ADL Profiling of Nursing Home Residents in Manitoba

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Funded by:

Manitoba Health Research Council (MHRC)

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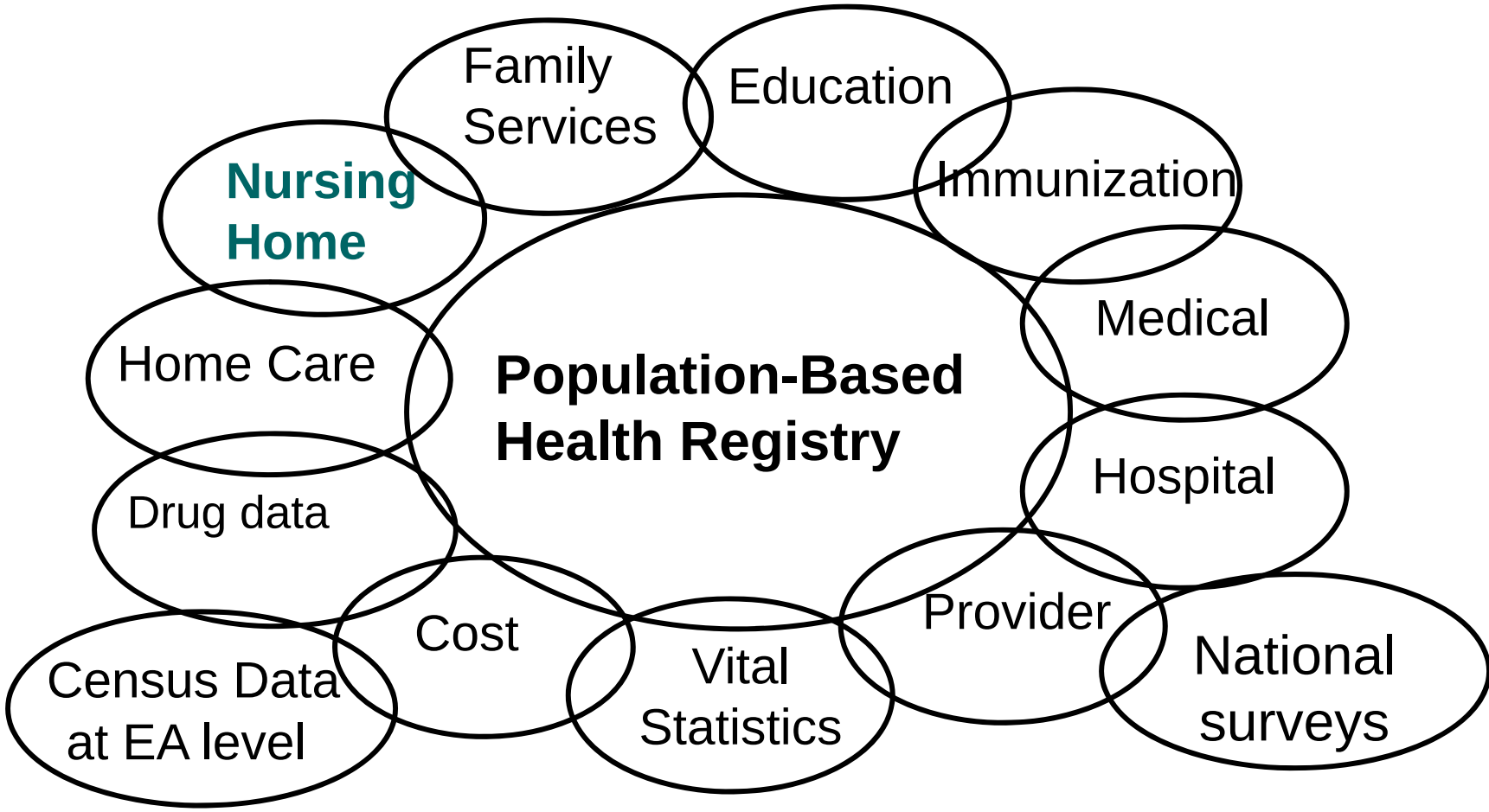
anonymous individualized health care use data



Additional Data Linkage…

*INTER-RAI Assessment Tool (**MDS-2.0**) in Winnipeg since 2004*

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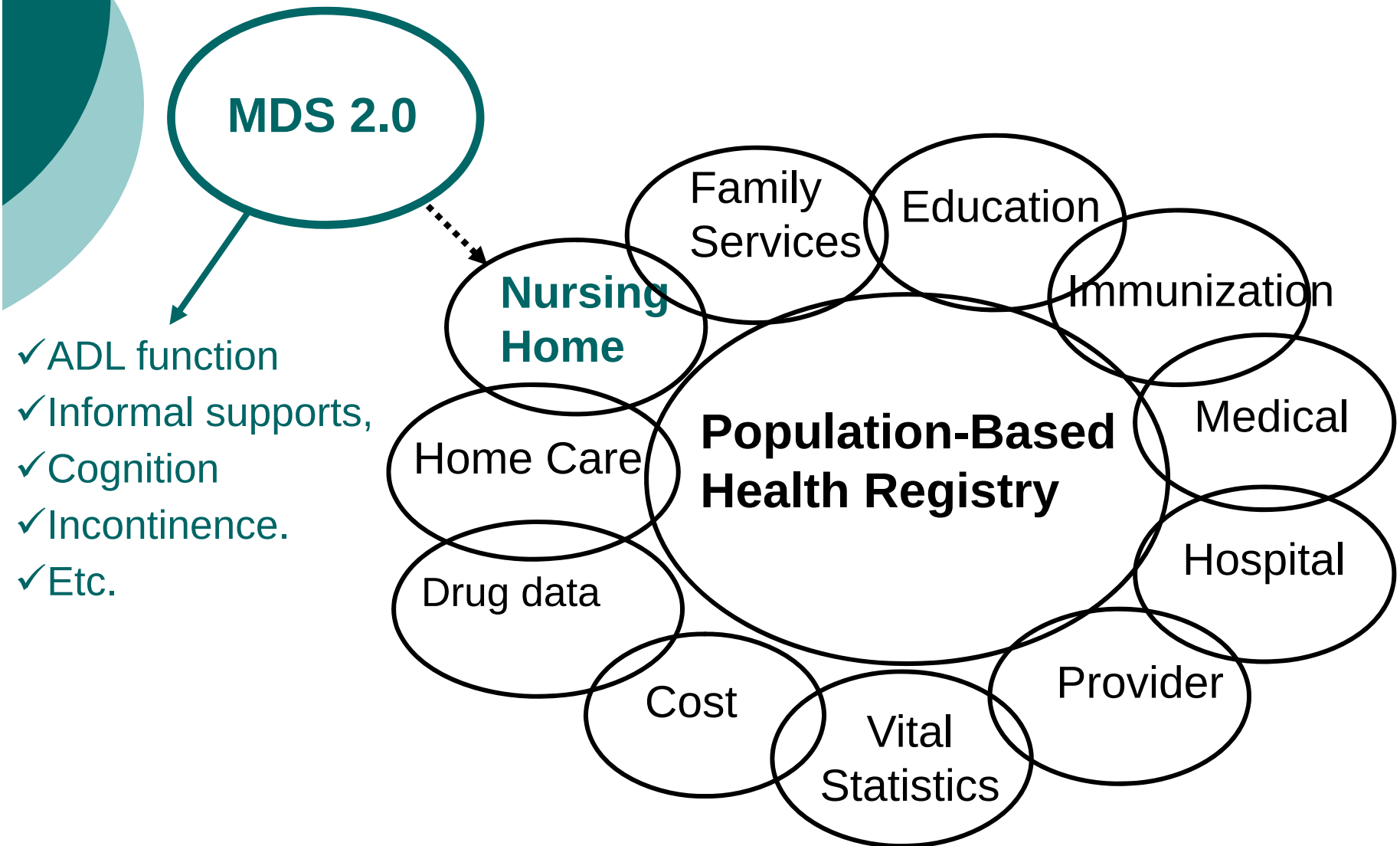

Collaborative Partnerships

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CIHR MPD Grant…

Knowledge Transfer and Planning Workshop

- ✓ MCHP Researchers
- ✓ Decision-makers / Care Providers from the Winnipeg Health Region; Ministry representatives

"Which aspects of nursing home care would benefit most from research evidence?"

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Research Goals and Questions

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Research Goals:

- To measure trends in ADL change for nursing home (NH) residents;
- To define the determinants of ADL loss (rapid, extreme).

Research (Presentation) Questions:

- What is the distribution and determinants of ADL function at NH admission (early, middle, late loss ADLs)?
- What are the trends in ADL change for NH residents?
- What type of NH resident experiences the greatest ADL loss within one-year of admission?

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Methods - Design

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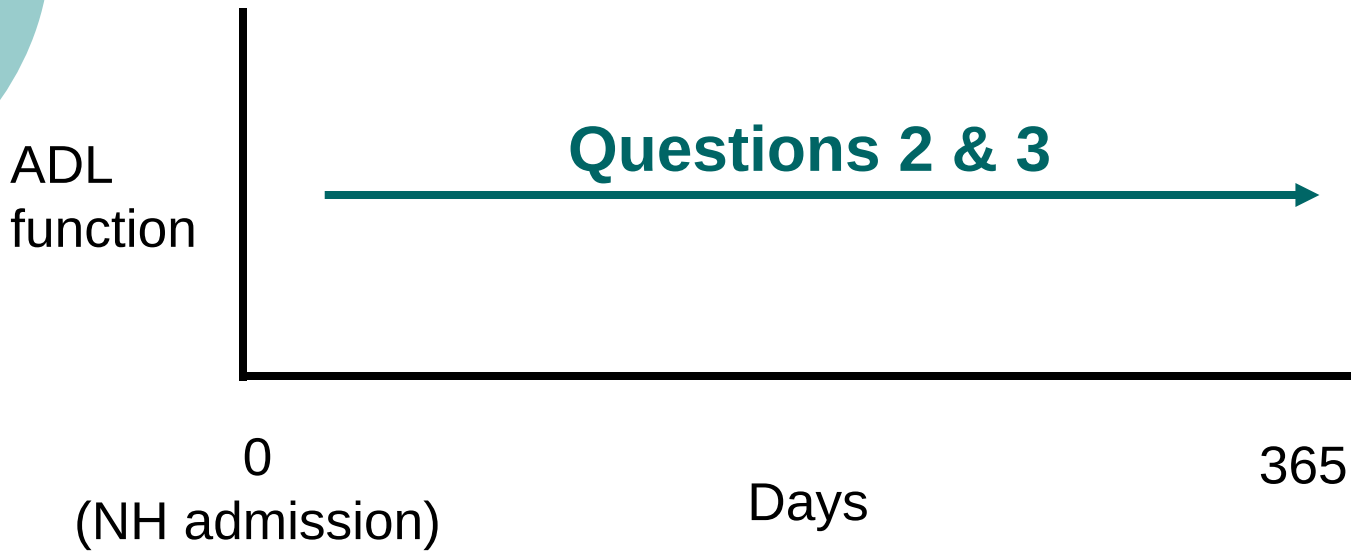
Question 1



Methods - Outcome

ADL long form scale, measured using MDS 2.0.

Early Loss	Middle Loss	Late Loss
Dress upper / lower	Transfer	Mobility in bed
Personal hygiene	Locomotion in home	Eat
	Toilet	

Score = 0

'Independent' in all ADLs

Score = 28

'Fully Dependent' in all ADLs

Methods – independent variables

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Age

<65; 65-74; 75-84; 85+

Cognitive Performance Scale

Mild (CPS 0-2)

Moderate (CPS 3)

Severe (CSP 4+)

Fall previous 30 days

Yes; No

Previous fracture

Yes; No

Sex

Male; Female

Bed sores

Yes; No

Death within 365 days

Yes; No

Physical Restraint Use

- ✓Full or other types of bed restraints
- ✓Trunk or limb restraints
- ✓Chair prevents rising

Yes; No

Results

1. Study Cohort (April 1, 2005 – March 31, 2007)

   23 non-profit NHs in the Winnipeg Health Region

   1,573 admitted residents (1,372 with MDS assessment)

2. Additional inclusion criteria

1st MDS within 60 days of NH admission (minus 122 residents)

At least 2 MDS assessments within 1 year (for trend analyses) (360 people)

3. Final sample

890 residents, with 3,114 assessments in the first year.

Assessment Count	# of people assessed	# of MDS assessments
1	890	890
2	888	1778
3	651	2429
4	452	2881
5	233	3114

Results

Baseline Description (1st MDS assessment)

1. Study Outcome – ADL long form categories

ADL long-form score	# of residents	% of residents
0	128	14.3
1-11	490	55.1
12-21	189	21.2
22-28	83	9.3
	890	100

2. Percent of residents needing extensive+ assistance

Early Loss ADLs		Middle Loss ADLs			Late Loss ADLs	
Dressing	Personal Hygiene	Transfer	Locomotion	Toilet	Mobility in bed	Eating
37.5	**35.8**	**18.7**	**16.3**	**31.0**	**12.6**	**6.5**

Results

3. Select Independent Variables

AGE	% of residents
<65	3.0
65-74	7.4
75-84	35.4
85+	54.2

CPS score	% of residents
Mild	55.3
Moderate	29.6
Severe+	15.2

2+ chronic disease	% of residents
No	19.7
Yes	80.3

Any fracture	% of residents
No	96.4
Yes	3.6

Death within 365 days	% of residents
No	87.6
Yes	12.4

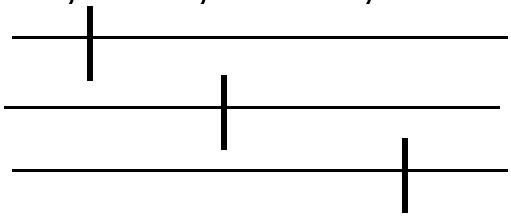
Restraint use	% of residents
Full bed rails	10.0
Partial bed rails	61.0
Trunk restraint	2.9
Limb restraint	s
Chair prevents rising	3.5
OVERALL	70.6

Ordinal Logistic Regression

	AOR	SE	p value	WALD
AGE				
<65	3.3	1.5	0.003	9.0
65-74	2.6	1.3	0.000	12.4
75-84	1.0	1.2	0.886	0.0
85+ (REF)	//	//	//	
SEX				
female	1.2	1.2	0.204	1.6
MARRIAGE				
Never	1.2	1.3	0.415	0.7
widowed	0.7	1.2	0.085	3.0
Married (REF)	//	//	//	
FALL				
Yes	1.6	1.2	0.014	6.0
RESTRAINT USE				
Yes	3.3	1.2	<.0001	57.5
BED SORE				
Yes	6.1	1.4	<.0001	30.9
FRACTURE				
Yes	2.0	1.4	0.053	3.7
CPS				
Severe	5.6	1.2	<.0001	67.0
Moderate	2.3	1.2	<.0001	26.2
Mild (REF)	//	//	//	
2+CHRONIC DISEASE				
Yes	1.0	1.2	0.825	0.0
DEATH within year				
Yes	1.9	1.2	0.002	9.1

ADL categories

0; 1-11, 12-21, 22+



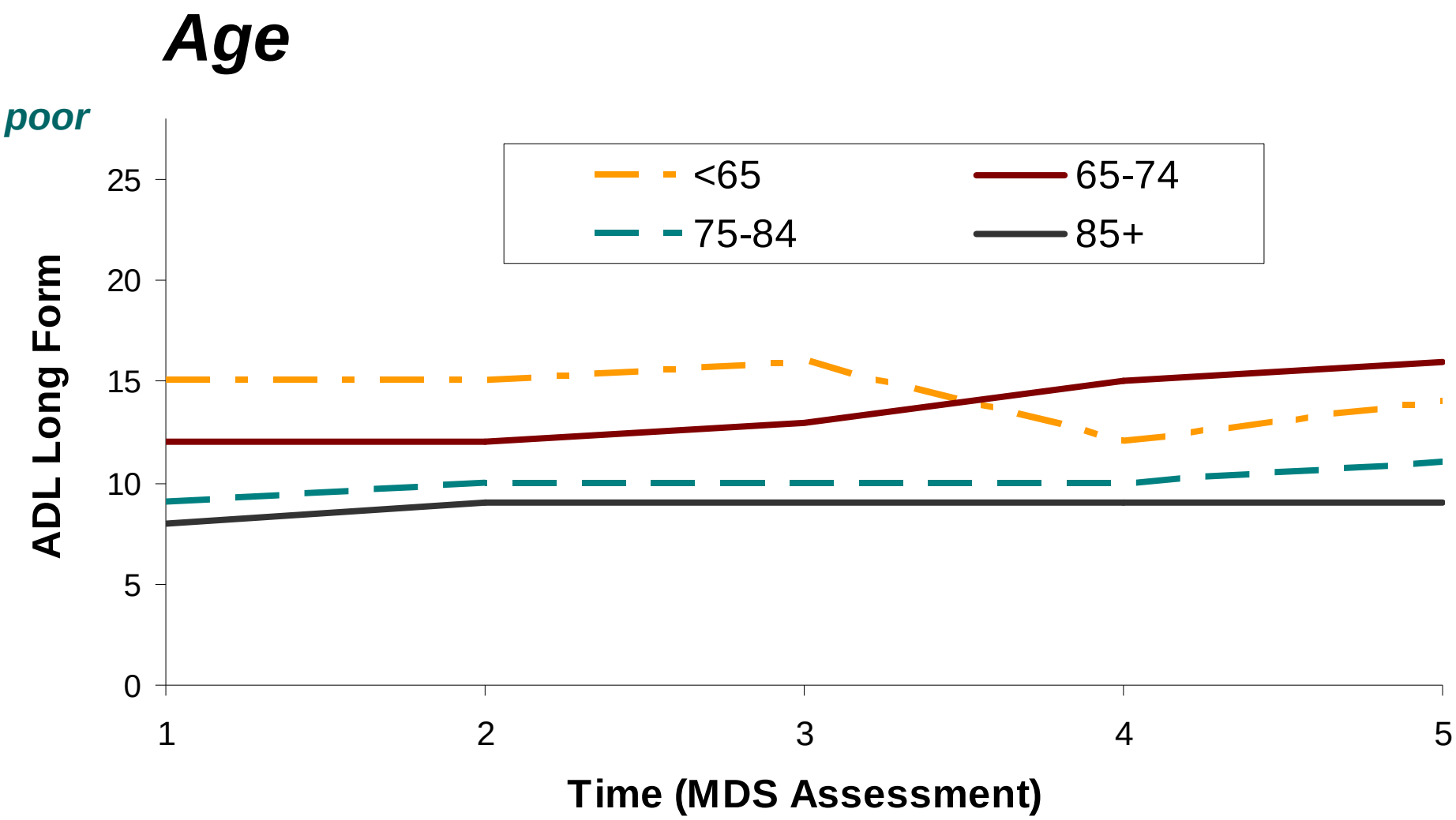
↑ ADL Dependence

- ✓Younger age
- ✓Restraints use
- ✓bed sores
- ✓Cognitive challenges
- ✓Proximity to death

…

Similar findings for early, middle, late-loss ADLs.

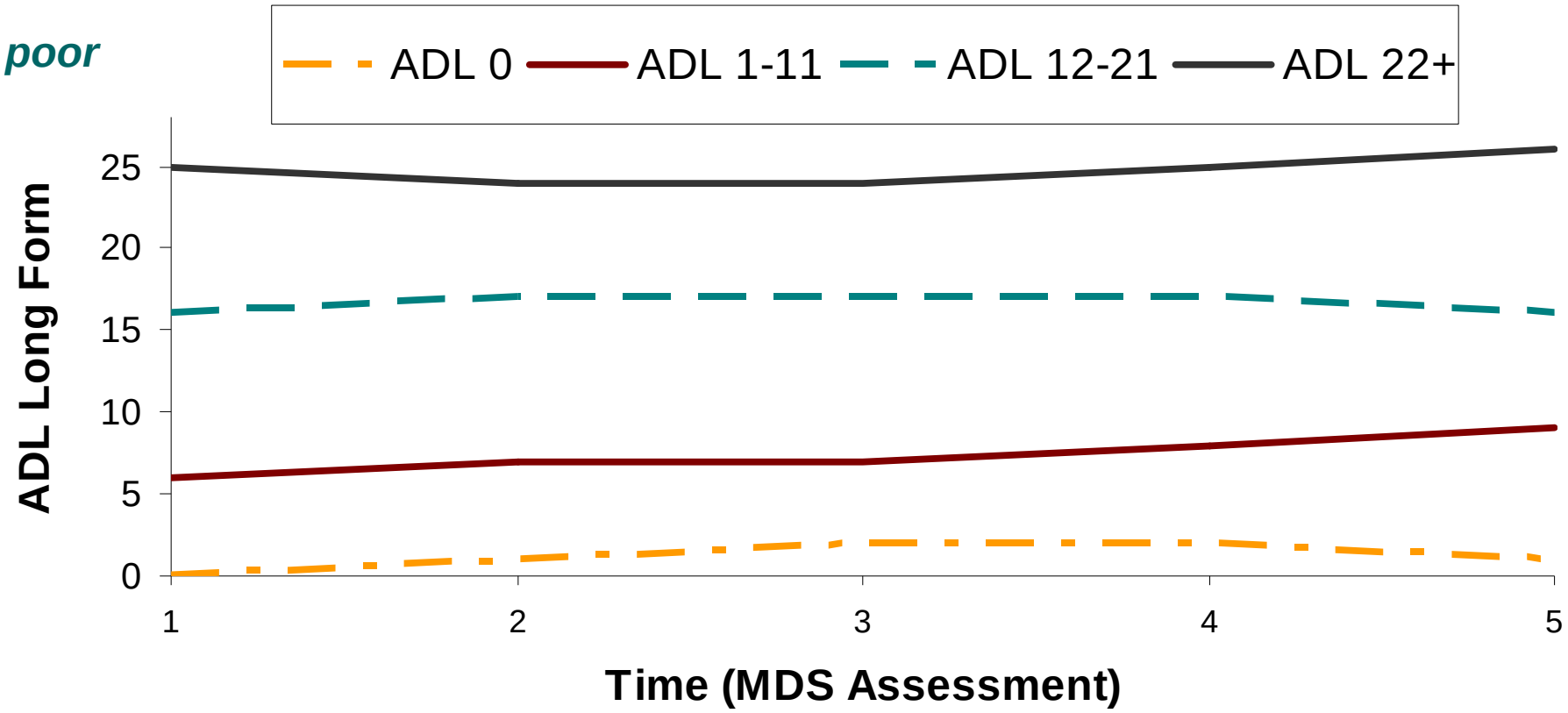
Trend Analyses - descriptive



Rate of ADL decline similar across all age categories

Trend Analyses - descriptive

Baseline ADL category

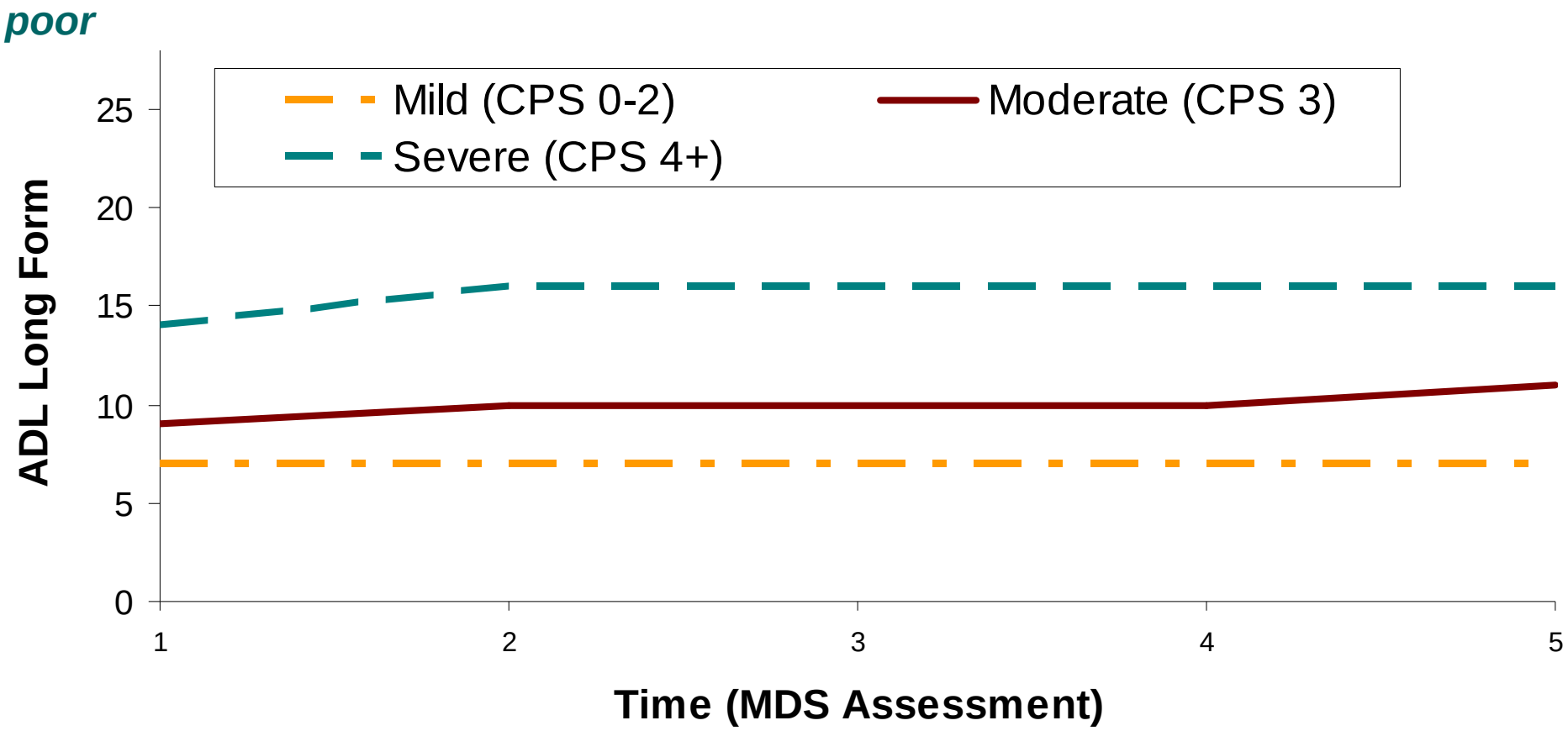


Rate of ADL decline 22+ < 12-21 < 1-11

< 0

Trend Analyses - descriptive

Baseline CPS category



Rate of ADL decline Mild < Moderate < Severe

Trend Analyses – Mixed Methods

	Estimate	p value	t value
TIME * AGE			
time*<65	-0.002	0.500	0.7
time*65-74	-0.0003	0.845	0.2
time*75-84	-0.001	0.276	1.1
time*85+ (REF)	//	//	//
TIME * ADL base			
time*ADL 0	0.016	<.0001	7.8
time*ADL 1-11	0.0160	<.0001	9.1
time*ADL 12-21	0.010	<.0001	5.6
time*ADL 22+ (REF)	//	//	//
TIME * CPS base			
time*MILD	-0.010	<.0001	8.8
time*MODERATE	-0.0060	<.0001	4.7
time*SEVERE (REF)	//	//	//
TIME * FALL base			
time*NO	-0.005	0.540	3.8
time*YES (REF)	//	//	//
TIME * DEATH 365 day			
time*NO	-0.010	<.0001	5.6
time*YES (REF)	//	//	//

At the end of 365 days, ADL score is 11.7 points higher (worse) for

Severe CPS resident close to death

Versus

Mild CPS resident alive for the 365 duration.

Conclusions

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1. Begin to understand determinants of ADL loss for NH residents.
   - **Utilization of addition variables, time periods, analytic designs.**

2. Determinants of prevalence ADL function (NH admission) do not necessarily affect longitudinal trends.
   - **Age, fractures, bedsores and use of restraints at baseline do not affect subsequent rate of ADL change.**

3. (Interim results) Strongest determinants of ADL loss with time include baseline ADL score, CPS severity and proximity to death.

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Next Steps

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1. Stakeholder meetings
2. Additional Variables

   Drug use, continence, hospitalization, etc.
3. Additional analyses techniques

   Time-varying measures

   Rapid ADL loss within the first 90 days.

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Thank you!!

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