



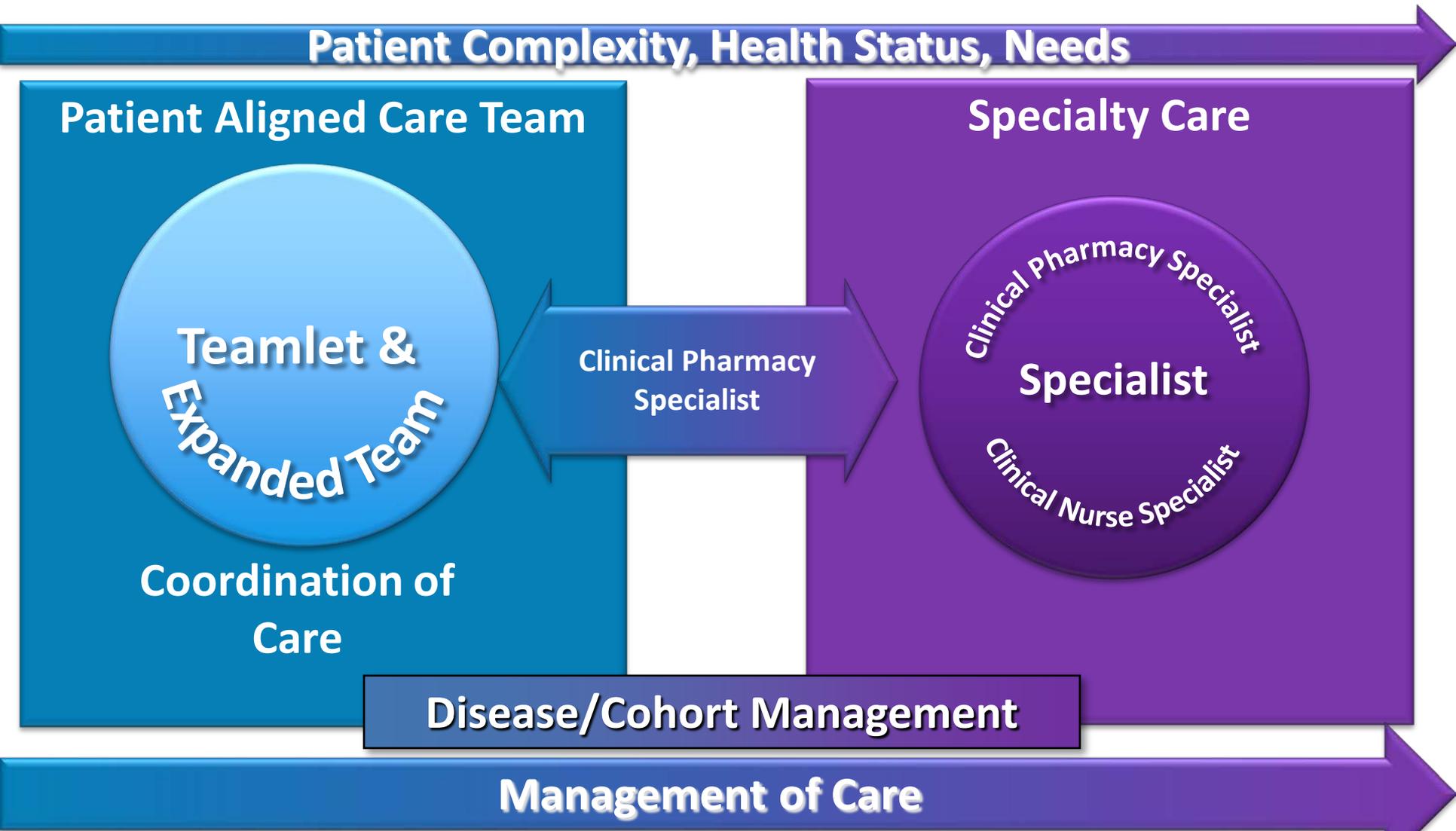
## **Ideas From The Field: Maximizing the Use of the Clinical Pharmacy Specialist**

Anthony P. Morreale, Pharm.D., MBA, BCPS, FASHP  
Assistant Chief Consultant for Clinical Pharmacy Services  
and Healthcare Delivery Services Research  
Pharmacy Benefits Management Services (119)  
Department of Veterans Affairs

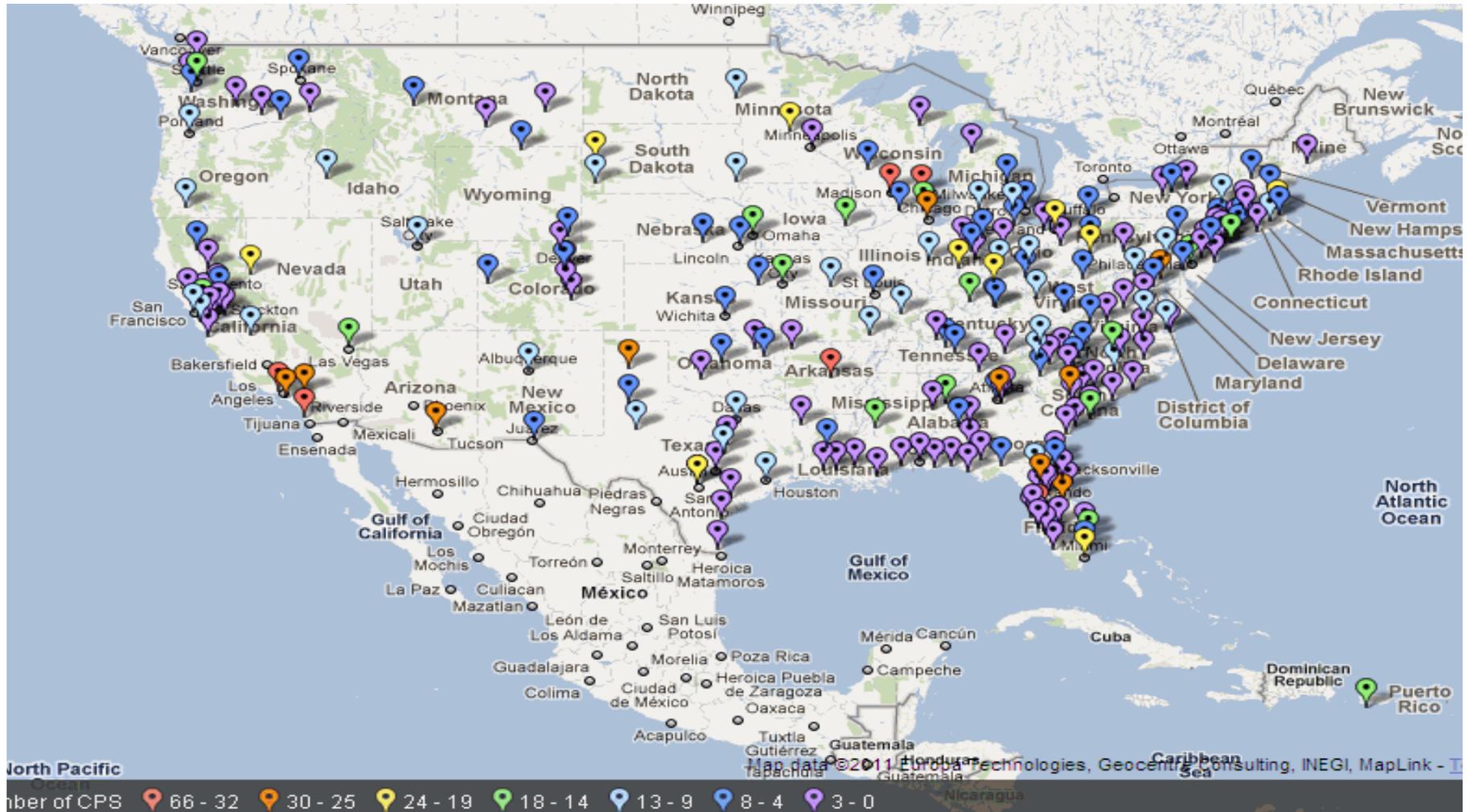
# Move to Medical Home and Role of the Pharmacist

- VA Move to Medical Home Model called Patient Aligned Care Teams (PACT).
- Multidisciplinary collaborative practice model
- Integration of Specialty care, tele-health and Shared Medical
- All professionals are expected to practice at the highest levels of their licenses and pharmacists utilize their knowledge and skills assess patients and optimize therapy.
- In VA, Clinical Pharmacy Specialists have been serving as mid-level non-physician providers since the mid- 1990's. They demonstrated strong outcomes in to provide medication therapy management in both Primary and Specialty Care.

# Clinical Pharmacist Bridging the Gap Between Primary Care and Specialty Care

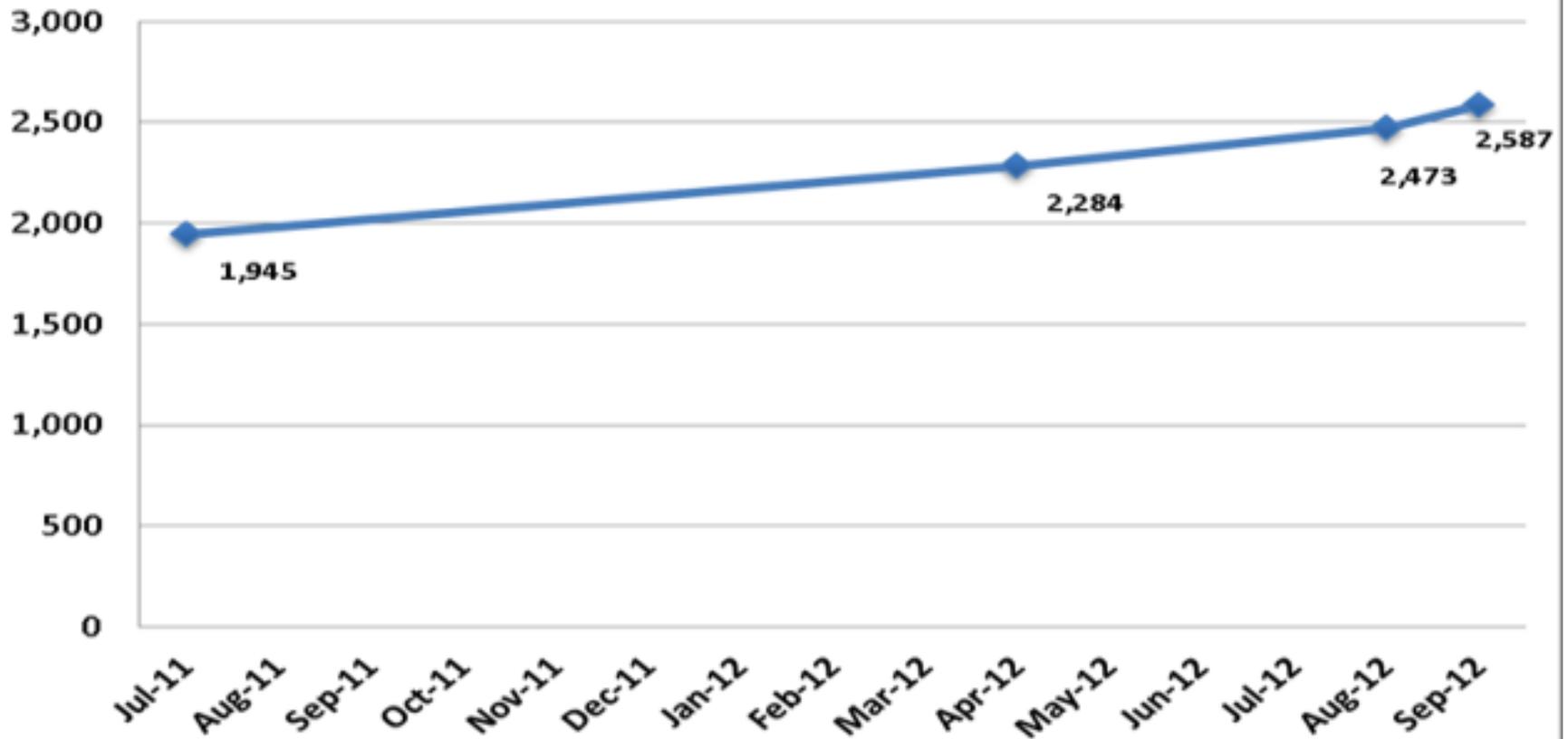


# Pharmacists with a Scope of Practice (2500 of 7400)



# Pharmacist with SOP

## Pharmacists with a Scope of Practice



# System-Wide Clinical Pharmacist Specialists work in many Care Areas as Medication

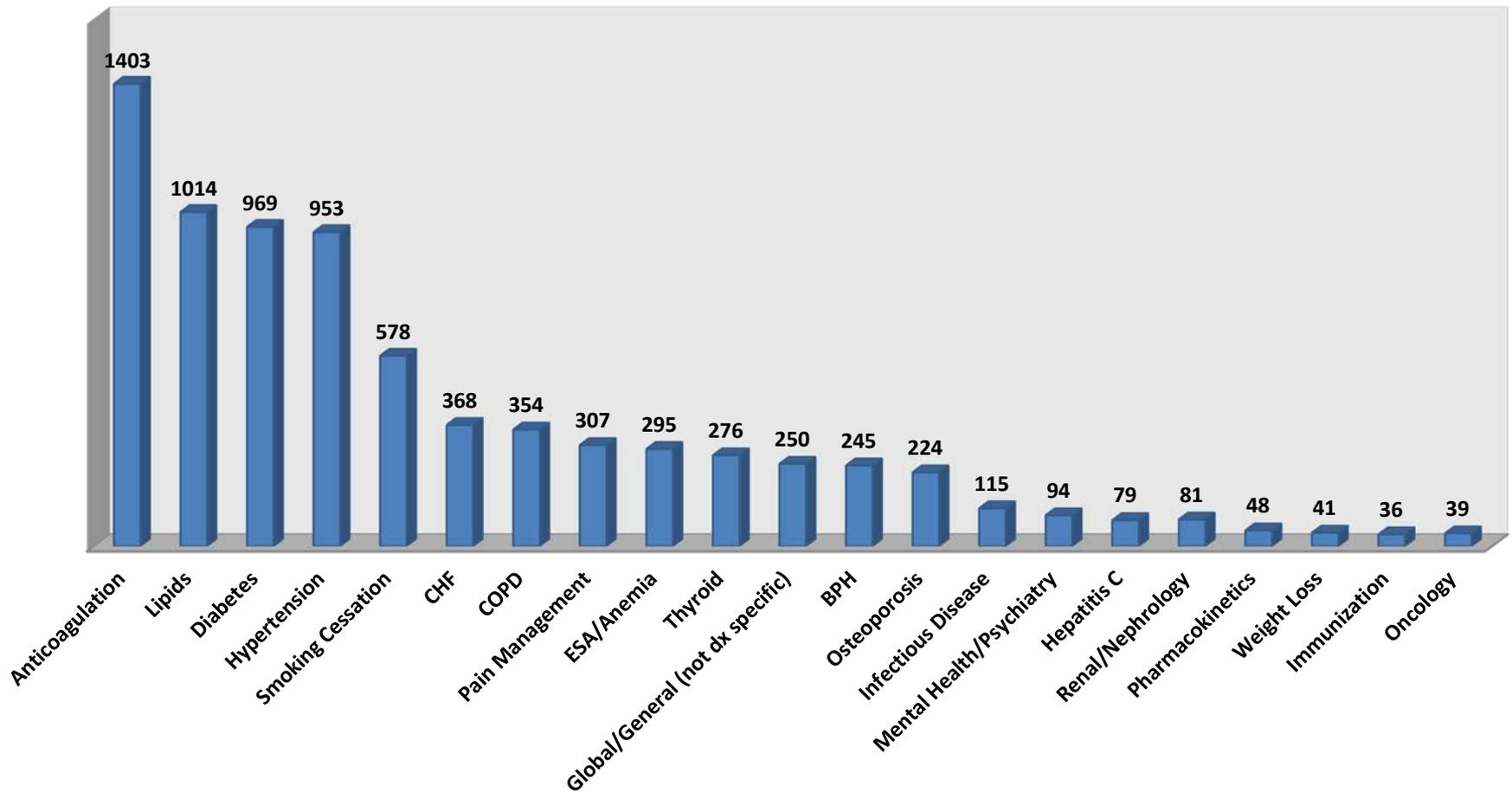
- Infectious Diseases/  
HIV
- Cardiology
- Mental Health
- Substance Abuse
- Smoking Cessation
- Hem-Onc
- Pain Clinic
- Anticoagulation
- Neurology Clinic
- Lipid Clinic
- ESA Clinic
- Community Based  
Clinics-Telemedicine
- Home Based Primary  
Care
- Endocrine Clinic
- Dermatology Clinic
- Pulmonary Clinic
- Renal Clinic
- Heart Failure Clinic
- Hepatitis C Clinic
- Women's Health
- Pulmonary-Critical Care
- Acute Medicine
- Long-Term Care
- Hospice
- Inpatient  
Psychiatry
- ICU
- OR / PACU
- Spinal Cord Injury
- Telephone Based  
Care
- Medication  
Management-  
Primary  
Care

# Demographics of VA Pharmacist

- VHA has approximately 7400 Pharmacist
- Total pharmacists with SOP is just over 2,600 (35%)
- Of These 2600
  - Residency trained = (61%)
  - BPS Certification = (30%)
  - Other Certification = (13%)
  - Residency and/or BPS certification = (67%)
  - Residency and/or BPS and/or Other Certification = (71%)

# Pharmacist SOP by Disease State

# of Pharmacists with SOP

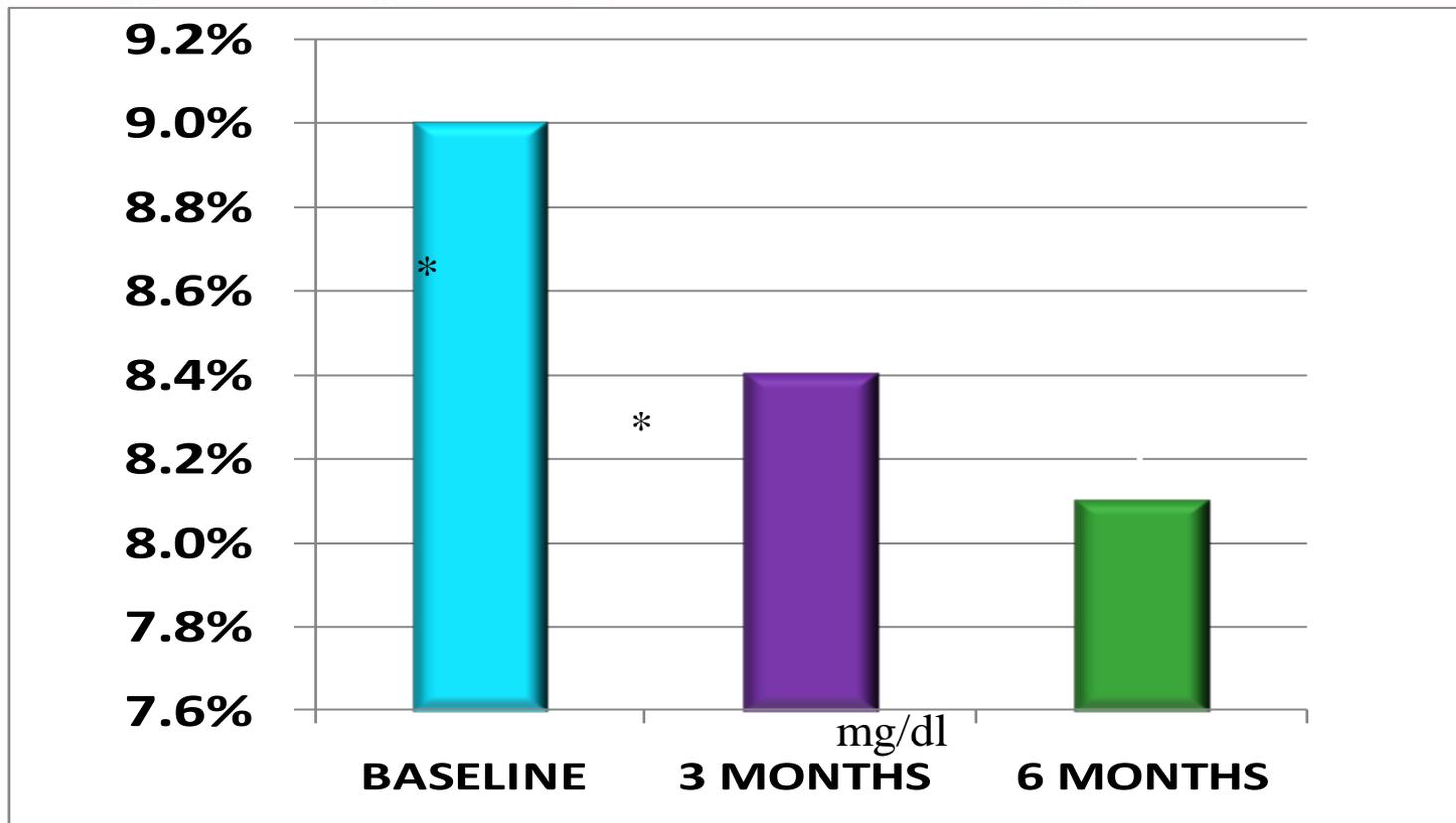


# Pharmacist vs. PCP Managed CV Factors

<b>N= 150</b>	<b>CPS Referral</b>	<b>PCP Alone</b>	<b>P-value</b>
Appropriate Treatment of Hypercholesterolemia	96%	68%	p < 0.0001
Goal LDL values achieved below 105mg/dL	85%	50%	p < 0.0001
Appropriate antiplatelet/anticoagulation therapy prescribed	97%	92%	p = 0.146
Appropriate Therapy with ACE-I or Alternative in those with EF <40%	89%	69%	p < 0.05
Cardiac Events	27	22	p = 0.475

Geber J, Parra D, Beckey NP, Korman L. Optimizing drug therapy in patients with cardiovascular disease: the impact of pharmacist-managed pharmacotherapy clinics in a primary care setting. *Pharmacotherapy*. 2002 Jun;22(6):738-47

# Diabetes Management: Change in Mean Hemoglobin A1C



\*  $p < 0.01$ ;  $n = 42$

Source: Beckey CB, Groppi JA, Lutfi N, et al. Care Coordination/Home Telehealth Program for Veterans with Diabetes Mellitus Type 2 Abstract No: 0509-P . American Diabetes Association 70<sup>th</sup> Scientific Session, Orlando, FL. June 2010

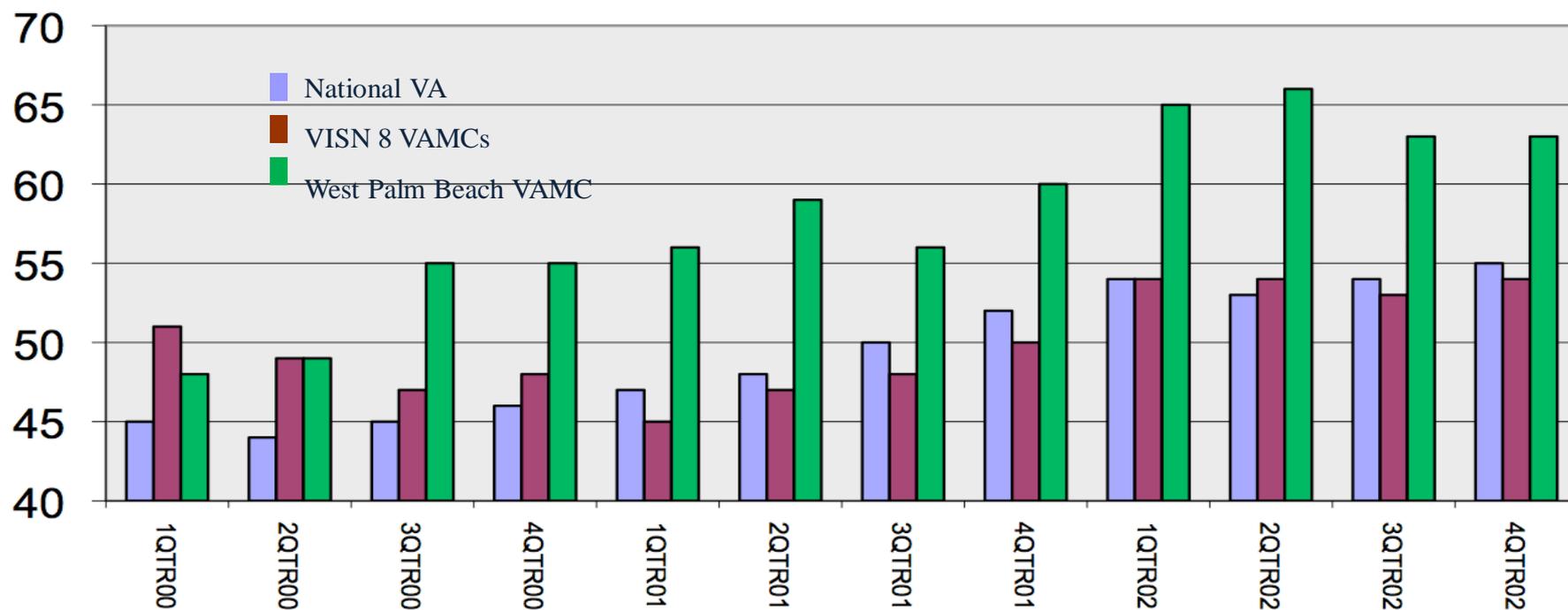
# VA San Diego Diabetes Management Clinic

	Baseline Mean ± SD	3 Months Mean ± SD	Change
Age, yrs	62.1 ± 1.3	NA	NA
HbA1C, %	10.8 ± 1.3	8.4 ± 2.0	- 2.4
FPG, mg/dL	215 ± 82	150 ± 76	-65
Weight, lbs	230.2 ± 53.3	228.8 ± 58.1	- 1.4
BMI, kg/m <sup>2</sup>	32.5 ± 6.7	32.7 ± 8.1	0.2
LDL, mg/dL	92 ± 39	80 ± 28	-12
TG, mg/dL	361 ± 381	257 ± 178	-104
HDL, mg/dL	38 ± 10	36 ± 7	-2
SBP, mmHg	130 ± 16	128 ± 14	-2
DBP, mmHg	71 ± 11	69 ± 12	-2

\*C.Morello June 2010 n=60

# VA West Palm Beach: Collaborative Performance Improvement Initiative within Primary Care and Improved Outcomes

External Peer Review Sampling Data on Achievement of BP  
Goal of < 140/90 in Patients with Hypertension



Beckey N, Parra D, Alvarez I, Coakley R, Rubin D, Beehrle-Hobbs D. The Use Of Provider Profiling To Improve Hypertension Goal Attainment In A Veteran Population. American Society of Hypertension 18<sup>th</sup> Annual Scientific Meeting. New York, NY. May 13-17, 2003

# Evidence: Value of Pharmacists in HCV Care

Cost of SVR in models with a Pharmacist vs. Without<sup>1</sup>: \$33,318 vs. \$38,082

	VA Experience <sup>2</sup>	Literature <sup>3</sup>	Pharmacist Managed HCV Clinics	
			Smith et al <sup>4</sup>	Mariño et al <sup>5</sup>
GT1 SVR	25.9%	35%-46%	60%	48%
GT2/3 SVR	62.3% <sup>1</sup> /54.3%	76%	67%	-
Adherence	-	Goal: 80% of rec dose for 80% of trx duration	No self-reported missing doses	85.7% of doses taken
DC due to ADEs	-	4-9%	7%	4%
Pts unable to complete treatment	40%	-	11%	30%

Marino EL, et al. J Manag Care Pharm. 2009;15:147-150.

Smith JP, et al. Am J Health Syst Pharm. 2007;64:632-636 (VHA).

# Pharmacist Managed ESA Study

Hemoglobin Range	Pharmacist-Managed Clinic (N=1807) n (%)	Usual Care (N=606) n (%)	p-values
< 10 g/dl	349 (19)	127 (21)	0.81
<b>10-12 g/dl</b>	1284 <b>(71)</b>	345 <b>(57)</b>	<0.0001
> 12 g/dl	174 <b>(10)</b>	134 <b>(22)</b>	<0.0001

- CPS use of ESA is safer based on number of patients staying within FDA recommended Hb range of 10-12 (71% vs.. 57%) and the number of Hb that exceeded 12 (10% vs.. 22%)
- CPS followed their patients more closely based on number of Hb and iron studies, which might explain better achievement of Hb goals on lower doses of medications

# Emergency Room

- ED Pharmacy Program was launched on September 4, 2007
- An overview of the results:
  - Total number of interventions documented = 9,568
  - Total number of interventions associated with correcting medication orders = 1,984 (20.7%)
  - Total number of interventions associated with preventing or documenting drug allergies and ADRs = 185 (1.9%)
  - Total number of medication reconciliation encounters documented = 7,598
  - Average time spent per encounter = 5.08 ( $\pm$  3.47) minutes
  - Average number of new prescriptions for which patients received counseling = 1.92 ( $\pm$  1.29)
  - An estimated 7% (668) of the interventions resulted in prevention of serious patient harm which translated into a cost avoidance of \$845,592

# 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!

# Health Factors Created

## Health factors for major disease states managed

1	PHARM HTN TX INTERVENTION MADE
2	PHARM HTN NONPHARM INTERVENTION MADE
3	PHARM HTN TX AT GOAL
4	PHARM DIABETES TX INTERVENTION MADE
5	PHARM DIABETES NONPHARM INTERVENTION MADE
6	PHARM DIABETES TX AT GOAL
7	PHARM LIPID INTERVENTION MADE
8	PHARM HTN NONPHARM INTERVENTION MADE
9	PHARM LIPIDS TX AT GOAL
10	PHARM HF TX INTERVENTION MADE
11	PHARM HF NONPHARM INTERVENTION MADE
12	PHARM HEART FAILURE TX AT GOAL

## Health factors for additional pharmacotherapy interventions

1	PHARM-ADJUST DOSAGE OR FREQUENCY
2	PHARM-COMPLIANCE/ADHERENCE ADDRESSED
3	PHARM-CONTRAINDICATION TO MED MGMT
4	PHARM-DRUG INTERACTION
5	PHARM-DRUG NOT INDICATED
6	PHARM-DUPLICATION OF THERAPY
7	PHARM-MEDICATION EDUCATION
8	PHARM-NON-FORMULARY REVIEW/CONVERSION
9	PHARM-PREVENT OR MANAGE DRUG ALLERGY
10	PHARM-PREVENT/MANAGE ADV DRUG EVENT
11	PHARM-UNTREATED DIAGNOSIS

# PBM PhARMD Project

## Metrics Created

### Reports Available:

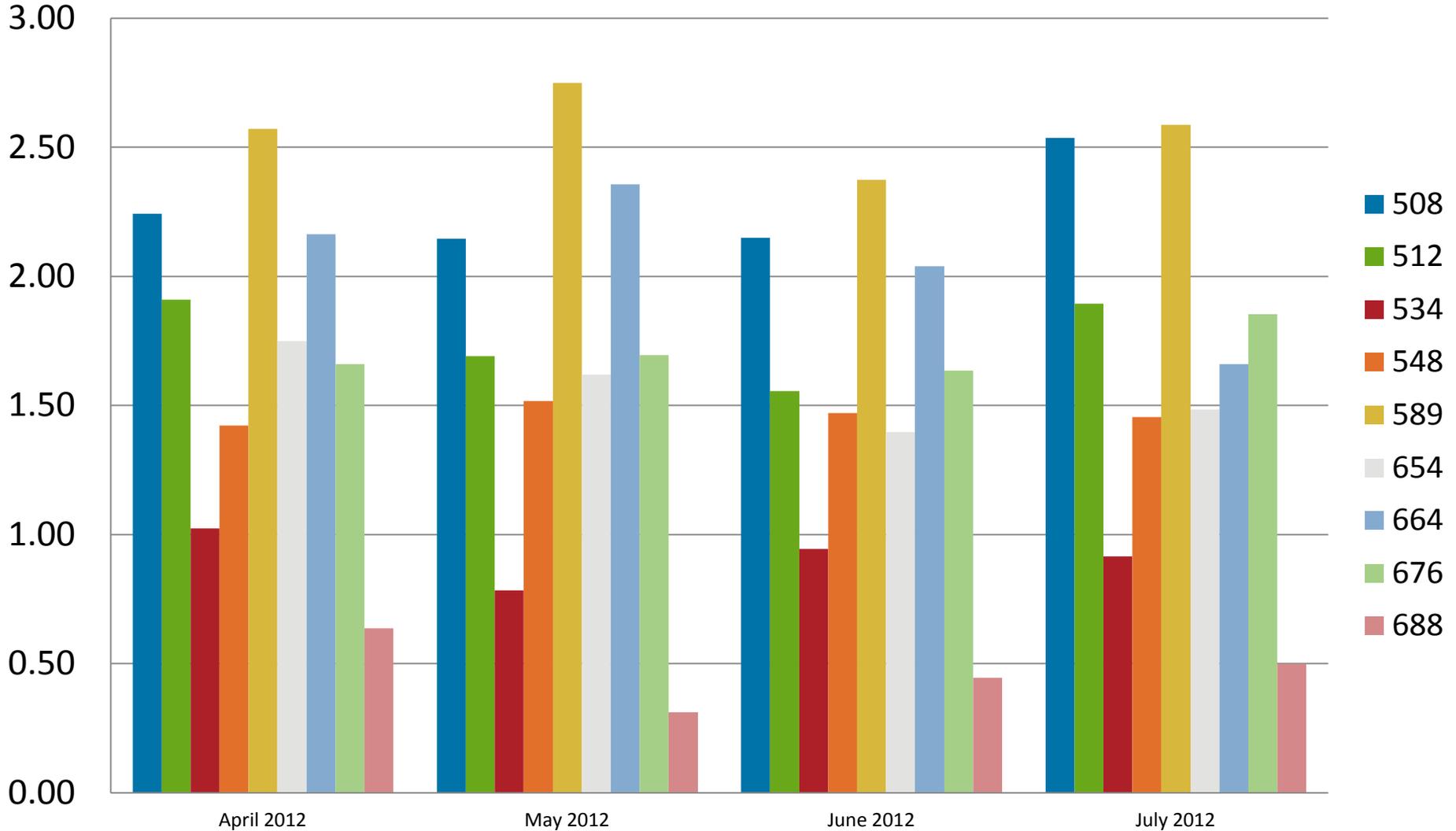
- Total Number of Disease state Interventions per Clinical Pharmacy Specialist (CPS)
- Total Number of Additional Pharmacotherapy Interventions per Clinical Pharmacy Specialist (CPS)
- Average number of interventions per CPS visit
- Cost avoidance associated with specific pharmacotherapy interventions

### Reports in Progress:

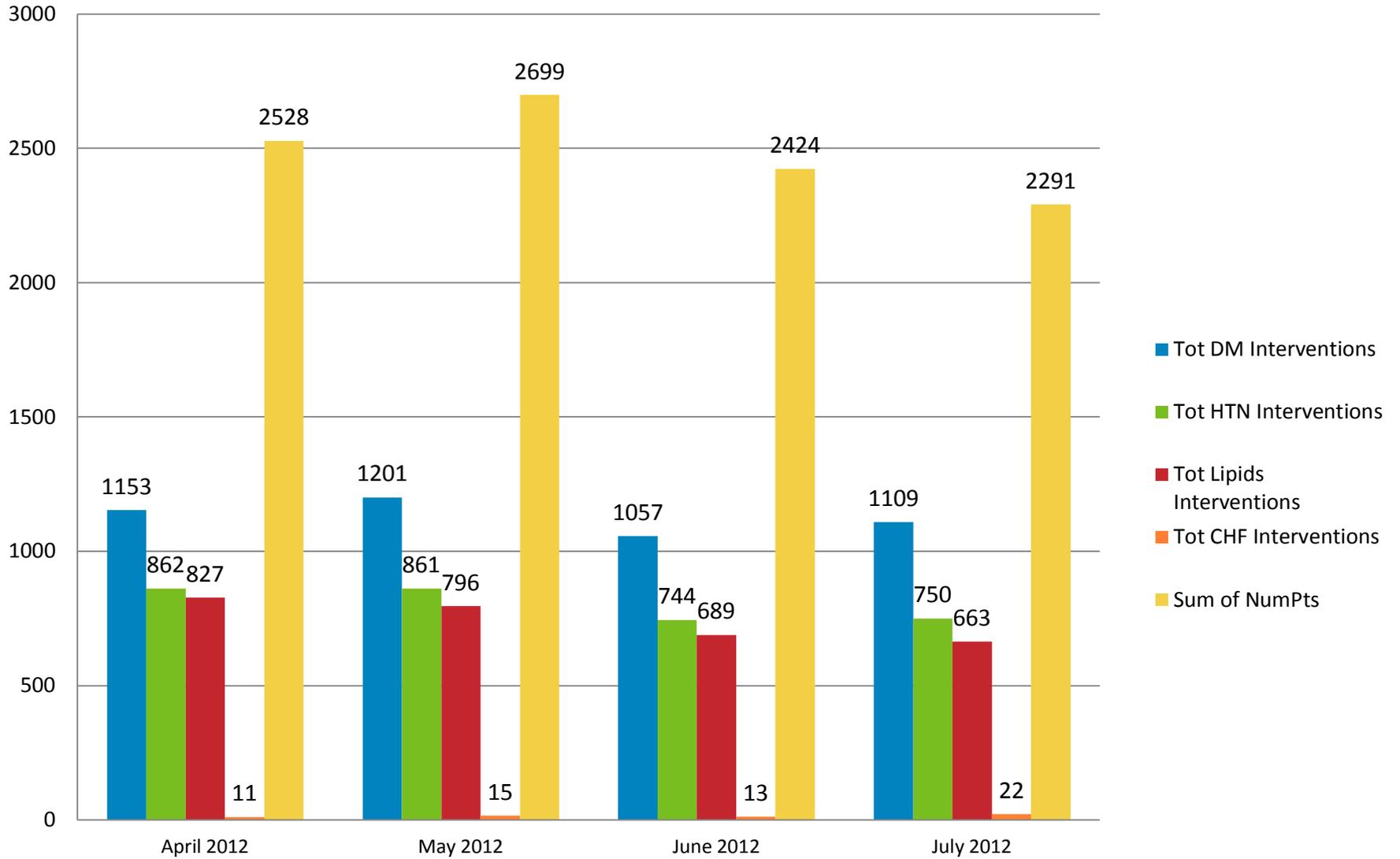
- Number of CPS visits to achieve goal (by disease state)-
- Number of days to achieve goal (by disease state)
- Number (%) of patients at goal per CPS
- Cost of disease state specific medications per CPS

# PBM PhARMD Project Expansion Pilot

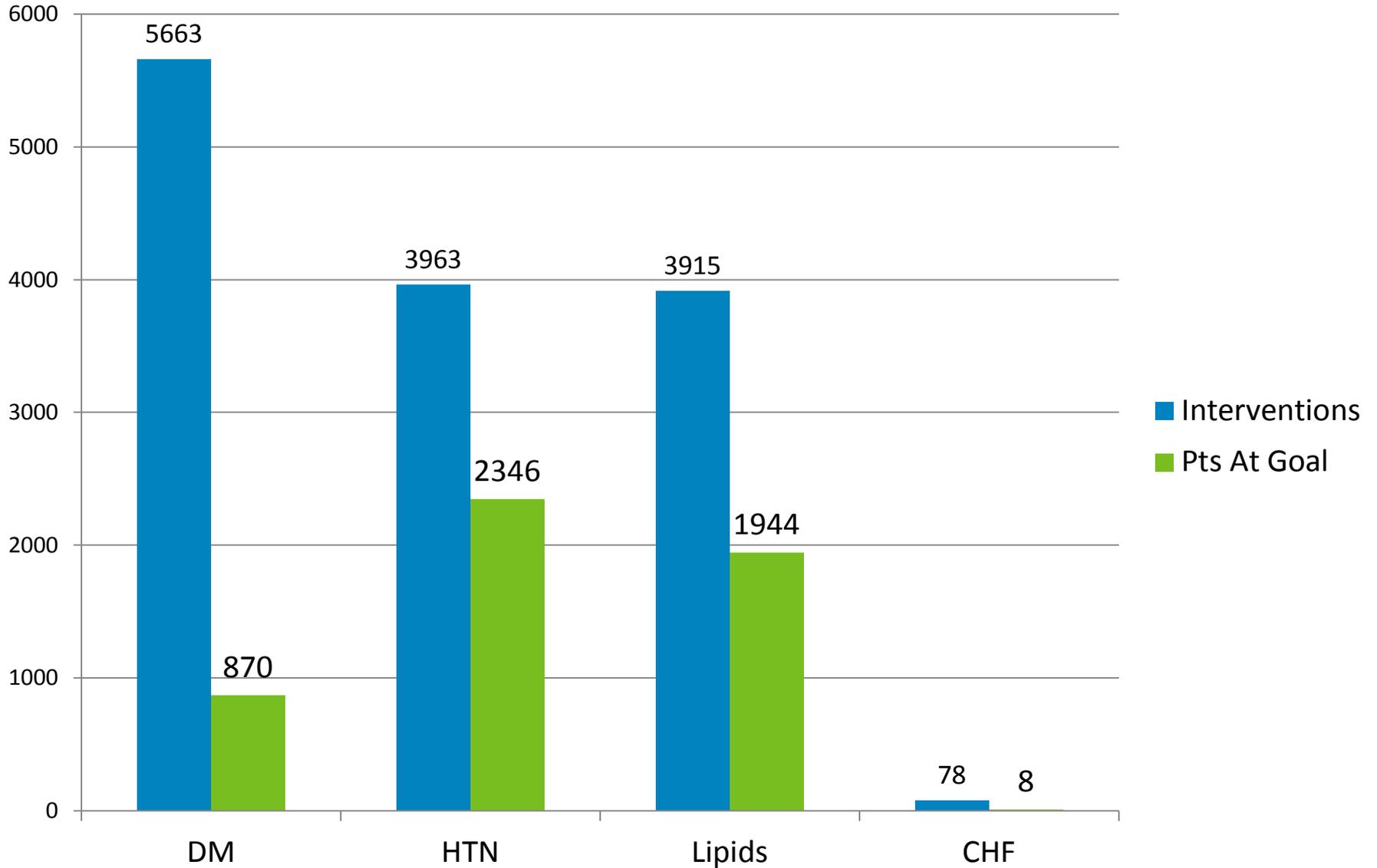
## Avg CPS Interventions Per Visit



## Total CPS Disease State Interventions Medication and Nonpharmacologic

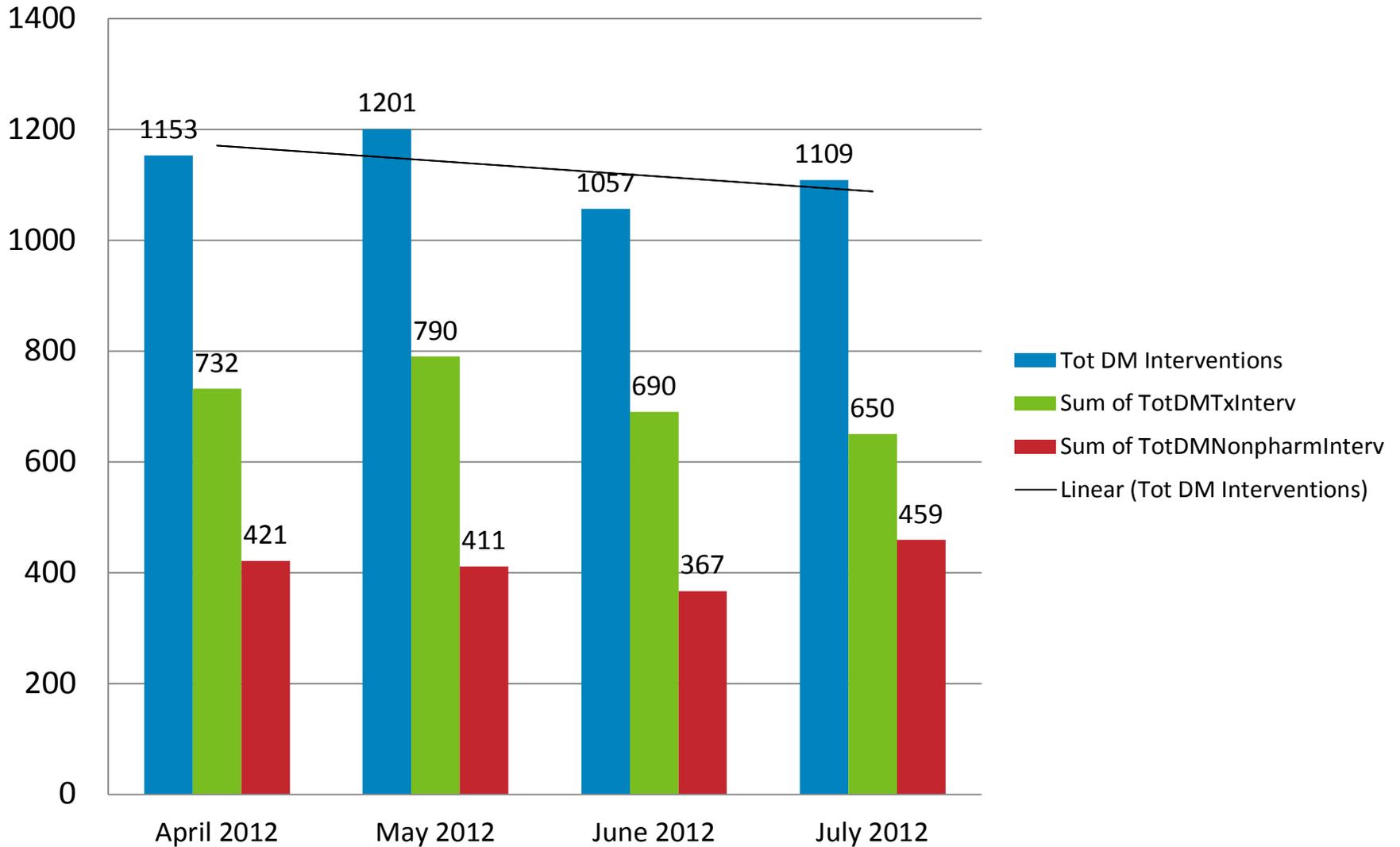


# CPS Total Disease State Interventions\* and Patients At Goal



# Total CPS Diabetes Interventions

Includes Total DM Interventions, Medication and Nonpharmacologic Interventions Made



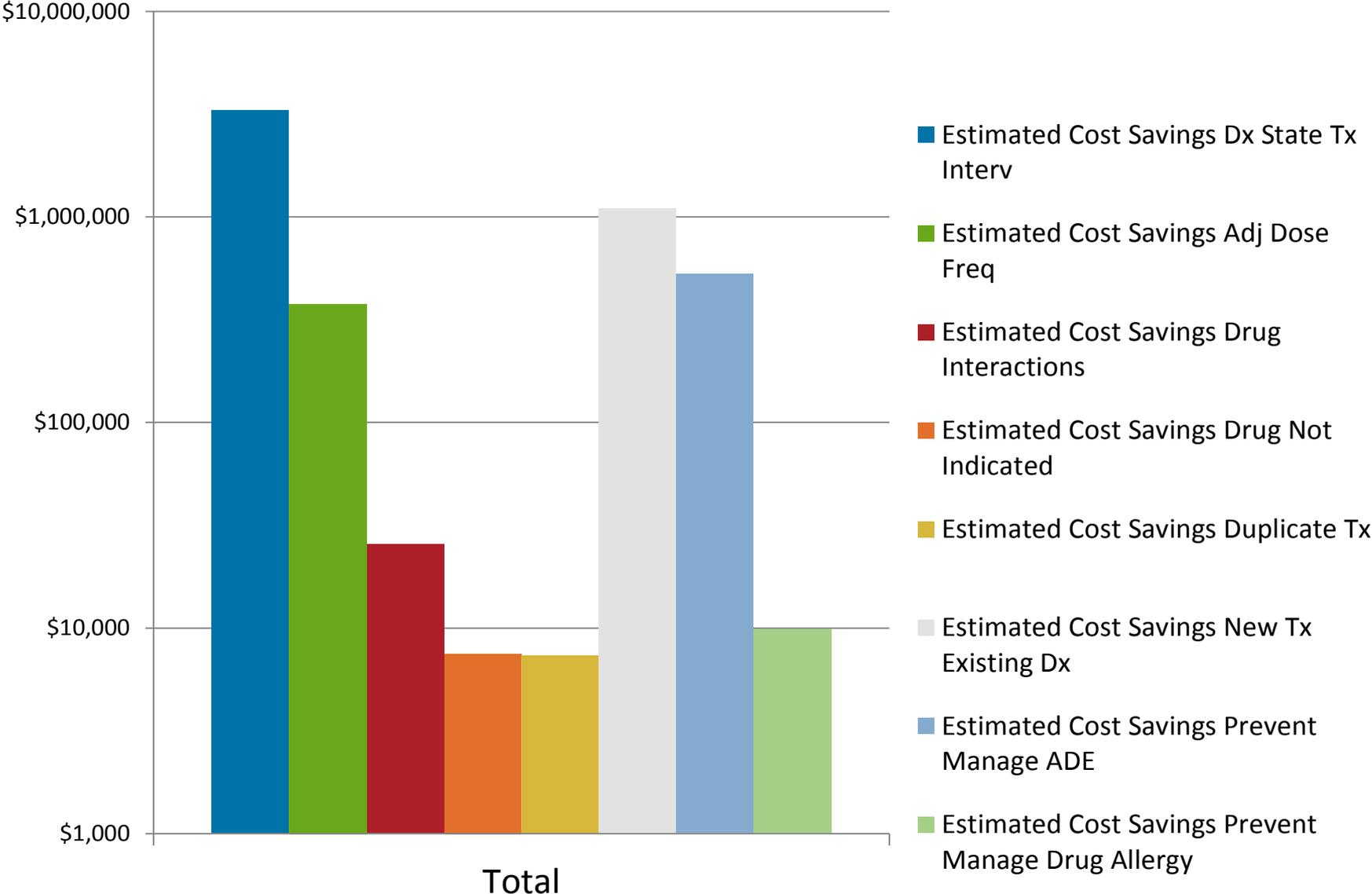
# Linking Cost Avoidance to CPS Interventions

Lee AJ, Boro MS, Knapp KK, Meier JL, Korman NE. Clinical and economic outcomes of pharmacist recommendations in a Veterans Affairs medical center. *Am J Health-Syst Pharm* 2002;59:2070-2077

Intervention – OP Setting	Avg Cost Avoided per Intervention	Adj Avg Cost Avoided per Intervention	Corresponding Health Factor (PharmD)
Drug Interaction	\$317.00	\$398.97	PBM PHARMD DRUG INTERACTION
Prevent or manage drug allergy	\$230.00	\$289.48	PBM PHARMD PREVENT/MANAGE DRUG ALLERGY
Adjust dosage or frequency	\$289.00	\$363.73	PBM PHARMD ADJUST DOSE OR FREQUENCY PBM PHARMD HTN TX INTERVENTION PBM PHARMD DM TYPE I TX INTERVENTION PBM PHARMD DM TYPE II TX INTERVENTION PBM PHARMD CHF TX INTERVENTION PBM PHARMD LIPIDS TX INTERVENTION
Untreated diagnosis	\$1,479.00	\$1,861.46	PBM PHARMD NEW TX FOR EXISTING DIAGNOSIS
Prevent or manage adverse drug event	\$536.00	\$674.61	PBM PHARMD PREVENT/MANAGE ADE
Drug not indicated	\$73.00	\$91.88	PBM PHARMD DRUG NOT INDICATED
Duplication of therapy	\$135.00	\$169.91	PBM PHARMD DUPLICATION OF TX

# PBM PhARMD Project Expansion Pilot

## Total Estimated Cost Avoidance



# PBM PhARMD Project

## Future Implications for Use

- Use of tool nationally has multiple implications for the profession of pharmacy and practice within VHA

Opportunities include:

- ✓ National Benchmarking of pharmacy interventions and outcomes
- ✓ National, VISN and Local Cost justification of new and existing pharmacists
- ✓ Comparison of pharmacy interventions in VHA to other healthcare organizations
- ✓ Use in OPPE process for Scope of Practice
- ✓ Creation of Clinical Pharmacy Staffing tools and models
- ✓ Identification of best practices for more rapid sharing of information
- ✓ Identification in potential gaps in care that may exist at facilities

## Further Inquiry

Anthony P. Morreale, Pharm.D., MBA, BCPS, FASHP  
Assistant Chief Consultant for Clinical Pharmacy Services  
and Healthcare Delivery Services Research  
Pharmacy Benefits Management Services (119)  
Department of Veterans Affairs

[Anthony.morreale@va.gov](mailto:Anthony.morreale@va.gov)

858 232-6761