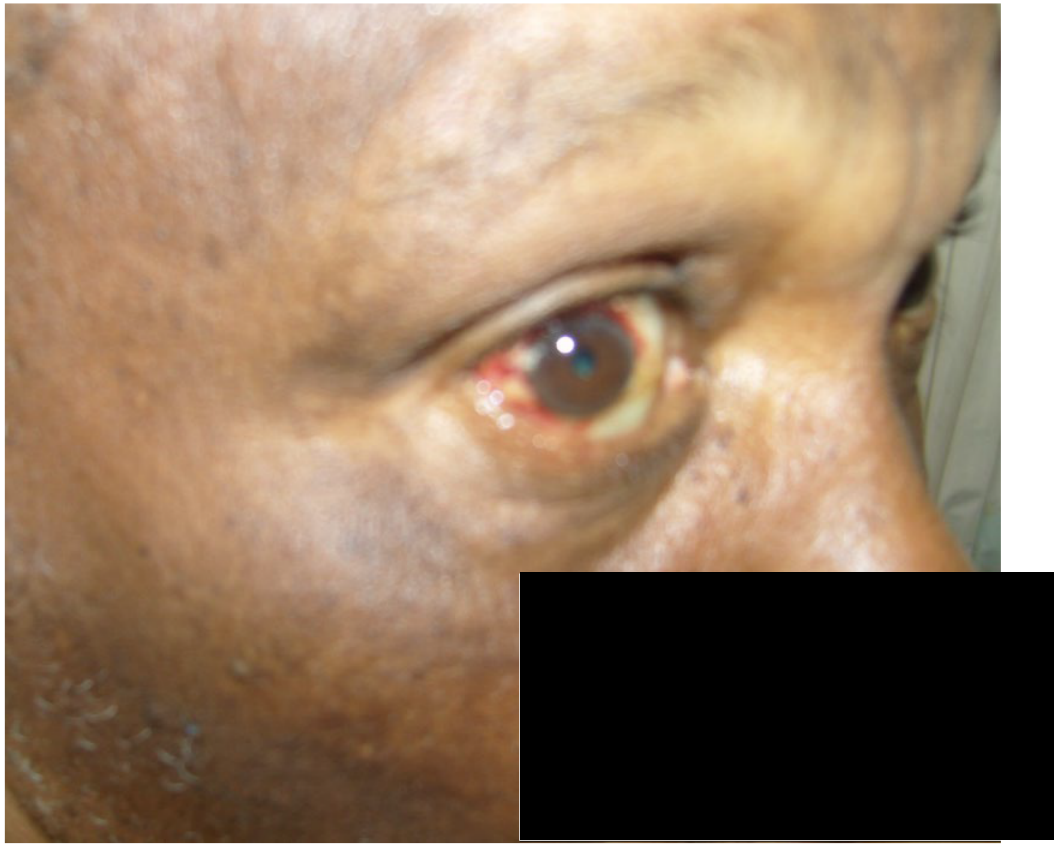
GLOBAL ONCOLOGY - DREAM OR REALITY?

Prof. Dr Cristina Stefan
MD, MMED, FCP, MSc, PhD, MBA

Treating patients in Africa. The most disadvantaged human population on earth.

Doctor, I want you to cure me!
African patients with advanced disease



Burkitt Lymphoma

Curable with appropriate and timely treatment despite late presentation and advanced disease.

Indolent, aggressive or highly aggressive tumor?

Diverse presentations of DLBCL Recognition/Treatment: can be eradicated?

Structure

What is global oncology?

Cancer in Asia 2019

Dream or reality?

What is global oncology?

What is global oncology?

Common global health definition a decade ago- the Consortium of Universities for Global Health (>170 academic institutions and partners worldwide)

Substantial health disparities exist for cancer. In 2018, 59% of new cancer cases and 70% of cancer deaths occurred in low- and middle-income countries.

The recent emergence of global oncology as an academic discipline seeks to promote scientific and clinical advances for cancer worldwide

Multiple facets of the discipline of Global Oncology

Global Oncology's mission is to bring the best in **cancer** care to underserved patients around the world. We collaborate across geographic, professional and academic borders to improve **cancer** care, research and education

Global oncology as a real academic career path…

Global oncology initiatives

Global oncology research

Global oncology trends

Practising across borders

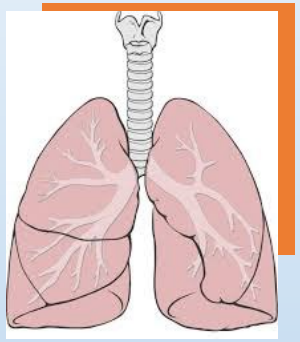
Cancer in Asia 2019

Cancer in Asia 2019

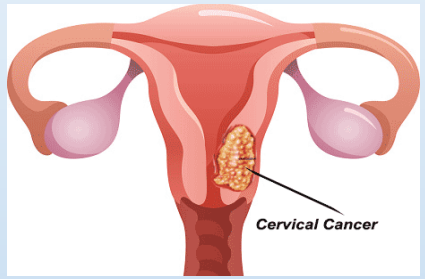
Cervical Cancer

Childhood cancer

Asia follows most global trends for common types of cancers, with some key differences.



The most common male cancer in Asia is lung cancer, while in the West it is prostate cancer. For Asian women, breast cancer is the most common, but cervical and liver cancers occur more frequently than in other regions.



Even though cervical cancer has a long latency period and effective screening methods, more women die from it in Asia than in the West.

Think globally, act locally

The total population in East **Asia** is **1.486 billion**, which accounted for **19.45% of the global population**. In **2017**, there were 2,731,480 (2,892,040–2,542,159) total deaths due to **cancer** in East **Asia**, accounting for **28.9%** of the world's total number of deaths.
Sep 12, 2019

Asia- the real overall cancer rate?

?

Most commonly diagnosed cancers

2012

Colorectum | Lip & Oral Cavity | Stomach — MALE

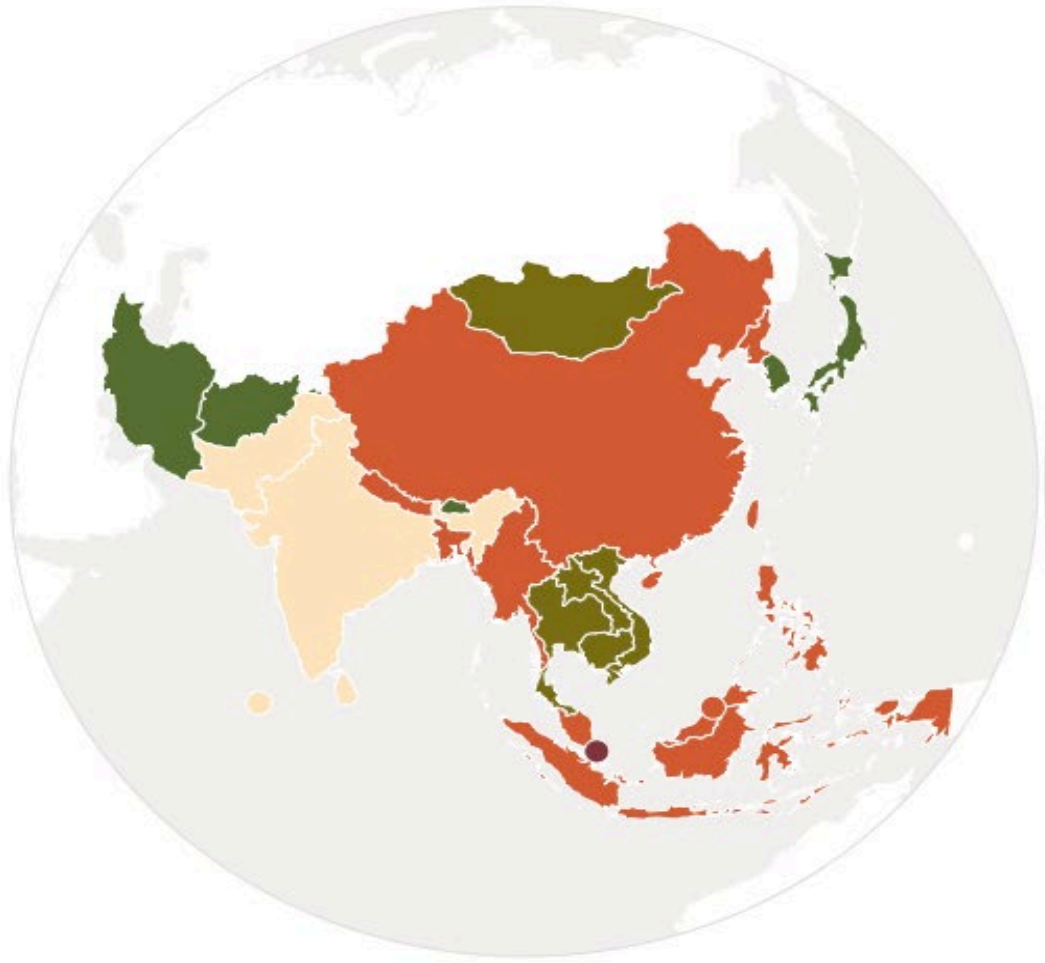
Fewest Countries | Most Countries

Liver | Lung — BOTH SEXES

Fewest Countries | Most Countries

Thyroid | Cervix | Breast — FEMALE

Fewest Countries | Most Countries



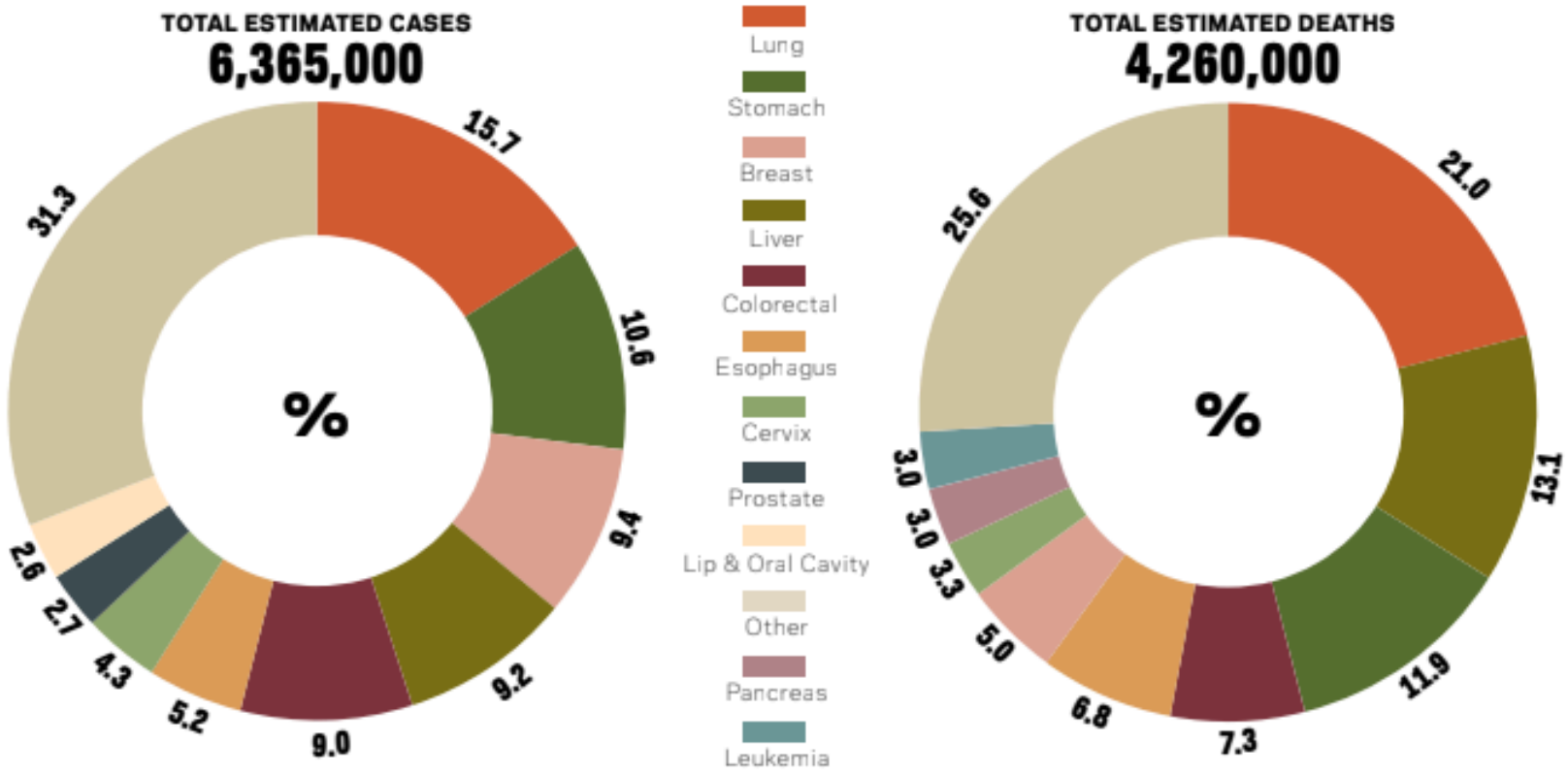
Male

Female

②

Lung cancer has the highest incidence and mortality rates for both sexes combined.

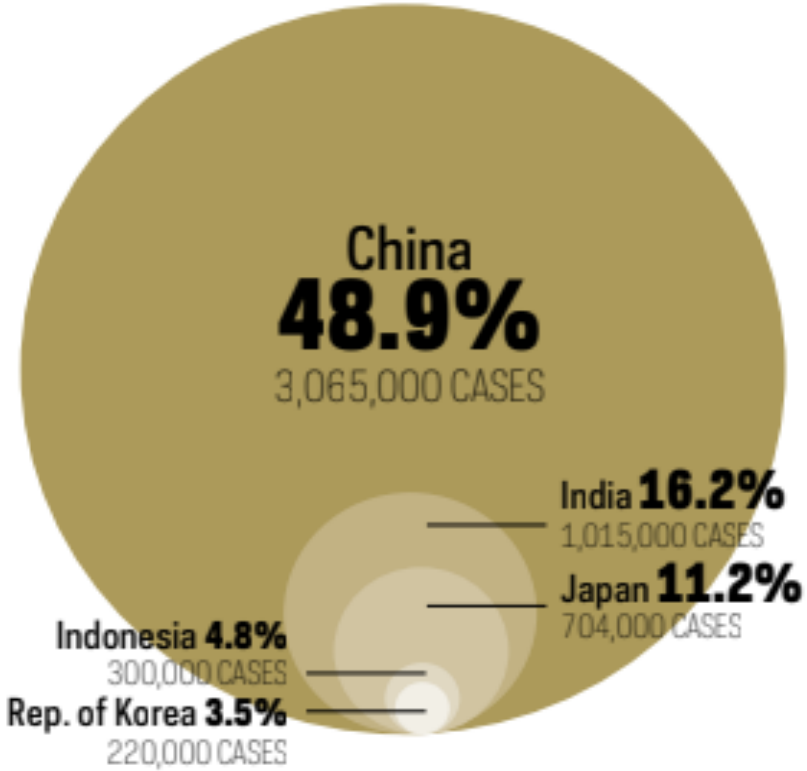
ESTIMATED NUMBERS OF NEW CANCER CASES AND DEATHS, BOTH SEXES, 2012



①

China alone accounts for 50% of all cancer cases in this region.

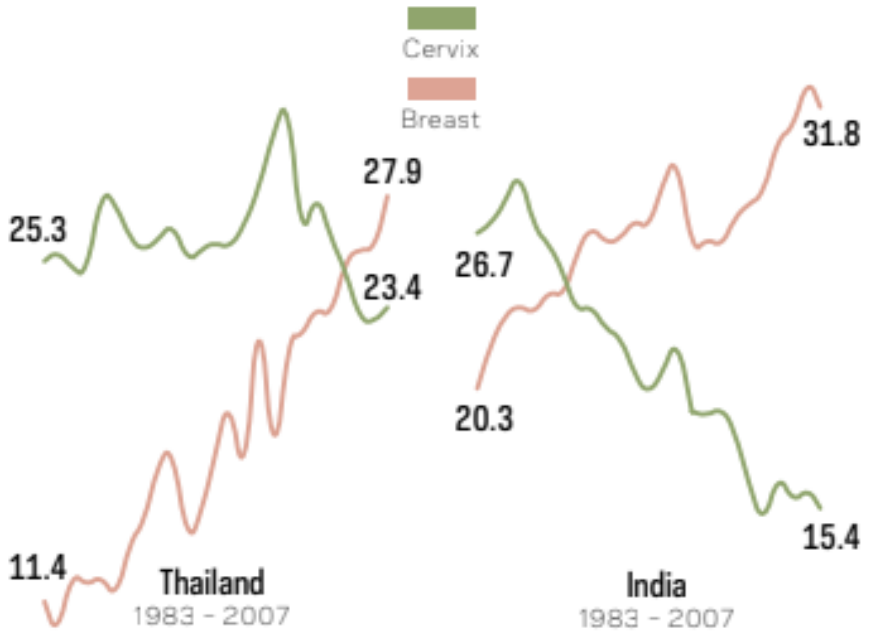
TOP 5 COUNTRIES IN THIS REGION WITH THE HIGHEST ESTIMATED NUMBER OF CANCER CASES, 2012



③

While cervical cancer has been decreasing in Thailand and India, breast cancer has been increasing and is now more common than cervical cancer.

TRENDS IN AGE-STANDARDIZED INCIDENCE RATES (WORLD) PER 100,000



Public Health Progress in Asia

- Communicable, maternal, perinatal and nutritional conditions

Cause of death	2000	2015	% change
Vaccine-preventable infections	309,000	82,000	↓ 73%

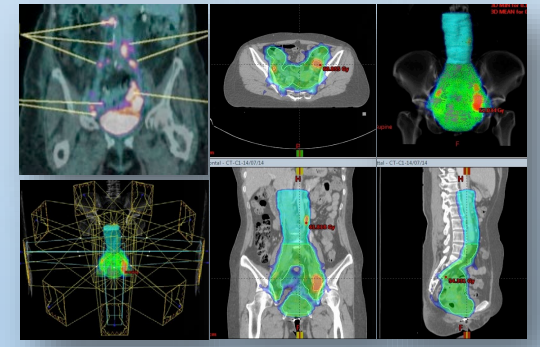
IARC. Globocan. Online.

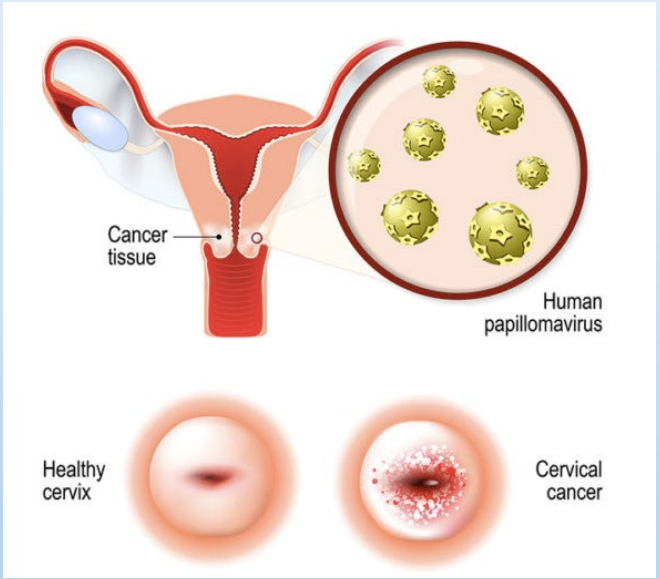
Cervical cancer

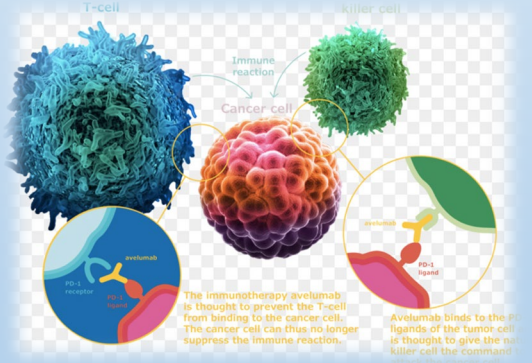
Even though cervical cancer has a long latency period and effective screening methods, more women die from it in Asia than in the West.

India alone accounts for 27% of global cervical cancer deaths, which may be due to the unavailability of screening

Cervical Cancer:
A Prevention Success Story







WHO Calls for “A World Free of Cervical Cancer”

Proposed 2030 targets

90%

of girls fully **vaccinated** with HPV vaccine by 15 years of age

70%

of women are **screened** with a high-precision test at 35 and 45 years of age

90%

Of women identified with cervical disease receive **treatment and care**

Every country must introduce and scale-up HPV screening for women between 30 and 49 years old, and ensure appropriate treatment and follow-up.

– Dr Tedros Adhanom Ghebreyesus, WHO Director-General, 24 September 2018

The Ability to Eradicate Cervical Cancer is Here

With vaccination, access to screening & modern molecular tests…Australia is on track

Australia's new cervical cancer test 'much more sensitive' - Cancer Council

Women will need the test for the human papillomavirus (HPV) every five years rather than a pap smear every two years

Eliminating cervical cancer globally is within reach if governments act

Ian Frazer

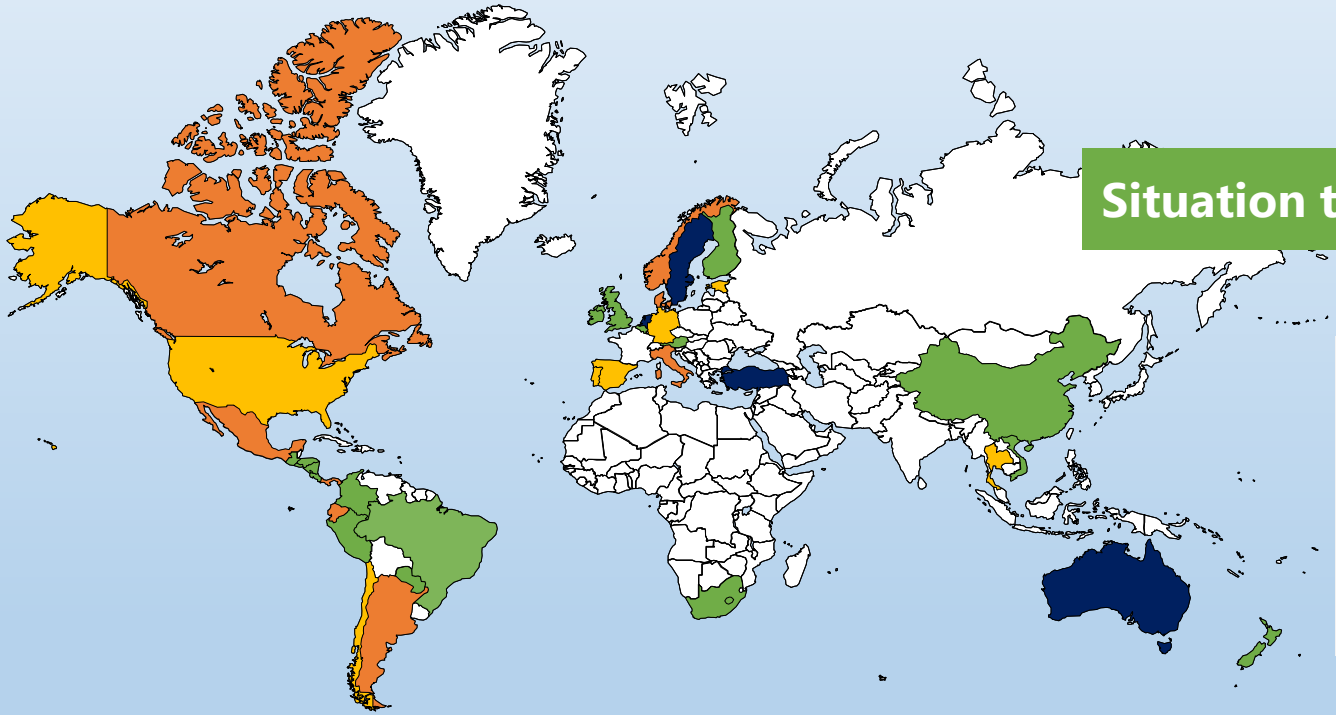
We have the unique opportunity to wipe out a cancer that kills 250,000 women worldwide each year

Australia could become first country to eradicate cervical cancer

Free vaccine program in schools leads to big drop in rates, although they remain high in the developing world

Source: https://www.theguardian.com/society/2019/jun/26/hpv-human-papilloma-virus-vaccine-cervical-cancer-elimination-study

HPV primary screening adoption across the globe: After years of scientific evidence, clinical practice has started to change



Situation today…

- National Program
- Regional/Targeted Programs
- Guidelines
- Pilot Study / Other

Program status for each country is updated with most current information available to Roche but may not reflect actual status

Cervical Cancer Screening Trends in Asia

For countries as well as individuals, **no two cancer journeys** are the same.

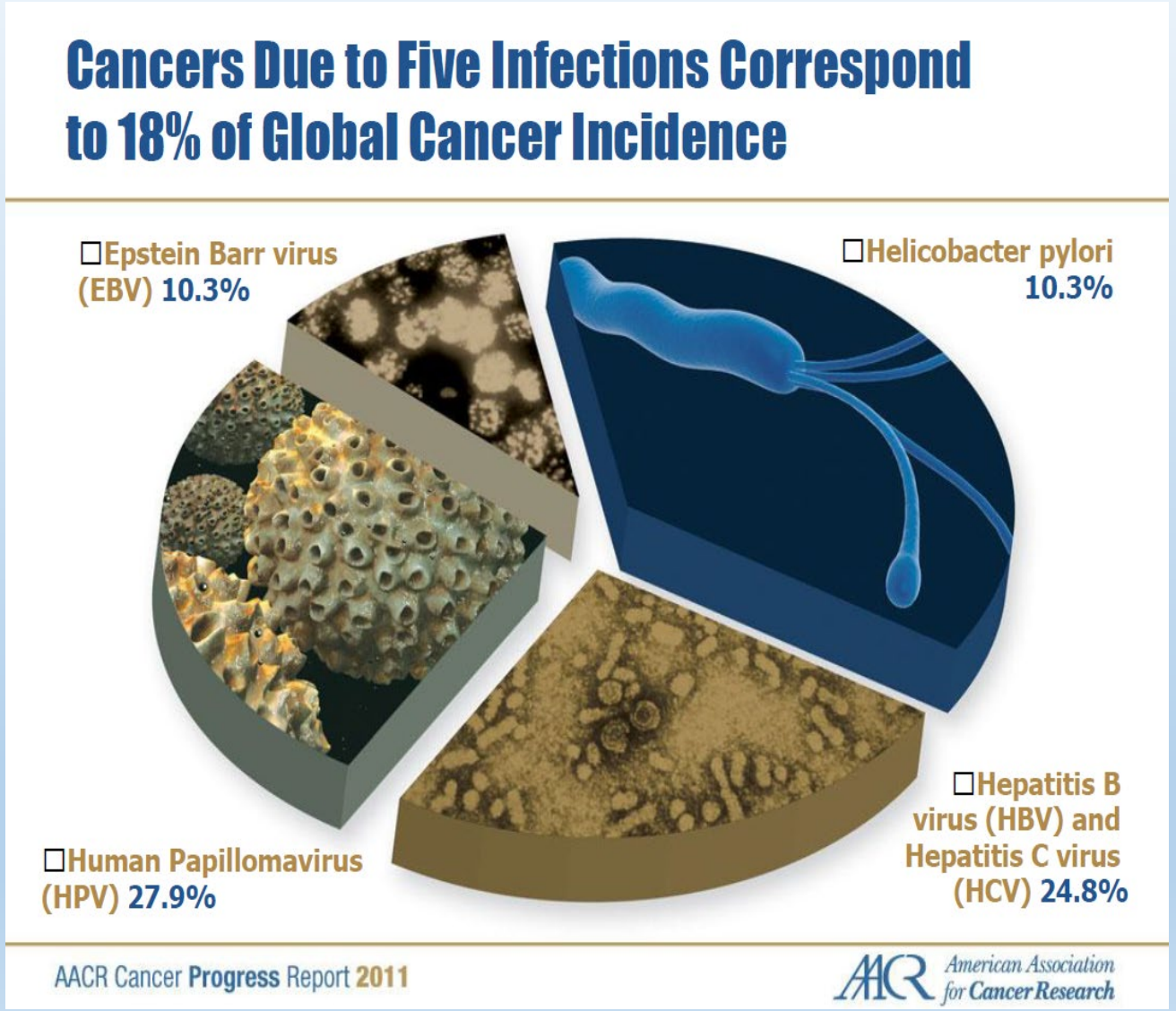
Malaysia	*China*
CxCa incidence: 1682 per year CxCa mortality: 944 per year	CxCa incidence: 106430 per year CxCa mortality: 47739 per year
Current situation: • Screening method: Yearly Pap cytology for women age 20-65 yo. Since 1998~15% screening coverage) • Vaccination: School based for 13 years old girl since 2010 (90% coverage)	Current situation: • Screening method: Opportunistic screening done either with Pap Cytology, co-testing or HPV primary • Vaccination: Out of pocket since 2018
In progress: • Screening method: HPV primary screening with self-collected samples in pilot sites	In progress: • Exploring self-collected sample in rural and unscreened women
Goal: • Screening method: National wide roll out of HPV primary screening with self-collected samples by 2023	Goal: • Screening method: National wide roll out of HPV primary screening in coming years

Guidelines for primary HPV testing in Cervical cancer screening in Malaysia – updated 27th May 2019

Greater attention was placed on prevention and early detection compared to cancer treatment and care.

"You will find, as a general rule, that the constitutions and the habits of a people follow the nature of the land where they live."

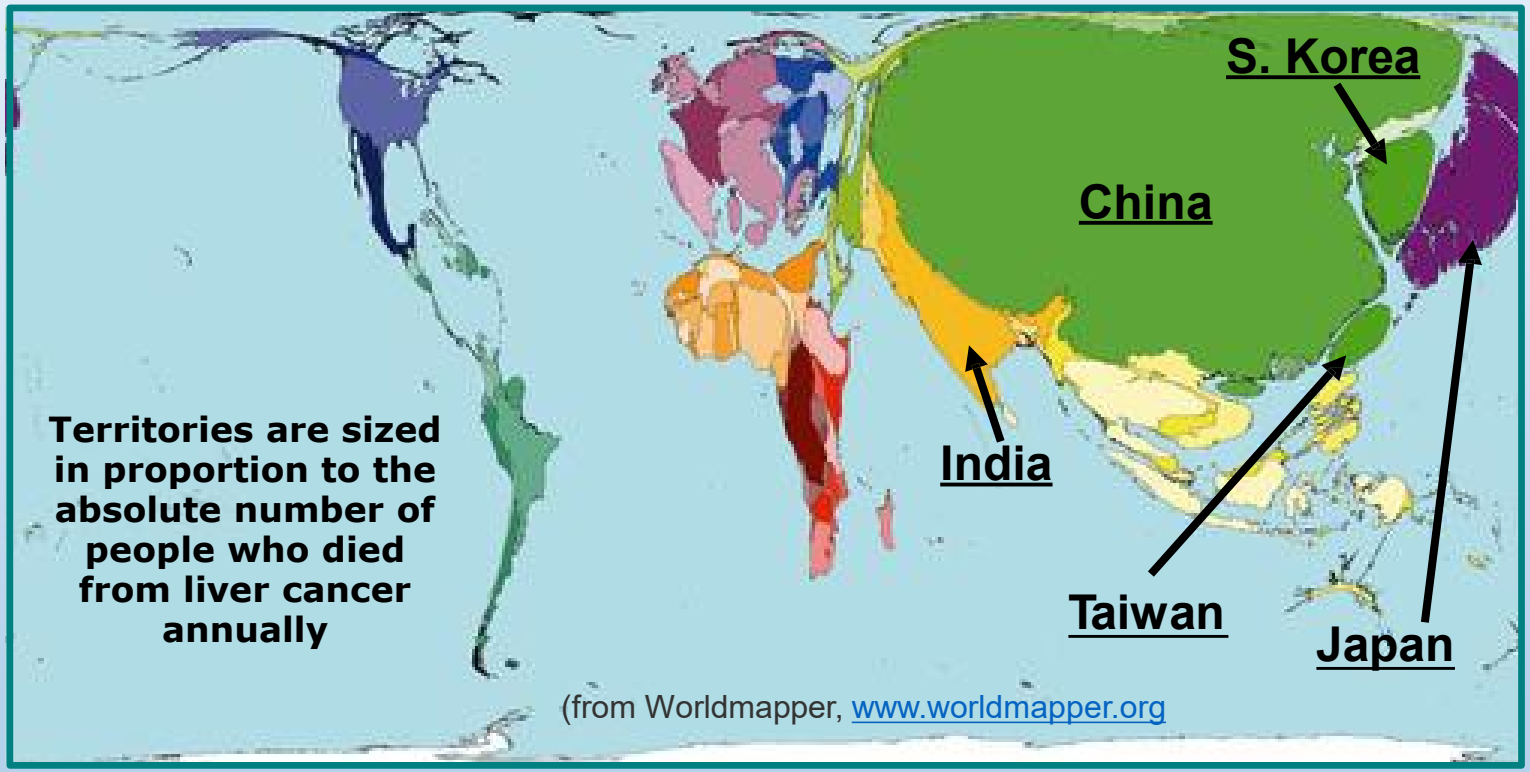
*Hippocrates (460-370 BCE); a*nd hence, their cancers too…



Infections cause about:

- **18% of cancers globally (>2 million cases/year)**
- **26% of cancers in LMICs**
- **40% of cancers in Africa**

Liver Cancer Kills 1% of the World's Population



Cancer of the liver cause ~1% of all deaths worldwide (~100 deaths per million people per year) and 9% of all deaths from cancer.

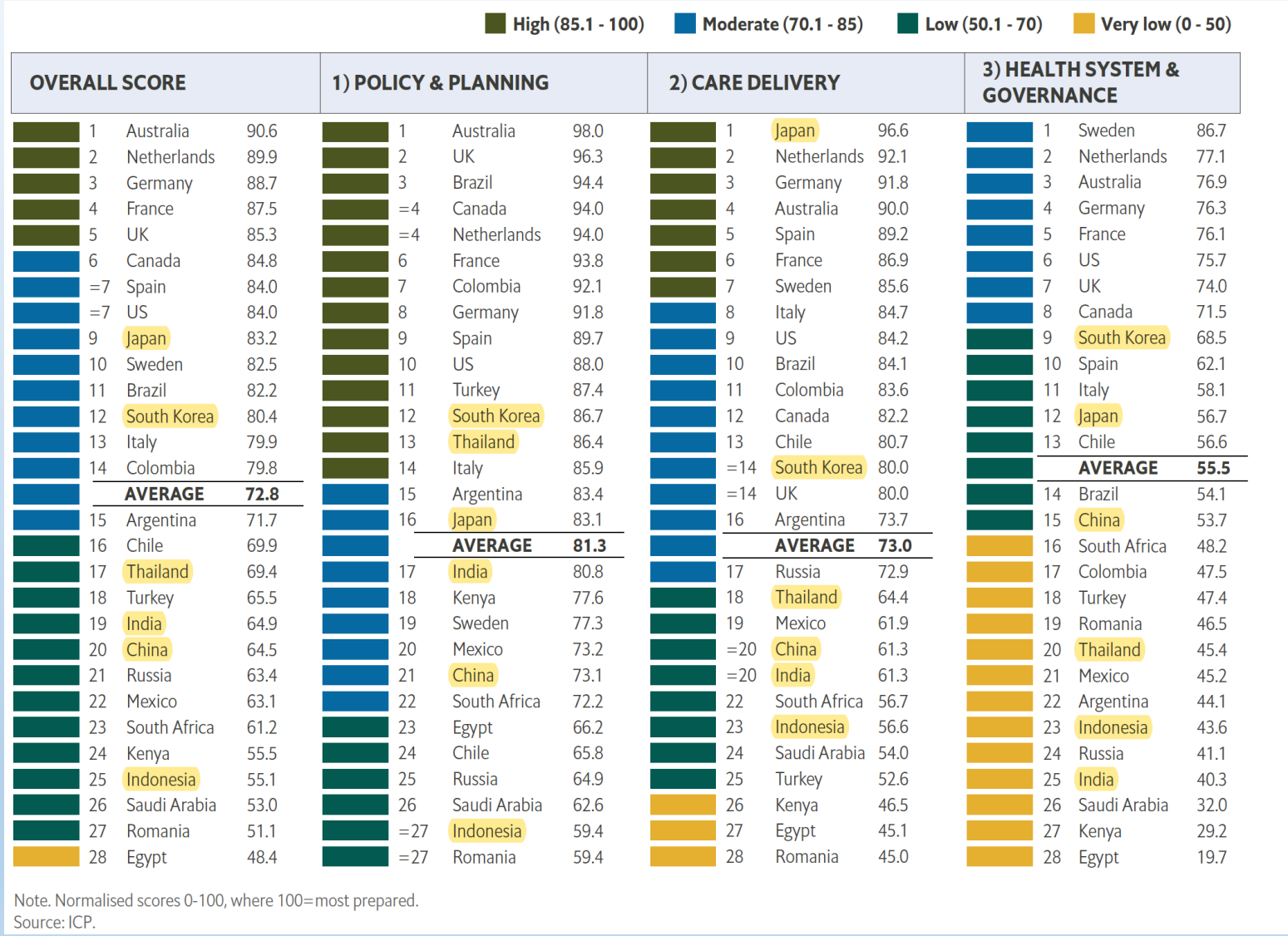
In 2017, the World Health Assembly passed a resolution on cancer control which recommends that countries develop National Cancer Control Plans (NCCPs) to guide all cancer prevention and management activities

Progression of operational cancer plans worldwide per region

Region	2013	2017
Africa	46%	74%
Americas	61%	77%
Eastern Mediterranean	48%	71%
Europe	82%	90%
South-East Asia	73%	91%
Western Pacific	83%	83%
Total	66%	81%

Global Health Observatory data repository, http://www.who.int/gho/en/, Noncommunicable diseases > National capacity, Policies, strategies and action plans - last update 2018-8-14.

Economist Intelligence Unit 2019 questionnaire on level of preparedness for the cancer epidemic across 28 countries



OVERALL SCORE		
1	Australia	90.6
2	Netherlands	89.9
3	Germany	88.7
4	France	87.5
5	UK	85.3
6	Canada	84.8
=7	Spain	84.0
=7	US	84.0
9	Japan	83.2
10	Sweden	82.5
11	Brazil	82.2
12	South Korea	80.4
13	Italy	79.9
14	Colombia	79.8
	AVERAGE	**72.8**
15	Argentina	71.7
16	Chile	69.9
17	Thailand	69.4
18	Turkey	65.5
19	India	64.9
20	China	64.5
21	Russia	63.4
22	Mexico	63.1
23	South Africa	61.2
24	Kenya	55.5
25	Indonesia	55.1
26	Saudi Arabia	53.0
27	Romania	51.1
28	Egypt	48.4

1) POLICY & PLANNING		
1	Australia	98.0
2	UK	96.3
3	Brazil	94.4
=4	Canada	94.0
=4	Netherlands	94.0
6	France	93.8
7	Colombia	92.1
8	Germany	91.8
9	Spain	89.7
10	US	88.0
11	Turkey	87.4
12	South Korea	86.7
13	Thailand	86.4
14	Italy	85.9
15	Argentina	83.4
16	Japan	83.1
	AVERAGE	**81.3**
17	India	80.8
18	Kenya	77.6
19	Sweden	77.3
20	Mexico	73.2
21	China	73.1
22	South Africa	72.2
23	Egypt	66.2
24	Chile	65.8
25	Russia	64.9
26	Saudi Arabia	62.6
=27	Indonesia	59.4
=27	Romania	59.4

2) CARE DELIVERY		
1	Japan	96.6
2	Netherlands	92.1
3	Germany	91.8
4	Australia	90.0
5	Spain	89.2
6	France	86.9
7	Sweden	85.6
8	Italy	84.7
9	US	84.2
10	Brazil	84.1
11	Colombia	83.6
12	Canada	82.2
13	Chile	80.7
=14	South Korea	80.0
=14	UK	80.0
16	Argentina	73.7
	AVERAGE	**73.0**
17	Russia	72.9
18	Thailand	64.4
19	Mexico	61.9
=20	China	61.3
=20	India	61.3
22	South Africa	56.7
23	Indonesia	56.6
24	Saudi Arabia	54.0
25	Turkey	52.6
26	Kenya	46.5
27	Egypt	45.1
28	Romania	45.0

3) HEALTH SYSTEM & GOVERNANCE		
1	Sweden	86.7
2	Netherlands	77.1
3	Australia	76.9
4	Germany	76.3
5	France	76.1
6	US	75.7
7	UK	74.0
8	Canada	71.5
9	South Korea	68.5
10	Spain	62.1
11	Italy	58.1
12	Japan	56.7
13	Chile	56.6
	AVERAGE	**55.5**
14	Brazil	54.1
15	China	53.7
16	South Africa	48.2
17	Colombia	47.5
18	Turkey	47.4
19	Romania	46.5
20	Thailand	45.4
21	Mexico	45.2
22	Argentina	44.1
23	Indonesia	43.6
24	Russia	41.1
25	India	40.3
26	Saudi Arabia	32.0
27	Kenya	29.2
28	Egypt	19.7

Note. Normalised scores 0-100, where 100=most prepared.
Source: ICP.

Asian countries investigated are highlighted in orange

Cancer in Asia 2019

Childhood cancer

WHO Global Initiative for Childhood Cancer

Where are we now?

Where do we go from here?

Outline: Childhood Cancer

- Why now for a Global Initiative?
- Background & current status of Initiative
- Translating Global Initiative into lives saved

Why Lack of Progress in Cancer?

1. Low p… a public health…

Where does childhood cancer fit as a public health priority?

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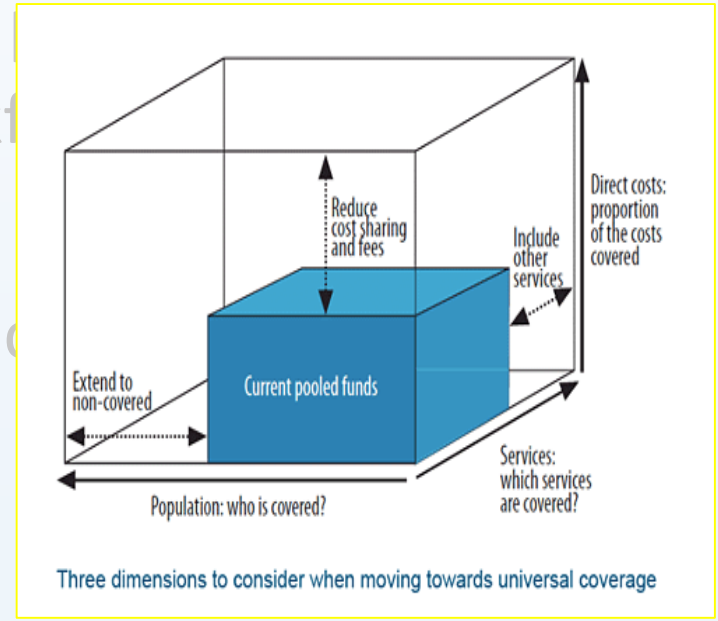
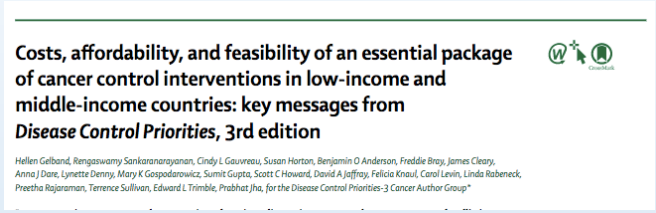
…workf…
…impac…



Three dimensions to consider when moving towards universal coverage

Must be in core package of services to realize UHC

Childhood Cancer as Priority Investment



Costs, affordability, and feasibility of an essential package of cancer control interventions in low-income and middle-income countries: key messages from *Disease Control Priorities*, 3rd edition

Hellen Gelband, Rengaswamy Sankaranarayanan, Cindy L Gauvreau, Susan Horton, Benjamin O Anderson, Freddie Bray, James Cleary, Anna J Dare, Lynette Denny, Mary K Gospodarowicz, Sumit Gupta, Scott C Howard, David A Jaffray, Felicia Knaul, Carol Levin, Linda Rabeneck, Preetha Rajaraman, Terrence Sullivan, Edward L Trimble, Prabhat Jha, for the Disease Control Priorities-3 Cancer Author Group*

Table 1.5 Approximate Per Capita Marginal Costs of the Essential Package for Low-Income, Lower-Middle-Income, and Upper-Middle-Income Countries

(2012 U.S. dollars)

Intervention	Low-income	Lower-middle-Income	Upper-middle-income
Comprehensive tobacco control measures	0.05	0.07	1.06
Palliative care and pain control	0.05	0.06	0.06
HBV vaccination	0.08	0.04	0.04
Promote early diagnosis and treat early-stage breast cancer	0.43	0.43	1.29
HPV vaccination	0.23	0.23	0.40
Screen and treat precancerous lesions and early-stage cervical cancer	0.26	0.29	0.87
Treat selected childhood cancers	0.03	0.03	0.09
Subtotal	**1.13**	**1.15**	**3.81**
Ancillary services (50% of subtotal)	**0.57**	**0.58**	**1.91**
TOTAL COSTS	**1.70**	**1.73**	**5.72**

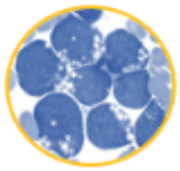
Source: Based on online annex 1A and Horton and Gauvreau 2015, annex 16A.
Note: HPV = human papillomavirus; HBV = hepatitis B virus.

Measuring Progress & Setting Priorities

Six of the Most Common Cancers in Children

Acute Lymphoblastic Leukemia

Most common worldwide



Burkitt Lymphoma

Common in many low-income countries

Hodgkin Lymphoma

Common in adolescents

Retinoblastoma

Connecting communities

Wilms Tumor

Connecting Multi-disciplinary care

Low-Grade Glioma

Connecting health systems

- Highly curable, with proven therapies
- Prevalent in all countries
- Represents 50-60% of all childhood cancers
- Helps to advance comprehensive childhood cancer services and systems strengthening

Preliminary Country Selection

- **AFRO** (Africa): 2-*3 preliminarily planned (tbc)*
- **EMRO** (Eastern Mediterranean): *to be confirmed*
- **EURO** (Europe): Commonwealth of Independent States (CIS) *to be confirmed*
- **PAHO** (Americas): Peru, *Caribbean (tbc)*
- **SEARO** (Southeast Asia): Myanmar
- **WPRO** (Western Pacific): *to be confirmed*

WHO meeting

>60 working group meetings

>200 documents shared

> 50 countries involved

>300 participants

Impact on countries already stated

“Lessons from Myanmar”

A Health Systems Approach for Strategic Planning and Action

From Prof Aye Aye Khaing

Yangon Children Hospital

Haemato-oncology in Yangon Children Hospital, Myanmar

Anticipated new childhood malignancy cases

1800 to 2500 per year

Myanmar is the second largest countryin Southeast Asia with an estimated total population 59.13 million,U5 MR 52

2 PHO Centers

6 Paediatric hemato-oncologists

Aye Aye Khaing
Professor
MBBS,MMed Sc(Paed),MRCPCH, Dr Med (Pead)
Paediatric Hemato Oncology Unit Vice-President –
Myanmar Society of Haematology

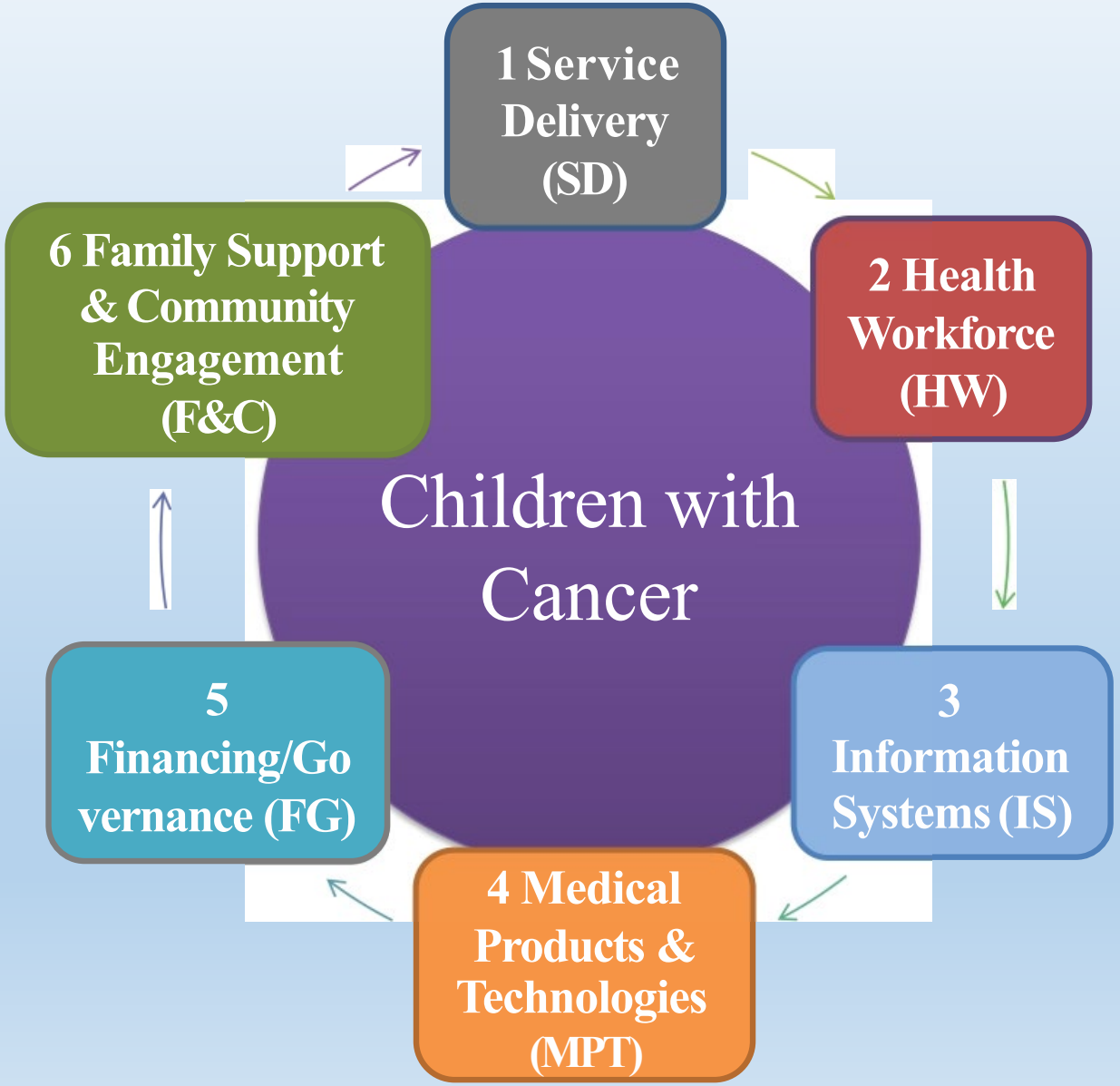
Childhood Cancer Needs Assessment Myanmar

Why focus on childhood cancer in Myanmar?

- **Childhood cancer is highly curable** – 80% can be cured
  - Common diagnoses include leukaemia, lymphoma, retinoblastoma
- Effective therapies for childhood cancers are known, and essential medications can be obtained
- Distinct considerations & competencies to optimally serve needs of children and families
- **With focussed attention to childhood cancer within the overall cancer control programme, coverage and quality of care can be expanded**

There can be no keener revelation of a society's soul than the way in which it treats its children. ~ Nelson Mandela

Health System Building Blocks Adapted for Childhood Cancer Control Planning



Get 60 by 30

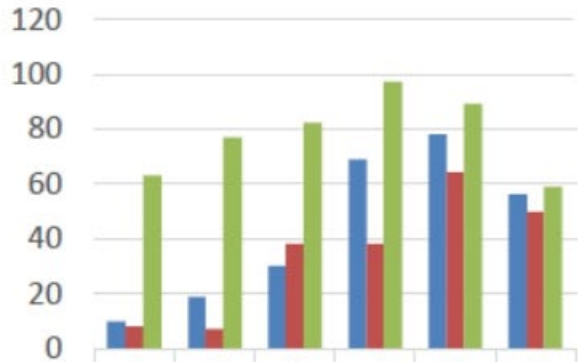
Outcome of Acute Lymphoblastic Leukaemia in Yangon Children Hospital

Tint Myo Hnin[1], Htike Tint Tun[1], Aung Kyaw Hein[1], Khin Nwe Oo[1], Yin Myat Thu[1], Ei Ei Shwe[2], Ei Phyo Win[2] and Aye Aye Khaing[1]

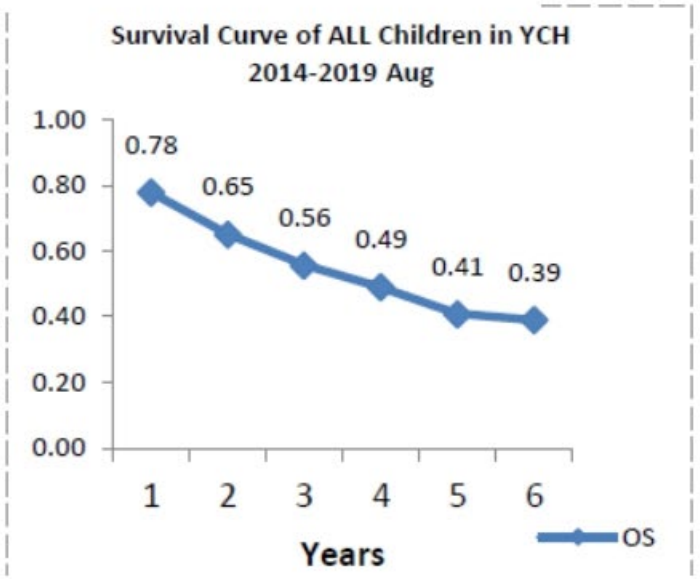
[1]- Hematology-Oncology Unit, Yangon Children Hospital, University of Medicine 1, Yangon, Myanmar

ı, Yangon Children Hospital, University of Medicine 1, Yangon, Myanmar

Proportion of Flowcytometry and Cytogenetics in Children with ALL



	1	2	3	4	5	6
Flowcytometry	10	19	30	69	78	56
Cytogenetics	8	7	38	38	64	50
Total patients	63	77	82	97	89	59



CONCLUSION: Being one of the target centers of childhood cancer initiative program, strategies to reduce the treatment abandonment and to improve the supportive care including treatment related mortalities are underway to improve the outcome of childhood ALL.

Network

Dedicated Pediatric Hematology/Oncology Units:

- 300-bedded Mandalay Children Hospital
- Yangon Children Hospital

Shared Care Network Sites equipped to facilitate initial work-up or follow-up for children on treatment closer to home:

- North Okkalapa General Hospital (Yangon)
- Yankin Children Hospital (Yangon)
- Taunggyi Women and Children Hospital

Community Network Sites with engaged staff familiar with facilitating timely referrals to dedicated units / shared care sites:

- Bogale
- Hinthada
- Magway
- Maubin
- Mawlamyine General Hospital
- Meikhtile
- 200-beded Women and Children Hospital (Monywa)
- Myaungmya
- Myingyan
- Naypyitaw
- Pakokku General Hospital
- Pathein
- Pyapon
- Sittwe

Helping children in Myanmar overcome cancer

Pyit Tine Htaung
(Burmese Name of Doll Pictured)
To my beloved little girl
I will sing a lovely song of
"Pyit Tine Htaung"
Come and listen to me
This will make you happy

The little Pyit Tine Htaung is short
But he wears so lovely sweet smile
Whenever he is thrown away
He can stand again and again
He never falls down

His life and his strong mind
is so amazing
He has no hands or legs
But he can do everything
Whenever he has difficulties
He can face these and solve the
problems with strong mind
He never surrender the difficulties
He tries to **overcome** these
Finally he wins everything

My beloved little girl
"Do you want to compete in running
race with him?"

Myanmar National Childhood Cancer Network

A Professional Network to Facilitate Communication, Coordination, and Advocacy to Increase Access and Strengthen National Delivery of Quality Care for Children with Cancer in Myanmar under the Auspices of the Myanmar Pediatric Society within the Myanmar Medical Association and Approved by the Ministry of Health and Sports of Myanmar

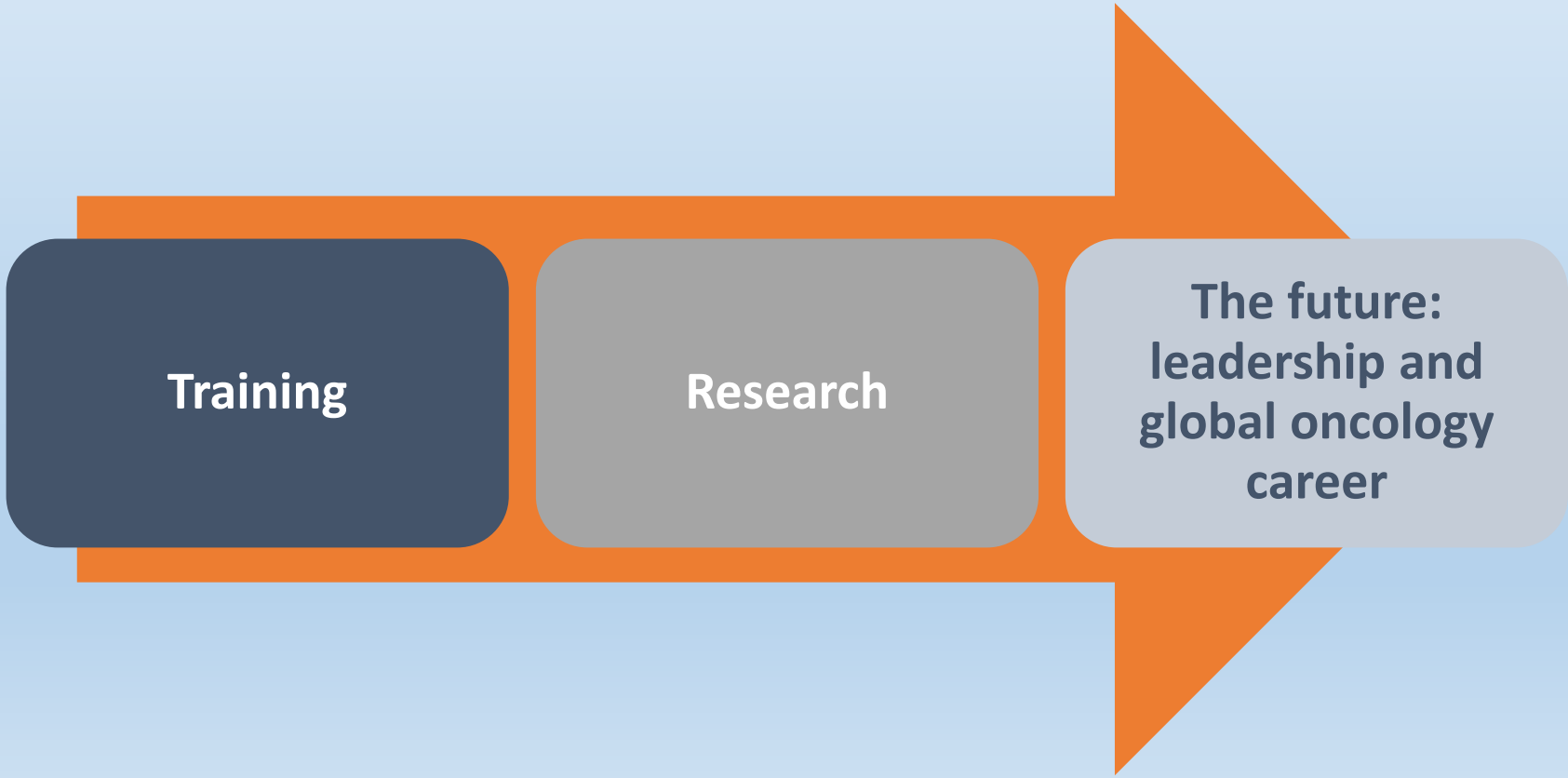
Global oncology: Dream or reality?

Dream or reality?

- Global oncology: what is and what is not about?
- A world where cancer is prevented or cured and every patient has the same chance
- Measuring impact
- How do we measure success?

Global oncology

A world where cancer is prevented or cured and every patient has the same chance for the best treatment and survivorship



Why global oncology?

A world-wide growth of cancer incidence: „the cancer epidemic”

Most of the cancers will appear in low- and middle-income countries, where most of the population lives

A global coordinated approach is needed to support the effort of controlling cancer

Why global oncology?

- This support consists of:
  - Influx of funds, equipment, medicines and know-how from high-income countries
  - Training of oncologists, surgeons, pathologists and nurses to enable them to fight cancer successfully
  - Funding cancer research in collaborative projects and training researchers in lower income countries
  - Support awareness initiatives and advocacy for political action to control cancer
  - Identifying optimal local or regional solutions for specific cancer control problems, which could be successfully applied elsewhere.
  - Developing NCCPs and monitoring the incidence of malignant disease, as well as the progress in controlling it

Why global oncology?

- The efficient drawing of programmes and distribution of funding from international organizations and donors needs to be guided by research of the global reality of the growth of malignant disease.
- The discipline of global oncology developed out of the need to:
  - Conduct research to obtain the necessary knowledge about the global cancer situation
  - Create a repository of knowledge accessible to governments, to international organizations and to scientists
  - Facilitate the exchange of information, solutions and monitor the evolution of the cancer epidemic
  - Create a body of specialists who would contribute through their global perspective to the optimal coordination of efforts for cancer control

Global oncology

- Awareness, understanding and planning- VISION
- Willingness to act collaboratively
- Task force: ASCO global oncology: innovative research, quality improvement, and professional development
- Recognition as a discipline
- Identification of the needs
- Global fund for global cancer

Progress Depends on Collaboration

Global oncology training

Global oncology research and practice

Global oncology career

Global oncology mentoring

Global oncology innovation

CRISTINASTEFAN10@GMAIL.COM