Proposed Elimination Threshold and Targets

Threshold for Elimination as a Public Health Problem:
Age-adjusted incidence rate < 4 / 100,000 women

2030 Targets

90%
of girls fully vaccinated with HPV vaccine by 15 years of age

70%
of women are screened with a high-performance test by 35 and 45 years of age

90%
of women identified with cervical disease (precancer or cancer) receive treatment and care

SDG 2030 Target 3.4:
30% reduction in mortality from NCDs

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Vaccination

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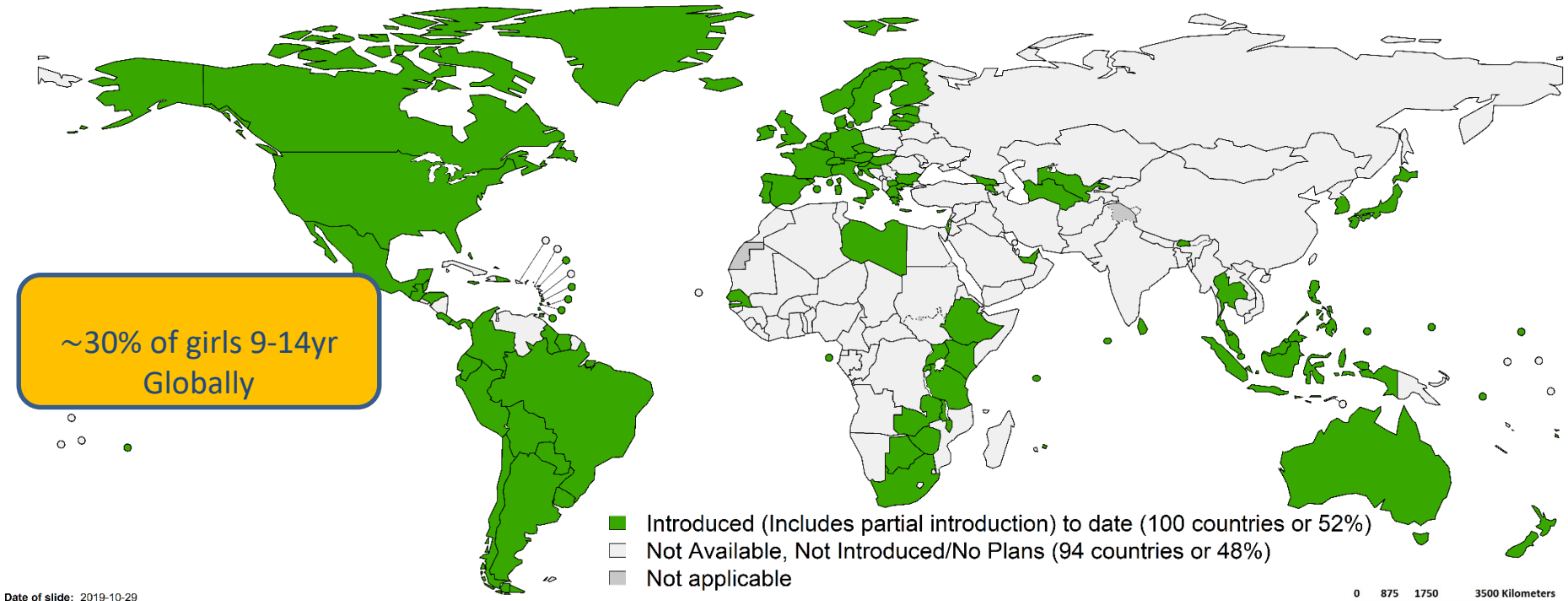
100 Countries Included HPV Vaccine in the National Immunization Program (Nov 2019)



Date of slide: 2019-10-29
Map production: Immunization, Vaccines and Biologicals (IVB), World Health Organization(WHO)
Data source: IVB database as at 29th October 2019

Disclaimer:

The boundaries and names shown and the designations used on this map do notimply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area nor of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

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Achieving 90% Coverage of HPV Vaccination: Strategic Actions

- Secure sufficient supply of affordable HPV vaccines
- Introduce HPV vaccine into more countries
- Increase quality and coverage of service delivery
- Improved communication and social mobilization

Screening and Treatment

World Health Organization

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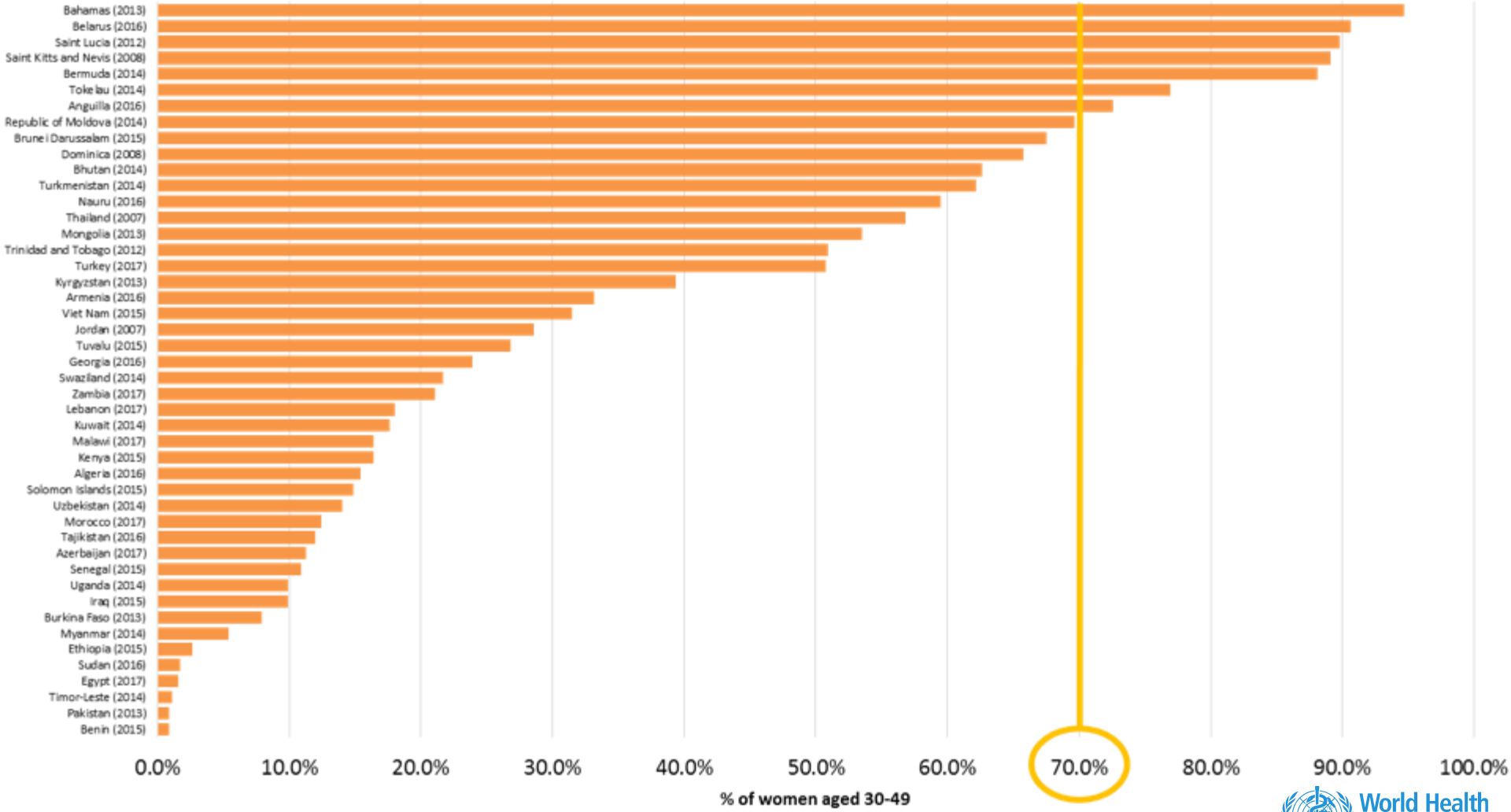
Proportion of Women Between 30-49 Screened for Cervical Cancer At Least Once



Source: WHO STEPS

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Achieving 70% Coverage of Screening and 90% Treatment of Precancer: Strategic Actions

- **National scale-up of screen & treat**
  - Simple algorithms need to be introduced for different settings
- **Sufficient, affordable supply of screen and treat technologies & products**
  - Prompt certification of new products
  - Price reductions
- **Increased quality and coverage of service delivery**
  - Countries detailed implementation plans to introduce and scale-up products and delivery models
  - Strengthen patient retention and linkage to treatment

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Approaches to Cervical Cancer Screening and Future Tests

3 approaches to Cervical Cancer Screening

Cervical Cancer Screening

Molecular

A. Nucleic Acid tests (NAT)
   - HPV DNA
     (e.g. Abbott, Roche Cobas, Qiagen, Cepheid Xpert, others)
   - mRNA
     (Hologic Aptima)

B. Protein biomarkers
   - HPV antibodies
   - Oncoproteins
     (e.g. OncoE6 / QIAsure)

Cytologic

A. Conventional PAP smear

B. Liquid-based cytology (LBC)

Visual Inspection

A. Visual Inspection with Acetic Acid or with Lugol's Iodine (VIA / VILI)

B. Digital Imaging Approaches
   - i.e. Automated visual evaluation (AVE)

To Accelerate Access We Need to Move Toward High Performance Tests

Complex or Low-Sensitivity

Cytology:

Successful in high-resource countries, but implementing quality cytology screening is challenging in middle and low resource countries

VIA:

Naked eye visual inspection with 3-5% acetic acid

High Performance Alternatives

- **HPV Testing**
  - **No triage**
  - Followed by treatment with cryotherapy or thermal ablation

- **HPV Testing**
  - **Plus triage with VIA or other tests**
  - Followed by treatment with cryotherapy or thermal ablation

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Cervical Cancer Management

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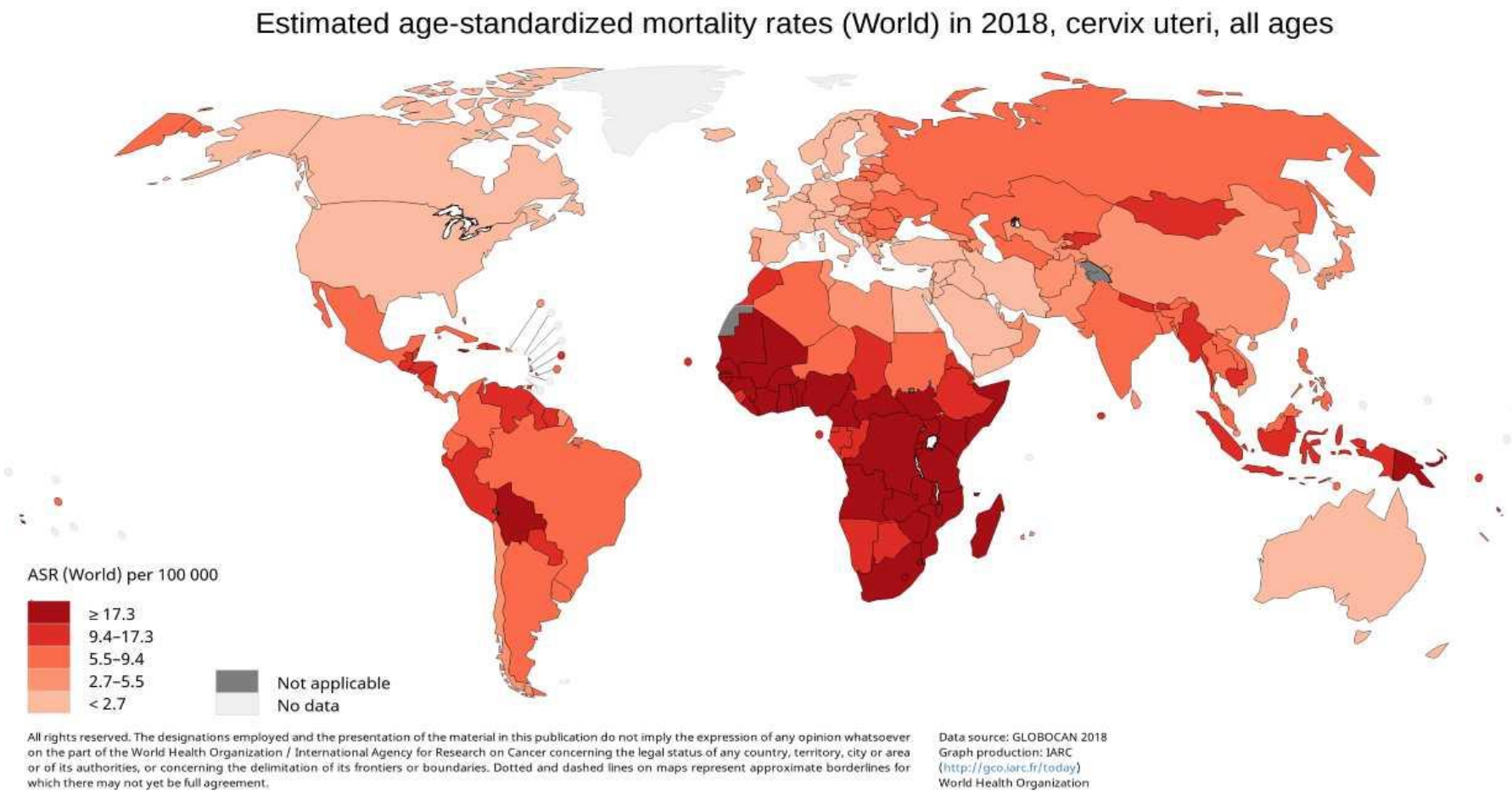
Cervical Cancer Mortality Rates (Globocan 2018)



Source: GLOBOCAN 2018

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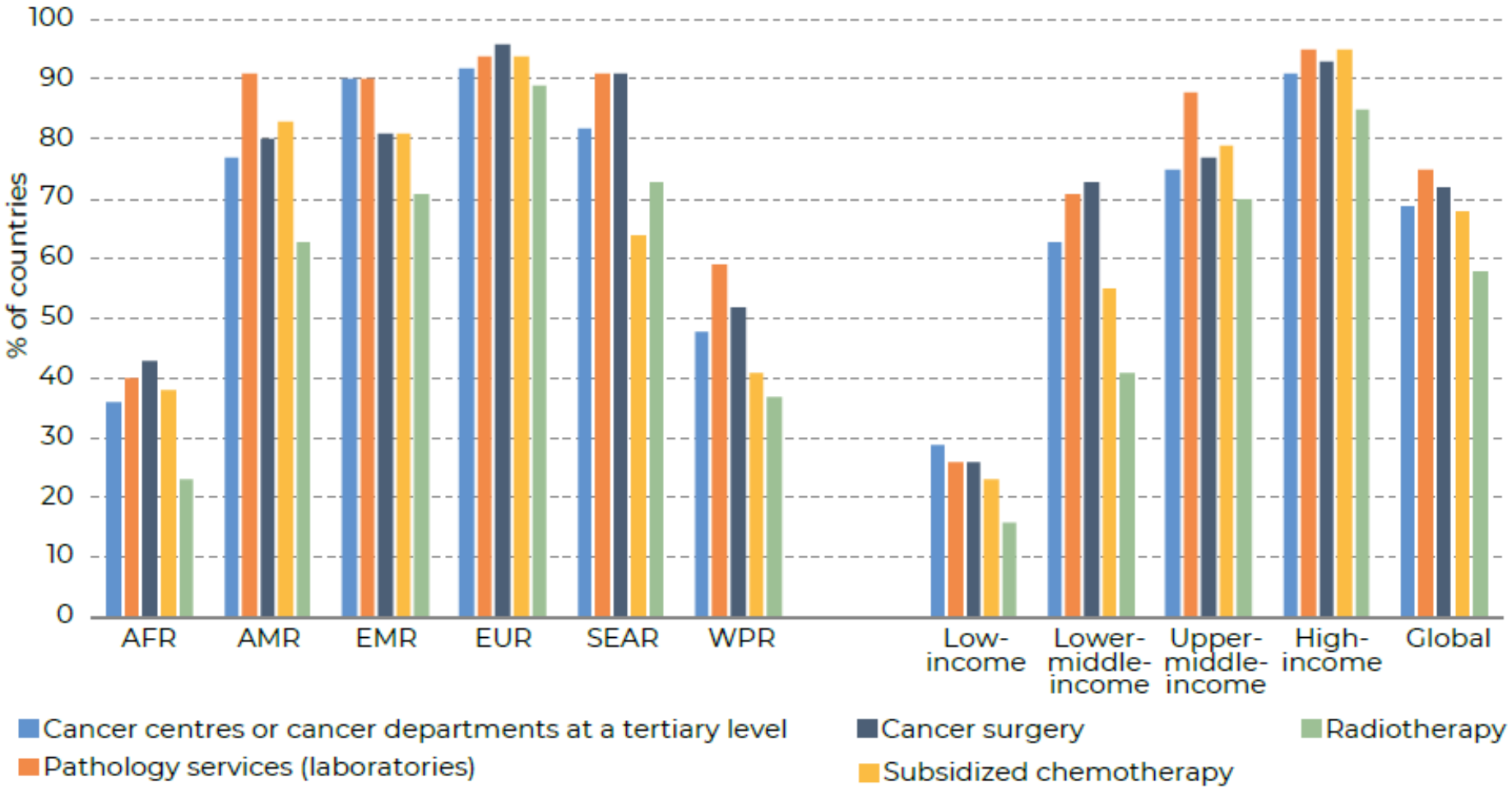
Cancer Diagnostic and Treatment Services in the Public Sector



Source: WHO CCS 2017

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Achieving Management of 90% of Invasive Cancer Cases: Strategic Actions

- Invest in pathology, surgical oncology, radiotherapy, chemotherapy and palliative care capacity
- Optimize health workforce competencies across continuum of care
- Implement cervical cancer management guidelines
- Reduce cancer stigma
- Ensure financial protection

Health Systems Implications of 90-70-90 Targets

Health Systems

- Health systems governance
- Domestic regulatory systems
- Health financing
- Human resources for health
- Pre-service & in-service training
- Procurement & supply chain
- Service & maintenance of medical devices
- Quality Assurance programs
- Referral networks
- Laboratory systems
- Data systems

Universal Health Coverage

Monitoring

- Dynamic monitoring of relevant indicators
- Population-based cancer registries
- Patient referral & tracking mechanisms
- Service performance monitoring
- Population-based surveys
- Prevent & control costing information

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Innovations on the Horizon

- Improved immunization schedules
- Single dose HPV vaccine
- Additional vaccine manufacturers
- Self-collection devices
- AI-based screening
- Lower cost HPV tests
- Point-of-care screening technology

Source https://unitaid.org/assets/Cervical_Cancer_Technology-landscape-2019.pdfose HPV vaccine

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Concluding Remarks

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Concluding remarks (1)

- **Elimination is feasible at** 4/100K in most LMICs before 2100
- **Status quo is no option** – number of cases will increase dramatically due to population growth, demographic changes and changes in behavior
- **Near Term Benefits**
  - **100,000** cervical cancer cases averted **by 2030**
  - **250,000** cervical cancer deaths prevented **by 2030**.

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Cost-effectiveness of Elimination Strategy in 78 LMICs

For

95% of countries

Scale-up to the 90-70-90 targets by 2030 will

result in elimination

and be

cost-effective

Predictions across three models are broadly consistent.
Results are based on findings for at least two out of three models for 2020-2120.

Canfell, Kim, Brisson et al. In publication

World Health Organization