

Staging Systems

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UICC TNM Core Group and Cardiff University, UK

Staging Systems

- 1943 – Pierre Denoix, IGR
- UICC Committee – 1950s
- 1968 – First edition, Livre de Poche
- Other systems – e.g. Dukes, FIGO
- 1987 – Unification of AJCC and UICC



- 2017 – first signs of divergence?...

AJCC and UICC

- Cross-representation on key committees
- UICC members on AJCC Expert panels
- AJCC Chairman an editor of UICC 8th edition



FIGO and UICC

- FIGO representation is strong on UICC
- Timing of FIGO updates may differ from UICC; but changes are then adopted into next UICC edition



Stage

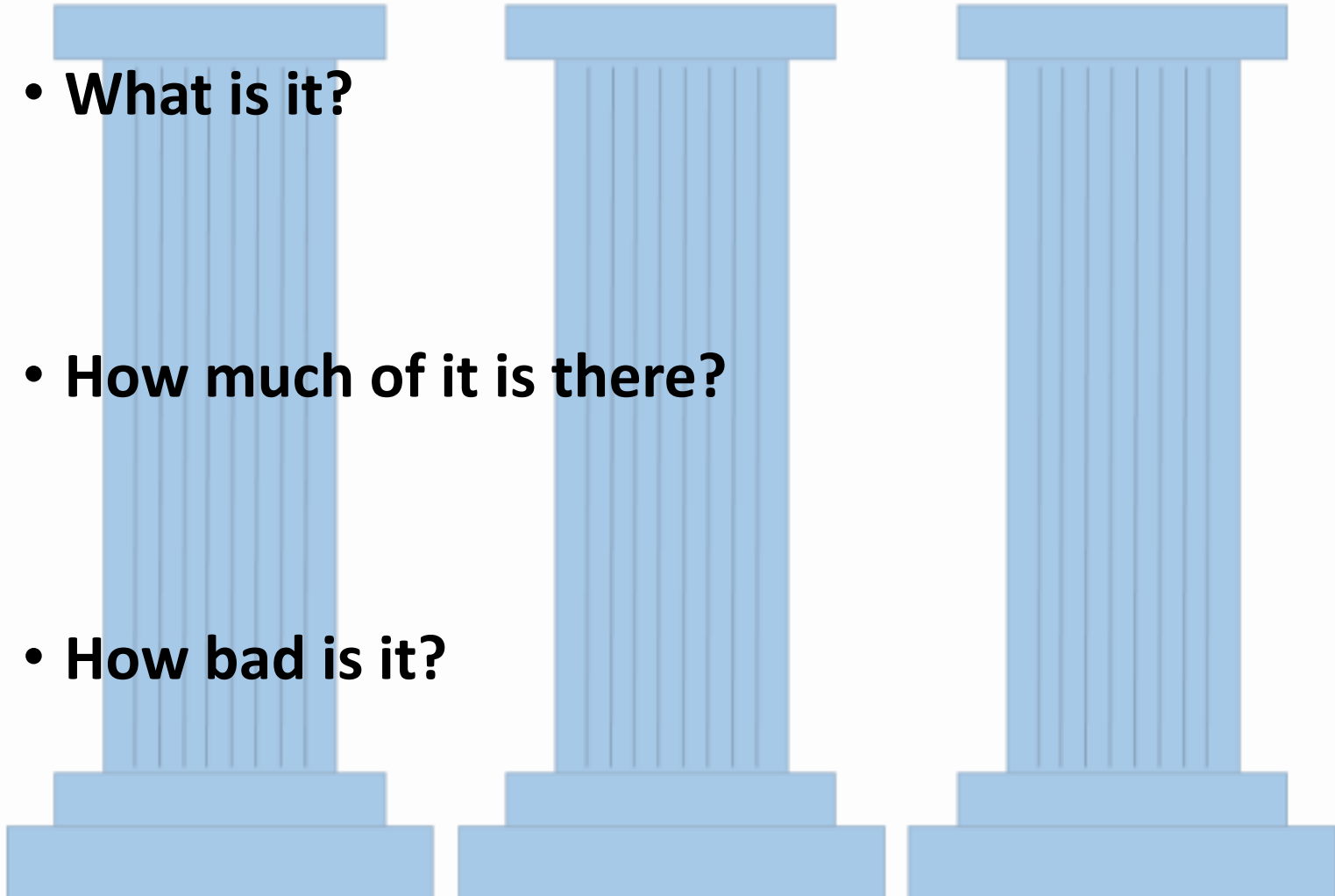
- Is it a noun?
 - “This is stage III disease...”
- Is it a verb?
 - To stage a patient....
- What does it mean to patients?
 - “Is it just in the prostate, or has it escaped?”
- What does it mean to Public Health Professionals?

STAGE: Who are the stakeholders?

- The healthcare team
- Cancer Registries
- Health Departments
- Epidemiologists
- Patients???

To treat or to control cancer....

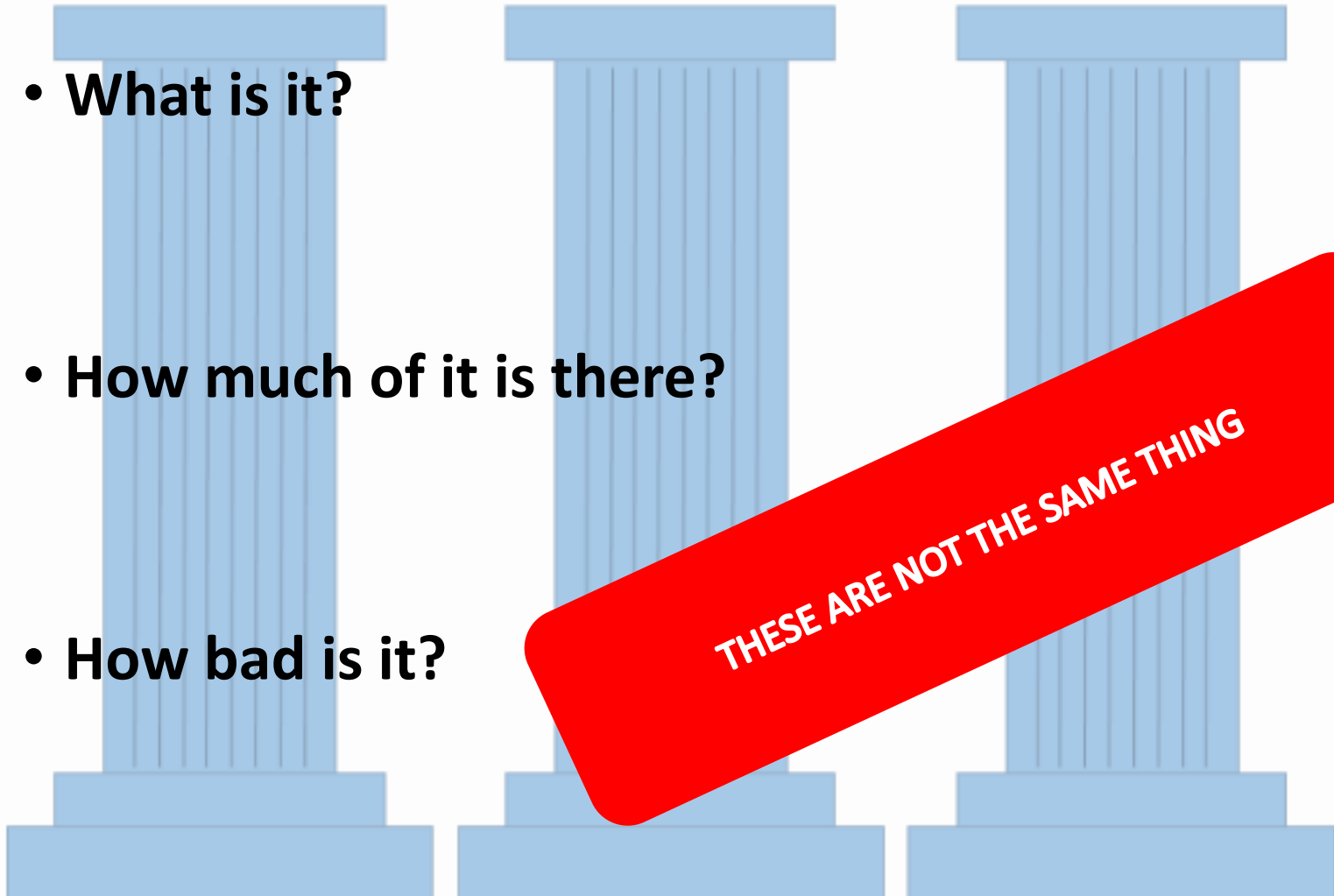
- **What is it?**
- **How much of it is there?**
- **How bad is it?**



To treat or to control cancer....

- What is it?
- How much of it is there?
- How bad is it?

THESE ARE NOT THE SAME THING



Stage implies a sequential process – e.g.....

- Cancer starts in the organ of origin

THEN

- It spreads to local tissues

THEN

- It invades lymphatics or blood vessels

THEN

- It colonises lymph nodes or other organs

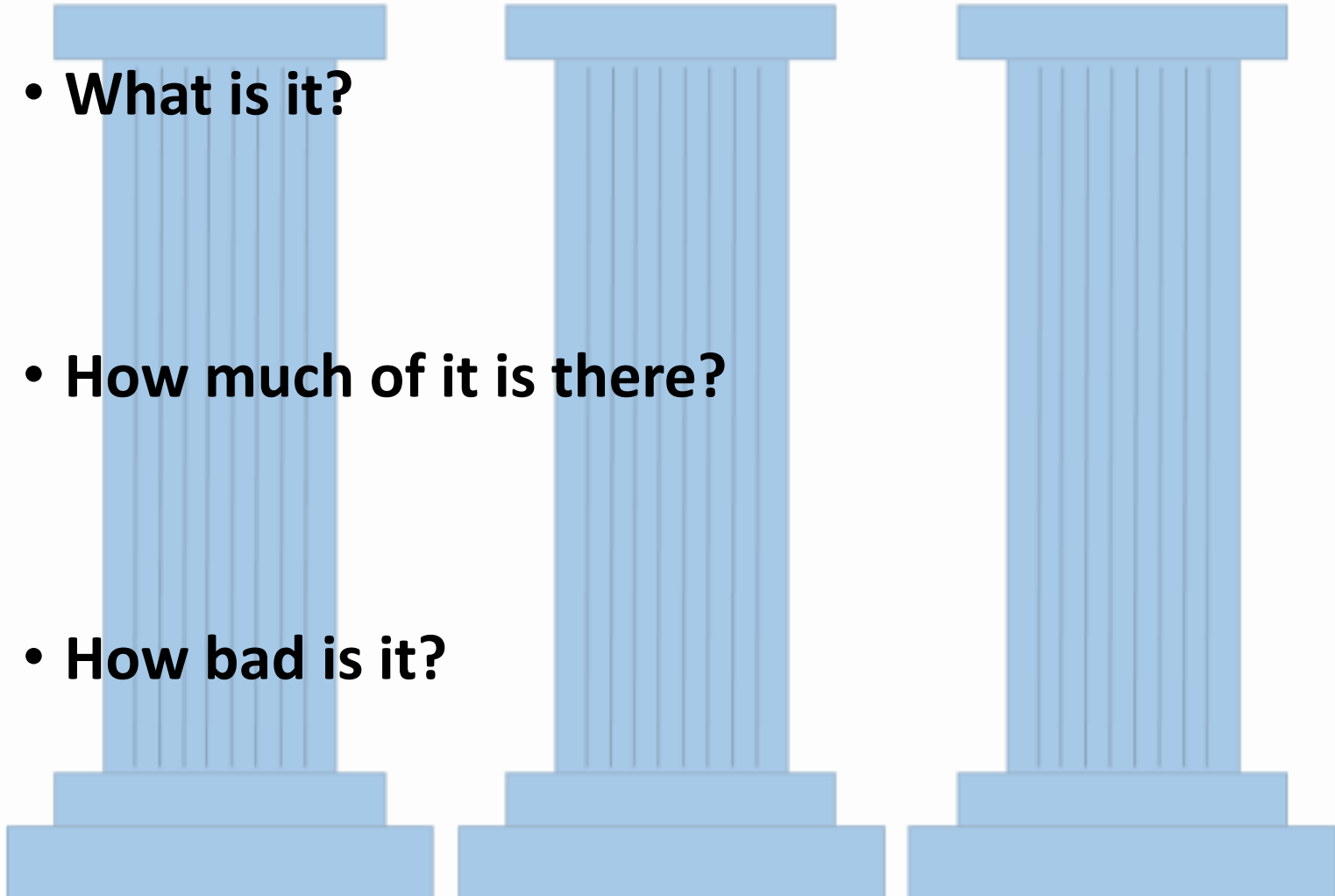
The original philosophy behind "stage"?

- Stage I: tumour in the organ of origin only
- Stage II: involvement of regional lymph nodes
- Stage III: locally advanced disease or non-regional lymph node involvement
- Stage IV: distant metastatic disease

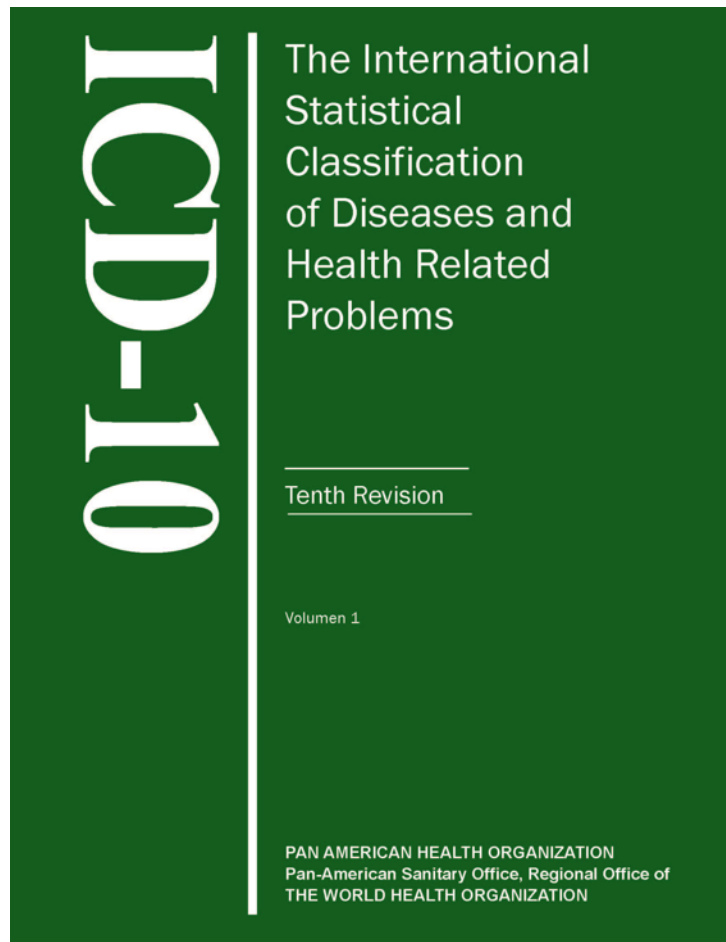
...but things have changed.

To treat or to control cancer....

- **What is it?**
- **How much of it is there?**
- **How bad is it?**

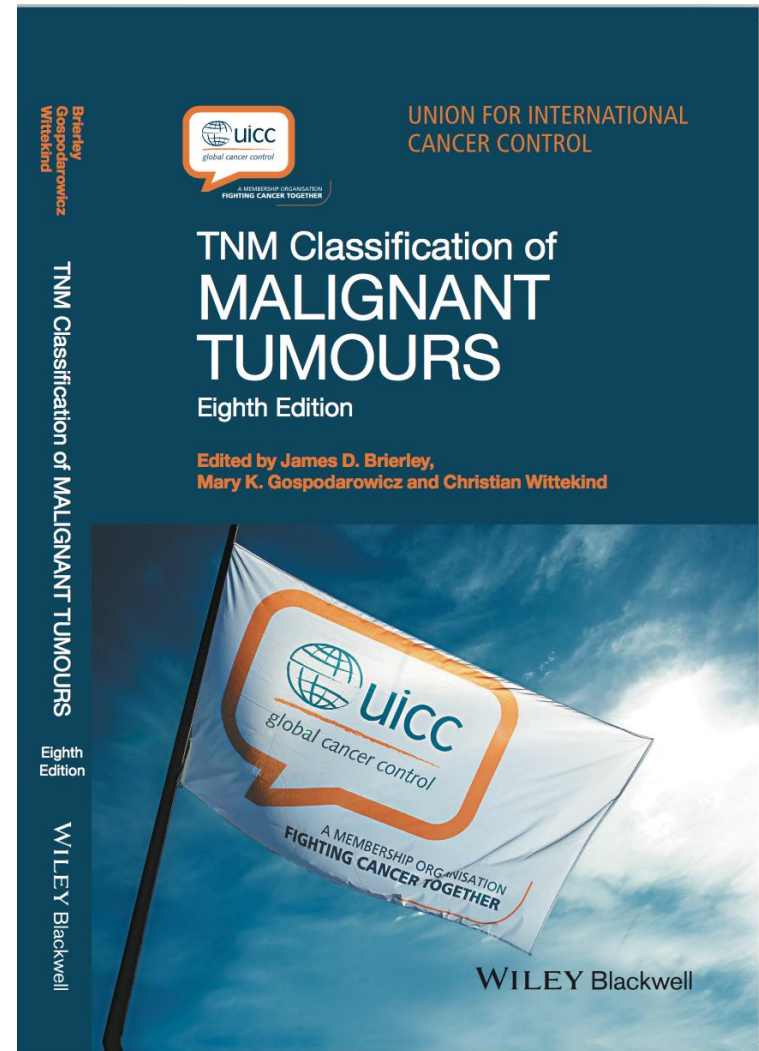


What is it?



How much of it is there?

- Cancer stage is the **ANATOMIC EXTENT OF DISEASE**
- Classified using TNM
- Summarised as Stage Group (typically I, II, III, IV)



How bad is it?

- Depends on many factors:
 - Host related (e.g. age, co-morbidity)
 - Environment-related (e.g. availability of treatment)
 - Disease-related, i.e. biology
- THESE ARE NOT FIXED PARAMETERS

Prognostic classifications are **crucial** for optimum treatment

- T1c N0M0 prostate adenocarcinoma, Gleason score 6, PSA 3.5
- T3a N1M1 prostate adenocarcinoma, Gleason score 8, PSA 220

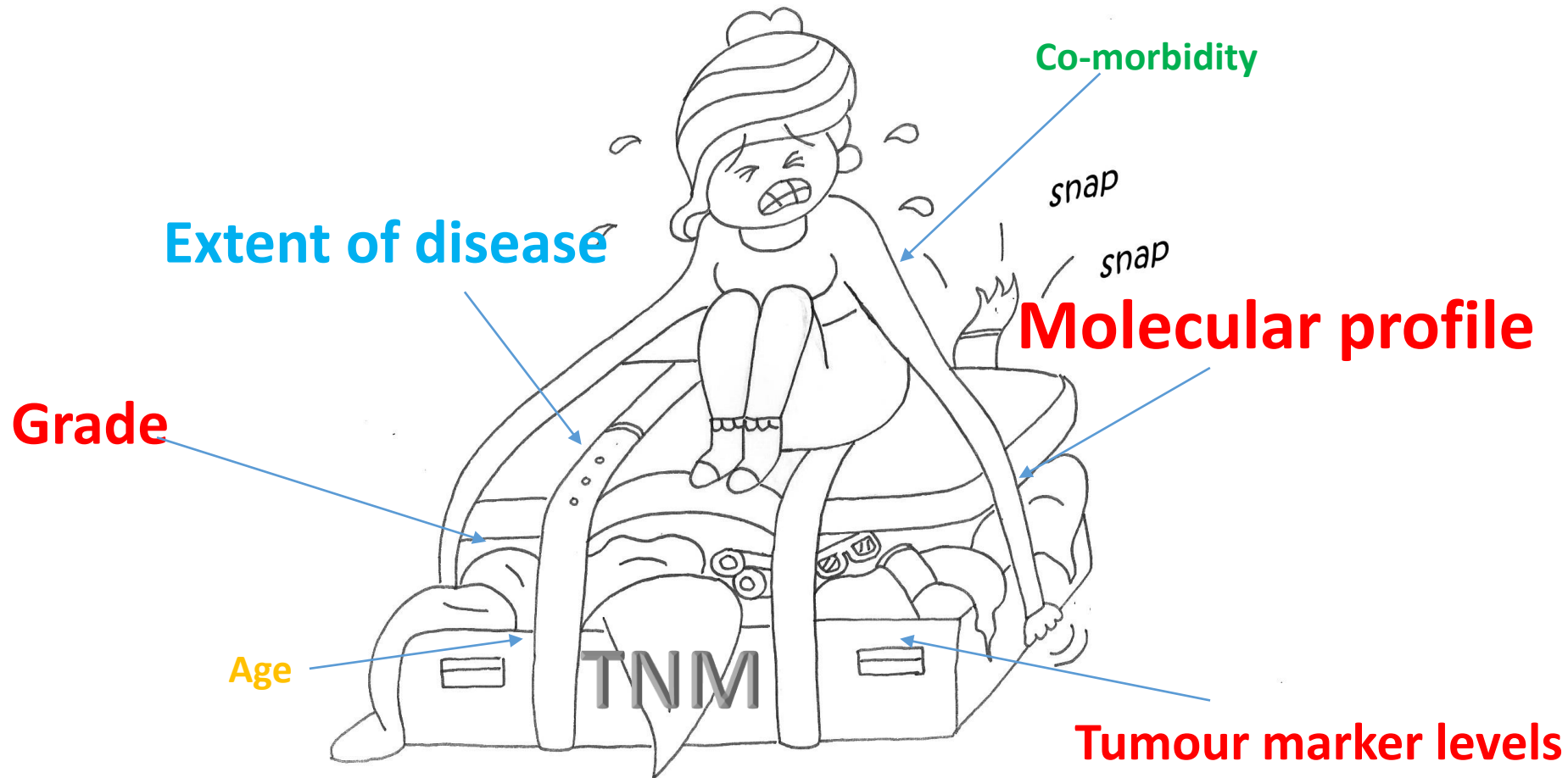
Treatment depends on WHAT it is, HOW MUCH of it there is, and HOW BAD it is

WE ALL AGREE THAT WE NEED PROGNOSTIC CLASSIFICATIONS

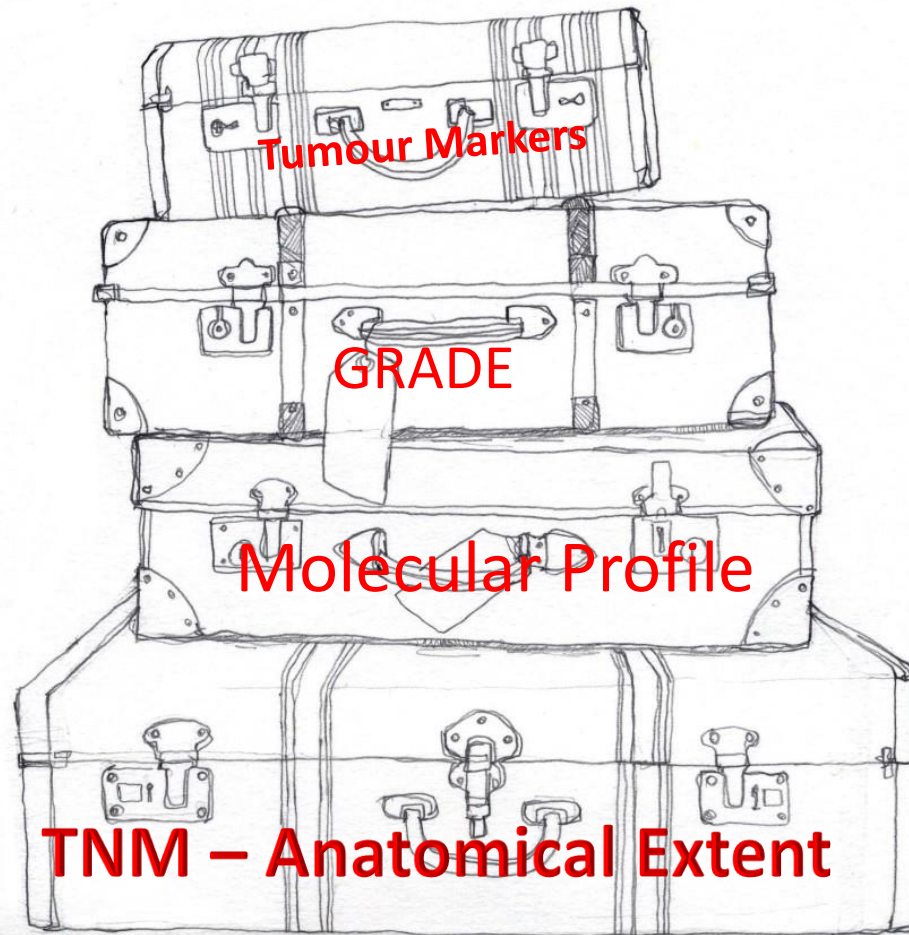
Some concepts

- T-, N-, M- category, NOT "T-stage, N-stage, M-stage"
- Clinical and pathological staging
- TNM Stage applies to the initial presentation ONLY
- For UICC: Stage and Stage Group refer to the **anatomical extent of disease**
- "Re-staging", after initial management or on relapse, requires different terminology (e.g. y- or r-prefixes)

TNM- a critics view of the critics



Tumour profile – the UICC view



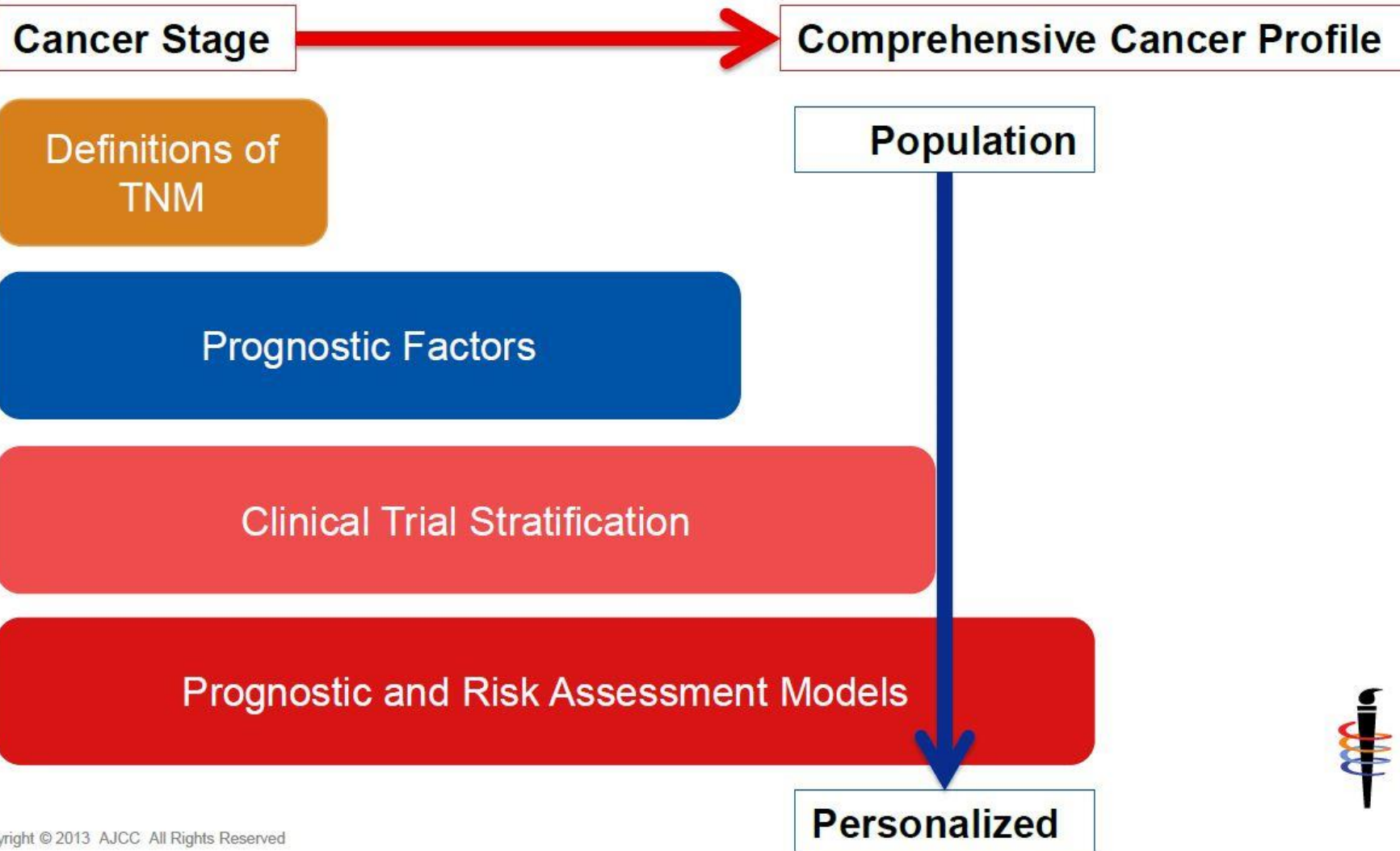
.....but some historical contradictions...

- Grade in soft tissue sarcomas
- Age in thyroid cancers
- Tumour marker levels in GTT.....

.....gradually changing

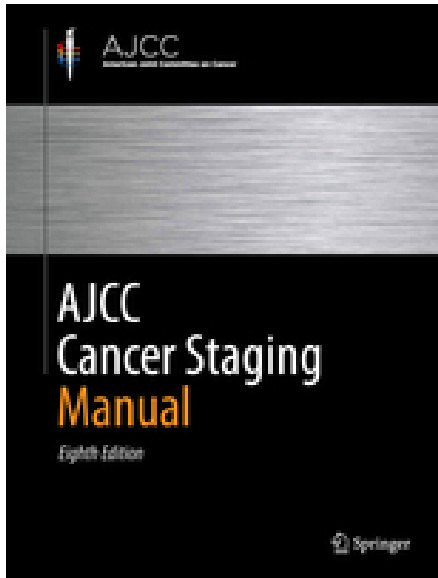
AJCC Vision

...and Where It Fits in the 8th Edition:



AJCC and UICC TNM are not the same

- AJCC has 'Prognostic Stage Groups'
- UICC has 'Stage Groups' and 'Prognostic Grids'
- Some categories in AJCC do not exist in UICC
 - e.g. Subdivision of T1 into T1a and T1b for seminoma
- The AJCC manual is a comprehensive text on full work-up of a patient
- UICC retains the Livre-de-Poche

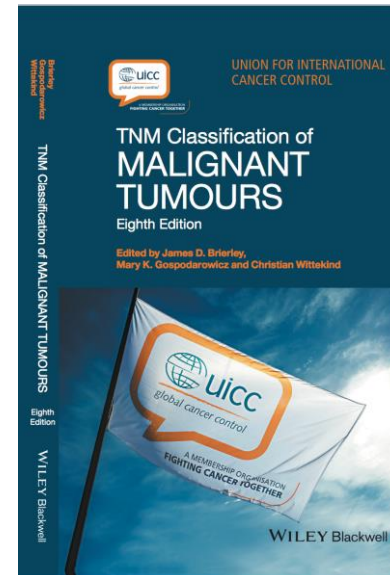


Aims to be comprehensive

Meets the needs of US
Academic centres

Use is mandatory in US

Goal is personalised
medicine



Aims to be succinct

Meets the needs of the
worldwide community

Use is as determined
locally

AJCC – Breast Cancer: over 60 categories

Prognostic Stage Groups – Table Format

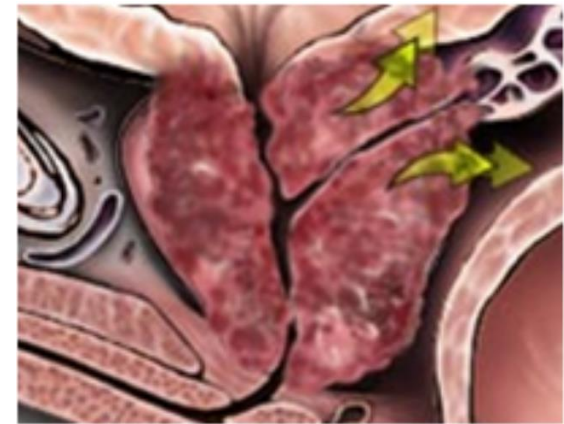
When T is...	And N is...	And M is...	And G is...	And HER2 Status* is...	And ER Status is...	And PR Status is...	Then the Prognostic Stage Group is...		
Tis	N0	M0	1-3	Any	Any	Any	0		
T1	N0	M0	1	Positive	Any	Any	IA		
T1	N0	M0	1-2	Negative	Positive	Positive	IA		
T1	N0	M0	2	Positive	Positive	Positive	IA		
T1	When T is...	And N is...	And M is...	And G is...	And HER2 Status* is...	And ER Status is...	And PR Status is...	Then the Prognostic Stage Group is...	
T0-1	T3	N1-2	M0	1	Positive	Positive	Positive	IB***	
T0-1	T3	N1-2	M0	2	Positive	Positive	Positive	IB***	
T0-1	T1	N0	M0	1	Negative	Negative	Negative	IIA***	
T0-1	T1	N0	M0	2	Negative	Negative	Negative	IIA***	
	T1	When T is...	And N is...	And M is...	And G is...	And HER2 Status* is...	And ER Status is...	And PR Status is...	Then the Prognostic Stage Group is...
MultiGene Panel	T1	T3	N1-2	M0	1	Positive	Positive	Positive	IB***
T1-2	T1	T3	N1-2	M0	2	Positive	Positive	Positive	IB***
T1	T0-1	T1	N0	M0	1	Negative	Negative	Negative	IIA***
T1	T0-1	T1	N0	M0	2	Negative	Negative	Negative	IIA***
T1	T0-1	T1	N0	M0	3	Negative	Positive	Negative	IIA***
T1	T0-1	T1	N0	M0	3	Negative	Negative	Positive	IIA***
T1	T0-1	T1	N0	M0	3	Negative	Negative	Negative	IIA***
T1	T0-1	T0-1	N1mi	M0	1	Negative	Negative	Negative	IIA
	T0-1	T0-1	N1mi	M0	2	Negative	Negative	Negative	IIA
T0-1	T0-1	T0-1	N1mi	M0	3	Negative	Positive	Negative	IIA
T0-1	T0-1	T0-1	N1mi	M0	3	Negative	Negative	Positive	IIA
T0-1	T0-1	T0-1	N1mi	M0	3	Negative	Negative	Negative	IIA

Prostate Cancer – 8th edition.....



T1c
Solitary 1 mm focus
PSA 3.2
Gleason 4 + 5

STAGE III (AJCC)



T4 N0 M0
Locally extensive disease
PSA 44
Gleason 4 + 3

STAGE III (UICC)

“Why does it keep changing?”

The need for improvement

- New and emerging evidence
- Improvements in treatment
- Changes in tumour biology (e.g. HPV)

Managing and minimising change

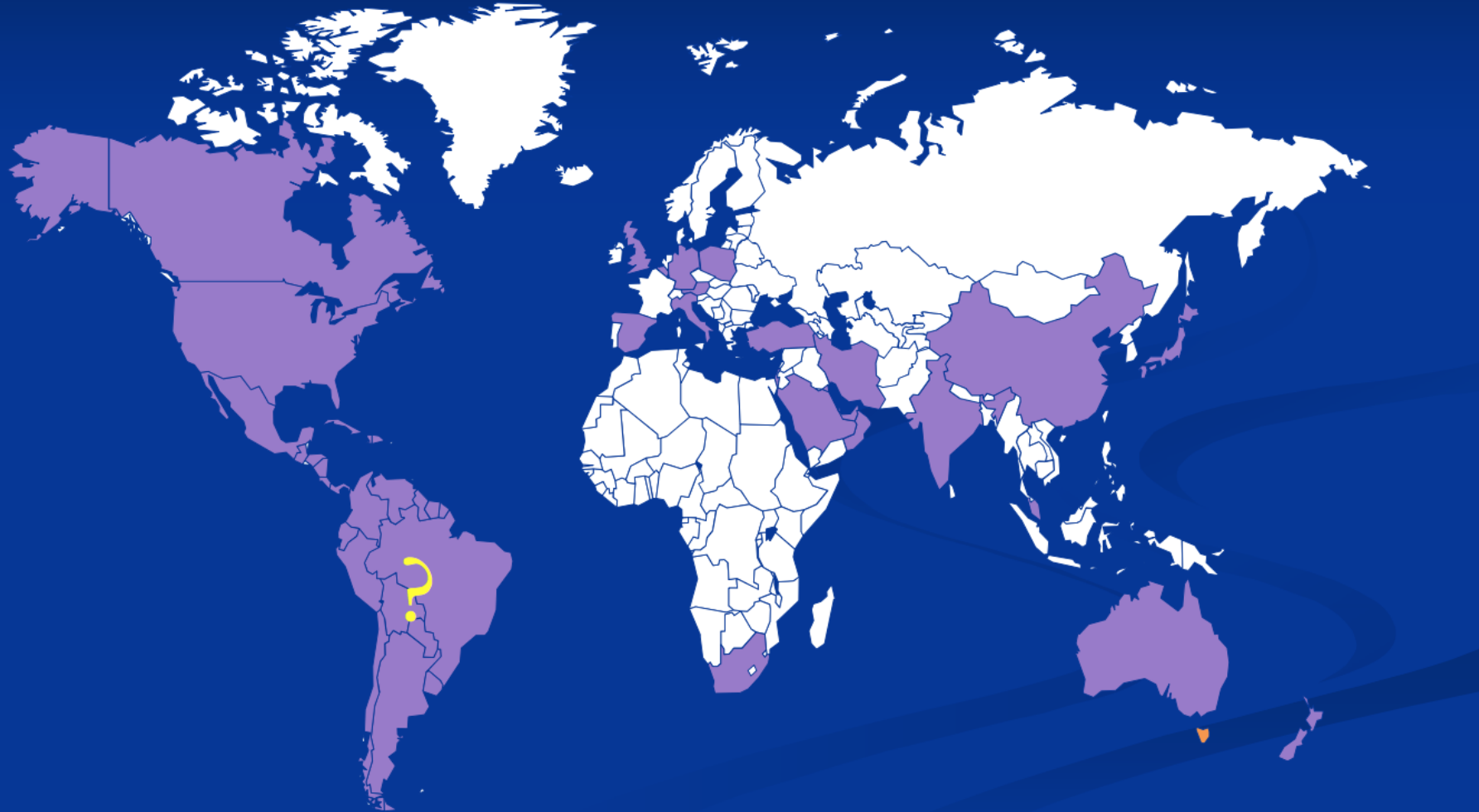
- Changes only if absolutely necessary (e.g. compelling new evidence): **Annual literature watch**
- Backwards compatibility: older data must be interpretable. **Keep the structure constant**
- Changes must be applicable and relevant worldwide: **Periodic revisions**

Organisation – UICC TNM



TNM National/Regional Committees

Covering 59% of world population



UICC TNM Core Group



- Meets annually in Geneva, with the major subgroups and National Committee Chairs
- Includes partner organisations: AJCC, FIGO, WHO, IARC, IACR, IASLC, ICCR,
- 2016 meeting also included ISUP and SIOP
- Other meetings as necessary – e.g. Global Consultation on Cancer Staging, London, Feb 2017

The Literature Watch

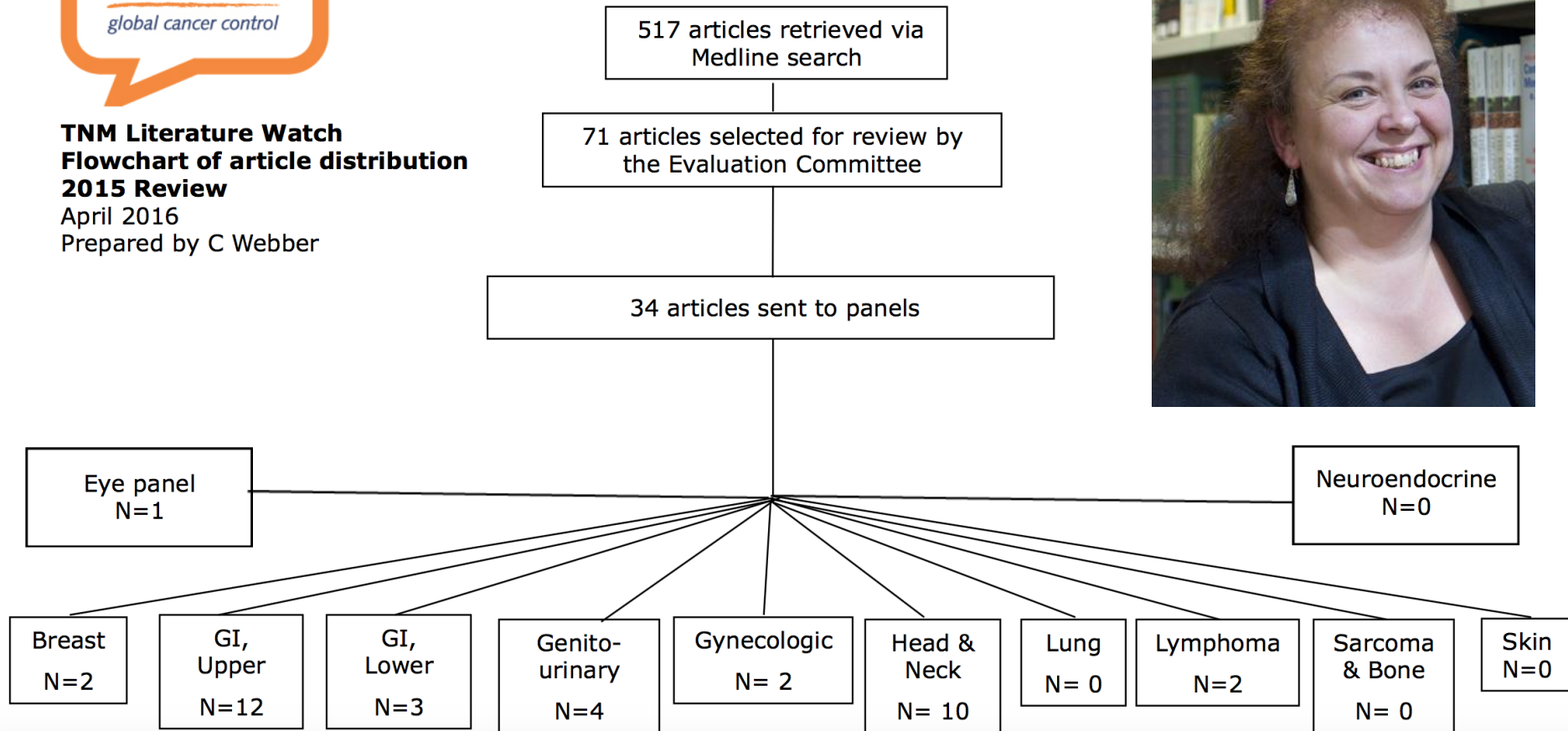
- A formal, systematic literature search
- First pass review conducted internally
- Second stage review by full evaluation committee permanent members
- Selected papers sent to International Expert Panel members



TNM Literature Watch
Flowchart of article distribution
2015 Review

April 2016

Prepared by C Webber



From 2017.....



GIG
CYMRU
NHS
WALES

Ymddiriedolaeth
GIG Felindre
Velindre NHS Trust

Improving the TNM classification: Findings from a 10-year continuous literature review

Colleen Webber^{1,2}, Mary Gospodarowicz³, Leslie H. Sobin⁴, Christian Wittekind⁵, Frederick L. Greene⁶, Malcolm D. Mason⁷, Carolyn Compton^{8,9}, James Brierley³ and Patti A. Groome^{1,2}

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⁶ University of North Carolina School of Medicine, Charlotte, NC

⁷ School of Medicine, Cardiff University, Cardiff, United Kingdom

⁸ American Joint Committee on Cancer, Chicago, IL

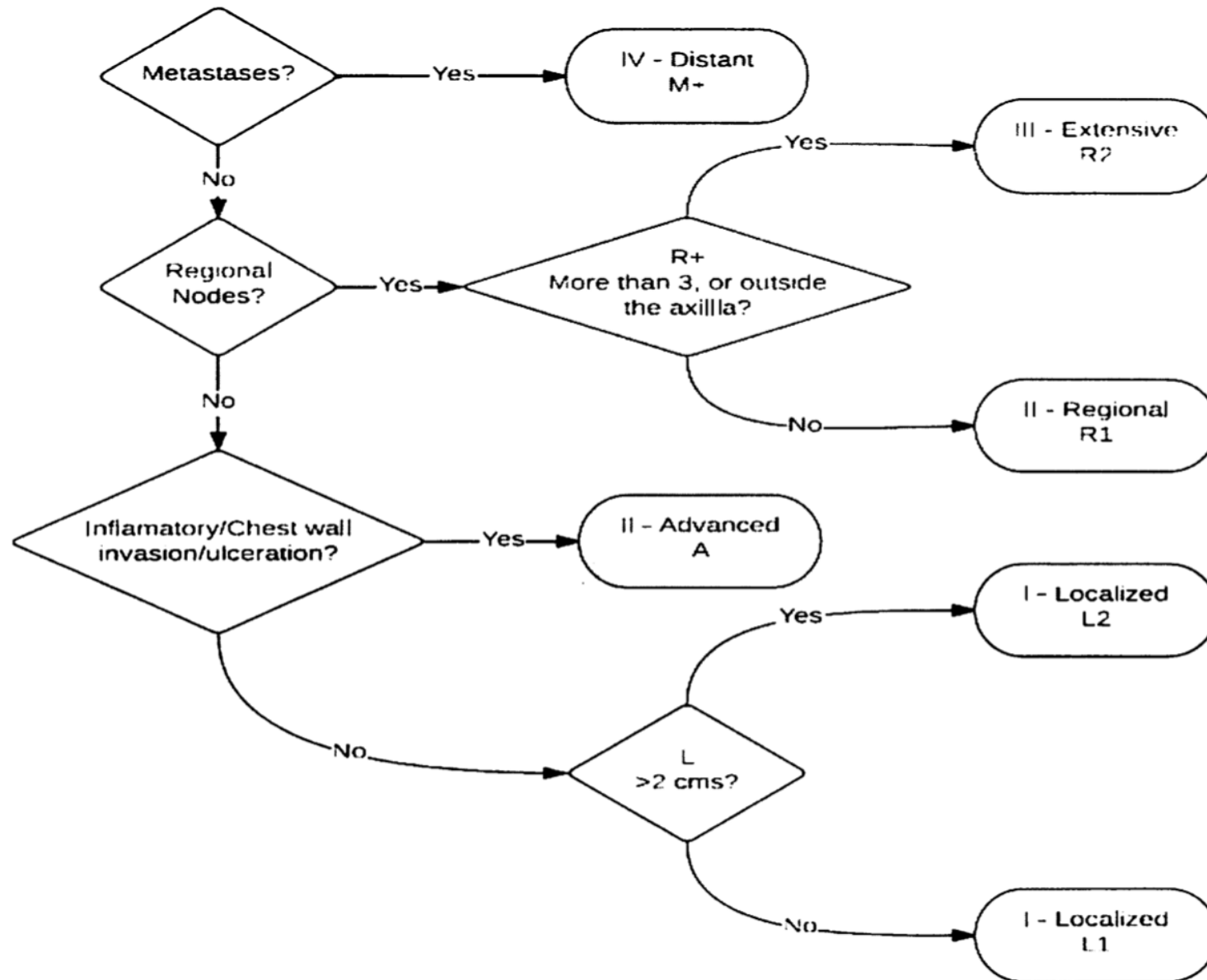
⁹ College of Health Solutions, School of the Science of Healthcare Delivery, Arizona State University, Phoenix, AZ

Int. J. Cancer: 135, 371–378 (2014) © 2013 UICC

Essential TNM

- In development
- For use in LMIC, where cancer registry data are scarce
- Pilot phase completed (Africa)
- Localised/regional/extensive/advanced/metastatic categories

Essential TNM: Breast Cancer Example



Final thoughts: 1. Core data sets are not the same as TNM

- Core data sets may contain more information than TNM – rightly so. BUT NOT LESS
- Raw data should be stored in a form whereby stage data (and other data) can be extracted.
- Whichever staging system is used – it should be recorded; and translation to another system should be possible.



UNION FOR INTERNATIONAL
CANCER CONTROL

TNM Classification of MALIGNANT TUMOURS

Eighth Edition

Edited by James D. Brierley,
Mary K. Gospodarowicz and Christian Wittekind



WILEY Blackwell

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