Digital Health Literacy: The Super Determinant of Health

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Together We Advance: Inspiring Excellence in Pharmacy

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Disclosures

The speakers have no relevant financial relationship(s) with ineligible companies to disclose.

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None of the planners for this activity have relevant financial relationships with ineligible companies to disclose.

At the completion of this activity, the participant will be able to:

- Define digital health literacy and explain its relevance to today's healthcare model
- Discuss the impact of limited digital health literacy on medication adherence, chronic disease management, and future health outcomes
- Demonstrate how to integrate digital health literacy best practices into clinical and community settings

Digital Health Literacy-defined

- The ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to address or solve a health problem
- Sometimes referred to as **eHealth literacy**

American Library Association . Welcome ALAs Lit Clgh; 2017. Digital Literacy [Internet]https://literacy.ala.org/digital-literacy/ [cited 2025 Sep 23].

Digital Health Literacy

TECHNICAL SKILLS

- Operating computers, smartphones, or tablets
- Navigating websites and mobile applications
- Understanding how to search health information online
- Working telehealth platforms
- Managing personal health records electronically

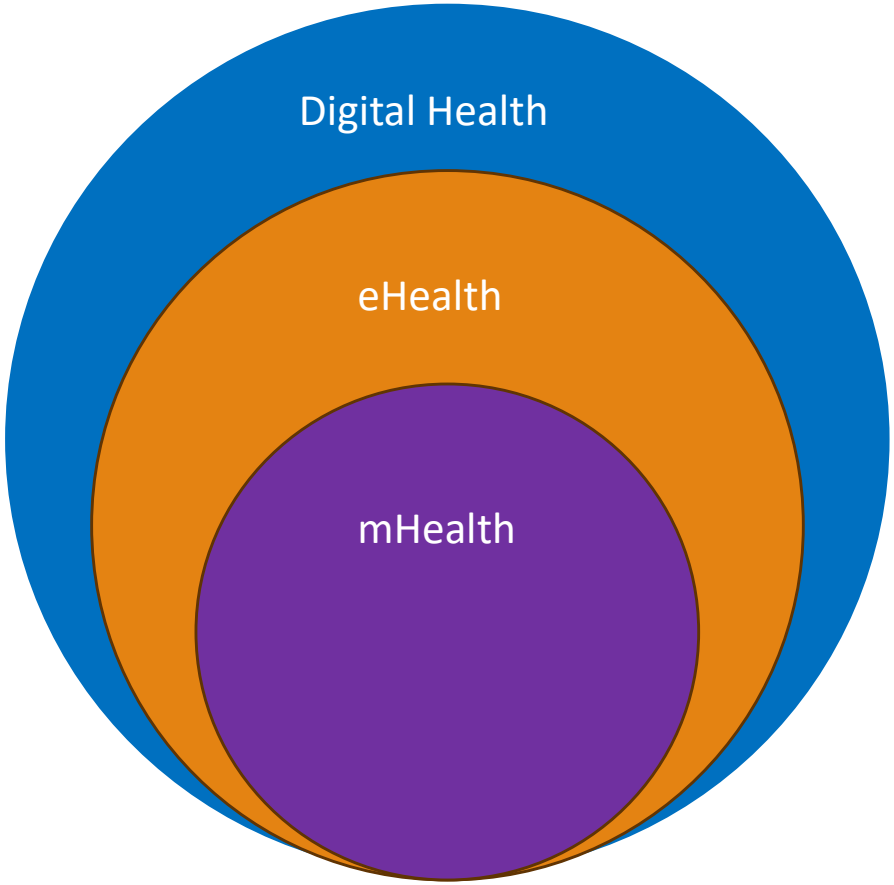
COGNITIVE SKILLS

- Understanding health concepts and terminology
- Evaluating the reliability and relevance of health information
- Analyzing and interpreting health data
- Making informed decisions based on the information gathered
- Problem-solving related to health issues

Smith J, Doe A. Understanding e-health literacy: Technical vs. cognitive skills. J Health Inform. 2023;15(2):45-50. doi:10.1234/jhi.2023.015.

Digital Health Literacy

Understanding	Understanding online health information
Using	Using health applications and tools
Communicating	Communicating with healthcare professionals digitally
Managing	Managing personal health care records
Navigating	Navigating digital healthcare systems



Key Concepts

Transactional Model of eHealth Literacy

Functional

- Utilizing basic reading and writing skills about health using technological devices

Communicative

- Controlling, adapting, or collaborating communication about health with others using online social environments

Critical

- Evaluating the relevance, trustworthiness, or risks of sharing or receiving health related information through the digital ecosystem

Transactional

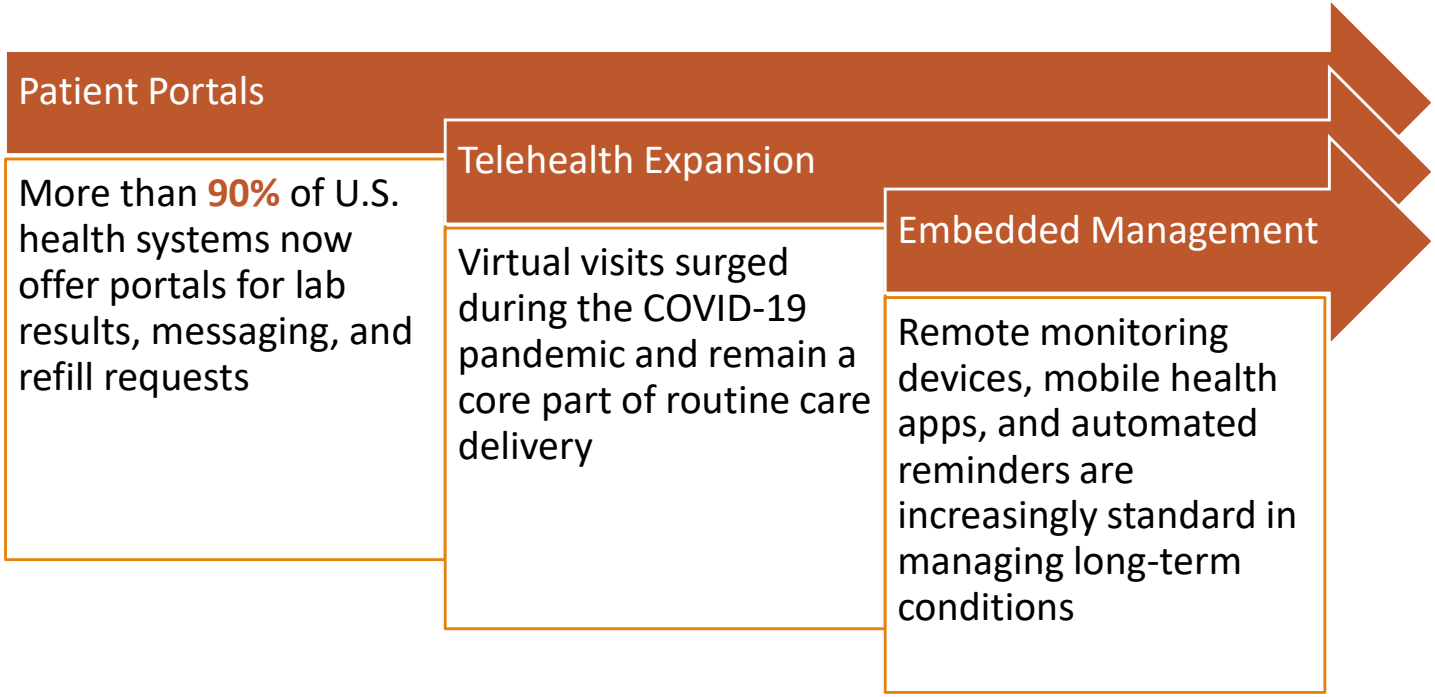
- Applying healthcare knowledge gained from the digital ecosystem across different contexts

Paige SR, Stellefson M, Krieger JL, Miller MD, Cheong J, Anderson-Lewis C. Transactional eHealth Literacy: Developing and Testing a Multi-Dimensional Instrument. *Journal of Health Communication*. 2019;24(10):737-748. doi:https://doi.org/10.1080/10810730.2019.1666940

Factors Affecting eHealth Literacy

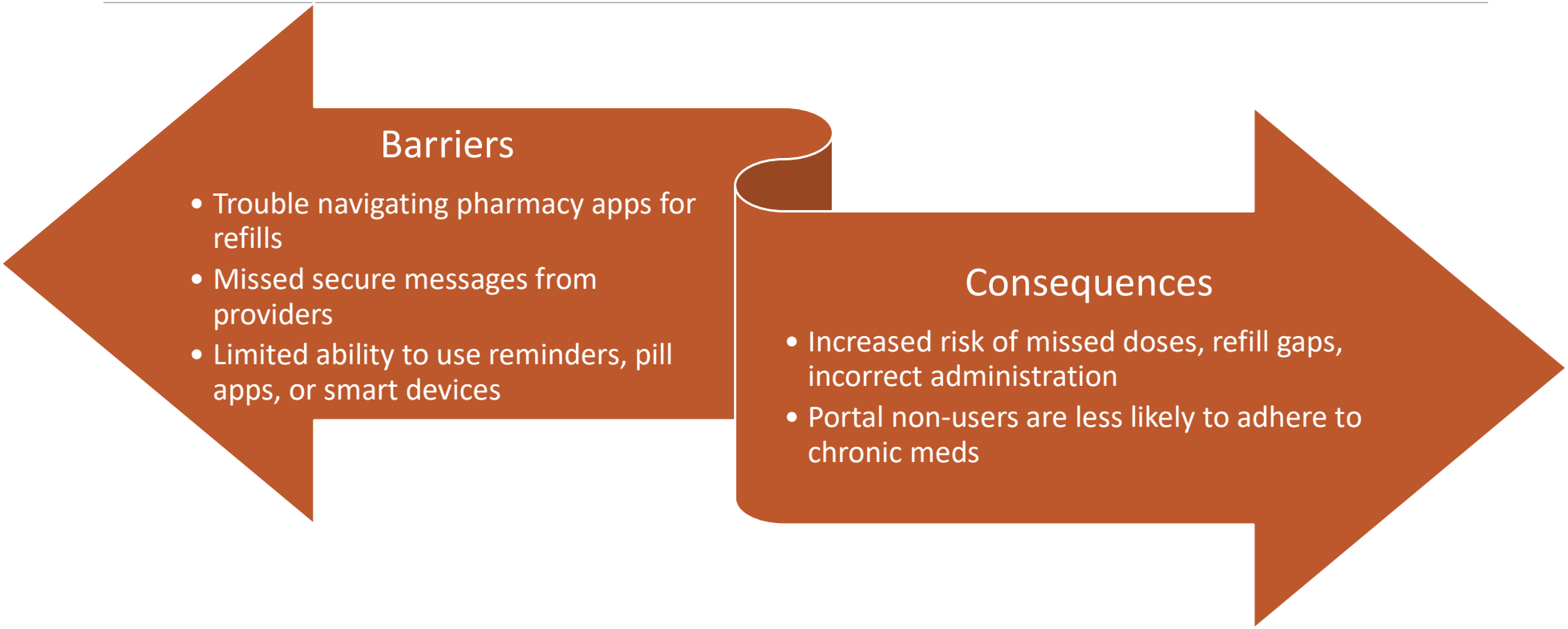
The Impact of Digital Health Literacy

Technological Shift



Mukhtar T, et al. Digital Health Literacy: A systematic review of interventions and their influence on healthcare access and sustainable development Goal-3 (SDG-3). Pak J Med Sci. 2025 Mar;41(3):910-918.

Adherence Roadblocks



Lauffenburger JC et al. Association Between Patient Use of an Online Patient Portal and Medication Adherence. *JAMA Netw Open.* 2021.

Effect on Chronic Disease

Digital literacy directly impacts outcomes

Diabetes:

Patients with low portal use have fewer HbA1c checks and worse control

Hypertension:

Patients unable to upload home BP readings miss therapy adjustments

COPD/asthma:

Poor app literacy = underutilization of inhaler trackers, exacerbation alerts

Sarkar U et al. The Literacy Divide: Health Literacy and the Use of an Internet-Based Patient Portal in an Integrated Health System. *J Health Commun.* 2010.
Green BB et al. Blood Pressure Control in Hypertension: Patient Engagement Using Home Monitoring and Web-Based Pharmacist Care. *JAMA.* 2008.

Impact on Pharmacy Care Delivery

Telehealth Access	Pharmacy Implications
• Limited literacy = missed video visits, reduced continuity of care • Phone-only visits = decreased data sharing	• Pharmacist interventions often rely on remote monitoring, app-based adherence tools, or secure messaging • Low digital skills undercut these strategies

Who is at Risk?

Higher digital literacy gaps observed in specific populations

- Older adults
- Rural communities
- Lower socioeconomic status

Same groups already experience higher chronic disease rates

Neter E, Brainin E. Digital Health Literacy and Health Outcomes in the Era of COVID-19. *J Med Internet Res.* 2021.

Projecting to the Future

Widening Digital Divide

- Healthcare increasingly relies on digital-first strategies
- Patients with limited literacy risk being left behind

Future Trajectory

- Poor adherence + unmanaged disease = ↑ hospitalizations, ↑ complications, ↑ mortality
- Without thoughtful interventions, digital health could unintentionally ***widen health inequities***

Baines D et al. Pharmacists and Digital Health: A Scoping Review. *Res Social Adm Pharm*. 2020.

Bridging the Gap with Pharmacists

Teach patients how to use portals, medication apps, remote monitoring tools

Screen for digital health literacy during MTM or CMR

Collaborate with community groups to improve access

Practical Strategies for Digital Health Literacy

Assessing Digital Health Literacy

- eHealth Literacy Scale (eHEALS)
  - Assesses an individual's perceived skills in finding, evaluating, and applying electronic health information to health problems
- Digital Health Literacy Instrument (DHLI)
  - Measures various dimensions of digital health literacy, including the ability to access, understand, and apply health information found online

eHealth Literacy Scale (eHEALS)

- 8-item five-point Likert scaled eHealth literacy assessment
- Measures combined knowledge, comfort, and perceived skills at finding, evaluating, and applying electronic health information to health problems

I know how to find helpful health information on the Internet
I know how to use the Internet to find health information that is relevant to my health needs
I am confident in my ability to use information from the Internet to make health decisions
I know how to use the Internet to answer my health questions
I am comfortable using the Internet to look for health information
I know how to find and use online health resources
I can tell high-quality health information from low-quality health information on the Internet
I can tell whether a health resource on the Internet is trustworthy

Norman CD, Skinner HA. eHEALS: The eHealth Literacy Scale. *Journal of medical Internet research*. 2006;8(4):e27. doi:https://doi.org/10.2196/jmir.8.4.e27

eHEALS Scoring

Response Scale

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Scoring

The total score is calculated by summing the scores for all 8 items, with a range from 8 - 40

Interpretation

Higher total score indicates a higher level of perceived eHealth literacy: respondent feels more confident in ability to find, evaluate, and use health information online

Digital Health Literacy Instrument (DHLI)

- 21 item assessment with 4-point Likert scale
- Cross cultural adaptions available for use
- Includes both self-reported ratings and performance-based items
  - 7 skill categories
    - Operational skills
    - Navigation skills
    - Information searching
    - Evaluating reliability
    - Determining relevance
    - Adding self-generated content
    - Protecting privacy

van der Vaart R, Drossaert C. Development of the Digital Health Literacy Instrument: Measuring a Broad Spectrum of Health 1.0 and Health 2.0 Skills. *Journal of Medical Internet Research.* 2017;19(1):e27. doi:https://doi.org/10.2196/jmir.6709

DHLI Scoring

Multi-faceted scoring

Self-reported items

- Overall score calculated as the average of all responses across the 21 items
  - Higher score consistently reflects a higher level of digital health literacy
- Sub-score is calculated for each of the seven skill categories by averaging the scores of the items within each respective category

DHLI Scoring

Performance based items

- Five response options, including four potential answers (only one of which is correct) and an "I don't know" option
- Correct answer is awarded 1 point, while incorrect answers and "I don't know" responses receive a score of 0
- The total score obtained by summing the scores of the correct answers (max score = 7)

Assessing Digital Skills

- Access and effective use of tools
- Self-management of chronic health conditions
- Improvement of quality of care and health outcomes

Help with Pairing

A patient is asking for assistance to pair their blood pressure monitor to Bluetooth® so that the data can be shared with your clinic and blood pressure readings can be viewed. The directions for pairing are available from the manufacturer.

Before You Start Pairing Check Compatibility. Before you begin, ensure that your blood pressure monitor is compatible with your phone. Check the product specifications or the user manual to confirm if your device supports wireless pairing. Download the *** App. Next, you need to download the *** app on your phone. The ** app is available for both iOS and Android devices. Simply go to the App Store or Google Play Store, search for "*** and download the app onto your phone. The app is free to download and use. Create an Account. Once you have downloaded the app, open it and create an account. You will need to provide some basic information and set up a username and password. Creating an account will allow you to securely store and access your blood pressure readings.

Go to the settings menu and find the Bluetooth® option. Toggle it on to enable Bluetooth® connectivity. This step is crucial as it allows your phone to communicate with your blood pressure monitor. Pair Your Device Once you checked the compatibility, downloaded the app, created an account, and enabled Bluetooth® then you are ready to start pairing. Tap the + sign at the bottom of the screen and then click the Profile icon. Select the Connect Devices box and then tap "Add new device." A list of products will be shown. You will select the Blood Pressure Monitors. It will then ask you to press and hold either the transfer or Bluetooth® button on your blood pressure monitor for 3-5 seconds until you see a flashing "P" on the device screen. Tap "Next: Begin pairing" on your phone. The photo of your blood pressure monitor should appear on your phone screen. Tap the photo of your blood pressure monitor. Confirm pairing by tapping on "Pair" on your phone. The display on your blood pressure monitor will flash indicating the pairing is complete. Please note if you blood pressure monitor allows two users then you will be asked to select the User number. If you are the only one using the blood pressure monitor, then you can select User 1.

How can we assist the patient with pairing the device?

Assessing Digital Skills

- Administering informal assessment
- Providing patient centered instructions for using digital tools
- Employing the Teach-back method
- Using visual aids
- Creating educational materials
- Offering one-on-one training sessions

Pairing Your Blood Pressure Monitor with Your Phone

Step 1: Check Compatibility

- Look at your monitor·s manual or box
- Make sure it supports Bluetooth pairing

Step 2: Download the App

- Go to the App Store or Google Play
- Search for "***"
- Tap Download · it·s free

Step 3: Create an Account

- Open the app
- Enter your information
- Set a username and password
- This saves your readings securely

Step 4: Turn On Bluetooth

- Go to your phone·s Settings
- Find Bluetooth
- Toggle it ON

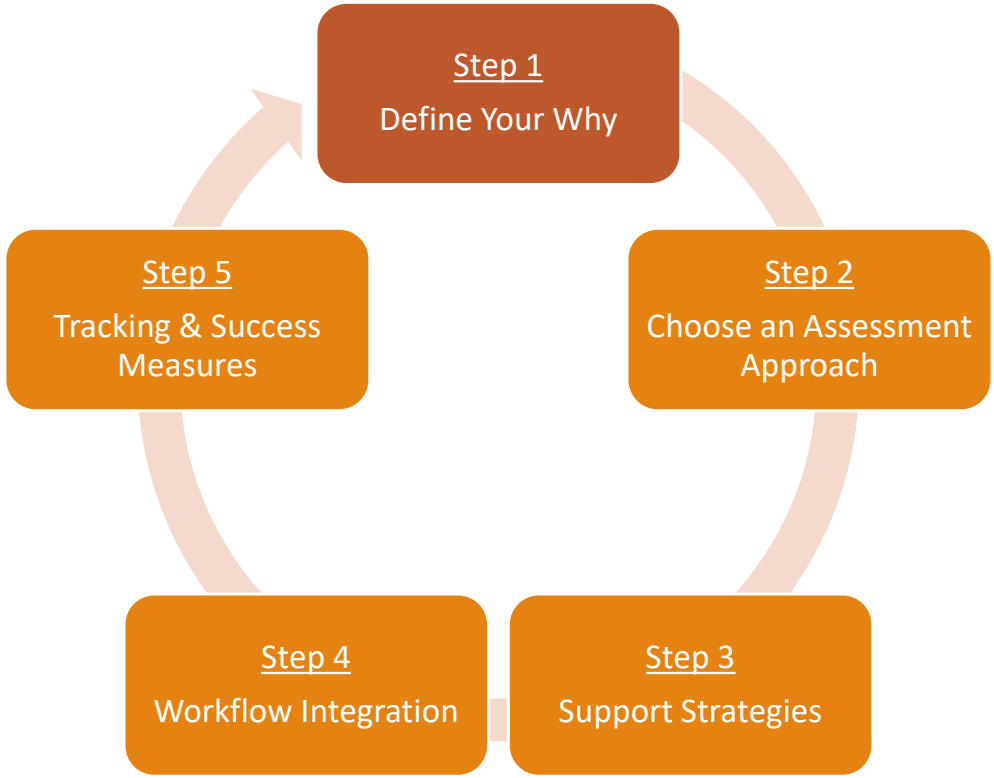
Step 5: Pair Your Device

- Confirm compatibility, app download, account, and Bluetooth are ready
- Tap the + sign in the app
- Tap the Profile icon
- Tap Connect Devices · Add New Device
- Choose Blood Pressure Monitor
- Press & hold the Bluetooth or Transfer button on your monitor (3·5 sec)
- Look for a flashing ·P· on the monitor
- Tap Next: Begin Pairing
- Tap the photo of your monitor
- Tap Pair
- Monitor will flash · pairing complete

Step 6: Choose User

- If your monitor supports 2 users:
- Select User 1 if you're the only one using it

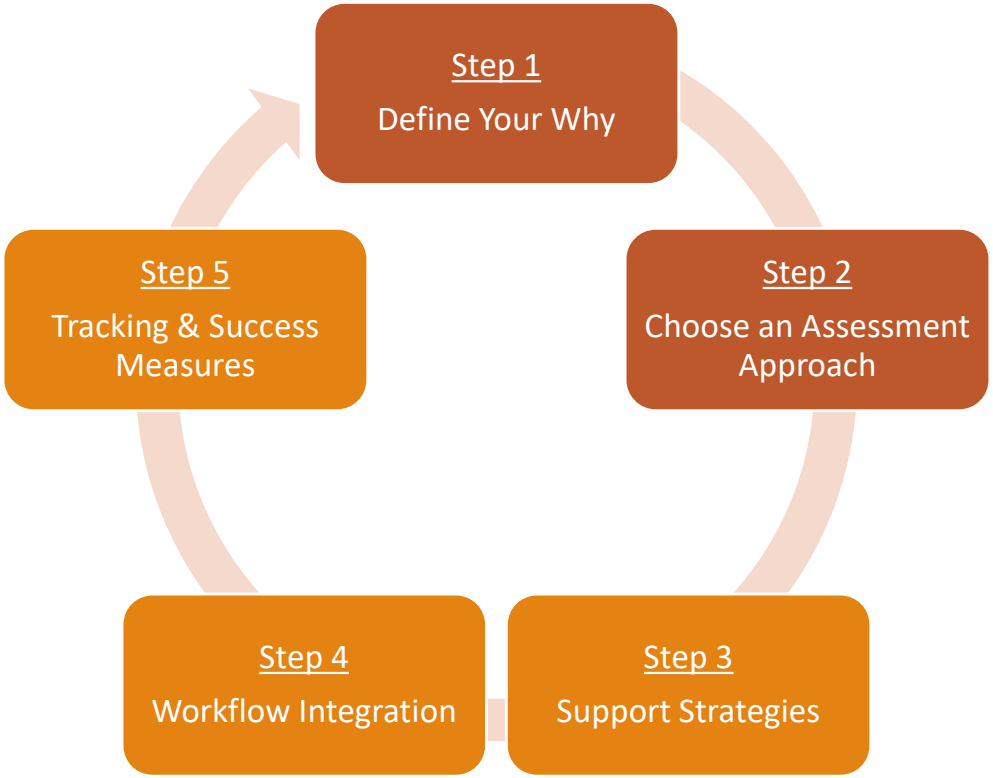
Action Planning



Why is supporting digital health literacy important in your setting?

- Adherence
- Chronic disease management
- Patient engagement
- Addressing disparities

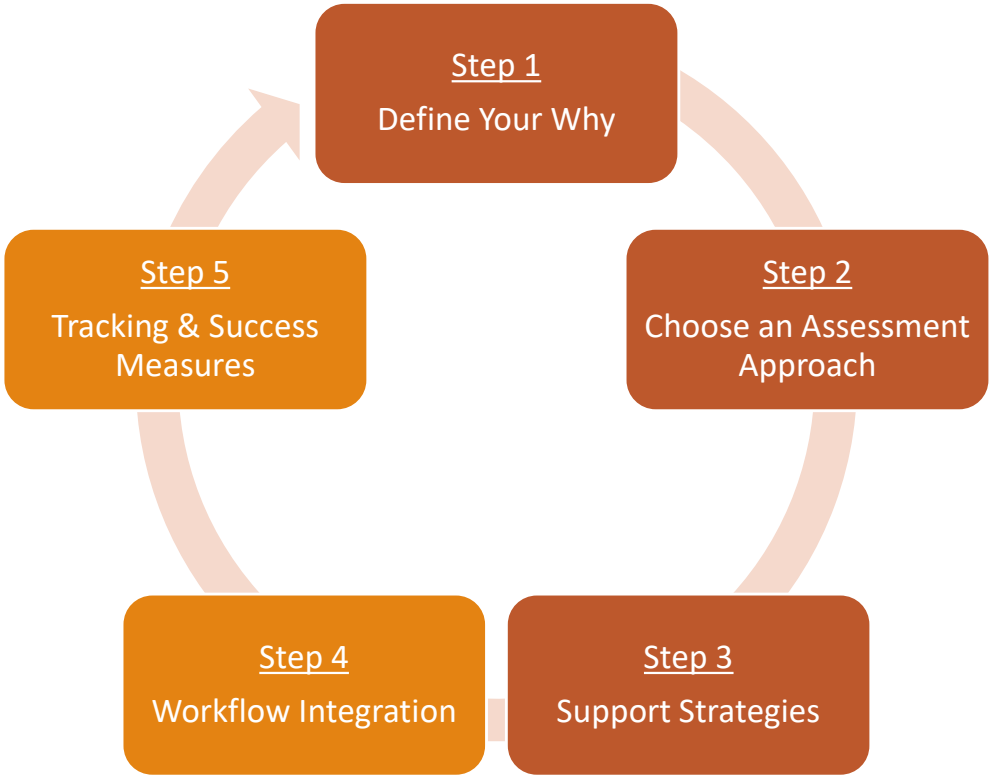
Action Planning



Feasible Assessment

Use	Use a validated tool (eHEALS, DHLS)
Ask	Ask informal questions → “Do you use our portal/app?”
Observe	Observe during refills or counseling

Action Planning



Strategic Implementation

SIMPLE, STEP-BY-STEP INSTRUCTIONS

TEACH-BACK METHOD

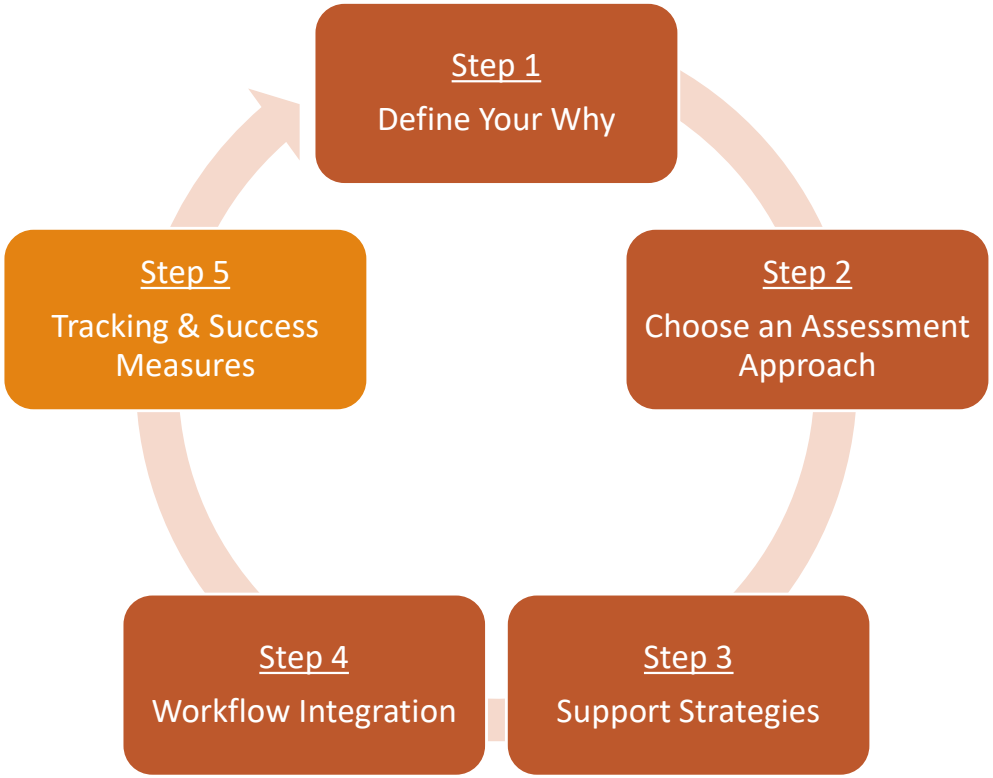
VISUAL AIDS

SHORT VIDEO TUTORIALS

GROUP SESSIONS

ONE-ON-ONE TRAINING SESSIONS IN THE PHARMACY

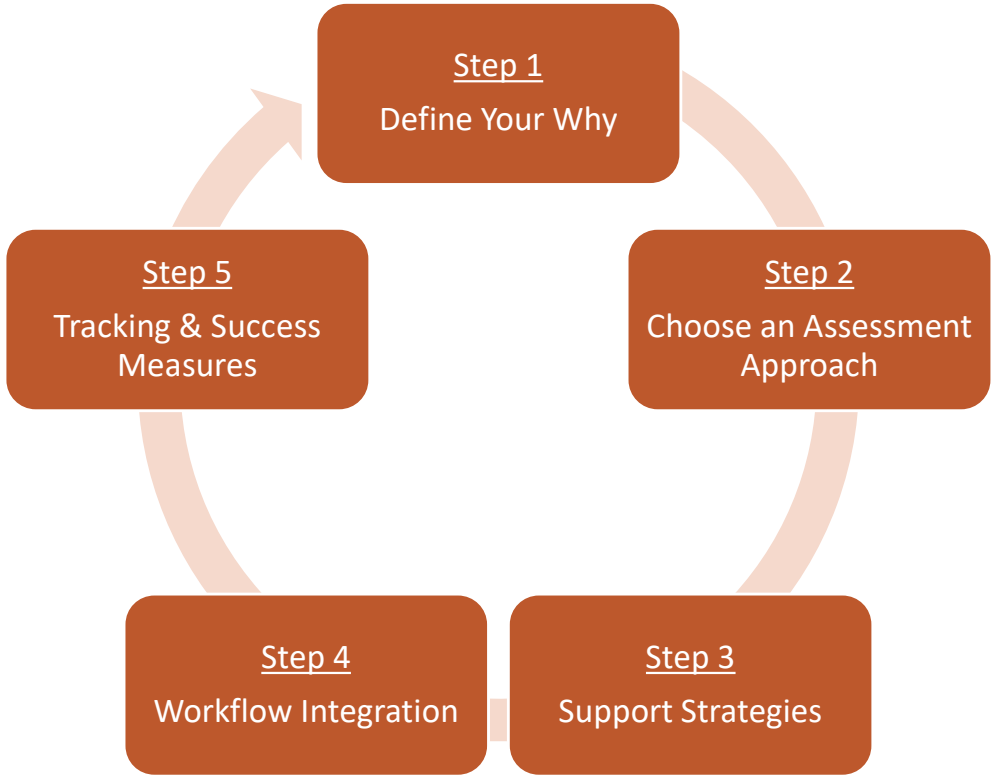
Action Planning



Workflow Considerations

- New prescription counseling
- Chronic disease follow-up visits
- Immunization clinics
- MTM/CMR sessions
- Promotional materials
- Pharmacist vs. technician vs. other staff

Action Planning



Measuring Success

% OF PATIENTS SIGNING UP FOR THE PORTAL AFTER COUNSELING

OF PATIENTS TRAINED ON APP/PORTAL USE

PATIENT SELF-REPORTED CONFIDENCE

STORIES OR FEEDBACK FROM PATIENTS

IMPROVED PDC RATES

PRESCRIPTION CAPTURE RATE

Case Scenarios

Scenario 1: Low Digital Health Literacy

Recently discharged from the hospital after a heart attack, KD presents to your pharmacy to pick up a “few medications” for himself. He was given instructions to use the new "MyChart" patient portal to schedule follow-up appointments, track his new blood pressure readings, and request refills. He is uncomfortable with computers and doesn't own a smartphone. He often nods and says "yes" to end a conversation, even when he doesn't understand, including as you counsel on his new medications today.

Personalized Care Delivery

What non-verbal cues from the patient indicated his low digital literacy?

How would you pivot from a digital solution to a non-digital one?

How can you use the "teach-back" method to ensure he understands his medications and follow-up plan?

Scenario 2: The Connected Caregiver

72-year-old patient and their neighbor present to your community pharmacy wishing to set up the patient's continuous glucose monitor (CGM). The patient lives alone but the neighbor can help throughout the week, often during the day when their child is at school. The patient has access to a computer with internet service at the house but does not have a phone compatible to pair CGM to sensor currently. The neighbor offers to assist with connecting the CGM on her phone since she "lives next door and can be over in a minute in case anything happens". The patient expressed willingness to learn how to connect and use this new device to better control blood sugar stating "I might not be the most tech savvy, but I am willing to give anything a try!"

Empowering the Patient

What tools/techniques would you use to assist with CGM set up?

What steps can you take to confirm both patient and caregiver understanding?

How can you involve the neighbor while maintaining patient autonomy?

Empowering the patient in decision making process

1. Personalize instructions
2. Provide visual aids
3. Scheduled time to help with sensor and device connection
4. Recommend reliable resources for support
5. Follow up!

Involving a Collaborative Caregiver

1. Shared health records
   - To set up and manage shared access to stay informed
2. Telehealth coordination
   - To schedule and facilitate reminders and appointments
3. Health monitoring "buddy apps"
   - To set up and use mobile applications for vital tracking, medication tracking, or symptom logging
4. Educational resources
   - To find reliable online resources about the patient's condition
5. Communication tools
   - To facilitate communication among healthcare team, patient, and caregiver

Scenario 3: High Digital Health Literacy

KB, a 55yo patient with type 2 diabetes, arrives for his follow-up appointment with you (the pharmacist). He is comfortable using technology and tells you he has been "doing a lot of research online." He pulls out a 6-page printed article from a diabetes discussion forum, highlighting a post where someone claims that a specific herbal supplement can "reverse diabetes without medication."

He looks at you expectantly and says, *"I think I should stop my metformin and try this instead. What do you think?"*

Navigating Internet “Truths”

How would you validate the patient's effort without validating unreliable information?

What strategies could you use to guide the patient toward credible sources?

How would you be able to leverage the patient's existing digital skills to improve his care?

Scenario 4: The New Patient

PH is a new patient presenting to clinic for a routine check-up. She has a history of heart failure self-management but has recently been experiencing some difficulties with her treatment plan. During the intake process, Dr. Smith notices the patient seems hesitant when asked about potential use of remote monitoring of blood pressure and recorded daily weights as well as the use of the patient portal for symptom tracking. PH says she prefers tracking everything on paper and likes to avoid all the other "technology stuff that can interfere with her taking care of herself." He asks you to come in and assess any potential digital health barriers the patient may have.

Assessing Baseline eHealth Literacy

What cues did the patient provide about her digital literacy level?

What steps would you take to assess digital health literacy?

How can you utilize the patient's current digital skills to enhance their care?

Assessment Steps

Ask open ended questions

Notice observations

Specific probing

Clarification of terminology

Resource availability

Assessment Steps

Initial questions	Specific probes	Terminology	Available Resources
• Can you tell me about how you usually access health information?" • "What devices do you use to manage your health?"	• "Have you ever used a patient portal to view your medical records or communicate with your healthcare team?" • "Do you use any health apps on your smartphone?"	• Remote monitoring • Telehealth • Patient portals • Terminology clarification	• Tutorials • Follow up visits for connectivity help

Need More Information?

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