

Digital Health

Changing the Rules in Diabetes Management

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MATRC Telehealth Summit

April 3, 2017

Not for distribution





Healthcare Reform

- Shift from volume-based to value-based care
- Focus on quality & accountability
- Increased recognition of “consumerism”



Mobile Revolution

- Fastest global tech revolution in history
- No demographic or socio-economic barriers
- “Don’t leave home without it!”



Global Diabetes Pandemic

- Overwhelming % of GDPs in G7 and emergent economies
- Exponential growth in incidence vs. flat or linear growth in capacity to manage
- Requires frequent “teachable moments” and self-management outside of the HCP office



Life Sciences Industry

- Massive compliance, adherence opportunity
- Patent cliffs and rapid proliferation of generics
- Investment conundrum

DIABETES

29.1
MILLION

29.1 million
people have
diabetes



That's about 1 out of every 11 people



1
OUT
OF
4

do not know they
have diabetes

Source: www.diabetes.org, American Diabetes Association, August 1 2014

PREDIABETES

86
MILLION



86 million people —
more than 1 out of 3 adults



9
OUT
OF
10

do not know they
have prediabetes



\$245
BILLION

Total medical costs and lost work and wages for people with diagnosed diabetes

Risk of death for adults with diabetes is



50%
HIGHER



than for adults without diabetes



Medical costs for people with diabetes are **twice as high** as for people without diabetes

Source: www.diabetes.org, American Diabetes Association, August 1 2014

People who have diabetes are at higher risk of serious health complications:



BLINDNESS



KIDNEY FAILURE



HEART DISEASE



STROKE



LOSS OF TOES, FEET, OR LEGS



I lost my job

**Need to lose weight
and get LDLs
under control!**

**I'm going
through a
divorce.**

Picture courtesy of Chris Crockford and Erik Johanssen

Digital Health



Use of information and communication technologies (ICT) to **improve human health**, healthcare, and wellness for individuals and across populations

Mobile Applications (Apps)



- **Transform data** into information and knowledge
- **Real-time and longitudinal** perspectives
- **Contextually and temporally relevant** interventions
- Judicious application of **evidence-based care**
- **Expanded, connected** circle of influence



Tiers of mHealth solutions

Increasing complexity, cost, engagement, and potential

Platform
+/- device

Application
(App)

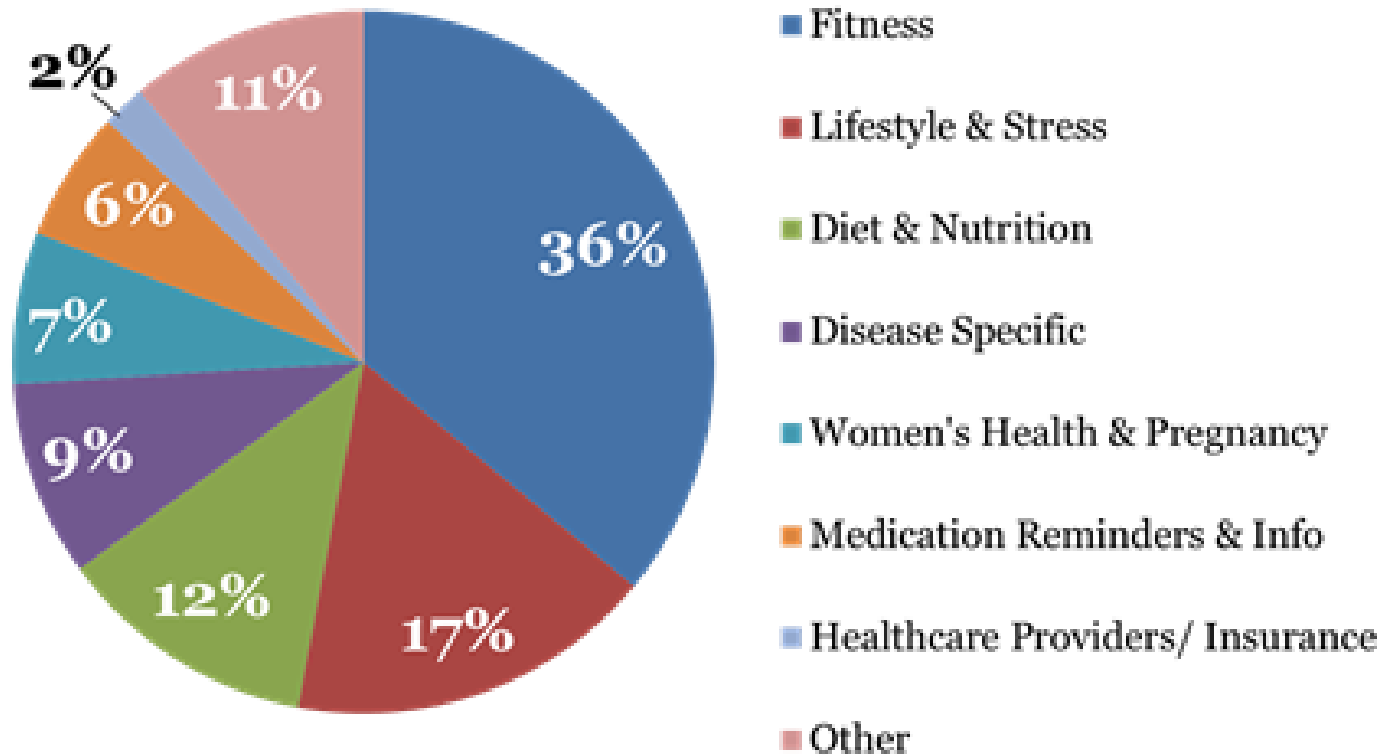
Text
Message

BlueStar
Care4Today
Omada Health
Propeller Health
Proteus Discover

LoseIt!
Monster Manor
MyMeds
Project: Evo
What's My M3?

Pregnancy
Medication adherence
Smoking cessation
Visit reminders

mHealth apps by category



Adapted from: Mevvy, June 2015; IMS Health, AppScript, 2015; IMS Institute for Healthcare Informatics, August 2015.

Share of Disease Specific Apps

Mental Health 29%

Diabetes 15%

Heart and Circulatory 10%

Musculoskeletal 7%

Nervous System 6%



FDA Mobile Medical Guidance (Sept 2013)

- Non-regulated
- Enforcement Discretion
- Mobile Medical Apps



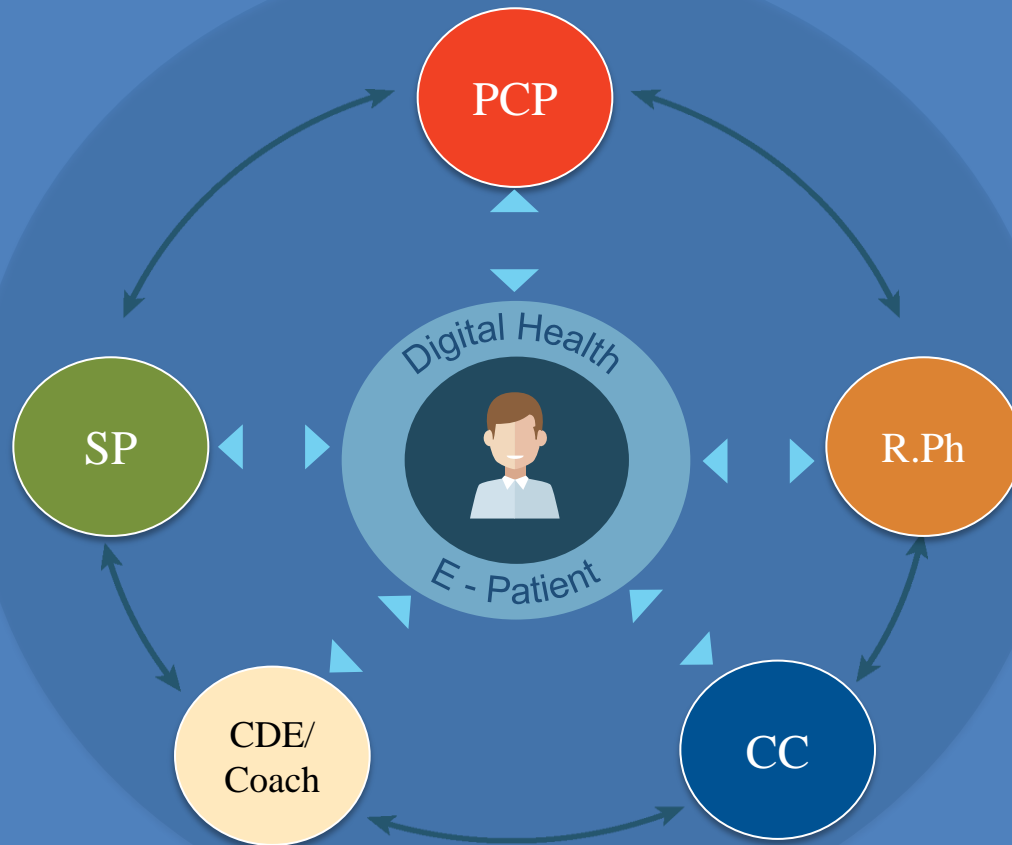


Picture courtesy of Chris Crockford and Erik Johanssen

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The Vision

- Familiar, trusted devices
- Anywhere, anytime connectivity
- Bi-directional communication



Leveraging patient-generated data to inform care decisions

A Digital Health Solution

A Clinical and Behavioral Intervention to Deliver Outcomes



1st

First **Digital Health** company built on a **life-sciences** model



Significant, published and peer-reviewed **clinical outcomes** in RCTs and real-world programs



FDA
CLEARED

American
Diabetes
Association.

Recognized “**digital therapeutic**”



Extensible and **secure** system architecture to scale to support multiple chronic diseases

This screen shot is provided for informational purposes only



Meet Arthur



Arthur*

Age: 57

Duration of type 2 diabetes: 4 years

Comorbidities: CVD, prior MI

Medications: metformin 1000 mg BID,
glimepiride 4 mg QD

A1c: 7.8%

Management challenges:

- Keeping up with dietary adjustments and knowing how they will affect his BG
- Hypoglycemic episodes shake up his positive progress

Background: Married, with a special needs child. Stressed about his medical bills and his own health. Loves carbs and is seeking help in improving his diet. Checks BG in the morning only, and his levels are consistently good, which is confusing to him.

*Hypothetical patient profile. For illustrative purposes only.

[Learn more](#)

Digital Health Messaging

PATIENT INTERACTION

+

After having symptoms of hypoglycemia, Arthur checks his BG



Patient recognition

+


He receives tips and support on how to resolve the problem



Step-by-step problem solving

+

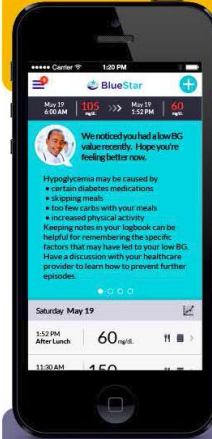
He tests to ensure he has corrected his hypoglycemia



Skills integration

+

Arthur receives hypoglycemia prevention information



Trend identification, hypoglycemia risk reduction

IMPACT ON SELF-MANAGEMENT

Real-time, self-care coaching and trending feedback aid in course correcting.

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Clinical & Behavioral Coaching

PATIENT INTERACTION

Arthur checks his fasting BG

He receives real-time coaching

After an in-range BG reading, he is challenged with a new behavior (taking notes)

He receives coaching to further his monitoring skills

Self-care engagement

Behavior change reinforcement

Goal setting

Outcome and behavior improvement

IMPACT ON SELF-MANAGEMENT

Active monitoring enables positive behavior change for more in-range BG levels.

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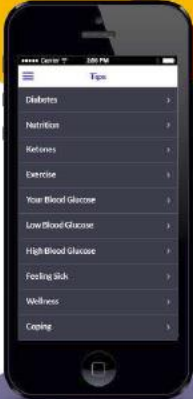


Digital Health Support Tools

PATIENT INTERACTION

+


Arthur uses Tips to find helpful information



Improved health literacy

+


He often reviews his Logbook to reinforce his monitoring



Improved monitoring

+

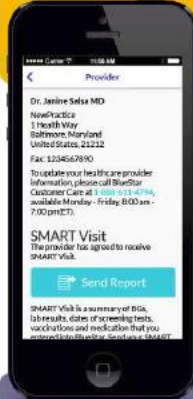
Arthur enjoys tracking his progress with trending graphs



Improved monitoring

+

He prepares for an appointment with his physician



Improved communication

IMPACT ON SELF-MANAGEMENT

Information and resources guide self-management and facilitate positive behavior change.

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These screen shots are provided for informational purposes only

PGHD & Clinical Team Engagement

Patient-data analyzed to support shared decision-making

BlueStar Patient Report Summary, January 10, 2016

BlueStar Prescriber: Dr. Doctor, MD

DATE	DTIME	AMOUNT	PREVIOUS	PERCENT	HIGH	LOW	HIGH	LOW
Dec 11- Jan 10	13	156	75.5%	2	1	213	68	
Nov 11- Dec 10	23	200	82.4%	5	0	325	123	
Oct 12- Nov 10	16	201	82.4%	2	0	322	156	

Take Action! BlueStar Clinical and Self-Management Summary

Item	Previous Value	Previous Date	Current Value	Self-Management	Item
A1C	6.8%	12/10/15	7.5%	Monitoring	Prescription with 150 mg Metformin
HbA1c	6.8%	12/10/15	7.5%	Monitoring	Prescription with 150 mg Metformin
Medication	Metformin	12/10/15	Metformin	Monitoring	Prescription with 150 mg Metformin

BlueStar Users: Clinical Summary Report

BlueStar Logo

Total Population

Current No. of BlueStar Users	No. of Prescribers	No. of New Scripts	No. of New Actions
3	1	1	1

Prescription Trend

Prescriber Demographics

Population Demographics

Gender	Male	Female
Count	3	0

Age Distribution in Years

Age Group	21-30	31-40	41-50	51-60	61-70	Over 70
Count	0	0	0	0	0	3

Population by Medication Profile

Medication Profile	MRO	MRE	MRE2	MRE3	MRE4	MRE5	Total
No. of Users	0	0	0	0	0	0	3
Percent of Users	0%	0%	0%	0%	0%	0%	100%

BlueStar Engagement - Patient

No. of Users by Duration of Use	1-30 Days	31-60 Days	61-90 Days	Over 90 Days	Mobile	Web	Mixed
Count	0	0	0	0	0	0	3

BlueStar Entries

BlueStar Entries	Blood Glucose	Medications	Activity	Food/Carbs	Notes	Total
No. of Users with Entries	0	0	0	0	0	3
Percent of Current Users	0%	0%	0%	0%	0%	100%

Population level data for organizational activities



Case Study: Patient Engagement



Mobile
67%



Web
33%

Insulin
45%
45% of
engagements

Non Insulin
55%
55% of
engagements

Mean A1C: 8.6

20% of users prescribed are
in ADA A1C target

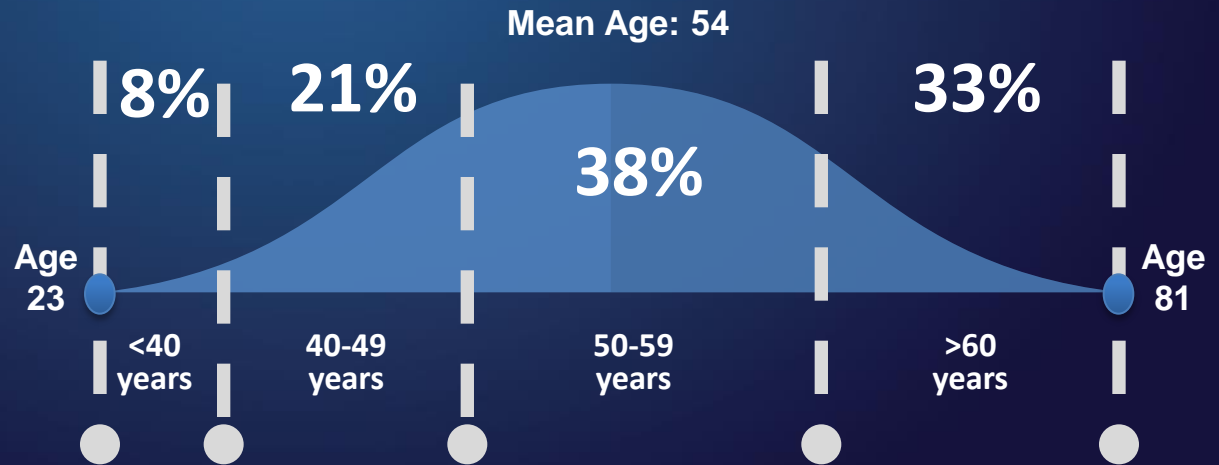
80% of users prescribed are
uncontrolled (above
ADA A1C target)

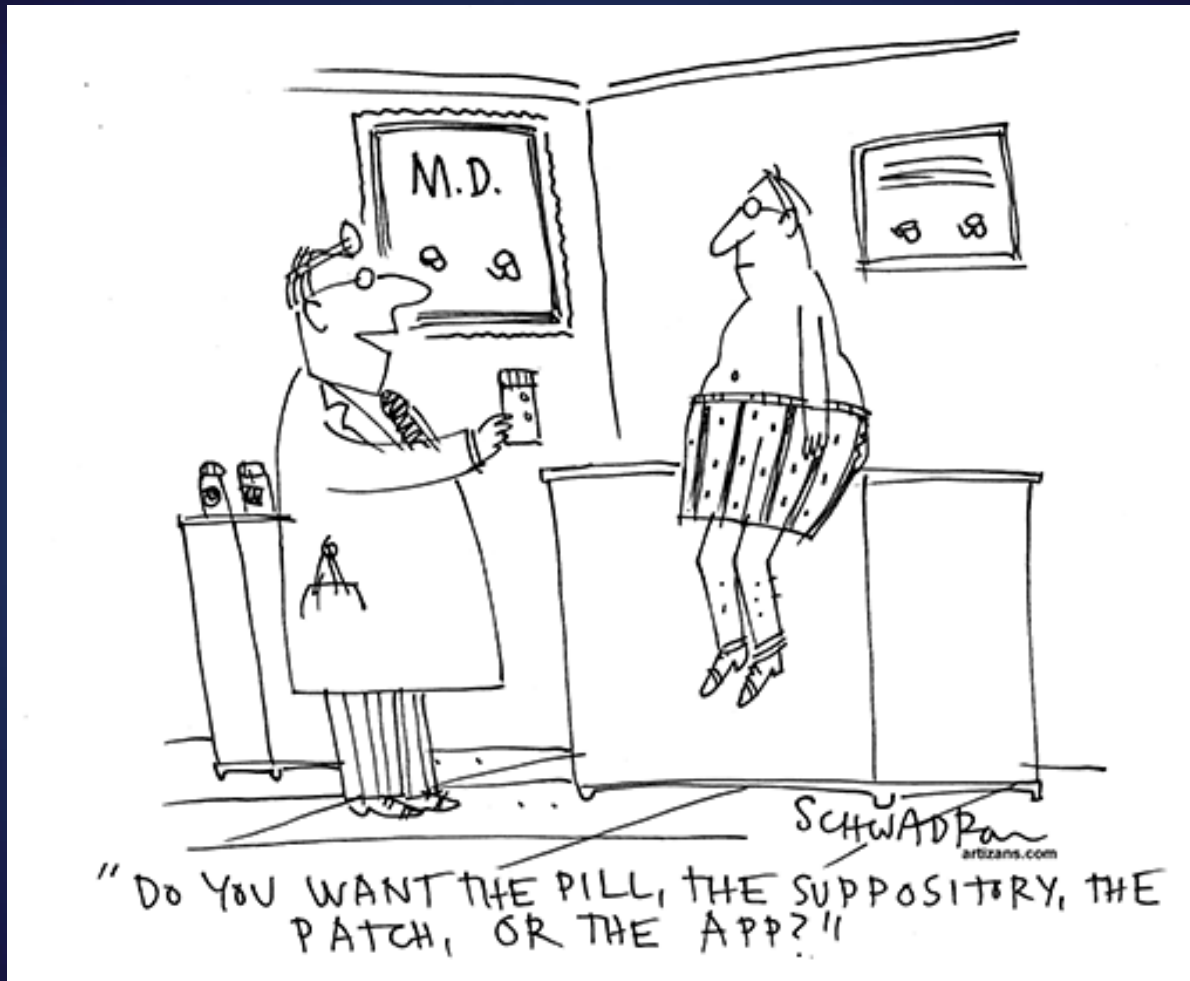


Male
56%



Female
44%



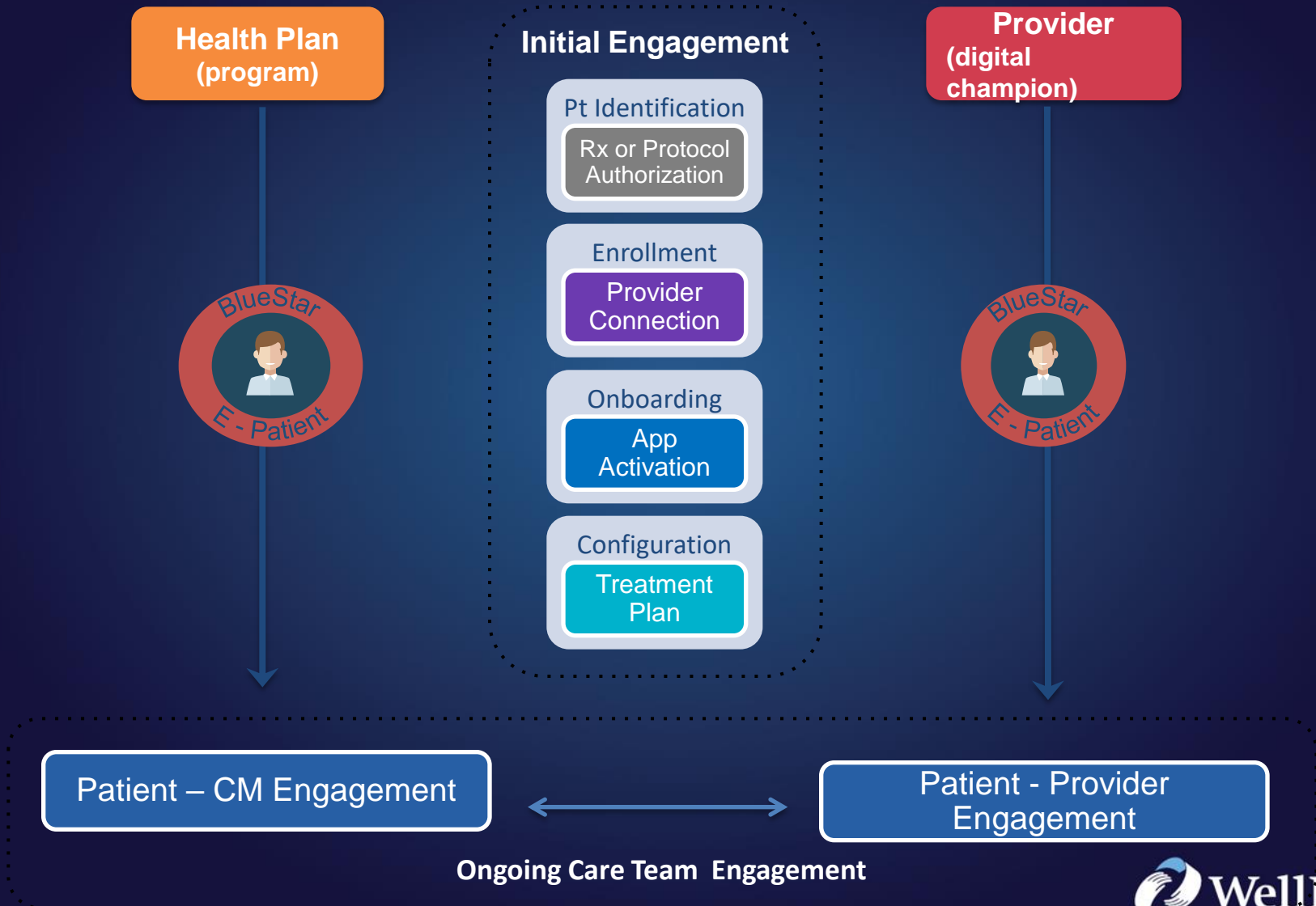


Cartoon by Harley Schwadron via
kaiserhealthnews.org

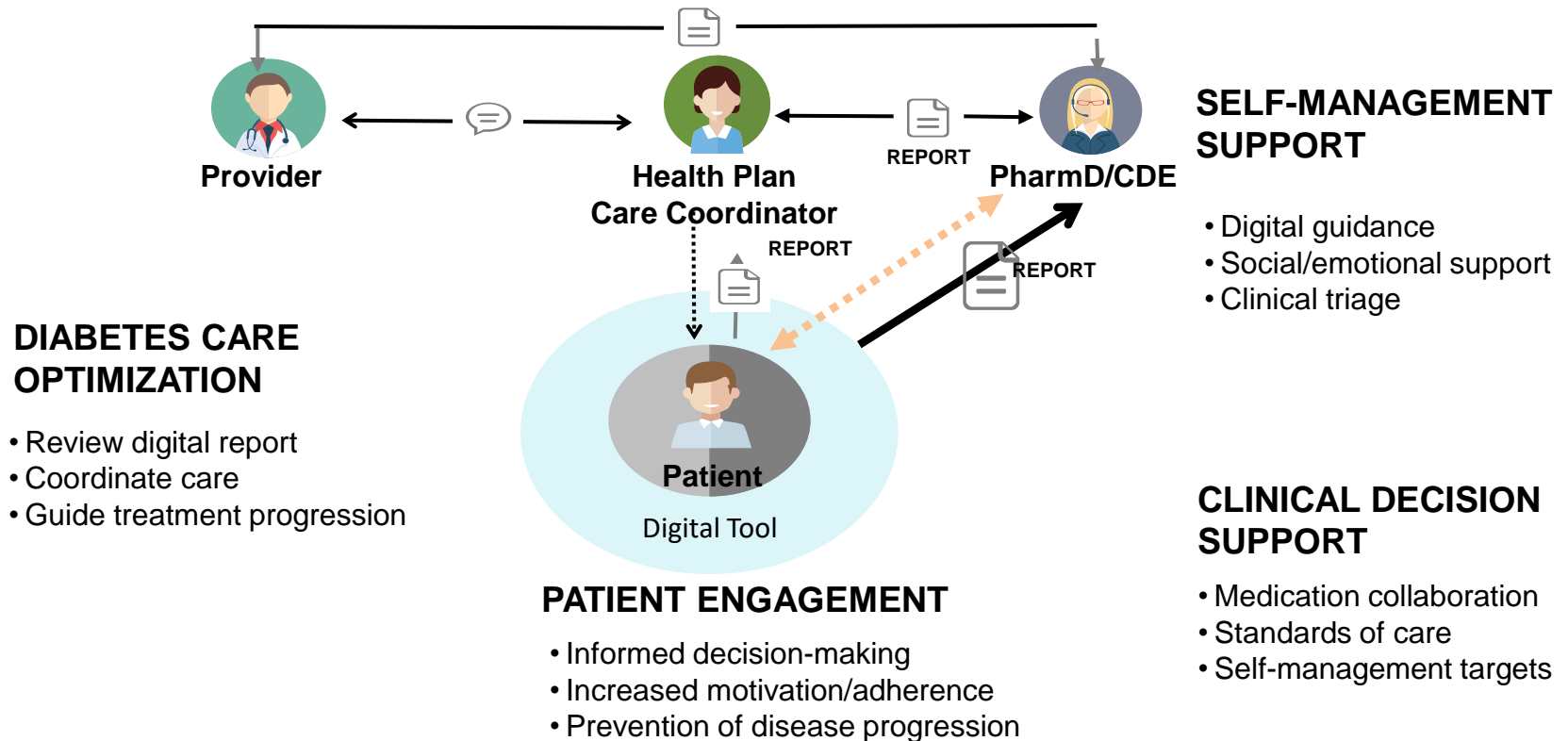
Integration into Clinical Workflow

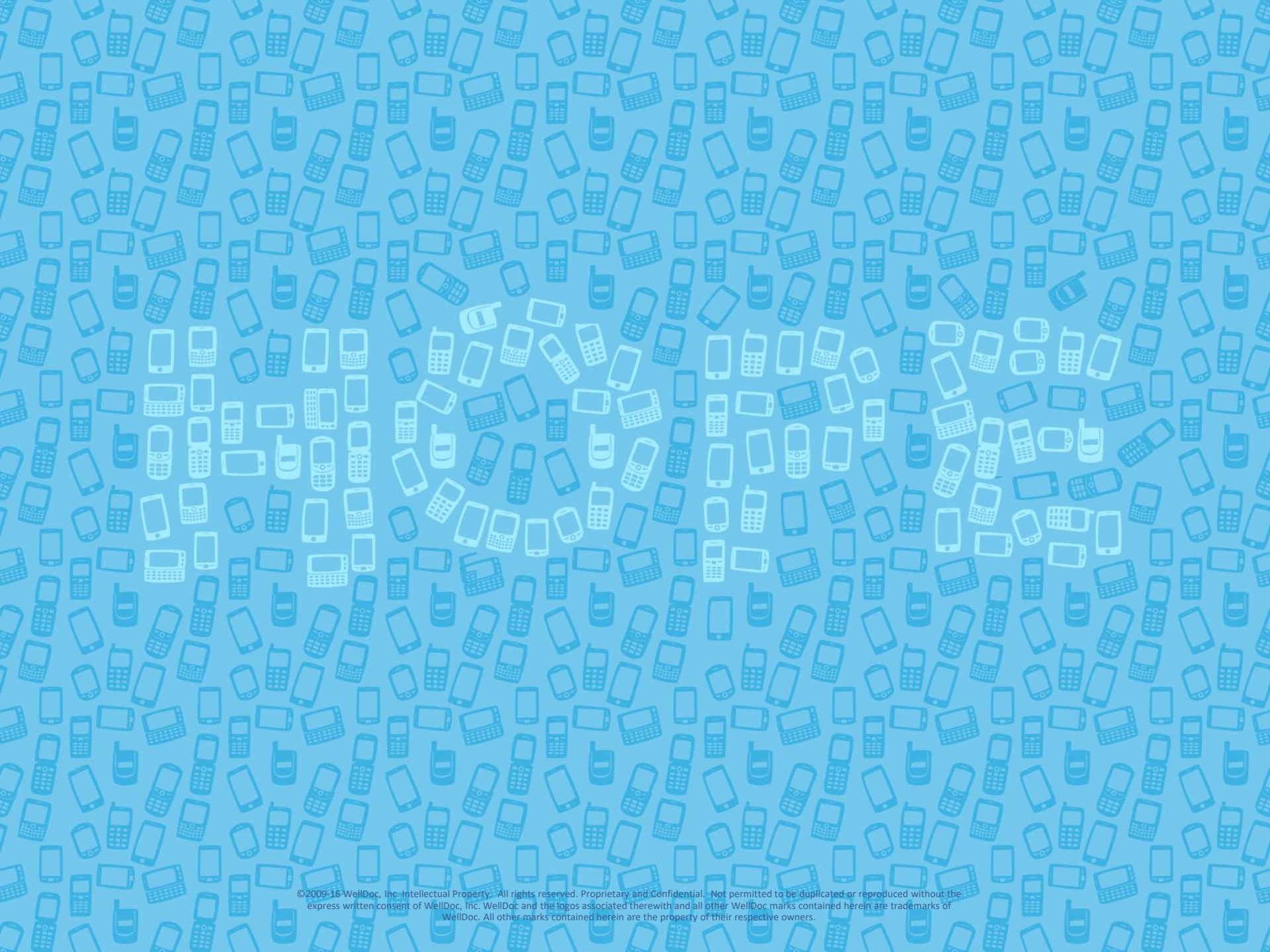
Digital Health is not a stand-alone program but a **solution** for **integration** into your practice or structured program to drive diabetes care and education **outcomes** becoming *“part of what you do” not in addition to what you do.*

Determine the Implementation Plan



Example: Pharmacy Workflow





Questions?

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