

Modelling old age trajectories - A Japanese – Swedish comparison

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Aging from systems level or from the perspective of the individual?

- Data from longitudinal studies are most often used for looking at aging and health from a systems perspective, but...
- ...aging and health could also be regarded from the perspective of the individual
- WHAT 'S THAT FOR ME???

Phases of aging

- Aging is a continuous process from birth and onwards
- Third age: Retirement with retained independency
- Fourth age : Dependent on others for daily life

In fourth age AGING PUTS IN A "HIGHER GEAR"

Old age life chances - what's that for me?

- Given present age and health status how are my life chances for the coming 5, 10, 15 , 20 years?
- How are individual life chances influenced by health improvements on systems level?
- Are they different in Japan and Sweden?
- Longitudinal studies can provide an answer!

The LIFECHANCE – model metod and assumptions

Definition of initial state:

- age 77, 78 and 79
- gender
- functional limitations (independent, IADL-dependent, ADL-dependent)
- level of LTC (no LTC, home-related LTC, institution)

Data sources

- Japan: Nihon University Japanese Long-term Study of Aging (NUJLSOA), wave 2 (2001) and wave 4 (2006)
- Sweden: Swedish National study on Aging and Care (SNAC), baseline and 3-year follow up, 2001/04 -2004/07

Calculation method

- Initial state (functional limitation *LTC level) estimated from the data sources
- Initial age 78 year, separate calculations for men and women
- Distribution on future states calculated from initial state by successive multiplication of transition matrices using Markov assumption

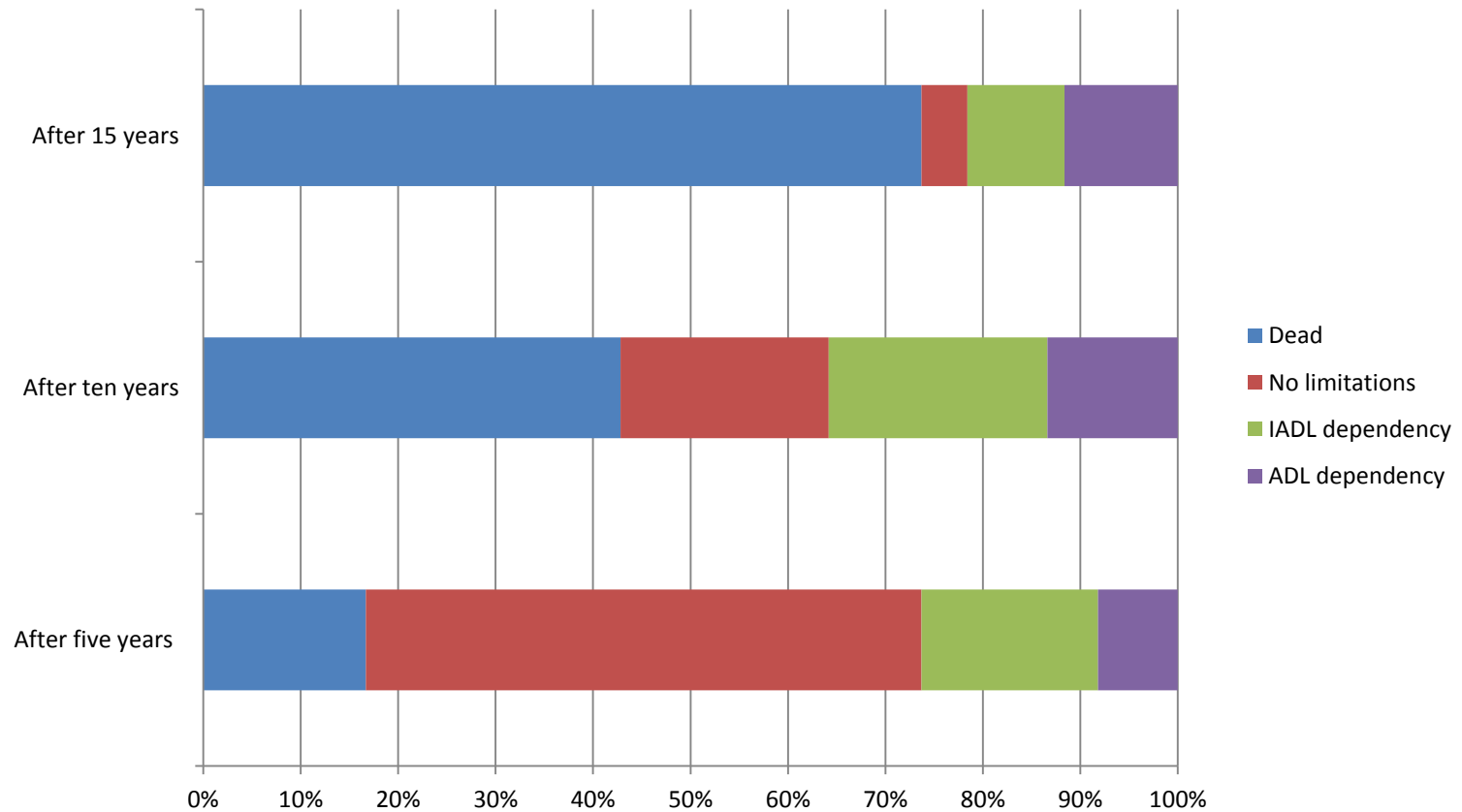
Calculation method

- Transition matrices (death and functional limitation* LTC level) calculated by successive logistic regression analysis controlling for initial age, gender, degree of functional limitations and level of LTC
- Japan: 5-year time step
- Sweden : 3-year time step
- In total 15 years in both cases

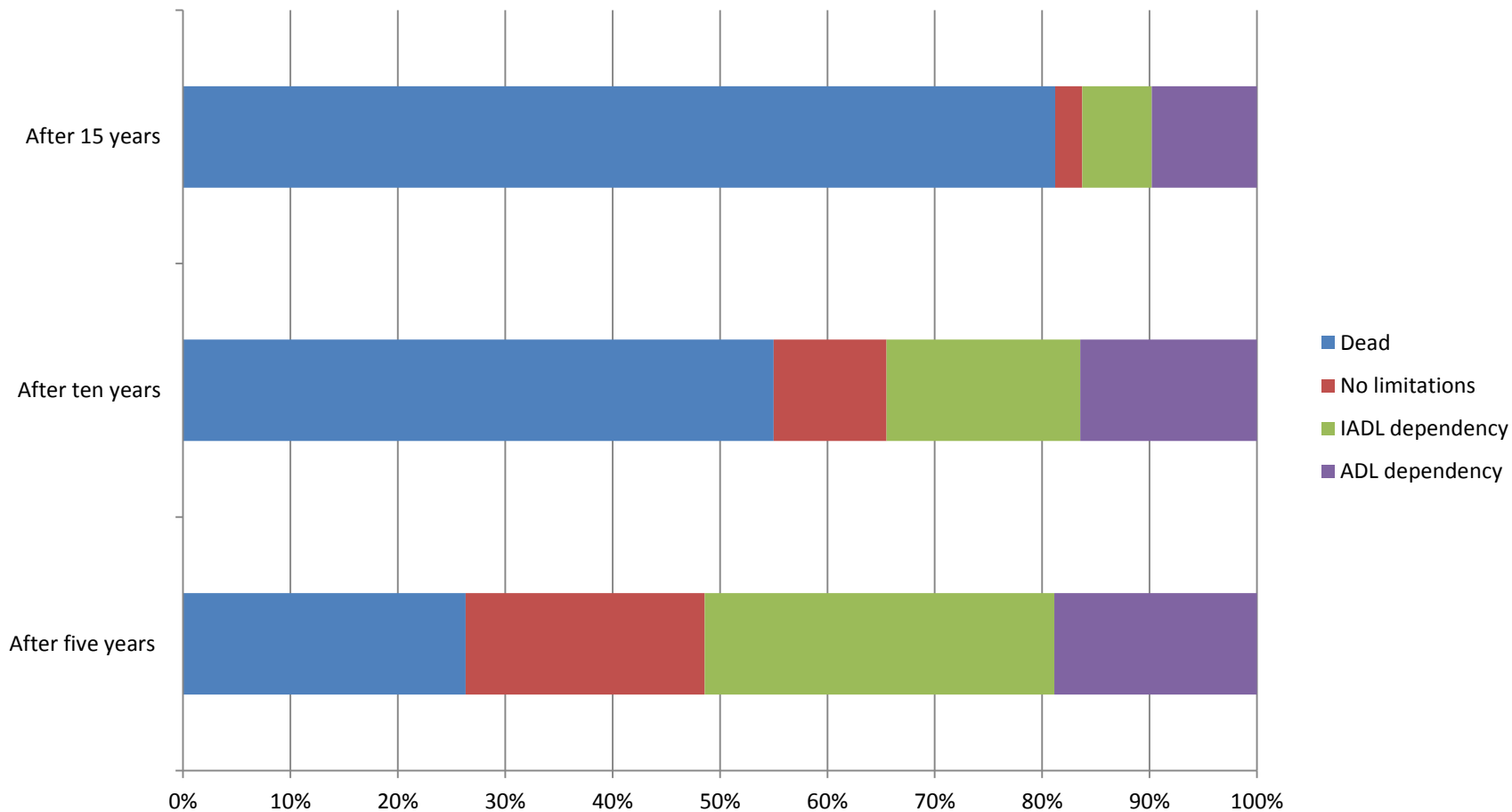
Example of results

Japan: Distribution on level of functional limitations, men

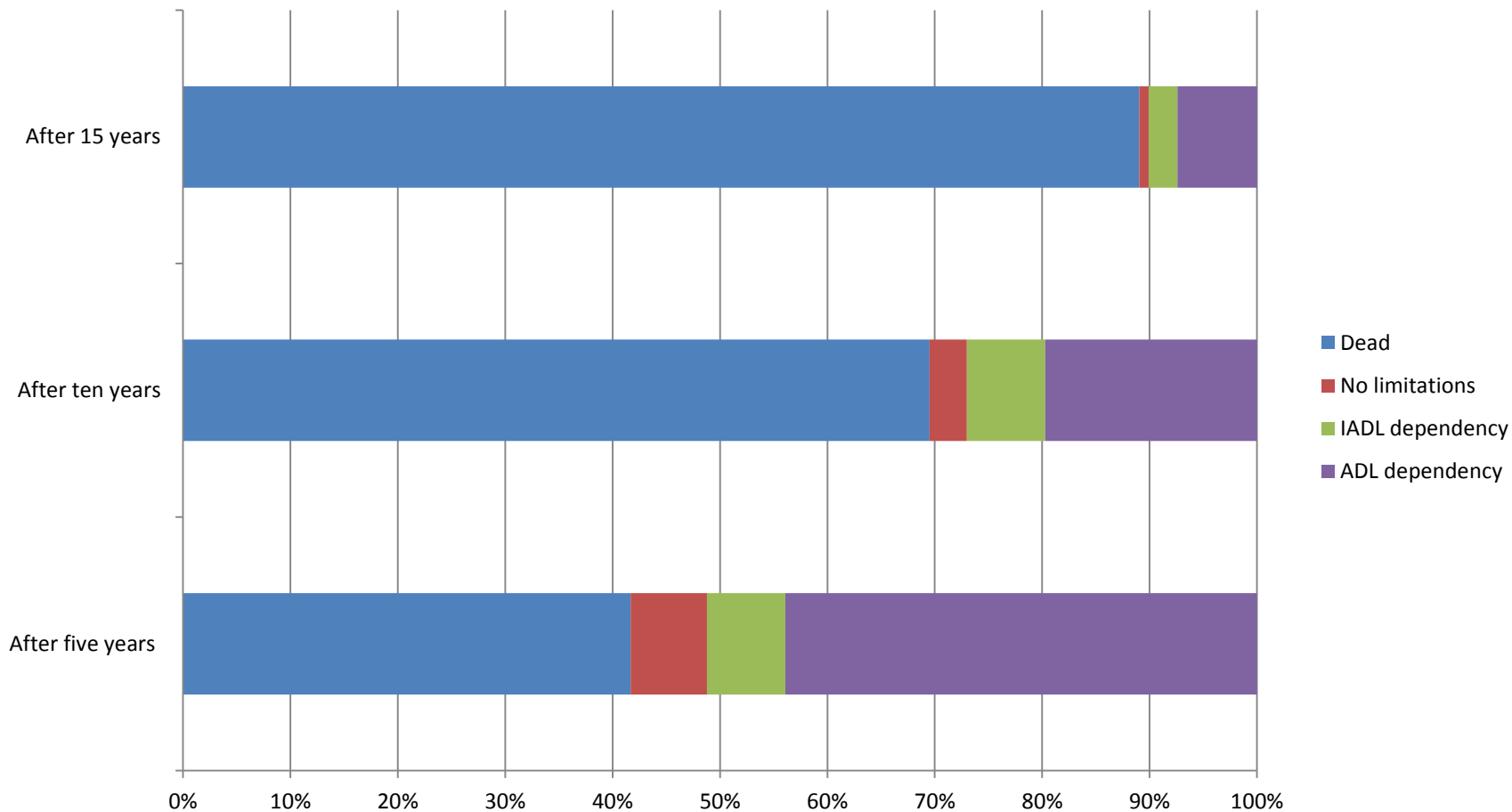
- initial level: No limitations



Japan: Distribution on level of functional limitations, men - initial level: IADL-dependent

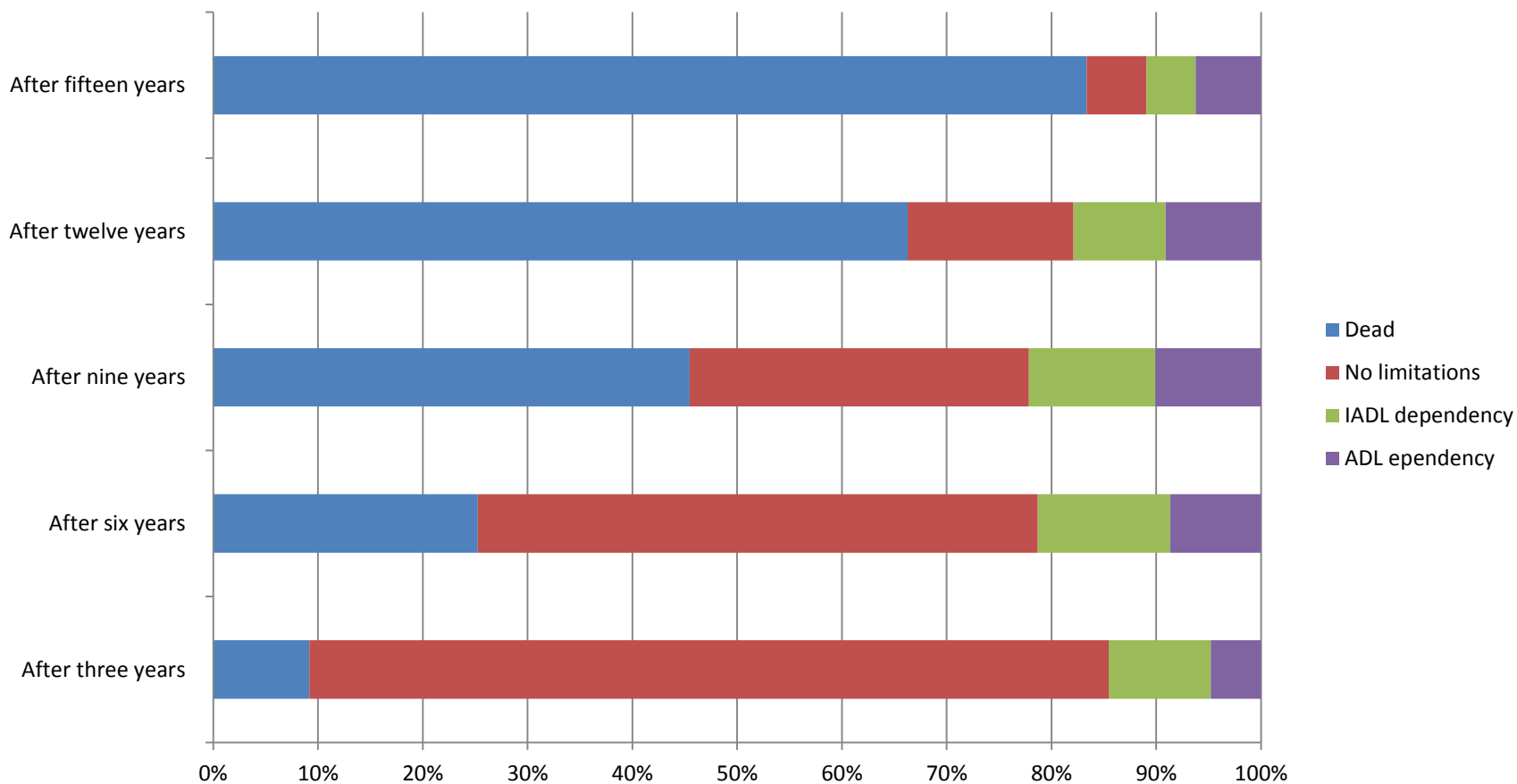


Japan: Distribution on level of functional limitations, men - initial level: ADL-dependent



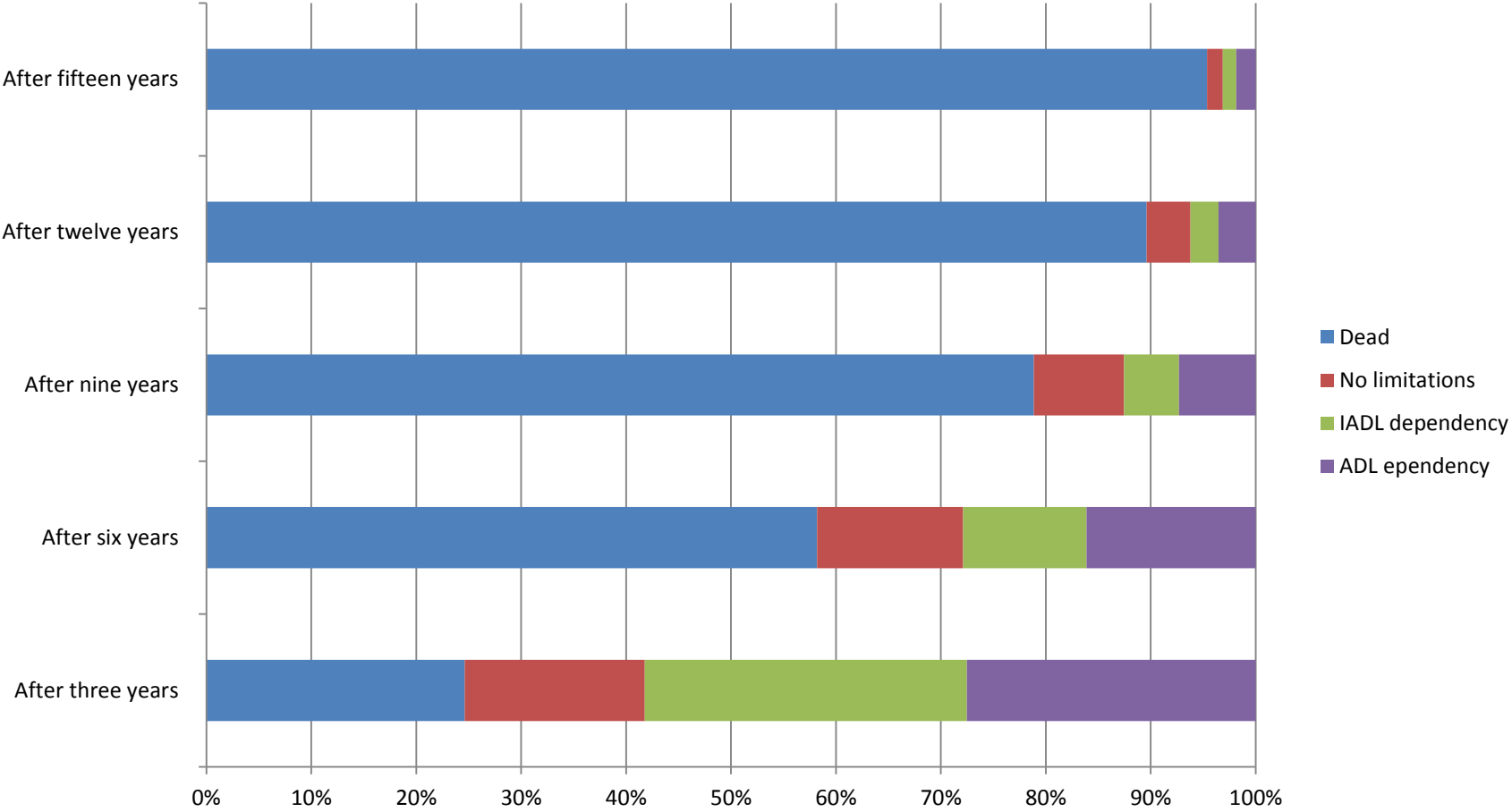
Sweden: Distribution on level of functional limitations, men

- initial level: No limitations



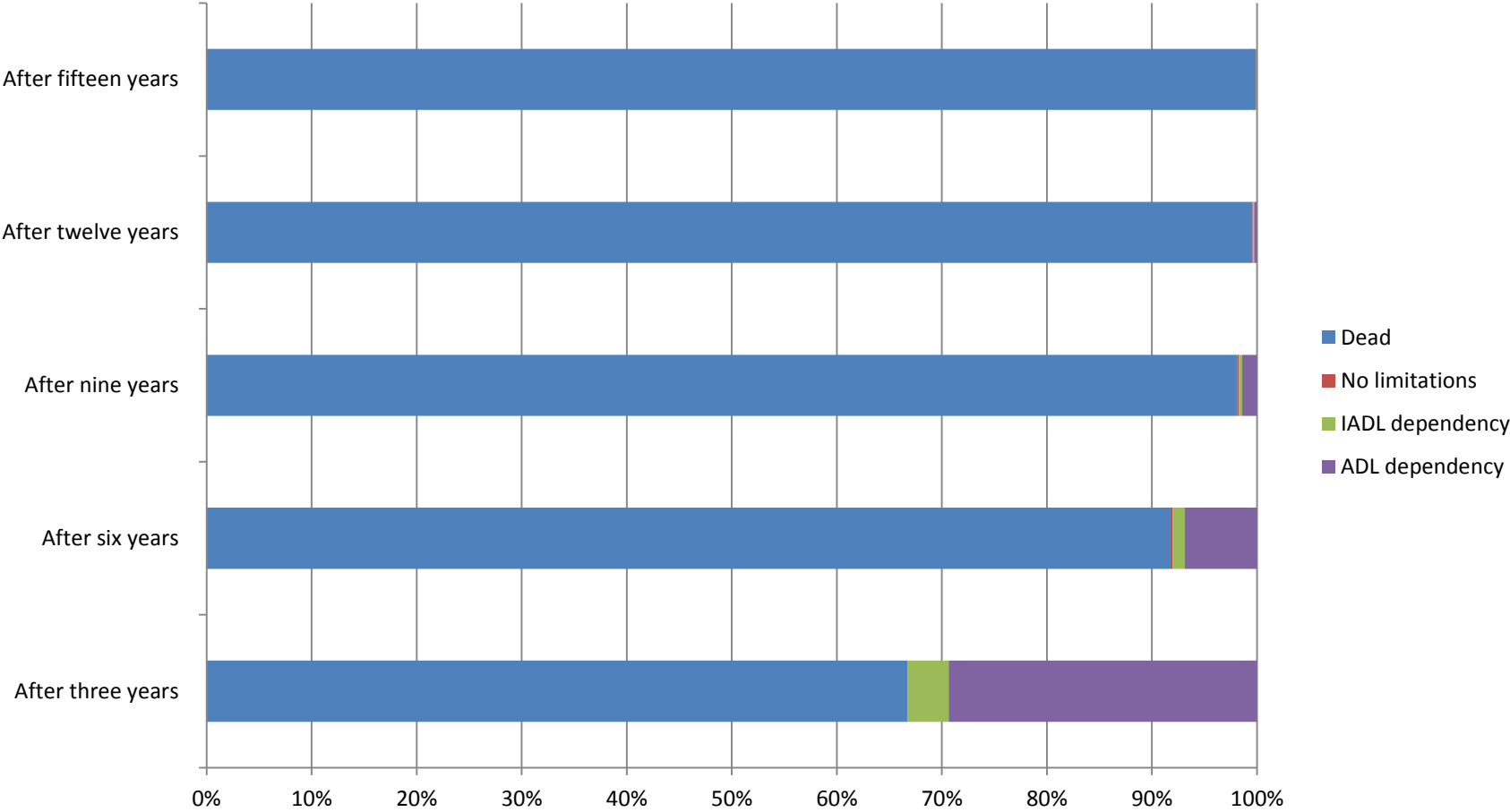
Sweden: Distribution on level of functional limitations, men

- initial level: IADL-dependency



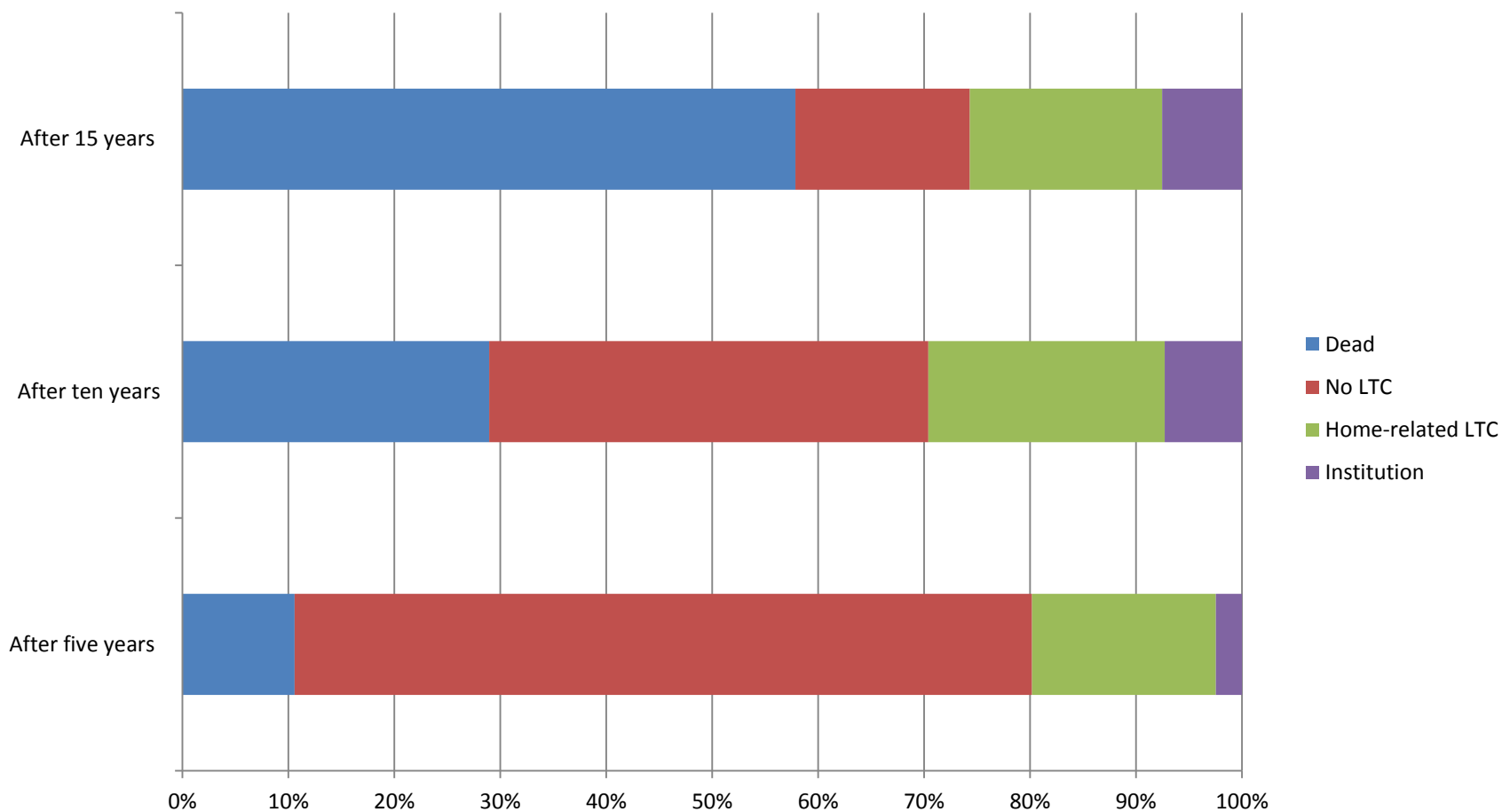
Sweden: Distribution on level of functional limitations, men

- initial level: ADL-dependency



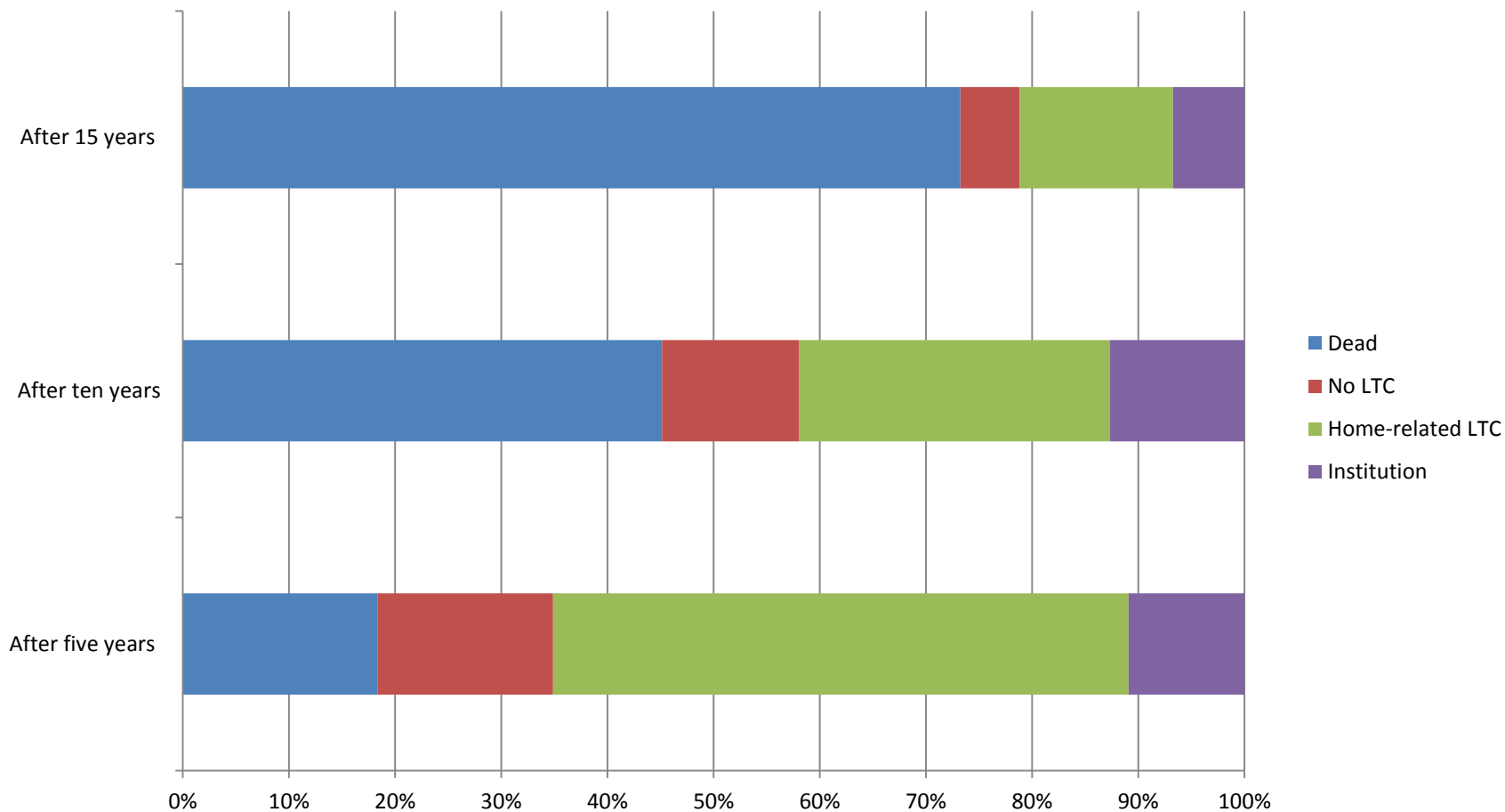
Japan: Distribution on level of LTC, women

- initial level: No LTC



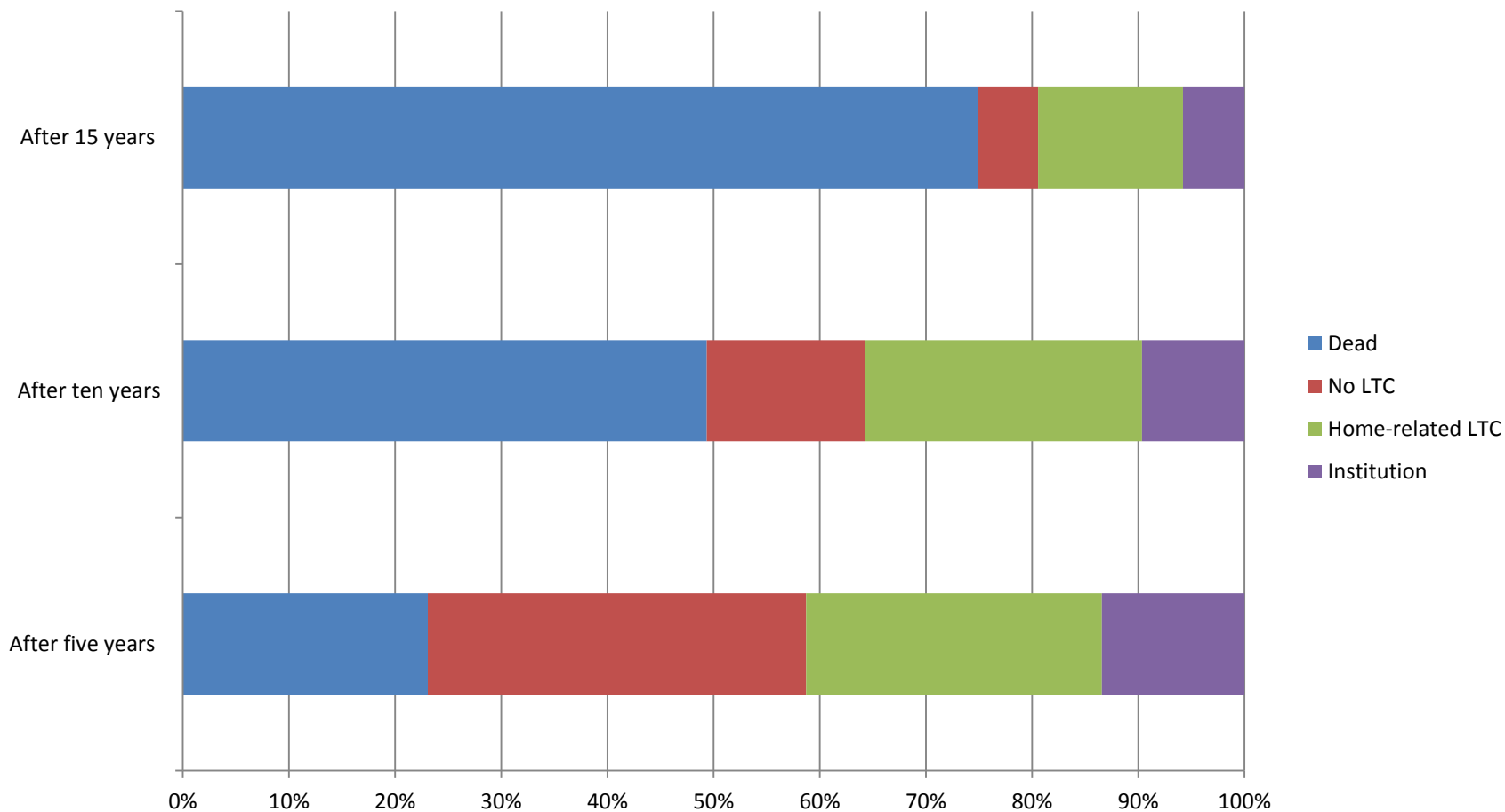
Japan: Distribution on level of LTC, women

- initial level: Home-related LTC

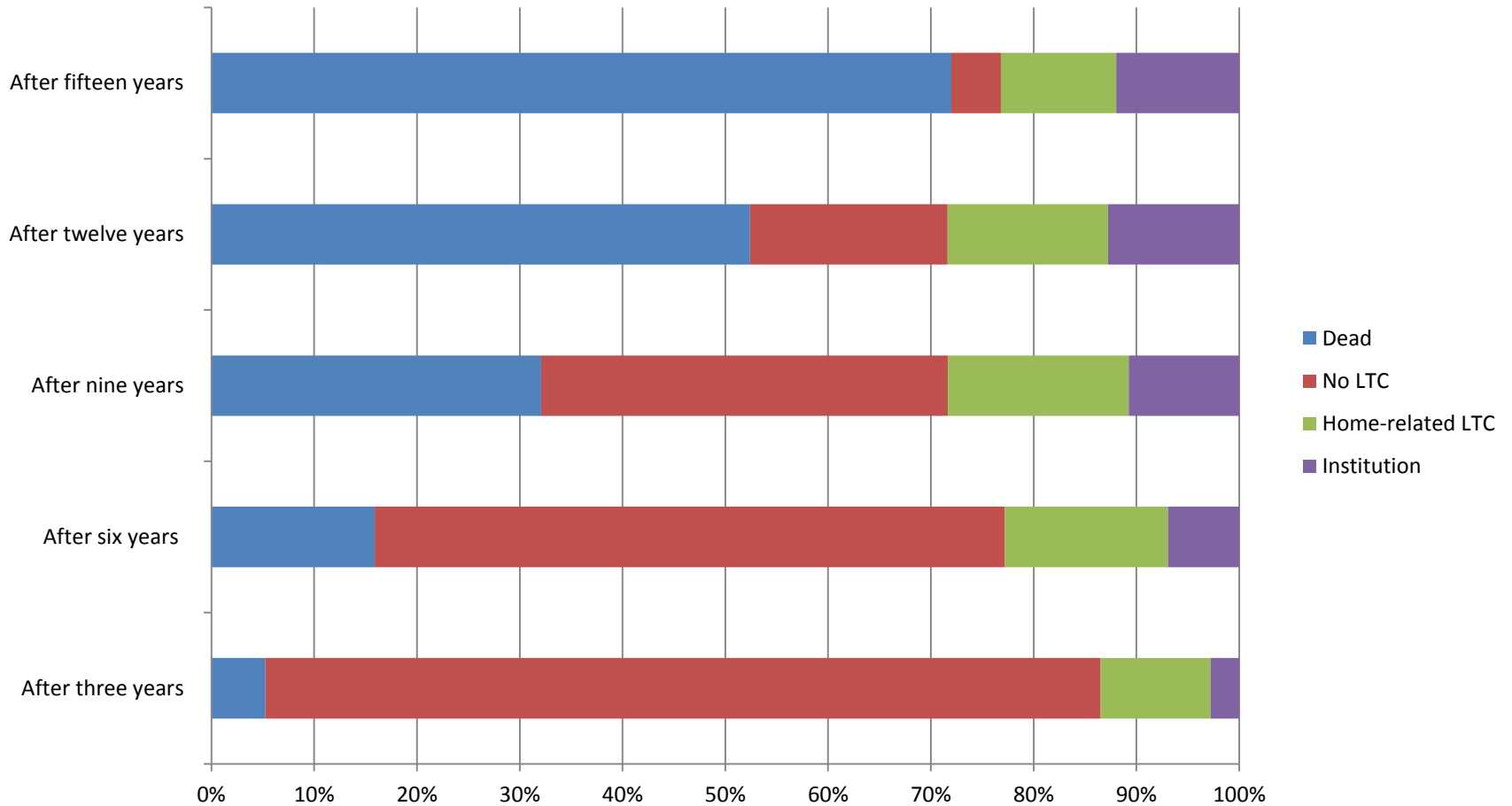


Japan: Distribution on level of LTC, women

- initial level: Institution

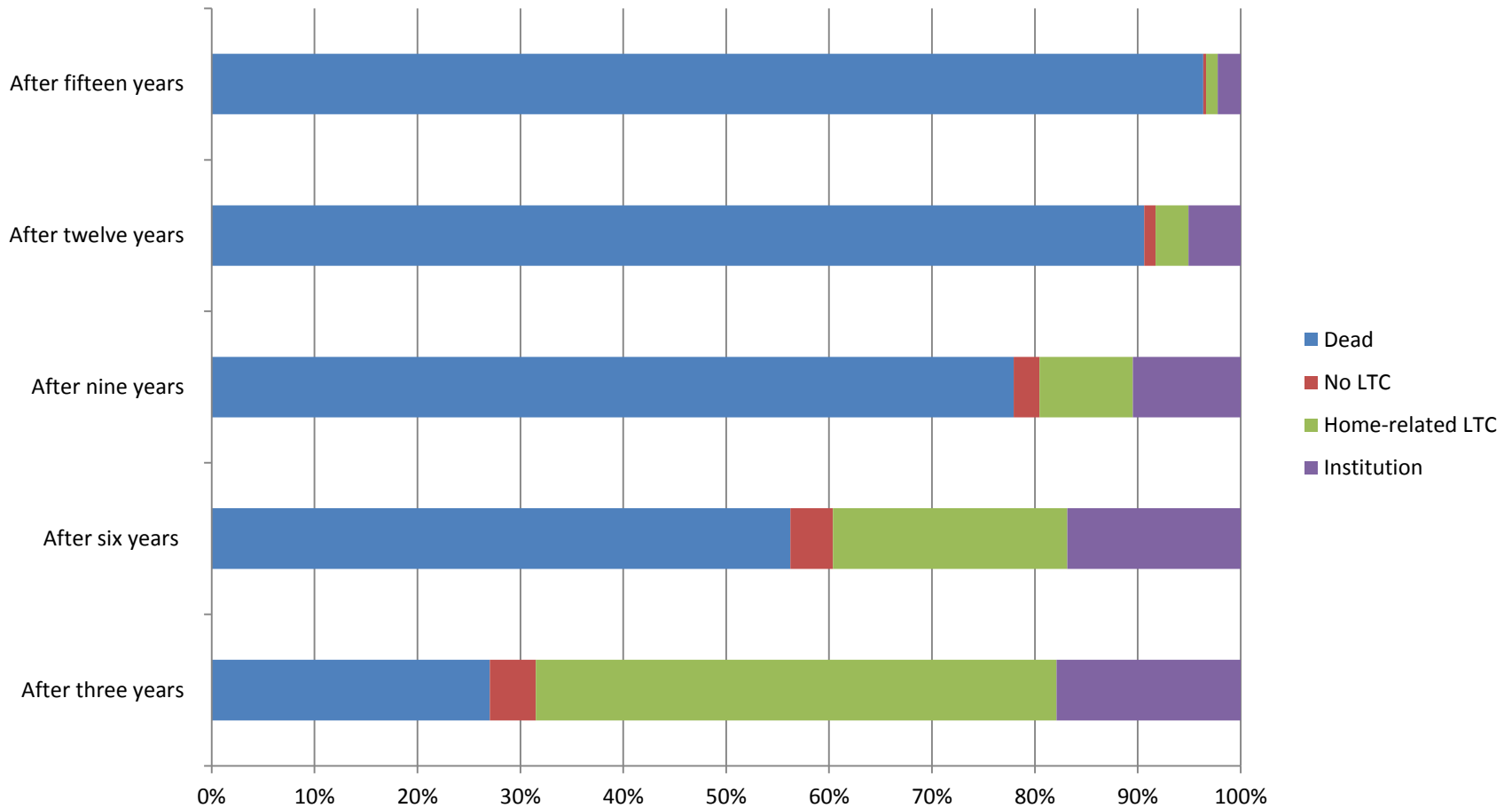


Sweden: Distribution on level of LTC, women - initial level: No LTC

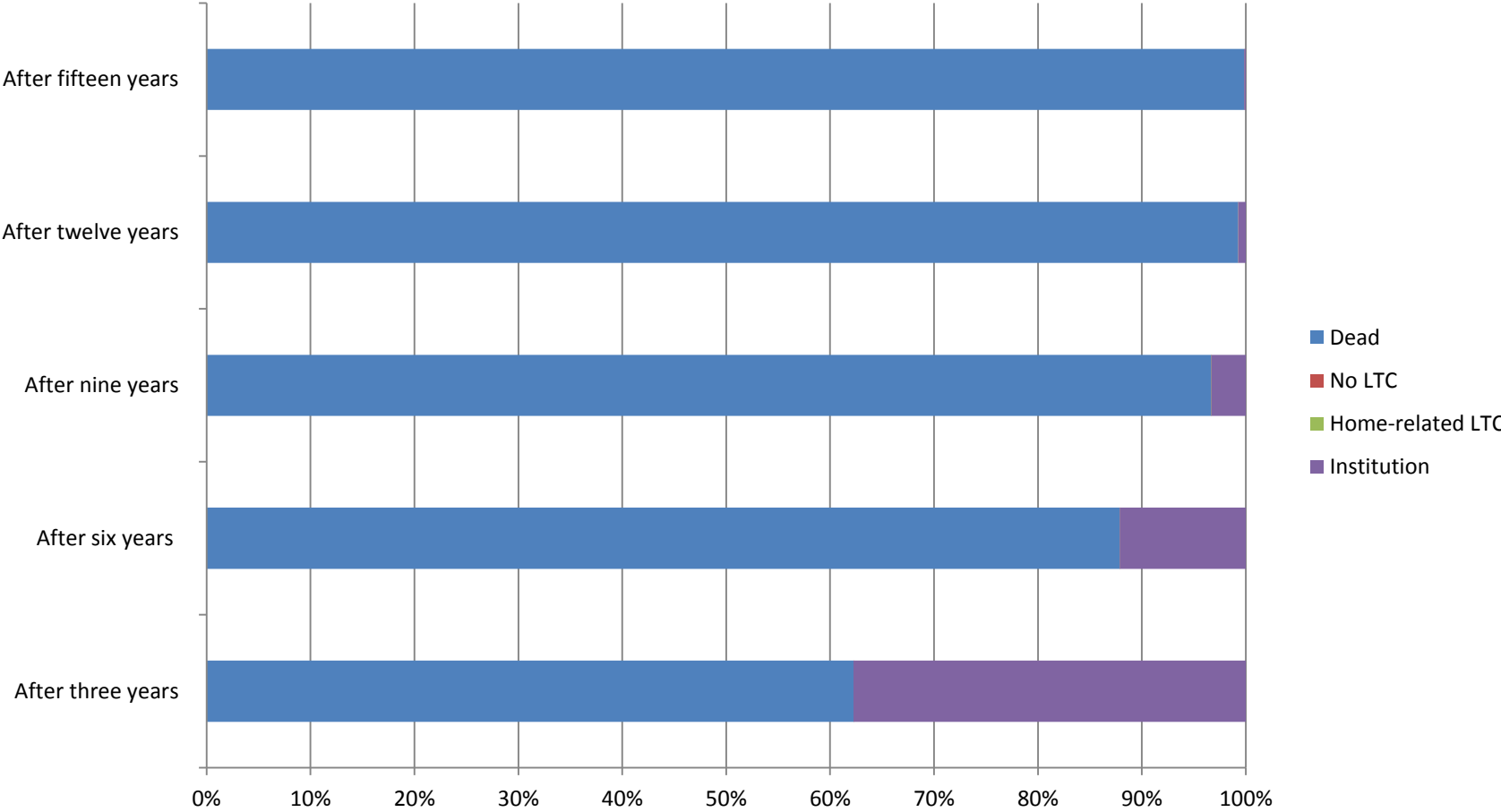


Sweden: Distribution on level of LTC, women

- initial level: Home-related LTC



Sweden: Distribution on level of LTC, women - initial level: Institution



Conclusions – functional limitations

- The initial state has a profound impact on probability of death – especially in the short run, 5 -10 years – and also on transition to more severe levels of limitations
- Recovery is not uncommon – it seems that functional limitations sometimes are transitory
- Women have lower mortality and higher probability for disability increase
- The patterns in Japan and Sweden are similar

Conclusions – level of LTC

- As for functional limitations initial level of LTC has great influence on death and future levels of LTC – especially in the short run. A greater proportion of women than men end up in institutional care.
- Japan and Sweden differ when it comes to the permanence of level of LTC. This illustrates different “care in end of life”- patterns. (Note that in our study “no LTC” in Japan also covers hospital in-patient care, which explains why so many go from institution to “no LTC”. Around 80 % of old Japanese die in hospital compared to around 10% in Sweden)

Limitations

- The Markov assumption may not hold, i.e. not only the present state, but previous states might influence transitions. This can be tested.
- The samples underlying the calculation of transition probabilities are fairly small. All controlling variables in the regression analysis are not significant.
- The applied technique allows only for a very limited number of state-variables. In this case two – functional limitation and level of LTC.
- In the Japanese data there is an uncertainty regarding to which extent "no LTC" might stand for long-term hospital in-patient care.

- Calculating life-chances implies a different perspective on aging and needs for LTC. Focus is shifted from the system to the individual
- The method used is inspired by micro-simulation but much simpler. For further progress along these lines micro-simulation is recommended.

That's all folks!

Thanks for your attention!!