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Primary Palliative Care for Emergency Medicine

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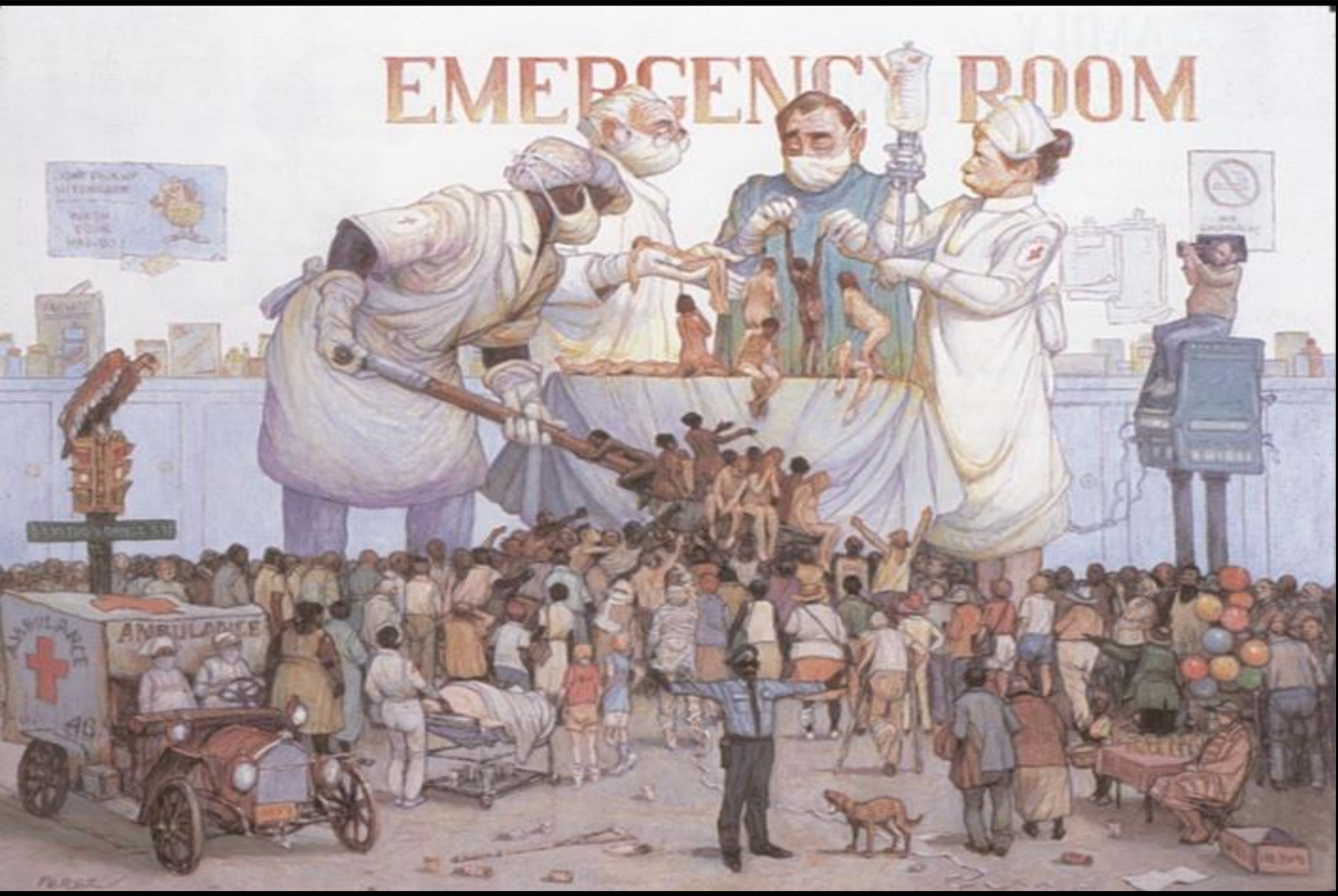
EMERGENCY ROOM
AMBULANCE

Research in emergency care

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Window to population health

Research agenda to end disparities, & address the needs of society's most vulnerable

Background

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Increasing ED visits by older adults with serious illness

Most prefer to receive care at home and to minimize life-sustaining procedures

Palliative care improves quality of life and decreases health care use

Default Approach

Primary Palliative Care for Emergency Medicine
UG3/UH3 funded by NCCIH and NIA

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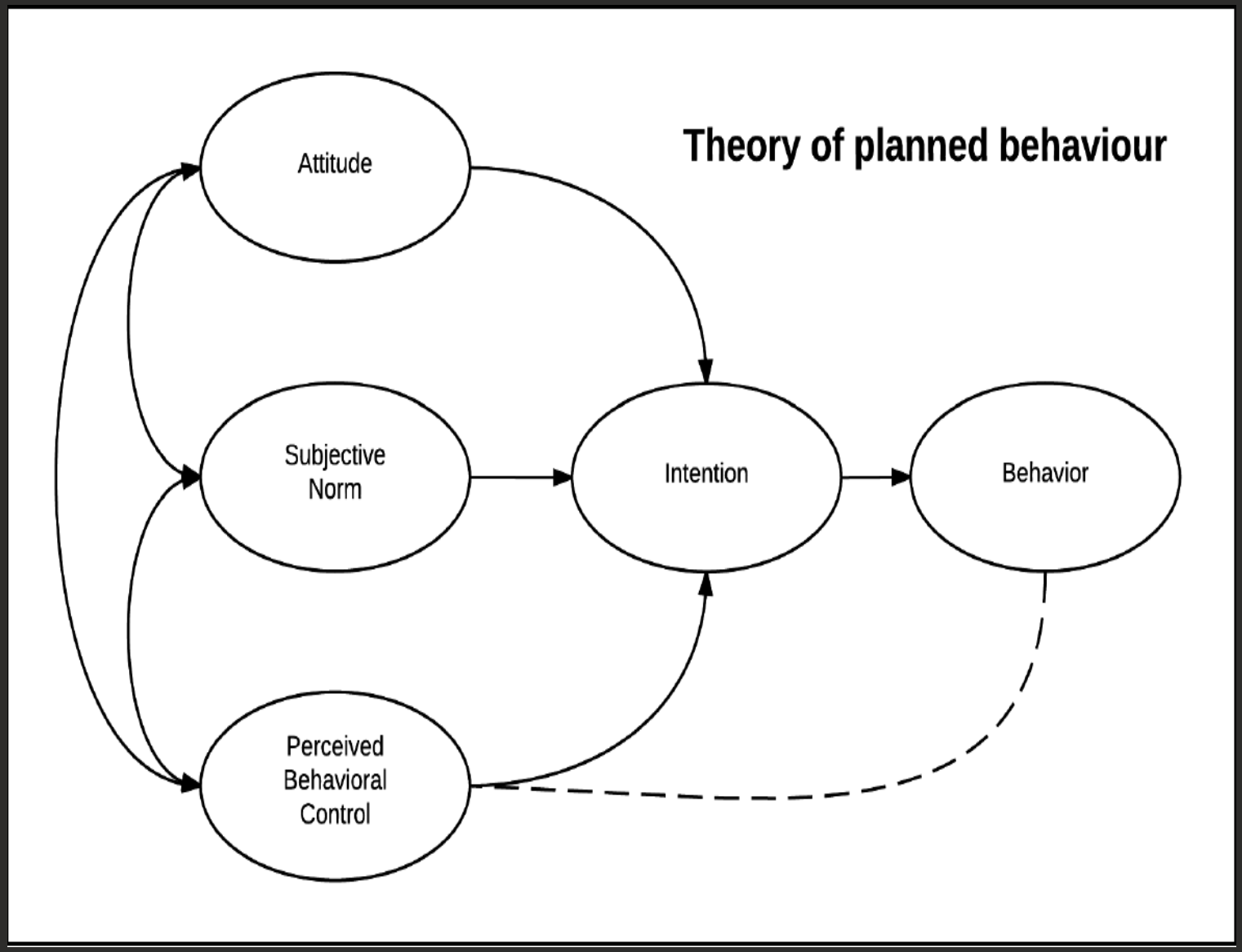
Goal of PRIM-ER: provider and system change



PRIM-ER Intervention Components

1. Evidence-based, multidisciplinary primary palliative care education (EPEC-EM, ELNEC);
2. Simulation-based workshops on communication in serious illness (EM Talk);
3. Clinical decision support (CDS); and
4. Provider audit and feedback.

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Primary and Secondary Outcomes

UH3 Aim	Variable	Instrument/Coding	Source	Time
3a.	Acute Care Admission	Yes/No (Inpatient, non-palliative admission)	Inpatient and Outpatient Research Identifiable Files (RIF)	Index ED visit
3b.	ED Revisit Inpatient Days Hospice Use Home Health Use	Count Count Yes/No Yes/No	Inpatient and Outpatient RIF Inpatient RIF Hospice RIF Home Health RIF	Up to 6 months from index ED visit Up to 6 months from index ED visit Up to 6 months from index ED visit Up to 6 months from index ED visit
3c.	Survival	Days (Count)	Vital Status RIF	Up to 6 months from index ED visit or death
*Primary and secondary outcomes to be measured as change in measures from baseline to 4 weeks post-implementation for UH3 Phase, Aim 3.				

Hypothesis: Older adult visitors with serious, life-limiting illness cared for by providers with primary palliative care skills will be less likely to be admitted to an inpatient setting, more likely discharged home or to a palliative care service, will have higher home health and hospice use, and fewer inpatient days and ICU admissions at 6months, and longer survival than those seen prior to implementation

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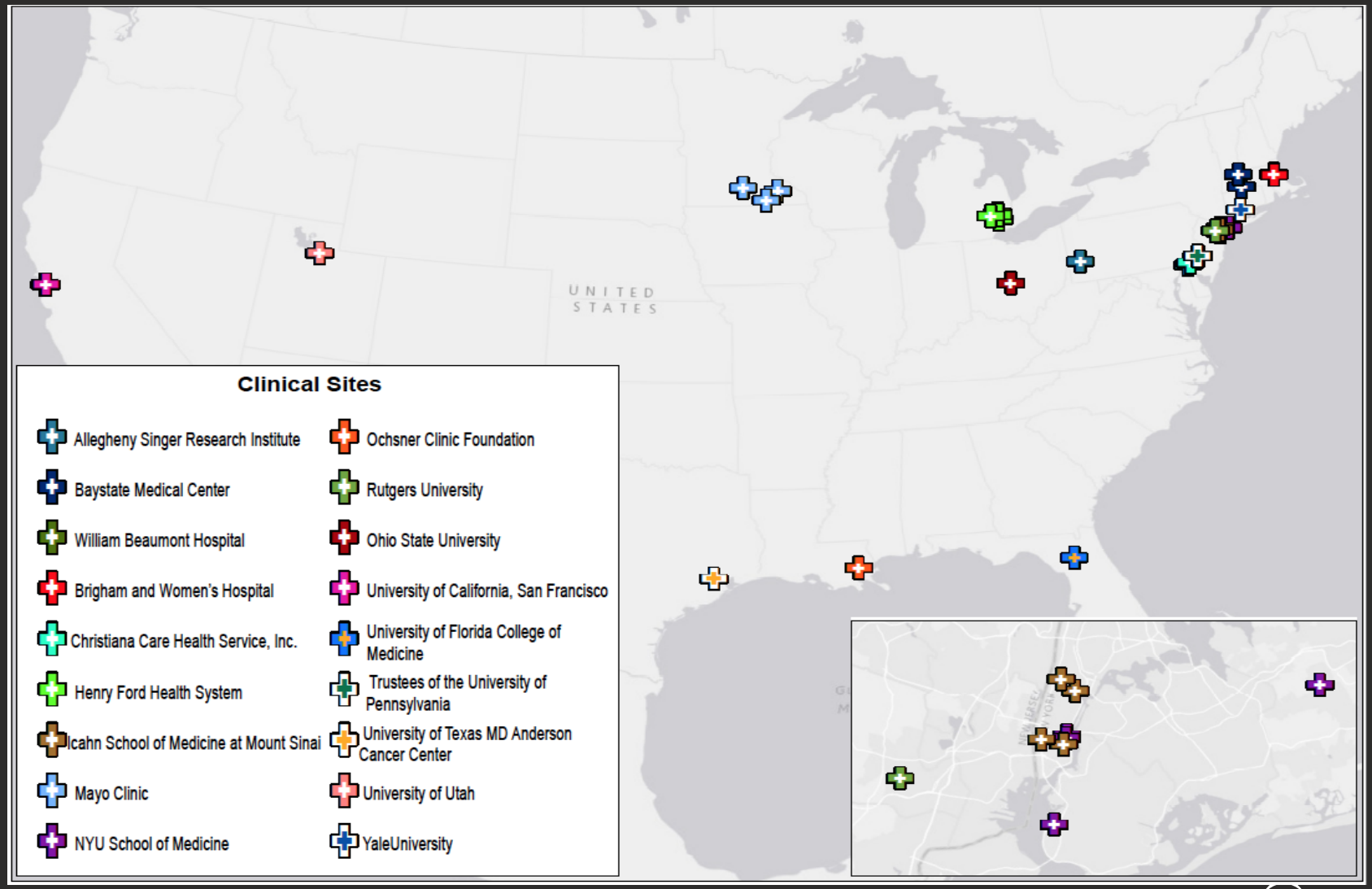
18 Health Systems



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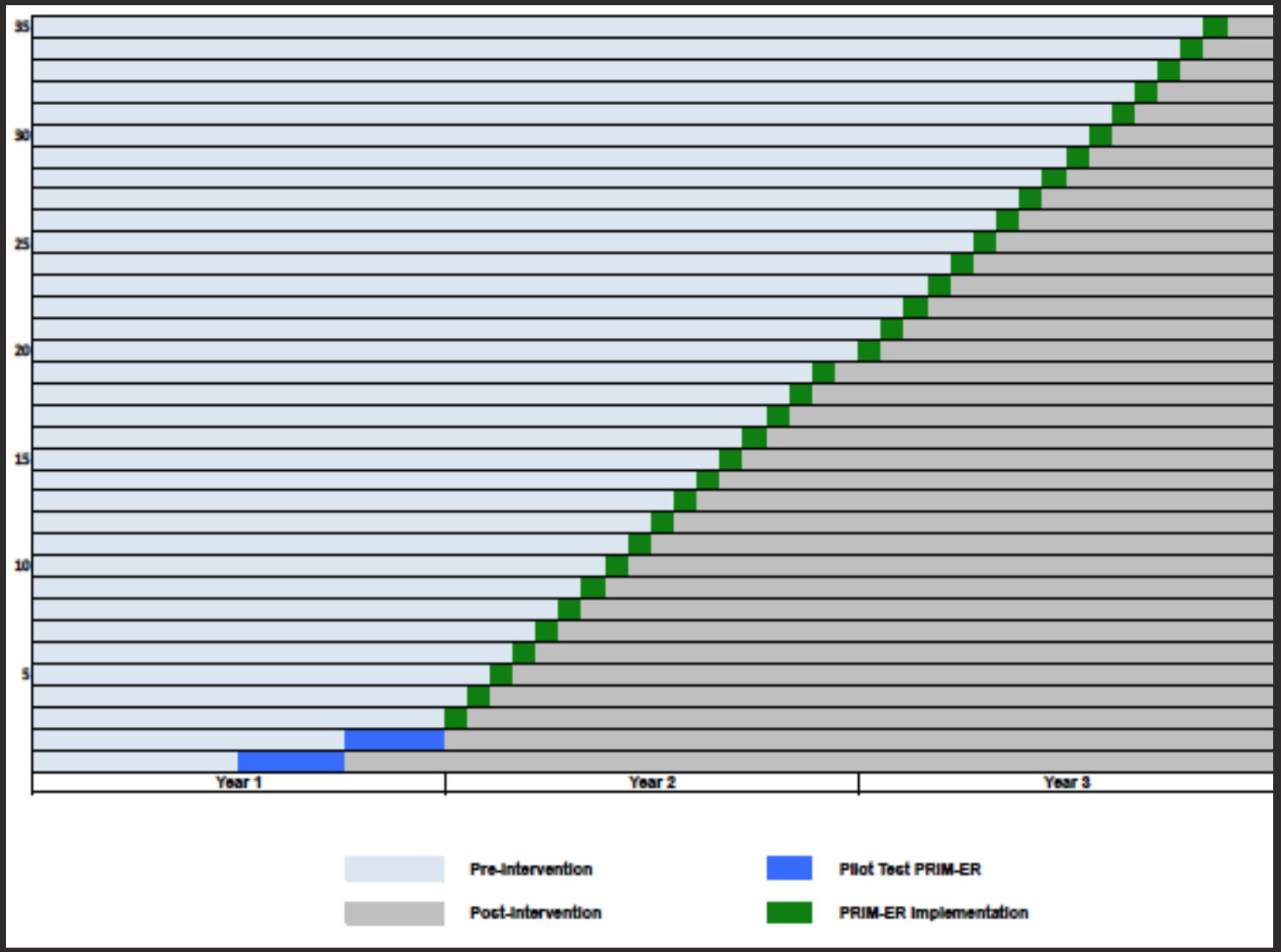
Cluster Randomized, Stepped Wedge Trial @ 35 EDs



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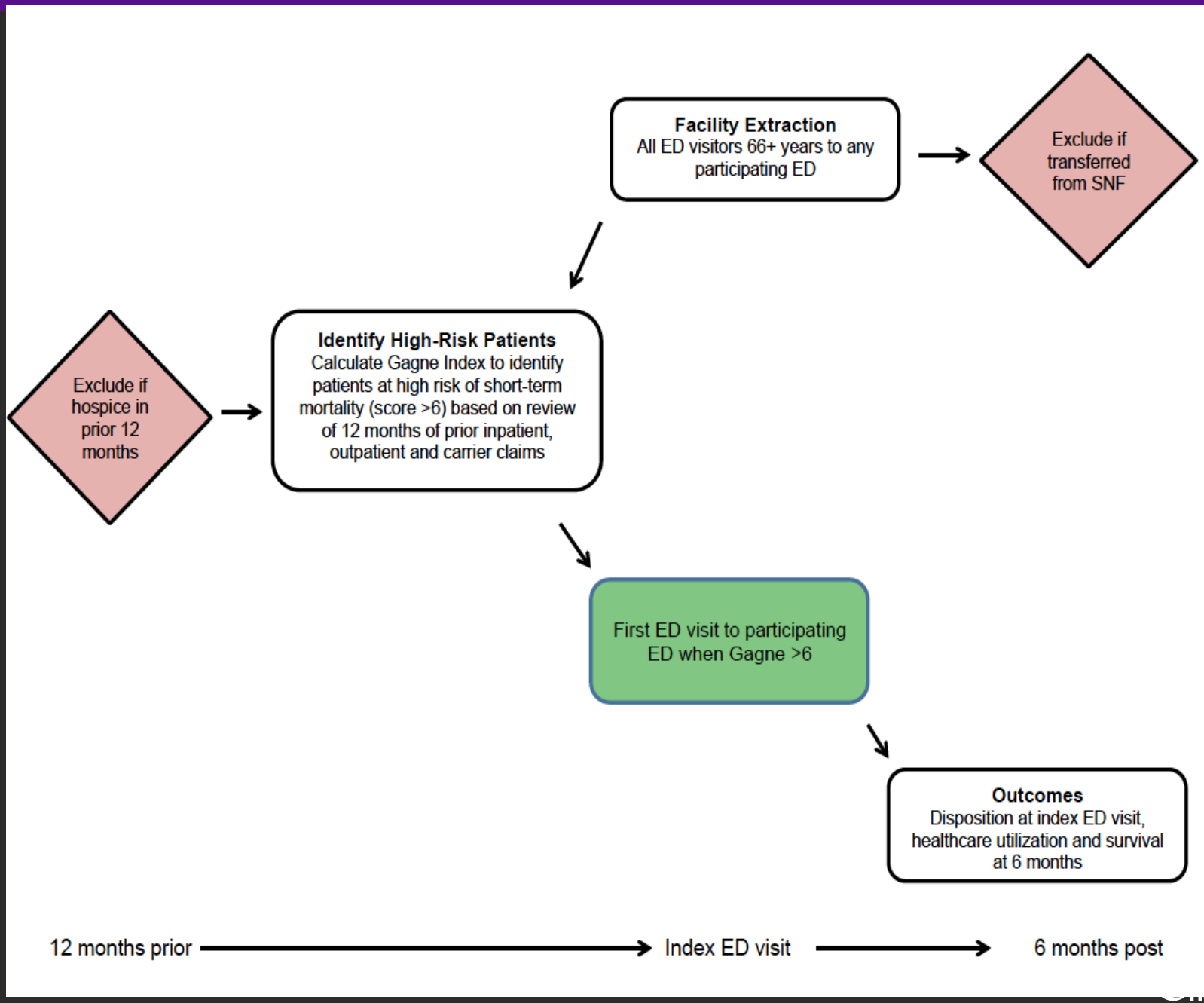
Facility Extraction
All ED visitors 66+ years to any participating ED
Exclude if transferred from SNF
Exclude if hospice in prior 12 months
Identify High-Risk Patients
Calculate Gagne Index to identify patients at high risk of short-term mortality (score >6) based on review of 12 months of prior inpatient, outpatient and carrier claims
First ED visit to participating ED when Gagne >6
Outcomes
Disposition at index ED visit, healthcare utilization and survival at 6 months
12 months prior
Index ED visit
6 months post

Implementation

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COVID-19 Main Study Adaptations

Beginning April 1, 2020 we took a 6 month study pause

- Original plan: Intervention was scheduled to be complete on June 21, 2021
- Adaptation: Resumed the stepped-wedge sequence as originally planned in September 2020. Last site completed their intervention on December 6, 2021

Simulation-based workshops on communication in serious illness (EM Talk)

- Original plan: Course was offered in-person to physicians and APPs
- Adaptation: Switched to a virtual Zoom platform and breakout rooms for concurrent sessions.

Training curricula and platform for EM nurse curricula remained unchanged as it was originally online.

CDS and Audit and Feedback components unchanged.

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Barriers for Implementation

Pre COVID-19	During COVID-19
1. General • Competing priorities (ex. Joint Commission visit, other faculty development topics, QI, or research projects)	1. General • Emergency provider burnout: *"Why is leadership asking us to do another thing?"*
2. EM Talk • Scheduled conferences and vacations during 3-week implementation period	2. EM Talk • Distractions at home and/or no quiet space Children playing/walking in and out • Dogs barking • Providers out sick with COVID and/or must cover for other colleagues
3. Nurse component • Buy-in from EM nurses that Palliative Care is/should be part of their job	3. Nurse component • EM nurse shortages and burnout *"I don't have the time to take a 1 hour course online"* and *"I don't want to work on my free time while I'm juggling with my kids"*
4. CDS component • Challenges identifying the appropriate IT analyst who could create the build • Competing requests	4. CDS component • Local IT teams prioritizing COVID-19 related requests • Staffing shortages and limited capacity • Long approval processes • Site champions/IT often deciding to implement fewer CDS options

Progress to Date

Baseline survey (n=2,895)

- Short 3 minute survey one month pre-implementation assessing *knowledge, experience, and attitudes* on palliative care and hospice
- All data collection is complete

Intervention

- All 33 UH3 sites have completed the intervention

Post implementation

- Study team will be checking in with each of the 33 sites to understand:
  - What (if any) CDS changes have been made
  - Plans for ensuring new hires receive training materials (i.e. sustainability)
- In progress analyses: Baseline survey validation; Preliminary baseline survey results; Baseline outcome measures using Medicare Claim's data; Alzheimer's supplement

Dissemination

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Preliminary Implementation Data

All 33 sites reached the baseline survey completion goal

- Goal: 65% response rate of full-time emergency providers (Physicians, APPs, Nurses, Social Work/Case Managers)

Trained **2,470** emergency providers

- Physicians/APPs: 879
- Nurses: 2,232

Of the 33 UH3 sites:

- 32 sites reached the training goal for Physicians and APPs
  - 4 hour training; Goal: 75% of full-time EM faculty
- 31 sites reached the training goal for nurses
  - 1 hour online training; Goal 75% of full-time EM nurses

All sites implemented at minimum one CDS and conducted audit and feedback

- Alert variation ranged from passive banners to interruptive alerts

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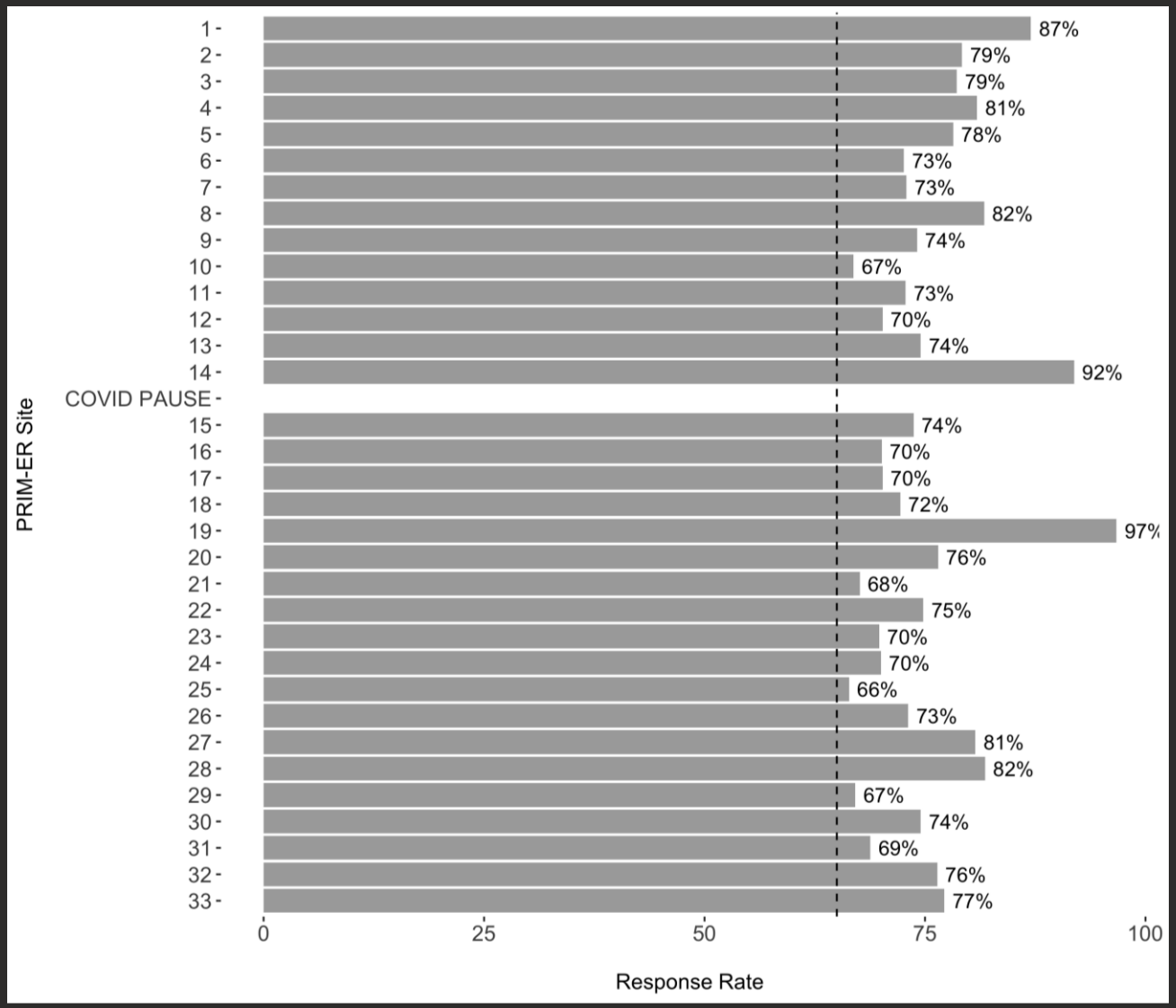
Baseline Survey Response Rates



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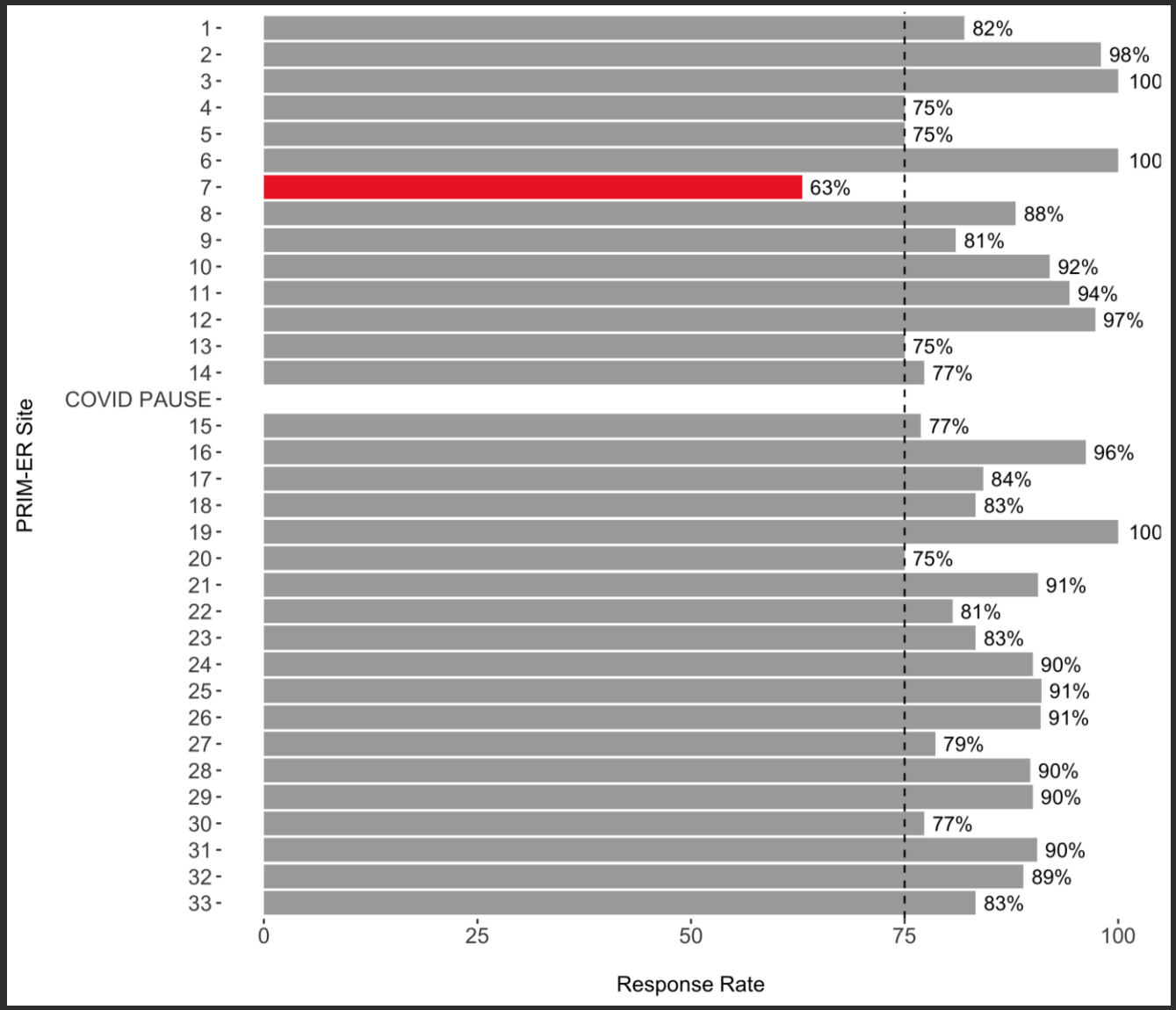
EM Talk Implementation Attendance Rate



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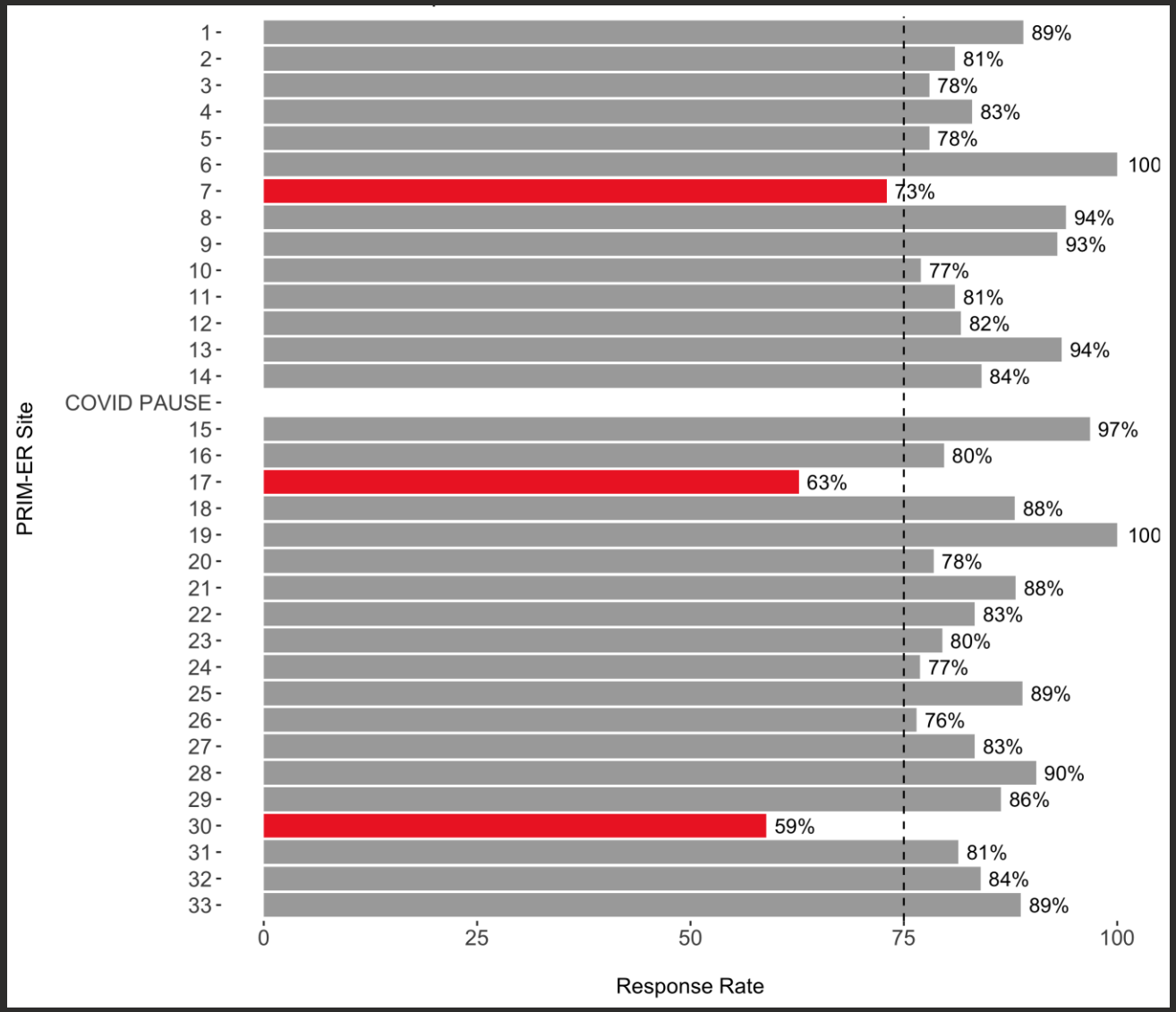
ELNEC Implementation Course Completion Rate



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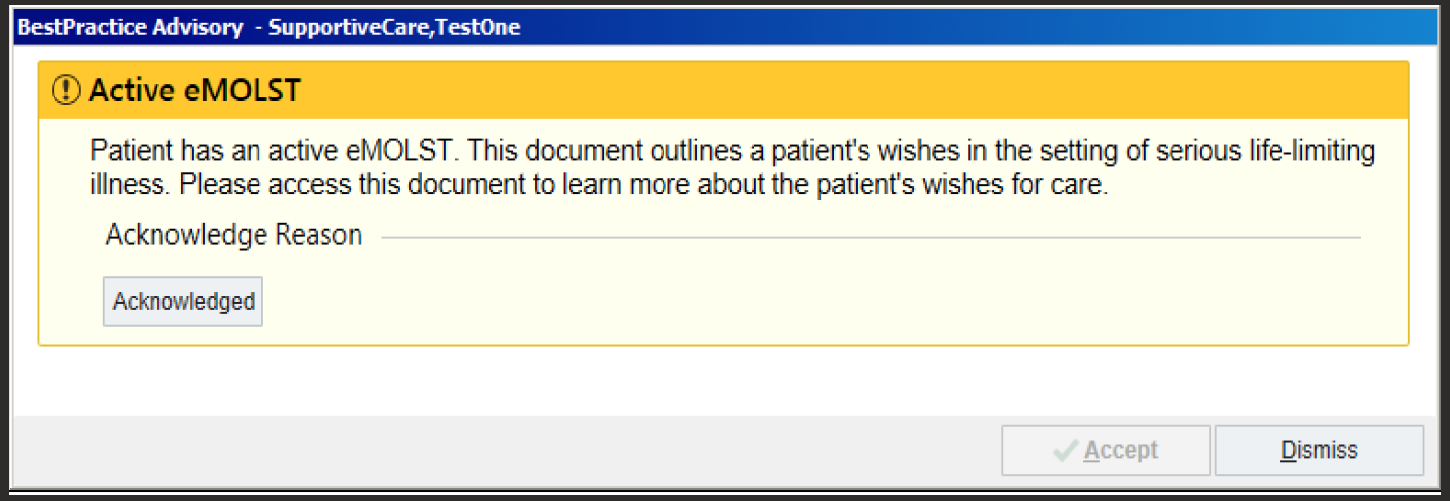
Clinical Decision Support @ NYU Langone

Function 1. Identify seriously ill patients with advance care planning documents



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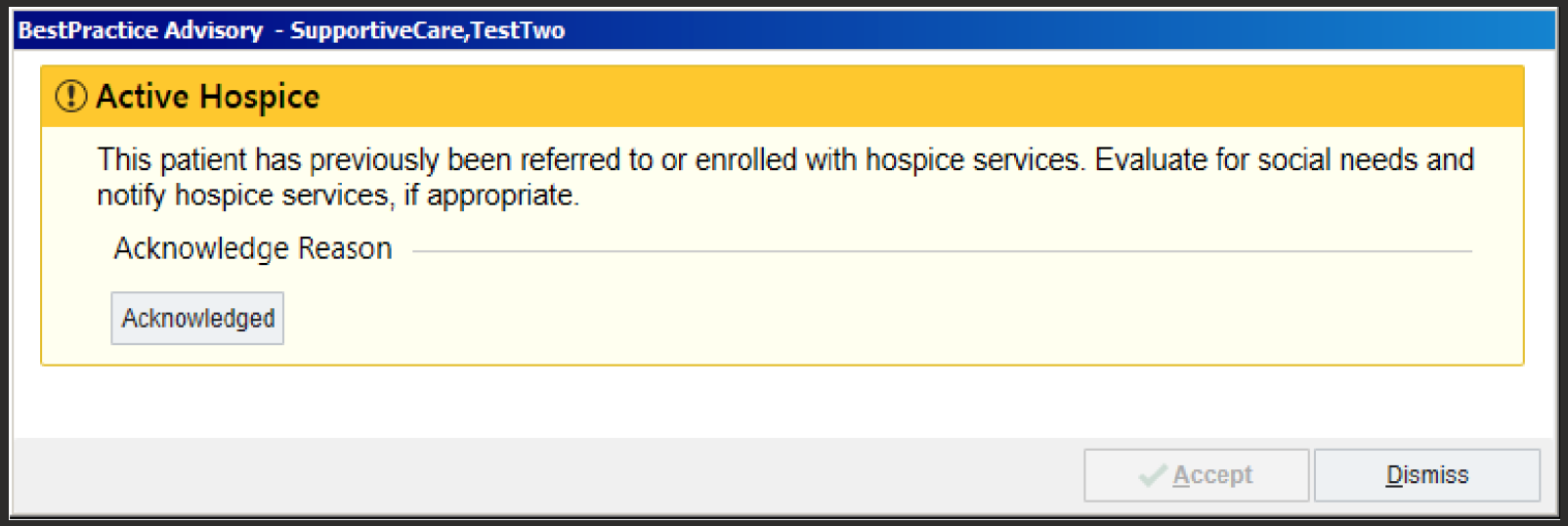
Function 2. Identify patients on hospice.



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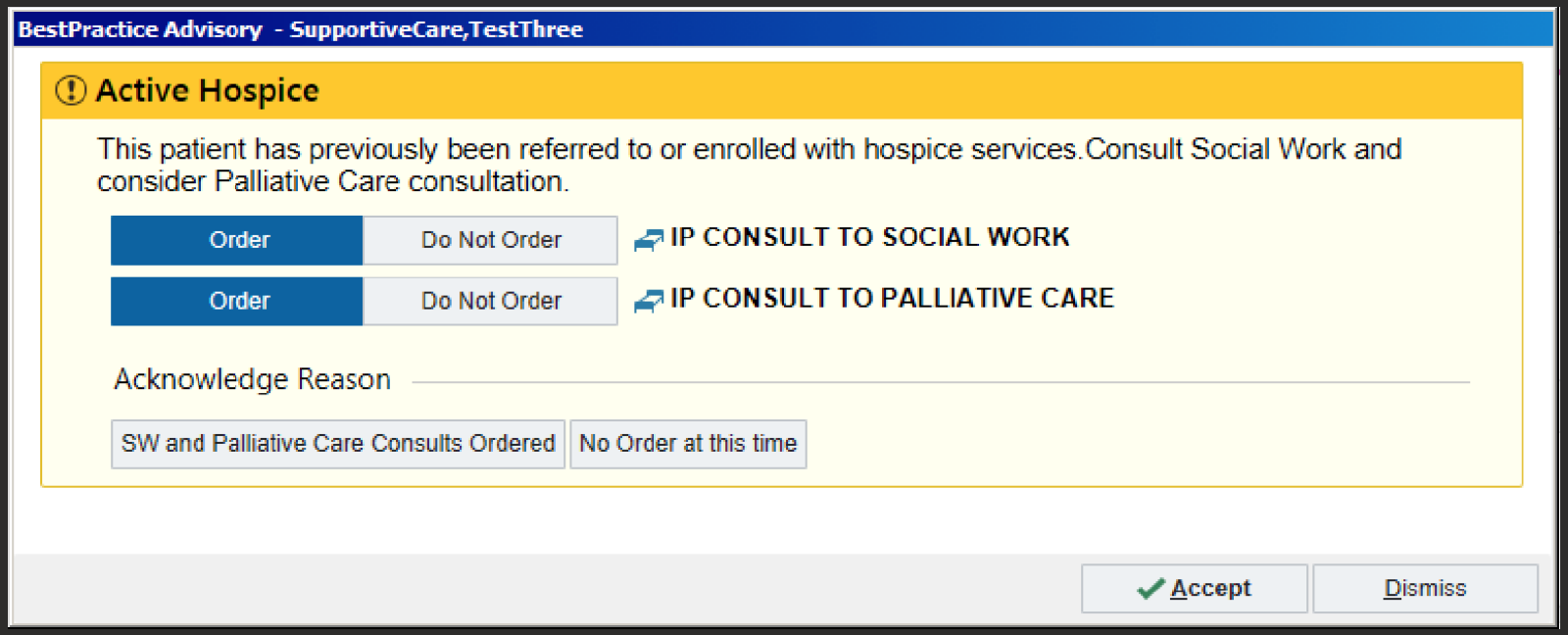
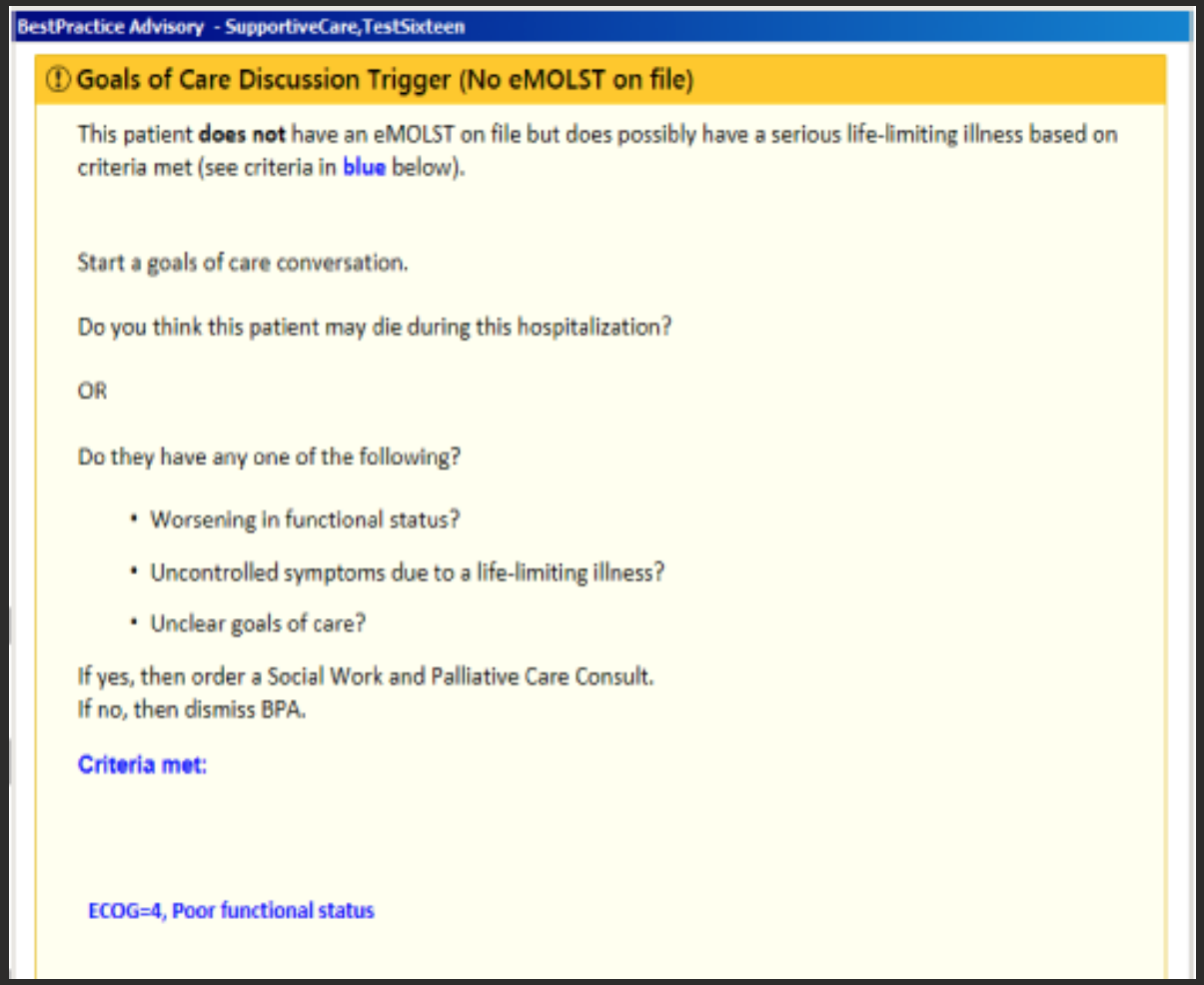
Function 3. Refer patients to interdisciplinary services.



Function 4. Initiate goals of care conversation.


BestPractice Advisory - SupportiveCare,TestSixteen

Goals of Care Discussion Trigger (No eMOLST on file)

This patient **does not** have an eMOLST on file but does possibly have a serious life-limiting illness based on criteria met (see criteria in **blue** below).

Start a goals of care conversation.

Do you think this patient may die during this hospitalization?

OR

Do they have any one of the following?

- Worsening in functional status?
- Uncontrolled symptoms due to a life-limiting illness?
- Unclear goals of care?

If yes, then order a Social Work and Palliative Care Consult.
If no, then dismiss BPA.

Criteria met:

ECOG=4, Poor functional status

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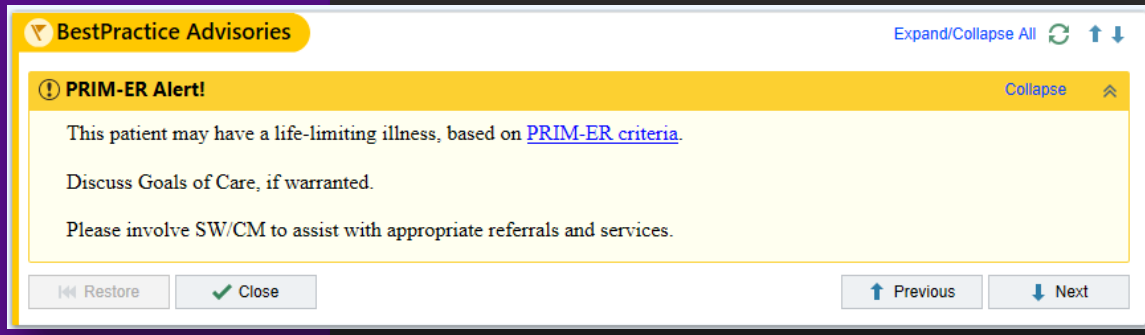
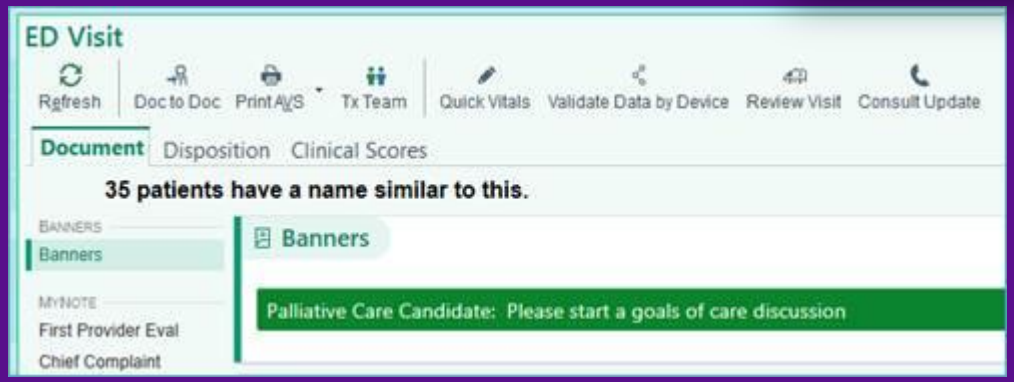
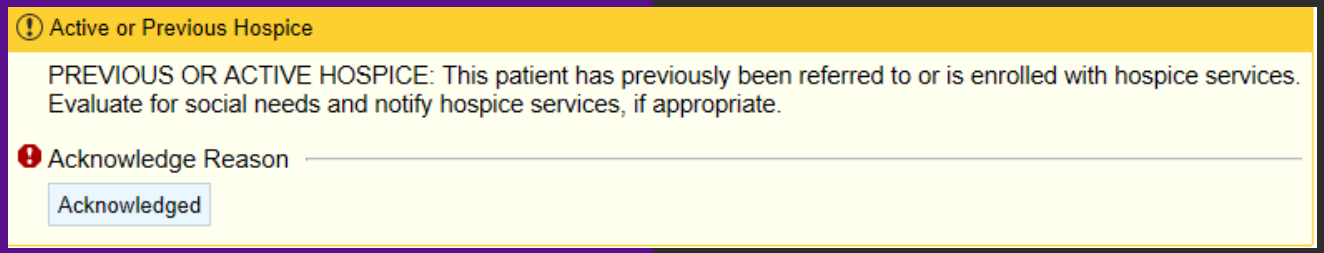
Clinical Decision Support Samples from other UH3 sites







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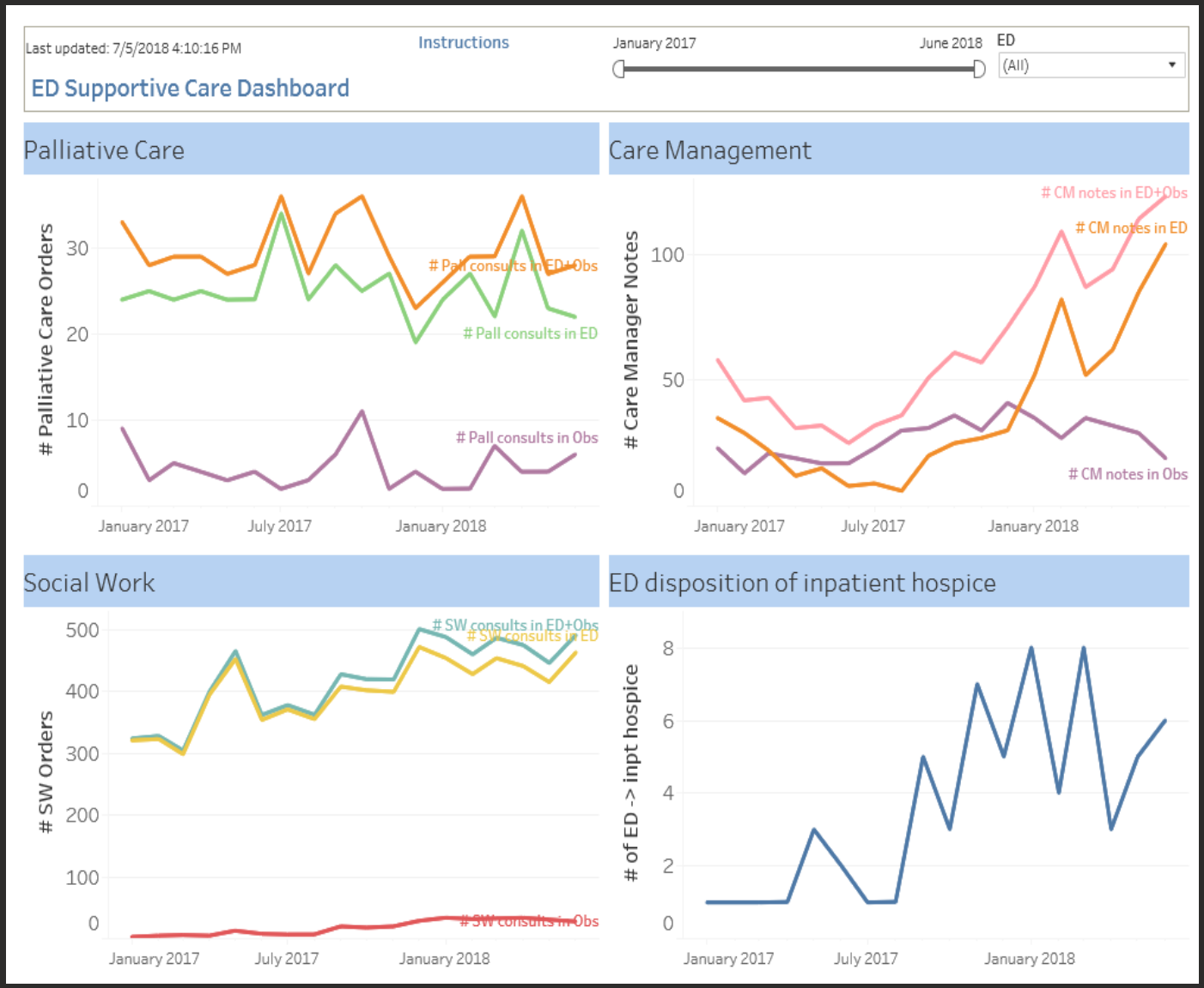
Audit and Feedback Dashboard @ NYU Langone



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Ongoing Analyses

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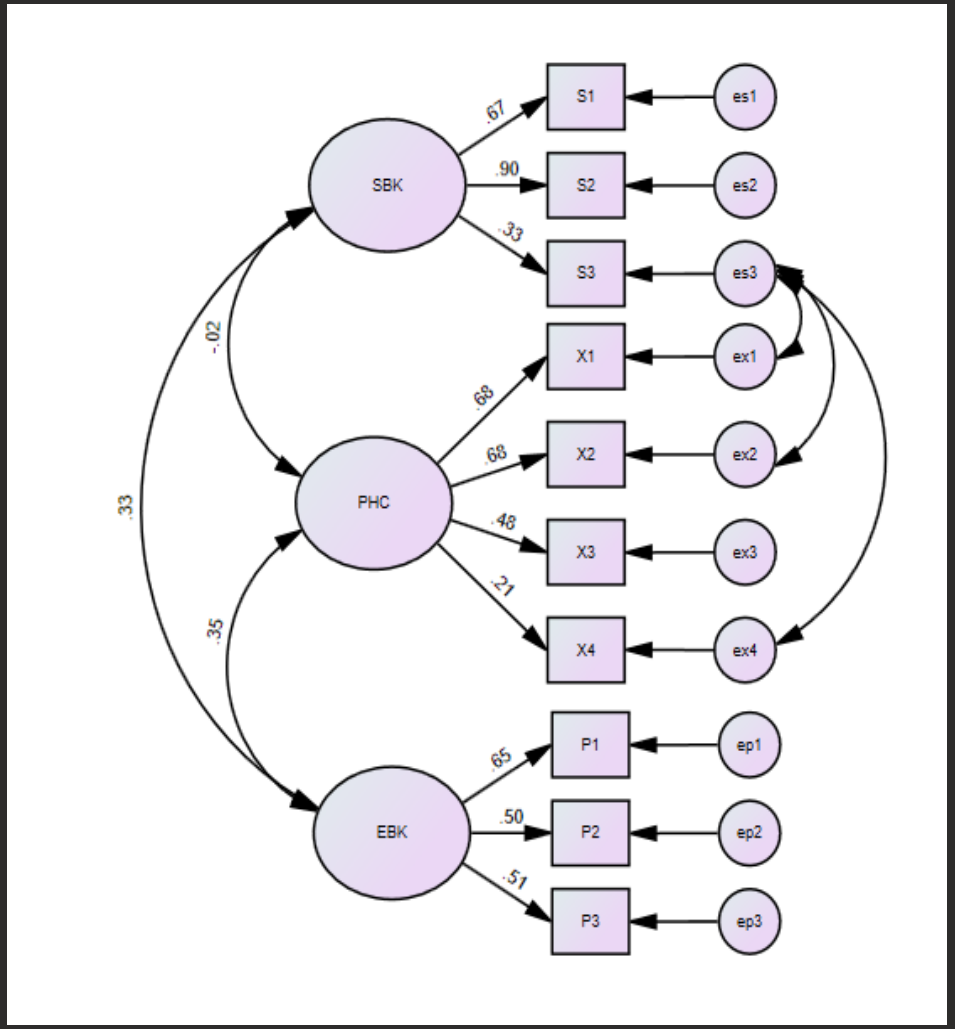
Part 1: Survey Validation

- Baseline survey assessing provider's knowledge, experience, and attitudes towards palliative care
- Structure: 10 item survey instrument
- Scoring range: 10 to 50
- Subscales:
  - Skill-based knowledge (SBK)
  - Perception towards hospice care (PHC)
  - Experiential-based knowledge (EBK)
- Scale Metrics:
  - Reliability (Cronbach α): 0.64
  - Scale Content Validity: 0.91
- Subscale Metrics
  - Confirmatory Fit Index: 0.969
  - Root Mean Square Error of Approximation: 0.04 (90% CI: 0.01 – 0.07)



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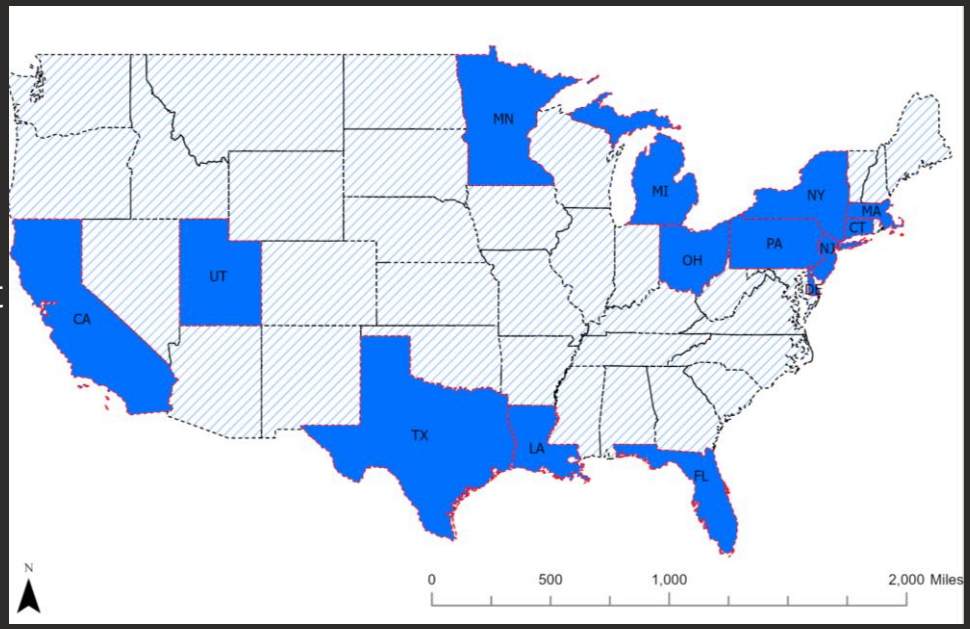
Part 2: Preliminary Baseline Survey Results
Emergency Provider's Knowledge, Experience, and Attitudes Toward Palliative Care

Methods

- Surveys collected between July 23, 2018–October 13, 2021, across 34 EDs located across 14 states
- Cross-sectional analysis (N=3,064)
- Survey score: 10 to 50; higher score suggest greater knowledge, experience and attitudes toward palliative care
- Analysis: Linear mixed methods with EDs as random effects with individual characteristics used as fixed predictors.



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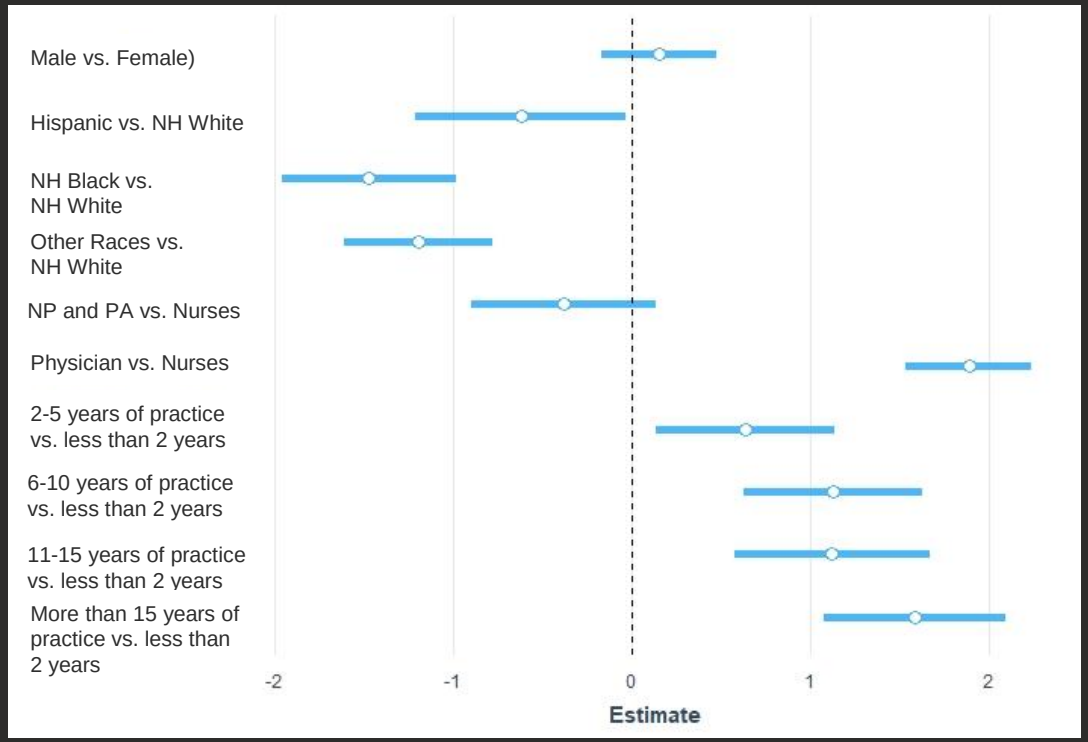
Part 2: Baseline Survey Results Continued
Emergency Provider's Knowledge, Experience and Attitudes Toward Palliative Care

Results

- Increasing age was associated with greater knowledge, experience and attitudes toward palliative care.
- Hispanic, Non-Hispanic Blacks, and those of other races were had lesser knowledge, experience and attitudes toward palliative care
- Emergency Physicians had greater knowledge, experience and attitudes toward palliative care compared to Nurses
- As the years of practice increase,the greater knowledge, experience and attitudes toward palliative care



NH: Non-Hispanic; NP: Nurse Practitioners; PA: Physician Assistants

Reference group = Denominator

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Baseline Outcome Measures
Measuring the Intensity of Emergency Care Using Medicare Claims for Older Adults with Serious Life-Limiting Illness

- Sample:
  - Adults ≥66 years old with greater than 30% predicted one-year mortality who visited one of 37 EDs from January 1, 2014 and December 31, 2019 (Pre COVID-19)

- Outcomes:
  - ED disposition at index visit
  - ED revisits, Inpatient Days, Hospice Use and Home Health Use at 12 months
  - Survival up to 12 months

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Characteristics of Sample

- The average age at the index visit was 78.6 years old
- About 27% of the sample was 85 years and older
- The majority of our sample was White
- Average Gagne score of 8.7
- Hypertension was the most common chronic condition, followed by cardiac arrhythmias and anemia

Age (Mean, SD)	78.6 (8.4)
Age in Categories (N, %)	
66-69	20,619 (17.6)
70-74	23,262 (19.8)
75-79	21,740 (18.5)
80-84	19,777 (16.9)
85+	31,882 (27.2)
Gender (N, %)	
Female	58,617 (50.0)
Male	58,863 (50.0)
Race/ethnicity (N, %)	
White	90,117 (76.8)
Black	18,449 (15.7)
Hispanic	2,012 (1.7)
Asian	2,975 (2.5)
Other[a]	3,727 (3.2)
Gagne Score (Mean, SD)	8.7 (2.0)
Chronic conditions (N, %)[b]	
Hypertension	107,430 (91.6)
Cardiac arrhythmias	93,289 (79.5)
Anemia	89,660 (76.4)
Congestive heart failure	84,114 (71.7)
Peripheral vascular disease	70,940 (60.5)
Renal failure	70,155 (59.8)
Chronic pulmonary disease	64,148 (54.7)
Any tumors	61,674 (52.6)
Diabetes	48,202 (41.1)
Dementia	37,945 (32.4)
Pulmonary circulation disorders	35,946 (30.6)
Metastatic cancer	35,550 (30.3)
Total	117,280

[a]Other includes North American Native, Other, and Unknown
[b]Categories are not mutually exclusive

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Results

- Of the 117,280 index ED visits, majority of patients were discharged to acute care (61.6%; n=72,279).
- Very few discharged directly to hospice.
- In the 12 months following their index visit, 17.3% of older adults were admitted to hospice.
- Over a third of the sample (39.1%) died within 12 months of their index ED visit

Index visits (N, %)	117,280 (100.0)
ED Disposition (N, %)	
Acute Care	72,279 (61.6)
Non-ICU	62,542 (86.5)
ICU	9,737 (13.5)
Home Health	1,227 (1.1)
Hospice	193 (0.2)
Home	40,192 (34.3)
Other[a]	3,389 (2.9)
Healthcare Utilization	
ED visits post-index (Mean, SD)	
Visits (Mean, SD)	1.1 (2.6)
1+ visit (N, %)	53,017 (45.2)
Inpatient stays post-index	
Visits (Mean, SD)	1.1 (1.6)
1+ visit (N, %)	63,392 (54.1)
Length of Stay (Mean, SD)	6.6 (7.9)
Hospice Admissions (N, %)	20,342 (17.3)
Death	
Number (%)	45,810 (39.1)
Time from index (median days)	81.0
Total	117,280

ED visits post-index, inpatient stays post-index, hospice admissions and deaths are calculated within a 12-month timeframe after the index visit

a. Examples of “other,” ED distribution options include transferred to skilled nursing facility, discharged to intermediate care, or left against medical advice.

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Alzheimer's Supplement
Emergency and Post-Emergency Care of Older Adults with Alzheimer's Disease/Alzheimer's Disease Related Dementias (AD/ADRD)

- Awarded NIH supplement to evaluate the effectiveness of the intervention in ED patients with AD/ADRD

- Baseline high rate of hospital admissions, ED revisits, and subsequent inpatient stays

- Study Aim: Examine ED disposition of PLwD compared to older adults with non-dementia chronic disease as well as health care utilization and survival

- Methods: Medicare claims data were used to identify patients 66+ years old from 35 hospitals across the United States with AD/ADRD or a non-AD/ADRD chronic condition between January 1, 2014 and December 31, 2018

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Characteristics of Sample

- 23,787 patients in the AD/ADRD sample, and 321,832 in the comparison sample.
- AD/ADRD group was older and had a higher percentage of female patients.
- The AD/ADRD group had a greater number of non-AD/ADRD chronic conditions.

	AD/ADRD	Comparison
Age (Mean, SD)	82.9 (8.0)	76.0 (7.8)
Age in Categories (N, %)		
66-69	1,590 (6.7)	82,044 (25.5)
70-74	2,504 (10.5)	78,049 (24.3)
75-79	3,826 (16.1)	62,019 (19.3)
80-84	4,927 (20.9)	46,487 (14.4)
85+	10,895 (45.8)	53,233 (16.5)
Gender (N, %)		
Female	14,697 (61.8)	175,995 (54.7)
Male	9,090 (38.2)	145,837 (45.3)
Race/ethnicity (N, %)		
White	18,292 (76.9)	251,660 (78.2)
Black	3,504 (14.7)	42,890 (13.3)
Hispanic	563 (2.4)	5,204 (1.6)
Asian	765 (3.2)	9,241 (2.9)
Other[a]	663 (2.8)	12,837 (4.0)
Gagne Score (Mean, SD)[b]	3.0 (3.5)	2.5 (4.0)
Non-AD Chronic conditions (Mean, SD)	4.4 (2.6)	3.4 (2.3)
Chronic conditions (N, %)[c]		
Hypertension	19,853 (83.5)	256,750 (79.8)
Cardiac arrhythmias	9,822 (41.3)	105,826 (32.9)
Anemia	9,916 (41.7)	90,531 (28.1)
Peripheral vascular disease	9,224 (38.8)	74,954 (23.3)
Electrolyte disorders	7,490 (31.5)	56,981 (17.7)
Congestive heart failure	7,164 (30.1)	67,423 (20.9)
Renal Failure	5,716 (24.0)	58,179 (18.1)
Diabetes	4,722 (19.9)	57,698 (17.9)
Any tumors	3,872 (16.9)	86,436 (26.9)
Pulmonary circulation disorders	1,502 (6.3)	17,618 (5.5)
Metastatic cancer	710 (3.0)	24,409 (7.6)
Total	23,787	321,832

[a]Other includes North American Native, Other, and Unknown
[b]Adjusted for the AD/ADRD group to subtract 2 points for having dementia
[c]Categories are not mutually exclusive

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75-79	3,826 (16.1)	62,019 (19.3)
80-84	4,927 (20.9)	46,487 (14.4)
85+	10,895 (45.8)	53,233 (16.5)
Gender (N, %)		
Female	14,697 (61.8)	175,995 (54.7)
Male	9,090 (38.2)	145,837 (45.3)
Race/ethnicity (N, %)		
White	18,292 (76.9)	251,660 (78.2)
Black	3,504 (14.7)	42,890 (13.3)
Hispanic	563 (2.4)	5,204 (1.6)
Asian	765 (3.2)	9,241 (2.9)
Other[a]	663 (2.8)	12,837 (4.0)
Gagne Score (Mean, SD)[b]	3.0 (3.5)	2.5 (4.0)
Non-AD Chronic conditions (Mean, SD)	4.4 (2.6)	3.4 (2.3)
Chronic conditions (N, %)[c]		
Hypertension	19,853 (83.5)	256,750 (79.8)
Cardiac arrhythmias	9,822 (41.3)	105,826 (32.9)
Anemia	9,916 (41.7)	90,531 (28.1)
Peripheral vascular disease	9,224 (38.8)	74,954 (23.3)
Electrolyte disorders	7,490 (31.5)	56,981 (17.7)
Congestive heart failure	7,164 (30.1)	67,423 (20.9)
Renal Failure	5,716 (24.0)	58,179 (18.1)
Diabetes	4,722 (19.9)	57,698 (17.9)
Any tumors	3,872 (16.9)	86,436 (26.9)
Pulmonary circulation disorders	1,502 (6.3)	17,618 (5.5)
Metastatic cancer	710 (3.0)	24,409 (7.6)
Total	23,787	321,832

[a]Other includes North American Native, Other, and Unknown
[b]Adjusted for the AD/ADRD group to subtract 2 points for having dementia
[c]Categories are not mutually exclusive

Results

- AD/ADRD sample ED disposition was more likely to be acute care
- ED disposition to hospice was very low in both samples
- Higher rate of ED revisits and an inpatient stays in the subsequent 12 months
- AD/ADRD patients had a higher risk of mortality, and a high short-term mortality than those without AD/ADRD

ED Disposition, Healthcare Utilization, and Mortality among Patients with AD/ADRD Compared to Non-AD/ADRD Patients

	AD/ADRD	Comparison
Index visits (N, %)	23,787 (100.0)	321,832 (100.0)
ED Disposition (N, %)		
Acute Care	12,625 (53.1)	142,164 (44.2)
ICU	1,435 (6.0)	13,501 (4.2)
Home Health	359 (1.5)	1,899 (0.6)
Hospice	52 (0.2)	634 (0.2)
Home	9,589 (40.3)	171,118 (53.2)
Nursing Home	521 (2.2)	819 (0.3)
Other	641 (2.7)	5,136 (1.6)
Healthcare Utilization		
ED visits post-index (Mean, SD)		
Visits (Mean, SD)	0.9 (1.8)	0.7 (1.8)
1+ visit (N, %)	9,766 (41.1)	114,003 (35.4)
Inpatient stays post-index		
Visits (Mean, SD)	0.7 (1.2)	0.5 (1.0)
1+ visit (N, %)	9,522 (40.0)	91,182 (28.3)
Length of Stay (Mean, SD)	6.4 (8.1)	5.9 (6.8)
Hospice Admissions (N, %)	3,266 (13.7)	20,771 (6.5)
Death		
Number (%)	7,205 (30.3)	50,246 (15.6)
Time from index (median days)	86.0	83.0
Total	23,787	321,832

Note: ED visits post-index, Inpatient stays post-index, hospice admissions and deaths are calculated within a 12-month timeframe after the index visit

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Next Steps

Medicare Claims

- Merge data on cohort of ED patients 66+ at time of visit to prior 12 months of inpatient, outpatient, and hospice claims
- Refine cohort to include patients with Gagne > 6 and exclude patients with hospice nurse or transfer from nursing facility
- Establish baseline rate of primary and secondary outcomes at all sites
- Receive final quarterly claims data needed for analyses
- Establish post-intervention rate or primary and secondary outcomes at all sites

Multi-level model

- Prepare and clean provider-level and institution-level data for final models
- Merge provider, institutional, and patient level data for final analyses
- Conduct final multi-level analyses on primary and secondary outcomes
- Perform sensitivity analyses

Dissemination

- Submit primary outcome paper for peer-review publication
- Present preliminary results at annual specialty meetings

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