

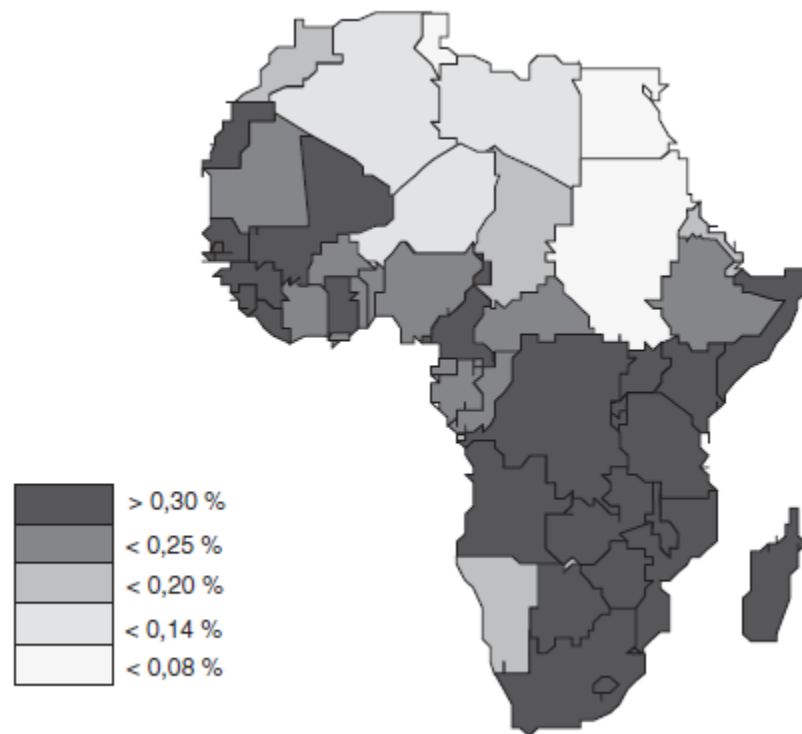
# Brachytherapy in Africa

Deanine Halliman PhD  
Sr. Director Medical Affairs  
Elekta Brachytherapy

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



Burden of cervical cancer in Africa  
est. 2012 incidence per 100,000 women

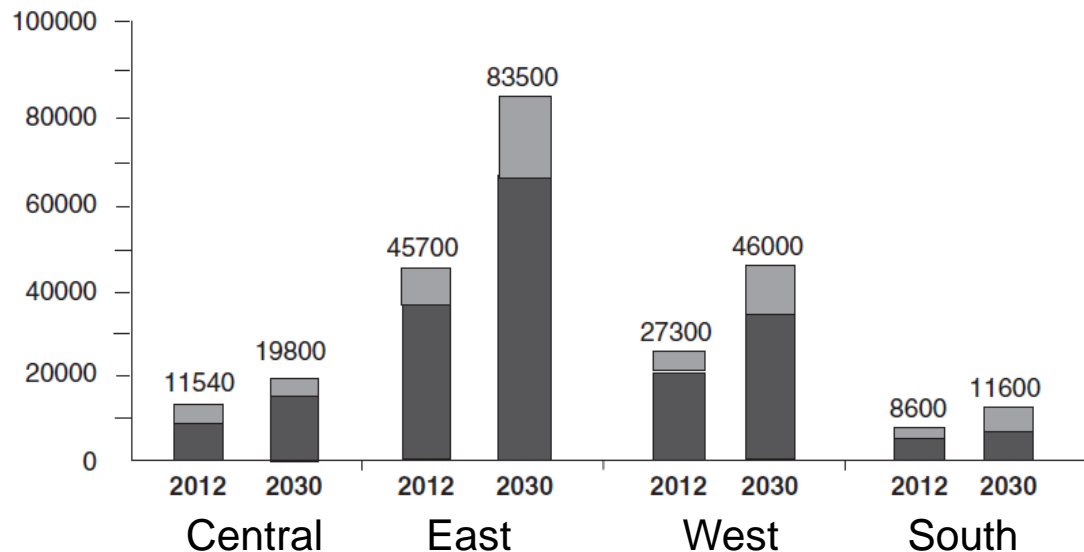


Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network

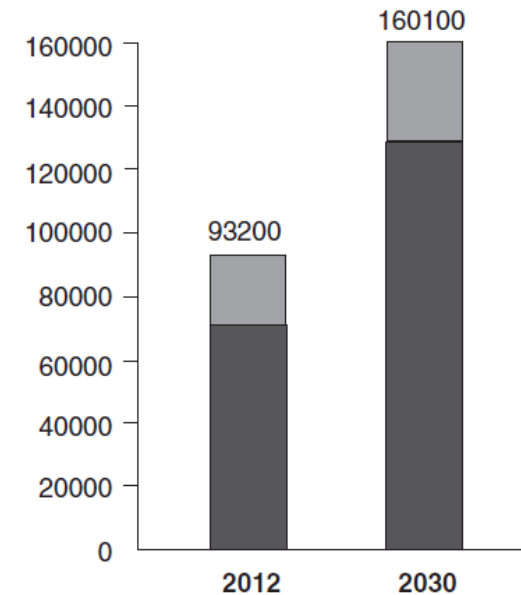


Estimated Number of New Cases according to Geographic Region, 2012 to 2030



< 65 years old  
 > 65 years old

Estimated Number of New Cases in Sub-Saharan Africa



Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## Tackling a Preventable Disease

- Prevention first - address screening that can fit in low-resource areas
- Increase awareness about the signs, symptoms and progression of disease

## Trends in GYN Brachytherapy

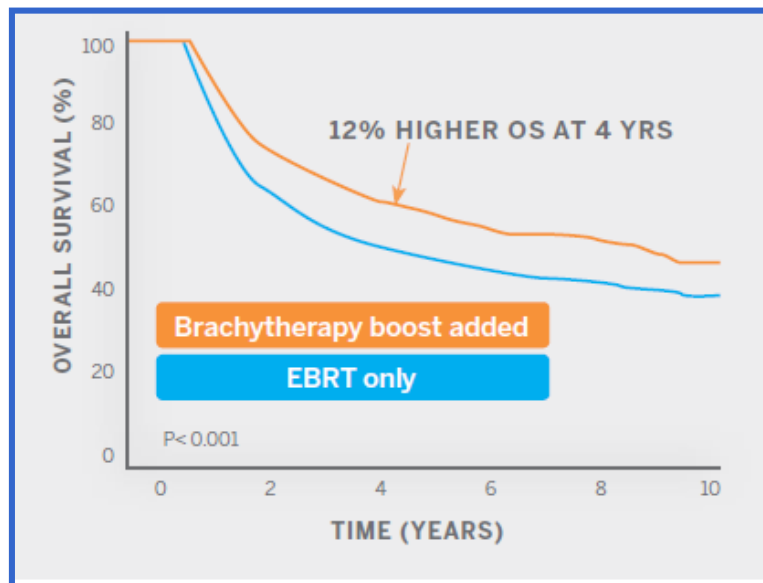
- Treatment Regimen and Competing Modalities
  - The Need of Brachytherapy
- 3D Image Guided Adaptive Brachytherapy
  - Supported by Clinical Outcome
  - Guidelines and recommendations
- Interstitial Brachytherapy
  - Growing Need

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## Brachytherapy

Essential part in treatment of cervical cancer



In a recent study, cervical cancer patients that received brachytherapy as boost after external beam radiation therapy had a 12% better overall survival rate at four years than patients who didn't receive the brachytherapy boost.<sup>1</sup>

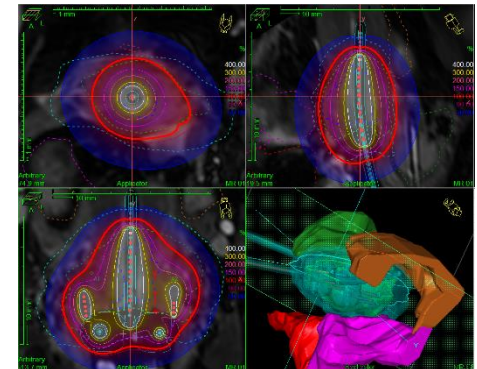
Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## 3D IGABT

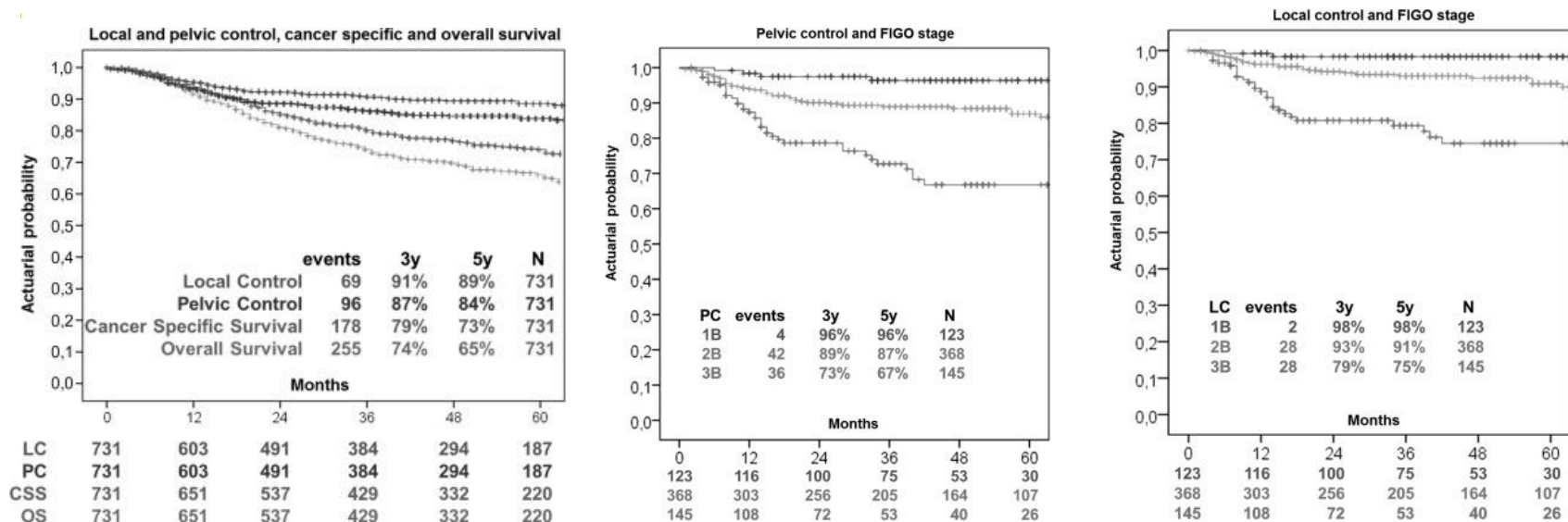
- Insertion of a CT/MRI compatible applicator with or without needles
- 3D Imaging (CT or MRI) with the applicator inserted
- Applicator Reconstruction on 3D Data
- Contouring
  - HR- CTV: High Risk Clinical Target Volume
  - IR-CTV: Intermediate Risk Clinical Target Volume
  - OAR: Organs At Risk
    - Bladder
    - Rectum
    - Sigmoid
- Dose plan adapted to the patients' case



# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## 3D IGABT Improves Clinical Outcome



### RetroEMBRACE Multi-center Study

IGBT improves pelvic control by approximately 10% compared to conventional 2D BT. [1]

IGBT improves overall survival compared to historical data [1] [8] [9]

[1] Sturdza et al, Radiother Oncol. 2016

Cervix Cancer Education Symposium, January 2019, South Africa



# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## 3D IGABT Improves Clinical Outcome

RetroEMBRACE			
FIGO stage	Total number of patients	Overall Survival at 5 years	Cancer Specific Survival at 5 years
IB	123	83%	90%
IIA	42	80%	84%
IIB	368	70%	77%
IIIA	23	42%	48%
IIIB	145	42%	53%
IVA	23	32%	40%
Total	731	65%	73%

[1] Sturdza et al, Radiother Oncol. 2016

FIGO Stage	5-Year Observed Survival Rate
0	93%
IA	93%
IB	80%
IIA	63%
IIB	58%
IIIA	35%
IIIB	32%
IVA	16%
IVB	15%

Based on data collected by the USA National Cancer Data Base from people diagnosed between 2000 and 2002

The above mentioned figures are not fully comparable.

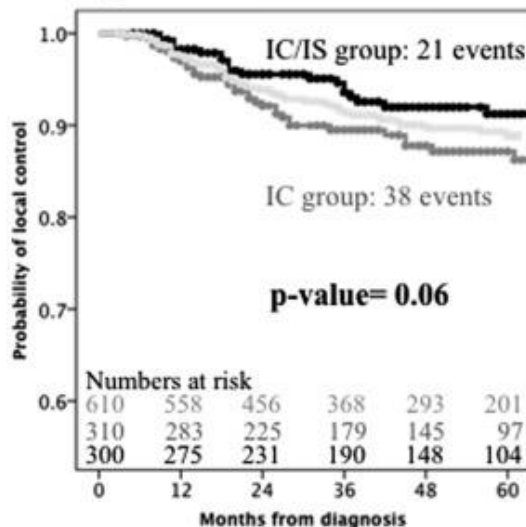
Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network

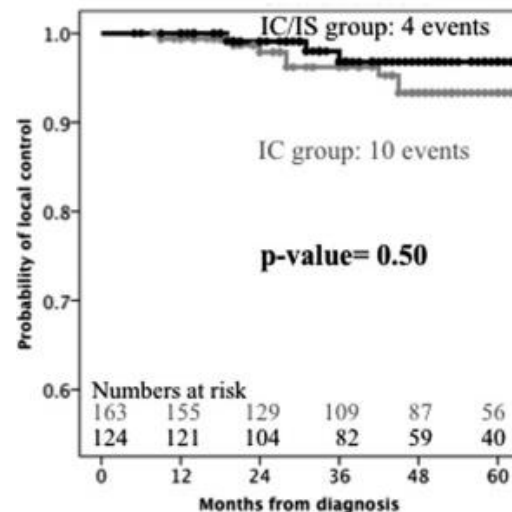


## 3D IGABT with interstitial needles improves Local Control

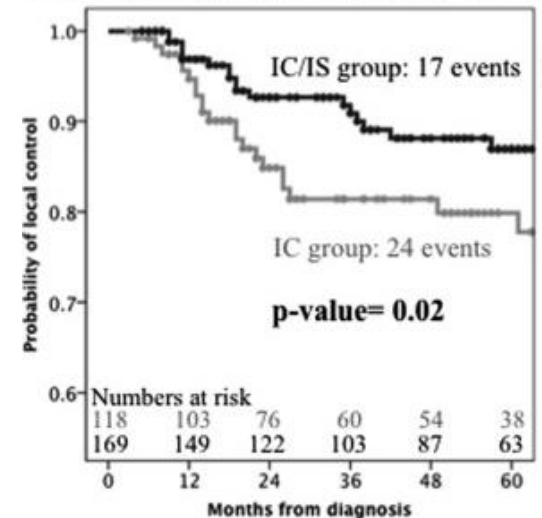
2A. All patients



2C. Small target volume ( $CTV_{HR} < 30 \text{ cm}^3$ )



2B. Large target volume ( $CTV_{HR} \geq 30 \text{ cm}^3$ )



Combined IC/IS brachytherapy improves local control by enabling a tumour specific dose escalation resulting in significantly higher local control in large tumours without adding treatment related late morbidity. [1]

Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



Engagement with the key stakeholders in the treatment of Cervical Cancer

Clinical Trial support

Education

Product/Procedure support and customer training

Innovation

Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## Support of EMBRACE 1 and EMBRACE 2 studies

Radiotherapy and Oncology 120 (2016) 365–369



ELSEVIER

Contents lists available at ScienceDirect

Radiotherapy and Oncology

journal homepage: [www.thegreenjournal.com](http://www.thegreenjournal.com)



### Editorial

### Image Guided Adaptive Brachytherapy in cervix cancer: A new paradigm changing clinical practice and outcome



Kari Tanderup<sup>a</sup>, Jacob Christian Lindegaard<sup>a</sup>, Christian Kirisits<sup>b</sup>, Christine Haie-Meder<sup>c</sup>, Kathrin Kirchheiner<sup>b</sup>, Astrid de Leeuw<sup>d</sup>, Ina Jürgenliemk-Schulz<sup>d</sup>, Erik Van Limbergen<sup>e</sup>, Richard Pötter<sup>b,\*</sup>

<sup>a</sup> Aarhus University Hospital, Department of Oncology, Denmark; <sup>b</sup> Medical University of Vienna, Comprehensive Cancer Center, Department of Radiation Oncology, Austria; <sup>c</sup> Gustave Roussy Cancer Campus Grand Paris, Department of Radiation Oncology, Villejuif, France; <sup>d</sup> University Medical Center Utrecht, Department of Radiotherapy, The Netherlands; and <sup>e</sup> Department of Radiation Oncology, University Hospital Gasthuisberg, Leuven, Belgium

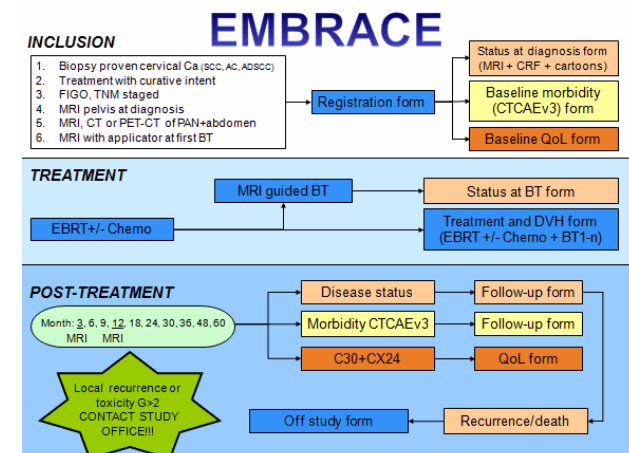
Image Guided Adaptive Brachytherapy (IGABT) in locally advanced cervical cancer (LACC) is increasingly recognized as the new paradigm replacing 2D brachytherapy and spreading throughout the world. This spread is at present predominantly in Europe [1], North America [2] and in major centres in Asia. The Gyn GEC ESTRO Recommendations I–IV [3–6] on MRI based IGABT have been used as the conceptual frame for these developments during the last decade and are now embedded into the recently published

### Clinical outcome

There is growing clinical evidence that IGABT combined with radiochemotherapy leads overall to improved clinical outcome compared to 2D brachytherapy. This evidence is based on retrospective mono-institutional cohorts [15–18,44–48], on the prospective multicentre French comparative STIC trial [49] and now also on results from the RetroEMBRACE [19,20,24] and



### Synopsis



Cervix Cancer Education Symposium, January 2019, South Africa

## Gynecologic Cancer InterGroup Cervix Cancer Research Network



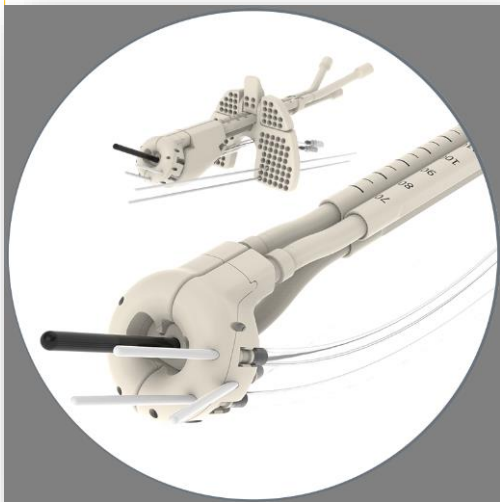
### Support of GCIg and CCRN

- Gynecologic Cancer InterGroup (GCIg)
  - Global studies in endometrial and cervical cancer
- More focused collaboration with Cervix Cancer Research Network (CCRN)
  - Leading up to meeting today

# Gynecologic Cancer InterGroup Cervix Cancer Research Network

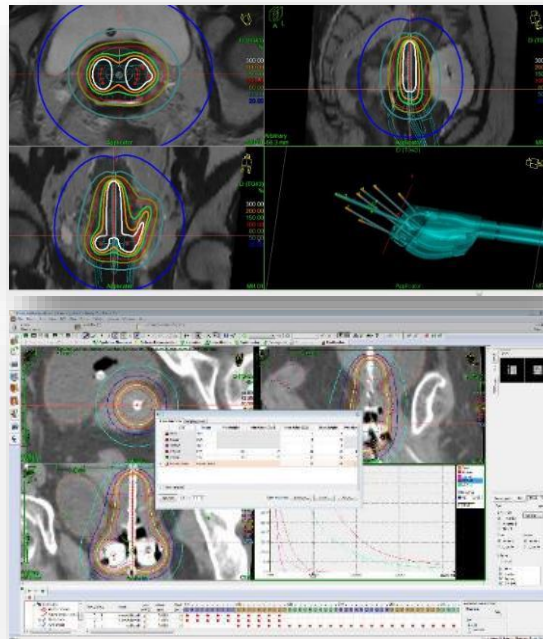


## Elekta solutions for image-guided adaptive brachytherapy



Largest CT/MR compatible  
applicator portfolio

Now also a new option for  
advanced staged cervical  
cancer: Venezia\*™



Intelligent tools to simplify treatment  
planning – eg. speed up reconstruction  
and optimize dosimetry



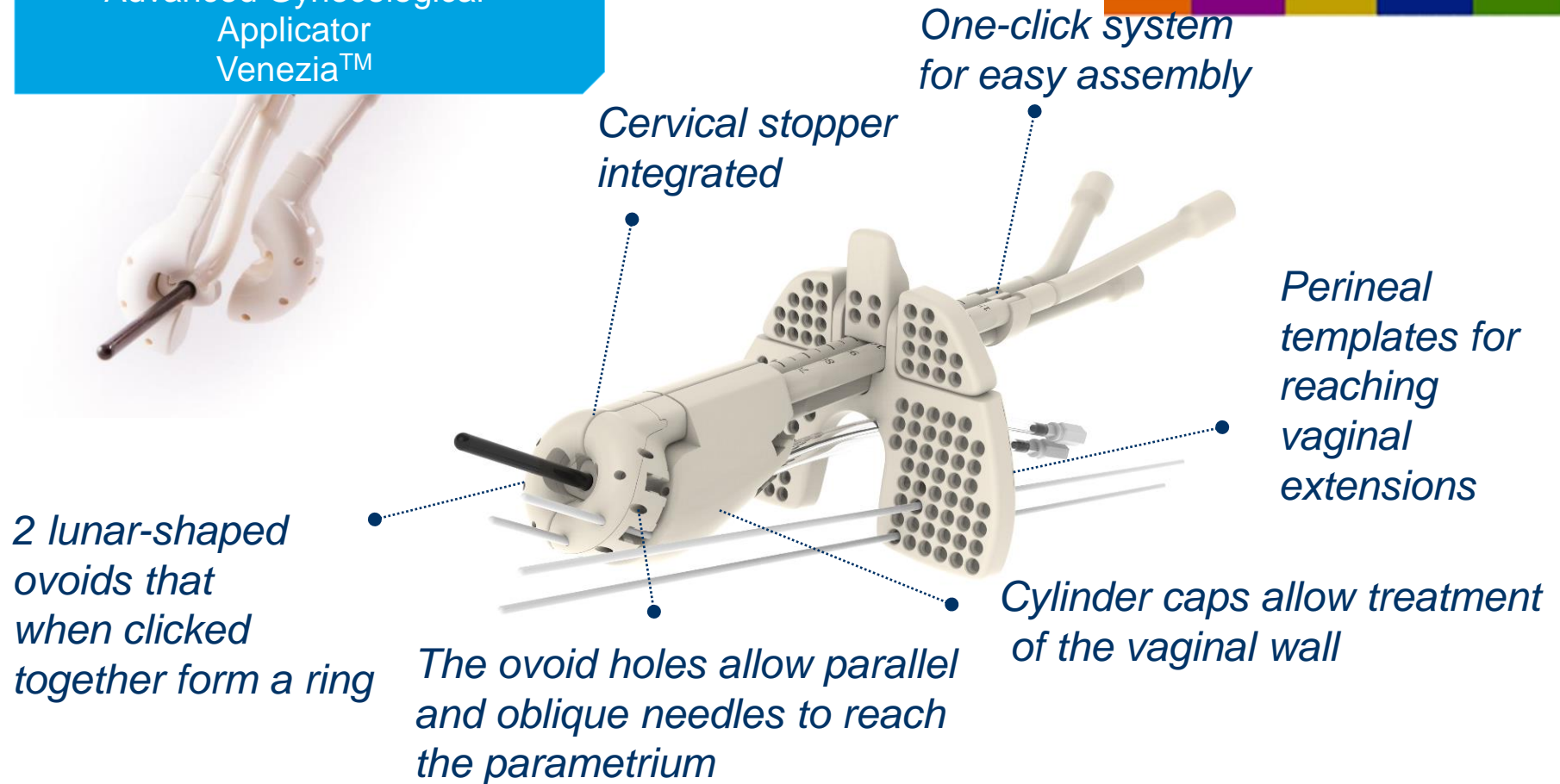
Cervix Cancer Education Symposium, January 2019, South Africa



# Gynecologic Cancer InterGroup Cervix Cancer Research Network



Advanced Gynecological  
Applicator  
Venezia™



Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



- Educational concept with distinct identity
- Focused on general brachytherapy and clinical workflow rather than products
- For Health Care Professionals with interest in Brachytherapy
- Structured and organised
- Long-term relationship with customers
- Easy accessible

Cervix Cancer Education Symposium, January 2019, South Africa



# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## The “one-stop-shop” for Brachy-education

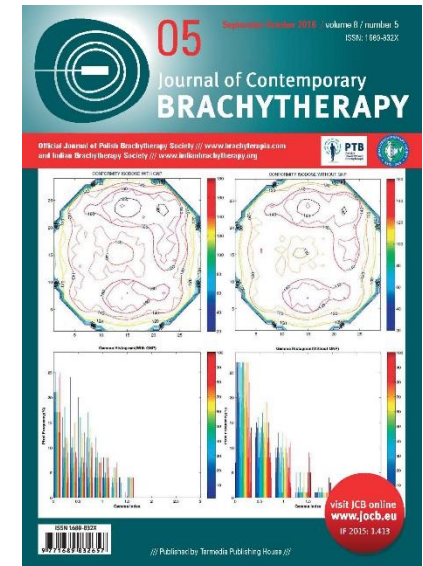
- **Peer-to-Peer** Brachytherapy education
  - Educational Workshops
  - Educational Centers
  - On-site support (proctoring)
  - Fellowships
- Residency programmes
  - Physicians
  - Physicists

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## Other components BrachyAcademy

- What's new in Brachytherapy
- Medical information (e-Library)
  - Research & publications
  - Awareness materials
- Educational video's
- Other:
  - BrachyTalk
  - Webcasts
- Educational Activity Corner Journal of Contemporary Brachytherapy
- Employee Medical Education



Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network



## BrachyAcademy Workshops

Body (tumor) sites

- Gyn (cervix)
- Prostate
- Breast
- Robot-Assisted Bladder Brachytherapy
- Head & Neck
- Rectum
- Skin

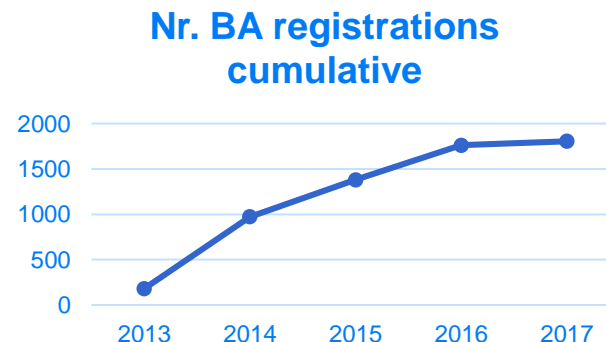
Cervix Cancer Education Symposium, January 2019, South Africa

# Gynecologic Cancer InterGroup Cervix Cancer Research Network

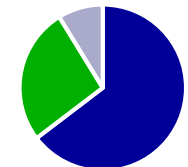


## BrachyAcademy website (launch April 2013)

- 1805 'My Academy' registrations from 100 different countries:
  - 1167 spontaneous registrations
  - 480 via workshop registrations
  - 158 Elekta colleagues
- 5 workshops open for registration (10 workshops planned)
- 36 Educational Centers
- 400-plus items in e-library
- 39 BrachyTalk interviews
- English, Spanish, Chinese (Mandarin)



### BA registrations (total 1805)



- Spontaneous
- Via workshop
- Elekta colleagues

## Gynecologic Cancer InterGroup Cervix Cancer Research Network



### BrachyAcademy in development

- Visit, talk with and select Centres of Excellence for (domestic) peer-to-peer training purposes
- Visit, talk with and select Centres of Excellence to become Workshop sites
- Facilitate training of Radiation Oncologists and Physicists to become 'proctor', helping other centres to start Brachytherapy