

Forecasting the Impact of Pharmacists on Primary Care Teams: Workforce Implications

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2023 Center for Pharmacy Practice Innovation (CPPI) Seminar

2023 Center for Pharmacy Practice Innovation (CPPI) Seminar - 4/24/2023

Speaker(s): Marie Smith, PharmD, FNAP

Topic: CPPI invites various health care professionals from around the country and globe to speak on issues relating to innovation in the health care space.

Objective(s):

Location: NA

Specialties: Cardiovascular Disease, Endocrinology, Diabetes and Metabolism, Family Practice, General Practice, Nutrition, Pharmacist, Public Health, Academic/Research, Dietitians, Pharmacy Technician, Cardiology

Faculty Disclosures:

Marie Smith, PharmD, FNAP (Nothing to disclose - 10/19/2022)

[Download Handout](#)

Purpose or Objectives: At the conclusion of this activity, the participant will be able to:

Date/Time: 4/24/2023 12:00:00 PM

Location: NA

Accreditation:



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Credit Designation(s):



This activity provides 1.00 contact hours of continuing education credit. ACPE Universal Activity Number (UAN): Pharmacist: JA4008237-0000-23-006-L04-P Technician: JA4008237-0000-23-006-L04-T

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Name of individual	Individual's role in activity	Name of Ineligible Company(s) / Nature of Relationship(s)
Teresa M Salgado, MPharm, PhD	Activity Director	Grant or research support-Boehringer Ingelheim - 10/31/2022
Marie Smith, PharmD, FNAP	Faculty	Nothing to disclose - 10/19/2022
Evan Sisson, Pharm.D., MSHA, BCACP, CDE, FAADE	Planning Committee	Nothing to disclose - 10/30/2022
Sydney Weber, BA	Planning Committee	Nothing to disclose - 10/27/2022



Audience Participation questions

Please indicate your discipline:

A. Nurse

B. Pharmacist

C. Pharmacy student/resident/fellow

D. Physician/APRN/PA

E. Other

Identify your primary place of work:

- A. Outpatient clinic
- B. Federally qualified health center
- C. Physician office
- D. Hospital inpatient unit
- E. Emergency room/urgent care
- F. Long-term/post-acute care facility
- G. Academia
- H. Retail pharmacy
- I. Other

CHALLENGE: Best way to assess the impact of pharmacist services on a primary care team?



CLINICAL

- Improvements in medication use
 - appropriateness, effectiveness, safety, adherence
- Improved patient clinical outcomes
 - reaching therapy goals
 - preventing ADEs/drug interactions
 - managing ADEs/drug interactions
- Medication adherence measures

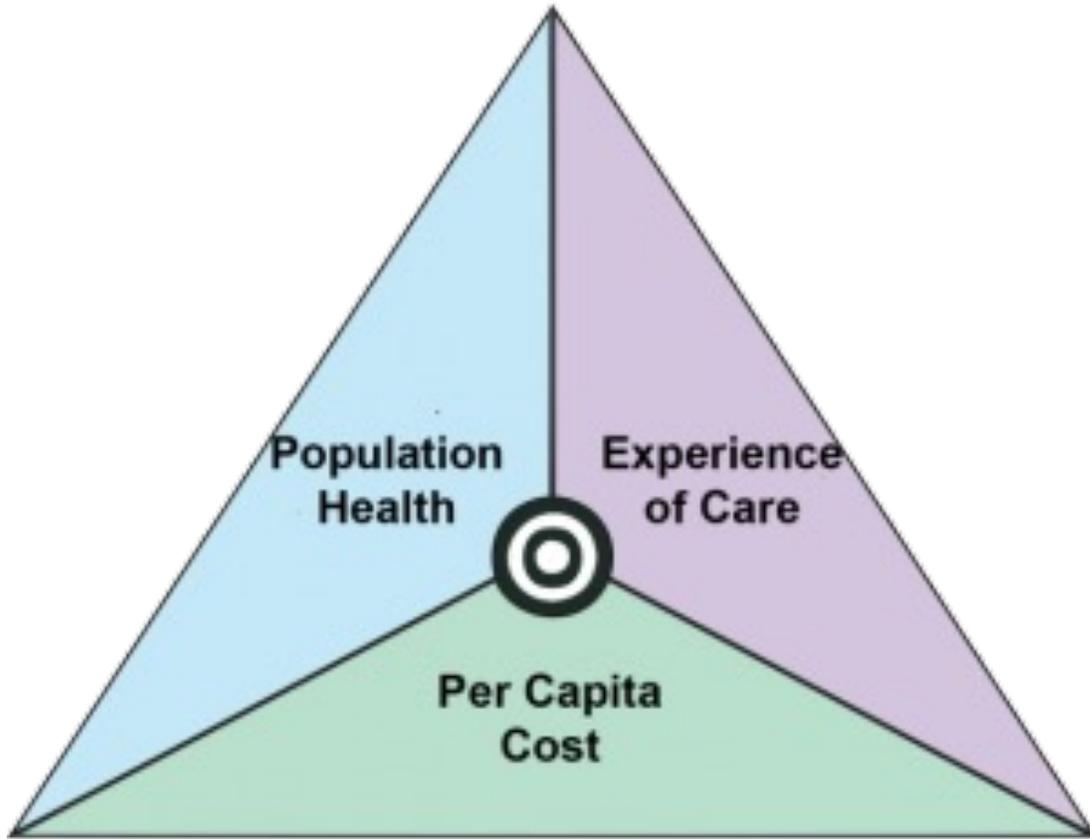
FINANCIAL

- Cost savings (actual expenses)
 - total cost of care
 - medication costs
- Cost avoidance (projected)
- ROI

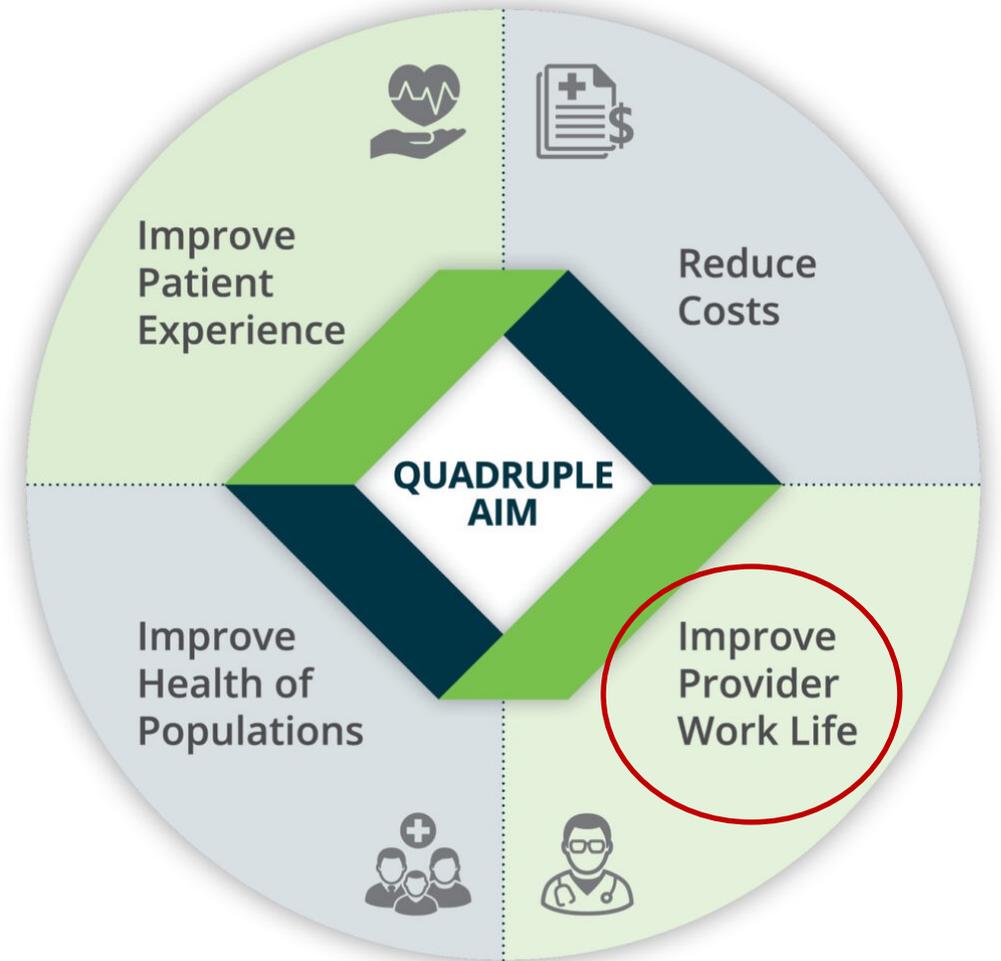
PATIENT EXPERIENCE

- CAHPS scores

Moving from Triple Aim to Quadruple Aim



IHI Triple Aim



Bodenheimer and Sinsky. Ann Fam Med. 2014 Nov-Dec;12(6):573-6.



PCImpact: A modeling tool for forecasting impact of primary care pharmacist services

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ARTICLE INFO

Keywords:

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Embedded pharmacist
Pharmacist
Population health
Primary care

ABSTRACT

Background: The role of the pharmacist in primary care (PC) has expanded to focus on medication optimization and management for chronic conditions. However, identifying the optimal pharmacist practice model to maximize pharmacist workload capacity, patient care quality, and PC provider satisfaction remains a challenge. PC clinical and administrative leaders could benefit from pharmacist impact forecasts to justify initiating new or optimizing/expanding current pharmacist services.

Objectives: (1) To describe the development of a PC pharmacist services modeling tool, PCImpact (2) To discuss the use of PCImpact by PC leaders to initiate, optimize, or expand integrated pharmacist services.

Methods: PCImpact was developed and internally tested with 6 clinical/administrative leaders within a federally qualified health center and health system-affiliated primary care organization by: (1) identifying pharmacist practice models, (2) obtaining data input values for PCImpact, and (3) calculating PCImpact output values.

Two types of pharmacist practice models are defined: population health (PH) and direct patient care (DPC). In the PH models, a centralized pharmacist performs one-time, comprehensive or targeted medication reviews with no direct patient interaction. PC providers review and implement pharmacist recommendations. In DPC models, an embedded pharmacist in a PC practice performs patient visits with or without collaborative practice agreements with PC providers.

Default values for all PCImpact data inputs were obtained/tested through literature reviews and discussions with pharmacy and physician leaders, including pharmacist and PC provider time required, and implementation percentage of pharmacist recommendations. PCImpact calculates: (1) pharmacist workload capacity, (2) PC provider time impact, and (3) patient care impact.

Conclusions: PCImpact presents a novel method to objectively forecast the impact of PH and DPC pharmacist services in 2 PC settings. PCImpact outputs showed that a DPC pharmacist practice model can save PC provider time and impact a greater number of patients compared to a PH pharmacist practice model.

First pharmacy article to discuss a forecasting tool for primary care services that is aligned with 4th Quadruple Aim: Provider/Clinician Workload

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Objectives

In 2019, the Connecticut State Innovation Model Pharmacy TA Program contracted with UConn SoP to offer 9 primary care organizations (PCOs) a no-cost, tailored, strategic approach to initiate and/or advance clinical pharmacist services.

The paper was written to:

- (1) describe the development of a pharmacist services modeling tool, PCImpact, and
- (2) discuss the use of PCImpact by pharmacy and primary care leaders to initiate, optimize, or expand integrated pharmacist services.**

Background

- State Innovation Model program - worked with 4 large Primary Care Organizations (PCOs)
 - ❖ Statewide FQHC with 14 practice sites and 200 PCPs
 - ❖ Academic-affiliated physician organization with 50 practice sites and 300 PCPs
 - ❖ Regional health system
 - ❖ For-profit health system ACO
- All 4 PCOs had a full-time pharmacist (ranged from 0.4-1.0FTE) for clinical services
- Worked with CEOs, CMOs, clinical teams, and pharmacy leaders to:
 - ❖ optimize pharmacist clinical services integration,
 - ❖ select high-value pharmacist clinical services,
 - ❖ evaluate the impact/value of pharmacist clinical services in the primary care setting
 - ❖ utilize internal or 3rd party data needed to assess pharmacist impact
- Little is known about primary care organizations' understanding of the impact of a Direct Care Pharmacist or Population Health Pharmacist practice model on Pharmacist and Provider Workload

PCImpact Tool Development

- Worked with 2 large statewide PCOs
- Input of clinical pharmacists, Associate Ambulatory Care Pharmacy Director, 2 Medical Directors, Senior Quality Improvement Manager of Population Health

STEPS:

1. Identify PCO pharmacist practice model (will describe)
2. Obtain data input variables (see Table 1 in article)
 - time for targeted or CMM review; time for PCP patient visit, review/implement pharmacist recommendations, etc.
1. Obtain site-specific and default data (see Figure 2 in article)
 - on-site workflow observations, pharmacist and PCP interviews
2. Calculate data output values (calculations described in article)
 - pharmacist workload capacity
 - PCP time impact
 - patient visit impact

Four Pharmacist Practice Models used in PCImpact Tool

POPULATION HEALTH	DIRECT PATIENT CARE
<p data-bbox="402 382 988 425">Targeted Medication Review</p> <ul data-bbox="137 476 1223 654" style="list-style-type: none"> • Pharmacist reviews and assesses medications specifically for defined disease state(s), such as hypertension and diabetes • Pharmacist sends all medication optimization recommendations to PCPs for implementation 	<p data-bbox="1424 382 2275 486">Embedded Pharmacist with Collaborative Practice Agreements (CPAs)</p> <ul data-bbox="1289 536 2379 668" style="list-style-type: none"> • Pharmacist performs patient visits until therapy goals are met • Pharmacist provides comprehensive medication management • Pharmacist implements medication changes and orders lab tests
<p data-bbox="333 729 1059 772">Comprehensive Medication Review</p> <ul data-bbox="137 822 1235 996" style="list-style-type: none"> • Pharmacist makes medication optimization recommendations on entire medication regimen • Pharmacist sends all medication optimization recommendations to PCPs for implementation 	<p data-bbox="1457 729 2244 772">Embedded Pharmacist WITHOUT CPAs</p> <ul data-bbox="1289 822 2379 996" style="list-style-type: none"> • Pharmacist performs patient visits until therapy goals are met • Pharmacist does NOT use collaborative practice agreements • Pharmacist sends all medication optimization recommendations to PCPs for implementation

Fig. 1. Description of pharmacist practice models.

Mulrooney M and Smith M. Primary Care Pharmacist Practice Models Shape the Comprehensive Medication Management Process. Annals of Pharmacotherapy 2022 May;56(5):620-625.

PCImpact Outputs (Fig. 3 in article)

Line #	PHARMACIST PRACTICE MODEL	POPULATION HEALTH (1 MEDICATION REVIEW)		DIRECT PATIENT CARE (1 INITIAL AND 4 FOLLOW-UP VISITS)		
		TARGETED MEDICATION REVIEW	COMPREHENSIVE MEDICATION REVIEW	EMBEDDED PHARMACIST WITHOUT CPAs	EMBEDDED PHARMACIST WITH CPAs	
PHARMACIST WORKLOAD CAPACITY						
1	Unique patients	1.0 FTE	3,291	2,304	640	640
2	Medication reviews or patient visits completed		3,291	2,304	3,200	3,200

Population Health Model (one time medication reviews)

1. Targeted Med Reviews allow for higher # of patients served since take less time than Comprehensive Med Reviews

Direct Patient Care Model (an initial and 4 followup visits within a 12-month timeframe)

1. Less # patients seen and CMM reviews completed than Population Health Model

PCImpact Outputs (Fig. 3 in article)

Line #	PHARMACIST PRACTICE MODEL	POPULATION HEALTH (1 MEDICATION REVIEW)		DIRECT PATIENT CARE (1 INITIAL AND 4 FOLLOW-UP VISITS)		
		TARGETED MEDICATION REVIEW	COMPREHENSIVE MEDICATION REVIEW	EMBEDDED PHARMACIST WITHOUT CPAs	EMBEDDED PHARMACIST WITH CPAs	
PCP TIME IMPACT						
3	PCP hours required OR saved	1.0 FTE	(- 549)	(- 384)	+ 107	+ 640
4	Additional patient visits opened		0	0	321	1,920

Population Health Model (one time medication reviews)

1. Requires significant amount of PCP time to read, assess, and implement pharmacist recommendations
2. PCPs commented that pharmacist service is “creating more work for me” in this model

Direct Patient Care Model (an initial and 4 followup visits over 12-month timeframe)

1. Collaborative practice agreement (CPA) saves ~ 6x PCP time required: **REDUCES PCP WORKLOAD BURDEN**
2. Embedded pharmacist using CPA can open up ~1,900 patient visits per year – translates to **IMPROVED PATIENT ACCESS**
3. Opens up ~ 40 PCP appointments per week for acute and immediate access patient visits

PCImpact Outputs (Fig. 3 in article)

Line #	PHARMACIST PRACTICE MODEL	POPULATION HEALTH (1 MEDICATION REVIEW)		DIRECT PATIENT CARE (1 INITIAL AND 4 FOLLOW-UP VISITS)		
		TARGETED MEDICATION REVIEW	COMPREHENSIVE MEDICATION REVIEW	EMBEDDED PHARMACIST WITHOUT CPAs	EMBEDDED PHARMACIST WITH CPAs	
PATIENT CARE IMPACT						
	Implementation percentage [DV]		40%	40%	90%	95%
5	Medication reviews or patient visits impacted	1.0 FTE	1,317	922	2,880	3,040

Population Health Model (one time medication reviews)

1. Implementation percentage = 40%

Direct Patient Care Model (an initial and 4 followup visits over 12-month timeframe)

1. Implementation percentage = 90-95%

Scenarios Applying PCImpact

Part-time FTE Pharmacist Capacity: Pop Health Targeted Reviews vs. Direct Patient Care?

PHARMACIST MODEL TYPE		POPULATION HEALTH	DIRECT PATIENT CARE
		TARGETED MEDICATION REVIEW	EMBEDDED PHARMACIST WITH CPA
PHARMACIST WORKLOAD CAPACITY			
Unique patients	0.4 FTE	1,317	256
Medication reviews or patient visits completed		1,317	1,280
PCP TIME IMPACT			
PCP hours required OR saved	0.4 FTE	(- 219)	+ 256
Additional patient visits opened		0	768
PATIENT CARE IMPACT			
Implementation percentage [DV]		40%	95%
Medication reviews or patient visits impacted	0.4 FTE	527	1,216

Population Health Model: pharmacist can perform 1,317 targeted med reviews for patients with uncontrolled BP and A1c

Direct Patient Care w/CPA Model: pharmacist can complete 1,280 visits per year with 256 patients; need to select highest risk patients for medication optimization/management

Useful to set a benchmark for pharmacist workload

Scenarios Applying PCImpact

1.0 FTE Pharmacist: Initiate Population Health Pharmacist vs. Embedded Pharmacist model?

PHARMACIST MODEL TYPE		POPULATION HEALTH	DIRECT PATIENT CARE	
		COMPREHENSIVE MEDICATION REVIEW	EMBEDDED PHARMACIST WITHOUT CPA	EMBEDDED PHARMACIST WITH CPA
PHARMACIST WORKLOAD CAPACITY				
Unique patients	1 FTE	2,304	640	640
Medication reviews or patient visits completed		2,304	3,200	3,200
PCP TIME IMPACT				
PCP hours required OR saved	1 FTE	(- 384)	+ 107	+ 640
Additional patient visits opened		0	321	1,920
PATIENT CARE IMPACT				
Implementation percentage [DV]		40%	90%	95%
Medication reviews or patient visits impacted	1 FTE	922	2,880	3,040

Less unique patients; need to select highest risk patients

Save PCP hours – important with PCP burnout and staffing challenges

Opens up PCP visits: Improve patient access

Higher % implementation of pharmacist recommendations

Conclusions

1. Primary care and pharmacy leaders can use PCImpact as a tool to:

- Plan for new or expanded pharmacist integration
- Select pharmacist practice model (DPC or PH) by determining the best fit for the PC organization's needs and PCP workload
- Determine a pharmacist's workload capacity
- Estimate the impact of an integrated pharmacist on PCP clinical workload

2. A pharmacist providing **DPC services using a CPA** can reduce the PCP's workload by seeing patients requiring medication optimization and management = **REDUCED CLINICAL WORKLOAD BURDEN**

3. A pharmacist providing **DPC services using a CPA** can open up PCP appointments for patients with acute and immediate medical needs = **IMPROVED PATIENT ACCESS**

Questions?

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CE Questions

PCImpact is a tool that can be useful to:

- A. Plan population health pharmacist work schedules
- B. Predict the number of pharmacists needed per primary care provider
- C. Identify patients most suitable for an embedded pharmacist medication review
- D. Determine the impact of a population health pharmacist on primary care provider workload

CE Question

An embedded pharmacist who uses a collaborative practice agreement can:

- A. Increase the workload of a primary care provider
- B. Review more patients' med lists than a population health pharmacist
- C. Open up primary care provider appointments for improved patient access
- D. All of the above