National Cancer Institute

CENTER FOR GLOBAL HEALTH

Master Course: Cancer Control Planning and Implementation

Webinar #7

Addressing Social Determinants of Health through National Cancer Plan Implementation

Neal Palafox, MD, MPH – University of Hawaii
Benjamin Anderson, MD, FACS – Fred Hutchinson Cancer Research Center

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health

The Social Determinants of Health

Master Course: Cancer Prevention and Control Planning and Implementation

Webinar # 7 – ICCP

September 23, 2016

Neal A. Palafox MD MPH
John A. Burns School of Medicine
University of Hawaii

Cancer Prevention and Control
University of Hawaii Cancer Center

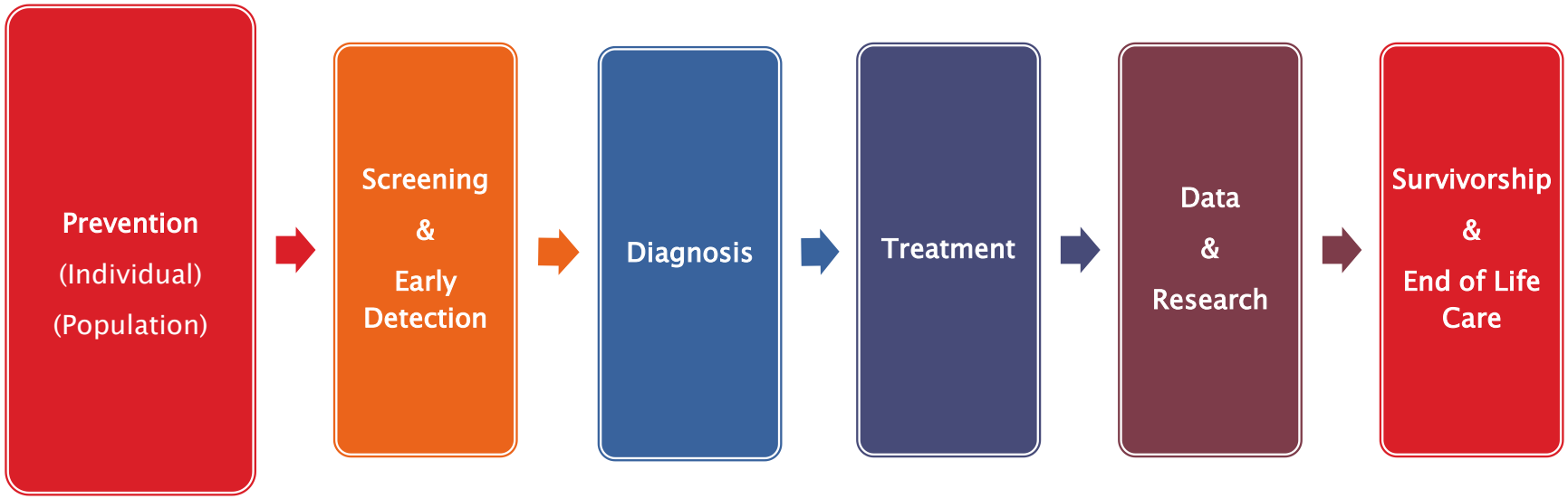
Purpose:

- Describe population level risk factors for (cancer / NCDs)
- Provide a framework / models to understand and manage population level risk
- Describe an approach to address population level cancer risk reduction through National Cancer Prevention and Control Plans

Objectives: Learner will be able to:

- Define Population Health
- Describe Social Determinants of Health (SDH)
- Define the Socio-Ecological Model of Health
- Describe Health Equity
- Describe the relevance of SDH in Cancer Prevention and Control Plans

Domains of Cancer Prevention and Control Plans



Primordial Prevention	Primary Prevention	Secondary Prevention	Tertiary Prevention

Prevention

- Primordial
  - Disease risk reduction at population level of health
- Primary
  - Prevent onset of disease via risk reduction usually at individual level
- Secondary
  - Control Disease Progression
- Tertiary
  - Treatment and control of advanced disease

- http://phprimer.afmc.ca/Part1-TheoryThinkingAboutHealth/Chapter4BasicConceptsInPreventionSurveillanceAndHealthPromotion/Thestagesofprevention

Primordial Prevention

- Population Risk
  - Social Production of Disease
  - Social Determinants of Health
  - Health Equity (Disparity)
  - Socio-Ecological Model

Primary Prevention

- Individual Risk
  - Non-Modifiable
    - Age and gender
    - Cancer Promoting and inhibiting Genes
  - Modifiable
    - Tobacco
    - Diet, Physical Exercise
    - Environmental Exposure
      - Infectious – HPV, HBV, HCV, EBV
      - Non- Infectious – Tobacco, Ionizing Rad (UV, nuclear, radon), PCBs, betel nut

The Tipnol and Walap

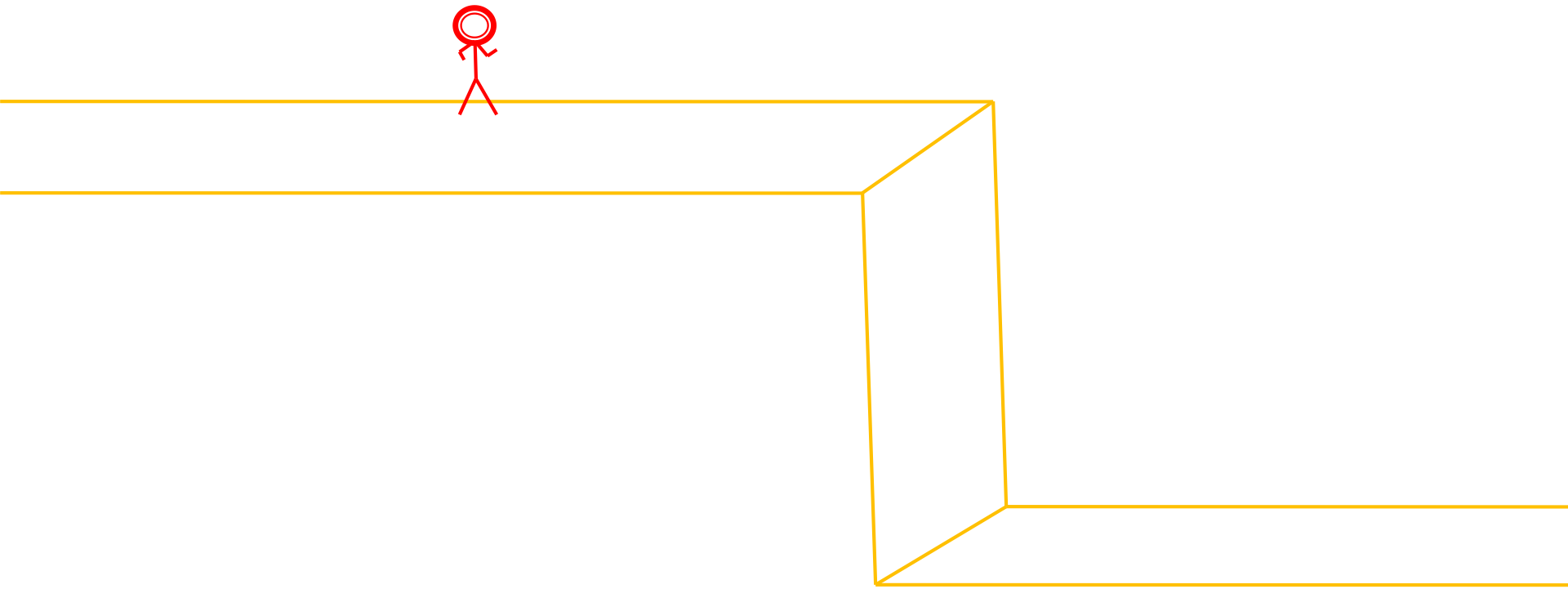
Social Determinants of Health and the Health Care Continuum

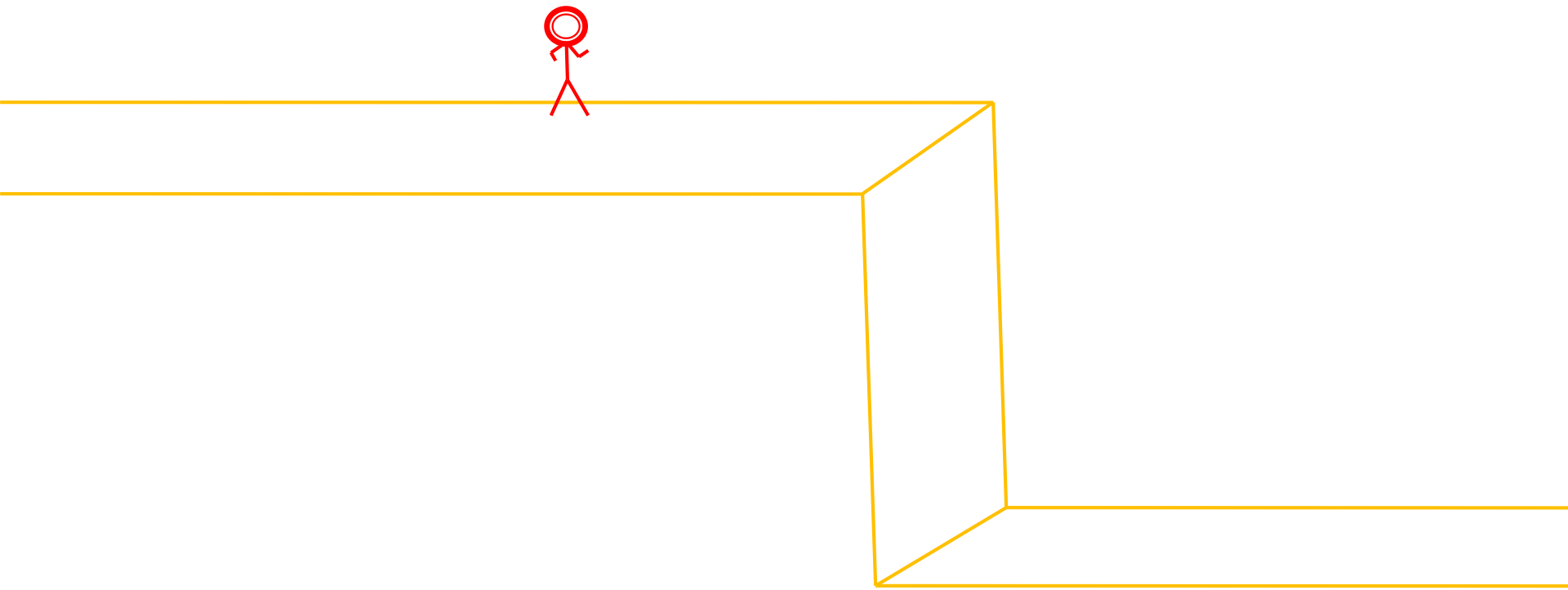
Health Status is an Outcome

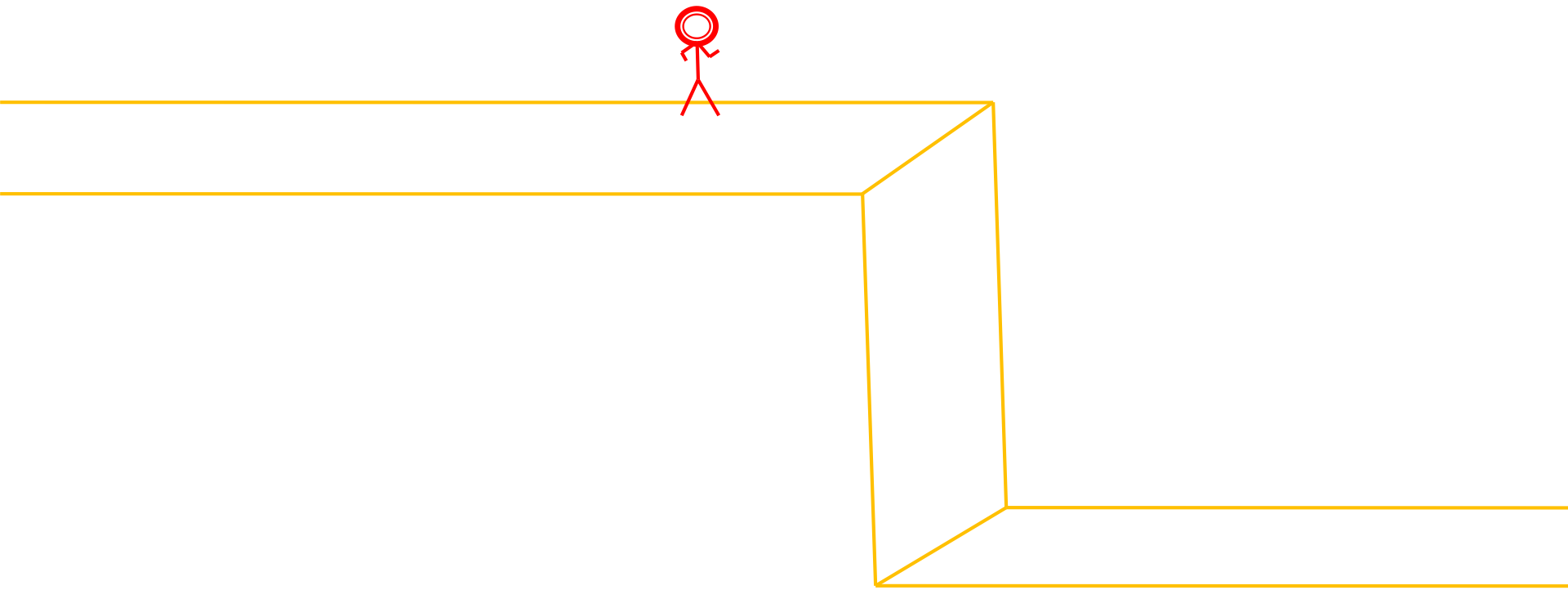
Cliff Cartoon Credits

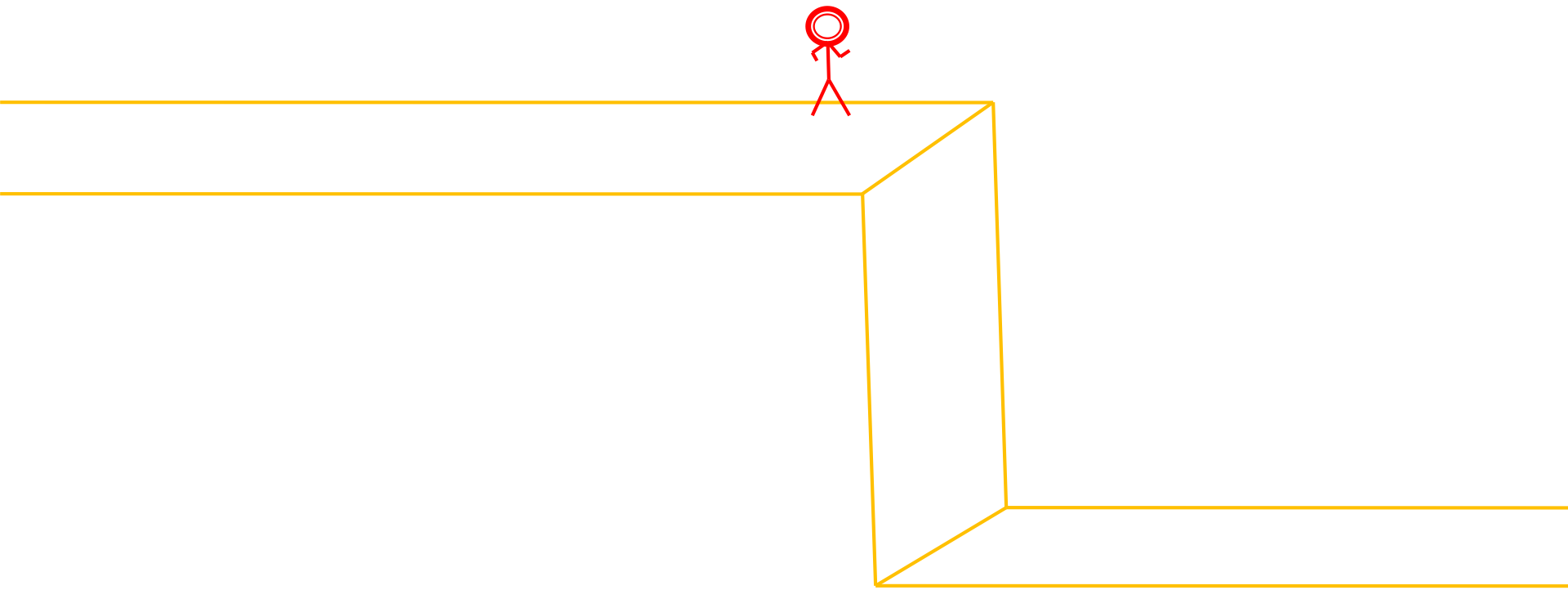
- Camara Jones, MD MPH PhD--- CDC
  - Original Cliff Concept

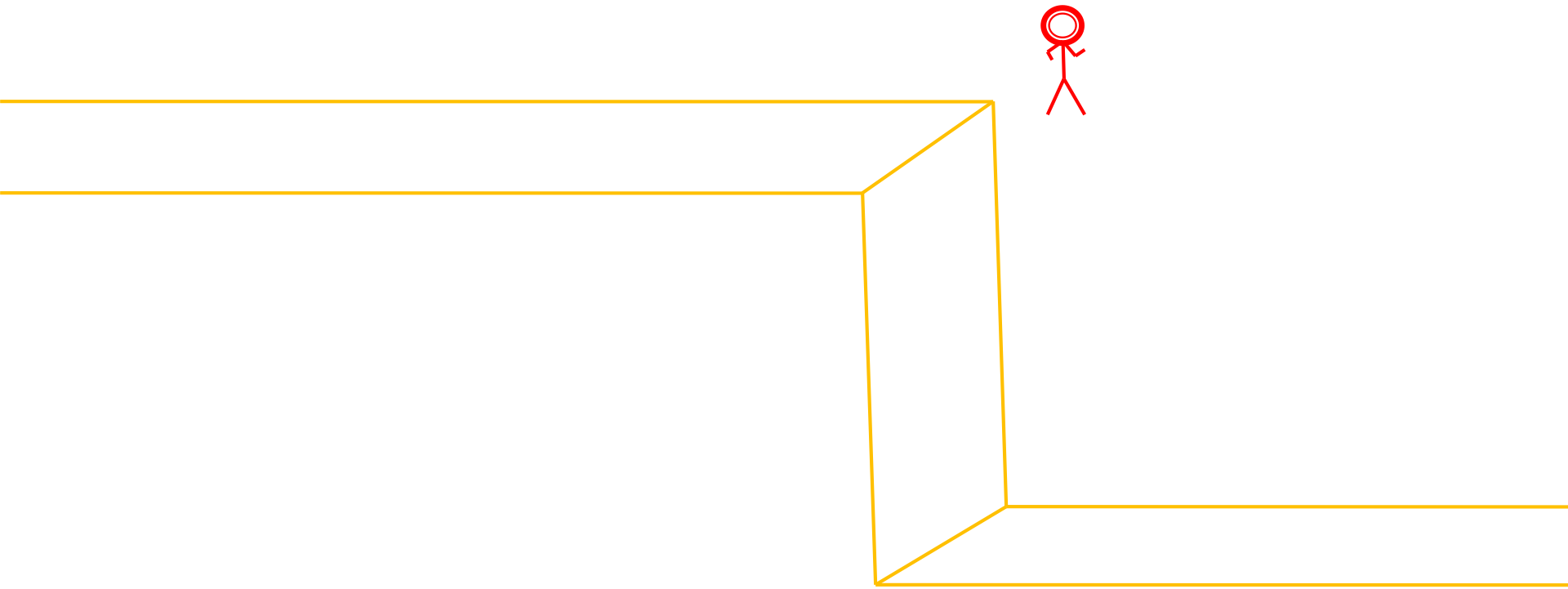
- Brian Roberts and Janos Baksa
  - Modifications
  - Drawing and slides

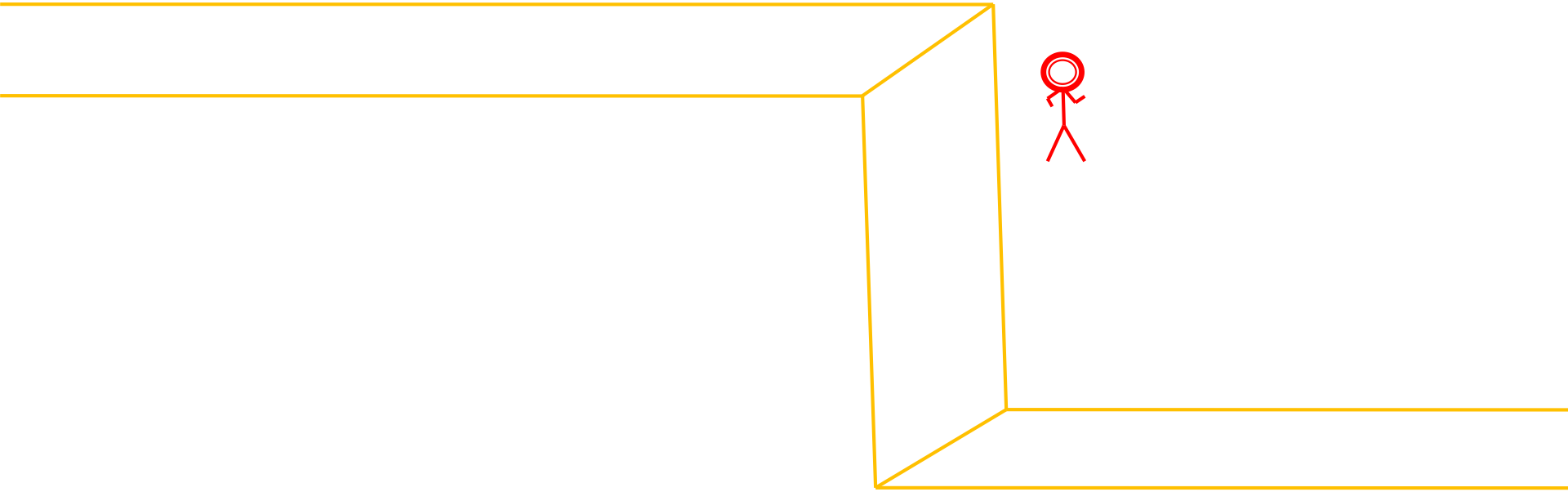


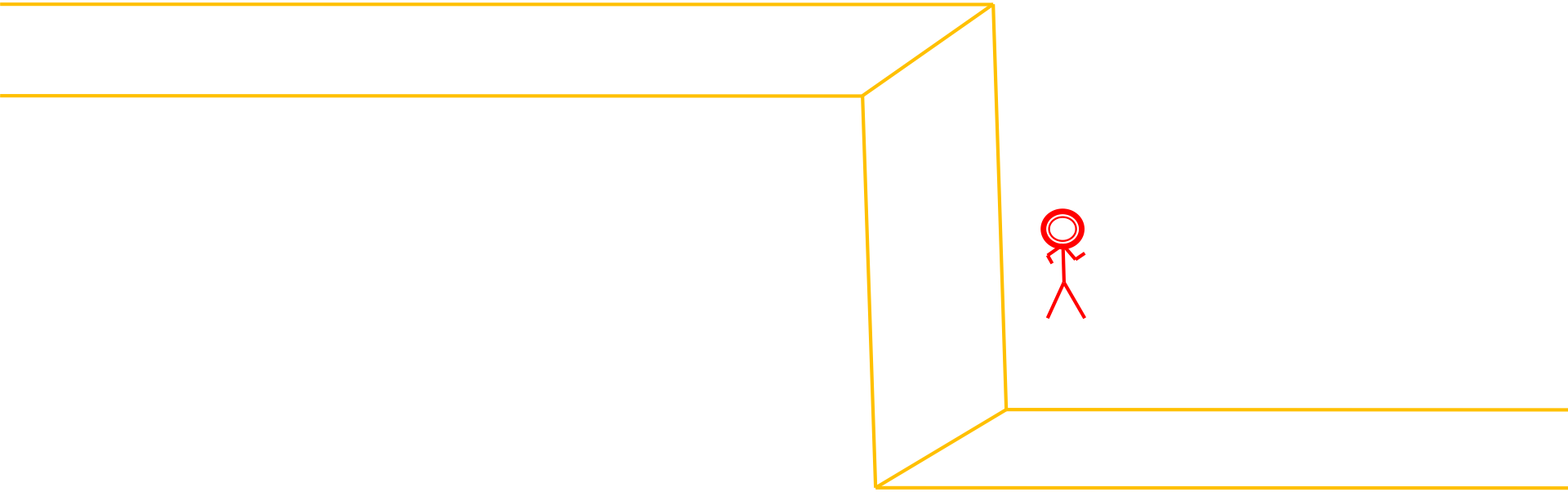


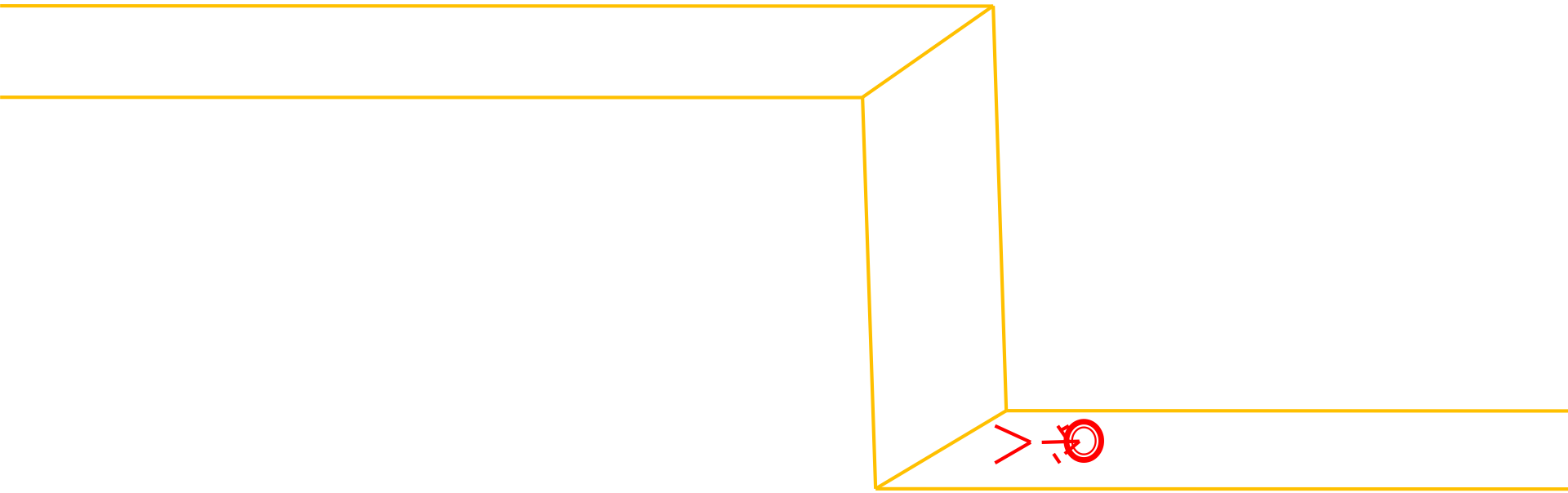


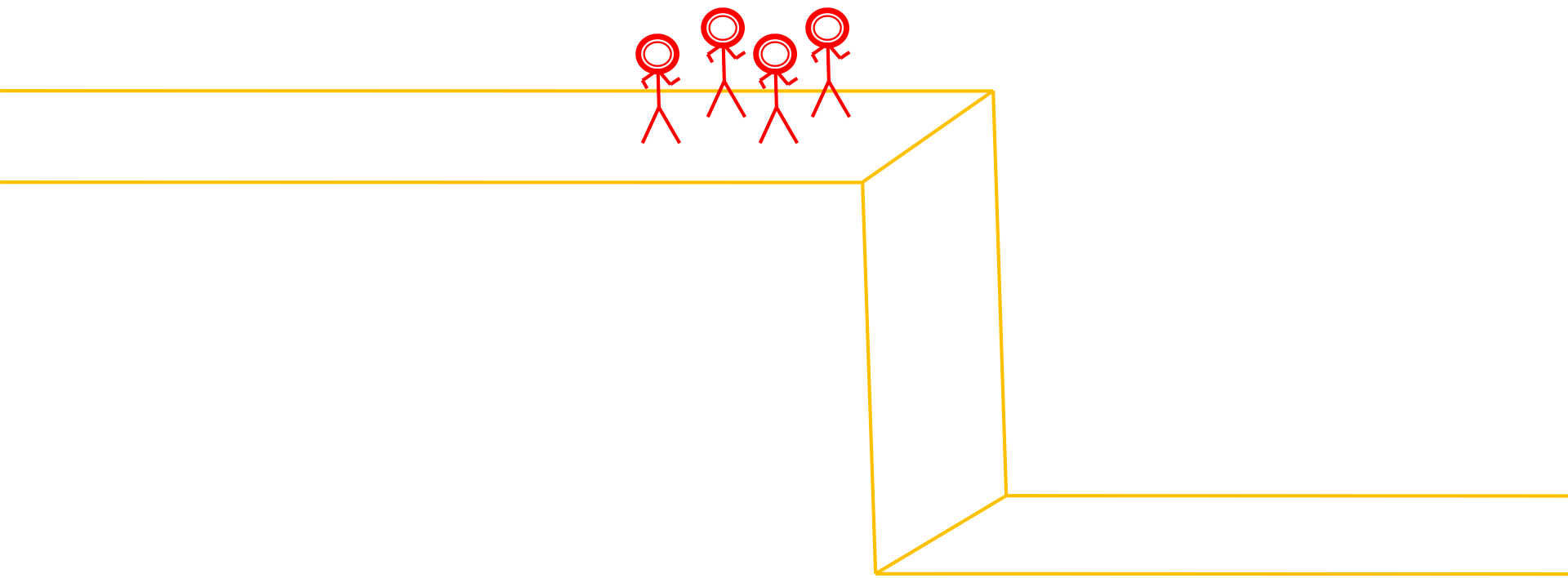


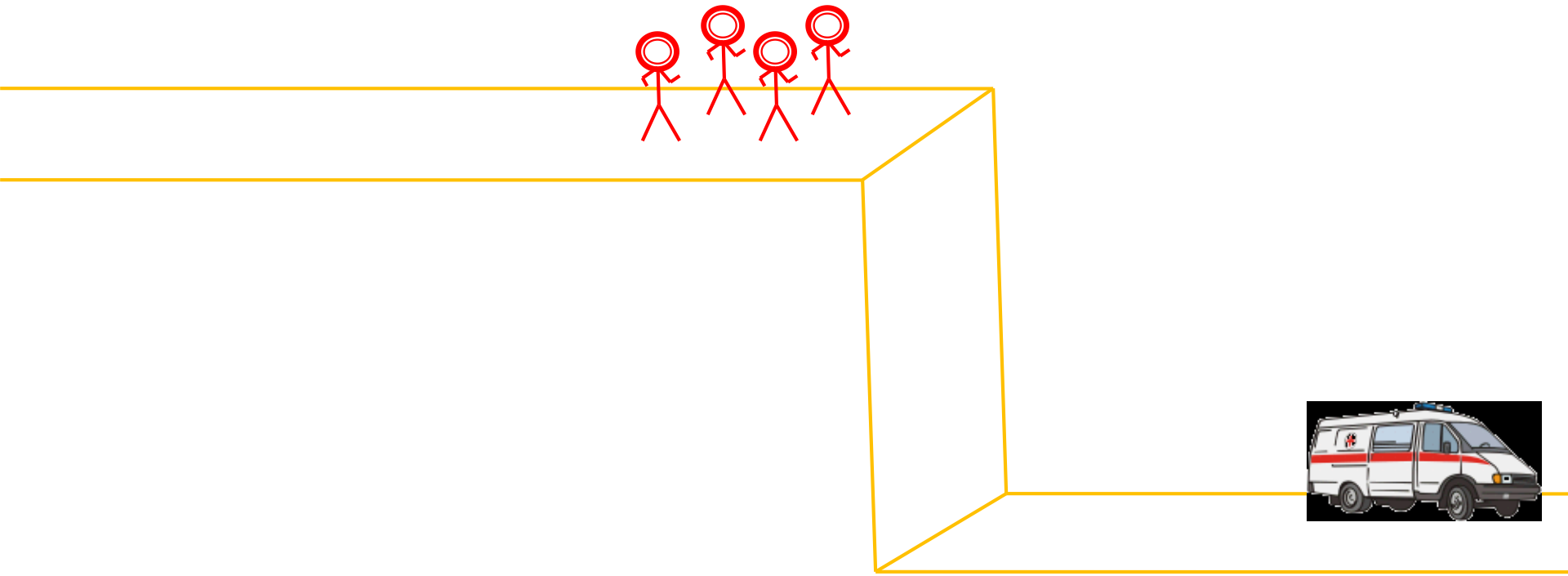


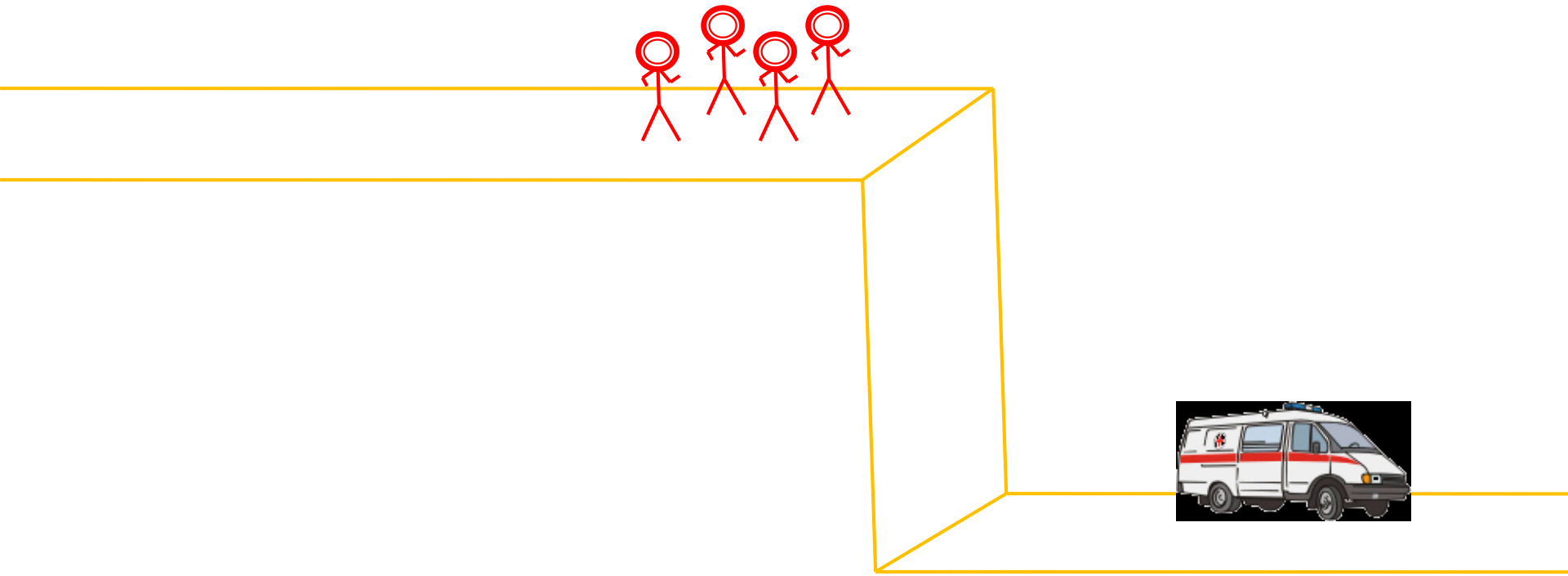


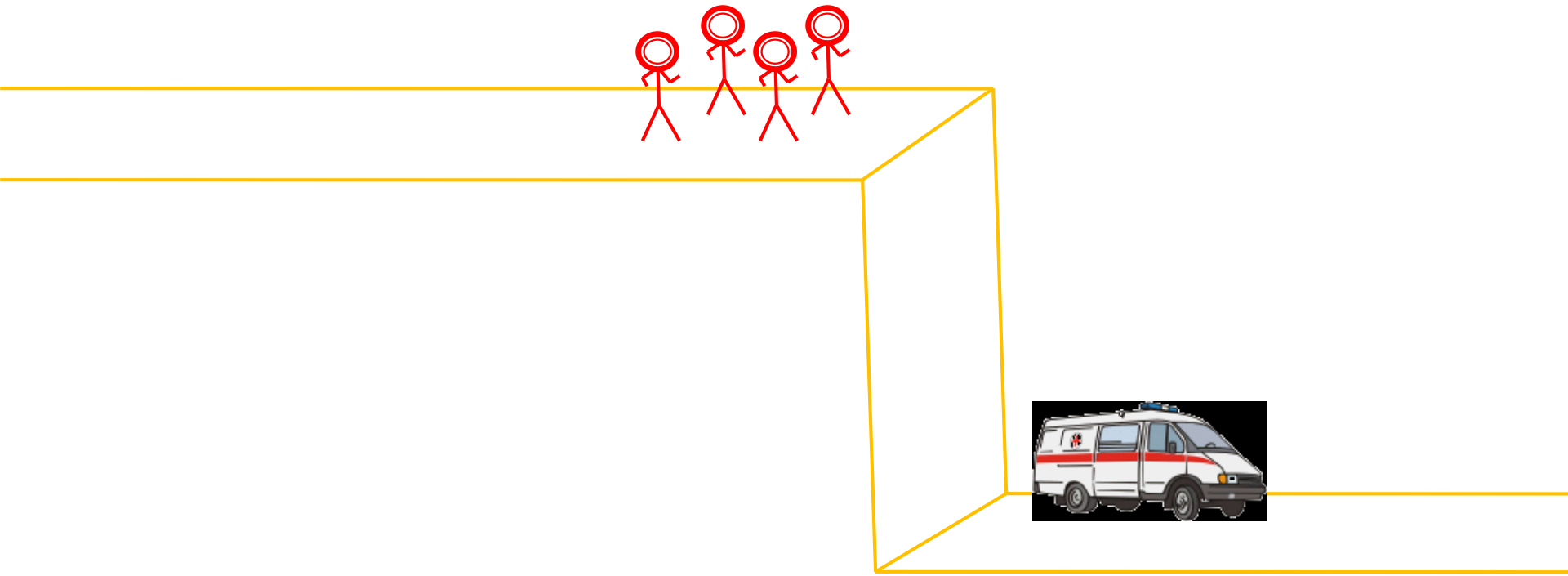


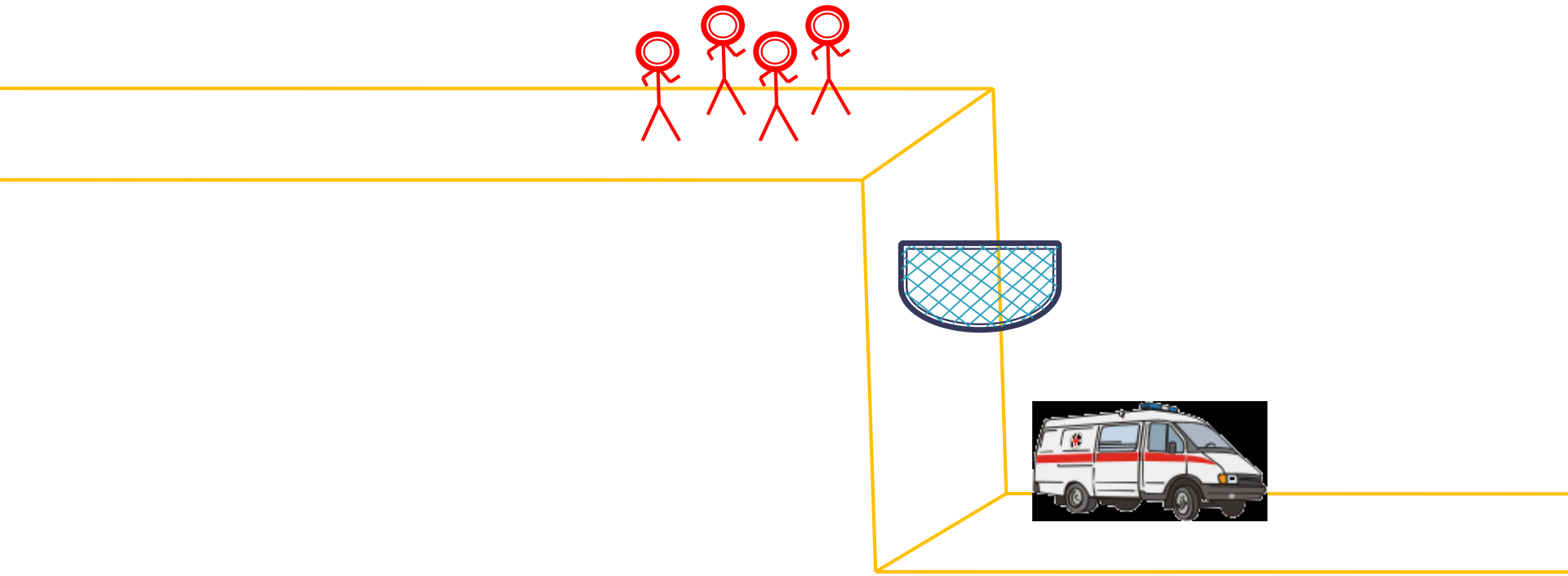


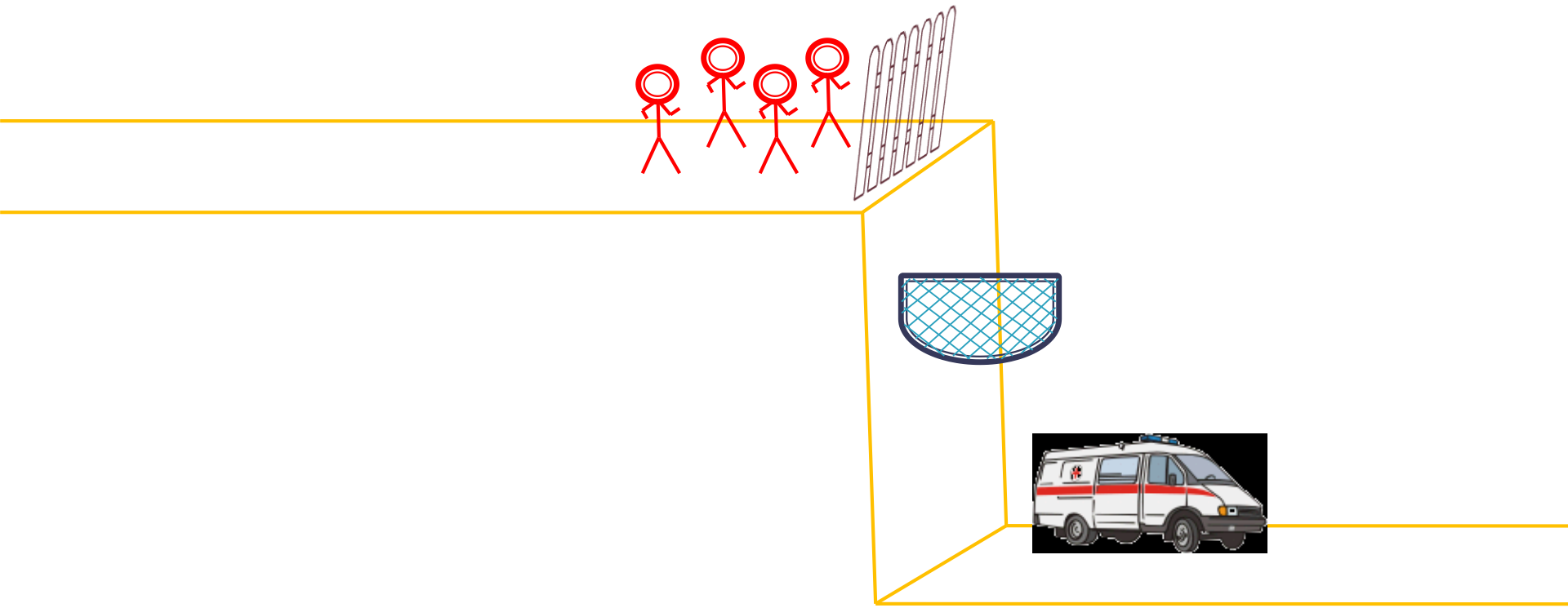


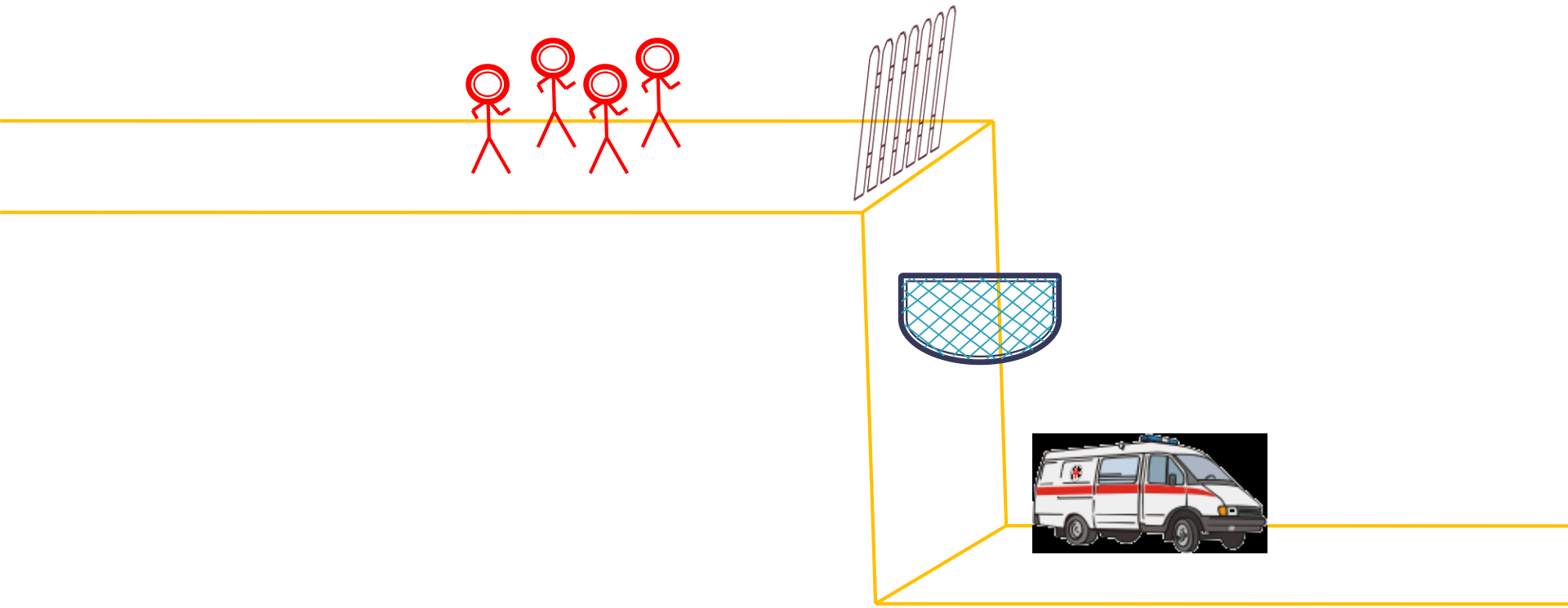


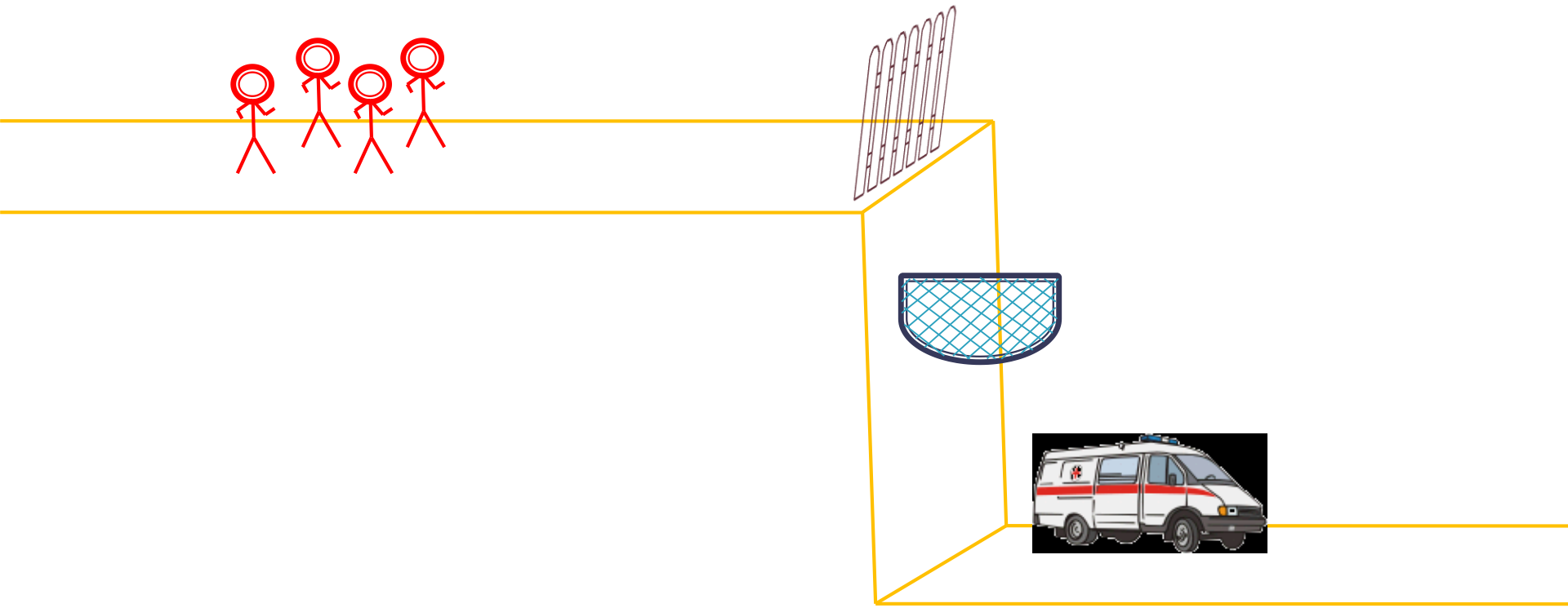


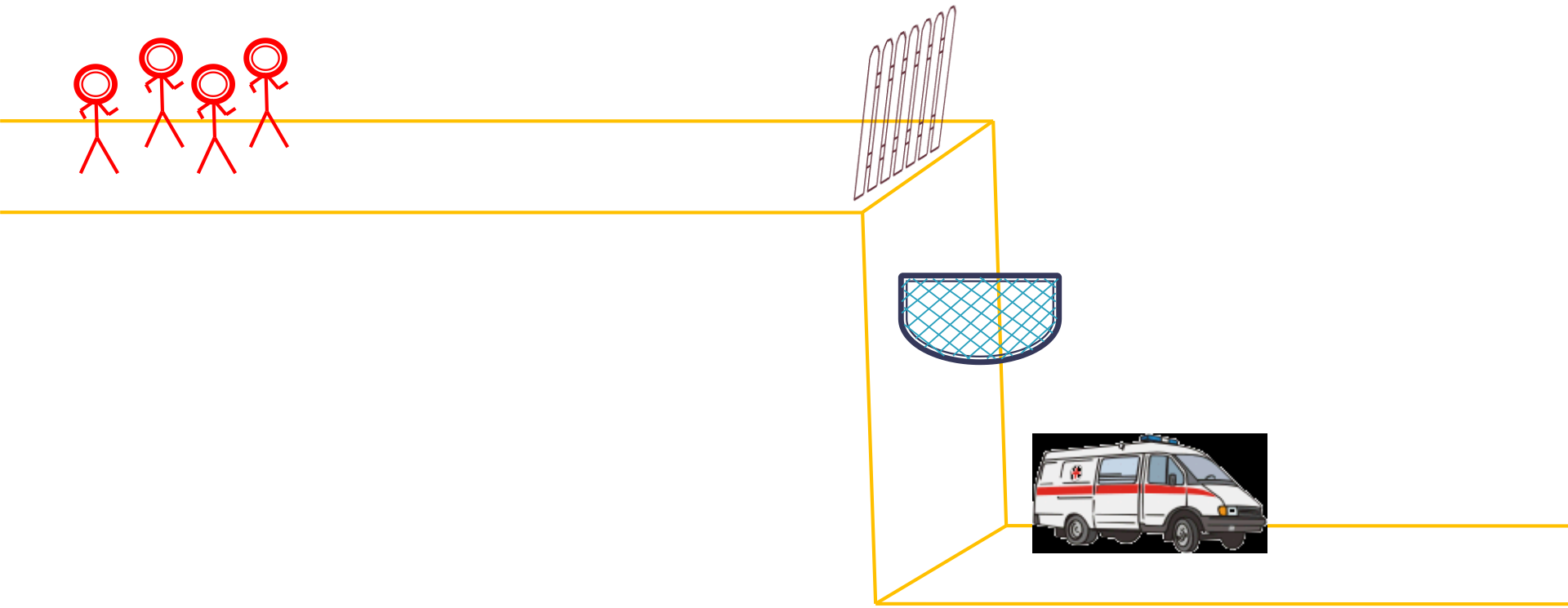


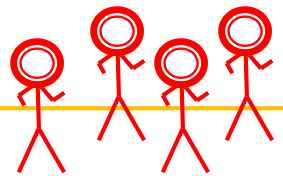




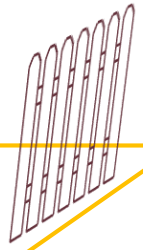




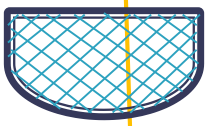




social determinants of health



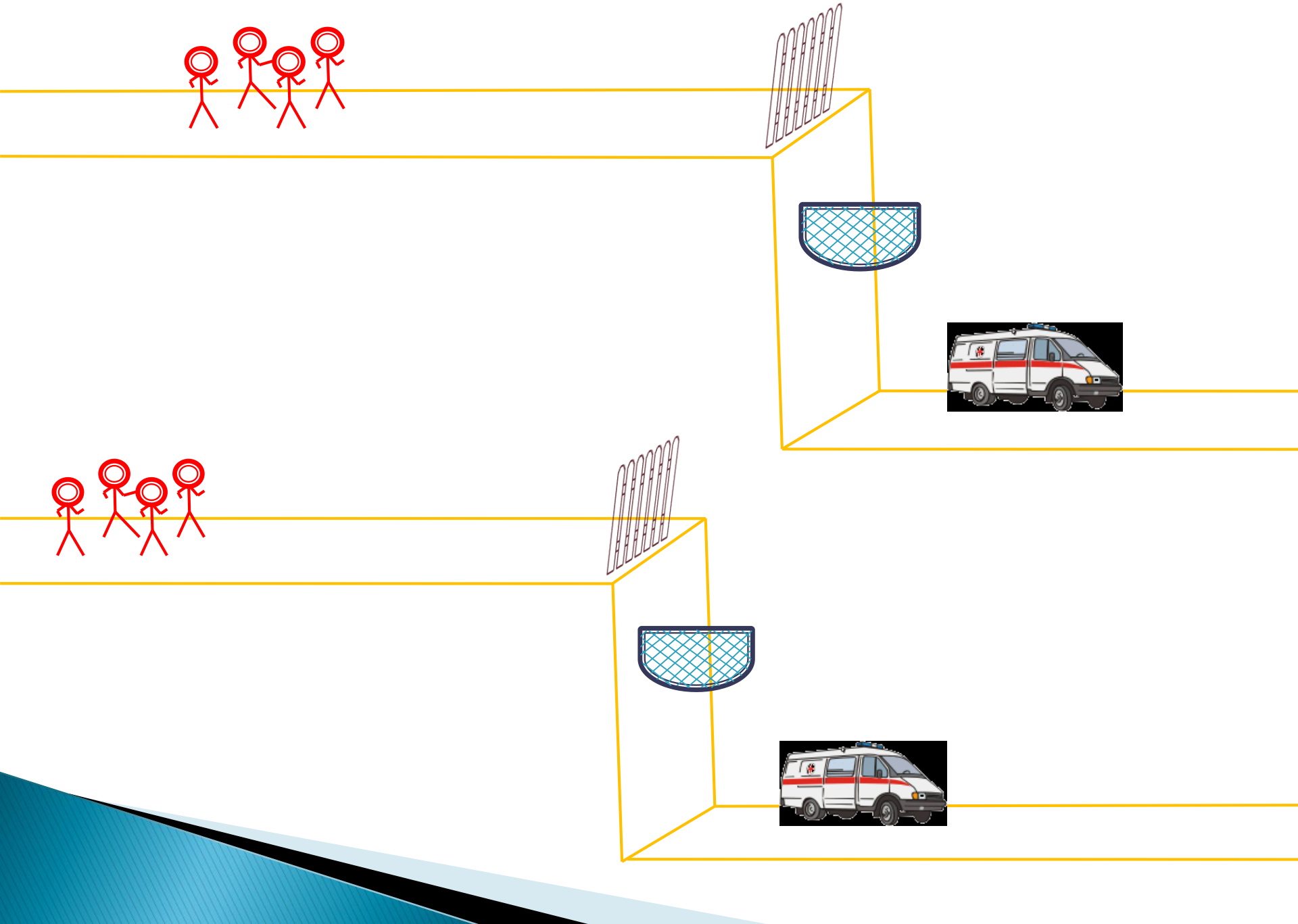
Primary Prevention

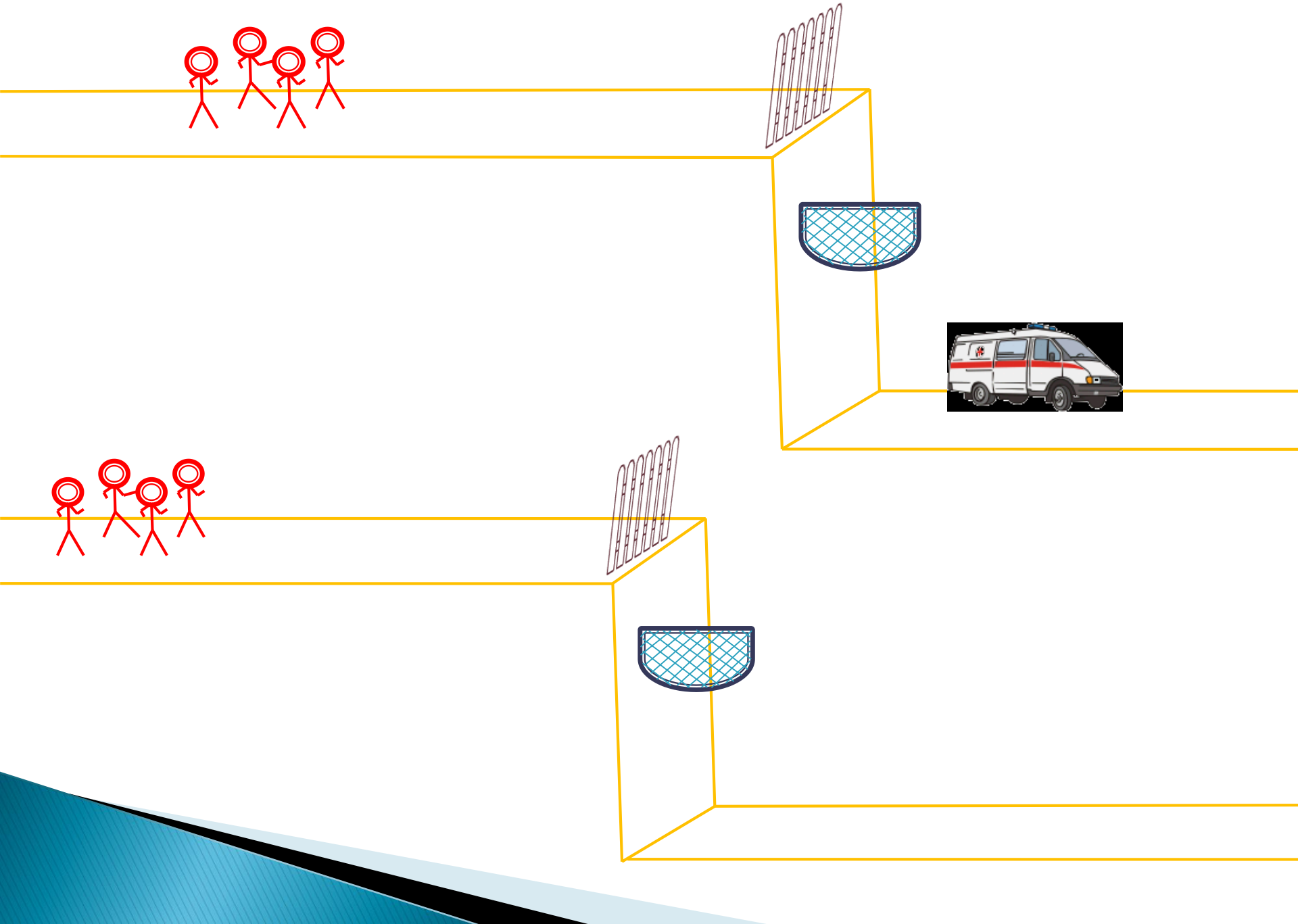


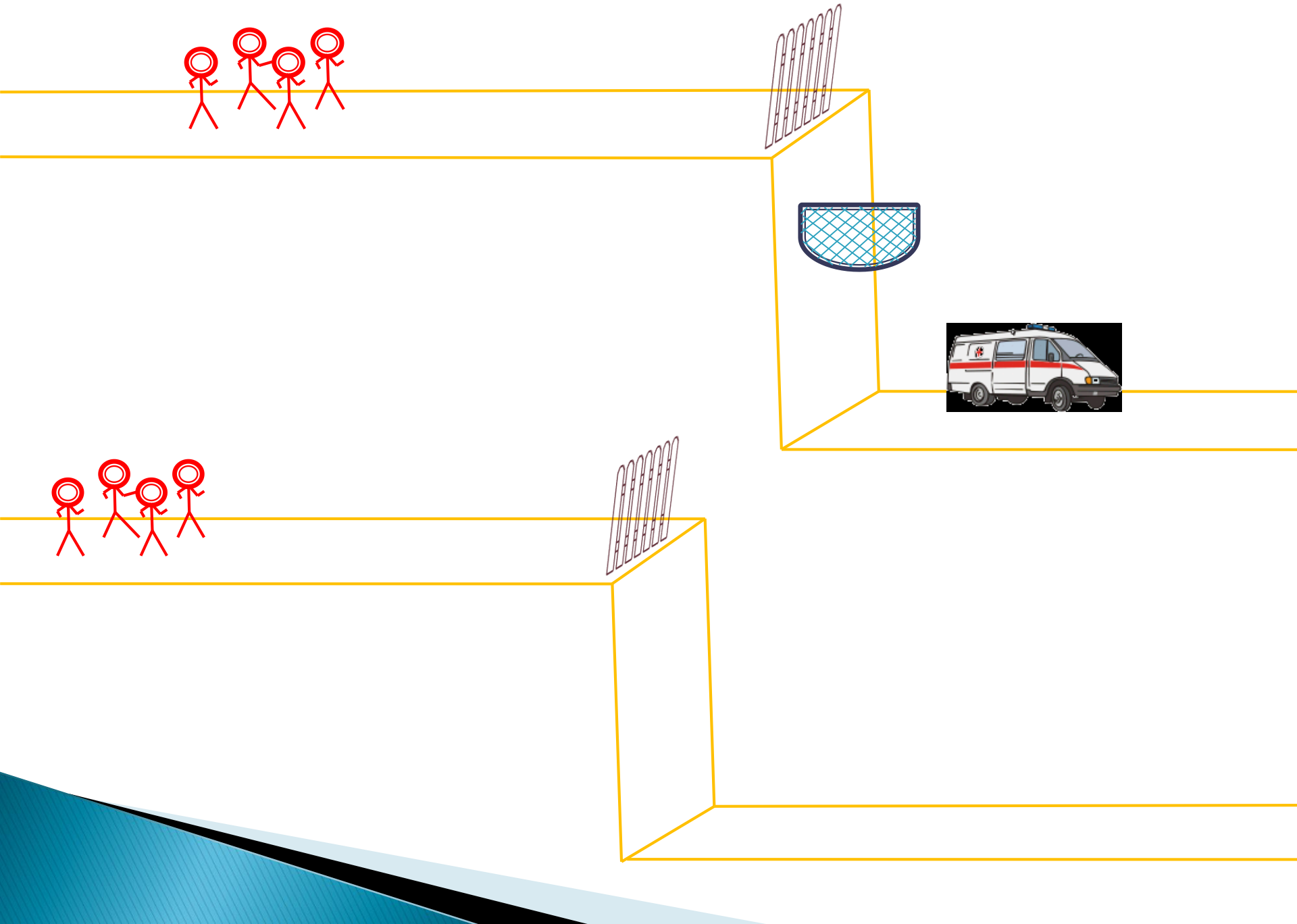
Safety net programs and secondary prevention

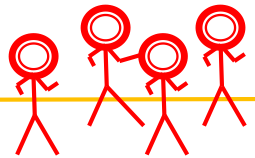
Medical Care and tertiary prevention

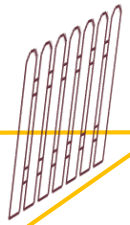
Health Equity
(Health Disparity)

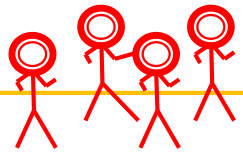


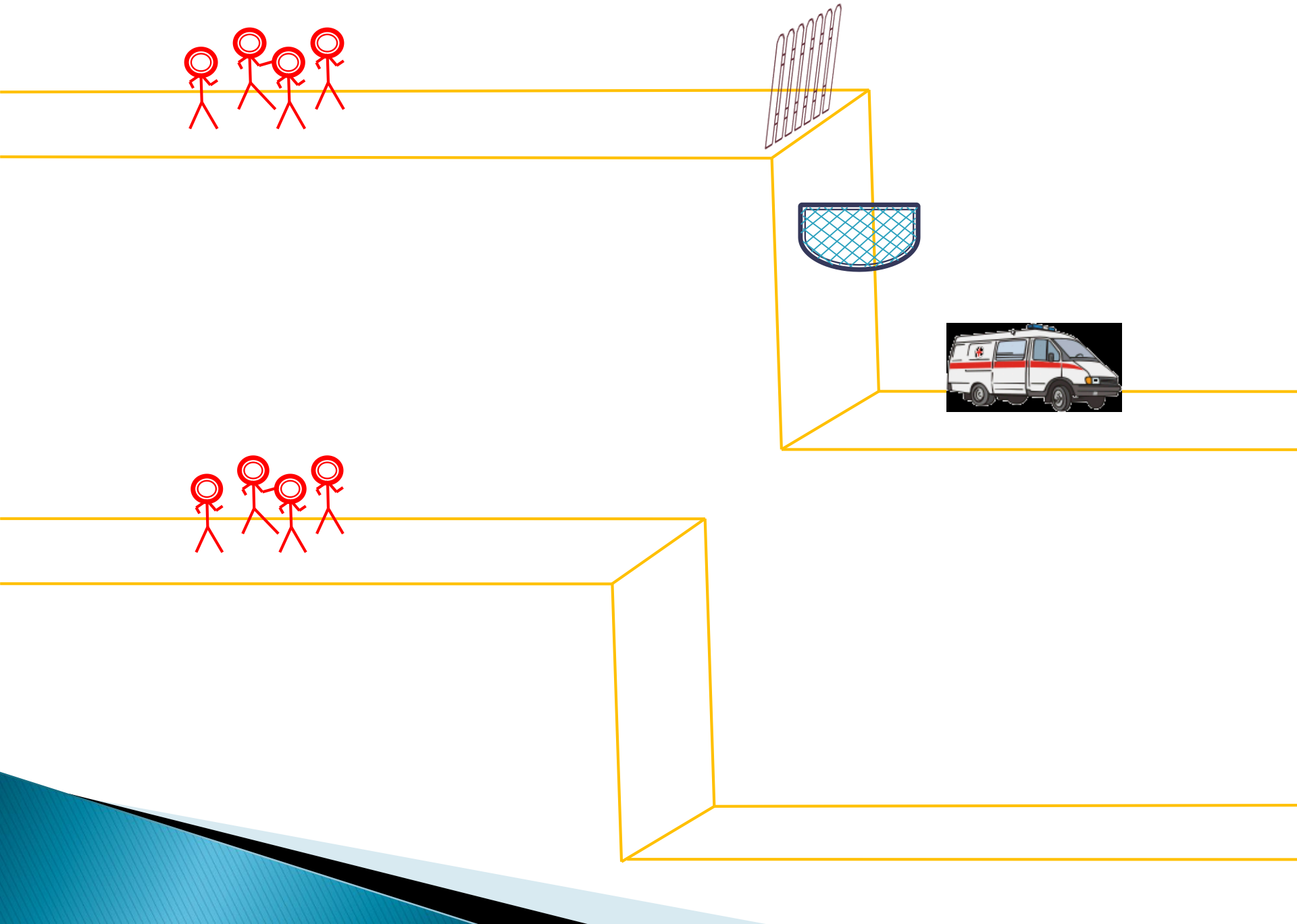


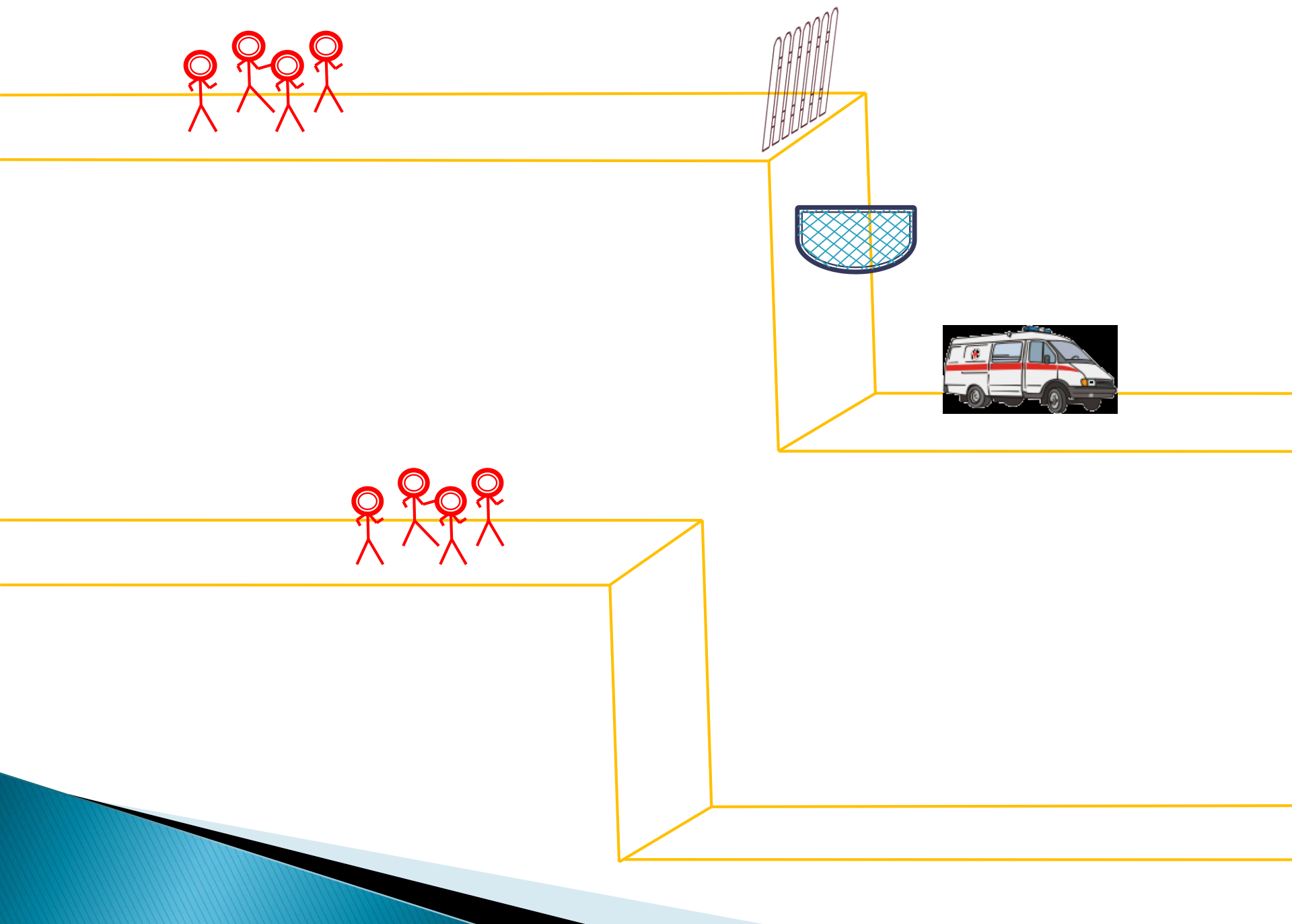


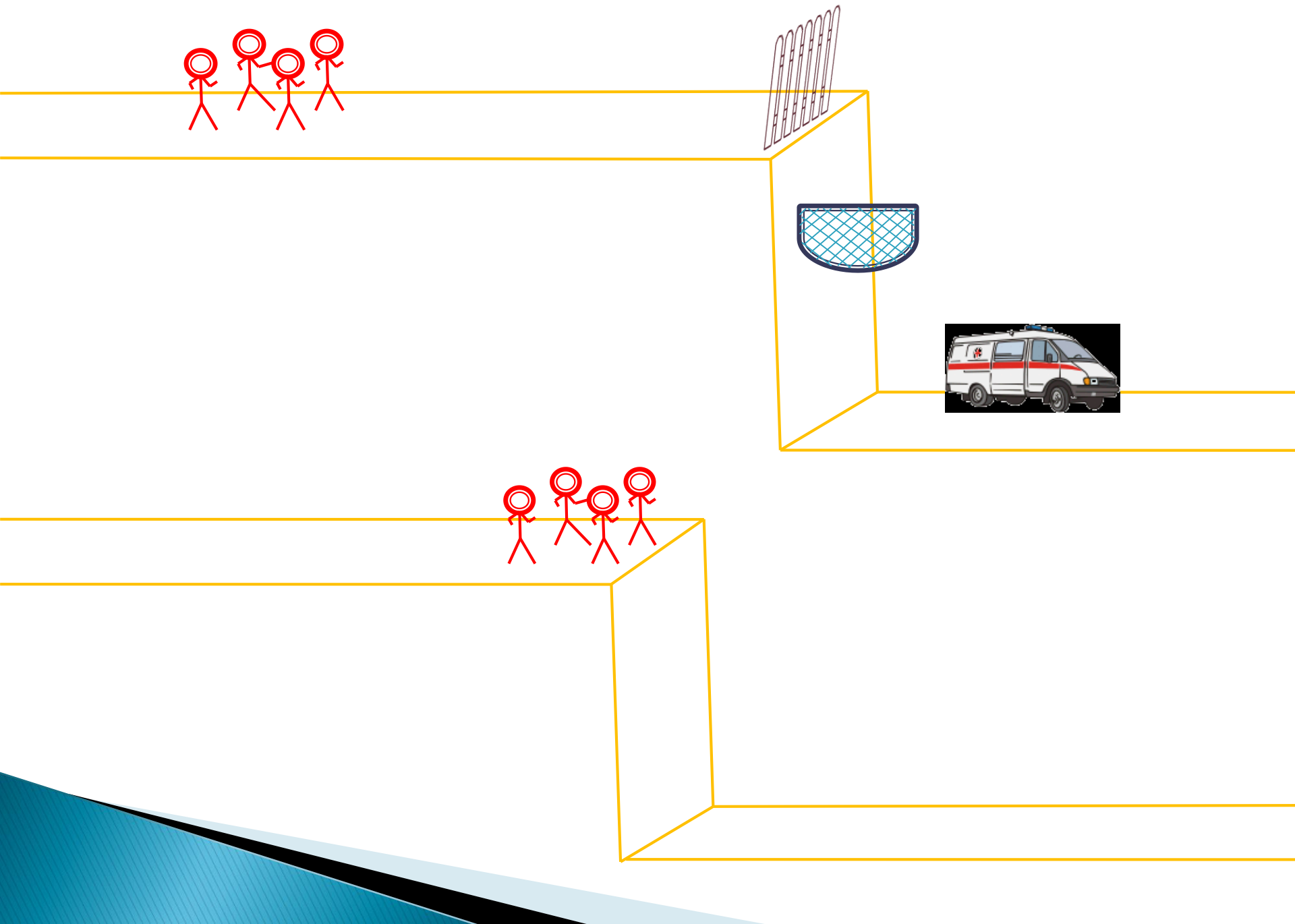


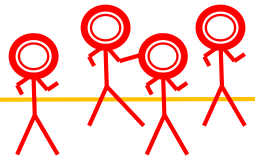


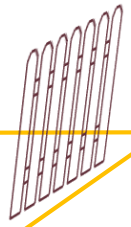


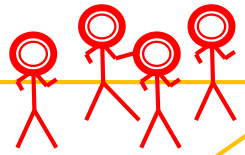








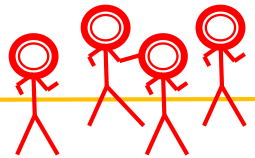


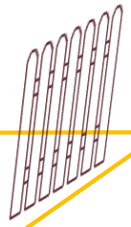


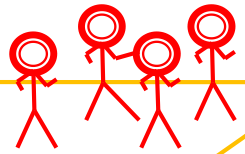
Social Determinants of Health

Differences in exposure and opportunities

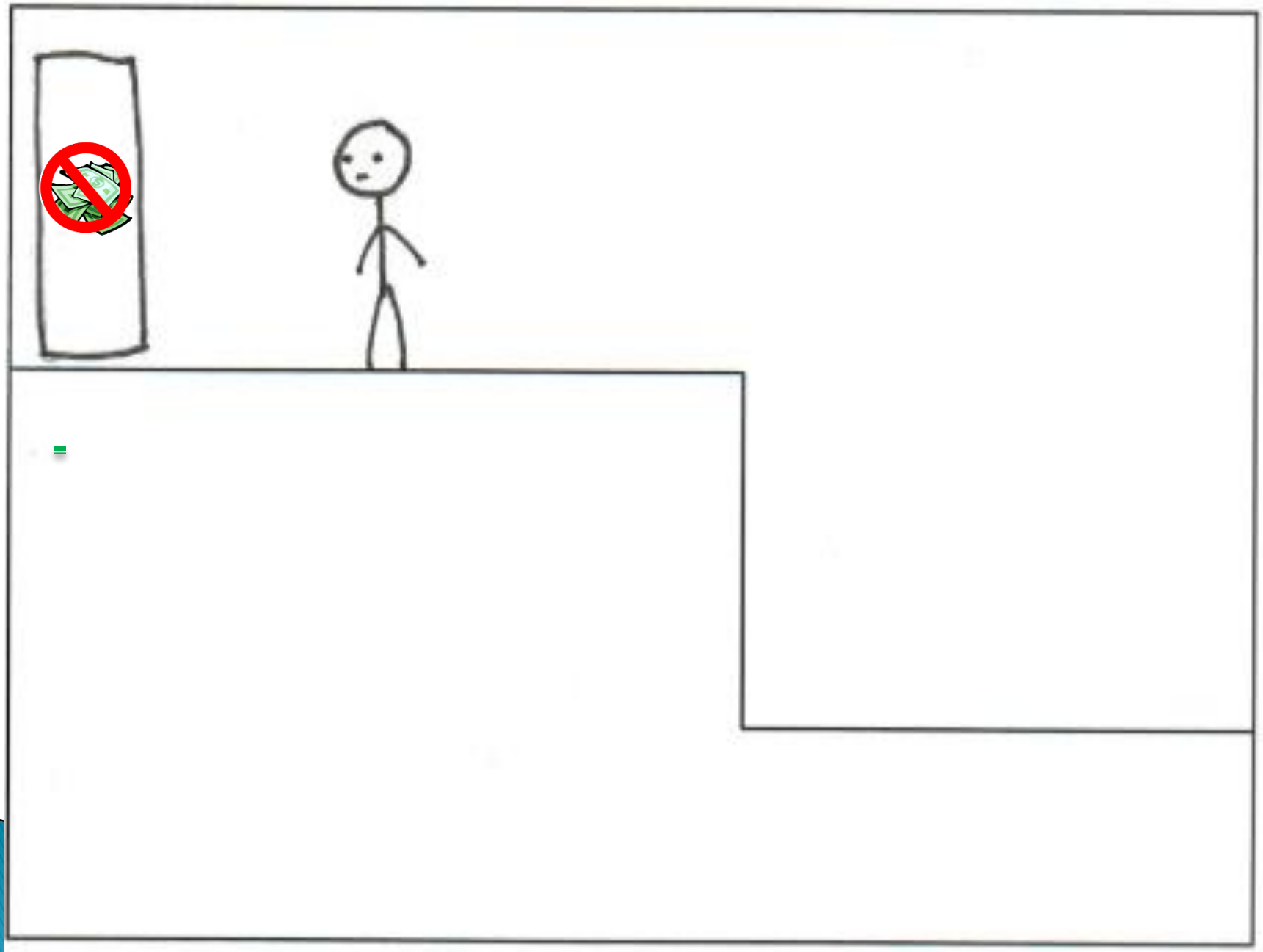
Difference in access to care

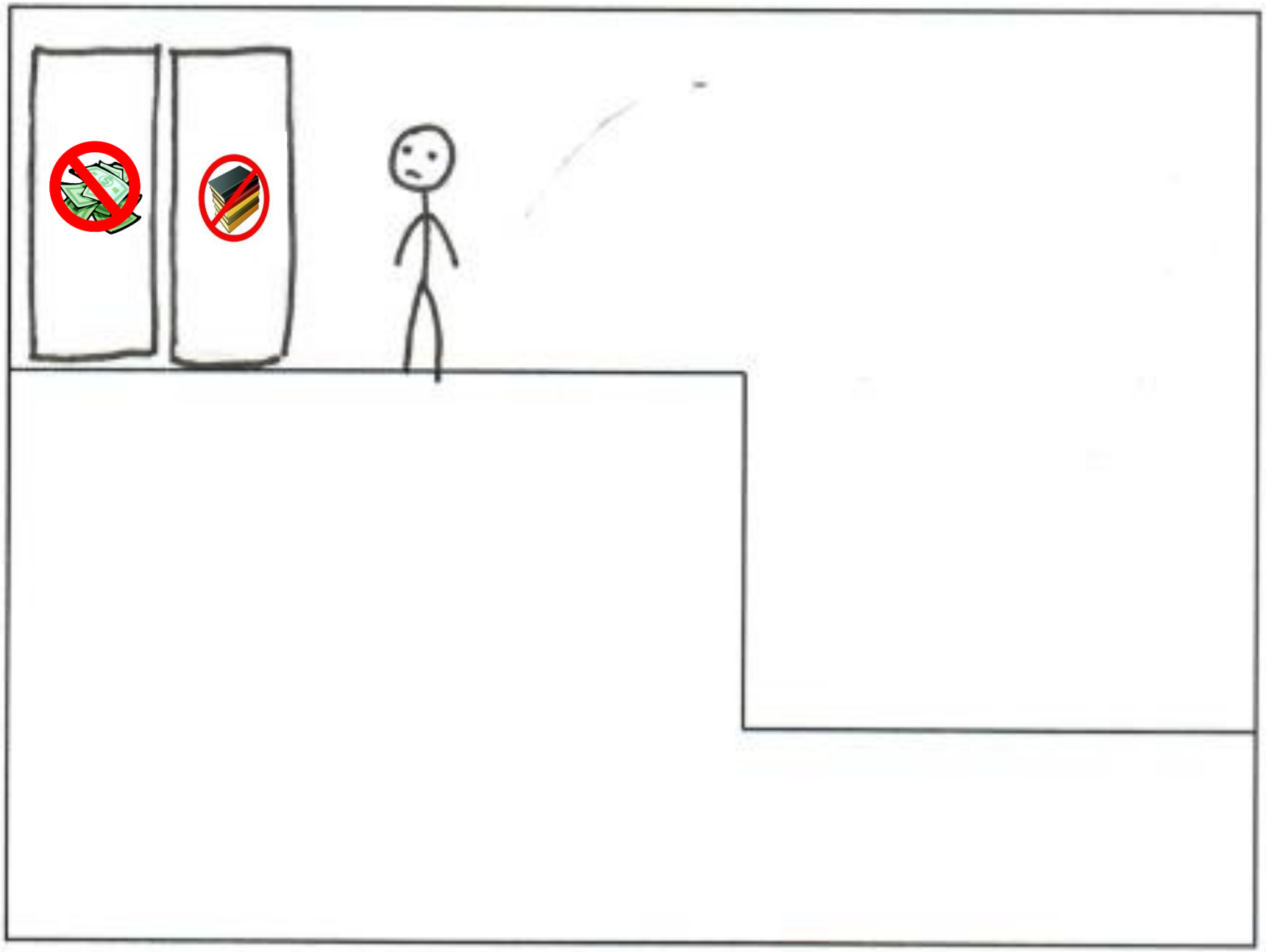


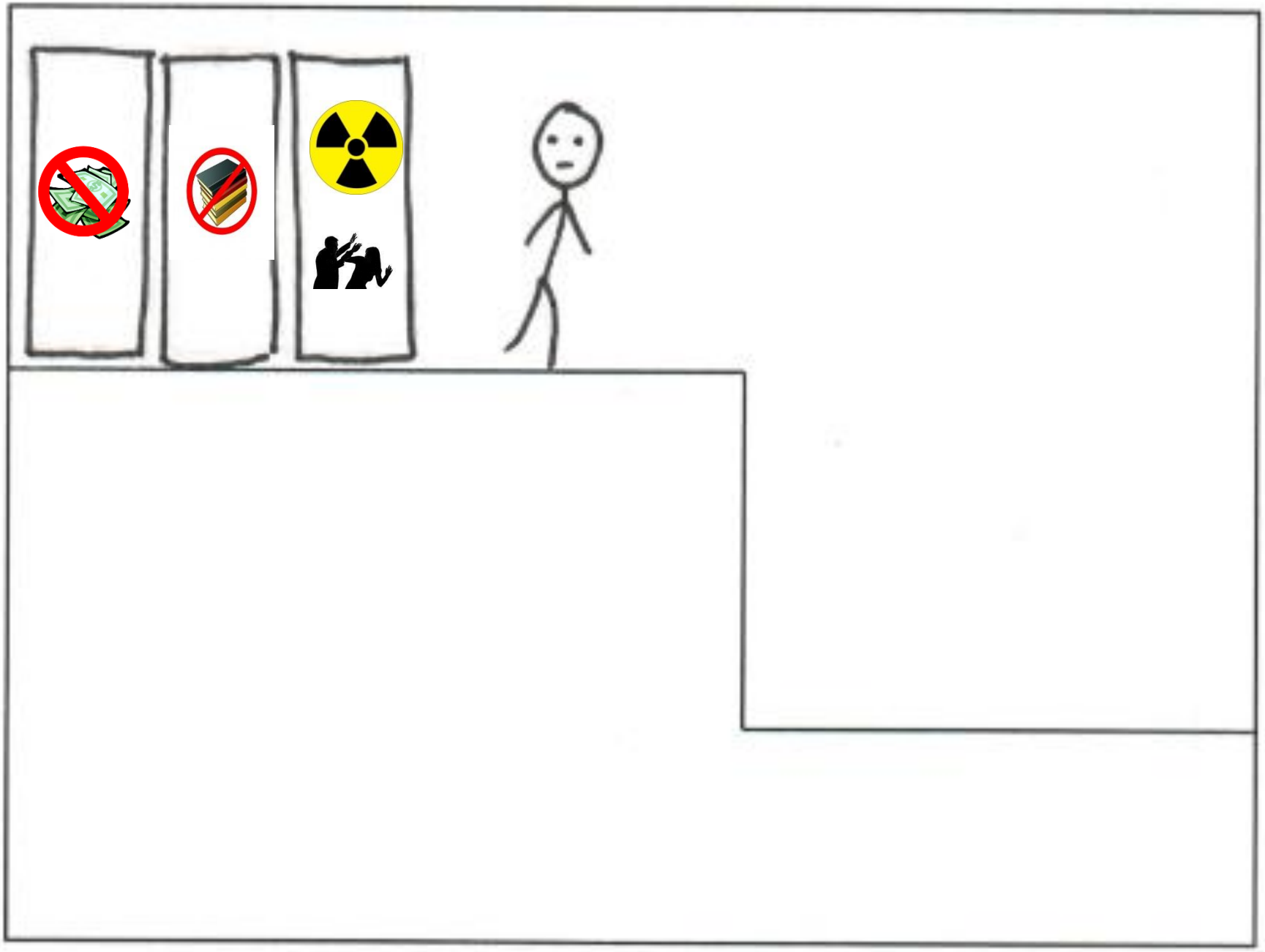


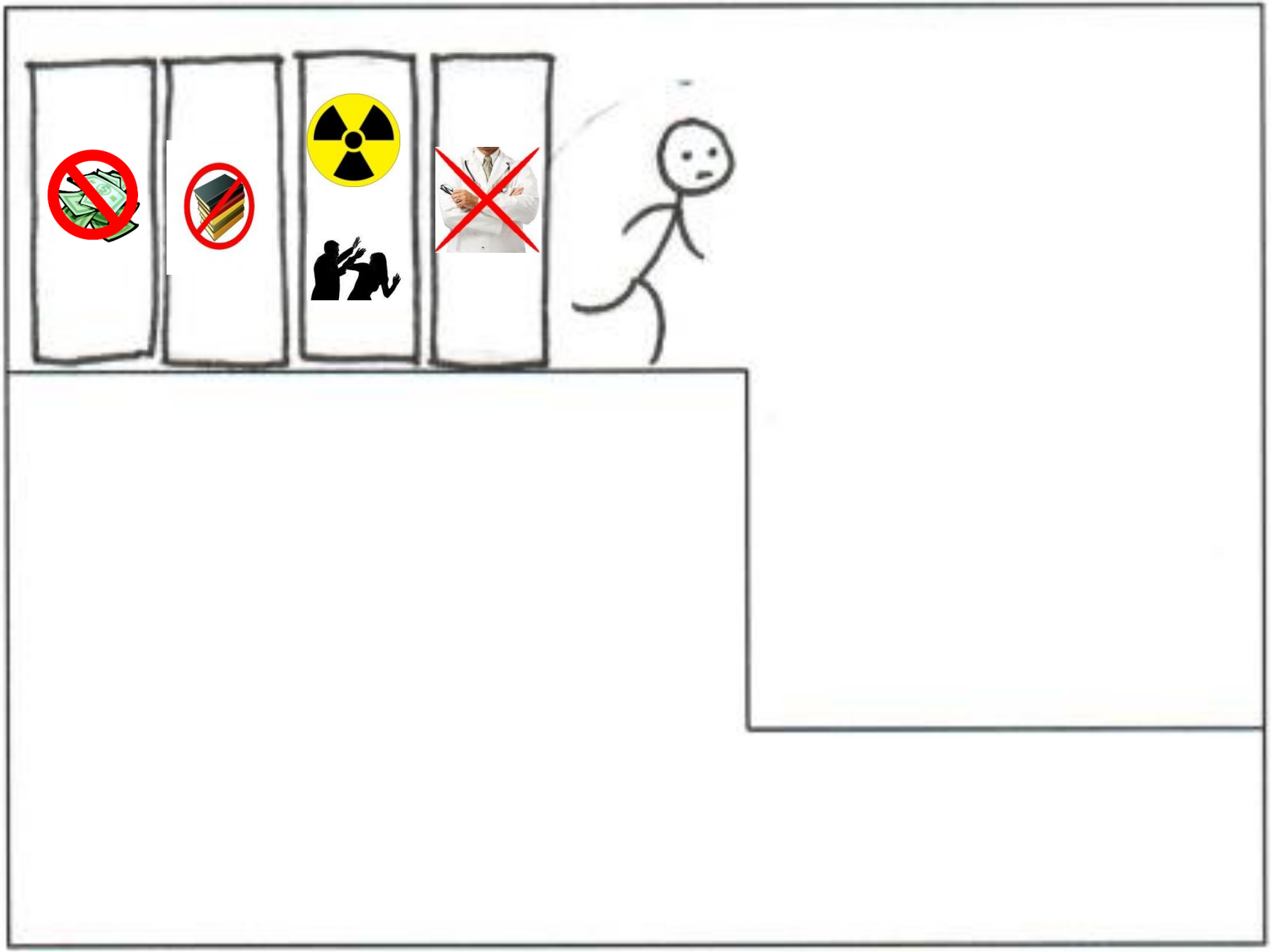


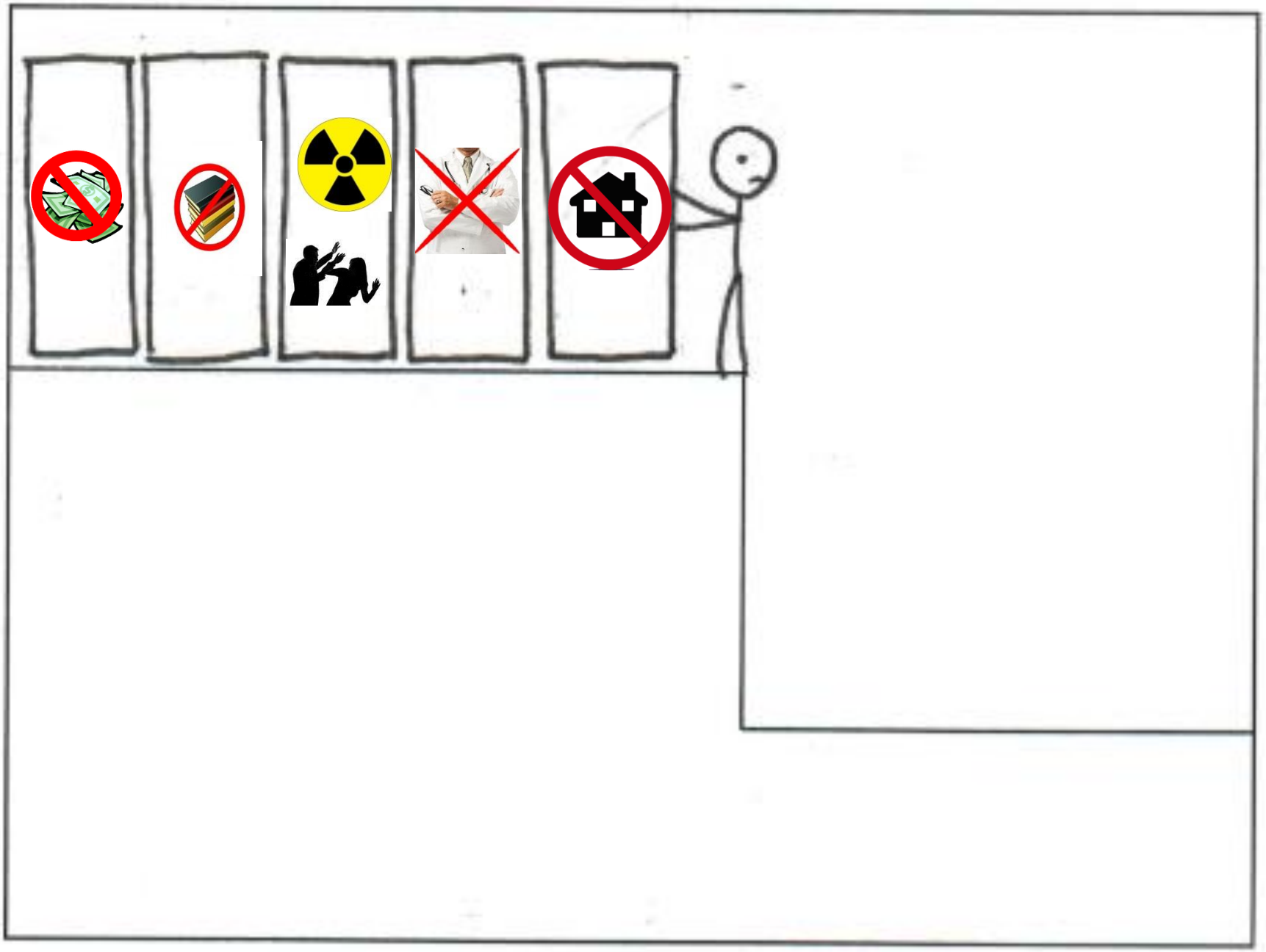
Health disparity- health equity

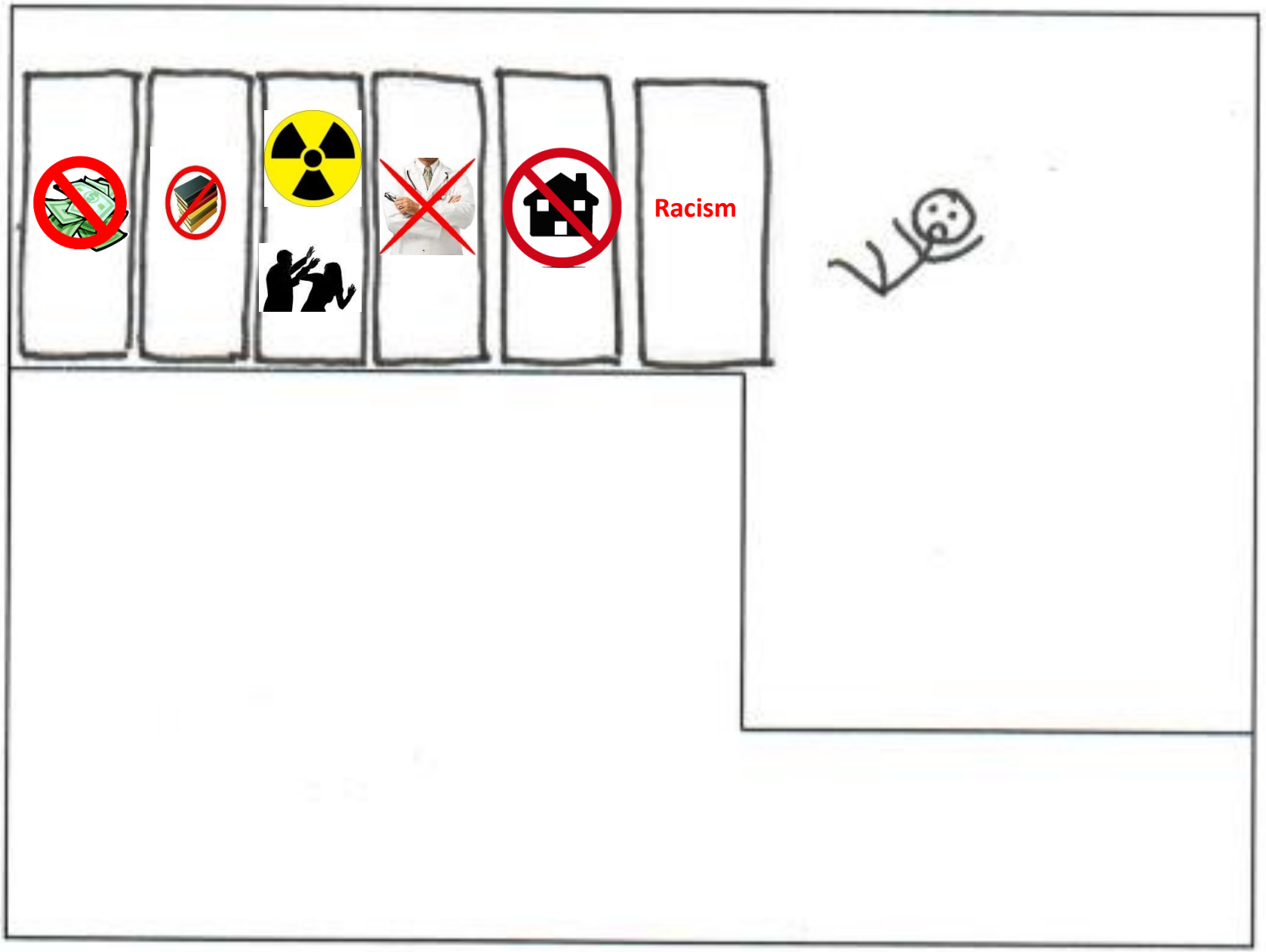


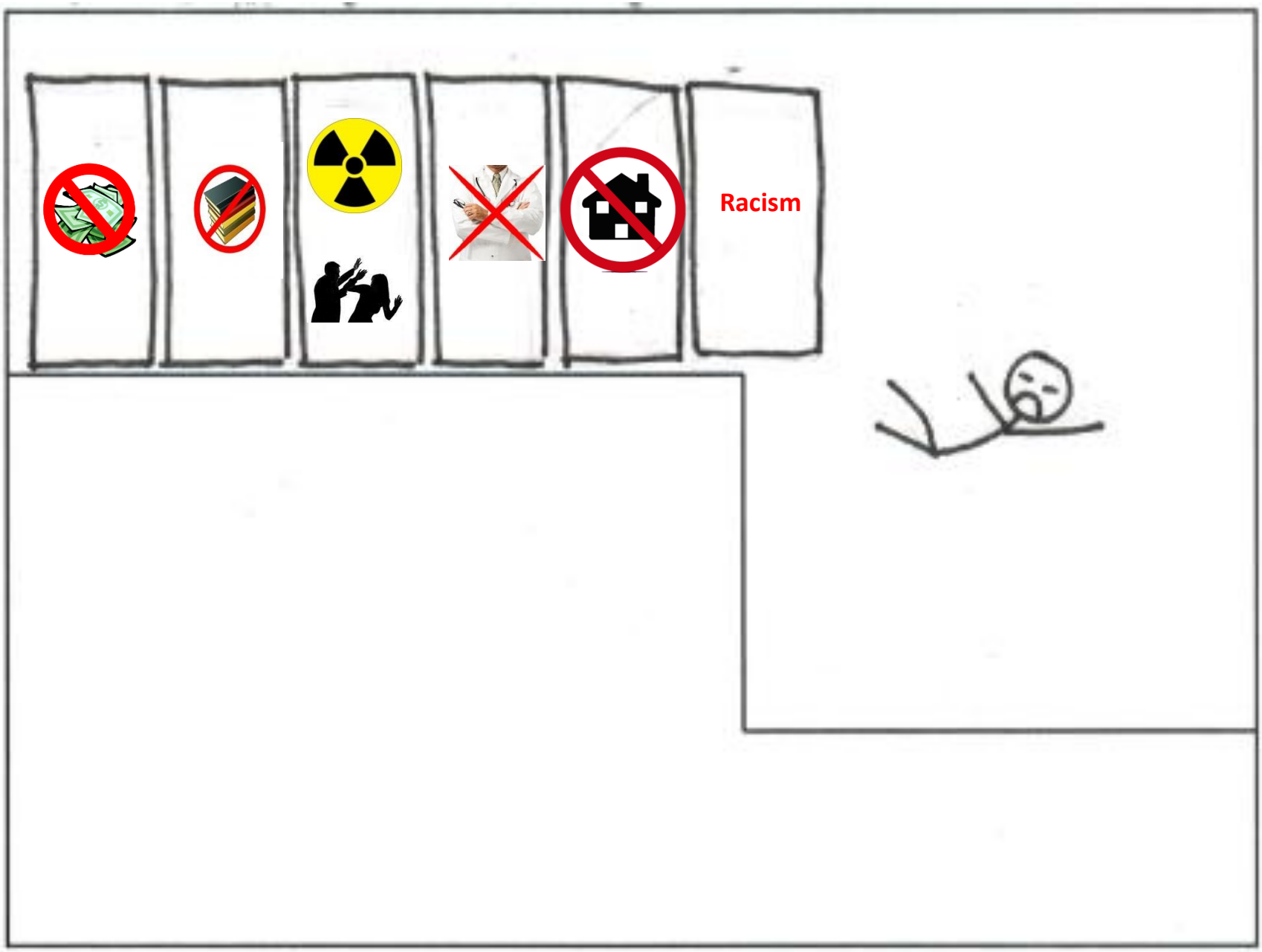




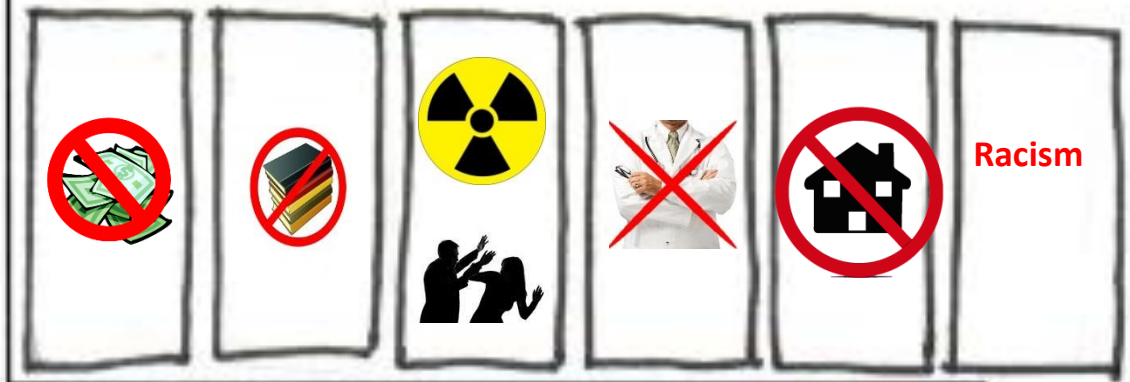


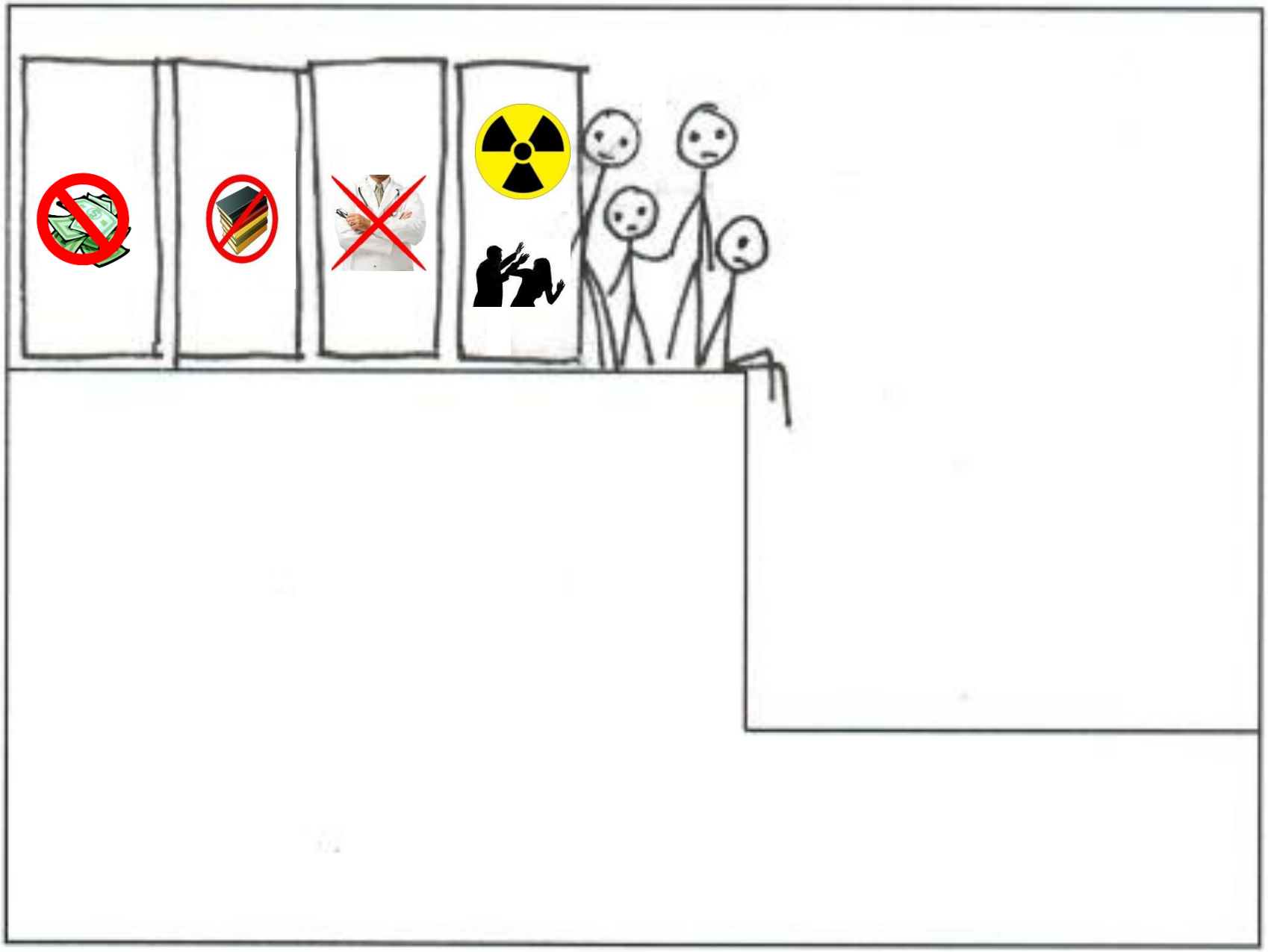



Racism


Racism

Social determinants of health





Sixty-sixth session- 2011

Agenda item 117

Follow-up to the outcome of the Millennium Summit

Draft resolution submitted by the President of the General Assembly

Political declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases

The General Assembly,

Adopts the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases annexed to the present resolution.

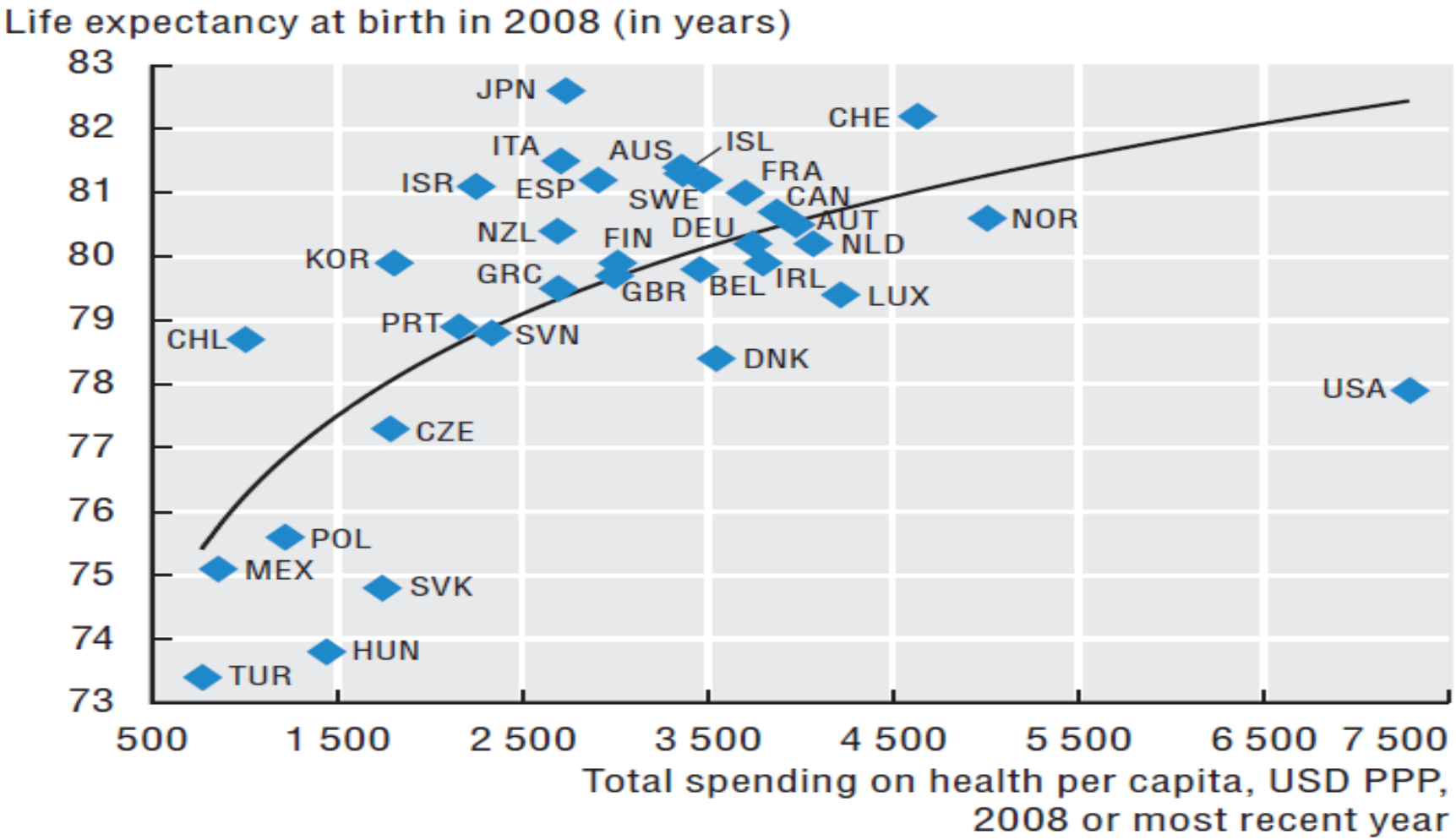
Acknowledge that the global burden and threat of non-communicable diseases constitutes one of the major challenges for development in the twenty-first century, which undermines social and economic development throughout the world, and threatens the achievement of internationally agreed development goals;

Note with profound concern that, according to WHO, in 2008, an estimated 36 million of the 57 million global deaths were due to non-communicable diseases, principally cardiovascular diseases, **cancers**, chronic respiratory diseases and diabetes, including about 9 million before the age of 60, and that nearly 80 per cent of those deaths occurred in developing countries

Cancer Control in Low and Middle Income Countries (LMICs) – (IOM-2007)

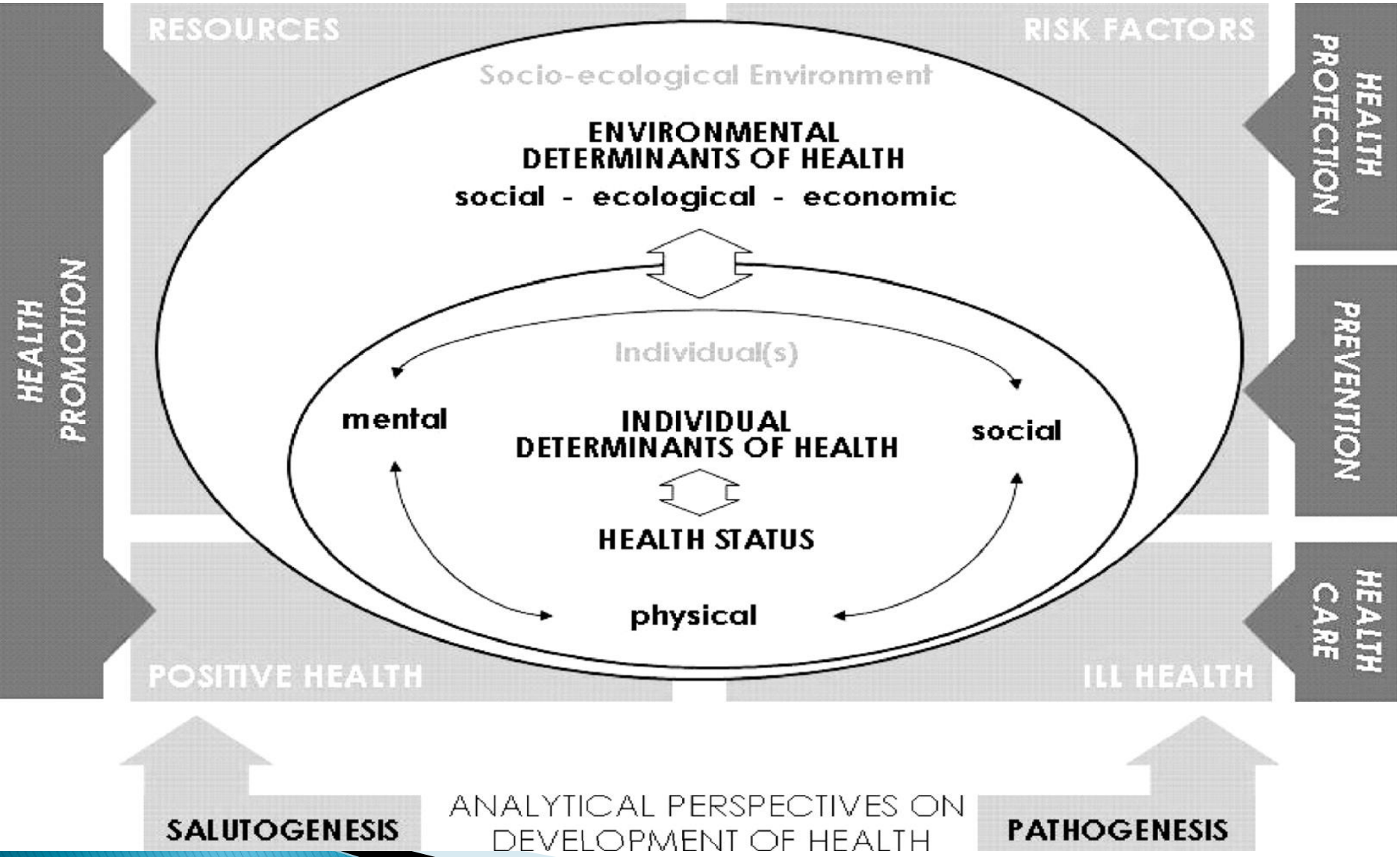
- Cancer currently heavy burden, much unrecognized
- Capacity of cancer prevention, diagnosis and treatment in country takes time
- Cancer and NCDs larger impact on LMICs
  - Less means to manage
  - Occurs at younger ages
    - workforce and family infrastructure is affected
- LMIC 25% of cancers attributable to infectious agents vs HI Income Countries 8 %
  -

HE5.2. Countries with higher life expectancy spend more on per capita health care



OECD (2010), OECD Health Data 2010, OECD Publishing, Paris (www.oecd.org/health/healthdata)

Socio-Ecological Model of Health



Bauer G et al. EUPHI[illegible]Development Model 2006 http://heapro.oxfordjournals.org

Tony Iton

- “It’s not just people’s personal choice, it’s about the choices they have”
- (The choices people make depend on the choices people have).

Socio-Ecological Model – CDC

- Structures and Systems: Federal, state, and local regulations, laws, the built environment (public works, infrastructure, etc.).
- Community: Relationships and communications between organizations and institutions.
- Institutions and Organizations: Schools, health care administration, businesses, faith based organizations, institutions.
- Interpersonal: Individual relationships, support groups, social networks, cultural context.
- Individual: Individual attitudes, beliefs, knowledge, and behaviors.

Socio-Ecologic Model

- Determinants of Health Status
  - Income (poverty)
  - Education and literacy
  - Environment (physical/built)
  - Personal behavior and coping skills
    - culture
  - Health Care Access (10-20%)
  - Genetics
  - Gender
  - Age

Major Factors Shaping Health

	M1993	M2002	HPC	CHR
Behavior	50%	40%		30%
Socioeconomic conditions			50%	40%
Environment	20%			10%
Social		15%		
Physical		5%	10%	
Genes	20%	30%	15%	
Healthcare	10%	10%	25%	20%

Source: 1993 – M = McGinnis and Foege, JAMA, 1993, 270, 2207-2212; 2002 - McGinnis, Russo, Knickman, 2002, Health Affairs, 21,3,83; HPC – "Healthy, Productive Canada, Final Report of the Senate Subcommittee on Population Health. June 2009; CHR = County Health Rankiings, 2010 *www.**countyhealthrankings**.org/*

Addressing Issues of Equity

- Social Determinants of Health Status
  - Disparity of Income
  - Disparity in Education
  - Disparity in Environment
  - Disparity in Health Care Access
  - Disparity in treatment due to color / gender / age
    - racism

Description / Cause / Action

- Disparity – Health Equity (Descriptive)
  - Lack of parity, lack of equity , social inequity
- Social Determinants (Cause)
  - Poverty, Education, Environment
  - Power and Choice Gradients
- Social Justice (Paradigm of Change)
  - Distributive Justice
  - Structural Violence
  - Value laden, Ethical and Moral

Population Health

Population Health

Primordial Prevention
Social Determinants of Health

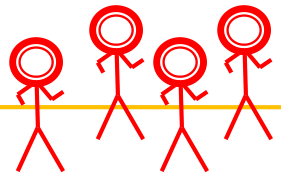
Public Health

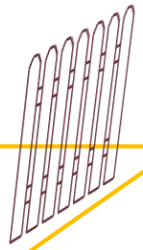
Primary Medical Care

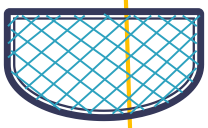
Primary Prevention

Secondary Prevention

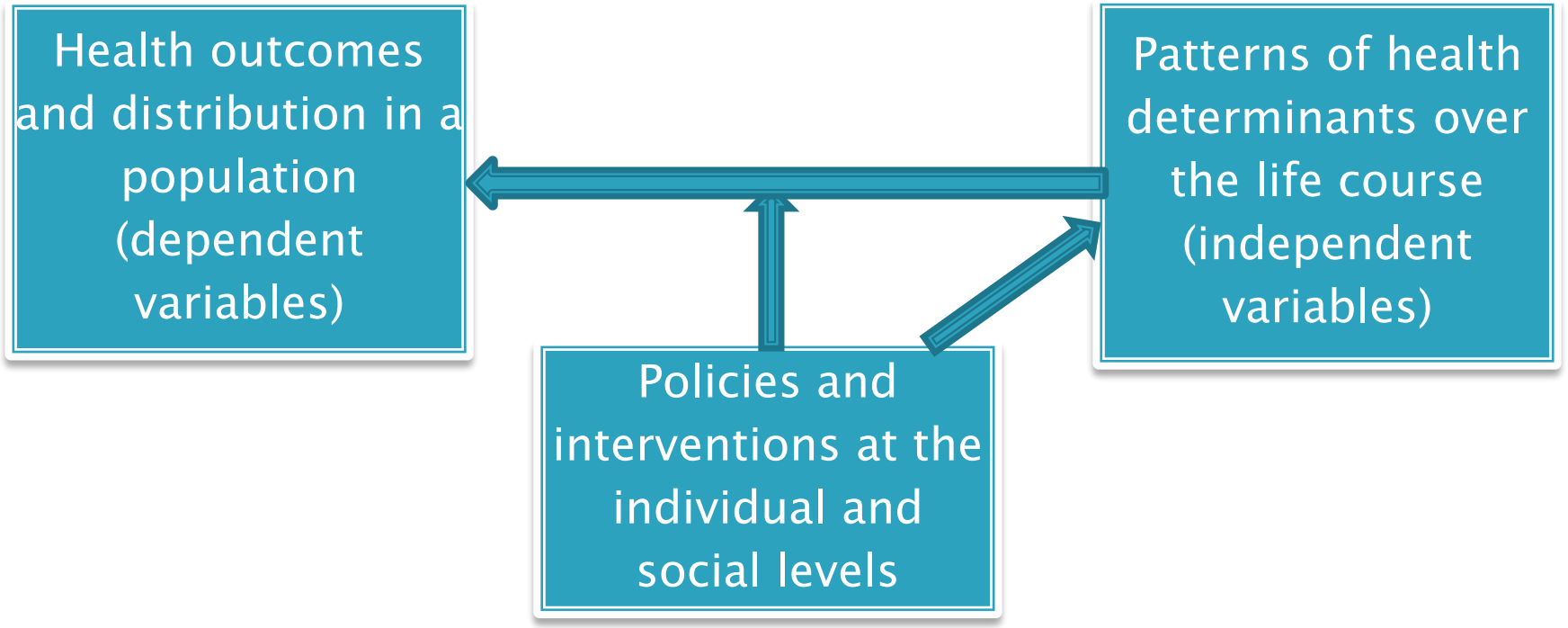
Tertiary Prevention







Schematic definition of the field of population health



Kindig, D & Stoddart, G. *What is population health?* Am Journal of Public Health. Sept 2003; 93(3): 380-383.

Public Health Agency of Canada www.publichealth.gc.ca

- **Key Elements of a Population Health Approach**

- A population health approach reflects the evidence that factors outside the health care system or sector significantly affect health.

- the entire range of individual and collective factors and conditions – and their interactions – that have been shown to be correlated with health status. Commonly referred to as the "determinants of health,"

Population and Community Health

Stating the important non-biological determinants of poor health and the economic, psychological, social, and cultural factors that contribute to the development and/or continuation of illness.

Health of Populations

- Values
  - Focus is on health of an entire population, rather than individuals.
  - reduction in inequalities in health status between population groups
  - reductions in health inequities require reductions in material and social inequities.

SDH Cancer Planning Challenges

- Lack of training and skills
- Understanding and comfort of complexity
- Value placed on non-curative medical care
- Lack of self awareness of bias
- Need of narrow definition to perform
- Desire for health sector to be in control
- Ability to handle uncertainty
- Ability to provide a presence rather than interventions

SDH In Cancer Plans – Principles

- Population Health
  - focus upstream– further up the cliff
  - decisions based on evidence

- Multi-level
- Multi-Sector
- Multi-Strategy
- Multi- Disciplinary

Multi- Level

- Population Health
  - Community
  - Prefecture
  - State
  - National
  - Regional
  - International

Multi- Sector

- Collaborate / Plan across sectors
  - Stakeholders at the table to solve systemic problems
  - Government, non-profit, for-profit, public organizations, individuals,
  - Traditional leaders, community (geographic & faith based) in decision making and planning

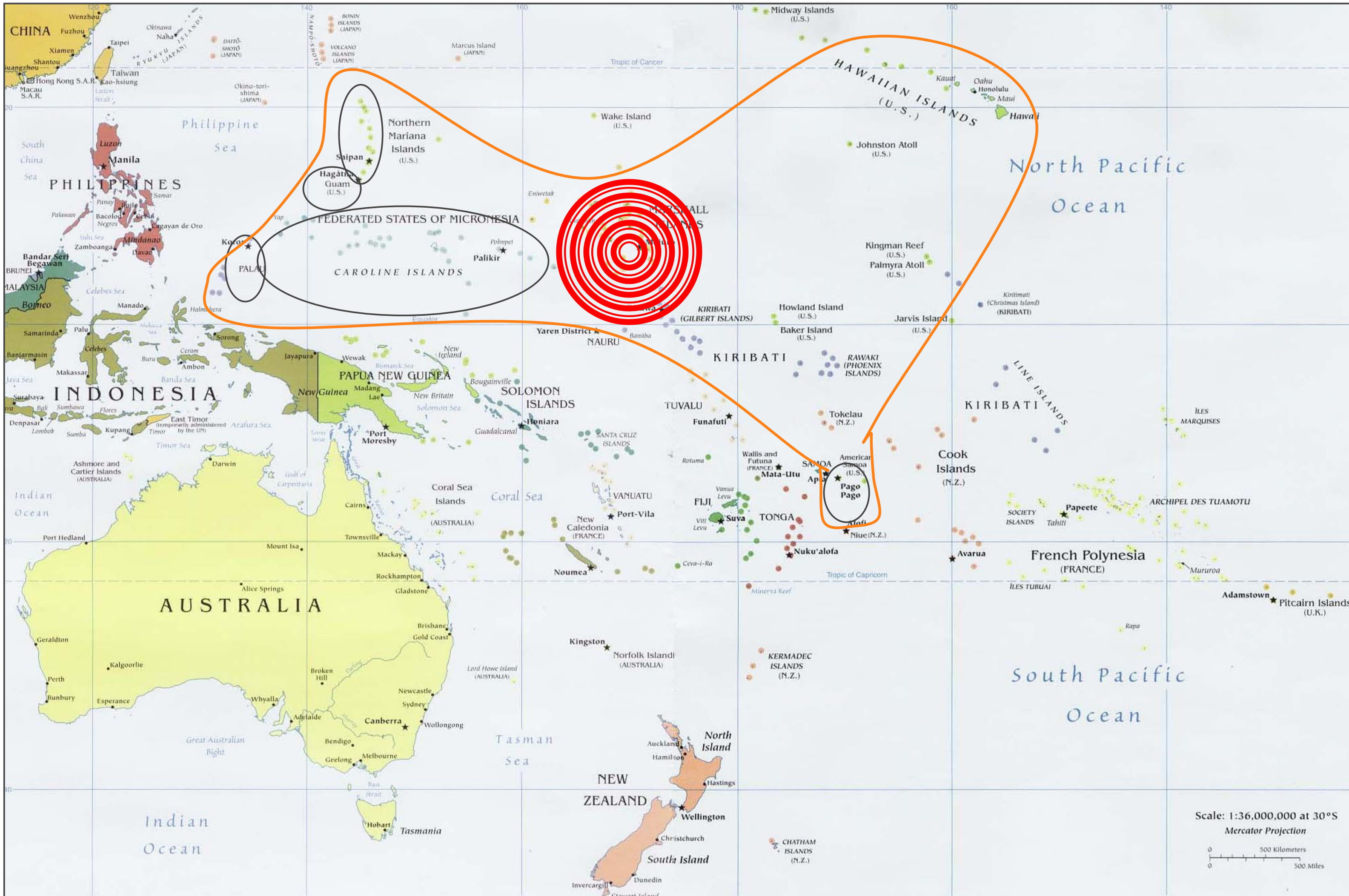
Multi- Strategy

- Policy
- Environment
- Systems, Traditional, Cultural
- Evidence Based
- Community Experience

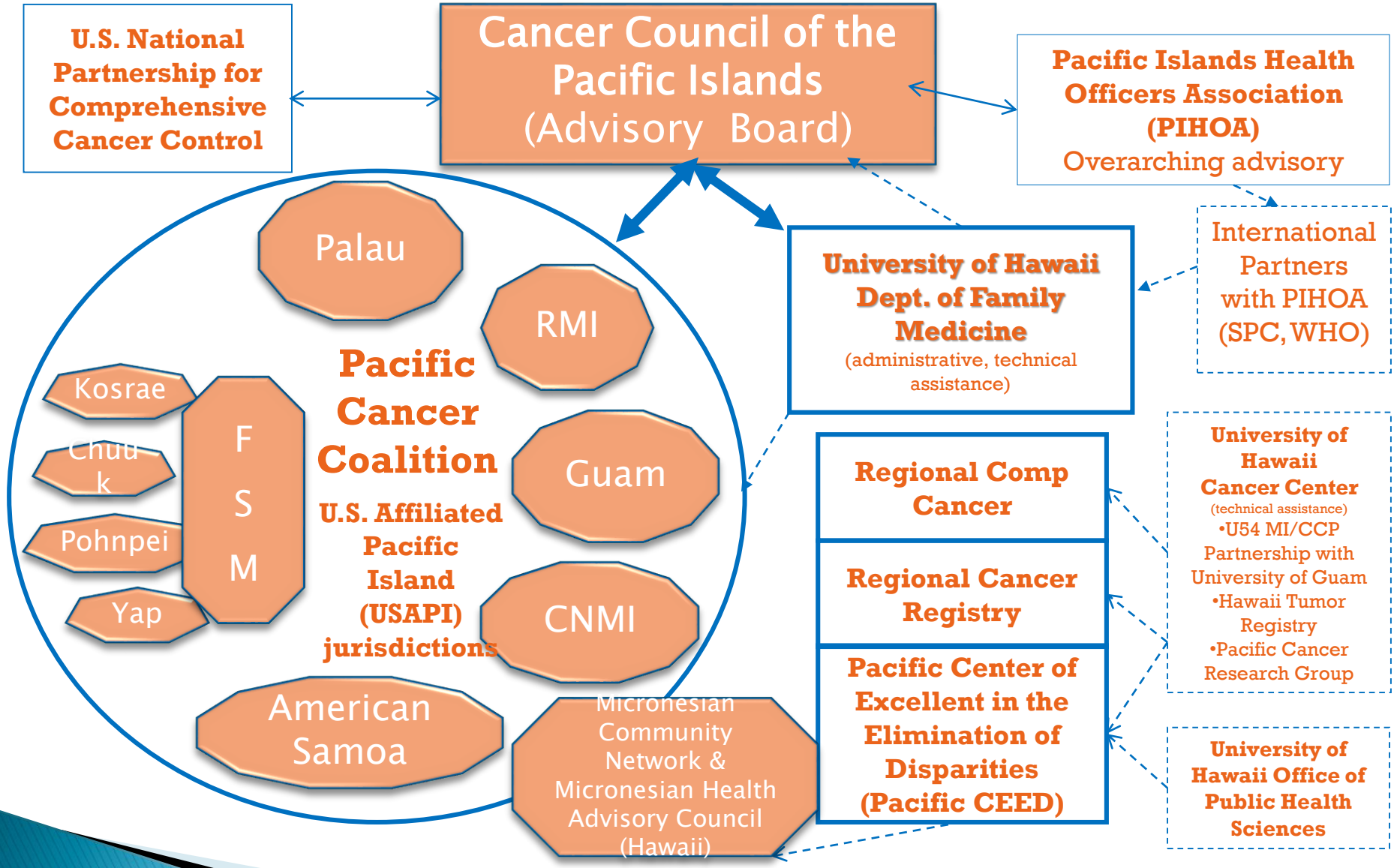
Multi- Disciplinary

- Medical, Research
- Social , Behavioral
- Policy
- Education, Academic
- Policy , Legal
- Judicial

Atoll Lagoon


CHINA
Wenzhou
Fuzhou
Xiamen
Shantou
Hong Kong S.A.R.
Macau S.A.R.
Taipei
Taiwan
Kao-hsiung
Okinawa
Naha
RYUKYU ISLANDS (JAPAN)
DAITŌ-SHOTŌ (JAPAN)
Okino-tori-shima (JAPAN)
BONIN ISLANDS (JAPAN)
VOLCANO ISLANDS (JAPAN)
Marcus Island (JAPAN)
Tropic of Cancer
Midway Islands (U.S.)
Philippine Sea
South China Sea
Luzon
Manila
PHILIPPINES
Samar
Panay
Iloilo
Palawan
Bacolod
Negros
Cebu
Cagayan de Oro
Mindanao
Zamboanga
Davao
Sulu Sea
Bandar Seri Begawan
BRUNEI
MALAYSIA
Borneo
Celebes Sea
Manado
Halmahera
Samarinda
Palu
Celebes
Banjarmasin
Makassar
Ceram
Buru
Ambon
Sorong
Banda Sea
Java Sea
Surabaya
Bali
Sumbawa
Flores
Denpasar
Lombok
Sumba
Kupang
Timor
East Timor (temporarily administered by the UN)
Arafura Sea
Timor Sea
INDONESIA
Jayapura
New Guinea
Wewak
Madang
Lae
Bismarck Sea
New Ireland
New Britain
Solomon Sea
PAPUA NEW GUINEA
Port Moresby
Bougainville
SOLOMON ISLANDS
Honiara
Guadalcanal
Northern Mariana Islands (U.S.)
Saipan
Hagåtña
Guam (U.S.)
FEDERATED STATES OF MICRONESIA
Yap
Koror
PALAU
CAROLINE ISLANDS
Pohnpei
Palikir
Eniwetak
Wake Island (U.S.)
MARSHALL ISLANDS
Equator
Yaren District
NAURU
Banaba
KIRIBATI (GILBERT ISLANDS)
KIRIBATI
Howland Island (U.S.)
Baker Island (U.S.)
RAWAKI (PHOENIX ISLANDS)
HAWAIIAN ISLANDS (U.S.)
Kauai
Oahu
Honolulu
Maui
Hawaii
Johnston Atoll (U.S.)
North Pacific Ocean
Kingman Reef (U.S.)
Palmyra Atoll (U.S.)
Jarvis Island (U.S.)
Kiritimati (Christmas Island) (KIRIBATI)
LINE ISLANDS
KIRIBATI
TUVALU
Funafuti
Tokelau (N.Z.)
Wallis and Futuna (FRANCE)
Mata-Utu
SAMOA
Apia
American Samoa (U.S.)
Pago Pago
Rotuma
SANTA CRUZ ISLANDS
VANUATU
Port-Vila
FIJI
Vanua Levu
Viti Levu
Suva
TONGA
Nuku'alofa
Alofi
Niue (N.Z.)
Cook Islands (N.Z.)
Avarua
ÎLES MARQUISES
ARCHIPEL DES TUAMOTU
SOCIETY ISLANDS
Papeete
Tahiti
French Polynesia (FRANCE)
Mururoa
ÎLES TUBUAI
Tropic of Capricorn
Minerva Reef
Ceva-i-Ra
Adamstown
Pitcairn Islands (U.K.)
Rapa
Coral Sea Islands (AUSTRALIA)
Coral Sea
New Caledonia (FRANCE)
Noumea
Ashmore and Cartier Islands (AUSTRALIA)
Darwin
Gulf of Carpentaria
Indian Ocean
Cairns
Townsville
Mackay
Rockhampton
Gladstone
Mount Isa
Port Hedland
Alice Springs
AUSTRALIA
Brisbane
Gold Coast
Geraldton
Kalgoorlie
Perth
Bunbury
Esperance
Broken Hill
Whyalla
Adelaide
Newcastle
Sydney
Wollongong
Canberra
Bendigo
Geelong
Melbourne
Great Australian Bight
Bass Strait
Hobart
Tasmania
Tasman Sea
Lord Howe Island (AUSTRALIA)
Kingston
Norfolk Island (AUSTRALIA)
KERMADEC ISLANDS (N.Z.)
Auckland
Hamilton
North Island
Hastings
NEW ZEALAND
Wellington
Christchurch
South Island
Dunedin
Invercargill
Stewart Island
CHATHAM ISLANDS (N.Z.)
South Pacific Ocean
Indian Ocean
Scale: 1:36,000,000 at 30°S
Mercator Projection
500 Kilometers
500 Miles

Pacific Cancer Control Programs & Partners



Conclusion

- Population Health is about the community response
- It is about addressing the social determinants of health, disparity, and population risk reduction
- It is about community mobilization, partnerships, and a dialogue amongst all stakeholders

- It is not the strongest of species that survives, nor the most intelligent that survives. It is the one that is most adaptable to change

Charles Darwin

Its About Caring

- Mahalo Nui Loa
- Thank you very much
- npalafox@hawaii.edu

Global Cancer Control:

Resource-Stratified Guidelines and Modeling in Breast Cancer

Benjamin O. Anderson, M.D.

Chair and Director
Breast Health Global Initiative
Fred Hutchinson Cancer Research Center

Professor of Surgery & Global Health Medicine
University of Washington

Seattle, Washington

The Breast Health Global Initiative

www.bhgi.info

BCI2.5

Making breast cancer a global priority

Global Cancer Control

- Global Cancer Trends
- Adapting to Existing Resources
- Tool Development and Validation
- Implementation in Cancer Control

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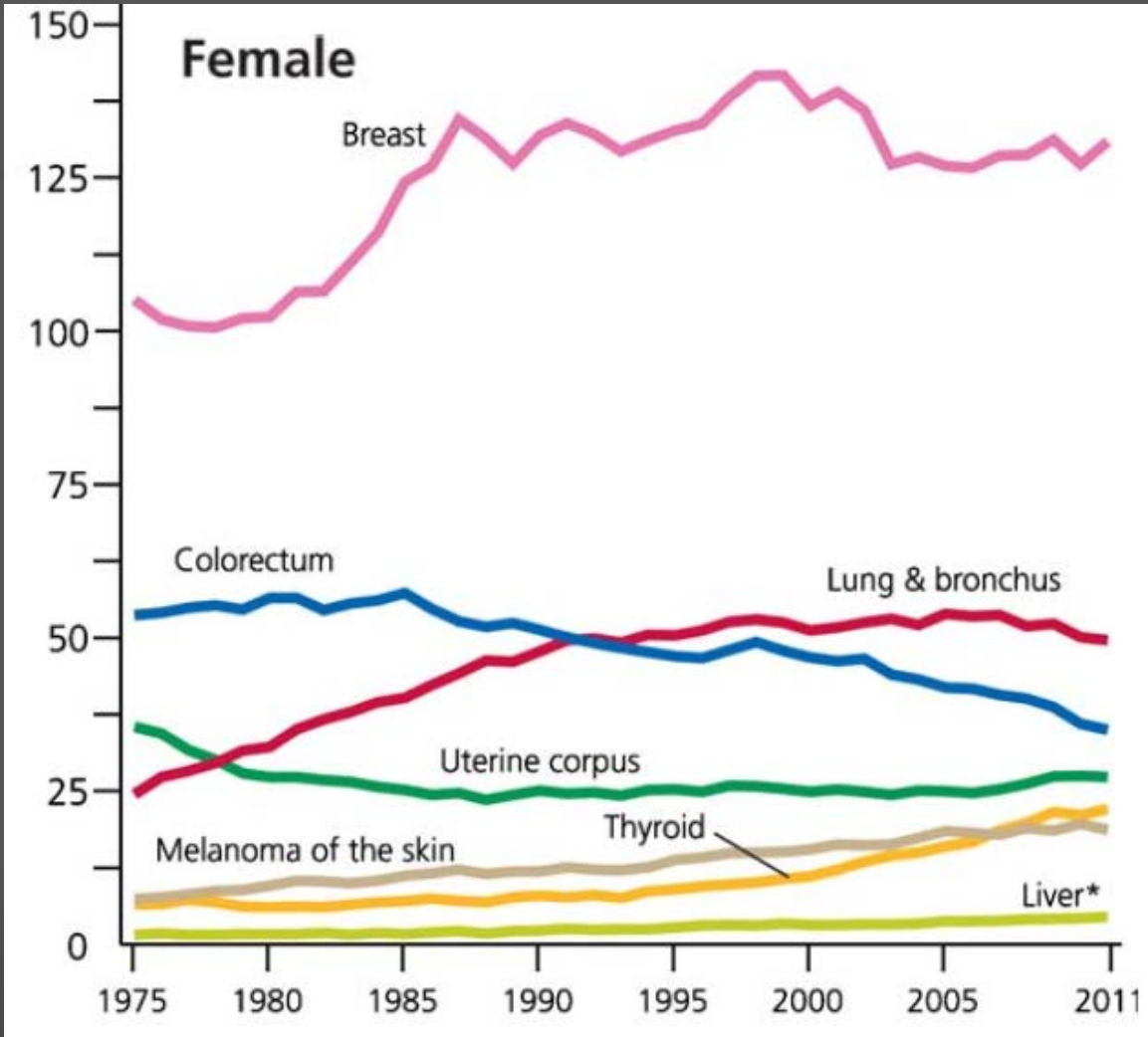
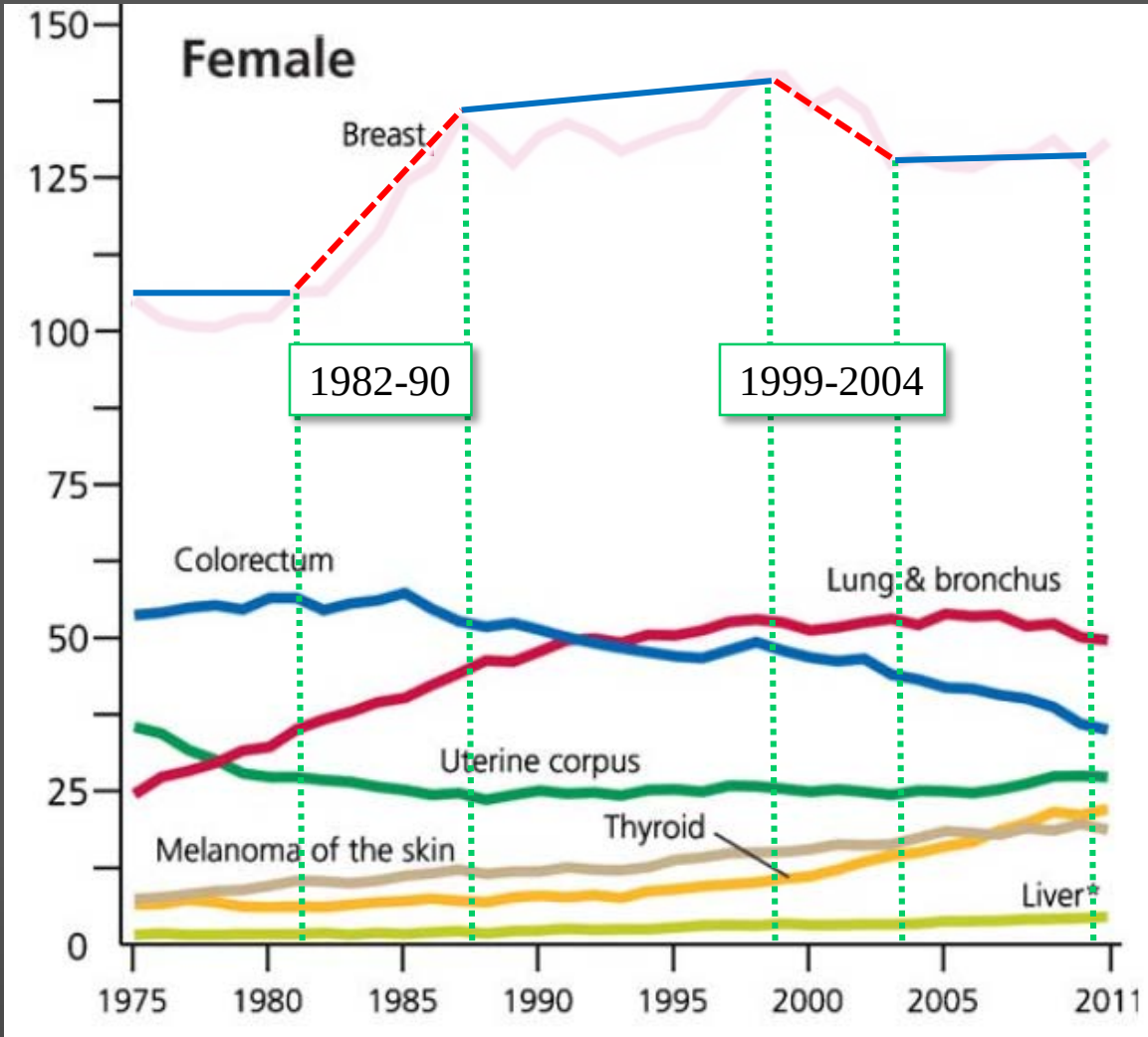
U.S. CANCER INCIDENCE 2015 (EST.)



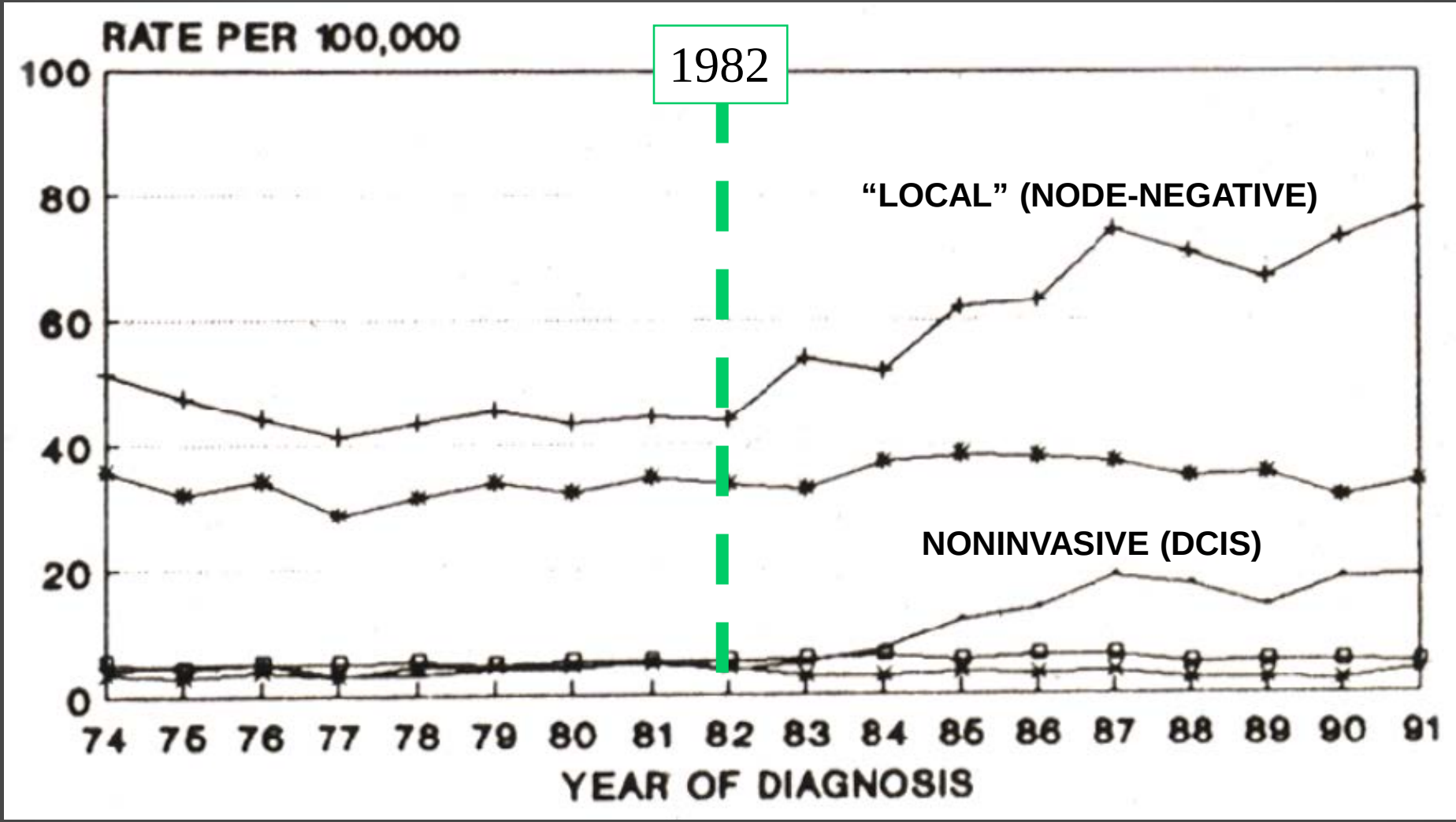
SOURCE: Seigel Ca Cancer J Clin 65:5, 2015

U.S. CANCER INCIDENCE 2015 (EST.)

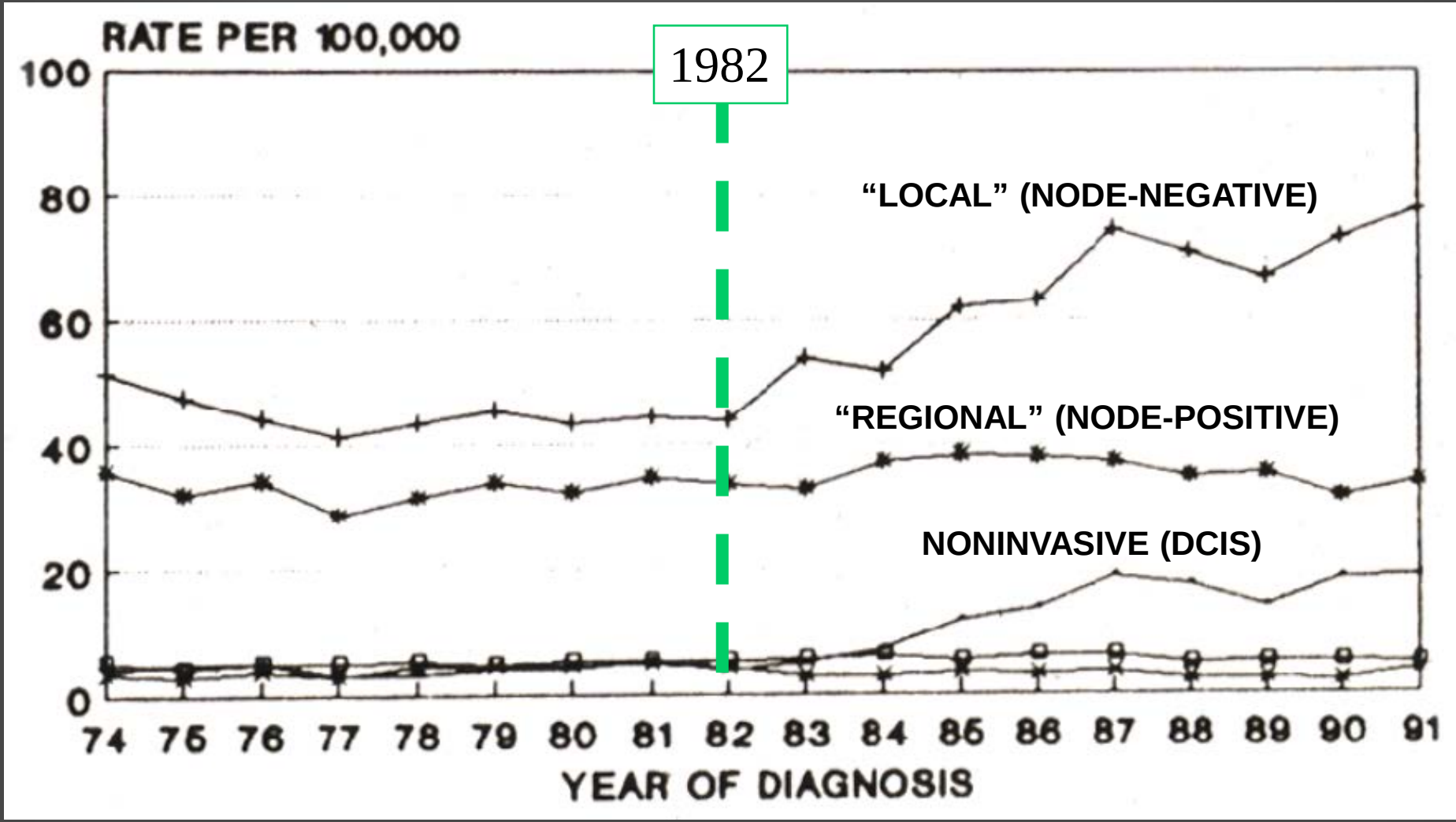


SOURCE: Seigel Ca Cancer J Clin 65:5, 2015

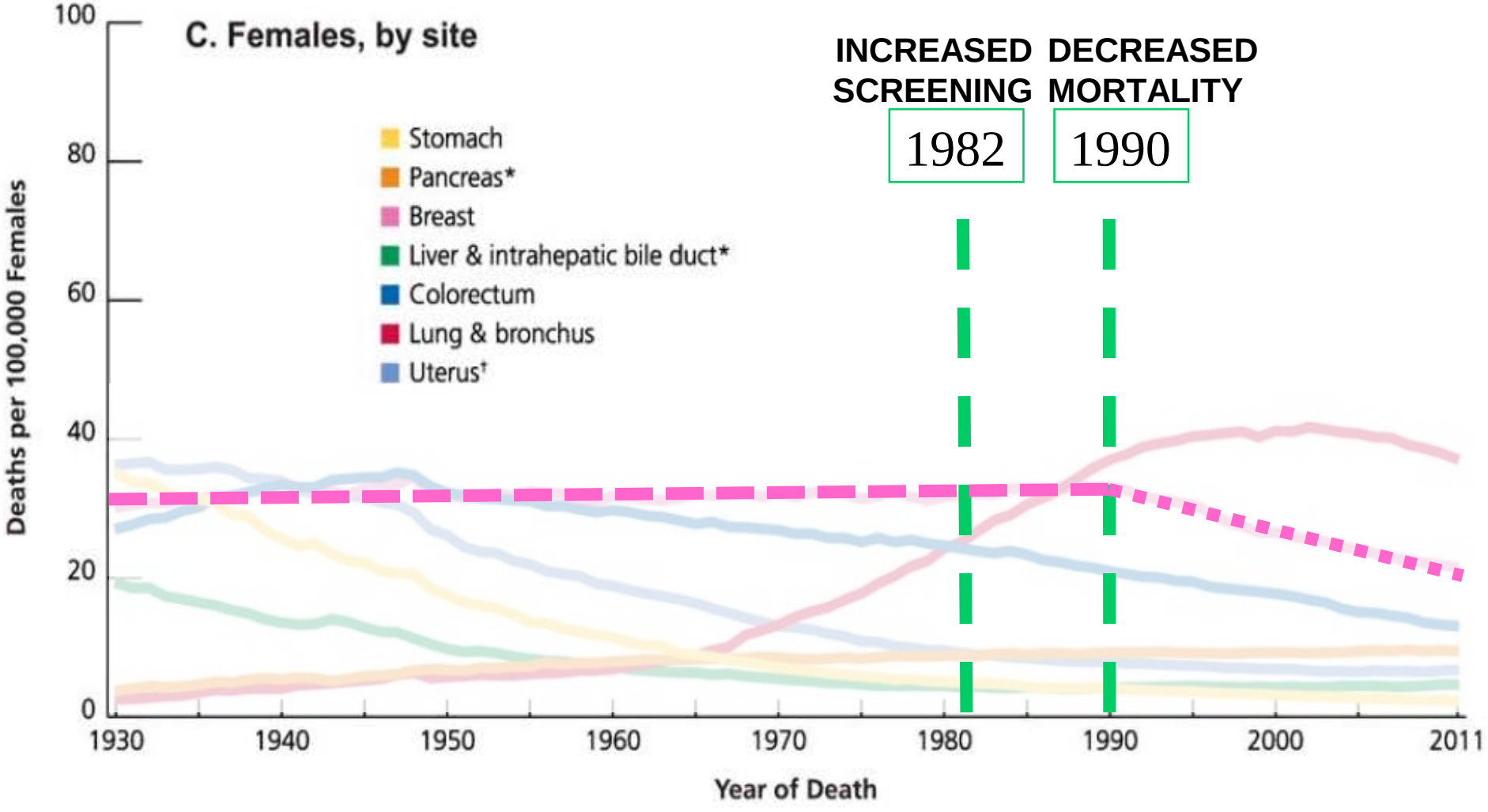
AGE ADJUSTED INCIDENCE 1973-1991



AGE ADJUSTED INCIDENCE 1973-1991



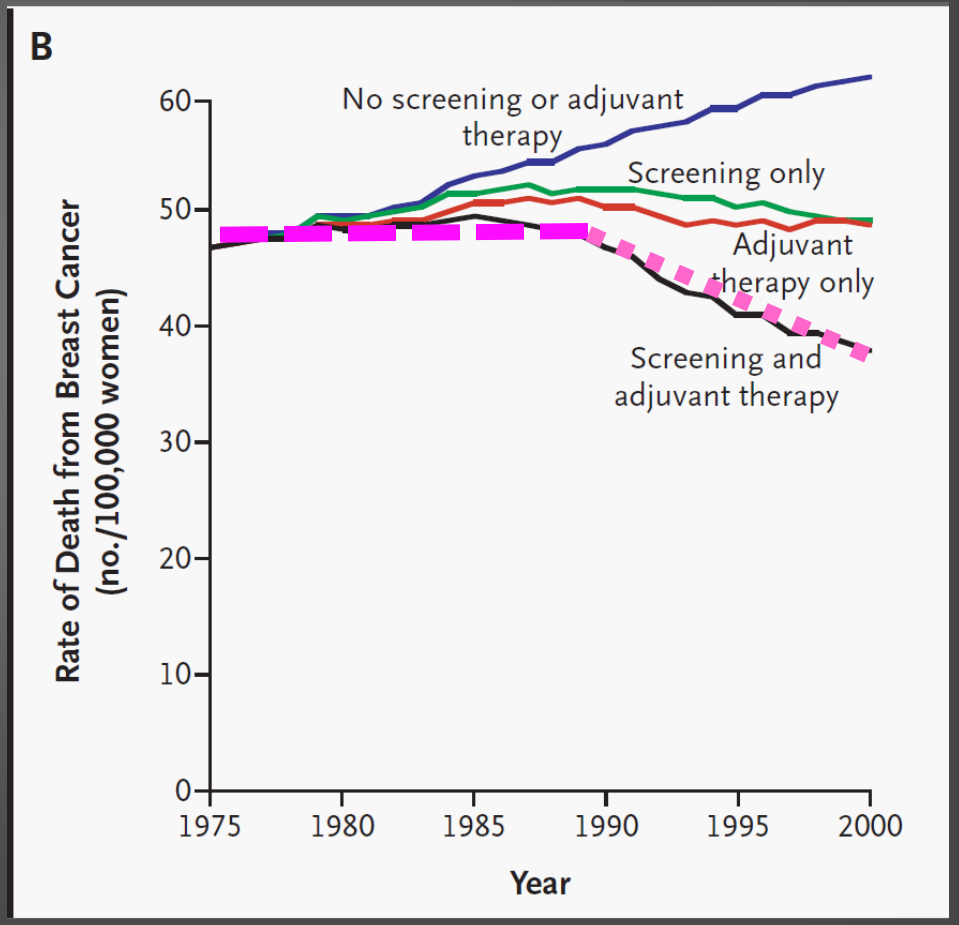
U.S. CANCER MORTALITY 2015 (EST.)



SOURCE: Seigel Ca Cancer J Clin 65:5, 2015

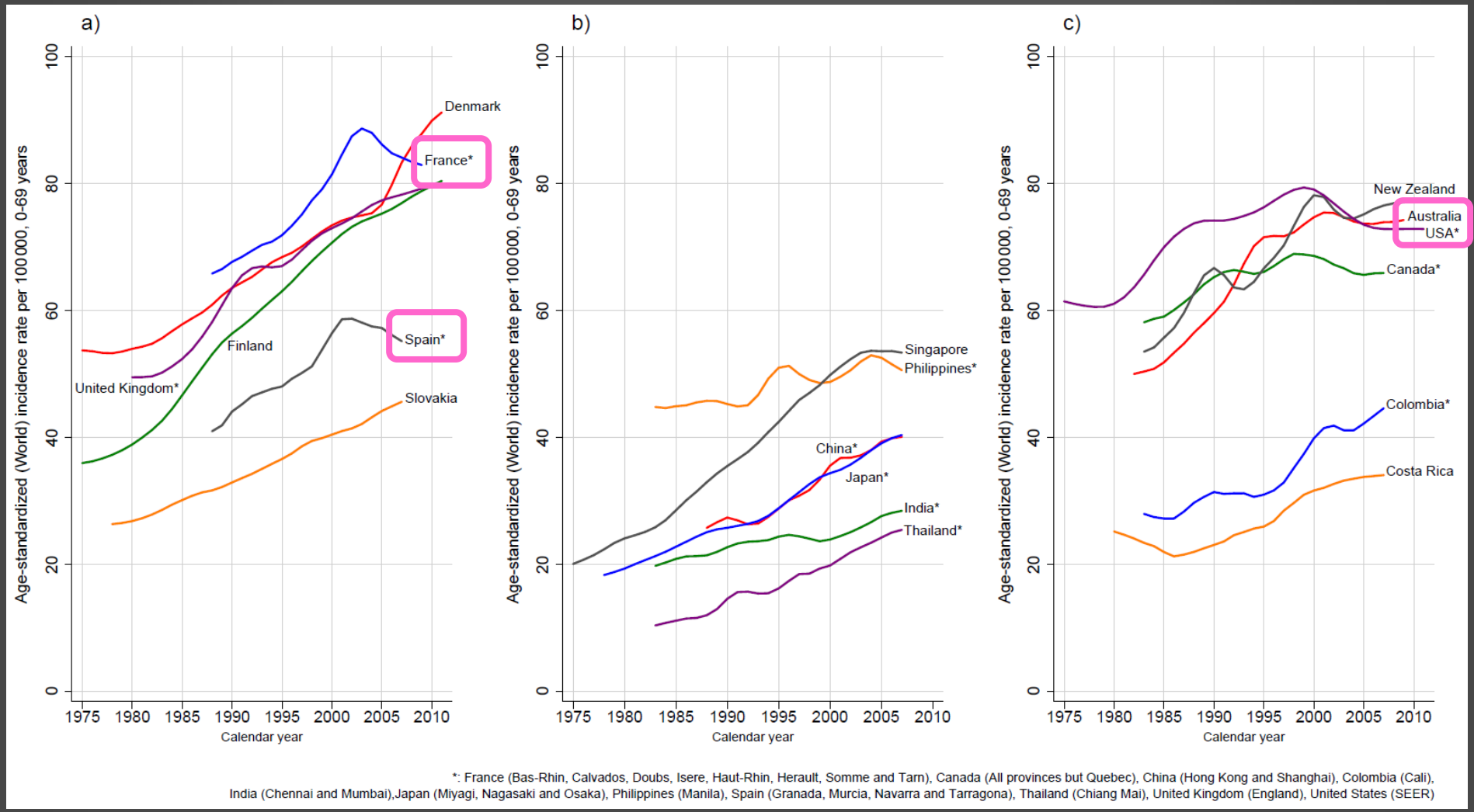
MORTALITY MODELING
SCREENING AND ADJUVANT THERAPY

- Early detection is essential to improving outcome.
- Early detection works when followed by appropriate breast cancer treatment.
- To save lives, screening programs must be linked to timely, effective treatment.



Berry, et al. (CISNET), NEJM 353:1784, 2005

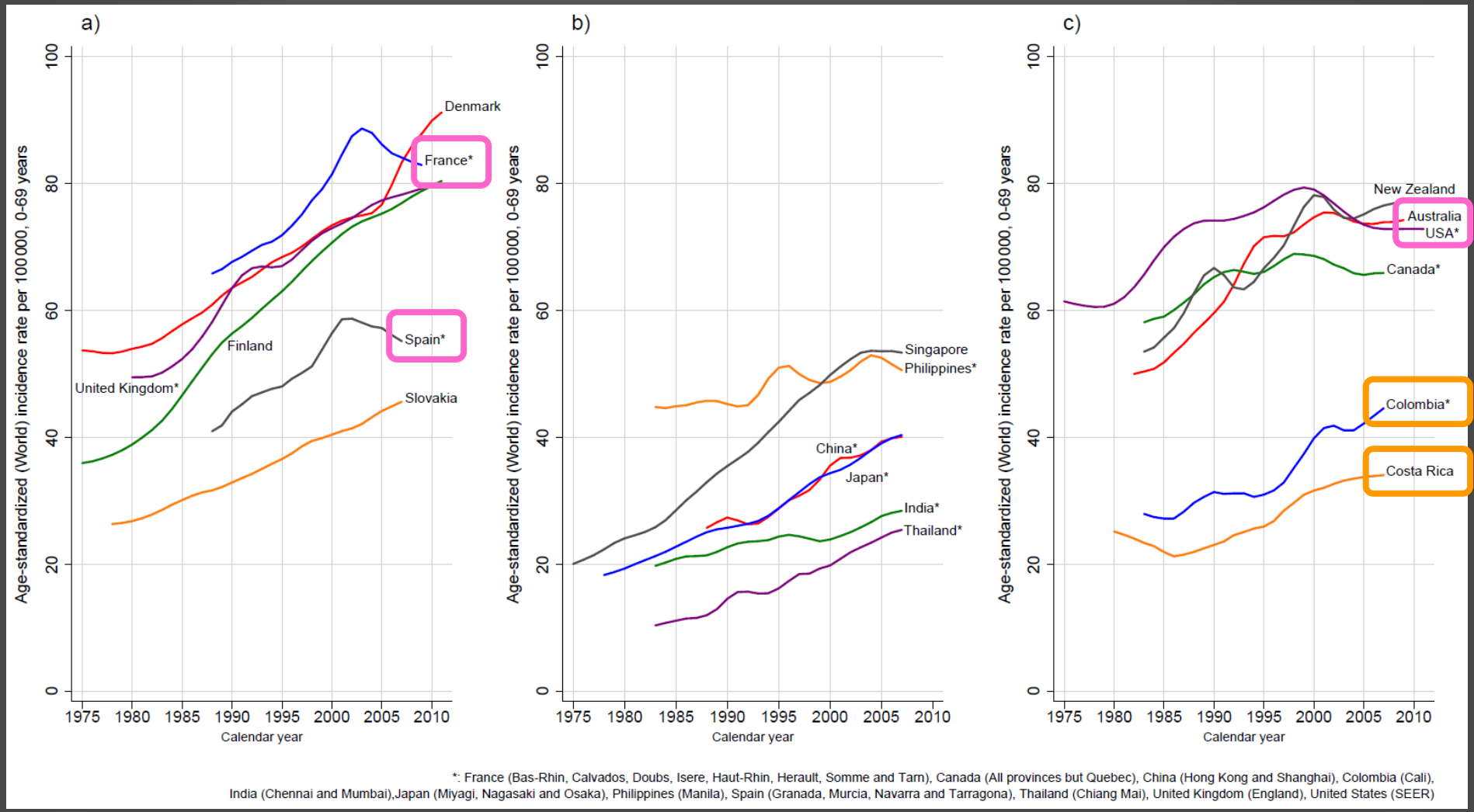
BREAST CANCER INCIDENCE (1975-2011)



*: France (Bas-Rhin, Calvados, Doubs, Isere, Haut-Rhin, Herault, Somme and Tarn), Canada (All provinces but Quebec), China (Hong Kong and Shanghai), Colombia (Cali), India (Chennai and Mumbai),Japan (Miyagi, Nagasaki and Osaka), Philippines (Manila), Spain (Granada, Murcia, Navarra and Tarragona), Thailand (Chiang Mai), United Kingdom (England), United States (SEER)

SOURCE: Globocan 2012 (IARC)

BREAST CANCER INCIDENCE (1975-2011)



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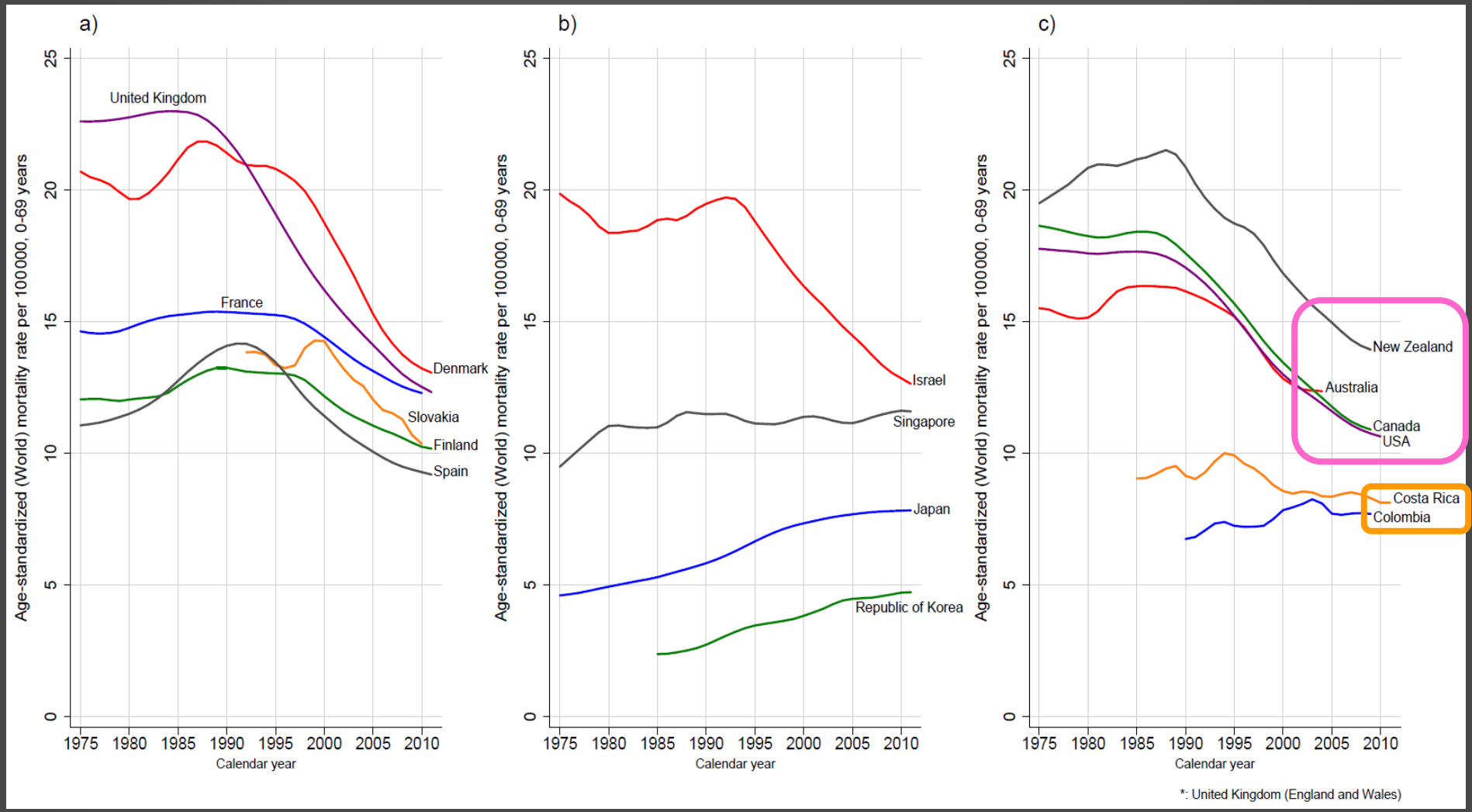
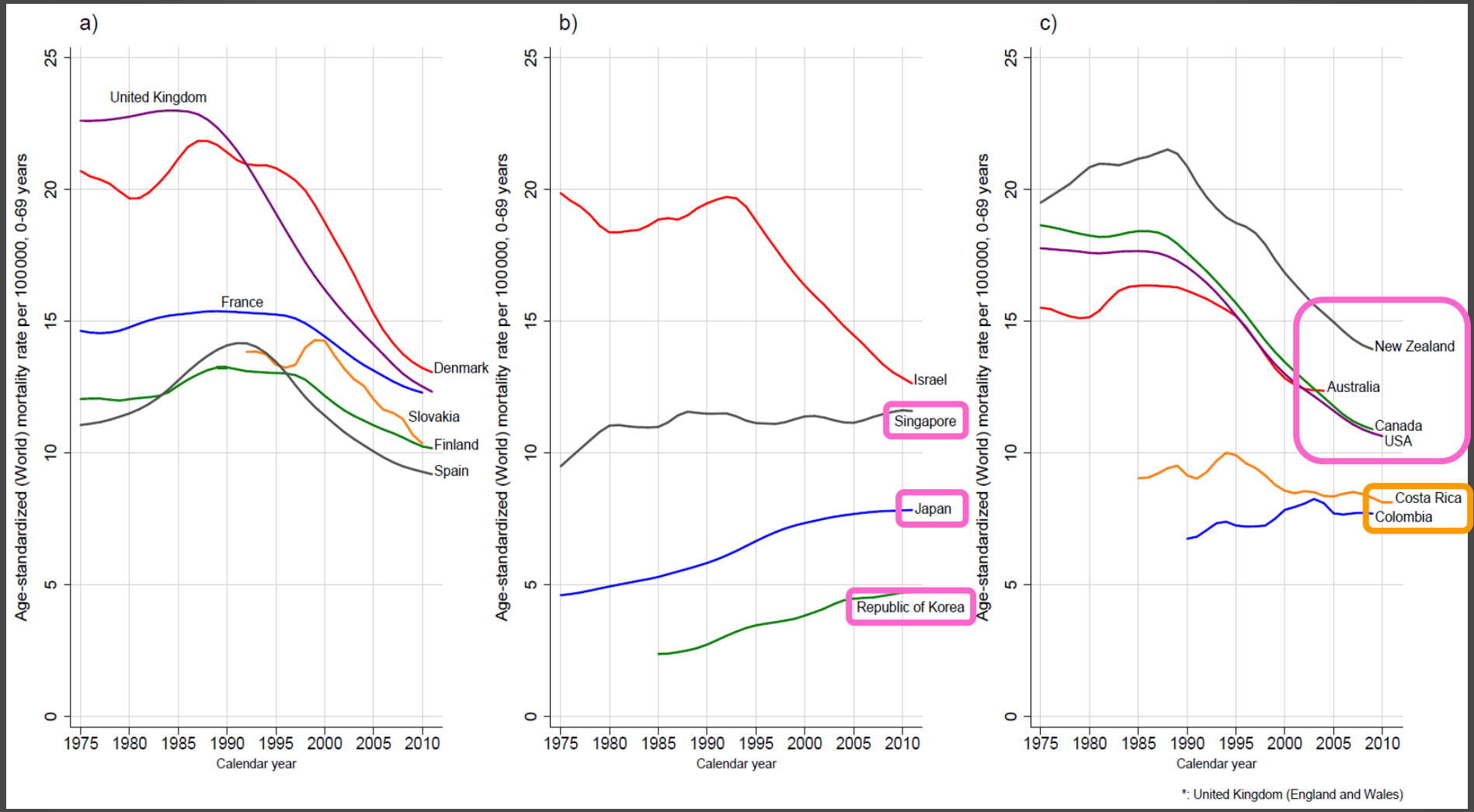
SOURCE: Globocan 2012 (IARC)

BREAST CANCER DEATHS (1975-2011)



SOURCE: Globocan 2012 (IARC)

BREAST CANCER DEATHS (1975-2011)



SOURCE: Globocan 2012 (IARC)

Global Cancer Control

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WORLD BANK COUNTRY GROUPS

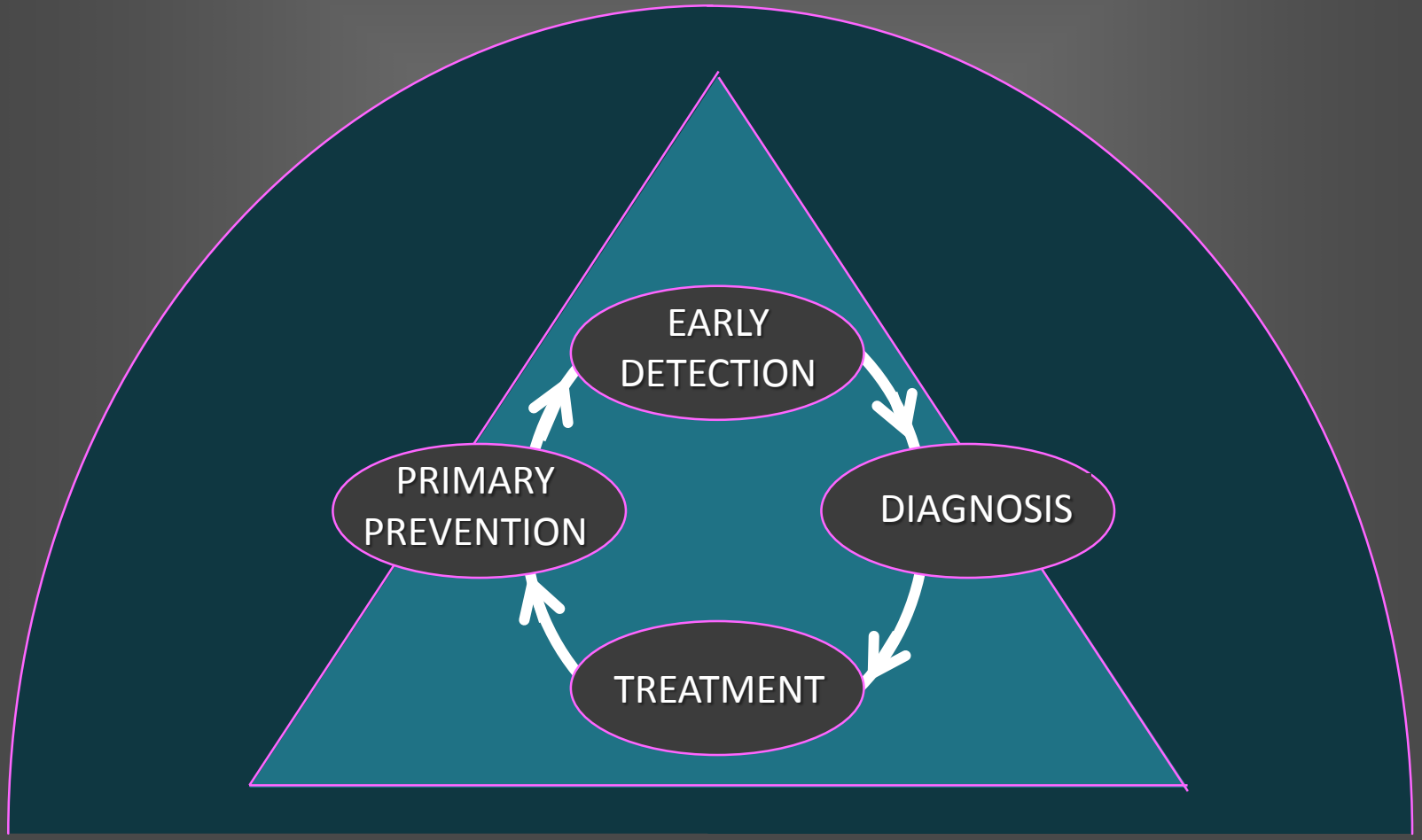
WORLD BANK CLASSIFICATION (ATLAS METHOD)

World Bank Country Groups *(GNI per capita)*	Low Income *($995 or less)*	Lower Middle Income *($996 - $3,945)*	Upper Middle Income *($3,946 - $12,195)*	High Income *($12,196 or more)*
Average female life expectancy at birth	57.8 yrs	69.3 yrs	74.4 yrs	82.4 yrs
Average GNI per capita (2009 US dollars)	$403	$1,723	$6,314	$36,953
Total national health expenditure per capita	$22	$76	$458	$4,266
Fraction of GDP spent on health care	5.1%	4.3%	6.4%	11.2%

Health expenditure figures 2010 for calendar year 2007; GNI = gross national income
http://data.worldbank.org/data-catalog/health-nutrition-and-population-statistics.

CANCER CONTROL STRATEGIES

DISEASE-BASED APPROACH



CANCER CONTROL STRATEGIES
PRIMARY PREVENTION

Population-Attributable Fraction (PAF) reflects potential prevention impact

Etiology	Carcinogenic risk factor (associated PAF)	Overall PAF (%)	Risk reduction programs	Key multisectoral partners	Estimated cost-effectiveness
Infectious etiologies	HPV (cervical cancer 90–100%)* Hepatitis B and C (HCC 77%)* *H. pylori* (gastric cancer 75%)*	18	Vaccinations	Health care workers Pharmaceutical companies Legislative bodies	Very cost-effective
Behavioral factors	Tobacco (30%)† Obesity (20%)† Diet (5%)† Alcohol (4%)†	66	Tobacco cessation Exercise programs Public education and outreach	General population (health literacy) Legislative bodies Health care workers	Very cost-effective
Environmental factors	Air pollution Aflatoxins	4	Environmental regulations	Legislative bodies Business sector	Potentially cost-effective
Clinical interventions	Chemoprevention (such as tamoxifen, aspirin, celecoxib, or finasteride) Surgical procedures (such as prophylactic mastectomy or prophylactic oophorectomy)	N/A	Insurance coverage for correctly selected individuals at elevated risk	Health care workers Pharmaceutical companies General population	Cost-effective

Ilbawi, Science Trans Med, 7:278cm1, 2015

CANCER CONTROL STRATEGIES
PRIMARY PREVENTION

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Ilbawi, Science Trans Med, 7:278cm1, 2015

CANCER CONTROL STRATEGIES
BREAST CANCER PREVENTION

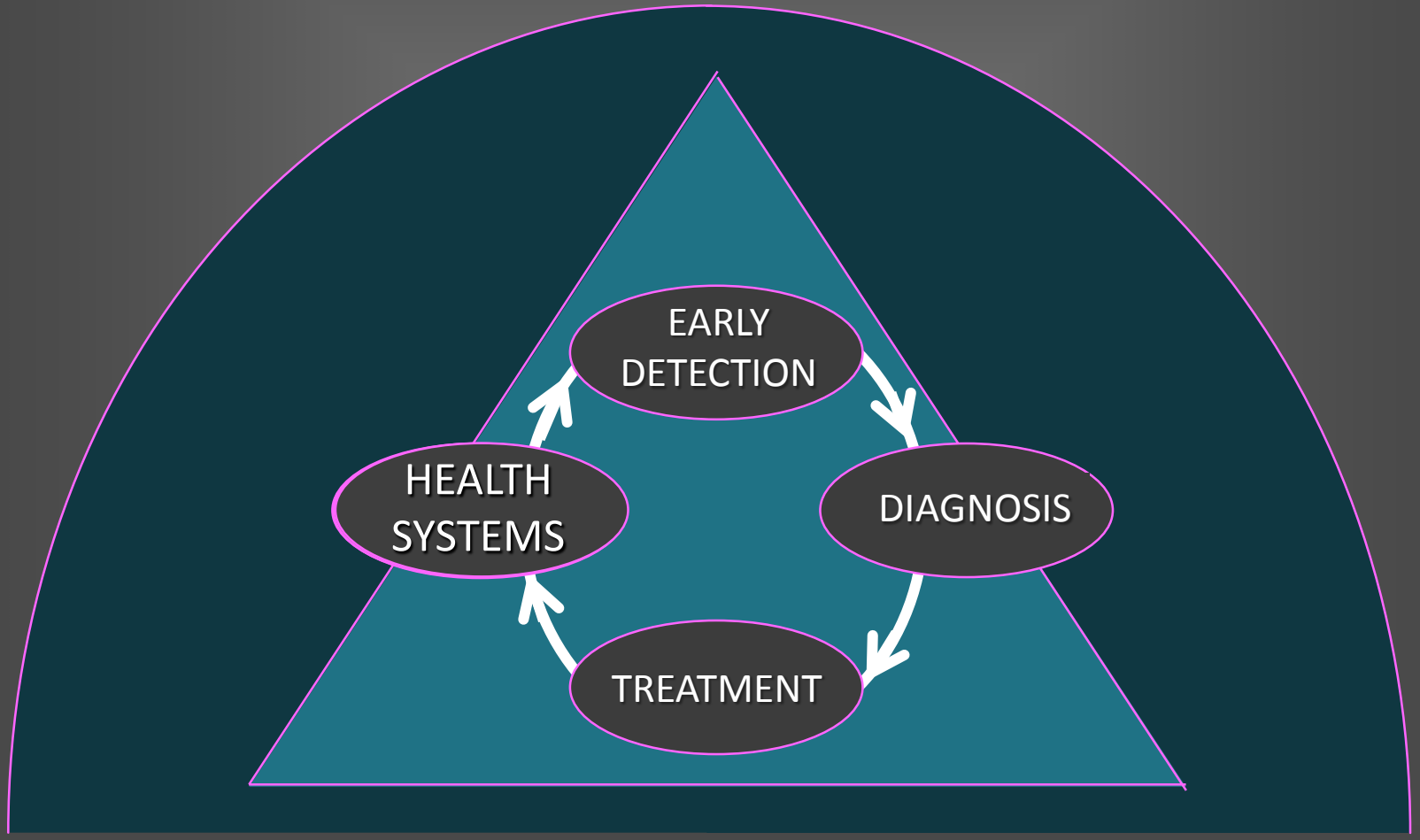
Health behaviors associated with reduced breast cancer risk

1. Prolonged lactation
2. Regular physical activity
3. Weight control
4. Avoid excess alcohol intake
5. Avoid prolonged use of exogenous hormones
6. Avoid excessive radiation exposure

McTiernan, et al, Cancer, 113:2325, 2008

CANCER CONTROL STRATEGIES

COMPREHENSIVE APPROACH



GLOBAL SUMMIT 2005 – BETHESDA RESOURCE STRATIFICATION

- Basic level: Core resources or fundamental services necessary for any breast health care system to function.
- Limited level: Second-tier resources or services that produce major improvements in outcome such as survival.
- Enhanced level: Third-tier resources or services that are optional but important, because they increase the number and quality of therapeutic options and patient choice.
- Maximal level: Highest-level resources or services used in some high resource countries that have *lower priority* on the basis of extreme cost and/or impracticality.

BHGI GUIDLINE TABLES

HEALTH CARE SYSTEMS

Level of resources	Patient and Family Education	Human Resource Capacity Building	Patient Navigation	Cancer Care Facility	Breast Care Center
Basic	General education regarding primary prevention of cancer, early detection and self examination Development of culturally adapted patient and family education services	Primary care provider education re breast cancer detection, diagnosis and treatment Nursing education re cancer patient management and emotional support Pathology technician education re tissue handling and specimen preparation Trained community worker	Field nurse, midwife or healthcare provider triages patients to central facility for diagnosis and treatment	Health facility Operating facility Outpatient care facility Pharmacy Home hospice support External consultation pathology laboratory	Breast healthcare access integrated into existing healthcare infrastructure
Limited	Group or one-on-one counseling involving family and peer support Education regarding nutrition and complementary therapies	Nursing education re breast cancer diagnosis, treatment and pt management Imaging technician education re imaging technique and quality control Volunteer recruitment corp to support care	On site patient navigator (staff member or nurse) facilitates patient triage through diagnosis and treatment	Clinical information systems Health system network Imaging facility Internal pathology laboratory Radiation therapy	"Breast Center" with clinician, staff and breast imaging access Breast prostheses for mastectomy pts
Enhanced	Education regarding survivorship Lymphedema education Education regarding home care	Organization of national volunteer network Specialized nursing oncology training Home care nursing Physiotherapist & lymphoedema therapist On-site cytopathologist	Patient navigation learn from each discipline supports patient "handoff" during key transitions from specialist to specialist to ensure completion of therapy	Centralized referral cancer center(s) Radiation therapy: low energy linear accelerator, electrons, brachytherapy, treatment planning system	Multidisciplinary breast programs Oncology nurse specialists Physician assistants
Maximal		Organization of national medical breast health groups		Satellite (non-centralized or regional) cancer centers	

EARLY DETECTION

Level of resources	Public Education and Awareness	Detection Methods
Basic	Development of culturally sensitive, linguistically appropriate local education programs for target populations to teach value of early detection, breast cancer risk factors and breast health awareness (education + self-examination)	Clinical history and CBE
Limited	Culturally and linguistically appropriate targeted outreach/education encouraging CBE for age groups at higher risk administered at district/provincial level using healthcare providers in the field	Diagnostic breast US +/- diagnostic mammography in women with positive CBE Mammographic screening of target group*
Enhanced	Regional awareness programs regarding breast health linked to general health and women's health programs	Mammographic screening every 2 years in women ages 50-69* Consider mammographic screening every 12-18 months in women ages 40-49*
Maximal	National awareness campaigns regarding breast health using media	Consider annual mammographic screening in women ages 40 and older Other imaging technologies as appropriate for high-risk groups†

DIAGNOSIS

Level of resources	Clinical	Imaging and Lab Tests	Pathology
Basic	History Physical examination Clinical breast examination (CBE) Tissue sampling for cancer diagnosis (cytologic or histologic) prior to initiation of treatment	-	Pathology diagnosis obtained for every breast lesion by any available sampling procedure Pathology report containing appropriate diagnostic and prognostic/predictive information to include tumor size, lymph node status, histologic type and tumor grade Process to establish hormone receptor status possibly including empiric assessment of response to therapy† Determination and reporting of TNM stage
Limited	US-guided FNAB of sonographically suspicious axillary nodes Sentinel lymph node (SLN) biopsy with blue dye‡	Diagnostic breast ultrasound (US) Plain chest and skeletal radiography Liver US Blood chemistry profile* Complete blood count (CBC)*	Determination of ER status by IHC† Determination of margin status, DCIS content, presence of LVI Frozen section or touch prep SLN analysis §
Enhanced	Image guided breast sampling Preoperative needle localization under mammo and/or US guidance SLN biopsy using radiotracer‡	Diagnostic mammography Specimen radiography Bone scan, CT scan Cardiac function monitoring	Measurement of HER-2/neu overexpression or gene amplification§ Determination of PR status by IHC
Maximal		PET scan, MRI scan, breast MRI, BRCA1/2 testing Mammographic double reading	IHC staining of sentinel nodes for cytokeratin to detect micrometastases Pathology double reading Gene profiling tests

STAGE I

Level of resources	Local-Regional Treatment		Systemic Treatment (Adjuvant)		
	Surgery	Radiation Therapy	Chemotherapy	Endocrine Therapy	Biological Therapy
Basic	Modified radical mastectomy			Oophorectomy in premenopausal women Tamoxifen*	
Limited	Breast conserving surgery† Sentinel lymph node (SLN) biopsy with blue dye‡		Classical CMF§ AC, EC, or FAC§		¶
Enhanced	SLN biopsy using radiotracer‡ Breast reconstruction surgery	Breast-conserving whole-breast irradiation as part of breast-conserving therapy†	Taxanes	Aromatase inhibitors LH-RH agonists	Trastuzumab for treating HER-2/neu positive disease#
Maximal			Growth factors Dose-dense chemotherapy		

STAGE II

Level of resources	Local-Regional Treatment		Systemic Treatment (Adjuvant)		
	Surgery	Radiation Therapy	Chemotherapy	Endocrine Therapy	Biological Therapy
Basic	Modified radical mastectomy	-	Classical CMF*† AC, EC, or FAC†	Oophorectomy in premenopausal women Tamoxifen‡	
Limited	Breast conserving surgery§ Sentinel lymph node (SLN) biopsy with blue dye‡	Postmastectomy irradiation of chest wall and regional nodes for high-risk cases*			¶
Enhanced	SLN biopsy using radiotracer‡ Breast reconstruction surgery	Breast-conserving whole-breast irradiation as part of breast-conserving therapy§	Taxanes	Aromatase inhibitors LH-RH agonists	Trastuzumab for treating HER-2/neu positive disease¶
Maximal			Growth factors Dose-dense chemotherapy		

LOCALLY ADVANCED

Level of resources	Local-Regional Treatment		Systemic Treatment (Adjuvant or Neoadjuvant)		
	Surgery	Radiation Therapy	Chemotherapy	Endocrine Therapy	Biological Therapy
Basic	Modified radical mastectomy	-	Preoperative chemotherapy with AC, EC, FAC or CMF†	Oophorectomy in premenopausal women Tamoxifen‡	
Limited		Postmastectomy irradiation of chest wall and regional nodes*			§
Enhanced	Breast-conserving surgery Breast reconstruction surgery	Breast-conserving whole-breast irradiation as part of breast-conserving therapy	Taxanes	Aromatase inhibitors LH-RH agonists	Trastuzumab for treating HER-2/neu positive disease§
Maximal			Growth factors Dose-dense chemotherapy		

METASTATIC

Level of resources	Local-Regional Treatment		Systemic Treatment (Palliative)		
	Surgery	Radiation Therapy	Chemotherapy	Endocrine Therapy	Supportive Therapy
Basic	Total mastectomy for ipsilateral breast tumor recurrence after breast conserving surgery*			Oophorectomy in premenopausal women Tamoxifen†	Nonopioid and opioid analgesics and symptom management
Limited		Palliative radiation therapy	Classical CMF‡ Anthracycline monotherapy or in combination‡		
Enhanced			Sequential single agent or combination chemotherapy Trastuzumab Lapatinib	Aromatase inhibitors	Bisphosphonates
Maximal			Bevacizumab	Fulvestrant	Growth factors

 Cancer: 113 (8 suppl), 2008

TREATMENT – LOCALLY ADVANCED

Level of resources	Local-Regional Treatment		Systemic Treatment (Adjuvant or Neoadjuvant)		
	Surgery	Radiation Therapy	Chemotherapy	Endocrine Therapy	Biological Therapy
Basic	Modified radical mastectomy	*	Preoperative chemotherapy with AC, EC, FAC or CMF†	Oophorectomy in premenopausal women Tamoxifen‡	
Limited		Postmastectomy irradiation of chest wall and regional nodes*			§
Enhanced	Breast-conserving surgery Breast reconstruction surgery	Breast-conserving whole-breast irradiation as part of breast-conserving therapy	Taxanes	Aromatase inhibitors LH-RH agonists	Trastuzumab for treating HER-2/neu positive disease§
Maximal			Growth factors Dose-dense chemotherapy		

Cancer: 113 (8 suppl), 2008

National Comprehensive Cancer Network®

NCCN Framework for Resource Stratification of NCCN Guidelines (NCCN Framework™)

Invasive Breast Cancer

Enhanced Resources

Version 3.2015

NCCN.org

NCCN Framework™

Continue

LOCALLY ADVANCED INVASIVE BREAST CANCER (NON-INFLAMMATORY)

CLINICAL STAGE | **WORKUP**

Stage IIIA
T0, N2, M0
T1, N2, M0
T2, N2, M0
T3, N2, M0

Stage IIIB
T4, N0, M0
T4, N1, M0
T4, N2, M0

Stage IIIC
Any T, N3, M0

Stage IIIA patients with T3, N1, M0 disease, see BINV-1

- History and physical exam
- CBC, platelets
- Liver function tests and alkaline phosphatase
- Diagnostic bilateral mammogram; ultrasound as necessary
- Pathology review[a]
- Determination of tumor ER/PR status and HER2 status[b]
- Genetic counseling if patient is at high risk for hereditary breast cancer[c]
- Breast MRI[d] (optional), with special consideration for mammographically occult tumors
- Fertility counseling if premenopausal[e]

Consider systemic staging (particularly if signs and symptoms are present):

- Chest diagnostic CT
- Abdominal ± pelvic diagnostic CT or MRI
- Bone scan or sodium fluoride PET/CT[g] (category 2B)
- FDG PET/CT[h,i] (optional, category 2B)

See Preoperative Systemic Therapy (BINV-15)

[a]The panel endorses the College of American Pathologists Protocol for pathology reporting for all invasive and noninvasive carcinomas of the breast. http://www.cap.org.
[b]See Principles of HER2 Testing (BINV-A).
[c]See NCCN Guidelines for Genetic/Familial High-Risk Assessment: Breast and Ovarian.
[d]See Principles of Dedicated Breast MRI Testing (BINV-B).
[e]See Fertility and Birth Control (BINV-C).

[g]If FDG PET/CT is performed and clearly indicates bone metastasis, on both the PET and CT component, bone scan or sodium fluoride PET/CT may not be needed.
[h]FDG PET/CT can be performed at the same time as diagnostic CT. The use of PET or PET/CT scanning is not indicated in the staging of clinical stage I, II, or operable III breast cancer. FDG PET/CT is most helpful in situations where standard staging studies are equivocal or suspicious, especially in the setting of locally advanced or metastatic disease.
[i]FDG PET/CT may also be helpful in identifying unsuspected regional nodal disease and/or distant metastases in locally advanced breast cancer when used in addition to standard staging studies.

Note: This is the NCCN Framework for Resource Stratification of NCCN Guidelines. For definitions of the NCCN Framework™, see page FR-1.
All recommendations are category 2A unless otherwise indicated.
Clinical Trials: NCCN believes that the best management of any cancer patient is in a clinical trial. Participation in clinical trials is especially encouraged.

LOCALLY ADVANCED INVASIVE BREAST CANCER (NON-INFLAMMATORY)

CLINICAL STAGE — **WORKUP**

Stage IIIA
T0, N2, M0
T1, N2, M0
T2, N2, M0
T3, N2, M0

Stage IIIB
T4, N0, M0
T4, N1, M0
T4, N2, M0

Stage IIIC
Any T, N3, M0

- History and physical exam
- CBC, platelets
- Liver function tests and alkaline phosphatase
- Diagnostic bilateral mammogram; ultrasound as necessary
- Pathology review[a]
- Determination of tumor ER/PR status and HER2 status[b]
- Genetic counseling if patient is at high risk for hereditary breast cancer[c]
- Breast MRI[d] (optional), with special consideration for mammographically occult tumors
- Fertility counseling if premenopausal[e]

Stage IIIA patients with T3, N1, M0 disease, see BINV-1

Consider systemic staging (particularly if signs and symptoms are present):

- Chest diagnostic CT
- Abdominal ± pelvic diagnostic CT or MRI
- Bone scan or sodium fluoride PET/CT[g] (category 2B)
- FDG PET/CT[h,i] (optional, category 2B)
- *Chest x-ray*
- *Abdominal ultrasound*
- *Plain Radiograph of symptomatic bony sites*

→ See Preoperative Systemic Therapy (BINV-15)

[a]The panel endorses the College of American Pathologists Protocol for pathology reporting for all invasive and noninvasive carcinomas of the breast. http://www.cap.org.
[b]See Principles of HER2 Testing (BINV-A).
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BREAST CANCER INITIATIVE 2.5

Making breast health a global priority

BCI 2.5 is a global campaign to reduce disparities in breast cancer outcomes for 2.5 million women by 2025.

Breast Cancer Initiative 2.5

BCI2.5
Making breast cancer a global priority

Inviting Partners

Susan G. Komen for the Cure

American Cancer Society

Breast Health Global Initiative

Harvard Global Equity Initiative

National Cancer Institute Center for Global Health

Norwegian Cancer Society

Pan American Health Organization (PAHO)

Union for International Cancer Control (UICC)

GloBAM

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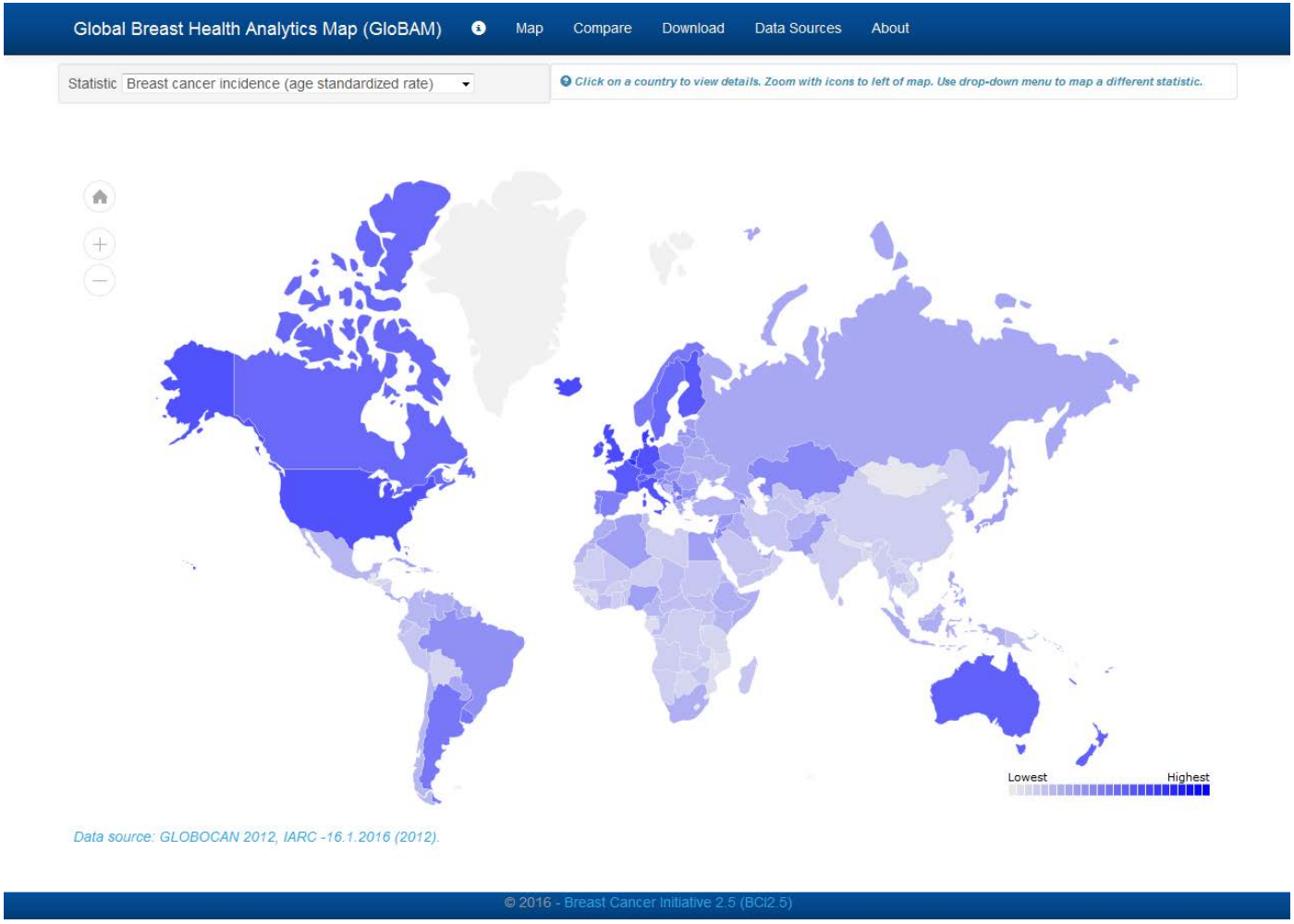
Making breast cancer a global priority

http://globam.fredhutch.org/



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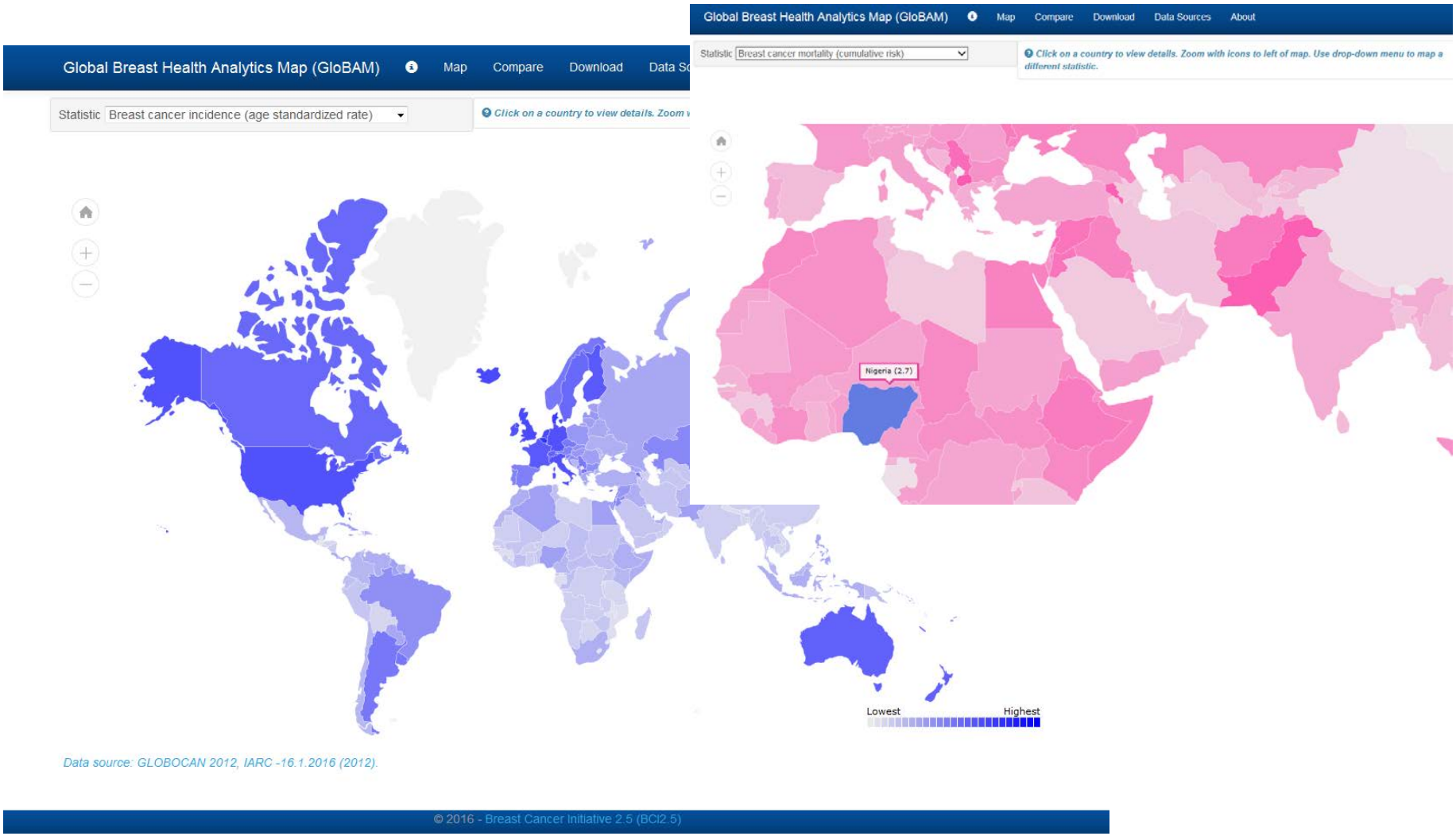

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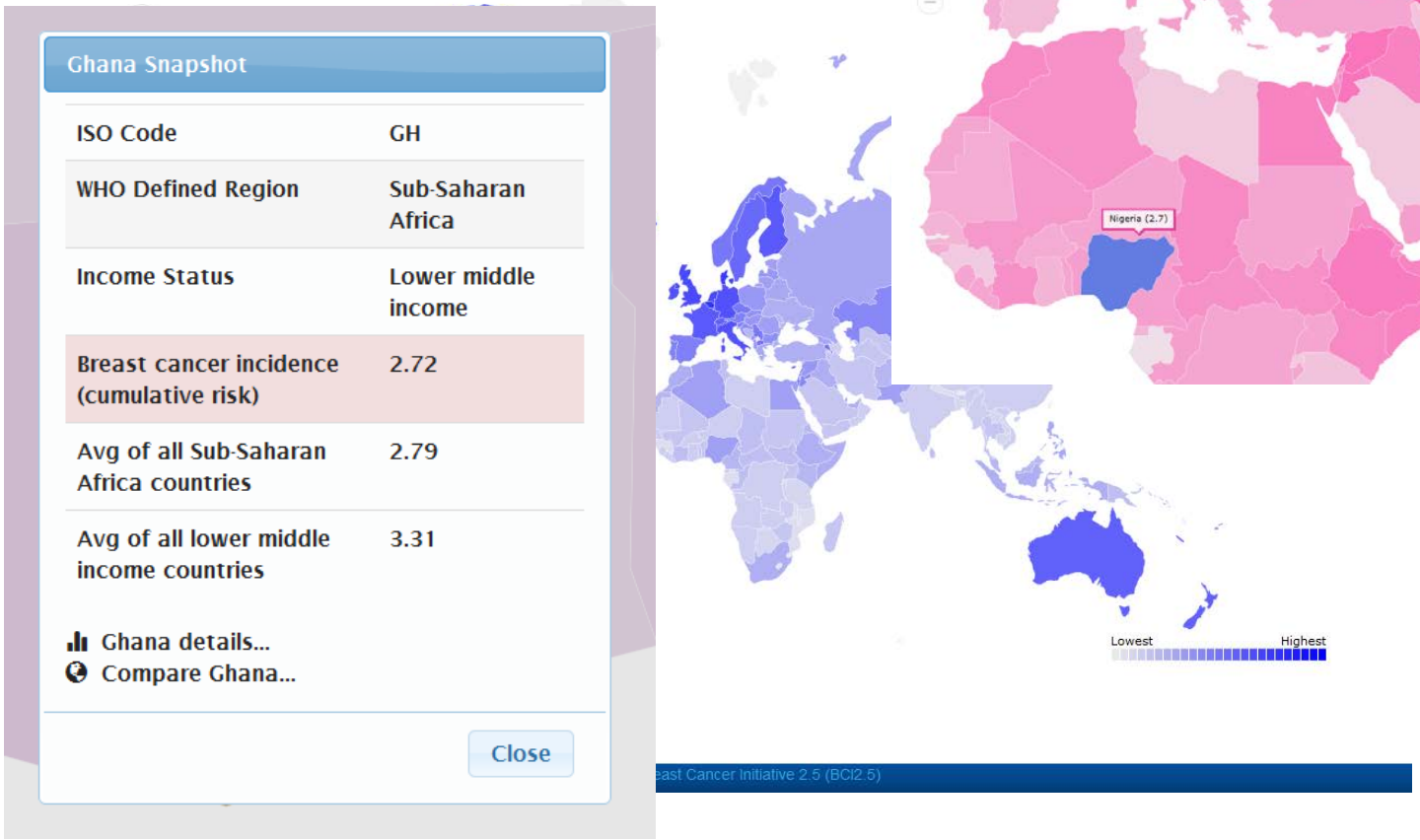

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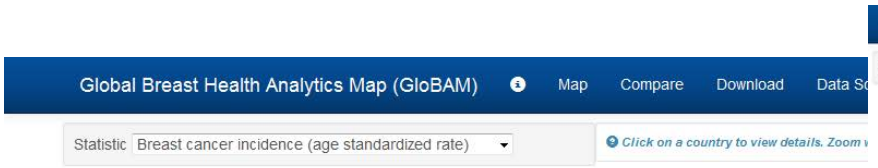
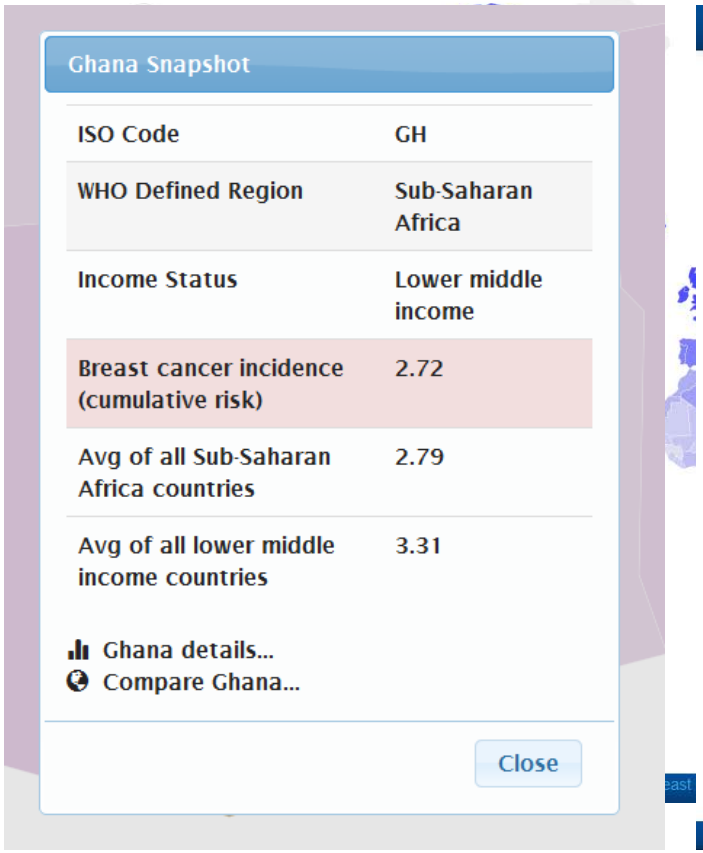
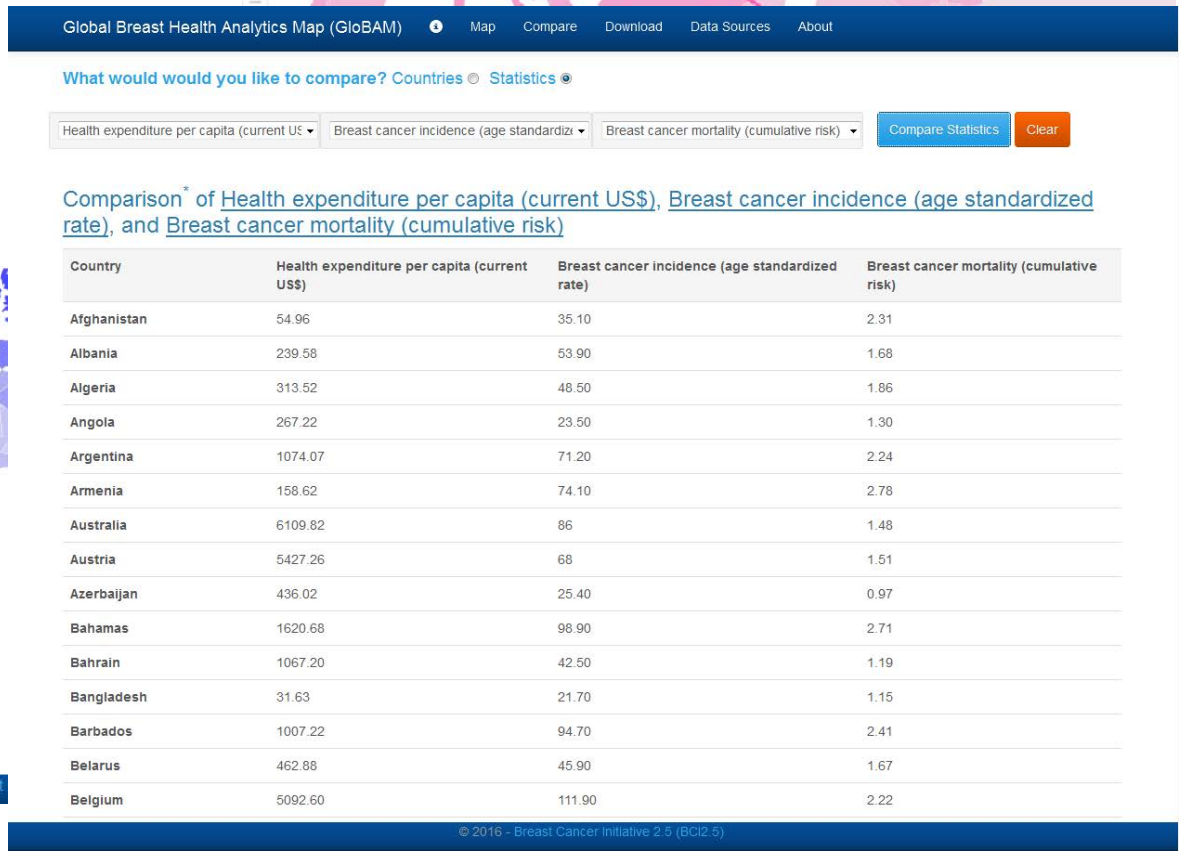






KNOWLEDGE SUMMARIES

BCI 2.5
Making breast cancer a global priority

POINTS FOR POLICYMAKERS

PLANNING STEP 2:
WHERE DO WE WANT TO BE?

IDENTIFY OBJECTIVES AND PRIORITIES

Identify community and health system partnerships

- Identify partners (non-government organizations, advocates, trusted public figures, medical associations) who can help develop and disseminate breast health awareness messaging.
- Identify key decision makers who can help develop and implement a curriculum for medical training and continuing medical education.

Define the target population and approach

- Educational efforts should include health professionals, women and the general public.
- Training primary care health professionals may be a priority if previous breast health training was not provided in medical schools.
- Health professionals may require continuing medical education or "refresher" training in breast cancer prevention, risk factors, signs and symptoms and clinical breast examination (CBE).
- Women can be routinely educated during clinic visits about breast health, including any available breast cancer screening opportunities.

Identify gaps and barriers

- Identify prevailing myths or misconceptions regarding the signs and symptoms of breast cancer. Consider conducting focus groups with the target population to better understand prevailing beliefs.
- Identify gaps in knowledge and misconceptions among primary care providers regarding their beliefs about breast cancer. Consider conducting interviews and focus groups with primary care providers.
- Identify structural, sociocultural, personal and financial barriers to patient participation in CBE.
- Identify barriers to provider participation in breast health awareness and CBE, with a focus on non-attendees within the target population.
- Identify barriers to implementing CBE curriculum in medical training and continuing medical education.

Set achievable objectives

- Objectives should promote a common goal for early detection: downstaging breast cancer diagnoses to improve cancer outcomes.
- Identify and classify objectives according to the healthcare sector that will manage them (e.g., health system standardization of CBE efforts should be led by clinicians; examiner training of CBE could be led by healthcare organizations; increasing the number of qualified practitioners could be led by sponsoring institutions, academia, and the public sector).
- Develop and disseminate patient and public education messages that are relevant and appropriate to the target community.
- Integrate health professional education and training and standardized CBE protocols with widespread dissemination and demonstration of expert clinical breast healthcare skills.
- Address gaps in referral networks to ensure diagnostic follow-up for all breast health complaints (WHO Package of Essential Noncommunicable (PEN) disease interventions for primary care in low-resource settings referral model).
- Report and document clinical findings (contribute data to cancer registry).
- Consider minimizing costs by adapting or supplementing existing programs (e.g., adding breast health education to medical school curriculum and continuing education programs).

Set priorities and determine feasibility of interventions

- Implement demonstration or pilot projects with measurable outcomes to assess feasibility.
- Follow a resource-stratified pathway for program development that identifies available resources across the continuum of care.

KNOWLEDGE SUMMARY EARLY DETECTION (2 OF 3): BREAST PHYSIOLOGY AND THE CLINICAL BREAST EXAM (CBE)

HOW DO WE GET THERE?

Ensure clinical competency in breast health: Health systems are responsible for the clinical competency of health care staff. Health systems should partner with medical education institutions to ensure that breast health is part of the standard medical curriculum, and that the curriculum for health professionals assigned to work with women at risk for breast cancer includes training in CBE and breast counseling (see Table 1).

Improve patient and community knowledge of and confidence in breast healthcare: Breast awareness efforts can improve patient knowledge of breast cancer and the importance of seeking care immediately for a breast complaint. However, if patients do not have confidence that the healthcare system can provide them with timely and affordable care, they may delay presenting for evaluation. In some low-resource settings, there is a lack of trust in the health system and a lack of confidence in the possibility of being cured of cancer, which discourages patients from presenting for evaluation of a breast complaint. NGOs have been proven as effective partners to address these issues and help navigate women to such services or provide services directly.

Strengthen referral networks: Health systems are responsible for establishing and monitoring referral networks to ensure the best care available is provided equitably to all patients in need. The high volume of women with breast health complaints requires a coordinated referral system to ensure optimal use of resources and efficient care. Referral systems should document the nature and urgency of the referral. The capacity of different health systems to care for women with breast complaints varies; scaling up expertise and establishing minimal standards of care are two possible approaches to improving care.

Implement quality assurance programs: Improving standards for CBE through training and tracking outcomes may improve the practice of CBE – an approach that has been used successfully with mammography. Increasing CBE volume and establishing trained teams or centers can improve the sensitivity and reduce the false-positive rates of CBE. Effective communications between providers can improve the care within an interdisciplinary system. Communications must be thorough and bidirectional to help coordinate care. For example, regional guidelines regarding the timing, type and location of imaging studies for women with breast complaints should be established to avoid duplication of studies. Similarly, breast mass biopsy findings should be communicated back to the primary care physician to coordinate appropriate follow-up and surveillance.

POINTS FOR POLICYMAKERS

PLANNING STEP 3:
HOW DO WE GET THERE?

IMPLEMENT AND EVALUATE

Establish financial support and partnerships

- Consider partnering with local, regional and national breast health stakeholders.
- Advocacy groups are key stakeholders in advancing breast health awareness and are often supported by community members and volunteers.
- Partner with medical institutions to integrate training into existing programs.
- Scaling-up existing programs can optimize investments and efforts.

Launch, disseminate and implement

- Consider current educational programs that could be expanded or adapted to include breast health (e.g., training in clinical breast examination [CBE] should be part of the medical school core curriculum, offered as part of continuing education and available to all appropriate frontline health professionals).
- Expand the practice of CBE at the primary care level.
- Clarify the system for referrals and follow-up care to all health professionals and patients to avoid duplication of studies or omissions in care (e.g., suspicious lesions must be referred to a surgical team for biopsy, followed by a pathology evaluation of the biopsied specimen).
- Consider using a standardized patient care plan that provides details of a patient's diagnosis and treatment that can be shared by all members of the healthcare team.

Monitor and evaluate

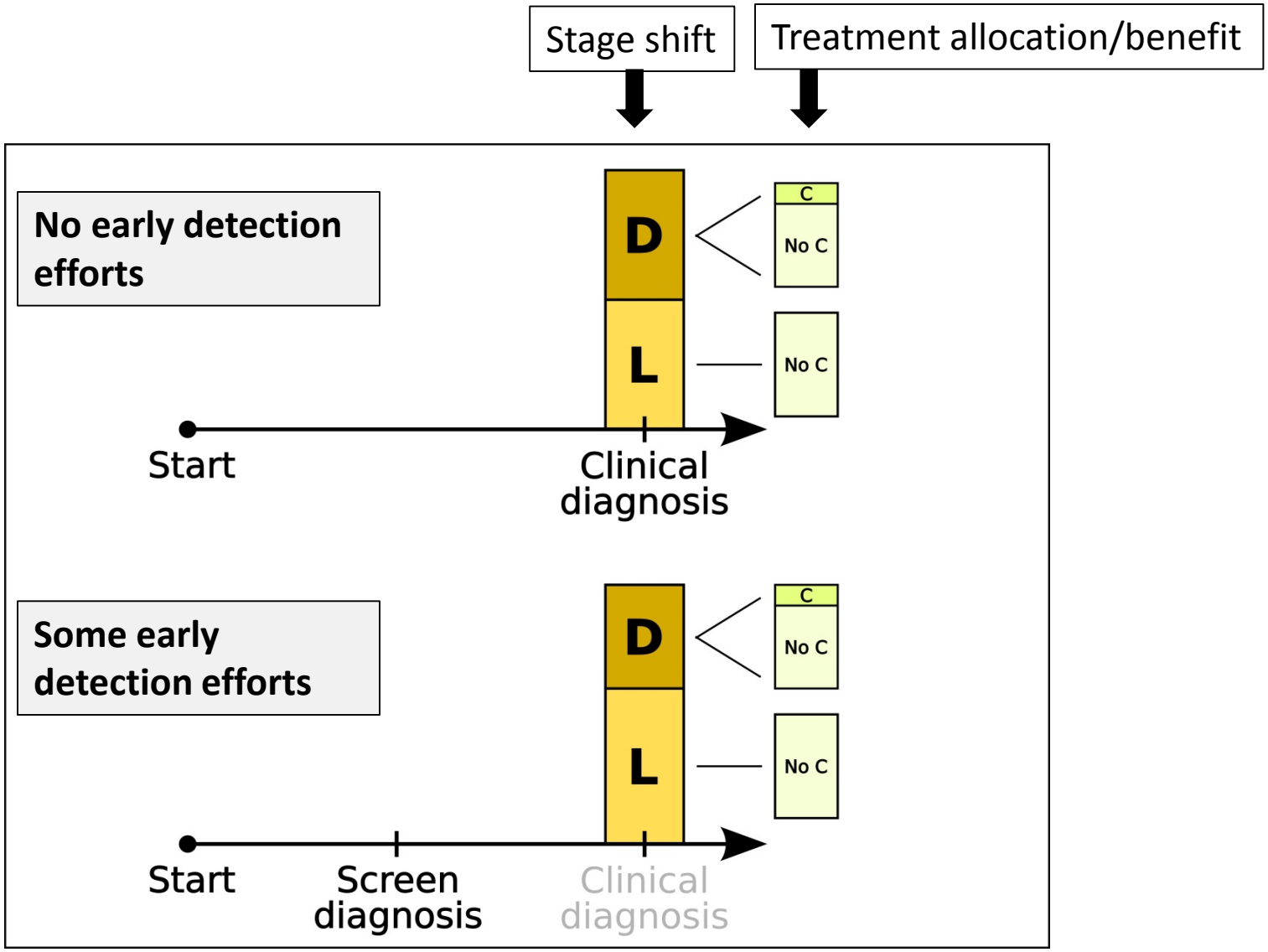
- Process metrics should address program components targeted for improvement or implementation (e.g., process metrics identified in Step 2 can be routinely evaluated and updated).
- Evaluate health professional competency in CBE, breast health counseling and timely referrals (e.g., health professional self-assessment tools can be used to assess the sensitivity and specificity of CBE and inform program planning).
- Quality control measures should be in place (e.g., data that capture false-negative findings and delays in time to definitive care can inform future program improvements).

Modeling for global breast cancer screening and treatment planning

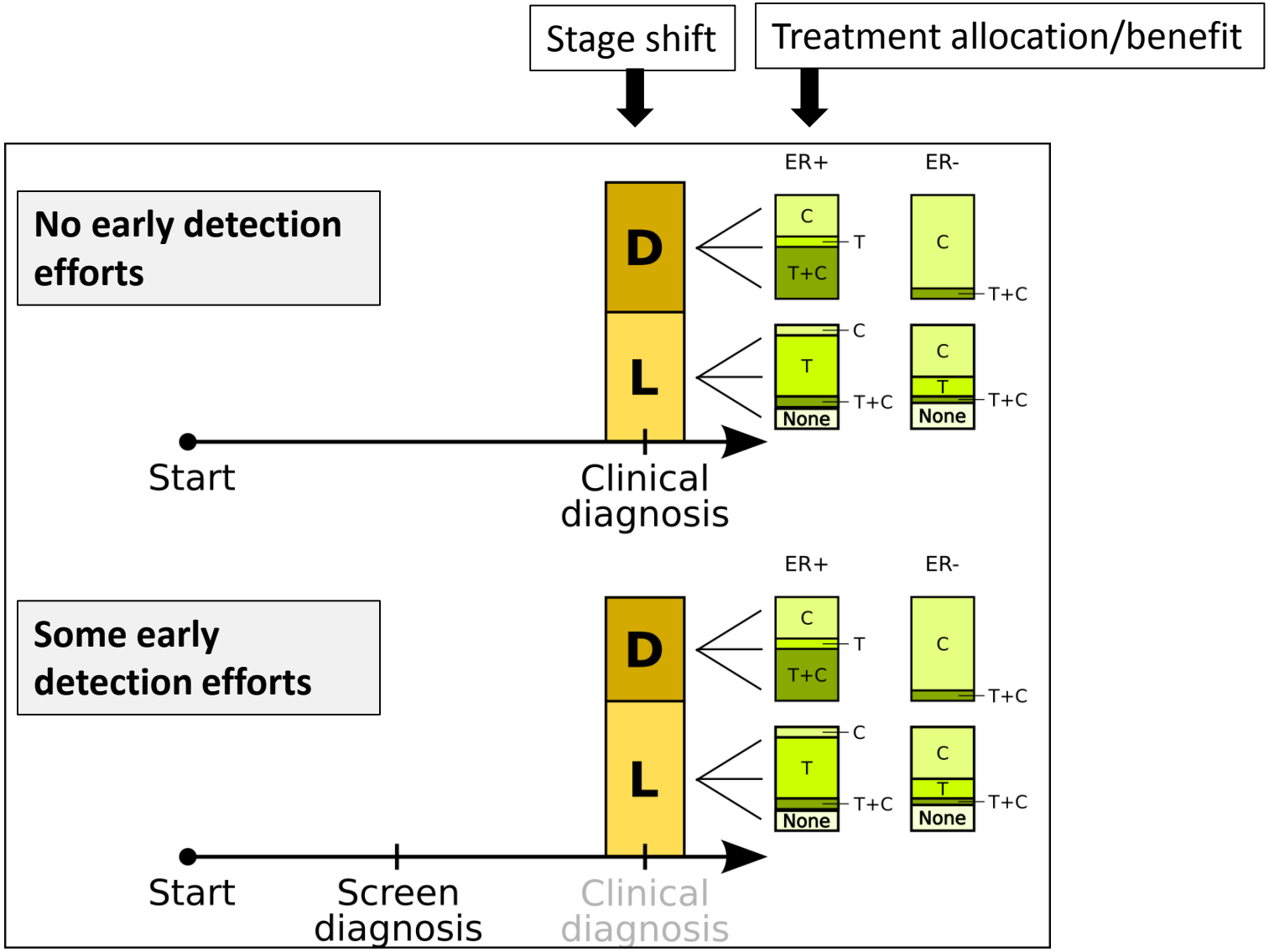
Ruth Etzioni, Catherine Duggan, Jeanette Birnbaum, Christina Fitzmaurice, Benjamin Anderson

FRED HUTCH
40 YEARS OF CURES 1975–2015

Model schematic



More treatment options



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BREAST CANCER EPIDEMIOLOGY

STAGE AT DIAGNOSIS: UNITED STATES VS. INDIA

STAGE	EXTENT	5 year SURVIVAL	DISTRIBUTION	
			USA	INDIA
0	Noninvasive	100%	**16%**	----
I	Early stage disease	100%	**40%**	1%
II	Early stage disease	86%	**34%**	23%
III	Locally advanced	57%	6%	**52%**
IV	Metastatic disease	20%	4%	**24%**

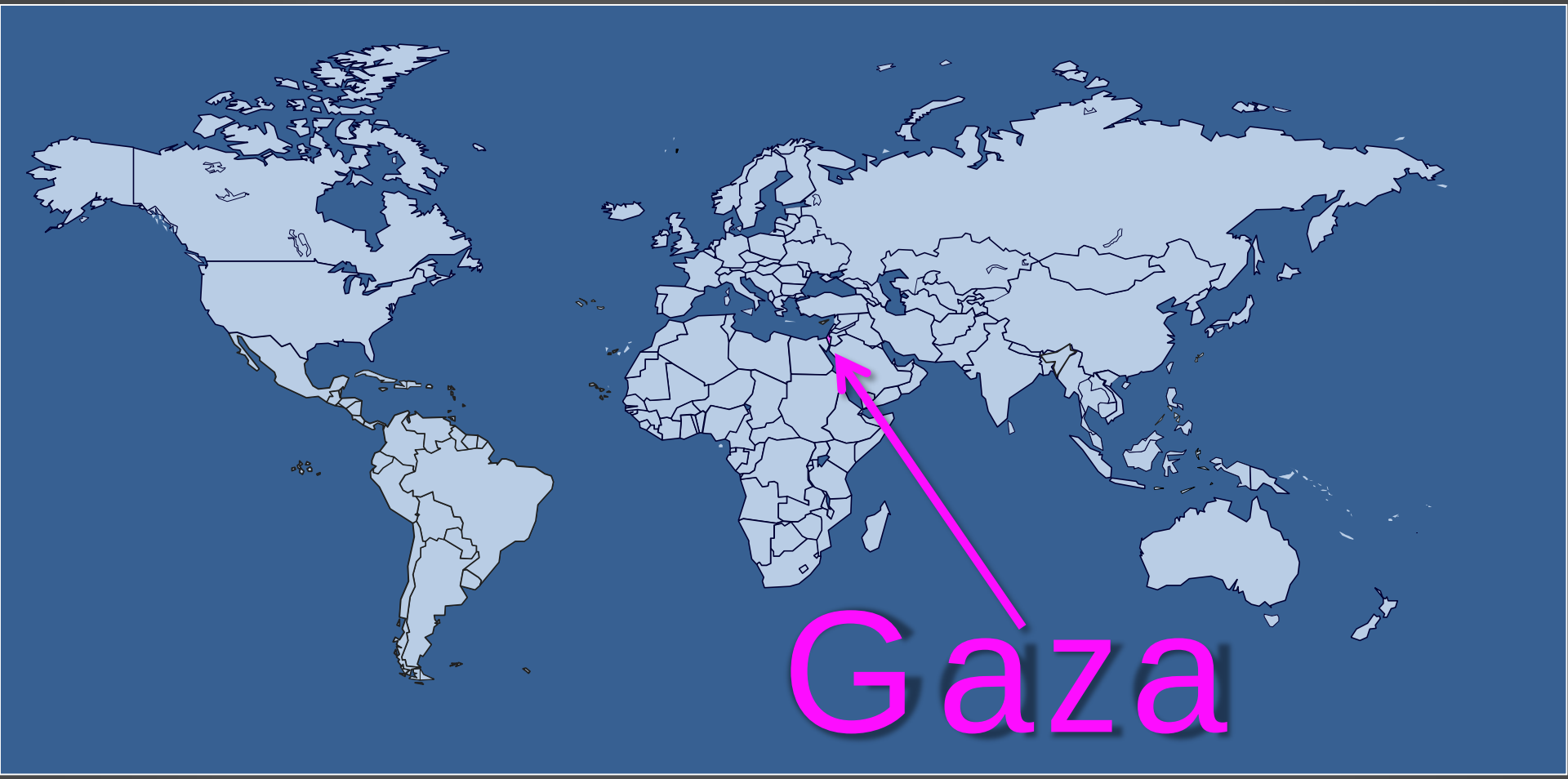
USA: 90% DCIS or early staged invasive disease at diagnosis

INDIA: 76% locally advanced or metastatic at diagnosis

Sources: SEER Survival Monograph (NCI), 2007; Chopra, Cancer Institute Chennai, 2001

LMC IMPLEMENTATION RESEARCH

Low Income Country



Screening Attitudes in Muslim Women

LMC IMPLEMENTATION RESEARCH

BREAST CANCER SCREENING IN GAZA

- Survey: 100 women living inside Gaza (WIG) and 55 Gaza women residing outside Gaza (WOG):
  - >90% of both willing to have a diagnostic mammogram for a breast complaint,
  - 86% of WIG and 85% of WOG believe survival increased with early detection,
  - However, only 27% of WIG and 50% WOG were willing to undergo screening mammography.

Shaheen et al, The Breast, 20:S30-34, 2011

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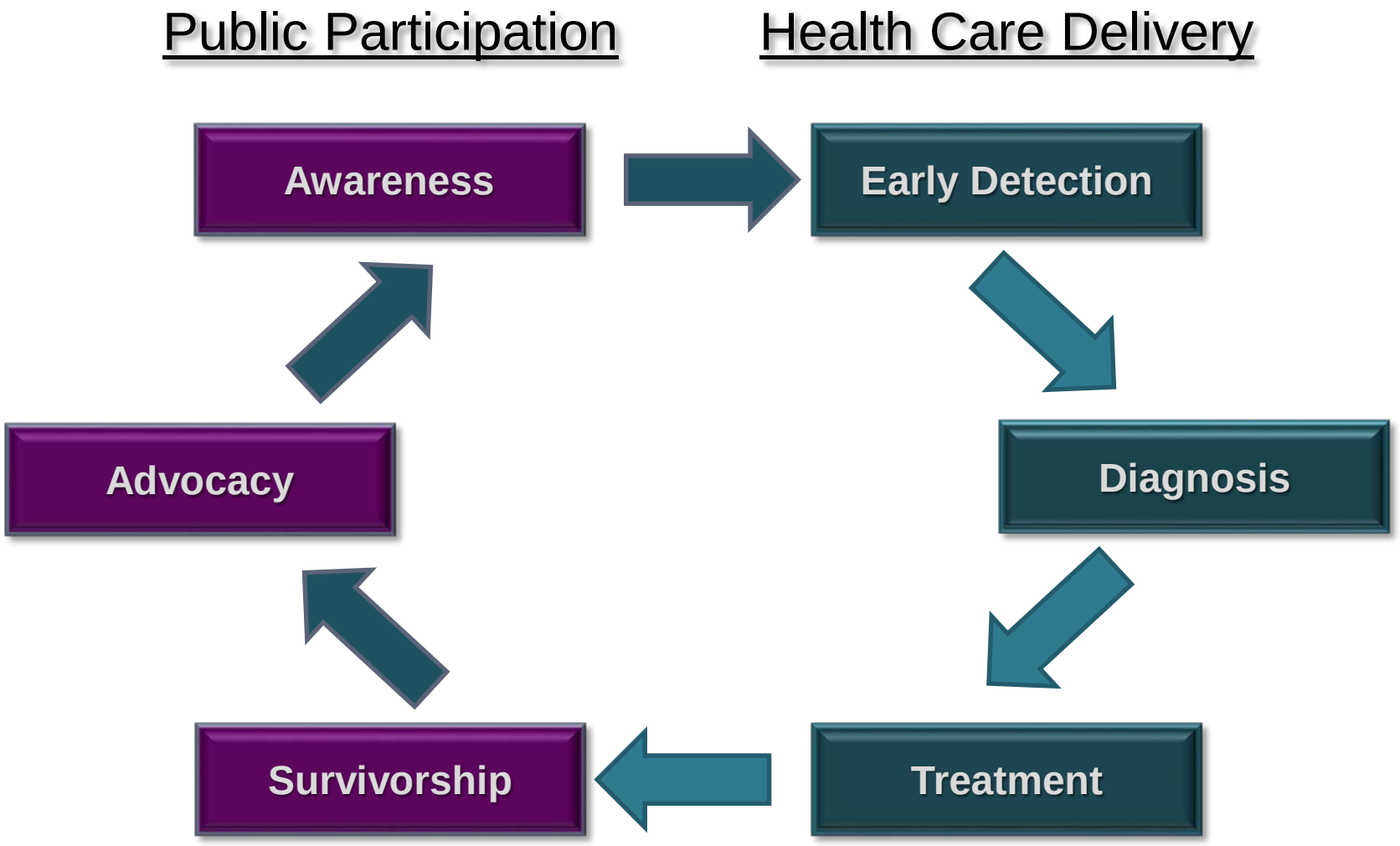


LMC IMPLEMENTATION RESEARCH

LOWER-MIDDLE INCOME COUNTRY

CBE training for nurse midwives

METHODS

- 47 nurse midwives and 15 volunteer health workers in 5 districts of Jakarta, Indonesia trained in breath health education, screening and clinical breast examination (CBE)
- Women invited to local health facilities to receive a CBE and independently administered mammogram
- Demographic questionnaire completed by all participants
- Women with suspicious findings on either mammography or CBE underwent diagnostic work-up and fine needle aspiration (FNA) for diagnosis

RESULTS

- 1,179 women underwent both mammography and CBE
  - 289 women (24.5%) were found to have a suspicious finding on CBE, mammography or both
- 14 women (1.2%) were found to have a breast cancer
  - Of the 14 breast cancers, 13 (93%) appreciated on CBE
  - 167 (14.2%) CBE exams required additional work-up to diagnose 13 of the 14 cancers seen on mammography

Kardinah et al, Int J Cancer 134:1250, 2014

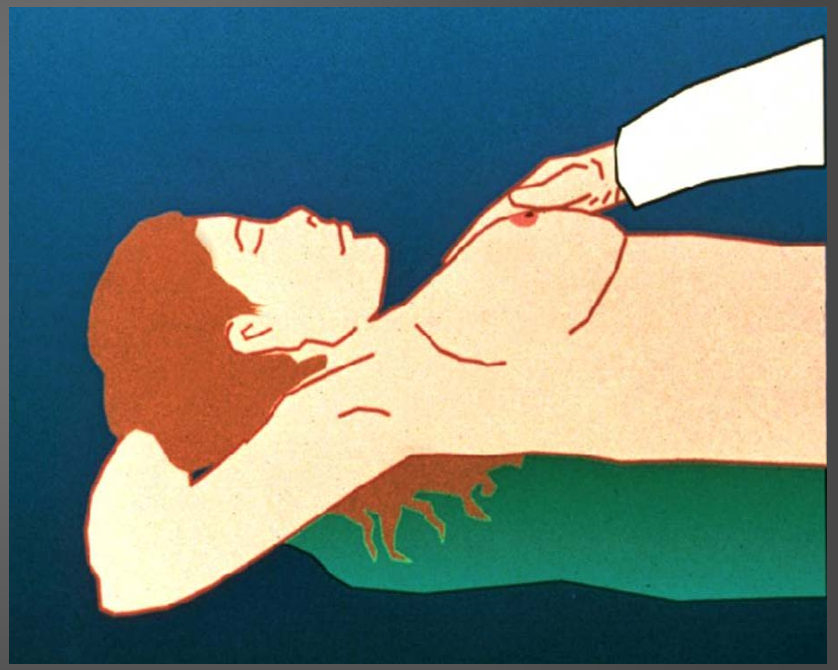
RESULTS

- 1,179 women underwent both mammography and CBE
  - 289 women (24.5%) were found to have a suspicious finding on CBE, mammography or both
- 14 women (1.2%) were found to have a breast cancer
  - 8 of 14 patients (57%) failed to undergo treatment
    - 2 of 14 breast cancer patients refused surgery
    - 6 of 14 breast cancer patients lost to follow-up

Kardinah et al, Int J Cancer 134:1250, 2014

CLINICAL BREAST EXAMINATION: WHAT DO WE KNOW?

- CBE detects about 60% of mammo detected cancers
- CBE finds some cancers not seen on mammography
- CBE necessary for any breast program, especially when it presents as advanced disease



LMC IMPLEMENTATION RESEARCH

LOWER-MIDDLE INCOME COUNTRY

Early Detection and Patient Triage

Breast cancer care model

Photos courtesy of Ben Anderson

Regional Cancer Institute (Trujillo)

- Mammography
- Pathology
- Surgery
- Chemotherapy
- Radiotherapy

La Fora Reference Hospital

- FNA

Health Centers

- Community education
- CBE

Slide used with permission from PATH

TISSUE SAMPLING OPTIONS

FINE-NEEDLE ASPIRATION (FNA) VS. CORE BIOPSY

FNA

- Low cost (<$5 per patient)
- Immediate result (20 minutes)
- Can be integrated into health system
- Requires expert cytologist for reading

- **Core Needle Biopsy**
  - Histology services are mandatory in system
  - High cost ($30 - 60 per single use needle)
  - Delayed result (1 day to <1 month)

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Resize font:

2. INSTITUTION: GENERAL

TO BE COMPLETED BY ALL RESPONDENTS.

2.1 What best describes your facility (please select only one option)

- ○ **Primary care facility** - provides primary health care to patients who come to the facility with any undiagnosed symptom, or health concern. The services provided at the primary care facility do not have distinct specialties.
- ○ **Provincial or Secondary-level hospital** - highly differentiated by function with five to ten clinical specialties, including internal medicine, obstetrics-gynecology, pediatrics and general surgery.
- ○ **Tertiary-level hospital** - highly specialized staff and technical equipment. Clinical services are highly differentiated by function; might have teaching activities.
- ○ **Cancer care/breast care facility**- specialized in cancer or breast cancer diagnosis and treatment.
- ○ **Outpatient clinic/Imaging center** - detection and diagnosis of breast cancer.
- ○ **Palliative care facility** - provides medical care that focuses on reducing the severity of disease symptoms, rather than a cure or reverse progression of the disease itself. The goal is to prevent and relieve suffering and to improve quality of life for cancer patients.

reset

2.2. What best describes the funding status of your facility?

- ○ Public - Government funded
- ○ Private (for profit) - No government funding
- ○ Mixed - government and private funding
- ○ Not-for-profit
- ○ Mission/faith-based
- ○ Foreign aid
- ○ Other (specify):

reset

2.3. Please rank in order of importance the primary source of payment for patient services. *(If you select more than one answer, please rank your answers in the order of frequency with 1 being the most frequent, 2 being the second most frequent, etc.)*

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MARCH 16 – 18, 2016

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SUMMARY

- Breast cancer is the most common cancer among women and the most likely reason a woman will die from cancer.
- Resource-stratified guidelines provide a framework for prioritizing early detection, diagnosis and treatment strategies.
- Successful health systems integrate survivors and advocates to promote cancer down-staging and timely treatment.
- BCI2.5 has created educational and assessment tools that facilitate baseline assessments and determine next steps for program-building based on a resource-stratified framework.

The Breast Health Global Initiative

www.bhgi.info

BCI 2.5

Making breast cancer a global priority

www.BCI25.org