



*Strategies to Achieve Alignment, Collaboration, and Synergy across  
Delivery and Financing Systems*

**Community Complex Care Response Team (C3RT) to  
Improve Geriatric Public Health Outcomes**

*Research In Progress Webinar  
Wednesday, March 13, 2019  
12:00-1:00 pm ET/ 9:00 am-10:00 am PT*

*Funded by the Robert Wood Johnson Foundation*



**College of  
Public Health**

*Center for Public Health Systems  
and Services Research*

# Agenda

**Welcome:**

**Shana Moore, PhD**

*Director of Dissemination and Research Development*

RWJF [Systems for Action](#) National Coordinating Center

University of Kentucky College of Public Health

**Presenters:**

**Carolyn E.Z. Pickering, PhD, MSN, RN**

*Assistant Professor*

School of Nursing

University of Texas Health Science Center at San Antonio

**Christopher Maxwell, PhD, MA**

*Professor*

School of Criminal Justice

Michigan State University

**Q & A:**

Moderated by Dr. Shana Moore.



**Carolyn E. Z. Pickering, PhD, MSN, RN**

*Assistant Professor*

School of Nursing

University of Texas Health Science Center at San Antonio



**Christopher Maxwell, PhD, MA**

*Professor*

School of Criminal Justice

Michigan State University

# RESULTS OF COMMUNITY COMPLEX CARE RESPONSE TEAM (C3RT) PILOT PROGRAM

*Carolyn E. Z. Pickering, PhD, RN*

*School of Nursing, UT Health Science Center at San Antonio*

*Christopher D. Maxwell, PhD*

*Kourtnie Rodgers, MS*

*School of Criminal Justice, Michigan State University*

## America's Elder Abuse & Neglect Problem

- 11% of community-dwelling older adults report past year prevalence of abuse or neglect
- Financial crimes against older Americans costs an estimated \$2.9 billion in 2010
- Abuse increases 3 fold the risk of hospitalization
- No evidence-based protocol that either prevents or reduces victimization

# C3RT PROGRAM'S GOAL AND AIM

- To impact the social determinants that contribute to community-dwelling-older-adults' vulnerabilities
- Identify and align services that primarily address an older adults' capacity for self care
- Deliver a comprehensive, multi-sector-connected-service model via a community-driven coordinated-case-management approach

# CONNECTED SERVICE MODEL OVERVIEW

## Referral Partners:

Identify Vulnerable Older Adults

Police

EMS &  
Ambulance

Emergency  
Dept.

Inpatient  
Discharge  
Planners



Area Agency  
on Aging

## High-Risk Case Management Partners:

Engaging in Community-Based Coordinated Care

Geriatric  
Evaluation  
&  
Management

FQHC

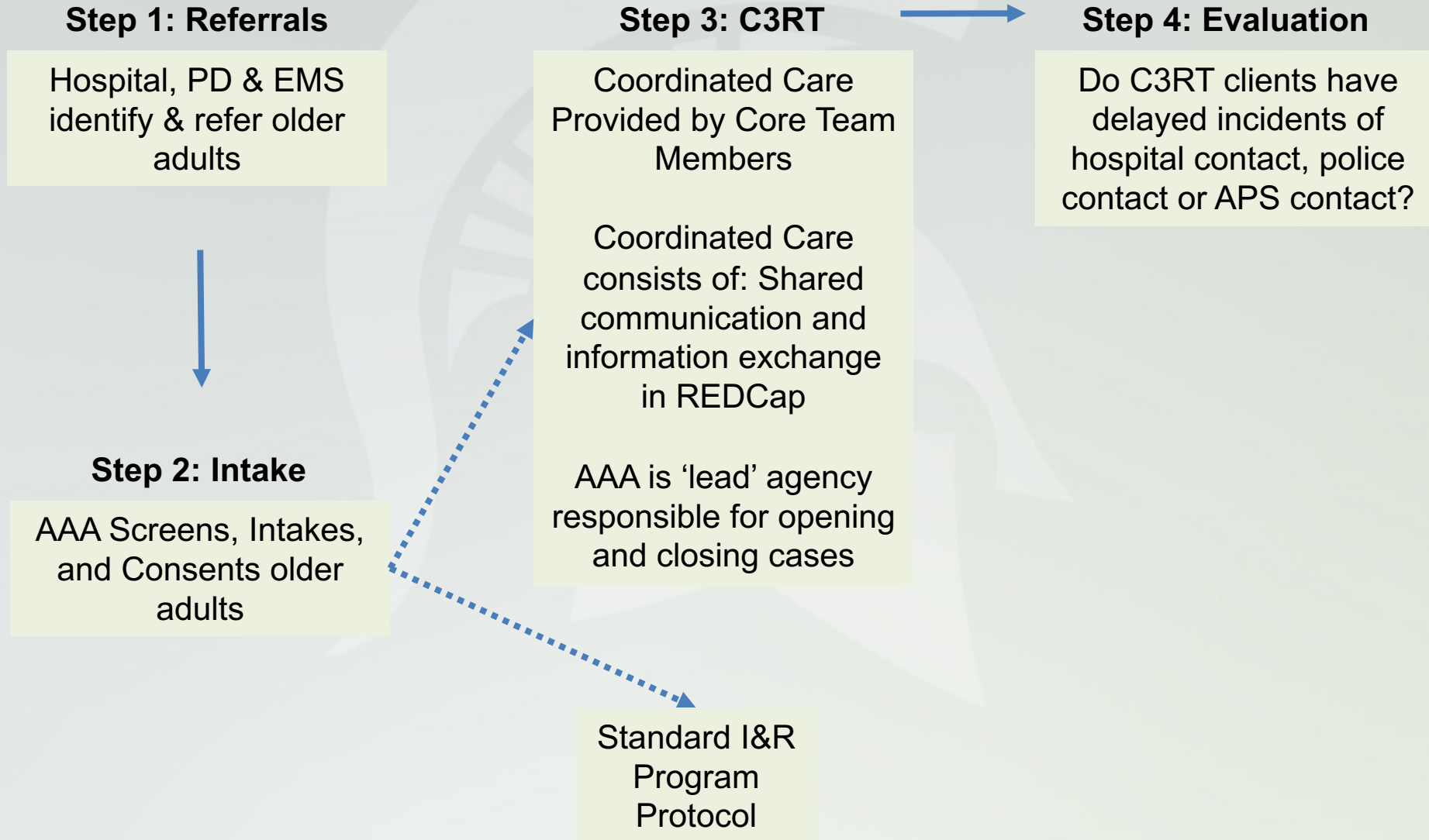
WAIVER

PACE

- Custom EHR
- Comprehensive Service Planning & Delivery of over 60+ multi-sector services
- Information Exchange
  - Loop-Back Communication
- Shared-Decision Making



# RCT Case Flowchart



# Key Process and Outcome Measures

- Key Process Measures
  - More referrals for services
  - More service enrollments
  - More communications between providers
- Key Outcome Measures
  - Fewer/delayed contacts with police
  - Fewer/delayed contacts with APS
  - Fewer/delayed hospital admissions

# Intervention and Study Pipeline

- 159 clients referred to AAA
  - 3 (2%) from a PD
  - 10 (6%) from EMS
  - 146 (92%) from Hospital staff
- 153 (96%) referrals eligible to receive services
  - 6(4%) of cases declined services
  - 1(1%) never left hospital
- 146 (92%) clients assigned to C3RT or I&R

# Assignment Group by Demographics and Prior Contacts with Service

		Group Assignment		Total
		I&R	C3RT	
N=		71	74	145
Females		58%	59%	59%
Race	American Indian / Alaska Native	0%	3%	1%
	Black	10%	14%	12%
	White	90%	84%	87%
Average Age		80	77	79
Past year rate of prior contact				
Police recorded victimization		4%	8%	6%
APS opened referral		8%	11%	10%
Bronson Inpatient/ED Admission		100%	88%	91%

#

#=Includes only the 44 participations who signed a use of their hospital data agreement

# Intervention Dosages

	Group Assignment			
	I&R	C3RT	Total	
Average Number of Referrals	0.87	1.41	1.15	*
% with Referrals	55%	72%	64%	*
Average Number of Services Provided	0.25	0.73	0.50	*
% with Services Provided	15%	28%	21%	*
Average Number of Communication Updates	5.37	8.21	6.85	*
% with Communication Updates	53%	46%	49%	

# Rate of Referral by Type

	I&R	C3RT	Total
Managed Care	3%	4%	4%
Waiver	9%	13%	11%
PACE	9%	11%	10%
OSA	3%	3%	3%
Skilled Nursing Facility	6%	7%	7%
PERS*	9%	19%	14%
Housekeeping	6%	10%	8%
Meals on Wheels*	8%	24%	16%
Home Repair	4%	9%	7%
In-home Assistance	18%	24%	21%
Money Management	0%	3%	2%
Options Counseling	2%	3%	3%

# Three Key Client Outcomes

- A victimization recorded by the police
  - 7% of the clients had one or more after assignment
  - 0.10 incidents reported per client
- An APS case investigation opened
  - 12% of the clients with one or more after assignment
  - 0.22 investigations per client
- Hospital admissions (n=44 clients)
  - 75% of clients with one or more after assignment
  - 2.14 admissions per client

# Outcome Models

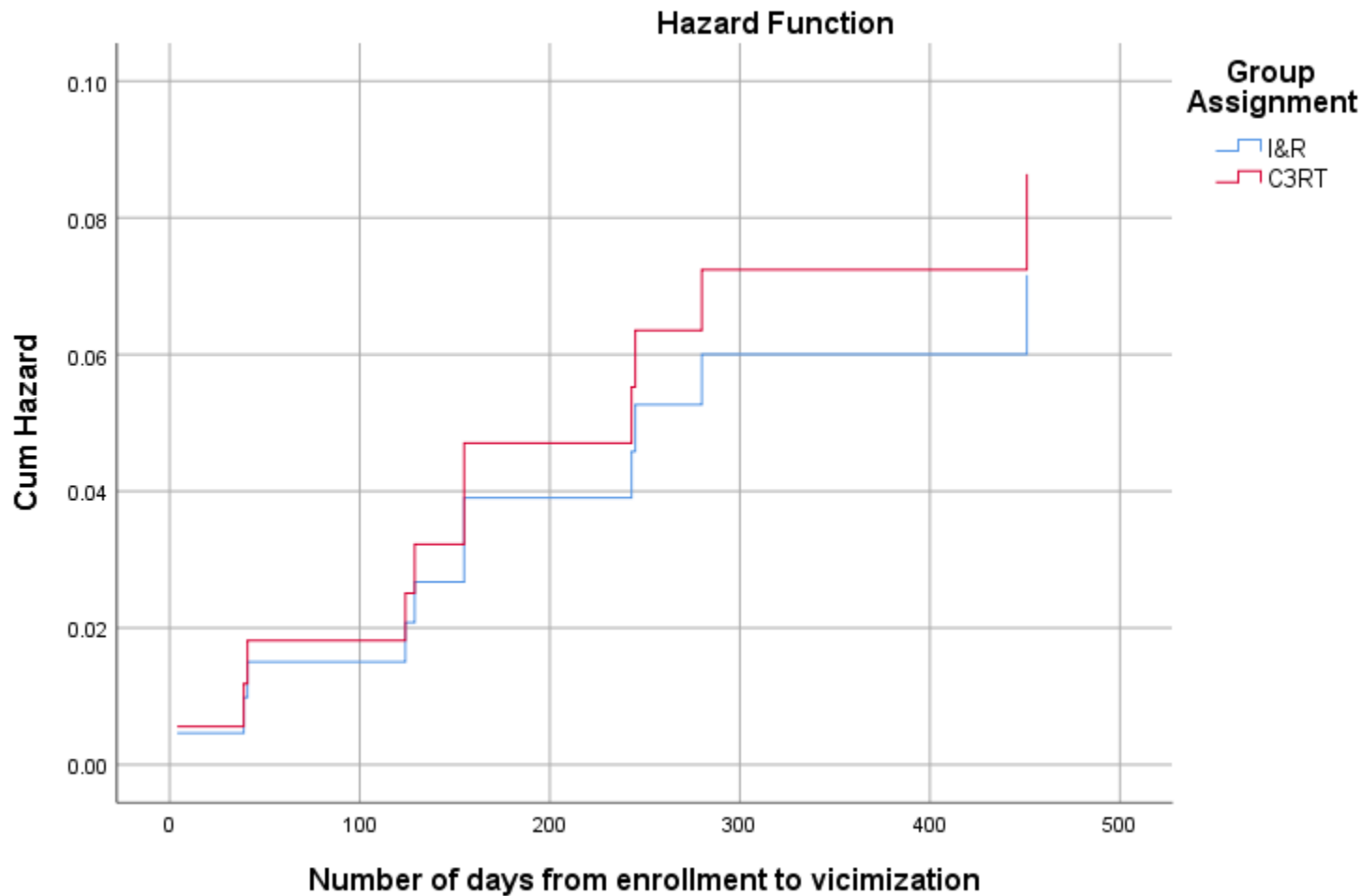
- Cox Regression Survival Analysis
- Included two key extraneous measures
  - The client's sex
  - The client's prior contact with the reporting agency



# Outcomes after Assignment to C3RT

Explanatory Variables		Exp(b)
PD	Assigned to C3RT	1.21
	Males	2.73
	Number of victimizations in the year before enrollment*	4.86*

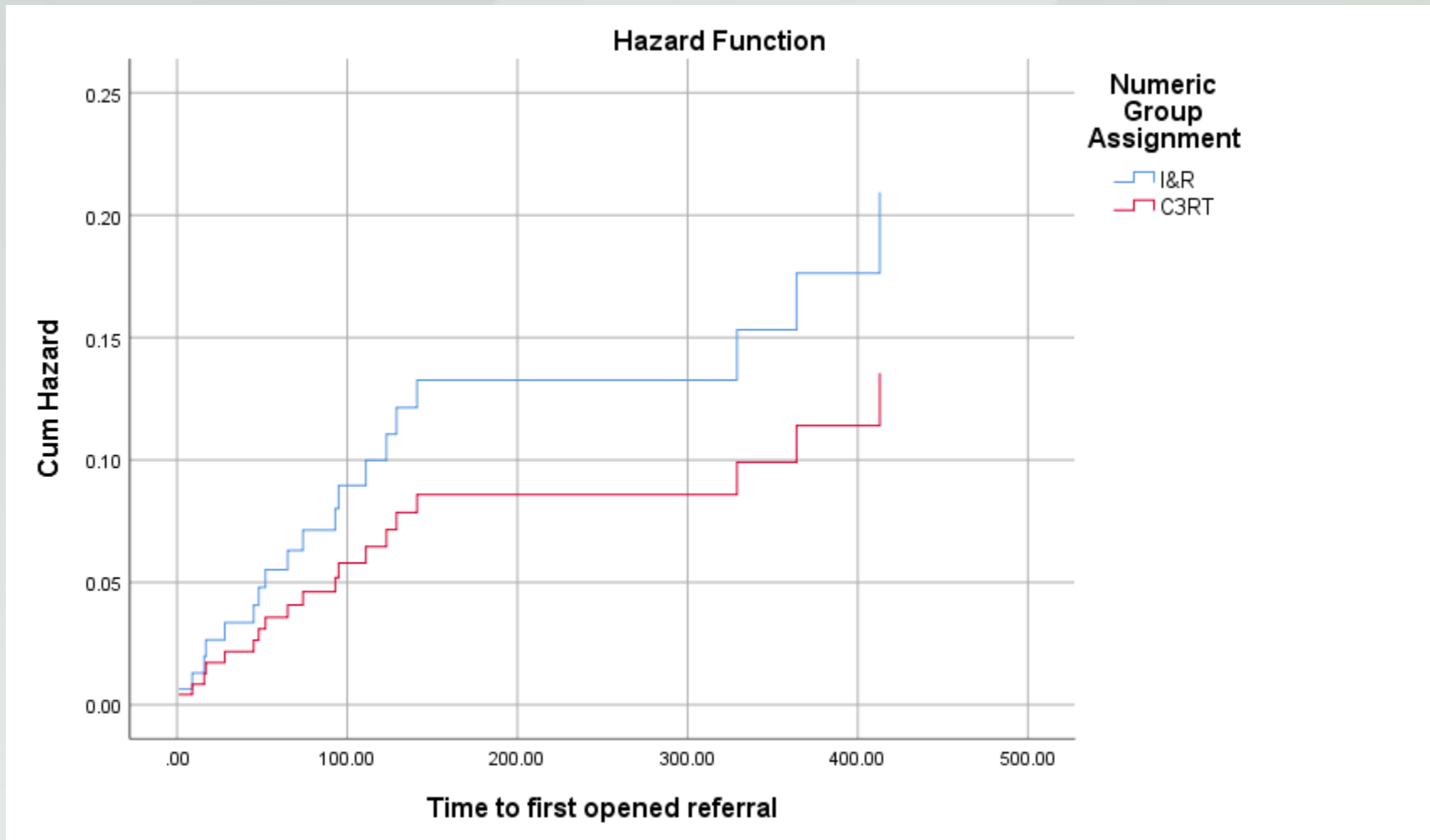
# Time-to-First Recorded Victimization



# Outcomes after Assignment to C3RT

Explanatory Variables		Exp(b)
PD	Assigned to C3RT	1.21
	Males	2.73
	Number of victimizations in the year before enrollment*	4.86*
APS	Assigned to C3RT	0.65
	Males	2.94*
	Number of open referrals in the year before enrollment*	2.69*

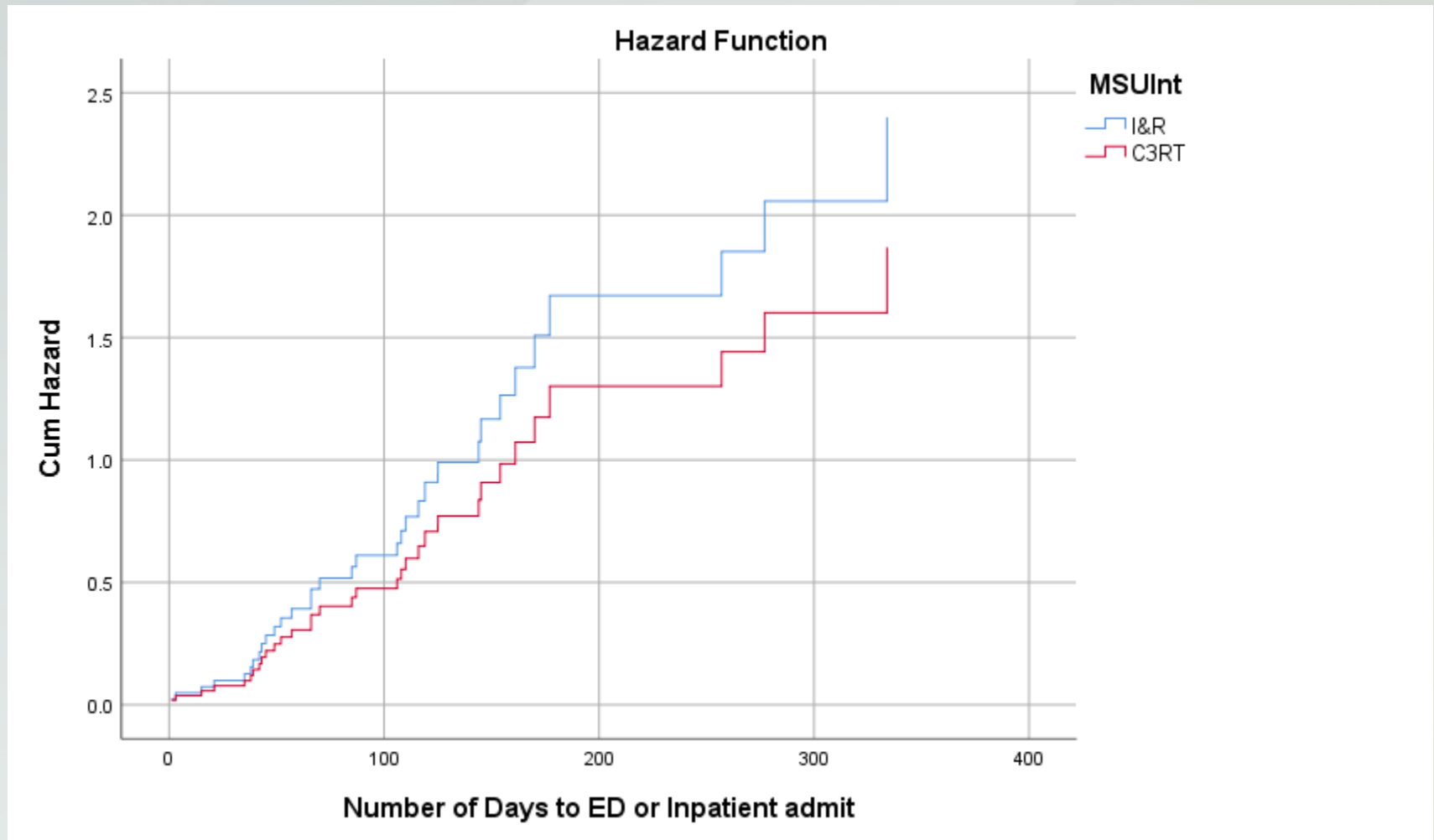
# Time-to-First Opened APS Case



# Outcomes after Assignment to C3RT

Explanatory Variables		Exp(b)
<b>BCPD</b>	Assigned to C3RT	1.21
	Males	2.73
	Number of victimizations in the year before enrollment*	4.86*
<b>APS</b>	Assigned to C3RT	0.65
	Males	2.94*
	Number of open referrals in the year before enrollment*	2.69*
<b>Hospital (n=44)</b>	Assignment to C3RT	0.78
	Males	0.94
	Number of ED/Inpatient admits in the year before enrollment*	1.17*

# Time-to-First ED / Inpatient Admissions



#=Includes only the 44 participations who signed a use of their hospital data agreement

# Alternative Outcome Measures?

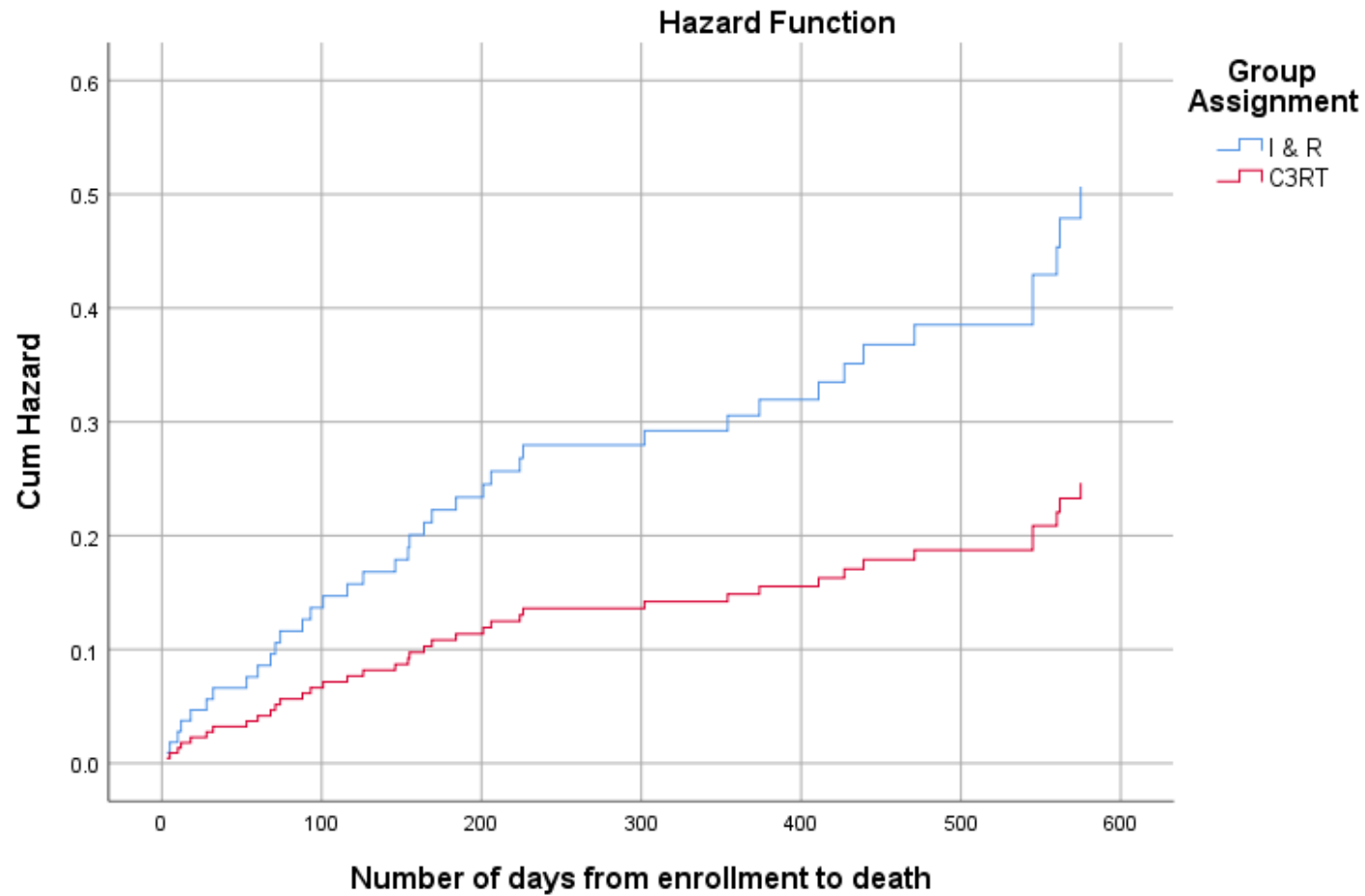
- The rate of mortality post intervention
- 27% (n=43) have died during their follow-up period.
  - 35% of those assigned to I&R
  - 19% of those assigned to C3RT

# Outcomes after Assignment to C3RT

	Explanatory Variables	Exp(b)
<b>PD</b>	Assigned to C3RT	1.21
	Males	2.73
	Number of victimizations in the year before enrollment	4.86 *
<b>APS</b>	Assigned to C3RT	0.65
	Males	2.94 *
	Number of open referrals in the year before enrollment	2.69 *
<b>Hospital (n=44)</b>	Assigned to C3RT	0.78
	Males	0.94
	Number of ED/Inpatient admits during year prior to enrollment	1.17 *
<b>Mortality</b>	Assigned to C3RT	0.49 *
	Males	1.42
	Number of victimizations in year before enrollment	1.71



# Time-to-Death



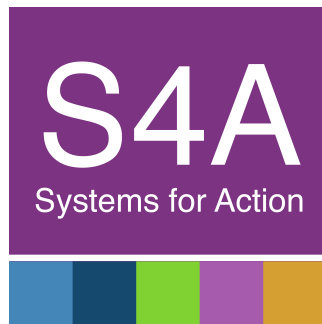
# Conclusions

- We planned to enroll 300 clients, but only enrolled 146 after extending enrollment by three months.
  - referrals from police and EMS did not materialized as planned
- Implementation of random assignment protocol was robust
  - produced two statistically identical comparison groups
- C3RT produced more referrals, services, and communications among providers
- Outcomes across two of three key measure pointed towards improvements due to assignment to C3RT
  - no difference reached traditional levels of statistical significance
- Significant improvement in life-span among C3RT clients.
  - Not specific to receiving a certain type of service

# Discussion

- Though not significant, C3RT did reduce APS recidivism better than APS alone
- We are currently working on Medicaid data to assess impact on nursing home placement
- Exploring whether life-span extension was related to all-cause mortality
- Planning for victim-centered outcomes with an evaluation funded by OVC

# Questions?



[www.systemsforaction.org](http://www.systemsforaction.org)

# Upcoming Webinars

## Archives

<http://systemsforaction.org/research-progress-webinars>

## Upcoming

**March 27, 2019, 12 p.m., ET**

*Systems for Action Individual Research Project*

[Integrating Behavioral Health with TANF to Build a Culture of Health](#)

*Mariana Chilton, PhD, MPH, Associate Professor, and Sandra Bloom, MD, Department of Health Management & Policy, Drexel University Dornsife School of Public Health*

**April 10, 2019, 12 p.m., ET**

*Systems for Action Individual Research Project*

[Optimizing Governmental Health and Social Spending Interactions](#)

*Beth Resnick, DrPH, MPH, and David Bishai, MD, MPH, PhD, Johns Hopkins Bloomberg School of Public Health*

**April 24, 2019, 12 p.m., ET**

*Systems for Action Individual Research Project*

[Strengthening the Carrying Capacity of Local Health and Social Service Agencies to Absorb Increased Hospital/Clinical Referrals](#)

*Danielle Varda, PhD, University of Colorado Denver, and Katie Edwards, MPA, The Nonprofit Centers Network*

# Acknowledgements

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and Services Research*

and

