

CDC PUBLIC HEALTH GRAND ROUNDS

How Pharmacists Can Improve Our Nation's Health



October 21, 2014



**U.S. Department of
Health and Human Services**
Centers for Disease
Control and Prevention

Pharmacists as Transformative Agents in Public Health and Health Care



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U.S. Department of
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Healthcare Transformation

- ❑ **U.S. health system is in a time of transformation**
- ❑ **Governmental and private groups have been developing new models of care and programs based on current and projected needs**
 - Medical home model
 - Team-based care
 - Partnership for Patients
 - Healthy People 2020
- ❑ **Why?**

Rationale for Transformation

□ U.S. healthcare system is at a tipping point where people have expressed concerns about:

- Access to care
- Quality of care
- Healthcare costs
- Medication adherence
- Medication safety

Healthcare Access: Supply and Demand

- ❑ **Current physician estimates indicate a shortage**
 - 52,000 to 91,000 new physicians needed by 2020
 - More than 130,000 new physicians needed by 2025

- ❑ **Access to health insurance coverage has increased following the passage of the Affordable Care Act in 2010**

Healthcare Expenditures

- ❑ **More than \$2.8 trillion in U.S. healthcare expenditures in 2012**
- ❑ **Approximately \$1.7 trillion in US healthcare expenditures for chronic disease**
 - **60 cents out of every healthcare dollar**

Chronic Disease Burden

- ❑ **Chronic disease is the leading cause of death and disability among Americans**
- ❑ **One-half of American adults have ≥ 1 chronic condition and 1 in 4 adults have multiple chronic conditions**
 - **2020 estimates: 164 million Americans with ≥ 1 chronic conditions and 81 million with multiple chronic conditions**
- ❑ **99% of Medicare spending is related to chronic disease**
- ❑ **81% of hospitalizations are accounted for by patients with chronic conditions**

Chronic Disease Management

- ❑ **U.S. prescription drug use increased steadily over the past decade**
- ❑ **Aging population using more medications, more frequently**
 - 9 of 10 older Americans take ≥ 1 prescription medication
 - Two-thirds of Americans ≥ 65 years old take 5 - 9 medications
- ❑ **Medications are one of the foundations of managing chronic disease**
- ❑ **Patients with chronic conditions account for 91% of prescriptions filled**

Important Role of Medications

- ❑ **About 80% of all medical treatments involve use of medications**
- ❑ **Medication-related problems cost U.S. healthcare system ~ \$100 billion to \$289 billion each year**
- ❑ **Suboptimal medication adherence is an important problem in chronic disease management**
 - ~20 - 30% of prescriptions are never filled
 - ~50% of prescribed medications are not taken as directed
 - Major contributor to excess healthcare utilization (e.g., hospitalizations), morbidity, and mortality

Pharmacist Involvement

- ❑ **Pharmacists are well poised to improve access to quality care**
- ❑ **Physical access to care**
 - Pharmacies well established throughout the country from rural to suburban to urban locations
 - Approximately 275 million patient visits to a pharmacy each week

How Pharmacists Improve Healthcare: Primary and Secondary Prevention

❑ Accessible preventive services

- Immunization
- Cardiovascular risk reduction clinics
- Tobacco cessation clinics
- Disease screenings

❑ Optimizing disease state management

- Patient education encounters
- Care team involvement
- Case management
- Follow-up care

How Pharmacists Improve Healthcare: Disease Management

- ❑ **Providing additional access to care for patients with:**
 - Diabetes
 - Cardiovascular disease
 - Pulmonary disease
 - Infectious disease (e.g., HIV, Hepatitis C)

- ❑ **Improving medication adherence**
 - Data demonstrate benefits of pharmacy-led adherence programs (e.g., enhanced BP control, reduction in emergency department visits, lower costs, improved patient satisfaction)

How Pharmacists Improve Healthcare: Disease Management Example

❑ **Claremore Congestive Heart Failure (CHF) program, Claremore, OK**

- Developed as a transition of care model based upon need
- Common admission diagnosis
- Patients with CHF frequent users of the emergency department (ED)
- Common cause for re-admission
- Pharmacists see hospitalized patients
- Pharmacists provide post-discharge care
 - Reduction in readmissions
 - Reduced ED use
 - Increased utilization of medications used to manage CHF



Pharmacist Involvement: Health Outcomes and Economic Benefits

❑ Quality

- Numerous studies published across decades demonstrate the benefit of pharmacists in expanded roles improving therapeutic outcomes

❑ Return on Investment

- As high as \$12:\$1 spent with an average of \$3:\$1 to \$5:\$1
- Value based on reduced hospital admissions, reduction in unnecessary or inappropriate medications, reduced emergency department visits

❑ Report to the Surgeon General 2011

- Summarizes the evidence for pharmacists in patient care roles and the importance of recognizing pharmacists as healthcare providers

Isetts BJ, SW Schondelmeyer, MB Artz et.al. *J Am Pharm Assoc* (2003) 2008; 48:203-214

Strand LM, Cipolle RJ, Morley PC, Frakes MJ. *Curr Pharm Des.* 2004;10(31):3987-4001.

Hall D, J Buchanan, B Helms. et.al. *Pharmacotherapy.* 2011 Jul;31(7):686-94

Giberson S, Yoder S, Lee MP. Office of the Chief Pharmacist. U.S. Public Health Service. Dec 2011.

Pharmacy in the 21st Century



Anne Burns, RPh
Vice President, Professional Affairs
American Pharmacists Association

Pharmacist Training

❑ Entry-level degree–PharmD

- Required since 2002
- Minimum 6-year requirement (4 professional years, including experiential training)
- Clinical applications of medications

❑ Pharmacist licensure

- NAPLEX exam + meet individual state requirements

❑ Postgraduate training

- Residencies
- Fellowships
- Certificate programs and traineeships

Key Pharmacist Patient Care Services

❑ Medication management

- Stand alone or as part of disease management

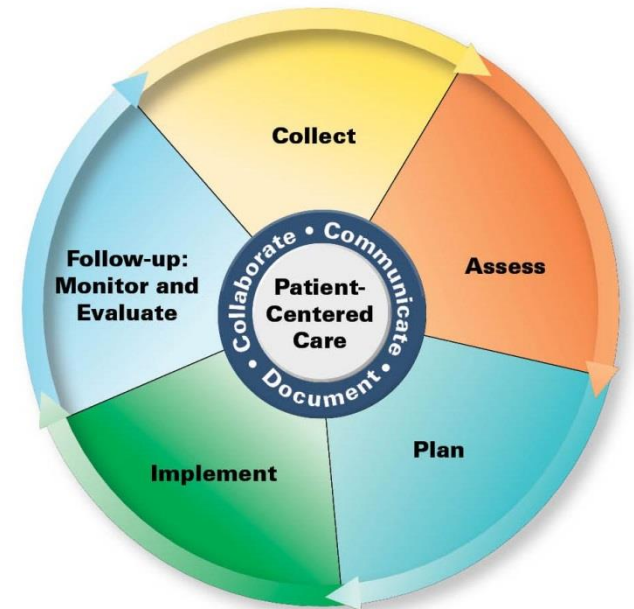
❑ Medication reconciliation

- At times of care transitions (e.g., hospital discharge)

❑ Preventive care services

❑ Education and behavioral counseling

❑ Collaborative care models



Medication Management

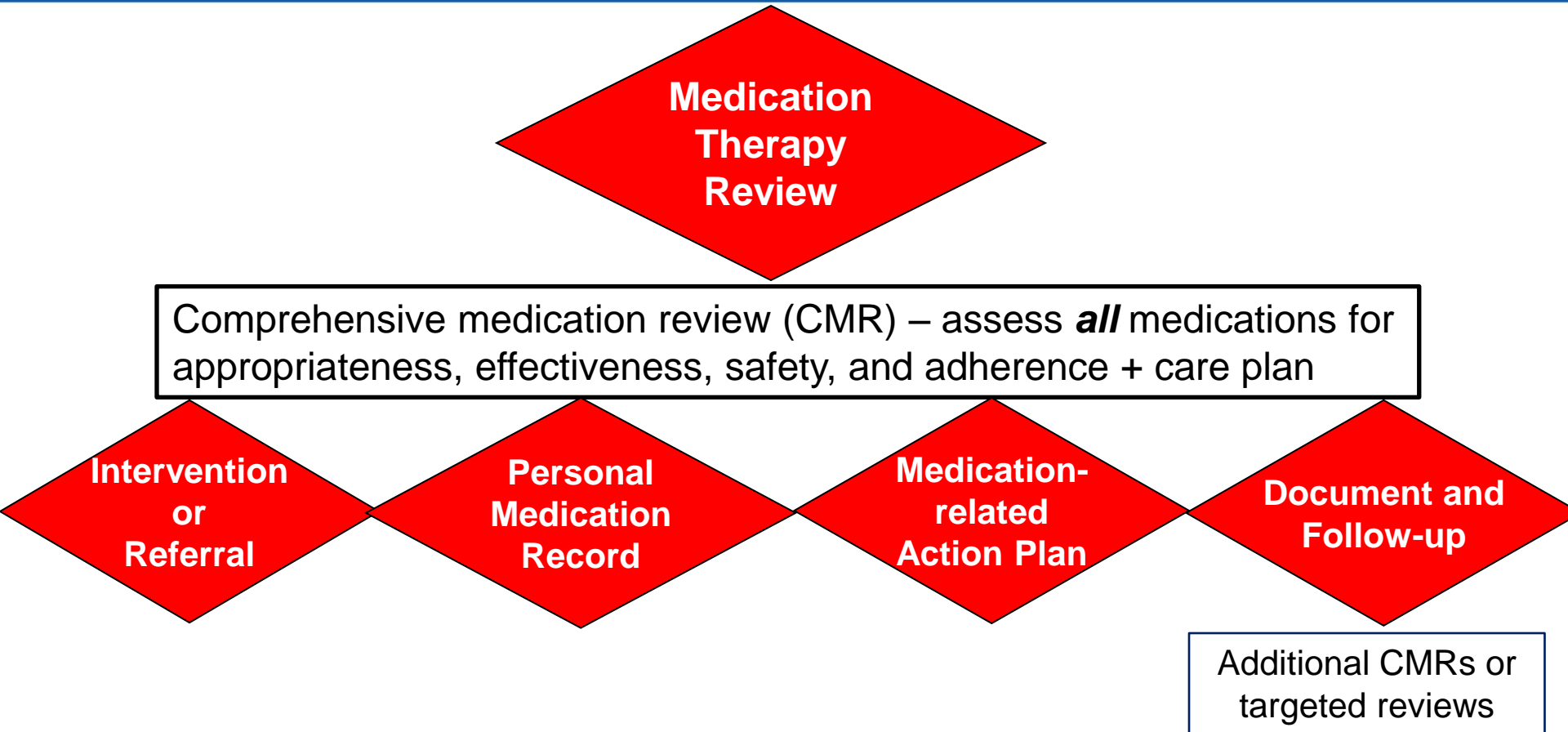
❑ **Services that optimize medication use and patient safety for individual patients**

- Patient-centered
- Coordinated with patients' other healthcare services
 - May be stand-alone or a component of disease management services
- Medication reconciliation falls under medication management services

❑ **Medication management terminology**

- Medication therapy management (MTM)
- Comprehensive medication management
- Medication management
- Medicare Part D MTM

MTM Core Elements Service Model



American Pharmacists Association and National Association of Chain Drug Stores. *Medication Therapy Management in Pharmacy Practice: Core Elements of MTM Service Model*. Version 2.0. www.pharmacist.com/sites/default/files/files/core_elements_of_an_mtm_practice.pdf.

MTM: medication therapy management

Medication Management in the Marketplace: Example of Medicare Part D

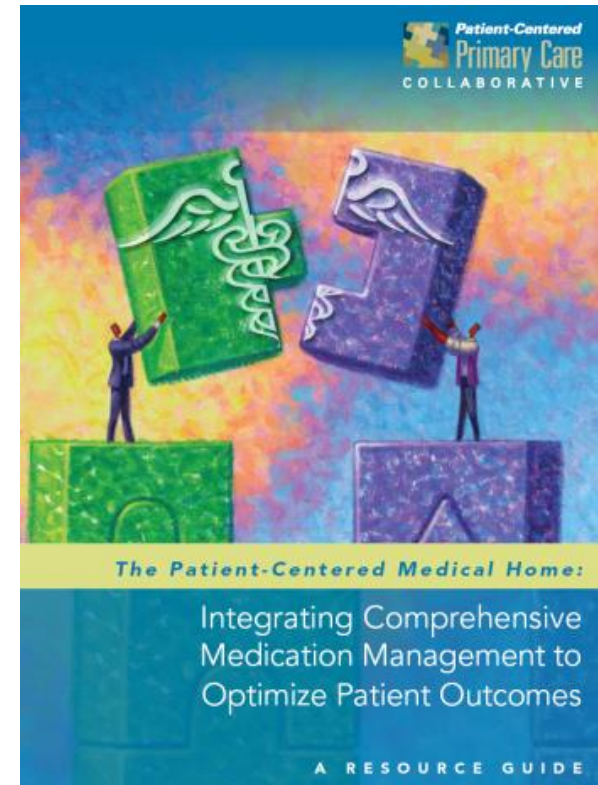
Medicare Part D covers...

❑ Medication Therapy Management

- Targeted beneficiaries
 - Multiple Part D medications (minimum 2 - 8)
 - Multiple chronic conditions (minimum 2 - 3) AND
 - Minimum projected annual drug spending (~\$3,000)
- Administered by Part D Prescription Drug Plans
- Service requirements:
 - Annual comprehensive medication review (CMR)
 - Quarterly monitoring–targeted reviews
 - Medication list
 - Patient-specific action plan

Medication Management in the Marketplace: Other Programs

- ❑ **State Medicaid programs**
- ❑ **Private sector health plans**
- ❑ **Emerging integrated care delivery models**
 - Patient-centered medical homes
 - Accountable care organizations



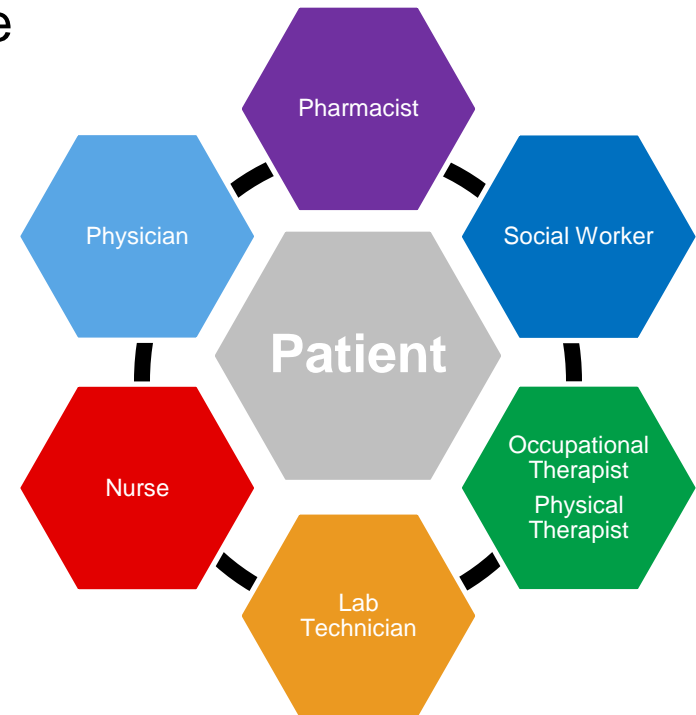
Collaborative Care Models

❑ Pharmacists as part of the healthcare team

- Medication management expertise
- Chronic condition management
- Wellness and prevention services

❑ Practice settings

- Outpatient
 - Physician offices and clinics
 - Community pharmacies
 - Community settings
- Inpatient
 - Hospital
 - Long-term care



Healthcare team–Patient-centered

Collaborative Practice Authority

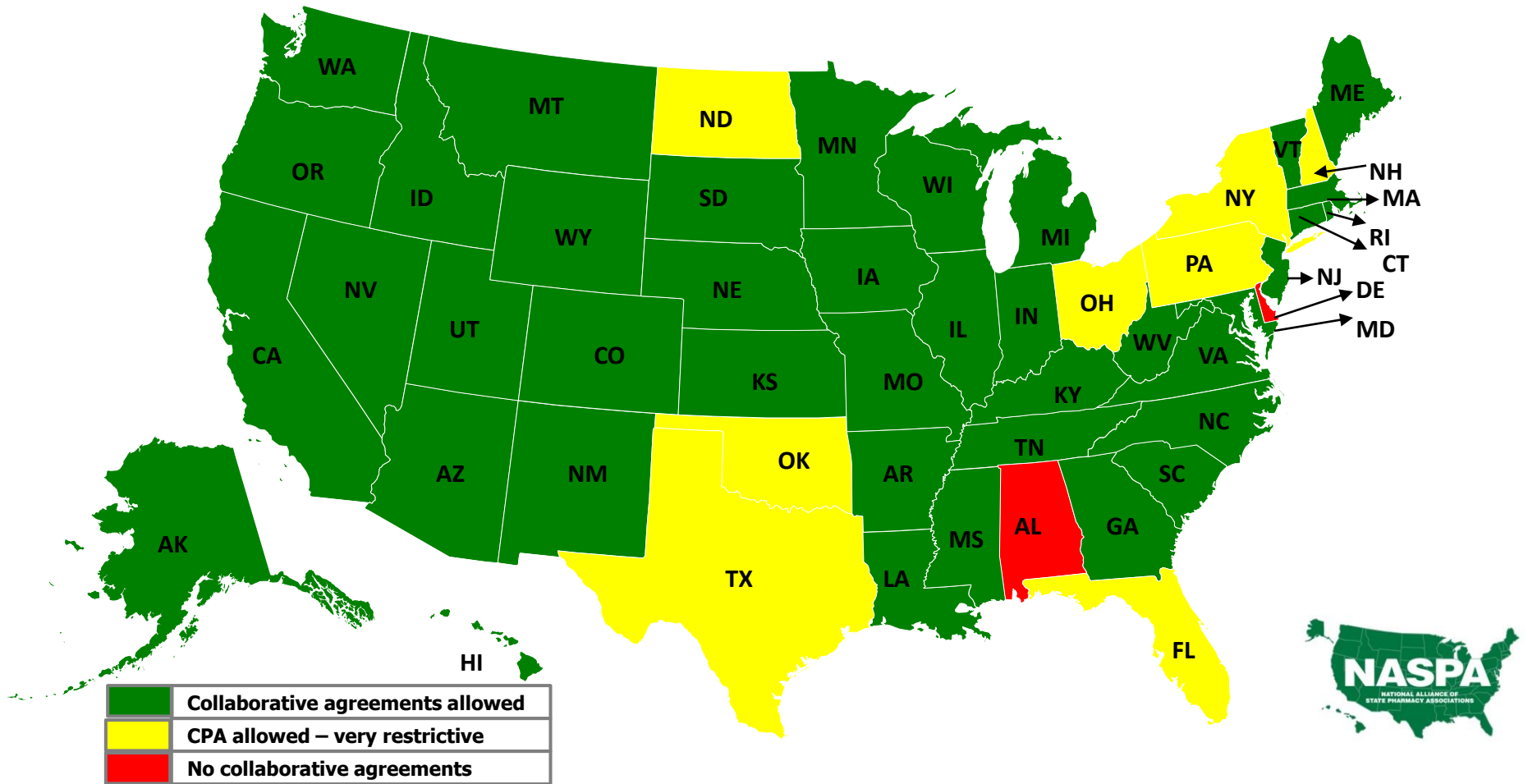
- ❑ **State law authorizes pharmacist to enter into an agreement or protocol with a provider**
- ❑ **Collaborative practice agreement: A formal agreement in which a licensed provider makes a diagnosis, supervises patient care, and refers patient to a pharmacist under a protocol or agreement that allows the pharmacist to perform specific patient care functions**
- ❑ **Terminology* for the agreement varies in state law**

*Collaborative drug therapy management agreement, collaborative pharmacy practice agreement, consult agreement, physician-pharmacist agreement, standing order or protocol, simply physician delegation

Types of Services Authorized under Collaborative Practice Agreements (CPA)

- ❑ **Pharmacists provide services delegated by the prescriber such as initiating, modifying, and discontinuing patients' medication therapy and ordering laboratory tests**
 - Scope of practice (exactly what pharmacists are allowed to do) determined by state laws covering CPA or CDTM
- ❑ **Advanced permission vs. making recommendations**
- ❑ **Over the past 40 years, Federal public health systems have been leaders in pharmacist-physician collaborative practice agreements**

Current State Collaborative Practice Authority Laws



National Association of State Pharmacy Associations, September 2014

CPA: Collaborative Practice Agreement

Benefits of Collaborative Practice Agreements

- ❑ **Increased access to care for patients**
- ❑ **Reduction in administrative burdens for other healthcare providers**
 - Pharmacist is empowered to provide services under protocol and communicate and document essential information
 - Pharmacist does not seek approval for recommendations outside the agreement
- ❑ **Better coordination of care**

Key Preventive Services Offered by Pharmacists

☐ Immunizations

- Authorized to provide immunizations in all 50 states and D.C.
- Widely offered vaccines include influenza, herpes zoster, tetanus
- Nearly 1 in 4 adults received a vaccination in a community pharmacy in the past year,

☐ Screenings

- Cholesterol, HbA1c, bone density scans, screening for depression, and others
- Based on results pharmacist can provide education, referral

☐ Educational and Behavioral Counseling

- Smoking cessation
- Lifestyle modifications (e.g., diet, activity)

Outcomes from Pharmacists' Patient Care Services

□ Improvements in:

- Low-density lipoprotein (LDL) cholesterol
- Reduction in blood pressure
- Reduction in Hemoglobin A1c in patients with diabetes
- Medication adherence
- Reduction of adverse drug events
- Vaccination rates, for certain populations and vaccines

Outcomes from Pharmacists' Patient Care Services: Quality of Prescribing

- ❑ **Improvements in patient adherence and quality of prescribing were found in a recent systematic review of the Medicare Part D medication therapy management program**
- ❑ **As accessible healthcare practitioners with expertise in using medications appropriately, pharmacists can help address unmet healthcare needs**

The Maryland P³ Program: A Collaborative Effort to Improve Outcomes and Reduce Costs



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Patients Pharmacists Partnerships (P³)



Problem: Patients with chronic diseases take an average of 6 - 8 medications for their conditions

P³: An effective solution to patient-centered comprehensive medication therapy management, and chronic disease management

Goals of Medication Therapy Management (MTM)

❑ **The goals of MTM are to optimize medication use and improve clinical outcomes resulting in:**

- Decreased medication costs
- Reduced emergency department visits and hospitalizations
- Fewer sick days
- Improved adherence and understanding of drug therapy
- Overall enhanced quality and continuity of care

❑ **Patients who receive MTM are better able to:**

- Manage their medical conditions
- Reduce the quantity and cost of medications
- Decrease healthcare use

P³ Partners: Academic, Professional, Governmental



The P³ Pharmacist: Medication Expert on the Healthcare Team

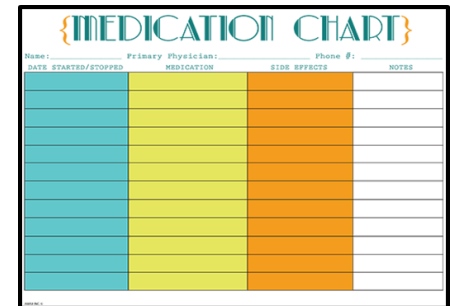
- ❑ **Provides comprehensive Medication Therapy Management (review of all medications including prescription, OTC, vitamins, alternatives, and nutritional supplements, medication history, adverse reactions, and medication-related problems)**
 - Counsel patients on medication adherence
 - Coach patients in self-management skill development
 - Coordinate care in a team-based approach, provide referrals for necessary laboratory tests and specialist visits
 - Give immunizations
 - Provide electronic or written documentation to healthcare providers (e.g. physician) at the end of each visit for continuity of care
- ❑ **Meet face-to-face with the patients 5 - 7 times a year depending on patient needs**

Documentation System



❑ Web-based documentation system

- Compatible with EHR and HIPAA compliant
- Exploring linking to the Health Information Exchange in Maryland
 - Chesapeake Regional Information System for our patients (CRISP)
- Partnership with E-HealthObjects
- Creates tools for patients/caregiver such as Medication Action Plans, Personal Medication Records and appointment calendars



MEDICATION CHART			
Name:	Primary Physician:	Phone #:	
DATE STARTED/STOPPED	MEDICATION	SIDE EFFECTS	NOTES

P³ Program Implementation

- ❑ **Program started in 2006**
- ❑ **Currently provides CMTMS services to self-insured employers in VA, MD, GA, TX, CA, and PA**
- ❑ **Key Target Population: Patients at risk for or diagnosed with CVD (employees and dependents) who receive as incentive waived co-pays for medications and supplies related to these conditions**
- ❑ **Pilot with State of Maryland employees launched in April 2013**
- ❑ **Network of over 500 specially trained pharmacists**
- ❑ **Leverages the pharmacist as the medication expert and provides payment for services to the pharmacists and the P³ program**

Maryland P³ Program

□ Track record of success*

➤ Clinical outcomes:

- improvement in clinical indicators

➤ Economic benefits:

- reduced overall costs of care

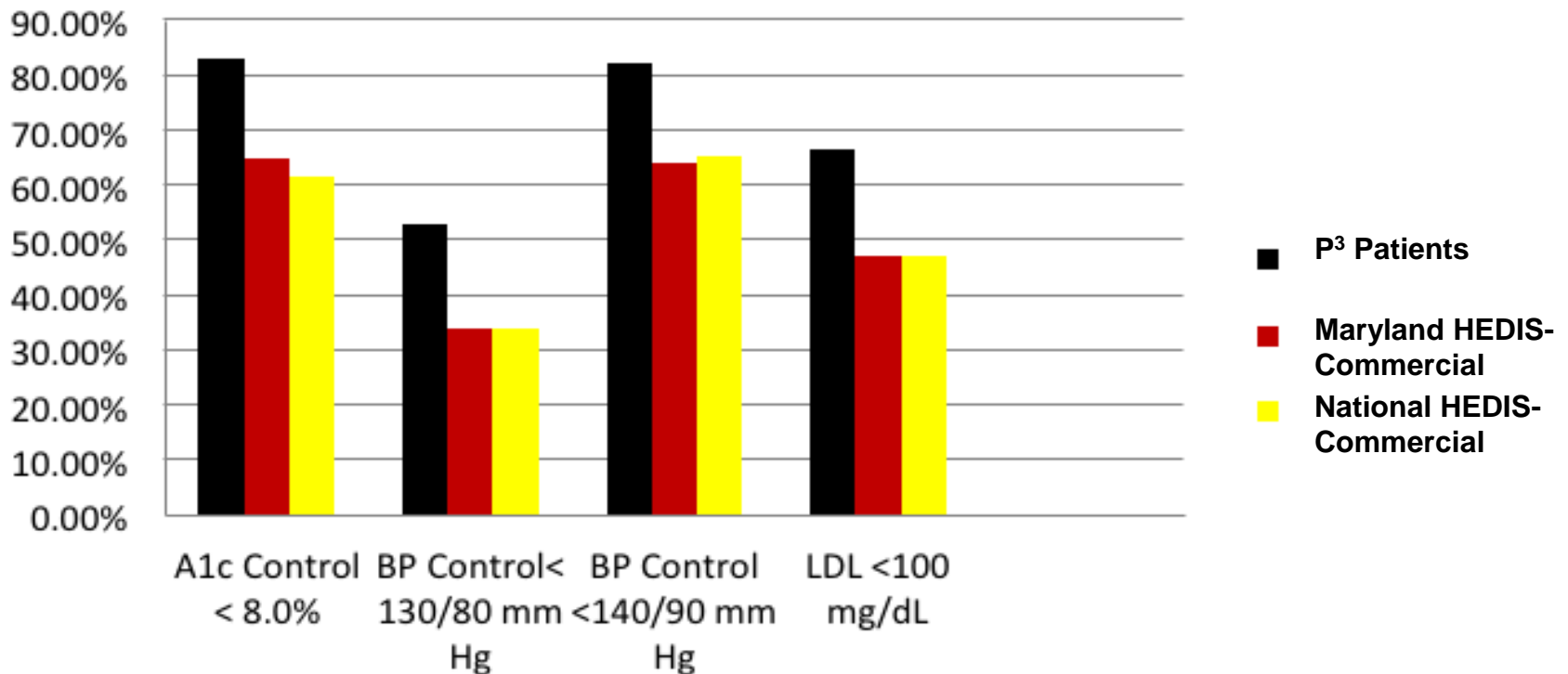
➤ Satisfaction results:

- high employee and patient satisfaction with the program and pharmacist care

*Data presented today is a mixture of unpublished data and data submitted for publication

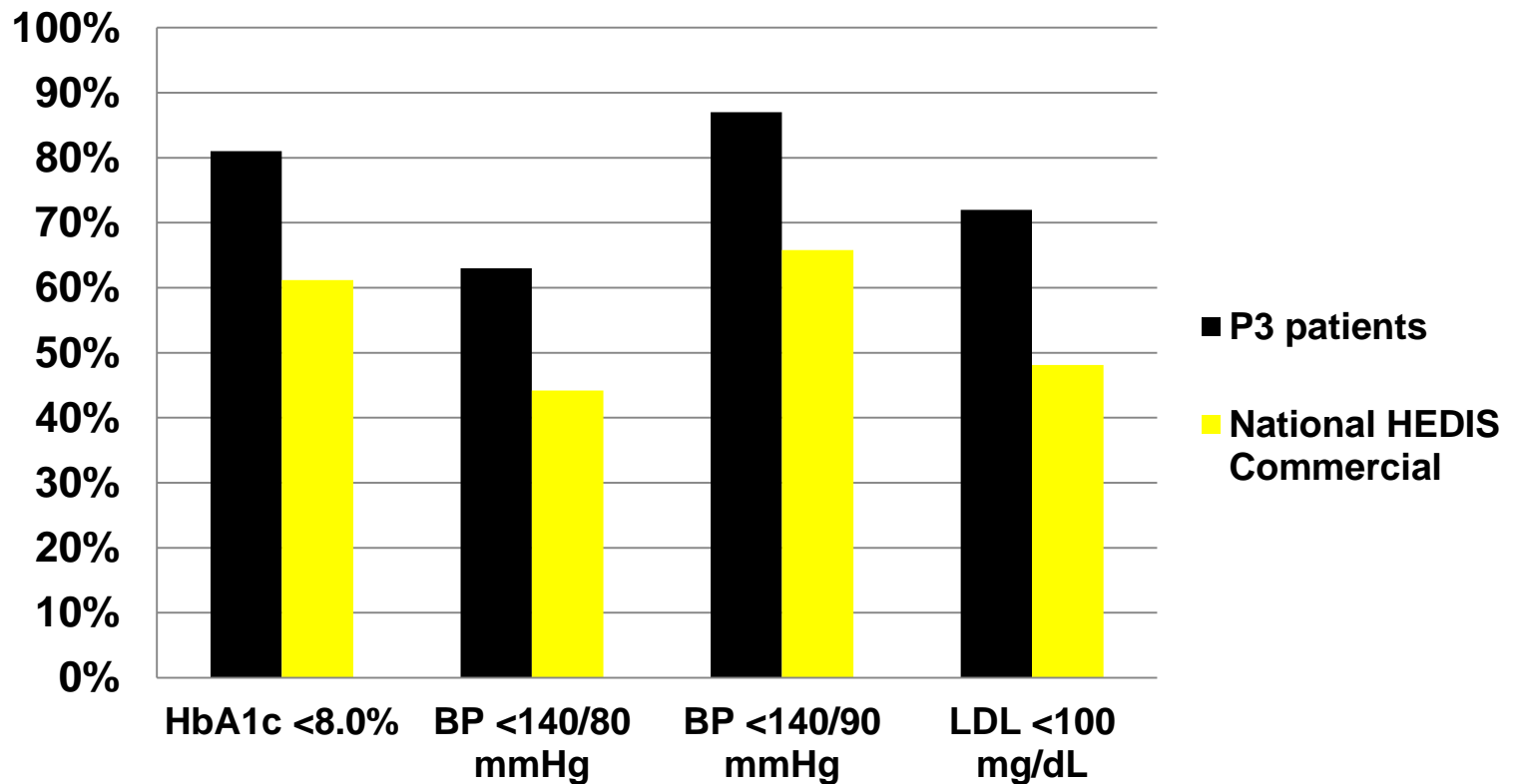
Clinical Indicators for Diabetes and Hypertension: National HEDIS Rates

Comparison of Maryland and National HEDIS Commerical Rates (2011) vs. P³ Participants



Clinical Indicators for Diabetes and Hypertension: National HEDIS Rates

Comparison of 2012 National HEDIS Commercial Rates vs. P³ Participants



HEDIS: Healthcare Effectiveness Data and Information Set
Note: HEDIS Measures for BP goals changed in 2012
HbA1c: Hemoglobin A1c

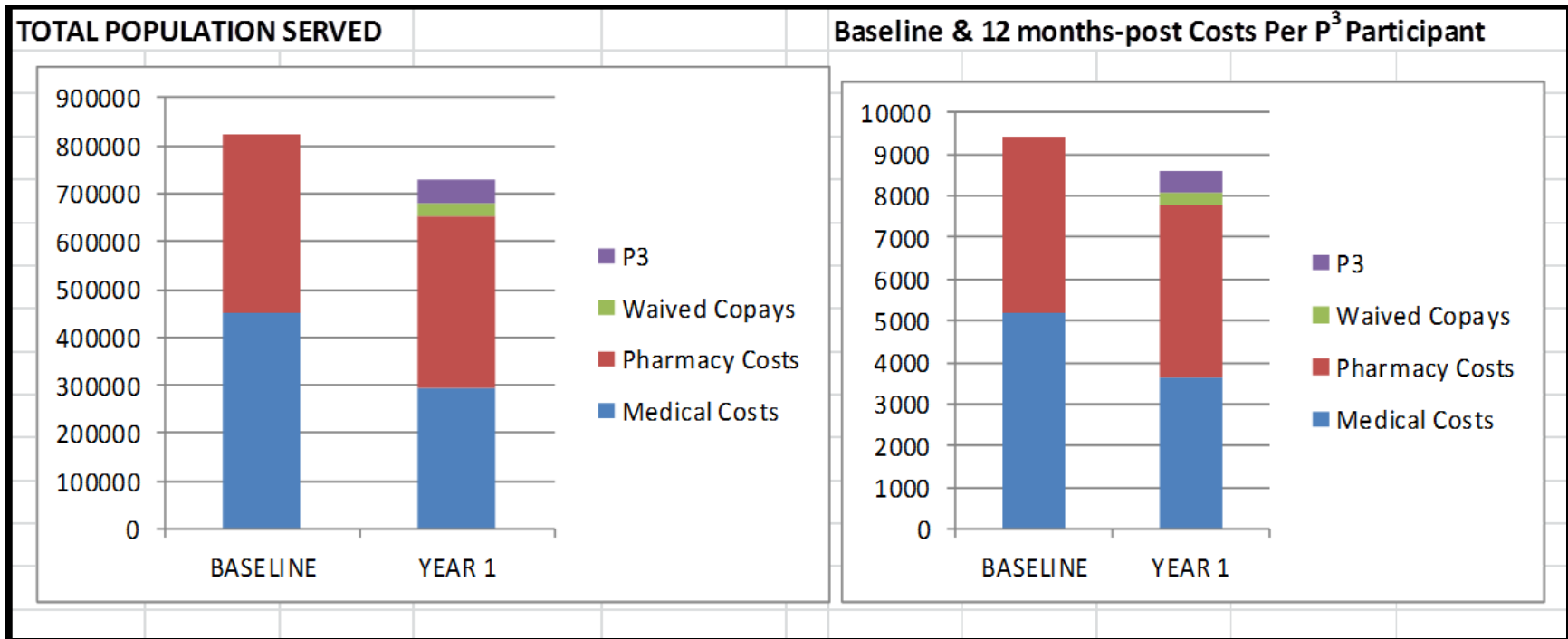
Additional Clinical Outcomes Observed

- ❑ **Reduction of medication-related problems**
 - Improved patient safety e.g. fewer episodes of hypoglycemia in patients with diabetes
- ❑ **Increased medication adherence (taking as directed) and persistence (taking for the prescribed time period)**
- ❑ **Improved patient and provider satisfaction**

Economic Analysis for P³ Participants

Comparison of Pre- and Post-
Total Participant Costs

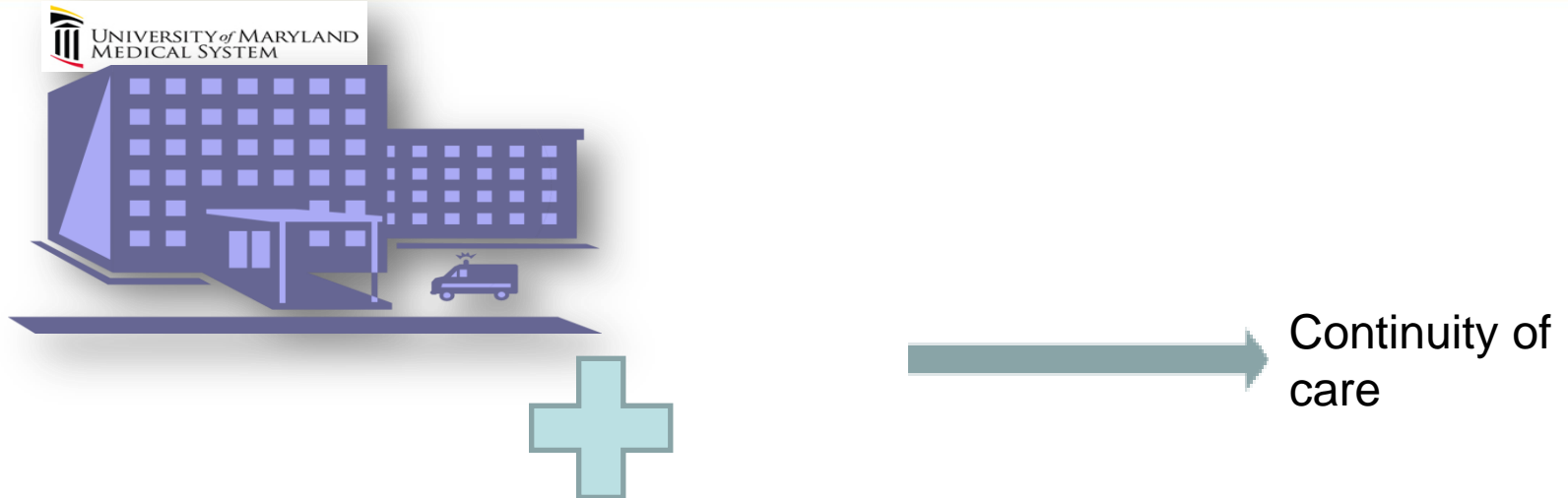
Comparison of Pre- and Post-
Average Participant Costs



Overall Economic Benefits of the P³ Program

- ❑ **Significant decrease in overall healthcare costs**
- ❑ **Average net reduction in cost of \$1,000 per patient, per year**
- ❑ **Case study: Employees of Chesapeake School System, VA**
 - Average decrease in total medical and pharmacy costs of \$2,451 per patient, per year
 - Return on investment of \$3.50 for each \$1 spent
 - 33% reduction in hospitalizations
 - Within P³ subgroup, \$1,047 per person in improved productivity
 - Variable reduction in sick days
 - Cause of this finding unclear, data undergoing further analysis

New Model: P³ e-Health Services Enhanced Transitions of Care



- ❖ **P³ e-health services collaborates, coordinates, and communicates with:**
 - Patient or caregiver
 - Primary care physician
 - Pharmacy
 - Care transition team at the hospital
- ❖ **Closes the communication gap and reduces readmission rates**
- ❖ **Increases satisfaction**
- ❖ **Manages patients with chronic diseases, polypharmacy**
- ❖ **Increases communication about medication issues**
- ❖ **Electronic documentation**

Summary:

Key Features of P³ Program

- ❑ **Academic-led partnership that pays for quality healthcare**
- ❑ **Provides comprehensive MTM services to patients at convenient locations**
- ❑ **Has shown healthcare outcome successes in managing prevalent chronic diseases such as hypertension and diabetes**
- ❑ **Yields benefits for patients, other healthcare providers, employers, and insurers**
- ❑ **Includes an e-health component to provide services along the continuum of care**

CDC Engagement of Pharmacists to Advance Public Health Priorities



Lori E. Hall, PharmD

CDR, U. S. Public Health Service

President, CDC Pharmacists Work Group

National Center for Chronic Disease Prevention and Health Promotion

The Community Preventive Services Task Force Systematic Review of Team-based Care

- ❑ **The Guide to Community Preventive Services**
- ❑ **Systematic review by the Task Force to examine the effectiveness of team-based care in improving blood pressure outcomes**
 - 52 studies from 2003 to 2012 qualified for inclusion
 - Team-based care defined as adding a new staff or changing the roles of existing staff
 - Nurses and pharmacists working with primary care providers, patients, and other professionals
 - Some studies looked at including different care providers into team-based care models

The Task Force Recommends Team-based Care to Control Blood Pressure

- ❑ **Use of team-based care, including pharmacists and nurses, improved blood pressure control**
- ❑ ***Strong* evidence that team-based care is effective in**
 - Improving proportion of patients with controlled blood pressure
 - Reducing systolic and diastolic blood pressures
 - Improving other cardiovascular disease risk factors
 - Diabetes
 - Cholesterol
- ❑ **Further analysis indicated economic evidence of cost-effectiveness***

*Cost effectiveness is intervention cost per quality adjusted life year (QALY) saved.

Proia K, Thota A, Nije G, et al. AmJPrevMed 2014.
www.thecommunityguide.org/cvd/teambasedcare.html

Results of the Systematic Review of Team-based Care on Blood Pressure Outcomes

Type of team member added*	Patients with increased BP controlled	Reduction of systolic BP (mmHg)	Reduction of diastolic BP (mmHg)
Overall	12.0%	5.4	1.8
Nurse	8.5%	5.4	2.9
Pharmacist	22.0%	5.0	1.7
Nurse and Pharmacist	16.2%	5.6	3.5

* The number of studies for each type of team member added varied.
Proia K, Thota A, Nije G, et al. AmJPrevMed 2014.
www.thecommunityguide.org/cvd/teambasedcare.html

Results of the Systematic Review of Team-based Care on Blood Pressure Outcomes

Team Member Role Related to Medication Changes

Type of changes allowed to medication*	Patients with increased BP control	Reduction of systolic BP (mmHg)	Reduction of diastolic BP (mmHg)
Adherence support and information on medication only	7.9%	3.8	1.0
PCP consultation or approval	15.0%	5.0	1.7
Independently changes	17.4%	7.2	3.5

* The number of studies for each type of team member added varied
PCP: Primary-care provider
Proia K, Thota A, Nije G, et al. AmJPrevMed 2014.
www.thecommunityguide.org/cvd/teambasedcare.html

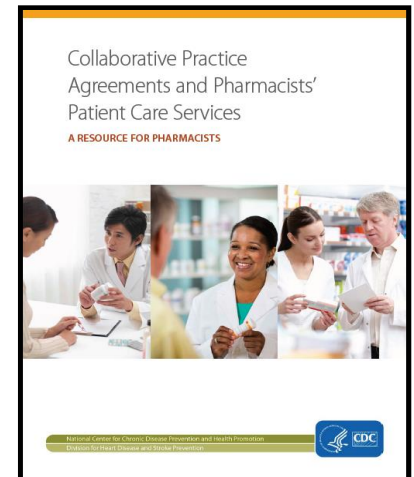
Tools to Establish and Support Collaborative Practice Agreements (CPAs)

❑ Collaborative practice agreements

- Licensed provider makes diagnosis, supervises patient care and refers patients to a pharmacist under a protocol
- Formal agreements

❑ Collaborative Practice Agreements and Pharmacists' Patient Care Services

- Developed by CDC Division of Heart Disease and Stroke Prevention with APhA Foundation
- Provides tools to establish and customize CPA
- Seven core principles



APhA: American Pharmacists Association

CDC. Collaborative Practice Agreements and Pharmacists' Patient Care Services Resources. Atlanta, GA: US Dept. of Health and Human Services, Centers for Disease Control and Prevention; 2013.
www.cdc.gov/dhds/pubs/policy_resources.htm.

Seven Principles for Implementing Collaborative Practice Agreements (CPAs)

- 1. Create and expand infrastructure that integrates pharmacists' services and CPAs into patient care**
- 2. Use simple, understandable and empowering language when referring to patient care services provided by pharmacists**
- 3. Allow healthcare providers who enter into CPAs to define the details of each agreement**
- 4. Examine “scope of practice” laws, curricula, and policies related to CPAs to promote collaboration and make best use of support staff**

Seven Principles for Implementing Collaborative Practice Agreements

- 5. Align incentives based on meaningful process and outcome measures**
- 6. Establish incentives to support adoption of EHR, use of HIT**
- 7. Maintain mutually beneficial relationships with patients, doctors, and other providers**



Align incentives (pay for quality care)

Improve outcomes

Control costs

A Program Guide for Public Health

- ❑ **Released by CDC in 2012**
- ❑ **Promotes new partnerships among state departments of health and pharmacists**
- ❑ **Topics include:**
 - Medication Therapy Management
 - Collaborative Drug Therapy Management
- ❑ **Overview of pharmacist scope of practice policies**

A Program Guide for Public Health

A PROGRAM GUIDE FOR PUBLIC HEALTH



Partnering with Pharmacists in the Prevention
and Control of Chronic Diseases

□ Foundational models of success

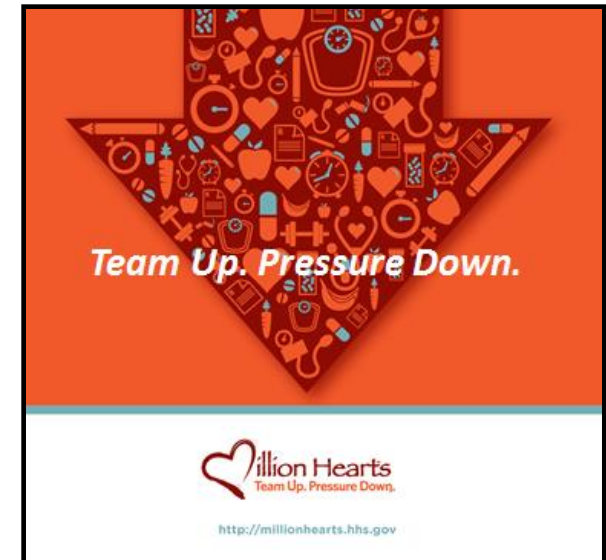
- Asheville Project
- Diabetes Ten City Challenge
- Maryland P³ Program
- South Carolina Stroke Belt Project
- Montana Pharmacist BP Management Program

Investing in Pharmacist-based Interventions

- ❑ **State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health (FOA-1305)**
- ❑ **Multiple cross-cutting approaches**
- ❑ **2 strategies promote using pharmacists**
 - Health systems approaches, Team-based care
 - Increase engagement of non-physician team members
 - Community clinical linkages
 - Increase engagement of community pharmacists in the provision of medication and self-management

Million Hearts® Team Up. Pressure Down.

- ❑ Pharmacy Outreach Project
- ❑ Three “tiers” of possible involvement for pharmacists
 - Awareness
 - Increasing medication adherence
 - Providing blood pressure counseling and tracking outcomes
- ❑ Montana Project: Provides yearly funding for up to 10 community pharmacies
 - Focus on medication adherence for sample of patients on blood pressure medicines

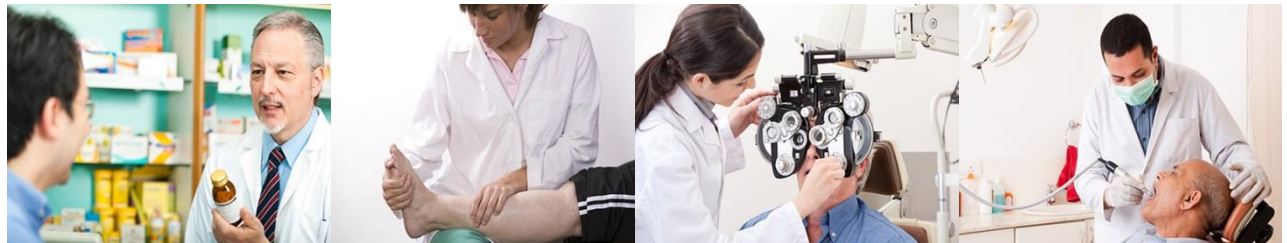


“We feel like we are practicing pharmacy again and not just dealing with insurance companies and trying to survive their continued cuts in reimbursement.”*

Quotation from a Montana Pharmacist and Team Up. Pressure Down. participant

National Diabetes Education Program

- ❑ **Jointly sponsored by Centers for Disease Control and Prevention and National Institutes of Health**
- ❑ ***Toolkit for Pharmacy, Podiatry, Optometry, and Dentistry (PPOD)* released in 2014**
 - Reinforces consistent diabetes messages across disciplines
 - Provides “cross-education” for the other disciplines
- ❑ **PPOD is a team approach that engages the many types of healthcare providers who treat patients with diabetes**



Implications for Future Research and Practice

- ❑ **Further expansion and integration into newer healthcare delivery systems (ACOs, PCMHs)**
 - Identify and evaluate ALL services delivered
- ❑ **Transitions of care**
 - Evaluate therapeutic and economic outcomes
- ❑ **Applications to other disease states; depression, cancer, antimicrobial stewardship, HIV management and screening**

Pharmacists: Reducing Health Disparities in HIV

- ❑ **Capitalize on accessibility
(Medically Underserved Areas)**
 - Evaluate the clinical value of pharmacists in these areas
- ❑ **Increase access to HIV testing**
- ❑ ***HIV Testing in Community Pharmacies and Retail Clinics: a Model to Expand Access to Screening for HIV Infection***
 - Pharmacists offered rapid, point-of-care HIV testing

Call to Action

- ❑ **As the need for more complex healthcare grows, the need to include other team members in providing that care grows, too**
- ❑ **Including pharmacists as part of team-based care, has led to improved outcomes for blood pressure control and other chronic diseases**
- ❑ **CDC offers many resources that illustrate the need to involve pharmacists in public health priorities**