

Disclosure

Dr. Bacci discloses the following financial relationships with companies related to healthcare products or services:

UCB Pharma (grant or research support)

Learning Objectives

1. Explain the utility of hybrid implementation-effectiveness study designs in pharmacy practice-based research

2. Describe the potential impact of community pharmacists on closing statin gaps in care in people with type 2 diabetes based on the findings of the GuIDE-S study

3. Recall strategies for partnering with community pharmacies on practice-based research

Background



Statin therapy is recommended for people with type 2 diabetes (T2D) to lower cardiovascular risk¹



Evidence suggests gaps in statin therapy exist

In 2019, 60-75% of eligible patients received statin therapy²

Estimates of statin nonadherence range from 18% to 83%³



Community pharmacist intervention is potential strategy to increase statin use in people with T2D

Previous Research

Renner et al.4

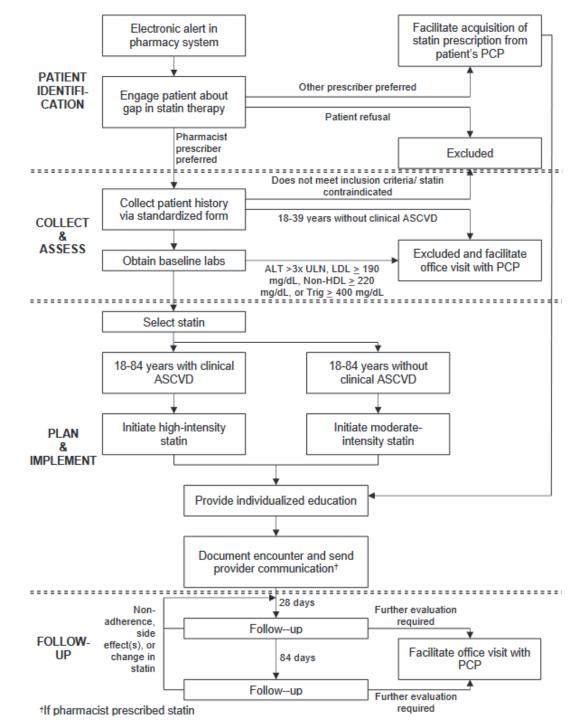
- Population:
 - Patients with T2D aged 40 75 years
- Intervention:
 - Pharmacists identified eligible patients via lists from EQuIPP platform and then contacted providers by phone or fax
- Results:
 - 21% (n=46) patients in intervention group vs. 8.5% (n=17) patients in control group prescribed statin (p<0.001)

Drake et al.⁵

- Population:
 - Patients with T2D aged 40 75 years
- Intervention:
 - Pharmacists identified eligible patients screening algorithm in workflow and then contacted providers by fax
- Results:
 - 23% (n=7) patients identified by algorithm received statin

⁴Renner HM, Hollar A, Stolpe SF, Marciniak MW. Pharmacist-to-prescriber intervention to close therapeutic gaps for statin use in patients with diabetes: A randomized controlled trial. *J Am Pharm Assoc (2003)*. 2017;57(3S):S236-S242.e1. doi:10.1016/j.japh.2017.04.009

The GuIDE-S Intervention



Objectives

• Primary:

 To evaluate the impact of a community pharmacist intervention on statin initiation in people with T2D

Second:

- To evaluate the impact of the ongoing intervention on statin adherence in new users with T2D
- To evaluate pharmacists' self-reported perceptions of the intervention feasibility and fidelity to the intervention

Implementation Strategies

- 1. Develop educational materials
- 15-page manual with protocol, guidelines, forms, and documentation templates
- 2. Conduct educational meetings
- Required 90-minute computer-based, accredited continuing education program
- 3. Conduct educational outreach visits
- Initial visit to each pharmacy within 2 weeks of online training completion; ongoing visits as needed

- 4. Remind clinicians
- Electronic alert in dispensing system to identify eligible patients
- 5. Alter incentive structure
- Hosted competitions to recognize and award high performers
- 6. Audit and provide feedback
- Intervention completion reports monitored every 2 weeks

Methods



Design

Type 1 hybrid effectiveness-implementation study



Setting

9 intervention and 18 control pharmacies within a large community pharmacy chain in Washington State

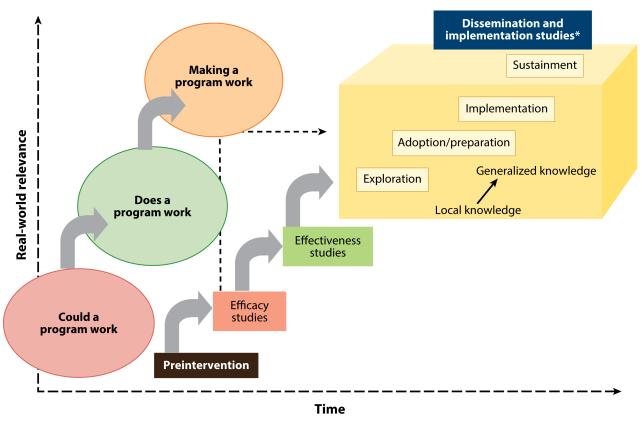


Timeframe

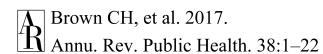
Patient enrollment conducted August 8, 2018 – December 31, 2019; 12-month follow-up period concluded December 31, 202

Hybrid Effectiveness-Implementation Studies

Translational Research
Pipeline⁶



*These dissemination and implementation stages include systematic monitoring, evaluation, and adaptation as required.



Hybrid Effectiveness-Implementation Studies

Types of hybrid designs⁷

Hybrid Type 1	Hybrid Type 2	Hybrid Type 3
Primary Aim:	Primary Aim:	Primary Aim:
Determine effectiveness of an intervention	Determine effectiveness of an intervention	Determine impact of an implementation strategy
Secondary Aim:	Co-Primary* Aim:	Secondary Aim:
Better understand context for implementation	Determine feasibility and/or (potential) impact of an implementation strategy	Assess clinical outcomes associated with implementation
	*or Secondary Aim	

Implementation Outcomes⁸

Implementation Outcome	Definition	
Adoption	The intention, initial decision, or action to try or employ the service (uptake, utilization, initial implementation, intent to try)	
Appropriateness	Perceived fit, relevance, or compatibility of the service for a given practice setting, provider, or consumer; and/or perceived fit of the innovation to address a particular issue or problem.	
Acceptability	Perceptions that service is agreeable, palatable, or satisfactory	
Feasibility	Extent to which a service can be successfully used or carried out within a given agency or setting (suitability or practicability)	
Fidelity	Degree to which the service is implemented as intended (includes adherence, dosage, quality of delivery, participant responsiveness, reach, etc.)	
Cost	The financial impact of an implementation effort (refers to cost of implementation)	
Penetration	Integration of a practice within a service setting and its subsystems (spread)	
Sustainability	The extent to which a newly implemented treatment is maintained or institutionalized with a service setting's ongoing, stable operations	

Methods: Statin Initiation and Adherence

Outcome	Statin Initiation Statin Adherence		
Design	Quasi-experimental		
Participants	Adult patients with T2D		
Measure(s)	Receipt of any statin within 12-month of a patient-specific index date Continuous and categorical proportion days covered (PDC)		
Data Collection	De-identified patient, prescription, and intervention data extracted from pharmacy dispensing system		
Data Analysis	Cox proportional hazards model Linear and logistic regression		

Methods: Feasibility and Fidelity

Outcome	Feasibility Fidelity		
Design	Repeated cross-sectional		
Participants	Pharmacists practicing at intervention pharmacies		
Measure(s)	Intervention Outcomes Questionnaire – Feasibility ⁹	Adapted Comprehensive Medication Management Patient Care Process Fidelity Assessment ¹⁰	
Data Collection	REDCap survey administered at 6- and 12-months post implementation		
Data Analysis	Descriptive statistics		

Results: Statin Initiation

Demographics

Characteristics	Control (n=3,358)	Intervention (n=1,679)	
Age (years), mean (sd)	56.6 (14.8)	55.5 (14.1)	
Female, n (%)	2,032 (60.5)	960 (57.2)	
Insurance, n (%) Commercial Government Self-pay	1,872 (55.7) 1,332 (39.7) 154 (4.6)	1,160 (69.1) 452 (26.9) 67 (4)	
No. unique medications in previous 12 months, mean (sd)	8.4 (6.1)	7.2 (6.5)	
Fill of any cardiovascular medication in previous 12 months, n (%)	3,182 (94.8)	1,277 (76.1)	

Results: Statin Initiation

• 26.3% (n=442) of intervention patients vs. 25.4% (n=854) of control patients initiated a statin within 12 months of their index date

• 2.7% intervention patients (n=12) initiated a statin prescribed by a pharmacist via the collaborative practice agreement (CPA)

• Likelihood of statin initiation was not significantly different between intervention and control patients (adjusted HR: 1.00; 95% CI: 0.83, 1.21)

Results: Statin Adherence

Demographics

Characteristics	Control (n=370)	Intervention (n=185)	
Age (years), mean (sd)	61.7 (11.3)	57.9 (10.7)	
Female, n (%)	164 (44)	91 (49)	
Insurance, n (%) Commercial Government Self-pay	188 (51) 177 (48) 5 (1)	144 (78) 37 (20) 4(2)	

Results: Statin Adherence

Continuous PDC

 Mean statin PDC was 66.1% in the intervention group vs. 64.5% in the control group

 PDC was 3.1% higher in the intervention group (95% CI: -0.037, 0.098)

Categorical PDC

 45.5% of intervention patients had PDC ≥ 80% vs. 44.1% of control patients

 Patients in the intervention groups were 21.2% more likely to have a PDC > 80% (95% CI: 0.828, 1.774)

Results: Feasibility

	6-months post implementation (n=15)		12-months post implementation (n=12)	
Item	Slightly – Strongly Disagree	Slightly – Strongly Agree	Slightly – Strongly Disagree	Slightly – Strongly Agree
The amount of time to implement this service is manageable.	8 (53.3%)	7 (46.7%)	4 (33.3%)	8 (66.7%)
The guidance documents needed to carry out this service are feasible to use.	3 (20%)	12 (80%)	1 (8.3%)	11 (91.7%)
The financial resources needed to carry out this service are reasonable.	5 (33.3%)	10 (66.7%)	2 (16.7%)	10 (83.3%)
The staff needed to carry out this service is reasonable.	8 (53.3%)	7 (46.7%)	4 (33.3%)	8 (66.7%)
The space needed to carry out this service is reasonable.	4 (26.7%)	11 (73.3%)	0 (0%)	12 (100%)
The pharmacist(s) responsible is able to dedicate the appropriate time to deliver this service.	9 (60%)	6 (40%)	4 (33.3%)	8 (66.7%)
The amount of time required for documentation of this service is reasonable.	7 (46.7%)	8 (53.3%)	1 (8.3%)	11 (91.7%)
Preparation for carrying out this service is reasonable.	5 (20%)	10 (80%)	3 (25%)	9 (75%)

Results: Feasibility

Feasibility Scores

Pharmacist Survey	Feasibility Score
6-months post implementation	4.0
12-months postimplementation	4.2

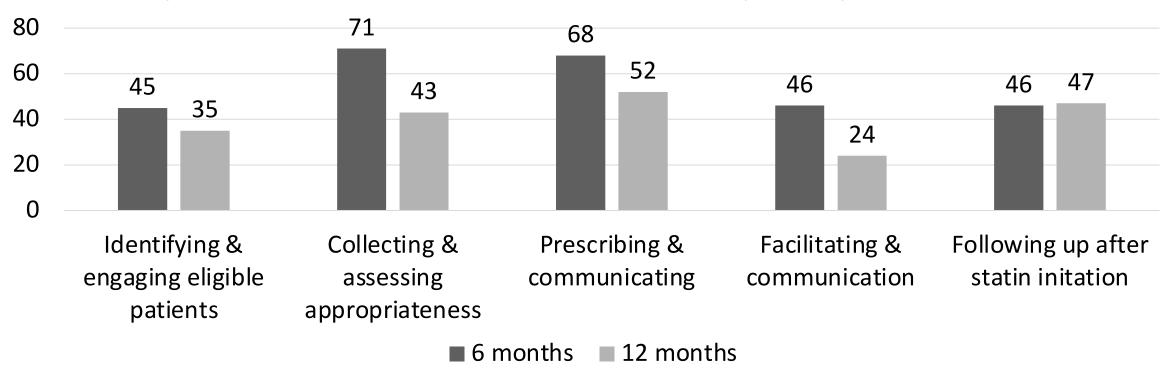
Interpretation:

≥ 3.5: Service is highly likely to be feasible to implement at this site

< 3: Service is less likely to be feasible to implement at this site

Results: Fidelity

Percent of respondents indicating high fidelity (>80%) to intervention protocol at 6- (n=15) and 12- (n=12) months post implementation



Discussion



Among 1st studies to evaluate model for community pharmacists initiating statins via a CPA



Pharmacists prescribed statin via CPA for small percentage of patients (2.7%) in study

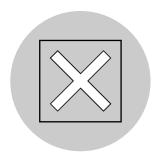


Difference in time and complexity between initiating statin via CPA and acquiring prescription from another prescriber likely influencers

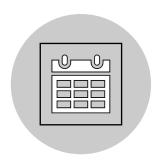


CPA alone not sufficient to improve statin use in people with T2D; Patients appear to prefer more collaborative approach

Limitations



May have been systematic differences between intervention and control sites due to lack of randomization



Assumptions were required to calculate patient-specific index dates for statin initiation



Controlled for insurance type to account for overrepresentation of patients with government-funded insurance in control group



Statin fills at other pharmacies not included in PDC calculation using pharmacy-based fill data

Conclusions

- Community pharmacist-led intervention resulted in more patients initiating statin therapy and higher statin adherence as compared to usual care; however, differences were not statistically significant
- Opportunities to optimize impact of community pharmacist-led intervention to close statin gaps in care include:
 - Increasing awareness of statin therapy availability among patients
 - Integrating pharmacist-physician communication via the electronic health record
 - Implementing intervention in more structured patient care workflow (e.g., appointment-based model, medication synchronization)

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Publications:

- Bacci JL, et al. Community pharmacist intervention to close statin gaps in diabetes care: The GuIDE-S study. J Am Pharm Assoc. 2023;63(1):108-117. doi:10.1016/j.japh.2022.08.025
- Bacci JL, et al. Community pharmacist intervention to optimize statin adherence in diabetes care: The GuIDE-S study. J Am Pharm Assoc. 2023;63(3):946-951. doi:10.1016/j.japh.2023.03.002

Community – Academic Partnerships for Research

Scholarship

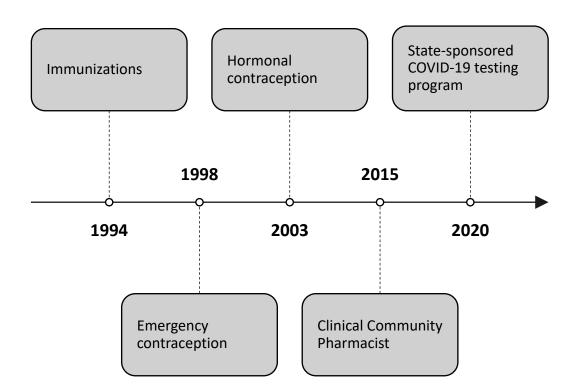


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Practice Transformation



The Washington State Experience





Pharmacist prescribing of hormonal contraceptives: **Results of the Direct Access study**

Objective: To describe implementation of a collaborative drug therapy protocol to screen and counsel women for safe use of hormonal contracentives prescribed by

Setting: Metropolitan Seattle, Wash., from June 2003 to December 2005.

Participants: 26 community pharmactsis and 214 women enrollees.

Intervention: Pharmactsis identified women at risk of unintended pregnancy and iffered to evaluate them to determine whether they could safely use oral contraceptives, contraceptive patches, or the contraceptive vaginal ring. Interested women selfadministered medical and contracentive history questionnaires. Pharmacists measured weight and blood pressure and prescribed hormonal contraceptives according to the protocol guidelines. Study interviewers followed up with women via telephone

Main outcome measures: Effectiveness of pharmacist interventions was meaand unicome measures. First viviewes or paramates increasions was inca-sured by continuation of hormonal methods by women. Feasibility was determined by measuring acceptability and sustainability. Acceptability was measured by interviewing women and pharmacists, Sustainability was measured by evidence of willingness

Results: 195 women (91%) were prescribed hormonal contraceptives by pa pating pharmacists. A self-administered screening tool and physical measurem weight and blood pressure enabled pharmacists to evaluate women for safe t recentives. Most women (97%) were experienced users of hormonal contr. 12 months, 70% of women responding to an interview reported continuing use a monal contraceptives. Women reported that they would want to obtain a gyneci exam within 3-year intervals while taking hormonal contraceptives. Both wome pharmacists were satisfied with the experience. Nearly all respondents expr willingness to continue to see pharmacist prescribers and to receive other ser

Conclusion: Community pharmacists can efficiently screen women for sal of hormonal contraceptives and select appropriate products. Women and pharm: were satisfied with the services, and women were willing to pay for them.

Keywords: Collaborative practice, contraceptives, prescribers, research J Am Phorm Assoc 2008-48-212

212 • IAPhA • 48:2 • Mar/Arr 2008



The Emergency Contraception Collaborative Prescribing **Experience in Washington State**

Objective: To describe how prescribers and pharmacists view the Emergency Contraceptive Pills (ECP) program, and to evaluate pharmacists' performance through the use of a consumer survey. Design: Self-administered provider satisfamailed 6 months after the program's inception. Consumer satisfaction surveys were distributed at the point of ECP service for return agreements, increasing consumers' access to ECP. Patients or Other Participants: Pharmacists who had attended ECP training Buy sions, prescribers who had authorized pharmacists to prescribe ECP, and women who had been prescribed ECP by pharm Main Outcome Measures: Providers' reasons for participating, attitudes toward the ECP program, and experiences with ECP as a result of the program; feedback from women receiving ECP from pharmacists. Results: 309 pharmacist surveys and 55 prescriber su veys were sent, of which 159 (51%) and 27 (49%), respectively, were returned. Meeting patient needs and having a profession responsibility to participate were commonly reported reasons for ECP program involvement. Both pharmacists and prescribers (92%) ported being "satisfied" or "very satisfied" with their prescribing agreements. On the 470 consumer surveys returned out of 7,000 distributed (6.5%), pharmacists were rated highly satisfactory for their interactions with patients and the quality of information about ECP use given, but less satisfactory for information about adverse effects, recognition and follow-up of ECP failure, and regular contra-ceptive methods. Conclusion: All participants expressed satisfaction with the ECP program. This example should support the initia-

cation, unintended pregnancy remains a common problem in the emergency contraception are copper intrauterine devices (IUDs United States. Of the 5.38 million pregnancies recorded in the united States in 1994, 49% were unitended. This rate exceeds after unproceed intercourse. The mechanism of action of the latter of other developed countries. For example, as woman in the termethod is unknown, but research suggests it may prevent

Despite advances in contraceptive technology and public edu-unintended pregnancy. The two most widely used methods for unio o ouer overappo commes. For example, a weeman in me terr memon is manawe, our releases usages as may preven United States has a wavege of 1.3 mitted pregnancies in pregnancy in several ways, including inhibition of olday of outside in the file-filente, whereas women in Canada average 0.79 and into and endomential alteration prior to fertilized our implanta-weemen in the Netherlands average 0.28 mintended pregnancies.\(^1\)

Entragency contaception may be used postcolarly to prevent oral method have made it the most desirable firm of emergency.

Received June 2, 2000, and in revised form September 7, 2000, Comparison of Compariso Programs for Ageropriste Technology in Health, Seattle, Wash.

Programs for Ageropriste Technology in Health, Seattle, Washing, W The program's rationale was reinforced by the following facts





A Practical Guide to Establishing Vaccine Administration Services in Community Pharmacies

Objective: This article describes requisite components of a community pharmacy-based vaccine administration program and provides resources for obtaining training and materials to facilitate implementation in the pharmacy. Data Sources: Published medical Rerature accessed via Medline; interviews of pharmacists who initiated vaccine administration programs; government publications professional publications including manuals and newsletters; and the resources of the Washington State Board of Pharmacy. Data Synthesis: Pharmacists in several states have initiated vaccine-administration programs for adults, adolescents, and children within heir pharmacies with acceptance by patients, third party pavers, and other health professionals. In some states, collaborative prewibing agreements between physicians or nurse-practitioners and pharmacists enable pharmacists to implement high-volume immunization clinics as well as individual natients services. Standardized training is available from several sources, and in most setfree vaccine administration services can be implemented with low initial investment, Conclusion: Vaccine administration may soon excome an integral function in community pharmacists' responsibilities for the health and well-being of patients.

J Am Pharm Assoc. 1997;NS37:683-93.

Pharmacists in 23 states now have authority to administer Immunization—A National Effort vaccines under collaborative prescribing protocols. In many of those states and others, nonpharmacist health care providers administer vaccines in community pharmacies or fleir associated retail settings during immunization cam-

prevalence (e.g., pneumococcal disease and influenza) of vac-cine-preventable diseases in the United States despite the avail-ability of safe and effective vaccines and federally subsidized pharmacists an programs for vaccination. Analysis of the reasons for this unsetncorporated vacassistance Many other health care services, and include the need for an appointment, restricted clinic hours, inaccessible clinic locations, and

thing situation reveals several interrelated problems pertaining to the cost of and access to vaccines.⁶ Often, insurance carriers do not reimburse for vaccination. Many of the same barriers that prevent more widespread immunization also restrict access to

In recent years, national attention has been focused on the

In light of the national goals for reduction of vaccine-preventable diseases, as articulated in Healthy People 2000: Nation-al Health Promotion and Disease Prevention Objectives⁸ (Table I), multiple federal initiatives have been undertaken to increase vaccine coverage of target groups. In 1981 the Health Care Financing Administration (HCFA) authorized payment for pneumococcal vaccines and their administration to Medicare enrollees.9 That coverage was extended to influenza virus vac cine in 1993. The National Vaccine Injury Compensation Program (VICP), authorized by Congress in 1988, became the arbiter of claims of injury resulting from the childhood vaccine

Community – Academic Partnerships

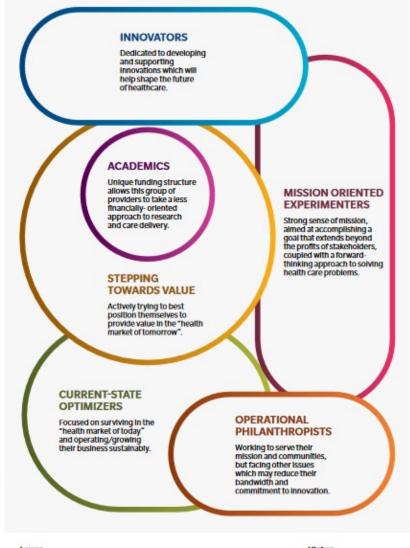
- Community pharmacists are interested in research opportunities to:^{11,12}
 - Improve care delivery
 - Increase knowledge and innovation
 - Change patients' perspectives
 - Increase patient satisfaction and loyalty

Partnership Framework¹³

More innovation and diversification, disruption of today's model

- Payer and provider interest indicators:
 - Mission focus
 - 2. Operational focus
 - Innovation focus
 - 4. Consumer (patient) focus
 - 5. Move to value-based healthcare
 - 6. Community focus
 - 7. Advocacy

More "operate today's business" Current financial trouble Subscale to drive investment Publically traded status Recent or planned large M&A



FOCUS ON MISSION-DRIVEN ACTIVITIES

Active community foundation Medical focus NPF status Stated mission Charity care

My Lessons Learned



Invest time in community pharmacy partners and their priorities



Quality partnerships are built over time



The best research questions come from practice



Sustainability

Assessment Question #1

Which of the following is a benefit of hybrid effectivenessimplementation study designs?

- a. Decreases the time and cost of conducting practice-based research
- Increases the likelihood of observing an intervention effect if one exists
- c. Decreases the time between development of an evidence-based intervention and routine uptake in practice
- d. Increases internal validity

Assessment Question #2

Which of the following was a finding of the GuIDE-S study?

- a. The community pharmacists prescribed statin therapy for most enrolled patients via the collaborative practice agreement
- b. The community pharmacist intervention resulted in more patients initiating statin therapy
- c. The community pharmacists perceived the intervention was less likely to be feasible to implement
- d. The community pharmacist intervention decreased statin adherence

Assessment Question #3

Which of the following are indicators that researchers can use to determine strength of alignment when partnering with community pharmacies for research?

- a. Innovation focus
- b. Mission focus
- c. Move to value-based healthcare
- d. Patient focus
- e. All the above