Impact of a Standardized Patient Referral Process for Pharmacist-Provided Collaborative Drug Therapy Management on Access to and Quality of Care

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Disclosure Statement

- IRB Status: Not required
- Co-investigators:
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  - Melanie Townsend, PharmD, BCPS
  - Jacki Ulishney, PharmD, BCPS
- Conflicts of Interest: None
- Project Sponsorship: None

IRB: Institutional Review Board

2

Learning Objectives

- At the end of this presentation, participants should be able to:
  - Describe the role of the pharmacist in providing collaborative drug therapy management to improve access to care
  - Identify the important components of implementing a standardized patient referral process for pharmacist-provided collaborative drug therapy management in a primary care clinic

3

Billings Clinic

- Integrated, not-for-profit, community healthcare organization
- 280-bed hospital and various clinics
  - Family and Internal Medicine Clinics
    - 13 physicians
    - 3 midlevel practitioners
    - 26 physician residents
    - 1 ambulatory care pharmacist
- Cerner™ electronic health record

4

Background

- Collaborative drug therapy management (CDTM) by pharmacists
  - Increases patients' access to high quality care and improves medication-related outcomes using a team-based approach
- Values of CDTM in the medical home
  - Improved clinical outcomes
  - Increased attention to medications
  - Saved physician time
- Billings Clinic ambulatory pharmacy has established collaborative drug therapy management:
  - Diabetes mellitus, hypertension, hyperlipidemia, COPD/asthma, smoking cessation, and comprehensive medication management

1. McBane SE, Dopp AL, Abe A, et al. *Pharmacotherapy.* 2015;35(4):39-50.
2. McInnis T, Webb E, Strand L. Patient-Centered Primary Care Collaborative June 2012.

5

Background

- Prior to the project, patients were seen by the pharmacist for CDTM following only provider referral
- Baseline clinic time to see a provider
  - Established patient: 2 weeks
  - New patient: 5 months

6

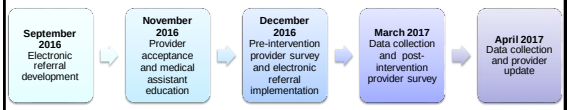
Purpose

- Increase patient access to and quality of care after implementation of a standardized electronic patient referral process to an ambulatory care pharmacist for management of hypertension and/or diabetes mellitus

7

Methods: Project Design & Study Timeline

- Prospective, single-center study
- Study groups
  - Intervention:
    - Patients meeting eligibility criteria post-standardized electronic referral process
    - December 15, 2016 to February 28, 2017
  - Control:
    - Patients meeting eligibility criteria pre-standardized electronic referral process
    - November 15, 2015 to January 31, 2016



8

Methods: Eligibility Criteria – Patients

Inclusion Criteria	Exclusion Criteria
Both Groups • Age 18 - 80 years • Hemoglobin A1c >9% and/or • Blood pressure >150/90 mmHg and eGFR 10-50 mL/minute in last 6 months • Attended ≥1 appointment with a BC downtown PCP in clinic in the last year **Intervention Group** • Identified by the standardized electronic referral process	• Patient already seeing pharmacist • No hypertension diagnosis • Quality measures completed during a hospitalization or outpatient surgery • Other reasons identified by clinical pharmacist

BC: Billings Clinic, eGFR: estimated glomerular filtration rate, mL: milliliter, PCP: primary care provider

9

Methods: Eligibility Criteria – Providers

Inclusion Criteria

- Billings Clinic downtown practice during study time frames

Exclusion Criteria

- Internal Medicine Residency Program physician resident

10

Methods: Intervention Alert

PHA_MTM_CONSULT_2 P965

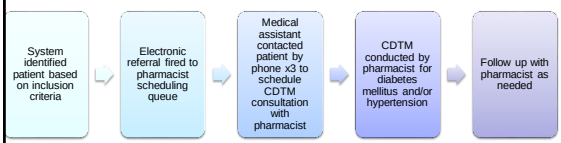
Discern_Expert@cernerasp.com

Sent: Mon 12/19/2016 9:15 AM

MRN1234567 Provider, Joe DBP = 120, GFR = 34

11

Methods: Intervention Workflow



CDTM: Collaborative Drug Therapy Management

12

Methods: Primary Outcome

- Percentage of referred patients who attended their initial appointment with the pharmacist

13

Methods: Secondary Outcomes

- Percentage of patients who did not show up to their initial appointment with the pharmacist
- Change in patients' hemoglobin A1c and/or blood pressure from baseline
- Provider satisfaction pre- and post-intervention

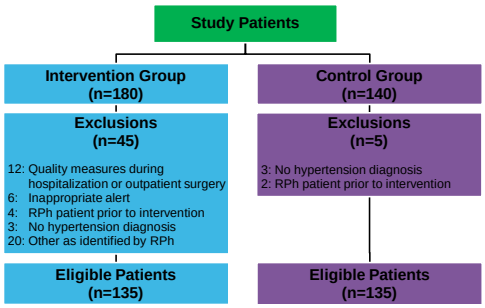
14

Methods: Statistics

- Sample Size
  - Unable to calculate due to no prior studies with similar outcomes
  - Maximum number of pharmacist appointments available each day:
    - 14 x 30-minute appointments or
    - 7 x 60-minute appointments
  - All eligible patients included
- Statistical Tests
  - Descriptive statistics

15

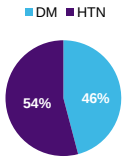
Results: Patients



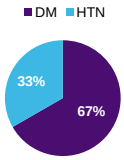
16

Results: Referral Reasons

Referral Reasons Intervention Group (n=135)



Referral Reasons Control Group (n=6)



DM: Diabetes mellitus
HTN: Hypertension

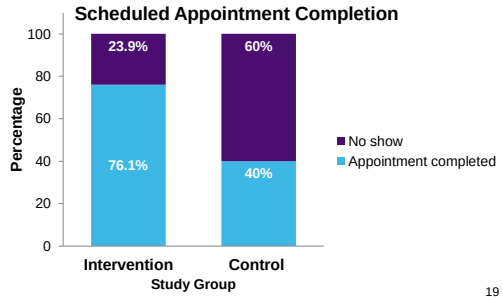
17

Results: Appointments

	Intervention Group	Control Group
Eligible patients, n	135	135
Referred patients, n (%)	135/135 (100)	6/135 (4.4)
Referred patients scheduled, n (%)	46/135 (34.1)	5/135 (83.3)
Referred patients who attended first appointment, n (%)	35/135 (25.9)	2/6 (33.3)
Scheduled patients who attended first appointment, n (%)	35/46 (76.1)	2/5 (40)
Scheduled patients who no-showed first appointment, n (%)	11/46 (23.9)	3/5 (60)
Time to see pharmacist, mean days ± SD	11.8 ± 10.6	16.4 ± 12.4

18

Results: Appointments



19

Results: Referred Patients

Baseline Characteristics	Intervention (n=135)	Control (n=6)
Age, mean years ± SD	62.8 ± 12	59.5 ± 11.9
Females, n (%)	79 (59)	4 (67)
Comorbidities, n (%)		
Coronary artery disease	22 (16)	1 (17)
Current or former smoker	67 (50)	4 (67)
Diabetes mellitus	105 (78)	5 (83)
Hyperlipidemia	86 (64)	3 (50)
Hypertension	107 (79)	4 (67)
Microalbuminuria/proteinuria	10 (7)	0 (0)
Obesity	57 (42)	3 (50)

20

Results: Clinical Outcomes

Blood Pressure	Pre-Intervention (n=35)	Post-Intervention (n=12)	Mean Change
Systolic blood pressure, mean mmHg ± SD	162.4 ± 9.7	142 ± 10.9	-15.7 ± 10.3
Diastolic blood pressure, mean mmHg ± SD	83.6 ± 11.5	77.6 ± 5.2	-6.2 ± 8.8
Laboratory Values			
Hemoglobin A1c, mean percent ± SD	10.9 ± 1.3	9.8 ± 3.4	-2.6 ± 1.3
eGFR, mean mL/min ± SD	39.7 ± 13.6	---	---

eGFR: estimated glomerular filtration rate

21

Results: Provider Satisfaction

Question/Statement	Answer, n (%)	Pre-Intervention (n=8)	Post-Intervention (n=6)
Satisfied with the new process	Strongly Agree Agree Neutral	-----	2 (33.3) 3 (50) 1 (16.7)
Better understanding of medications	Strongly Agree Agree	6 (75) 2 (25)	5 (83.3) 1 (16.7)
Better control of disease states	Strongly Agree Agree	4 (50) 4 (50)	5 (83.3) 1 (16.7)
Increased access to high quality care	Strongly Agree Agree	6 (75) 2 (25)	5 (83.3) 1 (16.7)
Benefit from having pharmacist as a part of team	Strongly Agree Agree	6 (75) 2 (25)	6 (100)
Satisfied with the clinical pharmacist	Strongly Agree Agree	6 (75) 2 (25)	6 (100)

22

Discussion

- 1st study to evaluate the impact of an electronic referral process with pharmacist interventions and access to care
- Increased pharmacist referral rates for hypertension and diabetes mellitus by over 95%
- Decreased appointment no show rates with electronic referral by 36%
- Providers have increased satisfaction with pharmacist-provided care post-intervention

23

Limitations

- Pharmacist beginning services in control group time frame
- Only one pharmacist with other responsibilities leading to scheduling barriers
- Short study duration
- Clinically inappropriate referrals

24

Conclusions

- Electronic, standardized referral system that identifies adult patients with uncontrolled hypertension or diabetes mellitus may increase patients' access to and quality of care

25

Future Directions

- Inform providers of finalized results and conclusions
- Refine electronic referral process based on project
- Expand electronic referral process to other Billings Clinic primary care sites
- Finish collecting patient-specific quality outcomes data

26

Acknowledgements

- Co-investigators
  - Shannon Puckett May, PharmD, BCACP
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27

Questions?

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28

References

1. McBane SE, Dopp AL, Abe A, et al. Collaborative drug therapy management and comprehensive medication management. *Pharmacotherapy.* 2015;35(4):39-50.

2. McInnis T, Webb E, Strand L. The patient-centered medical home: integrating comprehensive medication management to optimize patient outcomes (June 2012). Patient-Centered Primary Care Collaborative Web site. Available at: https://www.pcpcc.org/sites/default/files/media/medmanagement.pdf. Accessed April 22, 2017.

29

Supplementary Slides

30

Provider Survey Questions

Question/Statement
I am satisfied with the new standardized electronic referral process for pharmacist provided drug therapy management.
My patients have a better understanding of their medications since seeing the clinical pharmacist.
My patients have better control of their disease states since seeing the clinical pharmacist.
The clinical pharmacist allows my patients to have increased access to high quality care.
My patients benefit from having a clinical pharmacist as a part of their healthcare team.
I am satisfied with the clinical pharmacist's management of my patients.

31

Lessons Learned

- Close relationship with informatics team
- Continually look for ways to improve and refine referral process
- Importance of medical assistant training on phone calls to patients
- Coordination and collaboration with inter-professional teams

32