What is the situation on cervical cancer screening in Germany as an European example ?

WHO global strategy to eliminate cervical cancer

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Cervical Cancer Screening Program

Status in Germany before 2020

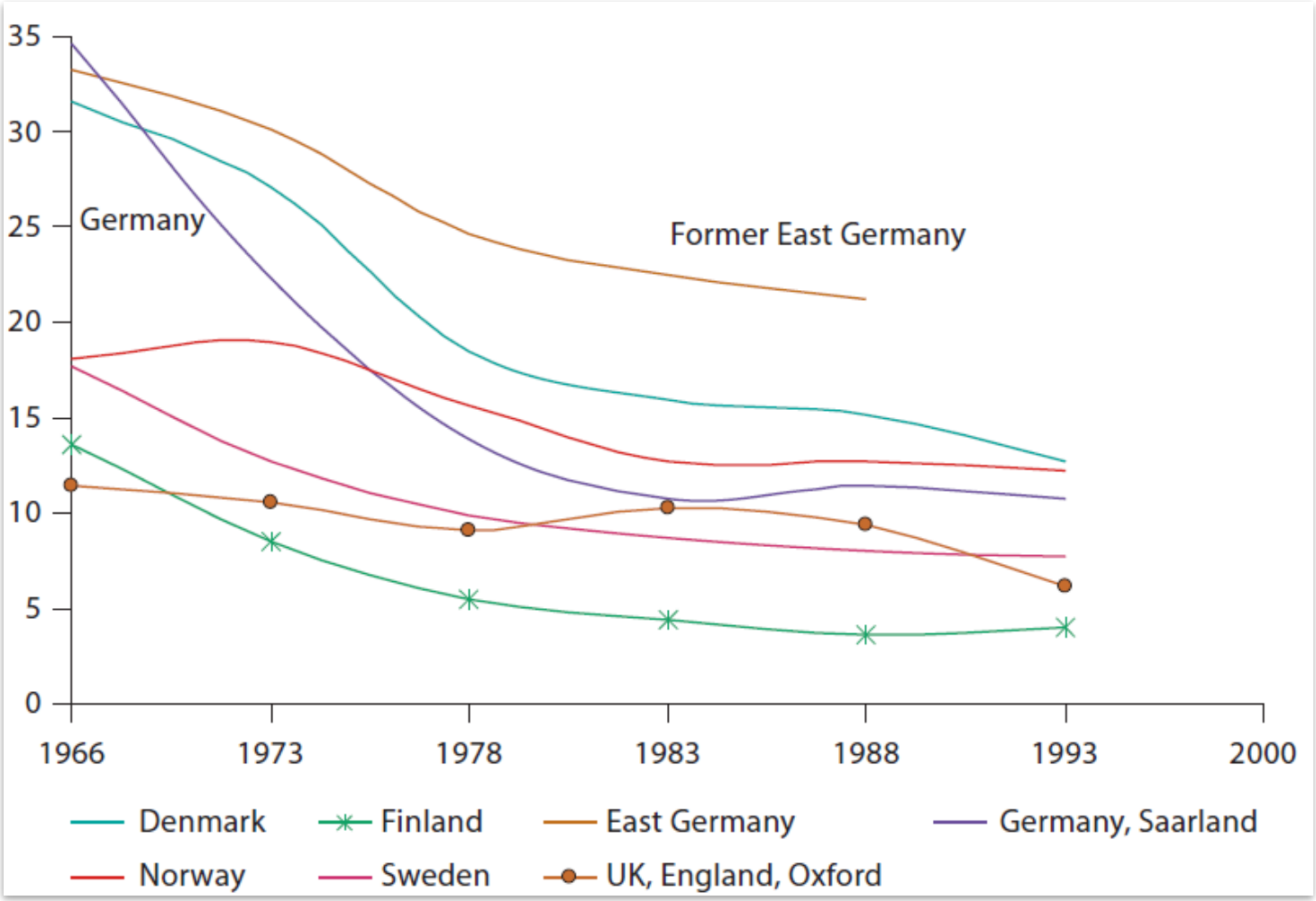
opportunistic screening program since 1971

- all in private hands – ObGyn , Cytology office based
- over screening of young women
- under screening of elderly women

- Pap smears at yearly intervals starting at the age of 20
- no population based call – recall system
- no clearly defined triage strategy
- no Certified Colposcopy Centers till 2015
- no Cancer Registry for whole Germany

age-standardized incidence of Cervical Cancer

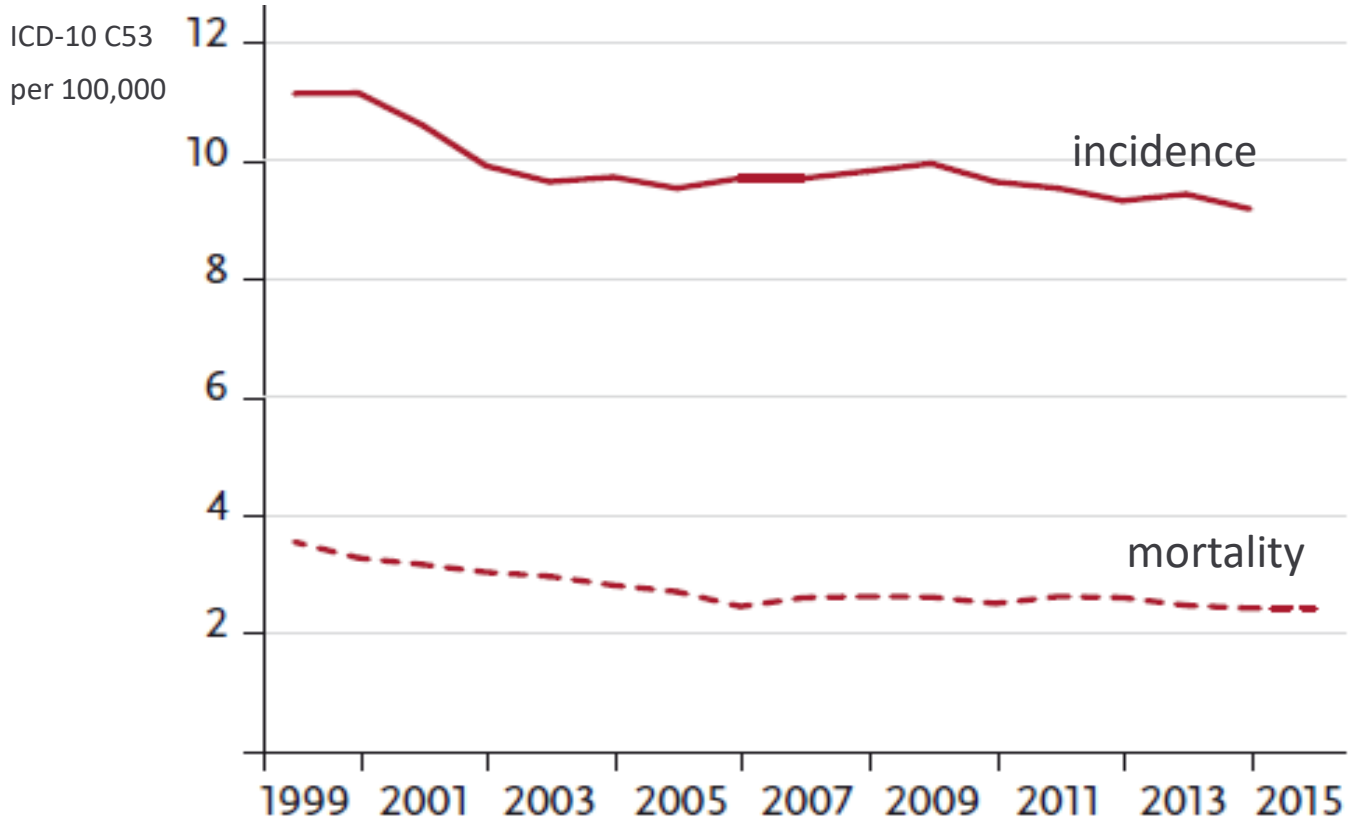
Germany compared to other European Countries



Marquardt et al. Persistent carcinoma in cervical cancer screening: non-participation is the most significant cause. Acta Cytol. 2011;55(5):433-7

Cervical Cancer in Germany

age standardized incidence and mortality rate in Germany

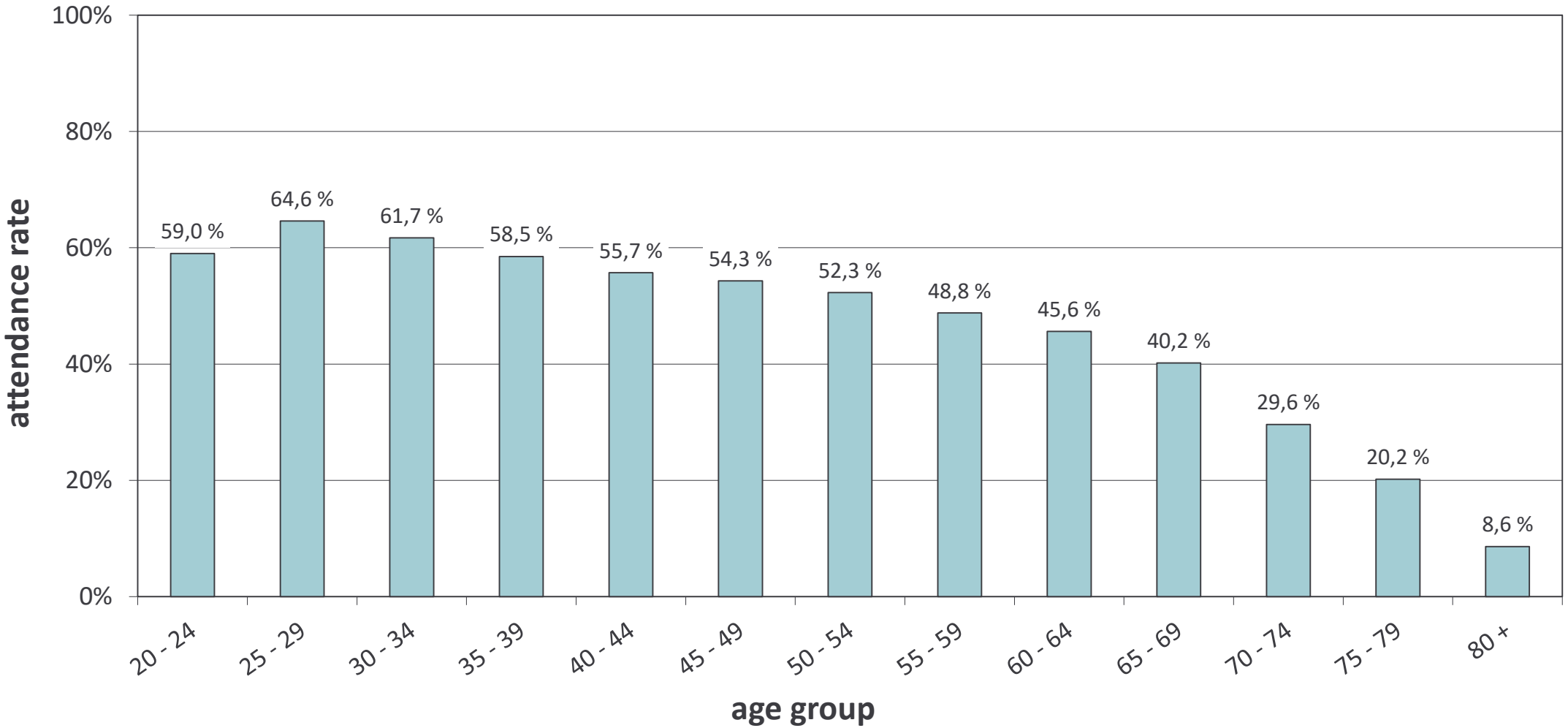


Median age of
invasive cervical cancer: 53 yrs
CIS: 33 yrs

Krebs in Deutschland für 2013/2014. 11. Ausgabe. Robert Koch-Institut (Hrsg) und die Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V. (Hrsg). Berlin, 2017; 10.17886/rkipubl-2017-007

Cervical Cancer Screening

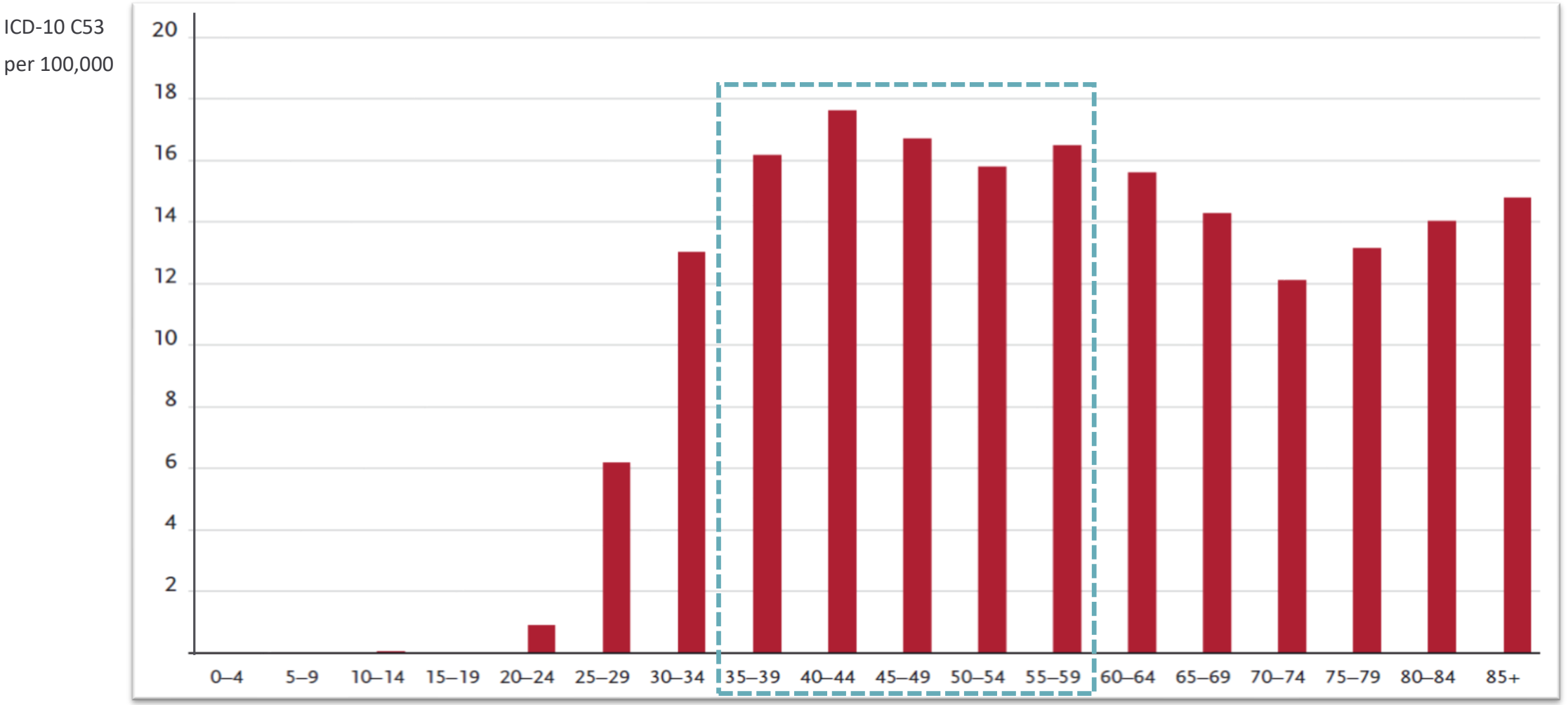
attendance rate by age



Altenhofen, L. Hochrechnung zur Akzeptanz von Gesundheitsuntersuchungen und Krebsfrüherkennungsuntersuchungen bei gesetzlich Versicherten. Berlin, Zentralinstitut für die kassenärztliche Versorgung in der Bundesrepublik Deutschland; 2005.

Cervical Cancer in Germany

age-specific incidence rates in 2013/14



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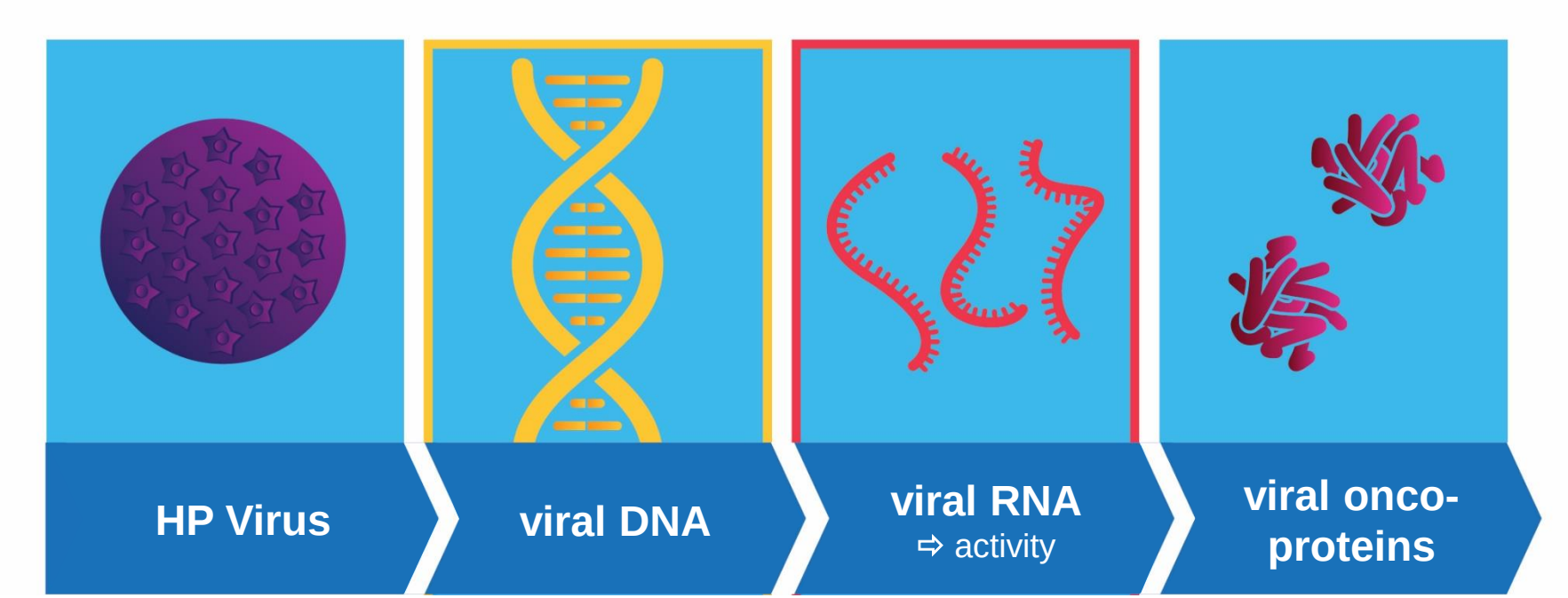
HPV Infection and Detection



Evaluation of Human Papillomaviruses

IARC Monographs

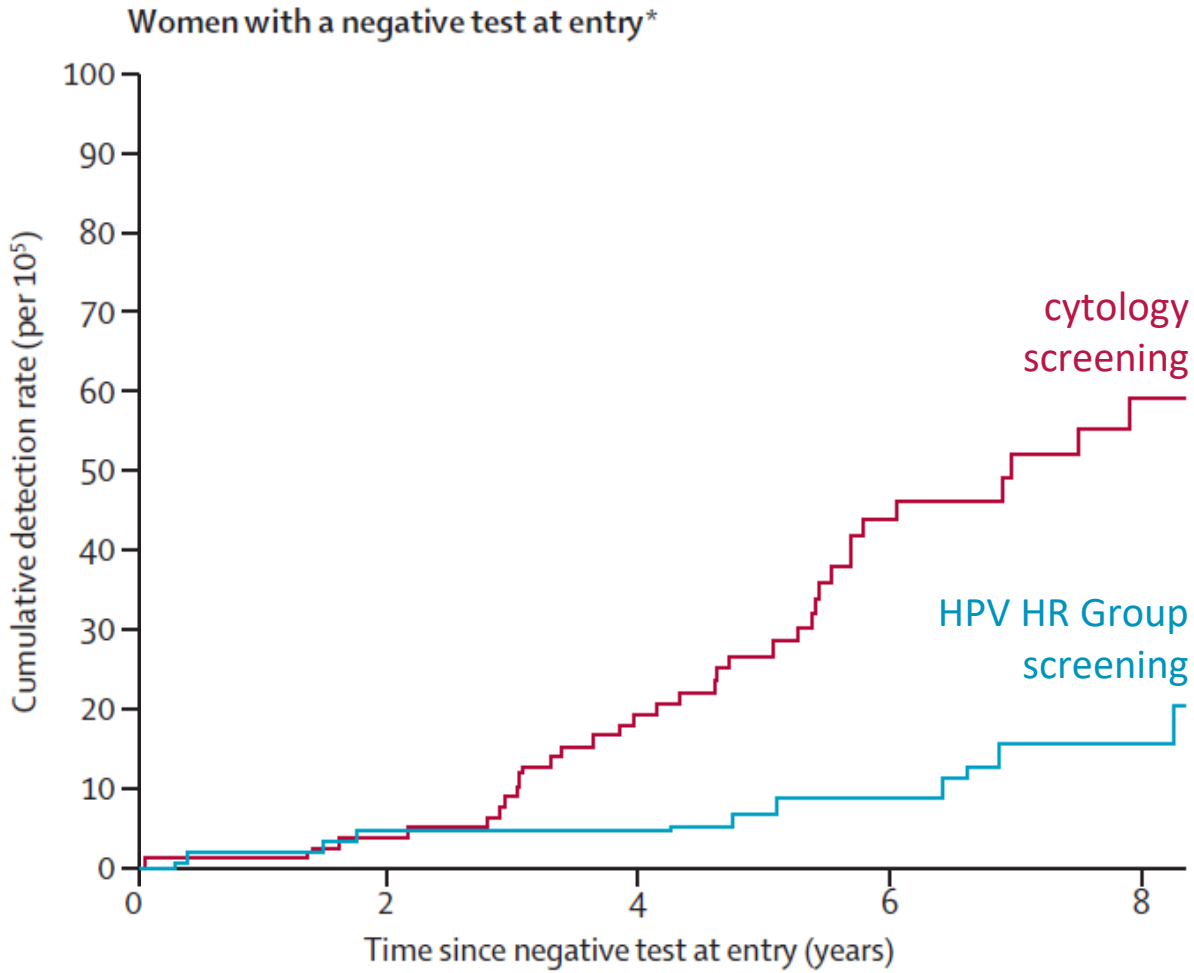
HR-types

Group	HPV types	Comments
	Alpha HPV types	
1	16	Most potent HPV type causes cancer at several sites, e.g. anogenital tract, oral cavity…
1	18,31,33,35,39,45,51,52,56,58,59	Sufficient evidence for cervical cancer
2A	68	Limited evidence in humans for cervical cancer and strong mechanistic evidence
2B	26,53,66,67,70,73,82	Limited evidence in humans for cervical cancer
2B	30,34,69,85,97	Classified by phylogenetic analogy
3	6 and 11	Inadequate epidemiological evidence and lack of carcinogenic potential in mechanistic studies
	Beta HPV types	
2B	5 and 8	Limited evidence for skin cancer in patients with epidermodysplasia verruciformis
3	Other beta (and gamma) types	Further research needed

IARC. 2012. A Review of Human Carcinogens - Biological Agents, vol 100B

Prevention of Cervical Cancer in Europe

HPV testing vs. cytology in Sweden, the Netherlands, England, Italy

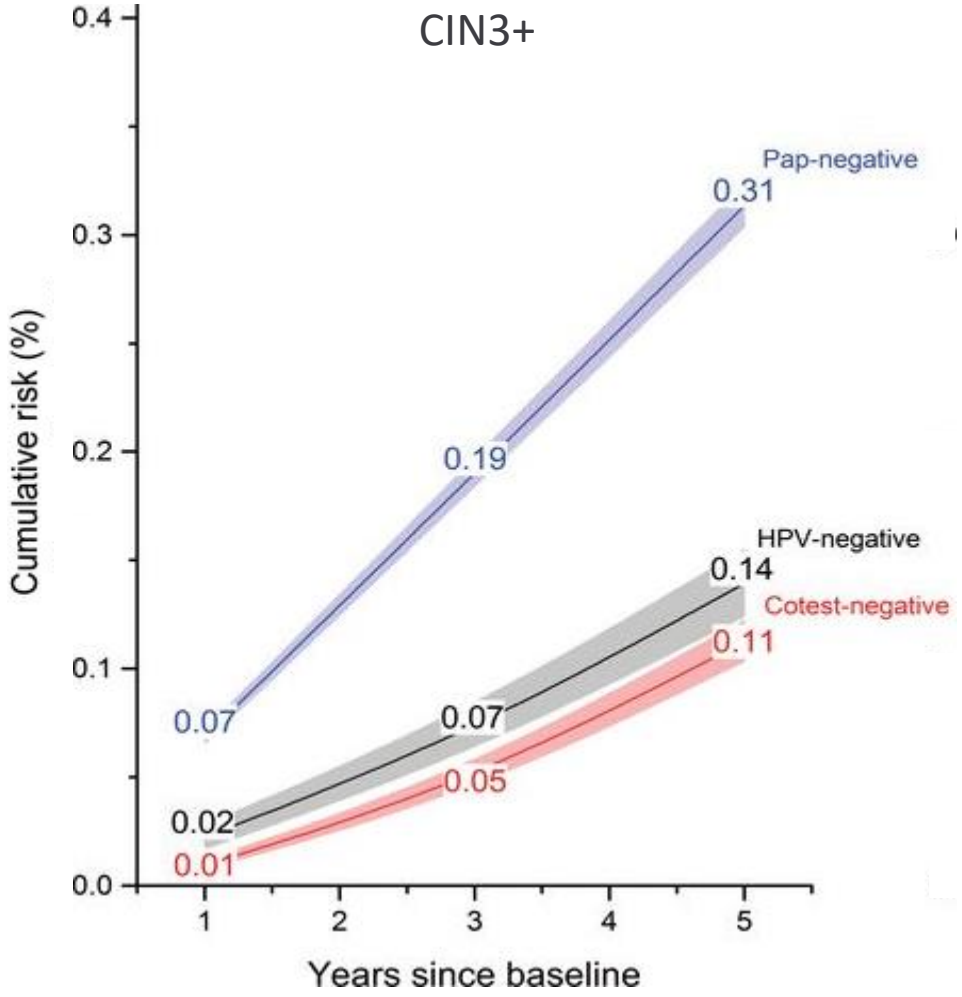


improved protection against Cervical Cancer compared to cytology-based screening (RCT´s) in more than 176,000 women

Ronco G, Dillner J, Elfstrom, KM et al.; Efficacy of HPV-based screening for prevention of invasive cervical cancer: follow-up of four European randomised controlled trials. Lancet 2014; doi.org/10.1016/s0140-6736(13)62218-7

Prevention of Cervical Cancer in the United States

HPV testing vs. cytology (every 3 yrs) or cotesting (cytology & HPV test; every 5 yrs)



1,011,092 Women,
age 30 to 64 yrs
2003-2012

Gage JC, Schiffman M, Katki HA et al. Reassurance against future risk of precancer and cancer conferred by a negative human papillomavirus test. Journal of the National Cancer Institute 2014; doi.org/10.1093/jnci/dju153

Current Situation in Germany

The G-BA has decided 2016 to introduce an organized cervical cancer screening in Germany (starting 01.01.2020, earliest evaluated after 6 yrs):

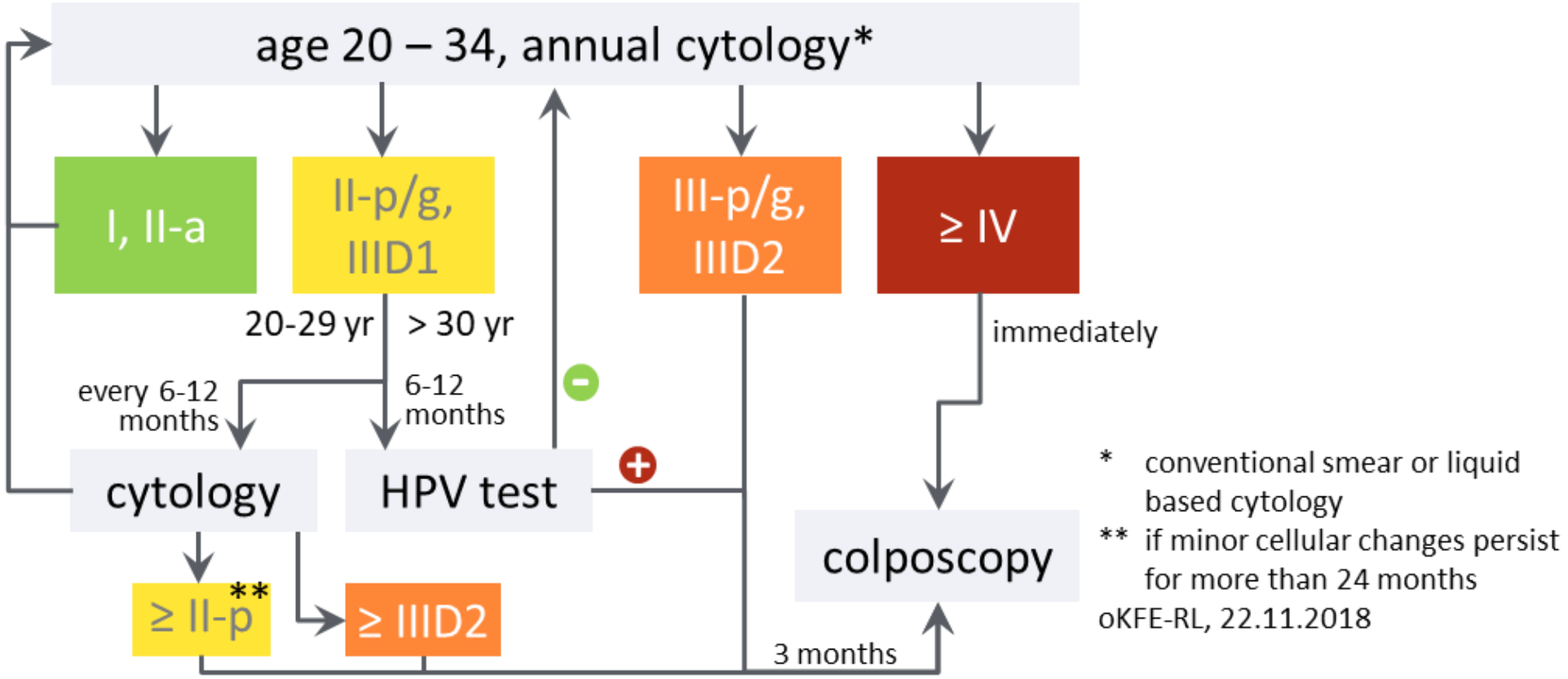
Women older than 35 are offered a co-testing with HPV test and cytology, every 3 yrs.

Women younger than 35 are offered an annual cytology (Pap smear).

Federal Joint Committee (G-BA)
= highest decision-making body of the joint self-governance of physicians, dentists, hospitals and health insurance funds in Germany – issues directives

German Screening program

early detection of cervical cancer (oKFE-RL)



German Screening program

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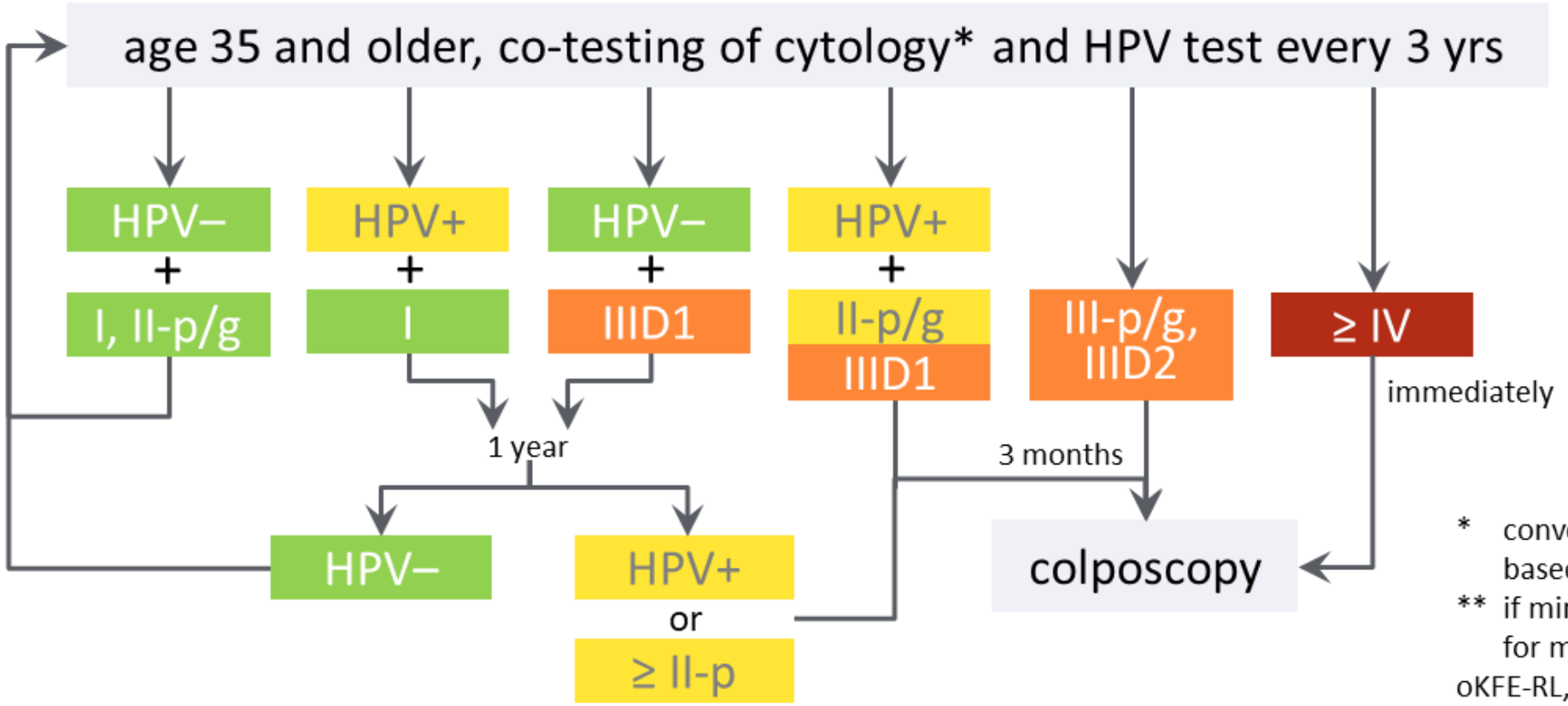


* conventional smear or liquid based cytology

** if minor cellular changes persist for more than 24 months

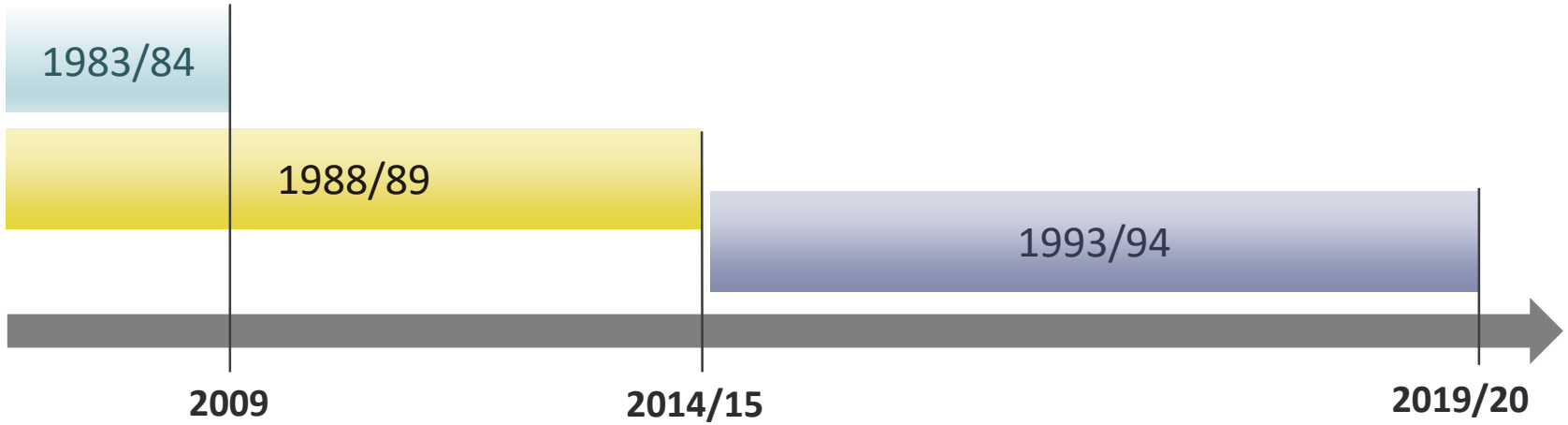
oKFE-RL, 22.11.2018

HPV vaccine surveillance study

The Wolfsburg HPV epidemiological study (WOLVES)

2,326 young Women (age 20 to 26), year 1983/84, 1988/89, 1993/94

- annual screening
- HPV detection with HC2 test, genotyping by PCR (SPF-10, LiPA)



Petry KU, et al. BMC Infect Dis. 2012;12:367.
Petry KU, et al. BMC Infect Dis. 2013;13:135.

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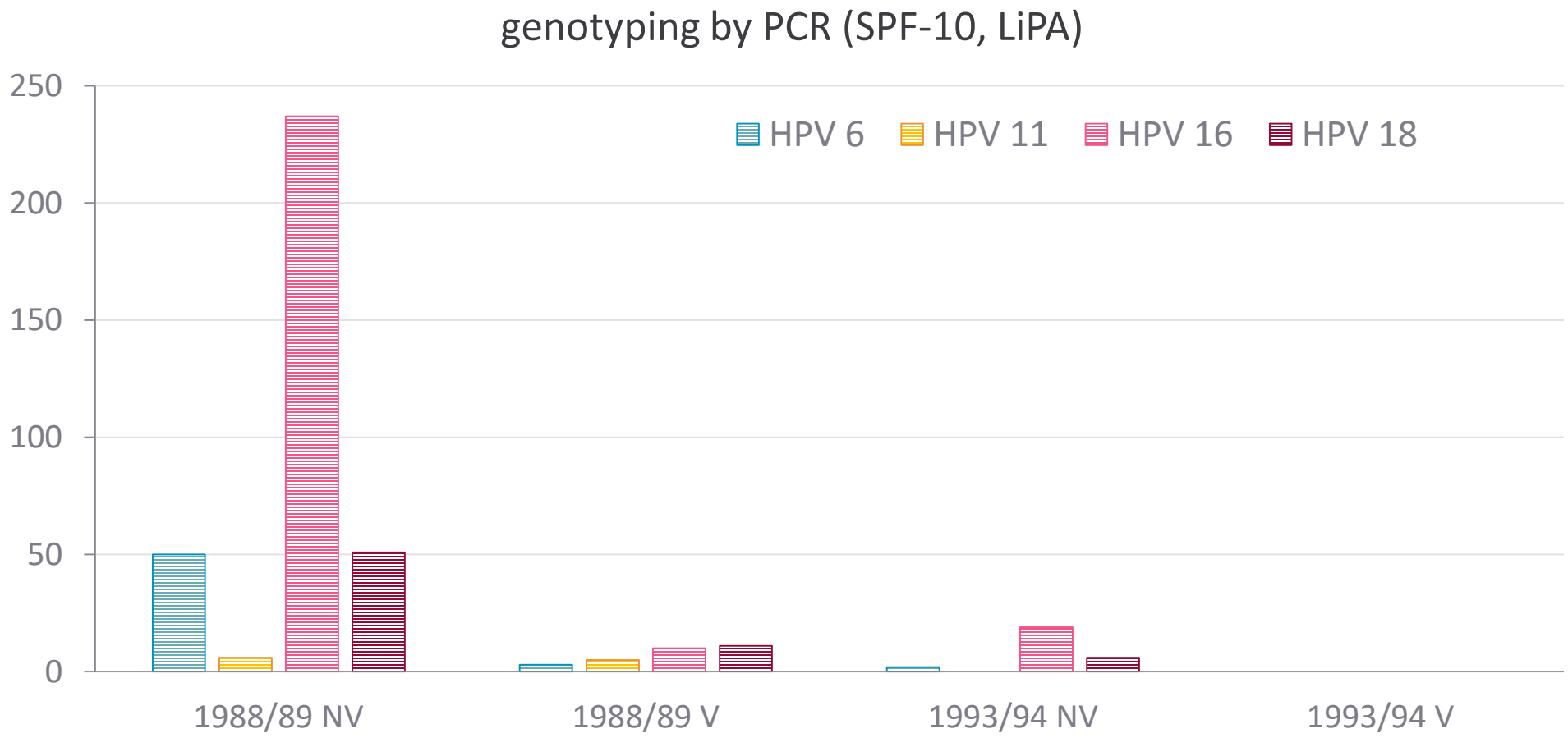

year 88/89 n = 166, FU n = 202
year 93/94 n = 97

Unpublished data (2010-2020) from WOLVES

Summary

Germany changed in January 2020 from annual cytology screening into two age-dependent new screening algorithms:

- Women age 20-34: annual cytology; cytological abnormalities in women aged 30-34 yrs ⇨ triage HPV test after 6-12 months
- Women 35+ yrs: co-testing with cytology and HPV test every 3 yrs
- In case of positive findings women are sent to colposcopy within 3 months

HPV vaccine was introduced in 2007

- 2007: coverage of 50-60 % (dropped below 30 %);
- 2012: coverage of 39.5% in the target group of girls
- surveillance study (≈2000 young women) eradication of HPV6, 11, 16 and 18 in the youngest vaccinated group and a significant reduction in the non-vaccinated group
- since 2018 vaccination of boys is recommended

Thank you for your attention

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