

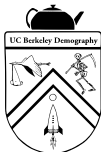
# Life lost, lifesaving, and causes of death

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Session 234, Saturday, May 2



# Mortality measurement

Years Lost

Riffe & Solé

All-cause

Causes

Comparisons

Rates

**lifetable:** purged of structure

**counts:** structure  $\times$  intensity

**combo:** Person Years of Life Lost (PYLL), \_\_\_\_\_, ...

# PYLL

Years Lost

Riffe & Solé

All-cause

Causes

Comparisons

Rates

Person years of life lost

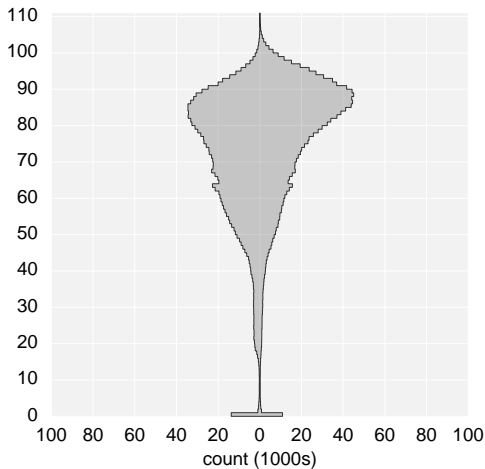
$$\text{PYLL} = \int_0^{\omega} D(a) \cdot e(a) \, da \quad (1)$$

$$\text{PYLL}^c = \int_0^{\omega} D^c(a) \cdot e(a) \, da \quad (2)$$

(mention that there are decreasing returns to  $\mu(a)$  improvements, since  $D(a)$  decreases, but  $e(a)$  increases = ambiguous change in PYLL?)

# PYLL & friends

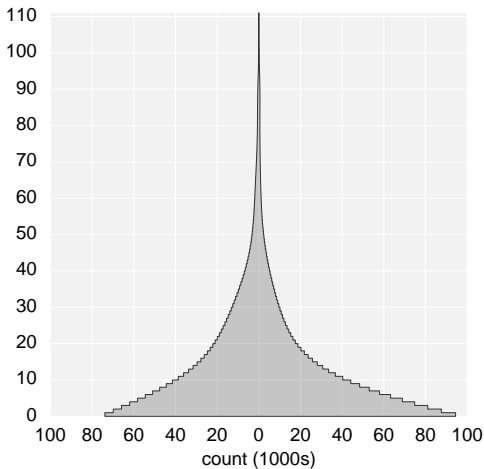
Chrono Age



$D(a)$  (USA, 2010)

# PYLL & friends

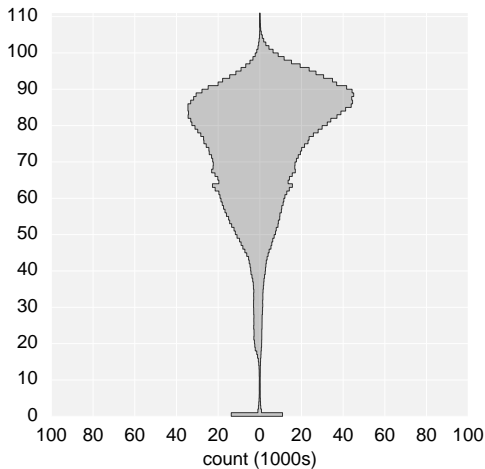
Thano Age



$D(y)$  (USA, 2010)

# PYLL & friends

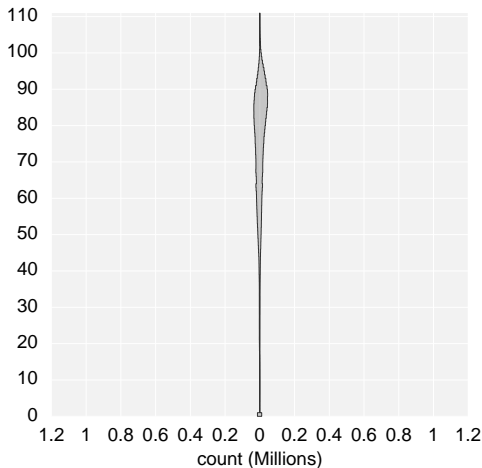
Chrono Age



$D(a)$  (USA, 2010)

# PYLL & friends

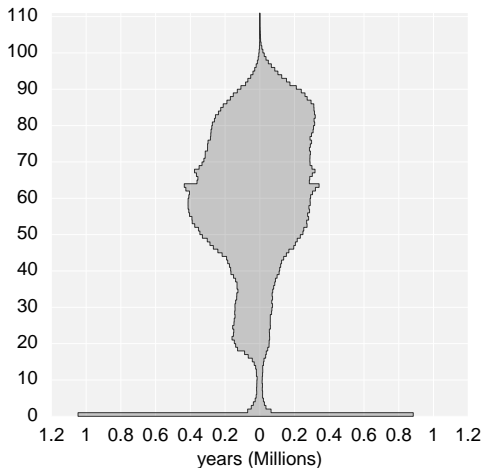
Chrono Age



$D(a)$  (USA, 2010)- changed scale

# PYLL & friends

Chrono Age

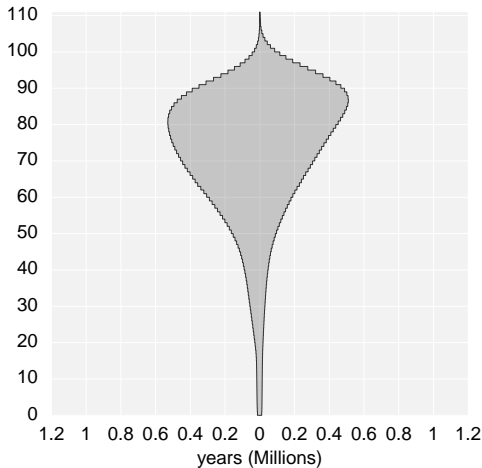


$PYLL(a)$  (USA, 2010)



# PYLL & friends

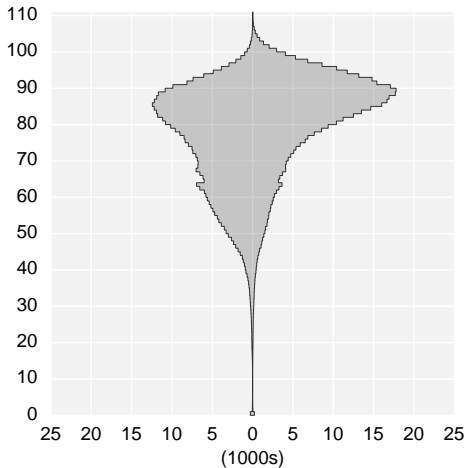
Chrono Age



$G(a)$  (USA, 2010)

# PYLL & friends, causes of death

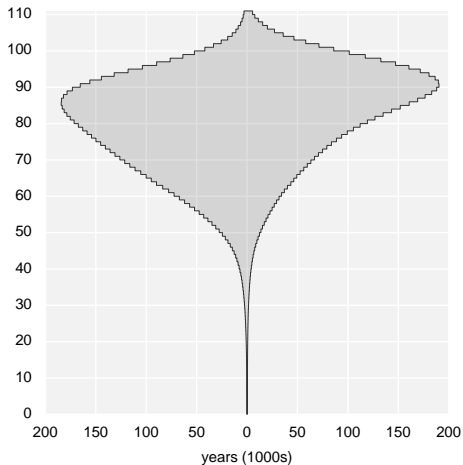
Chrono Age



$D(a)$  Cardio (USA, 2010)

# PYLL & friends

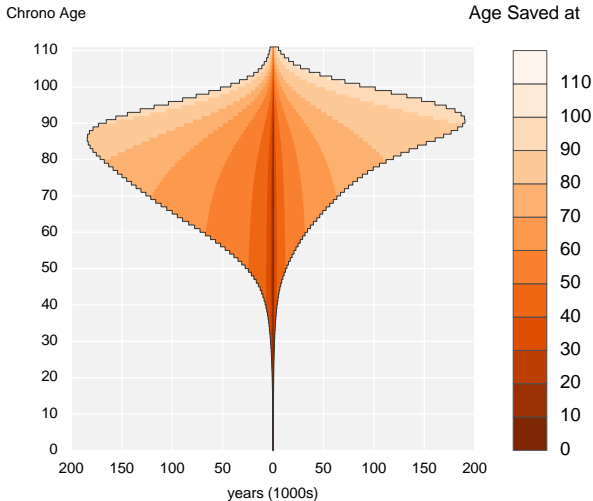
Chrono Age



$G(a)$  Cardio (USA, 2010)

# PYLL & friends, decompose

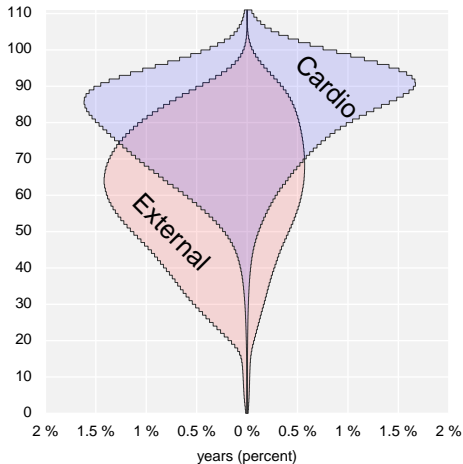
- Years Lost
- Riffe & Solé
- All-cause
- Causes
- Comparisons
- Rates



$G(a + y|a)$  Cardio (USA, 2010)

# PYLL & friends, compare causes

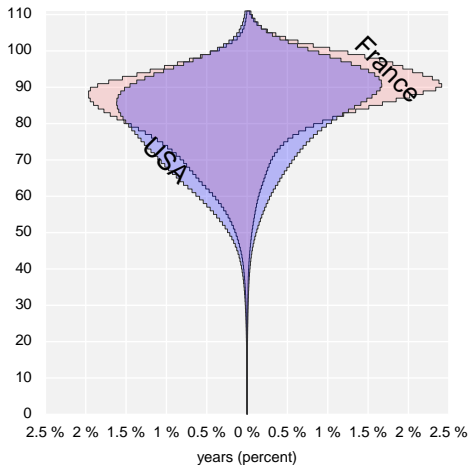
Chrono Age



$G(a)$  Cardio vs External (USA, 2010)

# PYLL & friends, compare populations

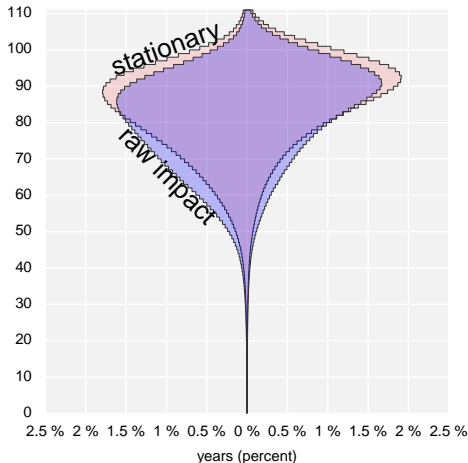
Chrono Age



$G(a)$  Cardio (USA vs France, 2010)

# PYLL & friends, compare with stationary

Chrono Age



G(a) Cardio (Raw impact versus stationary, USA, 2010)

# PYLL & friends, summaries

Years Lost

Riffe & Solé

All-cause

Causes

Comparisons

Rates

$\bar{A}$  mean chrono age of  $G$

$\bar{Y}$  mean thanatological age of  $G$



# PYLL & friends, rates

Years Lost

Riffe & Solé

All-cause

Causes

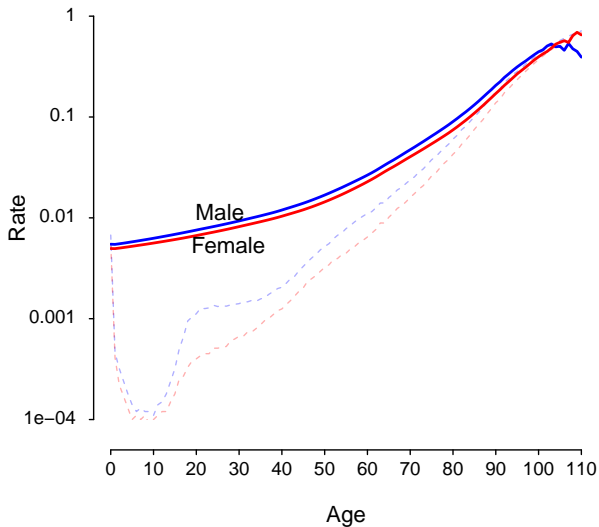
Comparisons

Rates

$$\mu^G(a) = \frac{G(a)}{PF(a)} \quad (3)$$

The lives that **would** have passed through age  $a$  divided by the lives that **will** pass through  $G(a)$ .

# PYLL & friends, rates



$G(a)$  (male and female, USA, 2010)

# PYLL & friends, new material

Years Lost

Riffe & Solé

All-cause

Causes

Comparisons

Rates

Counts, years, rates, impacts

# Life lost, lifesaving, and causes of death

Tim Riffe<sup>1</sup> & Aïda Solé Auró<sup>2</sup>

Thank you!

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Aida's email here

