

# THINKING INSIDE THE BOX

A STRATEGIC APPROACH TO MORE  
EFFECTIVE POSTER SESSIONS

**Clin-Star Workshop**



SEPTEMBER 25, 2024

~~POSTERS~~

**LEADERSHIP!**

~~POSTERS~~

**POSTER  
SESSIONS!**

# OVERVIEW

1. **Poster Session Challenges**
2. **4 Steps to Effective Poster Sessions**
  - **Poster Exercise**
3. **Poster Review and Discussion**



1



POSTER  
SESSION  
CHALLENGES



I DON'T  
HAVE  
ENOUGH  
TIME

I DON'T  
KNOW  
GRAPHIC  
DESIGN





I CAN'T  
DEAL WITH  
THE  
MAYHEM

# NO ONE STOPS AT MY POSTER



2



FOUR STEPS  
(FROM PREPARED  
TO PERFECT)



# STEPS TO EFFECTIVE POSTER SESSIONS



1

THINK STRATEGY

2

GET ON MESSAGE

3

HONE YOUR DESIGN

4

PRACTICE YOUR “PITCH”

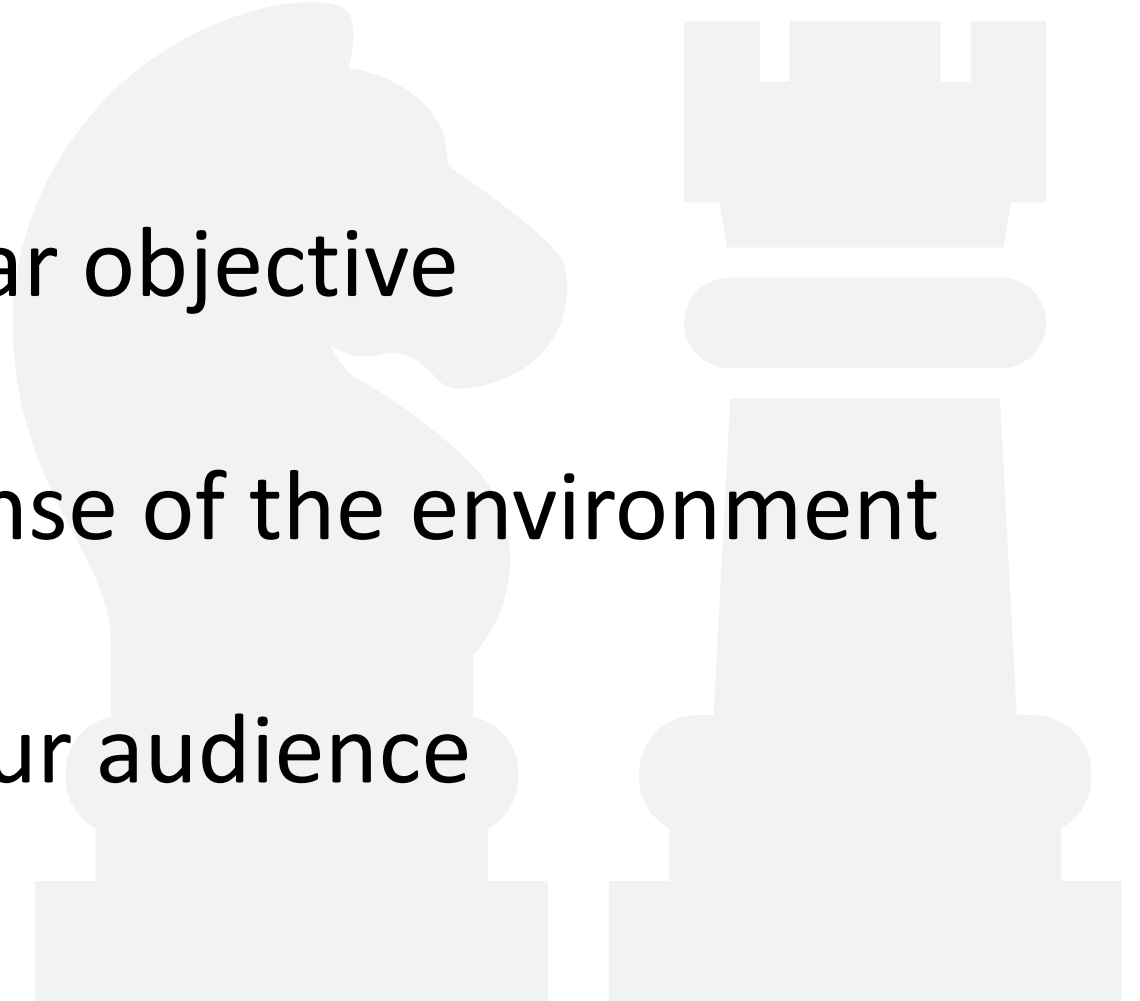


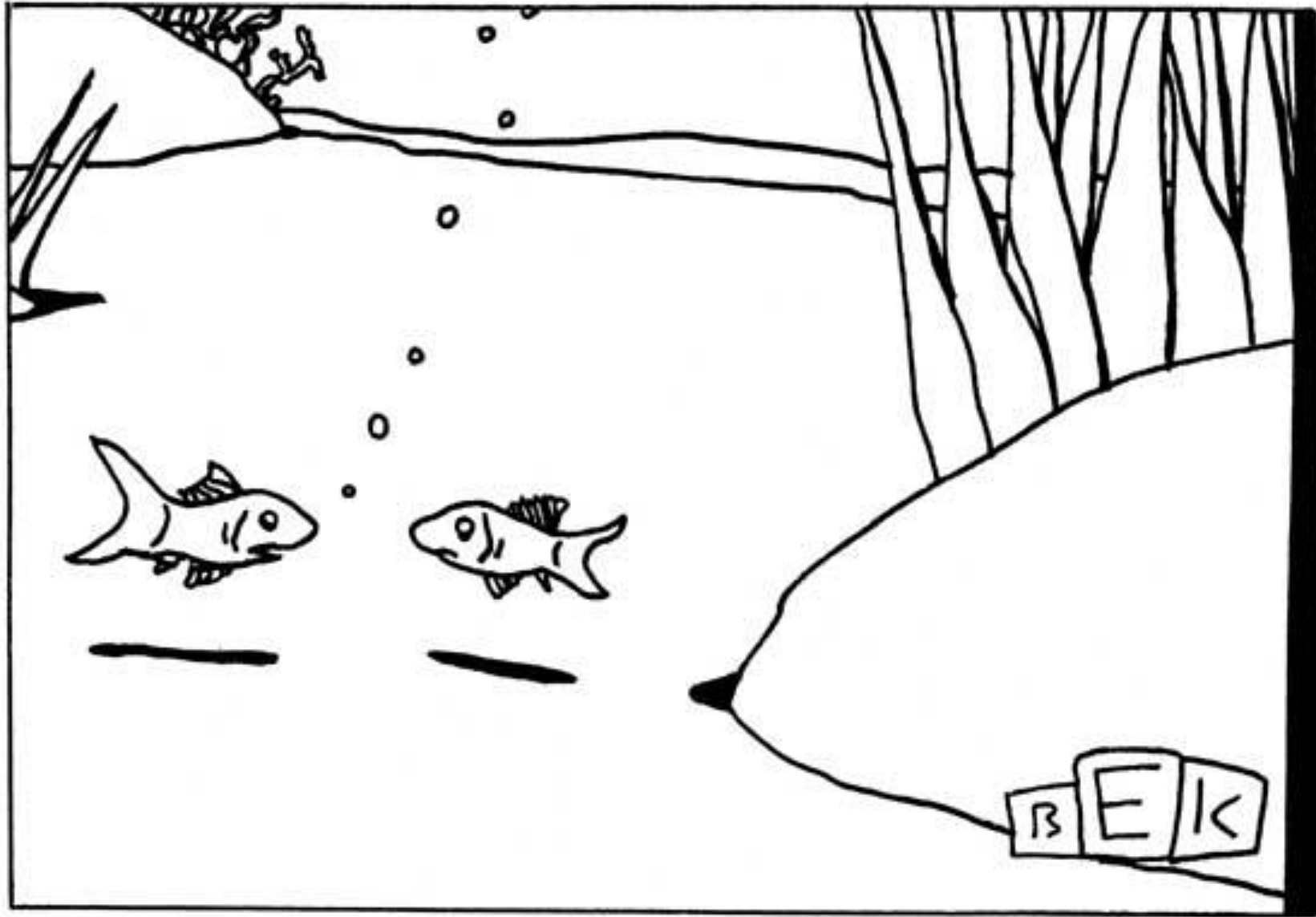
# STRATEGY



## STRATEGY

- Set a clear objective
- Make sense of the environment
- Know your audience





*"I want the whole package—the little bowl, the colored pebbles, the plastic castle."*



# GET \*SMART



SPECIFIC

ATTAINABLE

TIME-BOUNDED

S

M

A

R

T

MEASURABLE

RELEVANT



# FROM FUZZY TO SMART



- **Fuzzy Objective**

Make a successful presentation about my research at Clin-Star/Beeson meeting.



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- **SMART Objective**

In preparation for, participation in and follow up to **the Clin-Star/Beeson meeting**, connect with **five key academic leaders** who provide **constructive feedback and/or support** to my research agenda.





**UNDERSTAND THE**

**ENVIRONMENT**

# KNOW YOUR AUDIENCE

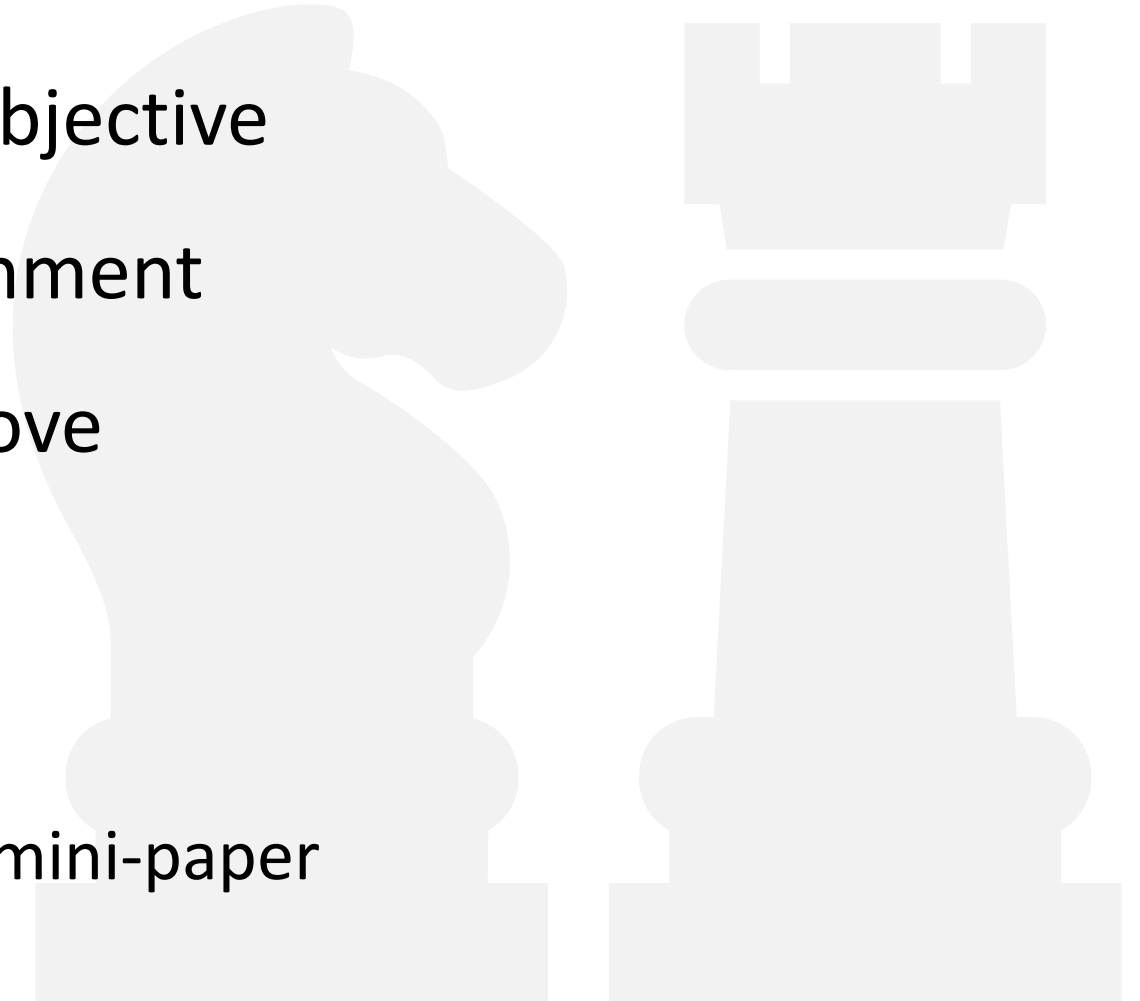




# POSTER STRATEGY CONSIDERATIONS



- Connection/engagement as objective
- Poorly lit, competitive environment
- Scientific audience, on the move
- You are in control
  - Large visual format
  - Conversation starter, not a mini-paper





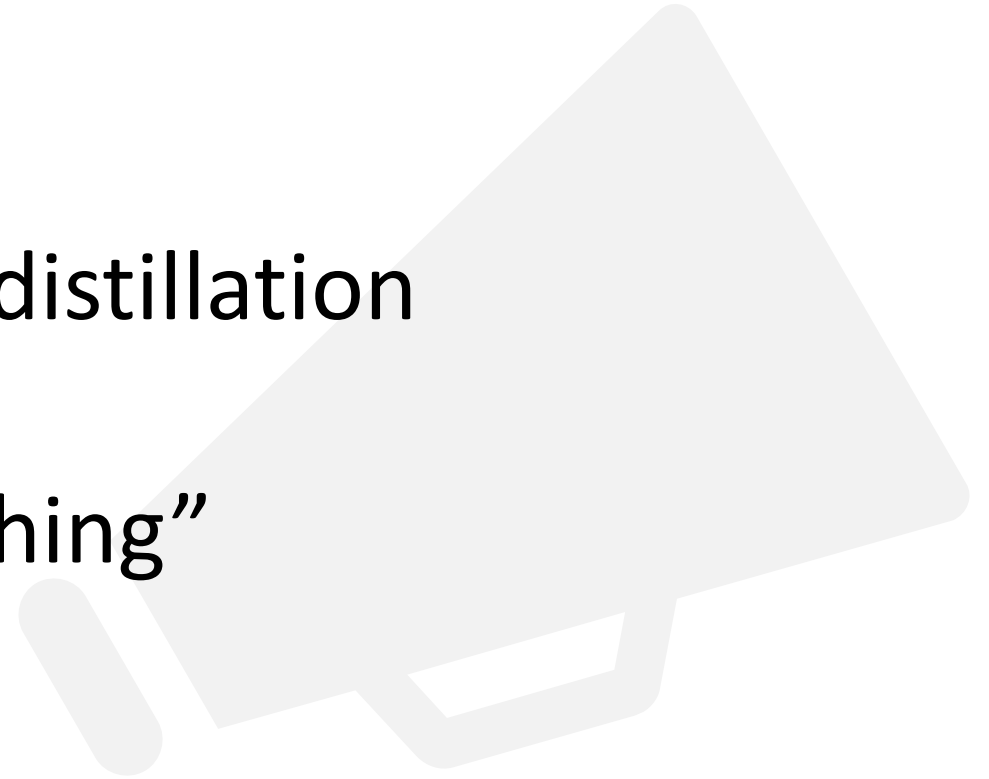
# MESSAGE



# 2

MESSAGE

- Message = distillation
- The “One Thing”





# CREATING MESSAGES



*“If you were to boil your book down to a few words, what would be its message?”*



# “ONE THING” MESSAGE



**A good message\* completes the following four statements:**

- The **one** thing your audience needs to know is...
- The reason this is **important** to this audience is...
- What this audience should **do** is...
- It is **urgent** for this audience to act now because...

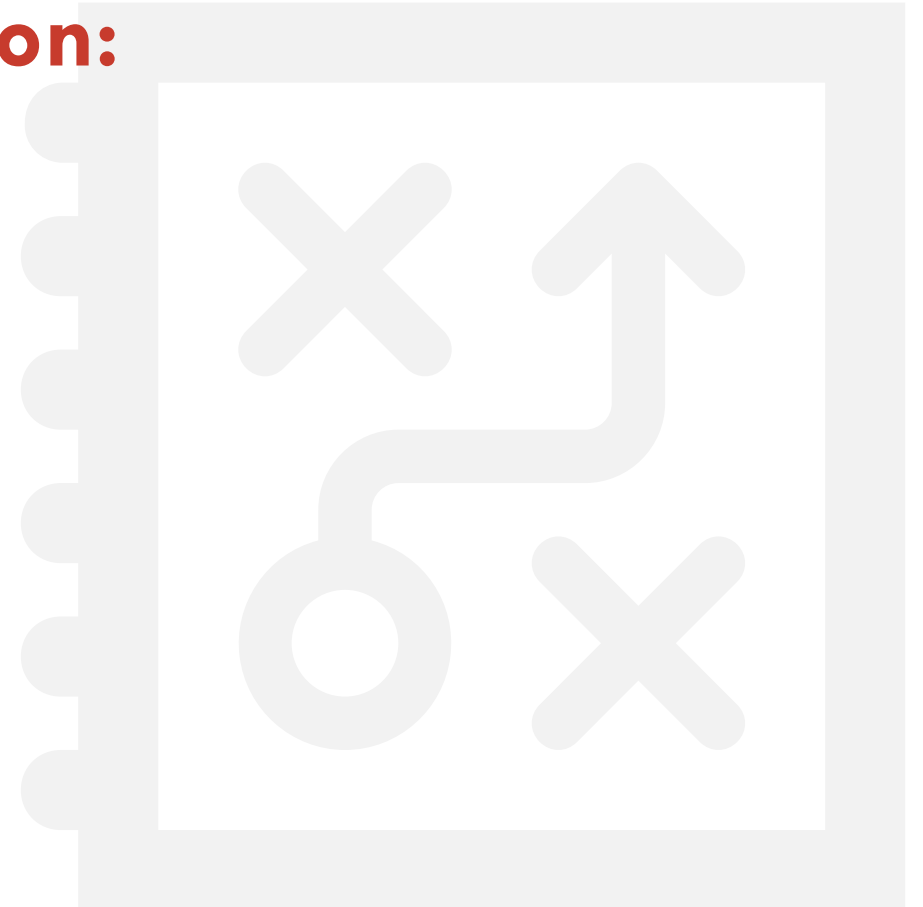


# TAKE A BREATH



## Looking to your next poster session:

- Explain your objective
- Identify your intended audience
- Describe your main message



# THINKING INSIDE (AND OUTSIDE) THE BOX



*FOUR SIMPLE STEPS TO MORE EFFECTIVE POSTERS*

## WORKSHEET

What is the **OBJECTIVE** of your poster? For example: To find two potential collaborators? To meet and engage one potential funder? To get five people's feedback on what your next piece of research should focus on?

Who is your **INTENDED** audience? Be as specific as possible (e.g. "People in other disciplines who are doing related research and who are looking to partner in an interdisciplinary project." "Participants at nursing meeting" is too broad.)

What is your **MAIN MESSAGE**? The ONE THING you want your audience to know?





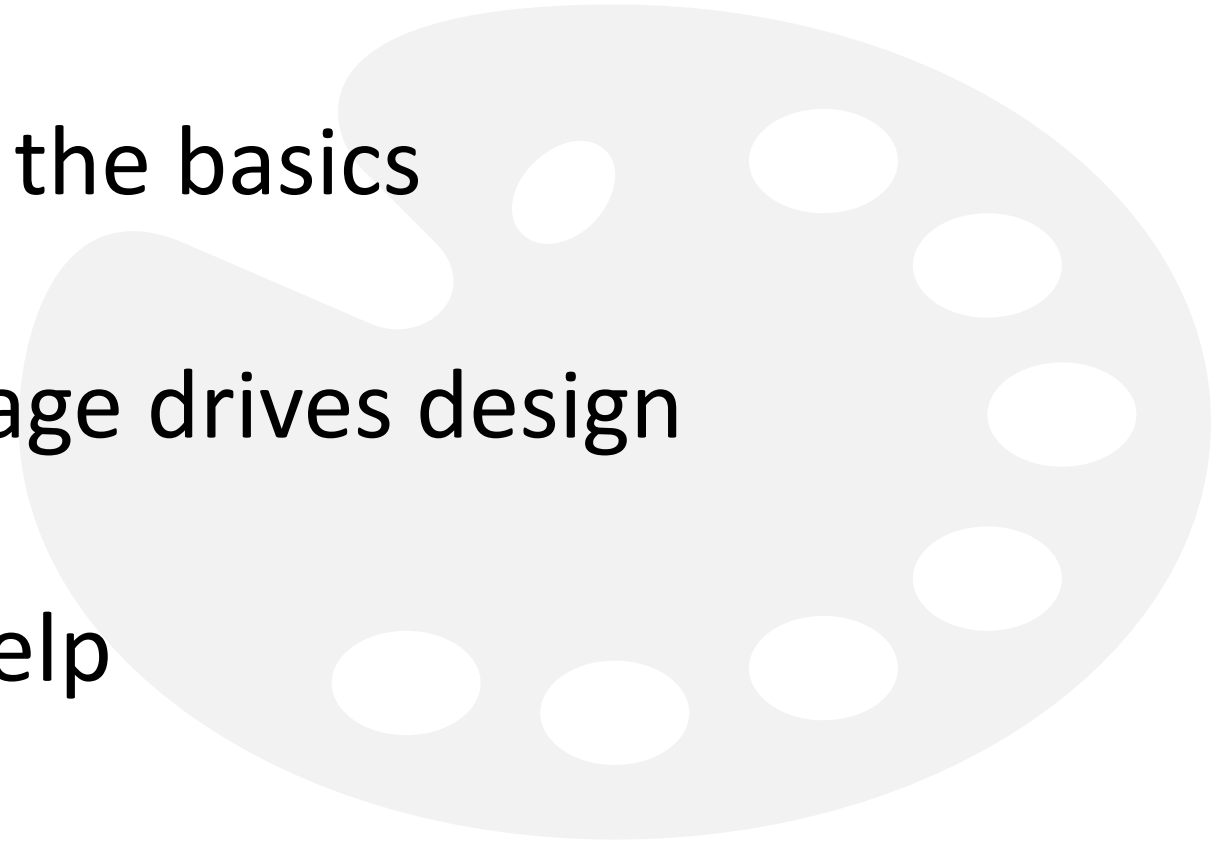
# DESIGN



# 3

DESIGN

- Know the basics
- Message drives design
- Get help





# BUILDING BLOCKS



- Less (text) is more
- Think big (fonts)
- Contrast is key
- When in doubt...  
handout



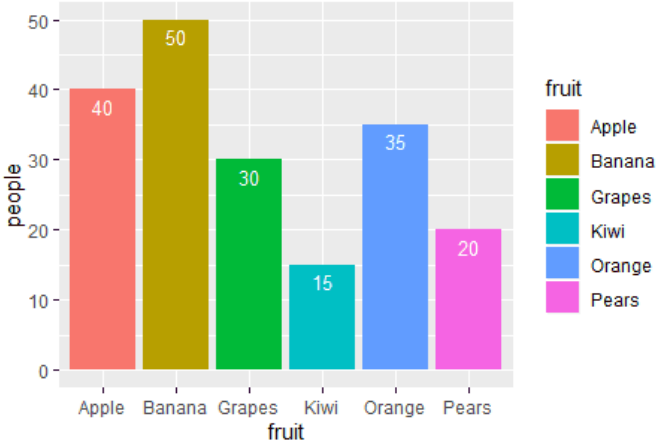


# MESSAGE EQUALS...



	STANDART	BUSINESS	PROFESSIONAL
	\$15.99 PER MONTH	\$20.99 PER MONTH	\$35.99 PER MONTH
AUCTOR	✓	✓	✓
CURSUS	✗	✗	✓
MOLESTIE	✗	✓	✓
JUSTO	✗	✓	✓
NULLA	✗	✗	✓
PULVINAR	✓	✓	✓
RUTRUM	✗	✗	✓
	SUBSCRIBE	SUBSCRIBE	SUBSCRIBE

TABLE



GRAPH



PHOTO



CALL OUT

ETC ETC



# THINK GRID

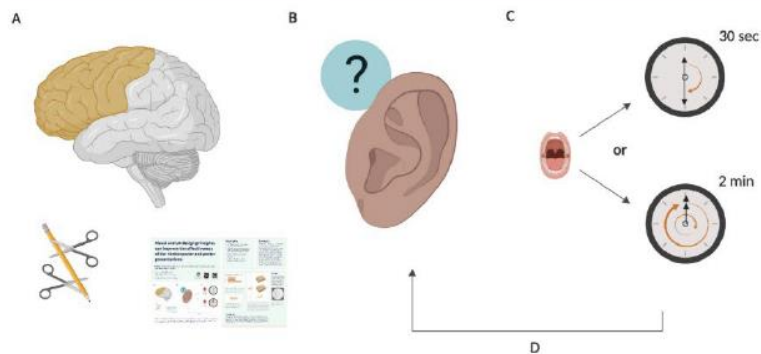


## Visual and UX design principles can improve the effectiveness of Morrison's Better Poster and poster presentations

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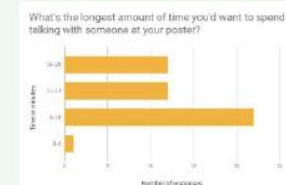


(A) Plan, cut, edit, and distill your message. Write a brief, descriptive title. Use a layout that takes advantage of the whole poster. Prepare two versions of your poster intro: a short one and a long one. (B) When another human seems like they might be interested in your work, ask to be sure. Then ask if they want the short intro or the long intro. Don't be afraid to ask questions to learn about your audience first. Use their background to change your talk's up on the fly; they're not elevator pitches. (C) Oblige them. Use the graphical abstract for the short version and get into your data figures for the long version. (D) Listen to their verbal and non-verbal responses as you continue the conversation.

### Highlights

- A well-crafted message is more important than any layout design.
- Visual design strategies can be employed to incorporate lessons from Morrison's Better Poster without sacrificing valuable poster space.
- Posters are performances and audience members should have a voice in their experience.
- All academic disciplines can help us approach our world with curiosity.

### Let's choose a design that considers the preferences of presenters and audience members at poster sessions



Most folks want to talk to someone at a poster for 10-15 minutes from the start of their poster, but a quarter of people would be open to a 20-minute conversation. Let's design our poster for up to 20 minutes worth of content while acknowledging that most interactions will be much shorter.

### Summary

Mike Morrison's better poster style encourages scientists to distill their message, a critical step in creating effective posters. Dramatic physical layout constraints are the primary mechanism employed to help users consolidate their story, though this strategy costs a significant portion of the available poster space. Principles of visual design can guide users to achieve the same effective communication as intended by Morrison without sacrificing valuable real estate, as demonstrated here in a series of better poster layouts. These designs also incorporate user experience (UX) considerations of realistic time and social expectations during audience interactions at poster presentations. Multiple variations are offered in attempt to accommodate a wide variety of preferences and use cases. Also they're just some free powerpoint templates on a website; you monsters can do whatever you want with them.

10/20

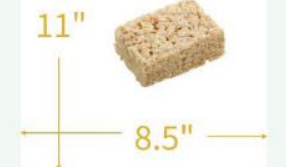
This poster per inch is a reasonable rule of thumb when talking a talk; for a 20-minute talk would require about 10 slides worth of data. That's assuming each slide has only one main figure that visual supporting figures are essential.



### Methods

Given that most interactions will be much less than the 20-minute estimate, this amount of space should be more than enough to convey the data and direct to tell your scientific story. Don't fill space just because it's there; let your content dictate the form it requires.

Figure: BUTTER, BREAD. Butter made from pure milk as seen under the microscope. Englewood, America, 1984.



Five or six two 8.5x11 inch figures on a sheet of 8.5x11 paper each figure would be about the size of the one described. It's a good idea to have a grid image that seems like a reasonable size to view on a poster. Long with that grid, you'll need to watch shapes that are not for circles. The grid in which the data comes to display, which means it can potentially accommodate more than our conservative upper limit column for the amount of data that will ever need to go on posters.

### Design Invitations

Let your title speak for itself; don't bold keywords or phrases. Use the white borders as modular dividers to facilitate breathing room for your text and figures. Don't be afraid of leaving open space, as it has to be the tip of this section or above the third column. Play with the columns based on your figure aspect ratio. See how the main title in this section and this box only span two of the three columns? It's easier to read a shorter line of text that are 50-70 characters long. (Think of how many words span a page on a novel compared to how many words stretch across the top of a science poster.) Have fun, play, don't take this too seriously.



# GET DESIGN SUPPORT

SCP

TEMPLATES/  
MODELS

MENTOR AND  
PEER REVIEW

GRAPHICS  
DEPARTMENTS  
AND OTHER PROS



# PHYSICAL FRAILTY, INTERVENING EVENTS AND THE DEVELOPMENT OF DISABILITY IN ACTIVITIES OF DAILY LIVING AMONG COMMUNITY-LIVING OLDER PERSONS

Thomas M Gill MD, Heather Allore PhD, Theodore R Holford PhD, Zhenchao Guo PhD, Yale University School of Medicine

## BACKGROUND

Among community living older persons, the inability to perform essential activities of daily living (ADL) without the assistance of another person is common, highly morbid, and costly. An important impediment to the development of interventions to prevent disability is an incomplete understanding of the mechanisms underlying the disabling process. Previous epidemiologic studies have focused almost exclusively on identifying vulnerable older persons at risk for disability. Relatively little is known, in contrast, about the role of intervening events that precipitate disability. While recent evidence suggests that disability may occur insidiously, particularly among older persons who are physically frail, most episodes of disability appear to be preceded by a discernable intervening event.

## OBJECTIVES

To evaluate the relationship between intervening events and the development of disability and to determine whether this relationship is modified by the presence of physical frailty.

## STUDY POPULATION

Members of the Precipitating Events Project (PEP Study) 754 community-living persons, aged 70+ years, who required no personal assistance in bathing, dressing, walking, or transferring. Persons who were physically frail, as denoted by a timed score > 10 sec on the rapid gait test (i.e. walking back and forth over a 10-foot course as quickly as possible), were oversampled to ensure a sufficient number of participants at increased risk for ADL disability. Participation rate was high: 75.2%.

## DATA COLLECTION

### ASSESSMENTS

Comprehensive home-based assessments were completed at baseline, 18, and 36 months by trained research nurse using standard instruments. Telephone assessments of intervening events and ADL function were completed monthly for up to 5 years with a 99.2% completion rate.

### INTERVENING EVENTS

Acute hospital admissions; Kappa = 0.94 for accuracy. Other illnesses or injuries leading to restricted activity. "Since we last talked on (date of last interview), have you stayed in bed at least half the day due to an illness, injury or other problem?" "Since we last talked on (date of last interview), have you cut down on your usual activities due to an illness, injury or other problem?" Test-retest reliability Kappa = 0.90 for the presence or absence of restricted activity.

Table 1. Baseline Characteristics of Study Participants

Characteristic*	Physically Frail		P Value
	No (n=432)	Yes (n=322)	
Mean age, years	78.9 ± 4.7	80.4 ± 5.4	<.001
Female, n (%)	260 (60.2)	227 (70.5)	.003
Non-Hispanic white, n (%)	399 (92.4)	283 (87.9)	.038
Lives alone, n (%)	148 (34.3)	150 (46.6)	<.001
Mean education, years	12.5 ± 2.8	11.3 ± 2.9	<.001
Chronic conditions, mean	1.6 ± 1.2	2.2 ± 1.3	<.001
Cognitively impaired, n (%)	35 (8.1)	51 (15.8)	<.001
Depressive symptoms, n (%)	61 (14.1)	95 (29.5)	<.001

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Table 3. Association Between Proximate Intervening Events and Disability Outcomes According to Physical Frailty at Baseline

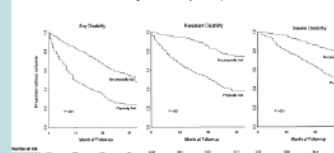
Proximate Intervening Event	Level of Baseline Physical Frailty	Multivariable Hazard Ratio*			
		Ary Disability	Persistent Disability	Severe Disability	
Hospitalization	All participants	.60	.44	.33	
	Physically frail	.34	.32	.93.2	
	Not physically frail	1.17	.73	.261	
Restricted activity only	All participants	5.1	3.3	7.3	
	Physically frail	4.1	3.3	5.2	
	Not physically frail	6.6	2.9	13	

\*All values are statistically significant at P < .001

Table 4. Population Attributable Fractions

Proximate Intervening Event	Ary Disability	Persistent Disability	Severe Disability
Hospitalization	.48	.46	.66
Restricted activity only	.19	.13	.16

Kaplan-Meier Curves for Development of Any, Persistent Disability, and Severe Disability According to Presence of Physical Frailty at Baseline



## DISABILITY OUTCOMES

### PRIMARY

Time to first occurrence of any disability over 5-year follow-up period

### SECONDARY

Persistent: new disability present for at least 2 consecutive months

Severe: new disability in three or more ADLs

## EXPOSURE PERIOD FOR INTERVENING EVENTS

### PROXIMATE

Month prior to assessment of disability

### DISTANT

Time from baseline assessment to two months prior to onset of disability or to a censoring event for participants who did not develop the relevant disability outcome

## STATISTICAL ANALYSIS

Evaluated time to first occurrence of any disability, persistent disability, and severe disability, respectively, according to physical frailty at baseline using Kaplan-Meier method.

Used time-dependent Cox proportional hazards method to evaluate multivariate relationship between the independent variables, including the proximate and distant intervening events, and the development of each of the three disability outcomes; and subsequently stratified results by physical frailty at baseline.

Calculated population attributable fractions of the three disability outcomes for each of the two proximate intervening events

## SUMMARY

Intervening events, including illnesses and injuries leading to either hospitalization or restricted activity, were strongly associated with the development of disability in essential activities of daily living. These associations were limited to events occurring within a month of disability onset, were observed for three distinct disability outcomes, persisted despite adjustment for several potential confounders, and were present among persons who were physically frail and those who were not physically frail.

## IMPLICATIONS

Our results highlight the importance of intervening events as a potential target for the prevention of disability, regardless of the presence of physical frailty.





# WHEN BAD THINGS HAPPEN TO OLDER PEOPLE: THE ROLE OF INTERVENING EVENTS ON THE DEVELOPMENT OF DISABILITY

Thomas M Gill MD, Heather Allore PhD, Theodore R Holford PhD, Zhenchao Guo PhD Yale University School of Medicine

## WHAT WE LEARNED

Illnesses and injuries leading to either hospitalization or restricted activity represent important sources of disability for community-living older persons, **regardless** of the presence of physical frailty.

**These intervening events may be suitable targets for the prevention of disability.**

## BACKGROUND

A more complete understanding of the disabling process would likely facilitate the development of interventions aimed at preventing disability among community-living older persons.

## OBJECTIVES

To evaluate the relationship between intervening events and the development of disability

To determine whether this relationship is modified by the presence of physical frailty

## METHODS

Prospective study of 754 nondisabled, community-living persons, aged 70+ years

Categorized participants into two groups according to the presence or absence of physical frailty, which was defined on the basis of slow gait speed

Followed participants with monthly telephone interviews for up to 5 years

- to determine the occurrence of disability
- to ascertain exposure to intervening events, which included illnesses and injuries leading to either hospitalization or restricted activity

## RESULTS

Kaplan-Meier Curves for Development of Any Disability, Persistent Disability, and Severe Disability According to Presence of Physical Frailty at Baseline

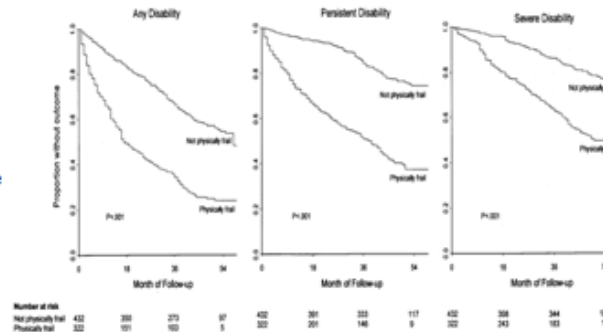


Table 3. Association Between Proximate Intervening Events and Disability Outcomes According to Physical Frailty at Baseline

Proximate Intervening Event	Level of Baseline Physical Frailty	Any Disability	Persistent Disability	Severe Disability
Multivariable Hazard Ratio*				
Hospitalization	All participants	60	44	132
	Physically frail	34	32	93.2
	Not physically frail	117	73	261
Restricted activity only	All participants	5.1	3.3	7.3
	Physically frail	4.1	3.3	5.2
	Not physically frail	6.6	2.9	13

\*All values are statistically significant at P < .001

Table 1. Baseline Characteristics of Study Participants

Characteristic*	Physically Frail		P Value
	No (n=432)	Yes (n=322)	
Mean age, years	76.9 ± 4.7	80.4 ± 5.4	<.001
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Table 4. Population Attributable Fractions

Proximate Intervening Event	Any Disability	Persistent Disability	Severe Disability
Hospitalization	.48	.46	.66
Restricted activity only	.19	.13	.16

Table 2. Factors Associated with Development of Any Disability

Factor	Multivariable Hazard Ratio	95% CI	P Value
Age per each 5 years	1.3	1.2 to 1.5	<.001
Female sex	1.1	0.9 to 1.4	.57
Non-Hispanic white	0.9	0.6 to 1.3	.56
Lives alone	0.7	0.6 to 0.9	<.001
Years of education	1.0	0.9 to 1.0	.85
No. of chronic conditions	1.1	1.0 to 1.2	.06
Cognitive impairment	1.3	1.0 to 1.8	.07
Depressive symptoms	1.3	1.0 to 1.7	.03
Physical frailty	2.2	1.8 to 2.7	<.001
Proximate Intervening events			
Hospitalization	60	46 to 76	<.001
Restricted activity only	5.1	3.8 to 6.7	<.001
Distant Intervening events			
Hospitalization	1.0	0.9 to 1.1	.69
Restricted activity only	1.0	1.0 to 1.1	.27



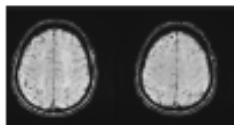
# Incidence of Cerebral Microbleeds: The Mayo Clinic Study of Aging

Jonathan Graff-Radford, MD; Timothy Lesnick, MS; Scott A. Przybelski, BS; AJ Spychalla BS; David T Jones, MD; Michelle Mielke, PhD; John Huston, MD; Prashanthi Vemuri, PhD; Jeff Gunter, PhD; Val Lowe, MD; David S. Knopman, MD; Ronald C. Petersen, MD, PhD; Clifford R. Jack, Jr., MD; Walter Kremers, PhD; Kejal Kantarci, MD, MS  
Mayo Clinic, Rochester, MN

## Background

### Why is it important to study CMBs?

- ~20% of the >60 year old population
- Risk factor for hemorrhagic stroke
- Biomarker of CAA
- Exclusion criteria in Alzheimer's disease trials
- Safety variable in Alzheimer's disease trials



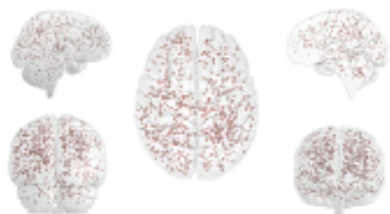
## Overall Grant Objectives

- To Determine
  - The prevalence, incidence of CMBs
  - The clinical outcomes of participants with CMBs
  - The pathophysiologic basis of CMBs using PET and MRI
  - The neuropathological basis of CMBs by correlating CMBs on MRI with pathology

## Frequency of CMBs in MCSA

Characteristics table			
Age	60-69 n = 455	70-79 n = 254	80+ n = 288
CMB, no. (%)	48 (11)	75 (23)	116 (40)
Lobar CMBs, no. (%)	43 (9)	59 (23)	108 (38)
Deep CMBs, no. (%)	5 (2)	21 (8)	22 (8)

Figure 1



## Study Objectives

What is the incidence of CMBs in a population-based sample? Is amyloid burden on PET at baseline associated with incident CMBs?

## Mayo Clinic Study of Aging



Olmsted County 50-89 year old residents

Randomly selected non-demented participants from Olmsted County invited to participate in the study



651 participants

At least two separate T2\* Gradient recall echo sequences

90% underwent 11C-Pittsburgh Compound-B (PiB) PET scans at the time of the baseline MRI scan

CMBs identified by trained image analysts and independently confirmed by a vascular neurologist or radiologist (JGK, KK, JL, or CJ)

Defined as homogeneous hypointense lesions up to 10 mm in diameter and graded

## Methods: CMBs

- 2 causes of bias: study and imaging nonparticipation
- Because the participants are augmented from the REP, we were able to adjust using a 2 stage inverse probability weighting approach was used to adjust for:
  - Whether an individual recruited had a MCSA study visit
  - Whether or not they had a MRI scan
- The incidence of CMBs was then standardized to the 2010 Census directly to give population incidence estimates

## Prediction of a new CMB (event)

### Discrete Survival Time Structural Equation Models



In these diagrams, "Event" is a latent variable representing time to next CMB. The "Prior CMB" variable is number of CMBs at baseline. Amyloid is measured as log(PiB).

## Results: CMBs

### Baseline Demographics (n = 651)

Characteristic	No. (%)
Male, no. (%)	256 (55%)
Age, yrs	69.8 (10.0)
CA Carrier, no. (%)	190 (29%)
Time between MRIs, yrs	2.7 (0.1)
Baseline CMBs	113 (17%)
Hypertension, no. (%)	383 (59%)
Incidence CMB, no. (%)	72 (11%)
Incidence Lobar CMB, no. (%)	54 (8%)
Incidence Deep CMB, no. (%)	16 (2%)

### Comparison of Patients With and Without Incident CMBs

	No Incident CMBs n = 579	Incident CMBs n = 72	P-value
Male, no. (%)	204 (53%)	52 (72%)	0.002
Age, yrs	69.2 (9.9)	74.9 (9.0)	<0.001
CA Carrier, no. (%)	165 (29%)	25 (35%)	0.29
Education, yrs	14.8 (2.6)	14.5 (2.4)	0.25
PIB SUVr	1.46 (0.30)	1.62 (0.45)	<0.001
Demented, no. (%)	3 (1%)	1 (1%)	0.37
Time between MRIs, yrs	2.7 (1.0)	2.5 (0.9)	0.09
Baseline CMBs	76 (13%)	35 (49%)	<0.001
Hypertension, no. (%)	327 (56%)	45 (64%)	0.26

P-values between groups are from a t-test for continuous variables or a chi-squared test for the categorical variables.

## Results: CMBs

### Incidence Rates for Developing a new Cerebral Microbleed Based on 1000 Persons Per Year

	Weighted	Unweighted
Age 50-59 years	1.2	1.7
Age 70-79 years	28.1	31.3
Overall	11.6	14.8

### Cox Proportional Hazard Model

	Univariate		Final Full Model	
	Hazard Ratio (95% CI)	P-value	Hazard Ratio (95% CI)	P-value
Age	1.22 (1.05, 1.38)	0.001	1.07 (0.94, 1.20)	0.29
Gender (male)	1.95 (1.17, 3.28)	0.01	1.85 (1.05, 3.27)	0.02
PIB SUVr	1.43 (1.12, 1.84)	0.004	1.23 (0.99, 1.63)	0.15
Hypertension	1.12 (0.89, 1.41)	0.64	---	---
APOE 4 Carrier	1.28 (0.79, 2.08)	0.32	---	---
Prior CMB (absent/present)	4.98 (3.14, 7.93)	<0.001	4.09 (2.47, 6.79)	<0.001

### Proportion of hazards (95% CI) for likelihood of developing a lobar only cerebral microbleed

	Hazard Ratio (95% CI)	P-value	Hazard Ratio (95% CI)	P-value
Age	1.27 (1.11, 1.46)	<0.001	1.11 (0.95, 1.30)	0.19
Gender (male)	2.39 (1.28, 4.46)	0.005	2.46 (1.22, 4.95)	0.01
PIB SUVr	1.56 (1.22, 2.08)	<0.001	1.43 (1.02, 1.92)	0.02
Hypertension	1.05 (0.61, 1.85)	0.83	---	---
APOE 4 Carrier	1.30 (0.74, 2.28)	0.36	---	---
Prior Lobar CMB (absent/present)	4.73 (2.76, 8.12)	<0.001	3.37 (1.87, 6.07)	<0.001

## Predicting incident lobar only CMBs



	Path	Estimate (s.e.)	p-value
Age → Amyloid		0.010 (0.001)	<0.001
APOE4 → Amyloid		0.116 (0.038)	<0.001
Male → Time to Event		0.896 (0.353)	0.011
Amyloid → Time to Event		1.977 (0.600)	0.001
Age → Amyloid → Time to Event		0.019 (0.004)	0.002
APOE4 → Amyloid → Time to Event		0.229 (0.076)	0.002

## Discussion

Our results show that amyloid load increases the risk (hazard) of a subsequent lobar CMB

The relationship between age, APOE4 and incident lobar CMBs is mediated by amyloid load

Prior CMBs increase the risk (hazard) of a subsequent lobar CMB and overwhelm the effect of amyloid

Prior CMB status appears to be the most important predictor of incident CMBs

## Conclusions

CMBs are a common cerebrovascular pathology that increases with age

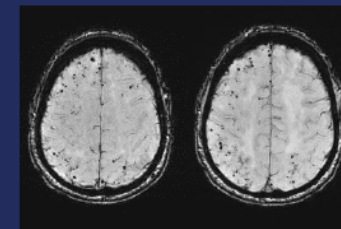
The incidence increases with age to 39.1 per 1000 persons per year over age 70

We have previously shown that cross-sectionally amyloid load is associated with CMBs

While amyloid predicts incident lobar microbleeds, baseline CMB status is the most important predictor of future CMBs

# Amyloid Load Increases Risk of Cerebral Microbleeds

## Findings from The Mayo Clinic Study of Aging



Jonathan Graff-Radford MD, Timothy Lesnick MS, Scott A. Przybelski BS, AJ Spychalla BS, David T Jones MD, Michelle Mielke PhD, John Huston MD, Prashanthi Vemuri PhD, Jeff Gunter PhD, Val Lowe MD, David S. Knopman MD, Ronald C. Petersen MD, PhD, Clifford R. Jack, Jr. MD, Walter Kremers PhD, Kejal Kantarci MD, MS

### What We Learned

1

Amyloid load increases the risk (hazard) of subsequent lobar CMB.

2

The relationship between age, APOE4 and incident lobar CMBs is mediated by amyloid.

3

Prior CMB status appears to be the most important predictor of incident CMBs.

### Why Study CMBs

- Common: ~20% of the >60 year old population
- Risk factor for hemorrhagic stroke
- Biomarker of CAA
- Exclusion criteria in Alzheimer's disease trials
- Safety variable in Alzheimer's disease trials

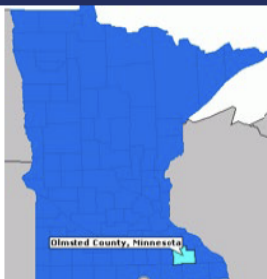
### Study Objectives

- What is the incidence of CMBs in a population-based sample?
- Is amyloid burden on PET at baseline associated with incident CMBs?

### Methods

#### Mayo Clinic Study of Aging

- Olmsted County 50-89 year old residents
- 651 randomly selected non-demented participants of Olmsted County invited to participate in the study.



### Results

#### Comparison of Patients w/ and w/o Incident CMBs

	No Incident CMBs n = 579	Incident CMBs n = 72	P-value
Male, no. (%)	304 (53%)	52 (72%)	0.002
Age, yrs	69.2 (9.9)	74.9 (9.8)	<0.001
E4 Carrier, no. (%)	165 (29%)	25 (35%)	0.29
Education, yrs	14.8 (2.6)	14.5 (2.4)	0.25
PIB SUVr	1.46 (0.35)	1.62 (0.45)	<0.001
Demented, no. (%)	3 (1%)	1 (1%)	0.37
Time between MRIs, yrs	2.7 (1.0)	2.5 (0.9)	0.09
Baseline CMBs	76 (13%)	35 (49%)	<0.001
Hypertension, no. (%)	337 (58%)	46 (64%)	0.36

P-values between groups are from a t-test for continuous variables or a chi-squared test for the categorical variables.

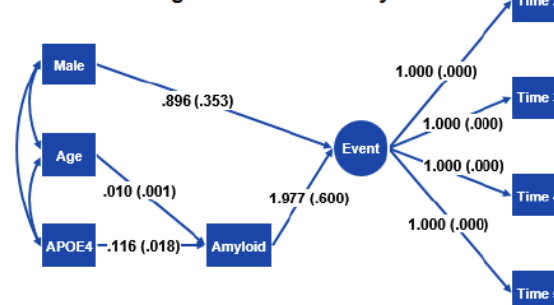
#### Incident rates for Developing a New Microbleed (Based on 1,000 persons/year)

	Weighted	Unweighted
Age 50-69 years	1.2	1.7
Age 70-89 years	39.1	31.3
Overall	11.6	14.8

#### Proportional Hazards (95% CI) for Likelihood of Developing a Lobar CMB

	Hazard Ratio (95% CI)	P-value	Hazard Ratio (95% CI)	P-value
Age	1.27 (1.11, 1.46)	<0.001	1.11 (0.95, 1.30)	0.19
Gender (males)	2.39 (1.28, 4.46)	0.006	2.46 (1.22, 4.95)	0.01
PIB SUVr	1.56 (1.23, 2.08)	<0.001	1.41 (1.03, 1.93)	0.03
Hypertension	1.06 (0.61, 1.85)	0.83	---	---
APOE 4 Carrier	1.30 (0.74, 2.28)	0.36	---	---
Prior Lobar CMB (absent/present)	4.73 (2.76, 8.12)	<0.001	3.37 (1.87, 6.07)	<0.001

#### Predicting Incident Lobar Only CMBs



### Interpretation

- CMB incidence increases with age to 39.1 per 1000 persons per year over age 70.
- These findings have important implications for planning clinical trials in Alzheimer's disease.

# #BetterPoster?

▲ PRESENTER: **Leeroy** Jenkins

## RESULTS

- Graph/table with **essential results only**.
- All the other correlations in the ammo bar.

## METHODS

1. How did you find this?
2. Collected [what] from [population]
3. How you tested it.

Notes: Try this with no intro, no discussion. Tell me whether you miss it.

This is a **experimental version** of #betterposter. Try it if you're **brave** and let me know how it goes!



Get full paper

## Title:

Subtitle

▲ Leeroy Jenkins, author2, author3, author4

## AMMO BAR

Delete this and replace it with your...

- Extra Graphs
- Extra Correlation tables
- Extra Figures
- Extra nuance that you're worried about leaving out.
- **Keep it messy!** This section is just for you.



## Background

- Loneliness is prevalent among middle-aged US residents; among 35-64 year old MIDUS participants, 29% felt lonely some or most of the time.
- Middle-aged adults who are lonely have an elevated likelihood of death.

## Methods

- Parent study: Midlife in the US (MIDUS) survey Biomarker Project
- n=927 participants age 35-64 years at Biomarker Project data collection
- MIDUS data collection date --1995-1996, 2004-2006, Biomarker Project 2004-2009
- Self-reported loneliness categorized as feeling lonely or not



Take a picture to download the full paper

# LONELINESS IS ASSOCIATED WITH SYSTEMIC INFLAMMATION BIOMARKERS

## Findings from Midlife in the United States

### What We Learned

**Biomarker values of interleukin-6, fibrinogen, and C-reactive protein are significantly higher among lonely, compared to not lonely middle-aged US residents.**

**Higher systemic inflammation values were found in lonely community-dwelling middle-aged adults without an acute stressor applied in a laboratory setting.**

Biomarker of Inflammation	$\beta$	p-value	95% Confidence interval
Interleukin-6	.07	.014	.01, .12
Fibrinogen	18.24	.011	4.26, 32.21
C-reactive protein	.08	.035	.01, .16

Results summary of the relationship between biomarkers of inflammation and loneliness using hierarchical linear regression

## Potential Confounders

### Demographics

Age, Sex, Race, Education

### Psychosocial

Perceived stress score, Social integration, Social support, Psychological well-being

### Health behaviors, physical health

Smoking history, Symptoms and chronic conditions, Blood pressure index, Body mass index

## Interpretation

- Our results, although not causal, were consistent with gene expression studies where loneliness affects inflammation.
  - Lack of exercise (consequence of loneliness) may mediate the loneliness-inflammation relationship
- ### Authors

*Paula V. Nersesian, PhD1, MPH, Hae-Ra Han1, PhD, Gayane Yenokyan2, PhD, Roger S. Blumenthal, MD3, Marie T. Nolan, PhD1, and Sarah L. Szanton, PhD1*



JOHNS HOPKINS  
SCHOOL of NURSING



# #butterposter

## Visual and UX design principles can improve the effectiveness of Morrison's Better Poster and poster presentations

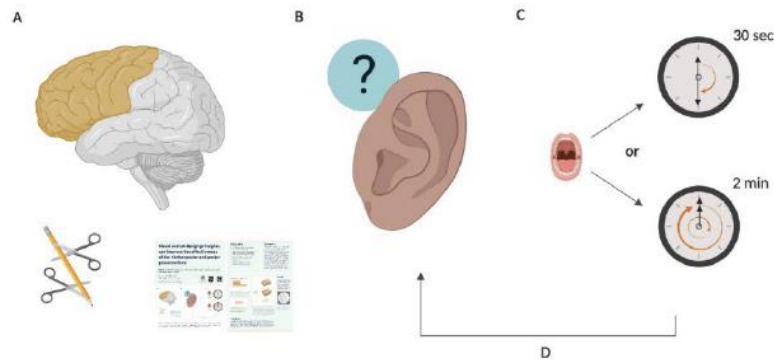
Derek B. Crowe<sup>1</sup>, Melanie Rogala<sup>3</sup>, S.P. Margolis<sup>1,2</sup>, Luke H. Shaw<sup>1,3</sup>, David Sanchez<sup>2</sup>, Sarah Rutherford<sup>2</sup>, Amber V. Odhner<sup>2</sup>

<sup>1</sup> University of Rochester, Rochester, NY

<sup>2</sup> Karhide University, Erhenrang, Gethen

<sup>3</sup> College at The Bog of Eternal Stench, Labyrinth

Correspondence: derek\_crowe@urmc.rochester.edu



(A) Plan, cut, edit, and distill your message. Write a brief, descriptive title. Use a layout that takes advantage of the whole poster. Prepare two versions of your poster intro: a short one and a long one. (B) When another human seems like they might be interested in your work, ask to be sure. Then ask if they want the short intro or the long intro. Don't be afraid to ask questions to learn about your audience first. Use their background to change your talk up on the fly; they're not elevator pitches. (C) Distill them. Use the graphical abstract for the short version and get into your data figures for the long version. (D) Listen to their verbal and non-verbal responses as you continue the conversation.

### Highlights

- A well-crafted message is more important than any layout design.
- Visual design strategies can be employed to incorporate lessons from Morrison's Better Poster without sacrificing valuable poster space.
- Posters are performances and audience members should have a voice in their experience.
- All academic disciplines can help us approach our world with curiosity.

### Summary

Mike Morrison's better poster style encourages scientists to distill their message, a critical step in creating effective posters. Dramatic physical layout constraints are the primary mechanism employed to help users consolidate their story, though this strategy costs a significant portion of the available poster space. Principles of visual design can guide users to achieve the same effective communication as intended by Morrison without sacrificing valuable real estate, as demonstrated here in a series of butter poster layouts. These designs also incorporate user experience (UX) considerations of realistic time and social expectations during audience interactions at poster presentations. Multiple variations are offered in attempt to accommodate a wide variety of preferences and use cases. Also they're just some free powerpoint templates on a website; you monsters can do whatever you want with them.

### Methods

Given that most interactions will be much less than the 20-minute estimate, the amount of space should be more than enough to contain the data required to tell your scientific story. Don't fill space just because it's there; let your content dictate the form it requires.

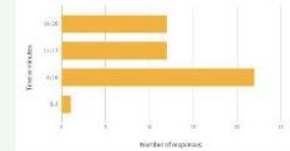
Figure: SUETEO, 1894. "Burger made from pure milk as seen under the microscope." *Engraving, American, 1894.*

### Design Invitations

Let your title speak for itself; don't bold keywords or phrases. Use the white borders as modular dividers to facilitate breathing room for your text and figures. Don't be afraid of leaving open space, as I have to the right of this section or above the third column. Play with the columns based on your figure aspect ratio. See how the main title in this section and this box only span two of the three columns? It's easier to read a shorter line of text that are 50-70 characters long. (Think of how many words span a page on a novel compared to how many words stretch across the top of a science poster.) Have fun, play, don't take this too seriously.

### Let's choose a design that considers the preferences of presenters and audience members at poster sessions

What's the longest amount of time you'd want to spend talking with someone at your poster?



Most folks would prefer to spend a minimum of 5-10 minutes with someone at their poster, but a quarter of people would be open to a 20-minute conversation. Let's design our poster for up to 20 minutes worth of content while acknowledging that most researchers will be much shorter.

10/20

Two minutes per slide is a reasonable rule of thumb when packing a talk, so a 20-minute talk would require about 10 slides worth of data. (I don't assume each slide has one main figure, but smaller supporting figures are reasonable.)



If you print two 8.5x11 inch figures on a sheet of 8.5x11 paper, each figure would be about the size of the one you're holding in your hand. That seems like a reasonable size to view on a poster. (Along with the logo, which will be much smaller than this.) For guidance, the figure in which this data appears is 10x15 cm, which means I can comfortably accommodate more than our conventional upper limit column for the amount of data that we're here to put on a poster.



by @derektoplasm

Get templates from  
<https://derekcrowe.net/butterposter>



# PITCH



4

PITCH

Bring the heat!





# PITCH



- Pique interest (Did you know...?)
- Connect with your audience
- Make it personal
- Tell a (brief) story
- Practice!



5



POSTER  
REVIEW

# Palliative Care Readiness Tool For Older Adults with Cancer

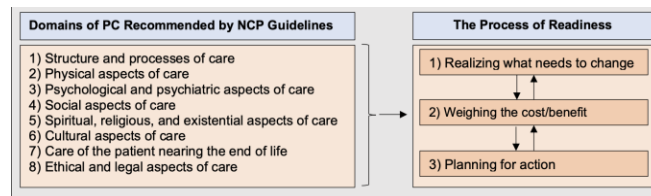
## Introduction and Background

- Older adults with cancer (OAC) have high symptom burden/unmet needs.
- They can benefit from palliative care (PC) that has been shown to improve mood, and QoL.
- However, they underutilize PC.
- A potential approach to improve PC utilization is to measure their readiness for PC.
- There is no gold standard tool to measure readiness for PC.

## Study Purpose

- To develop and establish the content validity and preliminary convergent validity and test-retest reliability of a palliative care readiness tool for OAC.

## Theoretical Framework



## Methods

### Aim 1: Develop the Palliative Care Readiness tool (PALCARE) for older adults with cancer

- Semi-structured interviews with a diverse group of OAC.

### Aim 2: Establish the content validity of PALCARE

- Two rounds of expert panel survey and a focus group with PC experts
- Cognitive interviews with 20 dyads of OAC and their family caregivers

### Aim 3: Establish convergent validity and test-retest reliability of PALCARE

- Convergent validity with Perceptions of Palliative Care Instrument.
- Test-retest reliability during the cognitive interview and 2 weeks afterward.

Jyotsana Parajuli, PhD, MGS, RN  
Assistant Professor, School of Nursing  
University of North Carolina at Charlotte



Contact Information  
Phone: 704-687-5946  
Email:  
jparajul@charlotte.edu



# Advancing Hispanic Outreach and Recruitment Science in ADRD (AHORA!) Research Initiative

Patricia Garcia<sup>1</sup>, Valerie Dorsant-Ardon<sup>1</sup>, Sophia Wang<sup>1</sup>, Ivy Tarin<sup>2</sup>, Fernando Riosmena<sup>3</sup>, Miriam Rodriguez<sup>4</sup>

<sup>1</sup>Indiana University School of Medicine, Indianapolis, IN, USA, <sup>2</sup>Buenamente LLC, <sup>3</sup>Departments of Demography & Sociology & Director, Institute for Health Disparities  
<sup>4</sup> Department of Health and Wellness Design, IU School of Public Health, Bloomington, IN, USA

## BACKGROUND AND SIGNIFICANCE

- The Hispanic/Latinx (H/L) population comprises 20% of the US population.
- H/L adults have a 1.5x higher risk of developing ADRD than WNH.
- But participation rates in Alzheimer's disease and related dementia (ADRD) research are only 1-8%, also affecting ADRD biomarker studies.
- Barriers to research participation found in H/Ls range from misconceptions, transportation issues, to a lack of disease awareness.
- Current gap in the literature is the lack of **scalable** recruitment strategies to accelerate H/L participation for NIA-funded multisite ADRD studies (CLARITI, CLEAR-AD, ADNI-4, Diverse VICID) which focus primarily on diverse groups.

## OBJECTIVES

Develop scalable recruitment strategies so we can better understand the pathophysiology of early-stage ADRD in diverse populations, including H/L older adults, for developing novel disease-modifying ADRD therapeutics.

## RESEARCH HYPOTHESES

Successfully targeting adverse SDoH with culturally sensitive messaging will result in greater participation in ADRD biomarker research among H/L older adults by a) decreasing perceived barriers, and b) increasing motivation for ADRD biomarker research.

## PROJECT AIMS

**Aim 1. Examine the relationship between adverse SDoH and interest levels in ADRD biomarker research participation in H/L older adults compared to WNH (White non-Hispanic) older adults.**

- Hypothesis 1a: Adverse SDoH lowers interest levels in ADRD biomarker research participation in H/L older adults compared to WNH older adults.
- Hypothesis 1b: This relationship will be partially mediated by adverse SDoH in H/L older adults increasing barriers to research participation.
- Hypothesis 1c: This relationship will be partially mediated by adverse SDoH in H/L older adults lowering motivators for research participation.

**Aim 2. Develop and refine culturally sensitive messaging which targets adverse SDoH to increase interest levels in ADRD biomarker research participation in H/L older adults.**

- Hypothesis 2a: Successful targeting of adverse SDoH with culturally sensitive messaging will increase interest levels in ADRD biomarker research participation in H/L older adults.
- Hypothesis 2b: This effect will be partially mediated by lowering perceived barriers to research participation in H/L older adults.
- Hypothesis 2c: This effect will be partially mediated by increasing motivators for research participation in H/L older adults.

## ACKNOWLEDGEMENTS

This work was supported by

## STUDY SAMPLE

Aim 1	Aim 2
<p><b>Study Sample:</b> Participants: 200 community-dwelling individuals</p> <p><b>Inclusion Criteria:</b></p> <ul style="list-style-type: none"> <li>• Self-identify as White Non-Hispanic (WNH) or Hispanic/Latino (H/L)</li> <li>• Age ≥ 55 years</li> <li>• Never participated in Alzheimer's disease (AD) research</li> </ul> <p><b>Design:</b> Type: Cross-sectional, mixed methods study</p>	<p><b>Study Sample:</b> Participants: 4-6 focus group participants from Aim 1 (age ≥ 55)</p> <p><b>Design:</b> Focus Groups: Total of three focus groups to evaluate and co-design recruitment materials to be used by the IADRC</p>

## CONCEPTUAL MODEL

Figure 1. How Culturally Sensitive Messaging Increases Interest in ADRD Research Participation in H/L Older Adults

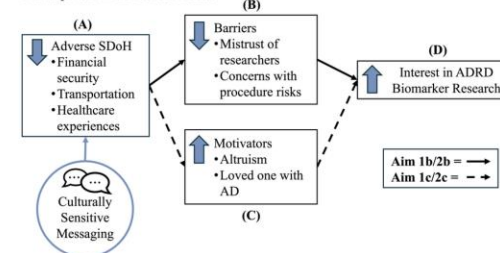


Figure 1 outlines how adverse SDoH (A) leads to lower interest in ADRD research participation (D) (Aim 1a) in H/L older adults compared to WNHs, in part by increasing barriers (B) (Aim 1b) and reducing motivators (C) (Aim 1c). Fig 1 then outlines how successful targeting of adverse SDoH (A) with culturally sensitive messaging will increase interest in ADRD biomarker research participation in H/L older adults (Aim 2a) by lowering barriers (B) (Aim 2b) and increasing motivators (C) (Aim 2c).

## STATISTICAL ANALYSIS

### Logistic Regression Models:

- Ordinal: Analyze interest in ADRD study participation (coded as Yes = 0, Unsure = 1, No = 2).
- Binary: For outcomes with Yes/No responses, using "Yes" as the reference.
- Adjustments: Models account for demographics, race, and knowledge of ADRD.

### Chi-Squared Tests:

Compare demographic variables and knowledge of ADRD based on trust in researchers.

**Focus Groups:** Analyze perceptions of culturally sensitive messaging regarding ADRD participation.

**Statistical Significance:** Two-tailed tests,  $p < 0.05$ ; analyses using SPSS Statistics version 28.0.

## ANTICIPATED OUTCOMES

**Impact:** Anticipate that culturally sensitive messaging will lower barriers and enhance motivation for research participation among H/L older adults.

**Long-Term Goals:** Discuss how findings will inform scalable recruitment strategies in future ADRD studies.



# REMEMBER THE FOUR STEPS



1

THINK STRATEGY

2

GET ON MESSAGE

*Take a breath, then...*

3

HONE YOUR DESIGN

4

PRACTICE YOUR “PITCH”



# FOR MORE HELP



- Call me/write SCP: [jbeilenson@aboutscp.com](mailto:jbeilenson@aboutscp.com)
- See: [Posterbuzz.org](http://Posterbuzz.org); [#betterposter](https://twitter.com/betterposter)
- Engage graphic designers in your department/school/area for advice.
- Offer this to a graphic design class as a unique design project.
- Contact your university/school publications or graphic design office.



## Welcome to PosterBuzz

Scientific posters are an increasingly popular form of professional communications. Poster sessions provide a unique, face-to-face opportunity for researchers to engage their peers, get needed feedback, prompt new ideas, and meet potential collaborators.

Posters are everywhere at professional association and society meetings across the country, and yet most scientists and academics struggle to put something useful up on the wall. Then they spend poster sessions standing around hoping somebody, anybody, will come by and talk with them about their work.

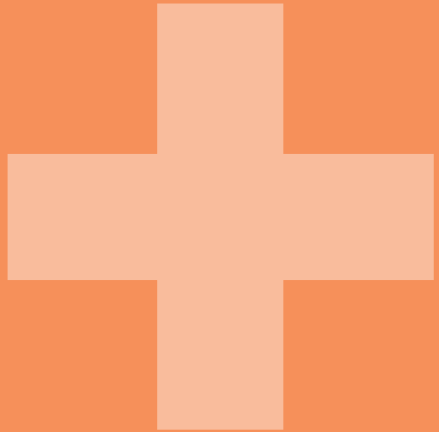
So who to call? Backed by a team of communications experts who have worked with academic leaders during the last two decades, **PosterBuzz** is here to help. It is a unique





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MORE  
POSTERS

# Engaging Patients in Advance Care Planning through an Electronic Health Record Patient Portal

Hillary D. Lum MD, PhD<sup>1</sup>; Adreanne Brungardt, MM, MT-BC<sup>1</sup>; Sarah Jordan, MA<sup>1</sup>; Lisa Schilling, MD, MSPH<sup>2</sup>; Jean S. Kutner, MD, MSPH<sup>2</sup>

<sup>1</sup>Division of Geriatric Medicine, <sup>2</sup>Division of General Internal Medicine, Department of Medicine, University of Colorado School of Medicine, and VA Eastern Colorado Geriatric Research Education and Clinical Center, Aurora, CO.

## BACKGROUND

- Only 36.7% of US adults have completed advance directives and rates of advance directives in electronic health records (EHR) are even lower
- We implemented novel Advance Care Planning (ACP) tools in the EHR patient portal, including an electronic Medical Durable Power of Attorney (MDPOA) form

## OBJECTIVE

To evaluate feasibility and use of novel patient EHR-based Advance Care Planning tools

## METHODS

**Design** Mixed methods evaluation of first 8 weeks of ACP tool use. No specific promotion about tools or outreach was performed.

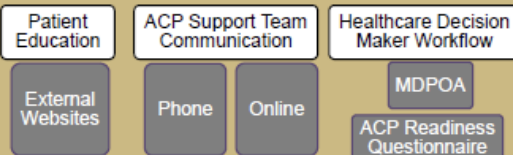
**Participants and Setting** Adults ≥ age 18, ~286,000 patients have a portal account.

**Methods** Chart abstraction and qualitative analysis of preferences on MDPOA forms

### Outcomes

- Characteristics including age, gender, geographic region, and documentation.
- Thematic analysis of the optional section of the MDPOA form which allows patients to free-text preferences

## Advance Care Planning Webpage

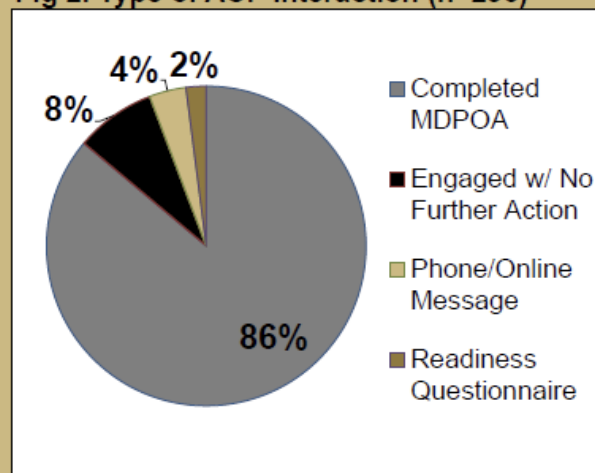


## RESULTS

**TABLE 1. Participants (n=296)**

Characteristics	N (%)
Age, mean (range)	45 (18-98)
Women	213 (72)
<u>System Region</u>	
North	96 (32)
Metro	118 (40)
South	68 (23)
Out of State	14 (5)
<u>Primary Care Provider</u>	
PCP within system	163 (55)
PCP outside of system	76 (26)
Unknown	57 (19)

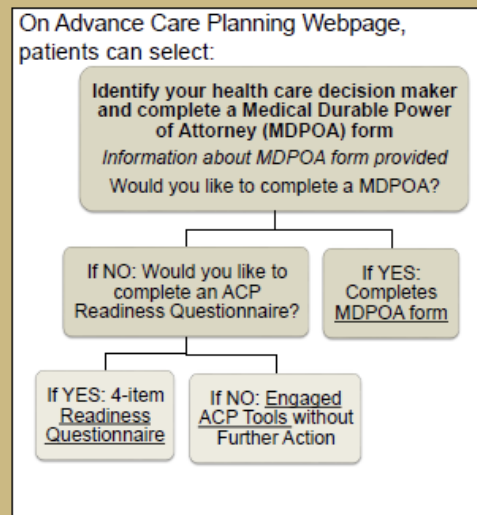
**Fig 2. Type of ACP Interaction (n=296)**



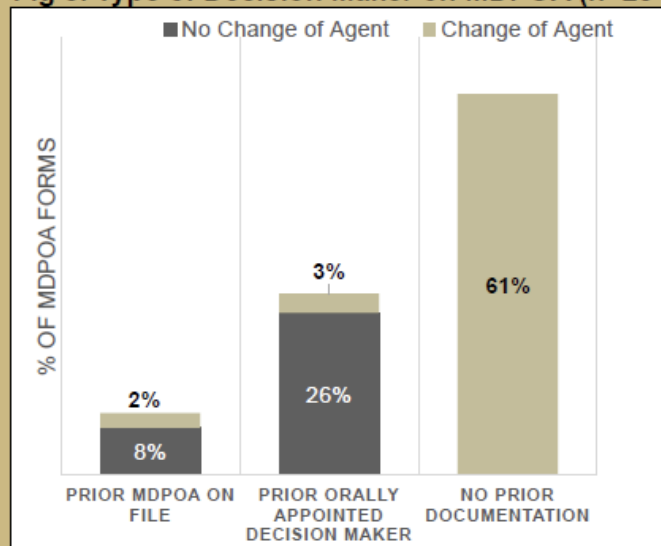
**TABLE 2. Analysis of Treatment Preferences (n=107)**

Main Themes	Example Quote
Procedural Requests	I want all efforts made to save my life. The only exception is a) if I am deemed brain dead for a minimum of 5 days or b) if the only way to keep me clinically alive, with no quality of life, is chronic life support
Absolute Statements	Keep me Alive!
Reference to other ACP documents	Please refer to my Living Will that is on file and my husband can provide.
Consultation Requests	I would like an early palliative care consult if I have a serious illness.
Organ Donation	Any organs or viable tissues to be used for transplant.
Address to Agent	All decisions are to be made by (agent).

**Fig 1. Web-based Healthcare Decision Maker Workflow**



**Fig 3. Type of Decision Maker on MDPOA (n=254)**



## CONCLUSIONS

- Patients of all ages have engaged in ACP tools through the patient portal.
- The web-based tools promote completion of a MDPOA form to appoint a healthcare decision maker.
- The majority of patients who completed a MDPOA form had no prior documentation of a healthcare decision maker.

## NEXT STEPS

- Develop population health-based strategies to promote use of EHR-based ACP tools
- Implement healthcare staff training and engagement to promote ACP discussion and patient outreach.

Funded by: The Colorado Health Foundation; Dr. Lum is also supported by an NIA K76 Paul B. Beeson Award.

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### Participants and Setting

Adults ≥ age 18, ~286,000 patients have a portal account.

### Methods

Chart abstraction and qualitative analysis of preferences on MDPOA forms

### Outcomes

1. Characteristics including age, gender, geographic region, and documentation.
2. Description of how patients change documentation of a healthcare agent.

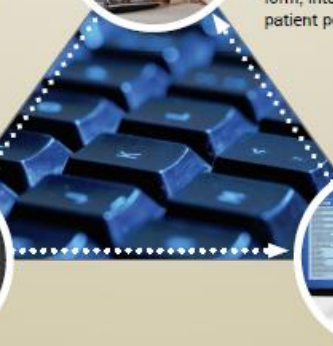


## ACP to EHR

Only 36.7% of US adults have completed advance directives and rates of advance directives in electronic health records (EHR) are even lower



We implemented Advance Care Planning (ACP) tools, including an electronic Medical Durable Power of Attorney (MDPOA) form, into the EHR patient portal



## FIRST-EVER ADVANCE CARE PLANNING TOOLS INTEGRATED INTO EHR

## WHAT WE LEARNED

1. Patients of all ages have engaged in ACP tools through the patient portal.
2. The web-based tools promote completion of a MDPOA form to appoint a healthcare decision maker.
3. The majority of patients who completed a MDPOA form had no prior documentation of a healthcare decision maker.

## NEXT STEPS

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## RESULTS

n = 296

Characteristics	N (%)
Age, mean (range)	45 (18-98)
Women	213 (72)
<b>System Region</b>	
North	96 (32)
Metro	118 (40)
South	68 (23)
Out of State	14 (5)
<b>Primary Care Provider</b>	
PCP within system	163 (55)
PCP outside of system	76 (26)
Unknown	57 (19)

TABLE 1. PARTICIPANTS

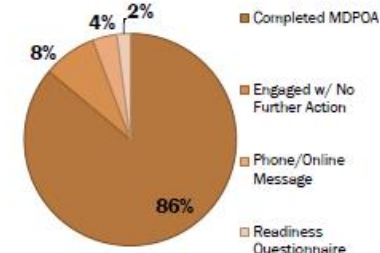


FIGURE 1. TYPE OF ACP INTERACTION

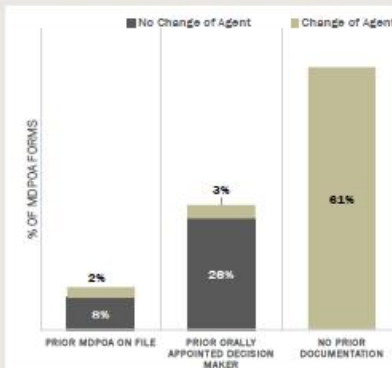


FIGURE 2. TYPE OF DECISION-MAKER ON MDPOA

# End-of-Life Care in Nursing Homes is Improving

Suzanne S. Prevost, RN, PhD and J. Brandon Wallace, PhD  
School of Nursing and Department of Sociology & Anthropology



## INTRODUCTION

### Background

- 25% of Americans die in nursing homes
- Projected to increase to 40% by 2020

### End-of-Life Care Problems in Nursing Homes

- High prevalence of pain
- Excessive use of life-sustaining therapies
- Poor communication with families
- Lack of advance care planning

### Hospice Care

- Nursing home residents are less likely to receive hospice care than people who die in other locations
- Residents who get hospice care have
  - More aggressive pain management
  - Less invasive procedures
  - Less hospitalization prior to death
  - Higher family satisfaction with care



## PURPOSE

In light of recent local and national initiatives to enhance end-of-life care, we conducted an analysis of nursing home MDS assessment data to examine the changing patterns of end-of-life care in nursing homes from 2004-2006.

## METHODS

Secondary analysis of Minimum Data Set (MDS) assessment data for 103 for-profit nursing homes located primarily in the Southeast, ranging in size from 20 – 474 beds. Trends were examined in 6 month intervals from January, 2004 > December, 2006.

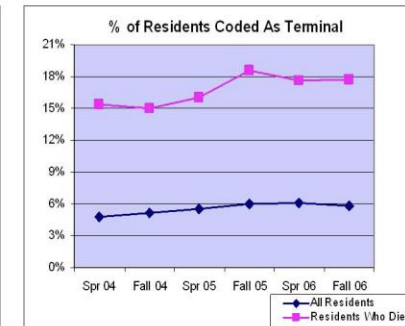
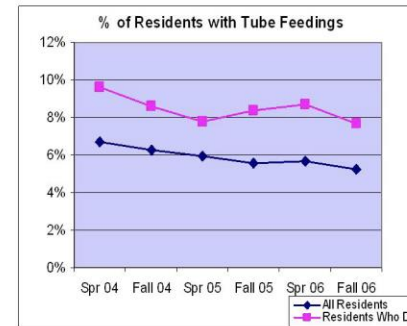
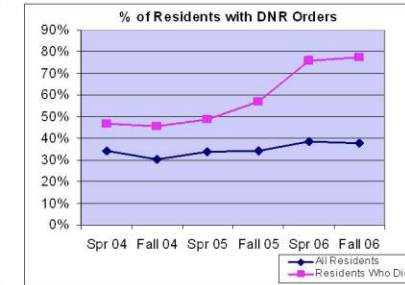
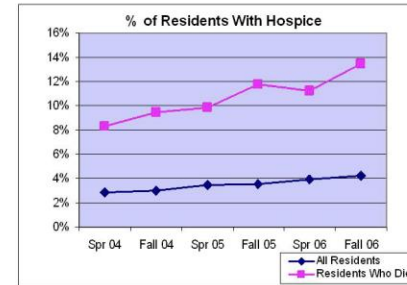
### Sample Demographics

- 69% Female
- 91% Caucasian
- 73% Widowed, single, or divorced
- 78% Above the age of 75

### Samples per Six Month Interval

	Number of Residents	Number of Deaths
•Jan. – July 2004	22,111	2,999
•July – December 2004	20,219	2,270
•Jan. – July 2005:	23,331	3,064
•July – December 2005:	22,743	2,630
•Jan. – July 2006:	22,869	2,730
•July – December 2006:	22,675	2,574

## RESULTS



## CONCLUSIONS

Our findings suggest that:

- More residents are being identified as terminal
- More are receiving hospice care
- Fewer are receiving tube feedings
- More have DNR orders

While these findings demonstrate improvements in EOL care, they also support the belief that the dying trajectory is frequently undocumented and many residents who could benefit from hospice care do not receive it.



The investigators would like to thank the John A. Hartford Foundation and the National HealthCare Corporation for their support of this project.



# LONELINESS ASSOCIATED WITH BIOMARKERS OF SYSTEMIC INFLAMMATION: FINDINGS FROM MIDLIFE IN THE UNITED STATES

Paula V. Nersesian, PhD<sup>1</sup>, MPH, Hae-Ra Han<sup>1</sup>, PhD, Gayane Yenokyan<sup>2</sup>, PhD, Roger S. Blumenthal, MD<sup>3</sup>,  
Marie T. Nolan, PhD<sup>1</sup>, and Sarah L. Szanton, PhD<sup>1</sup>

## WHAT WE LEARNED

Biomarker values of interleukin-6, fibrinogen, and C-reactive protein are significantly higher among lonely compared to not lonely middle-aged US residents.

Higher systemic inflammation values were found in lonely community-dwelling middle-aged adults without an acute stressor applied in a laboratory setting.

## BACKGROUND

- Loneliness is prevalent among middle-aged US residents; among 35-64 year old MIDUS participants, 29% felt lonely some or most of the time.
- Middle-aged adults who are lonely have an elevated likelihood of death.

## OBJECTIVE

Using population-level data, we tested if systemic inflammation is associated with loneliness in a broad age range of middle-aged adults in the United States.

## METHODS

- Parent study: Midlife in the US (MIDUS) survey Biomarker Project
- n=927 participants age 35-64 years at Biomarker Project data collection
- MIDUS data collection date --1995-1996, 2004-2006, Biomarker Project 2004-2009
- Self-reported loneliness categorized as feeling lonely or not

## RESULTS

Results summary of the relationship between biomarkers of inflammation and loneliness using hierarchical linear regression

Biomarker of Inflammation	$\beta$	p-value	95% Confidence interval
Interleukin-6	.07	.014	.01, .12
Fibrinogen	18.24	.011	4.26, 32.21
C-reactive protein	.08	.035	.01, .16



## Potential confounders

Demographics	Age	Sex	Race	Education
Psychosocial	Perceived stress score	Social integration	Social support	Psychological well-being
Health Behavior	History of ever smoking regularly			
Physical health	Symptoms and chronic conditions	Blood pressure	Body mass index	

## INTERPRETATION

- Our results, although not causal, were consistent with gene expression studies where loneliness affects inflammation.
- Lack of exercise (consequence of loneliness) may mediate the loneliness-inflammation relationship

## What We Learned

Older adults with persistent pain living in assisted living facilities are more likely to have fallen in the previous year and require assistance with mobility.

### Background

- Persistent pain is a common, debilitating condition among older adults regardless of residence<sup>1</sup>
- Assisted living facilities (ALFs) are the fastest growing segment of the senior housing market<sup>2</sup>

### Purpose & Aims

This study describes the phenomenon of persistent pain in older adults residing in eight ALFs in Washington & Oregon

#### Aims

- Compare demographic characteristics, cognitive status, ADL function, & number of falls in past year in the pain group & non-pain group
- Describe analgesic orders of the pain group

### Sample

- 156 residents from the Medication Management in Assisted Living Facilities study (NINR R21 NR009102-01) participated in this study
- Pain group (n=92, 59%) vs. non-pain group (n=64, 41%)
- Pain group inclusion criteria:
  - Routine or PRN opioid analgesic order OR
  - Routine (>once daily) non-opioid analgesic order OR
  - Pain-related diagnosis (e.g., arthritis, sciatica, "knee pain")

### Methods

- Secondary data analysis
- Cross-sectional, descriptive design

### Results

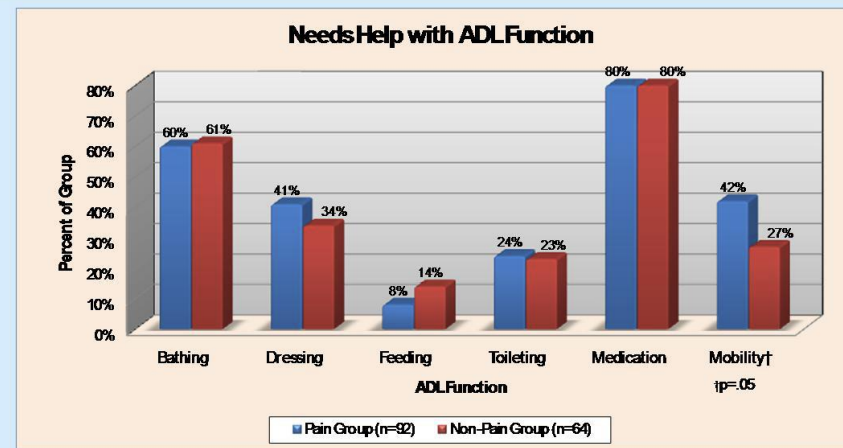


Table 1a – Sample Characteristics, Categorical Variables

Characteristics	Pain Group (n=92) n (%)	Non-Pain Group (n=64) n (%)
Gender		
Male	14 (15)	15 (23)
Female	78 (85)	49 (77)
Ethnicity		
Caucasian	89 (97)	62 (97)
Other	2 (2)	2 (3)
Not reported	1 (1)	
Legal represent.		
Self	63 (69)	39 (61)
Family member	26 (29)	23 (36)
Other	3 (3)	1 (1)
Not reported		1 (1)
Payment source†		
Private	60 (66)	52 (81)
Medicaid	31 (34)	12 (19)
Cognitive status		
Alert	46 (50)	35 (55)
Confused, memory problems	40 (44)	24 (38)
Not reported	6 (6)	5 (8)
Fell in past year	46 (50)	26 (41)

†p=0.04

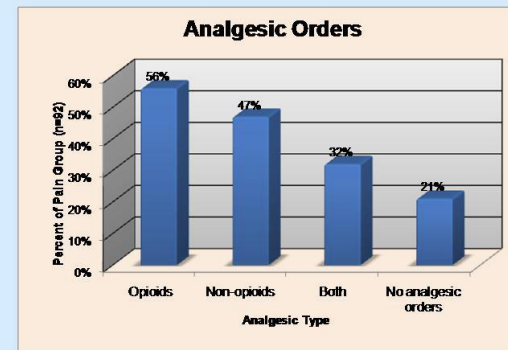


Table 1b – Sample characteristics, continuous variables

Characteristics	Pain group (n=92) mean (SD)	Non-pain group (n=64) mean (SD)	p-value
Age (years)	83 (7.8)	83 (6)	ns
ADL Function score	1.7 (1.4)	1.6 (1.6)	ns
Length of stay (months)	25.4 (22)	23.5 (18.3)	ns

### Discussion

- Prevalence of persistent pain in sample (59%) matches prevalence of persistent pain in other studies with older adults
- All residents required assistance with 1 to 2 ADLs on average; however, residents in the pain group required significantly more assistance with mobility
- 50% of residents in pain group fell in past year compared with 41% in non-pain group, although difference was not significant

### Next Steps

- Examine correlations among falls, mobility, and analgesic orders in assisted living residents
- Describe changes in analgesic orders over 6-month period of parent study
- Examine impact of analgesic order changes on number of falls and assistance with mobility

### Limitations

- Research questions formulated based on available data
- Data collected by chart review with minimal data verification
- Cross-sectional design prohibits analysis of changes over time or causal effect

### Acknowledgments

NINR R21 NR009102-01

John A. Hartford Building Academic Geriatric Nursing Capacity Pre-Doctoral Scholarship



# WHAT DO OCTOGENARIANS BELIEVE ABOUT PHYSICAL ACTIVITY?

Catherine A. Sarkisian, MD, MSPH,\* Carol M. Mangione, MD, MSPH, Arleen F. Brown, MD, PhD, Sonja Rosen, MD, Thomas R. Prohaska, PhD.

<sup>1</sup>David Geffen School of Medicine at UCLA, Los Angeles, California; <sup>2</sup>University of Illinois, Chicago School of Public Health, Chicago, IL.



## WHAT WE LEARNED

Octogenarians in these focus groups identified fear of loss of function, and the need to keep mentally and physically active, but not beliefs about improved life expectancy, to be important determinants of physical activity.

**Implications/Next Steps:** Interventions aimed at increasing walking among octogenarians might increase their impact by shifting the incentive focus away from health improvement, and towards maintenance of physical and mental functioning.

## Background

- Over 12 million Americans will be octogenarians by 2030; most will be ambulatory.
- The vast majority of ambulatory octogenarians do not participate in regular physical activity.

## Objective

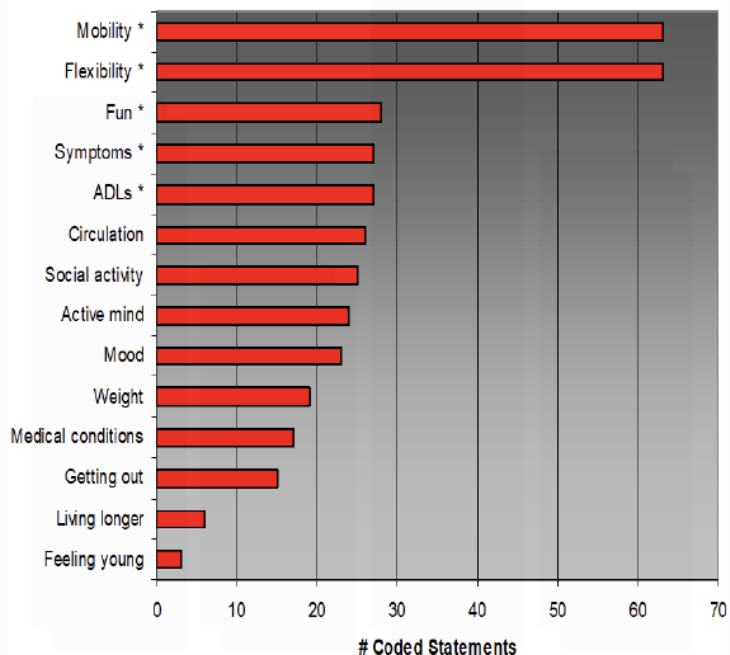
- To identify octogenarians' beliefs and attitudes about physical activity

## Methods

- Recruited English-speaking octogenarians at 8 low-income senior residential housing units
- Conducted 1-hour focus groups using standardized open-ended script
- Grounded theory approach
- Transcripts read independently by 3 investigators to identify themes and develop coding template
- 4<sup>th</sup> investigator coded each line
- Reliability of coding scheme assessed on 5% of lines by 2<sup>nd</sup> coder – 83% agreement

## RESULTS

Benefits of Physical Activity Identified by Octogenarians



\* Benefit Identified in  $\geq 7$  of 8 focus groups

## Major Themes

1. Physical activity is not regarded as an **optional** activity one might do in order to improve health outcomes, but rather as activities of daily living **necessary** to maintain mobility/ independence/ health/life.

- Sample quotes:

*"I still do my housework, we have to keep going."*

2. **Fear of loss** is a major source of motivation for participation in physical activity.

- Sample quote:

*"a lot of people sit down and they don't think about it and the next thing you know, they can't do anything . . ."*

*"you stop doing things, and you're not always able to do them again."*

3. Physical and mental health are regarded as inseparable phenomena.

- Sample quotes:

*"If you just sit all day and don't do anything you're no longer thinking anymore so you get brain dead."*

*"Once you get lazy at walking, you get lazy at thinking and you just sit and become like a vegetable."*

# Please Don't Measure My "Burden" Duty and Satisfaction Are What Matter to Me

## What We Learned & Where We Are Headed

Measures for burden in the majority population may not assess the same concept in Latinos/Hispanics and other populations. The best measures of the impact of caregiving duties and the interventions to minimize negative effects may lie in concepts that express the impact more positively.

Duty fulfillment and satisfaction are proposed as positive perceptions of what Latino/Hispanic Alzheimer's caregivers experience. Further qualitative exploration of these concepts will provide the basis for instruments to measure these two types of caregiver perception not considered in current theoretical models.

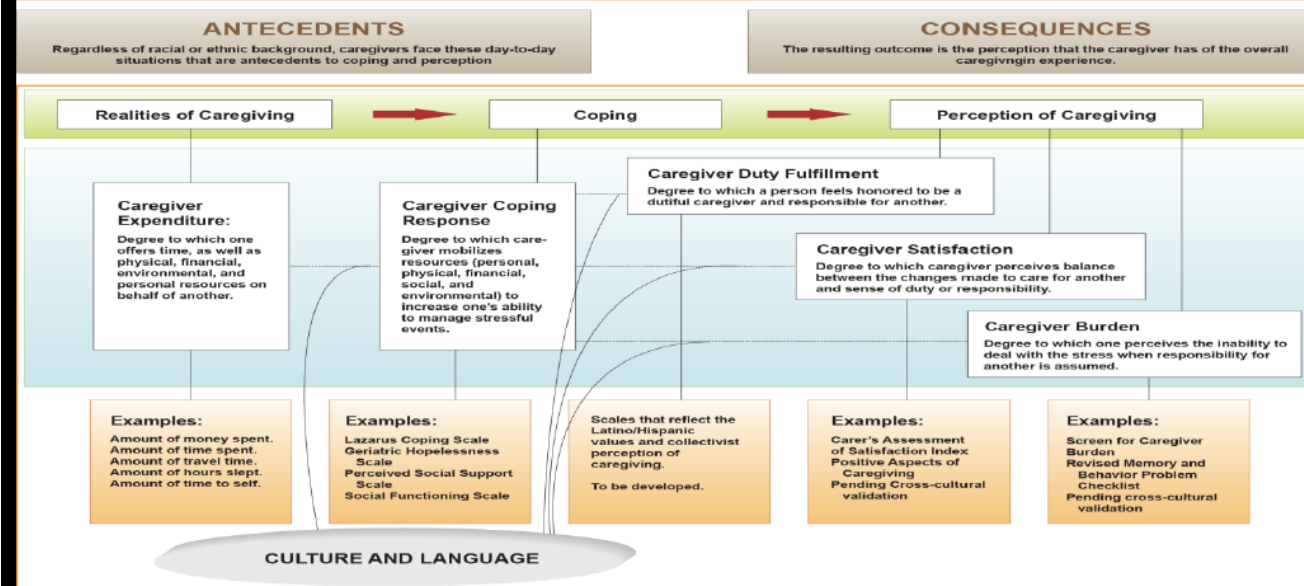
## Background

- Burden is not the best way to describe the impact of caregiving on Latino/Hispanic caregivers of a relative with Alzheimer's disease.
- Current models do not consider the role culture and language play in how caregiving is perceived.
- Spanish lacks a word that translates to the English "burden." The Spanish word "carga" translates only to a physical load.
- Neither "burden" nor "carga" are culturally competent words to accurately describe Latino/Hispanic caregiving.

## Assumptions

- Each culture gives people a way to see the world (Spradley, 1979). This worldview is passed from one generation to the next primarily through language.
- More than a way to communicate, language also creates and expresses cultural reality (Spradley, 1979). Ways of perceiving, categorizing, and thinking about one's world result directly from one's language.
- The linguistic (cognitive) categories that make up one's reality and define actions are meanings (Krauss, 2005). Meaning is essential to human life (Frank, 1963). Meaning making allows us to make sense of our lives and experiences, as humans.

## CULTURALLY INFORMED CONCEPTUAL ORIENTATION OF CAREGIVING



# Please Don't Measure My "Burden" Duty and Satisfaction Are What Matter to Me.

Lyda C. Arévalo-Flechas PhD, RN

The University of Texas Health Science Center at San Antonio

## Background

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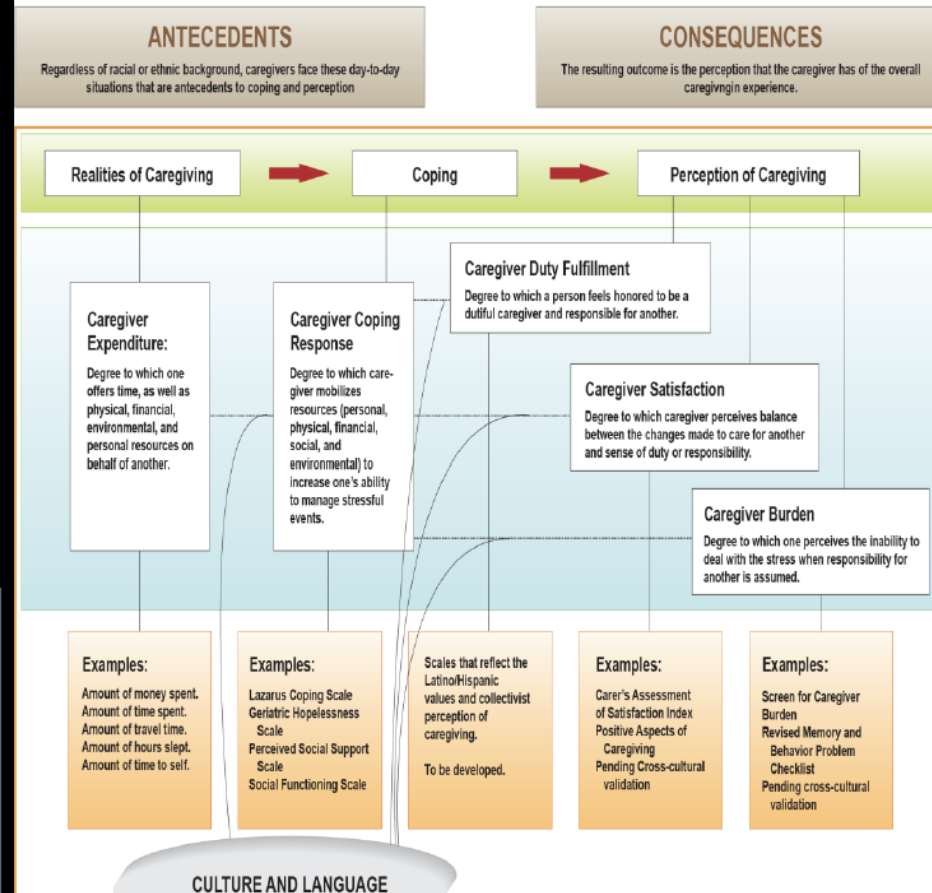
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## CULTURALLY INFORMED CONCEPTUAL ORIENTATION OF CAREGIVING



# Quality and Inequality in Home Care of Older Adults:

How do cultural background and social policy influence publicly and privately funded home care practices?

Elana Buch, University of Michigan

## Background

- Home care is one of the fastest growing industries in the U.S.
- Home care workers and recipients often come from different class and ethnic backgrounds.
- Research suggests that home care participants' backgrounds may effect their ideas about of quality care.
- Current research primarily focuses on publicly funded care.

## Research Questions

- How is cultural background related to home care participants' understandings of home care quality?
- How does public vs. private funding influence participants' ability to shape home care practices?
- How do home care practices reproduce or transform pre-existing social relations and formal labor conditions?

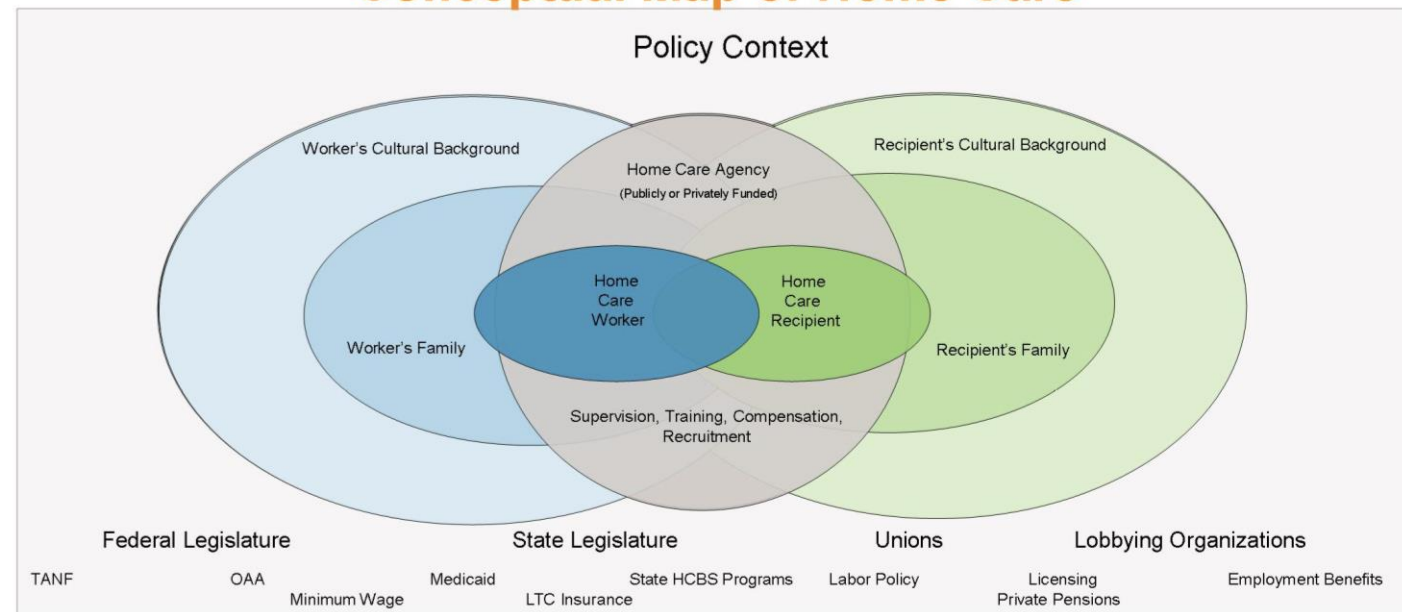
## Methods

- Research sites: One publicly and one privately funded home care agency in Chicago, IL.
- Sample: Nested sample includes 15 worker-recipient pairs (criteria = cognitively-able older adults receiving avg. of 8 hrs. care/week) , available family members, agency supervisors and industry leaders.
- Data collection: Participant observation in homes and agency offices, life care history interviews, document and policy review.

## Preliminary Findings

- Workers and recipients from diverse cultural backgrounds suggest that quality care helps the recipient maintain social personhood. However, meanings of personhood are culturally informed. Workers try to learn about recipients' families, cultural backgrounds and personalities, adjusting care to reflect recipient's understanding of personhood.
- Private pay recipients act and are treated like consumers who have the right to control their care. Clients in publicly funded programs tend to frame the care offered to them as a gift, and thus to build relationships with workers based on norms of reciprocity rather than those of market exchange.
- Lack of acknowledgement of workers' role in maintaining recipients' social personhood exacerbates pre-existing social inequalities (greater in privately than publicly funded care). Reciprocal relationships between publicly funded workers and recipients can lead to political action addressing common causes of inequality in their lives.

## Conceptual Map of Home Care



# A Life of Quality?



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## Systematic review and meta-analysis of interventions relevant to quality of life for persons with intellectual disabilities and dementia

### Background

Shifts in population, life expectancy, and associated prevalence rates have brought attention to services for persons with intellectual disabilities (ID) and dementia, which are ill-prepared to meet growing needs.

### Aim

Synthesis of ID literature in order to assess: 1) the effectiveness of psychosocial interventions with QOL-related outcomes, and 2) their relevance for persons who are aging with dementia.

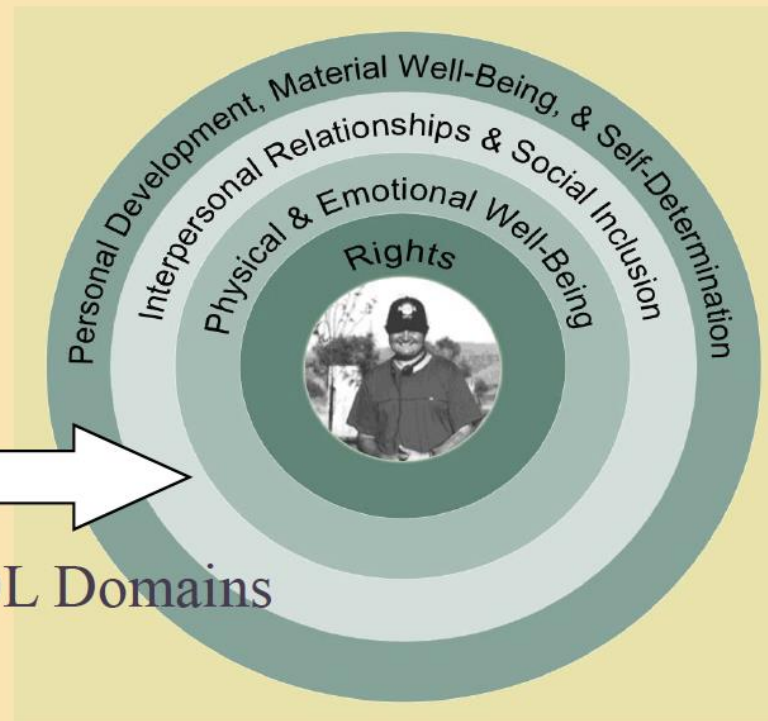
### Methods

Use of a QOL conceptual framework with targeted domains/indicators (Schalock & Verdugo, 2002).

Electronic and hand searches to uncover published studies spanning 25 years from databases, journals, conference proceedings, reference lists, etc.

Study selection, quality assessment, and data abstraction undertaken by two independent reviewers.

Narrative synthesis of studies and fixed/random effects meta-analyses by classified QOL domain.



Key QOL Domains



A dissertation funded by the John A. Hartford Doctoral Fellows Program in Geriatric Social Work, Administered by the Gerontological Society of America



# geriatric NEUTROPHILS

The implications of immunosenescent neutrophils in neutropenic older adults with cancer

## BACKGROUND:

Immunosenescence

- Refers to age related changes in structure and function within the immune system
- Renders older adults more vulnerable to infection than younger adults
- Vulnerability magnified by disease and treatment affecting immune function
- Has critical implications for older adults immunocompromised because of neutropenia

## PURPOSE:

To review the intersection of immunosenescence and neutropenia, focusing on innate immunity and implications for neutropenic older adults with cancer, and to examine current management of neutropenia in light of immunosenescence.

## METHODS

Literature culled from searches in MEDLINE using keywords neutropenia, immunosenescence and related terms was reviewed and critiqued to achieve the stated purpose.

## FINDINGS

- Geriatric neutrophils form a weaker line of defense against infection
- Blunted mobilization response when the hematopoietic system under stress
  - Decreased phagocytic ability
  - Premature apoptosis
  - Decreased intracellular killing ability

Geriatric neutrophils may partly account for neutropenia's devastating impact on older adults

- Neutropenia related infection occurs in up to 48% of older adults
- Neutropenia related hospital stays are 13.5 days vs. 7 days for younger adults
- Neutropenia related mortality is reportedly 5-30% for those over 70 years old

## ELEMENTS OF CURRENT PRACTICE:

Fever indicates infection

Administer growth factors to increase production of neutrophils

Neutropenic diet includes restricting vitamin rich foods

Neutropenia is associated with considerable physical and psychological stress

## CRITIQUE:

20-30% of older adults with an infection never develop a fever

Growth factors stimulate production of geriatric neutrophils

Malnutrition has a negative effect on immune function

Physical and psychological stress has a negative impact on immune function

## IMPLICATIONS FOR RESEARCH AND PRACTICE:

Broaden assessment to include emphasis on atypical presentation of infection in older adults

Give growth factors according to guidelines and expand interventions to include nonpharmacologic supportive care

Reconsider neutropenic diet and consider supplementation with immune boosting elements

Research to explore the physical and psychosocial impact of neutropenia from the older adult's perspective

**MARGARET H. CRIGHTON, MSN, RN**

John A. Hartford Foundation Building Academic Geriatric Nursing Capacity Scholar



# WHEN BAD THINGS HAPPEN TO OLDER PERSONS

the role of intervening events on the development of disability

Thomas M Gill MD, Heather Allore PhD, Theodore R Holford PhD, Zhenchao Guo PhD Yale University School of Medicine

Illnesses and injuries leading to either hospitalization or restricted activity represent important sources of disability for community-living older persons, regardless of the presence of physical frailty. These intervening events may be suitable targets for the prevention of disability.

Proximate Intervening Event	Level of Baseline Physical Frailty	Any Disability	Persistent Disability	Severe Disability
Multivariable Hazard Ratio				
Hospitalization	All participants	60	44	132
	Physically Frail	34	32	93.2
	Not physically frail	117	73	261
Restricted Activity Only	All participants	5.1	3.3	7.3
	Physically Frail	4.1	3.3	5.2
	Not physically frail	6.6	2.9	13

## BACKGROUND

A more complete understanding of the disabling process would likely facilitate the development of interventions aimed at preventing disability among community-living older persons

## OBJECTIVES

- 1) To evaluate the relationship between intervening events and the development of disability
- 2) To determine whether this relationship is modified by the presence of physical frailty.

## METHODS

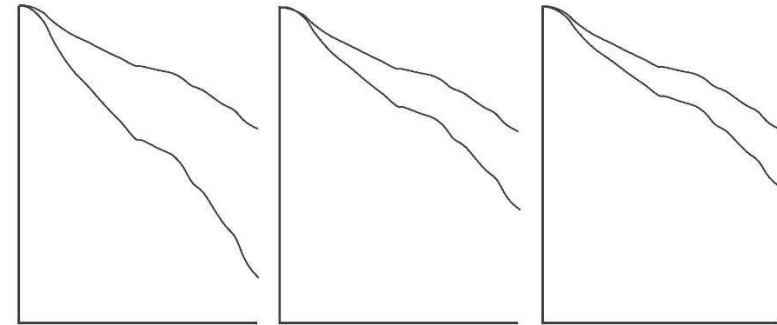
Prospective study of 754 nondisabled, community-living persons, aged 70+ years

Categorized participants into two groups according to the presence or absence of physical frailty, which was defined on the basis of slow gait speed

Followed participants with monthly telephone interviews for up to 5 years

- to determine the occurrence of disability
- to ascertain exposure to intervening events, which included illnesses and injuries leading to either hospitalization or restricted activity.

Kaplan-Meier Curves for Development of Any Disability and Severe Disability According to the Presence of Physical Frailty at Baseline



## Number at risk:

	0	1	2	3	4	5	6	7	8	9	10	11	12
Not physical frail	432	350	273	97	432	361	333	117	432	388	344	125	
Physical frail	322	151	103	5	322	201	146	9	322	243	183	19	

Characteristic	Physically Frail		
	No [n=432]	Yes [n=322]	P Value
Mean age, years	76.9±4.7	80.4±5.4	<.001
Female, n[%]	260 [60.2]	227 [70.5]	.003
Non-Hispanic white, n[%]	399 [92.4]	283 [87.8]	.039
Lives alone, n[%]	148 [34.3]	150 [46.6]	<.001
Mean education, years	12.5±2.8	11.3±2.9	<.001
Chronic conditions, mean	1.6±1.2	2.2±1.3	<.001
Cognitively impaired, n[%]	35 [8.1]	51 [15.8]	<.001
Depressive symptoms, n[%]	61 [14.4]	95 [29.5]	<.001

Proximate Intervening Event	Any Disability	Persistent Disability	Severe Disability
Hospitalization	.48	.46	.56
Restricted Activity Only	.19	.13	.16

Factor	Multivariable Hazard Ratio	95% CI	P Value
Age per each 5 years	1.3	1.2 to 1.5	<.001
Female sex	1.1	0.9 to 1.4	.57
Non-Hispanic white, n[%]	.9	0.6 to 1.3	.56
Lives alone	0.7	0.6 to 0.9	<.001
Years of education	1.0	0.9 to 1.0	.85
No. of chronic conditions	1.1	1.0 to 1.2	.06
Cognitive impairment	1.3	1.0 to 1.8	.07
Depressive symptoms, n[%]	1.3	1.0 to 1.7	.03
Physical Frailty	2.2	1.8 to 2.7	<.001
Proximate intervening events			
Hospitalization	50	46 to 76	<.001
Restricted activity only	5.1	3.8 to 6.7	<.001
Proximate intervening events			
Hospitalization	1.0	0.9 to 1.1	.69
Restricted activity only	1.0	1.0 to 1.1	.27

# The Effect of a Music and Noise/Light Reduction Program on the Sleep and Agitation of Nursing Home Residents with Dementia

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Mary Duffy Ph.D, RN, FAAN  
Sanghee Kim, RN, MS  
William F. Connell School of Nursing  
Boston College

Graphic Design by Chad Abraham Mmirich

## Purpose of the Study

The purpose of this study is to evaluate the effectiveness of a non-pharmacological sleep enhancing strategy consisting of a resident-centered protocol using calming music and an environmentally-centered protocol of noise and light abatement to improve the quality and quantity of sleep and daytime agitation in nursing home (NH) residents with Alzheimer's Disease (AD). The specific objectives of this controlled clinical intervention are: 1) to evaluate the effectiveness of resident-centered strategy consisting of calming music to enhance the quality and quantity of sleep and to reduce levels of daytime agitation; 2) to develop and evaluate the effects of an environmental strategy to abate noise and light in the nighttime nursing home environment on the quality and quantity of sleep and levels of daytime agitation; and 3) to evaluate the combined effect of a resident-centered sleep enhancing strategy and the environmental noise/light abatement strategy on these measures.

## Statement of Methods

The design consisted of a two-phase controlled clinical intervention trial conducted in three skilled nursing facilities. The study utilized a within subjects design with each of the 27 subjects acting as his/her own control. Subjects were monitored for 16 days (24 hrs/day) utilizing wrist Actigraphy under four conditions (each consisting of 4 days). Condition 1 gathered baseline measures; Condition 2 consisted of ½ hour of individualized calming music at bedtime; Condition 3 consisted of a noise/light reduction program; Condition 4 consisted of music at bedtime plus the noise/light abatement program. Outcome variables included total sleep time, time of sleep latency (time needed to fall asleep) and daytime agitation levels.

## Results

Results indicate that both music and environmental intervention designed to enhance sleep may be effective non-pharmacologic approaches for improving total sleep time, reducing the period of sleep latency, and improving daytime agitation scores, however only reduction of sleep latency under each condition proved to be significantly different from baseline at the  $p < .02$  level using paired t-tests with a Bonferonni correction for avoiding Type 1 error.

	Baseline	Music	Noise/Light Reduction	Music/Noise/Light Reduction
Total Sleep Time	274 minutes	337.5 minutes	313.8 minutes	332.8 minutes
Sleep Latency	46.5 minutes	38.8 minutes*	35.0 minutes*	39.5 minutes*
Agitation	82.8	74.3	82.3	73.8

\* $p < .02$

## Conclusions

Both individualized music and a noise/light reduction program significantly reduced sleep latency in a pilot study of 27 elderly nursing home residents with dementia. Although positive effects on total sleep time and decreases in daytime agitation were noted, statistically significant differences were discerned.

Key Words: Alzheimer's/Dementia; Quality of Life; Clinical Trials

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