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Philip R. Lee Institute for Health Policy Studies

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# Evaluation of California's Community Paramedicine Pilot Program

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# Outline

- Overview of evaluation plan and methods
- Findings
  - Safety
  - Effectiveness
  - Cost and savings
- Conclusion



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# Overview of Evaluation Plan and Methods

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# 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 urgent care center

# Implementation Timeline



# Methods

- Assessed outcomes across three domains
  - Safety
  - Effectiveness
  - Cost and savings
    - Costs incurred by EMS agencies
    - Savings accrued by other parts of the health care system

# Methods

- Data reported by pilot sites on
  - Numbers of patients enrolled and their characteristics
  - Provision of CP services
  - Cost of providing CP services and ambulance transports
- Existing sources of data on cost of ED visits and hospital admissions and historical readmission rates
- Interviews and conference calls with EMSA project manager, pilot project leaders, CPs, and partners to provide context for quantitative data



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# Findings - General



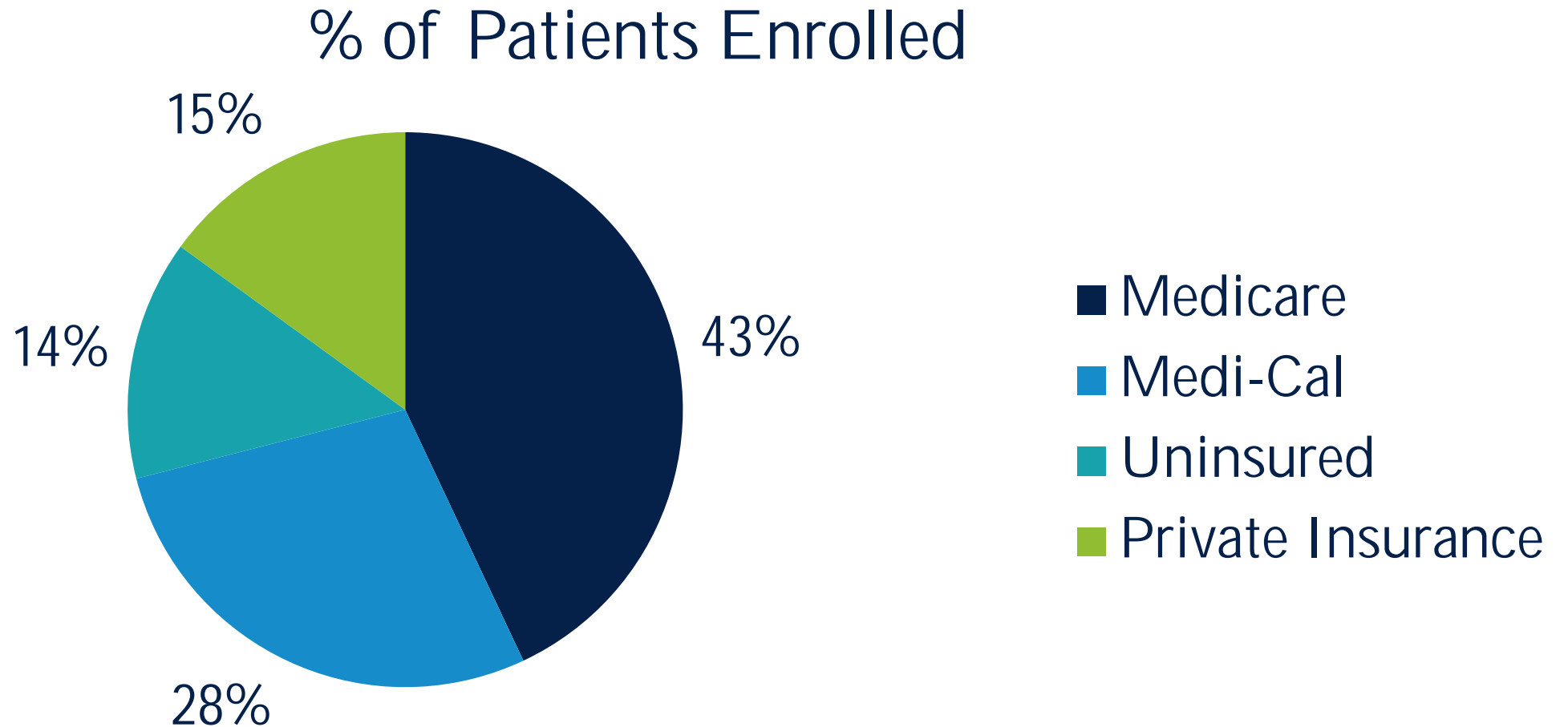
# Cumulative Patients Enrolled by Concept Through September 2016

Concept	# Enrolled
Post-Discharge Short-term Follow-Up	922
Frequent EMS Users	77
Directly Observed Therapy for Tuberculosis	29
Hospice	226
Alternate Destination – Mental Health	169
Alternate Destination – Urgent Care	39
All Projects	1,462

# Enrolled Patients' Demographics

- Across all CP concepts, the majority of patients were
  - White
  - Non-Hispanic
  - Male

# Enrolled Patients' Payer Types – Through September 2016





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# Findings - Safety

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# No Adverse Outcomes

- None of the patients enrolled experienced adverse health outcomes
- Evidence that projects improved safety
  - Medication reconciliation improved understanding of medications and adherence to prescriptions
  - Referrals to housing, social services, and behavioral health care improved patients' well-being
  - In the alternate destination – mental health project, having paramedics transport directly to mental health crisis center enabled law enforcement officers to focus on law enforcement duties

# Some Rerouting and Secondary Transports

- 2 alternate destination – urgent care patients transported to an ED were transferred to an ED within six hours of admission to an urgent care center due to a non-life threatening condition
  - 1 patient's X-ray revealed a fracture that was not diagnosed in the field
  - 1 patient's condition changed after admission to an urgent care center
- 9 patients rerouted from an urgent care center to an ED because the urgent care center clinicians declined to accept the patient
  - 2 cases equipment needed to treat patient was broken or unavailable
  - 3 patients requested opioid pain medication
  - 4 patients who urgent care center physician believed needed an orthopedics consult

# Some Rerouting and Secondary Transports (cont'd.)

- 9 patients enrolled in the alternate destination – mental health project were transported to an ED due to a non-life threatening condition
  - 2 patients were agitated
  - 3 patients had blood pressure above mental health crisis center threshold
  - 1 patient had urinary incontinence
  - 1 patient needed a continuous positive airway pressure machine
  - 1 patient not a county resident
  - 1 patient where a new crisis center staffer not familiar with pilot project
- By the seventh month of the project, the number of patients rerouted to EDs fell to zero.

# Medication Reconciliation

- Most post-discharge patients had multiple prescriptions
- 14% of patients misunderstood how to take their medications or had duplicate prescriptions
- Some needed help obtaining refills







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# Effectiveness

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# Reduced Inpatient Readmissions within 30 Days

Post-discharge projects achieved statistically significant reductions in 30-day readmission rates except for one diagnosis at one site that provided less intensive services.

- 4 projects reduced readmissions for heart failure
- 2 reduced readmissions for acute myocardial infarction (i.e., heart attack)
- 2 reduced readmissions for chronic obstructive pulmonary disease
- 1 reduced readmissions for pneumonia

# Reduced Inpatient Readmissions within 30 Days

Diagnosis	Sponsoring Agency	Historical 30-day Readmission Rate	% of Enrollees Admitted (#)
Heart Failure	UCLA	24.4%	6.5% (10)*
	Butte	22.5%	25.8% (71)
	Alameda	23.1%	14.3% (3)*
	San Bernardino	23.1%	9.0% (12)*
	Solano	22.1%	12.8% (5)*
AMI (Heart Attack)	Butte	17.2%	10.7% (24)*
	Alameda	16.8%	0% (0)*
COPD	Alameda	19.4%	0% (0)*
	Solano	18.9%	9.4% (3)*
Pneumonia	Alameda	20.1%	10.0% (1)*

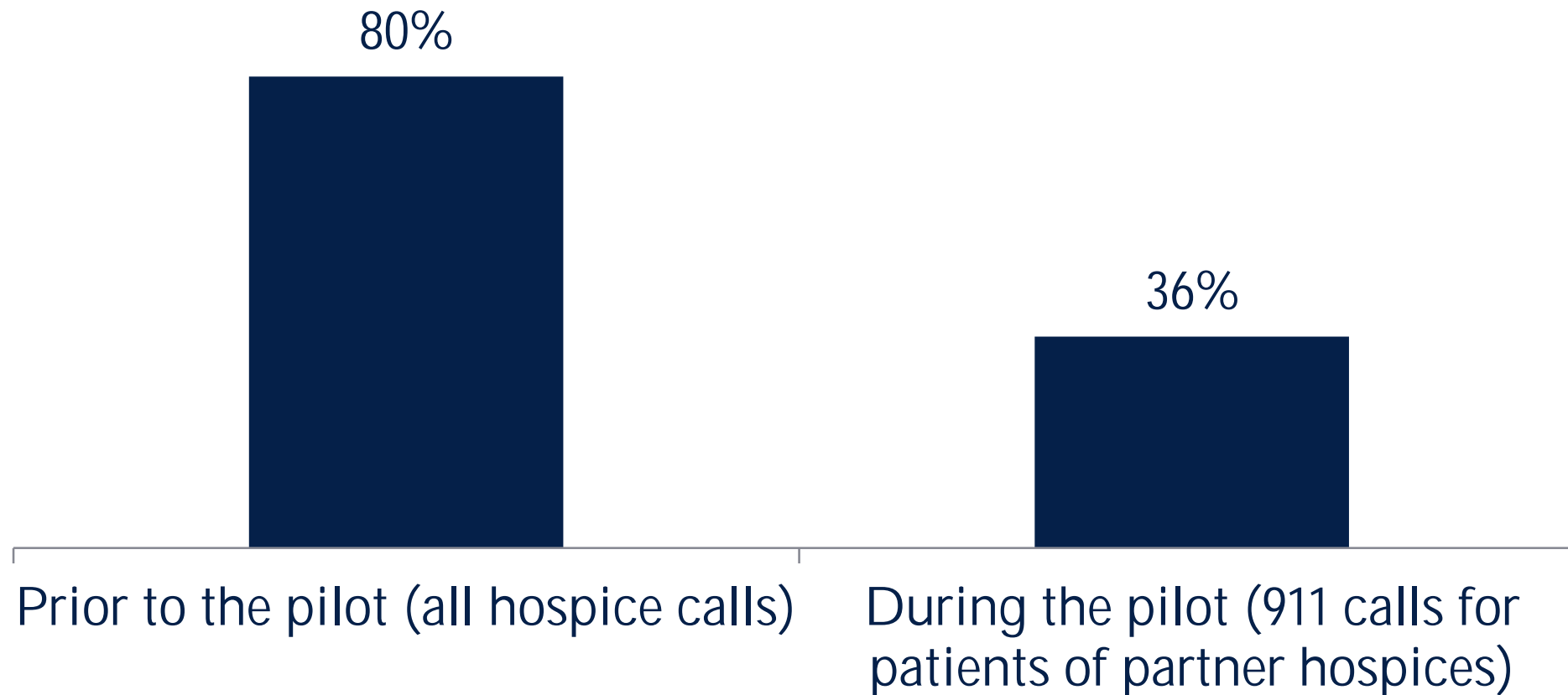
\* Difference is statistically significant at  $p < 0.05$

# Reduced Ambulance Transports and ED Visits

Projects reduced ambulance transports and ED visits for

- Frequent EMS users
- Hospice patients
- Persons with mental health needs

# Honored Hospice Patients Wishes by Reducing Unwanted Transports to an ED



# Patients Obtained Needed Care More Quickly

- People with mental health needs who did not need medical care received mental health services more quickly because they did not need to go to an ED
- More patients could be served if county inpatient psychiatric facility had more beds available



# Better Medication Adherence

- TB patients who received directly observed therapy from CPs missed fewer doses of TB medications than patients treated by community health workers.
- Leveraged 24/7 availability of CPs
- Increased the likelihood patients would not
  - Transmit TB to others
  - Develop a drug-resistant strain of TB

# Referrals to Providers of a Wide Range of Services

- Domestic violence services
- Drug and alcohol treatment programs
- Food assistance
- Home health providers
- Housing
- Mental health services
- Pharmacists
- Physicians (PCPs & specialists)
- Public health departments
- Senior home safety programs
- Transportation assistance





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# Cost and Savings

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# Cost

- EMS agencies are reimbursed on a fee-for-service basis and only for ambulance transports
- To operate CP programs, agencies had to make in-kind contributions to cover costs for



Labor



Supplies

# Cost (cont'd.)

- Monthly expenses for operating CP programs ranged from \$519 to \$22,649
- Differences in cost were driven primarily by
  - Use of full-time CPs vs. part-time CPs
  - Differences in cost structure and salaries of public and private EMS providers

# Savings

- Reductions in ambulance transports, ED visits, and inpatient admissions yielded savings for health plans
  - Savings ranged from \$188 to \$1,754 per patient per month
  - Medicare realized the largest savings because it had the largest enrollment
  - Projects also generated substantial savings for Medi-Cal

# Savings (cont'd.)

- Projects also achieved savings for hospitals
  - Post-discharge projects lowered the risk that partner hospitals will incur Medicare penalties for excess readmissions
  - Frequent EMS user projects reduced the amount of uncompensated care provided to uninsured persons



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# Conclusion

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- Specially trained paramedics can provide services beyond their traditional and current statutory scope of practice in California
- Projects have improved patients' well-being
- No adverse outcomes for patients
- No other health professionals displaced
- In most cases, yielded savings for health plans and hospitals

# Conclusion (cont'd.)

- Post-discharge, frequent EMS user, tuberculosis, hospice, and alternate destination – mental health projects are safe and effective.
- More data are needed to make conclusions about the alternate destination – urgent care projects despite paramedics' ability to triage patients accurately due to
  - The limited number of patients enrolled
  - The number of patients rerouted or transferred to an ED.



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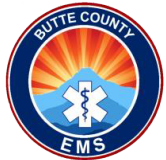
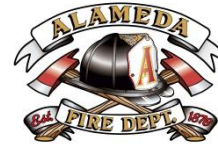
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# Community Paramedicine in California

## Briefing

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