Mapping of Pap smear quality and results using routinely collected South African health facility data

Caroline Makura

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Kathryn Schnippel, Pamela Michelow, Carla Chibwesha, Bridgette Goieman, Suzette Jordaan, Cynthia Firnhaber
Background

- Second most common cancer in women yet we can easily screen and prevent [International Agency for Research on Cancer, 2012]

- Affects 1/41 women and an estimated 8 women die from cervical cancer daily [National Cancer Registry (NCR) 2009]

- Rate of cervical dysplasia is 5X higher in HIV-infected women [NIH National Cancer Institute, 2011]

- Pap smears are the most commonly used screening method for early detection
  - If lesions are found, treatment such as LEEP or cryotherapy can be performed
Methodology

- Routinely reported facility data collected by the National Health Laboratory Service (NHLS)
- Facility-level data extracted for April 2013 - March 2014
- 791,067 total slides collected across 4562 facilities
- Choropleth map is a thematic map in which areas are shaded in proportion to a statistical variable
- Choropleth maps represented for:
  1. Pap smear coverage
  2. Pap smear quality
  3. High-grade cytologic abnormalities
WHO recommends 3 smears per lifetime with a 10-year interval between each smear.

- First Pap smear done at age 30
- Median 56% (44-67%)
- 18/52 districts < 50%
  - 2/52 districts <25%

Coverage defined as: proportion of total Pap smears done out of population estimate for each district.
Pap smear coverage: HIV-infected women

- 2010 South Africa guidelines recommend screening every 3 years in HIV-infected women
- 2014 South Africa guidelines recommend annual screening
- District HIV estimated prevalence rate applied
- Median 31% (26-41)%
  - 44/52 districts < 50%

Coverage defined as: proportion of assumed HIV infected Pap smears done out of population estimated HIV-infected women aged 25 years
An adequate smear should contain both ecto- and endo-cervical cells.

Department of Health National standard = 70%

Median 47% (44-56%)
- 6/52 districts > 70%
- 27/52 districts 35-50%
- 2/52 districts < 35%

Adequacy rate defined as: percentage of specimens with endo-cervical component present over the number of specimens where endo-cervical cells expected.
High-grade abnormalities: Overall women

- High grade results classified as:
  - suspicious for invasive carcinoma; or
  - high-grade squamous intraepithelial lesions (HSIL); or
  - atypical squamous cells: cannot exclude HSIL (ASC-H)

- 17/52 districts >0.3%
  - 1/52 districts >0.45%

Cytology results: not disaggregated by HIV status
Limitations

• Dataset does not record the total number of times a woman presents for a Pap smear.

• Pap smear coverage in HIV-infected women based on self-reporting of HIV status.

• Pap smear cytology results not disaggregated by HIV status.
Conclusions / Implications

• Coverage of Pap smear screening is far below targets

• Quality of Pap smears below target:
  – Inadequate Pap smears increase the risk of false-negative diagnosis and should be repeated
  – Increased burden on clinics and women

• Regional disparities in cytology results should be investigated

• Additional treatment needed for women with abnormal Pap smear results
Thank you

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