



**MEDICATION THERAPY
MANAGEMENT SERVICES
PROVIDED BY PHARMACISTS
AND STUDENT PHARMACISTS
IN AMBULATORY CARE
CLINICS**

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All research presented is IRB
approved

UCDMC Pharmacists in the Clinic:

- Family Practice HBC Pharmacist clinic
 - One Pharmacist in clinic 1 day per week
 - Average~ 10 patients per month
 - Use 1 student and 1 resident
 - Visits ~1 hour each
- Internal Medicine HBC Clinic
 - 1 day per week for Hypertension
 - ½ day for MTM
 - 2-4 visits per day for anticoagulation
- Manage 2,200 anticoagulation patients for all clinics
 - Refills for 184 physicians



Study I Objectives

2008-2009

- *Primary:*
 - To evaluate and characterize the types of interventions provided by pharmacists, resident pharmacists, and student pharmacists within and beyond existing protocols
- *Secondary:*
 - To determine the severity of problems identified and significance of interventions as rated by pharmacists and physician

Figure 2. Breakdown of Interventions

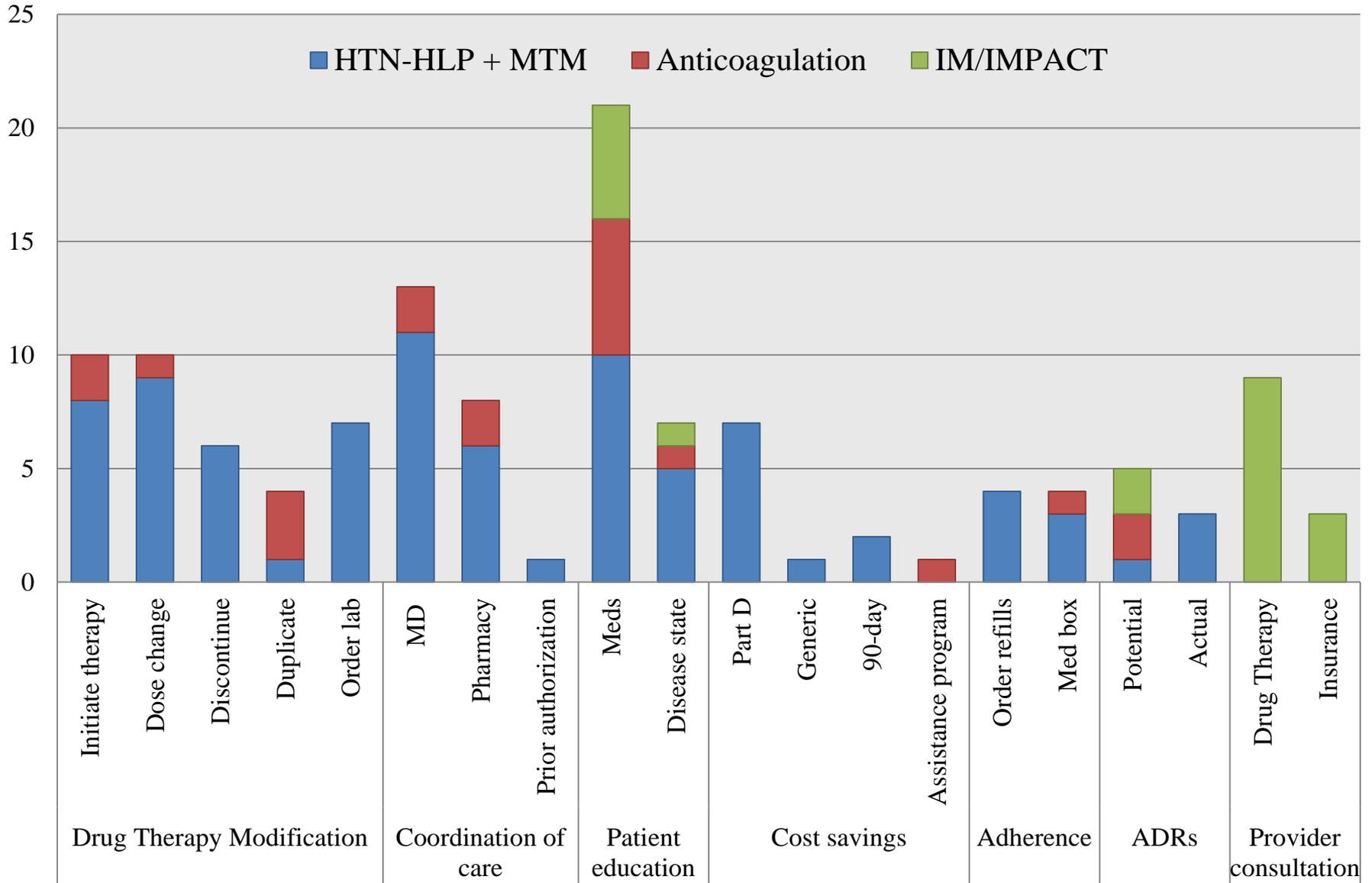
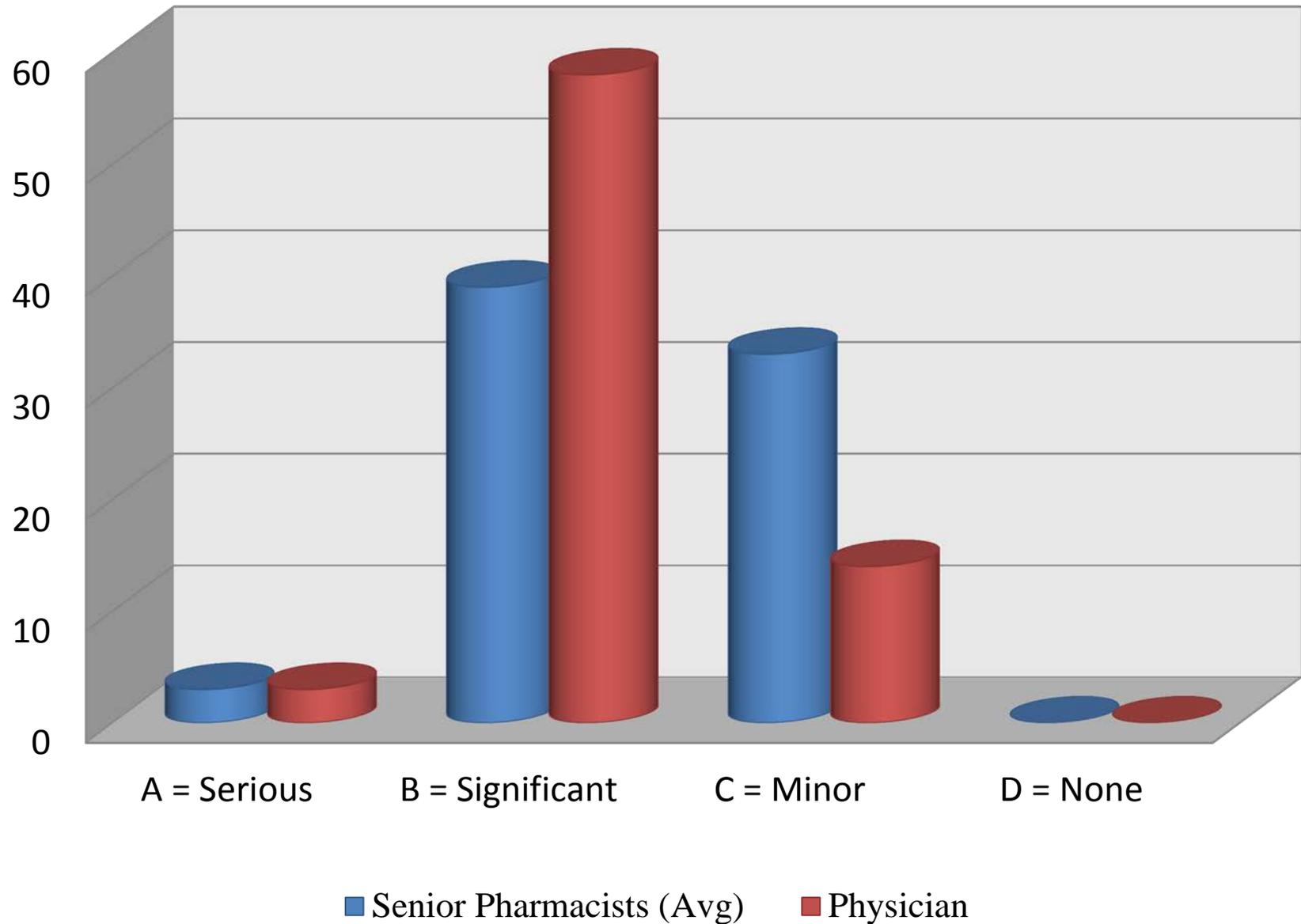


Figure 3. Severity Ratings of Problems Identified





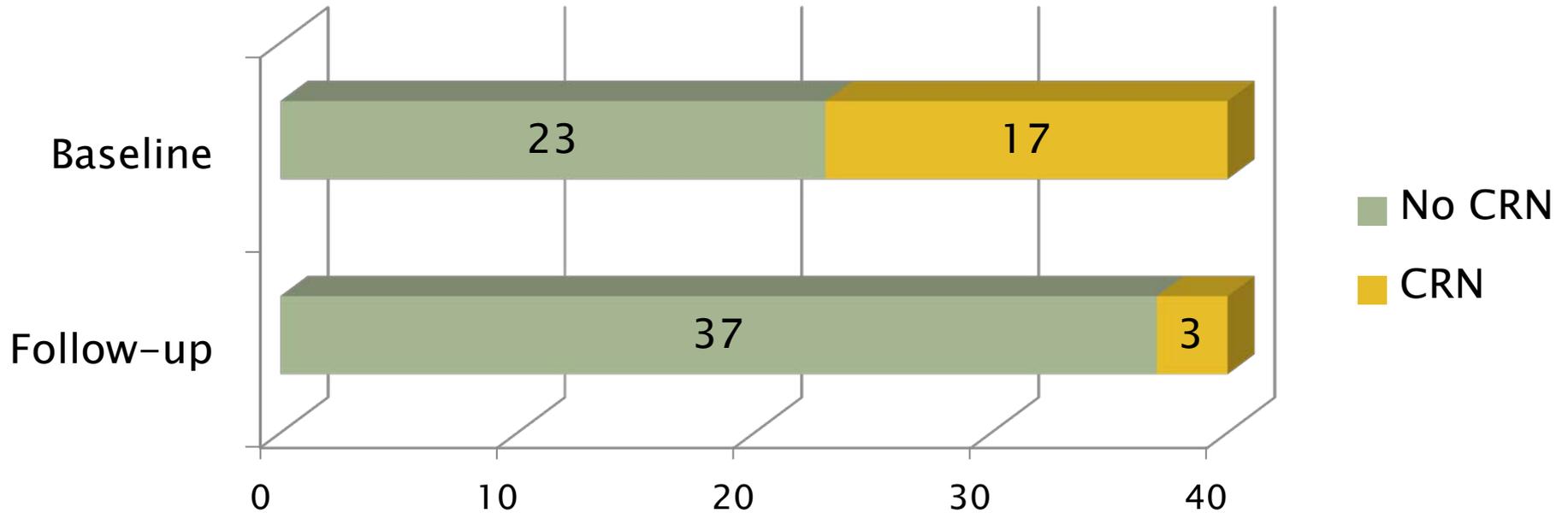
Study II Objectives

2009-2010

- Primary objective
 - Determine the rates of self-reported CRN prior to and after pharmacist-directed interventions

- Secondary objectives
 - Identify cost savings for patients who report CRN compared to patients who did not
 - Identify types of interventions

Self-reported CRN



	Baseline	CRN Resolved at Follow-up	P value
CRN group	17	14 (82%)	<0.001



Drug Costs for 2010 Cost Savings by Group

	Pre-intervention Plan	Post-intervention Plan	Potential Cost Savings
Minimum	\$18	\$18	0
Median	\$1,681	\$730	\$353*
Maximum	\$17,657	\$14,598	\$12,373

*P value <0.001, 95% CI (256,737)

Study III: Pharmacist Managed Cardiovascular Clinic 2011

- Aim: To improve the management of blood pressure, hyperlipidemia, and laboratory monitoring in patients with diabetes
- Timeline: January 2011-December 2011
- Clinic Involvement:
 - Hospital Based Clinics (IM and FP)
 - PCN's: Roseville, Carmichael, Capitol, and Auburn (Bell and Professional)
- Resources:
 - 60% pharmacist FTE
 - 10% LVN
 - 10% MOSC
 - 5% Analyst

Patients Enrolled in Program

- 77 total patients seen
 - 210 total visits
 - Ave 2.7 visits per patient
 - Range: 1-8
 - Median: 1-2 visits

Results: Average blood pressure

Included patients N=40	First appointment		Last appointment		Difference	
	SBP	DBP	SBP	DBP	SBP	DBP
≤139 N=4	133	81	124	77	-9	-4
140-159 N=22	149	83	140	79	-9	-4
≥160 N=14	170	90	145	77	-26	-13

SBP – systolic blood pressure [mmHg]
DBP – diastolic blood pressure [mmHg]

Pharmacists \$upport?

- Studies show ROI 12:1, average of 5:1 (US \$)
- Closed systems can easily justify costs/pharmacists already embedded
 - VA (expanding)
 - Kaiser
 - Group Health (3 publications showing value of team to health system)
- UCDCMC is not a closed system, FFS is a big part of business
- Anticoagulation and refill services support most of our FTE's

UCDMC Challenges:

- Pharmacists cost too much
- Value exists but sustainability is in question
 - ROI exists, but what if it is not enough?
 - Satisfaction is very high, but what if it is not enough?
 - Funding to date based on Anticoagulation, Refill support and grants (~\$400,000)
- Can pharmacists bill for services?
 - Pharmacists can bill technical fees in Hospital Based Clinics
 - IM/FP Clinic receives reimbursement for pharmacist time
 - Other clinics may allow pharmacists to be credentialed and bill for services

UCDMC Specific Billing Information:

- Bill hospital technical fees CPT's: 99211-99215
 - CPT 99214: Level 4 visit
 - Fee is determined by facility and billed under attending of the day
 - 90% of visits are billed at level 4
 - “Amount billed is close to amount physician bills for visit”
 - Average reimbursement for ONLY pharmacist services (no labs, other activities/charges):
 - ~30%/visit (Range 0-65%)