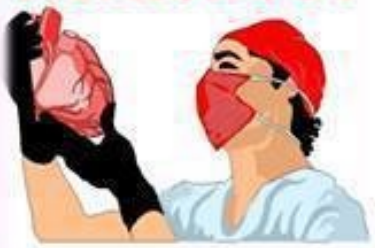
PATHOLOGY



Medical Committee
The University of Jordan

☐ SHEET

■ SIIDE

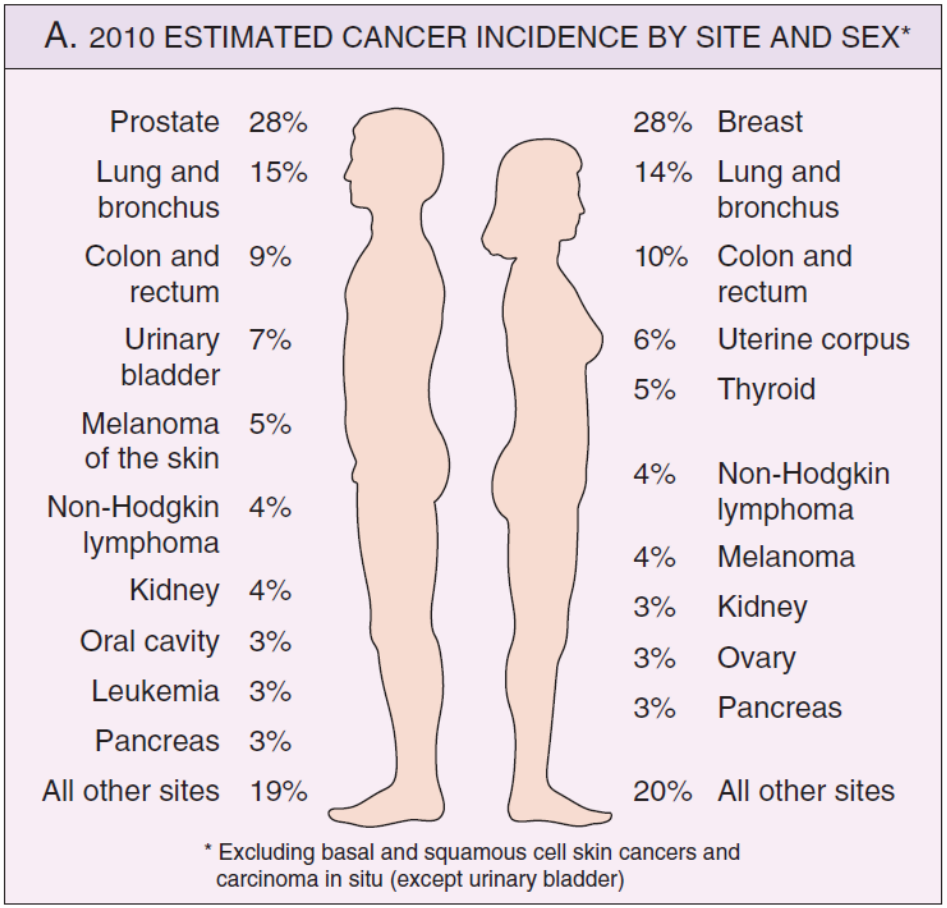
Slide : 15-Epidemiology

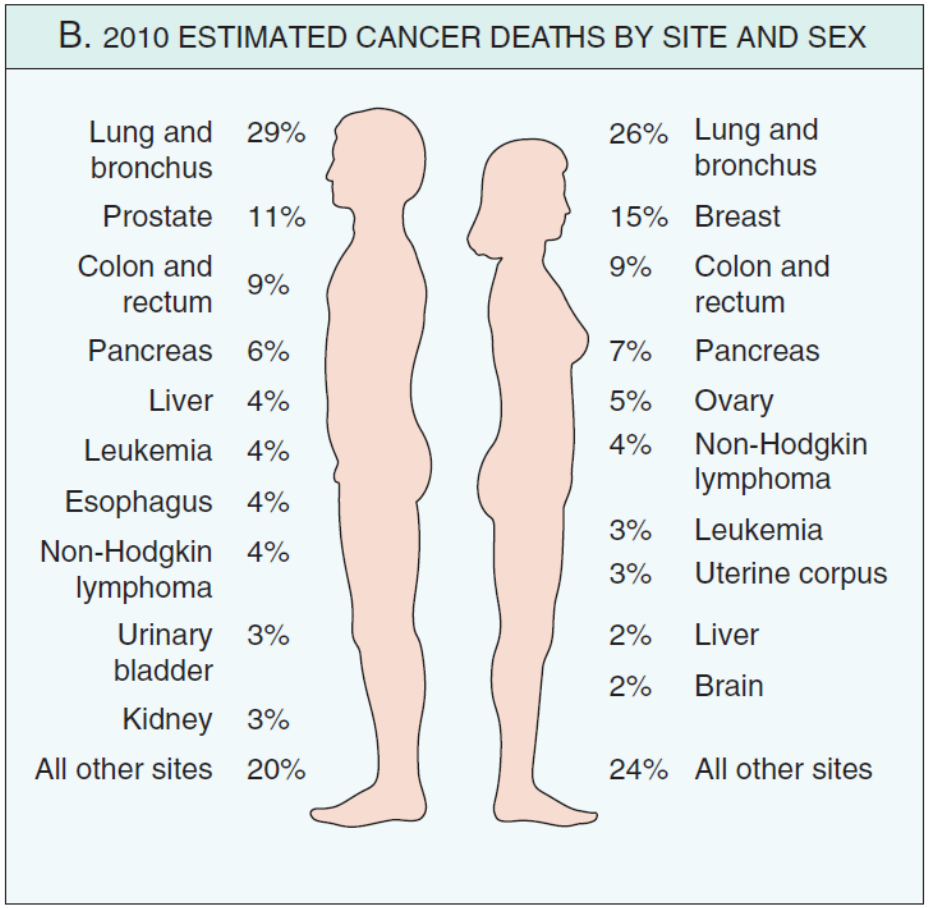
Doctor: Dr. Mazen

Designed by: Majida Al-Foqara'

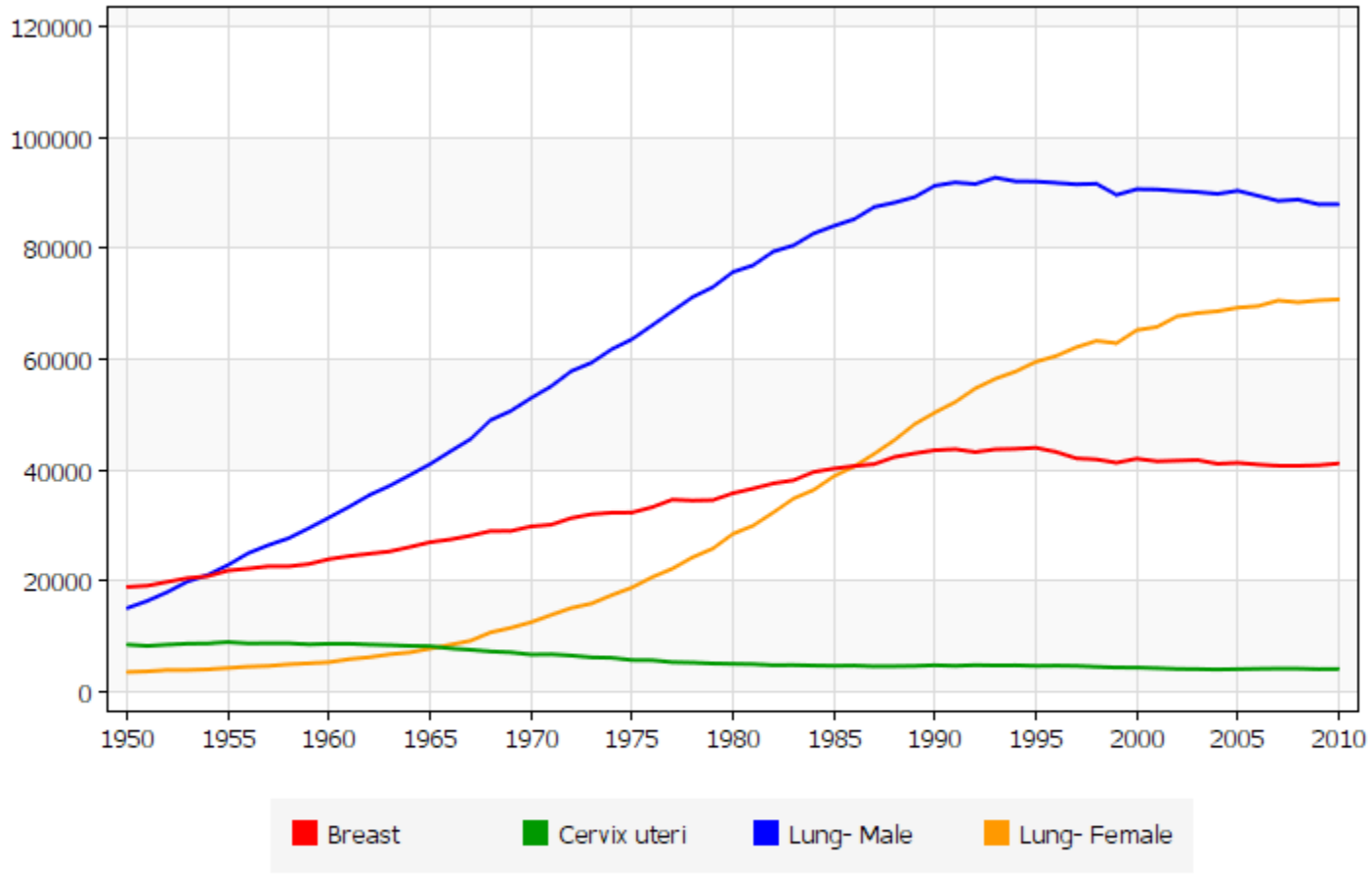
Epidemiology

US data


A. 2010 ESTIMATED CANCER INCIDENCE BY SITE AND SEX*
Prostate 28%
Lung and bronchus 15%
Colon and rectum 9%
Urinary bladder 7%
Melanoma of the skin 5%
Non-Hodgkin lymphoma 4%
Kidney 4%
Oral cavity 3%
Leukemia 3%
Pancreas 3%
All other sites 19%
28% Breast
14% Lung and bronchus
10% Colon and rectum
6% Uterine corpus
5% Thyroid
4% Non-Hodgkin lymphoma
4% Melanoma
3% Kidney
3% Ovary
3% Pancreas
20% All other sites
* Excluding basal and squamous cell skin cancers and carcinoma in situ (except urinary bladder)

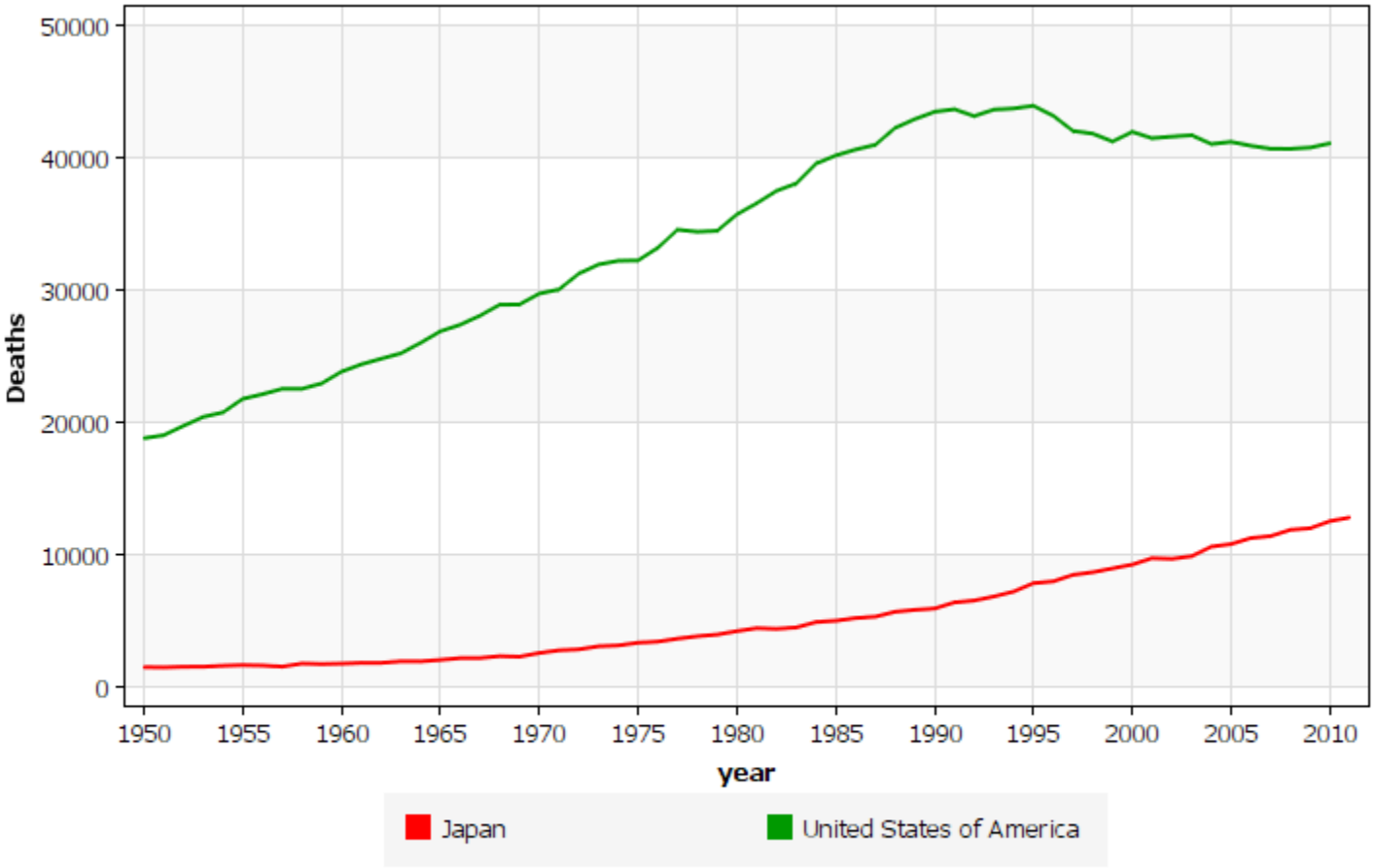

B. 2010 ESTIMATED CANCER DEATHS BY SITE AND SEX
Lung and bronchus 29%
Prostate 11%
Colon and rectum 9%
Pancreas 6%
Liver 4%
Leukemia 4%
Esophagus 4%
Non-Hodgkin lymphoma 4%
Urinary bladder 3%
Kidney 3%
All other sites 20%
26% Lung and bronchus
15% Breast
9% Colon and rectum
7% Pancreas
5% Ovary
4% Non-Hodgkin lymphoma
3% Leukemia
3% Uterine corpus
2% Liver
2% Brain
24% All other sites

Time trends (Total deaths US)



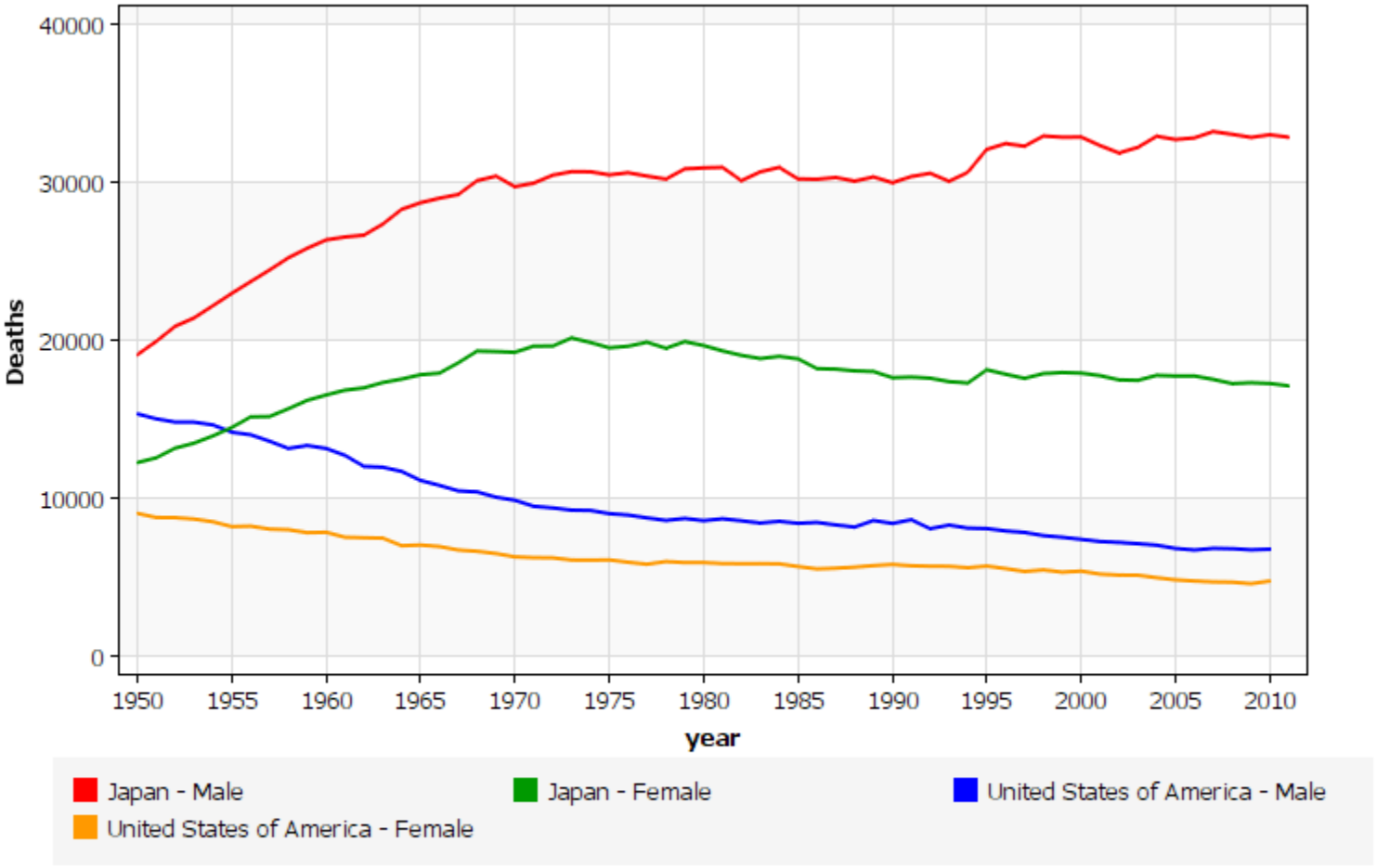
International Agency for Research on Cancer (IARC) - 3.11.2014

Geographic variables (environmental)



International Agency for Research on Cancer (IARC) - 3.11.2014

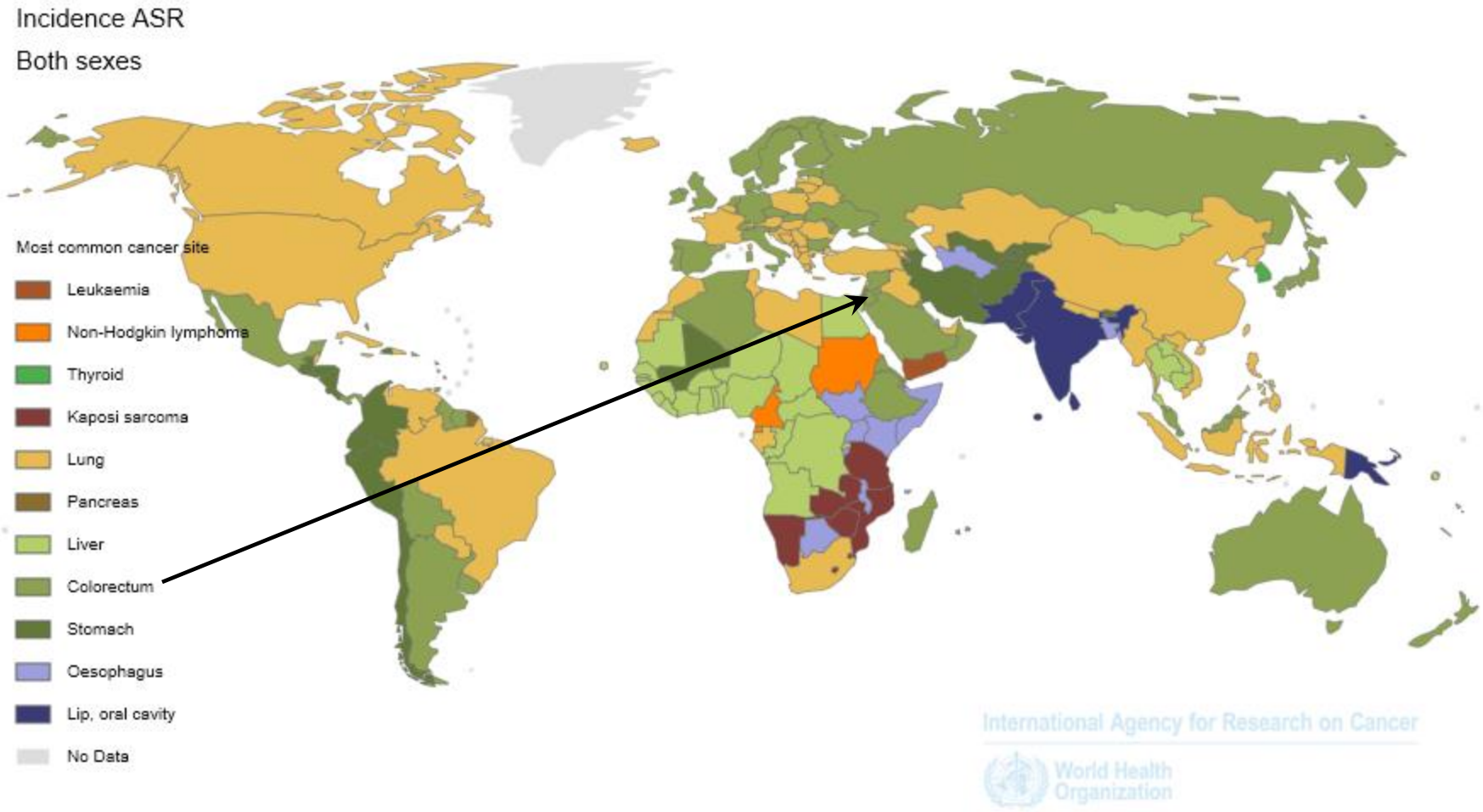
Geographic variables (environmental)



International Agency for Research on Cancer (IARC) - 3.11.2014

Agent/Group of Agents	Human Cancer Site and Type for Which Reasonable Evidence Is Available	Typical Use/Occurrence
Arsenic and arsenic compounds	Lung, skin, hemangiosarcoma	Byproduct of metal smelting Component of alloys, electrical and semiconductor devices, medications and herbicides, fungicides, and animal dips
Asbestos	Lung, mesothelioma; gastrointestinal tract (esophagus, stomach, large intestine)	Formerly used for many applications because of fire, heat, and friction resistance; still found in existing construction as well as fire-resistant textiles, friction materials (e.g., brake linings), underlayment and roofing papers, and floor tiles
Benzene	Leukemia	Principal component of light oil Many applications exist in printing and lithography, paint, rubber, dry cleaning, adhesives and coatings, and detergents Formerly widely used as solvent and fumigant
Beryllium and beryllium compounds	Lung	Missile fuel and space vehicles Hardener for lightweight compounds metal alloys, particularly in aerospace applications and nuclear reactors
Cadmium and cadmium compounds	Prostate	Uses include yellow pigments and phosphors Found in solders Used in batteries and as alloy and in metal platings and coatings
Chromium compounds	Lung	Component of metal alloys, paints, pigments, and preservatives
Ethylene oxide	Leukemia	Ripening agent for fruits and nuts Used in rocket propellant and chemical synthesis, in fumigants for foodstuffs and textiles, and in sterilants for hospital equipment
Nickel compounds	Nose, lung	Nickel plating Component of ferrous alloys, ceramics, and batteries Byproduct of stainless steel arc welding
Radon and its decay products	Lung	From decay of minerals containing uranium Can be serious hazard in quarries and mines
Vinyl chloride	Angiosarcoma, liver	Refrigerant Monomer for vinyl polymers Adhesive for plastics Formerly used as inert aerosol propellant in pressurized containers

Global data (WHO)



Source: GLOBOCAN 2012 (IARC)

Global data (WHO)

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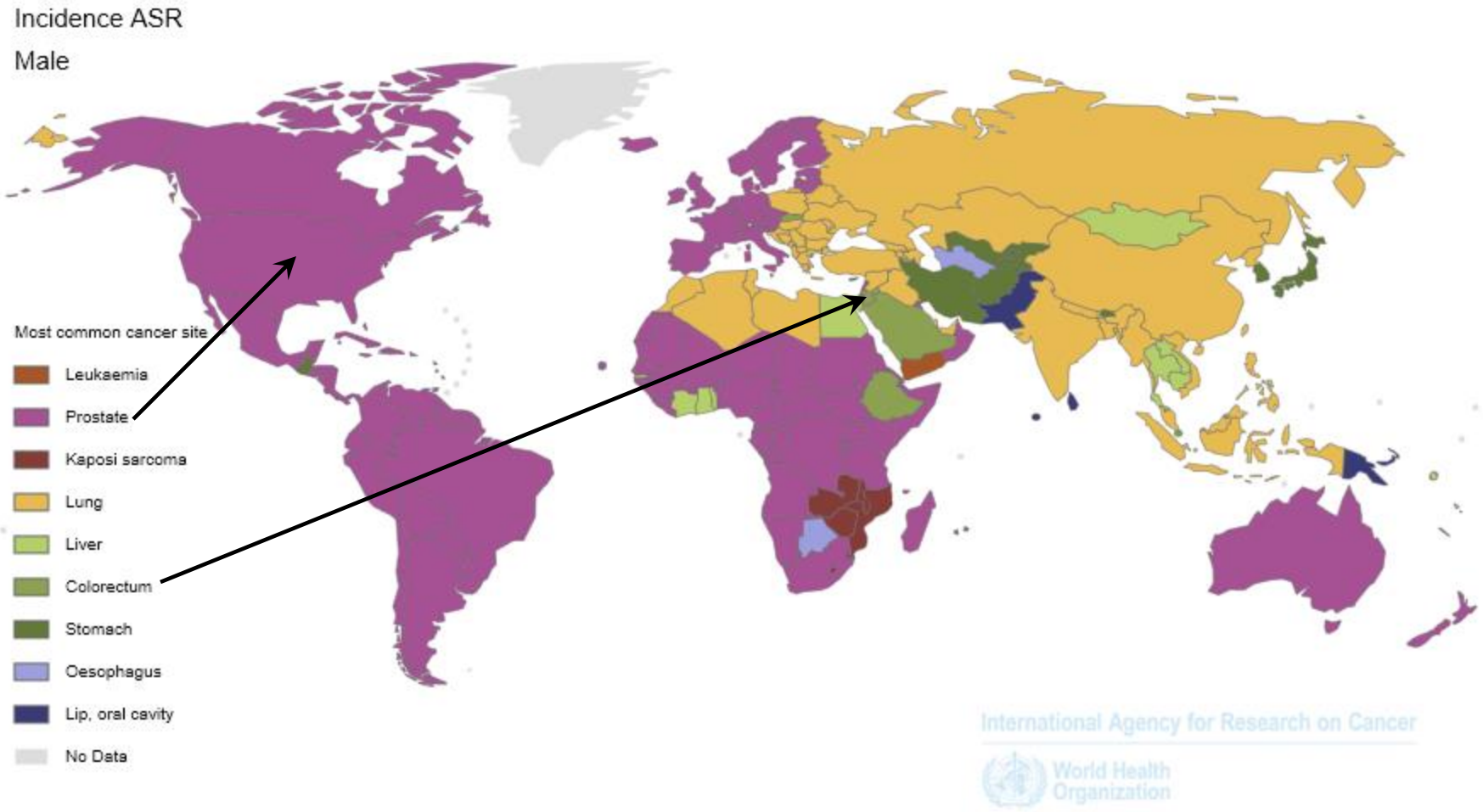

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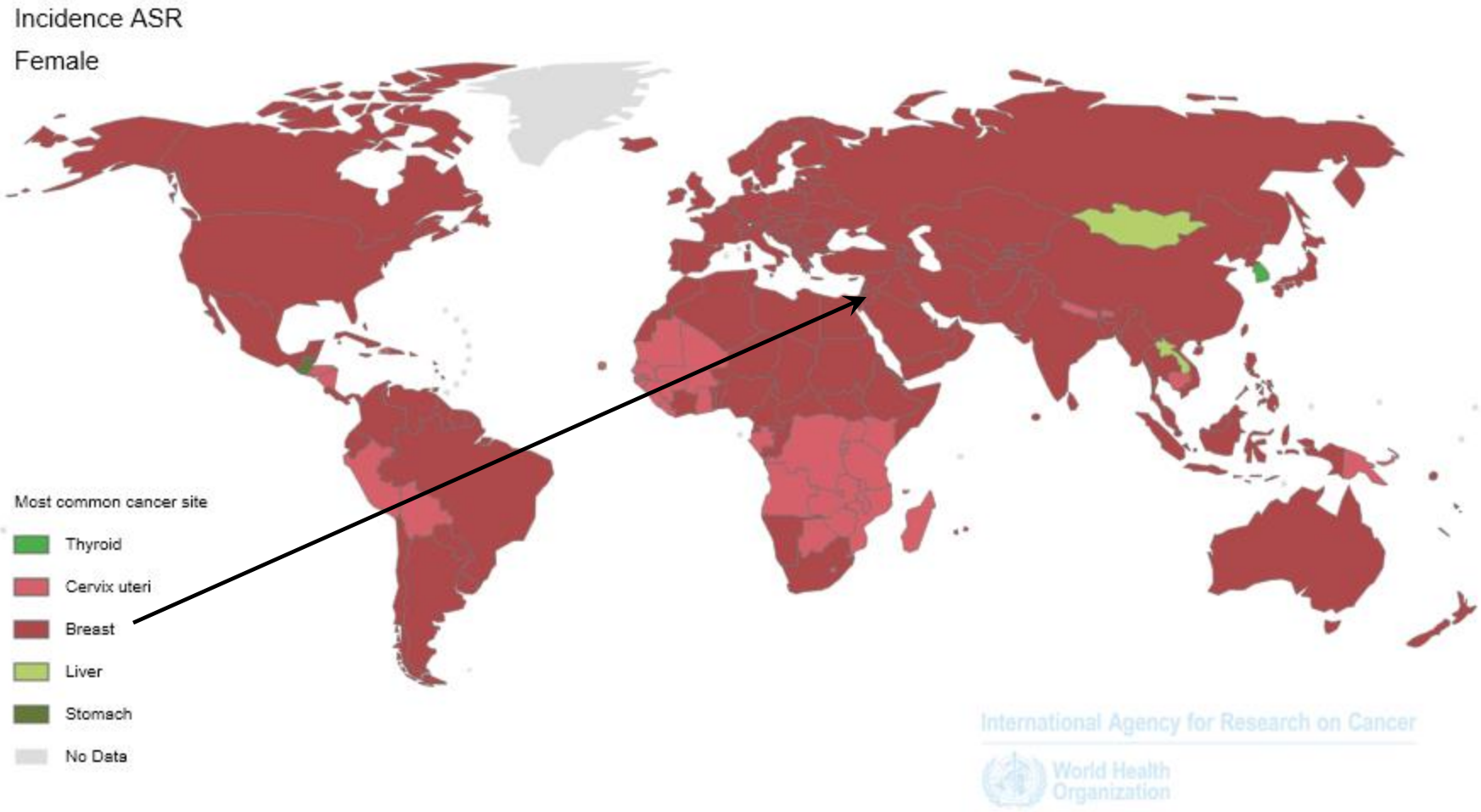

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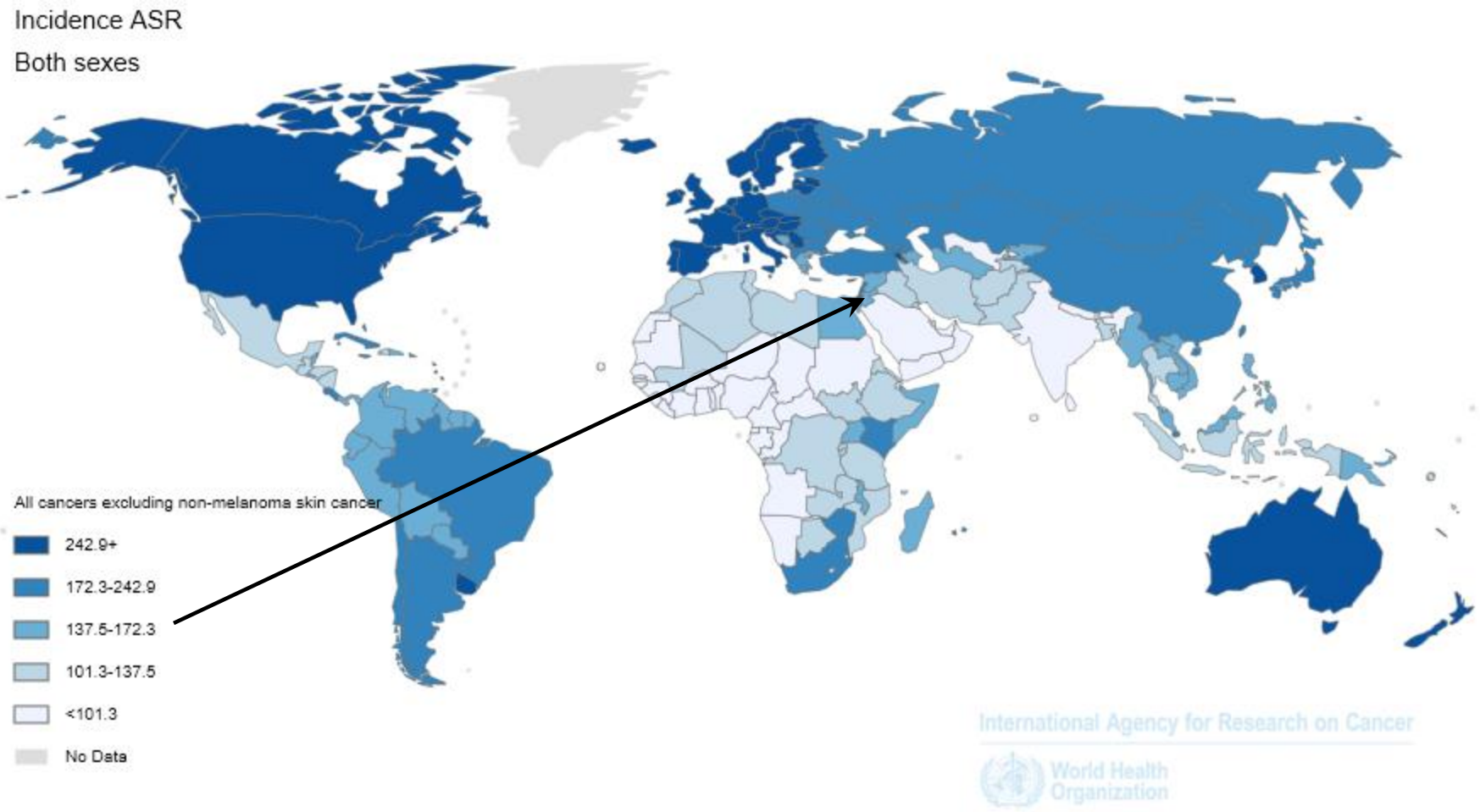

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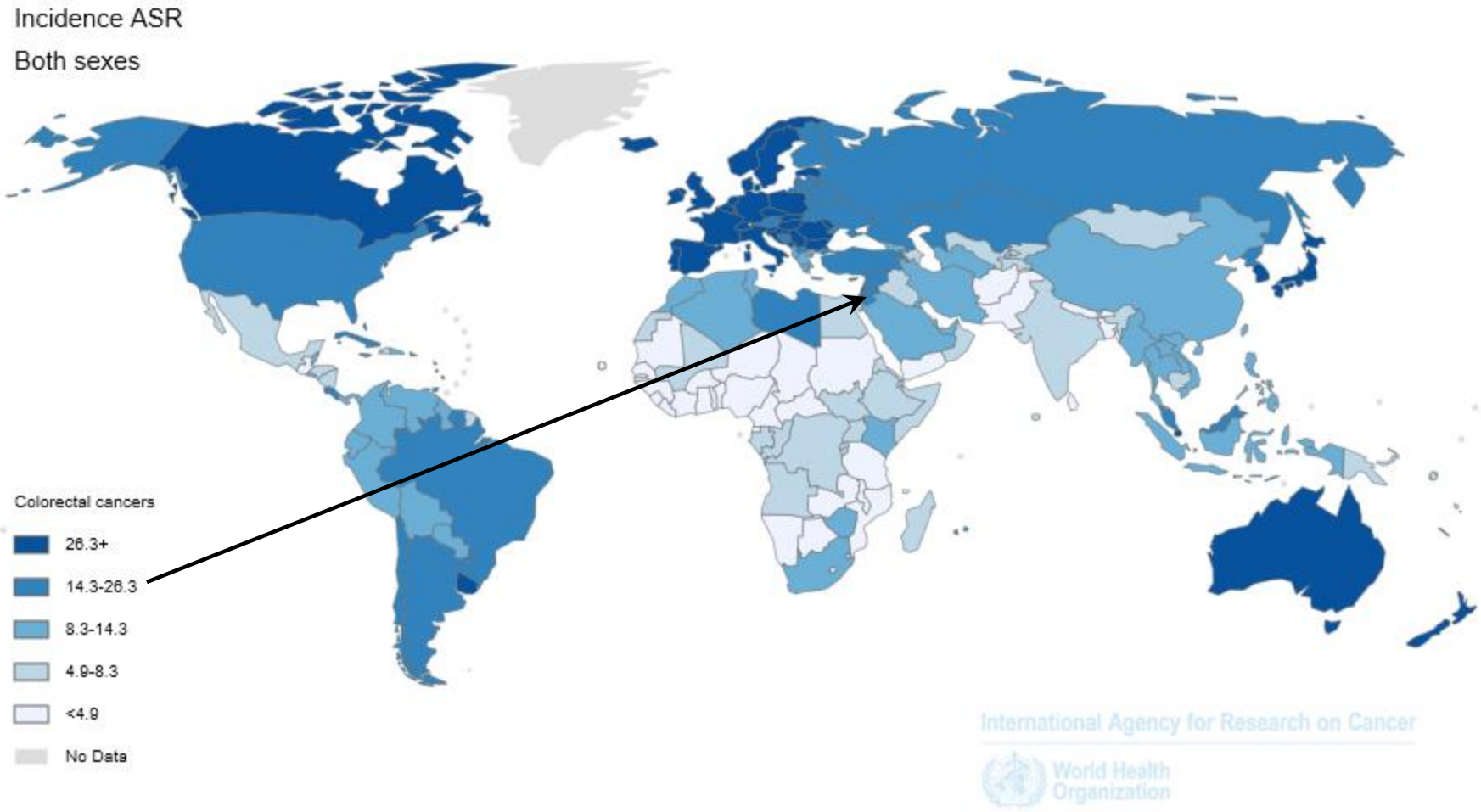

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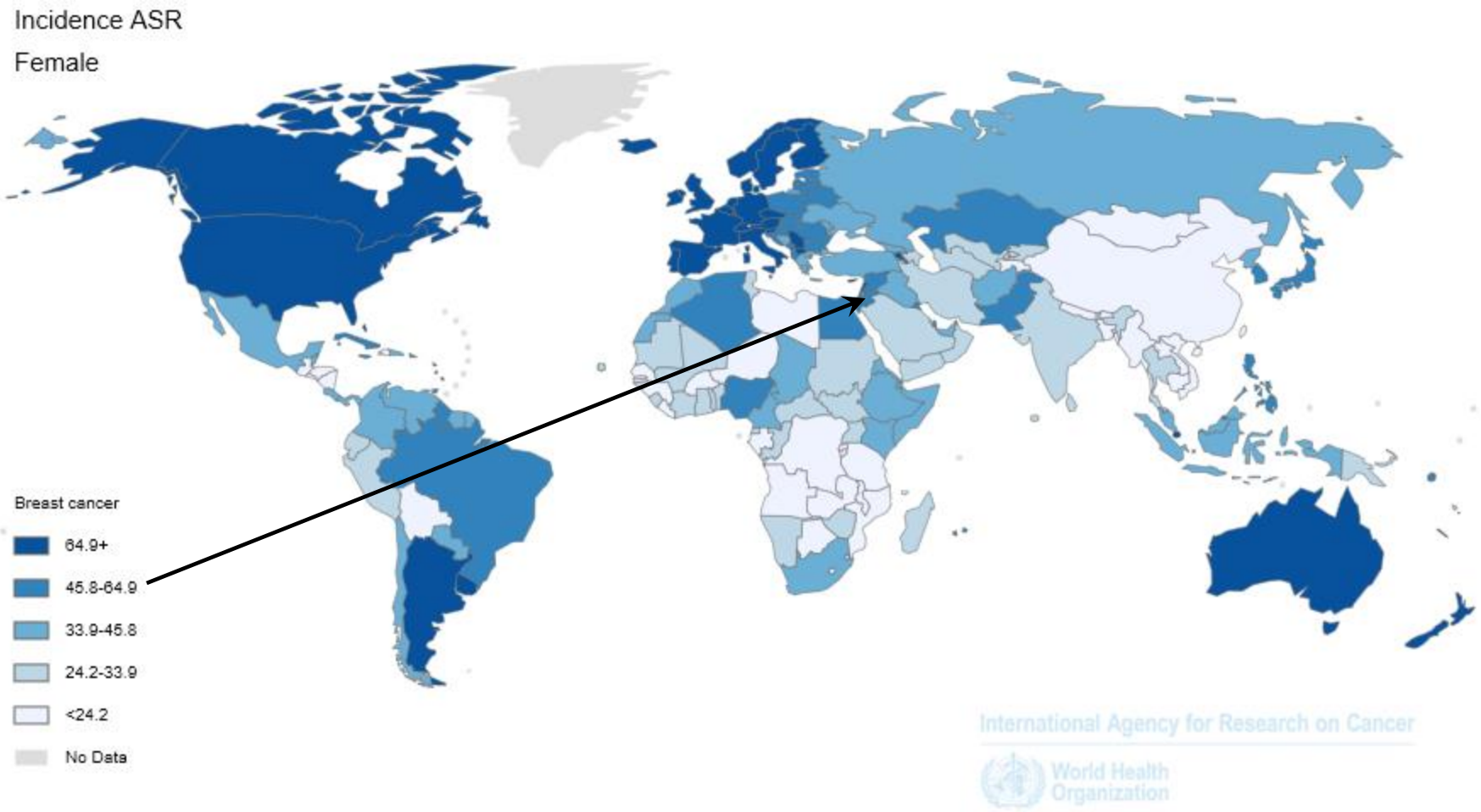

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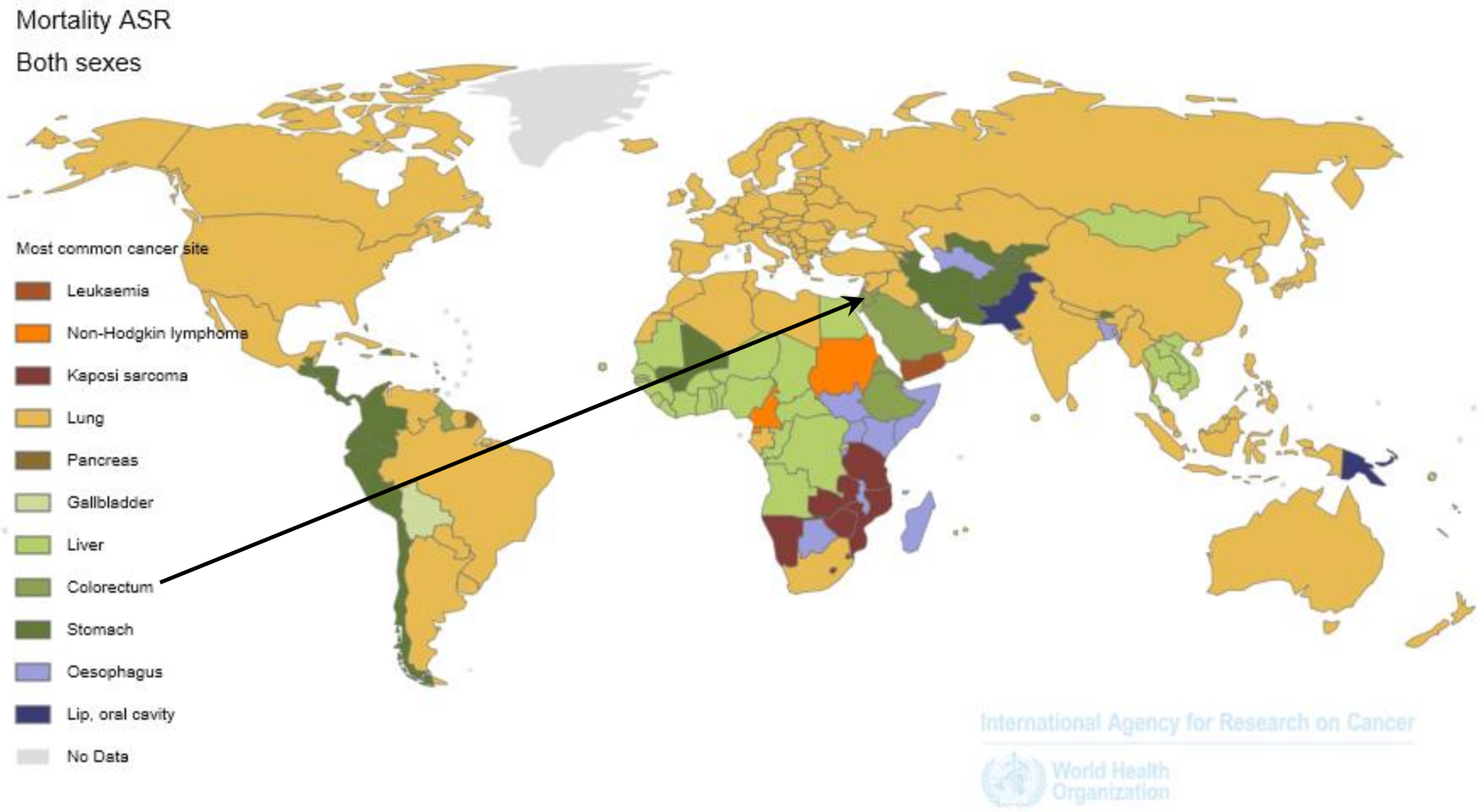

Source: GLOBOCAN 2012 (IARC)

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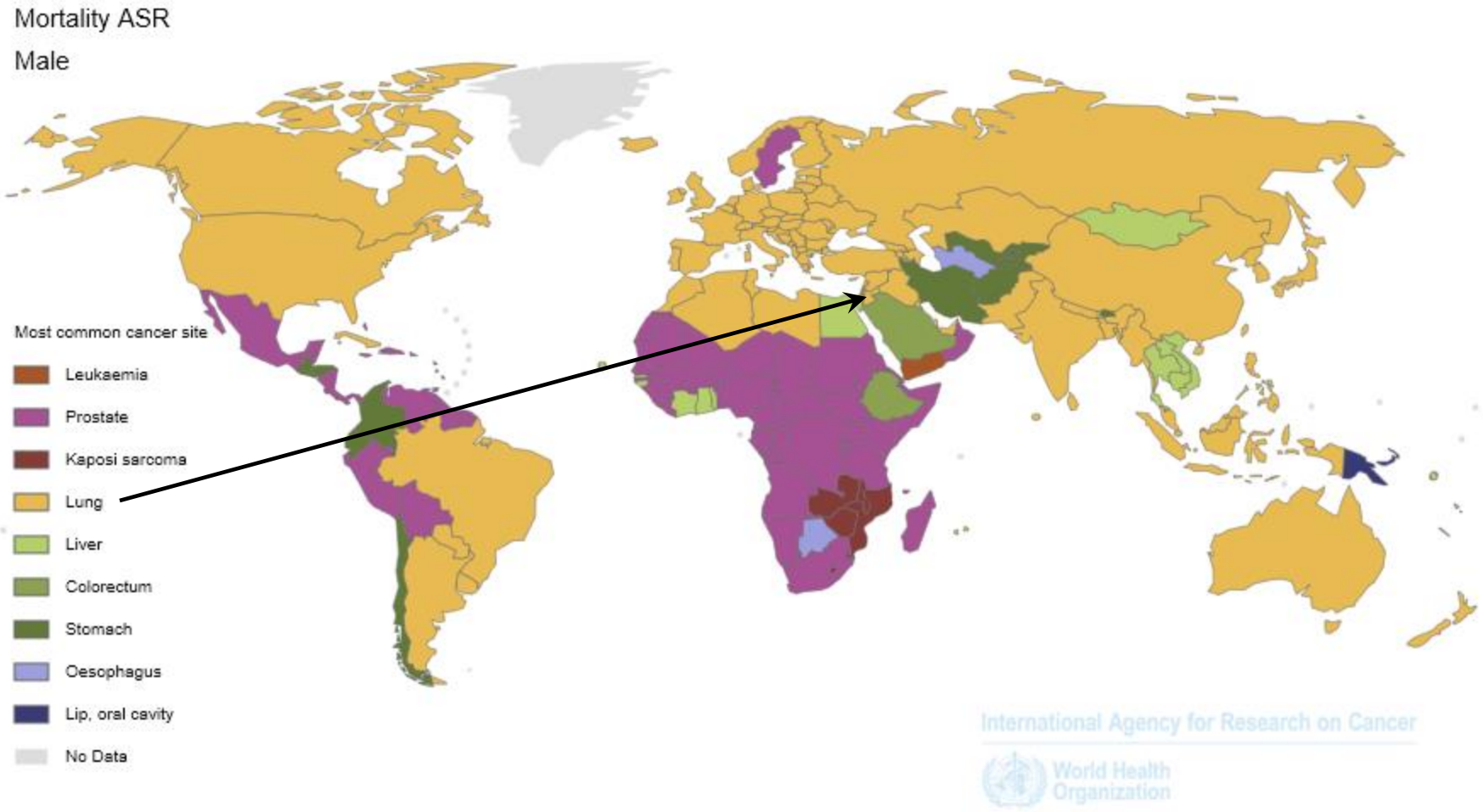
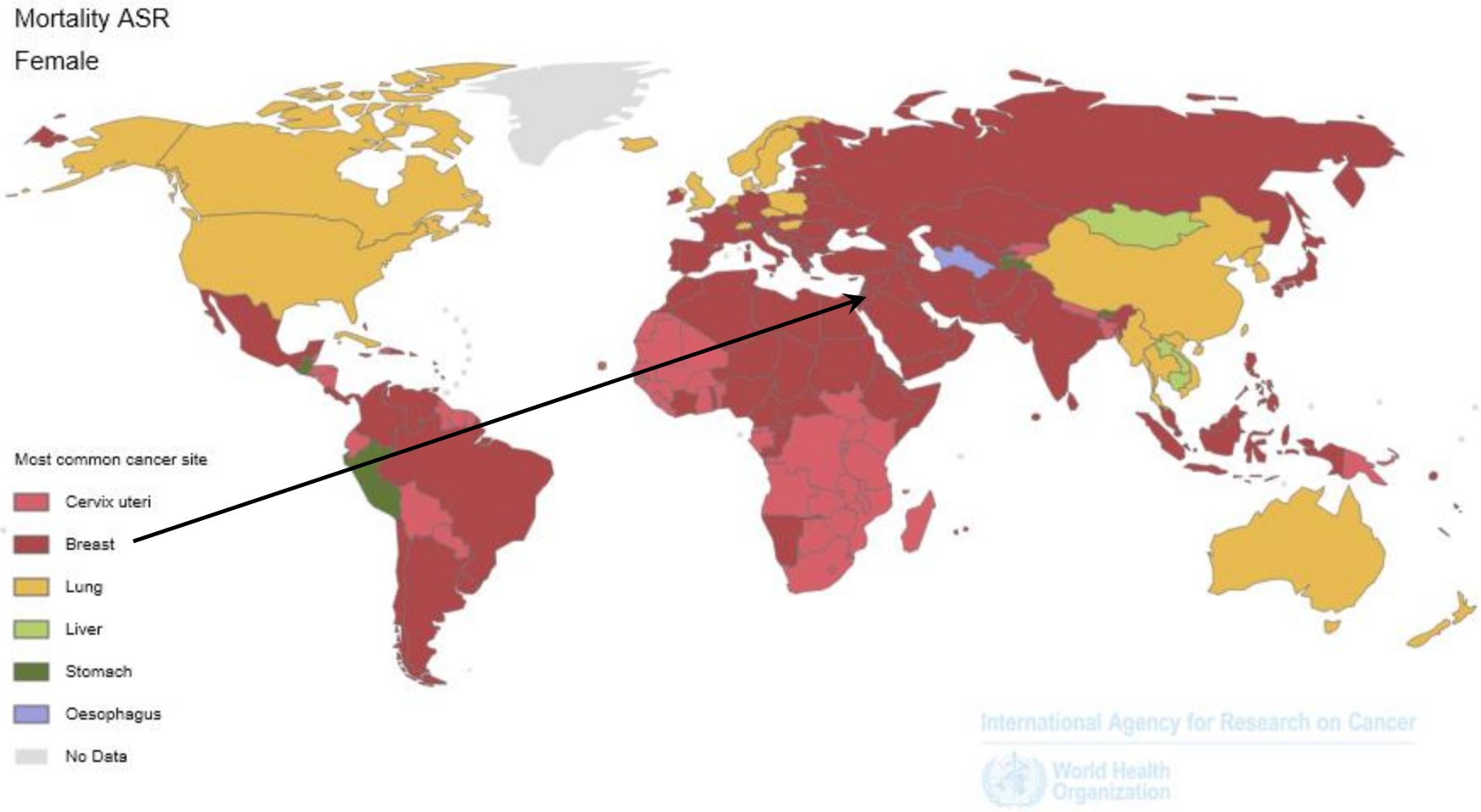


Source: GLOBOCAN 2012 (IARC)

Global data (WHO)



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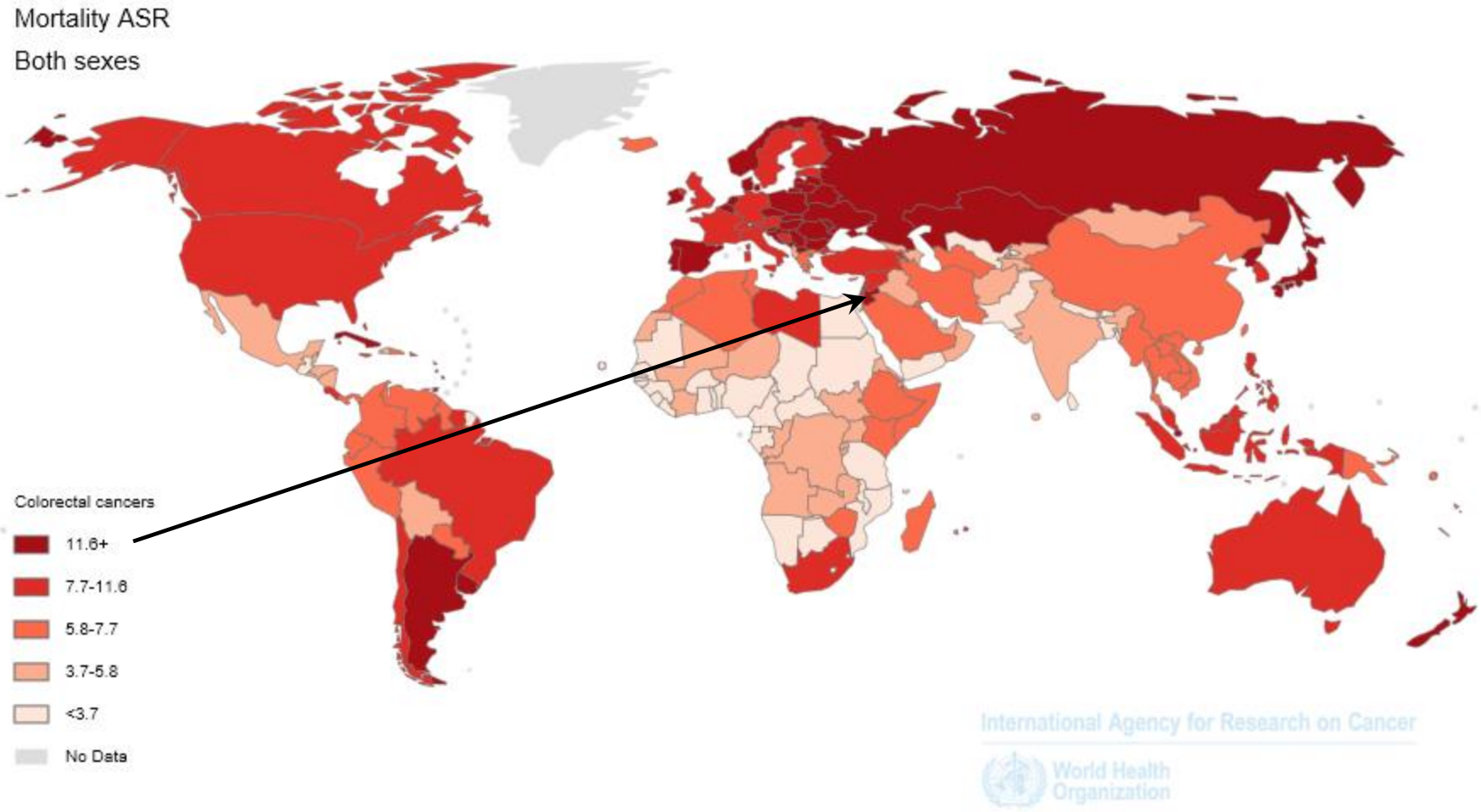

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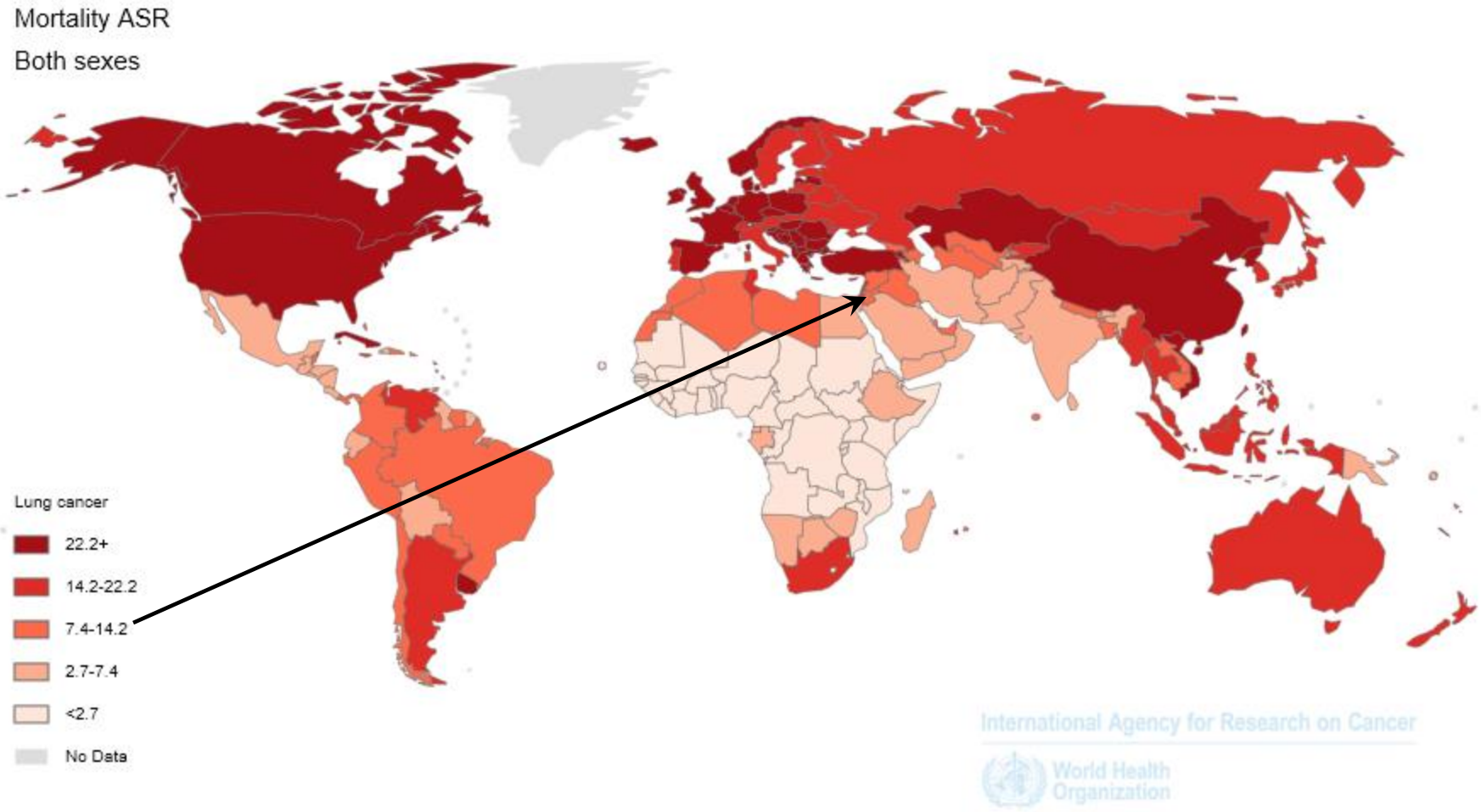

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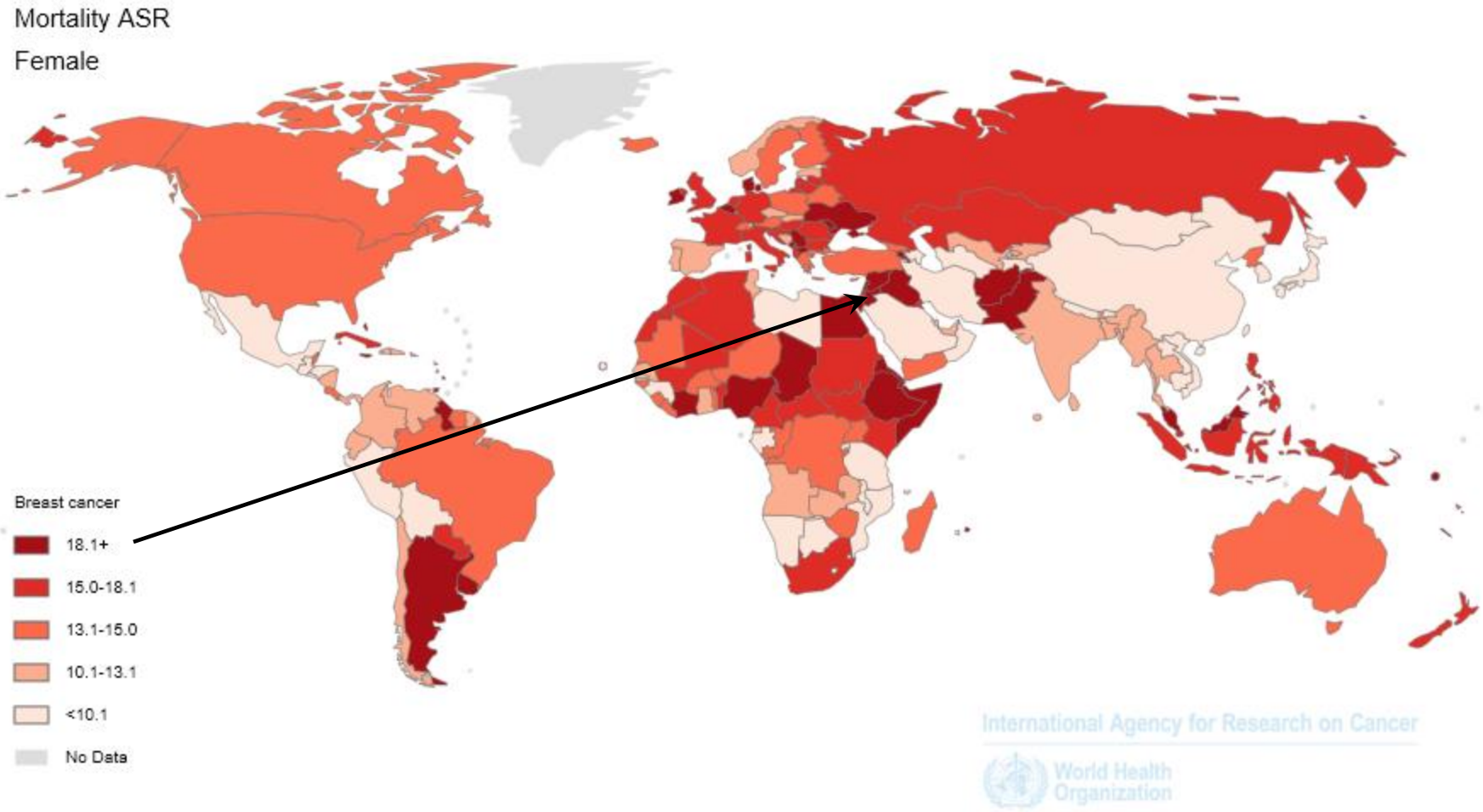

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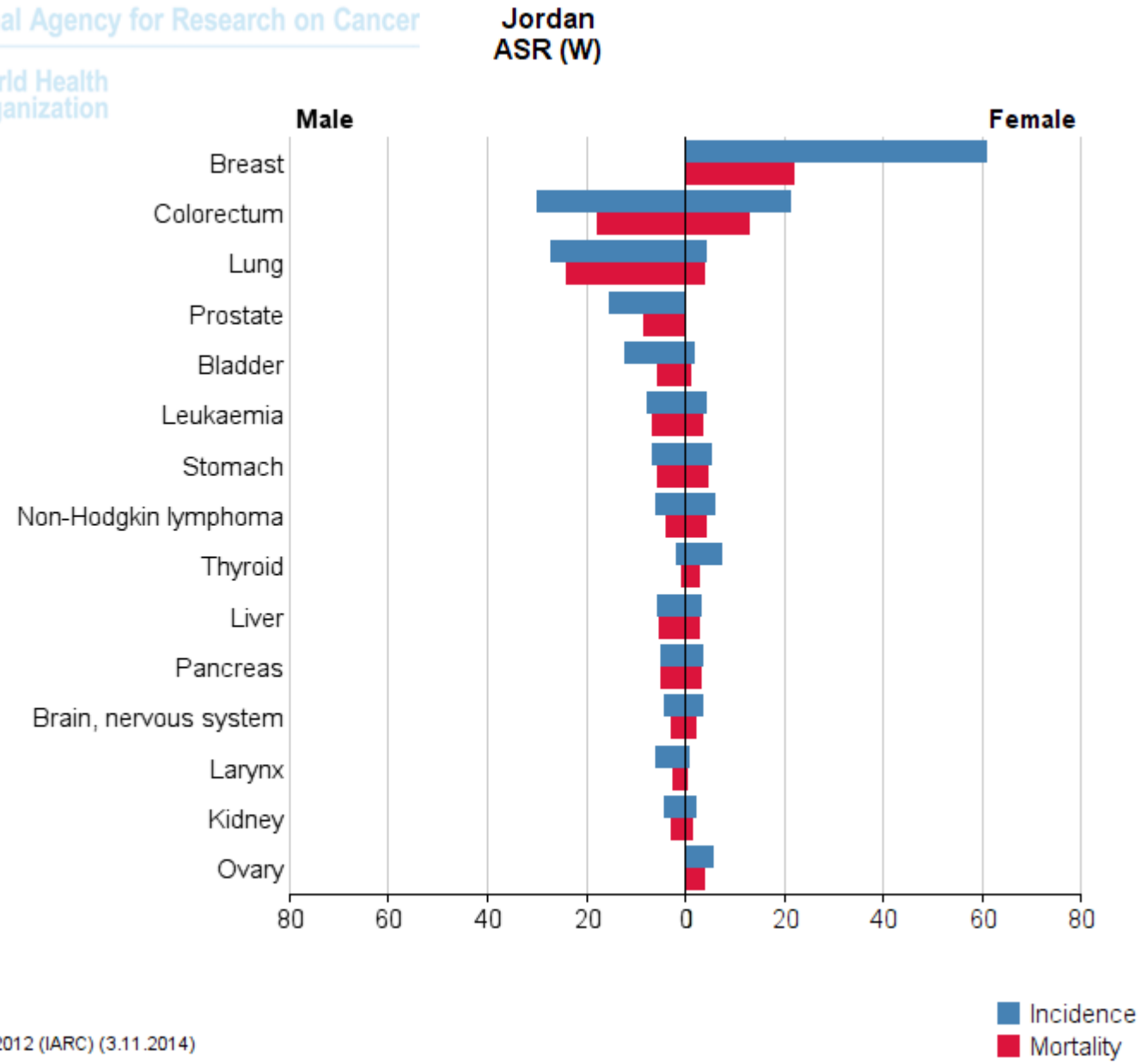
International Agency for Research on Cancer

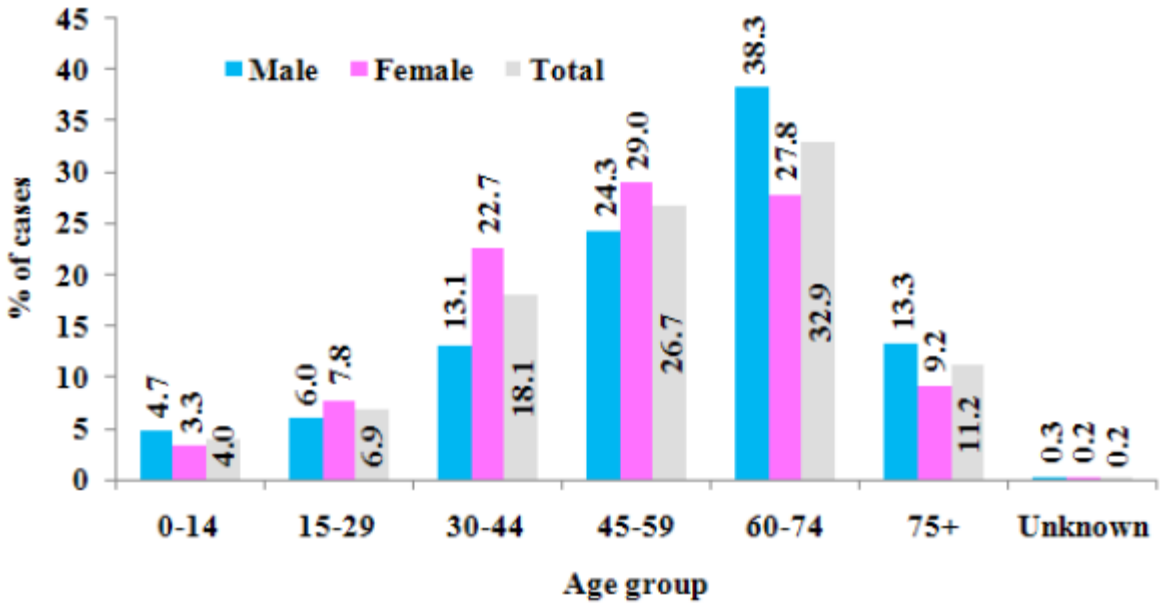
World Health Organization

Estimated age-standardised incidence & mortality rates



GLOBOCAN 2012 (IARC) (3.11.2014)

Percentage distribution of cancers for, Jordanians,2010, by age-group and sex

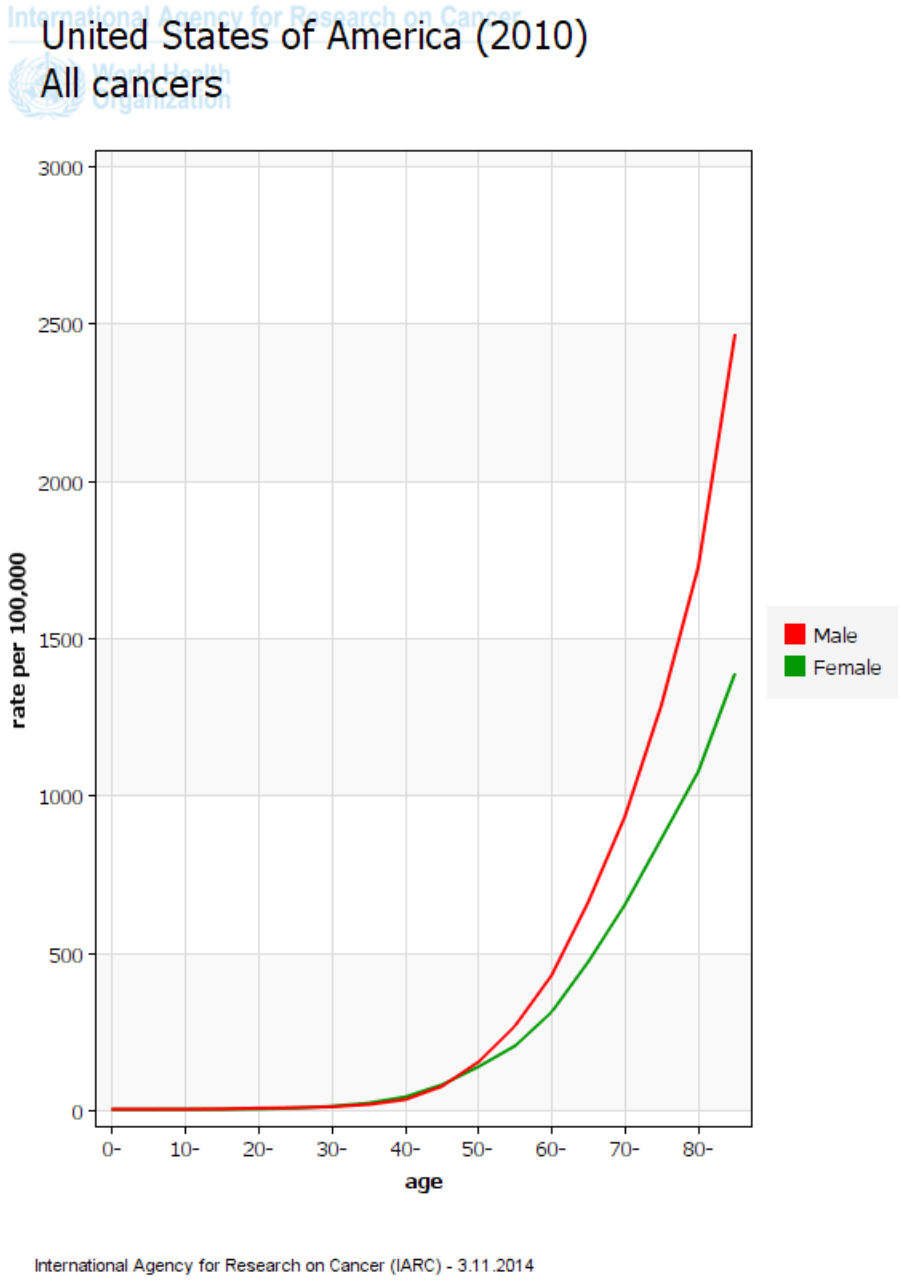


Age

Frequency of cancer increases with age

Most cancer deaths occur between ages 55 and 75

MOH cancer incidence report 2010



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Autosomal Dominant Cancer Syndromes	
Gene(s)	Inherited Predisposition
RB	Retinoblastoma
TP53	Li-Fraumeni syndrome (various tumors)
p16INK4A	Melanoma
APC	Familial adenomatous polyposis/colon cancer
NF1, NF2	Neurofibromatosis 1 and 2
BRCA1, BRCA2	Breast and ovarian tumors
MEN1, RET	Multiple endocrine neoplasia 1 and 2
MSH2, MLH1, MSH6	Hereditary nonpolyposis colon cancer
PATCH	Nevoid basal cell carcinoma syndrome

Heredity (5-10%)

Autosomal dominant

Single mutated copy enough

Inherited *RB* mutation patients typically present with bilateral tumors & higher risk of a second primary (osteosarcoma)

Marker phenotypes:

APC: multiple benign polyps

NF1: Lisch nodules & café-au-lait spots

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Autosomal Recessive Syndromes of Defective DNA Repair	
Xeroderma pigmentosum	
Ataxia-telangiectasia	
Bloom syndrome	
Fanconi anemia	
Familial Cancers of Uncertain Inheritance	
Breast cancer (not linked to *BRCA1* or *BRCA2*)	
Ovarian cancer	**Colon cancer**
Pancreatic cancer	**Brain cancer**

Heredity (5-10%)

Autosomal recessive

Both copies mutated

Defective DNA repair resulting in genomic instability (chromosomal/DNA)

Autosomal Dominant Cancer Syndromes	
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Familial Cancers of Uncertain Inheritance	
Breast cancer (not linked to *BRCA1* or *BRCA2*) Ovarian cancer Pancreatic cancer	**Colon cancer** **Brain cancer**

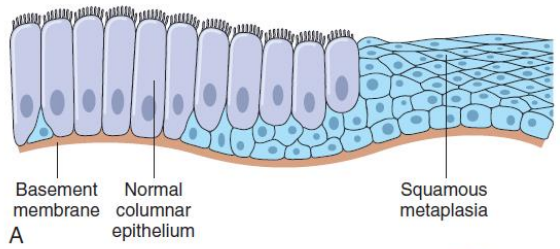
Heredity (5-10%)

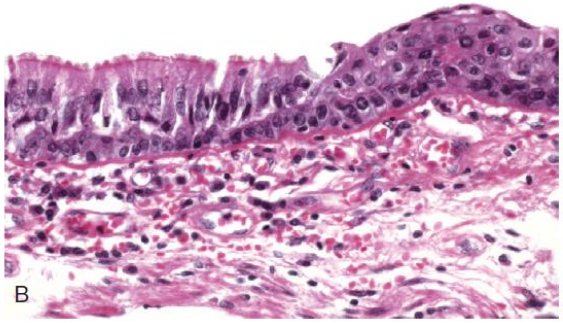
Uncertain

Sporadic/familial

Familial:
- Early onset
- Multiple tumors
- Tumors in 2+ close relatives of index

+Dysplasia





Acquired Preneoplastic Lesions

Does not mean inevitability, just increased likelihood

Common in chronic tissue injury or inflammation

Increased proliferation
Exposure to inflammation byproducts

↓

potential mutations