

Cardio-cerebrovascular problems of gender diverse persons

Mees van Zijverden

MD, PhD student

Amsterdam University Medical Center, The Netherlands

Center of Expertise on Gender Dysphoria





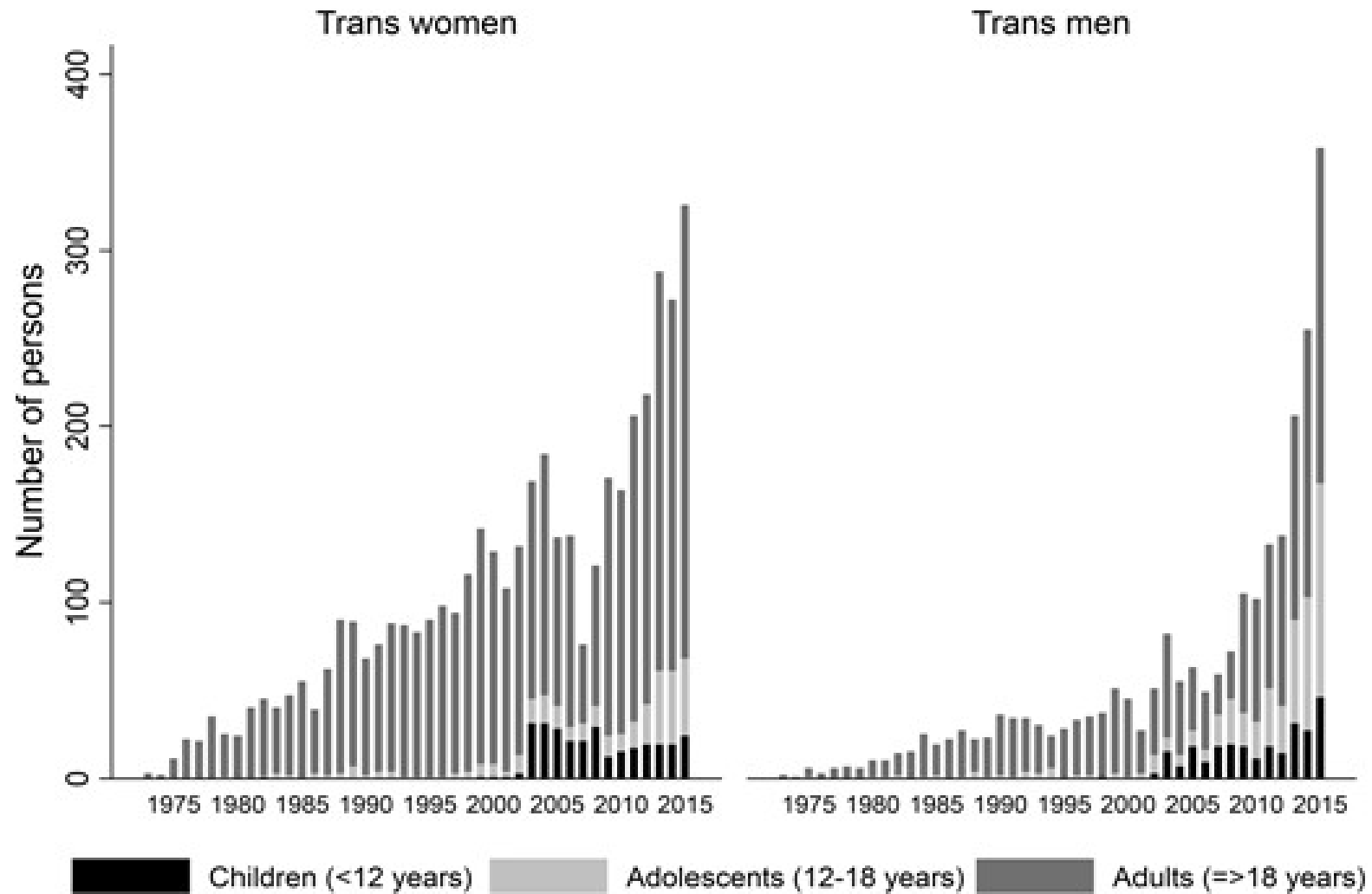
Contents

- **The Amsterdam Gender Clinic**
- Gender diversity and hormone therapy
- Cardiometabolic effect of sex hormones
- Cardio-cerebrovascular events in transgender people
- In the consultation room
- Take home messages



- Estimated prevalence 1 : 100-200 people
- 1 : 5,200 people seek medical care







Amsterdam gender clinic



1972



2024



Multidisciplinary team

- Psychologists
- Psychiatrists
- Endocrinologists
- Paediatricians
- Gynaecologists
- Plastic surgeons
- Urologists
- Otolaryngologists
- Maxillofacial surgeons



Professor Louis Gooren (1943-2023)
endocrinologist

“I was well aware of the risks of long-term side effects.

We knew that sex hormones impact the cardiovascular system, the bones and the development of tumors. So, it was looking for balance. In medicine, there just are certain risks and side effects you have to take for granted.

Nevertheless, that fear was always in the back of my mind. (...)

Nowhere in the world, systematic scientific research into the effects of sex reassignment treatment was done. That’s why I felt it was extremely important to do as much research as possible and discover the side effects myself.

Keep my own house clean, so to speak.”

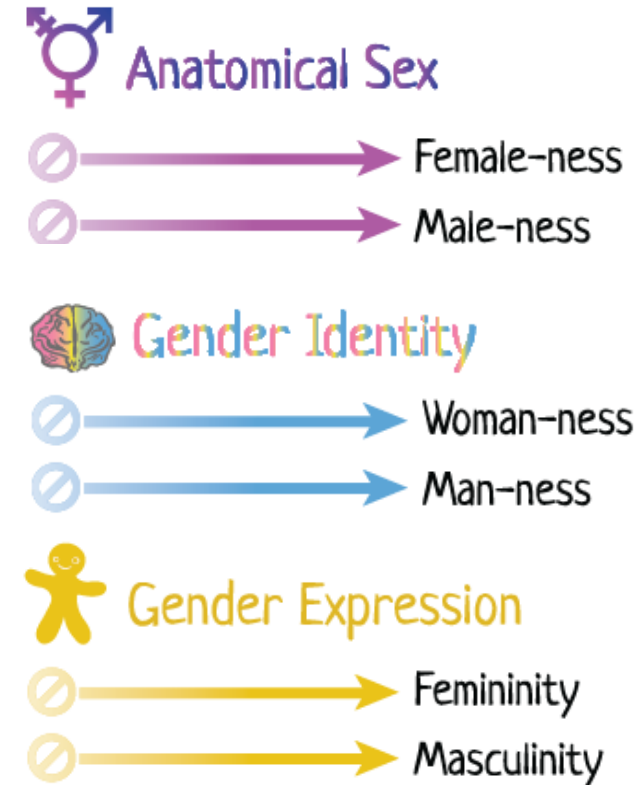
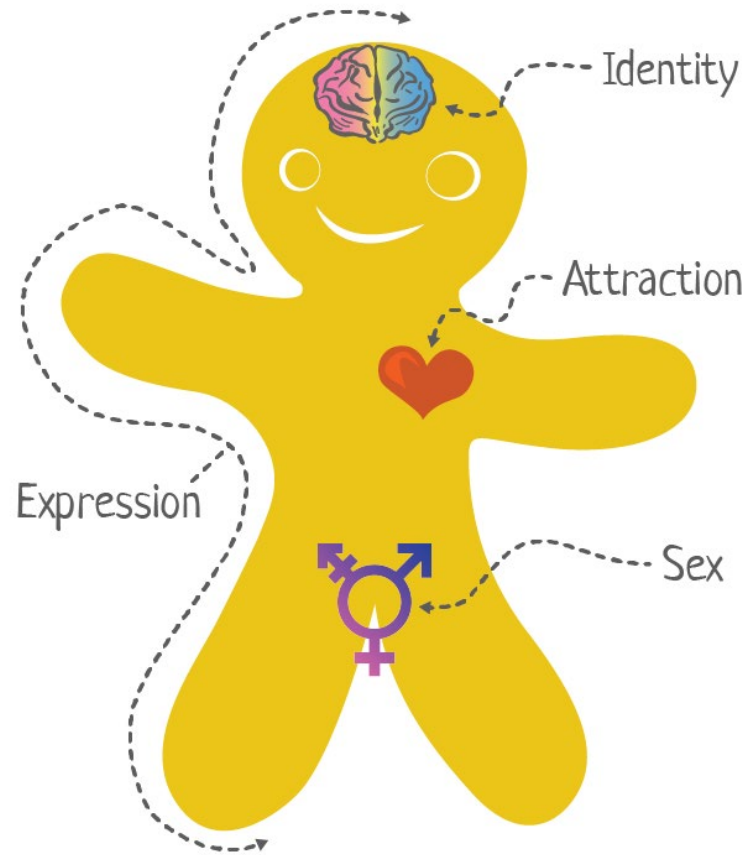


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Sex and gender



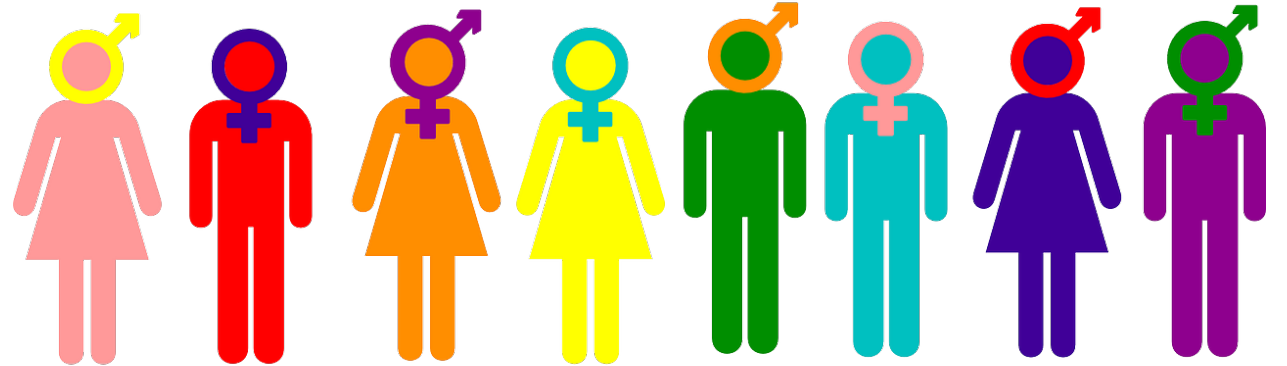


Gender diversity

Cisgender

Transgender

Nonbinary



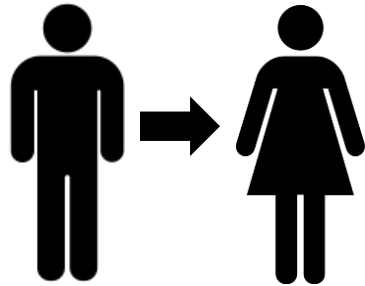
Gender neutral, Genderfluid, Pangender, Agender, Genderqueer, ...



Gender-affirming hormone therapy

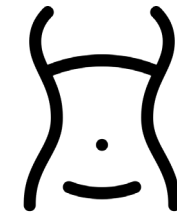
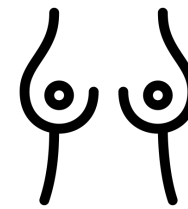
Feminizing hormone therapy

Transgender woman:

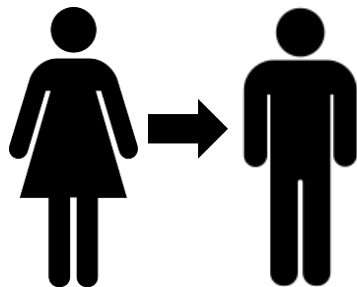


+ Estradiol

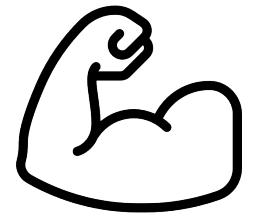
- Testosterone



Transgender man:



+ Testosterone





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Sex differences in CVD risk

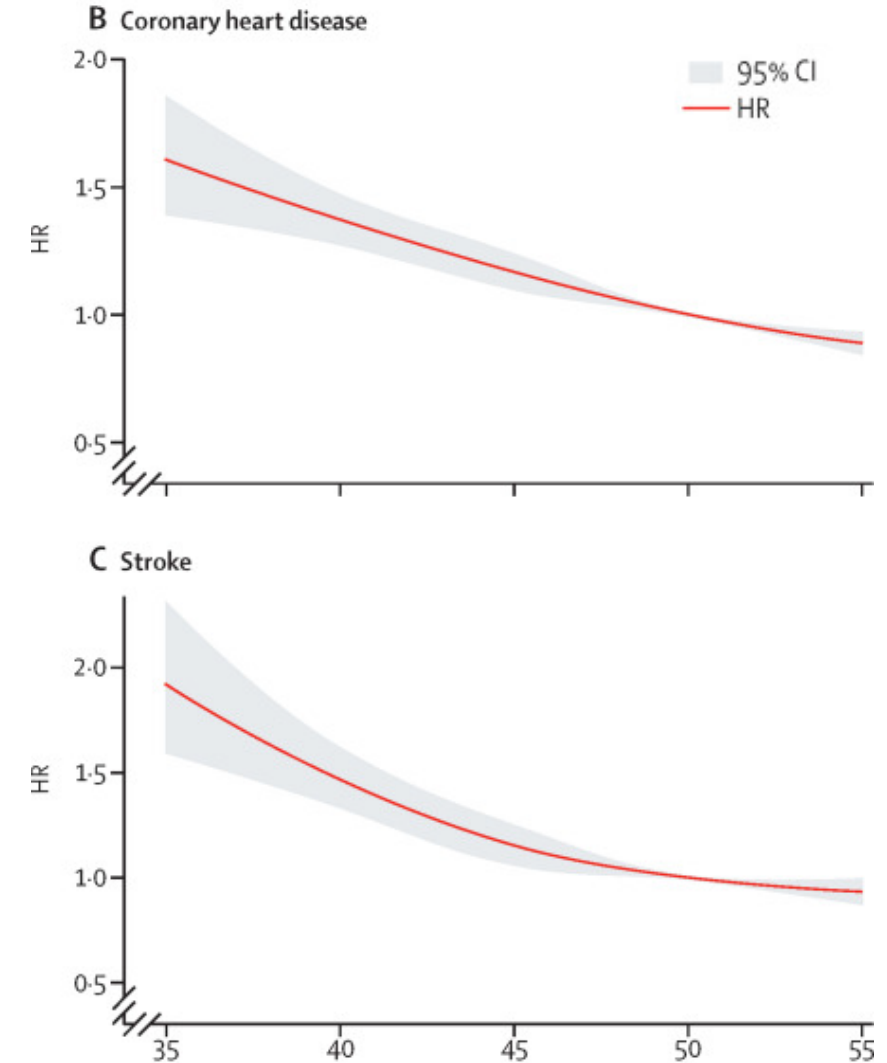
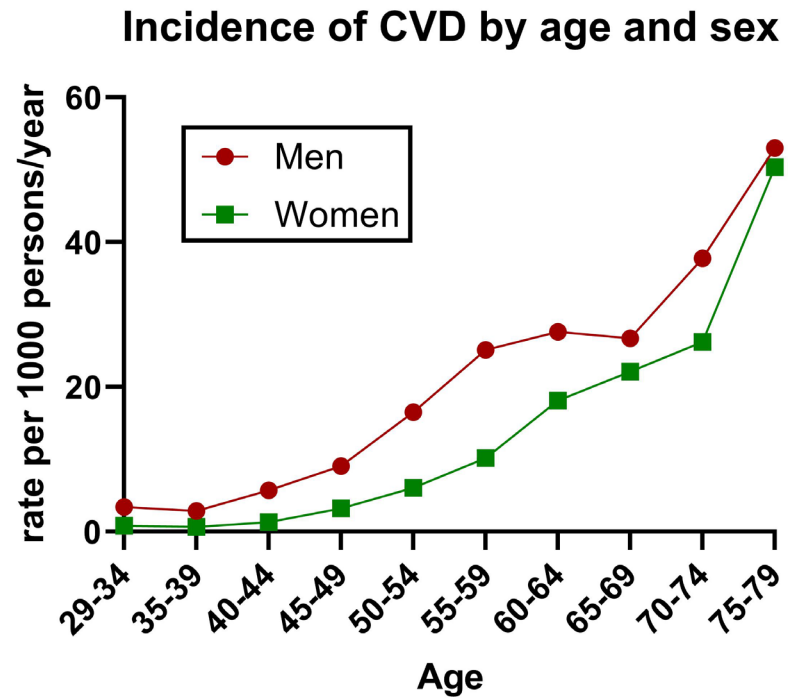


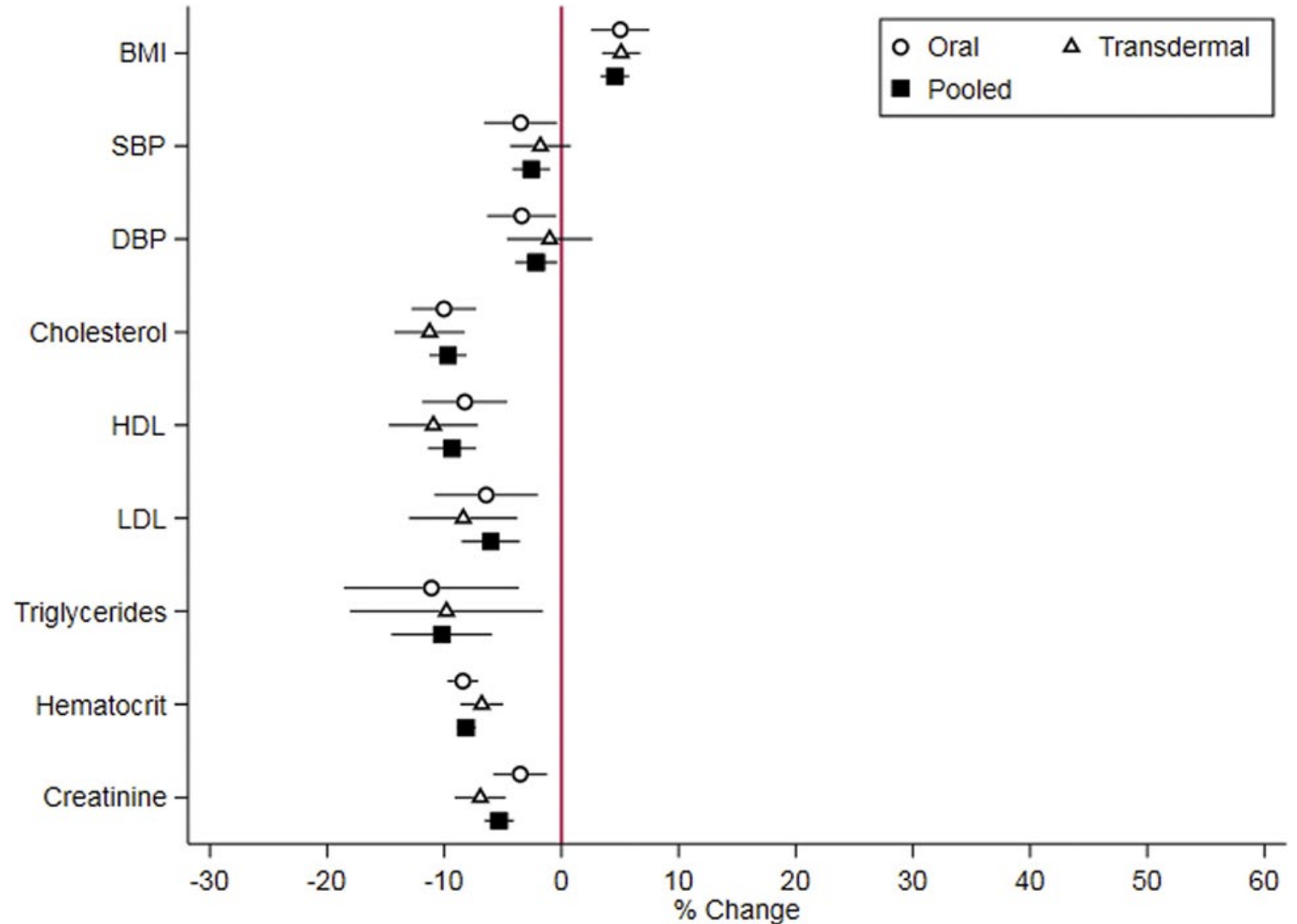
Figure 1. Association between age at natural menopause and first cardiovascular events



Feminizing HT

Trans women  → 

- Prospective cohort
- N = 242
- 12 months vs baseline

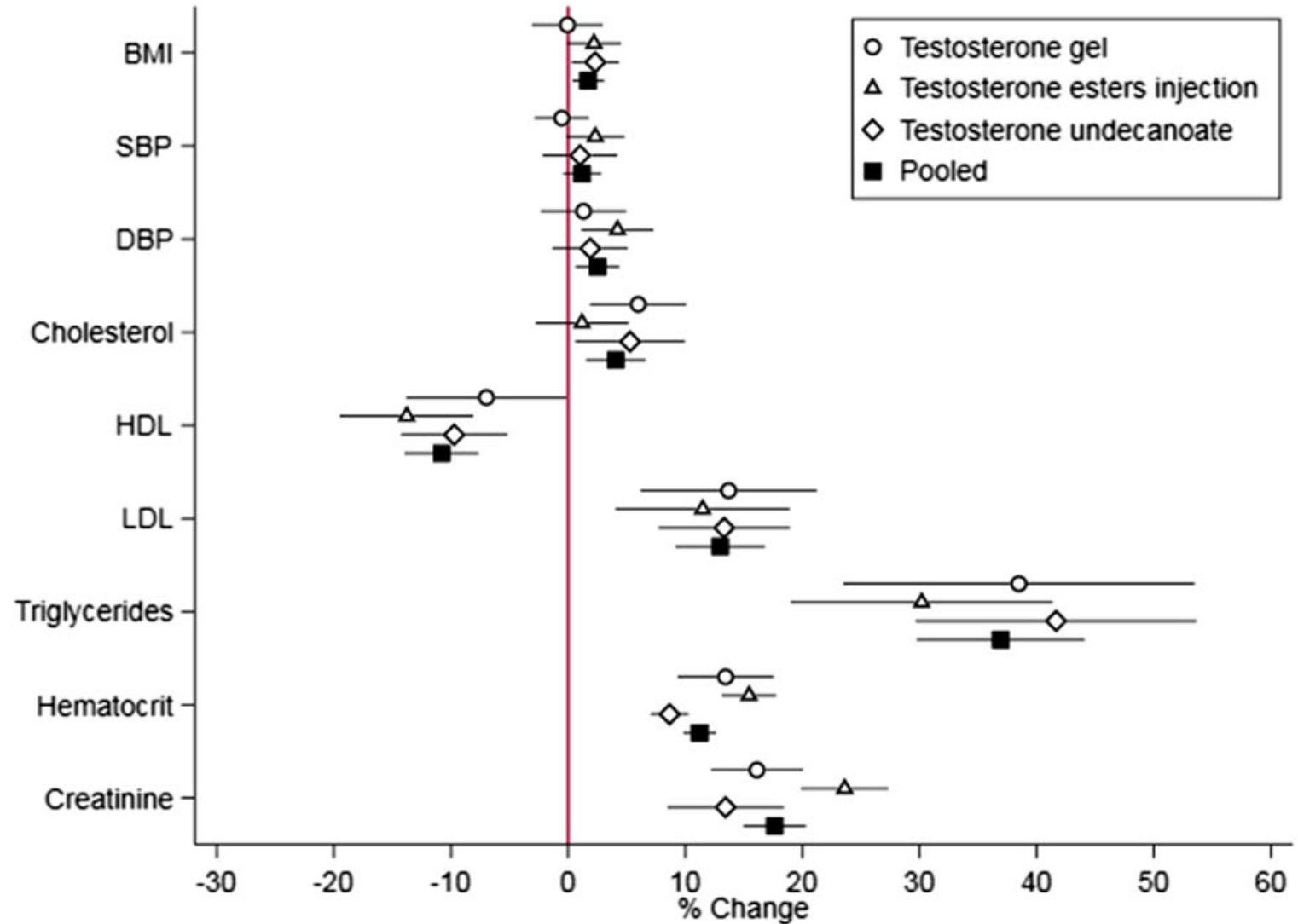




Masculinizing HT

Trans men  → 

- Prospective cohort
- N = 188
- 12 months vs baseline

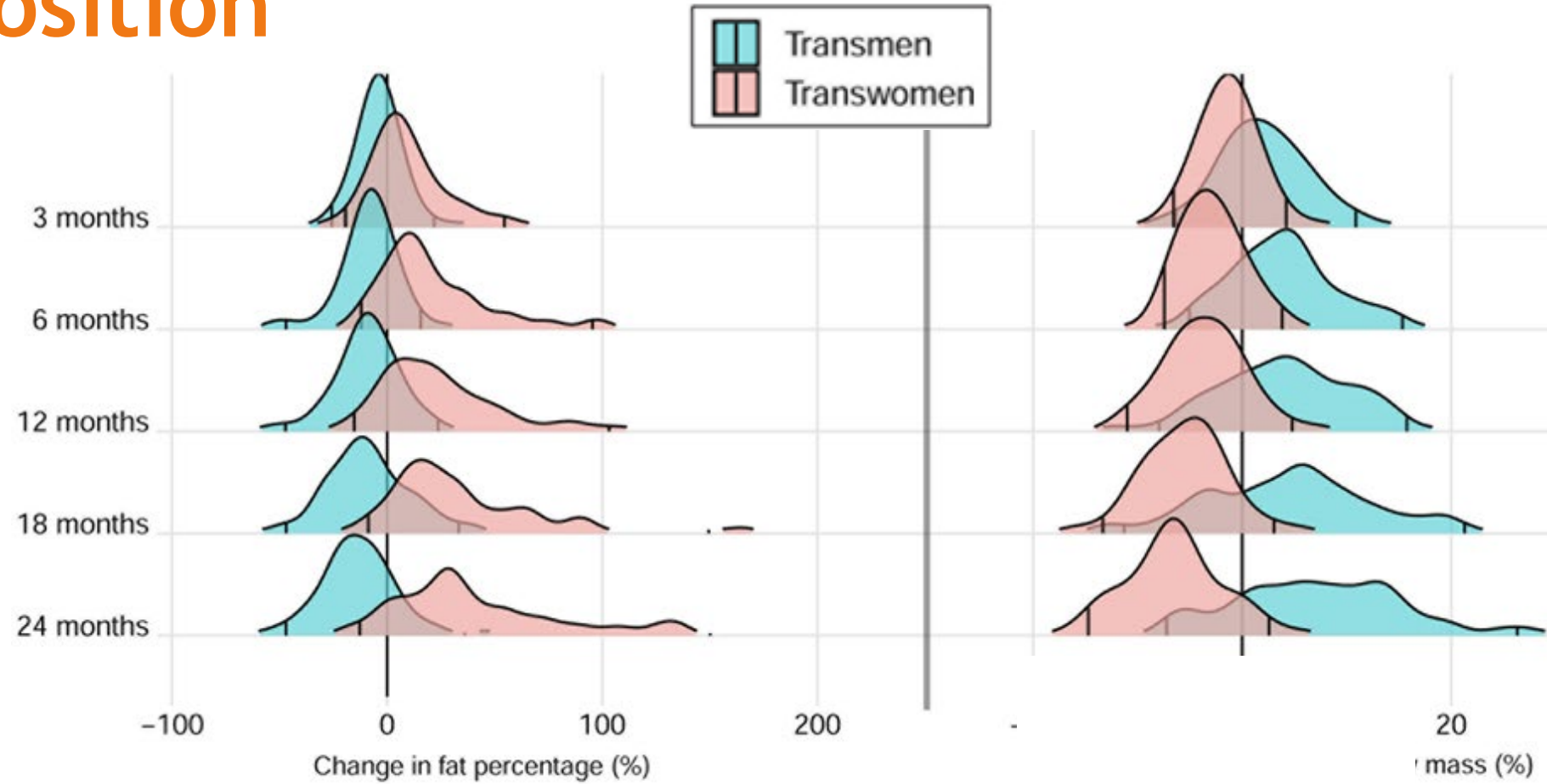




Body composition

Prospective cohort

- N = 288 trans women
- N = 323 trans men

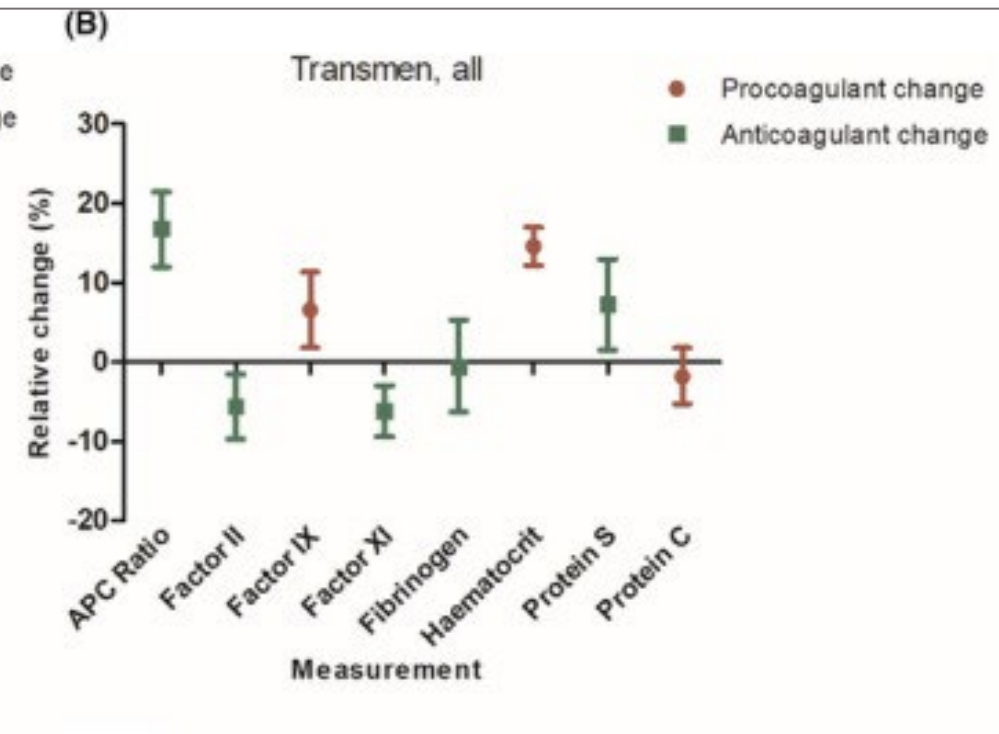
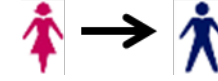
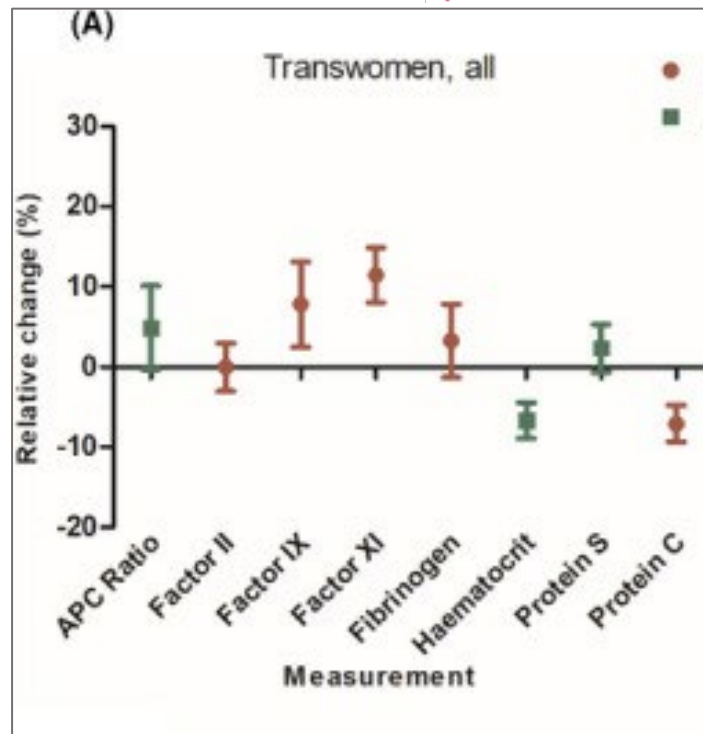
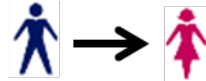




Coagulation

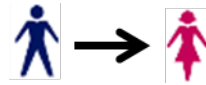
Prospective cohort

- N = 98 trans women
- N = 100 trans men
- 12 m vs baseline

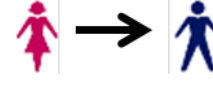




Transgender women



Transgender men



Fat percentage		
Blood pressure		
Lipid profile		
Triglycerides		
Coagulation factors		



Unfavourable change



Favourable change



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Risk of events - trans women  → 

Risk of events - trans men  → 

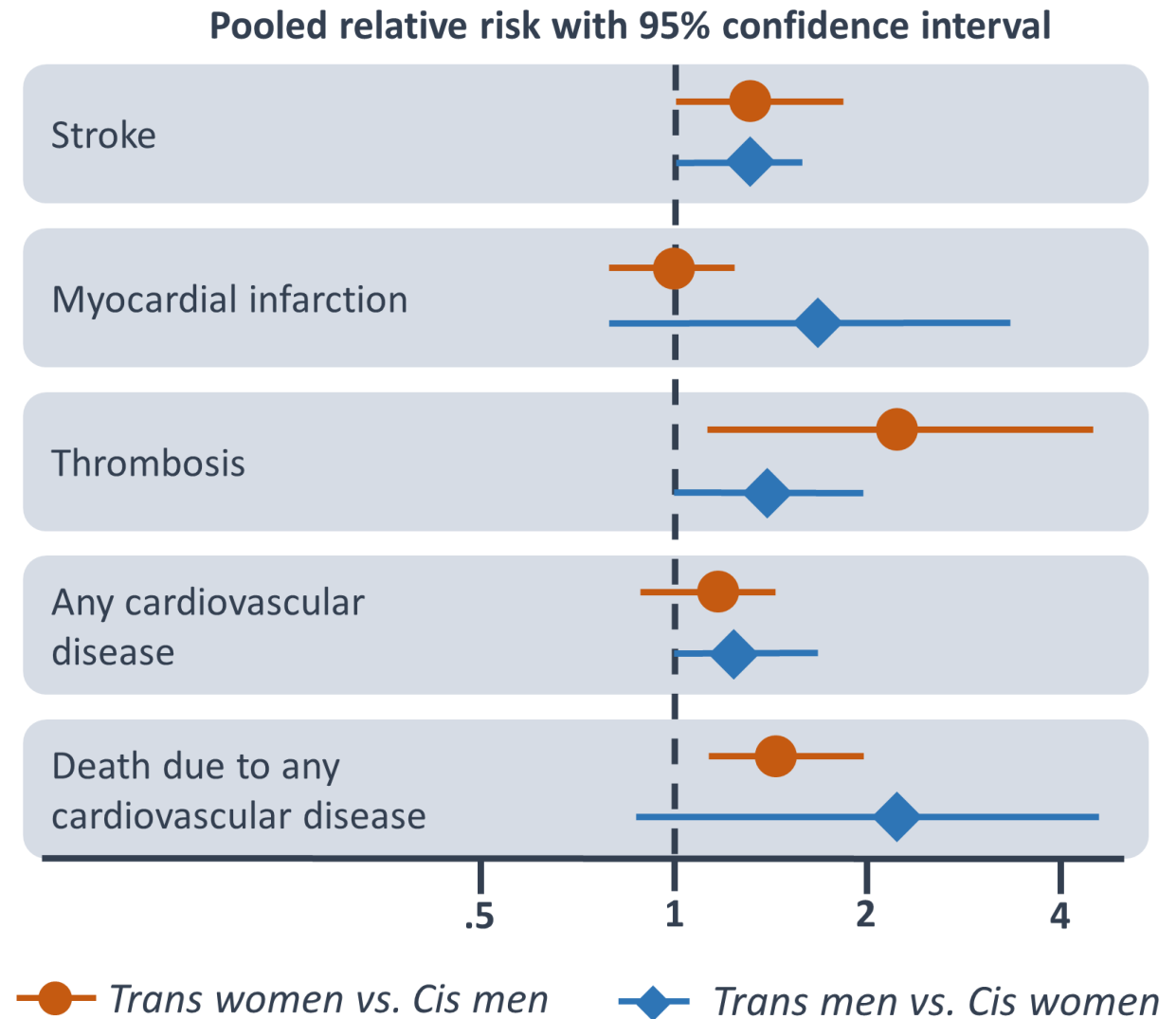
Preliminary data not yet available
for public use



Meta-analysis

10 studies included

- N = > 15,700 trans women
- N = > 11,200 trans men



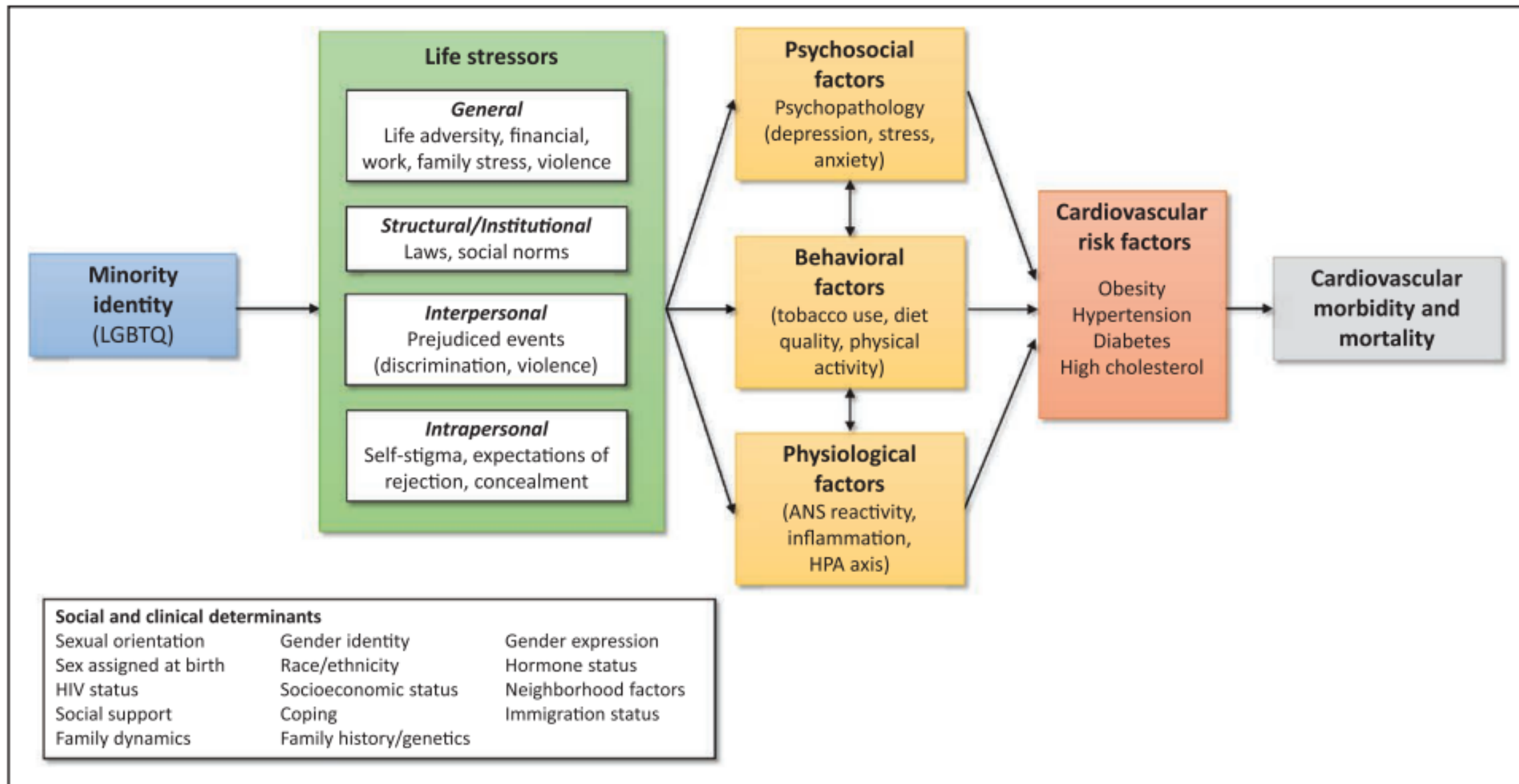


Figure. Conceptual model of cardiovascular health in lesbian, gay, bisexual, transgender, and queer or questioning (LGBTQ) adults.



Socio-economic status

Difficult to measure:

- Education level
- Employment
- Household income





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In the consultation room

- Use reference values of experienced gender
- Discuss modifiable cardiovascular risk factors, e.g. lifestyle interventions
- Models for CVD risk calculation: which sex?

Framingham Risk Score for Hard Coronary Heart Disease

Estimates 10-year risk of heart attack.

Age	60	years
Sex	<input type="radio"/> Female	<input checked="" type="radio"/> Male
Smoker	<input type="radio"/> No	<input checked="" type="radio"/> Yes





A trans woman with a stroke



Trans woman, 62 years old

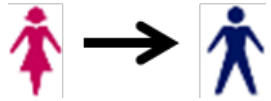
- 1990: start hormone therapy
- 1991: vaginoplasty
- Current medication: estradiol tablets



- 2024: ischemic stroke → carbasalate calcium, clopidrogel, amlodipin, rosuvastatin
- What to do with hormone therapy?



A trans man with a stroke



- Treat as usual
- Pay attention to blood pressure and lipids
- Continue testosterone therapy



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Take home messages

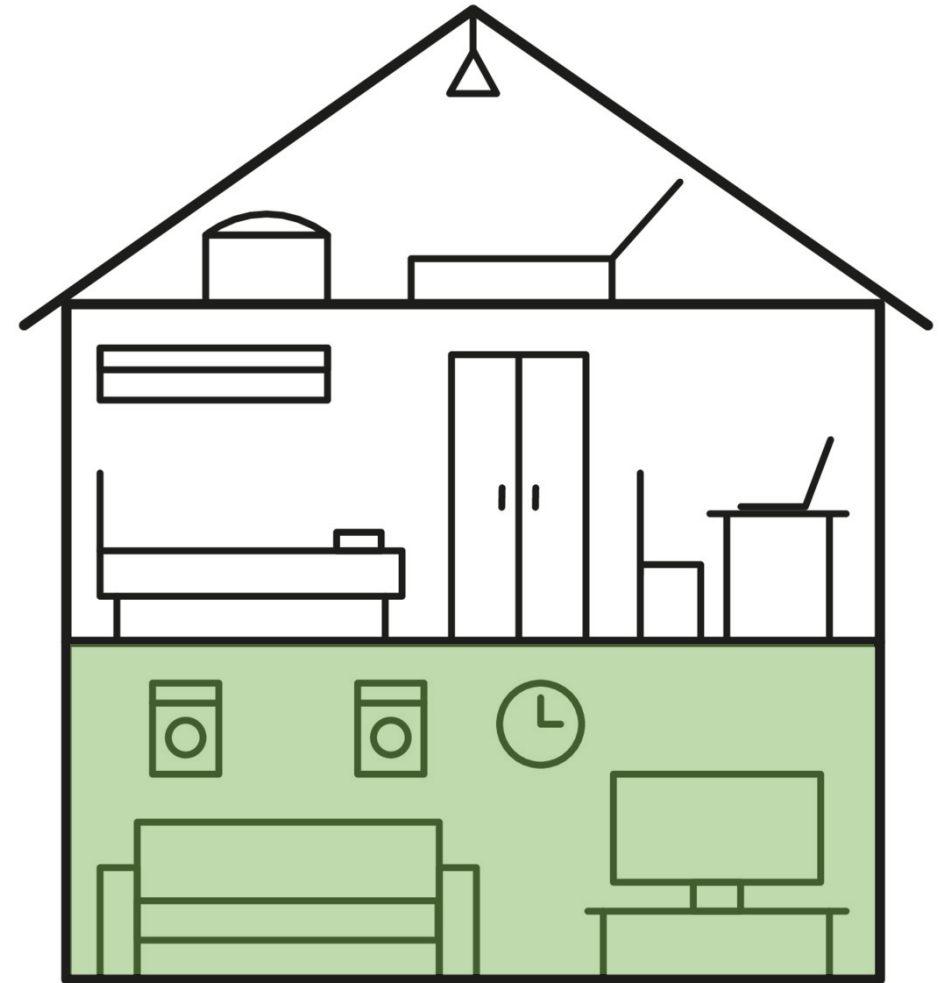
- Cardiometabolic profile changes towards experienced gender
- CVE risk may be not as bad as previously thought
 - Trans women mainly have elevated thrombosis risk
 - Trans men mainly have elevated MI risk
- Other factors may be involved in CVE risk; especially in other populations
- Discuss cardio-cerebrovascular risk in the consultation room
- More research is necessary

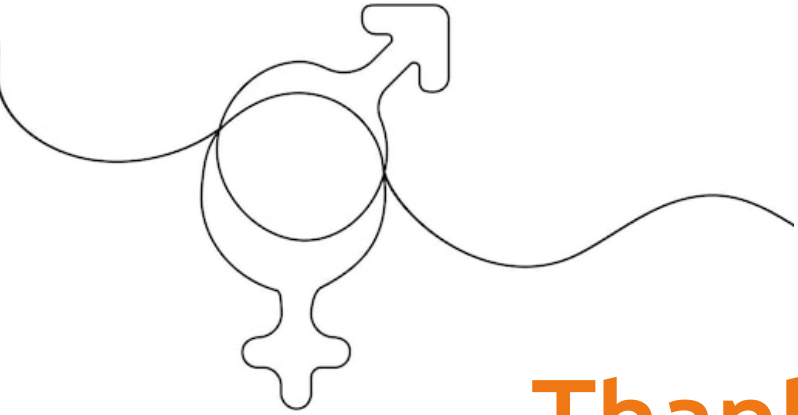


Professor Louis Gooren (1943-2023)

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Thank you for your attention



L.vanzijverden@amsterdamumc.nl

