day and year as appears next to their signatures below.

NDSU	**Student**
_____	_____
Dan Friesner, Ph.D. Date	Date
Senior Associate Dean	
College of Health Professions	
Printed Name:_____	Printed Name:_____