Pharmacist-Physician Collaborative Medication Therapy Management Services (MTMS)

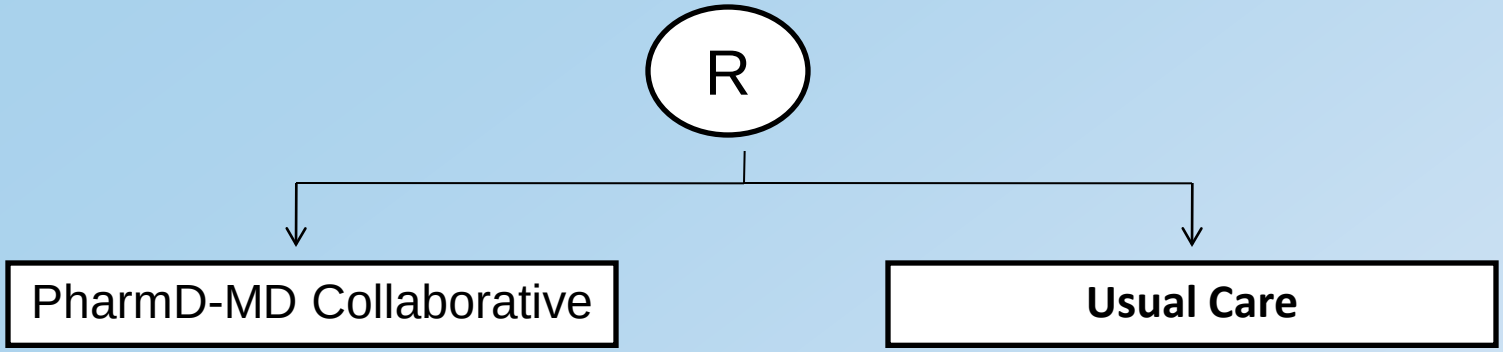
PI: Jan Hirsch, RPh, PhD

Carol M. Mangione, MD, MSPH
Barbara A. Levey and Gerald S. Levey Endowed Chair in Medicine and Public Health
UCLA

UC San Diego
SKAGGS SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES

Specific Aims

1. Compare change in systolic and diastolic blood pressure between groups at 6 and 9 months.
2. Evaluate MTMS model
   a. number and type of medication changes
   b. number and type of drug therapy problems identified and resolved
   c. patient satisfaction
   d. medication and medical resource utilization
   e. return on investment (ROI)
3. Explore possible markers to target patients most likely to have high benefit vs. cost ratio for future pharmacist MTMS.
4. Interpret clinical, economic and humanistic outcomes from 3 stakeholder perspectives (Medical Group, Health Plan, Patient).
   a. Stakeholder Interpretation Group



- Internal Medicine Group – UCSD
- Registry to identify HTN patients "not at goal" (>140/90 (or >130/80 with diabetes)
- PharmD (residency trained) two ½ day sessions per week
- Collaborative Practice Protocol – pharmacist a separate visit
- MTMS activities:
  - drug therapy initiation and monitoring
  - medication dosage adjustments
  - physical assessment (BP, height, weight)
  - laboratory test review/order
  - patient education
- Clinic visits and follow-up phone calls
  - Initial, 3,6 and 9 month visits & as needed
  - Intent: limited time period for intensive medication management

Patients

Inclusion criteria:

Age 18 or over

1. Diagnosis of hypertension with most recent BP≥140/90 mmHg (ICD9code 401.xx) or BP≥130/80 mmHg if patient also has diabetes
2. Currently treated with at least one anti-hypertensive medication
3. Continuous active patient of the clinic for at least the past 6 months
4. English speaking and able to complete questionnaires in English

Actions (n=95)

Patients with a drug therapy problem identified % (n)	46.3% (44)
Type of drug therapy problem % (n) of 48 problems	
Need for additional therapy	41.7% (20)
Drug dose too low	25.0% (12)
Non-adherence to therapy	18.8% (9)
Adverse drug reaction	8.0% (4)
Patients with a *medication change* at initial visit % (n)	34.7% (33)
Patients with type of change made % (n) of 21 w/ change	
Added Medication	30.6% (11)
Increased Dose	44.4% (16)
Decreased Dose	11.1% (4)
Changed Medication	11.1% (4)

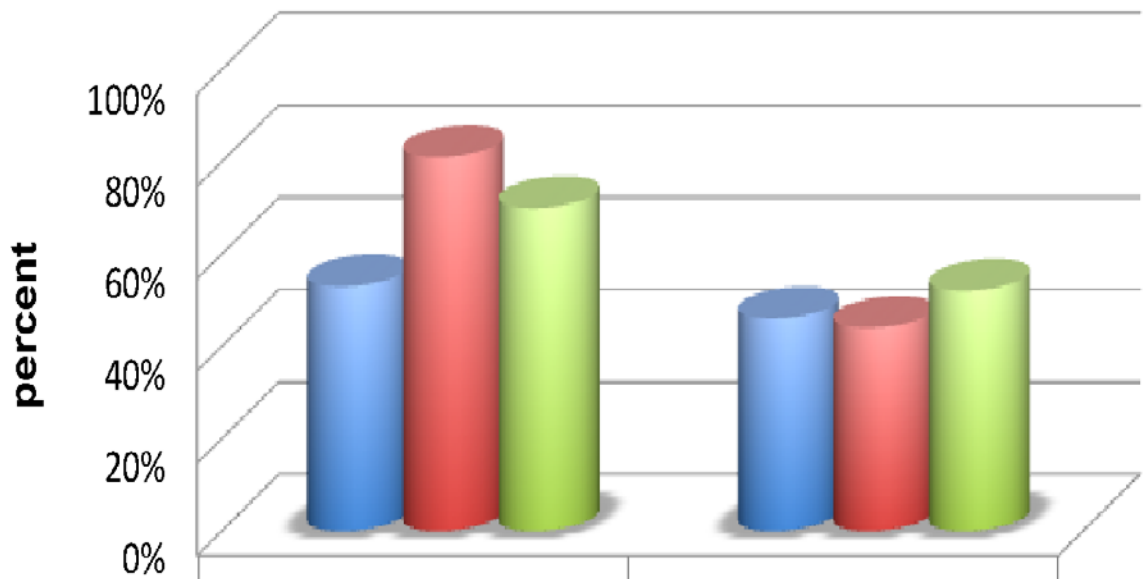
Baseline Descriptors

Groups comparable at baseline, except MTMS group slightly younger and fewer males.

mean(SD)	MTMS (n=76)	Usual Care (n=91)	Significance p value
Age	65.4 (13.0)	69.6 (11.4)	0.03
Male %(n)	32% (24)	53% (48)	0.005
Systolic BP (mmHg)	134.8 (17.4)	134.4 (16.5)	0.89
Diastolic BP (mmHg)	75.1 (12.5)	75.7 (13.4)	0.75
HDL (mg/DL)	59.7 (23.6)	58.1 (22.3)	0.65
LDL (mg/DL)	99.5 (31.9)	98.6 (31.0)	0.85
HbA1c (%)	6.6 (1.2)	6.5 (1.5)	0.85

% with Blood Pressure “in Control”

MTM: n=75 (BL), 74 (6mos), 71 (9mos)
Comparator: n=89 (BL), 91 (6mos), 91 (9mos)



	MTM	Usual Care
Baseline	53%	46%
6 months	81%	44%
9 months	70%	52%

p values between groups: BL=0.35, 6 mos=<0.001, 9 mos=0.02
“In control” <140/90 or <130/80 if had diabetes

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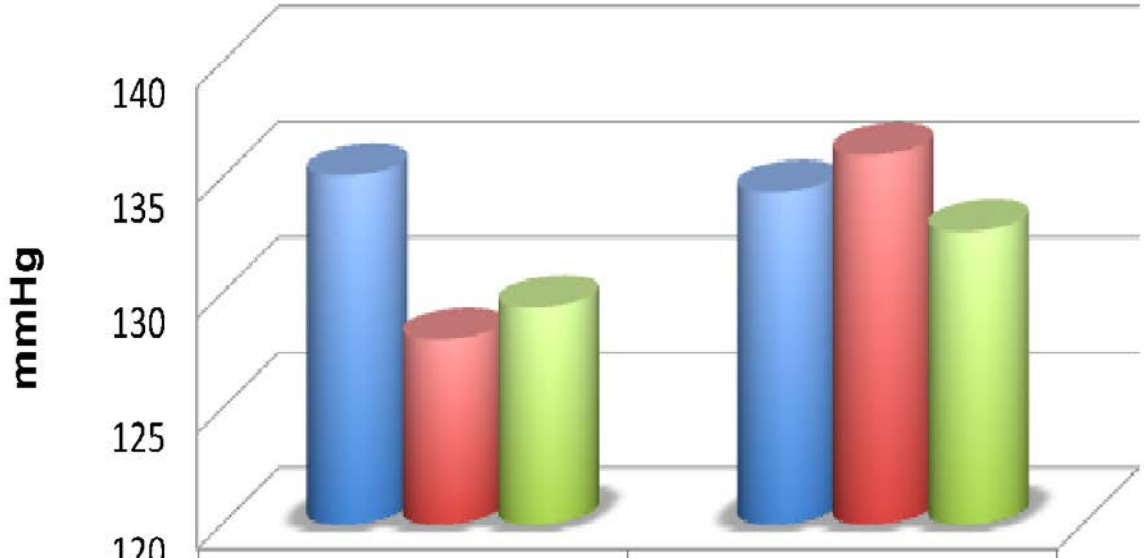
Change in Systolic Blood Pressure

MTM: n=74 (BL), 74 (6mos), 71 (9mos)
Comparator: n=89 (BL), 89 (6mos), 89 (9mos)

Average change mean(SD)	MTM	Usual Care	P value
BL to 6 mos	-7.1 (19.4)	+1.6 (21.0)	0.008
BL to 9 mos	-5.2 (16.9)	-1.7 (17.7)	0.22



	MTM	Usual Care
Baseline	135.1	134.4
6 months	128	136
9 months	129.4	132.7

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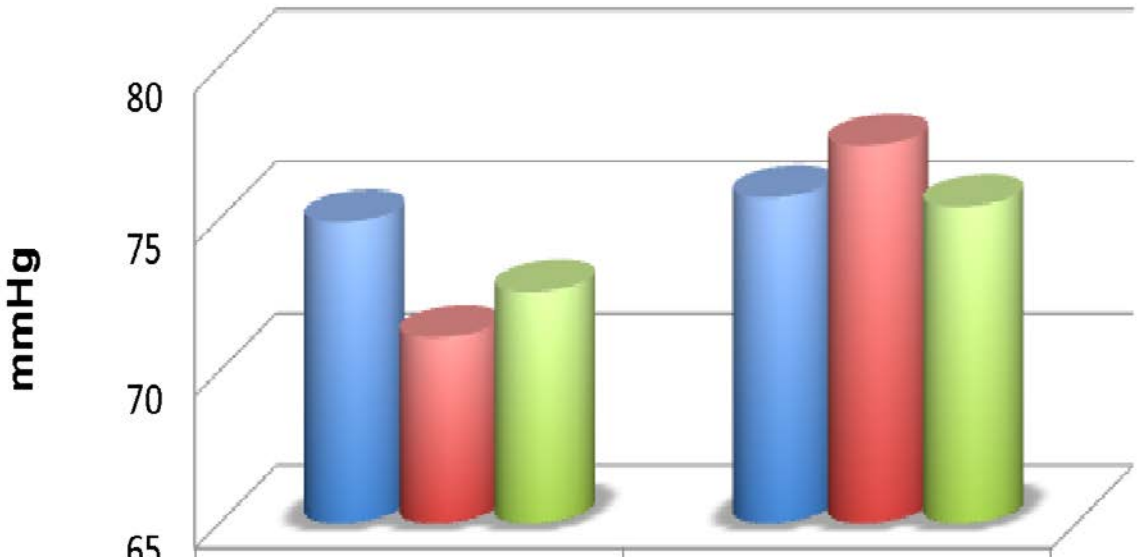
Change in Diastolic Blood Pressure

MTM: n=74 (BL), 74 (6mos), 71 (9mos)
Comparator: n=89 (BL), 89 (6mos), 89 (9mos)

Average change mean(SD)	MTM	Usual Care	P value
BL to 6 mos	-3.8 (10.5)	+1.7 (13.9)	0.006
BL to 9 mos	-2.5 (10.2)	-0.3 (13.8)	0.27



	MTM	Usual Care
Baseline	74.9	75.7
6 months	71.1	77.4
9 months	72.6	75.4

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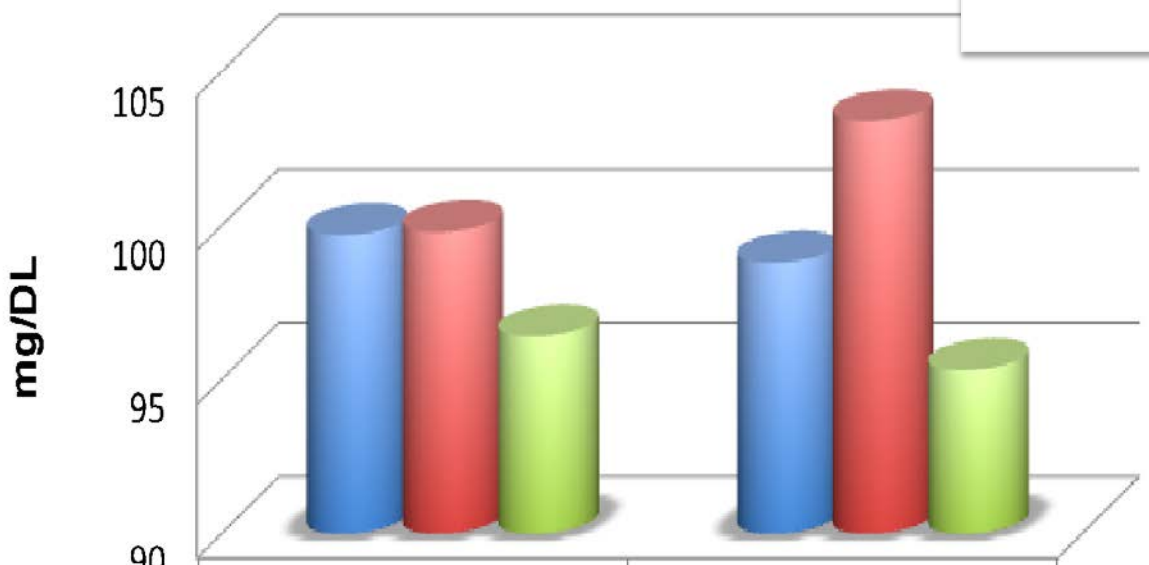
Change in LDL

MTM: n=73 (BL), 73 (6mos), 69 (9mos)
Comparator: n=85 (BL), 85 (6mos), 88 (9mos)

Average change mean(SD)	MTM	Usual Care	P value
BL to 6 mos	0.1 (19.9)	4.6 (24.1)	0.21
BL to 9 mos	-3.5 (26.3)	-3.1 (41.9)	0.95



	MTM	Usual Care
Baseline	99.7	98.8
6 months	99.8	103.4
9 months	96.4	95.3

At 9 months 18 pts (24%) of MTM group had returned to PCP.
No longer in MTMS clinic

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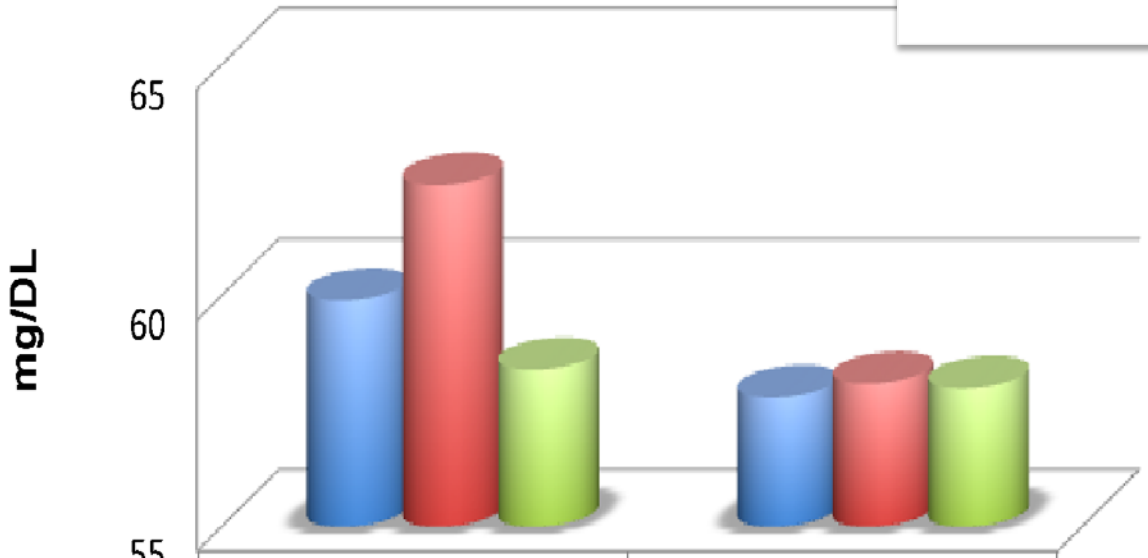
Change in HDL

MTM: n=74 (BL), 74 (6mos), 70 (9mos)
Comparator: n=86 (BL), 86 (6mos), 84 (9mos)

Average change mean(SD)	MTM	Usual Care	P value
BL to 6 mos	2.4 (28.3)	0.3 (11.5)	0.54
BL to 9 mos	-1.0 (20.4)	0.4 (20.9)	0.67



	MTM	Usual Care
Baseline	59.9	57.8
6 months	62.4	58.1
9 months	58.4	58

At 9 months 18 pts (24%) of MTM group had returned to PCP.
No longer in MTMS clinic

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Conclusion and Next Steps

- MTM vs. Usual Care group
  - Greater % patients at BP goal 6 and 9 months
    - Despite half of each group at goal initial visit
  - Mean SBP and DBP lower at 6 months
    - At 9 months 24% of MTM group had returned to PCP
- Differences have clinical significance
  - Reduction of 10 mmHg systolic or 5 mmHg diastolic, = 22% reduction in CHD events and 41% reduction in stroke*
- Next Evaluate the MTM model: similar to Ralphs
  - Type of medication changes, drug therapy problems identified and resolved
  - Patient satisfaction, medication and medical resource utilization
  - Return on investment (ROI)

* Law MR, Morris JK, Wald NJ. Use of blood pressure lowering drugs in the prevention of cardiovascular disease: meta-analysis of 147 randomised trials in the context of expectations from prospective epidemiological studies. BMJ 2009;338:b1665