



INFUSING TECHNOLOGY INTO CHRONIC DISEASE MANAGEMENT *WE HAVE AN APP FOR THAT!*

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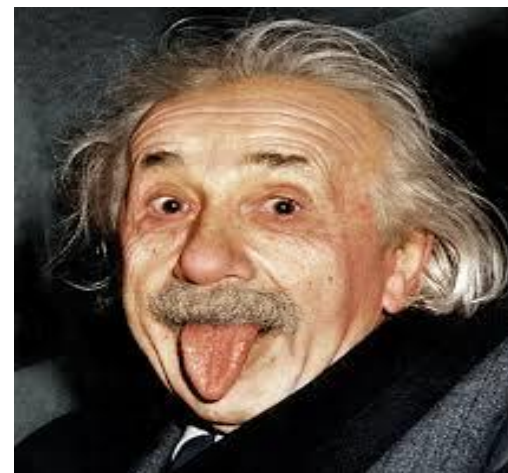
UNITED STATES OF AMERICA

AtlantiCare a member of Geisinger Health System:

- Located in Southern New Jersey
- Non-Profit healthcare organization serving diverse urban and rural populations
- 567 bed teaching hospital
- Level I trauma center, comprehensive stroke center, interventional cardiology providing open heart surgery
- Ambulatory services including primary care, urgent care, and specialty care locations throughout the state



WELL-KNOW 'JERSEY' RESIDENTS



OBJECTIVES

Upon completion of this educational presentation the learner will be able to:

- Describe at least three features of the ‘Manage ME’ chronic condition self-management education model that serve to ensure the delivery of self-management focused patient education across the healthcare continuum in that is: standardized, patient –centric, consistent, collaborative, progressive, and successful
- Identify at least three opportunities for improvement within current self-management education delivery models
- Describe at least three potential benefits of infusing technology into the daily self-management practices of patients living with chronic conditions



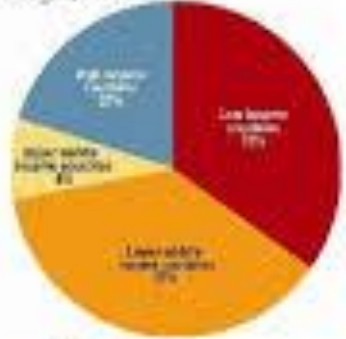
BACKGROUND

Reality: 80% of chronic disease deaths occur in low & middle income countries

10

MISUNDERSTANDING CHRONIC DISEASES MAINLY AFFECT HIGH INCOME COUNTRIES

Projected global distribution of chronic disease deaths by World Bank income group, all ages, 2005



Preventing **CHRONIC DISEASES** a vital investment



The Impact of Chronic Disease Cost

Data from: Harvard Public School of Health's project on the global burden of disease

Growth in chronic diseases will continue to put increased pressure on **ALL** healthcare systems, worldwide.

Source: WHO WORLDWIDE ON HEALTH by MICHEL FALDHOUT, November 20 2007

Harvard School of Public Health www.hsph.harvard.edu





WORLD HEALTH ORGANIZATION

“Adherence has been identified as one of the most important modifiers of over-all healthcare-system effectiveness”

We Have An App For That!

ADDRESSES THE FOLLOWING COMMON CAUSES OF DECREASED ADHERENCE (WHO)

- Impaired knowledge to **Improved knowledge**
- Decreased activation to **Increased activation**
- Impaired support system to **enhanced support system** via technology/connectivity to healthcare team
- Impaired physical ability – ease of use of Wow Me app in **home environment**
- Financial constraints – **eased by free** Wow Me app & increasingly competitively priced mobile phones & plans





ACROSS THE GENERATIONS & CULTURES

Ever-present
use of
technology



Wow Me App is
a Technological
Disrupter

Leverages
addictive
nature of
technology to
change
behaviors



LIMITED EMPIRICAL RESEARCH

Positive Behavioral Change

Connected health technologies (e.g. diet & fitness apps) promote positive behavioral changes through simple psychological mechanisms

(Fitzgerald et al., 2016)

Technology-based interventions increase adherence to self-management behaviors

(Su, et al., 2014)

Negative Behavioral Change

- Relationship problems (bullying etc.)
- Work intrusion
- Dangerous use (e.g. using whilst driving resulting in fatal traffic accidents)

- Scholars believe it is an addiction however there is scarce evidence to support that it is an legitimate addictive behavior

(Billieux, et al., 2015)





HOW LONG DOES IT TAKE TO FORM A NEW HABIT?

Timeline

- Common myth promoted by self-help gurus is **21** days
- Academic study triples & places it at **66** days
- Anywhere from 18 days to 254 days (2 to 8 months)

Habits are a Process not an Event

“Missing one opportunity to perform the behavior did not materially affect the habit formation process”
(Lally et al., 2009)

Slips and missteps are acceptable and part of a process of change



MEASUREMENT INSTRUMENTS WORKING IN SYNERGY

Patient Activation Measure (PAM)

- 10 statements to assesses knowledge, skills and confidence for self-management.
- PAM segments responses into one of four progressively higher levels of activation (1-4)
- Identifies optimal learning opportunities

(Insignia Health, 2014)

- Self-scored from
 - 1 “disagree strongly”
 - 4 “agree strongly”

Self-Care of Heart Failure Index (SCHFI)

- Questions 3 sections
 - A. Routine - 10 items e.g. wt., meds etc.
 - B. Trouble breathing or ankle swelling?
 - Used a remedy (e.g.. take an extra water pill)?
 - Did it help?
 - C. Confidence in symptom recognition?
- Self –scored from
 - 1 “Never or Rarely” to
 - 4 “Always of Daily”



EXAMPLE OF ACTIVATION AND FORMATION OF A NEW ROUTINE USING WOW ME APP

Project timeframe of 30 Days

- Every participant sent at least one completed “patient log” every seven days obtained via the Wow Me app messaging functions
(included daily weight, symptom assessment , HR, BP as appropriate)
- 4 Logs in 30 days

PAM Gains in
Activation = **highly
likely** to persist
long term

Goal achieved to increase adherence

- **Engaged** - acceptance of personal responsibility & ownership of their health
- Taking an **active role** in their own healthcare – problem solving with self-remedy
- **Assertiveness** - increased confidence: acted on coaching to contact a provider for guidance
- **Partnership** – equality within team
- **Being able to maintain lifestyle changes** (daily weights, symptom assessment)



CHANGING BEHAVIOR & REDUCING HOSPITAL ADMISSIONS

Outcome	n=25
Participants that were admitted to the emergency department or hospital during 30-day intervention timeframe (Self-reported/confirmed by medical residents)	0
App. prompted a call to provider	18
App. prompted an office visit with provider	6
Caregivers that plan to continue app. use	10
Participants plan to continue app. use	18



OPPORTUNITIES FOR IMPROVEMENT

- Multiple educators (nurses, providers, health-coaches, etc.) - *All with varied levels of expertise and confidence*
- Varied educational resources across continuum
- Lack of standardization across the continuum- led to inconsistent and conflicting information
- Adult Literacy & Health Literacy
- Cultural sensitivity



'MANAGE ME' SELF-MANAGEMENT FOCUSED EDUCATION DELIVERY TOOLKITS

Heart Failure Toolkit
Implemented- Circa 2009



Diabetes Toolkit
Implemented- Circa 2012



ADDRESSES EDUCATIONAL OPPORTUNITIES

- Consistent delivery by all healthcare team members (regardless of education, experience and comfort levels)
- Standardized educational message (easily updated)
- Patient centric with imbedded knowledge assessments
- Optimized popular technological advances
- Reduces time and paper
- Simplifies overwhelming conditions
- Graphics and use of plain language (11yrs) with intuitive navigation
- App available in Spanish & Portuguese (Working on Mandarin & Hindi)
- Successfully bridges the healthcare continuum










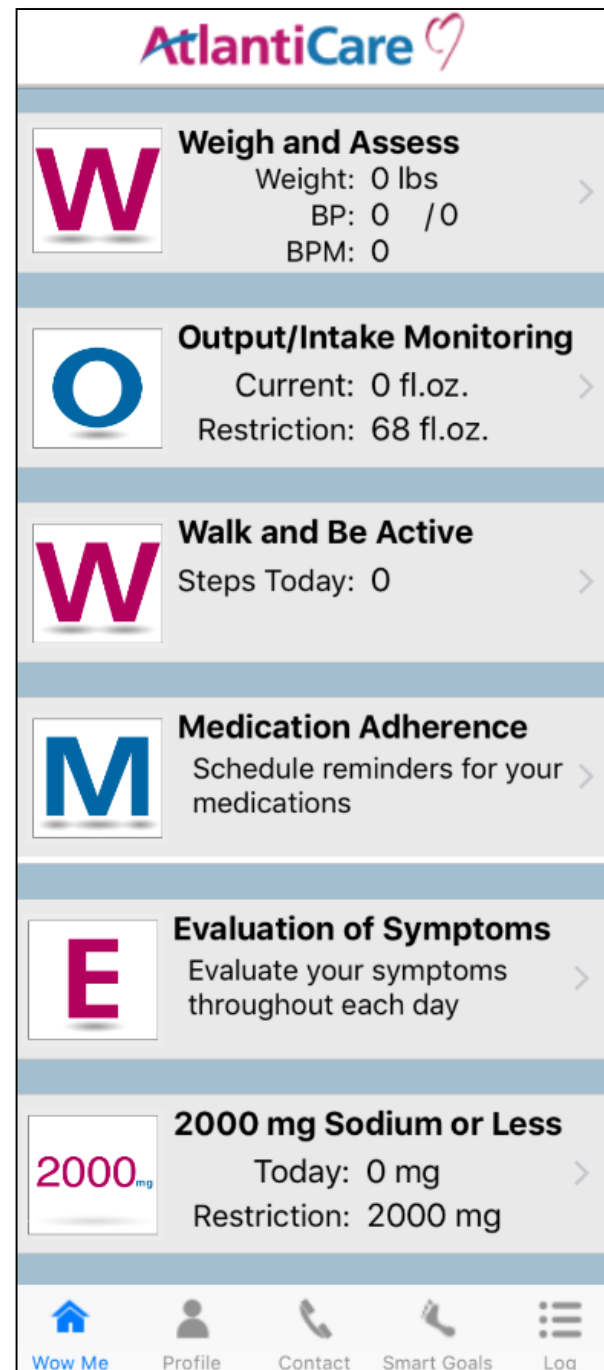
WOW ME 2000_{mg}

If you have downloaded the app – let's start the interactive experience!

WOW ME 2000 HEART FAILURE SELF-MANAGEMENT SMART DEVICE APP.

- Navigation Bar

-  Wow Me
-  Profile
-  Contact
-  Smart Goals
-  Log



MY



PROFILE

- To ensure that app. functions to its maximal level of performance, the patient profile must be completed
- During a recent pilot project, the patient profile was completed by: a nurse care manager, medical resident, or project lead
- Ranges created with guidance provided by a Nurse Practitioner, physician, or medical resident
- E-mail address of project lead was utilized during the project



My Profile

Name	Donald >
Healthy Weight	266 lbs >
Fluid Restriction	68 fl.oz. >
Sodium Restriction	2000 mg >

Baseline Blood Pressure Settings

Systolic Range	100 to 140 >
Diastolic Range	50 to 90 >

Heart Rate Settings

Acceptable Range	55 to 100 BPM >
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Primary Care Provider Information



ALERTS ENCOURAGE PROACTIVE ACTIONS

- Through the use of Clinical Decision Support software, the app evaluates manually entered data against patient profile ranges
- Warning alerts are triggered if data is outside of desired ranges
- Instructs patient to contact care provider
- Call to a provider is initiated with just a tap of the screen


The screenshot displays the AtlantiCare mobile application interface. At the top right, a 'My Contacts' list includes: Care Provider, Cardiologist, Pharmacy, and Heart Failure Resource Center. A red arrow points from the 'Care Provider' contact to a yellow alert box. The main content area is divided into two sections: 'Weigh and Assess' and 'Output/Intake Monitoring'. The 'Weigh and Assess' section shows a large purple 'W' icon, a weight of 130 lbs, a blood pressure (BP) of 160/90, and a heart rate (BPM) of 120. Below this, a yellow alert box states: 'ALERT: please contact care provider. Systolic BP should be between 110 and 140. Diastolic BP should be between 60 and 85. Heart Rate should be between 60 and 100 BPM'. The 'Output/Intake Monitoring' section shows a large blue 'O' icon, a current intake of 320 fl.oz., and a restriction of 68 fl.oz. At the bottom, a red banner reads: 'You are above restricted daily amount.'


EVALUATION OF SYMPTOMS


- This Symptoms checker helps patients to log how they are feeling each day
- It helps patients to identify and take early action when they start to have signs and symptoms of heart failure decompensation
- The tool provides specific guidance in response to patients selections
- Tap one or more symptoms and select “Evaluate”


Cancel (i) Evaluate


Select your symptoms...


 **No Symptoms**
You are experiencing no symptoms.

 **Fatigue**
a generalized feeling of tiredness or feeling under the weather

 **Activity Intolerance**
having a decreased ability in completing your normal everyday activities

 **Congestion**
difficulty breathing, coughing, or feeling like you have a cold

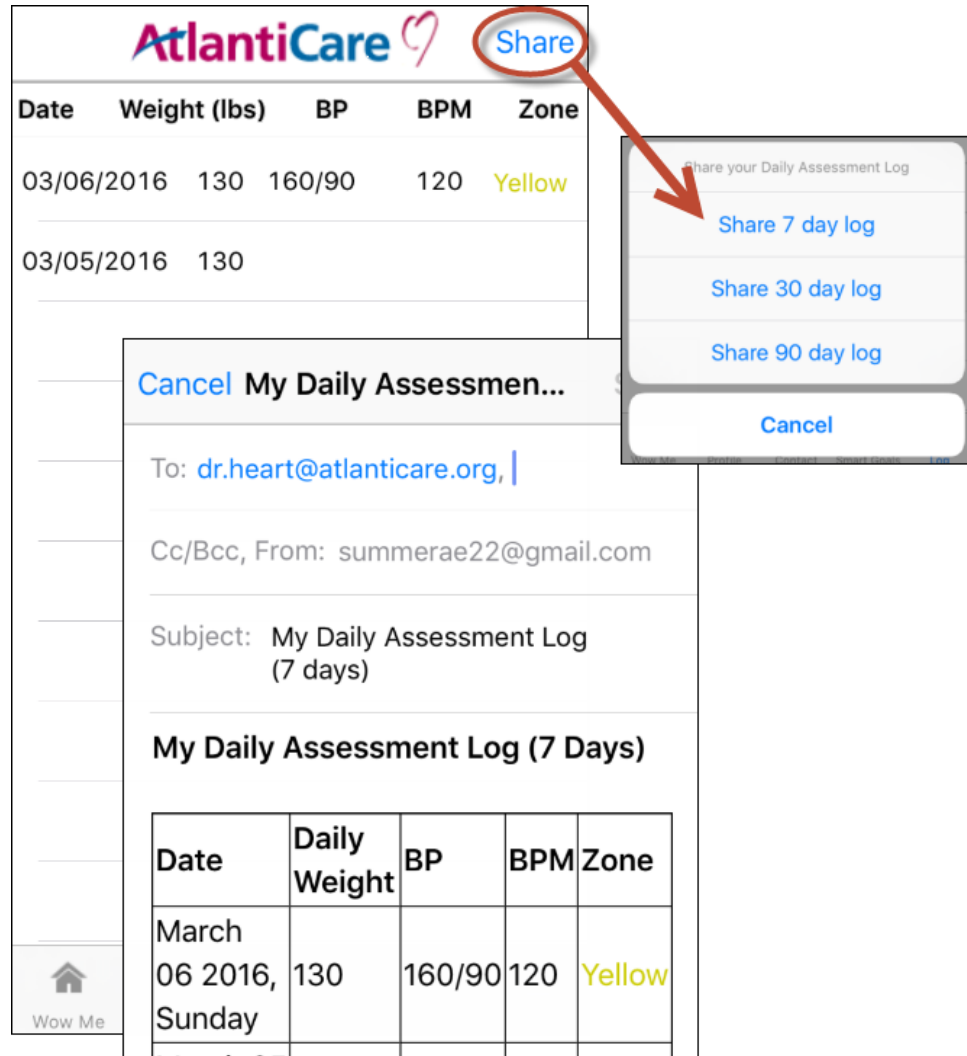
 **Edema**
swelling that is usually most noticeable in the abdomen, legs, ankles, and/or feet

 **Shortness of Breath**
Difficulty breathing with activity and/or rest. Trouble breathing while lying flat requiring extra pillows under your head or you may even need to sleep upright in a chair in order to breath



LOG

- Displays running log with date, measurements and zone
- Includes ability to Share a 7 day, 30 day, or 90 log via email
- Stores emails of medical team for timely and convenient sharing of data
- Utilized during recent pilot project to confirm daily app. usage



The screenshot shows the AtlantiCare app interface. At the top, the AtlantiCare logo is visible, along with a 'Share' button circled in red. Below the logo is a table with columns: Date, Weight (lbs), BP, BPM, and Zone. The table contains two entries: 03/06/2016 with 130 lbs, 160/90 BP, 120 BPM, and a Yellow Zone; and 03/05/2016 with 130 lbs. A sharing menu is open, showing options to 'Share 7 day log', 'Share 30 day log', and 'Share 90 day log', with a 'Cancel' button at the bottom. Below the menu, an email composition screen is visible, with the 'To' field containing 'dr.heart@atlanticare.org', the 'Cc/Bcc, From' field containing 'summerae22@gmail.com', and the 'Subject' field containing 'My Daily Assessment Log (7 days)'. Below the email fields, the title 'My Daily Assessment Log (7 Days)' is displayed, followed by a table with columns: Date, Daily Weight, BP, BPM, and Zone. The table contains one entry: March 06 2016, 130 lbs, 160/90 BP, 120 BPM, and a Yellow Zone. At the bottom left, there is a home icon and the text 'Wow Me'.


Date	Weight (lbs)	BP	BPM	Zone
03/06/2016	130	160/90	120	Yellow
03/05/2016	130			

Date	Daily Weight	BP	BPM	Zone
March 06 2016, Sunday	130	160/90	120	Yellow



INTERACTIVE SYMPTOM ASSESSMENTS


GREEN ZONE All Clear



Congratulations! You are in the "Green" keep up the great work. Continue to take your medications, monitor your fluid intake, and to limit your sodium intake as prescribed. Have a great day!

[Continue...](#)

[Cancel](#) **YELLOW ZONE Caution!**




You are beginning to show signs of Heart Failure Decompensation. It is recommended that you contact your provider or your Heart Failure Resource Center now to report these symptoms. Reporting these symptoms early may help you to reverse these symptoms and get you back into the "Green Zone" before your symptoms worsen taking you into the "Red Zone".

[Call Care Provider](#)

[Call Heart Failure Resource Center](#)

RED ZONE EMERGENCY! [OK](#)



If it has become a struggle for you to breathe even at rest and/or you have developed chest pain, dizziness and/or an overwhelming feeling of panic, then it is time to take action by calling your local emergency number NOW!

[Medical Emergency](#)



RECOGNITION

Innovation

American Nurses Credentialing Center(ANCC) Magnet Commendation for innovative nursing practice (2014)

*Invited to podium for the National Convention:

Diversity in Practice: Strength Through Collaboration
October 2017-Houston Tx



Best Practice

- The Joint Commission of Hospital Accreditation have recognized the Manage Me Model© inspired Heart Failure Toolkit as best practice for nurse innovation (2010)
- Hospital Quality and Safety Inc. recognizes this work as an innovative 'Best Practice'

**PATIENT CENTRIC SELF-MANAGEMENT
SPECIFIC SMART-DEVICE APPLICATIONS
APPEAR TO SUPPORT SUCCESSFUL SELF-
MANAGEMENT BEHAVIORS OF BOTH
HEART FAILURE PATIENTS AND THEIR
CARE-GIVERS AND REDUCE HOSPITAL
ADMISSIONS**

Concluding Thought

Adherence has been
identified by WHO as
one of the most
important modifiers of
over-all
healthcare-system
effectiveness

GOT A
Question?

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