

Technology solutions in health care

Linda Wick, MSN, CNP

Sr. Director of Ambulatory Nursing

Sr. Operations Director, Cardiology, CT surgery

University of MN Physicians

Definition of insanity

- ▶ Doing the same thing expecting a different result

- ▶ We've been doing the same “model” of out patient care since 1960.
- ▶ The cost of care for chronic disease in the US is unsustainable. Yet, we keep doing the same thing expecting a different result.

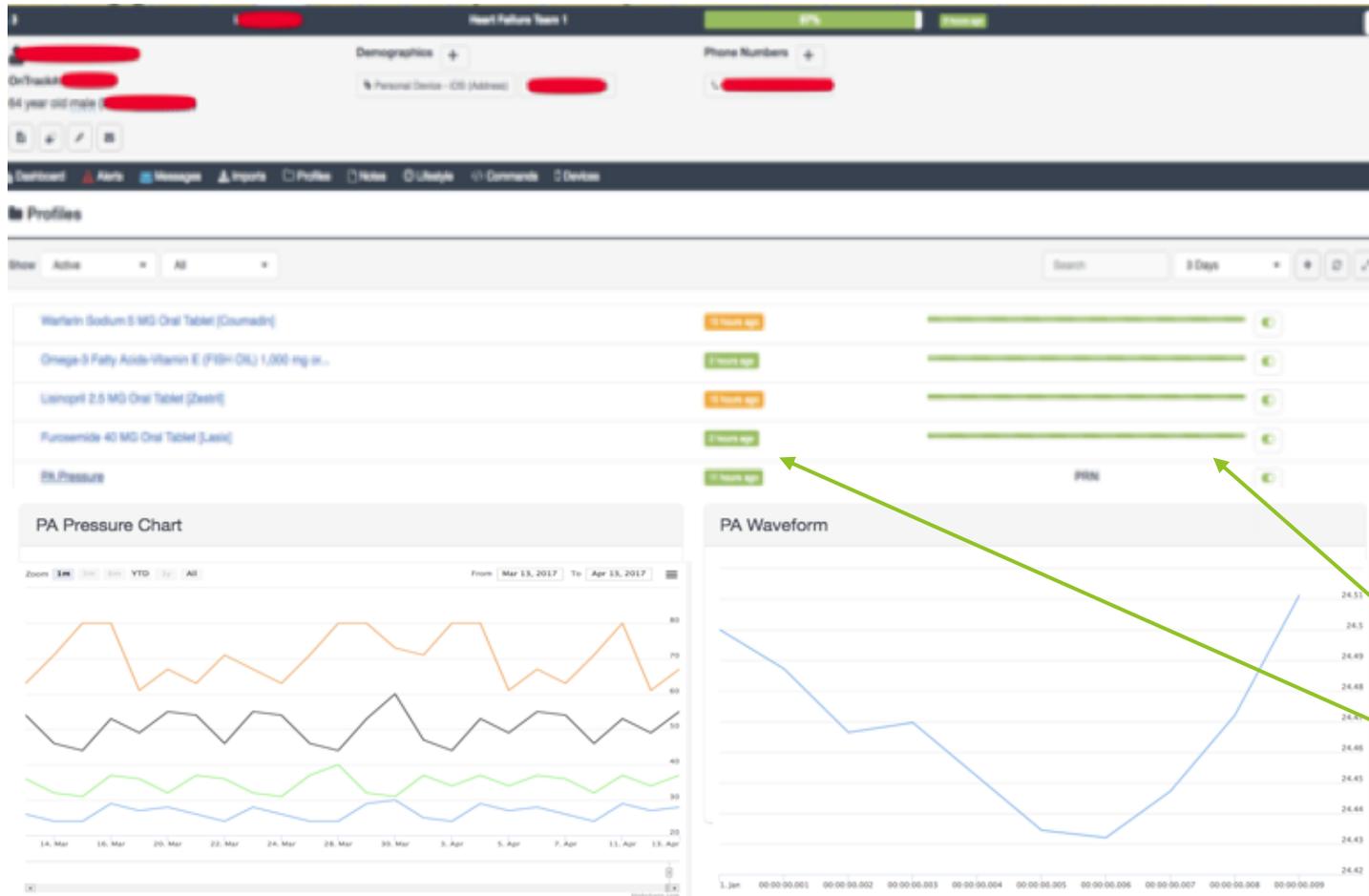
What are the barriers to using technology?

- ▶ Up front cost
 - ▶ Equipment
 - ▶ IT
 - ▶ Legal
 - ▶ Staff training
- ▶ Provider unfamiliarity
- ▶ Patient unfamiliarity
- ▶ HIPAA
- ▶ Bias about technology in elderly

Sharing patient information across systems

- ▶ PT owns their health information!! Not the health system
- ▶ U of M experience:
 - ▶ Shared care with VAD patients
 - ▶ Pt requested use of On Track with primary cardiology clinic/U of M
 - ▶ Shared treatment plans with patient/each care team knew what the other was doing
 - ▶ Pt was actively involved in treatment plan

Example of Patient with CardioMEMS Implant



PA Pressures are put in context with the patient's accurate medication list as well as adherence.

For each medication, the **percentage** of adherence for the last three days as well as the **time** of the most recent adherence is displayed all on one screen.

Clinician Dashboard View

The dashboard features a dark sidebar on the left with the following navigation items: Dashboard, New Patient, Groups (Heart Failure Team 1, 2, 3, OnTrack Tech Support, Oncology, Patient Compliance), VAD, VAD CC, All, and My Messages. The top right header includes 'OnTrack Resources', '(CentraCare Health) Admin, Client', and a power icon.

The alert list on the left shows seven items with red triangle icons and patient counts:

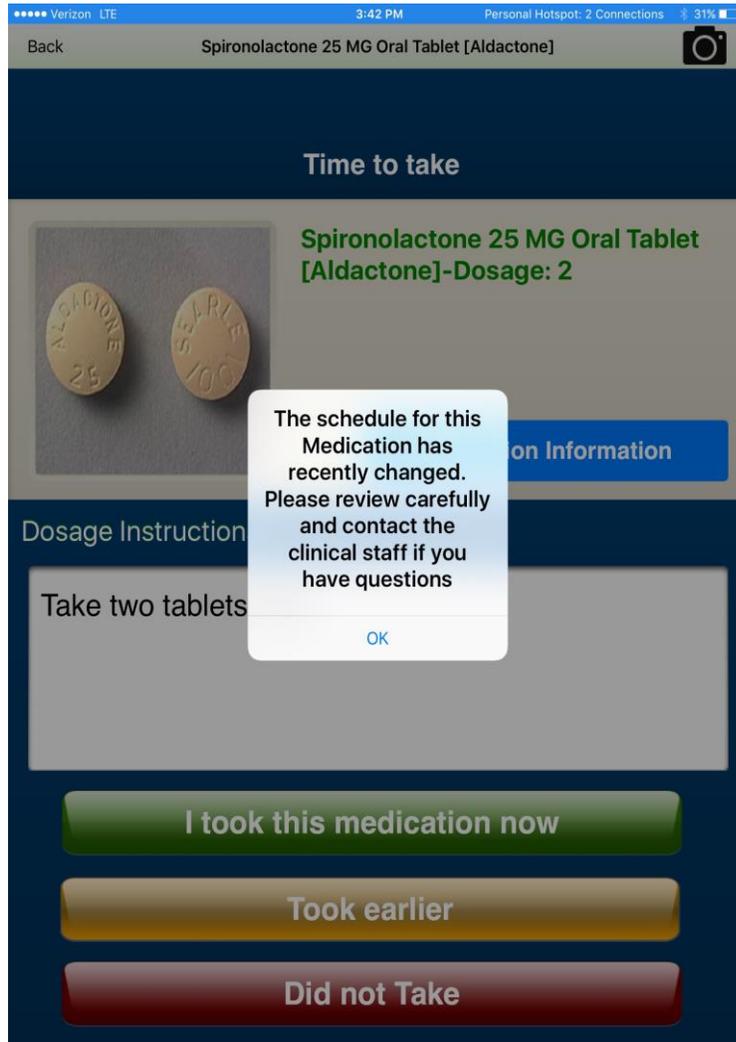
- 1 patient, 20 alerts
- 4 patients, 4 alerts
- 1 patient, 16 alerts
- 2 patients, 22 alerts
- 1 patient, 1 alert, 5 alerts
- 2 patients, 14 alerts
- 1 patient, 1 alert, 21 alerts

An annotation with a blue arrow points to the last alert, stating: "Entire HF patient population is managed by exception. For example, of the seven patients alerting above, 3 could be PAP alerts, 2 could be body weight or symptom alerts for general HF patients, 1 could be a patient requesting a provider contact, and 1 could be a VAD patient alerting on a high Pulsatility Index".

The main dashboard area displays performance metrics for various teams, each with a horizontal bar chart showing a percentage and a timestamp:

Team	Percentage	Timestamp
Heart Failure Team 1	96%	12 hours ago
Heart Failure Team 2	100%	an hour ago
VAD CC	88%	an hour ago
Heart Failure Team 1	100%	12 hours ago
Heart Failure Team 3	92%	2 hours ago
Heart Failure Team 2	99%	an hour ago
Heart Failure Team 3	90%	2 hours ago
Heart Failure Team 3	0%	4 days ago
Heart Failure Team 3	0%	15 days ago
Heart Failure Team 1	32%	a day ago
Heart Failure Team 1	72%	a day ago
Heart Failure Team 1	81%	2 hours ago
VAD CC	65%	11 hours ago
Heart Failure Team 1	87%	11 hours ago
Heart Failure Team 3	87%	3 hours ago
Heart Failure Team 2	89%	14 hours ago
Heart Failure Team 2	89%	2 hours ago
Heart Failure Team 1	89%	2 hours ago
VAD CC	89%	27 minutes ago
Heart Failure Team 3	89%	12 hours ago
Heart Failure Team 1	90%	an hour ago
Heart Failure Team 3	90%	3 hours ago
Heart Failure Team 3	95%	an hour ago
Heart Failure Team 3	96%	2 hours ago
Heart Failure Team 3	97%	13 hours ago
Heart Failure Team 3	97%	5 hours ago
Heart Failure Team 3	97%	15 hours ago

Sample screen of patient interface (app)



When a medication change is made on a patient, the patient receives a notification on their mobile device that informs the patient there has been a medication change made. Patient must acknowledge the message before adhering to the medication.

A single platform to tie the patient, EHR, and device data together

The screenshot displays the OnTrack patient dashboard for Doreen Mills. The top navigation bar includes the OnTrack logo, a search bar, and user information. The left sidebar lists various patient groups and messages. The main content area shows patient details, including demographics and phone numbers. Below this is a navigation bar with tabs for Alerts, Messages, Imports, Profiles, Notes, Lifestyle, Commands, and Devices. The Alerts tab is active, showing a list of alerts with columns for Alert Date, Alert Level, Alert Message, Profile, Reviewed By, Review Action, and Review Date. The alerts include warnings for heart rate, blood pressure, provider contact, and medication adherence. A text box on the right explains that OnTrack manages patient-triggered alerts alongside CardioMEMS alerts, supporting an efficient workflow for HF staff.

OnTrack (patient triggered) alerts are managed alongside CardioMEMS alerts, supporting efficient "manage by exception" workflow so HF staff work entire population at once.

<input type="checkbox"/>	Alert Date	Alert Level	Alert Message	Profile	Reviewed By	Review Action	Review Date	Actions
<input type="checkbox"/>	04/20/2017, 10:52 am	WARNING	Heart Rate exceeded threshold by 11 bpm	CardioMEMS				<input checked="" type="checkbox"/>
<input type="checkbox"/>	04/20/2017, 10:52 am	WARNING	PA Diastolic Pressure exceeded threshold by 12 mmHg	CardioMEMS				<input checked="" type="checkbox"/>
<input type="checkbox"/>	04/20/2017, 10:41 am	WARNING	Patient requests provider contact	Provider Contact				<input checked="" type="checkbox"/>
<input type="checkbox"/>	04/20/2017, 10:40 am	WARNING	1 consecutive readings from this patient have exceeded thresholds.	CardioMEMS				<input checked="" type="checkbox"/>
<input type="checkbox"/>	04/19/2017, 09:00 am	WARNING	Patient has missed 2 or more dosage(s) of Furosemide 80 MG Oral Tablet [Lasix]	Furosemide 80 MG Oral Tablet [Lasix]				<input checked="" type="checkbox"/>

How to change culture

- ▶ Need data- patient outcomes/cost analysis/patient satisfaction
- ▶ Physician champion
- ▶ Administrative champion
- ▶ Review cost avoidance (bundled payment systems)
- ▶ Review outcomes (improved quality of care, less crisis management)
- ▶ Patient champion

If Cows Can Do It....

