

# HPV vaccination in relation to conization - a Danish nationwide study

Susanne Krüger Kjaer

Professor, MD, DMSc

Danish Cancer Society Research Center / and

Dept. of Gynecology, Rigshospitalet

Copenhagen, Denmark

## Aim

To assess whether HPV vaccination in relation to coinfection decreases the risk of subsequent CIN2 or worse (CIN2+)

# Personal identification number (PIN)

In Denmark .....

Central  
Personal  
Registry



All citizens have a unique  
personal identifier number  
- used universally in society



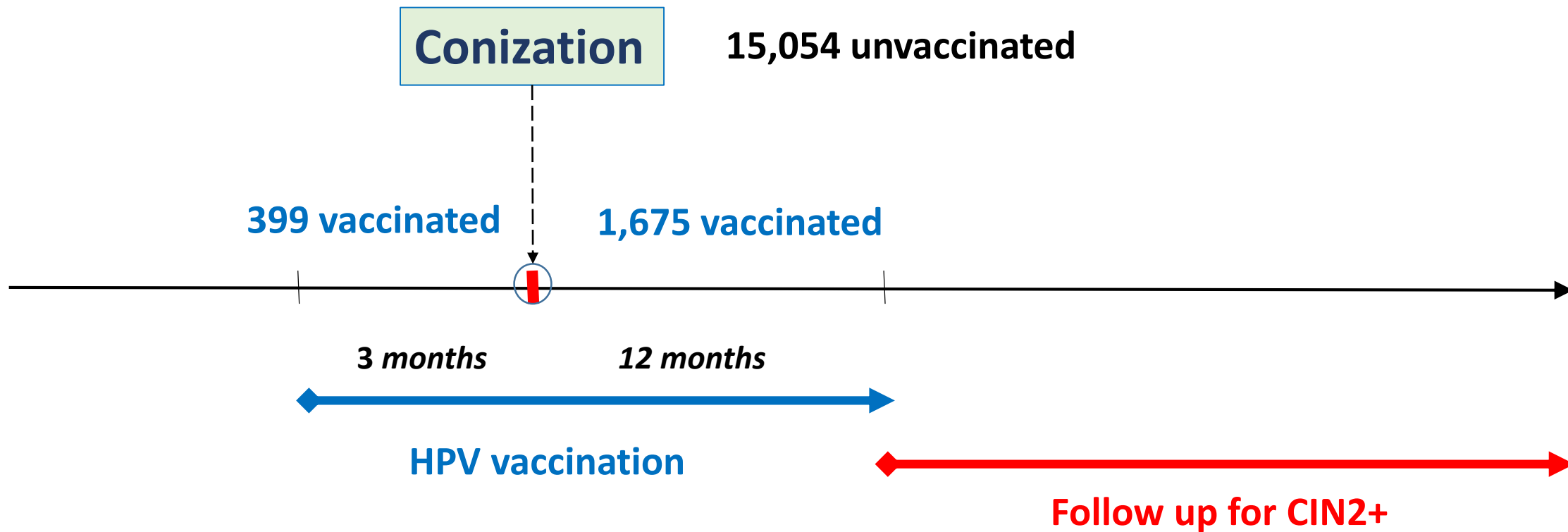
**Population-based surveillance is possible - with virtually no loss to follow-up**

## *Study population*

**Pathology Data Bank**

**Women with CIN3 on a  
cone (2006-2012)**

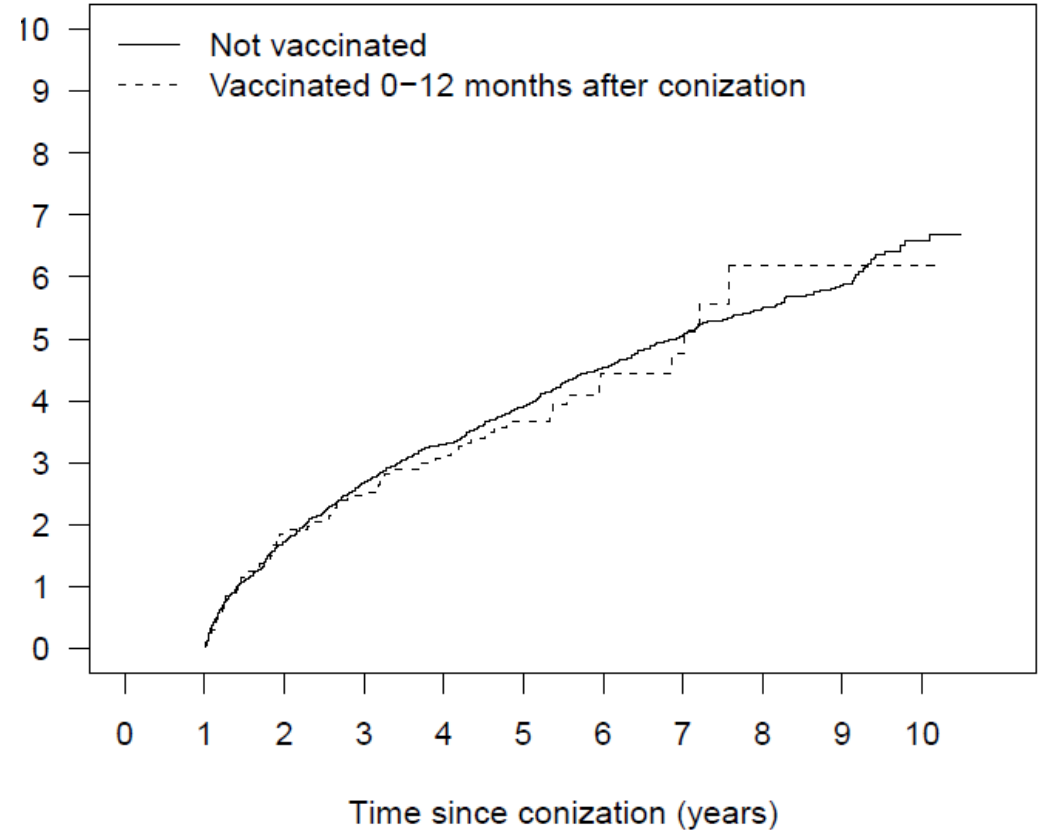
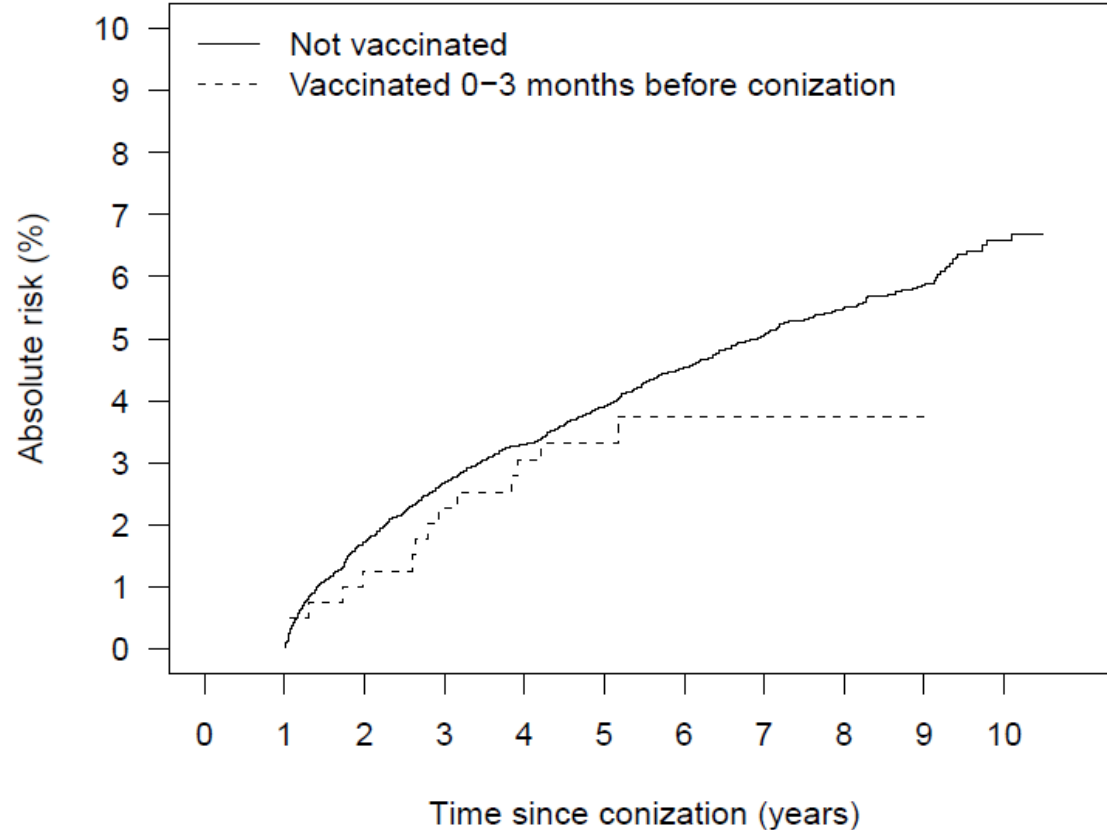
# Method



# Results

|                                                             | <b>Unvaccinated women</b> | <b>Vaccinated 0-3 months before conization</b> | <b>Vaccinated 0-12 months after conization</b> |
|-------------------------------------------------------------|---------------------------|------------------------------------------------|------------------------------------------------|
| <b>Median age</b> (range)                                   | 32 years (17-51)          | 29 years (17-49)                               | 28 years (17-51)                               |
| <b>Histological diagnosis on the cone</b>                   |                           |                                                |                                                |
| Severe dysplasia                                            | 10895 (72%)               | 304 (76%)                                      | 1204 (72%)                                     |
| Cancer in situ                                              | 4159 (28%)                | 95 (24%)                                       | 471 (28%)                                      |
| <b>Repeat conization within 1 year after the index cone</b> |                           |                                                |                                                |
| Yes                                                         | 624 (4%)                  | 18 (5%)                                        | 84 (5%)                                        |
| <b>Diagnosed with CIN2+ within 1 year after index cone</b>  |                           |                                                |                                                |
| Yes                                                         | 688 (5%)                  | 21 (5%)                                        | 99 (6%)                                        |

## Absolute risk of CIN2+ by follow-up time according to vaccination status



## Risk of CIN2+ for women vaccinated in relation to conization compared to unvaccinated

|                                                          | No. of women | Follow-up time, pyrs | Women diagnosed with CIN2+ | Adjusted HR (95% CI) |             |
|----------------------------------------------------------|--------------|----------------------|----------------------------|----------------------|-------------|
| Unvaccinated women <sup>2</sup>                          | 15054        | 91448                | 777                        | 1 (ref)              |             |
| Vaccinated 3 months before to 12 months after conization | 2074         | 9191                 | 82                         | <b>0.86</b>          | (0.67-1.09) |
| Attained age 17-25 years                                 | 564          | 871                  | 15                         | <b>0.81</b>          | (0.46-1.43) |
| 26-35 years                                              | 1588         | 5581                 | 47                         | <b>0.90</b>          | (0.67-1.25) |
| ≥ 36 years                                               | 805          | 2738                 | 20                         | <b>0.80</b>          | (0.50-1.26) |
| Women vaccinated <u>0-3 months before</u> conization     | 399          | 1813                 | 14                         | <b>0.77</b>          | (0.45-1.32) |
| Women vaccinated <u>0-12 months after</u> conization     | 1675         | 7378                 | 68                         | <b>0.88</b>          | (0.67-1.14) |



## Summary

- **Altogether 17,128 women were included (2074 vaccinees).**
- **The HR of CIN2+ for vaccinees was 0.86 (95% CI:0.67–1.09).**
  - ..... **HR = 0.78 (95% CI: 0.59-1.03) (restricting to cones performed 2009-12)**
- **Women vaccinated 0-3 months before tended to have a lower HR of CIN2+ (HR = 0.77, 95% CI:0.45-1.32) than women vaccinated 0-12 months after conization (HR = 0.88, 95% CI:0.67-1.14) – however, the difference was not statistically significant**



Thank you for the attention