



# Pharmacy-led behavioral health interventions in the digital space

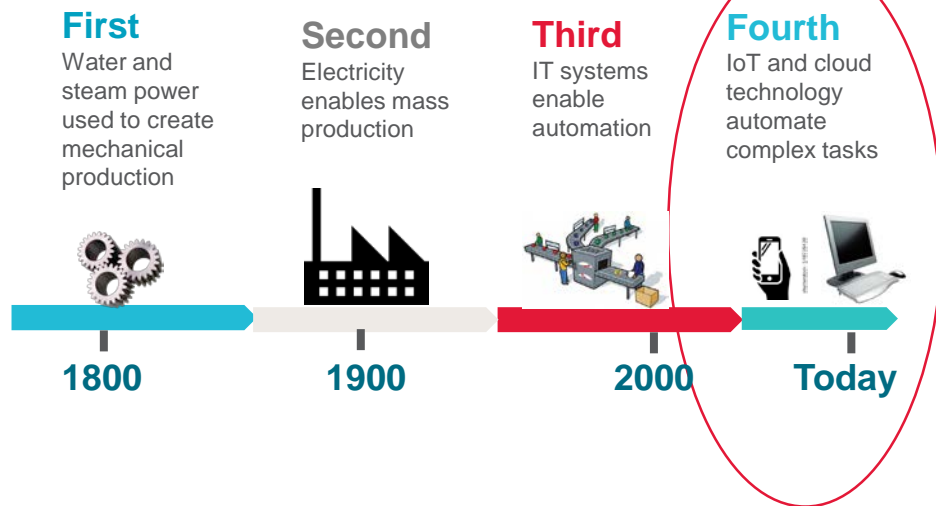
Society of Behavioral Medicine  
Annual Conference

Renae Smith-Ray, PhD, MA

March 9, 2019

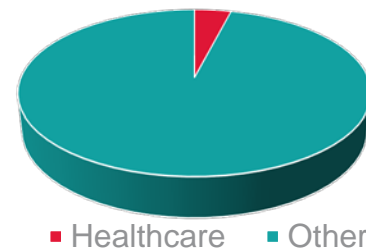
# The fourth industrial revolution is rapidly changing healthcare

## INDUSTRIAL REVOLUTION TIMELINE

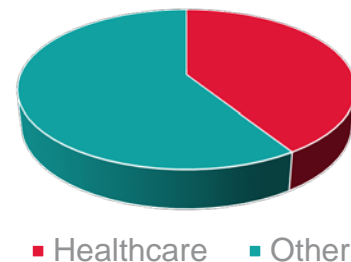


***The amount of automated data collected for healthcare purposes will increase exponentially***

Percent of data collected in 2019



Percent of data collected 2030



Source: modified from Oracle University  
<https://blogs.oracle.com/oracleuniversity/what-is-the-fourth-industrial-revolution-how-will-it-affect-you>

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Source: Nitro <https://nitro.digital/fourth-industrial-revolution-means-medicine/>

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# Technology has changed healthcare through...

Better and more  
accessible treatment



Remote  
healthcare  
delivery including  
telehealth  
services.

Improved care and  
efficiency



Wearable  
devices, like  
continuous  
glucose  
monitors, to  
monitor health in  
real-time.

Access to large datasets  
and software to manage  
disease and improve  
health outcomes



Predictive  
modeling using  
large datasets to  
target patients for  
interventions.

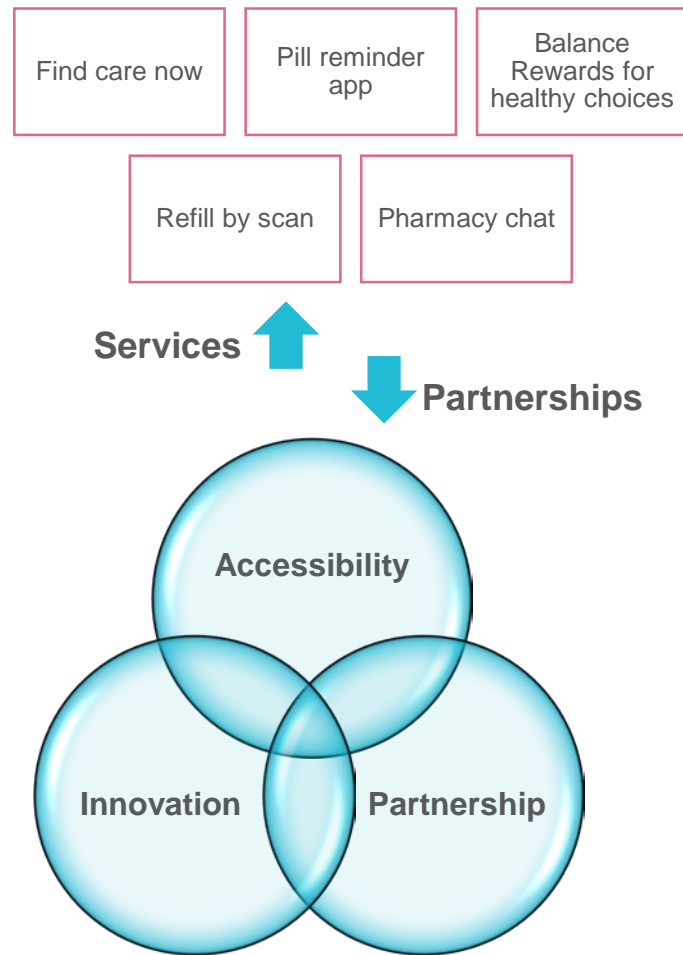
**Behavioral medicine theories and practices can help community  
pharmacies expand technologies to improve patient health.**

Slightly modified from University of Illinois at Chicago Department of Health Informatics <https://healthinformatics.uic.edu/blog/3-ways-technology-has-changed-healthcare/>

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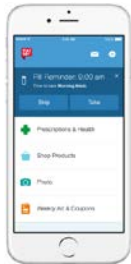
# Digital health solutions in a national pharmacy chain



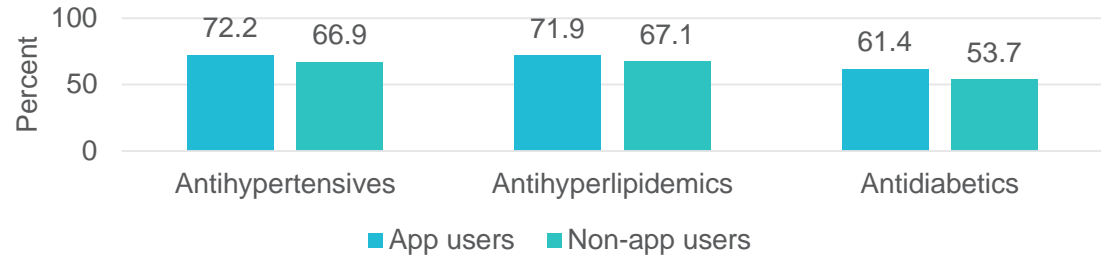
# Evaluation of Walgreens Digital Health Offerings

# Patients who used a pill reminder app have significantly higher medication adherence

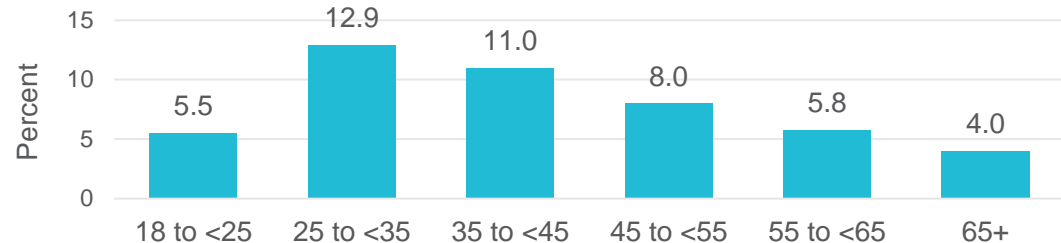
- A retrospective study analyzed medication adherence among patients using a free pill reminder app compared to non-users.
- 160,006 app-users and 890,224 non-users were included in the analysis.



**Percent of patients with optimal PDC in matched app and non-app user groups**




**Adjusted increased likelihood of optimal adherence in app users compared to non-users by age category**





# Balance Rewards for healthy choices incentivizes and motivates individuals to track healthy behaviors





- In 2015, Walgreens launched the Balance Rewards for healthy choices (BRhc) platform.
- Today BRhc is used by over one million US adults ranging in age from 18 to 99.
- Patients can track their physical activity and other health metrics using 17 apps and 22 devices such as Fitbit, Google Fit, MyFitnessPal, RunKeeper, and more.


 250 points/1<sup>st</sup> goal


 20 points/daily weight log

 250 points/device or app linked

 20 points/blood pressure test

 20 points/mile

 20 points/blood glucose test

 20 points/daily log



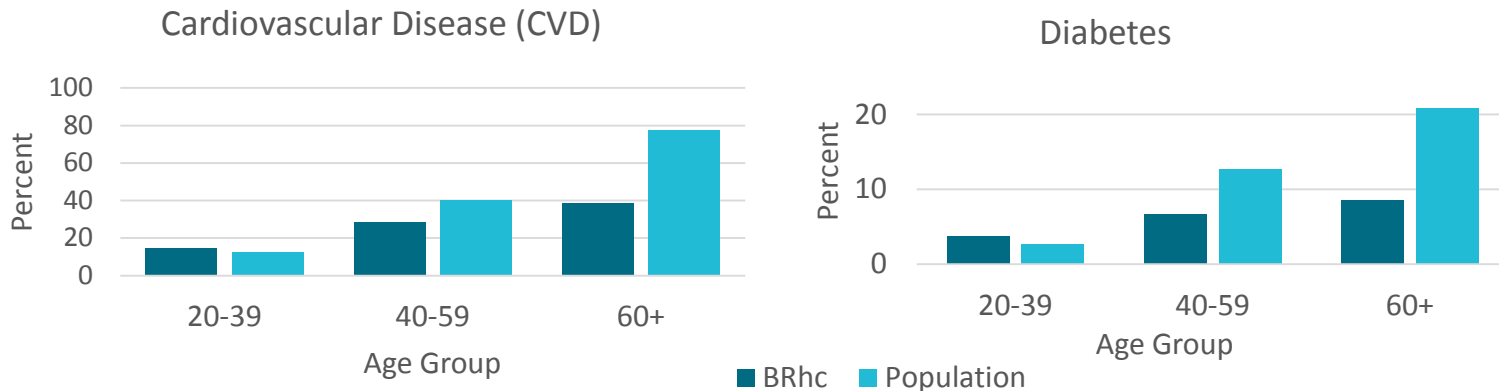
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# The massive amount of data generated by BRhc provides an excellent opportunity to examine epidemiological trends

- BRhc participants between 2014 - 2016 were included in the analysis and compared to US population rates of CVD, diabetes, and physical activity.
- All activity data were objectively collected through wearable devices.
- Participants (N=241,013) were on average 39.7 years old and 65.7% were female.



## CVD and diabetes rates of BRhc participants vs. population rates

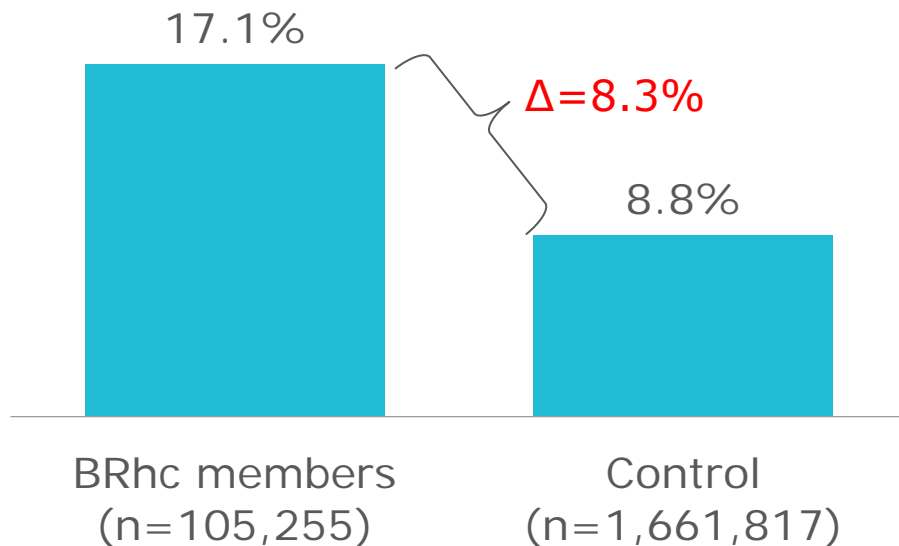


**Participants with diabetes and/or CVD were less likely to be sufficiently active**



# BRhc participants were significantly more likely to get a flu vaccination

## Unadjusted Flu Vaccination Rate



## Adjusted Odds Ratio

Odds Ratio	Confidence Interval	P value
2.94	2.89-3.00	<.0001

# Every second Walgreens fills >1 prescription from a mobile device

**Medications can be refilled digitally, either by text, email, or refill by scan.**

*[Refill by Scan] “was so much fun...I wish I had more prescriptions to refill.”*



**Pharmacy Chat is available 24/7 to answer questions and provide guidance on medications, immunizations, health behaviors, and chronic conditions.**

*“Saves me from having to wait in line at the store to chat with a pharmacist and is way more convenient!”*

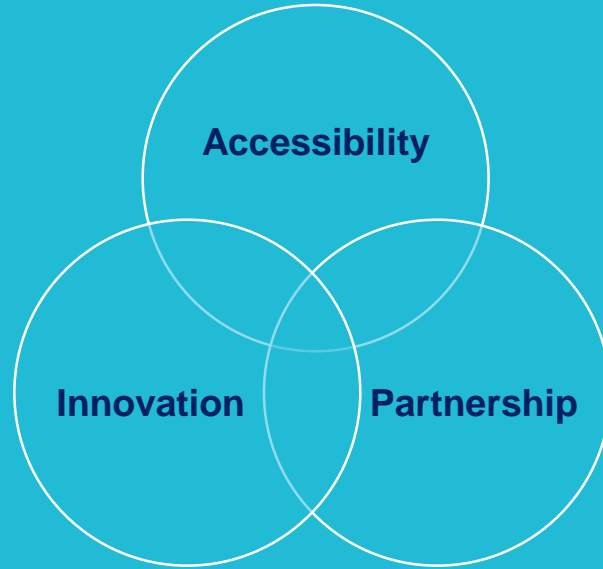


# mHealth kiosks are in select pharmacies in NYC



**The kiosks offer Walgreens customers a link to physicians from New York Presbyterian, Weill Cornell Medicine, and ColumbiaDoctors.**

# Innovation through partnership



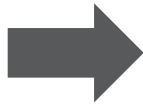
# The scope of digital health offerings will continue to grow

**Walgreens recently announced a 7-year technology partnership with Microsoft.**

**Walgreens team up with Verily to target medication adherence and chronic conditions.**



Artificial  
Intelligence  
to improve



Preventive and self-  
management programs for  
patients with chronic  
conditions

Telehealth

Medication Adherence

In-store technology corners

Reduce healthcare costs

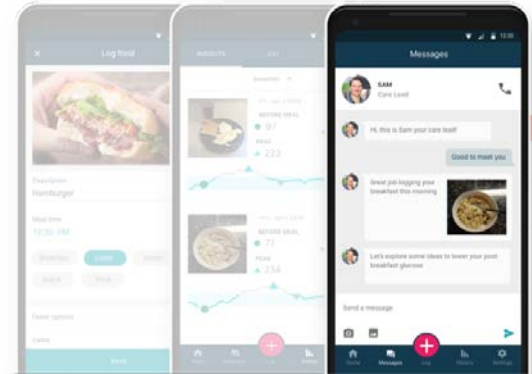
Develop and provide  
access to sensors  
and software to help  
prevent, manage,  
screen and diagnose  
disease.

# OnDuo: A virtual management program for patients with Type 2 diabetes

**Continuous Glucose Monitor**

**+**

**Virtual physical activity and diet coaching**



As the most accessible clinicians, pharmacists are a logical choice for helping patients with type 2 diabetes.

# We are living in an era of participatory health surveillance (Citizen Science)

- Americans are digitally connected: let's take advantage of this to improve population health.
- Wearable and connected devices are changing the face of healthcare.
- Pharmacists are arguably the most accessible clinicians.



**There is tremendous potential in empowering pharmacists to deliver digital behavioral medicine programs.**

# Thank you!