Integration of Clinical Pharmacists into the Medical Home: Measuring Clinical Impact

Anthony P. Morreale, Pharm.D., MBA, BCPS, Assistant Chief Consultant for Clinical Pharmacy Services and Healthcare Delivery Services Research of the Department of Veterans Affairs.

Agenda

- 12:03 – 12:08pm – Introductions
- 12:08 – 12:20pm – Overview of PCPCC's Medication Management Guide
- 12:20 – 1:05pm – *Integration of Clinical Pharmacists into the Medical Home: Measuring Clinical Impact*
- 1:05 – 1:25pm – Audience Q&A
- 1:25 – 1:30pm – Closing Remarks

Today's Participants

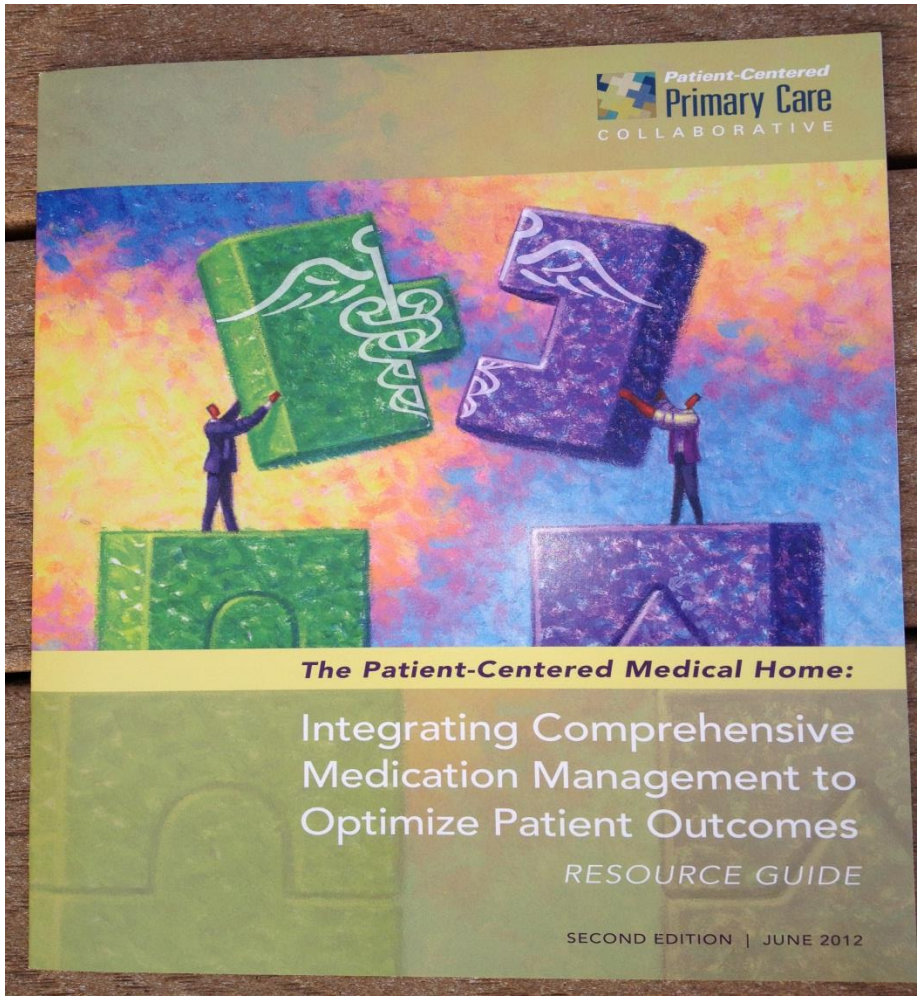
- Introduction by:
  Terry McInnis, MD, MPH, FACOEM, President and Founder of Blue Thorn Inc.

- Guest Speaker:
  Anthony P. Morreale, Pharm.D., MBA, BCPS, Assistant Chief Consultant for Clinical Pharmacy Services and Healthcare Delivery Services Research of the Department of Veterans Affairs.

- Moderator:
  Edwin Webb, PharmD, MPH, Associate Executive Director & Director of Government and Professional Affairs, American College of Clinical Pharmacy

The PCPCC Defines Comprehensive Medication Management (CMM)

- The PCPCC Guide Defines comprehensive medication management in the patient centered medical home
- AHRQ Innovation Center–Quality Toolkit
- 2nd Revision with Appendix A–"Guidelines for Practice and Guidelines for Documentation



PCPCC Resource Guide- Integrating Comprehensive Medication Management to Optimize Patient Outcomes
http://www.pcpcc.org/guide/patient...lth-through-medication-management

Presentation Overview

Describe the VA version of the Medical Home Model called Patient Aligned Care Teams (PACT) and share data on improvements in care that have been demonstrated to date

Discuss the integration of the Clinical Pharmacist in the PACT focusing on the top of the license collaborative practice in Chronic Disease & Medication Management.

Describe data systems that have been created to document the interventions and outcomes associated with clinical pharmacist care.

Discuss the outcomes being demonstrated by Clinical Pharmacists and the implications to cost benefit and cost effectiveness through validated modeling techniques.

Overview VA version of the Medical Home Model known as "Patient Aligned Care Teams" (PACT)

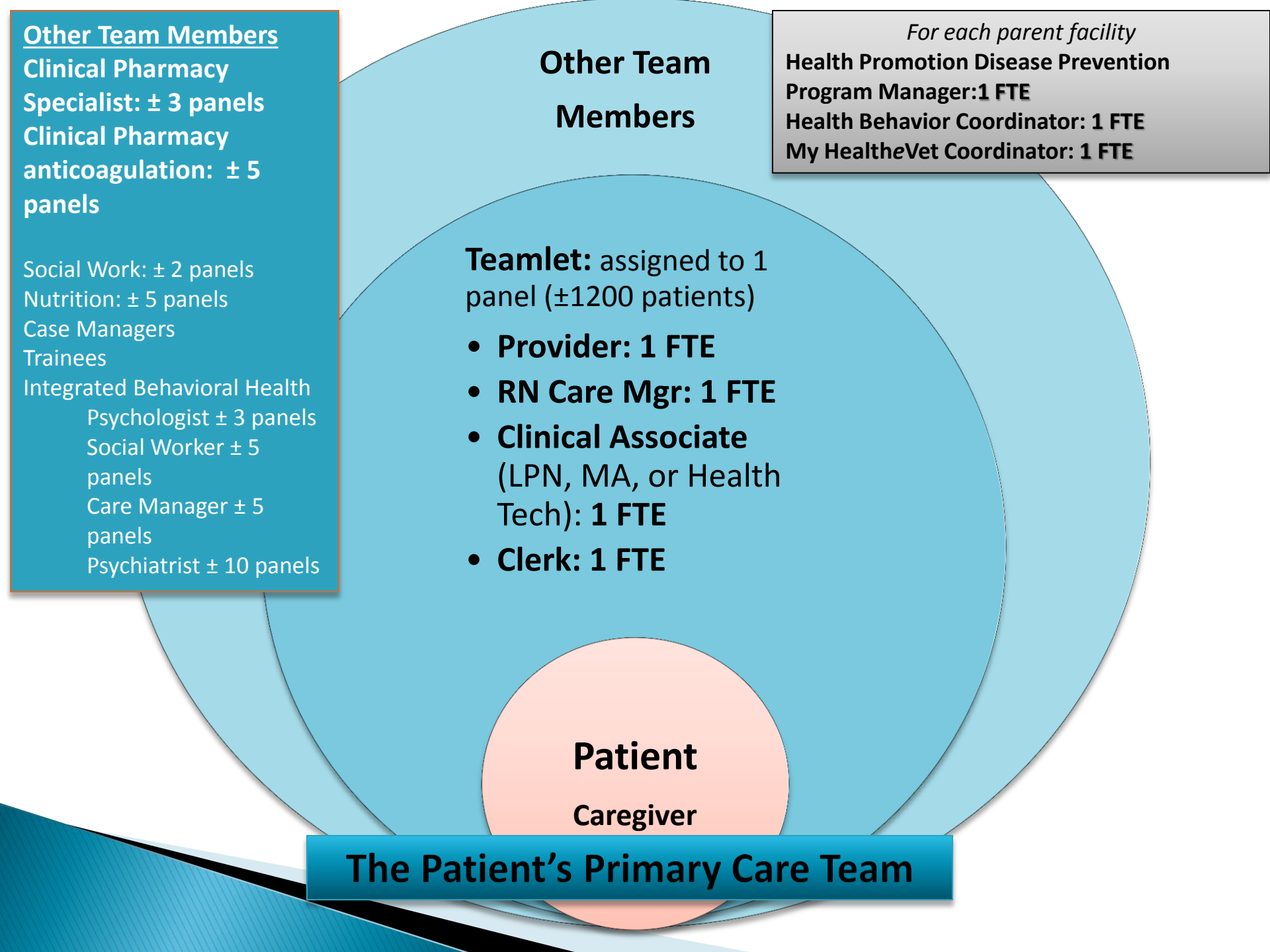
VA HEDIS Performance (2012)

Clinical Indicator	VA Average Percent (1)			HEDIS 2011 (2)		
	2012 (6)	2011 (6)	2010 (6)	Commercial (7)	Medicare (7)	Medicaid (7)
Breast Cancer Screening	87	85	87	71	69	50
Cervical Cancer Screening	93	93	94	77	n/a	67
Cholesterol Management for Patients with Cardiovascular :LDL-C Control (<100 mg/dL)	70	71	69	59	57	42
Cholesterol Management for Patients with Cardiovascular Conditions: LDL-C Screening	96	96	96	88	89	82
Colorectal Cancer Screening	82	82	82	62	60	n/a
Comprehensive Diabetes Care - Blood Pressure Control (<140/90)	80	81	82	66	63	61
Comprehensive Diabetes Care - Eye Exams	90	90	91	57	66	53
Comprehensive Diabetes Care - HbA1c Testing		98	99	90	91	83
Comprehensive Diabetes Care - LDL-C Controlled (LDL-C<100 mg/dL)	68	69	70	48	53	35
Comprehensive Diabetes Care - LDL-C Screening	97	97	97	85	88	75
Comprehensive Diabetes Care - Medical Attention for Nephropathy	95	95	96	84	90	78
Comprehensive Diabetes Care - Poor HbA1c Control (8)	19	17	15	28	27	43
Controlling High Blood Pressure - Total	77	78	79	65	64	57
Medical Assistance with Smoking Cessation - Advising Smokers To Quit 3	96	97	97	77	n/a	76
Medical Assistance with Smoking Cessation - Discussing Medications 3	94	94	94	53	n/a	44
Medical Assistance with Smoking Cessation - Discussing Strategies 3	96	97	97	48	n/a	40
Flu Shots for Adults (50-64) 3	65	65	71	53	na	n/a
Flu Shots for Adults (65 and older) 3, 4, 5	76	79	82	n/a	69	n/a
Immunizations: Pneumococcal 3,4, 5	93	94	95	n/a	69	n/a

SOURCE: Office of Analytics and Business Intelligence Updated 11/28/2012

Core PACT Principles

- Patient Centered and Team Based
- Team Members work at top of their license, training and competency
- Same Day Access
- Focus on Preventive Care
- Population management of High Risk Patients
- Evidence Based
- Lower Cost through reductions in ER visits and hospitalizations


Other Team Members
Clinical Pharmacy Specialist: ± 3 panels
Clinical Pharmacy anticoagulation: ± 5 panels
Social Work: ± 2 panels
Nutrition: ± 5 panels
Case Managers
Trainees
Integrated Behavioral Health
Psychologist ± 3 panels
Social Worker ± 5 panels
Care Manager ± 5 panels
Psychiatrist ± 10 panels
Other Team Members
For each parent facility
Health Promotion Disease Prevention Program Manager:1 FTE
Health Behavior Coordinator: 1 FTE
My HealtheVet Coordinator: 1 FTE
Teamlet: assigned to 1 panel (±1200 patients)
Provider: 1 FTE
RN Care Mgr: 1 FTE
Clinical Associate (LPN, MA, or Health Tech): 1 FTE
Clerk: 1 FTE
Patient
Caregiver
The Patient's Primary Care Team

Changes Since PACT Implementation

- Patient provider encounters have increased 12 percent
- Encounters with Veterans has increased 50 percent mostly due to telehealth, telephone and group encounters.
- 65 percent of Veterans requesting a same day primary care appointment with their personal provider are accommodated
- 78 percent of Veterans are able to see their own primary care provider for an appointment on the date they desire
- Veteran access to primary care during extended hours (non-business hours) has increased 75 percent since January 2013.

Source: VA Press Release April 30, 2014

Changes Since PACT Implementation

- Over 72 percent of all Veterans discharged from VA are contacted within two days.
- Mental health services offered in VA primary care clinics increased 18 percent.
- 33 percent decrease in primary care patients urgent care visits.
- 12 percent decrease and acute hospital admissions.
- Veterans strongly endorse VA health care, with 91 percent offering positive assessments of inpatient care and 92 percent for outpatient care.

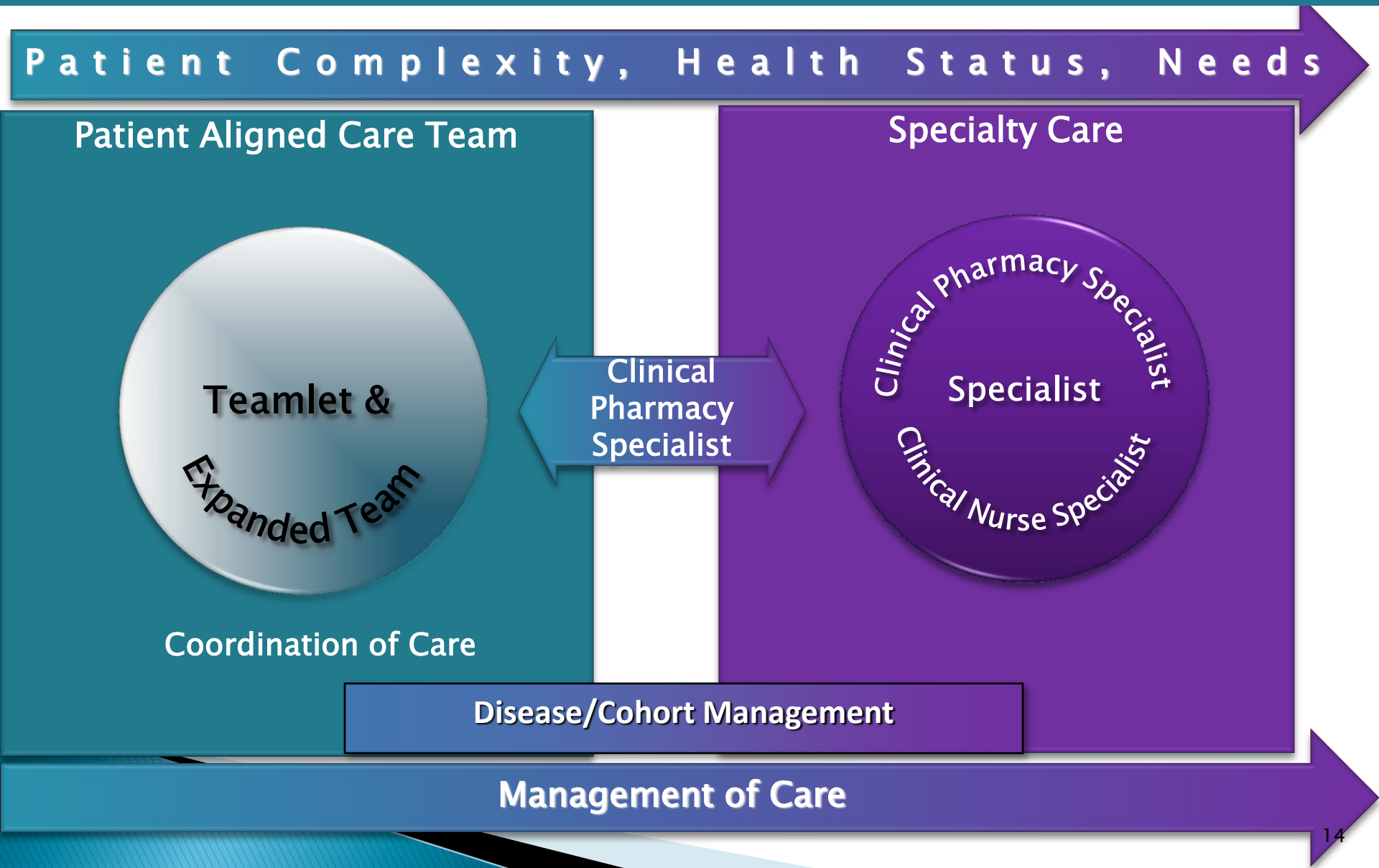
Source: VA Press Release April 30, 2014

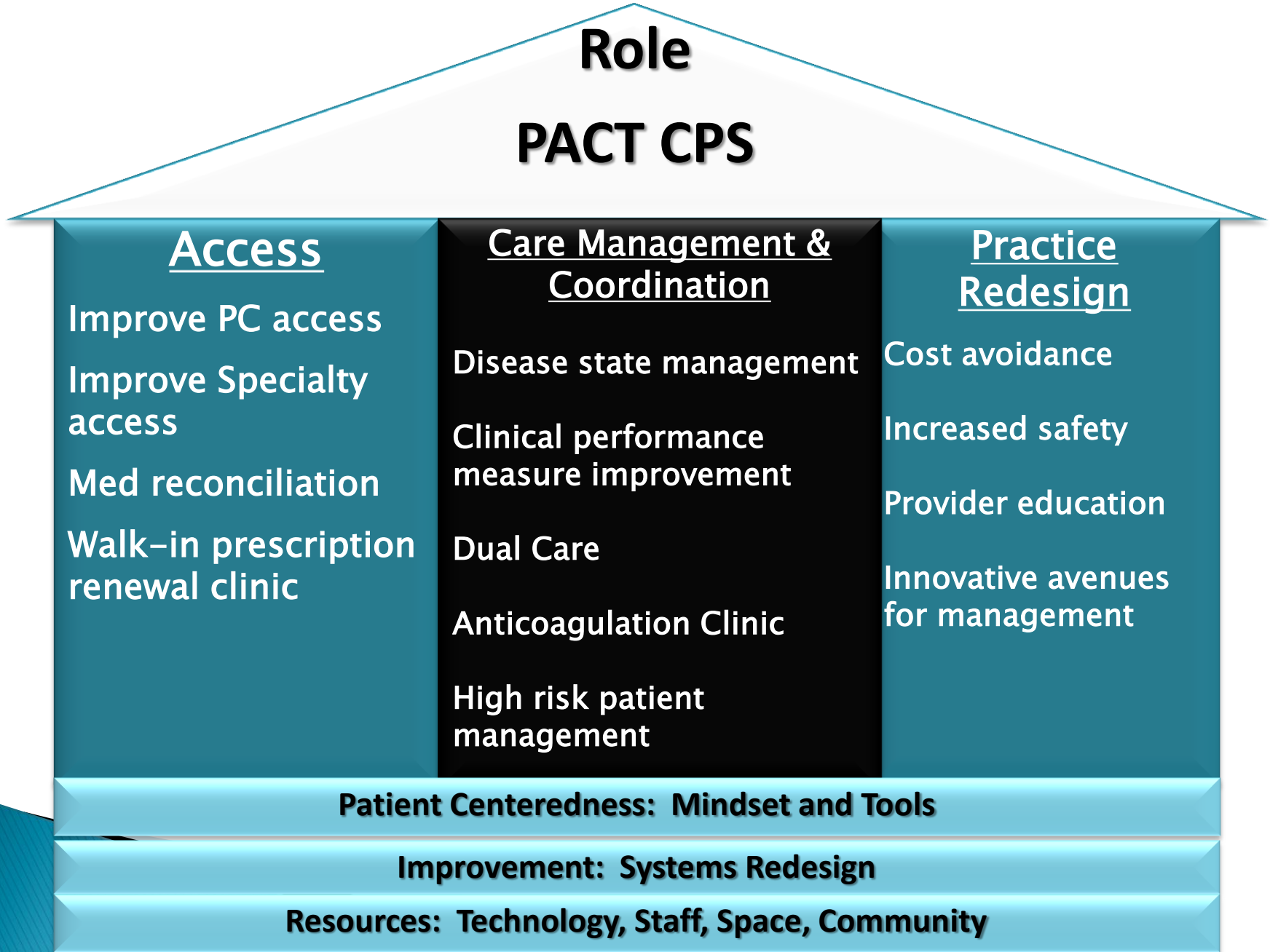
Integration of Clinical Pharmacists (CP)

The VA: A Model for CMM

- Under Federal law 38 USC 7402(b), the Department of Veterans Affairs (VA) is authorized to:
  - establish professional practice elements such as licensure requirements, qualifications, and scopes of practice for the employment of VA pharmacists
  - VHA Directive 2009-014: granted Pharmacist medication prescribing & monitoring privileges based on a locally-defined scope of practice
- Comprehensive medication management is performed autonomously but collaboratively by the CPS

Clinical Pharmacy Model Vision: Bridging the Gap Between Primary Care and Specialty Care




Role
PACT CPS
Access
Improve PC access
Improve Specialty access
Med reconciliation
Walk-in prescription renewal clinic
Care Management & Coordination
Disease state management
Clinical performance measure improvement
Dual Care
Anticoagulation Clinic
High risk patient management
Practice Redesign
Cost avoidance
Increased safety
Provider education
Innovative avenues for management
Patient Centeredness: Mindset and Tools
Improvement: Systems Redesign
Resources: Technology, Staff, Space, Community

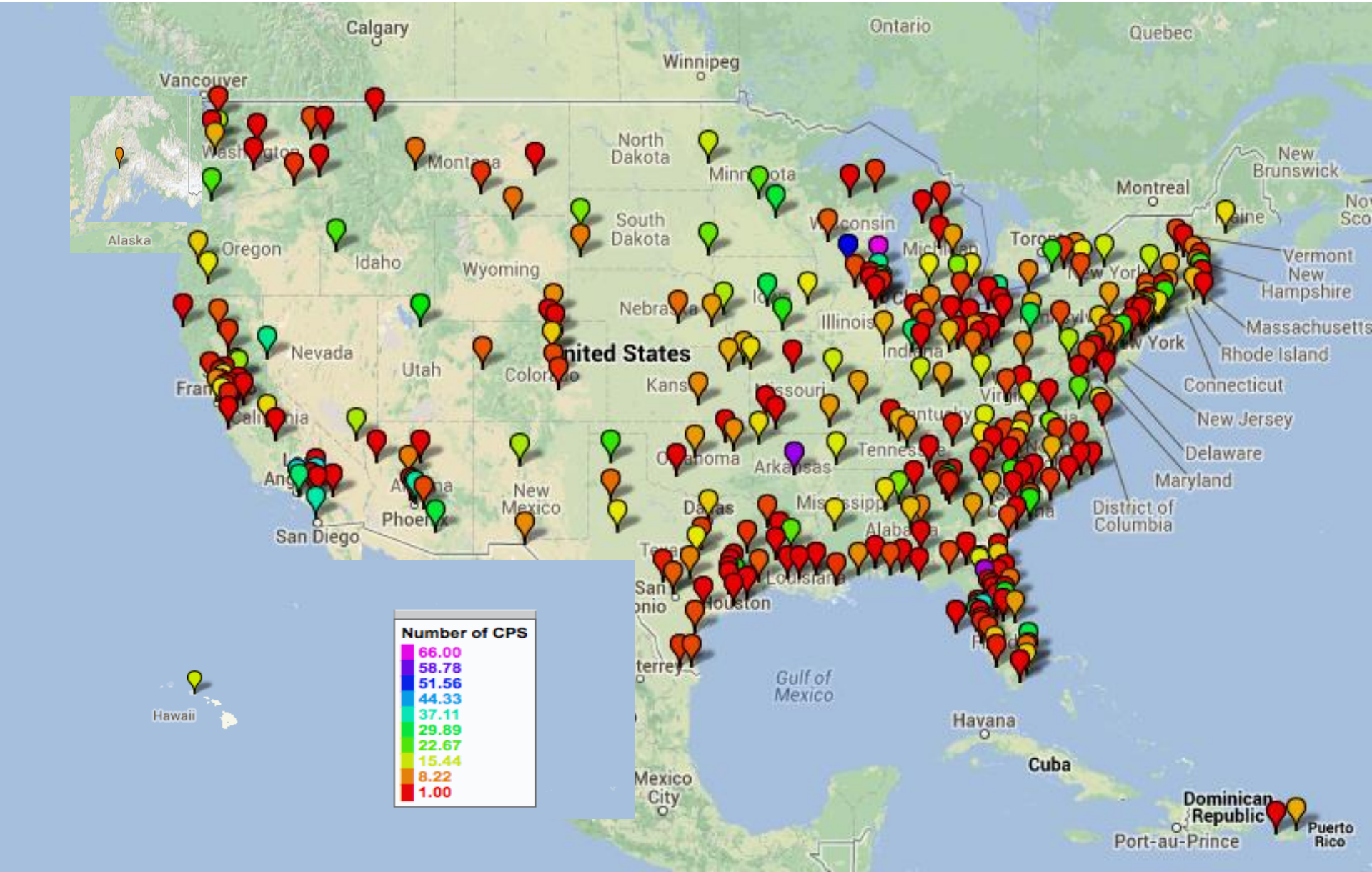
VHA has approximately 7,050 Pharmacists

Pharmacists with Scope of Practice exceeds 2,935 (42%)

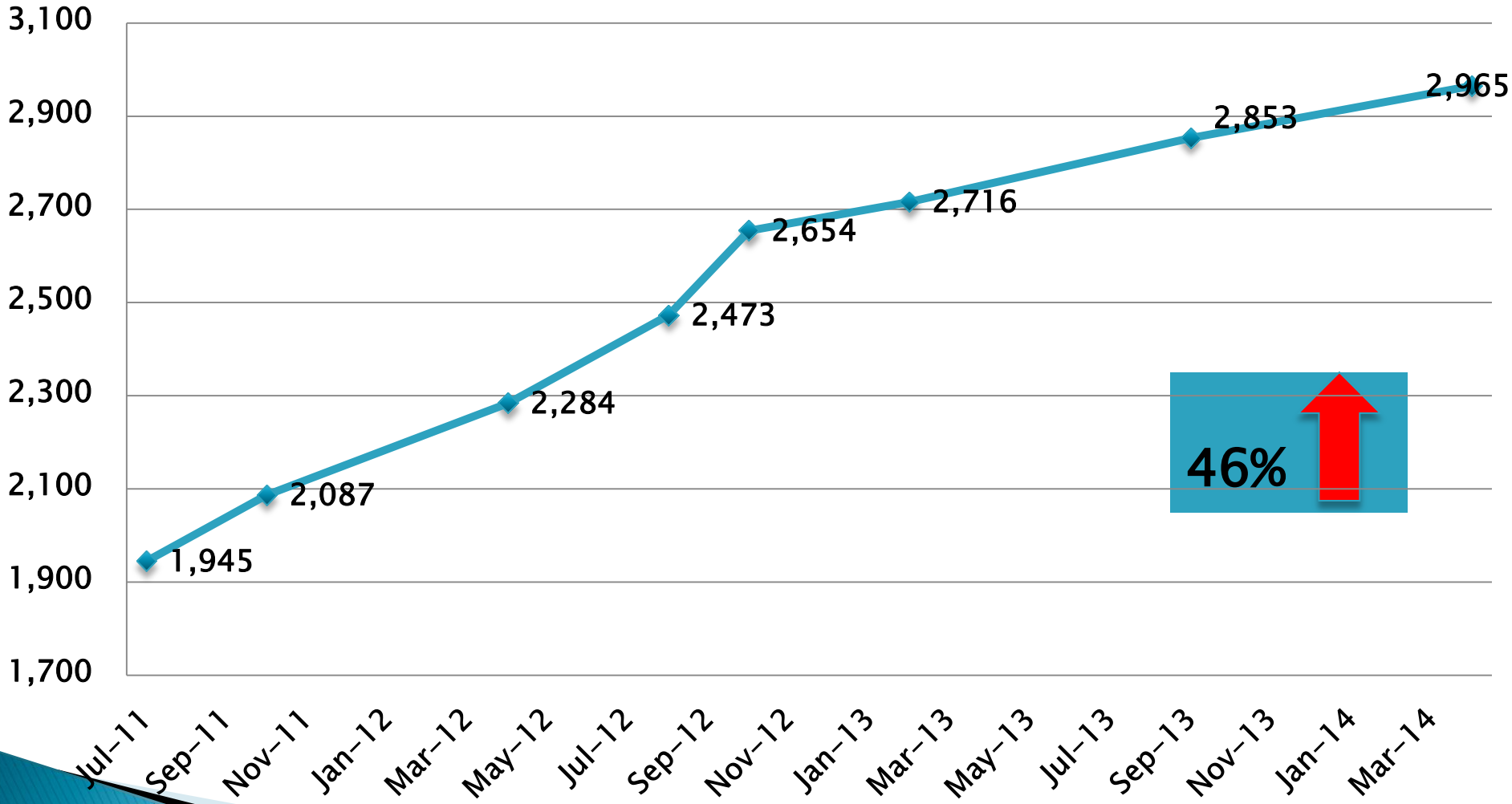
Of These 2,935

Residency = 64%	BPS Certification = 38%	Other Certification = 15%	Residency &/or Certification = 76%

Pharmacists with a Scope of Practice (n=2,935)

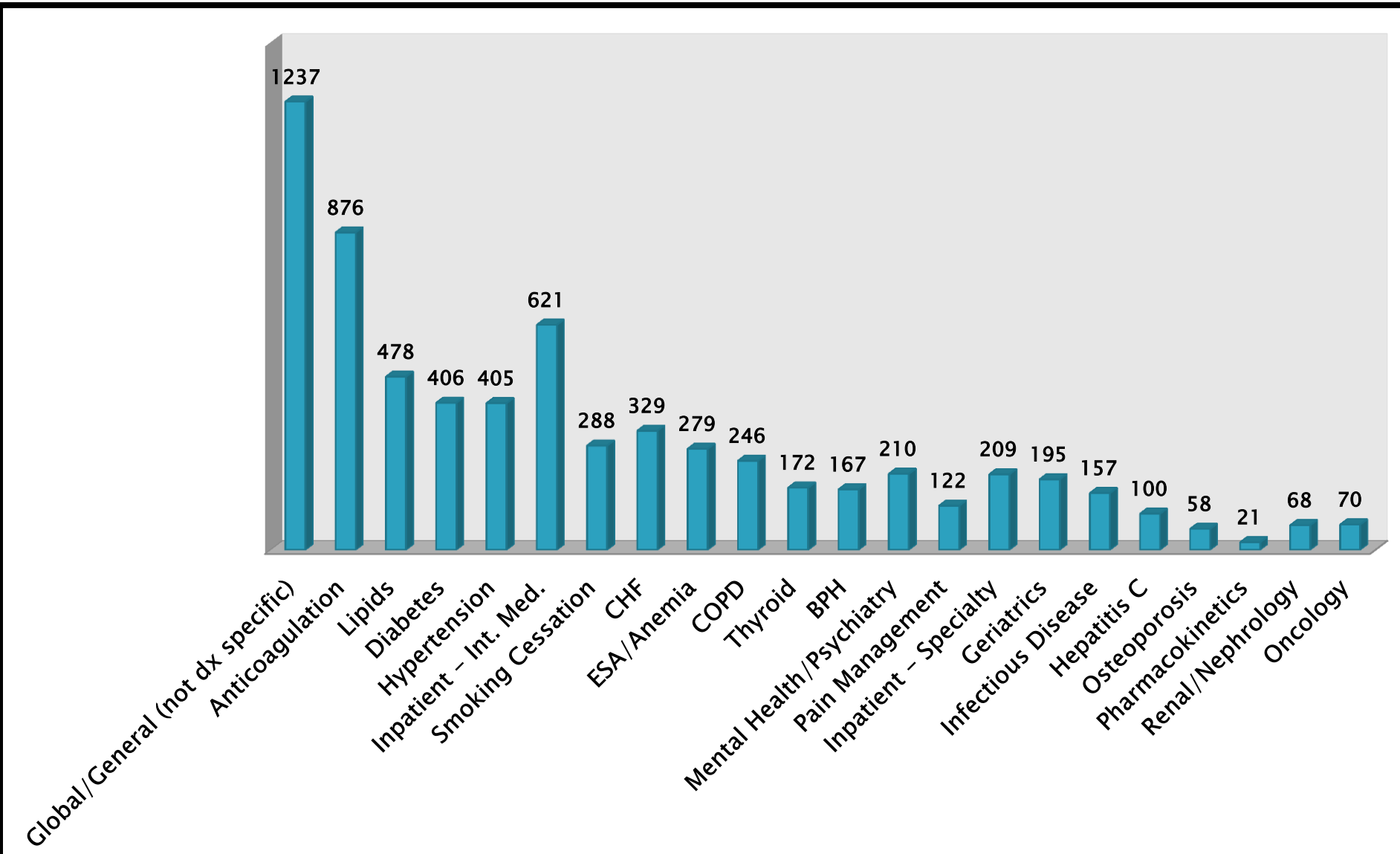


Number of Pharmacists With a Scope of Practice – Growth Over Time

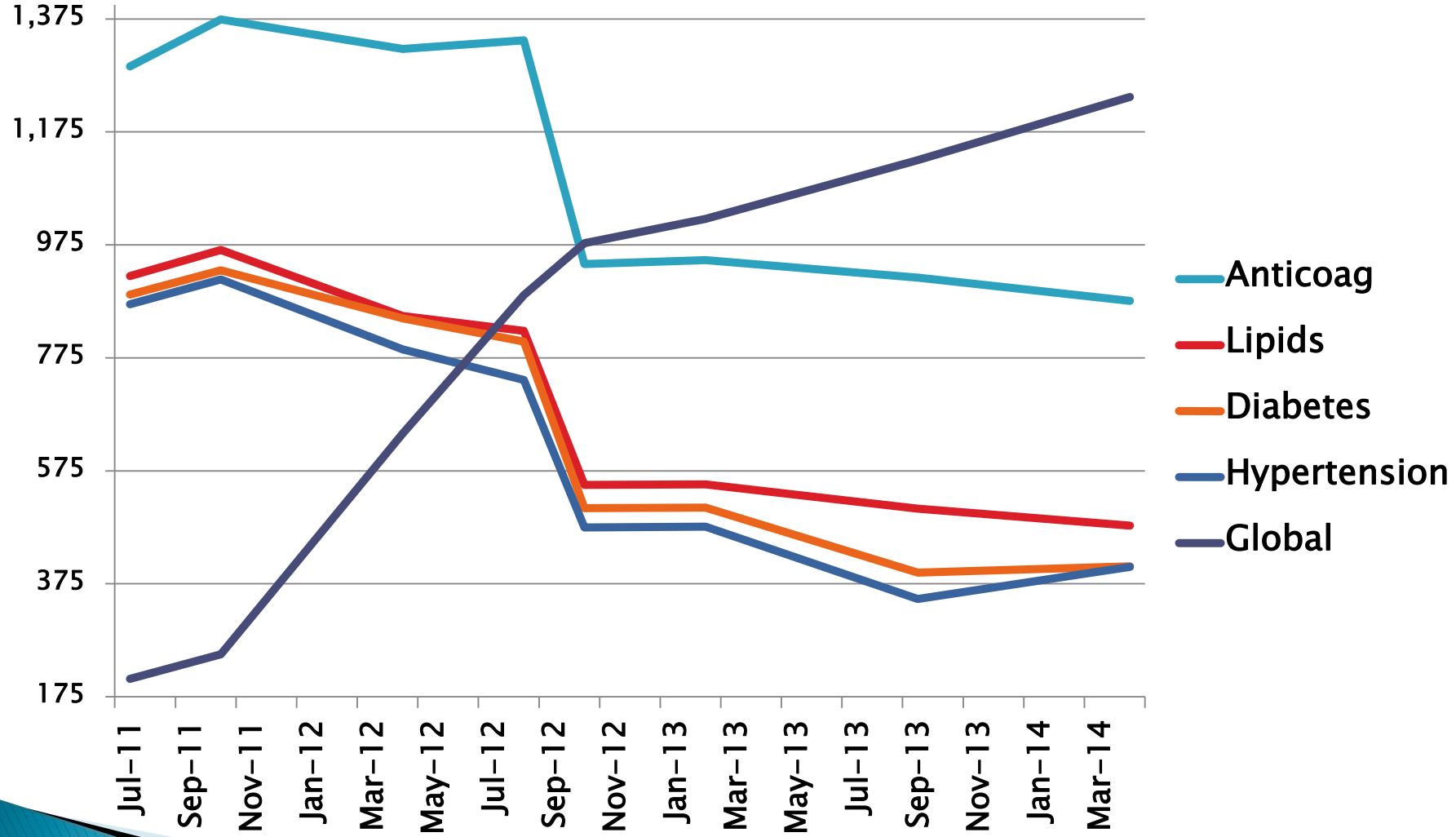


Data Source: CPPO Scope of Practice SharePoint Database

Pharmacist SOP by Disease State

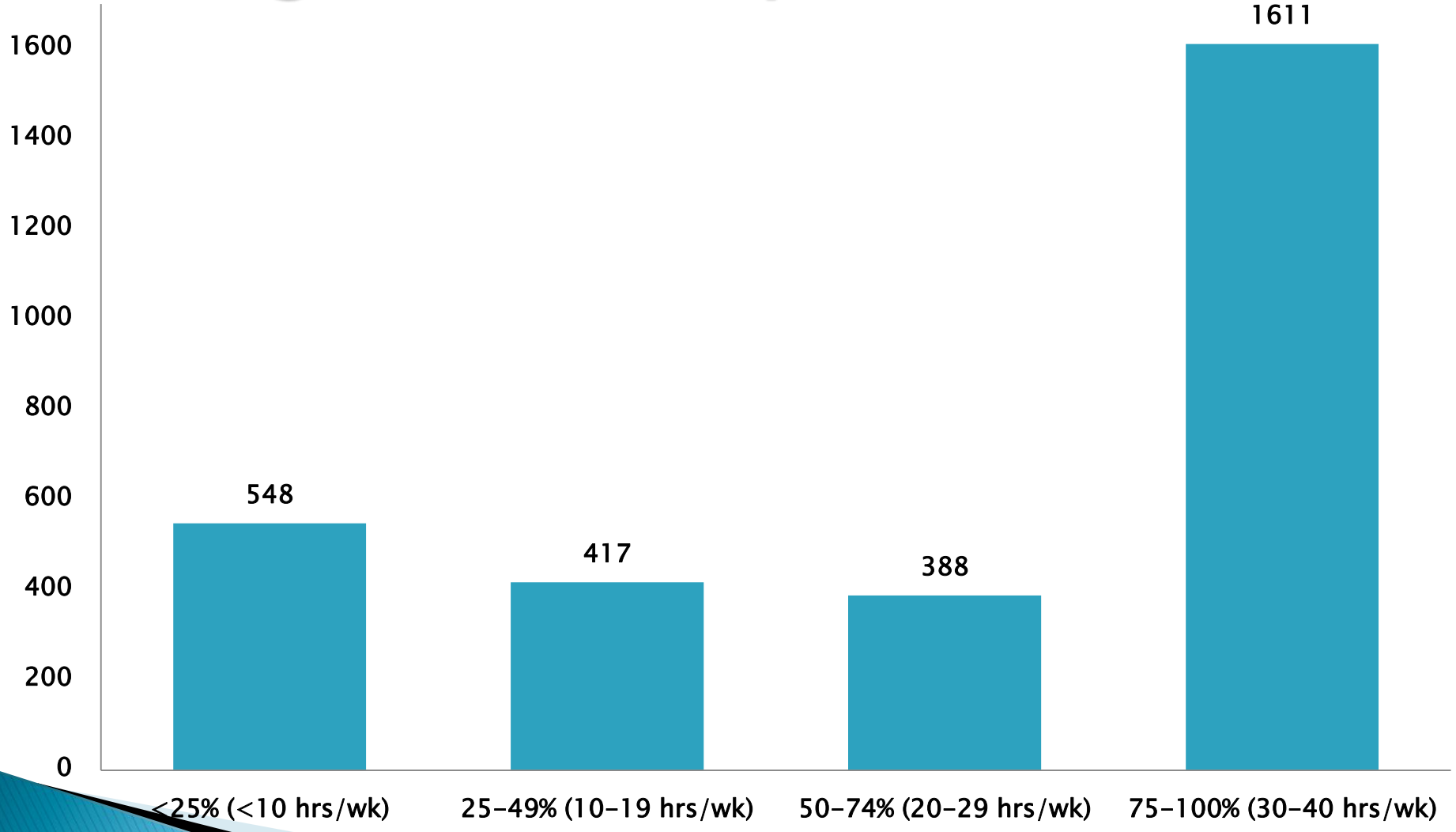


Scope of Practice Trends



Data Source: CPPO Scope of Practice SharePoint Database

Percentage of Time Spent Working Under Scope of Practice



Create a Uniform System for Scope of Practice

- Define differences between a Clinical Pharmacist and Clinical Pharmacy Specialist
- Developed field guidance on Scope of Practice (SOP
- Outline routine pharmacist activities that do and do not need a SOP
- Revise VHA Directive 2008-043 Scope of Practice for clarity
- Assured impact of SOP are adequately reflected in pharmacist qualification standards

Ongoing Professional Practice Evaluation (OPPE)

Required for all pharmacist with a scope of practice

Prospectively designed metrics which define performance developed locally and reviewed at least annually

Used to demonstrate ongoing competencies and outcomes

Important for identifying areas of strength and weakness

Standardize Training

Pharmacy Chronic Disease Management (Phase I 2010-2011)

- Pain Management
- Diabetes
- Hepatitis C
- Hyperlipidemia
- Hypertension
- Osteoporosis
- Tobacco Dependence

Specialty Care focused (Phase II 2012-2013)

- Cardiology – Heart Failure
- Mental Health
- Hematology/Oncology
- Respiratory
- Nephrology
- Women's Health

All programs are recorded and can be taken by trainees and new employees to assure consistency in managing patients the "VA way".

Nationwide Workload Trends

Parameter	FY11	FY12	FY13	% Change
# Pharmacists with SOP	2,132	2,616	2,870	35%
% Pharmacist FTE Under SOP	Data not available	32%	35%	9%
Encounters/FTE	403	615	629	56%
Total 160 Encounters	2,454,419	3,677,269	4,067,110	66%

Documenting Interventions and Outcomes Associated with Clinical Pharmacist Care

Issues with Outcomes Studies

Single Site – utility for scalability is limited

Small numbers of patients which may not allow for strong statistical analysis

Descriptive in nature and lack control groups

Multiple centers analysis suffer from methodological issues

A better way is needed!

Linking Cost Avoidance to CPS Interventions Development of a Cost Benefit Model

- Development of cost benefit model underway based on Lee et.al. which provided base for cost avoidance of interventions
- Modeling and validation is still a work in progress in 2014.
- Aldridge et.al. showed that 7% of interventions made in ED had potential to cause harm.

Type of Intervention	Avg Cost Avoidance per intervention (Lee et. al)	Possible Cost Avoidance assoc with FY12 CPS Interventions
Disease State Medication Interventions	$363.73	$6,533,318
Adj. Dose or Frequency	$363.73	$616,522
Drug Interaction	$398.97	$83,384
Drug Not Indicated	$91.88	$30,923
Duplicate Therapy	$169.91	$22,937
New Tx for Existing Diagnosis	$1,861.46	$4,275,773
Manage ADE	$674.61	$1,204,853
Manage Allergy	$289.48	$43,132
Total CPS Cost Avoidance (based on Lee et.al.)		$12,810,846

Lee et.al. AJHP 2002;59:2070-2077
Aldridge et al AJHP 2010

Pharmacists Achieve Results with Medications Documentation (PhARMD) Project

Measuring Interventions and Outcomes System Wide Using a Pharmacotherapy Intervention Tracking Tool

PBM PhARMD Project Tool Design

CPS Documentation of Pharmacotherapy Interventions
Anticoagulation Intervention
Compliance/Adherence Addressed
Contraindication to Medication
Drug Interaction Addressed
Drug Not Indicated
Duplication Of Therapy
Medication Interventions
Med Reconciliation Performed
Non-formulary Review/Conversion
Prevent /Manage Drug Allergy
Manage Adverse Drug Event
Non-pharmacologic Intervention
Therapeutic Drug Monitoring
Diabetes Intervention or Goal Met
Hypertension Intervention or Goal Met
Heart Failure Intervention or Goal Met
Lipid Intervention or Goal Met
Bone Health Intervention
Smoking Cessation Intervention or Goal Met
Hepatitis C Intervention or Goal Met

PBM designed a clinical reminder tool for roll-out by end of calendar year. Project aligns with VHA Transformational Initiatives

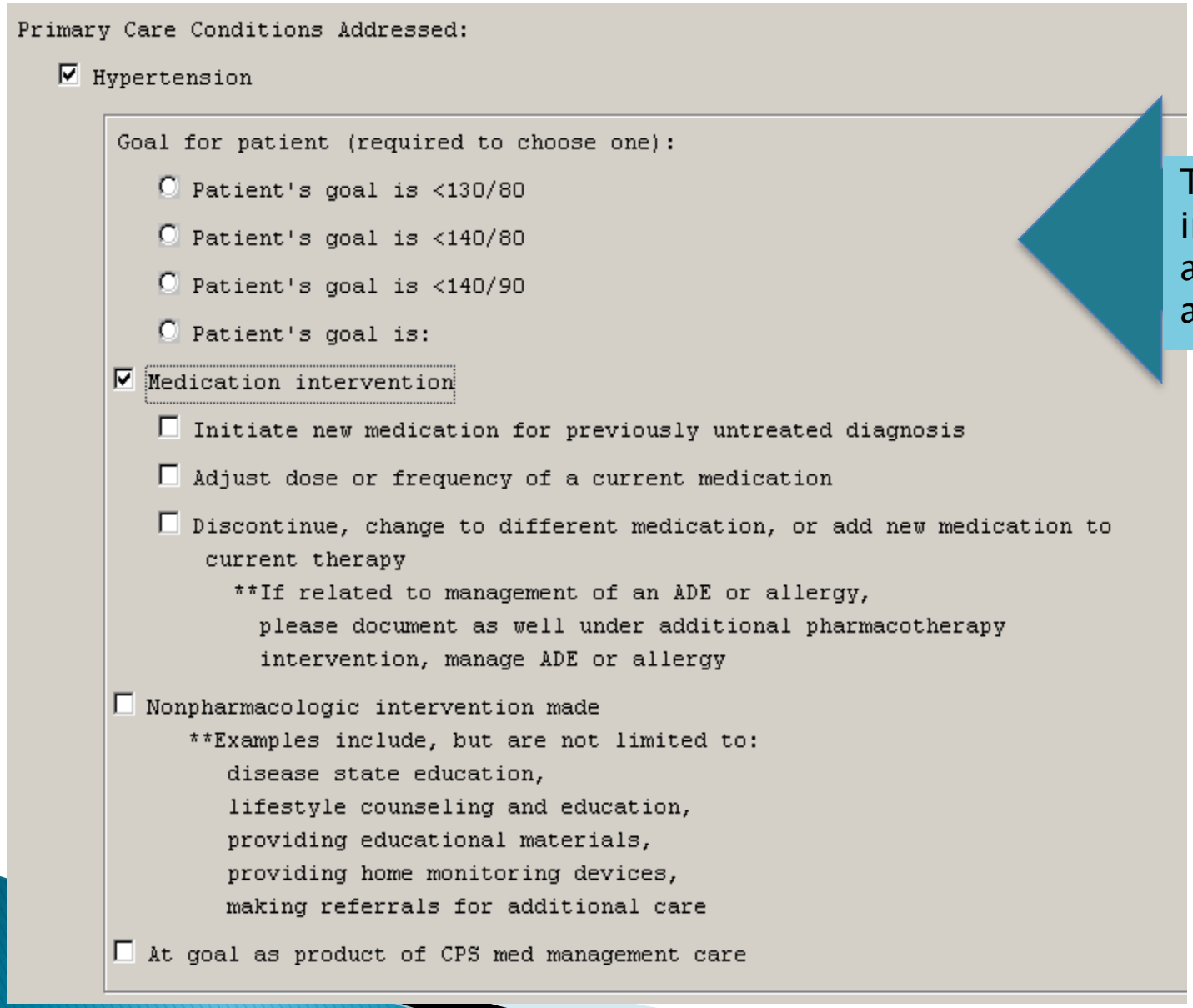
Tool provides documentation of clinical interventions related to medication management by Clinical Pharmacy Specialists (CPS) across VHA, as non-physician providers.

CPRS tools provide the ability to document Pharmacotherapy interventions which have demonstrated:

- Potential to reduce harm to patients
- Potential cost avoidance to healthcare system

CPS demonstrate the ability to document clinical interventions and therapeutic achievements for specific disease states

PBM "PhARMD" Tool Design and Use



The CPS documents interventions made and when goals achieved

PhARMD Project Expansion Results

Metric	FY12	FY13	FY14*
Number of Pharmacist tool users	117	893	964
Total Disease State Interventions	15,410	180,019	320, 200
Total Additional Pharmacotherapy Interventions	16,717	129,917	299,800
Avg Number of Interventions per visit	1.87	1.75	1.74

* As of March 1, 2014 6 months data extrapolated to 12 months

Modeling Cost Benefit of Outcomes and Interventions

Archimedes™ to Project Outcomes Associated with Disease Management

- Archimedes is a well substantiated and validated modeling tool which can be used to project cardiovascular and diabetes related outcomes based on changes in surrogate markers.
- First created and described by Kaiser Permanente but spun off as a separate company.
- Predicted outcomes show strong correlation to real outcomes in numerous studies. Costs are not VA specific but a starting point for future work.
- Now being applied to our PhARMD data to project both outcomes and cost benefit of various interventions in various cohorts, standardized to our demographics.

Analysis Description

Slides based on PhARMD data run April 2014

Represent Outcomes as documented by the PhARMD tool.

Analysis of Outcomes of patients referred for a specific disorder (e.g.: DM or Lipids) to a clinical pharmacist.

Outcomes are measured 6 months after baseline referral.

Changes in Biomarkers over 6 months

Diabetes Referral Cohort

Biomarker	baseline	6 months	Absolute change
HbA1c	8.92	7.82	-1.1
LDL	105	93.71	-11.29

Lipid Cohort

Biomarker	baseline	6 months	Absolute change
LDL	118	95.5	-22.5

Diabetes Patient Demographics

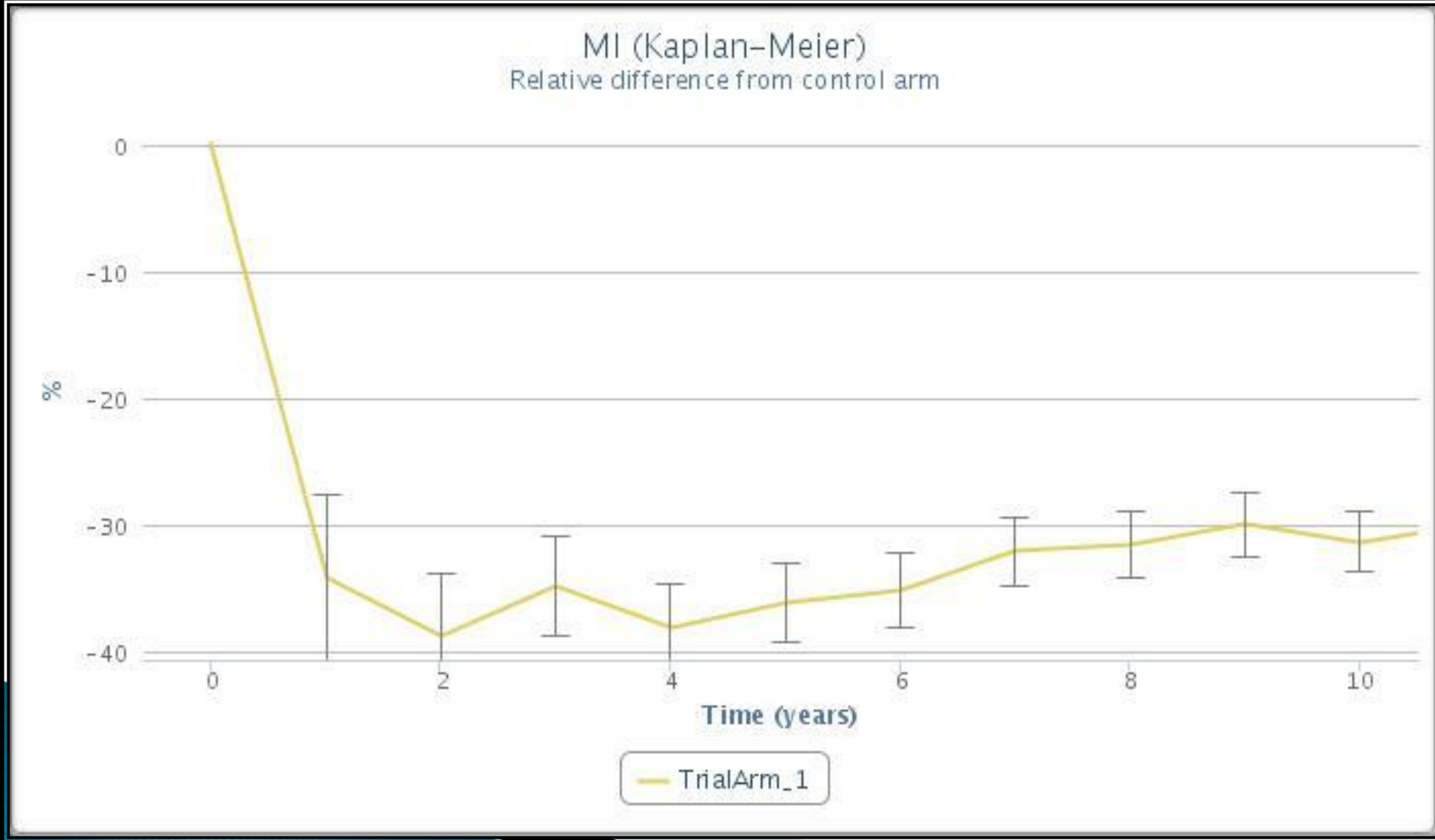
Parameter	Value
Age	64.4
LDL	105.4
BMI	28.2
DBP	74
SBP	131
Weight kg	105
Male	95.9%
GFR	73.9

DM NTT Table with Positive Benefit

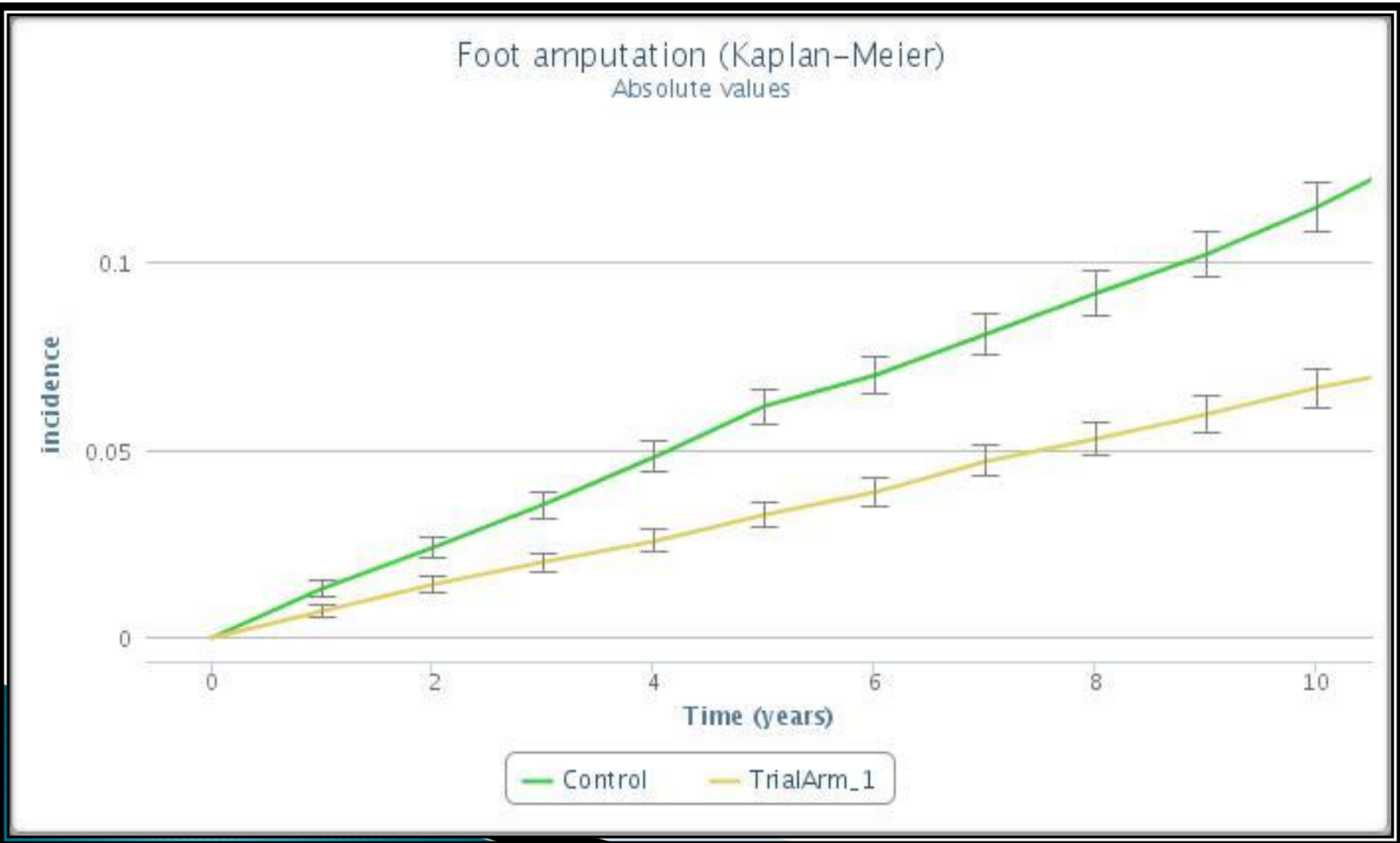
Trial Arm	Size	MI (NNT) 95% CI	CHD death (NNT) 95% CI	CHF (NNT) 95% CI	Acute Heart Failure (NNT) 95% CI	Foot amputation (NNT) 95% CI	Foot ulcer (NNT) 95% CI
Control	10,000	N/A	N/A	N/A	N/A	N/A	N/A
Trial Arm_	10,000	32 (29;36)	214 (146;400)	31 (28;35)	28 (25;31)	35 (31;39)	18 (16;19)

DM Group – MI Absolute Risk Reduction 5% at 10 year

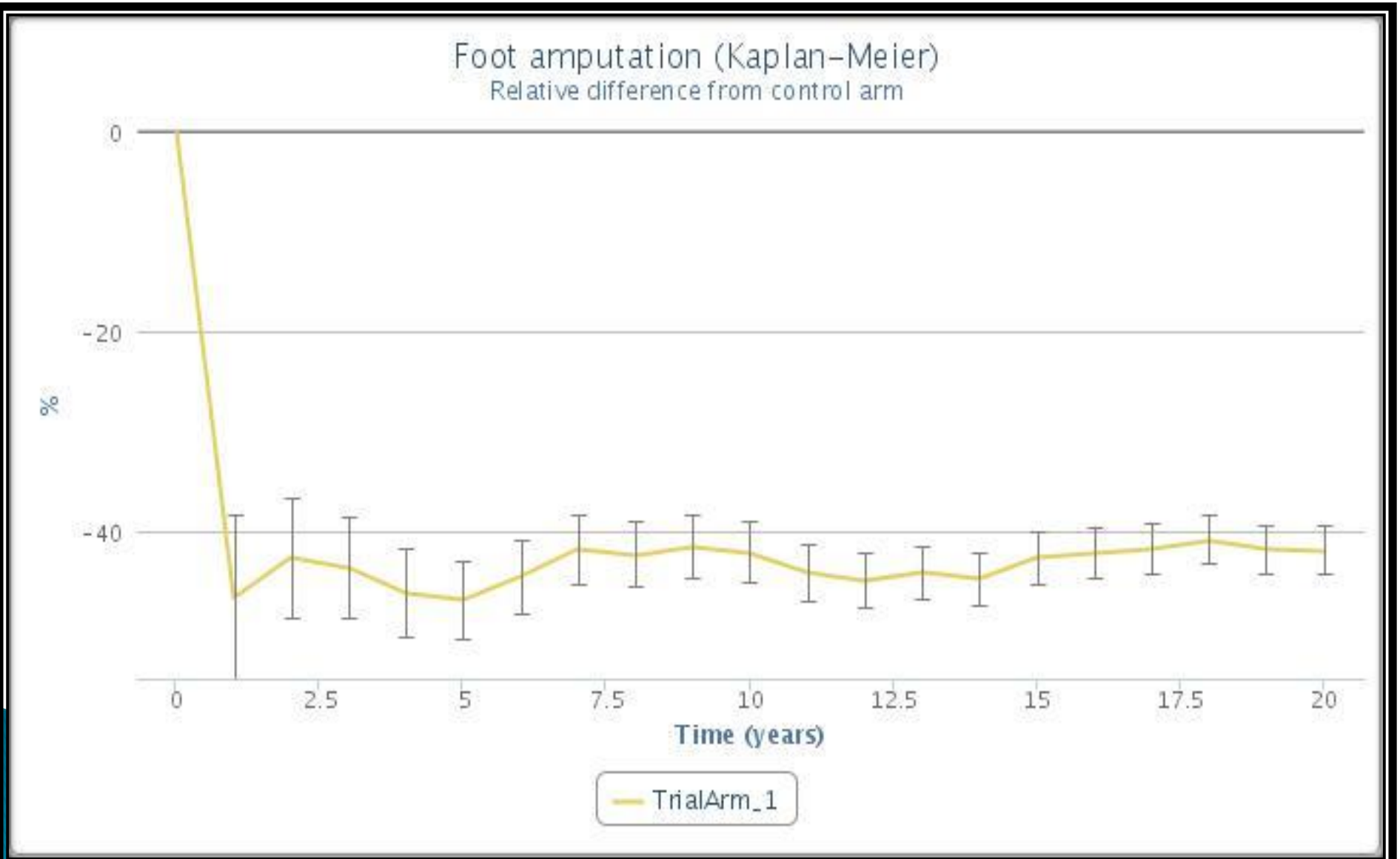
DM Group – MI Relative Risk Reduction 30% over 10 years but starts early



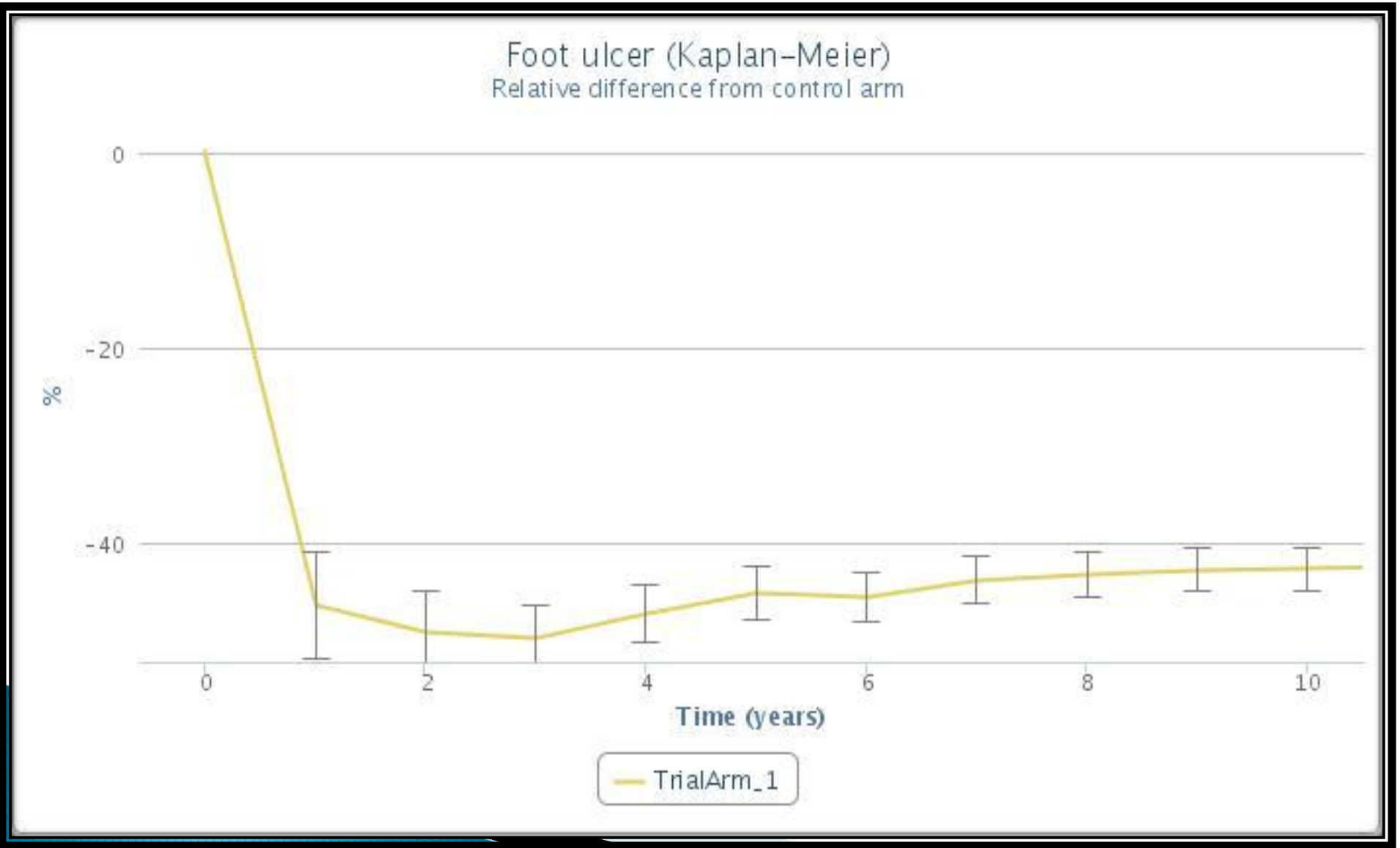
DM Group – Foot Amputation Absolute Risk Reduction 5% over 10 years



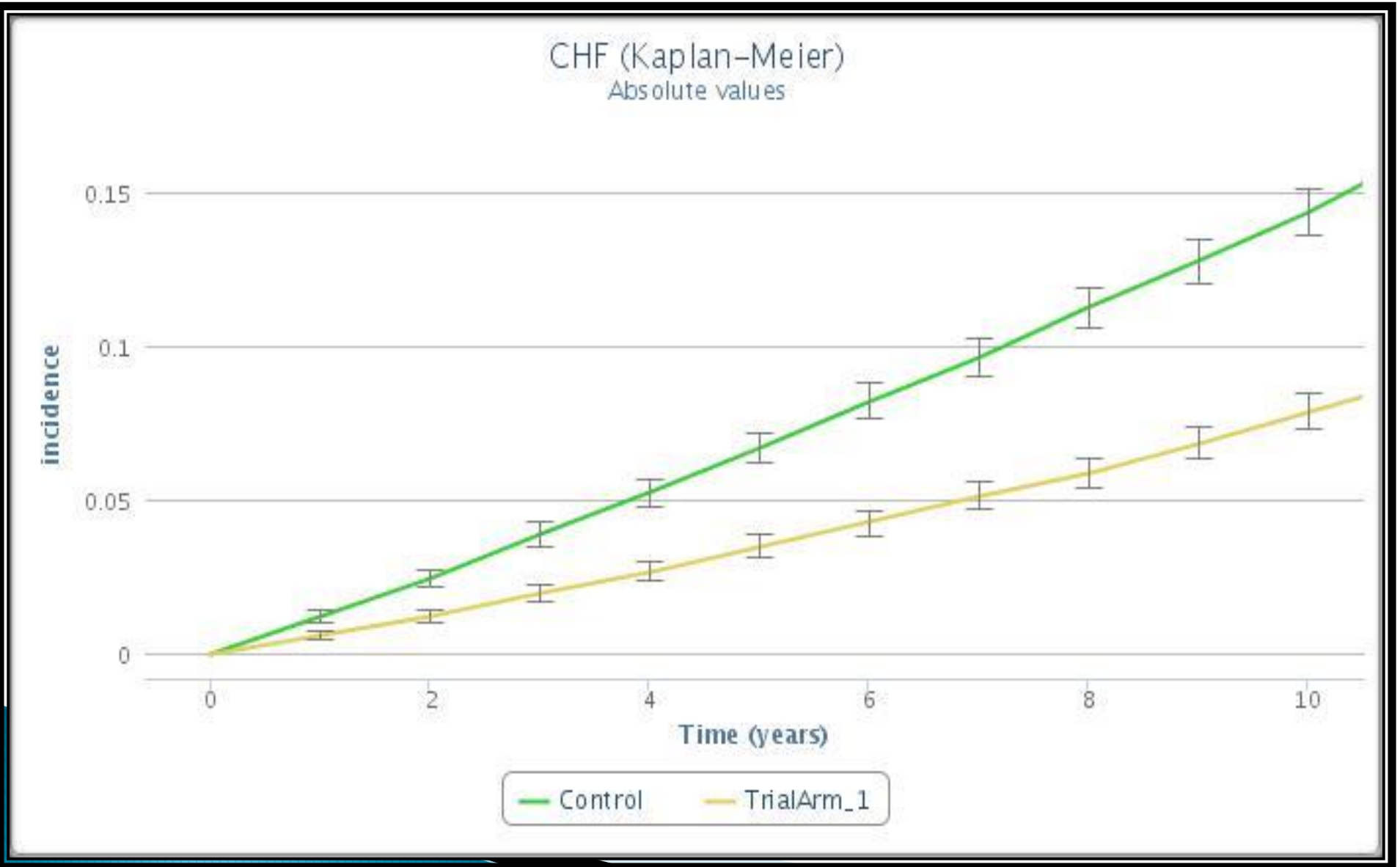
DM Group – Foot Amputation 40% Relative Risk Reduction over 2-20 years



DM Group - Foot Ulceration 40% Relative Risk Reduction over 2- 10 years



DM Group – Heart Failure 7% Absolute Risk Reduction at 10 years



Using NNT's to Calculate Cost Benefit of PhARMD Outcomes

Disease Cohort	Clinical Outcome	NNT	Visits	$Cost/ Visit (Avg cost)	Estimated 2 year Cost /Event*	Benefit/ Cost **
DM	MI	32 (29:36)	2-4	$75-150 ($112)	$30,000	5.5:1
	CHF	31 (28:35)	2-4	$75-$150 ($112)	$40,000	7.6:1
	Foot Amp	35 (31:39)	2-4	$75-$150 ($112)	$81,000	13.8:1
	Foot Ulcer	18 (16:19)	2-4	$75-$150 ($112)	$13,000	4.5:1
	CHD Death	63	2-4	$75-$150 ($112)		Priceless

Calculations for benefit: cost ratio used the max visits, the worst 95% confidence intervals

Ref: Population Health Management Volume 14, Number X 2011
Ref: J Vasc Surg 2010;52:17S-22S
Ref: Diabetes Care 22:382-387, 1999
ref: J Bone Joint Surg Am. 2007 Aug;89(8):1685-92

Aggregate Cost Benefit Analysis of PhARMD Outcomes

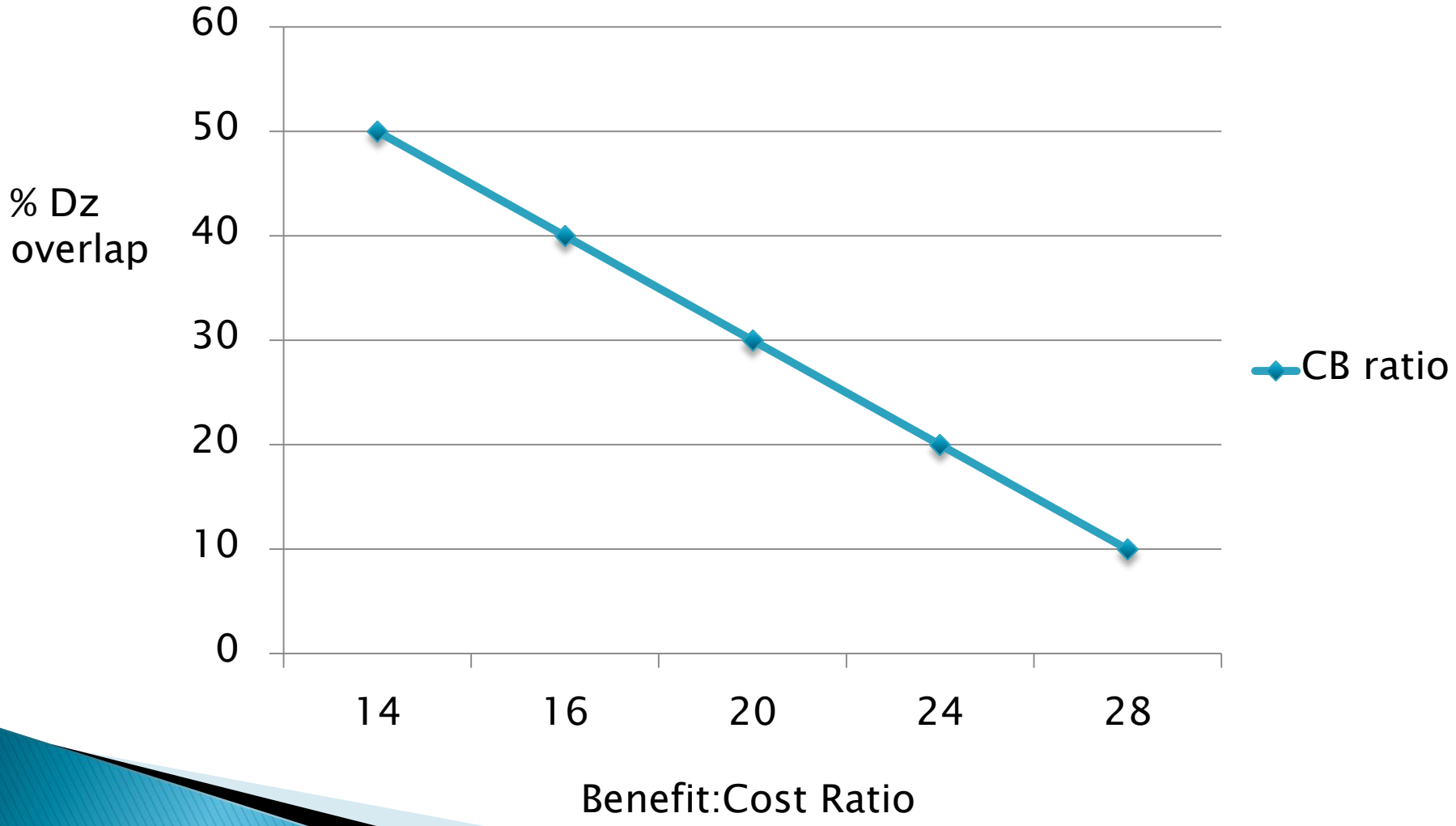
- Important to remember that the described NNT's were achieved during the same 2-4 visits to the Clinical Pharmacist. Therefore Cost benefits of each individual sequela needs to be combined to give true ROI.

Max NNT	Max visits (4)	Cost MI	Cost CHF	Cost Foot Amp	Cost Ulcer	Total $ Benefit	Total Benefit/ cost
39	$150	$30K	$40K	$81K	$13K	$164K	28:1

- Even if one were to double or triple the time and cost of the Pharmacist for these interventions return on investment would exceed $9 for every $1 invested.

- Magnifies the importance of the Pharmacist having a more global scope of practice so they can manage multiple diseases simultaneously!

Sensitivity Analysis Cost Benefit to Co morbidity Overlap



Future Endeavors

Additional analysis of outcomes achieved examining patient variability including demographics and co-morbidities.

Additional analysis of outcome variability based on medications used, training and background of pharmacists and other demographic variables to identify strong practices.

Application of patient complexity and matched control groups of usual care to the economic and outcomes models.

Conclusions

The VA's "PACT" Model has made significant progress since its roll out in mid-2010 with impressive gains in key areas.

In alignment with PCPCC documents there has been widespread application of Clinical Pharmacist in this model to perform Chronic Disease & Medication Management.

Creation and application of data collection and analytical tools are leading to a broad recognition of the benefits of Clinical Pharmacist to health outcomes achieved.

The consistency of outcomes achieved and impressive cost: benefits ratio represents a significant argument for more universal and widespread application of clinical pharmacist with a broad, global scope of practice in the health care system.

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