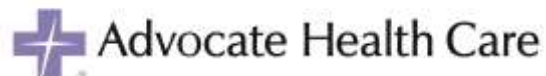


# Interprofessional Chronic Disease Management

**Brandon Herk, Pharm.D., BCACP**

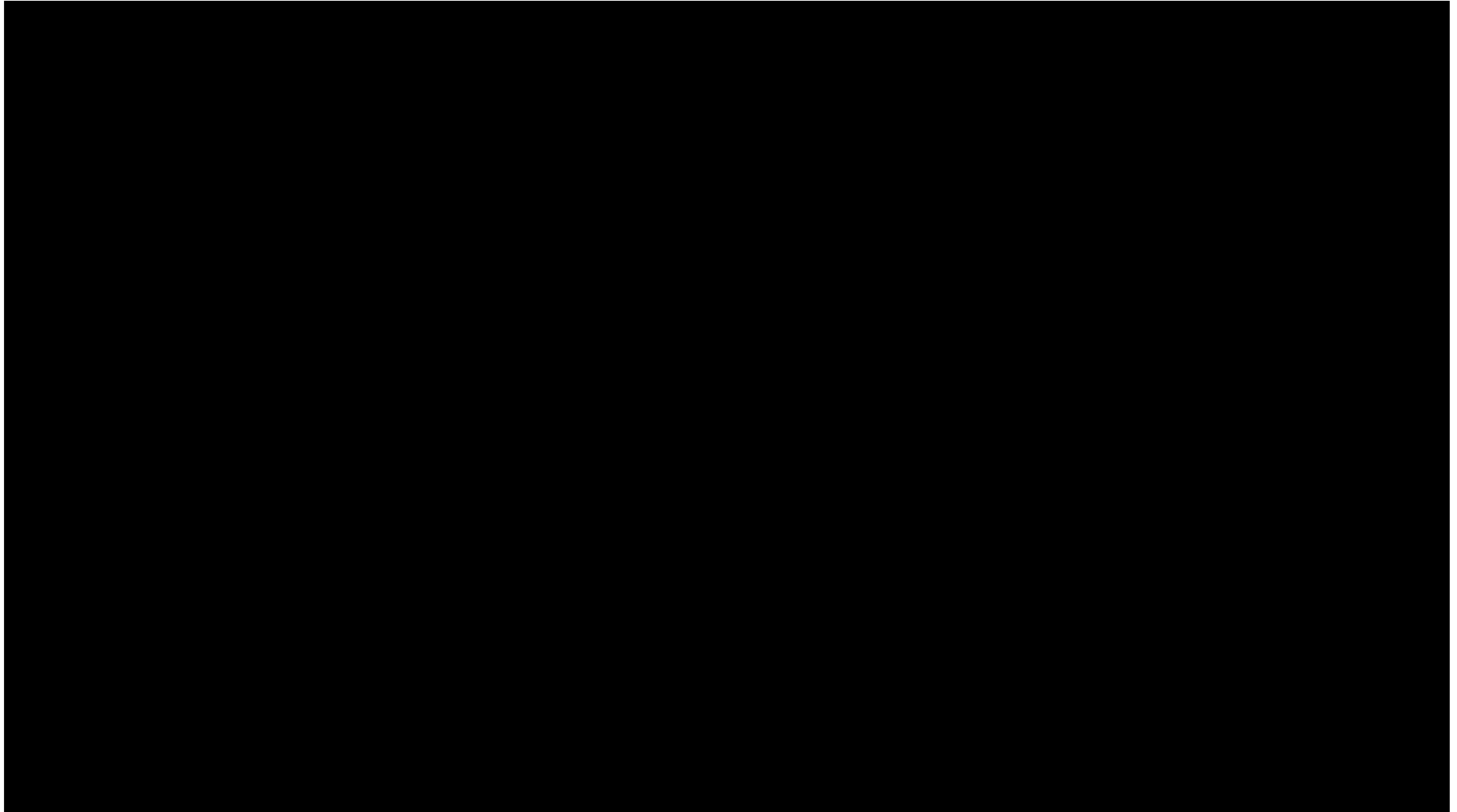
**09/28/2017**



# Learning Objectives

- Describe characteristics of clinical pharmacists that function highly in a primary care model
- Identify pharmacist run chronic disease management program opportunities within primary care
- Review clinical outcomes of chronic disease management programs at Advocate Medical Group
- Discuss ways to incorporate interprofesional education within primary care

# Public (and some HCP) Perception of Pharmacists



# Characteristics of Pharmacist

- 345 clinical ambulatory care pharmacists
- 37 sites of care
  - 70% Pharm.D. degree
  - 39% had general practice residency
  - 16% had ambulatory care residency (2008)
- Median years of experience: 8 years
- Physical assessment skills
  - 72% required blood pressure
  - 70% required pulse
  - 53% edema assessment

# Pharmacy Residency

- Organized, directed, postgraduate training program
- Provides essential skills to meet pharmacy practice demands
- PGY1: accelerate growth beyond entry level
- PGY2: develop accountability, practice patterns, and expert knowledge

# Pharmacy Residency



## Online Residency Directory

The purpose of the ASHP accreditation program is to identify and grant public recognition to practice sites having pharmacy residency training programs that have been evaluated and found to meet the qualifications of one of the Society's residency accreditations standards. Thus, accreditation of a pharmacy residency program by the Society provides a means of assurance to residency applicants that a program meets certain basic requirements and is, therefore, an acceptable site for postgraduate training in pharmacy practice in organized health care. [More...](#)

Pharmacy Online Residency Centralized Application Service opens November 3rd each residency year. PhORCAS <http://www.ashp.org/phorcas>

### Search

|                                       |  |
|---------------------------------------|--|
| Institution Name:                     | <input type="text"/>   |
| Location:                             | <input type="text" value="Select a State/Country"/>                    |
| PGY1:                                 | <input type="text" value="Select a PGY1 Program"/>                     |
| PGY2:                                 | <input type="text" value="Select a PGY2 Program"/>                     |
| PGY1/PGY2:                            | <input type="text" value="Select a PGY1 &amp; PGY2 Combined Program"/> |
| <input type="button" value="SEARCH"/> |  |

The online directory includes Postgraduate Year One (PGY1) pharmacy programs and Postgraduate Year Two (PGY2) pharmacy residency programs. With few exceptions, residency programs participate in ASHP's Resident Matching Program. It is VERY IMPORTANT that you check with the programs that you are interested in to check if they participate in the Match. All residency applicants should become familiar with the Resident Matching Program. The directory provides uniform information about each accredited residency, and also lists information about residency programs in practice sites that have submitted accreditation applications but for which accreditation is still pending, i.e. programs with an accreditation status of pre-candidate, candidate or preliminary. Such residencies are not accredited and their listing in the Directory has no bearing on whether or not they may eventually be accredited.

It is intended that the Directory will be useful primarily to pharmacy students and pharmacists who are interested in applying for admission to ASHP-accredited residency programs. The user is urged to review the Guide to Use of the Directory before attempting to interpret the condensed information in the listings of the individual residency programs.

The information listed in this Directory reflects our most current records. If the information in your listing is not correct, please contact ASHP Accreditation Services Division at (301) 664-8645 or [asd@ashp.org](mailto:asd@ashp.org).

[Contact Us](#) | [Site Map](#) | [Other Websites](#) | [Advertising](#) | [Business Opportunities](#)

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# Pharmacy Residency

## Search

|                   |  |
|-------------------|--|
| Institution Name: | <input type="text"/>   |
| Location:         | <input type="text" value="Select a State/Country"/>                    |
| PGY1:             | <input type="text" value="Select a PGY1 Program"/>                     |
| PGY2:             | <input type="text" value="Ambulatory Care Pharmacy"/>                  |
| PGY1/PGY2:        | <input type="text" value="Select a PGY1 &amp; PGY2 Combined Program"/> |

- Nationwide
  - PGY1: 3085 positions
  - PGY2 Ambulatory Care: 199 positions
- Illinois
  - PGY1: 131 positions
  - PGY2 Ambulatory Care: 10 positions

- Premier post-licensure certification agency
- Responsibilities
  - Grant recognition of pharmacy specialties
  - Establish standards for certification/recertification
  - Grant qualified pharmacists certification/recertification
  - Serve as coordinating agency and information clearinghouse for organizations & pharmacists
  - Enhance public/consumer protection by developing certification programs for pharmacy



# Eligibility requirements for BPS in Ambulatory Care

## First Option

- Graduation from accredited pharmacy program
- Current active license
- Complete 4 years post licensure experience (50% in ambulatory care)

OR

## Second Option

- Completion of PGY1 residency program
- Additional year of practice (50% in ambulatory care)

OR

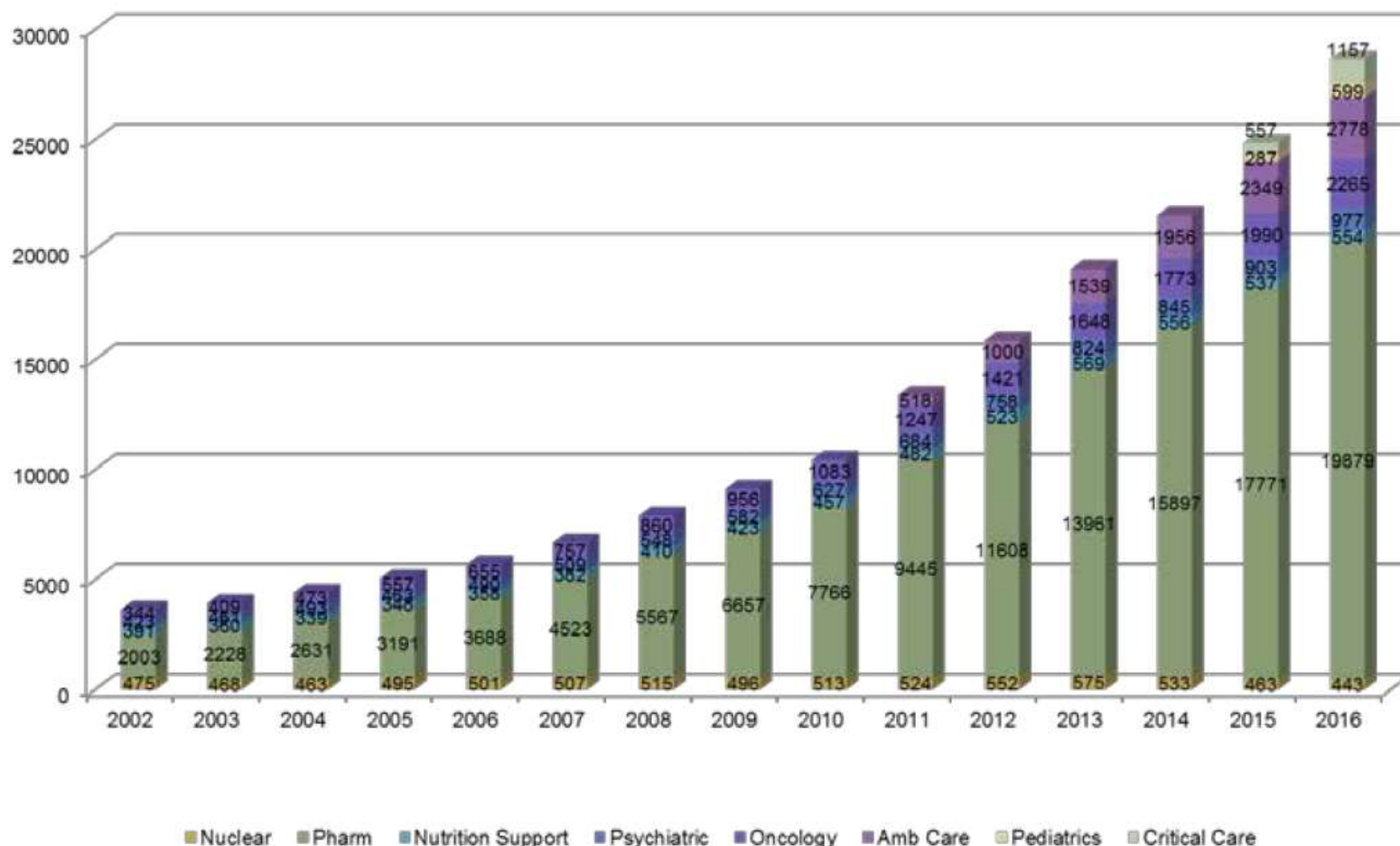
## Third Option

- Completion of specialty PGY2 in ambulatory care

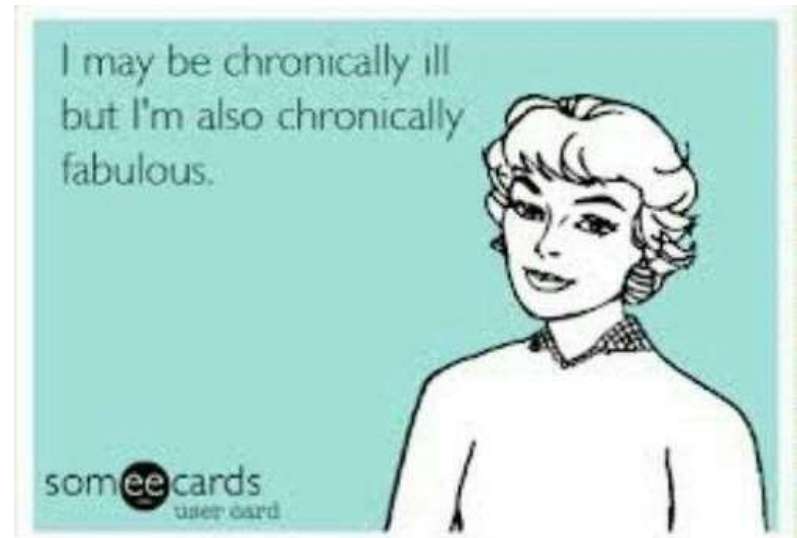
+

- Passing of 175 item multiple choice exam

# Evolution of Board of Pharmacy Specialties



# Pharmacy Driven Chronic Disease Management Programs



# Medication Therapy Management

- May include
  - Review/reconciliation of RX, OTC, herbal medication to identify drug related problems
  - Medication education to patient, family caregiver
  - Assist with compliance/adherence
  - Recommendations to provide
- Patient most likely to benefit
  - Polypharmacy (6 or more medications)
  - Several chronic health conditions
  - Multiple prescribers/specialists
  - New patient to practice with medication related problems

# Benefits of pharmacists on team

- Reduction in medication related problems
  - 708 errors identified (85% acceptance) over 18 months
- Cost avoidance
  - \$2.11 in cost avoided for every \$1 spent on pharmacist
- Improved patient satisfaction/adherence
  - 61.2% adherence→8 month study→96.9%
- Improved clinical outcomes
  - Blood pressure
  - Cholesterol
  - Diabetes
  - Smoking cessation

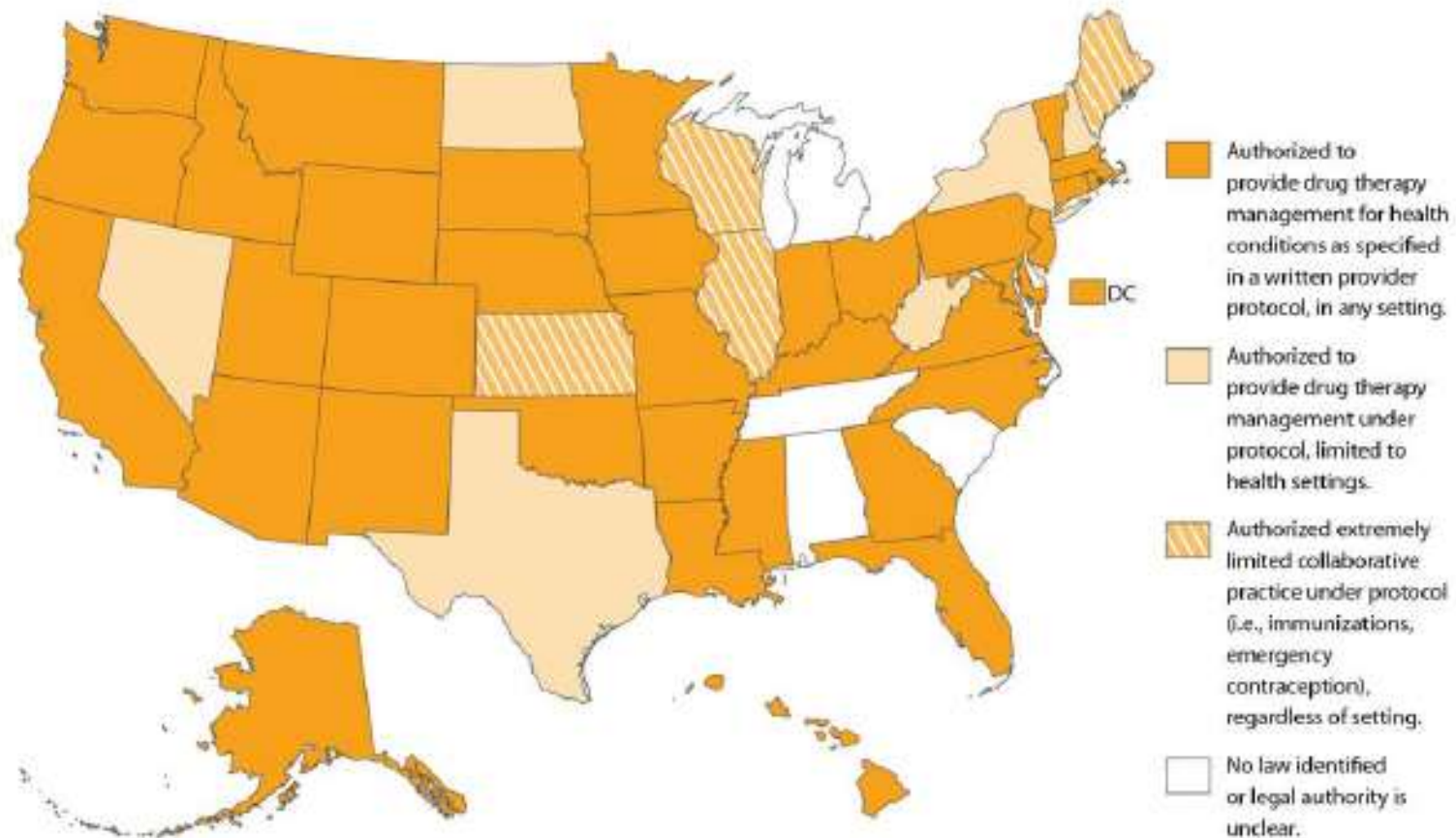
Kennedy AG, Chen H, Corriveau M, Maclean CD. *Popul Health Manag.* 2015;18(1):23-9.  
Simpson SH, Majumdar SR, Tsuyuki RT, Lewanczuk RZ, Spooner R, Johnson JA. *Diabetes Care.* 2011;34(1):20-6.  
Lee JK, Grace KA, Taylor AJ. *JAMA.* 2006;296(21):2563-71.  
Choe HM, Mitrovich S, Dubay D, Hayward RA, Krein SL, Vijan S. *Am J Manag Care.* 2005;11(4):253-60.  
Pape GA, Hunt JS, Butler KL, et al. *Arch Intern Med.* 2011;171(16):1480-6.

# Chronic Disease Management

- May include
  - Diabetes medication titration
  - Hypertension medication titration
  - Cardiovascular risk reduction medication selection (statins, ezetimibe, etc.)
  - Asthma/COPD medication selection titration
- Patient most likely to benefit
  - Chronic condition however not achieving treatment goals
  - New medication start (insulin pen, inhaler, antihypertensive, etc.)
  - A1C > 9.0%, frequent asthma/COPD exacerbations
  - Improper device utilization
  - Multiple ER visits, high utilization

# Collaborative Practice

**Figure 1.** Map of States with Laws Explicitly Authorizing Pharmacist Collaborative Practice Agreements, 2012



Note: Physician delegation is considered permissive in MI and WI, allowing physicians and pharmacists to enter into CPAs.

# Collaborative Practice

## Appendix A: Collaborative Practice Agreement Authority Tables

**Table 1: Participants**

| State | Site Restrictions | Pharmacist Qualification | Multiple or single pharmacist(s)? | Which prescribers (MD, NP, PA)? | Multiple or single prescriber(s)? | Multiple or single patient(s)? | Prescriber-Patient Relationship defined? |
|-------|-------------------|--------------------------|-----------------------------------|---------------------------------|-----------------------------------|--------------------------------|--|
| IL    | Silent            | Silent                   | Multiple                          | Physician                       | Single                            | Multiple                       | Silent                                   |



# Collaborative Practice

## Appendix A: Collaborative Practice Agreement Authority Tables

Table 2: Functions Authorized

| State | Modify Existing Therapy | Initiate New Therapy | Perform a Physical Assessment | Order Laboratory Tests | Interpret Laboratory Tests | Perform Laboratory Test |
|-------|-------------------------|----------------------|-------------------------------|------------------------|----------------------------|-------------------------|
| IL    | Yes-A                   | Yes-A                | Yes-H                         | Yes-I                  | Yes-I                      | Silent                  |

A-Drugs limited to those in protocol

H-Ordering or performing routine drug therapy-related patient assessment procedures

I-As specified in the agreement/protocol

# Collaborative Practice

## Appendix A: Collaborative Practice Agreement Authority Tables

Table 3: Requirements

| State | Additional continuing education requirements? | Requirement for liability insurance? | Documentation and/or notification requirements? | Patient involvement in agreement-signature or opt out? | Must agreements be sent to or approve by state agency? | Length of time agreement is valid defined? |
|-------|---|--------------------------------------|---|--|--|--|
| IL    | Silent  | Silent                               | Silent  | Silent   | Silent   | Silent                                     |

# Patient Self-Management Education

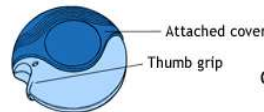
- May include
  - Diabetes self-management classes
  - Implementation of asthma action plan (peak flow, etc.)
  - Practical device training (asthma inhaler, insulin pen, etc.)
  - Smoking cessation counseling
- Patient most likely to benefit
  - Compliance challenges (vision, dexterity, age, caregiver)
  - New inhaler, pen, or medication delivery system
  - Suspected medication administration technique issues



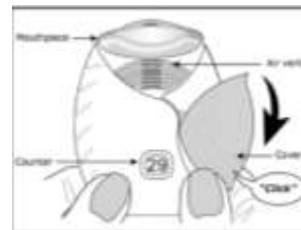
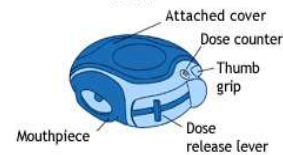
# Device Training



CLOSED



OPEN



# The Advocate Medical Group—Nesset Pavilion Experience



# Consider this...

RZ is a 68 year old man with a history of COPD, DM, HTN, alcoholism, and previous DVT. He is here today for education on his COPD and inhalers. He presents today with fluticasone/salmeterol, budesonide/formoterol, umeclidinium, and fluticasone/vilanterol. Some inhalers from recent hospitalization and some inhalers are expired. He states he is confused as to which inhaler to use. He states his mucus feels sticky sometimes. RZ states that the fluctuating weather changes his level of activity. He states that as the day goes on his breathing gets worse. He states that he is supposed to wear his O<sub>2</sub> but is not currently wearing. He states that his clonazepam helps with sleep. He also states that his diabetic drink gives him some energy. He reports compliance with his medications. He denies problems paying for his inhalers. He continues to drink up to six drinks a day and smokes up to 5 cigarettes a day.

## Pertinent Labs:

BP: 160/91 mmHg

Pulse: 72 bpm

Weight: 191 lbs

Height: 66 inches

BMI: 30.8 kg/m<sup>2</sup>

INR 3.7

Spirometry: None on file

CAT Test: 17/40

HbA1C: 9.9%

Microalbumin/Cr: 1530 mcg/mg

SrCr: 0.65 mg/dl

TC: 185

HDL: 86

TG: 49

LDL: 88

# Consider this...

## Medication List:

- fluticasone/salmeterol (samples)
- budesonide/formoterol (samples)
- fluticasone/vilanterol (samples)
- Umeclidinium 62.5mcg/inh once daily
- ipratropium-albuterol 0.5-2.5mg/3ml every 4 hours
- albuterol HFA 108 mcg/act 2 puffs every 4 hours as needed
- accu chek supplies
- glipizide ER 5mg once daily
- acetaminophen 325mg 2 tablets every 6 hours
- folic acid 1mg once daily
- MVI once daily
- lisinopril 5mg once daily
- metoprolol tartrate 50mg twice daily
- warfarin 2.5mg as directed
- pantoprazole 40mg once daily
- aspirin 81 mg once daily
- atorvastatin 40 mg once daily
- quetiapine 50 mg at bedtime
- vitamin D3 1000 units once daily
- clonazepam 0.5mg once daily
- Insulin glargine 10 units daily



# Anticoagulation

- Assess reasons for elevated INR
  - Taking medication as instructed
  - Missed/extra doses
  - Changes in Vitamin K intake
  - S/Sx of bleeding/bruising
  - ETOH intake
  - Falls or injuries
  - Acute illness
  - Procedures and/or bridging calendars
- Provide dosing and follow up

# Anticoagulation Outcomes— Advocate Medical Group Nesset Pavilion

| Month  | No. Of Patients | Total Days | In Range |        | Out Of Range |        | In Range +/- 0.2 |        |
|--------|-----------------|------------|----------|--------|--------------|--------|------------------|--------|
|        |                 |            | #        | %      | #            | %      | #                | %      |
| May-17 | 348             | 11035      | 7770     | 70.41% | 3265         | 29.59% | 9262             | 83.93% |
| Jun-17 | 359             | 11512      | 7963     | 69.17% | 3549         | 30.83% | 9553             | 82.98% |
| Jul-17 | 361             | 11105      | 7698     | 69.32% | 3407         | 30.68% | 9215             | 82.98% |
| Aug-17 | 369             | 11987      | 8178     | 68.22% | 3809         | 31.78% | 9859             | 82.25% |

- Time in Therapeutic Range (TTR)
  - Standard of care for quality
  - Standard clinics average TTR:60-65%

# Diabetes Education

- Educate patient on pathophysiology of disease
- Provide basic carb counting & physical activity assessment and plan
- Encourage regular blood sugar checks
- Teach patient proper device utilization
- Refer to dietician, ophthalmologist, podiatrist if appropriate

# Diabetes Education Outcomes

- January 1, 2017-April 30, 2017; n=41
- HbA1C Average
  - Pre: 9.04%, Post: 7.05%,  $\Delta$ : -1.99%
- Blood Pressure
  - Pre: 133/76 mmHg, Post 129/73 mmHg,  $\Delta$ : -4.4/-3.3
- LDL
  - Pre: 84.5 mg/dL, Post: 79.8 mg/dL,  $\Delta$ : -4.71

# Diabetes Insulin Management

- Educate patient on proper device technique
- Ensure patient checks blood sugar
- Titration insulin dose based on blood sugar log
- Educate on hypoglycemia awareness and treatment
- Refer and coordinate care with PCP

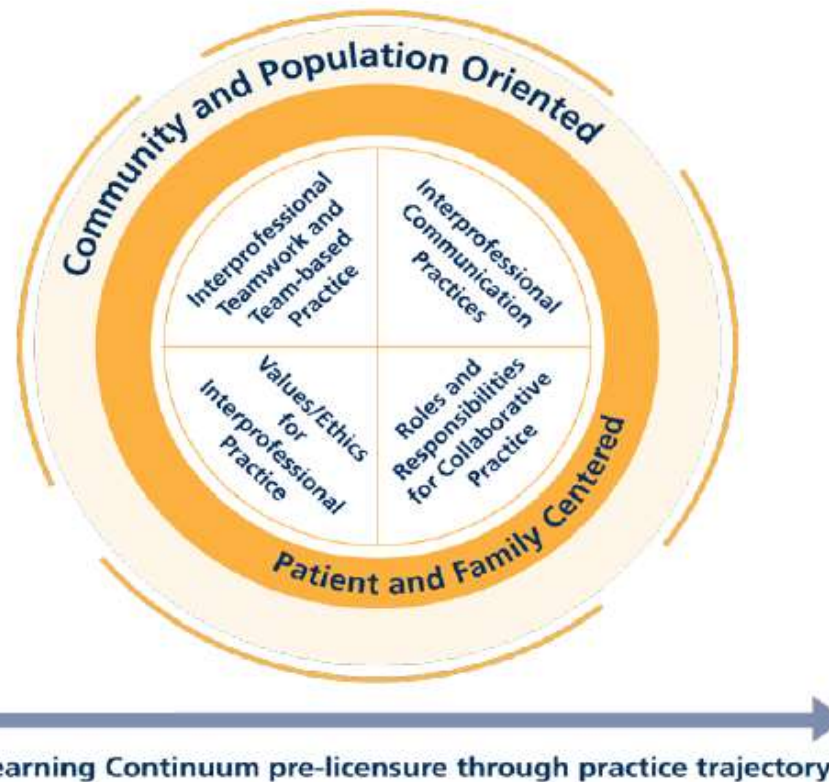
# Diabetes Insulin Management Outcomes

- Pharmacist intervention from 9/1/2015-9/1/2016
- 93 individual patients
- Average of **-1.47%** HbA1C reduction over 150 days



# Interprofessional Education Collaborative

## Interprofessional Collaboration Competency Domain





# Interprofessional Education Collaborative

- Competency 1: Values/Ethics
- Competency 2: Roles/Responsibilities
- Competency 3: Interprofessional Communication
- Competency 4: Teams and Teamwork

Interprofessional Education Collaborative. (2016).

Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: Interprofessional Education Collaborative.

Hammer D, Anderson MB, Brunson WD, et al. J Allied Health. 2012;41(2):e49-53.

# Pharmacy Example: Didactics

- 30-45 minutes presentation on pharmacy/chronic disease related topic
  - Anticoagulation
  - Diabetes oral medication
  - Insulin
  - Asthma/COPD
  - Device Education for patients (Insulin pen/Inhaler)

# Pharmacy Example: Nessel Clinic Precepting

- Proper medication selection specific to patient
- Renal dosing adjustments
- Antibiotic stewardship
- Confirming copayment on high cost medications (insulin, inhalers, etc.)
- Immunizations recommendations
- Involve students if available

# Pharmacy Example: 1:1 resident education

- Individualized 1 hour session
- Ambulatory rotation block
- Resident driven subject matter
  - Geriatric medications (Beers list, STOP/START)
  - Inhalers (COPD/Asthma guidelines)
  - Diabetes oral and injectable medications
- Involve students if available

# Take Home Points

- Highly functional clinical pharmacist are available for primary care practice
- There is opportunity for cost effective, high quality, pharmacist run chronic disease management programs
- Pharmacist can contribute to interprofessional education within primary care

# Questions?

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