Home is Where the Value Is

The Transformative Impact of Mobile Integrated Health for People With Significant Needs

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Case Management Society of New England
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Objectives – After this session, participants will be able to:

- Describe the unique challenges presented by the urgent and unscheduled health needs of the most vulnerable patients.
- Understand the history, scope, and best uses of mobile integrated health/community paramedicine in US healthcare, with specific focus on instED's experience, and the impact of COVID-19.
- Evaluate the example of instED as an innovation intended to improve the value of care through achieving the Quintuple Aim of health care.
- Synthesize the concepts and examples of MIH-CP in the context of today's challenges facing care managers and care teams.

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I. Patient vignettes, Value, and the Quintuple Aim

Xavier, 25 M – Has a possible kidney infection

- Affected by paraplegia from a gunshot wound injury, and had part of his intestine removed due to a serious infection – C Difficile – requiring an ileostomy.
- He occasionally gets urinary tract or kidney infections, partly because of the paraplegia and sensory loss.
- He was recently treated for a urinary tract infection with an antibiotic, but has not improved. Since then, he also notices increased output from his ostomy, and feels sweaty, tired, thirsty, and "sick".

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Jane, 82 – calls the day before Thanksgiving

82 yo woman with multiple complex chronic conditions, frequent acute care needs, and limited social supports.

PMH: Diabetes, CHF, stroke, atrial fibrillation, obesity, rheumatoid arthritis, chronic kidney disease.

SDOH: poor mobility, trouble affording meds, lives alone, family supports often unavailable.

Ten hospitalizations, 15 ED in past 18 months.

Today she feels more short of breath x 3 days, and legs more swollen.

Begs us not to send her to the ED:
"I have so much to do for the holiday!"

Ray, 35 M – His mom is worried

- PMH notable for unprovoked PE, mood disorder, seasonal allergies
- Father recently died, unclear causes
- Subsequently developed worsening mood changes accompanied by paranoia, auditory hallucinations, and delusions about mother's boyfriend trying to take over family.
- Hospitalized with psychosis three years ago and physically restrained, resulting in distrust of healthcare system and PTSD.
- Today, his mother calls PCP weekend pager – patient not sleeping much, not answering phone. When she last saw him the he looked disheveled. She is worried about his decompensating and not being able to care for self.

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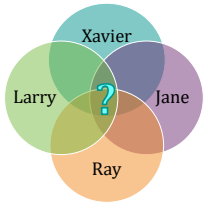
Larry, 68M – Can't keep anything down

- HIV controlled on HAART, HTN, presented with hypotension (SBP 70s) after several days of gastroenteritis with poor PO intake, and still adherent to his BP meds.
- ED workup showed no serious cause other than volume losses and good response to fluid boluses, so he was discharged home with plan for in-home next-day follow-up.

What do these cases have in common?



The problem: Access to urgent care for the most needy

Dual-eligible individuals are uniquely in need of urgent care innovations

Compared to non-duals, 12 million dual-eligible Americans have:

Greater risk of urgent health issues and of costly downstream care
- Higher risk of chronic conditions:
  Alzheimer's >2x, COPD 1.7x, CHF 1.6x, diabetes 1.4x
- **60% increased inpatient** hospital utilization, at 22% higher cost per user
- **125% increased SNF** utilization, at 32% higher cost per user

Greater barriers to accessing urgent care:
- Disability - 2.5x increased likelihood of 1+ ADL limitation
- Health literacy – 4x increased likelihood of less than HS diploma
- Social support – 3.9x less likely to live with spouse, 27% more likely to live alone
- Discrimination – 2.6x more likely to identify as people of color

Source: MedPac/MACPAC, 2022

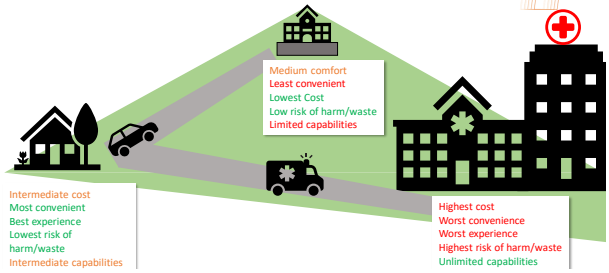
The broader problem: ED use in America

Americans make ~140 million ED visits annually, costing ~$75 billion[2].

- **Massive costs, many avoidable**
  - About 34% of visits are likely unnecessary[1]
  - Roughly 12.6% of ED visits result in admission[2]
  - For Medicare beneficiaries, the admission rate is 2x higher – 24.5[3,]
  - Duals patients have ~ 1.8X the hospitalization rate of non-duals[4].
- **Societal and health system factors contribute to low-value ED utilization**
  - Shrinking primary care workforce, often inefficiently used
  - EMS fragmented and poorly incentivized except to transport
  - Deferred care during COVID-19 resulting in preventable illness
  - EDs poorly equipped to provide high-value non-emergency care

(1. Uscher-Pines, et.al, J. Managed Care, 2013; 2,3. NHAMCS ED-2018, 4. KFF.org)

Where should patients get care?



What defines "good" health care?

BEST HOSPITALS U.S.News 2022-23

AHRQ Agency for Healthcare Research and Quality

NATIONAL QUALITY FORUM Driving measurable health improvements together

Quality?	Cost?	Access?	Satisfaction?	Equity?
Evidence-base?	Convenience?	Reputation?	Not-for-profit status?	Research?

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The Commonwealth Fund

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Value: A Good 'North Star' of Health Care

$$\text{Value} = \frac{\text{Outcomes}}{\text{Cost}}$$

Emphasizing what matters to patients

As measured over full cycle of care

What Is Value in Health Care?
Michael E. Porter, Ph.D.

Harvard Business School

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Value: A Good 'North Star' of Health Care

$$\text{Value} = \text{Appropriateness} \times \frac{\text{Outcomes + Service}}{\text{Cost}}$$

Modified from: Virginia Mason INSTITUTE

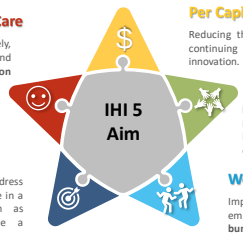
The Quintuple Aim for Health Care (IHI)

Patient Experience of Care

Including **Quality** (Safe, Timely, Effective, Efficient, Equitable, and Patient-Centered) *and* **Satisfaction** (e.g. CAHPS, NPS, etc)

Health of Populations

***Upstream* interventions** to address disease risk, thinking of everyone in a community or health system as someone who could become a patient.



Per Capita Cost

Reducing the **Cost of care** through continuing improvement efforts and innovation.

Health Equity

Reducing disparities in health care and its outcomes by identifying disparities, implementing interventions, measuring equity, and incentivizing its achievement.

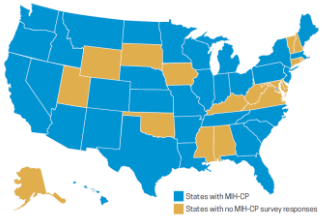
Workforce Well-Being

Improving **joy in work**, increasing employee **development**, addressing **burnout**, leveraging **relational** coordination, and viewing **care of the team** as essential to care of the patient.

(presentationgo.com)

II. The History of MIH-CP and CCA's Pilot

MIH-CP Services in the US (NAEMT 2018 survey)



- 129 programs identified in 33 states + DC
- 70% CP, 30% MIH
- 57% Urban
- 52% Suburban
- 44% Rural
- 11% Super Rural
- 60% < than 3 years in operation

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Acute Community Care pilot (2014)

Paramedics branch into home care

By Priyanka Dayal McCluskey Globe Staff, May 30, 2014, 8:42 p.m.

"This is the new house call of the future."
-George Gilpin, chief of EasCare Ambulance

"Sometimes we we wondered if we really needed to take them to the hospital. Is there something we could have done for them in their home? This will give us that opportunity."
-Greg Davis, program project manager.

"In terms of the quality of care we will be able to deliver, it's a game changer."
-Toyin Ajayi, CCA Chief Innovation Officer

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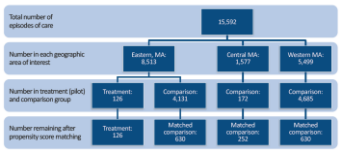
Acute Community Care pilot (2014)

Exhibit 2: Identifying Episodes of Care in the Treatment and Comparison Groups



- Patients found care to be higher quality compared to ED
  - 55% vs 41% "excellent" or
  - 32% vs 24% "very good"
- And rated decisions about their care "definitely right"
  - 66% vs 55%
- Savings estimates depend on timeframe but range from $791-3,677

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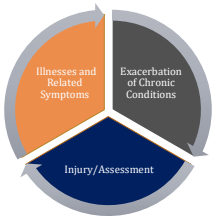
How instED Helps

We bring diagnostic testing and treatment capabilities to the patient's home.

Illnesses and symptoms:
- Urinary Tract Infections
- Cellulitis
- Shortness of breath
- COVID and flu-like symptoms
- Migraine/Headaches
- Back and joint pain
- Abdominal pain
- Weakness/lethargy
- Dehydration
- Nausea/Vomiting
- Altered Mental Status
- Edema
- Fever/chills
- Anxiety/depression



Chronic Conditions:
- Congestive Heart Failure
- Asthma/COPD
- Chronic kidney disease
- Diabetes
- Autonomic dysfunction
- Behavioral Health

Injury Treatment
- Fall Assessment
- Muscle strain and spasm
- Basic Wound Care
- Sprains and Strains
- Burns

Including point-of-care testing, blood draws, cultures, ECGs, IV therapies, and first dose medication.

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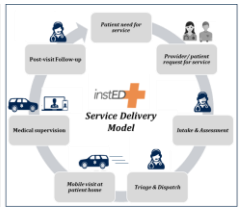
An innovative platform for high-value urgent care

With proven ability to keep patients safe at home

instED provides an **in-home alternative** to Emergency Department care, using specially-trained **paramedic technicians** and **physicians** working together via telehealth.

We aim to improve healthcare value through:
- Superior patient experience.
- Top-quality clinical care.
- Prevention of avoidable ED visits and admissions.

We provide visits **10am—10pm every day of the year.**



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Xavier's instED visit

We are called about a possible kidney infection

- Xavier called his PCP's office, a Springfield-area community health center affiliated with Baystate. His PCP was not in the office but the nurse he spoke with advised him to go to the ED for a likely UTI vs kidney infection, and a possibility of recurrent C Difficile.
- The patient called his Case Manager, who requested a visit for him today.

I-STAT to analyze a blood sample (left) and medications. CRAIG

Xavier's instED visit

What we found at his home

- Bedside evaluation reveals an ill-appearing but hemodynamically stable patient.
- Urine testing shows probable UTI.
- Paramedic evaluates the ostomy output and reports "yes this definitely seems like C Diff"
- Physician discusses possible option to treat at home, but given complexity of issues, hospitalization would also be appropriate.
- Patient and family strongly prefer treatment at home, if not unreasonable. *"Please, please don't make me go to the hospital."*

Xavier's instED visit

- Physician calls pharmacy to see if they stock first-line treatment for C Diff.
  - "We've never even heard of that medication."
  - But they carry the alternative agent, another good option.
- Physician calls back to paramedic and discusses plan and options. Patient very interested in treatment at home and very grateful.
- IV fluids and first dose of antibiotics given.
- Symptoms improve with treatment over next few days.

Why Patients, Providers, and Payors Love MIH

A solution where everybody wins

- Patient:
  - Timely urgent in-home visit helped him to feel better
  - Spared him from a guaranteed admission and a guaranteed longer ED wait
  - Enabled him to make a choice about his own care
  - Called him the next day to ensure improving and sometimes to adjust care plan.
- Case Manager: MIH allowed her to delight a CCA member by providing an almost magical service in a time of need.
- PCP team: MIH was a powerful tool they could mobilize to help their patient, while also freeing up office resources (i.e. lengthy visit or care coordination) and still being kept in the loop after the visit (and during, if desired).
- Payor: MIH visit prevented a ~$12,000 hospitalization.
- Baystate Hospital: Spared a hospitalization that would have required extra resources.

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Jane's instED visit

- Primary Care RN requests instED after Jane's call, scheduled for 4-5PM
- Paramedic dispatcher calls Jane to confirm ETA
- Paramedic arrives at 4:15, greets and begins evaluation
- Vitals OK, legs and lungs show fluid buildup
- EKG: no heart attack or arrhythmia
- Point-of-care labs: low potassium, high creatinine
- Environment: House very cold, heat set to 62 to save $
- Calls Virtual Medical Control physician to discuss

Jane's instED visit

Paramedic and physician discuss plan:

- 80 mg IV Lasix and 40 meQ potassium now

Calls back after treatment; Jane is feeling a bit better.

Plan for after visit:

- Increase home medication dosed
- PCP office notified and asked to arrange appointment or telehealth visit on Monday
- Care manager notified about heating issue (which can worsen heart function), asked to pursue heating assistance
- Refrigerator magnet with instED number left behind

Jane's instED visit

The day after visit:

- instED team places post-visit call.
- Jane feels much better, believes she was spared an ED visit. Rates instED 10/10.

"Thank you, but I have to go, it's Thanksgiving!"

Ray's instED visit

- MIH medic arrives at 3 PM, finds Ray safe, clothed, calm, but disorganized and anxious
- Home is very messy but free of safety hazards
- Patient reports not taking his meds for a few days
- Medical control physician chats with Ray over video, coaches him into taking today's medications
- instED team calls Ray's Case Manager and BH clinicians the next day
- Partial hospital program placement arranged
- Ray avoids worsening decompensation, 911, law enforcement involvement

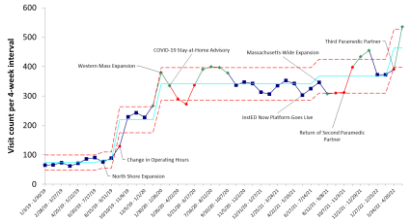
Larry's instED visit

- Medic checks vitals, orthostatic BPs, physical exam.
- Finds Larry's BP has improved (90s/60s), but still with orthostatic drop, +LH, dry mouth.
- Larry feeling tired, keeping down Gatorade.
- MIH medic gives IV fluids and ondansetron (Zofran, anti-emetic)
- Physician prescribes 5-day PRN meds, sends additional lab testing
- Larry improves with supportive care and avoids ED re-presentation or readmission

III. instED's Results and Lessons from 9 Years Experience

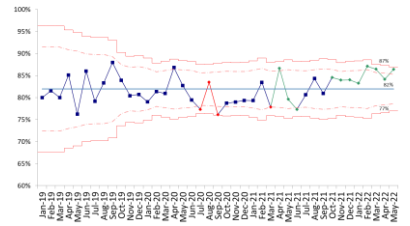
Demand for MIH visits continues to grow

instED visits per 4-week period, 2019-May 2022, c-chart, 3-sigma



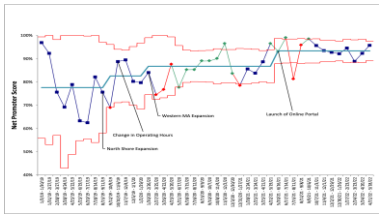
ED Avoidance remains consistently high

Three-Day ED Avoidance Rate, 2019-May 2022 (p-chart, 3 sigma)



Experience: Our Patients Are Among the Happiest in Health Care

instED NPS, 2019-May 2022 (28-day intervals p-chart, 3 sigma)



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Equity: MIH Appears to reduce disparities according to race or disability

Health Equity: Visit Rates Among People from Historically Vulnerable Groups		
	Visits per/1000	Share with visits
Black members	118	5.3%
White members	76	3.6%
Chi-square result	$X^2 = 109$	p<0.00001
Affected by phys. disability	332	12.0%
No physical disability	61	3.2%
Chi-square result	$X^2 = 1310$	p<0.00001

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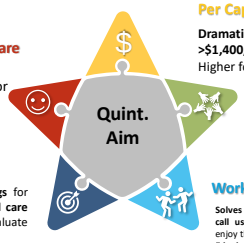
Our results according to the Quintuple Aim

Patient Experience of Care
NPS of 91.3% in 2021
Compared to 30-49% for ED and urgent care

Health of Populations
We **check overdue screenings** for disease mgmt, lead **advanced care planning** discussions, and evaluate home safety issues.



Per Capita Cost
Dramatic short-term cost savings >$1,400/visit, $2.5m/1000; Higher for higher-risk sub-groups.

Health Equity
Black patients 50.3% more likely to have instED visits than white patients. No group less likely.

Workforce Well-Being
Solves key pain point for primary care, who call us "a life saver." Paramedic partners enjoy the expanded role. Our docs call instED **"the best moonlighting gig in Boston."**

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instED's results: Value for patients and systems

Outcomes: Robust ED avoidance.

- **89% of patients treated at home** without escalation to ED
- **85% remain free of need for ED** care at 3 days, 82% at 7 days.

Service: instED delights our patients and the clinicians who use us.

- **91.3% Net Promoter Score (vs. 30-49% conventional ED/Urgent Care)**
- Frequent users call instED "invaluable" and "a lifesaver."

Cost: >$1,400 saved per visit, additional impact evaluation ongoing.

Appropriateness: Our processes ensure instED is the best option.

- 5-10% of requests diverted when a more appropriate resource exists
- Usually due to acuity mismatch (too low or too high).
- ~>10,000 hospital days avoided during COVID pandemic.

$$\text{Value} = \text{Appropriateness} \times \frac{\text{Outcomes} + \text{Service}}{\text{Cost}}$$

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A Recent instED Visit for XG, 25 yo M

What we found at his home

- Bedside evaluation reveals an ill-appearing but hemodynamically stable patient.
- Urine testing shows probable UTI.
- Paramedic evaluates the ostomy output and reports "yes this definitely seems like C Diff"
- Physician discusses possible option to treat at home, but given complexity of issues, hospitalization would also be appropriate.
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A Recent instED Visit for XG, 25 yo M

What we did to help Mr. G.

- Physician calls pharmacy to see if they stock the first-line treatment for C Diff.
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Why Patients, Providers, and CCA Love instED

A solution where everybody wins

- Patient:
  - instED helped him to feel better AND
  - Spared him from a guaranteed admission and a guaranteed longer ED wait (due to infection/isolation needs), AND
  - Enabled him to make a choice about his own care, rather than demanding he to take the one-size-fits-all approach.
- Care partner: instED allowed her to delight a CCA member by providing an almost magical service in a time of need.
- CCA Clinical Group: instED prevented a ~$12,000 hospitalization.
- Baystate Hospital: Spared from a hospitalization that would have required disproportionate resources – private/isolation room and more intensive nursing.

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IV. Solutions and Barriers

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Providing urgent care in the comfort of home

Thank you!

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