



Preventing Older Adult Falls: Evaluating the integration of Clinical Falls Prevention and the Electronic Health Record American Evaluation Association 2016 Meeting October 29, 2016

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Disclaimer: The findings and conclusions in this presentation are those of the author and do not necessarily represent the official position of the CDC



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Panel overview

- Implementing Older Adult Falls Prevention in the Electronic Health Record in a Large Health System Gwen Bergen, PhD
- 2. Fall Prevention among Older Adults: Process Evaluation of a Primary Care Practice Change Incorporating Fall Risk Assessment and Referral in the Electronic Health Record Chelsea Reome, MPA

 Fall Prevention among Older Adults: Outcome Evaluation of a Primary Care Practice Change Incorporating Fall Risk Assessment and Referral in the Electronic Health Record

Yvonne Johnston, DrPH, MPH, MS, RN, FNP



Fall Prevention among Older Adults: Process Evaluation of a Primary Care Practice Change Incorporating Fall Risk Assessment and Referral in the Electronic Health Record

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Objectives

- Describe incorporation of STEADI into the EHR in 14 UHS primary care practices in Broome County, NY,
- Explain the facilitators and barriers faced at various stages by each practice and by the system as a whole.





Data Sources for Process Measures

- Survey
 - Providers (n=31)
 - Clinical Staff (n=58)
- Intercept Interviews
 - Providers (n=27)
 - Clinical Staff (n=50)

- Structured Interviews
 - Administrators (n=3)
 - IT Personnel (n=3)
 - Lead Providers (n=3)
 - STEADI Champions (n=2)
 - Unit Coordinators (n=9)







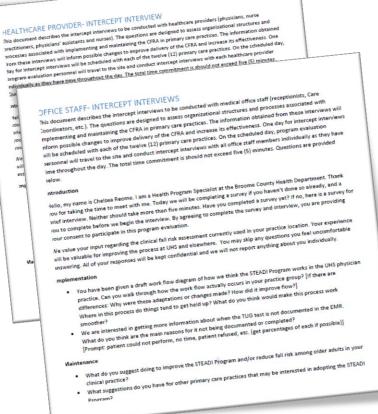
Survey

- Questions in five categories:
 - Attitudes and beliefs
 - Time to complete
 components of screening
 - Facilitators and barriers
 - Feedback received
 - Demographic information

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Intercept Interviews



- Five questions asked of providers and clinical staff
 - Workflow & tasks
 - Instances when patient is unable to complete TUG test
 - Why TUG test goes undocumented in EHR
 - Recommendations for improvements in your office
 - Suggestions for other offices in adopting STEADI





Structured Interviews with Key Stakeholders

 All key informants asked about their role

in:

- adoption
- implementation
- maintenance
- facilitators & barriers

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Process Evaluation Methods

- Timeframe
 - June 2016-July 2016
- Key Personnel
- Procedure
 - Surveys completed in person or online
 - Intercept interviews conducted in person
 - Structured interviews conducted in person or via phone
- Qualitative data analysis
 - Surveys: frequency of answers for each question reported
 - Interviews: content analysis performed; themes selected; frequency of themes reported

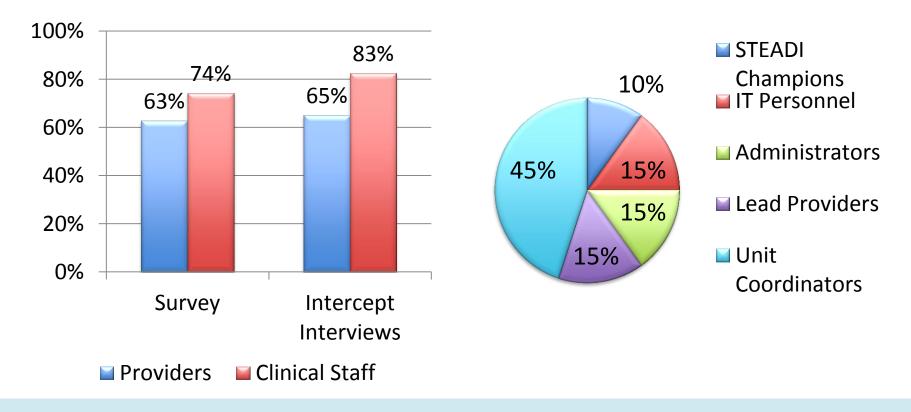




Distribution of Responses

Percent of Providers & Clinical Staff who Participated

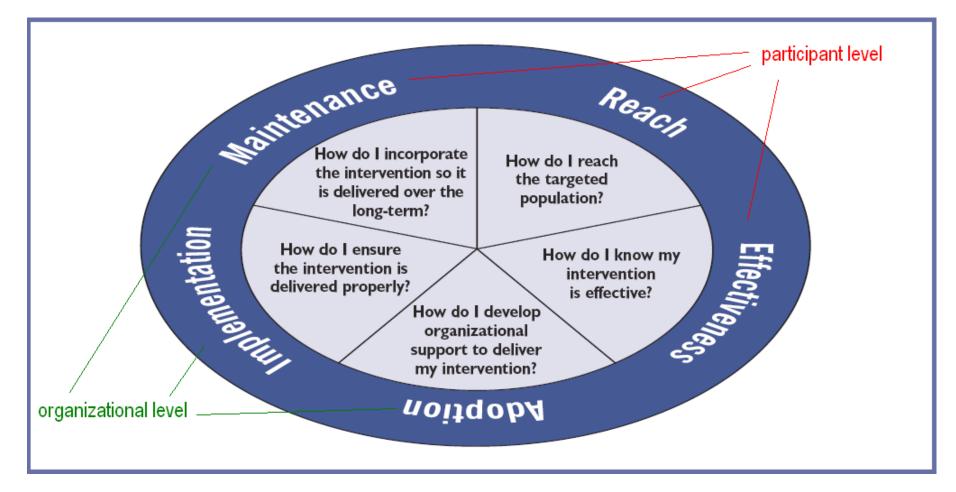
Structured Interviews by Key Informant Type







RE-AIM Framework







Adoption: Facilitators

Providers & Clinical Staff

 71% of providers and 93% of clinical staff felt their training in STEADI was adequate

- Leadership of UHS
 - Structure
 - Decision-making processes
- Ability to adapt intervention for UHS needs
- Strong physician Champion





Adoption: Barriers

Providers & Clinical Staff

- Attitudinal barriers
 - "Just one more thing to do"
 - Adapting workflow

- Generating buy-in from physicians
 - Contested some screening elements
 - Demanded more evidence for screening elements/ interventions
- Process of integrating STEADI into EHR





Implementation: Facilitators

Providers & Clinical Staff

- Professional/ personal commitment
 - 68% of providers
 - 60% of clinical staff
- Coordination of office workflow
 - 60% of providers
 - 47% of clinical staff
- On-screen computer prompts
 - 45% of providers
 - 55% of clinical staff

- Data warehouse
- Unit Coordinator leadership





Implementation: Barriers

Providers & Clinical Staff

- Competing demands of other work
 - 68% of providers
 - 26% of clinical staff
- Complexity of patient care needs
 - 65% of providers
 - 21% of clinical staff

- Referral process & programs
- Customizing EHR
- Pulling data from EHR for regular reporting





Maintenance: Facilitators

Providers & Clinical Staff

- Screening modules in EHR
- Frequency of organizational feedback
 - 55% of providers
 - 49% of clinical staff

- Dedicated Champion remains visible
- Falls added to system-wide performance measures





Maintenance: Barriers

Providers & Clinical Staff

- Patient access to referral programs
- Inconsistency of 30-day follow-up
- Training new staff & physicians

- Patient access to referral programs
- Communication between offices & administration





Conclusion

- Incentives & patient feedback can improve attitudinal barriers
- Clinical staff support & EHR modules facilitate workflow
- Performance measurement & uniform training contribute to sustainability
- Link between outcomes and screening unknown to providers & clinical staff
 - Increase patient access to referral programs
 - Monitor and disseminate outcomes





Thank you!

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Fall Prevention among Older Adults: Outcome Evaluation of a Primary Care Practice Change Incorporating Fall Risk Assessment and Referral in the Electronic Health Record

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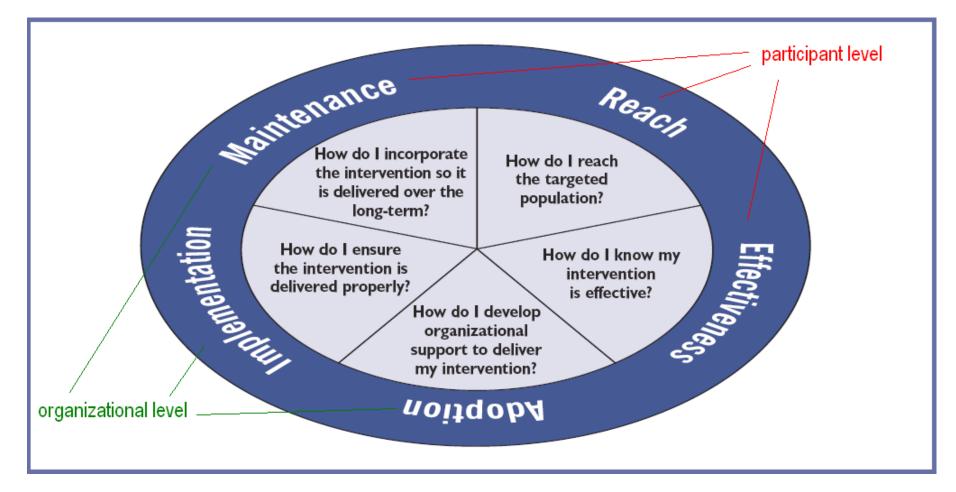
Objectives

- Describe the methods for health outcome evaluation of the United Health Services fall risk assessment and referral project within primary care practices using the Electronic Health Record (EHR)
- Present the preliminary results from the health outcomes evaluation





RE-AIM Framework







METHODS





Population Cohort

- Patients age 65 or older
 - At least one Primary Care Provider (PCP) visit
 - With or without Fall Risk Assessment (FRA) screening
 - Visit(s) occurred exclusively in one of 14 primary care practice locations serving Broome County, NY (core sites)





Analyses

Frequencies

- % screened total and by demographics, location
- % at risk
- % referred
- Comparisons
 - Rate of medically treated falls pre- and post-screening
- Multivariate logistic regression
 - Outcome Medically treated falls post-screening





Data Sources for Independent Measures: Electronic Health Record

- Outpatient visit data
 - Demographics
 - Screening/risk assessment variables
 - Referrals for treatment





Outcomes

Fall risk assessment and interventions

- Screening: Fall Risk Assessment (FRA) questions, Timed Up and Go (TUG) Test
- Fall Plan of Care (interventions): Education materials, Community- or hospital-based program referrals, assistive devices, vitamin D
- Fall-related emergency department (ED) visits
 - Accidental falls with principal diagnosis of injury coded E880-E888 (excludes E887, fracture cause unspecified)
- Fall-related hospitalizations
 - Accidental falls with principal diagnosis of injury coded E880-E888 (excludes E887, fracture cause unspecified)





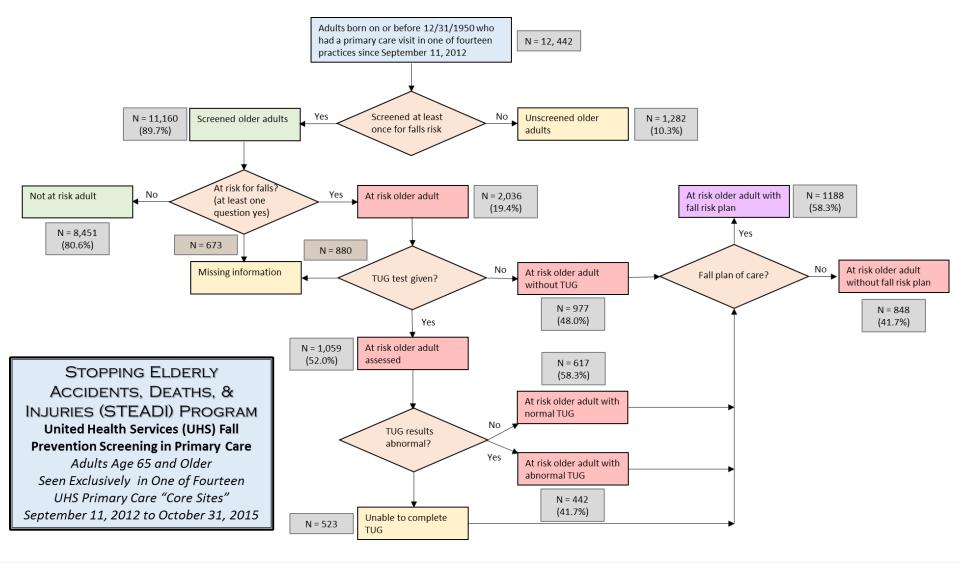
Data Sources for Outcome Measures: Electronic Health Record

- Data extraction from three separate electronic health record systems for hospitalizations and emergency department visits
 - Archive (Jan 09 Dec 12)
 - Invision (Dec 12 Jun 14)
 - Soarian (Jun 14 Oct 15)
- Separate electronic health record system for primary care data extraction
 - Next Gen with multiple updates (Sep 2012 Oct 2015)





Flow Diagram





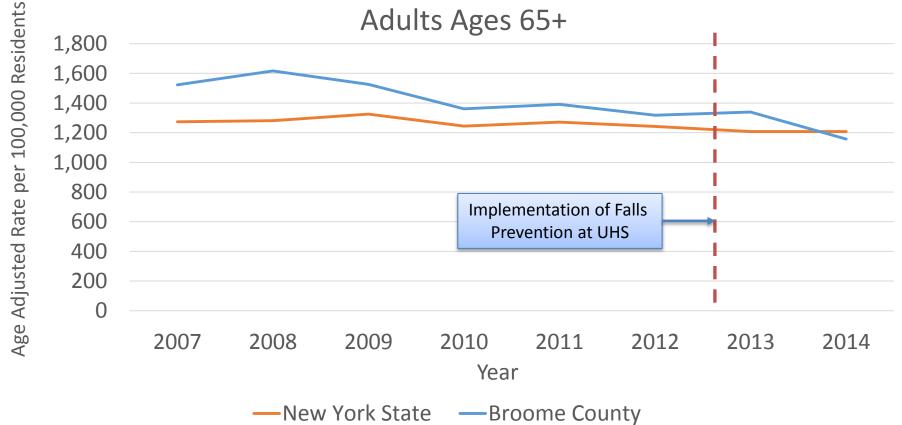


STEADI Flow Diagram

- Total number of older adults with primary care visit in Broome County: 12,442
- Fall Risk Assessment screening rate for Broome County: 89.7%
- Number of older adults screened who were identified as at risk for fall: 2,306
- Proportion of older adults screened who were identified as at risk for fall: 19.4%
- Proportion of older adults at risk for fall who had a TUG test: 52.0%
- Proportion of older adults at risk for fall who had a Fall Plan of Care: 58.3%



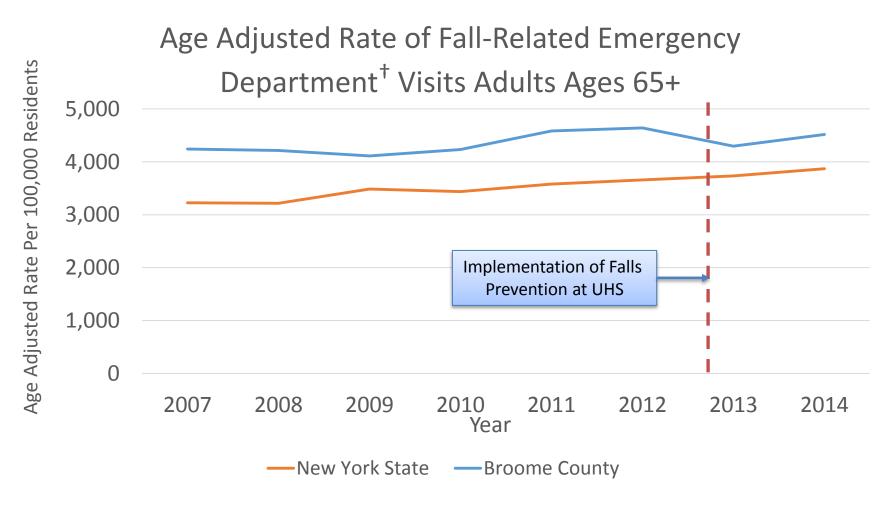
Age Adjusted Rate of Fall-Related Hospitalizations



Source: New York State Department of Health Bureau of Occupational Health and Injury Prevention







⁺The incidence of ED visits does not include patients who were subsequently admitted into the hospital

Source: New York State Department of Health Bureau of Occupational Health and Injury Prevention

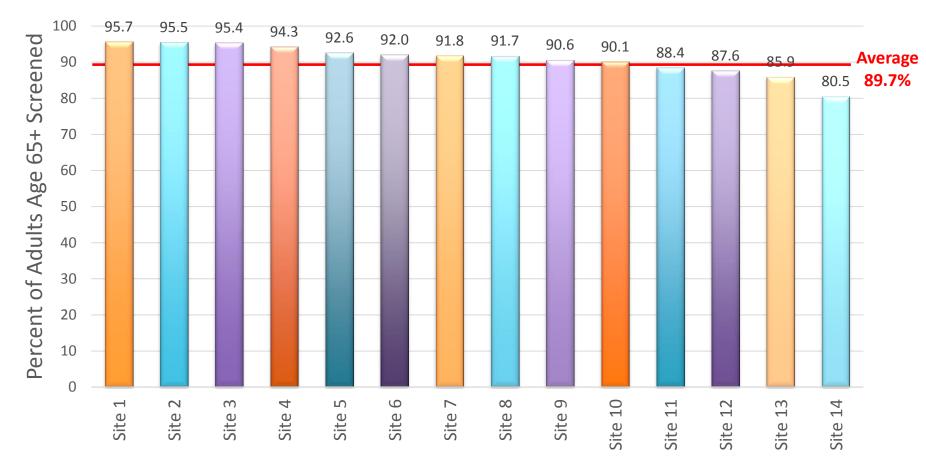




SCREENING & DEMOGRAPHIC CHARACTERISTICS



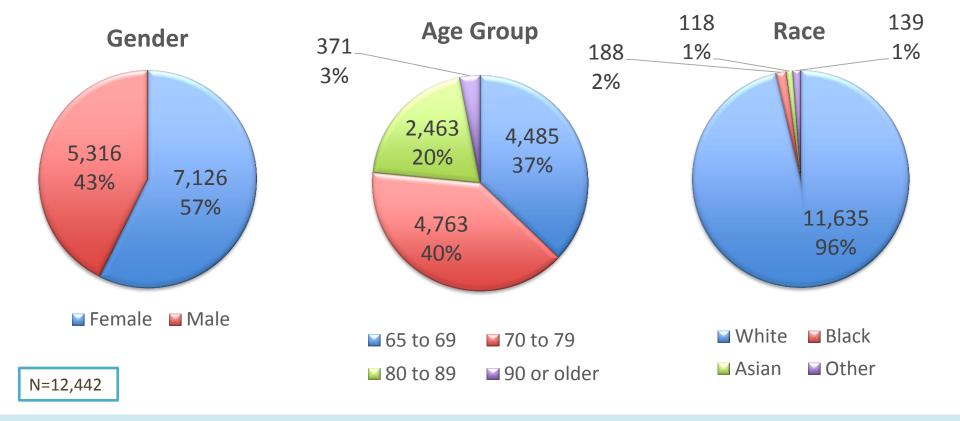




DATE RANGE: Includes All PCP Visits Between 9/4/2012 and 11/12/2015 inclusive



Demographic Characteristics of Adults Age 65+ with UHS Primary Care Visit (core sites)



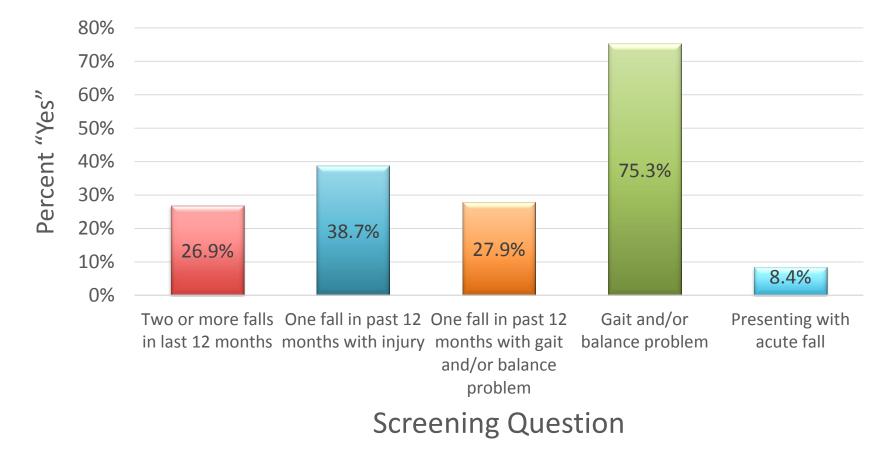




RESULTS RISK ASSESSMENT AND REFERRAL



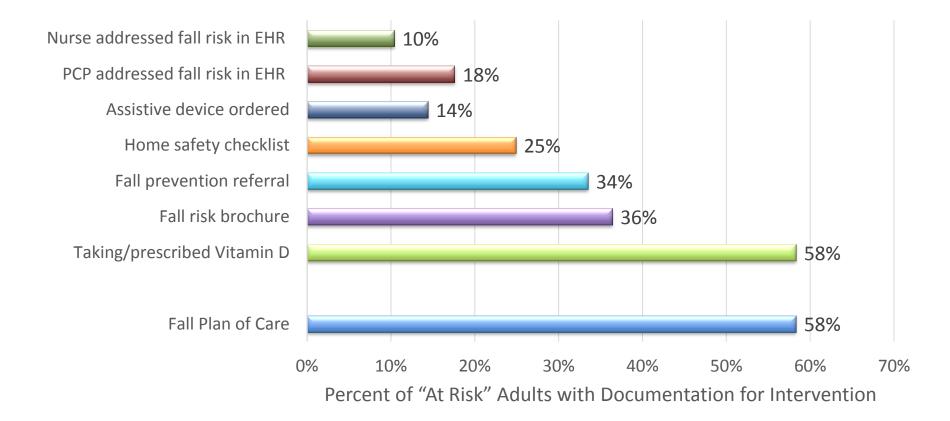
Fall Risk Assessment Screening Questions, Adults Age 65+ Screened as At Risk for Fall, UHS Primary Care (core sites)





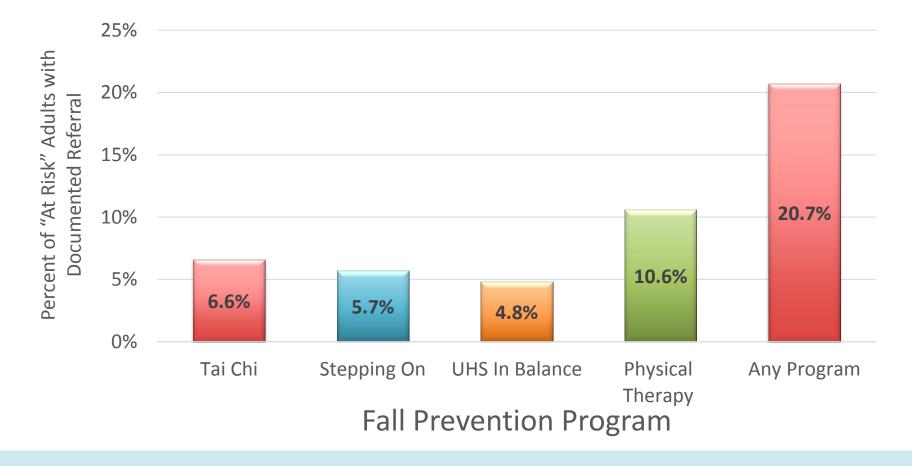


Fall Prevention Interventions, Adults Age 65+ Screened as At Risk for Fall, UHS Primary Care (core sites)





Fall Prevention Program Referrals, Adults Age 65+ Screened as At Risk for Fall, UHS Primary Care (core sites)



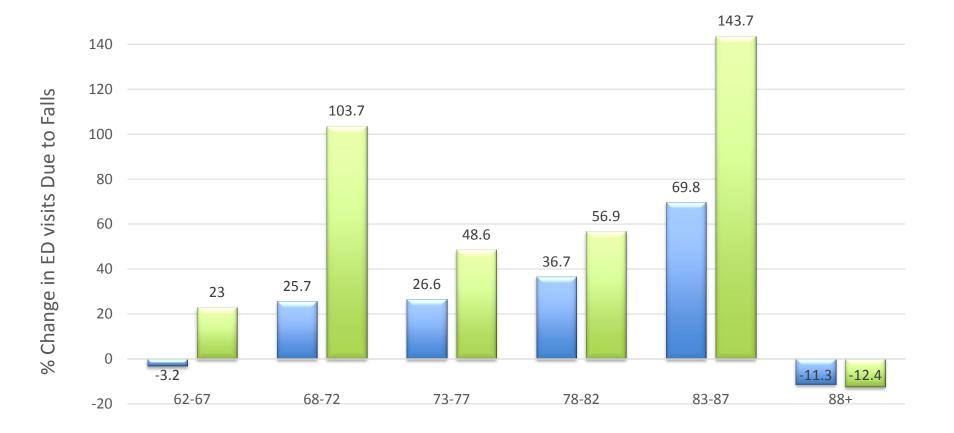








UHSPreliminary results show that among most age groups, patients receiving
a STEADI treatment plan had fewer fall-related emergency department
(ED) visits compared to those who did not receive treatment.



Age Group

■ Treatment plan No Treatment plan



Fall Plan of Care (FPOC) as a Predictor of Emergency Department Visits

Variable	Ν	β	Ехр(β)	95% CI	Sig
Gender					
Female	6,077	.355	1.426	(1.182, 1.721)	.000
Age (in 2012)		.065	1.067	(1.055, 1.080)	.000
Person-Months		.042	1.043	(1.031, 1.055)	.000
Fall Plan of Care					
No Fall Plan of Care	1,188	.678	1.970	(1.579, 2.458)	.000
Fall Plan of Care	848	.550	1.734	(1.333, 2.254)	.000
otal N = 10,487 ne or More ED visits N = 568					





Fall Plan of Care (FPOC) as a Predictor of Hospitalizations

Variable	Ν	β	Ехр(β)	95% CI	Sig
Gender					
Female	6,077	.326	1.386	(0.962 <i>,</i> 1.995)	.079
Age (in 2012)		.088	1.092	(1.069, 1.116)	.000
Person-Months		.049	1.050	(1.026, 1.075)	.000
Fall Plan of Care					
No Fall Plan of Care	1,188	.493	1.638	(1.072, 2.500)	.022
Fall Plan of Care	848	.437	1.548	(0.950, 2.522)	.079
otal N = 10,487 ne or More Hospitalizations N = 145					





LESSONS LEARNED & CONCLUSION





- Multiple software platforms over time requires extraction from several databases (overlap/duplication)
- Quality of storage/extraction for archived data
- Not inclusive of visits to other providers or hospital facilities
- Incomplete documentation
- How plan of care is documented different providers/EHR location
- Specific plan of care elements not readily extractable from the medical record
- Information from scanned documents difficult to retrieve
- Time/effort conducting chart reviews





Use of Electronic Health Record for Outcome Evaluation: Benefits

- Reliable data storage capacity
- Information retrievable for medically treated falls by diagnostic code
 - Hospitalizations, emergency department visits, & primary care visits
- Inclusive of all relevant records (census) for screened and unscreened
- Multiple fields readily extractable to relational database access to medication and comorbidity data
 - Extraction to a flat file was too large
- No data collection burden for patients or providers
- Minimizes recall bias / improves accuracy
- Useful for program & performance monitoring





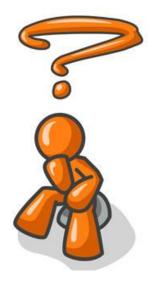
Summary

- Approximately 90% of older adults were screened
 - At risk for falls: 1 in 6 older adults
 - Gait/balance issues: 3 of 4 older adults with fall risk
 - Abnormal TUG: 2 of 5 older adults with a TUG
- Half of older adults had their fall risk addressed
- A Fall Plan of Care may reduce the likelihood of a medically treated fall for at-risk older adults





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Thank You

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

