



911

What's Your Medication Emergency?



Victoria Reinhartz, PharmD, CPh
Chief Executive Officer
MIH Academy
Mobile Health Consultants

Interim Executive Director
National Association of
Mobile Integrated Healthcare Providers



CPE Information

iCARE Pharmacy Services, Inc. is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. This is an ACPE application-based* and knowledge-based activity.

This activity offers 1.5 contact hours (0.15 CEU).

- Target Audience: Pharmacists, Pharmacy Technicians, Consultant Pharmacists
- UAN: 0675-0000-23-005-L04-P*
- UAN: 0675-0000-23-006-L04-T
- Activity Type:
 - Knowledge – Transmit Facts
 - Application* – Apply Information

Pharmacist Objectives



Identify the impact of medication related problems on 911 calls, hospitalizations, and cost of care

Interpret pilot studies evaluating pharmacist-paramedic partnerships to minimize medication risks

Evaluate the medication related problems most likely to be impacted in underserved populations and those frequently calling 911

Apply concepts to complex patient case scenarios, illustrating utility in optimizing care for underserved patient populations

Technician Objectives

T = Technician



Identify the impact of medication related problems on 911 calls, hospitalizations, and cost of care

Interpret pilot studies evaluating pharmacist-paramedic partnerships to minimize medication risks

Understand which medication related problems are most likely to be impacted through innovative interprofessional practice

Apply concepts to complex patient case scenarios, illustrating utility in optimizing care for underserved patient populations

When People Hear I'm a Pharmacist in Mobile Integrated Health & Community Paramedicine



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What is Community Paramedicine?



Community Paramedicine is a segment of **Mobile Integrated Healthcare** that is a provider-led, patient-centered delivery care model using appropriately trained Emergency Medical Service (EMS) clinicians in an expanded role to render care, facilitate a more efficient delivery of care, and enhance access to community resources that address the social determinants of health.

What is Mobile Integrated Health?



Speaker Disclosures: This is "What I Do"

I, Victoria Reinhartz, am a licensed consultant pharmacist who currently and has previously received financial compensation for consulting expertise relevant to clinical services, continuing education, workflow, and technology systems within both the pharmacy and mobile integrated health industries.

I, Victoria Reinhartz, currently serve as CEO of Mobile Health Consultants, Inc., a business specializing in clinical education, disease management, and consulting services for interprofessional and mobile health teams.

I do NOT have any of the following:

- *a vested interest in or affiliation with any corporate organization offering financial support or grant monies for this continuing education activity*
- *any affiliation with an organization whose philosophy could potentially bias my presentation*

“What I Do” □ About Dr. Victoria Reinhartz

<https://www.linkedin.com/in/victoriareinhartz/>



Executive Director & Board Service fostering growth of MIH & CP Industry



Commission on Accreditation for Medical Transport Systems [MIH SME]



Clinical Pharmacist Services for first responders, physician groups, payors



Clinical education & training, program development for mobile health teams

MOBILE INTEGRATED HEALTH PHARMACIST



What my friends think I do



What my mom thinks I do



What society thinks I do



What I think I do



What I really do

10

Knowledge Pretest



Knowledge Check 1

When a patient has multiple transitions of care (TOC), data shows medication discrepancies will occur ____ % of the time?

- A. 15%
- B. 38%
- C. 65%
- D. 100%

Knowledge Check 2

Which of the following patients is MOST likely to contact 911, resulting in transport to an emergency department?

- A. A patient with 99% rate of medication adherence
- B. A patient with 50% rate of medication adherence
- C. A patient with 0% rate of medication adherence
- D. Medication adherence has no statistical impact on 911 calls

Knowledge Check 3

Which of the following patient factors is associated with the HIGHEST risk of calling 911 and possibly being transported to the emergency department?

- A. Being Married or Divorced
- B. >30 minutes travel time to healthcare provider
- C. Age >70 years
- D. Diagnosis of psychiatric/behavioral conditions

Knowledge Check 4

Which of the following is a likely medication-related problem (MRP) in underserved populations frequently calling 911?

- A. Duplicate Therapy
- B. Incorrect Use of Medication
- C. Addiction
- D. Drug Interaction impacting Safety or Efficacy
- E. Medication Nonadherence

Knowledge Check 5

Which of the following are TRUE statements regarding pharmacist intervention in patient populations who frequently call 911 and require transport to the hospital?

- A. Pharmacist intervention may impact medication adherence
- B. Pharmacist intervention may reduce hospitalizations
- C. Pharmacist intervention improves adherence x 3-6 months
- D. A & B
- E. A & C

Knowledge Check 6

Which of the following are key actions of a Mobile Integrated Health Pharmacist who works with community paramedicine teams? (Select all that apply)

- A. Medication reconciliation
- B. Triage patient status
- C. Communicating to resolve Medication Related Problems (MRP)
- D. Home safety & Fall Risk assessments
- E. Source durable medical equipment

Identify the impact of medication related problems on 911 calls, hospitalizations, and cost of care



Prince George County MIH Program Maryland

High Frequency	}	<ul style="list-style-type: none"> 1,390 persons requested EMS >5 times in 1 year 213 persons requested EMS >10 times in 1 year >8,500 Requests total
High Risk		<ul style="list-style-type: none"> Complex chronic conditions Multiple medications Poorly managed



Prince George County MIH Program Maryland

Research Goal:

- (1) Identify the factors associated with EMS utilization
- (2) Identify their effects on total EMS transports

Interventions:

- (1) Address medical, social and behavioral patient needs at the scene without the need to transport
- (2) Assist patients with coordination of care
- (3) Facilitated transportation to appointments
- (4) Bridge health literacy gaps
- (5) Medication Therapy Management – with pharmacist or physician
- (6) Coordinate referral needs
- (7) Address social determinants of health

Medication Impact on Utilization Rates



Prince George evaluators found these are Good Predictors of EMS use in an MIH Setting

- Age
- Marital Status
- High Fall Risk
- Psychiatric/Behavioral Illness
- Asthma or COPD
- Heart Failure
- CVA or Stroke
- # of Medications
- Medication Compliance

Each prescribed medication increased the risk for EMS calls or transports by 4%

“Sometimes Compliant” to medications were 50% more likely to require transport compared to “Never Compliant”


Largo, MD
Pinet-Peralta LM, et al. BMC Med Inform Decis Mak. 2021.

Additional Elements Impacting Utilization


Patients with travel time >30 min	Patients with travel time >40 min
10-17 x more likely to call 911	15 x more likely to be transported
Asthma or COPD	4.3 x transport odds
Psychiatric/Behavioral	1.8 x transport odds
Diabetes Mellitus	1.9 x transport odds
Age 19-33	Highest transport odds
Age 49-78	46-48% less likely to be transported
Age 79 +	91% less likely to be transported

Largo, MD
Pinet-Peralta LM, et al. BMC Med Inform Decis Mak. 2021.


Impact of Medication Issues on Readmission Rates



National 30 day readmission rates: Heart Failure 20.2%
National 30 day readmission rates: COPD 19.3%



50-65% of heart failure patients do not take their medications or are taking their medications incorrectly



20% of patients discharged home will experience an adverse event
66-71% related to or caused by medications

Kilcup M et al. J Am Pharm Assoc. 2013.
Heart Failure Fact Sheet. Data & Statistics. DHDS & CDC. 2019
Hospital Compare
2022 DATA
[Medicare.gov](https://www.Medicare.gov)



Community Paramedicine Pilot Program Summary of Evaluation

University of California, San Francisco
Philip R. Lee Institute for Health Policy Studies and Healthforce Center
Janet Coffman, MPP, PhD
Lead Evaluator

California Emergency Medical Services Authority
Howard Backer, MD, MPH
David Duncan, MD
PIs for HWPP #173
Lou Meyer
Project Manager

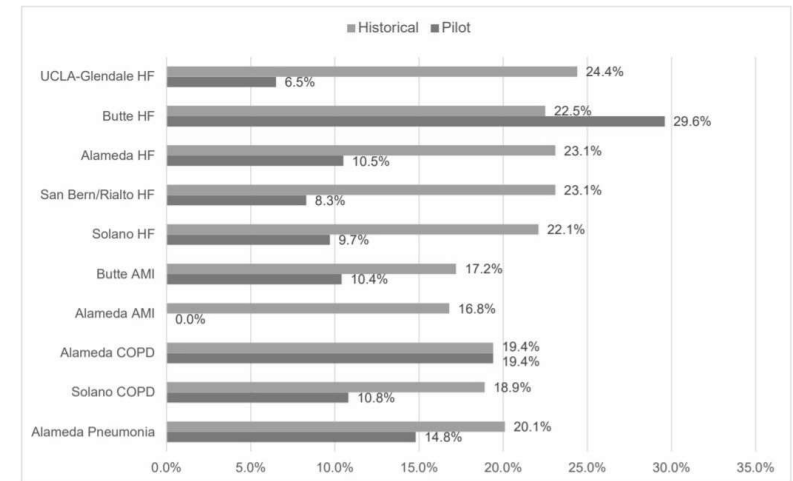
Update of Evaluation of California's Community Paramedicine Pilot Program

by Janet M. Coffman, PhD, MPP, Lisel Blash, MPA
Healthforce Center and Philip R. Lee Institute for Health Policy Studies at UC San Francisco
February 18, 2021

UCSF & California EMSA Community Paramedicine Concepts

- Post hospital discharge short-term follow-up
- Frequent EMS user case management
- Directly Observed Therapy for tuberculosis: public health department collaboration
- Hospice support
- Alternate destination to mental health crisis center
- Alternate destination to sobering center

Figure 3. Readmissions within 30 Days for Post-Discharge – Short-Term Follow-Up Project Enrollees versus Partner Hospitals' 30-Day Readmission Rates, 2012-2015 (Cumulative; n = 1,814 Patients)



Quoted Paragraph from California Evaluation Report

"Safety"

The evaluation team found substantial evidence that the post-discharge projects reduced the risk of patient harm. **The most compelling evidence of reduced harm concerns prescription medications.** Community paramedics performed medication reconciliation for all patients, which involved examining all prescription drugs in a patient's possession and reconciling them with the instructions given to the patient when they were discharged from the hospital.

The community paramedics identified **318 instances** in which a patient **needed additional instructions about how to take their medications** as directed (**18% of patients enrolled**).

Some patients had multiple prescriptions for the same medication and assumed they were supposed to take all of them.

Other patients were discharged from the hospital with only a 30-day supply of medication and did not understand that they needed to obtain refills to control their condition.

If a patient had a personal physician, the community paramedic worked with the patient to contact the physician to obtain refills. If a patient did not have a physician, the community paramedic helped the patient find one."



Interpret pilot studies evaluating pharmacist-paramedic partnerships to minimize medication risks

Florida Pharmacist – Paramedic Partnership Pilot



Incorporating Pharmacists Into Mobile Integrated Health Teams: A Cost-Benefit Analysis

© Victoria Reinkartz, PharmD, CPH, Isabel Sandoval, Demetrios Chageya, Stephanie Peshek, PharmD 6/11/2020



3 Year Pilot Program

2020

Published in JEMS

Pharmacist incorporated into Manatee County Florida's Community Paramedicine Program

Florida | Pharmacist – Paramedic Partnership Pilot

Manatee County (FL) Program Categories

- **Mental Health / Substance Abuse**
- **Respiratory Disease / Cardiovascular Conditions**
- **Diabetes Mellitus**
- **Frequent Falls**
- **High System Utilizer**
 - Individuals using 911 system ED/EMS 3+ times within 30 days
 - Chronic Medical Conditions
 - Social Determinants

Florida | Pharmacist – Paramedic Partnership Pilot

Pharmacist Referral Criteria – Scenario 1

- Meeting one of the Following Inclusion Criteria:

Polypharmacy (4+ medications)	Dialysis or Chronic Kidney Disease (CKD)	Post-Discharge Heart Failure or Post-Myocardial Infarction
Diabetes, Hypertension, Heart Failure, COPD, and others	Medication Cost/Affordability Issues	Frequent Falls or History of Hip/Vertebral Fracture
Multiple Prescribers	HIV+/HEP C+	Abnormal Lab Values

Florida | Pharmacist – Paramedic Partnership Pilot

Pharmacist Referral Criteria – Scenario 2

- Acute Disease Exacerbation:
 - Pharmacist consulted to determine if outpatient meds could resolve acute issue
 - Pharmacist and/or CP would facilitate communication with the patient's physician



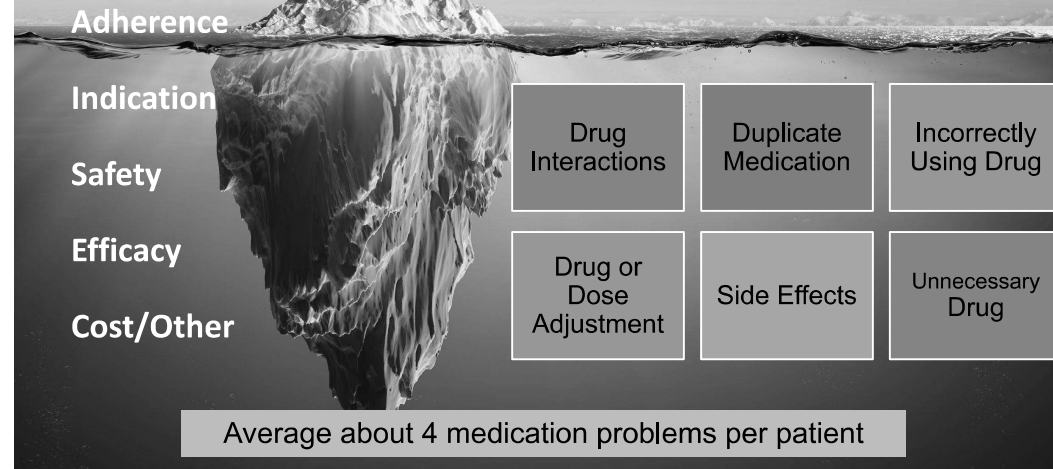
Team-Based Approach—Acute Needs

- **Community Paramedics**
 - Adapt daily schedule as necessary to see patient same-day
 - Tailored assessment per patient need
- **Pharmacist Consult**
- Community Paramedics work with Case Management for non pharmacological needs
 - Transportation, insurance or appointment issues



- Pharmacist contacts physician for acute med changes
 - Uncontrolled disease
 - Hypertension, palpitations
 - Hypo- or hyperglycemia
 - Infection and more
 - Side effects or adverse effects of medications

Medication Problems Identified



Costs of Program Implementation

Includes all salaries, vehicles, equipment, etc

	Year 1	Year 2	Year 3
	\$604,867	\$645,368	\$693,749
Total Cost (over three years):	\$1,943,984		
Research, Data Analysis, Results Distribution to Stakeholders x 3 years:	Approximately \$36,000		

Long-Term Results:

Outcomes Measured

Utilization Outcomes

- Ambulances Diverted
- ER visits Avoided
- Hospitalizations Avoided

Medication Outcomes

- Medication Adherence
- Adverse Drug Events
- Total Medication Interventions

Pharmacist Performed Medication Interventions

Pharmacist Interventions Performed Over 3 Years				
Year	Nonadherence Corrected (# of Patients)	Adverse Drug Events Avoided	Other (Dosage adjustments, etc.)	Total Medication Interventions
1	55	94	90	239
2	49	106	115	270
3	41	113	48	202
Total	145	313	253	711

3-4 successful medication interventions per patient

Long-Term Results

**3 Year Total Savings:
\$5 million +**

	Year 1	Year 2	Year 3	Total Savings (\$)
Diverted Ambulances	380	489	428	\$342,994 - \$3,374,782*
ED Visits Avoided	309	396	300	\$1,915,590
Hospitalizations Avoided	180 over three years			\$4,043,969
Total Medication Interventions	711 (in 145 patients)			
Adverse Drug Events Prevented	313			\$60,409 - \$2,954,720**
Medication Nonadherence Corrected	253			\$3,082,265

*Range reflective of CMS payment averages nationwide
 **Significant range due to variability in severity of adverse drug events

Subset Analysis

Patient Subset:
Heart Failure

Duration:
1 year

To explore pharmacist impact on hospitalizations avoided

Hospitalization data was collected from:

The 6 months prior to enrollment and compared to

The 6 months after program enrollment.



94% of heart failure patients required pharmacist intervention & medication changes

88.2% reduction in hospital admissions

17 admissions in 6 months prior vs
2 admissions in 6 months after

90.1% reduction in # of days hospitalized

102 days hospitalized in 6 months prior vs
10 days hospitalized in 6 months after

Maryland Pharmacist – Paramedic Partnership Pilot



6 month Pilot Program
 2023
Published in Exploratory Research in Clinical & Social Pharmacy
 University of Maryland Medical Center
 Baltimore City Fire Department
 University of Maryland School of Pharmacy

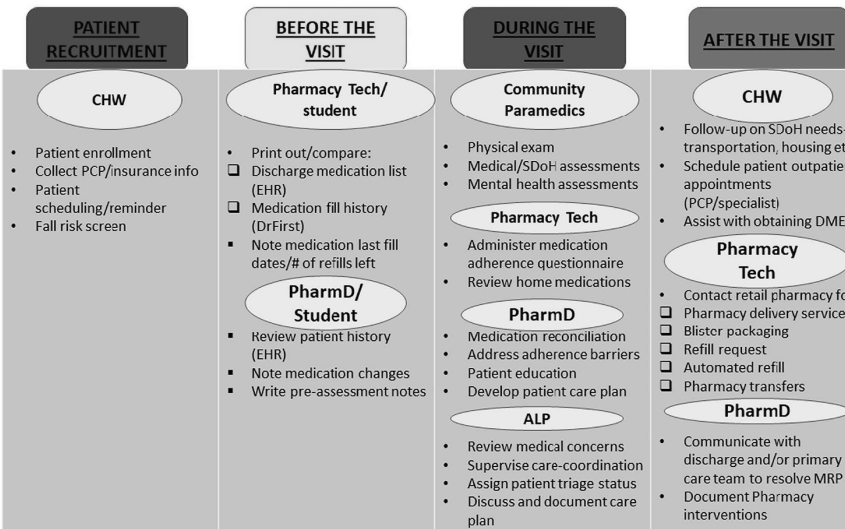
Maryland | Pharmacist – Paramedic Partnership Pilot

- Heart Failure (HF)
- Chronic Obstructive Pulmonary Disease (COPD)
- Live in one of six Baltimore zip codes
- Stable housing
- Inpatient at Univ of Maryland Medical Center
- Deemed by community health workers (CHW) to have “complex medical and social needs likely to benefit”

83 patients
 Paramedic
 Registered Nurse
 Nurse Practitioner
 Pharmacist (via Telehealth)

Maryland Pharmacist – Paramedic Partnership Pilot

T



ALP=advanced licensed practitioner, CIW=community health worker, DME=durable medical equipment, DrFirst=provider of e-prescribing and medication management solutions, EHR=electronic health record, MRP= medication related problem, PCP=primary care physician, PharmD=pharmacist, SDoH= social determinants of health

Maryland | Pharmacist – Paramedic Partnership Pilot

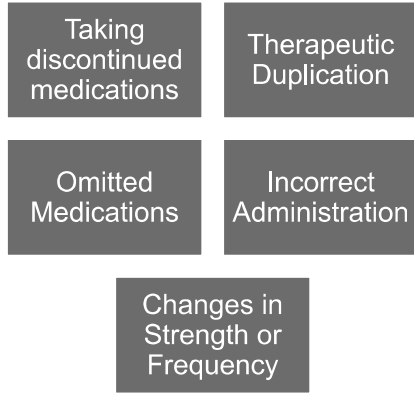
Table 2. New prescriptions retrieved**

Days after hospital discharge	CHF		COPD	
	MIH-CP patients (%)	Non-MIH-CP patients (%)	MIH-CP patients (%)	Non-MIH-CP patients (%)
0–7	77.8	50	75	50
8–14	1.9	16.7	0	0
15–21	1.9	2.7	0	0
22–30	7.4	0	0	0
>30	11	30.6	25	50
Total	100	100	100	100

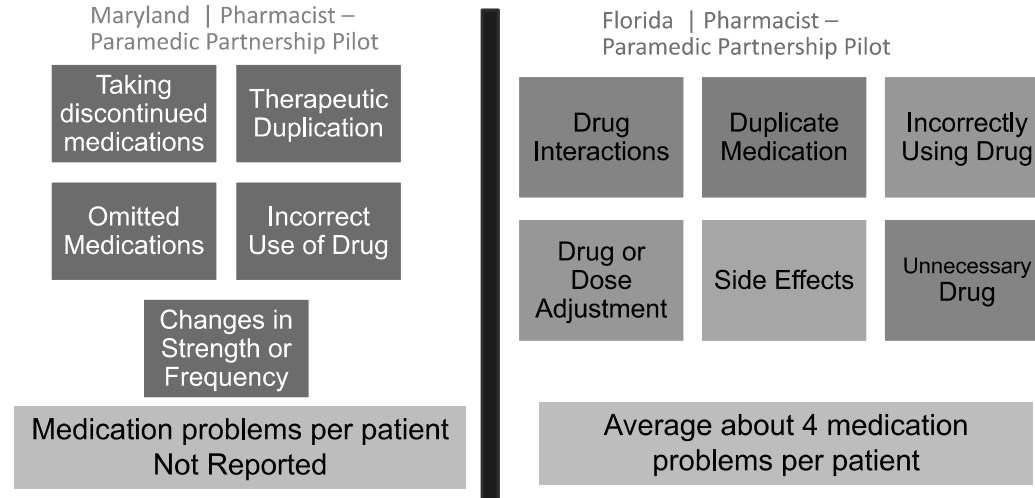
*Effects on Adherence not maintained after 30-day enrollment period
 **Results did not achieve statistical significance; (0.08; 95% confidence interval [CI], -0.11-0.28)

Medication Problems Identified

- ▣ Adherence aids
- ▣ Patient Education
- ▣ Cost Reduction
- ▣ Communication with Providers



Comparing Medication Problems Identified



Evaluate the medication related problems most likely to be impacted in underserved populations and those frequently calling 911



Medication Challenges....

- T Nonadherence
- T Incorrect Use of Medications
- Pill Box & Med Errors
- Transitions of Care Errors
- Drug Interactions
- Medication Reconciliation
- Doses Not Optimized
- Adverse Effects

.....and more

AUDIENCE QUESTION

Provide an example of:

1. Incorrect Use of Medications
2. Dose not being optimized
3. Drug Interaction affecting Safety
4. Drug Interaction affecting Efficacy

AUDIENCE QUESTION

What % of patients are adherent to their medications?

Over **50%** of patients do not take their medications as prescribed

(Estimated <40% if multiple daily dosing)

20 TO 30 PERCENT OF NEW PRESCRIPTIONS ARE NEVER FILLED AT THE PHARMACY

Medication Nonadherence—WHO Definition

Nonadherence: The intentional or *unwitting* failure to take medications as prescribed

In patients with chronic disease: diabetes, high cholesterol, heart failure, kidney disease, etc

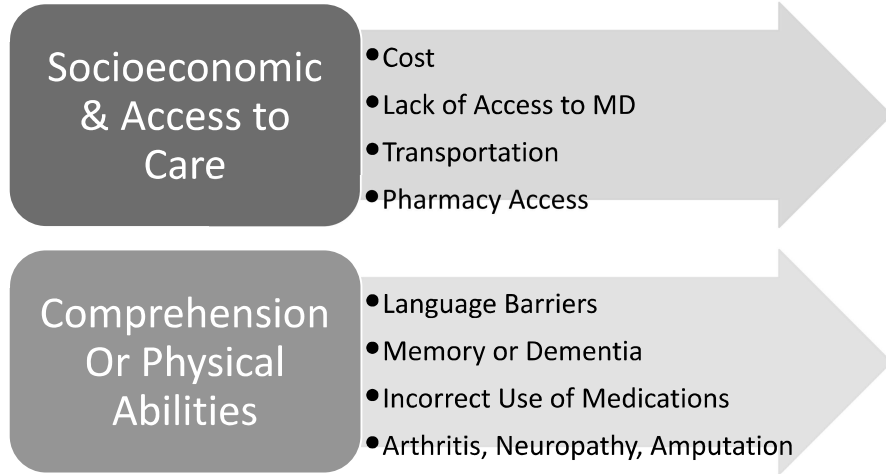
Double the reported hospitalization risk

Up to 25% increased risk of death in next 10 years

Up to 50% of disease treatment failures □ result of Nonadherence

Nonadherence = 125,000 deaths per year

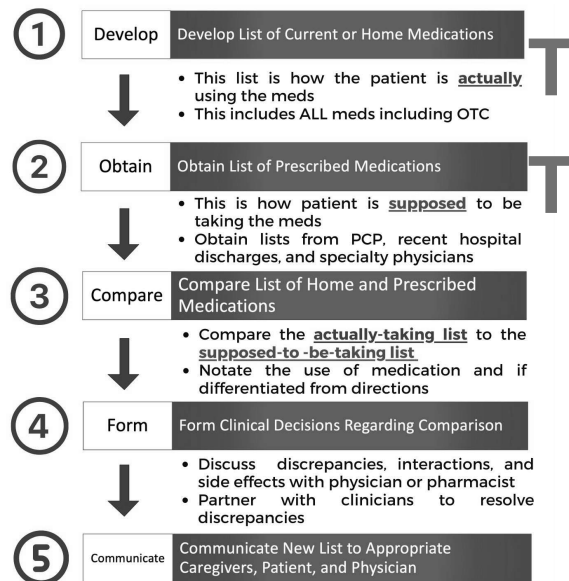
Why Don't People Take their Medications?



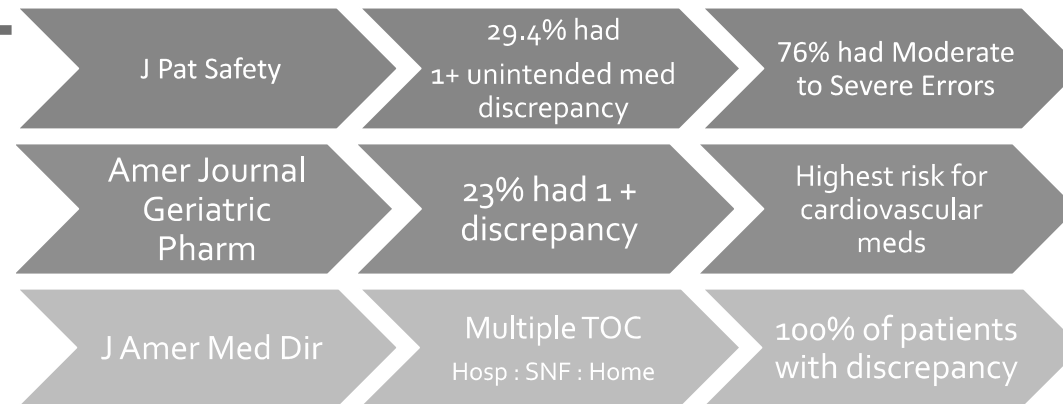
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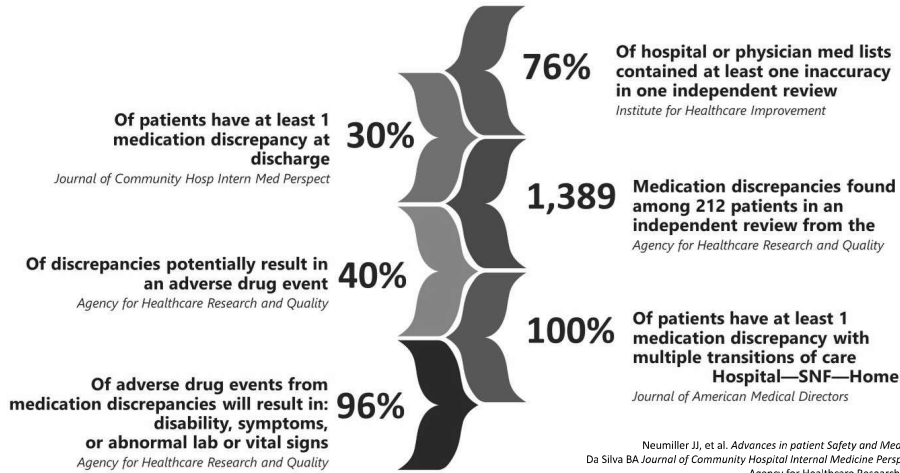
Steps to Medication Reconciliation



Transitions of Care

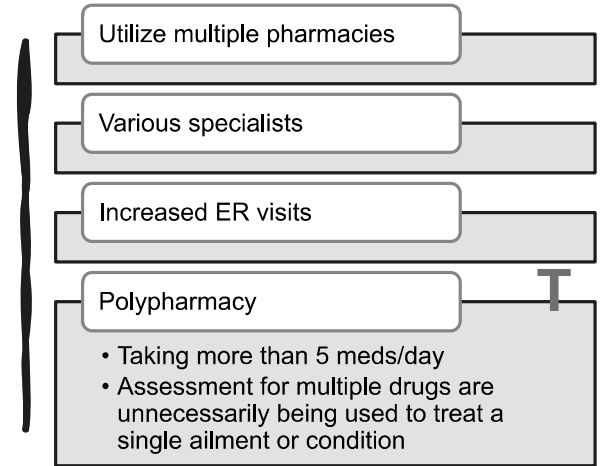


I JUST NEED THE MED LIST, RIGHT?

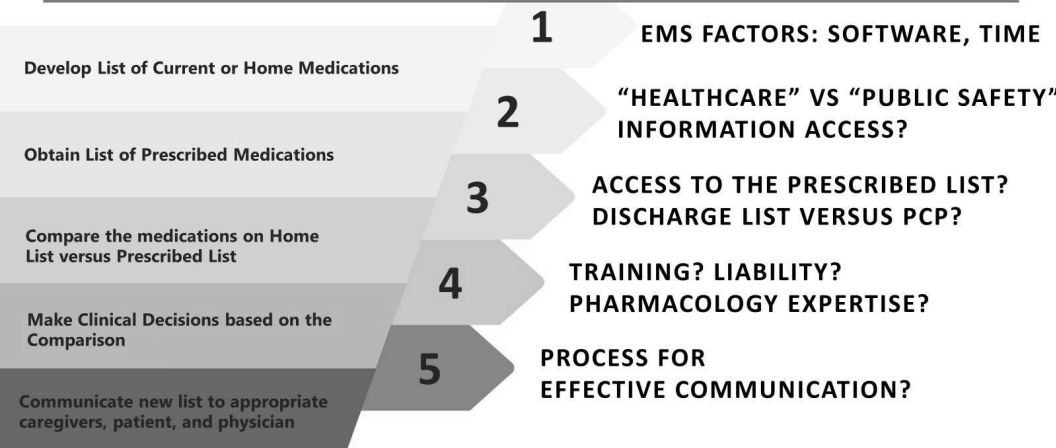


Neumiller JJ, et al. *Advances in patient Safety and Medical Liability*. 2017.
Da Silva BA *Journal of Community Hospital Internal Medicine Perspectives*. 6(4):2016.
Agency for Healthcare Research and Quality. 2017.
Sivani LD, et al. *Journal of American Medical Directors Association*.14(9): 668-672. 2013.

Challenges in Medication Reconciliation

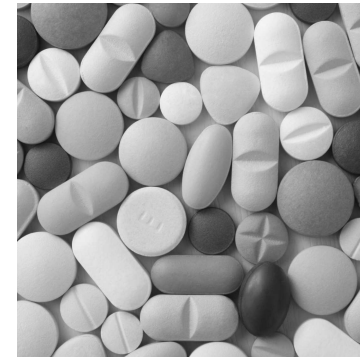


MEDICATION RECONCILIATION THE STEPS



Comprehensive Medication Reviews

- Goal: reduce adverse effects of polypharmacy
- Medications evaluated at every transition of care
- Provides patients and caregivers with a better understanding of their medication regimen



Deprescribing

DEFINITION

A process of medication withdrawal, supervised by a health care professional, with the goal of managing polypharmacy and improving outcomes

- Utilize tools to help identify medications that can be stopped
 - Beers Criteria
 - STOPP tool
 - Deprescribing.org



Scott I. Eur J Hosp Pharm. 2017.

Med Errors

67% OF PILL BOX FILLS RESULT IN AT LEAST 1 ERROR

Pill boxes, pill packs, automated dispensers

Medication packaging inaccuracies lead to disease exacerbations or drug adverse events



- Time of Day
- Dose or # Tablets
- Old or Expired
- Refills
- As Needed

Medication Problems Identified

- Adherence
- Indication
- Safety
- Efficacy
- Cost/Other

Drug Interactions	Duplicate Medication	Incorrectly Using Drug
Dose Adjustment	Side Effects	Unnecessary Drug

Average about 4 medication problems per patient



Apply concepts to complex patient case scenarios, illustrating utility in optimizing care for underserved patient populations

Patient Case: JOY

- Joy is an 83 YOF referred after recent fall & resulting hip fracture, hospitalization

PMH:

Hypertension
Hyperlipidemia
Atrial fibrillation
Coronary artery disease
Cerebral infarction, unspecified
Macular Degeneration
Gastroesophageal Reflux Disease



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**Discussion
Question
What do we
want to know?**

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Coronary artery disease
Cerebral infarction, unspecified
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**What caused the fall?
What are BP & HR?
Which conditions uncontrolled?
Is patient adherent?
How long ago was the stroke?
Eval for Osteoporosis?
What medications is she taking?**

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Hyperlipidemia
Atrial fibrillation
Coronary artery disease
Cerebral infarction, unspecified
Macular Degeneration
Gastroesophageal Reflux Disease



**Discussion
Question
What meds are
we looking
for?**

Medication List

- Aspirin 81 mg daily
- Chlorthalidone 25 mg, 1 tab by mouth daily
- Simvastatin 80 mg, 1 tab by mouth daily
- TUMS, OTC as needed
- Nifedipine 60 mg, 1 PO daily
- Warfarin 4 mg, 1 PO daily
- Metoprolol tartrate 100 mg, 1 PO daily
- Nexium OTC daily
- Aleve 12 hour 1 by mouth twice daily
- Amlodipine 10 mg, 1 PO daily
- Lisinopril 10 mg, 1 PO daily



**Discussion
Question**
**What risks or
problems are we
concerned about?**

Patient Case: JOY

- Aspirin 81 mg daily
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THINK:

Side effects
Duplicate therapies
Unnecessary drugs
Monitoring
911 risk

The Details

Assessment:

- Lives alone, son visits once monthly
- Erratic vital trends alternating bradycardia & tachycardia
- BP fluctuations
 - Lowest 84/58 mmHg
 - Highest 188/104 mmHg
- HR fluctuations
 - 40 bpm – 90 bpm

- TIA was in 2014
- Takes Aleve for knee pain
- No cardiologist visit in last 18 mo
- Unable to drive for warfarin bloodwork
- Admitted only takes BP medicine when she feels like she needs it – “racing heart”



The Plan

- Establish with cardiology
- Monitor vitals BID, or when symptomatic
- Switch to Xarelto/preferred alternative or paramedicine program for INR check
- Adherence: address pill burden, education
- Medication Interventions:
 - Discontinue amlodipine or nifedipine
 - If rate control is a challenge, change metoprolol to succinate; dose reduce to 50 mg daily
 - Initiation of alendronate, if kidney function can tolerate and request DEXA



Patient Case: JOY

Drug Interactions	Duplicate Medication	Incorrectly Using Drug
Drug or Dose Adjustment	Side Effects	Unnecessary Drug



Summary of Main Points

- Medications are a significant contributor to 911 calls, transportation to the emergency department, hospitalization, and increased cost of care
- Patient populations who are considered “high frequency” or “high system utilizers” are ideal for Community Paramedicine or Mobile Integrated Health program support
- Pharmacist-led clinical services as part of mobile integrated health and community paramedicine are associated with:
 - Improved medication adherence
 - Identification and resolution of MRPs
 - Reduced 911 calls and ED transports
 - Reduced hospitalizations

Knowledge Check



Knowledge Check 1

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References

- Melady D, Perry A. Ten Best Practices for the Older Patient in the Emergency Department. Clin Geriatr Med. 2018 Aug;34(3):313-326. doi: 10.1016/j.cger.2018.04.001. Epub 2018 Jun 20 [cited 2023 Jan 2].
- Mobile Integrated Healthcare and Community Paramedicine (MIH-CP) 2nd National Survey. Journal of Emergency Medical Services [Internet]. 2018 Apr 12 [cited 2023 Aug 28]. Available from: https://www.naemt.org/docs/default-source/2017-publication-docs/mih-cp-survey-2018-04-12-2018-web-links-1.pdf?Status=Temp&sfvrsn=a741cb92_4.
- Occupational Outlook Handbook, Pharmacists [Internet]. Washington (DC): U.S. Bureau of Labor Statistics. U.S. Department of Labor; 2019 [updated 2020 Apr 10; cited 2020 May 19]. Available from: <https://www.bls.gov/ooh/healthcare/pharmacists.htm>.
- Okoh CM, Moczynska LR, Thurman W, Brown C, Hanson C, Baffoe JO. An examination of the emerging field of community paramedicine: a national cross-sectional survey of community paramedics. BMC Health Serv Res. 2023 May 23 [cited 2023 Aug 9];23(1):516. Available from: <https://pubmed.ncbi.nlm.nih.gov/37721608/>.
- Payment measures [Internet]. Medicare.gov Hospital Compare; [cited 2020 Feb 10]. Available from: <https://www.medicare.gov/hospitalcompare/Data/Payment-measures.html>.
- Pinet-Peralta, L.M., Glos, L.J., Sanna, E. et al. EMS utilization predictors in a Mobile Integrated Health (MIH) program. BMC Med Inform Decis Mak 21, 40 [Internet]. 2021 [cited 2023 Sept 4]. Available from: <https://doi.org/10.1186/s12911-021-01409-w>.
- Reinhartz V, Sandoval J, Chagoya D, Peshek S. Incorporating Pharmacists into Mobile Integrated Health Teams: A Cost-Benefit Analysis. Journal of Emergency Medical Services. 2020 Aug 11 [cited 2023 Aug 21]. Available from: <https://www.jems.com/community-paramedicine-and-mobile-health/incorporating-pharmacists-into-mobile-integrated-health-teams/>.
- Reinhartz V, Kearns, S, Haas, MT, Landau, S, Richardson, T. Impact of community paramedicine program on APPE student skillsets. Currents in pharmacy teaching & learning. 2021 [cited 2023 Apr]; 13 6, 729-735. Available from: <https://pubmed.ncbi.nlm.nih.gov/33867072/>.
- Schumacher C, Moaddab G, Colbert M, Kliethermes MA. The Effect of Clinical Pharmacists on Readmission Rates of Heart Failure Patients in the Accountable Care Environment. J Manag Care Spec Pharm. 2018 Aug [cited 2022 Jan 12]; 24(8):795-799. Available from: <https://pubmed.ncbi.nlm.nih.gov/30058987/>.
- Sokan O, Stryckman B, Liang Y, Osotimehin S, Gingold DB, et al. Impact of a mobile integrated healthcare and community paramedicine program on improving medication adherence in patients with heart failure and chronic obstructive pulmonary disease after hospital discharge: A pilot study. Explor Res Clin Soc Pharm. 2022 Nov 13 [cited 2023 June 19];8:100201. Available from: <https://pubmed.ncbi.nlm.nih.gov/36457714/>.

References

- ALICE: A study of financial hardship in Florida [Internet]. (NJ): United Way of Northern New Jersey; 2010-2016 [cited 2020 Feb 13]. Available from: <https://www.uwof.org/sites/uwof.org/files/2018%20FL%20ALICE%20REPORT%20AND%20CO%20PAGES.pdf>.
- Ambulance Medical Billing. Manatee County EMS. Financial Summary 10/01/17-9/30/19.
- Community Paramedicine [Internet]. Manatee County (FL): Manatee County [cited 2023 Aug 13]. Available from: https://www.nvmanatee.org/departments/public_safety/community_paramedicine.
- Cosgrove JC. Ambulance providers: costs and Medicare margins varied widely; transports of beneficiaries have increased [Internet]. Washington (DC): U.S. Govt. Accountability Office; 2012 Oct [cited 2020 May 16]. 46 p. Available from: <https://www.gao.gov/assets/650/649018.pdf>.
- CPI Inflation Calculator [Internet]. Washington (DC): U.S. Bureau of Labor Statistics [cited 2020 Feb 10]. Available from: https://www.bls.gov/data/inflation_calculator.htm.
- Cutler RL, Fernandez-Llimos F, et al. Economic impact of medication non-adherence by disease groups: a systematic review. BMJ Open [Internet]. 2018 Jan 21 [cited 2023 Apr 14];8(e016982):1-13. doi: 10.1136/bmjopen-2017-016982. Available from: <https://bmjopen.bmj.com/content/bmjopen/8/1/e016982.full.pdf>.
- Crutchfield J, Diccio P. Manatee County Emergency Medical Services. Data Analysis presented at: Manatee County Healthcare Alliance Meeting; 2016; Bradenton, FL.
- Evashkevich M, Fitzgerald M. A framework for implementing community paramedic programs in British Columbia [Internet]. Richmond, BC: Ambulance Paramedics of British Columbia; 2014 May [cited 2020 May 19]. 74 p. Available from: https://www.researchgate.net/publication/305817026_A_framework_for_implementing_community_paramedic_programs_in_British_Columbia.
- FastStats – Emergency Department Visits [Internet]. Centers for Disease Control and Prevention. [updated 2017 Jan 19; cited 2020 Mar 10]. Available from: <https://www.cdc.gov/nchs/fastats/emergency-department.htm>.
- Formica D, Sultana J, Cutroneo P, Lucchesi S, Angelica R, Crisafulli S, et al. The economic burden of preventable adverse drug reactions: a systematic review of observational studies. Expert Opinion on Drug Safety [Internet]. 2018 Jul 3 [cited 14 Apr 2020];17(7):681-95. doi: 10.1080/14740338.2018.1491547. Available from: <https://www.tandfonline.com/doi/abs/10.1080/14740338.2018.1491547?journalCode=ieds20>.
- Hospital Readmissions Reduction Program (HRRP) [Internet]. Baltimore (MD): CMS [updated 2020 Jan 6; cited 2023 Sept 02]. Available from: <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/HRRP/Hospital-Readmission-Reduction-Program>.
- Klein M, Cabrita C, Colson J, and Wilson B. Desktop-based Pharmacist Medication Reconciliation Impact on Readmission Rates and Financial Status. J Am



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What's Your Medication Emergency?



Victoria Reinhartz, PharmD, CPh
Chief Executive Officer
MIH Academy
Mobile Health Consultants
Reinhartz@mobilehealthconsultants.com

Interim Executive Director
National Association of
Mobile Integrated Healthcare Providers

