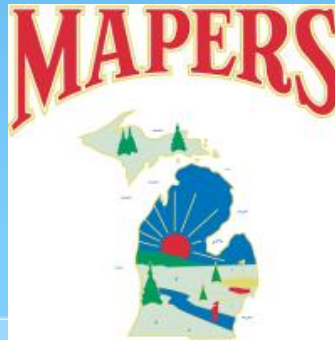


Michigan Association of Public Employee Retirement Systems

Spring Conference



May 21-23, 2017

Changing Life Expectancy: What it Means for Retirement Plans

Greg Stump, FSA

Chief Actuary, Boomershine Consulting Group

Today's Topics:

I. Background

II. Impact on Individuals

III. Impact on Plan Sponsors

IV. How We Are Addressing It

V. Where Do We Go From Here?

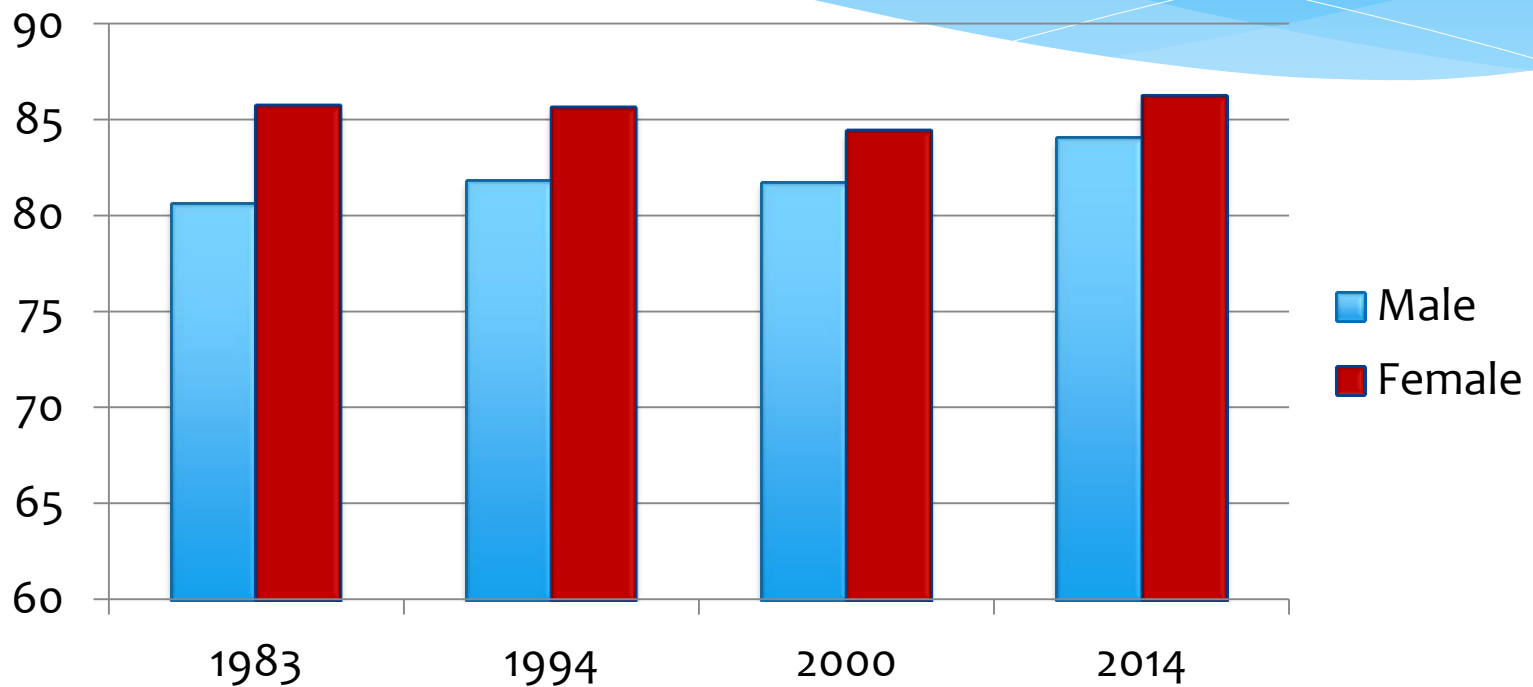
I. Background: Mortality and Life Expectancy



What is Life Expectancy?

- * Life Expectancy: Average number of years a person is expected to live from a given age
- * Life expectancy at birth is in the media most
 - * It is shorter than what we care about....
 - * Life expectancy from retirement age
- * There have been steady increases for many years
 - * The big question is How Will This Trend Continue/ Change Going Forward?
 - * Some “experts” believe we will live to be **1,000**

Life Expectancy from Age 60



Pension Funding

- * Mortality (implicitly, life expectancy) is one of the most critical assumptions in funding pension plans
- * Recently (2012) it was specifically addressed in *Actuarial Standards of Practice*
- * Private sector/Corporate pension:
 - * Specific tables are dictated by the federal government
- * Public sector/Government pensions:
 - * More discretion for actuary/retirement board
 - * Auditor input as well

History of Pension Tables

- * Society of Actuaries has a workgroup that studies mortality
- * New tables published every decade or so historically
 - * 1971
 - * 1983
 - * 1994
 - * 2000
 - * 2014
- * Focus has evolved from “old” tables to ones with updates and projections (assumed future increases in life expectancy)

Recent Developments

- * Newest tables called Retired Pensioners (RP) 2014
 - * Multiple versions of tables based on male/female, income tier, white/blue collar, etc.
- * Projection scales have evolved also
 - * Now updated annually, current = MP2016 (Oct 2016)
 - * A new source of volatility
- * Recent studies based on private sector data; public sector study is underway, with new tables in 2018

What is “Generational”?

- * Static Table: One set of rates
 - * Example, mortality rate for age 85 Male = 8.6% (life expectancy = 92)
- * Generational Table: Rates depend on base table as well as year of birth/projection scale
 - * Example, life expectancy for Male
 - * Born in 1960 (i.e., as of 2045) = 84
 - * Born in 1990 (i.e., as of 2075) = 86
 - * Based on cohort data

II. Impact on Individuals



Individual Retirement Considerations

- ↳ Spending
- ↳ Employment
- ↳ Healthcare/Long Term Care
- ↳ Savings
- ↳ Heirs
- ↳ Uncertainty

Individual Retirement Income

Income Source	Increases?	Impact of Life Expectancy
Social Security	COLA	Good amount of protection
Pension/ Defined Benefit	Maybe COLA	Some protection, but lost purchasing power
Savings/ Defined Contribution	Depends on Investments	Significant risk and uncertainty
Other Sources	?	Varied...

Not all retirees have all/multiple sources

III. Impact on Plan Sponsors



Employer Costs

- ↳ Defined Contribution: Indirect impact
- ↳ Defined Benefit: Impact depends...

What Impacts Plan Funding?

Factor	More than Expected	Less than Expected
Investment Performance	HELPS	HURTS
Salaries	HURTS	HELPS
Retiree longevity	HURTS	HELPS
Retirements	HURTS	HELPS
Terminations	HELPS	HURTS
Disabilities	HURTS	HELPS

Funding Refresher

↳ Career Funding for (DB) pension

- Hire
- Mid Career
- Retirement



Career Funding

HIRE

Assets needed: \$0

Annual Cost: 8% of pay (\$4,000)

*Actuarial Terms: Assets Needed =
"Actuarial Accrued Liability"
Annual Cost = "Normal Cost"*



Active Working Career

Contribution = Annual Cost.

Career Funding

MID CAREER

Assets needed: \$150,000

Annual Cost: 8% of pay
(now \$5,500)

*Actuarial Terms: Assets Needed
= "Actuarial Accrued Liability"
Annual Cost = "Normal Cost"*

Contribution = Annual Cost + adjustment if actual assets \neq \$150,000

Career Funding

**Actuarial Terms: Assets Needed
= "Actuarial Accrued Liability"
Annual Cost = "Normal Cost"**

RETIREMENT

Assets needed: \$400,000

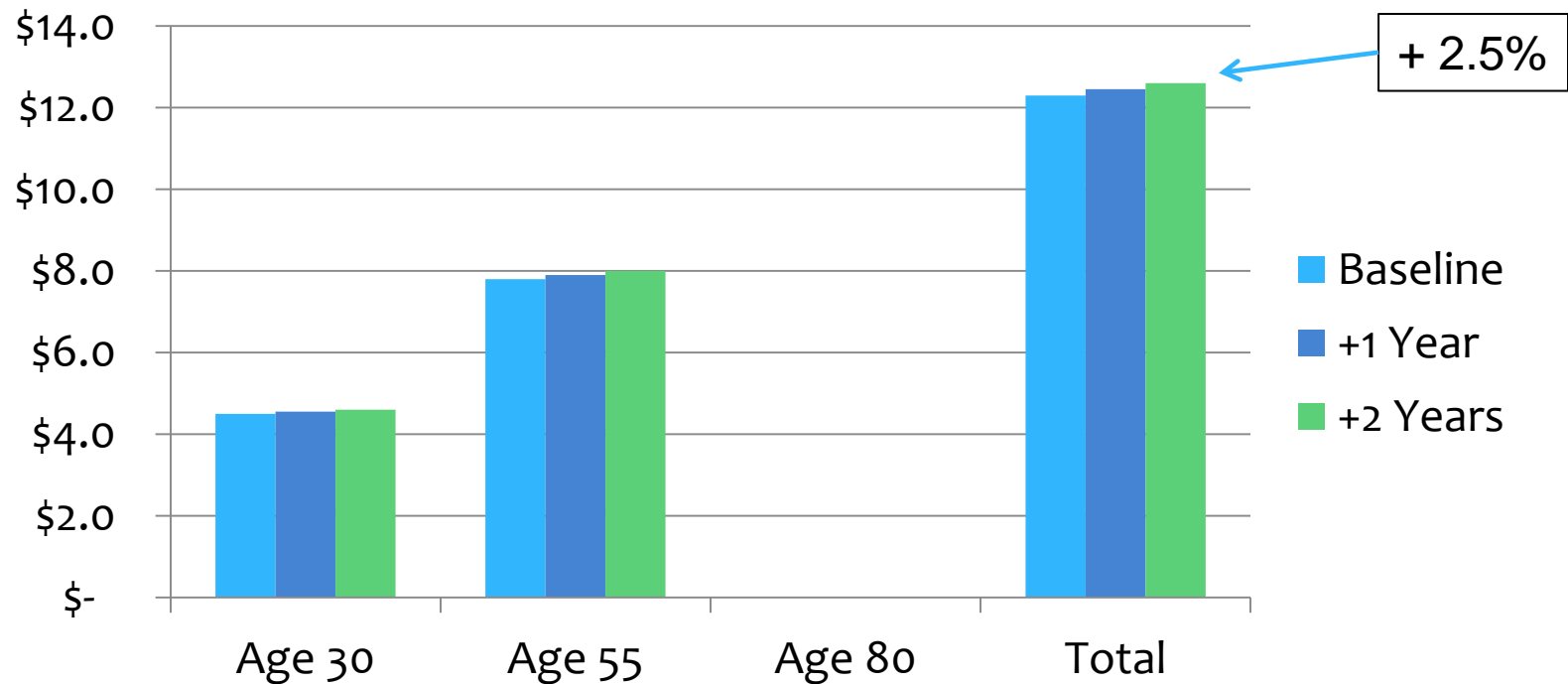
Annual Cost: \$0



Contribution = Adjustment if actual assets \neq \$400,000

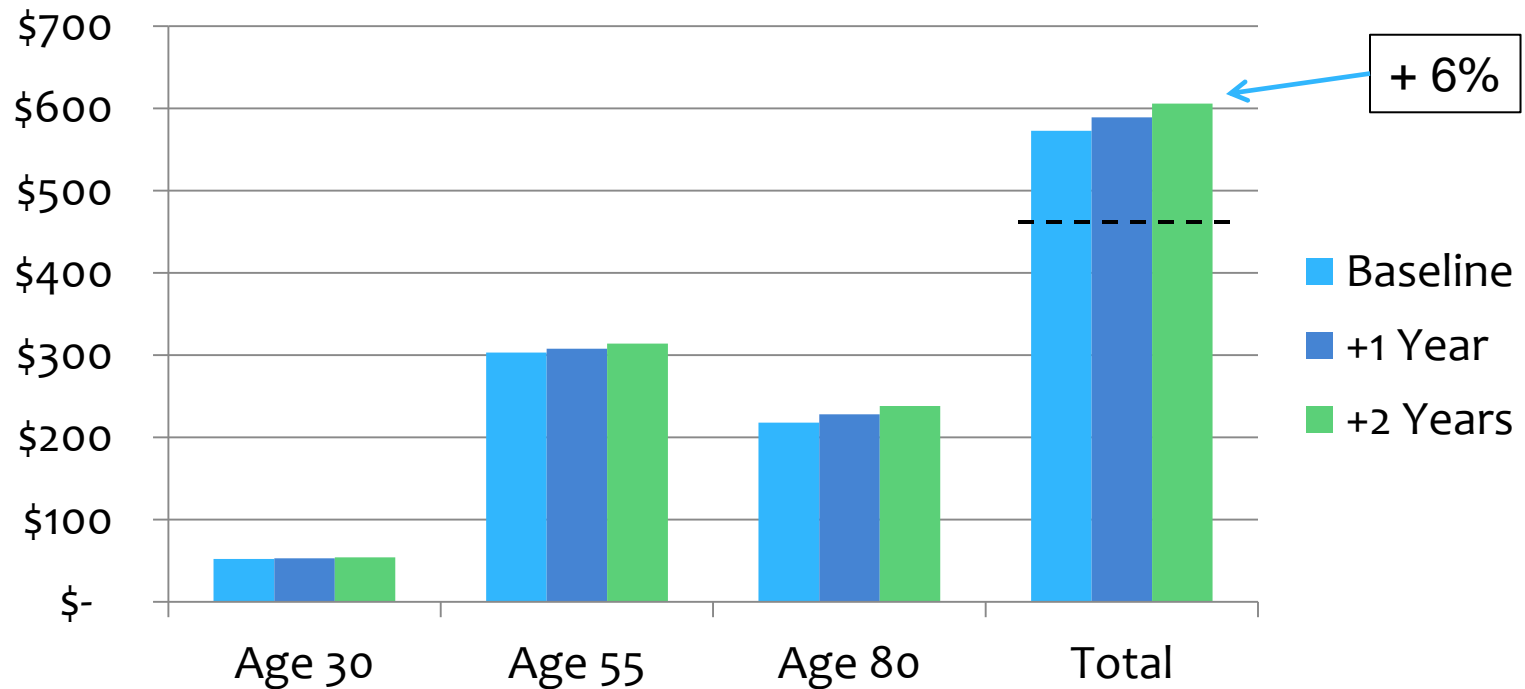
Impact of Life Expectancy

Normal Cost



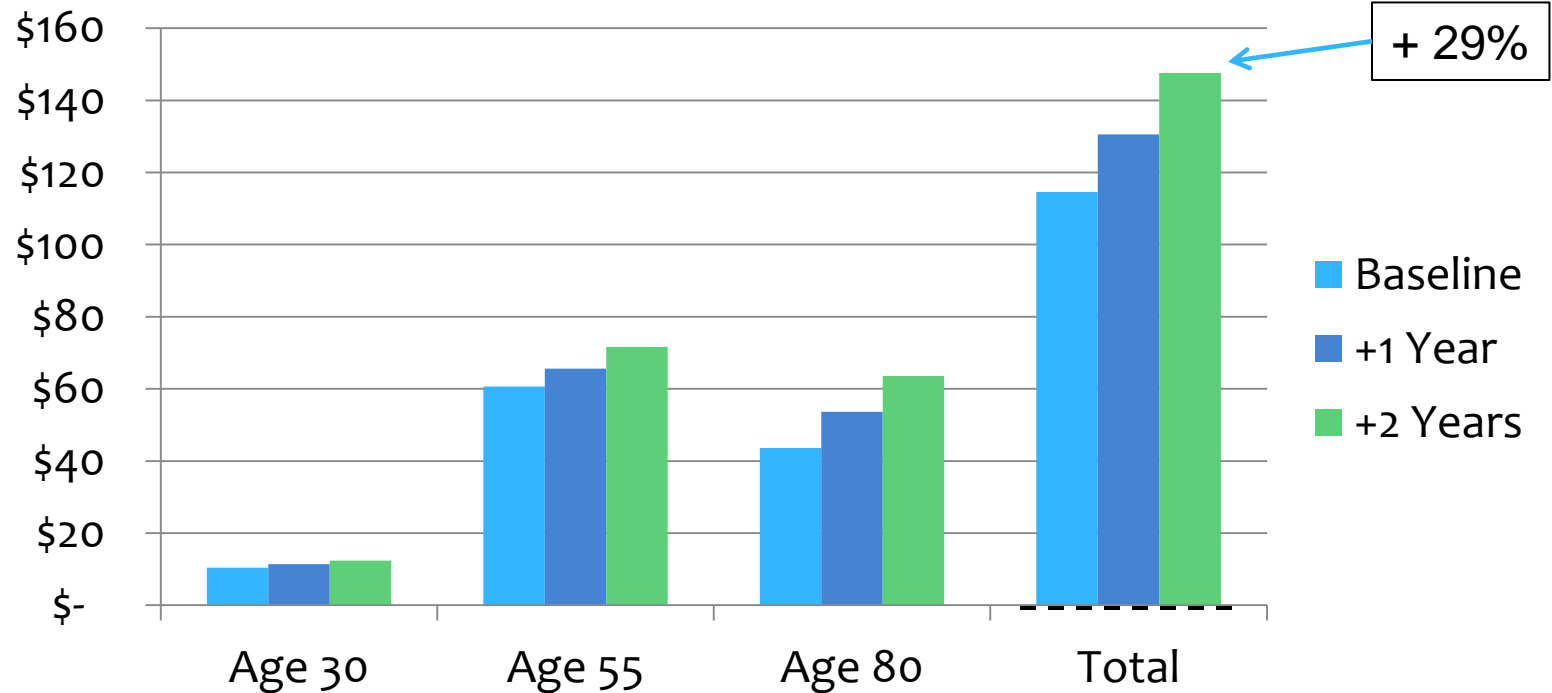
Impact of Life Expectancy

Accrued Liability



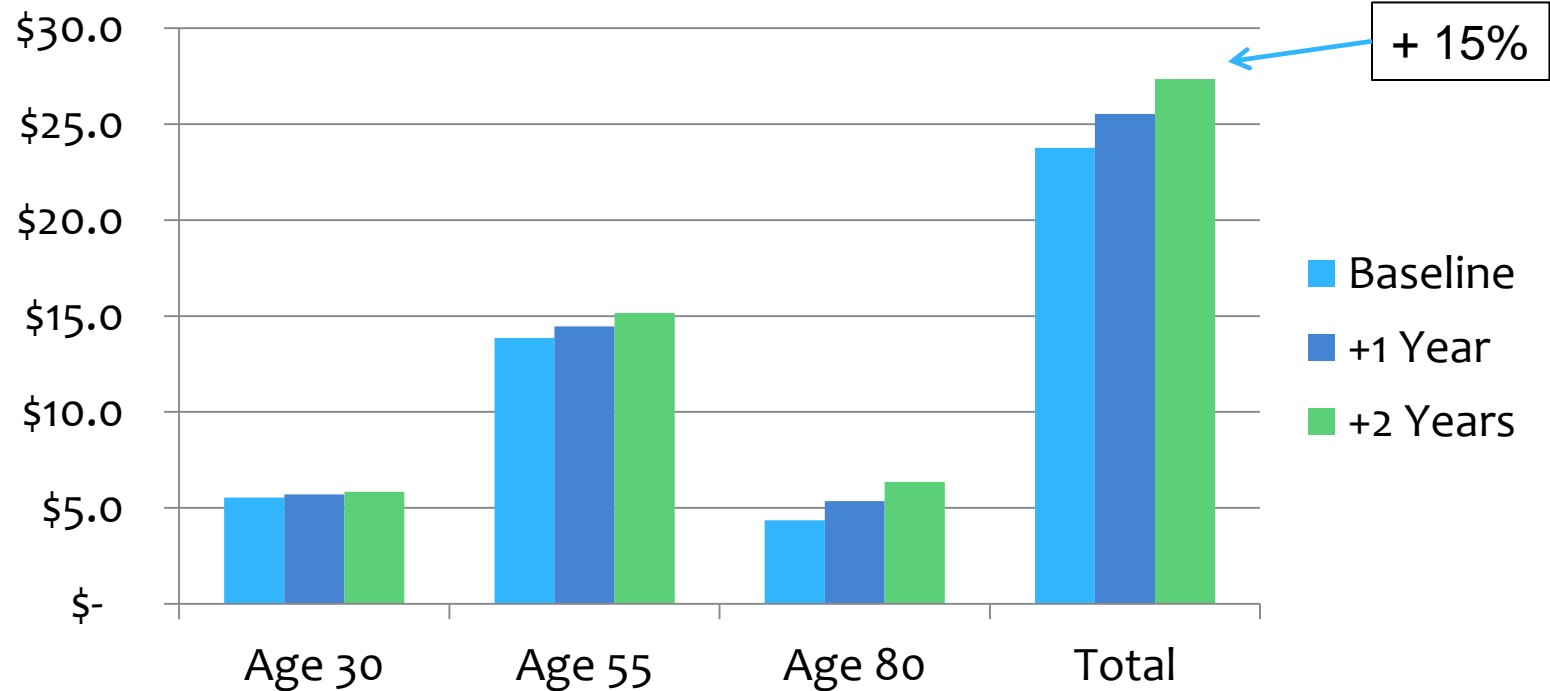
Impact of Life Expectancy

Unfunded Accrued Liability



Impact of Life Expectancy

Contribution



IV. How Are We Addressing Increased Life Expectancy?



Assumption Review

→ Mortality is a key assumption

- Must use some form of expected improvement, either implicit, explicit (static or generational)

→ Cost Increases

- The “double-whammy” of mortality and return assumptions has been a significant challenge in recent years

Benefit Changes

- Plan Closures – a false solution
- Alternate/”Hybrid” designs – changes risk profile going forward
- Borrowing/Bonding - to help close shortfalls, and lock in a borrowing rate

V. Where Do We Go From Here?

What Now???

- 1. Assumption review**
- 2. Actuarial analysis and stress testing of risk/volatility of life expectancy**
- 3. Funding policy, written**
- 4. Contribution strategy**
- 5. Pay now, save later**



Greg Stump, FSA
gstump@boomershine
consulting.com