HPV infection: Epidemiological-Molecular study in a cohort of women in Kinshasa

HPV testing

✓ Collection of **cervical samples** is not always easy
- in resource-limited settings
- in populations where these procedures may be less well accepted (ex. for young age or socio-cultural/religious implications)

ALTERNATIVE APPROACH

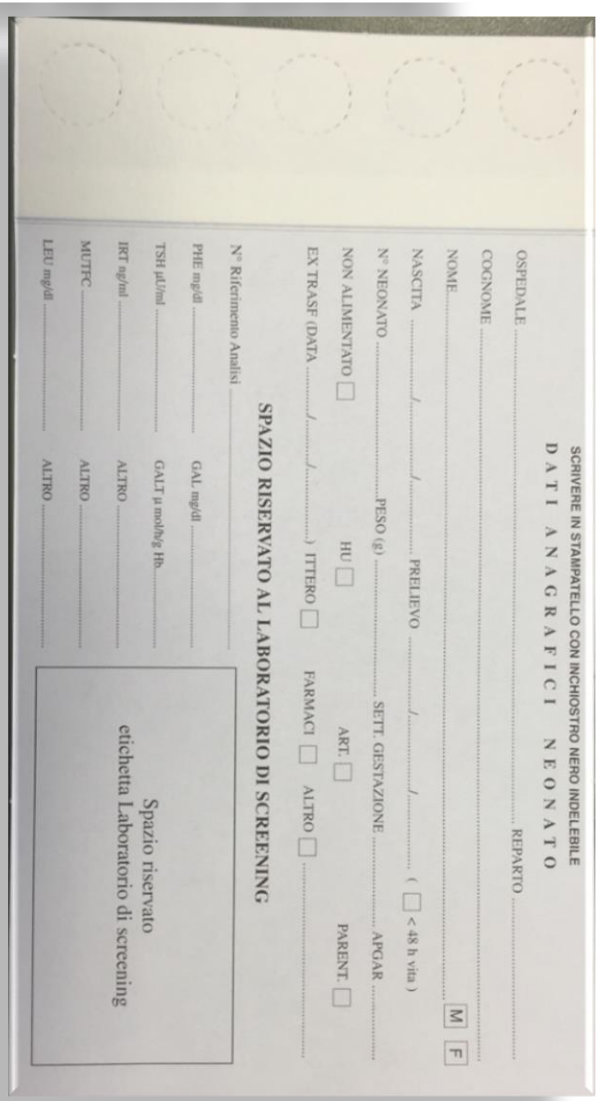
- **Urine sample** for the detection of HPV infection
  - → non-invasive
  - → more accessible and acceptable to women
  - → less expensive
  - → bypasses medical examination
  - → even easier to perform than self-collected vaginal swabs

consequently, the screening coverage could be increased primarily by reaching populations in less developed regions

HPV Testing from Dried Urine Spots (DUS)

DRC Healthcare Facilities

- **50μL** of urine samples were spotted on **5** preprinted circles on a filter paper
- DUS was **dried for 3h**
- DUS was **stored** in a paper bag in a dry place at **RT (25–30°C)**



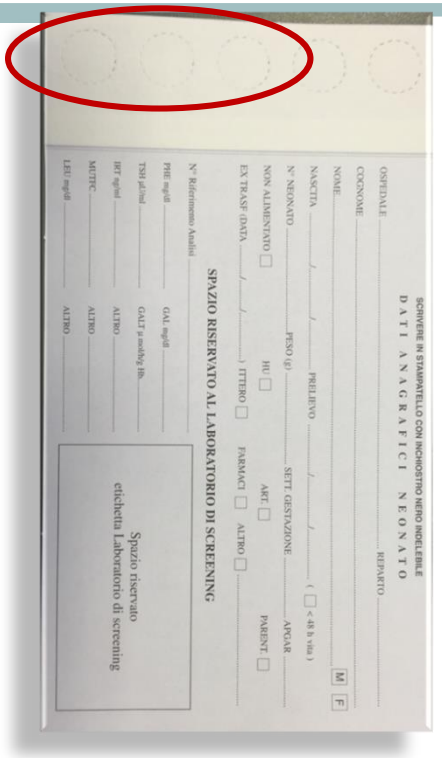
Urine samples collection and DUS preparation

November 2014 - January 2015

N = 456

Asymptomatic women, 30-49 years of age

UNIVERSITY OF MILAN, STIS LABORATORY

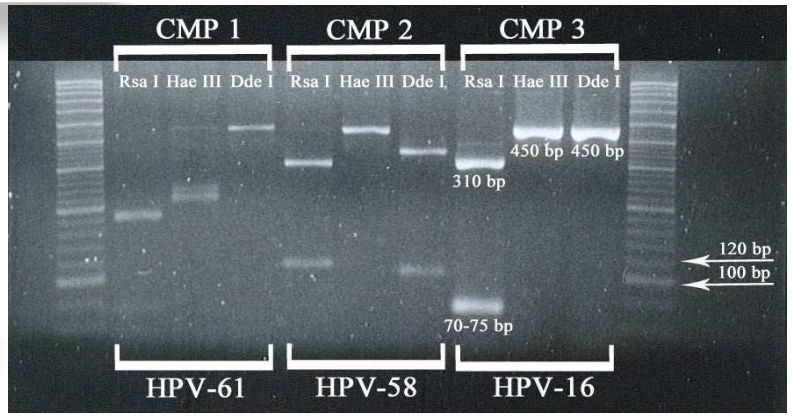


- **3** circles were cut out using a sterile scalpel blade, transferred into 1mL of Lysis Buffer, incubated on a roller mixer for 30' at RT and then centrifuged for 15'' at 1500 ×g
- **Nucleic acids extraction**: lysate (750μL) was extracted using the NucliSENS EasyMAG method
- **HPV detection**: nested PCR amplifying a fragment of 150 bp of **ORF L1** region
- **HPV genotyping**: first step (450 bp) of HPV positive samples was genotyped using RFLP technique

HPV detection and genotyping (31/03/2015)

N = 242/456 (53%)

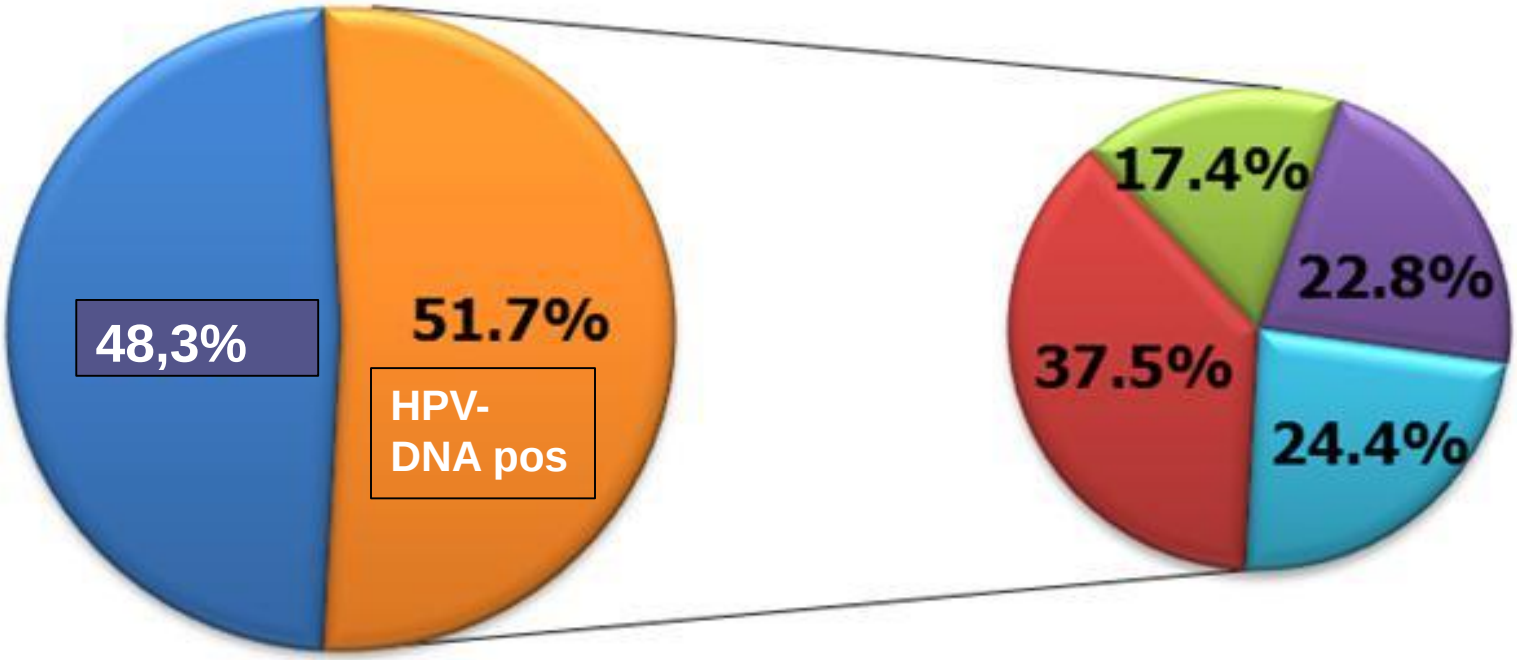
(all DUS prepared in November-December 2014)



HPV genotyping (RFLP technique)

HPV Detection and Genotyping

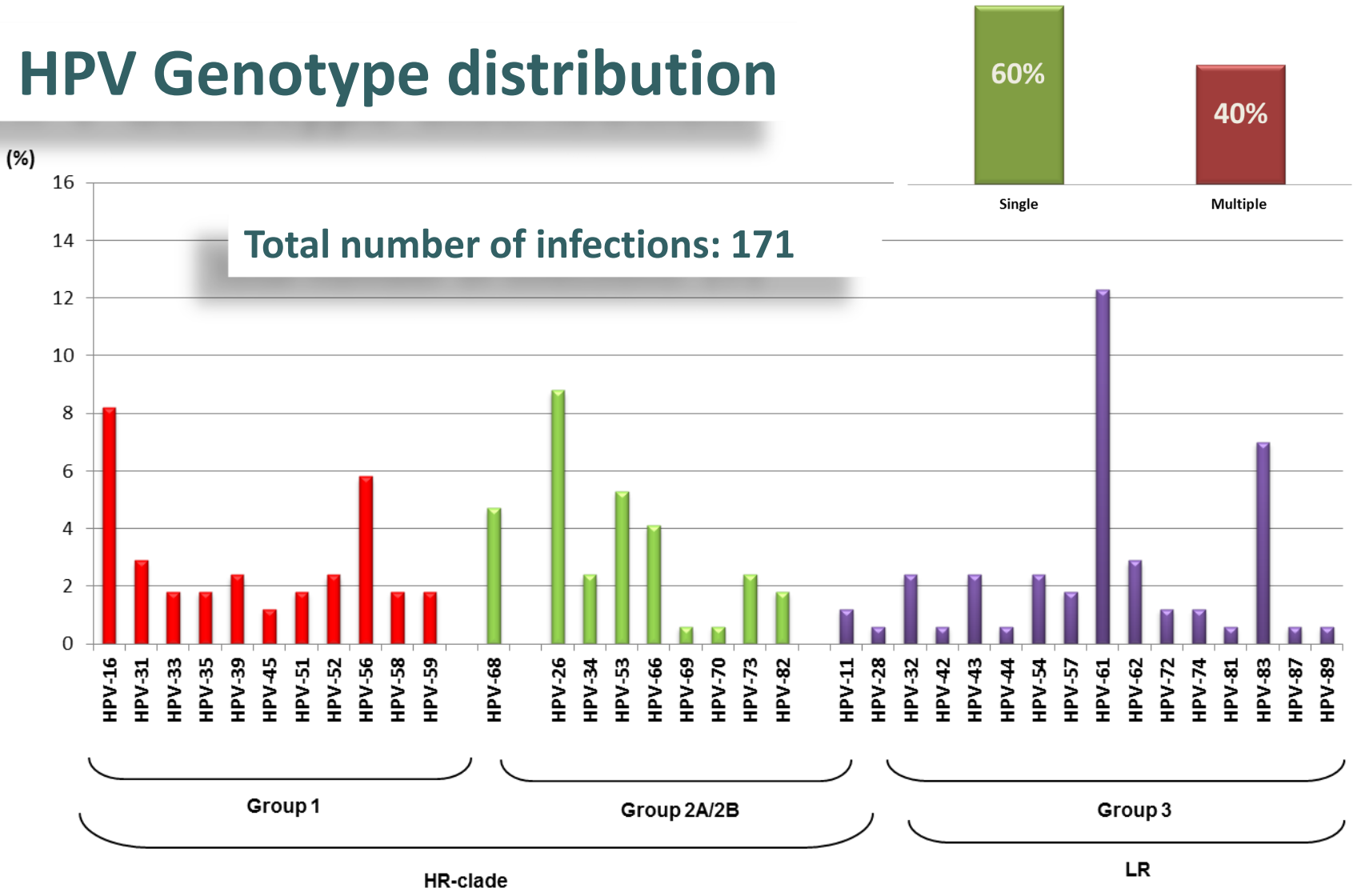
Sample: 447 women



20,5% positive groupe 1

HPV-DNA NEG HR Group 1 HR Group 2A-2B LR Group 3 NT

HPV Genotype distribution



What these results suggest?

- ✓ HPV prevalence (51,7%) is high, but not so far from that observed in studies conducted in Africa using the same molecular methods in women with normal cytology (Kenya: about 40%, Mozambique: 32-41%)
- ✓ The genotype distribution is similar to that found in women of other regions, including those in developed countries (and Italy)
- ✓ More than 60% of HPV-DNA positive women is infected with at least one genotype of HR-clade, about 40% with HR genotypes of Group 1
- ✓ These data, support the need for prevention interventions targeted at women of this age group (> 30 yrs)

- ✓ DUS could be a useful tool for planning cervical cancer screening strategies, especially in less developed, rural regions
- ✓ DUS could also be useful for
  - epidemiological/virological surveillance where pelvic examination is not practical (ex. post-vaccination surveillance in adolescent women) or where other strategies are difficult to apply
  - monitoring of type-specific prevalence (vaccine-preventable HPV types - other non-vaccine types)

Thank you for your attention