

## **Impact of a Community-based Pharmacist Driven Health Coaching Program on Clinical Outcomes and Health-related Quality of Life**

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## Background

Of the \$3.3 trillion spent annually on healthcare in the United States, 90% is attributed to chronic and mental health conditions.<sup>1</sup>As the cost of healthcare continues to climb, there is an urgency for providers to contribute to the fight against chronic illness and obesity. Chronic diseases are preventable, and are linked to unhealthy habits; however, our current healthcare model does not focus enough on prevention.<sup>2</sup>Often, patients are labeled as noncompliant when treatment goals are not achieved. There are many reasons a patient may not meet their treatment goals, many of which have nothing to do with the medication they are taking or the treatment they are receiving. Rather, it is more closely related to their individualized goals, plans or lack thereof.<sup>3</sup>A health and wellness coach may be the professional that could assist a patient in developing and meeting goals to improve chronic disease.

According to a systematic review conducted by Wolever et al., many studies have looked at utilizing primary care physicians, medical assistants and nurses as health coaches.<sup>4</sup>Each study demonstrated the usefulness and impact health coaching has on patient outcomes. However, no studies have found the most appropriate venue to offer health coaching to patients. The concept of health coaching is not new; rather, it is a strategy that has been around for years but has not been assigned to one particular health care professional. Health coaching is built upon four main theories: the psychology of development, humanistic psychology, self-determination theory, and self-concordance theory.<sup>5</sup>Through each theory, patients are able to express the importance of their own health goals, often extracted from the patient via motivational interviewing.

Community-based pharmacists are uniquely positioned to deliver health and wellness coaching as pharmacies are an accessible health care destination. In fact, 91% of Americans live within 5 miles of a community pharmacy.<sup>6</sup>Various studies have demonstrated the positive impact that community-based pharmacists can have on patients with chronic conditions such as depression, diabetes, hyperlipidemia, hypertension, and osteoporosis.<sup>7-11</sup>Pharmacists routinely use motivational interviewing in patient counseling interactions, which involves education on medication use and disease states. Most of the time the conversation between patient and pharmacist is focused on medications.<sup>2</sup>With a health coaching mentality, a shift in focus - towards what patients deem as their goals - is accomplished. Pharmacists can utilize individualized SMART (specific, measurable, attainable, relevant, and timely) goals to lead patients towards better overall health in a step-by-step fashion.<sup>2</sup>Creation of autonomy through education and goal setting paves the way for a stronger foundation within the patient-pharmacist relationship.<sup>12</sup>

Walgreens is a national pharmacy chain with over 9,560 locations in all 50 states, Washington DC, Puerto Rico, and the Virgin Islands.<sup>13</sup>This Walgreens Pharmacy location serves patients in a suburban area, in close proximity to a large, research-intensive, public university and an academic medical center. The pharmacy serves patients that are predominantly 50 years and older, college-educated, or professionals. The pharmacy location is an experiential learning site, as well as a site for a PGY1 Community-based Pharmacy Residency Program. Through implementation of an innovative program known as "COACH" (Collaborative Objective Approach to Cultivate Health), pharmacists in a community setting will be positioned to offer health care coaching to patients with chronic conditions such as diabetes, dyslipidemia, hypertension and/or are overweight. The pharmacist performs comprehensive medication reviews, along with an additional enhanced component where patients are coached on lifestyle modifications (i.e., nutrition, exercise, and stress management). This project aims to show that when pharmacists provide patient care rooted in a holistic approach with health coaching,

medication management and patient education, patients are more likely to achieve improved health outcomes and reach their health goals.

### **Objectives**

The first objective of this study is to integrate an innovative health coaching program into the workflow of a chain pharmacy location. The second objective is to evaluate the change in outcomes from the program, including clinical parameters (e.g., blood glucose, blood pressure, weight), patient health-related quality of life,<sup>14</sup> and patient perceptions and satisfaction with the service.

### **Practice Description**

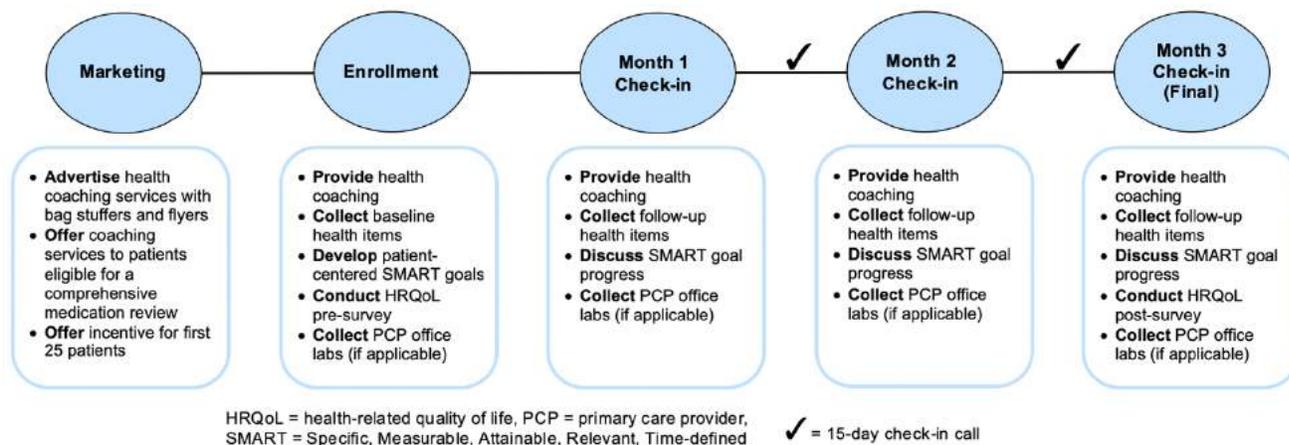
This project was conducted at one location of a chain pharmacy in North Carolina. Walgreens is a national pharmacy chain with over 9,560 locations in all 50 states, Washington DC, Puerto Rico, and the Virgin Islands.<sup>13</sup> This Walgreens Pharmacy location serves patients in a suburban area, in close proximity to a large, research-intensive, public university and an academic medical center. Pharmacy services include, but are not limited to, Comprehensive Medication Review, medication synchronization, adherence calls, pillbox concierge service, same day and next day delivery services, community outreach events, community immunization clinics, and immunization services. The patient population is predominantly 50 years and older, college-educated adults, and young professionals. The pharmacy location is an experiential learning site for students attending UNC Eshelman School of Pharmacy, as well as a host-site for a PGY1 Community-based Pharmacy Residency Program.

### **Methods**

Participants: Individuals were eligible if they met the following criteria: English-speaking persons, ages 18 years and older with at least one chronic health condition (e.g., diabetes, dyslipidemia, hypertension, overweight). Exclusion criteria was outlined for patients who were unable to attend monthly coaching sessions and health screenings. Patients were recruited from those filling prescriptions at the pharmacy, completing comprehensive medication reviews, or receiving other health care services such as immunizations. Supplement 1 contains marketing materials utilized to recruit patients.

Procedures: The health coaching program positioned the pharmacist to offer health coaching to patients with chronic conditions such as diabetes, dyslipidemia, overweight, and hypertension. As depicted in **Figure 1**, the program was created and marketed by the resident pharmacist who conducted each enrollment visit and scheduled monthly follow-up appointments. At each appointment, the pharmacist performed a comprehensive medication review, along with an additional enhanced component where patients were coached on lifestyle modifications including, but not limited to nutrition, exercise and stress management. Metrics were gathered at each patient appointment to include blood pressure, heart rate, weight, body composition and blood glucose levels, shown in **Appendix 2**. Body composition was measured using a Tanita Segmental Body Composition Monitor Model BC-545F (obtained via grant funding) and blood glucose was measured by the patient- using their personal blood glucose monitor with the pharmacist present to ensure proper technique and allow for retraining when necessary.

Motivational interview techniques were utilized at each patient encounter to develop 1-2 individualized SMART goals. SMART goals were deemed to be “in progress” or “achieved” at each subsequent visit; where the patients were either further interviewed to spark change, or create a new SMART goal to progress toward. Patients received a check-in call from the pharmacist 15 days after each on-site visit to evaluate progression of goals. The first 25 enrolled patients received a \$25 incentive gift card at completion of the pilot program.



**Figure 1:** *The COACH Process*

**Evaluation**

Surveys and collected lab values were coded and collected in a password-protected Microsoft Excel file on a password-protected computer. Data was evaluated using nominal and descriptive statistics. This pilot project intended to enroll 25 patients. Surveys were distributed at enrollment and conclusion of the study. The Institutional Review Board of the University of North Carolina at Chapel Hill deemed this study exempt from further review.

**Results**

A total of 9 patients were enrolled into the COACH program with 7 patients meeting eligibility criteria (N=7). The study population, depicted in **Table 1**, was predominately Caucasian female with an average age of 59 years old (std dev, 15 yrs) and median age of 67 years old. Category of goals were dominated by nutrition and activity with few SMART goals created in regards to sleep.

**Table 2** compares patient metrics (averaged) from baseline (Day 0) to final (Day 60). Individually, most patients in the pilot program saw an improvement in all metrics although this outcome is not reflected due to outlier-dependent skewing of results in data analysis.

**Table 1.** *Patient Characteristics*

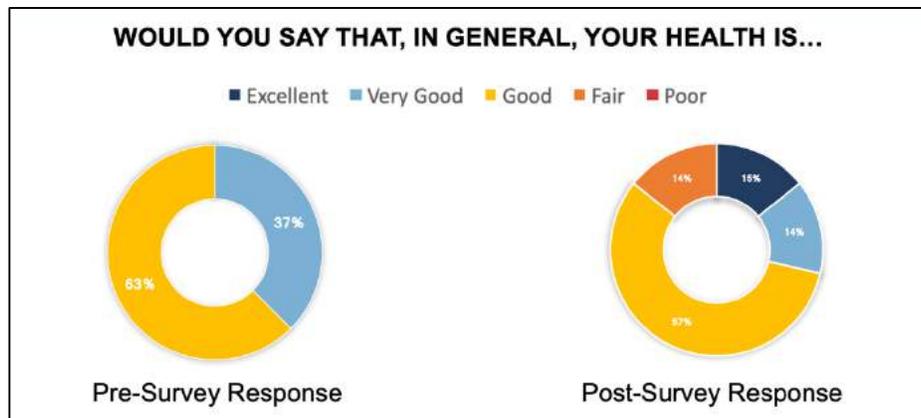
CHARACTERISTIC (N=7)	N (%)
<b>AGE</b> , years, mean (SD)	59 (15)
<b>GENDER</b>	
Male	2 (28)
Female	5 (72)
<b>ETHNICITY</b>	
White/Caucasian	5 (72)
Black/African American	1 (14)
Hispanic/Latino	1 (14)
<b>CHRONIC CONDITION*</b>	
Overweight	6 (75)
Diabetes	2 (25)
Hypertension	6 (75)

\*More than one per patient

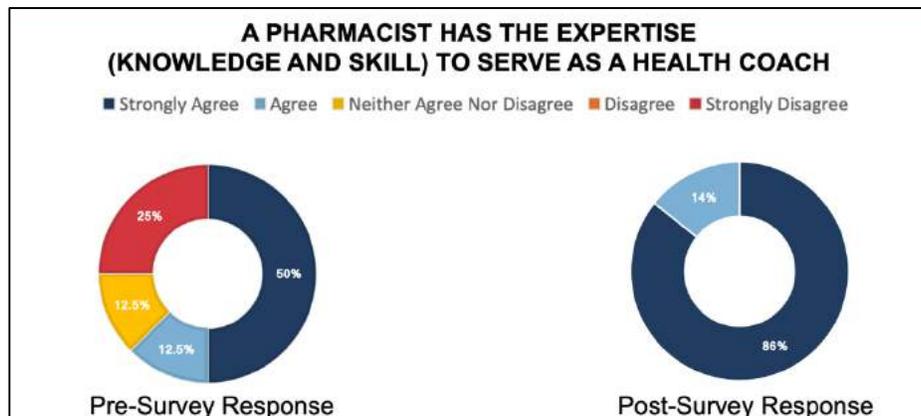
**Table 2. Patient Metrics, Baseline (Day 0) vs Final (Day 60)**

HEALTH ITEM (N=7)	BASELINE	FINAL
<b>BMI</b> (mg/kg <sup>2</sup> , average)	28.7	28.6
<b>Body Composition</b> (% fat, avg)	36.2	35.5
<b>Lean Muscle</b> (lbs, avg)	98	110
<b>Systolic BP</b> (mmHg, avg)	147	151
<b>Diastolic BP</b> (mmHg, avg)	89	88
<b>Goal Set for Nutrition</b> (N)	7	6
<b>Goal Set for Activity</b> (N)	5	7
<b>Goal Set for Sleep</b> (N)	2	1

BMI = Body Mass Index  
BP = Blood Pressure



**Figure 2. Patient reported health, Pre vs Post Survey Response**



**Figure 3. Patient perception of pharmacists' capabilities to serve as a health coach**

## Discussion

Despite environmental restrictions placed on patients due to their patients adapted and overcame obstacles to accelerate personal progress towards their health goals. While average metrics improved slightly, the majority of patients saw an improvement individually. Most patients saw an average decrease in body fat with an increase in lean muscle mass. Patients reported making better choices in their daily diets as well as being more motivated to exercise in addition to their existing SMART goals.

Patients were asked at day 0 and day 60 how they would describe their own health, in general, on a Likert-type scale, ranging from poor to excellent. Interestingly, at day 0 the group rated their own health as being good (63%) or very good (37%), but by day 60 patients had changed their self-analysis to include the more of a variety of results, see **Figure 2**. Fifty-seven percent of patients classified their health as good, 15% excellent, 14% fair, and 14% very good. When looking at the changes, one could consider patients becoming more aware and educated on their own health which could have accounted for the change in self-perceptions or the change could also potentially be due to external factors such as the novel COVID19 pandemic. Further studies are necessary to make any certain conclusion on the pharmacist impact with self-perceptions of health and wellness.

When patients were asked to respond on a Likert-type scale to the statement “A pharmacist has the expertise (knowledge and skill) to serve as a health coach” 37.5% of patients demonstrated a change in their perceptions of a pharmacist from strongly disagree and/or neither agree nor disagree to agree and/or strongly agree, see **Figure 3**. This finding alone proves that the COACH pilot program was a success. To change patient perceptions to strengthen the patient-practitioner relationship in sixty days or less means that there is much room for growth in awareness and realization of pharmacists’ potential to impact patients.

This pilot program was created and implemented by a pharmacist resident with a background in nutrition and a fitness trainer certification. Pharmacists are educated with a multitude of lifestyle modification tools and have access to resources to increase their knowledge base. Each year pharmacists are required to take continuing education courses to renew their license therefore providing many opportunities to further strengthen the skills needed to act as a health coach for their patients.

Future research should include a control group that has follow-up for this cohort of patients after 4-months with no pharmacist intervention. Additionally, there could prove to be valuable inside from gathering the perceptions of other pharmacists at locations without a resident to gain their perceived feasibility of service at additional sites. Many pharmacists at chain locations are seeing a reduction of hours therefore limiting the number of hours of overlap between pharmacists. In order to adequately serve patients, pharmacist would have to set up a “clinic day” with more than one pharmacist to allow for patient appointments. Should these “clinic days” surface, it would be wise to advertise to providers in the area to further aid in closing the gap in healthcare.

Limitations: The COACH pilot program began enrollment a few weeks before the novel Corona virus (COVID19) pandemic caused widespread quarantines and changes in foot-traffic patterns and workflow therefore limiting the number of patients the program was marketed to. The small sample size and short duration limited the amount of data collected. Despite the orders for quarantine, seven of the nine total enrolled patients made it to the pharmacy for their monthly follow-up visits (with masks on while observing social distancing precautions). Progression and achievement of SMART goals were patient reported therefore have potential for bias.

## Conclusion

Through the anonymous survey, data was collected that indicated perceptions of pharmacist capabilities changed as a result of this pilot program. This could pave a path for greater recognition and utilization of the pharmacists in closing the gap in healthcare. By utilizing pharmacists, acting as health coaches that are already centrally located in chain and retail pharmacies, patient care can be approached in a whole-person methodology despite the segmented care currently demonstrated in the American healthcare system.

This study aimed to demonstrate that patients are more likely to reach individualized health goals and see improved in health outcomes with the aid of a community-based pharmacist implementing the COACH program.

All patients enrolled in the pilot program demonstrated an interest and willingness to participate when the COACH program resumes in August 2020. Further data is required to prove direct impact of outcome in metrics with the COACH program. Future research will seek to increase sample size by enrolling more patients therefore allowing for greater data collection.

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## Appendix 2: Documentation for Patient Appointments

### Patient to Complete Section A SECTION A:

ID \_\_\_\_\_

\_\_\_\_\_ MI \_\_\_\_\_ Last name \_\_\_\_\_ Date of Birth \_\_\_\_\_  Male  Female

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Phone Number \_\_\_\_\_

Primary Care Physician \_\_\_\_\_ Provider Address \_\_\_\_\_ Provider Phone number \_\_\_\_\_

Allergies: \_\_\_\_\_

Health Conditions: \_\_\_\_\_

**By signing below, I acknowledge that I am age 18 or over, and I have asked to receive the following testing service(s) from Walgreens, and I authorize Walgreens to perform such testing (please check):**

<input type="checkbox"/>	Obtain my <b>blood pressure</b> via an automatic or manual blood pressure cuff for the purpose of measuring my blood pressure
<input type="checkbox"/>	Collect and maintain <b>blood glucose level</b> and consent to test my own blood glucose with my own testing supplies under the supervision of a pharmacist
<input type="checkbox"/>	Obtain my <b>weight, height</b> and body composition for the purposes of measuring my body composition

**By Signing below, I also understand and agree that:** **1)** The test(s) completed are for testing purposes only, are not for diagnostic purposes or treatment and do not constitute medical advice. **2)** The data derived from is to be considered preliminary and is not conclusive as to the absence or presence of any health condition. **3)** Walgreens recommends that I report the results of the tests, including those outside of the recommended range, to my primary care physician so s/he can help me determine whether I need follow-up care. **4)** The responsibility for seeking follow-up medical advice regarding the test results is mine and not that of any organization or professional associated with the tests. **5)** My receipt of this free test was not conditioned upon my purchase of any other healthcare item(s) or service(s). **6)** I am not permitted to, and will not, submit a claim to any insurer for the free test(s). **7)** In consideration of undergoing the test(s) I hereby release and hold harmless Walgreens and their respective divisions subsidiaries, owners, directors, officers and employees in addition to any third-party sponsors of the free testing, from any liability arising from the testing(s). **8)** I have received a copy of the Notice of Privacy Practices.

\_\_\_\_\_  
Patient's Name (Please Print)

\_\_\_\_\_  
Patient's Signature

Date: \_\_\_\_\_

### Pharmacist to Complete Section B

#### SECTION B:

Testing Personnel Name \_\_\_\_\_ Signature \_\_\_\_\_ Date: \_\_\_\_\_

Test	Patient Results	Goals	Comments
Blood Pressure	___/___ mmHg	People with Normal BP	< 120/80 mmHg
		People with High BP	< 130/80 mmHg
		People with diabetes, kidney disease, or coronary artery disease	< 130/80 mmHg
		Pulse	60-100 bpm
Blood Glucose	<input type="checkbox"/> Fasting <input type="checkbox"/> Random _____ mg/dL	Fasting: < 100 mg/dL	
		Random: < 140 mg/dL	
Body Composition	_____ lbs	<b>Body Mass Index (kg/m<sup>2</sup>)</b> Underweight: <18.5 Goal: 18.5-24.9 Overweight: 25.0-29.9 Obese: > 30.0	

### SMART Goals

Specific, Measurable, Attainable, Relevant, Time-based

Identify Goal and update progress on existing goals when applicable.

Goal 1	
Goal 2	

Patient ID \_\_\_\_\_

## Appendix 3: Health-related Quality of Life Survey

Please fill out the survey below with only one answer per question.

Prior to today, have you considered talking with a pharmacist about your health-related goals?

Yes  No

Indicate your level of agreement with the following statement: A pharmacist has the expertise (knowledge and skills) to serve as a health coach.

Strongly Disagree  Disagree  Neither agree nor disagree  Agree  Strongly Agree

### Healthy Days Core Module (CDC HRQOL-4)

1. Would you say that in general your health is...  
 Excellent  Very good  Good  Fair  Poor
2. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 was your physical health not good?  
 Number of days \_\_\_\_\_  None
3. Now thinking about your mental health, which includes stress, depression and problems with emotions, for how many days during the past 30 days was your mental health not good?  
 Number of days \_\_\_\_\_  None  
*Q2 AND Q3 = "None", go to Activities Limitations Module*
4. During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?  
 Number of days \_\_\_\_\_  None

### Activities Limitations Module

These next questions are about physical, mental, or emotional problems or limitations you may have in your daily life.

1. Are you LIMITED in any way in activities because of any impairment or health problem?  
 Yes  
 No → Go to Q1 of Healthy Days Symptoms Module
2. What is the MAJOR impairment or health problem that limits your activities?  
*(Choose one)*

<input type="checkbox"/> Arthritis/rheumatism	<input type="checkbox"/> Heart problem
<input type="checkbox"/> Back or neck problem	<input type="checkbox"/> Stroke problem
<input type="checkbox"/> Fractures, bone/joint injury	<input type="checkbox"/> Hypertension/ high blood pressure
<input type="checkbox"/> Walking problem	<input type="checkbox"/> Diabetes
<input type="checkbox"/> Lung/breathing problem	<input type="checkbox"/> Cancer
<input type="checkbox"/> Hearing problem	<input type="checkbox"/> Depression/anxiety/emotional problem
<input type="checkbox"/> Eye/vision problem	<input type="checkbox"/> Other impairment/problem

ID \_\_\_\_\_

1

3. For HOW LONG have your activities been limited because of your major impairment or health problem?  
 Days \_\_\_\_\_  Weeks \_\_\_\_\_  Months \_\_\_\_\_  Years \_\_\_\_\_
4. Because of any impairment or health problem, do you need the help of other persons with your PERSONAL CARE needs, such as eating, bathing, dressing, or getting around the house?  
 Yes  No
5. Because of any impairment or health problem, do you need the help of other persons in handling your ROUTINE needs, such as everyday household chores, doing necessary business, shopping or getting around for other purposes?  
 Yes  No

### Healthy Days Symptoms Module

1. During the past 30 days, for about how many days did PAIN make it hard for you to do your usual activities, such as self-care, work, or recreation?  
 Number of days \_\_\_\_\_  None
2. During the past 30 days, for about how many days have you felt SAD, BLUE or DEPRESSED?  
 Number of days \_\_\_\_\_  None
3. During the past 30 days, for about how many days have you felt WORRIED, TENSE, OR ANXIOUS?  
 Number of days \_\_\_\_\_  None
4. During the past 30 days, for about how many days have you felt you did NOT get ENOUGH REST or SLEEP?  
 Number of days \_\_\_\_\_  None
5. During the past 30 days, for about how many days have you felt VERY HEALTHY AND FULL OF ENERGY?  
 Number of days \_\_\_\_\_  None

ID \_\_\_\_\_

2