

LEADINGAGE

Annual Meeting + EXPO

OCTOBER 24 - 27, 2021

Georgia World Congress Center | Atlanta, GA



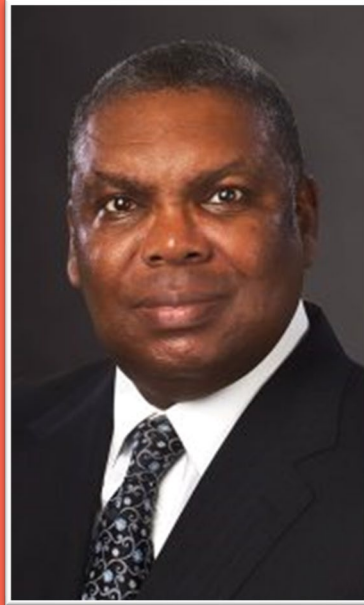
FOR THEM
FOR YOU
FOR FORWARD





Session 80-E

How Will Future Trends Impact Your Business Planning?



AV Powell, ASA, MAAA
Board Chair



Coleman Naughton, FSA, MAAA
Consulting Actuary

LEADINGAGE
Annual Meeting + EXPO

OCTOBER 24 - 27, 2021
Georgia World Congress Center | Atlanta, GA

Presentation Overview

1. Objectives
2. Database description
3. Experience study demographics
4. Experience study utilization statistics
5. Experience study results
6. Financial implications
7. Future actuarial database enhancements

Presentation Overview

1. Objectives
- 2. Database description**
3. Experience study demographics
4. Experience study utilization statistics
5. Experience study results
6. Financial implications
7. Future actuarial database enhancements

Database Description

1. 365,000 older adults between 1970 and 2020
2. Excludes direct entrants to assisted living and nursing care
3. 66% female and 34% male
4. 48% single and 52% w/roommate (35% of units)

Size Comparison for Databases

Observation Period	Life Years of Exposures	Deaths (Decrements)
NIH 1990 to 1997	95,797	≈ 10,000*
AVP 1970 to 2020	≈ 2,600,000	≈ 205,000
AVP 2001 to 2010	≈ 880,000	≈ 70,000
AVP 2011 to 2020	≈ 950,000	≈ 80,000

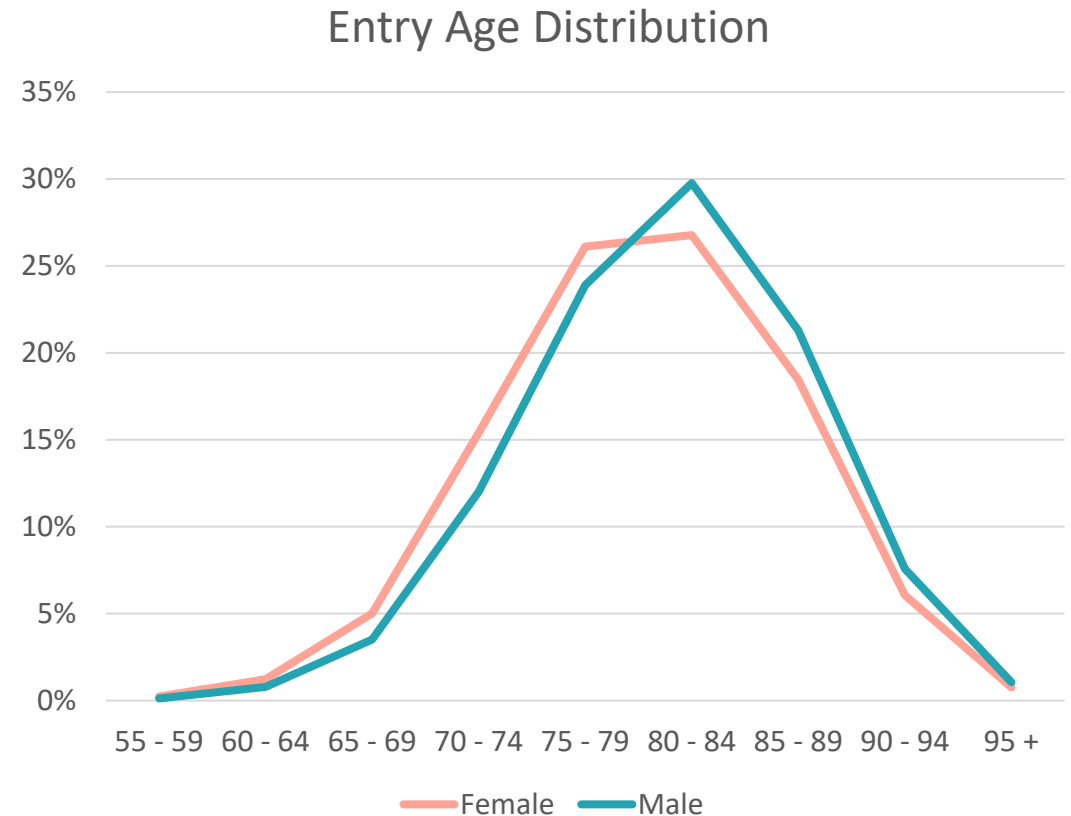
*guesstimated since not in report

Presentation Overview

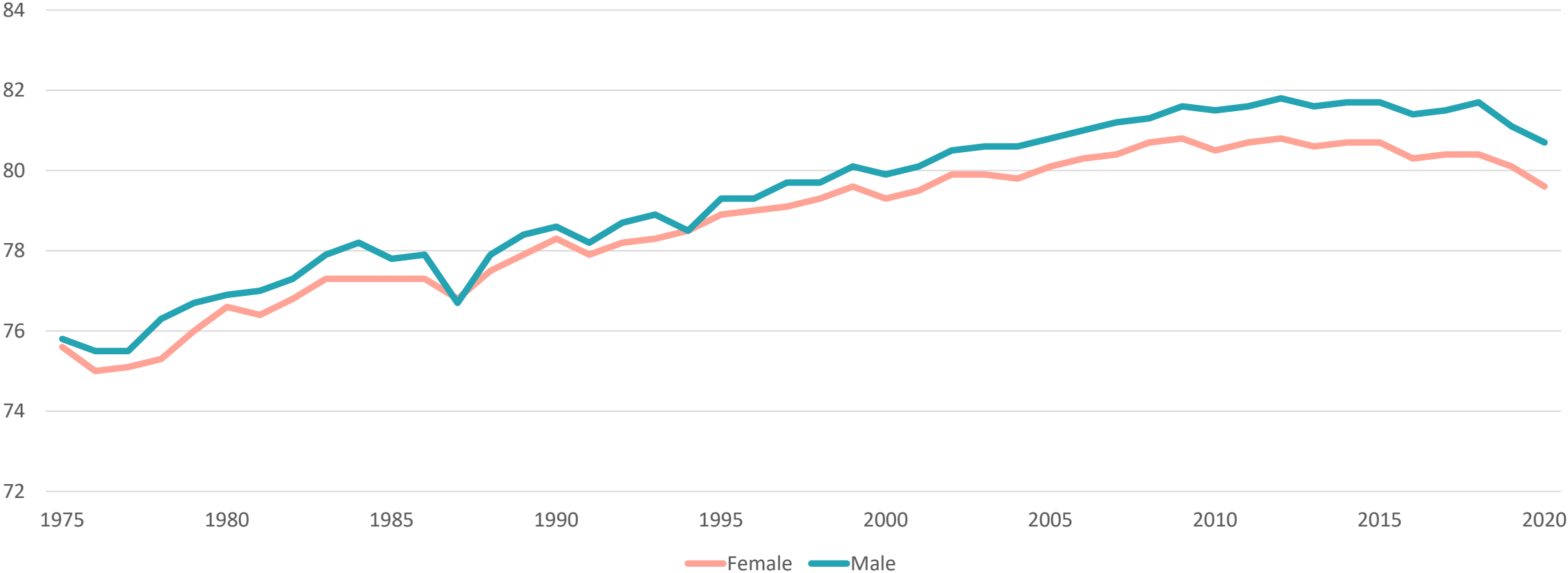
1. Objectives
2. Database description
- 3. Experience study demographics**
4. Experience study utilization statistics
5. Experience study results
6. Financial implications
7. Future actuarial database enhancements

New Entrant Demographics (2016 to 2020)

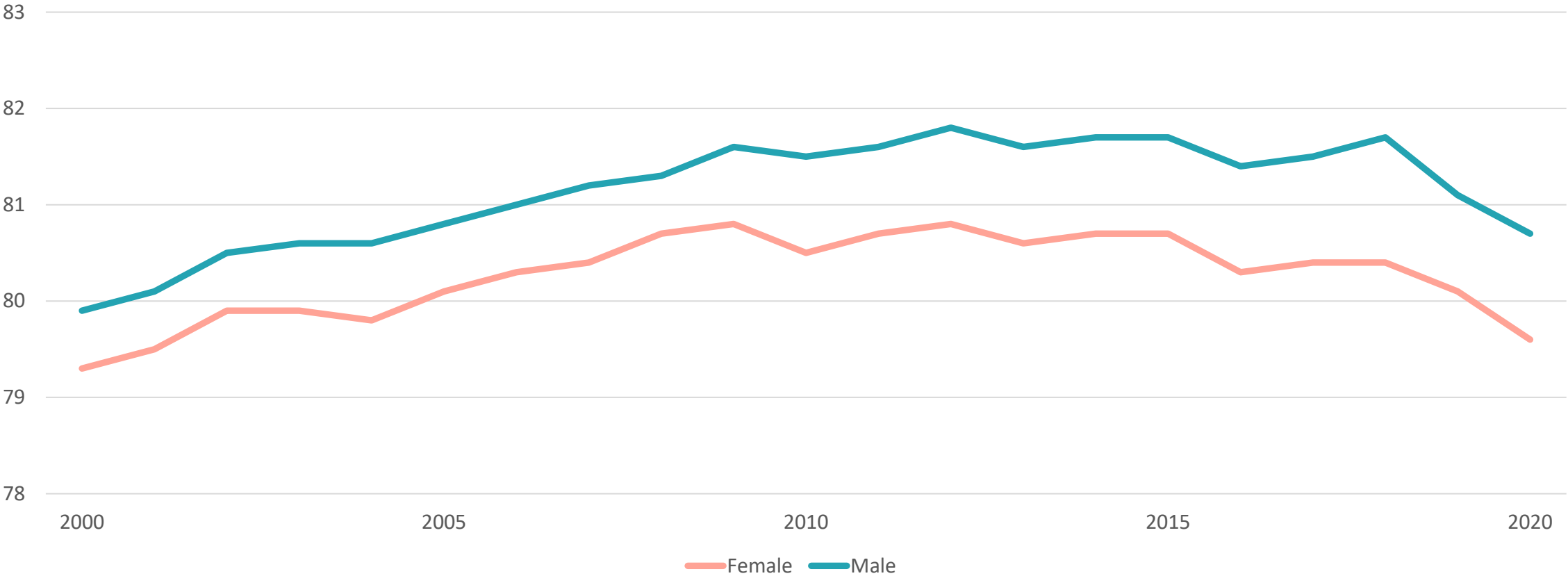
1. Gender for single entrants
 - 77% female
2. Aggregate percentage couples
 - 40% of new entrants
3. Contract distribution in database
 - 42% Type A
 - 36% Type B
 - 20% Type C
4. Refund distribution in database
 - Refundable—32%
 - Nonrefundable—68%



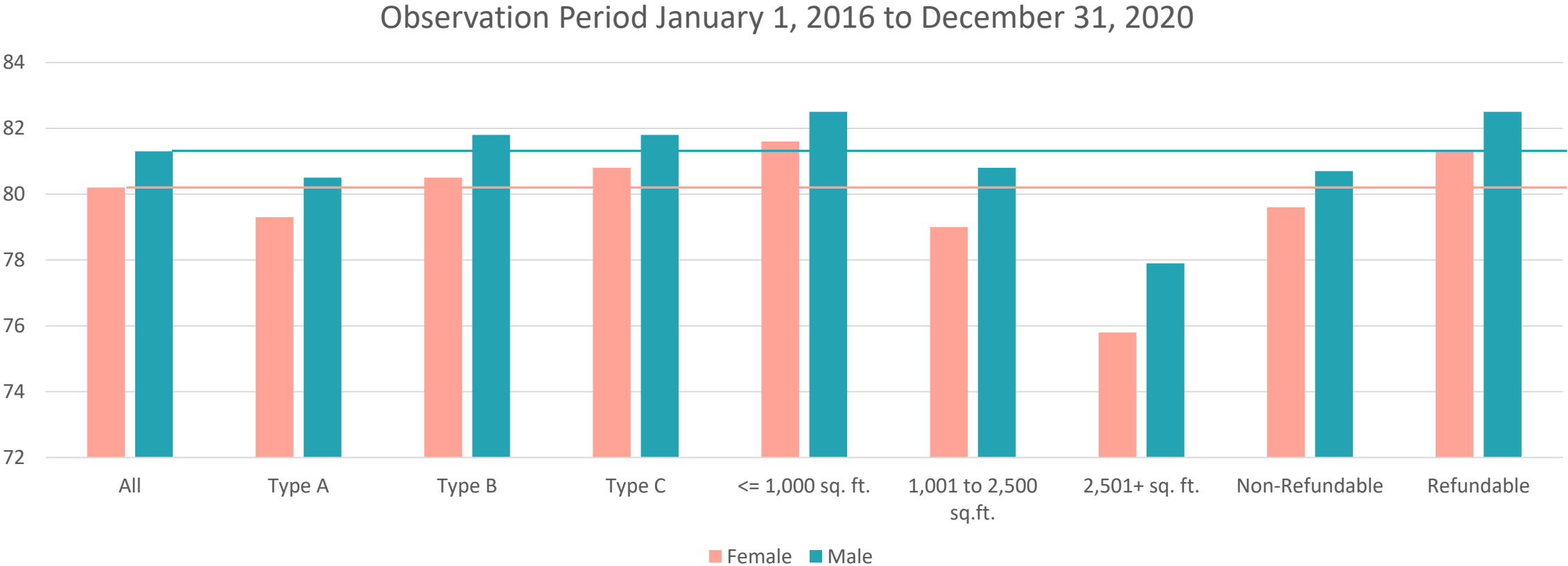
Average Entry Age Since 1975



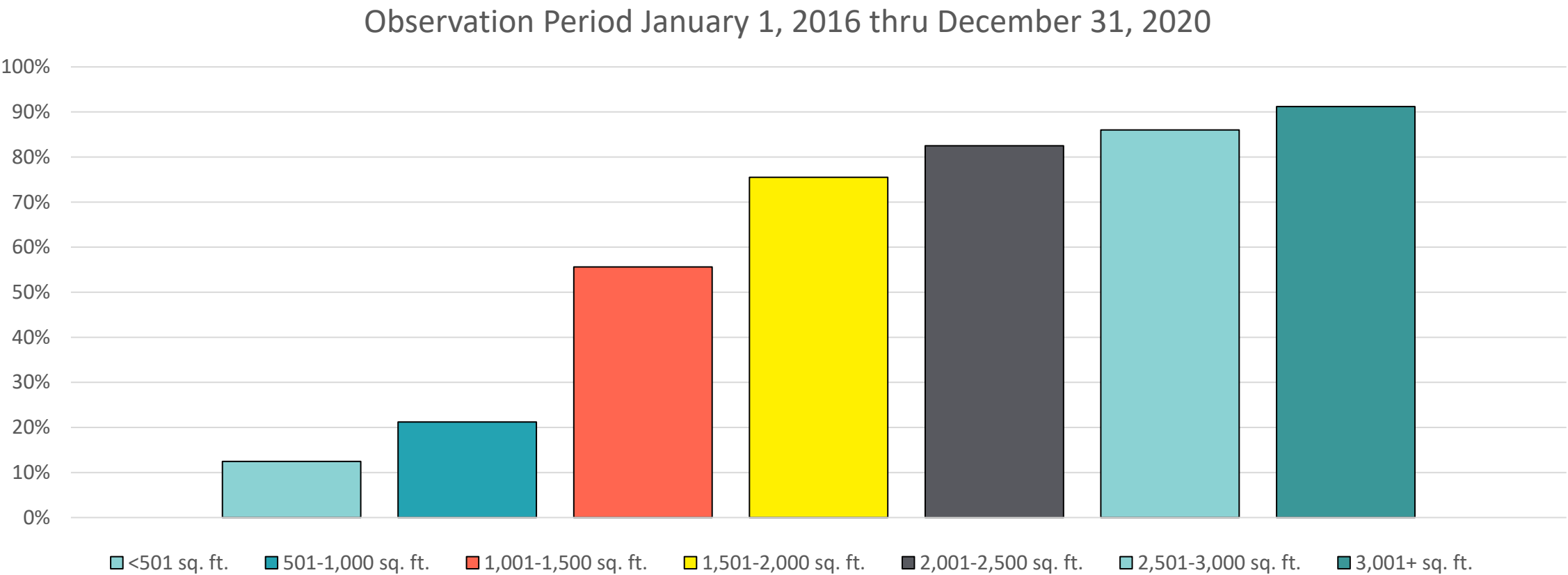
Average Entry Age Trending Downward?



Younger Entrants for Larger ILUs & Non-Refundable



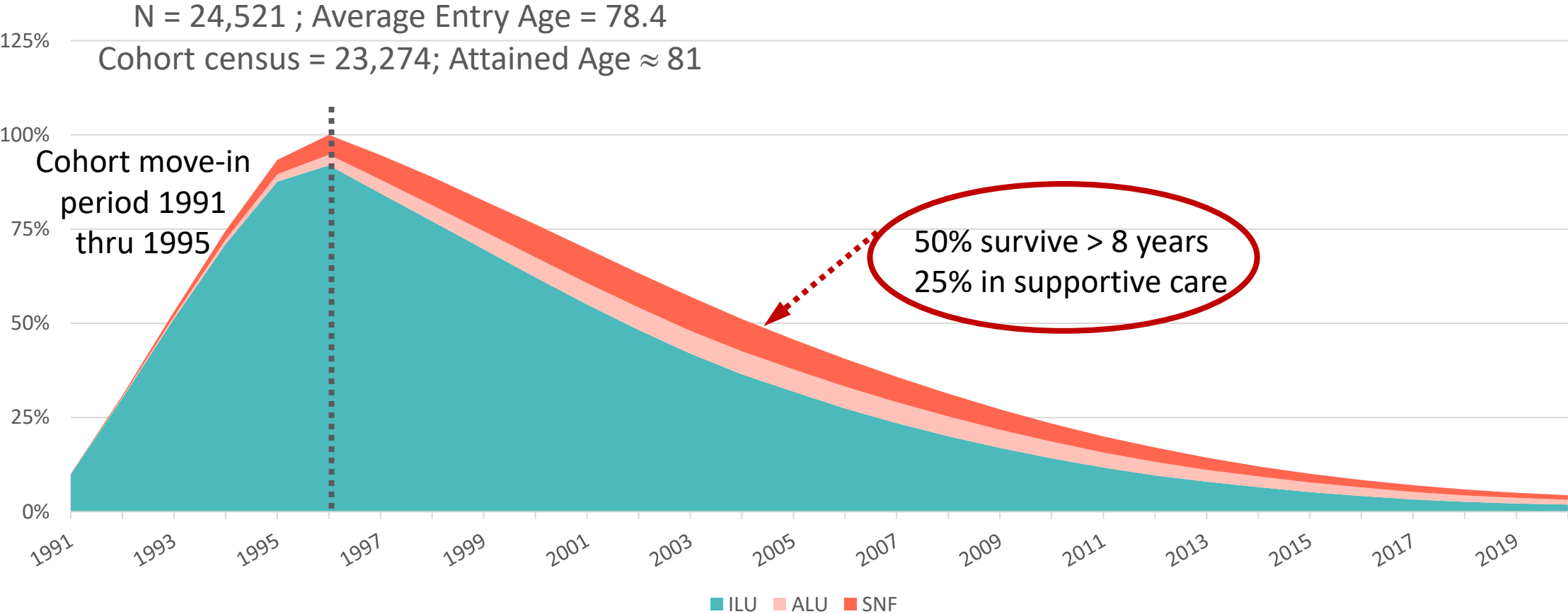
Couples Select Larger ILUs



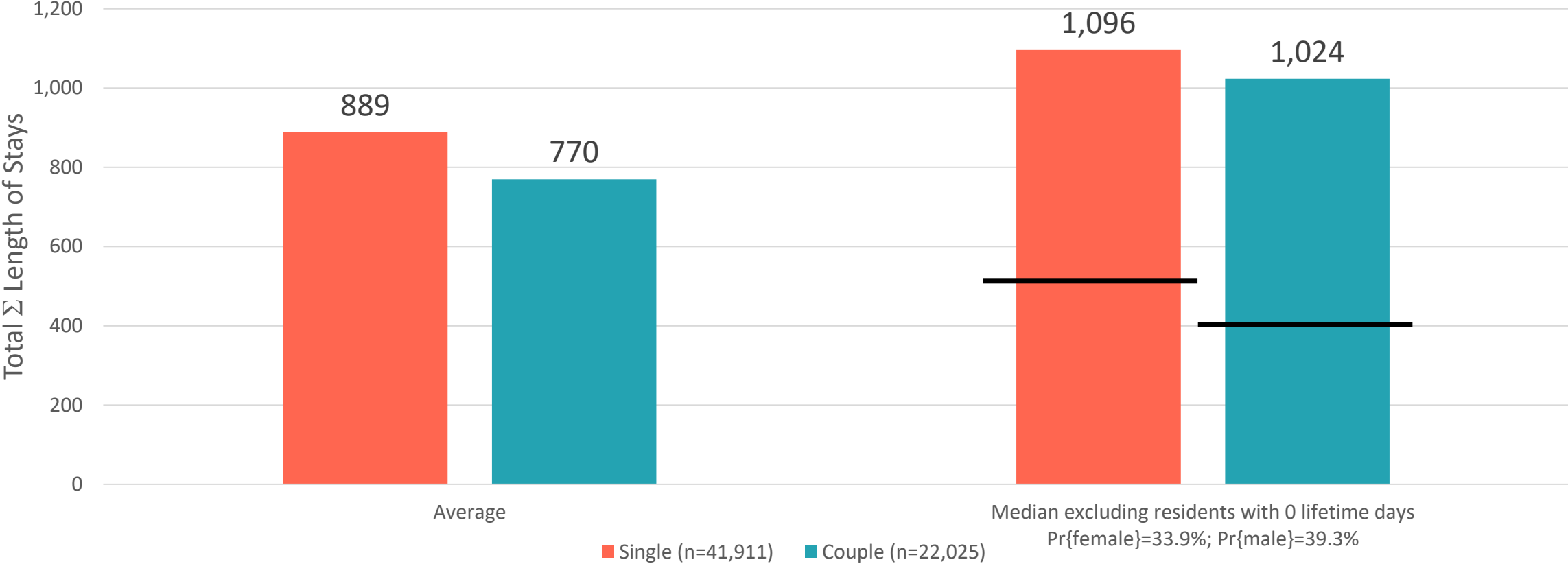
Presentation Overview

1. Objectives
2. Database description
3. Experience study demographics
- 4. Experience study utilization statistics**
5. Experience study results
6. Financial implications
7. Future actuarial database enhancements

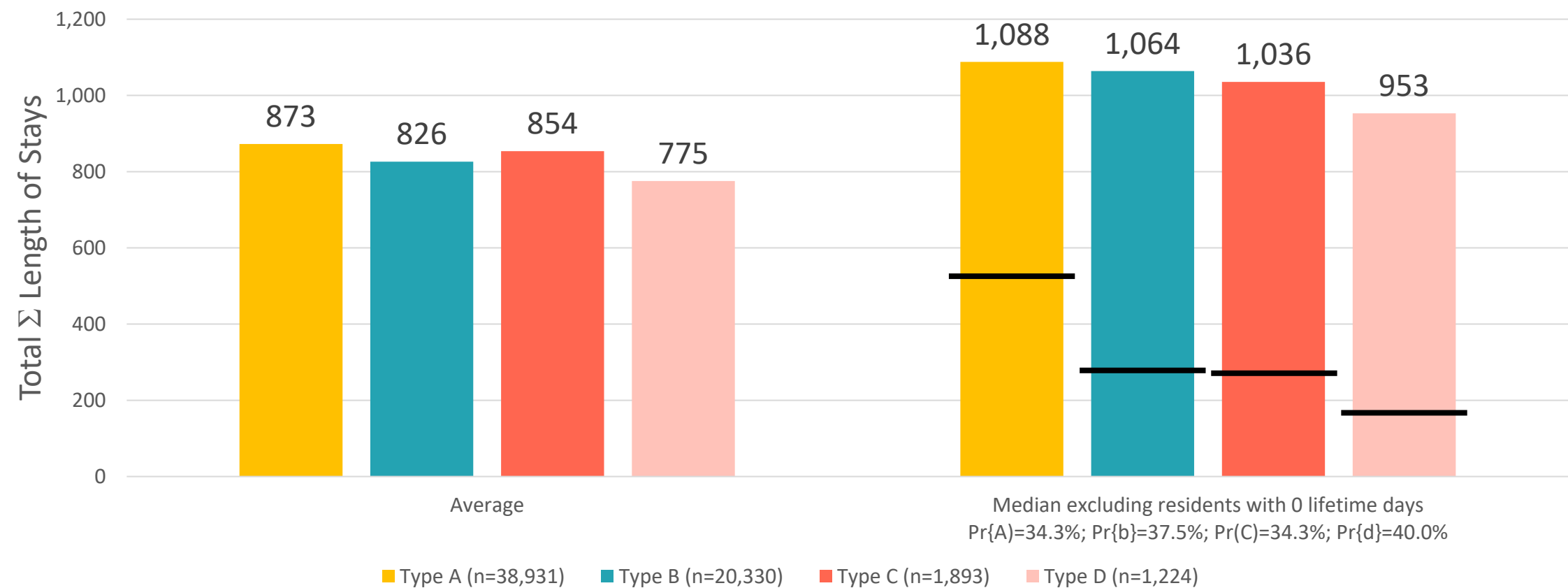
Longitudinal Data Validates Life Expectancies



Single versus Couple Health Care Usage



Perm Health Care LOS by Contract Type



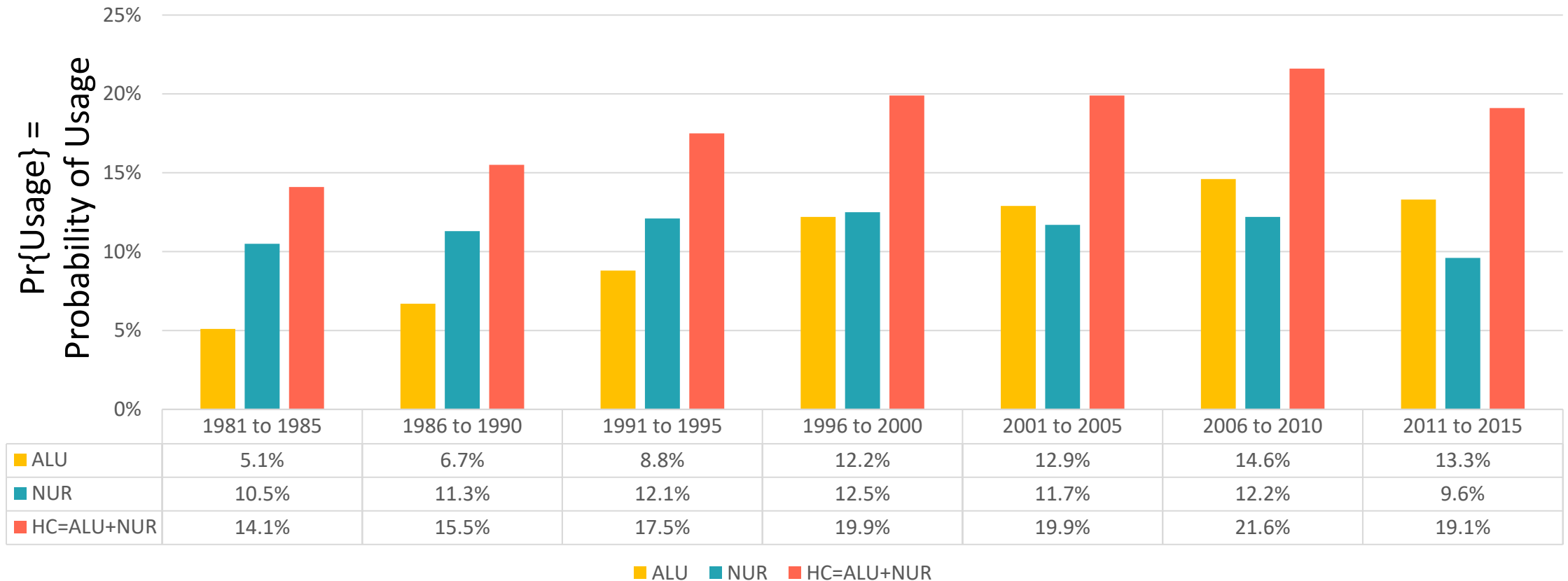
Trends in Health Care Usage

1. Female entrants between 1980 and 2014
2. Divided into seven (7) quinquennial cohorts
3. Reviewed utilization for 5/10 years after move-in
 1. Frequency, probability of transfer per person; $\Pr\{\text{Usage}\}$
 2. Severity, **total length of stays per person**; ΣLOS
 3. Can be confusing if viewed separately
4. Average length of stay per resident combines frequency & severity

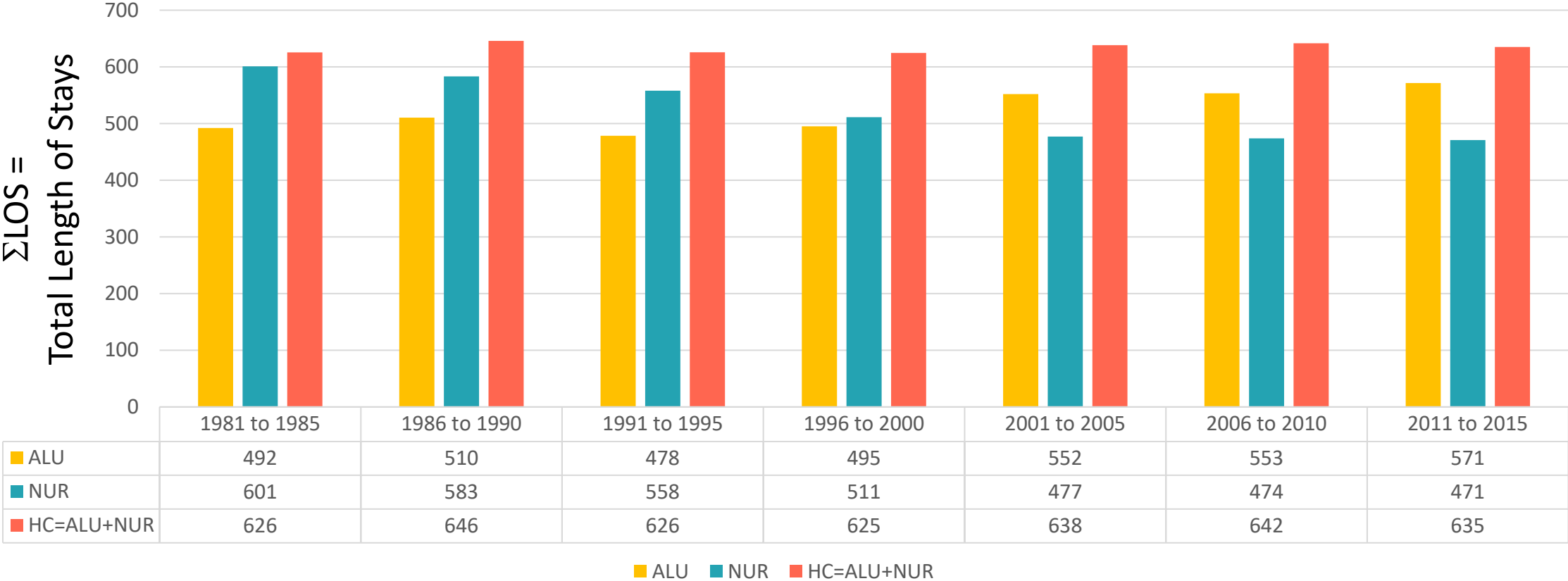
Entry Cohort Group Description

Entry Years	End of Observation Period	Number of Female of Records	Average Age at Entry
1981 – 1985	1988	13,142	77.1
1986 – 1990	1993	21,235	77.6
1991 – 1995	1998	24,521	78.4
1996 – 2000	2003	29,660	79.3
2001 – 2005	2008	35,316	79.9
2006 – 2010	2013	31,968	80.5
2011 – 2015	2018	37,526	80.7

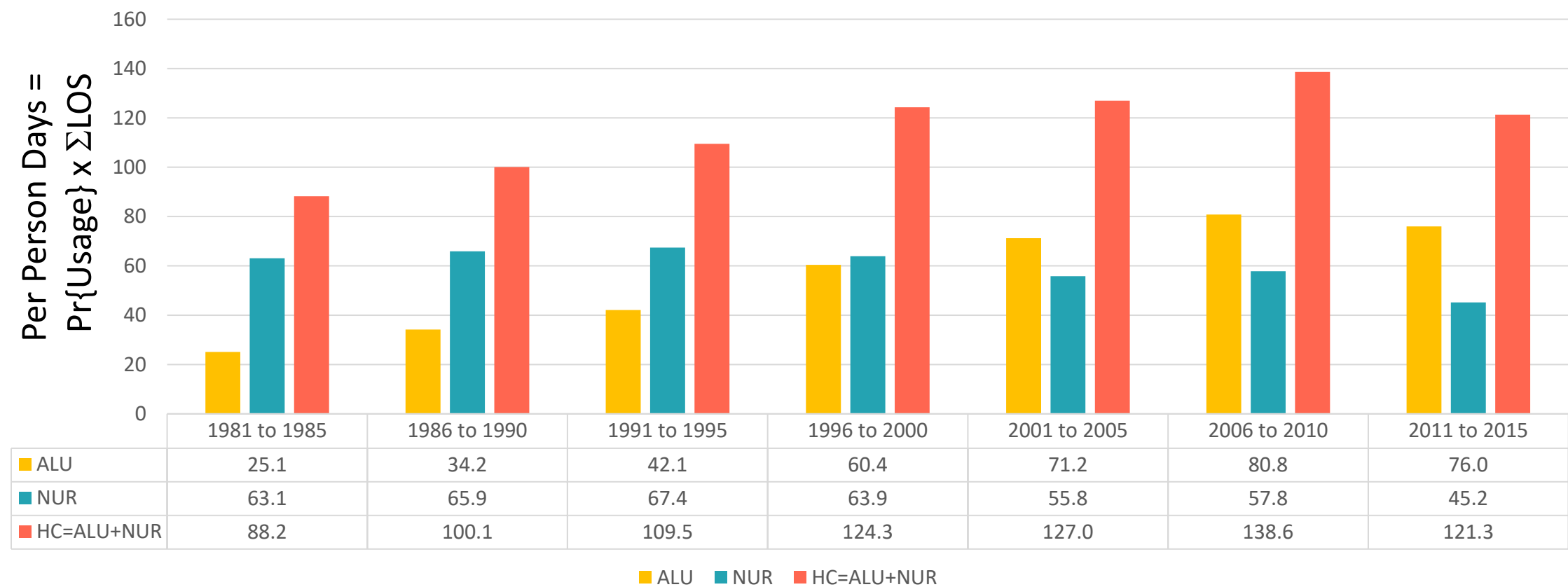
Pr{Usage} for ALU Trending Up



Nursing Care ΣLOS during 1st-5 years trending down



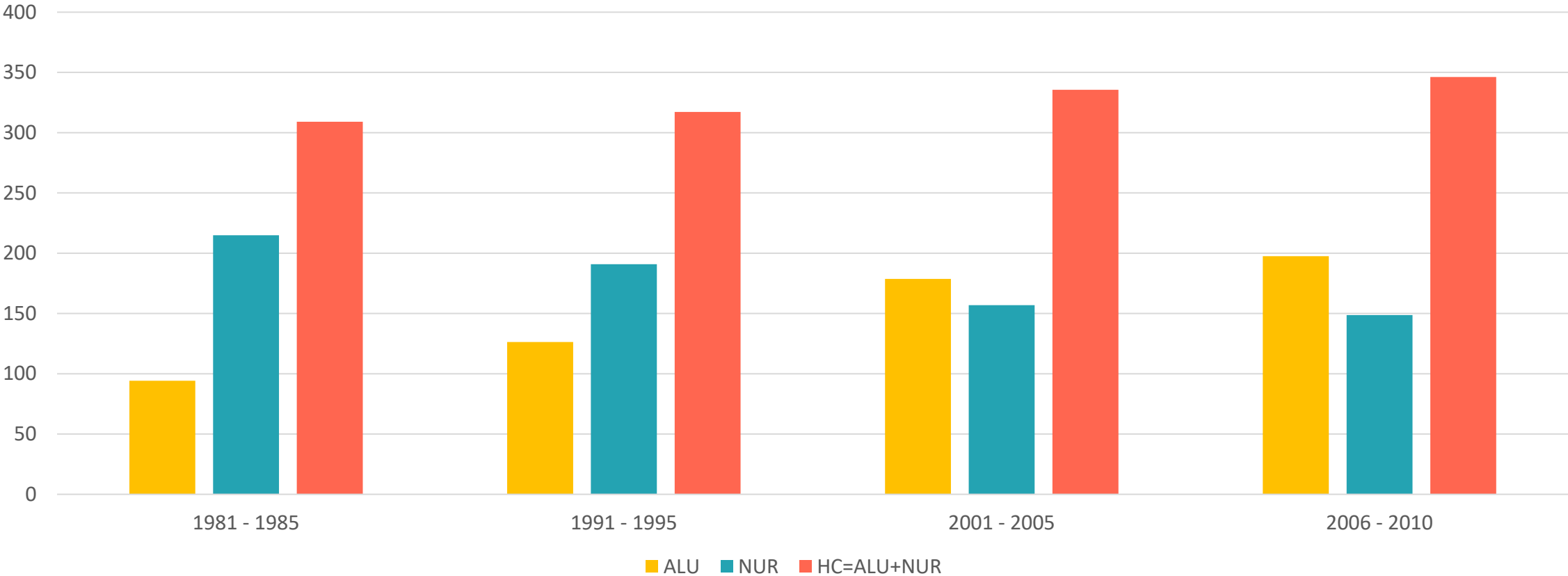
Exp{PPD} for ALU Increasing Relative to SNF



Has Per Resident HC Usage Changed?

Entry Years	End of Observation Period	Number of Female of Records	Average Age at Entry
1981 – 1985	1993	13,142	77.1
1991 – 1995	2003	24,521	78.4
2001 – 2005	2013	35,316	79.9
2006 – 2010	2018	31,968	80.5

Same ALU/NUR Relationship Trend 1st-10 years



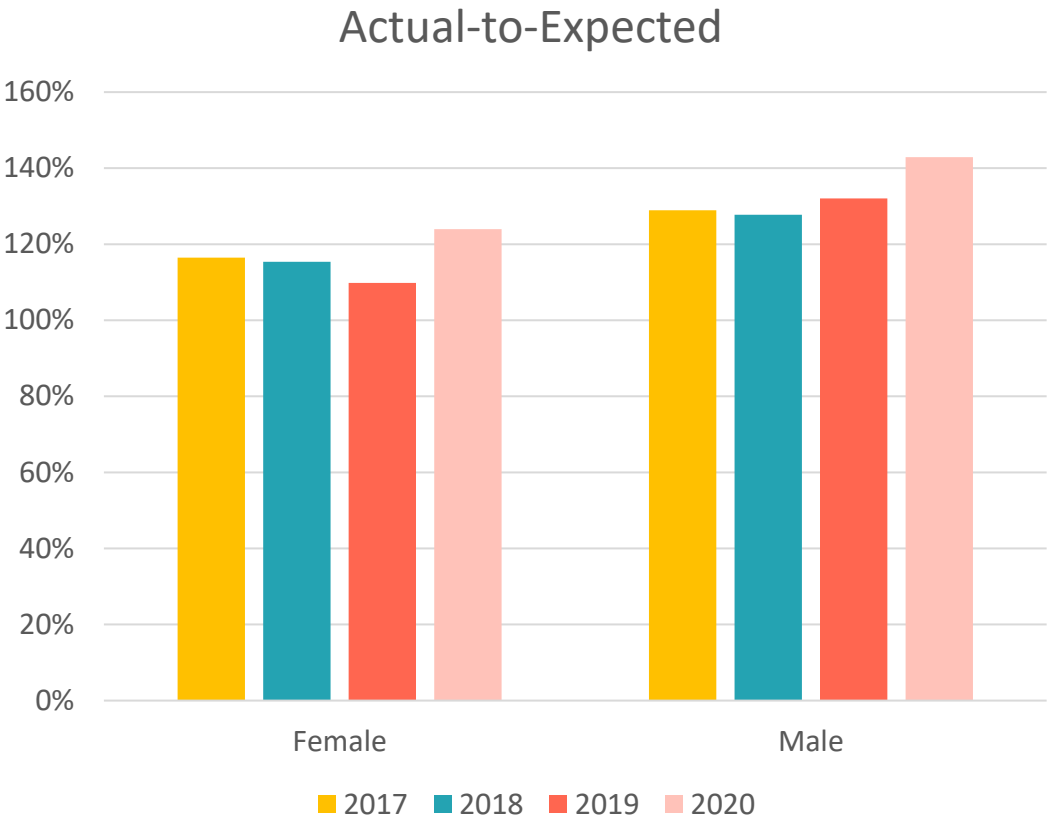
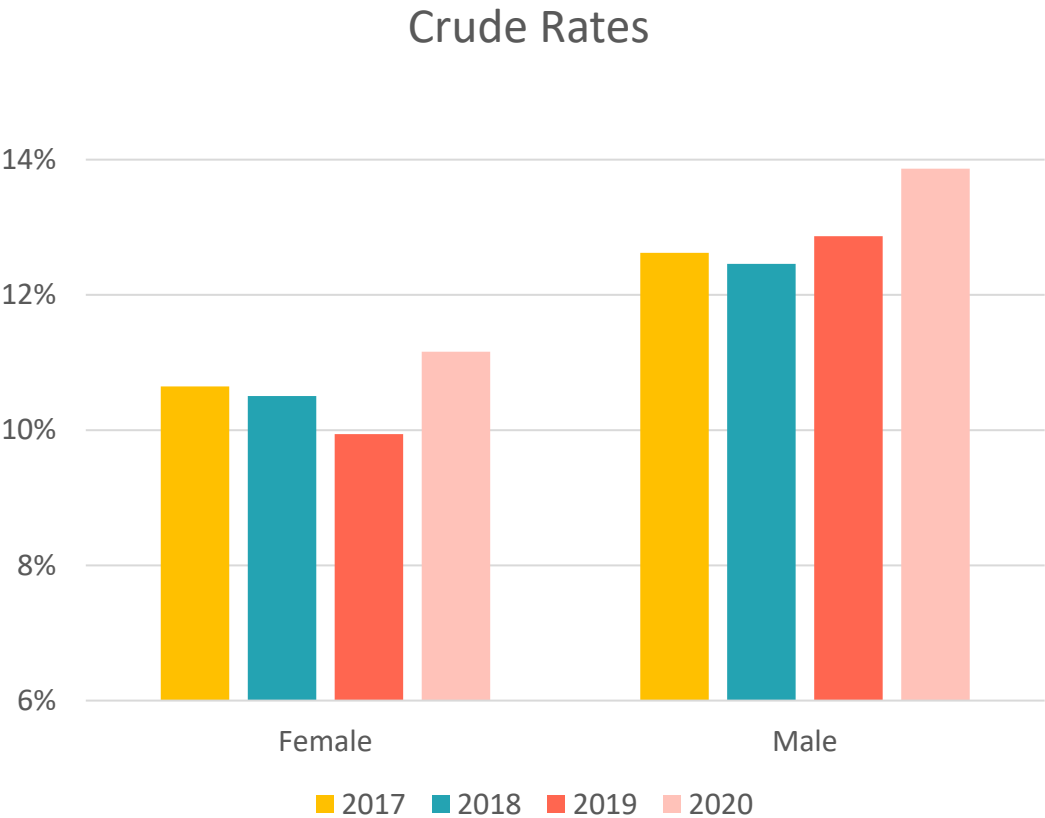
Presentation Overview

1. Objectives
2. Database description
3. Experience study demographics
4. Experience study utilization statistics
- 5. Experience study results**
6. Financial implications
7. Future actuarial database enhancements

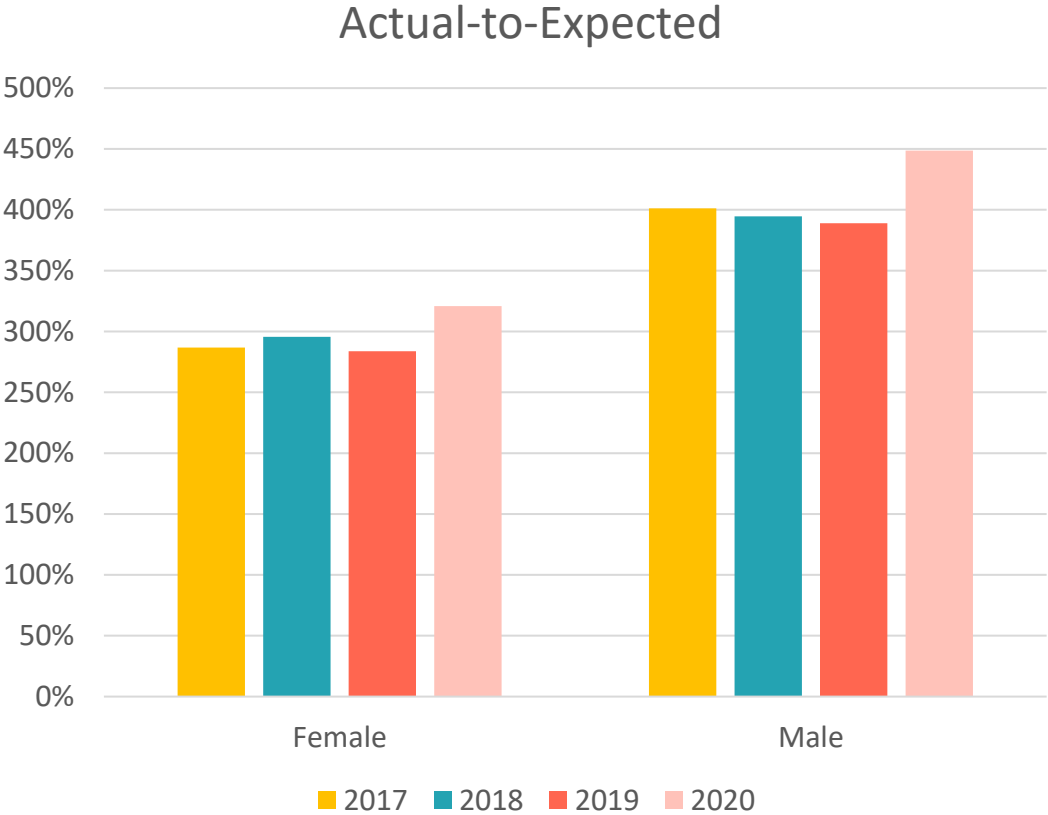
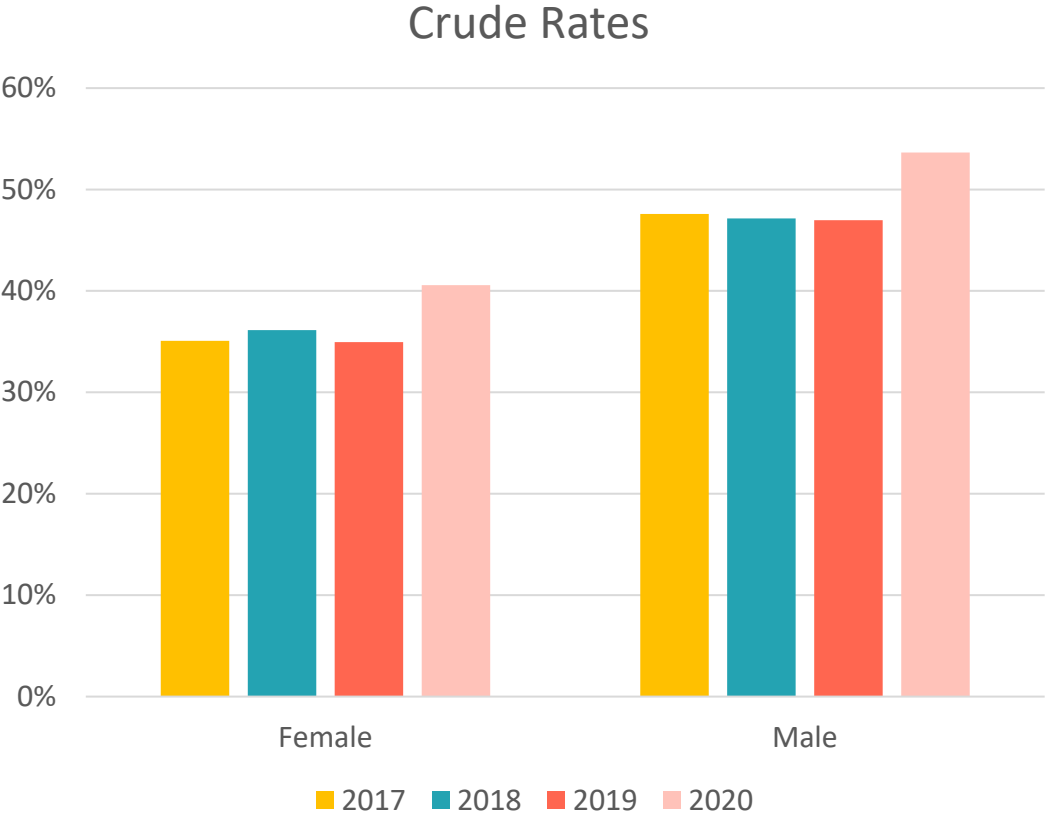
Actuaries Estimate Lifetime Trends

1. An experience study translates a short period of data into decrement rates
 - Mortality
 - Permanent transfer morbidity
 - Temporary transfer morbidity
 - Withdrawal or voluntary move-out
2. Actuarial mathematics apply these rates to project:
 - Longevity
 - Health care utilization
3. Other considerations
 - Select period
 - COVID-19

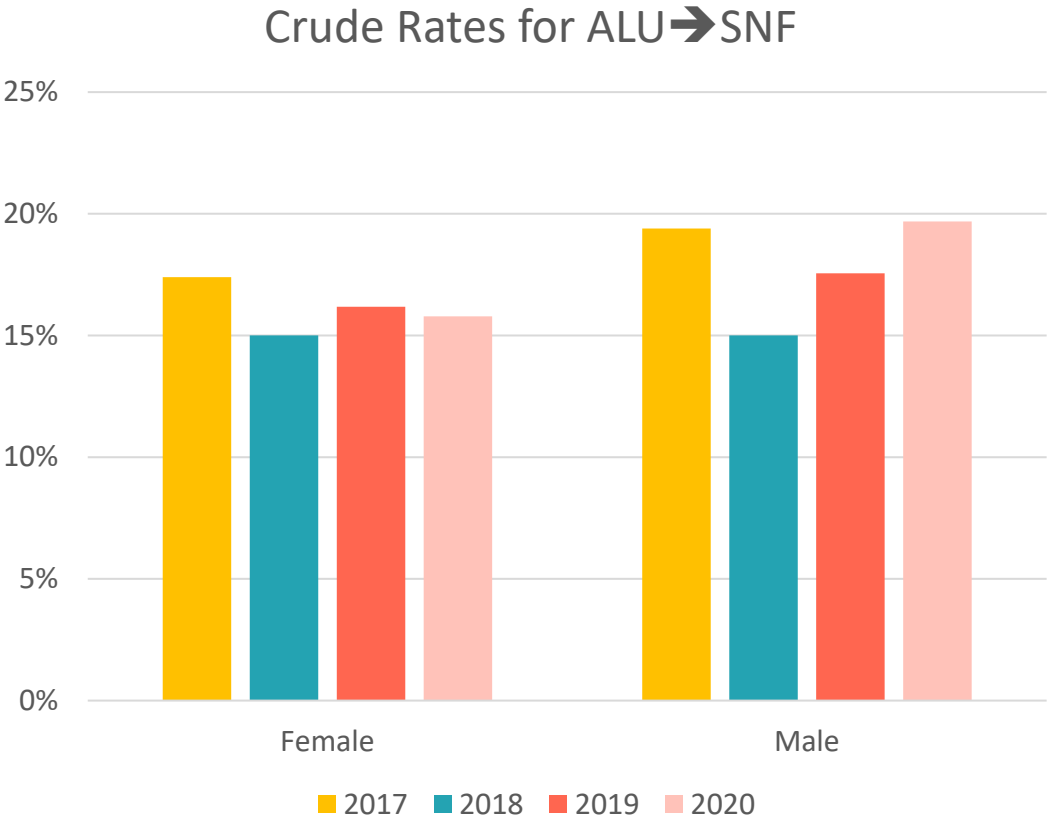
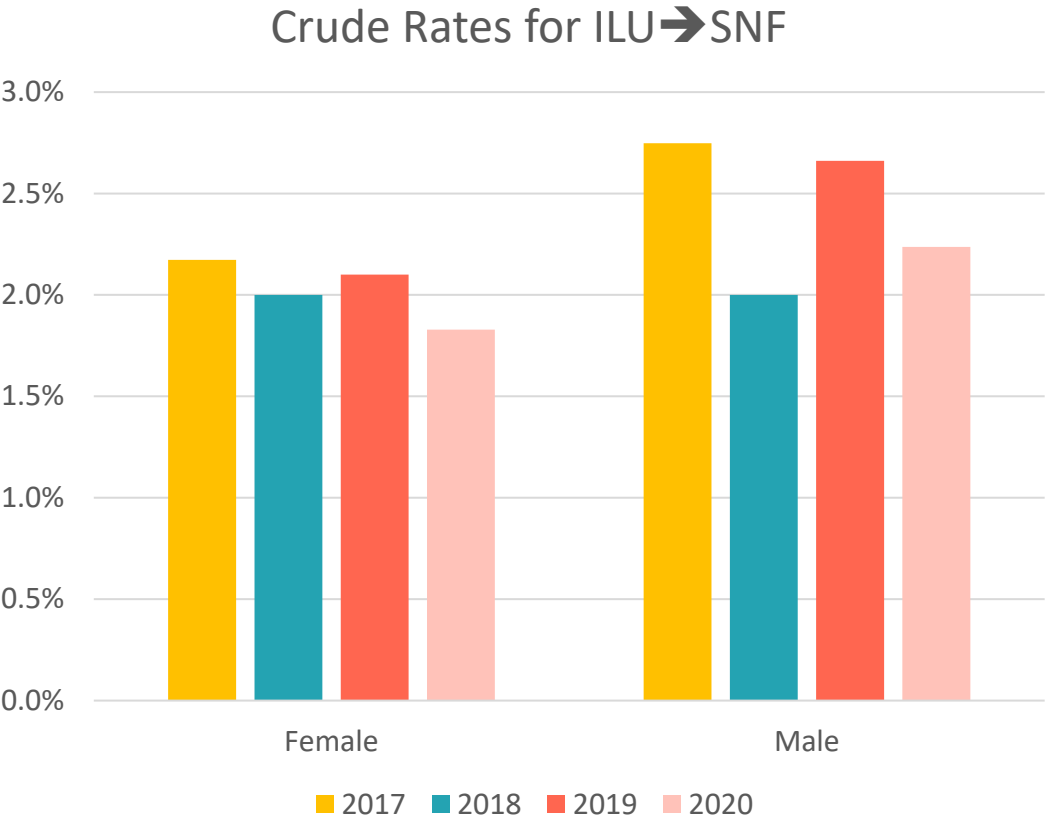
COVID 19's Impact on Aggregate Mortality



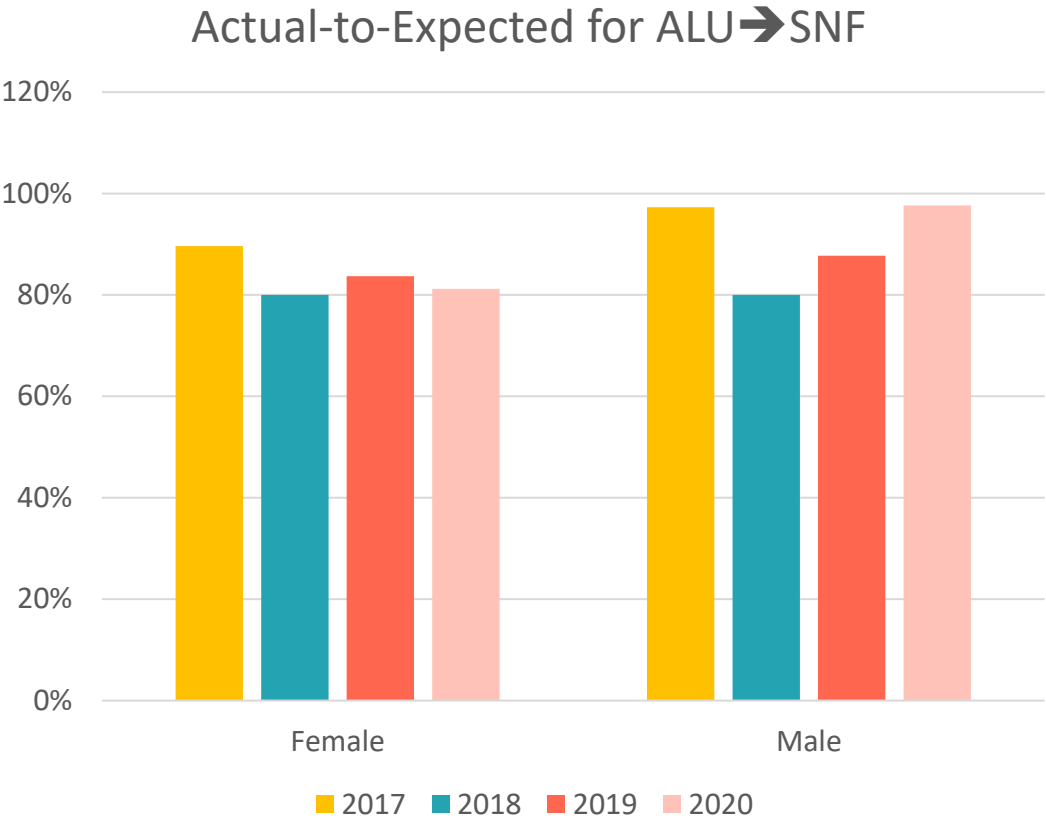
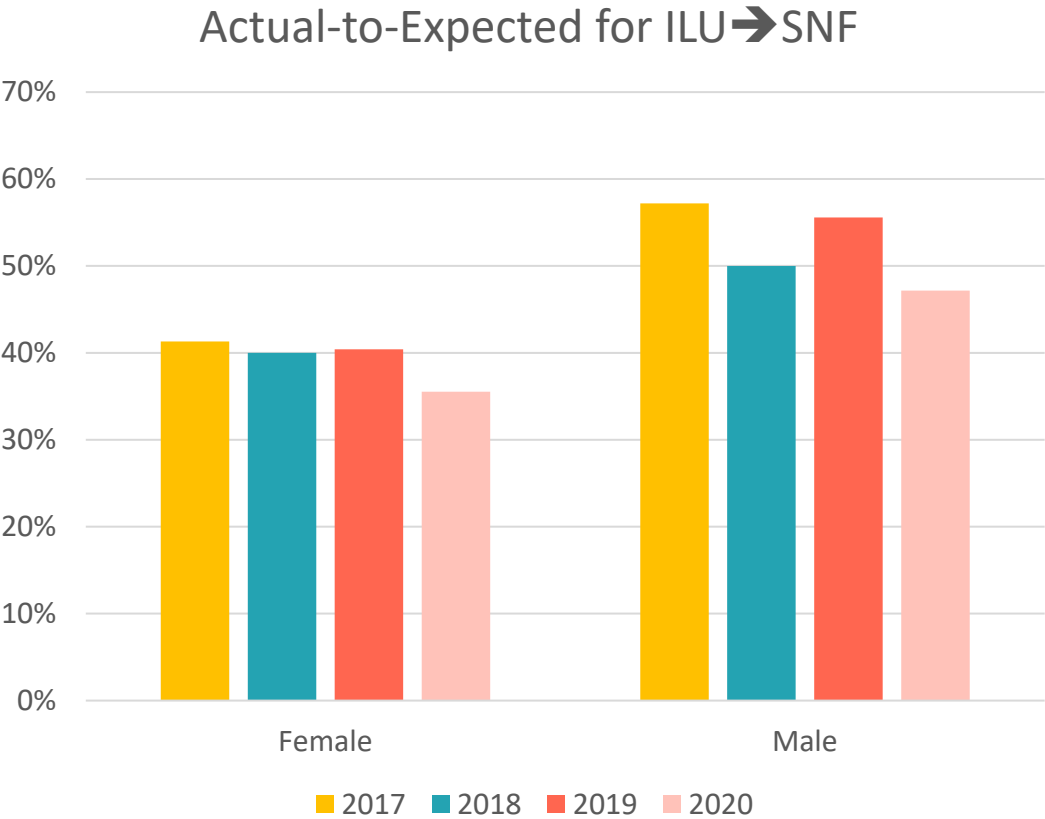
COVID 19's Impact on SNF Mortality



COVID 19's Impact on Permanent Morbidity

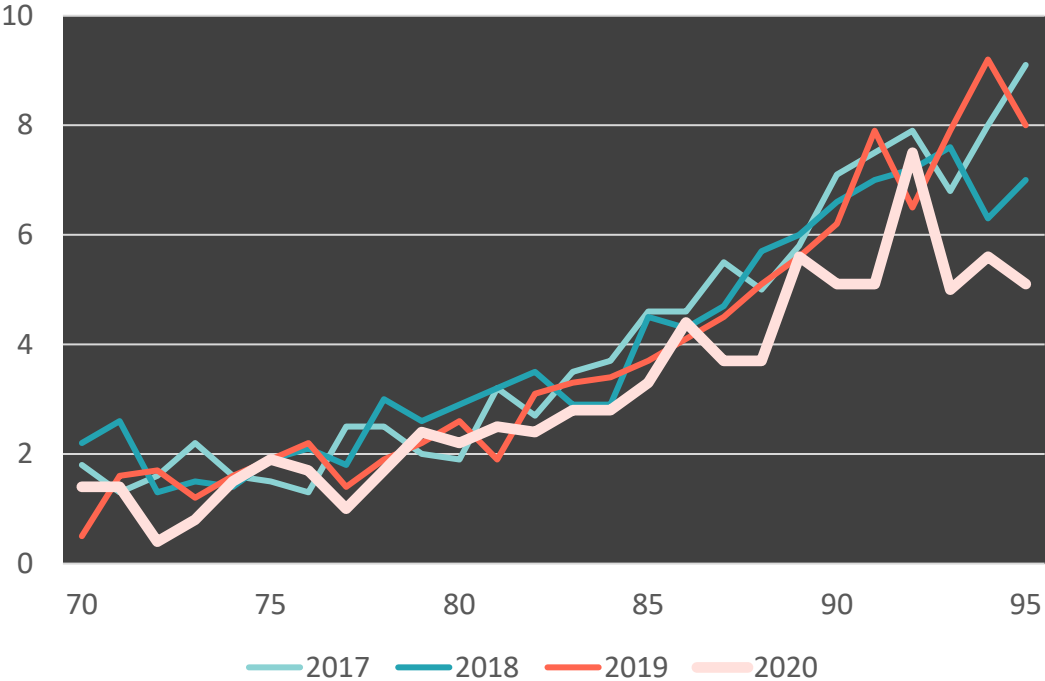


COVID 19's Impact on Permanent Morbidity



COVID 19's impact on temp morbidity (ILU→SNF)

Females: Average Number of Days
Per 1 Life Year of Exposure



Males: Average Number of Days
Per 1 Life Year of Exposure

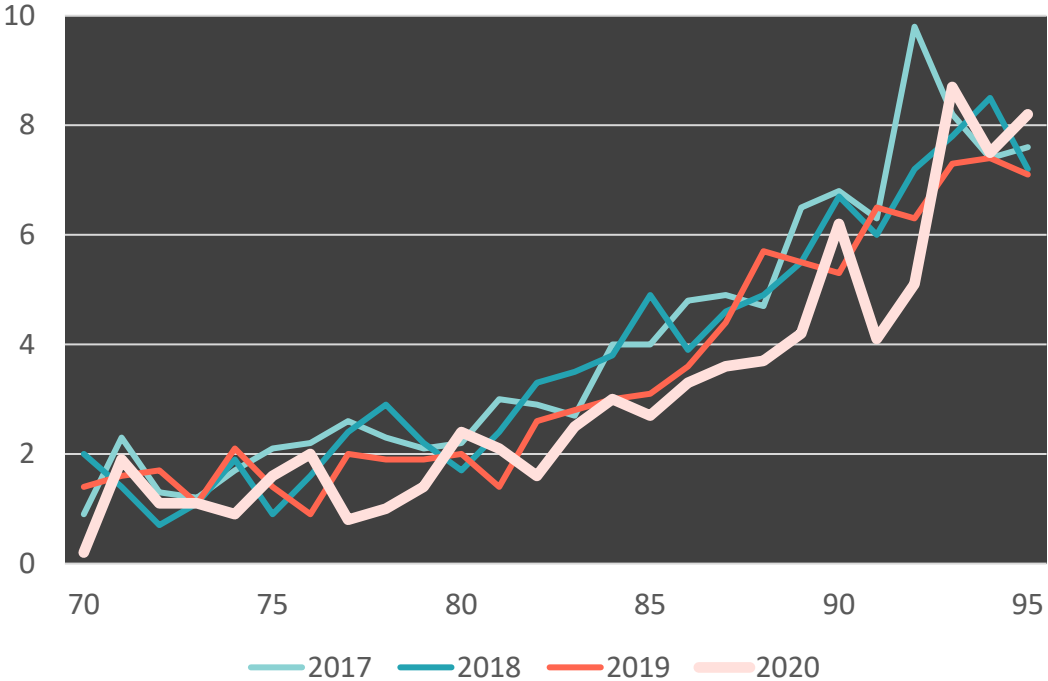
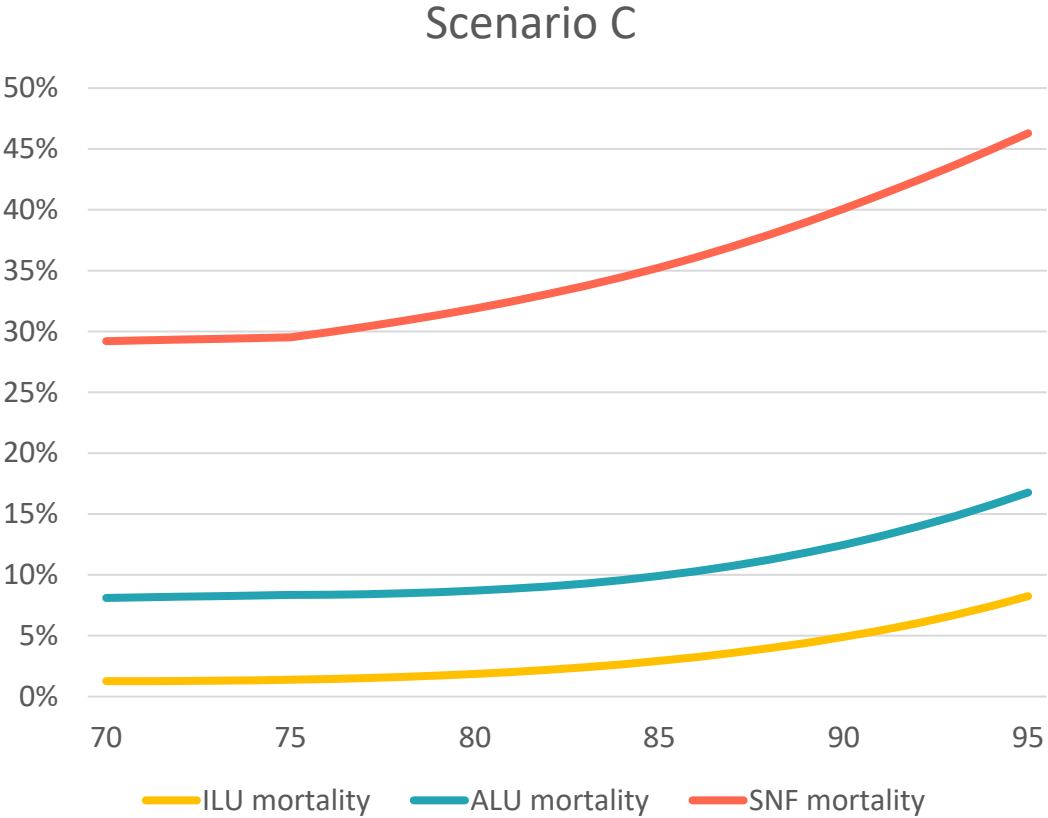
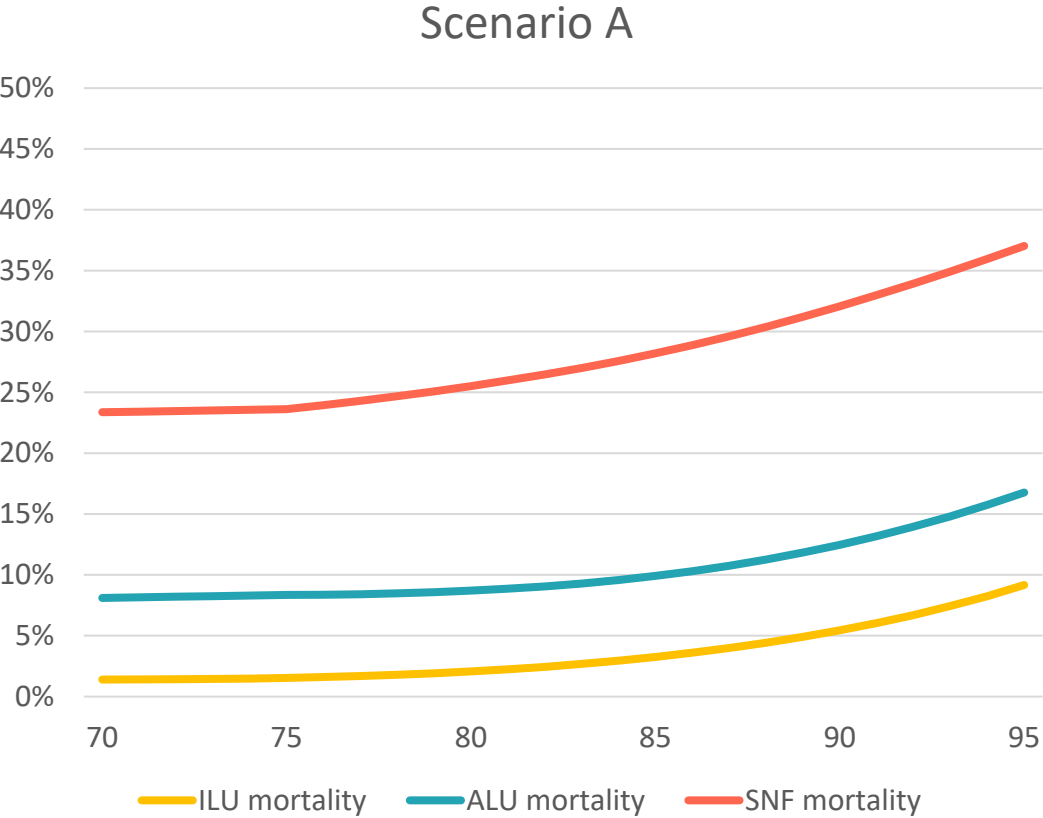


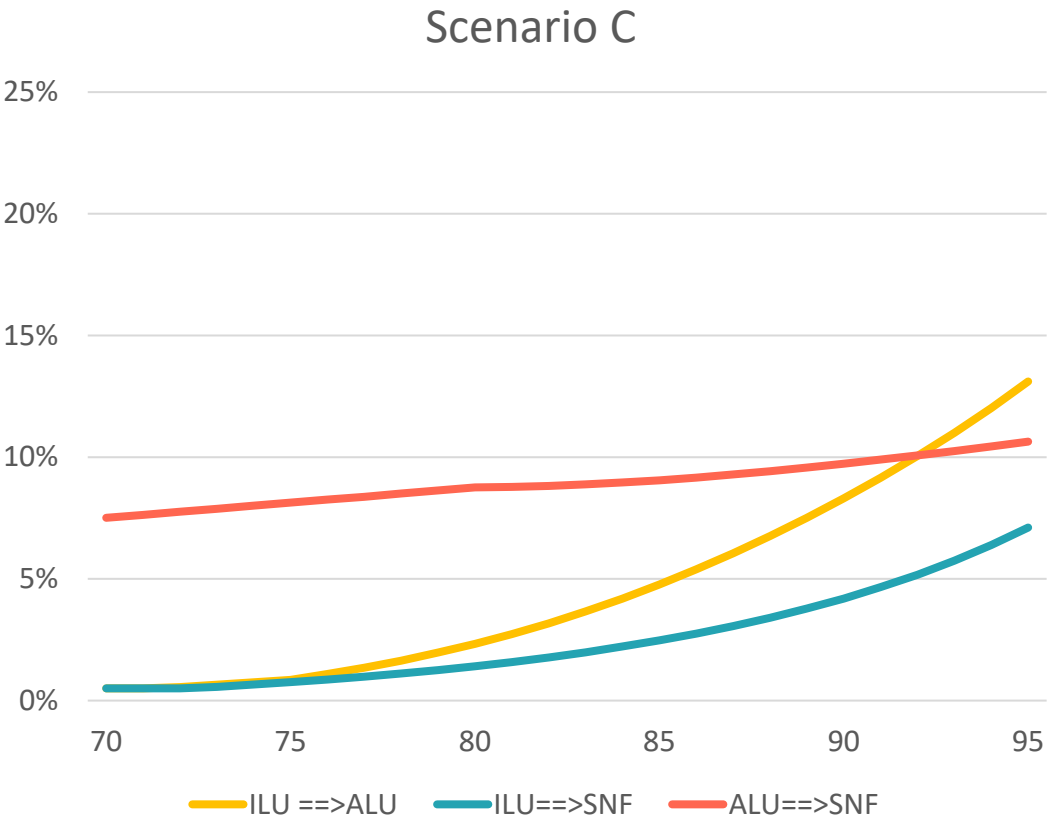
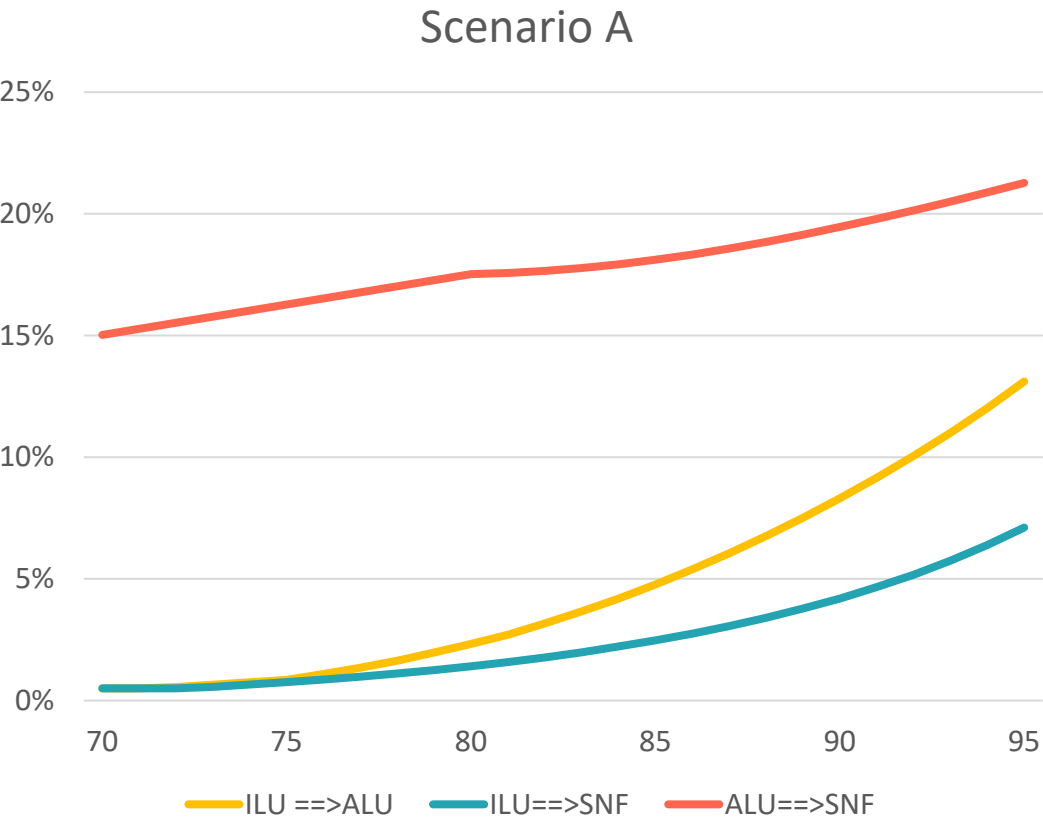
Table Nomenclature

1. NIH (1995/97)= 2002 NIH study
2. 2012 IAR = NAIC adopted tables for valuing annuities
3. SSA 2020 = Social Security Administration 2020 period table
4. AVP 1989 = rates adjusted based on AVP 1989 standard
5. AVP 1997 = rates adjusted based on AVP 1997 standard
6. Exp-2010 = AVP database from 2001 thru 2010
7. Exp-2020 = AVP database from 2011 thru 2020
8. AVP 2020* A = AVP Scenario A rates derived from 2021 experience study
9. AVP 2020* C = AVP Scenario C rates derived from 2021 experience study

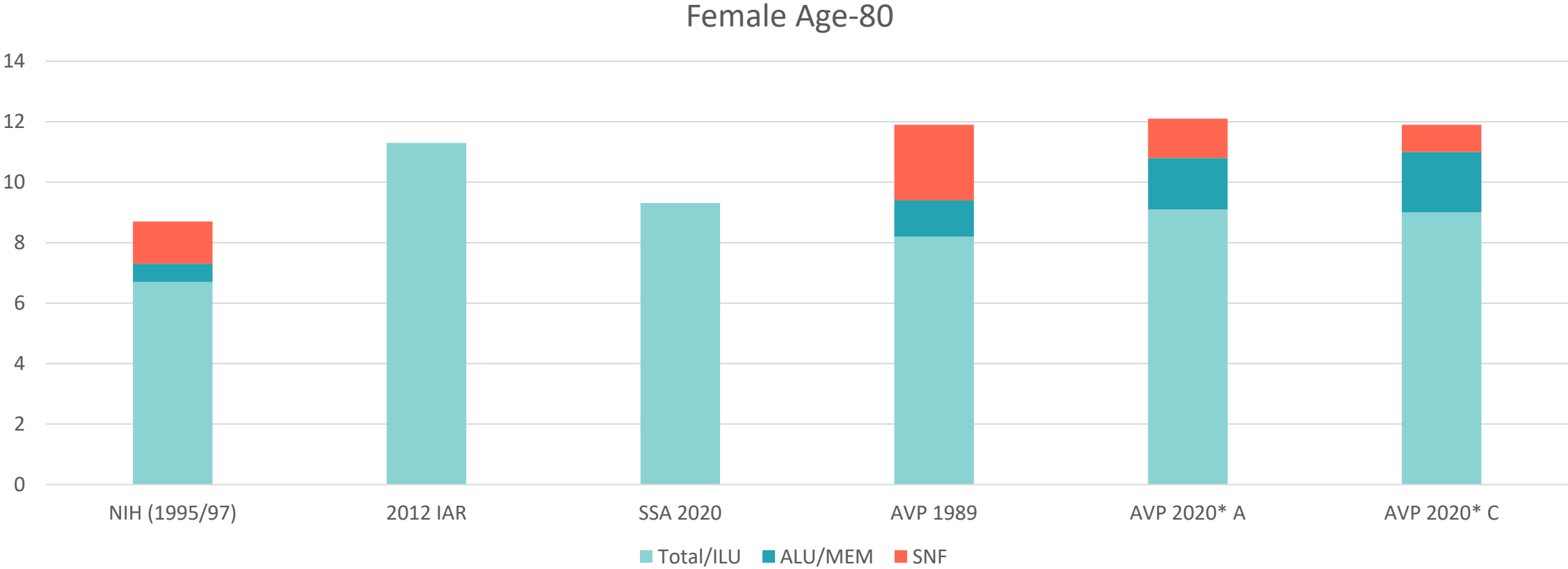
Mortality comparison for AVP 2020* rates



Morbidity comparison for AVP 2020* rates



% of Lifetime in ALU or SNF Shrinking Slightly?



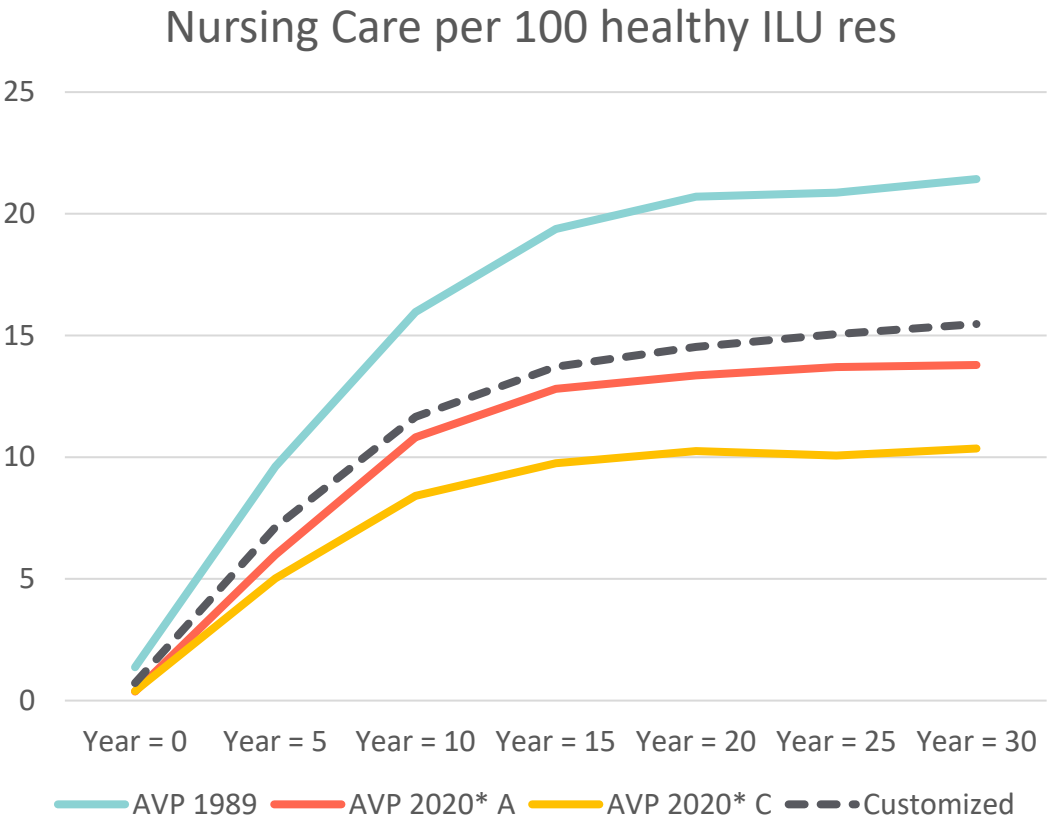
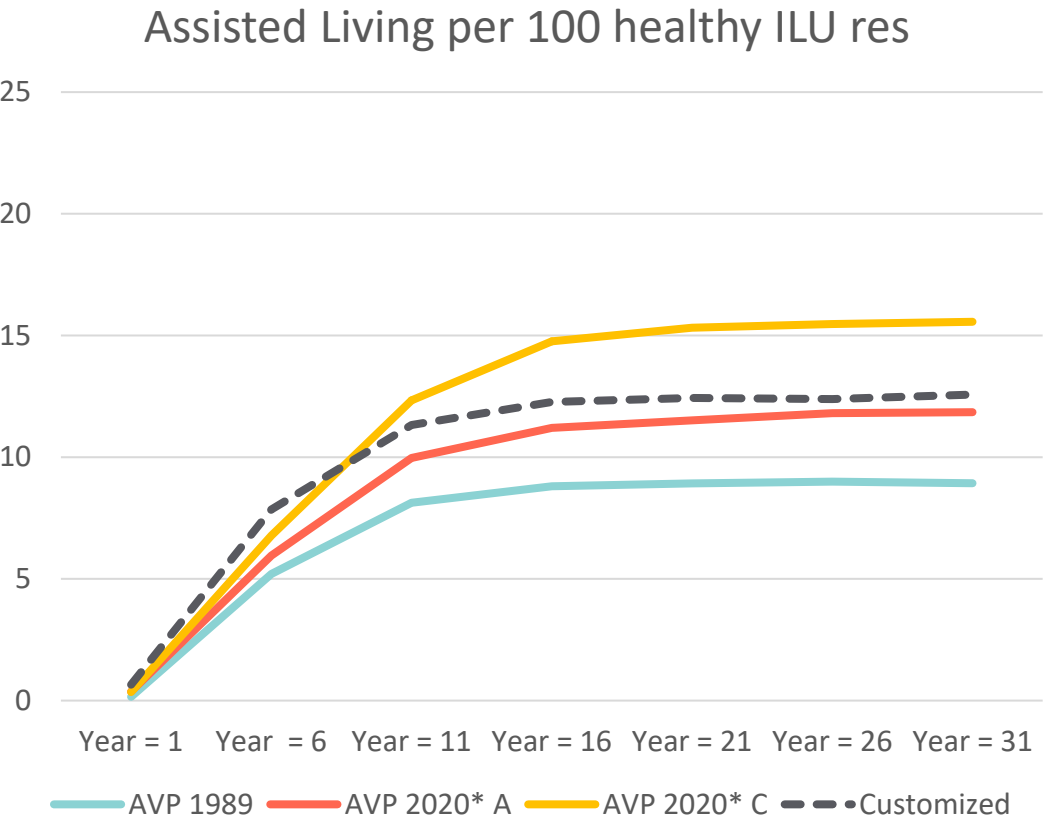
Presentation Overview

1. Objectives
2. Database description
3. Experience study demographics
4. Experience study utilization statistics
5. Experience study results
- 6. Financial implications**
7. Future actuarial database enhancements

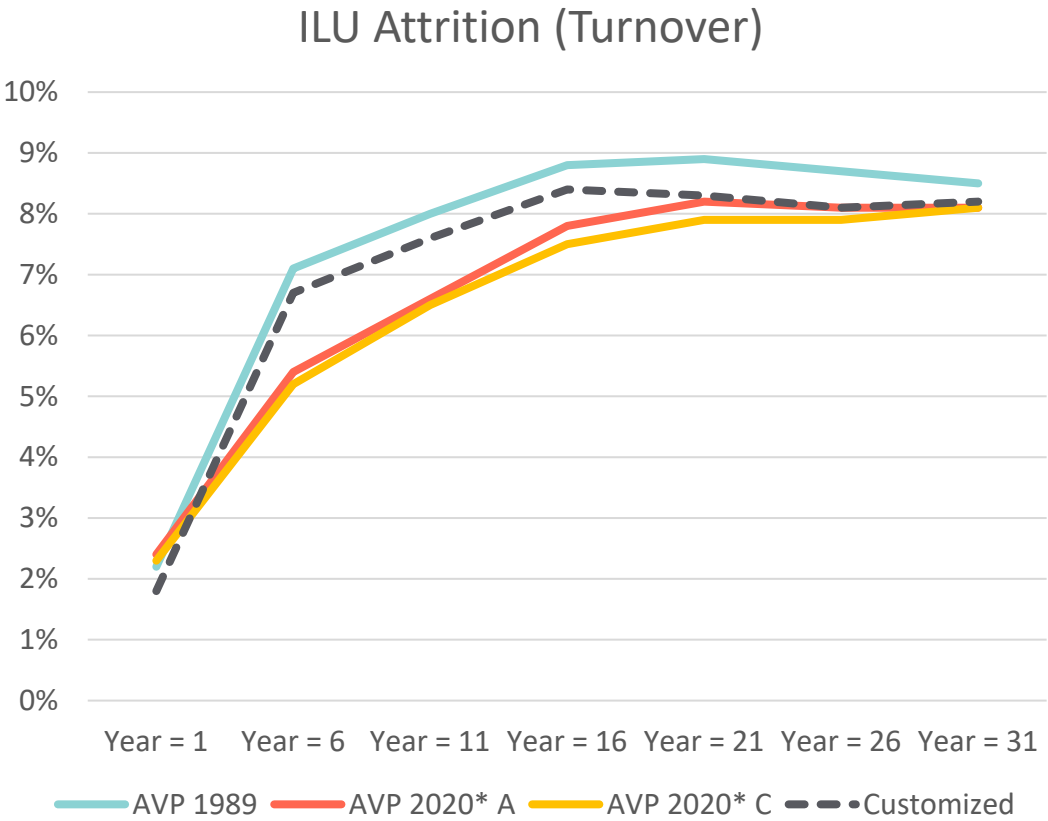
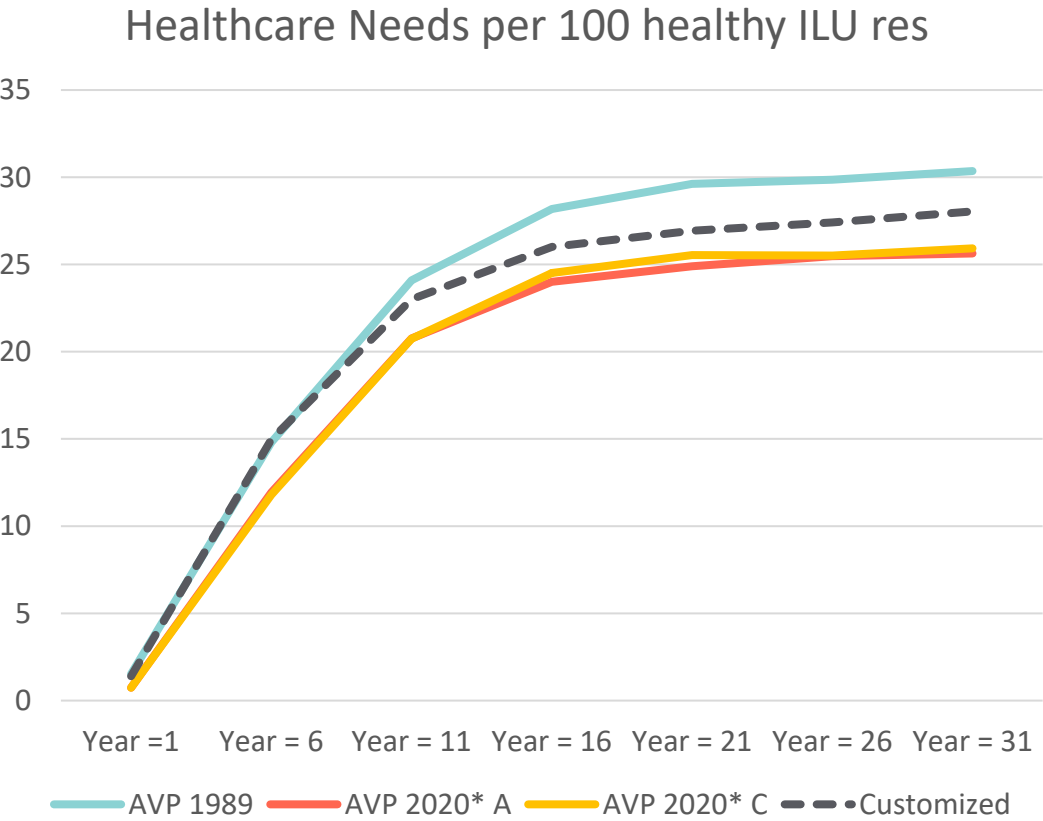
Experimental Design

1. Illustrative CCRC case study
 - Green field **with immediate fill-up**
 - New entrant demographics
 - Move along continuum philosophy
2. Decrement assumptions based on:
 - Legacy standard
 - Proposed new standards
 - Customized
3. Projected health care usage
4. ASOP#3 at start-up
 - Actuarial valuation
 - Contract pricing
 - Cash flows and debt covenants
5. ASOP #3 at stabilization
 - Actuarial valuation
 - Contract pricing
 - Cash flows and debt covenants

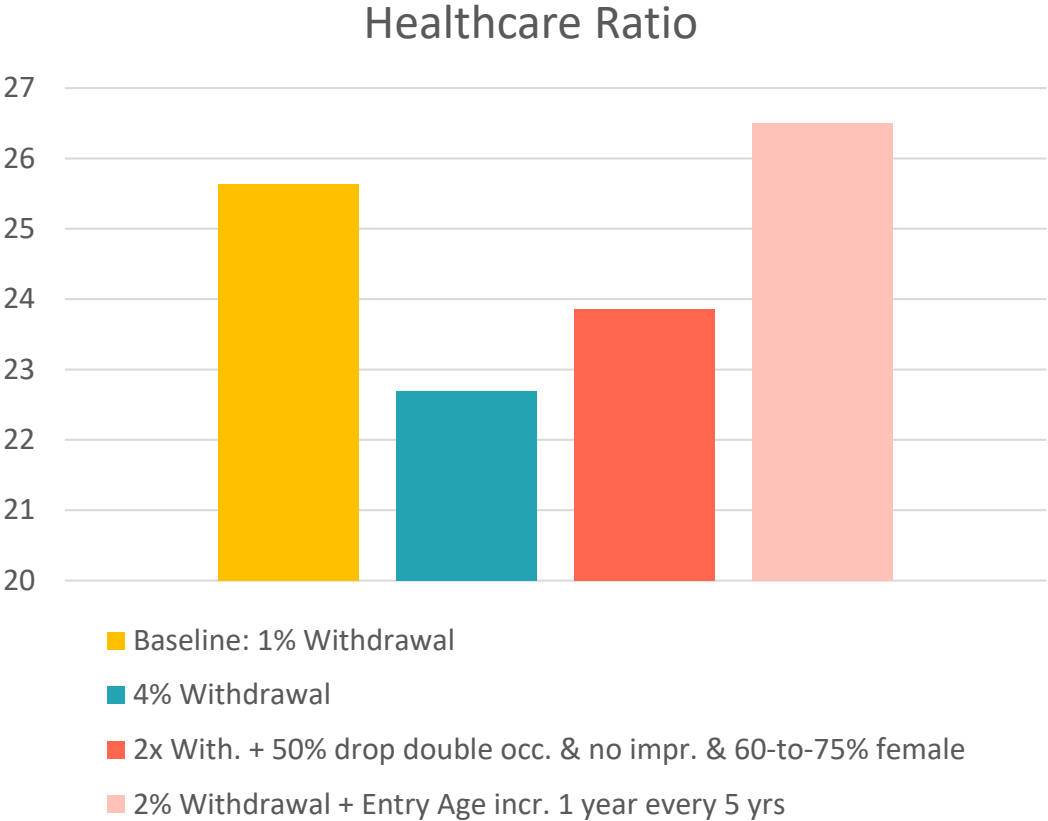
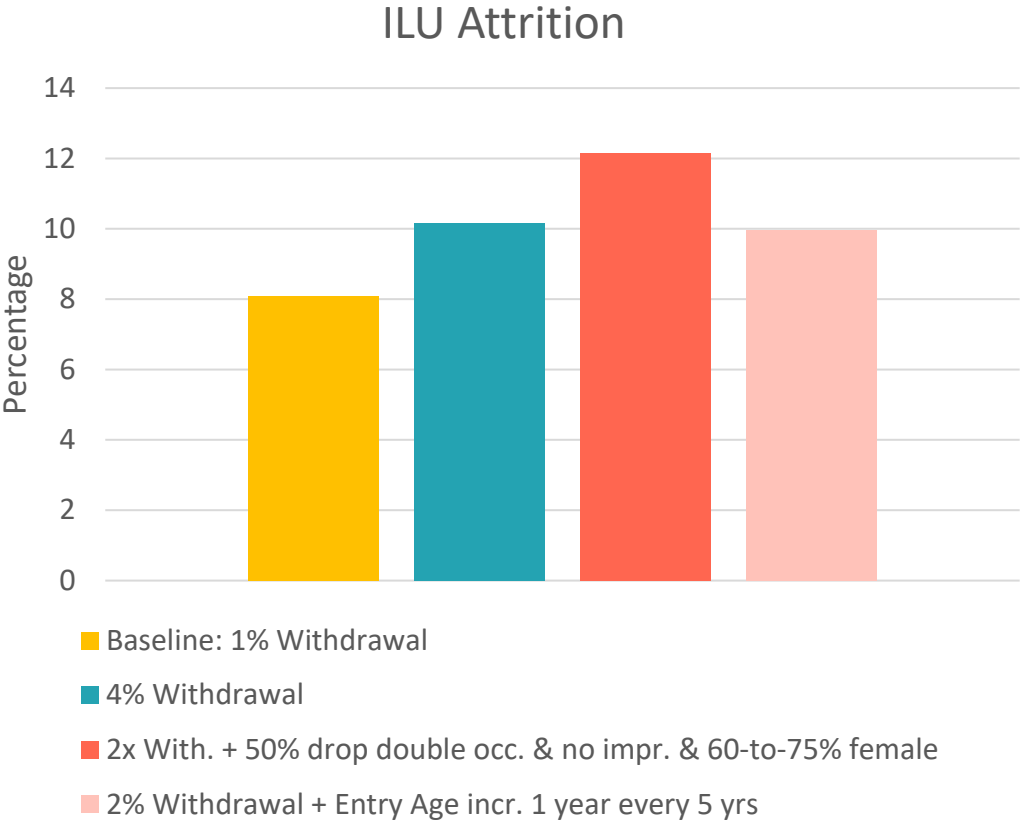
Permanent Health Care Usage (by location)



Healthcare Ratio and Unit Attrition

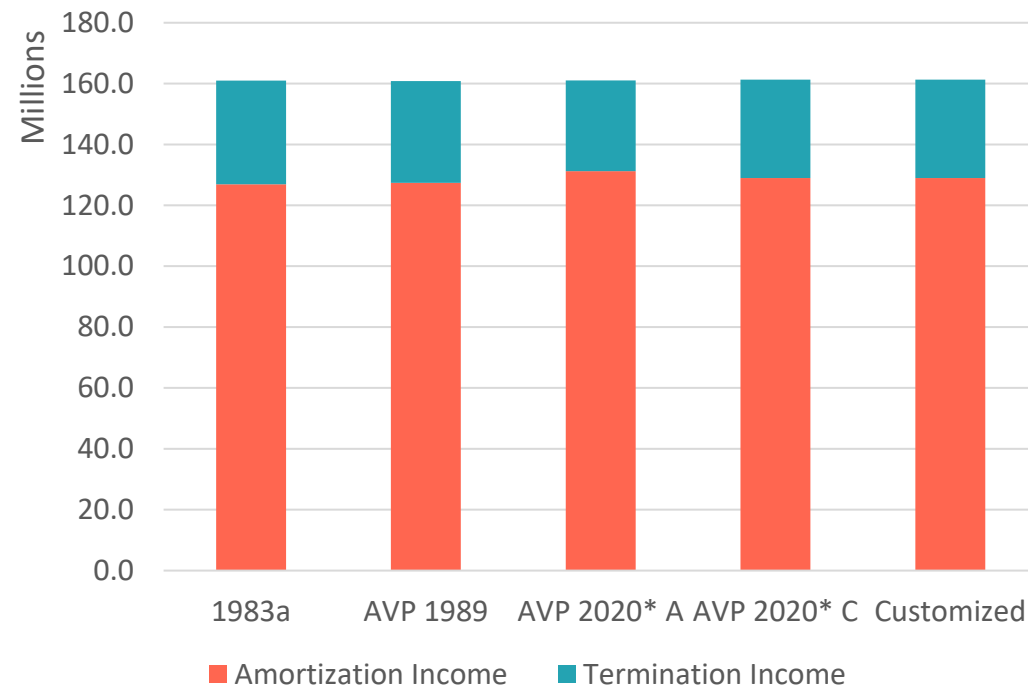


Why Doesn't Your CCRC Match the Illustrations?

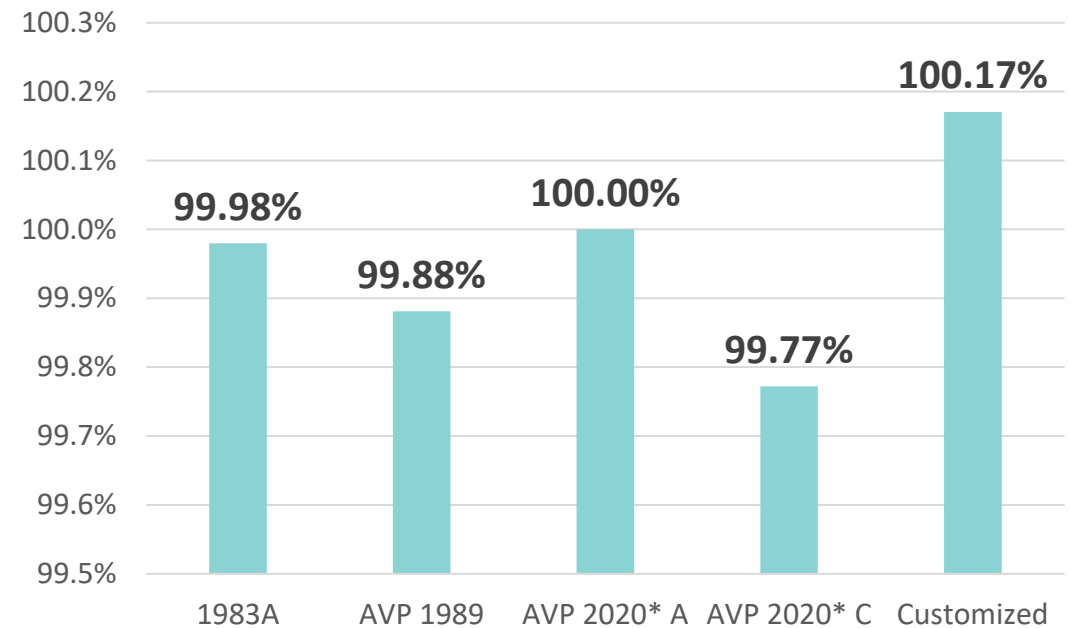


ASC 606 Income has Limited Sensitivity to e_x

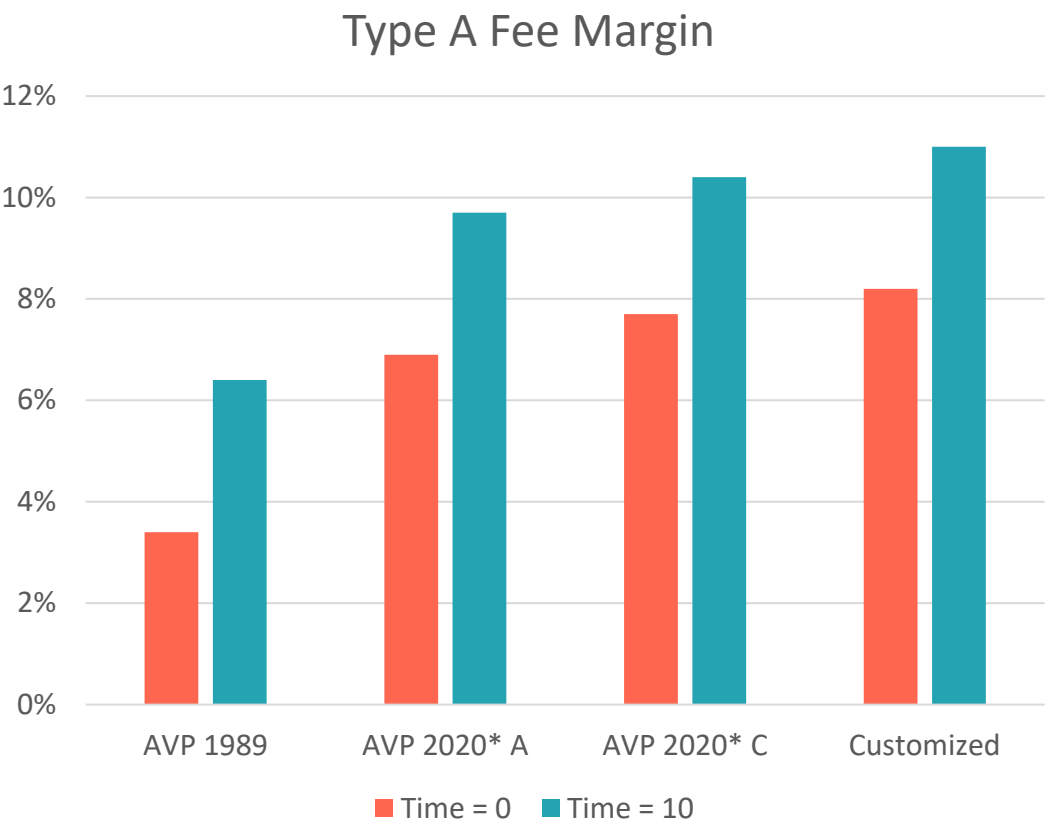
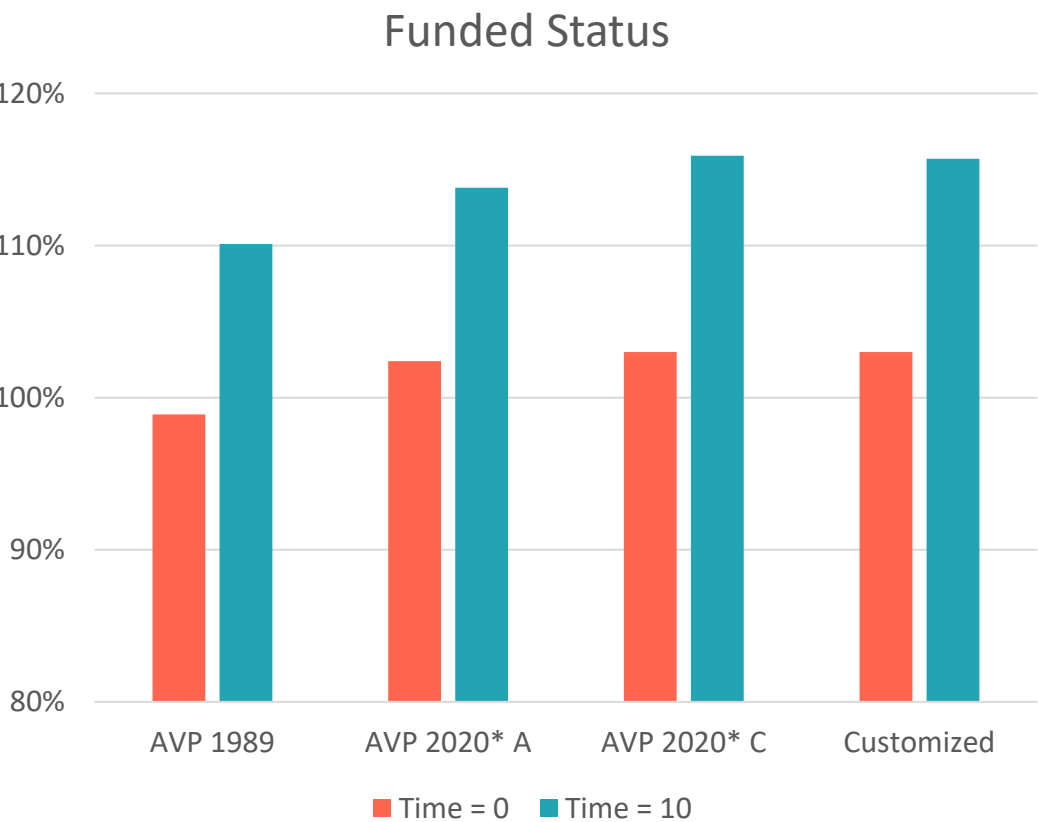
Aggregate Income Recognition
From 1985 to 2020



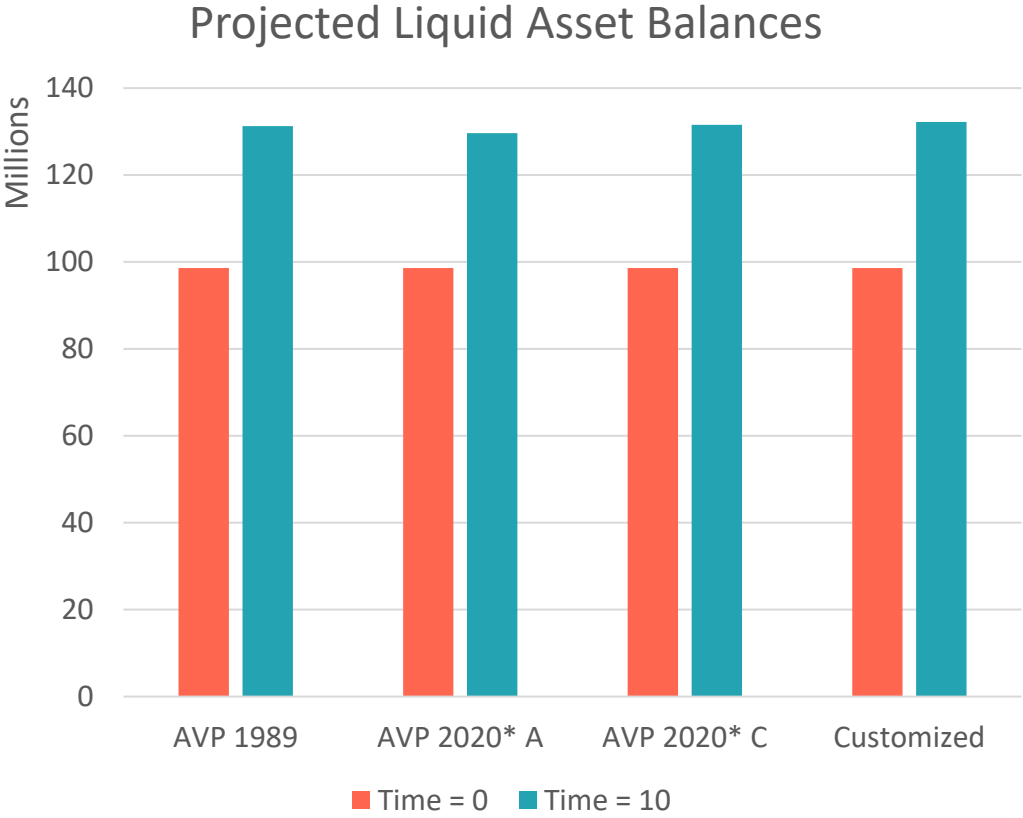
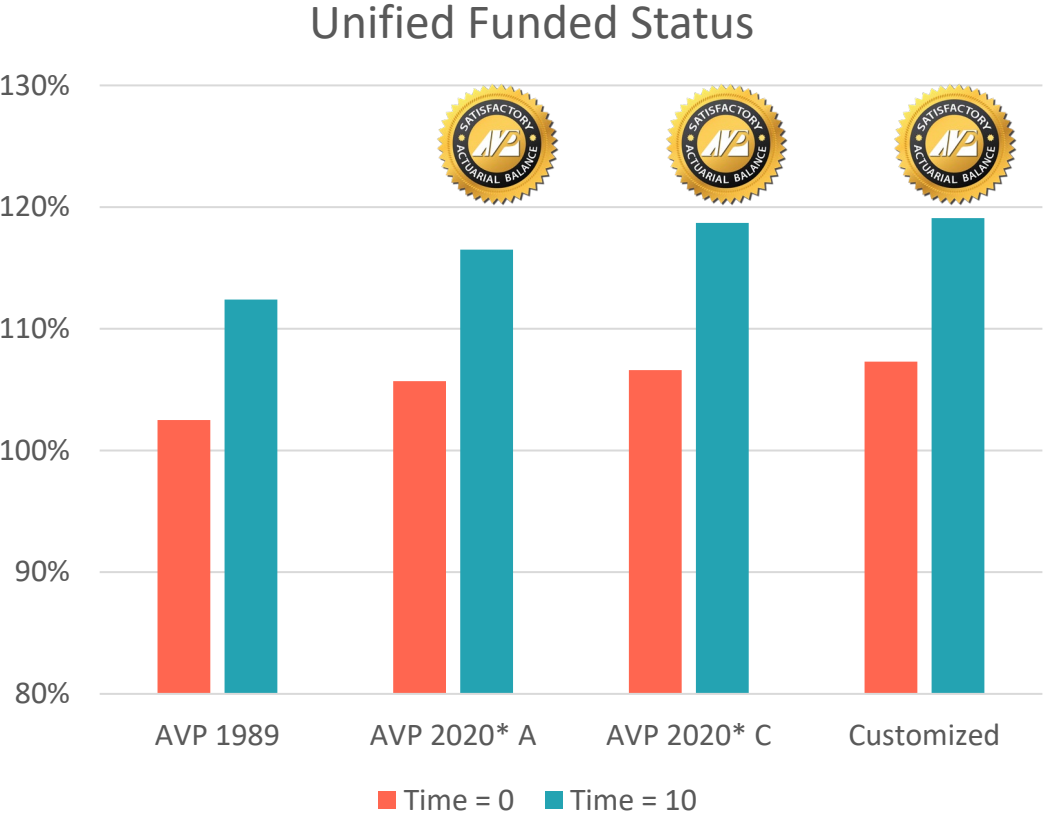
Aggregate Income Recognition as % of
AVP 2020* A benchmark



Funded Status and Contract Surplus



Solvency means >100% UFS & Cash Incr. > Inflation



Presentation Overview

1. Objectives
2. Database description
3. Experience study demographics
4. Experience study utilization statistics
5. Experience study results
6. Financial implications
- 7. Future actuarial database enhancements**

More Reliable Projections with Enhanced Data

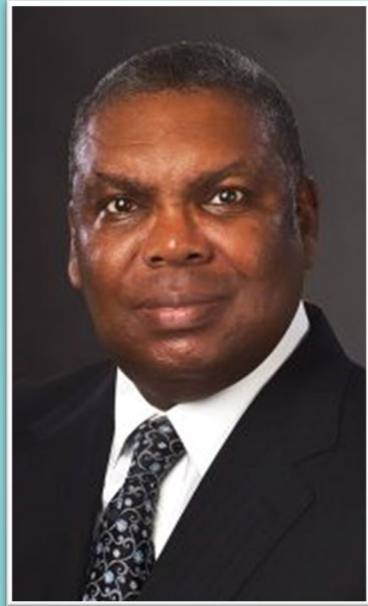
1. The Life Plan (Continuing Care) concept is **actuarially VIABLE**
2. Consistent and complete resident data is needed to prove this observation to interested parties
3. Move from location focus to functional status
 - Such as “broad” categorization by ADLs or IADLs
 - Annual (or regular) assessments
 - Trending/converging toward CCaH protocols?
4. Actuarial projections based on services used and not location provided
5. Will aging-in-place become the de facto practice?
6. Future projections may reflect increased life span from 115 to 120

Future Transition Tracking

Transition Category	Legacy {Location Dominated}	Future {Functional Status}
Admission criteria	Healthy	Super preferred, Preferred, or Standard
Perm (one-way)	ILU	No ADLs nor IADLs
Perm (one-way) or Temp (two-way)	Assisted Living Unit	1 or 2 ADLs or 3+ IADLs
Perm (one-way) or Temp (two-way)	Memory Care in Assisted Living Unit or Nursing Care	Dementia with 2 or more ADLs
Perm (one-way) or Temp (two-way)	Nursing Care	3 or more ADLs or 4+ IADLs
Perm (one-way)	Death	
Perm (one-way)	Withdrawal	

The diagram shows a red dot next to 'ILU' in the 'Legacy' column. Three red arrows point from this dot to the 'Future' column, specifically to the rows for 'Super preferred, Preferred, or Standard', 'No ADLs nor IADLs', and '1 or 2 ADLs or 3+ IADLs'.

Questions & Answers



AV Powell
av@avpowell.com
404.845.0360. x287



Coleman Naughton
cole.naughton@avpowell.com
404.845.0360 x266




LEADINGAGE
Annual Meeting + EXPO

OCTOBER 24 - 27, 2021
Georgia World Congress Center | Atlanta, GA



Evaluate Sessions in the Event App

- 
1. Go to the **sessions** icon
 2. Select the session
 3. Click on **survey tab** to **evaluate session**
 4. Respond to all questions
 5. Tap **submit** button