

AVP Empirical CCRC Analysis: Demographics and Utilization



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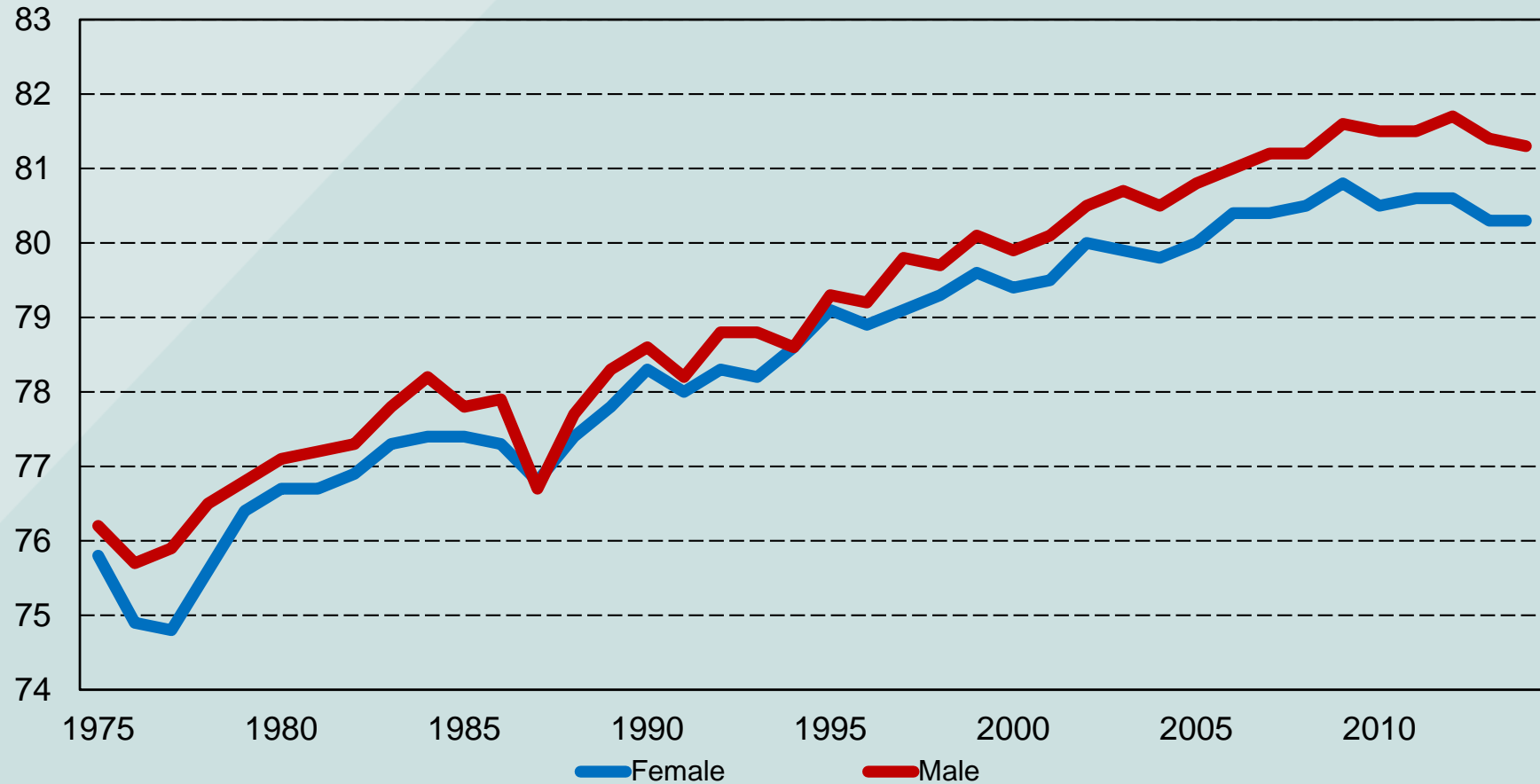
Database Description

1. 275,000 entrants between 1950 and 2014
2. Excludes direct entrants to assisted living and nursing care
3. 66% female and 34% male
4. 65% single and 35% w/roommate (21% of units)

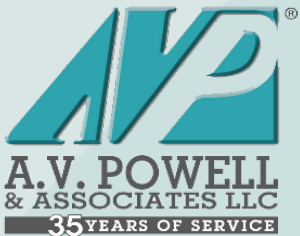
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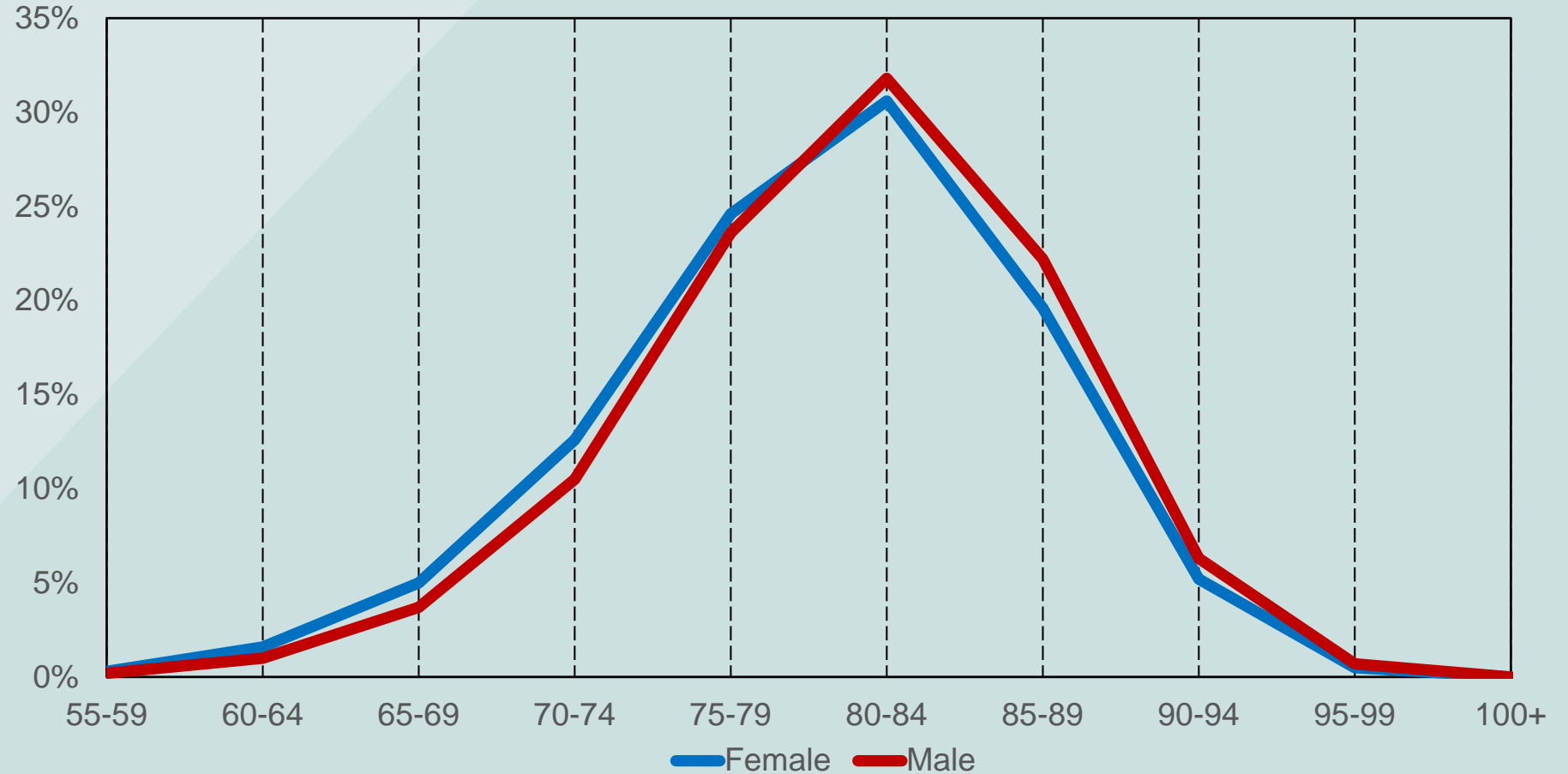
Average Entry Age Since 1975



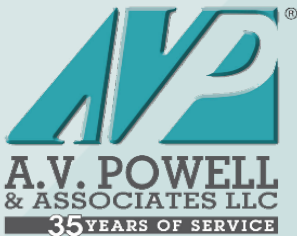
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Entry Age by Gender



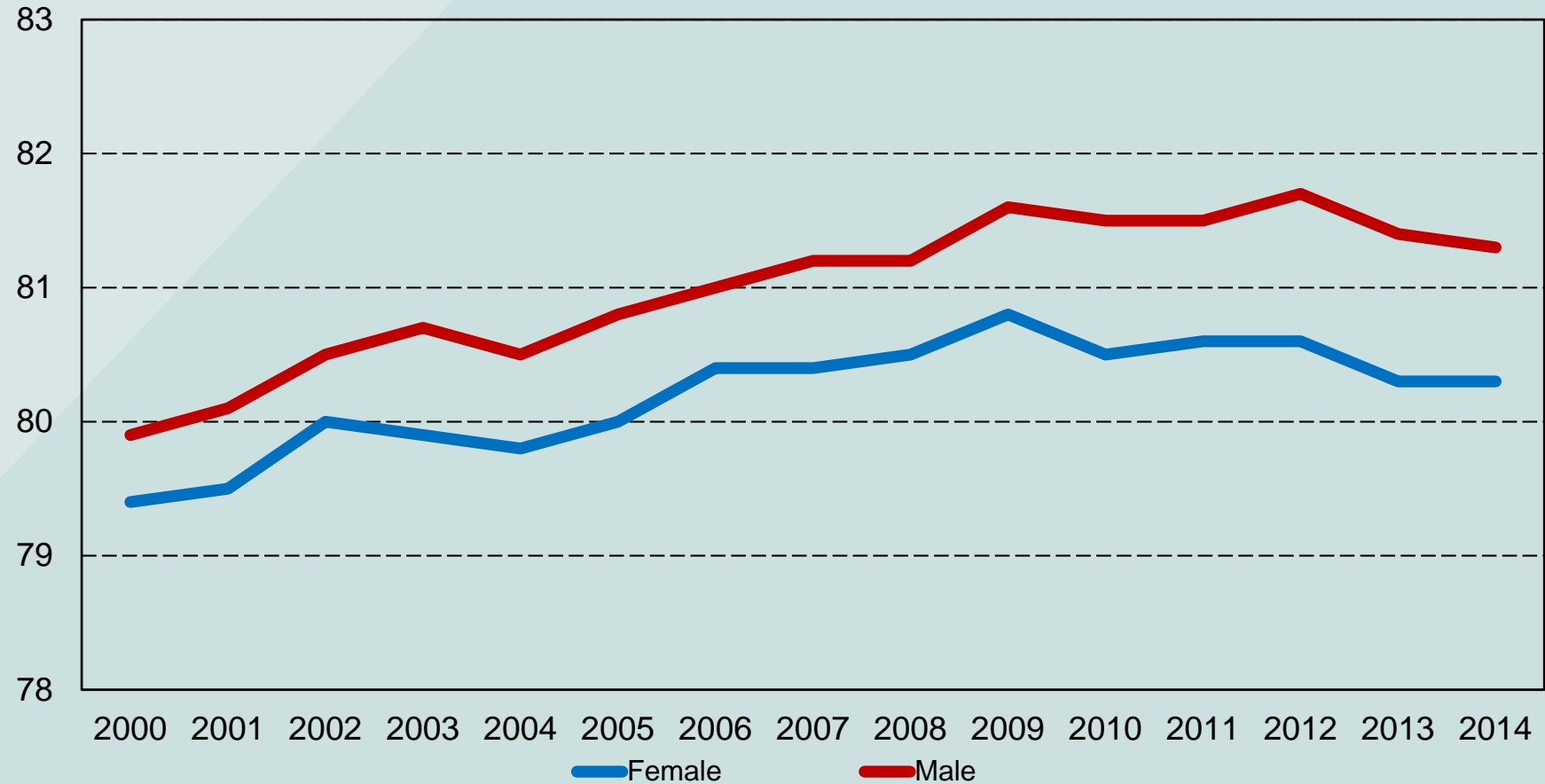
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Observation Period = 2005 to 2014

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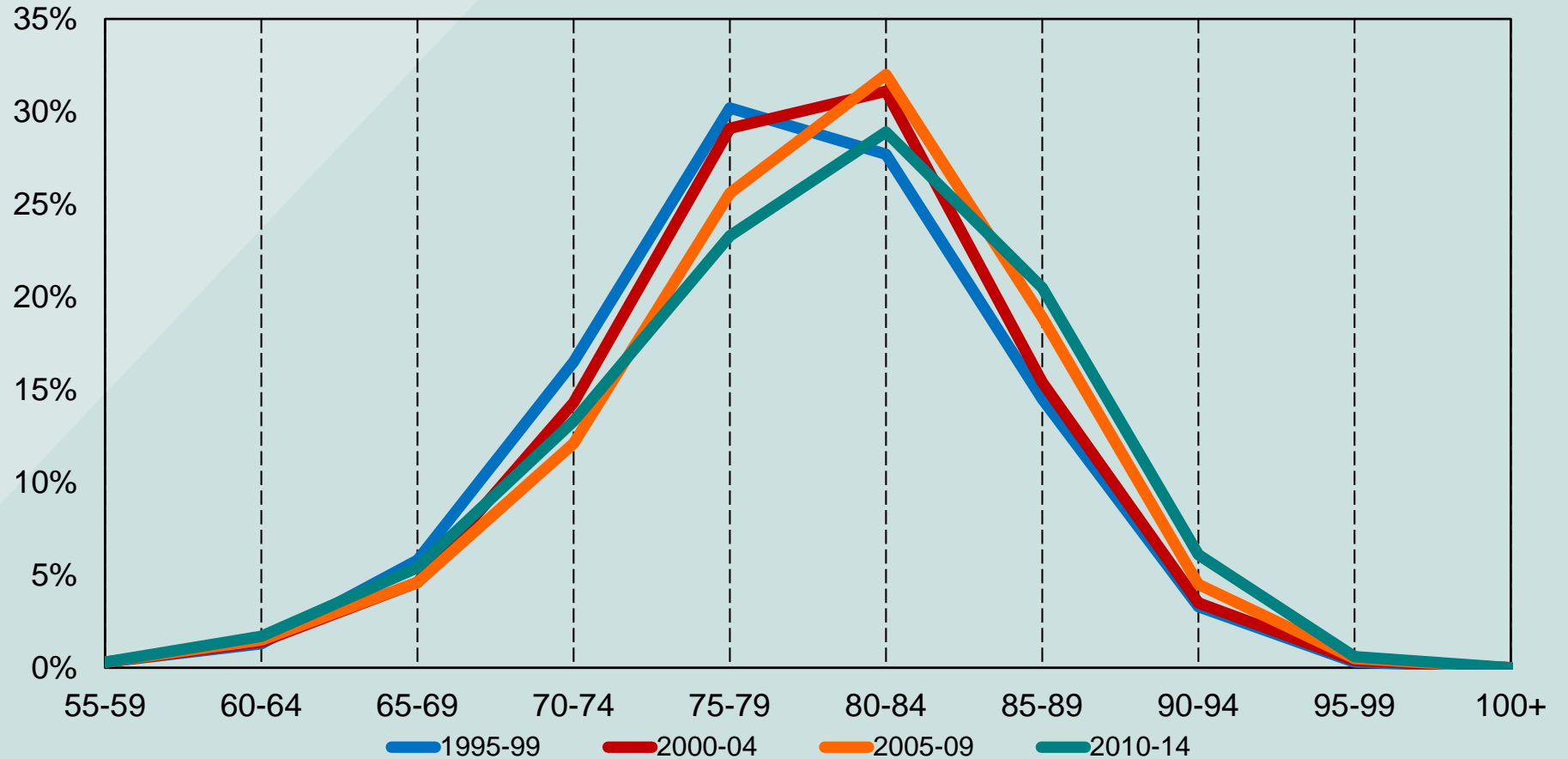
Average Entry Age Since 2000



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Female Entry Age Distribution



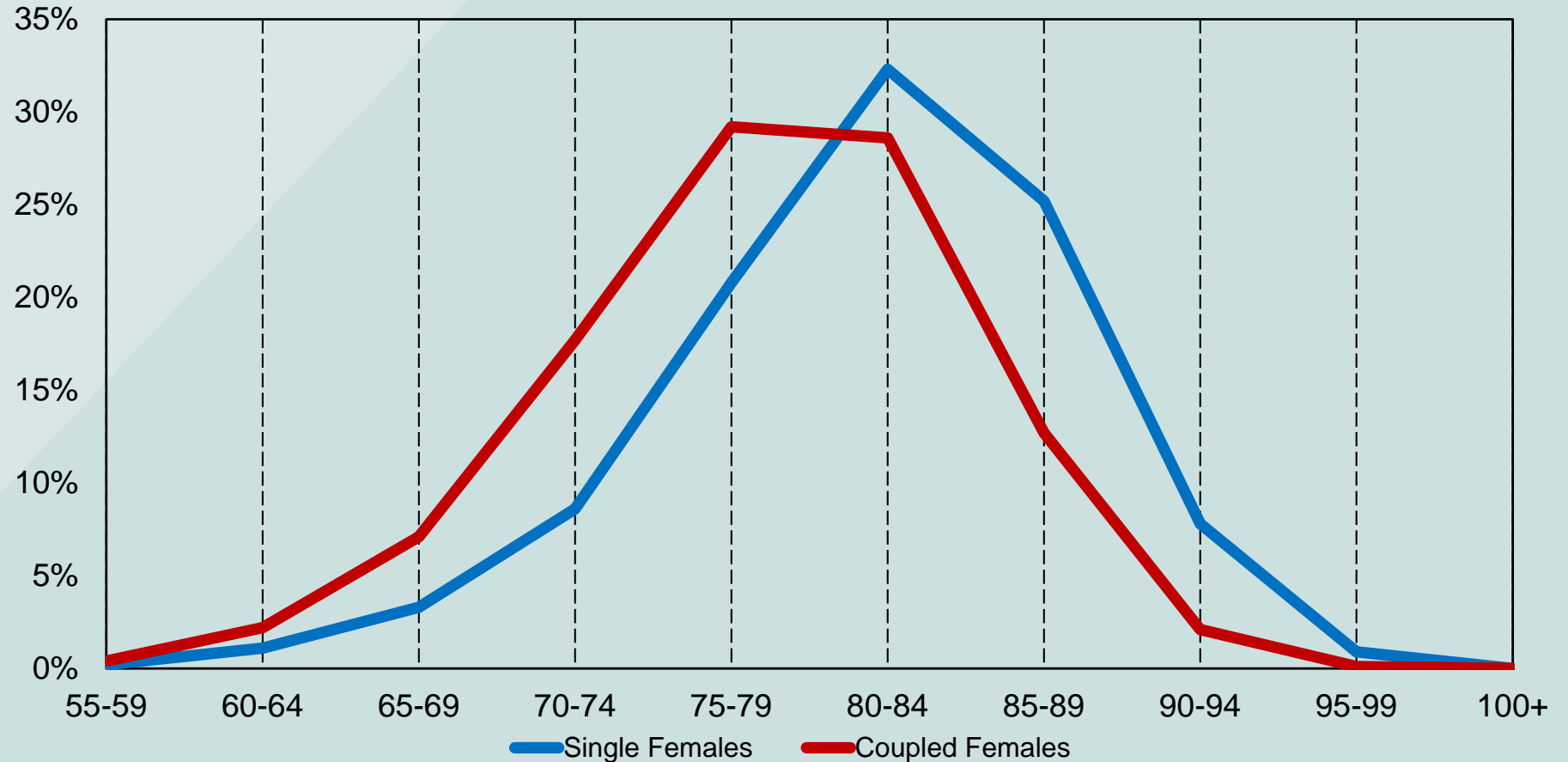
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Observation Period = 2005 to 2014

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Entry Age by Couple Status



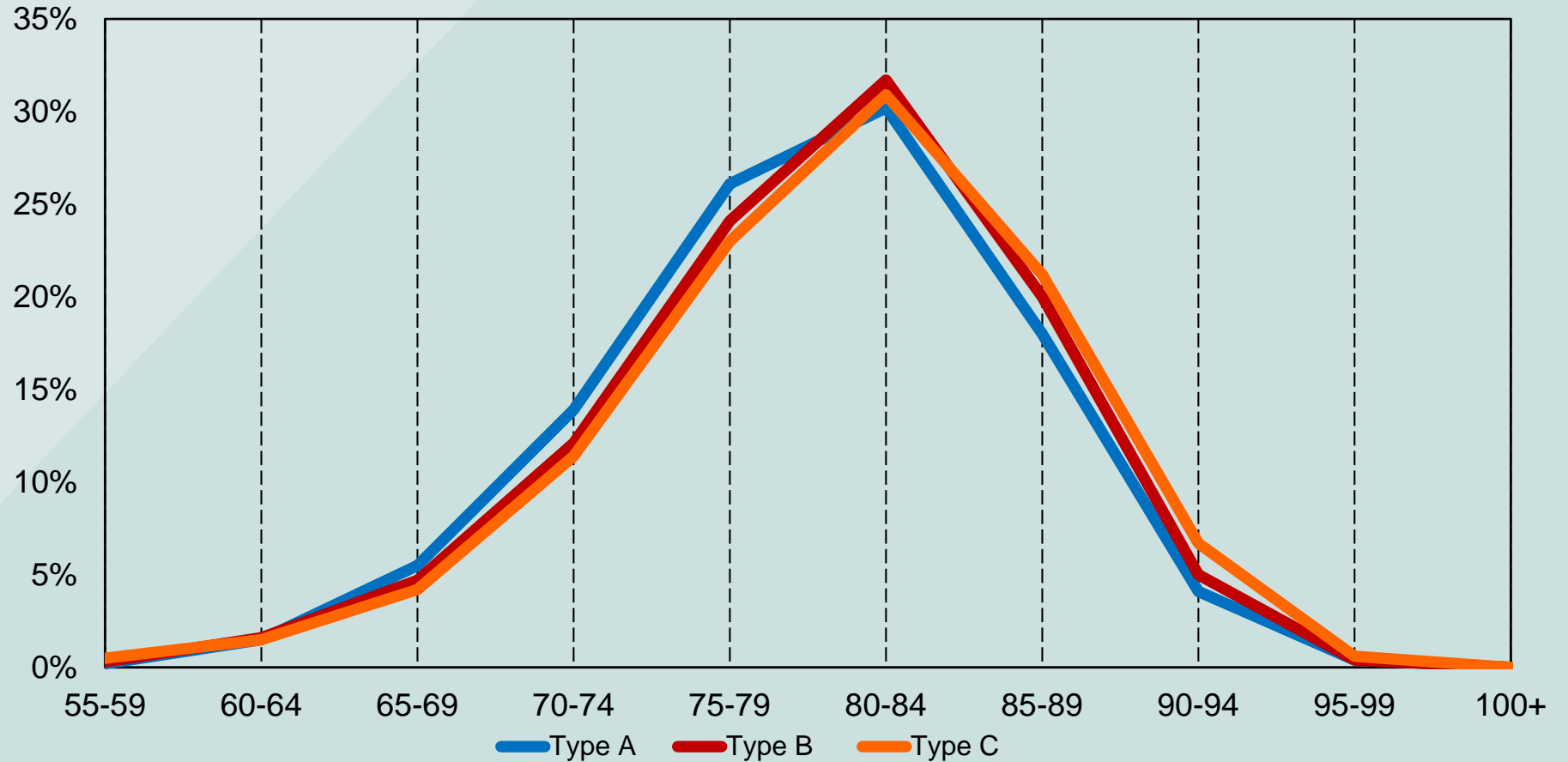
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Observation Period = 2005 to 2014

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Entry Age by Contract Type



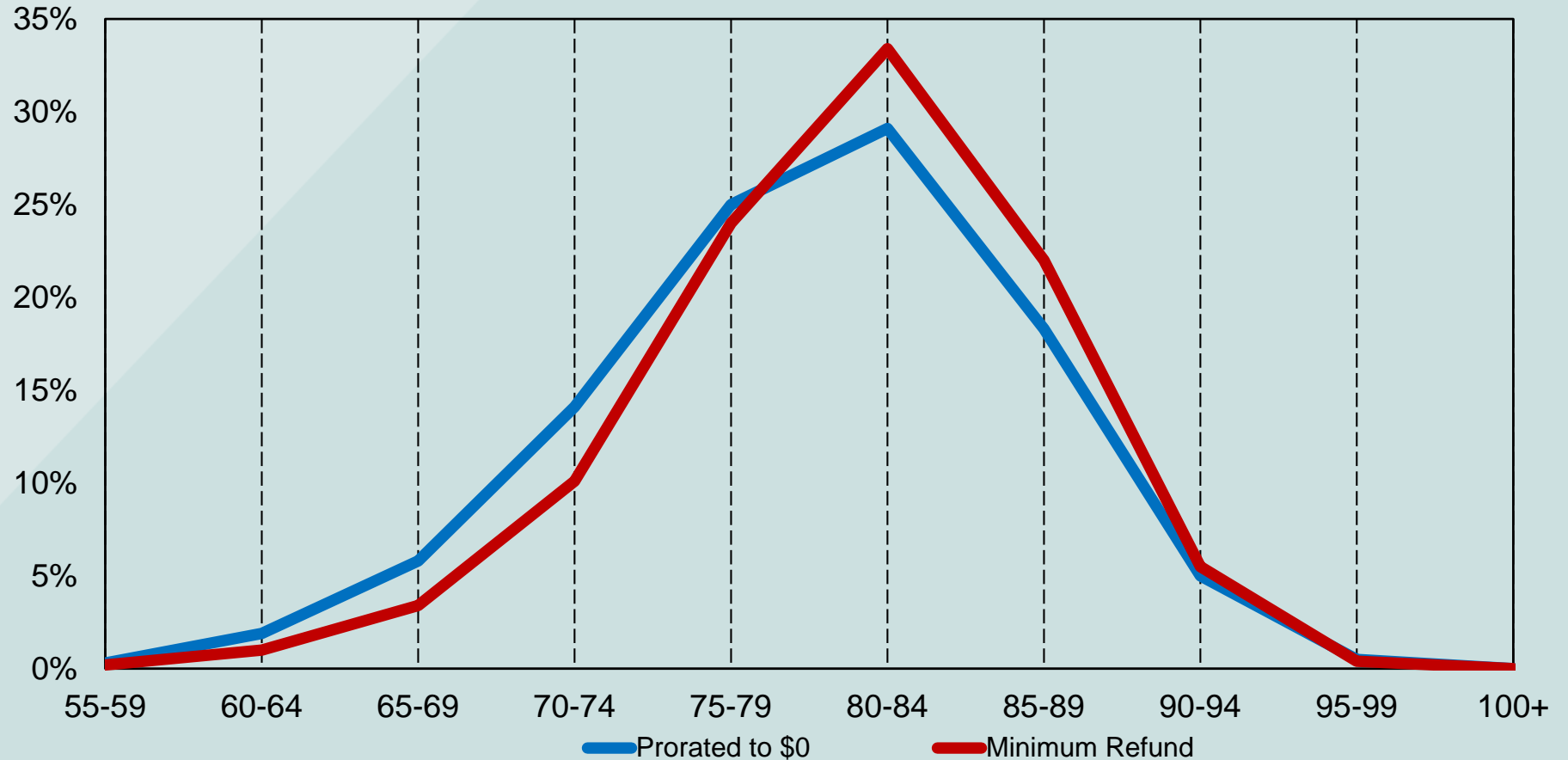
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Observation Period = 2005 to 2014

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Entry Age by Refund Type



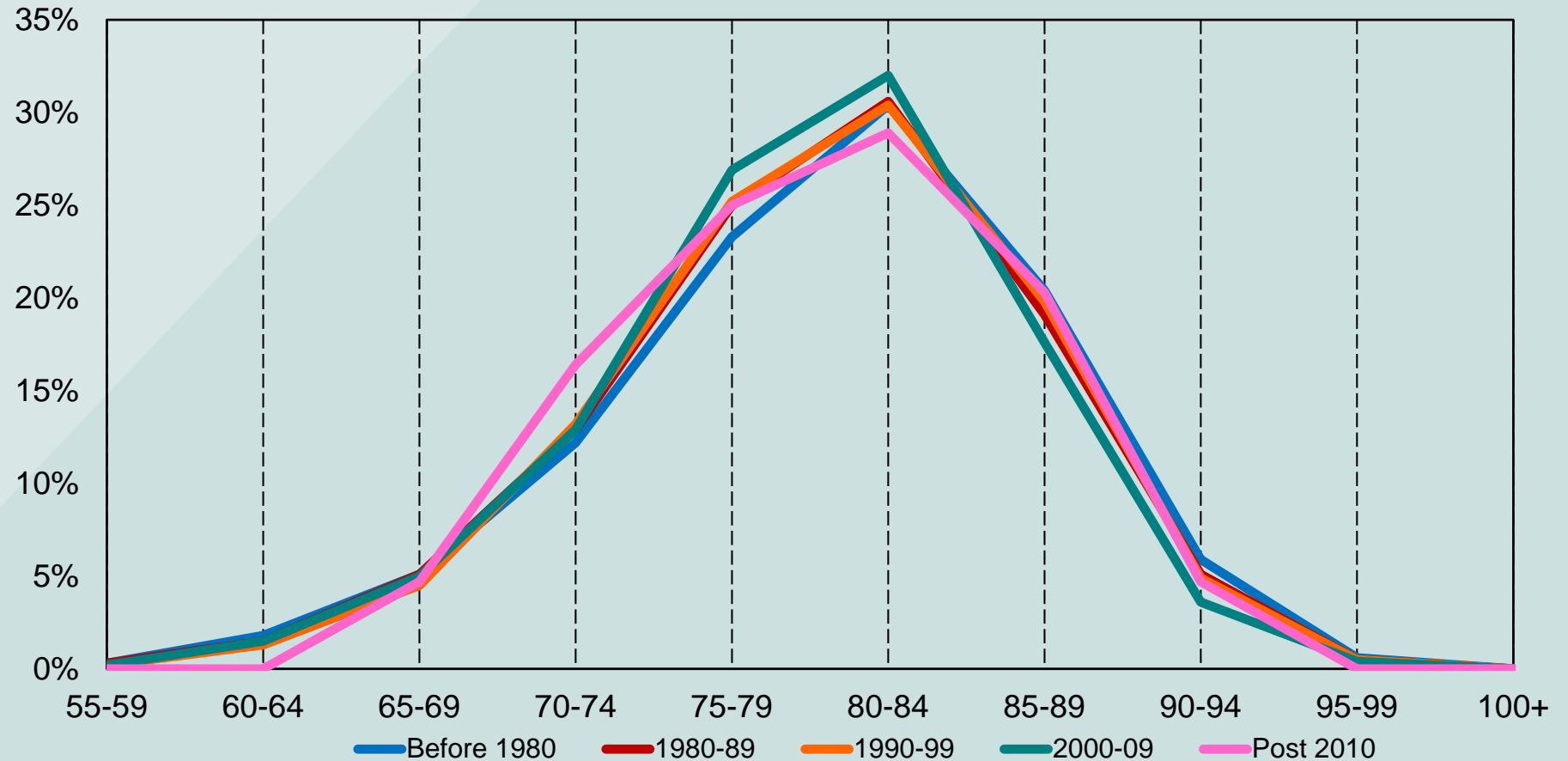
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Observation Period = 2005 to 2014

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Entry Age by Facility Opening



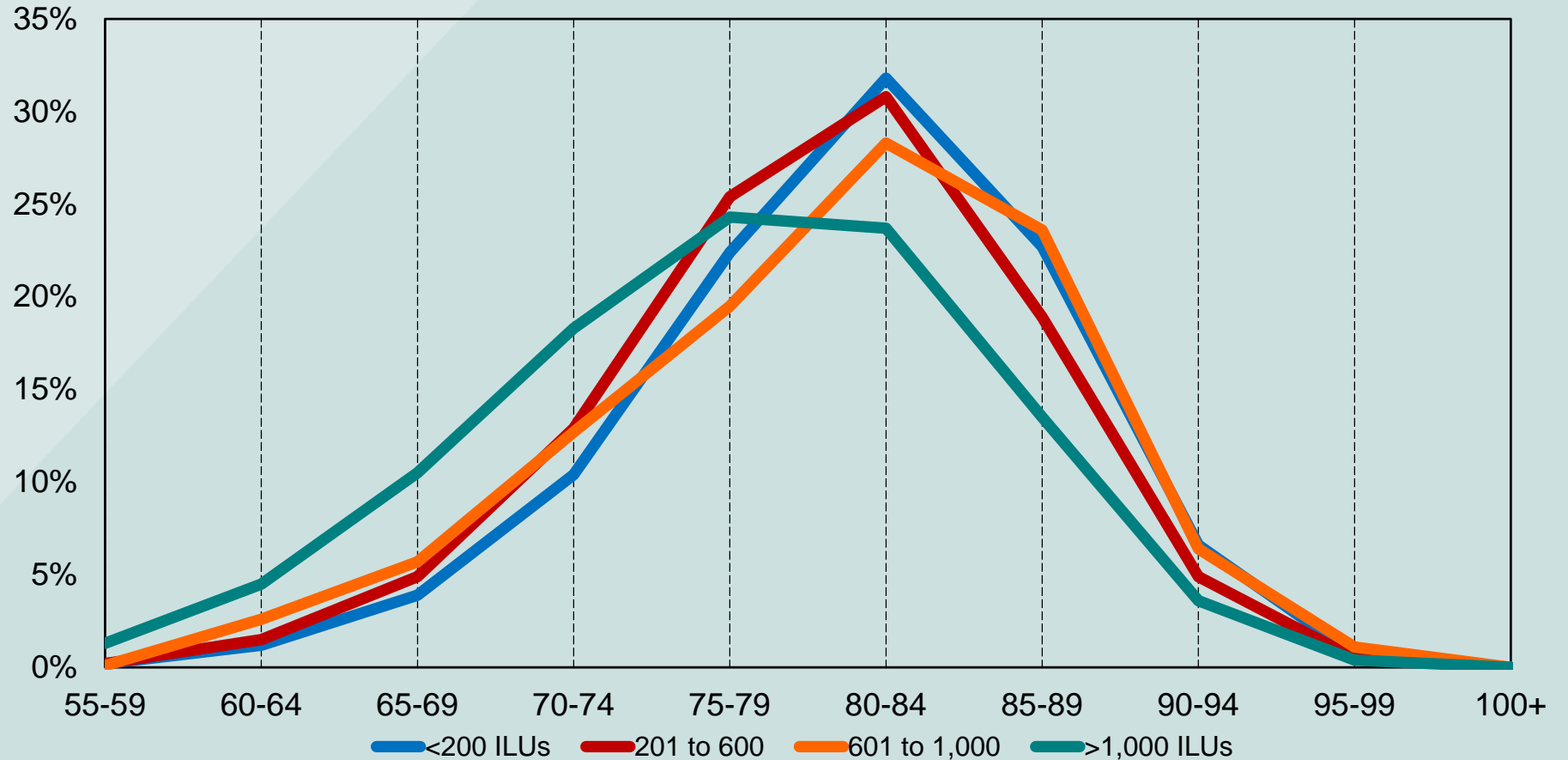
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Observation Period = 2005 to 2014

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Entry Age by Facility Size



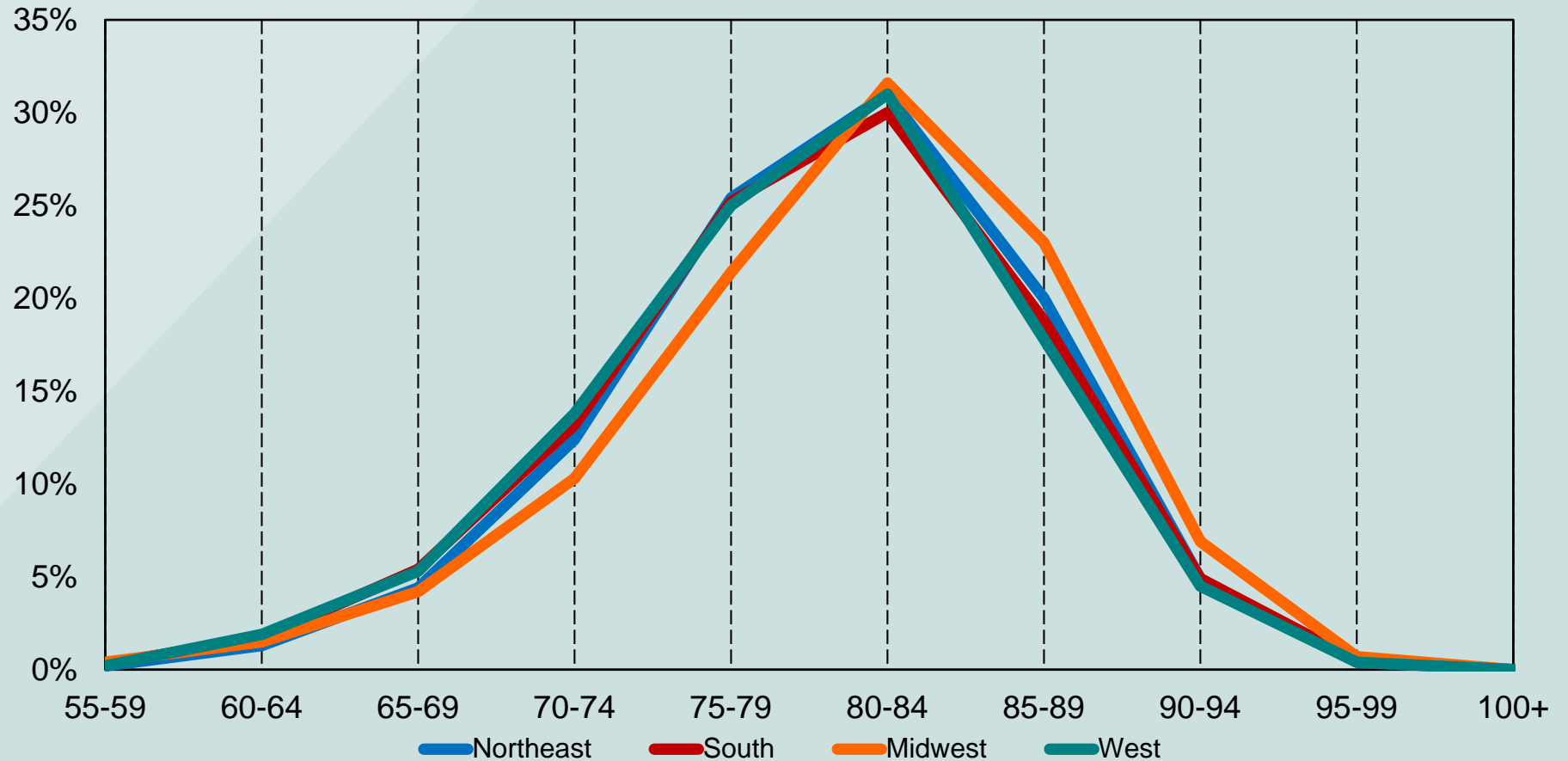
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Observation Period = 2005 to 2014

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Entry Age by Region



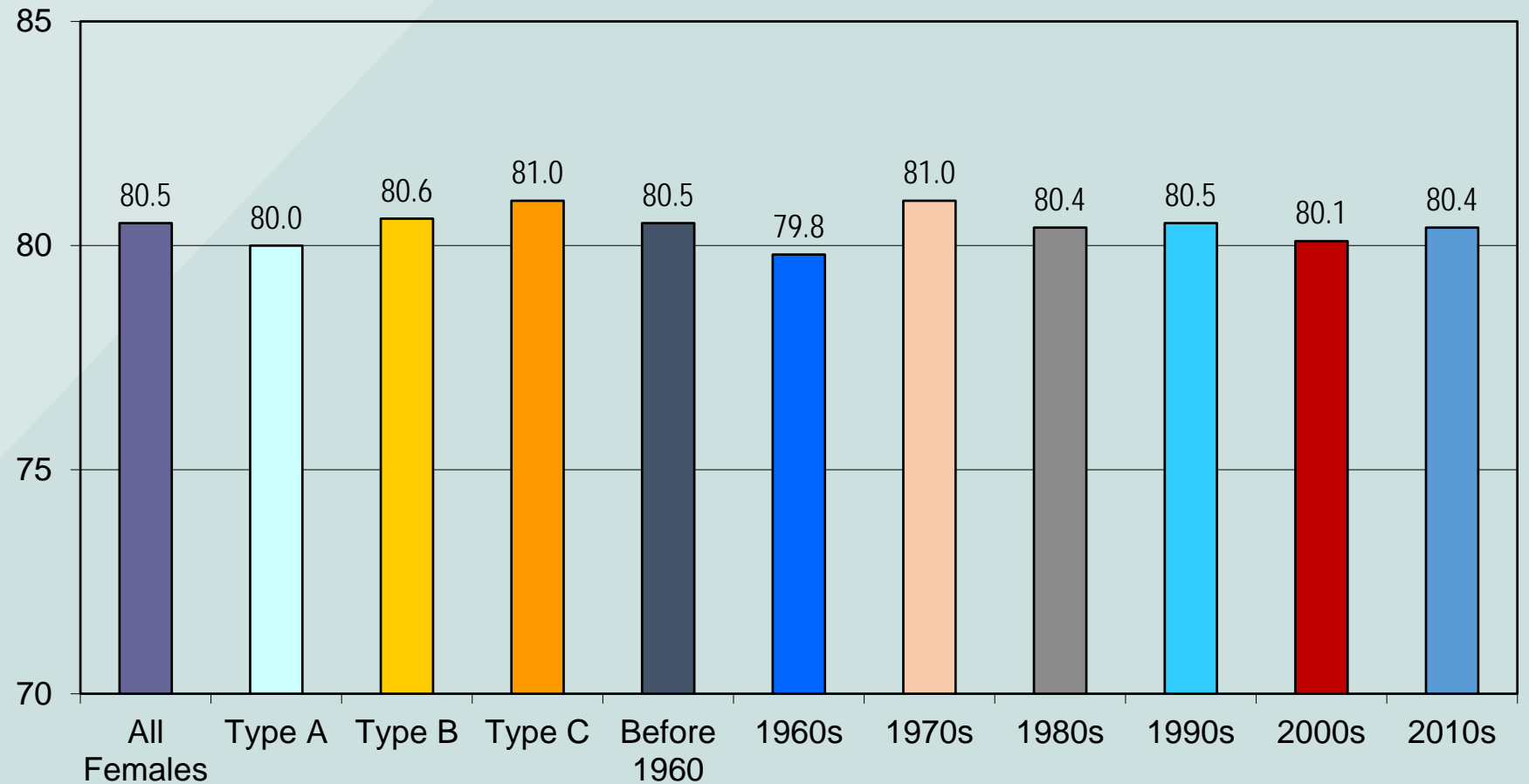
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Observation Period = 2005 to 2014

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Comparison of Average Entry Ages

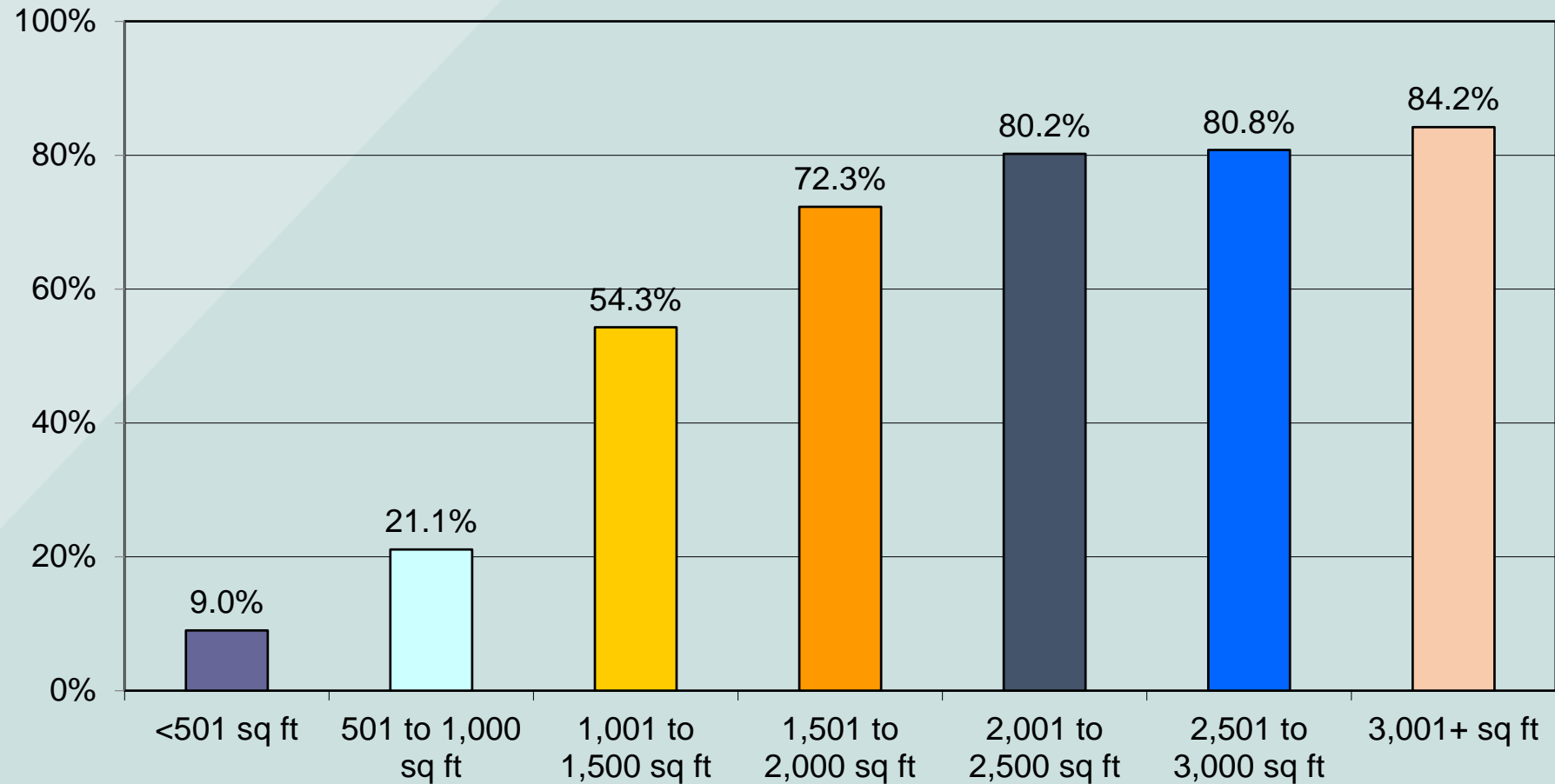


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Observation Period = 2005 to 2014

Double Occupancy Probability



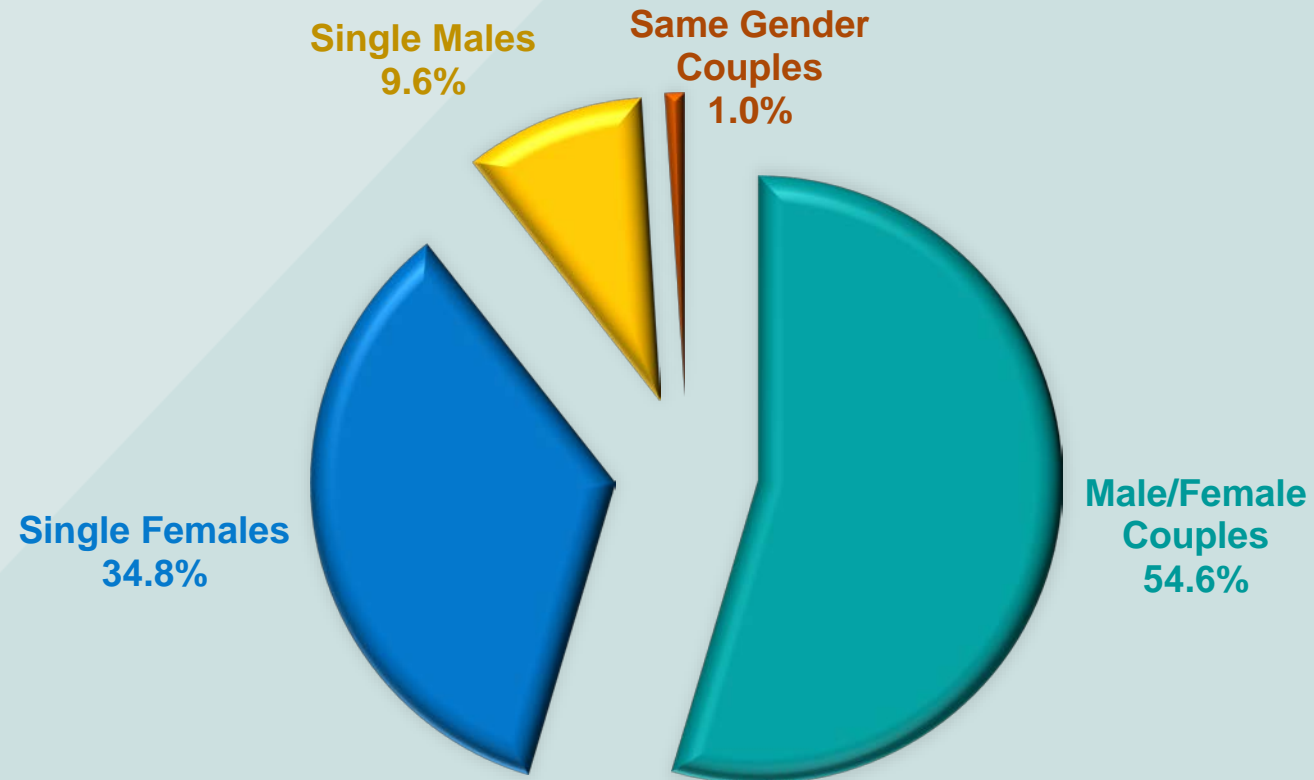
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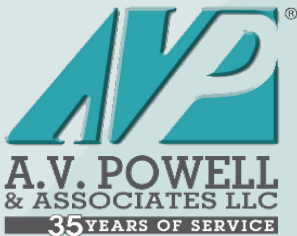
Observation Period = 2005 to 2014

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Gender Distribution



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Observation Period = 2005 to 2014

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Database Description

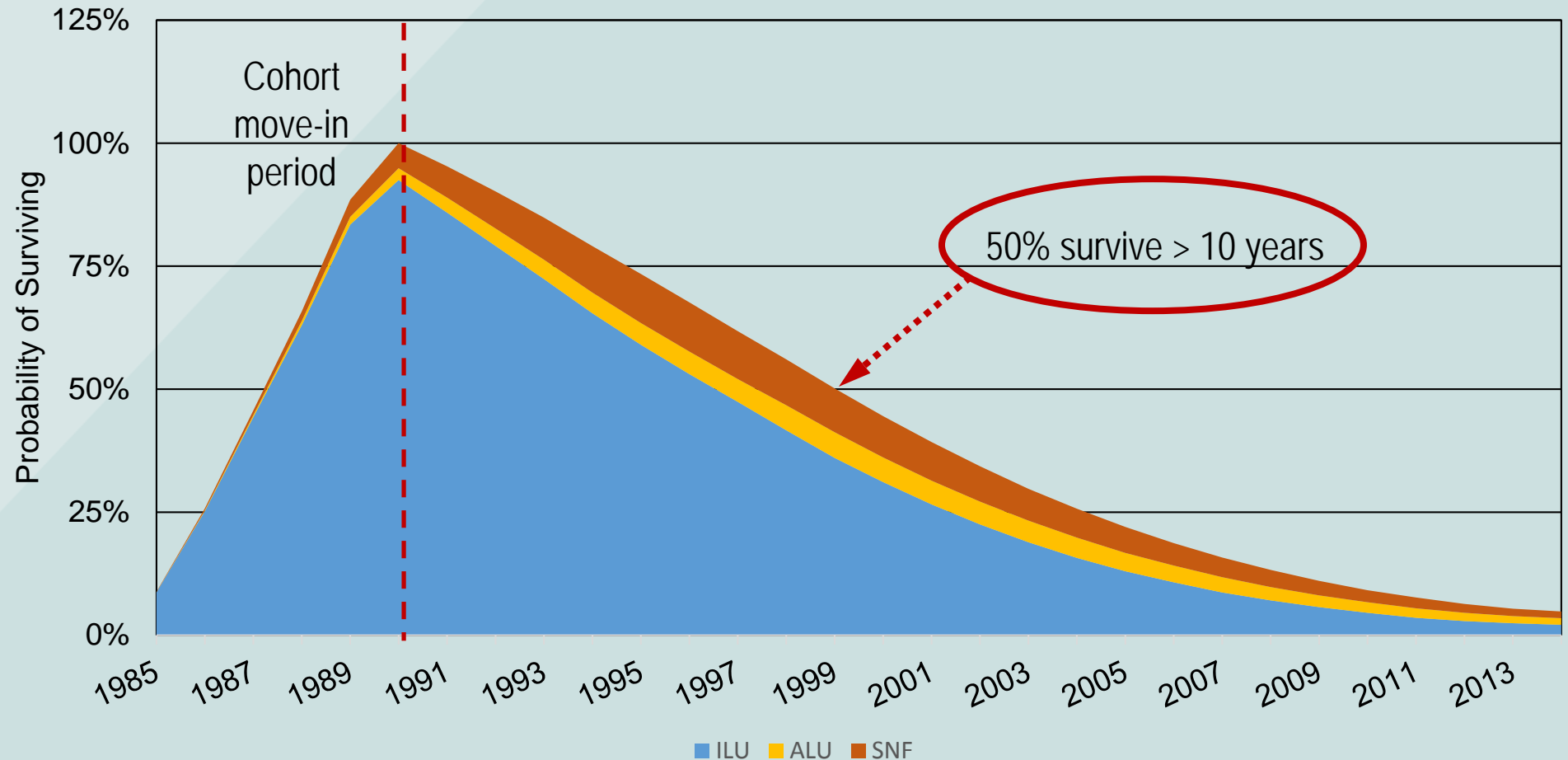
1. Closed cohort; entrants between 1950 and 1989
2. Nearly 57,000 deaths
3. 72% female and 28% male
4. 56% single and 44% w/roommate (28% of units)

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Empirical Survivorship Curve

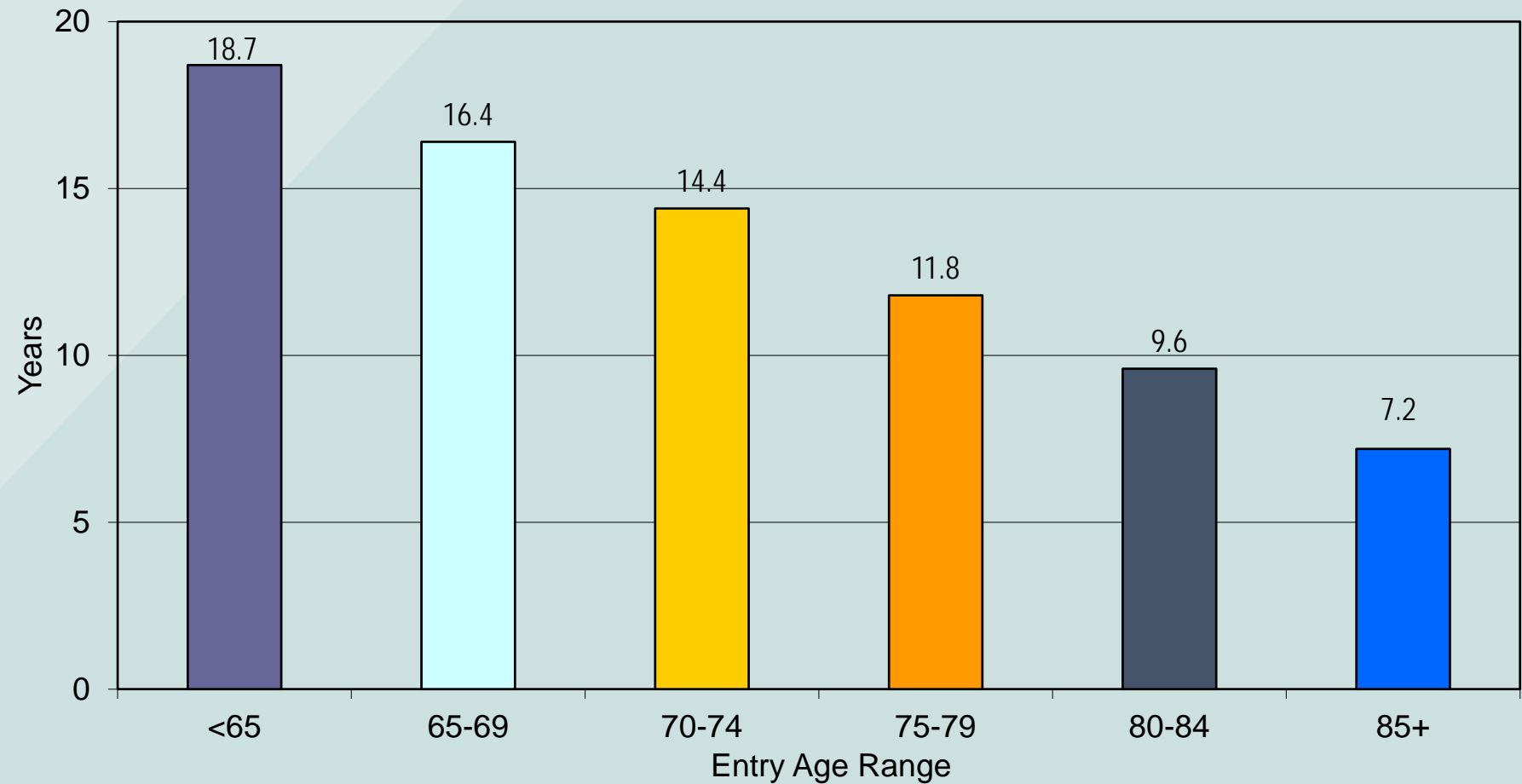
Female Entrants between 1985 and 1989
N = 18,321 and Average Age = 77.4



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Female Average LOS in CCRC



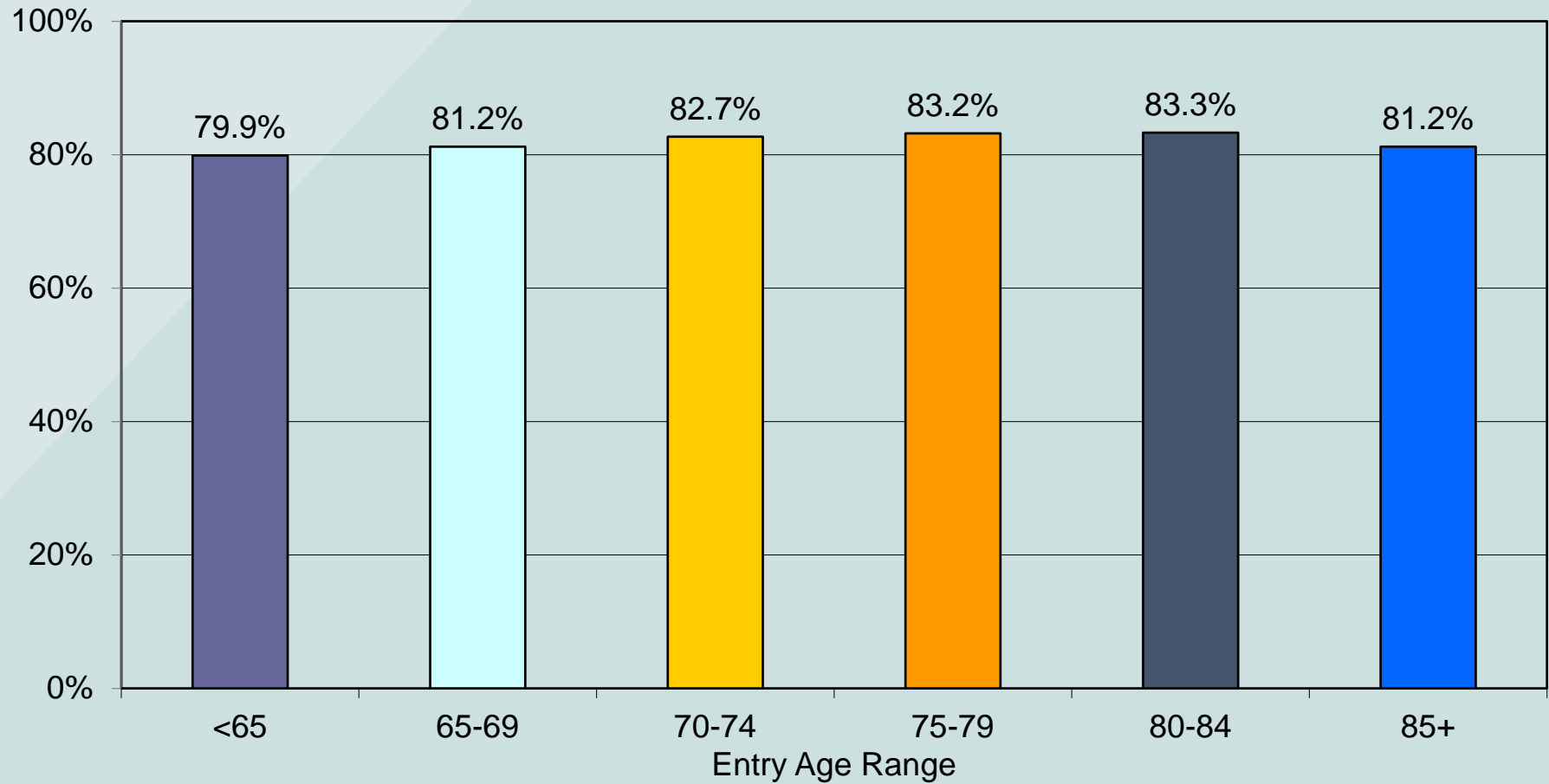
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Observation Period = Female entrants before 1990

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Pr{Any Health Care Transfer}



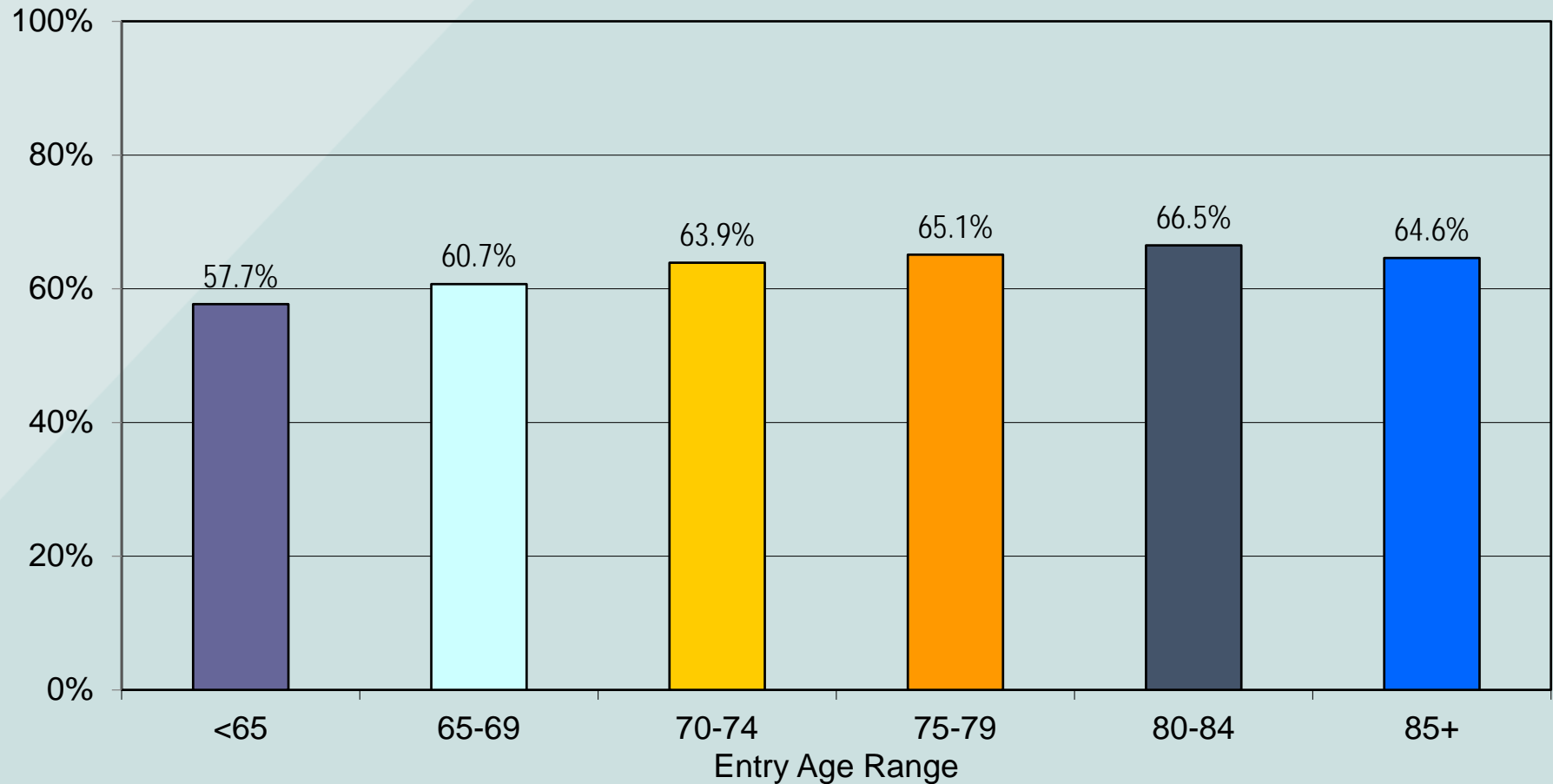
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Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION – 18

Pr{Perm Health Care Transfer}



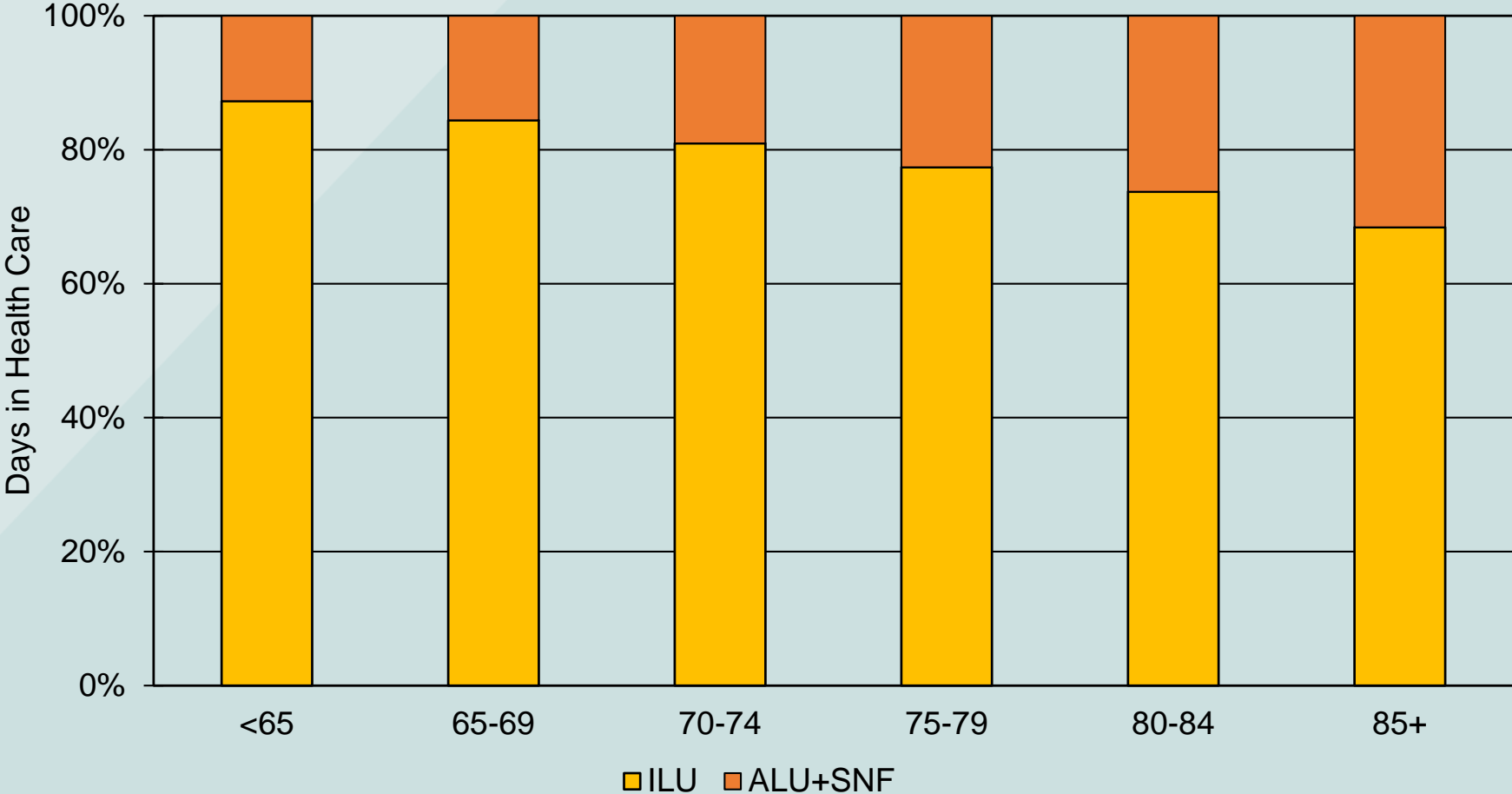
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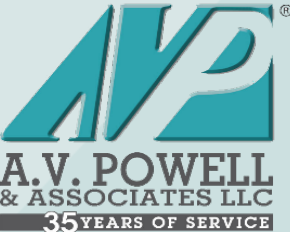
Observation Period = Female entrants before 1990

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% Lifetime in ALU+SNF

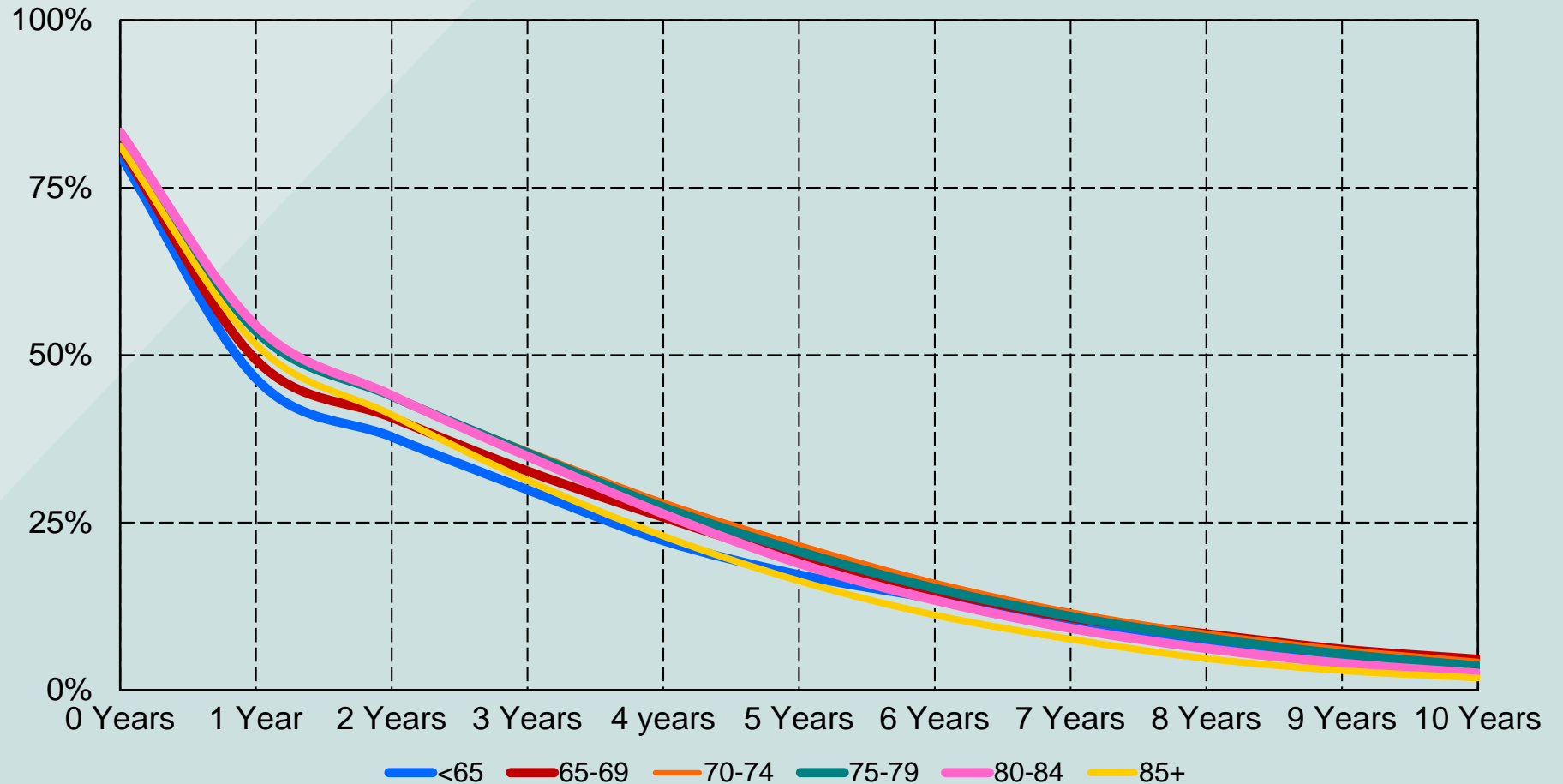


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Observation Period = Female entrants before 1990

Distribution of Health Care Usage



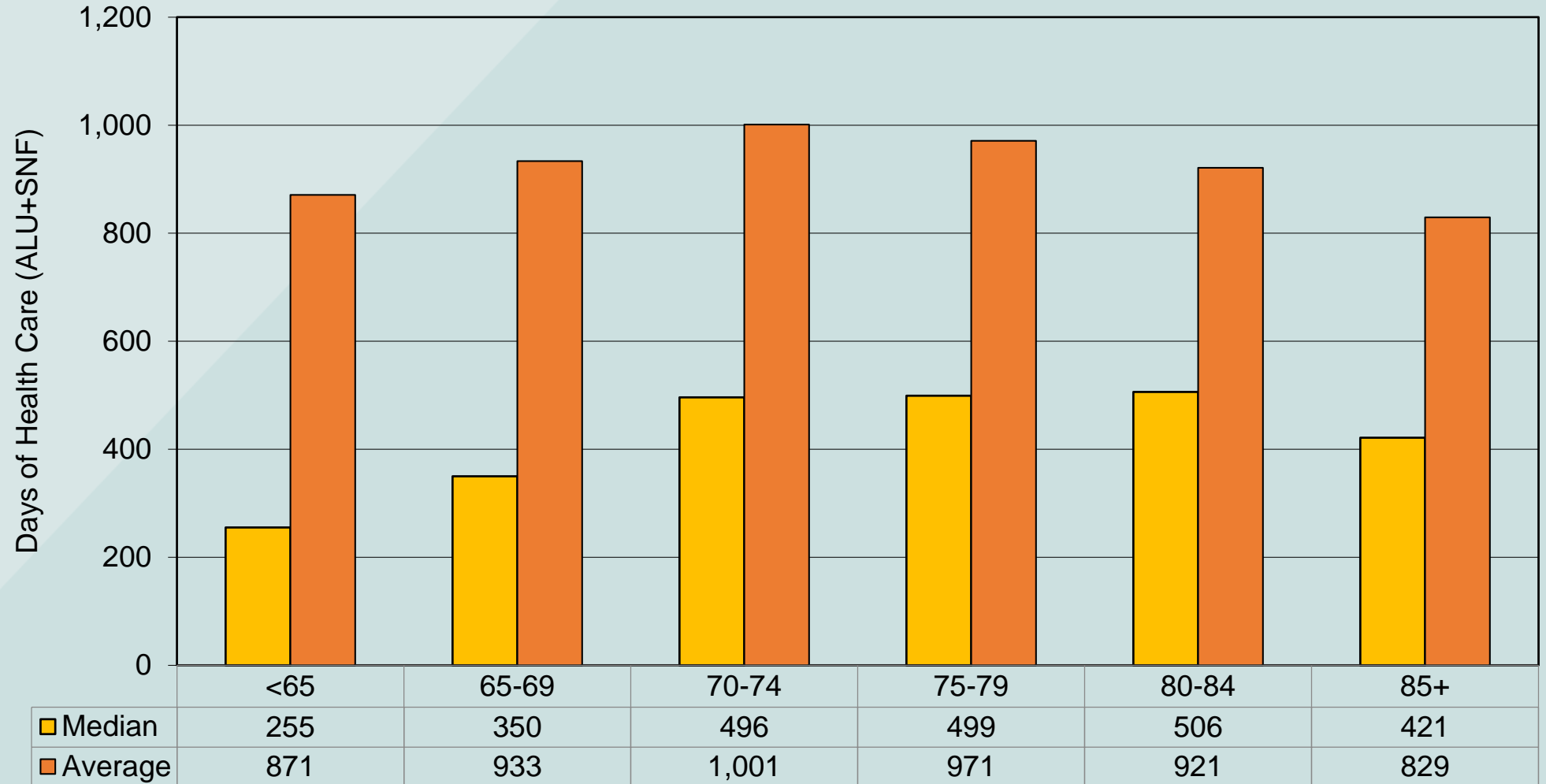
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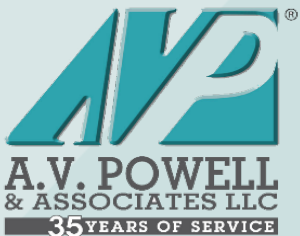
Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION - 21

Median & Average Health Care Usage



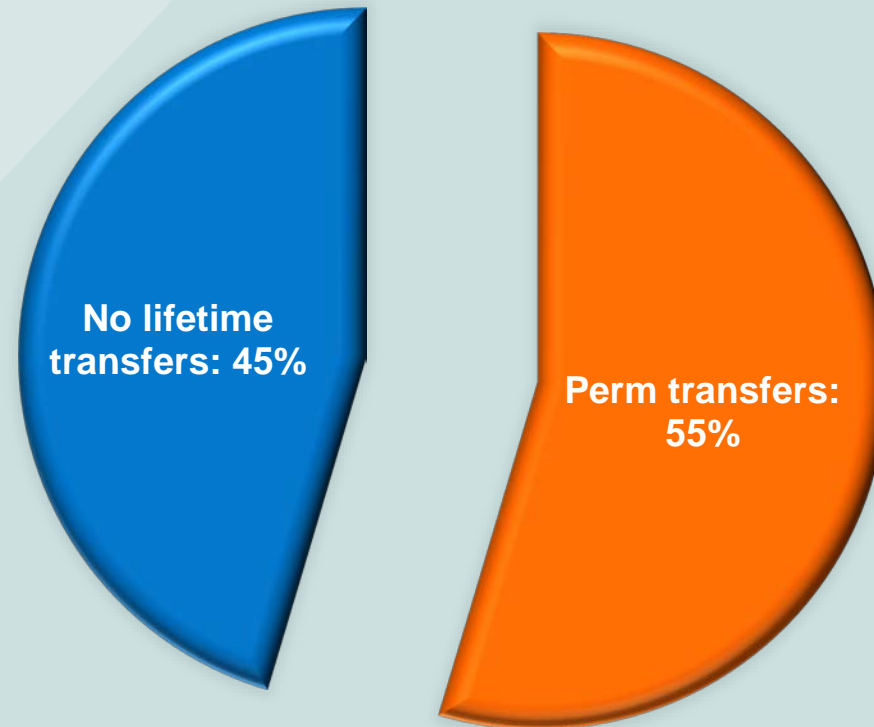
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Observation Period = Female entrants before 1990

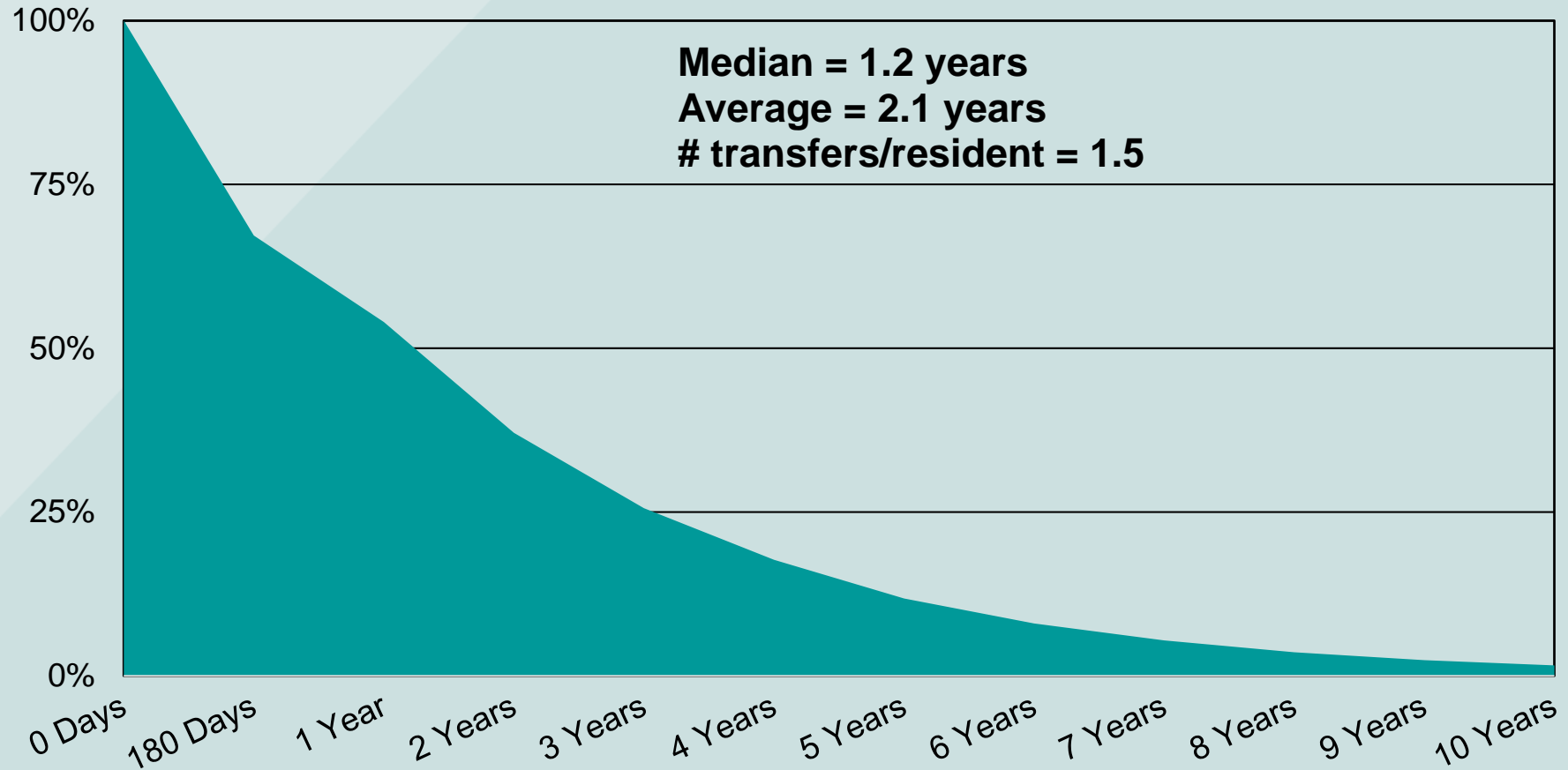
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Pr{Perm Nursing Transfer}



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Permanent Nursing LOS



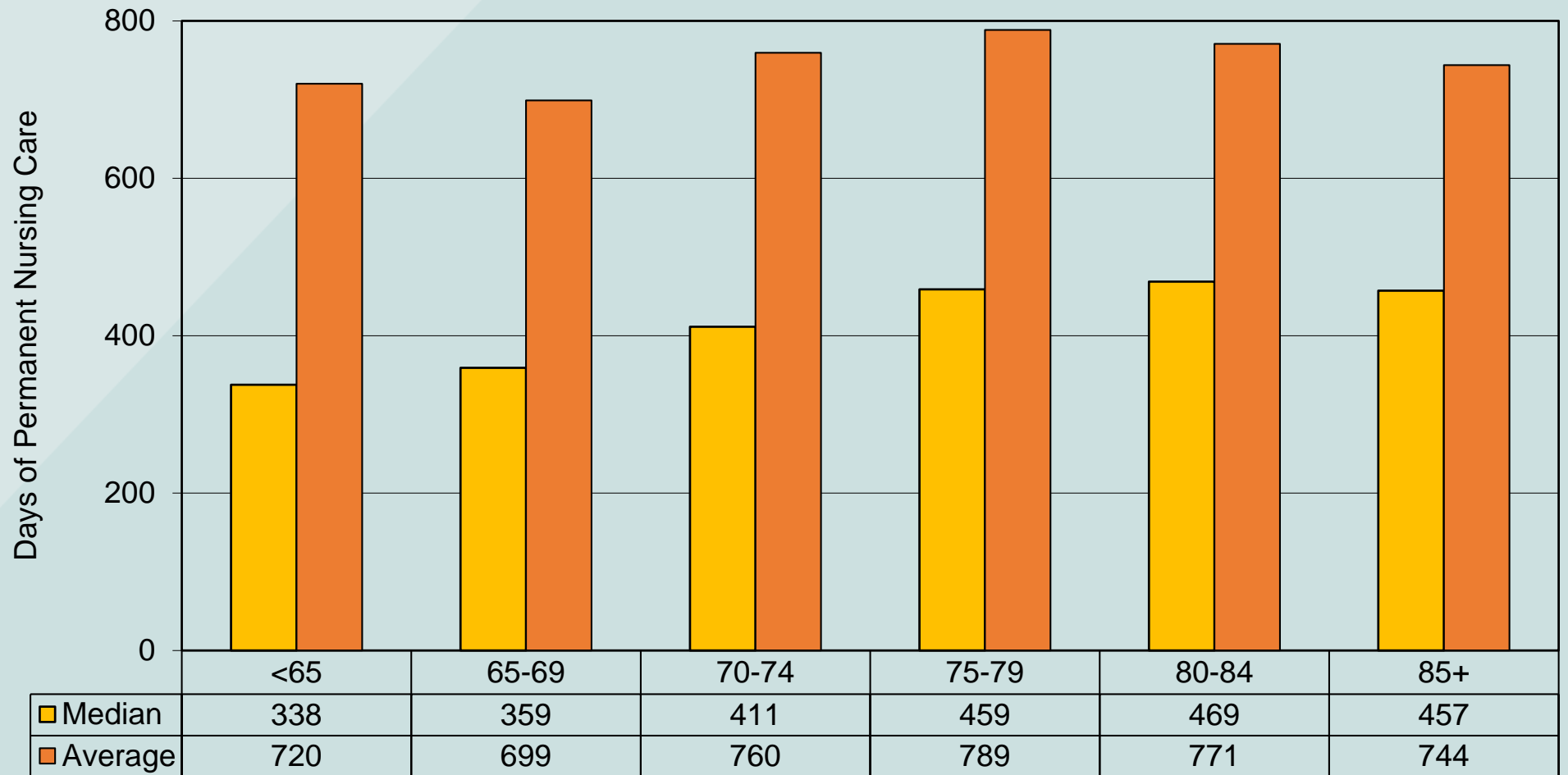
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Observation Period = Female entrants before 1990

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Median & Average Perm Nursing LOS



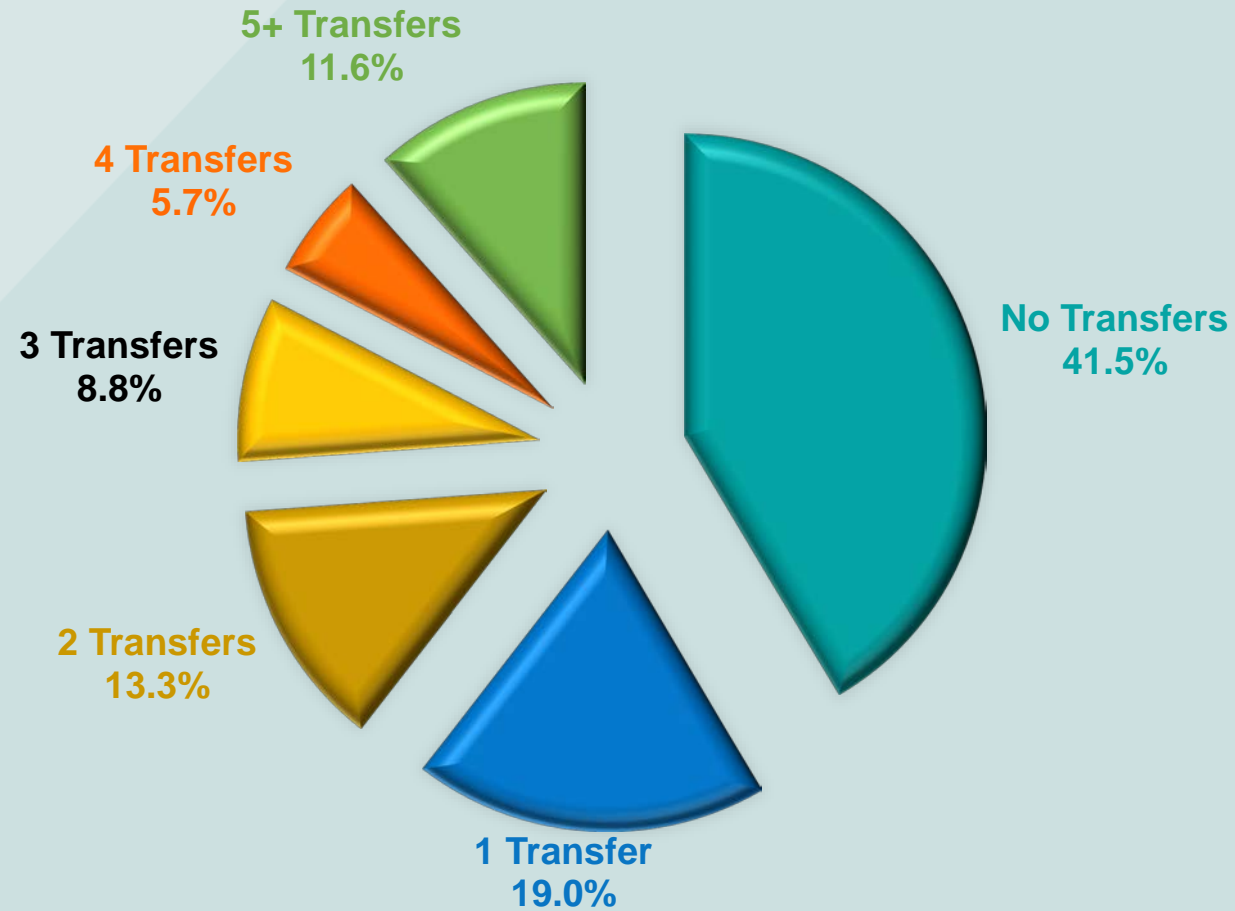
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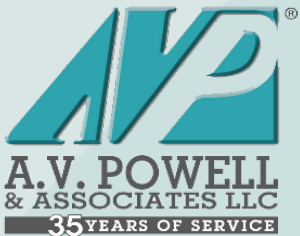
Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION - 25

Pr{Temp Nursing Transfer}



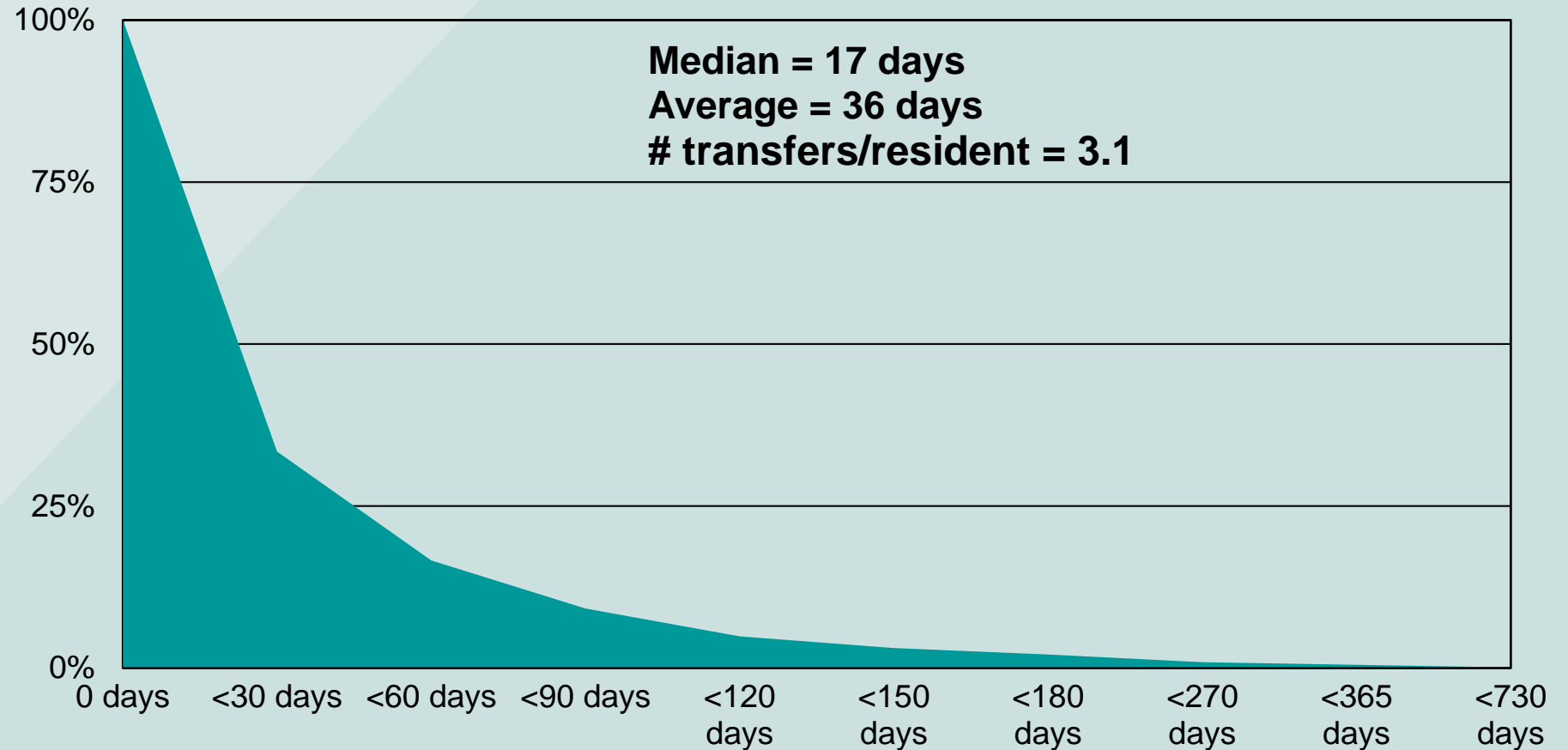
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Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION - 26

Temporary Nursing LOS



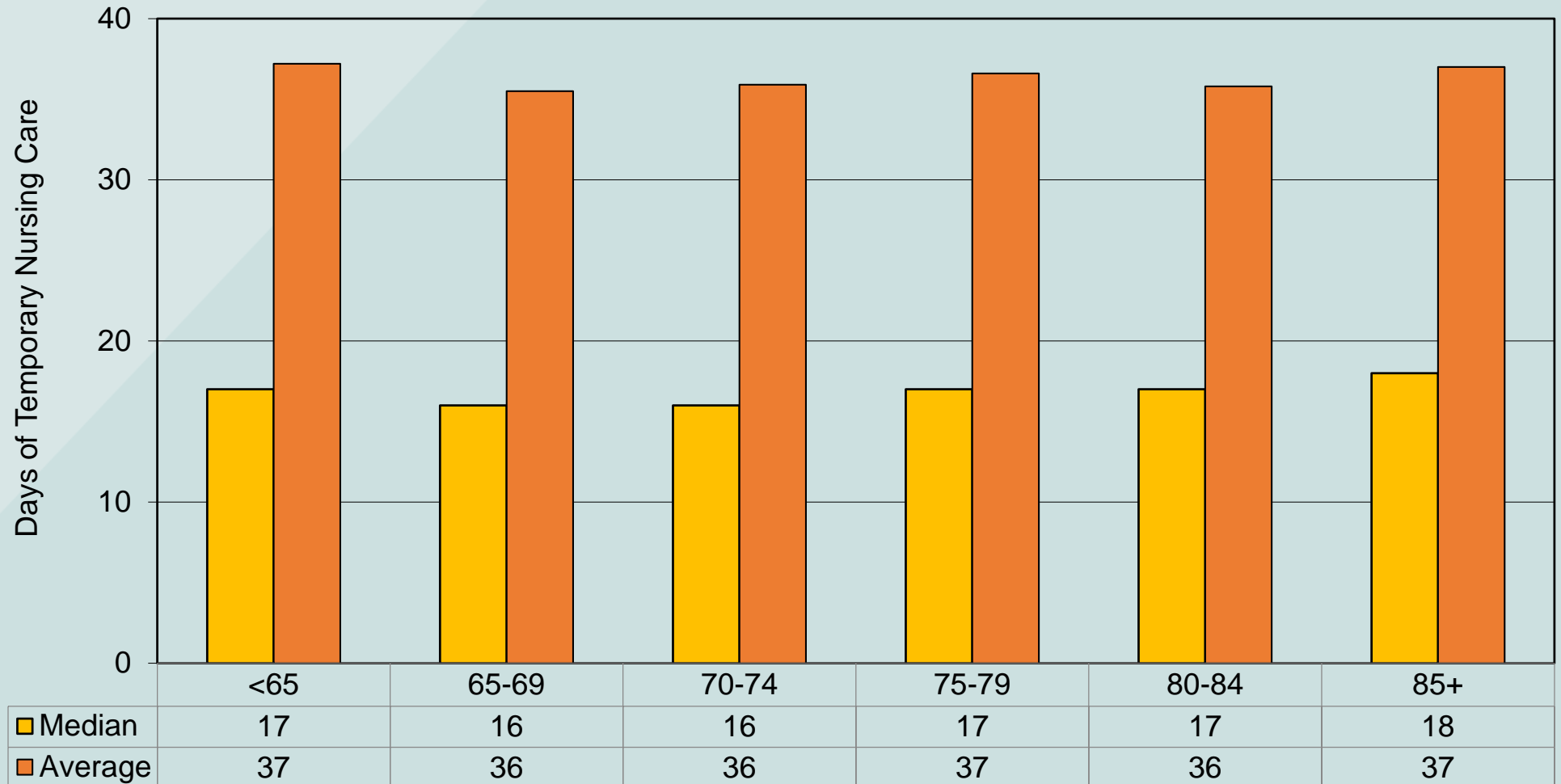
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Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION - 27

Median & Average Temp Nursing LOS



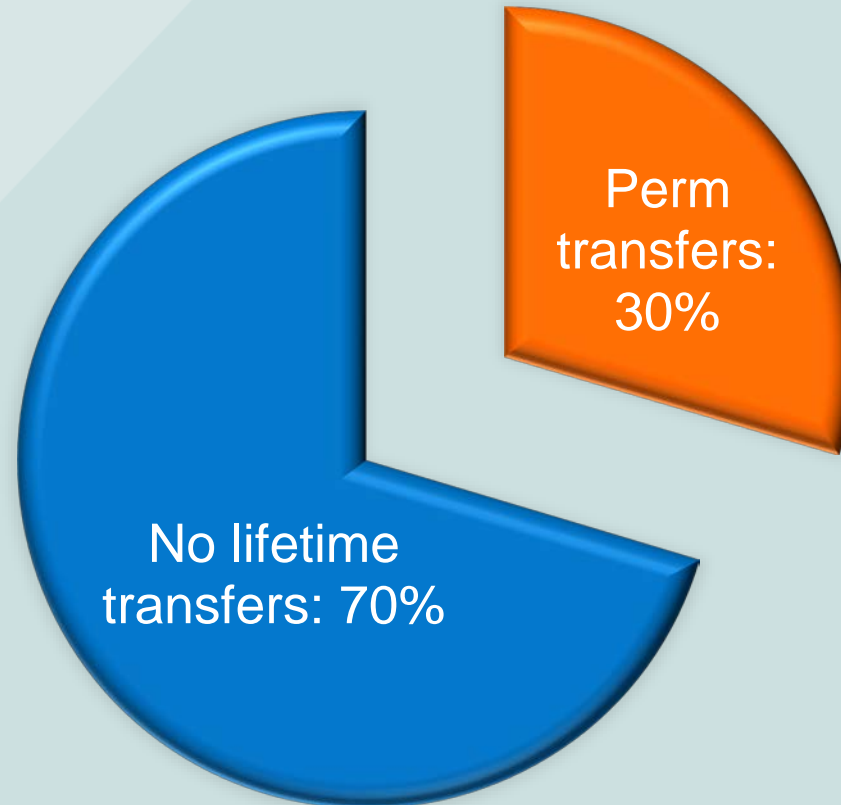
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Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION – 28

Pr{Assisted Living Transfer}



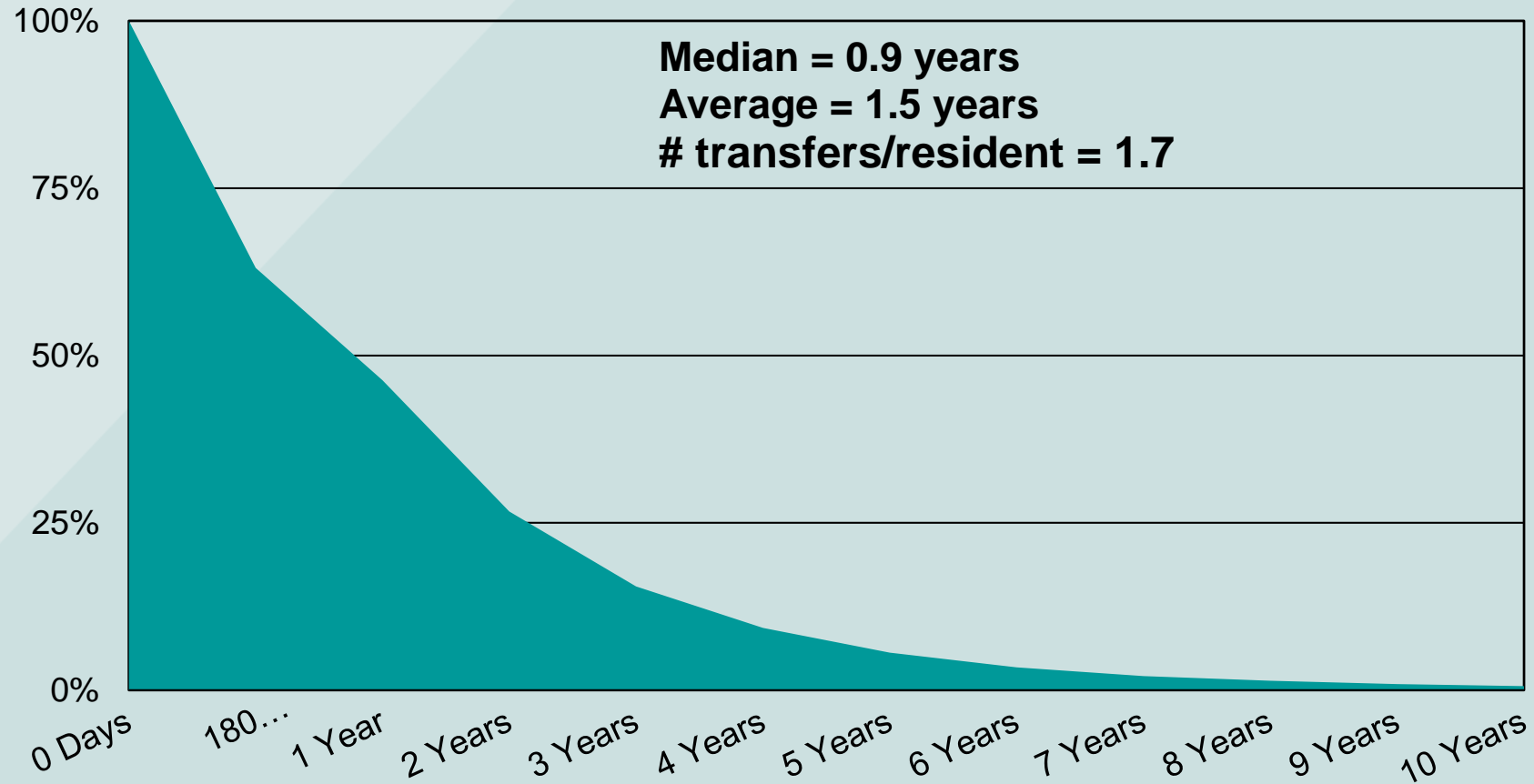
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Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION - 29

Perm Assisted Living LOS



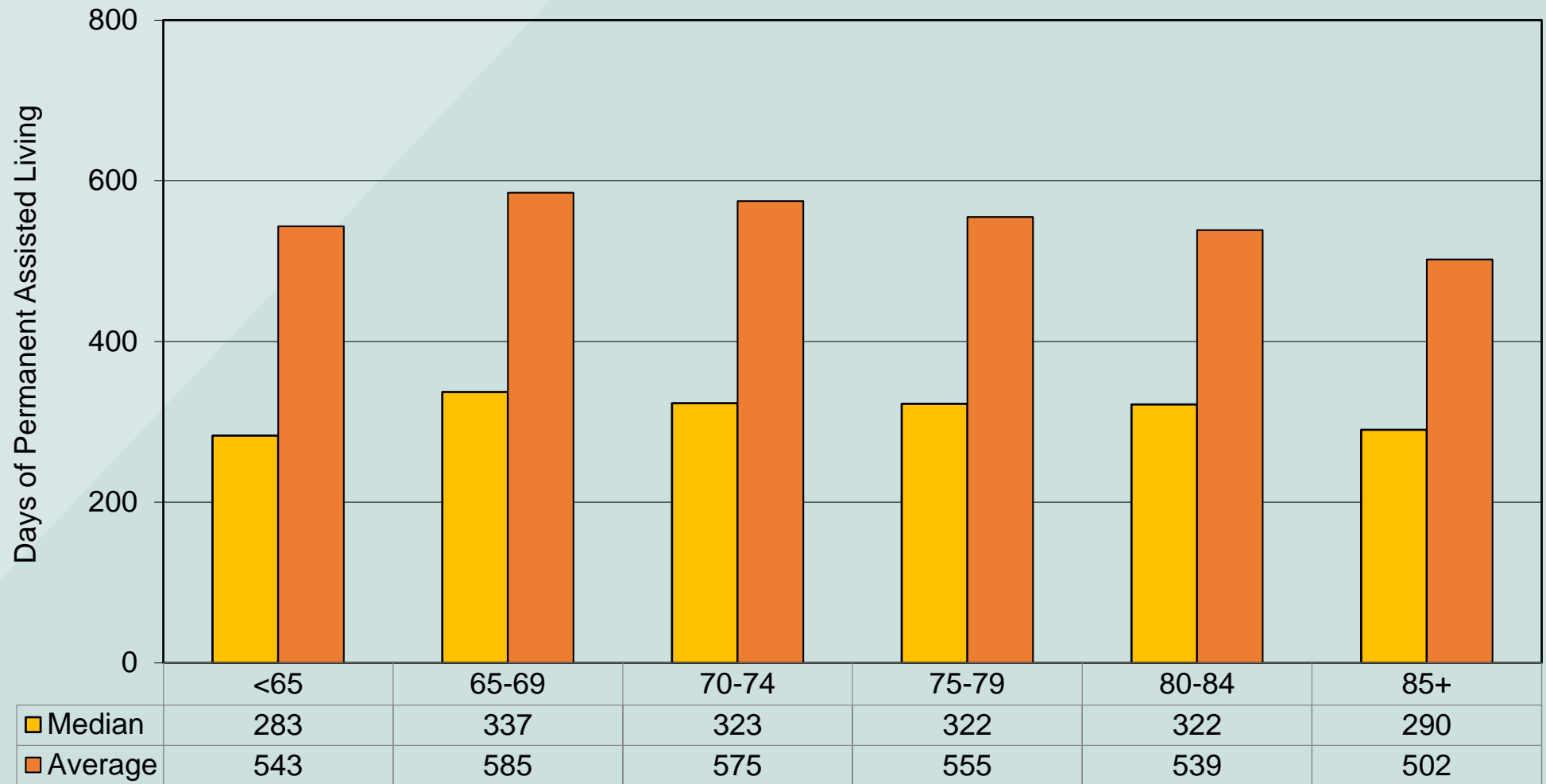
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Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION - 30

Median & Avg. Perm Assisted Living LOS



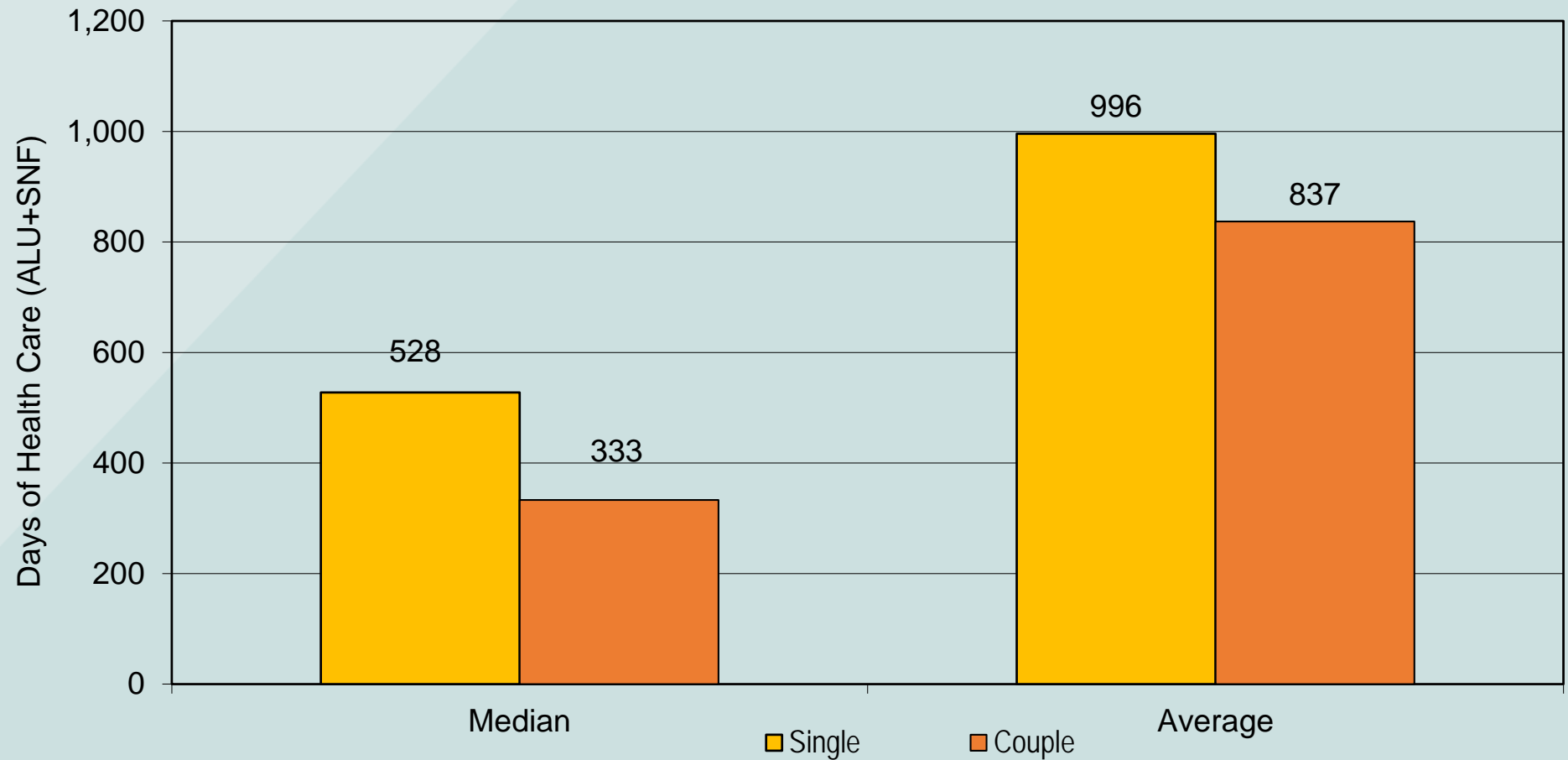
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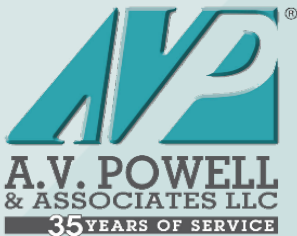
Observation Period = Female entrants before 1990

CCRC DEMOGRAPHICS & UTILIZATION – 31

Single versus Couple Health Care Usage



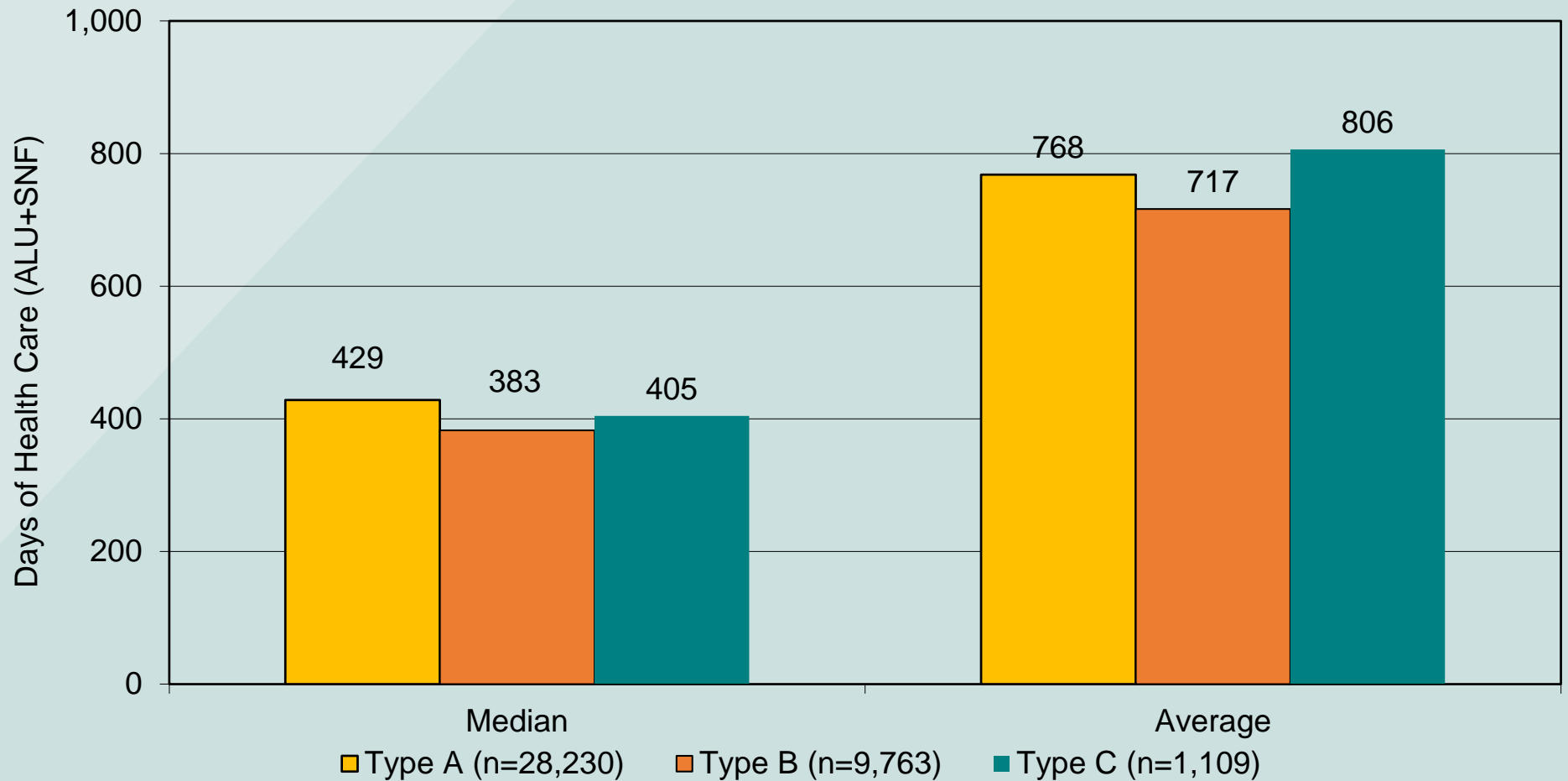
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Observation Period = Female entrants before 1990

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Perm Health Care LOS by Contract Type



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Observation Period = Female entrants before 1990

Trends in Health Care Usage

1. Female entrants between 1980 and 2009
2. Divided into six (6) 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. Solution is combining frequency and severity to show average length of stay per resident

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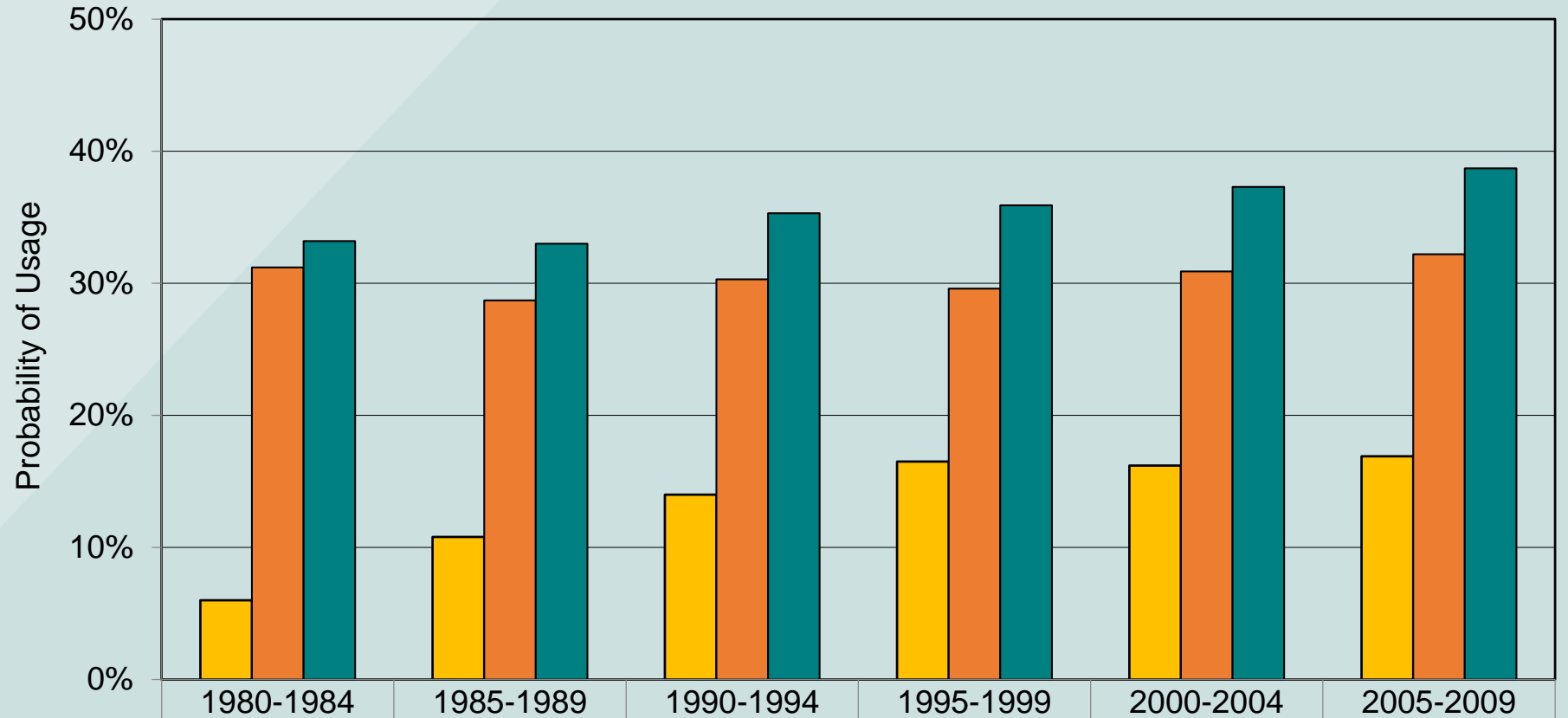
Entry Cohort Group Description

| Entry Years | End of Observation Period | Number of Female of Records | Average Age at Entry |
|-------------|---------------------------|-----------------------------|----------------------|
| 1980 – 1984 | 1987 | 13,008 | 77.1 |
| 1985 – 1989 | 1992 | 18,336 | 77.4 |
| 1990 – 1994 | 1997 | 23,876 | 78.3 |
| 1995 – 1999 | 2002 | 26,275 | 79.2 |
| 2000 – 2004 | 2007 | 31,291 | 79.7 |
| 2005 – 2009 | 2012 | 30,103 | 80.4 |

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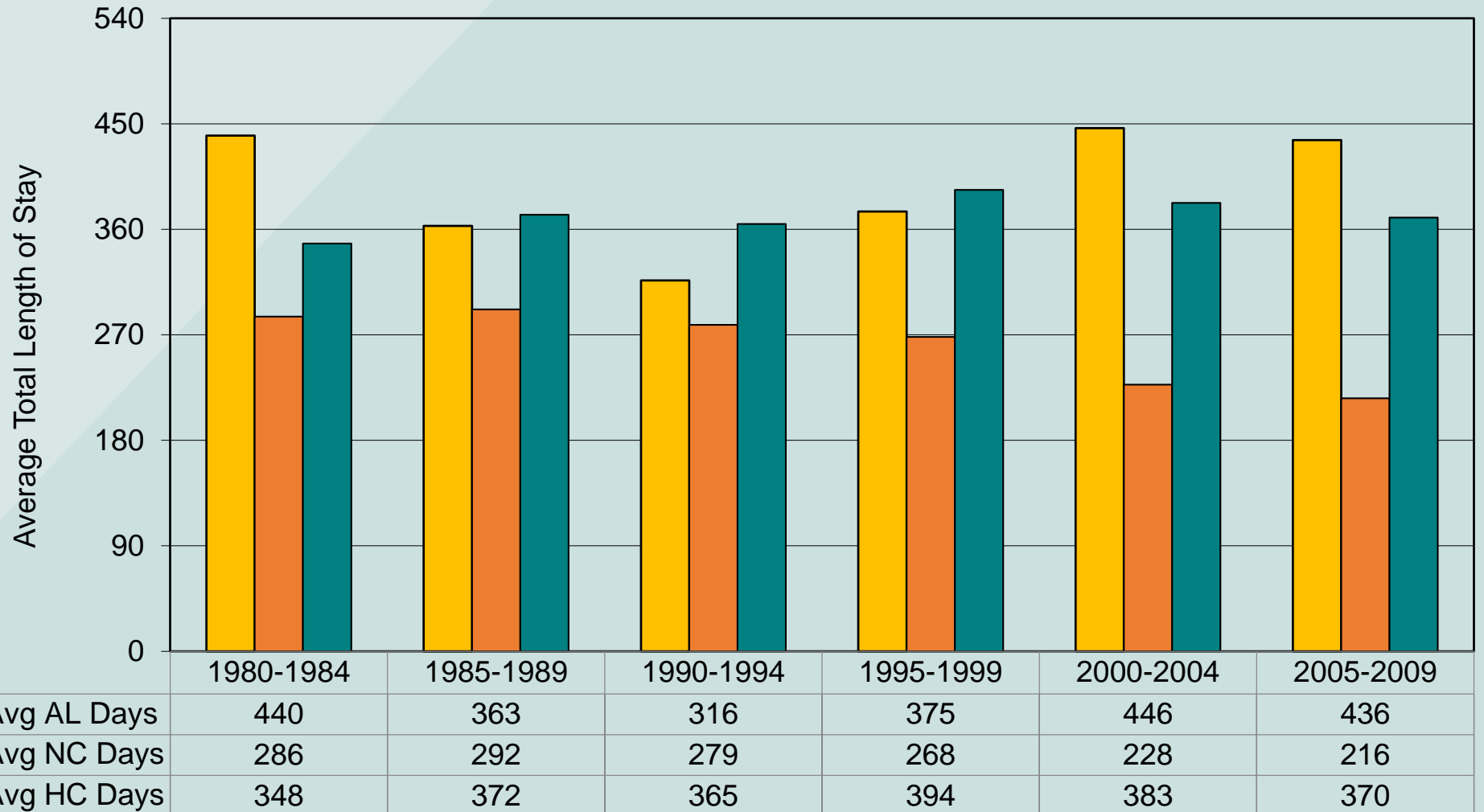
Pr{Usage} Shows Increasing Trends



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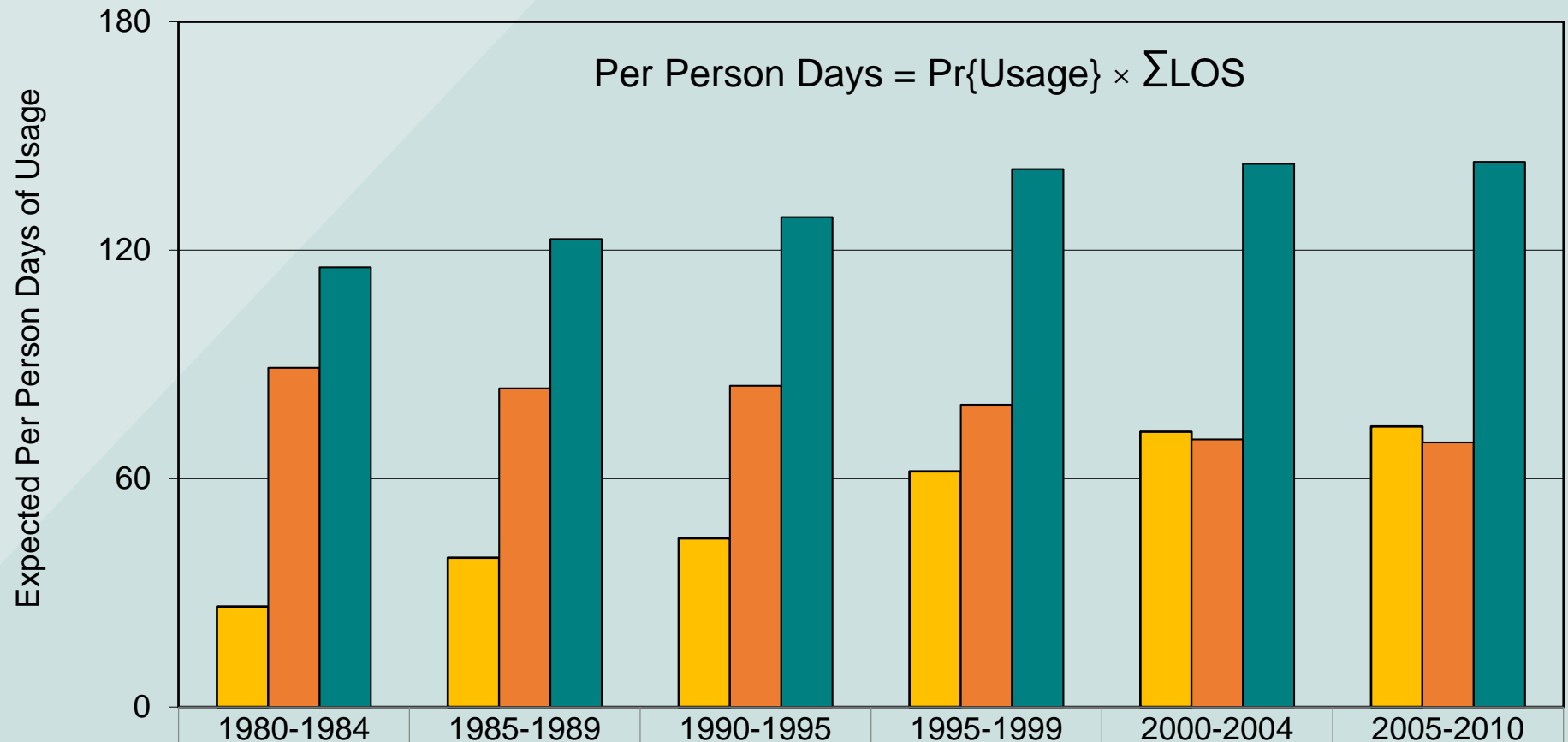
Nursing Care is Decreasing during 1st-5 years



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Exp{PPD} for ALU Increasing Relative to SNF



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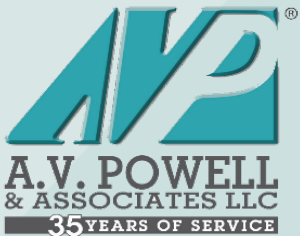


| | 1980-1984 | 1985-1989 | 1990-1995 | 1995-1999 | 2000-2004 | 2005-2010 |
|---------------|-----------|-----------|-----------|-----------|-----------|-----------|
| ■ Avg AL Days | 26 | 39 | 44 | 62 | 72 | 74 |
| ■ Avg NC Days | 89 | 84 | 84 | 79 | 70 | 70 |
| ■ Avg HC Days | 116 | 123 | 129 | 141 | 143 | 143 |

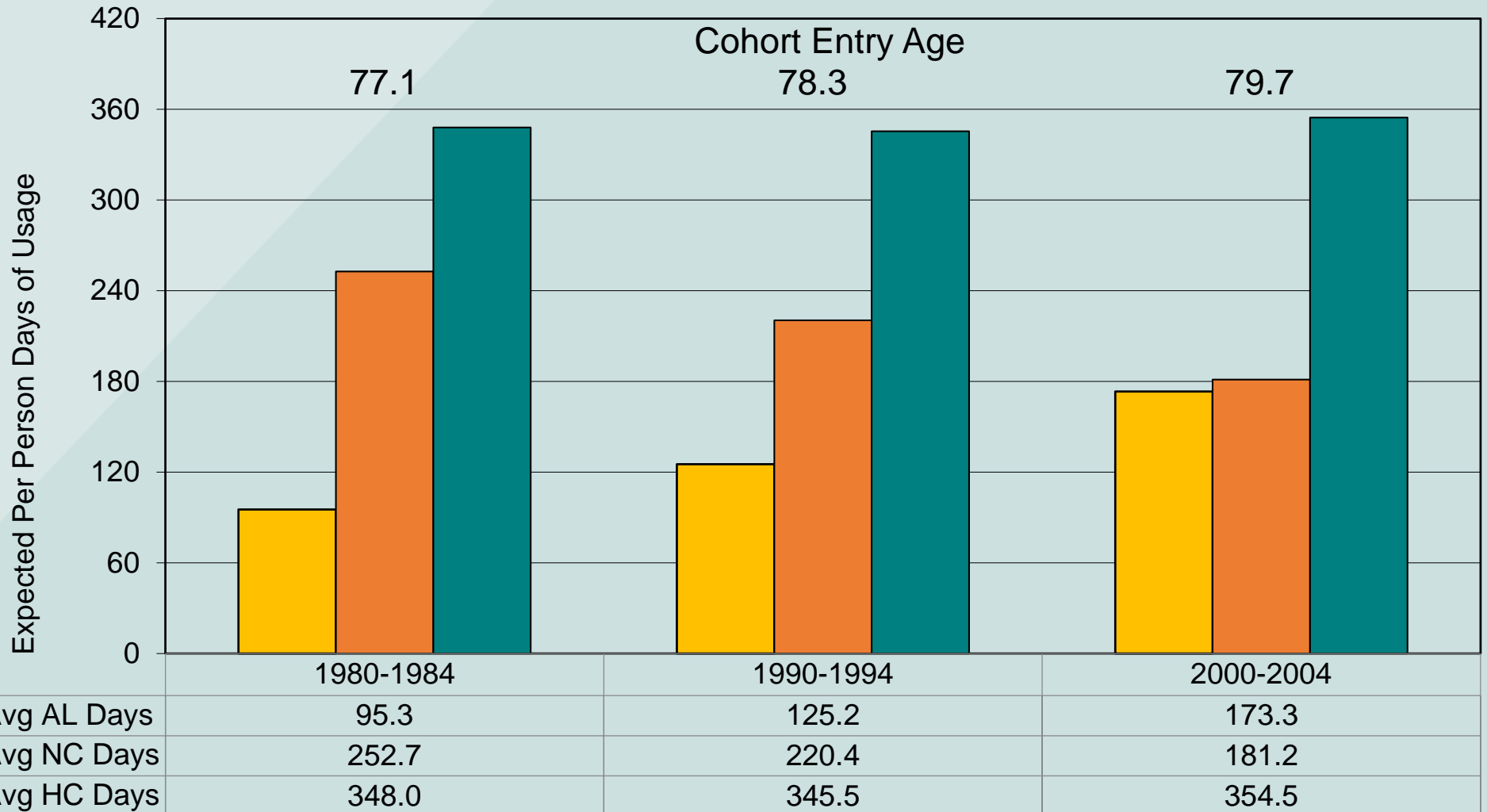
Has Per Resident HC Usage Changed?

| Entry Years | End of Observation Period | Number of Female of Records | Average Age at Entry |
|-------------|---------------------------|-----------------------------|----------------------|
| 1980 – 1984 | 1992 | 13,008 | 77.1 |
| 1990 – 1994 | 2002 | 23,876 | 78.3 |
| 2000 – 2004 | 2012 | 31,291 | 79.7 |

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Same Trend Continues for 1st-10 Years



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Epilogue

We hope these statistics were interesting, informative, and maybe even surprising. Of course, there are limitations related to their use. Data and models change over time, and empirical data is not always reliable for projecting future conditions.

Throughout our consulting engagements, we have found significant variations by community. Summary statistics may not be reflective of longevity or utilization at a particular community.

Epilogue

In addition, for the most part only female results have been presented in this document. Similar data on males should be examined and incorporated into strategic planning, product development, and financial projections. Median utilization data may be useful in designing CCRC contracts.

Average utilization and longevity data may be useful for broad strategic planning or financial projection purposes. However, more detailed mathematical models are required to project utilization with greater statistical validity.

Epilogue

Actuarial science provides techniques for evaluating recent experience at a particular CCRC and using that data, in conjunction with a larger database, to project utilization on a facility by facility basis.

A.V. POWELL & ASSOCIATES has developed detailed, actuarial-based mathematical models upon which to base CCRC and CCaH financial projections. We welcome the opportunity to discuss these models with interested parties.

For More Information

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