

# Global Burden of Cervix Cancer and the Role of Radiation Techniques

May Abdel-Wahab

Director Division of Human Health -NAHU  
Department of Nuclear Sciences and  
Applications

*Together in the fight against Cervical Cancer*  
IAEA Event to Mark World Cancer Day  
Friday 7<sup>th</sup> February 2020

“Thanks to  
radiotherapy  
I had a fair  
chance  
against  
cancer”

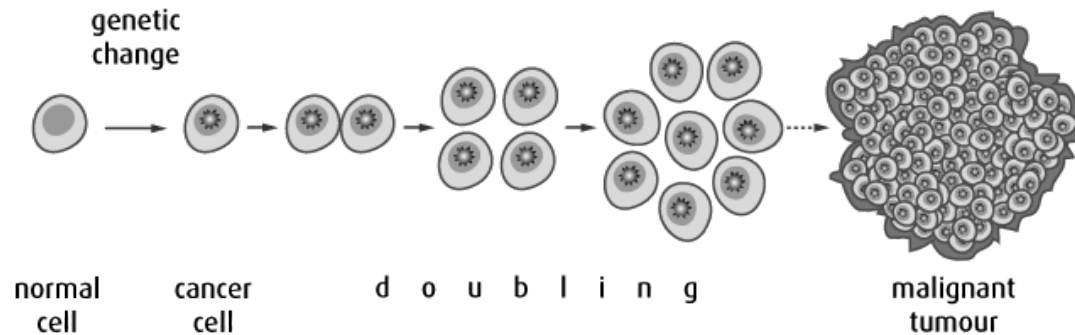


**Together in the Fight against Cervical Cancer**

Friday, 7 February 2020  
Vienna International Centre



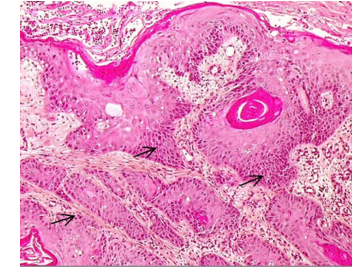
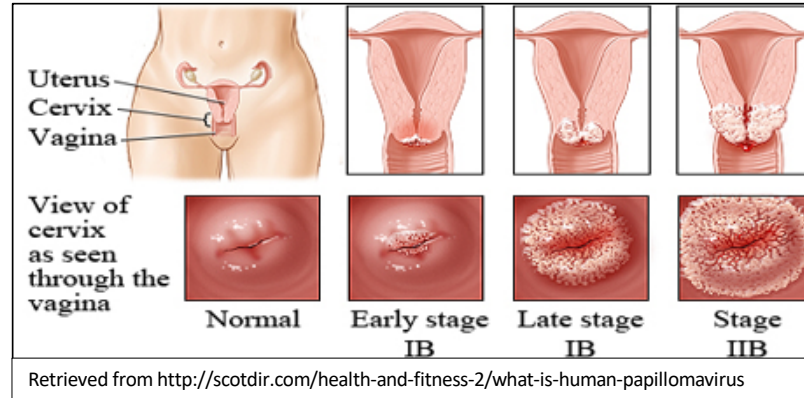
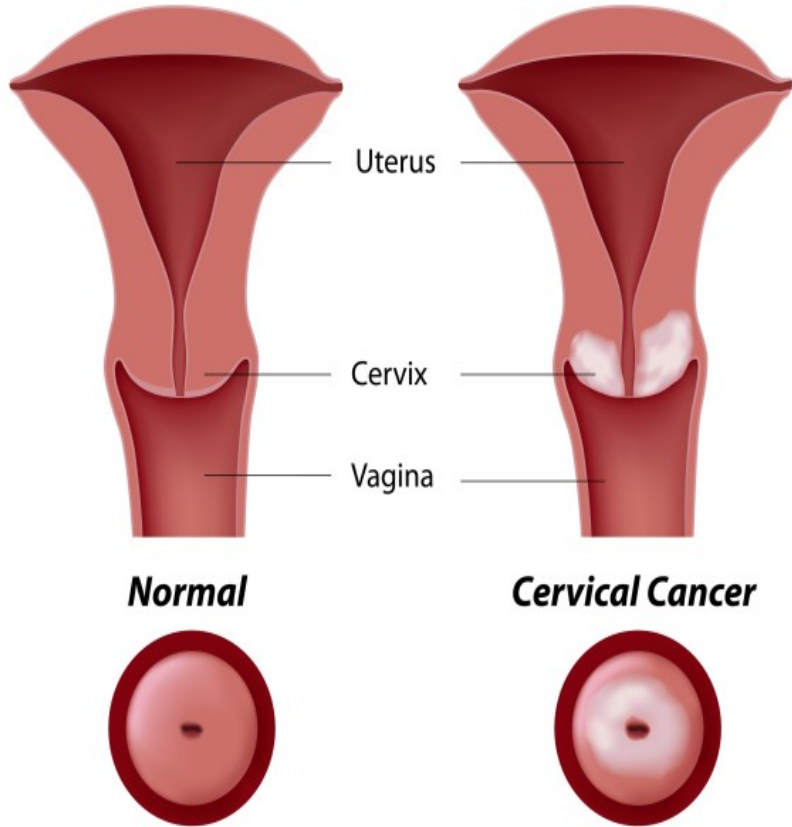
# WHAT IS CANCER?



Disease that occurs when a malignant growth or tumour is caused by an uncontrolled division of abnormal cells in a part of the body.

[sphweb.bumc.bu.edu](http://sphweb.bumc.bu.edu)

# Cervix Cancer



**Histopathology**

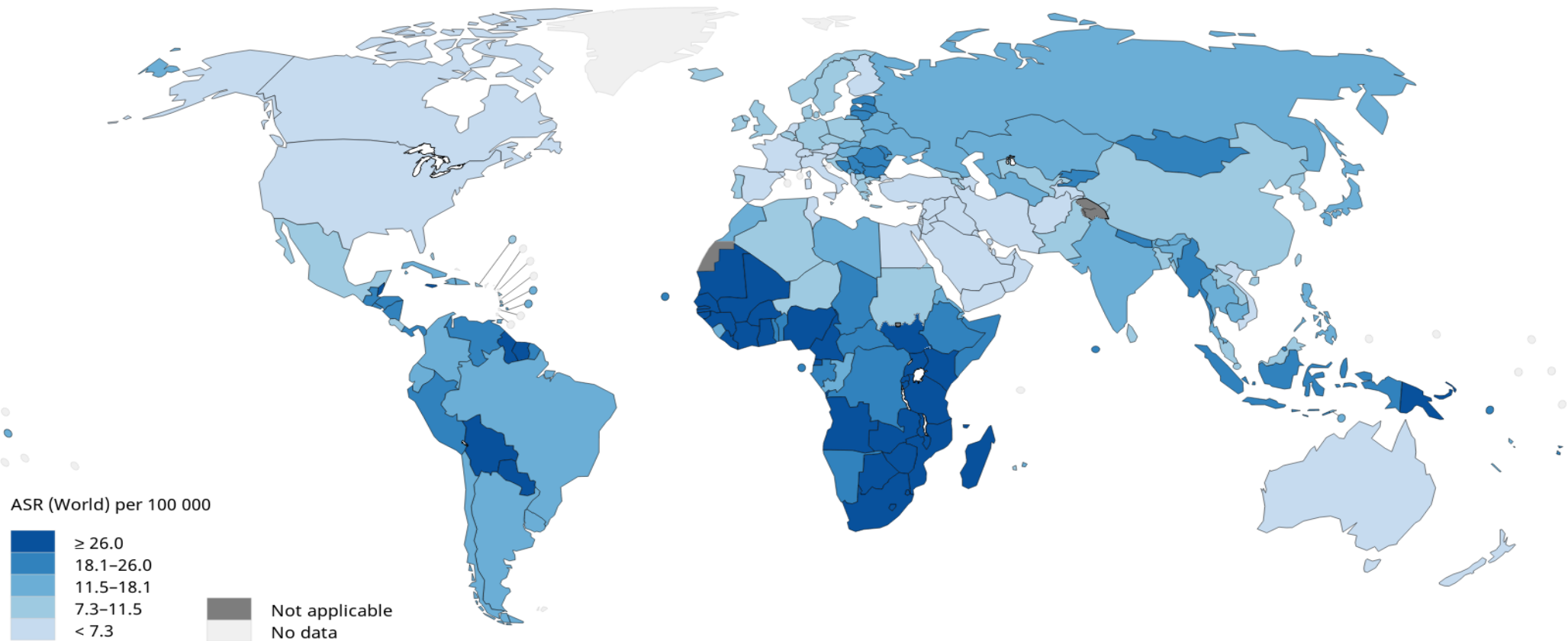
Retrieved from <http://scotdir.com/health-and-fitness-2/what-is-human-papillomavirus>

Fourth most common cancer among women globally  
 570 000 new cases  
 311 000 deaths

Based on IARC Global Cancer Observatory GLOBOCAN 2018 data (available from <http://gco.iarc.fr/>)

Black, J. (2018). Retrieved from <https://universityhealthnews.com/daily/cancer/take-precautions-before-cervical-cancer-symptoms-manifest/>

# Estimated age-standardized incidence rates (World) in 2018, cervix uteri, all ages



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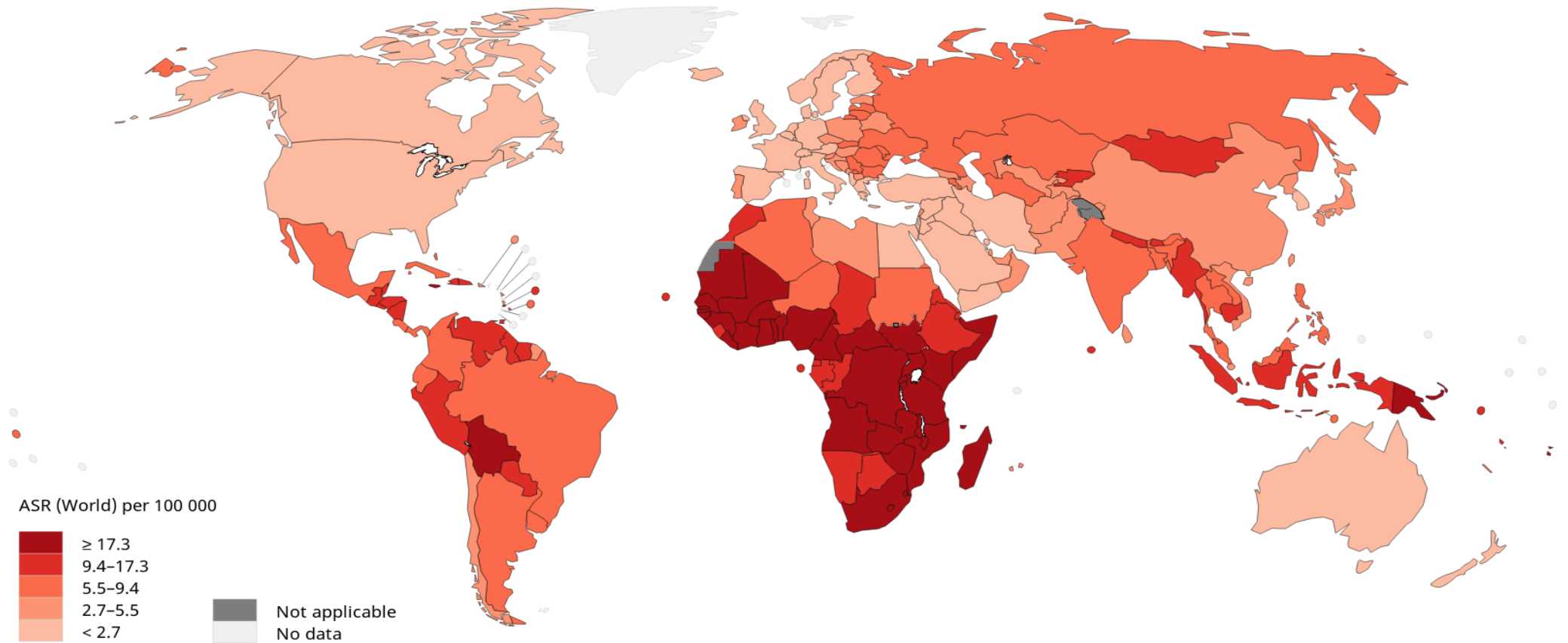
Data source: GLOBOCAN 2018  
Graph production: IARC  
(<http://gco.iarc.fr/today>)  
World Health Organization

 **World Health Organization**  
© International Agency for Research on Cancer 2018

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# Estimated age-standardized mortality rates (World) in 2018, cervix uteri, all ages



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Data source: GLOBOCAN 2018  
Graph production: IARC  
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World Health Organization

 **World Health Organization**  
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**Together in the Fight against Cervical Cancer**



# What Causes Cervical Cancer?

## CERVICAL CANCER

91% of cervical cancer cases are probably caused by any HPV infection

JANUARY IS CERVICAL CANCER AWARENESS MONTH



**CERVICAL CANCER IS PREVENTABLE**

Getting the HPV vaccine could save:

7 OUT OF 10 WOMEN FROM CERVICAL CANCER



8 OUT OF 10 WOMEN FROM VAGINAL CANCER



6 OUT OF 10 MEN AND WOMEN FROM OROPHARYNGEAL CANCER



7 OUT OF 10 WOMEN FROM VULVAR CANCER



9 OUT OF 10 MEN AND WOMEN FROM ANAL CANCER



6 OUT OF 10 MEN FROM PENILE CANCER



## Immune System

Due to certain autoimmune diseases and medications



Getting the HPV vaccine could save:

7 OUT OF 10 WOMEN FROM CERVICAL CANCER



6 OUT OF 10 MEN AND WOMEN FROM OROPHARYNGEAL CANCER



9 OUT OF 10 MEN AND WOMEN FROM ANAL CANCER



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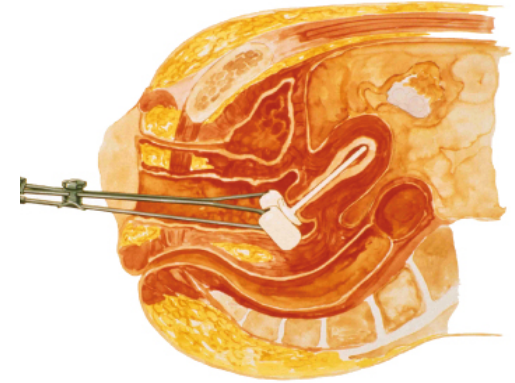


# Treatment Options-Tertiary Prevention

## Brachytherapy

71% of cases require radiotherapy<sup>1</sup>

- Improves disease control, survival<sup>2-6</sup>
- *Preserves healthy tissue*
- *Better quality of life for women*



of brachytherapy using applicators placed in the cervix

[therapy.com/cancer-types/cervical-cancer/brachytherapy-treatment](http://therapy.com/cancer-types/cervical-cancer/brachytherapy-treatment)

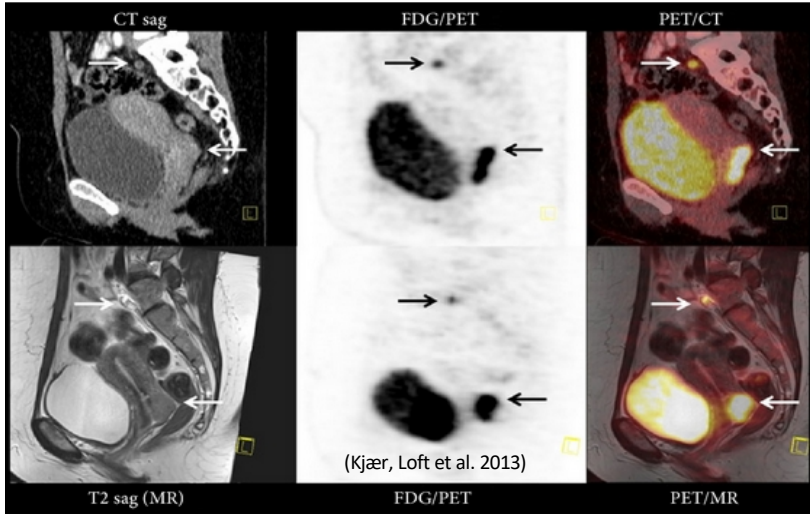
## Teletherapy-EBXRT



<http://www.ucdenver.edu/academics/colleges/medicalschoo/departments/radiationoncology/PhysicsEducation/Pages/Technology-and-Treatments.aspx>

1. Barton et al. 2014
2. Lanciano, Won et al. 1991
3. Hanks, Herring et al. 1983
4. Coia, Won et al. 1990
5. Montana, Martz et al. 1991
6. Logsdon and Eifel 1999

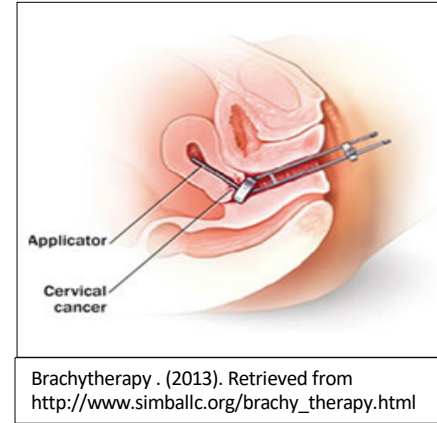
# Radiation Techniques



**CT or PET/CT:**  
Staging  
Restaging  
Therapy planning  
Therapy response

- Nutrition (DEXA scans)
- Quality Assurance and Medical Physics

**Teletherapy**



**Brachytherapy**

Brachytherapy is a mandatory component of curative RT\*

\*Comprehensive Cervical Cancer Control, WHO guidelines, 2006-2014

<https://www.iaea.org/newscenter/news/iaea-receives-medical-linear-accelerator-under-partnership-from-manufacturer>

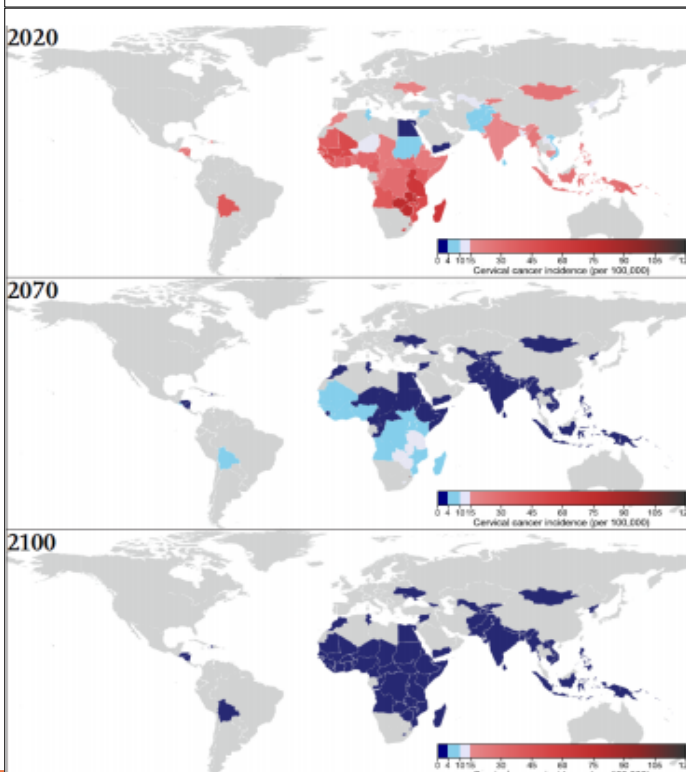


## The Price of a Life is Immeasurable

- **US\$ 3.20** will be returned to the economy for **every dollar** invested through 2050 (due to women's workforce participation)
- **US\$ 26.00** incorporating societal benefits (fertility, intergenerational health spill over, education, gender equality, political participation)
- **250,000 added to workforce** = +US\$ 28,000,000,000 to global economy if targets achieved by 2030

<https://www.who.int/docs/default-source/cervical-cancer/cerv-cancer-elim-strategy-16dec-12pm.pdf>

Age-standardized cervical cancer incidence rate in 78 LMICs in 2020, 2070 and 2100 after implementation of the elimination strategy



### Our 2030 Goals



**90%**

of girls are fully vaccinated against cervical cancer at the age of 15



**70%**

of women are screened for cervical cancer at the age of 35 and 45



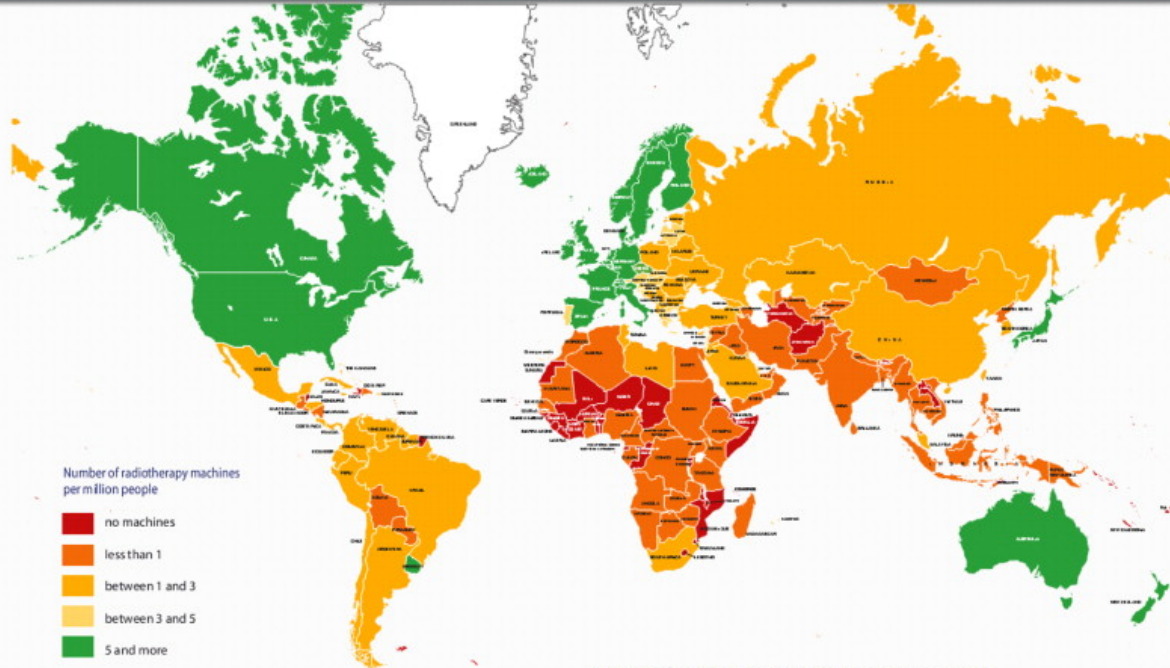
**90%**

of women with positive cervical screening receive treatment

# Benefits of Radiotherapy Access

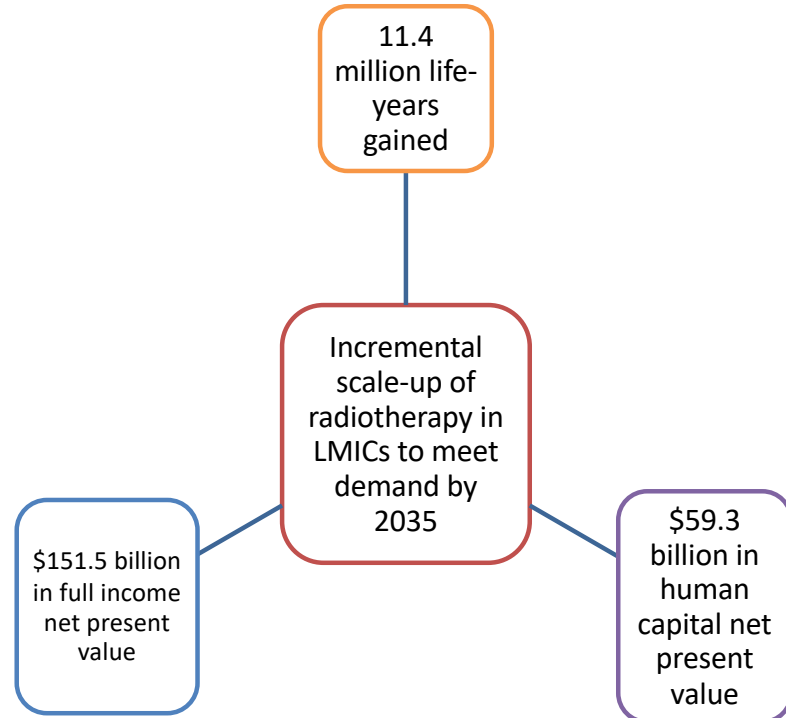
## Availability of **RADIATION THERAPY**

Number of Radiotherapy Machines per Million People



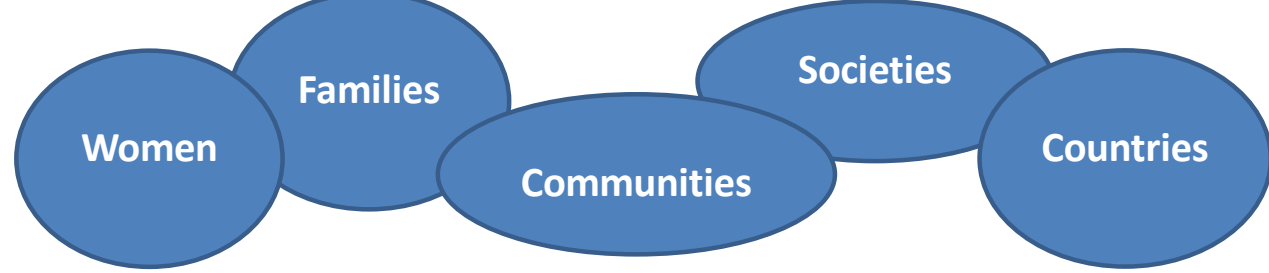
Source: DIRAC (Directory of Radiotherapy Centres), 2012 / IAEA

For more information: <http://www-naweb.iaea.org/nahu/dirac/dirac@iaea.org>



Rodin et al. 2019

# Gender Equality



- Usually primary caregiver/breadwinner in community : socialization, education, health of children\*
- In a study of 120 new cervical cancer patients:
  - \_\_reduction in hours worked (45%), work interruption (28%)
  - \_\_loss of family income (39%)
    - reduction in the daily amount of food consumed (37%)
    - delays in paying for essential services: electricity or telephone (43%)
    - the sale of property or use of savings (38%)
  - \_\_children regularly missed school days (28% of households)

\* Binka, Doku et al. 2017; ^Bazile, Rigodon et al. 2015





# The United Nations Global Cervical Cancer Programme

## End cervical cancer: prevent, treat, care



Management

Surveillance

Partnership

The Sixth Meeting of the United Nations Interagency Task Force on the Prevention and Control of Noncommunicable Diseases was hosted by UNDP between 10-12 February 2016 and held at the UN Headquarters in New York. The meeting was co-chaired by WHO and UNDP and attended by 20 UN agencies, programmes and funds.



**Towards UN Joint Action on Cancer Control**

## 2. The UNIATF Collaboration on Cervical Cancer

In 2012, the number of deaths among women due to cervical cancer was estimated by IARC to be 166,000 worldwide. Most of these are preventable because feasible and effective prevention and control interventions exist which target women at different ages in their life, from adolescence to the elderly.

The objective of the collaboration is for UN agencies to work together to increase access to cervical cancer prevention and control services as an entry point for other types of cancer in low- and middle-income countries.

potential role of UN agencies for primary, secondary and tertiary (treatment and palliative care) prevention

... reflected on the experience of the UN system in supporting the and implementation of national NCD responses in those countries that had programmed mission of the Task Force during the past two years.

... try Team for Barbados and the Eastern Caribbean was represented at and provided a detailed account of the support which the UN Country Mission provided to accelerate the implementation of multisectoral activities, and programming mission to Barbados in 2015. Taking into account the role of the Task Force agreed on future joint programming missions.

... provided on a number of current and emerging global joint programmes that are being developed by members of the Task Force to provide support to countries in specific areas. These include to scale up the Be Mobile mHealth initiative, which is currently supporting eight countries in using mobile phones to address NCDs, as well as to complete the work on programmes under development to support countries in catalysing multisectoral action for NCDs, strengthen national cancer programming, and build capacity to address cervical cancer.

**UN Agencies:**  
WHO  
IAEA  
IARC  
UNFPA  
UNAIDS  
UNWOMEN  
UNFPA  
\*UNODC-observer  
Additional partners added



(i) A conflicting agenda and limited budget for HPV vaccine introduction in the National Immunisation Programme,  
(ii) Delays in receiving pathology results and in access to cervical cancer care services  
(iii) Weakness of the referral system for cervical cancer screening, diagnosis and treatment.  
and develop national indicators for cervical cancer control including quality assurance, biopsy laboratory procedures and quality of care services for the National Health Information System.

**Together in the Fight against Cervical Cancer**

**PREVENTION**  
HPV immunisation of adolescent girls

**SCREENING**  
Screening and treatment for cervical pre-cancer

**TREATMENT**  
Diagnosis and treatment for cervical cancer, including palliative care



# How Does Investment in Treatment help?

**10** REDUCED INEQUALITIES



**8** DECENT WORK AND ECONOMIC GROWTH



## Additional Contribution to SDG

- Reduction in suffering, death
- Reduction in grief, economic burden among families
- Lowering of poverty levels
- Increase in primary education (higher levels of female education - > higher maternal and infant health)
- Basis of global partnerships

**1** NO POVERTY



**4** QUALITY EDUCATION



**17** PARTNERSHIPS FOR THE GOALS



IAEA, WHO, IARC et al. (2016, December 9). TOWARDS THE ELIMINATION OF CERVICAL CANCER: Background paper of the Partners Meeting to Scale up Cervical Cancer Prevention and Control Through a New UN Global Joint Programme to end cervical cancer. Retrieved from <https://www.who.int/ncds/un-task-force/background-paper-cervical-cancer-partners-meeting-december2016.pdf>



Ochman, P. (n.d.). Retrieved from <https://www.chaptershealth.org/dispelling-cervical-cancer-myths/>

*“In the past 20 minutes of the presentation, 20 women were newly diagnosed with cervical cancer and 10 women died from cervical cancer.”*

Vikrant Sahasrabudhe,, 2018

**10** REDUCED INEQUALITIES



**8** DECENT WORK AND ECONOMIC GROWTH



**17** PARTNERSHIPS FOR THE GOALS



**5** GENDER EQUALITY

THANK YOU

**4** QUALITY EDUCATION



**3** GOOD HEALTH AND WELL-BEING



**1** NO POVERTY



*Acknowledge V Hande for contributions to slide presentation*

**Against Cervical Cancer**