

WICC Annual Meeting  
Lyon, France  
26<sup>th</sup> Aug – 1<sup>st</sup> Sept

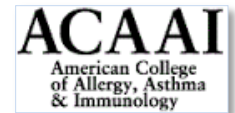


ALLERGY in ICD-11  
Coding it right!

# REPRESENTATION OF ALLERGIC AND RELATED CONDITIONS IN THE ICD-11

*Luciana Kase Tanno*

*Pascal Demoly*

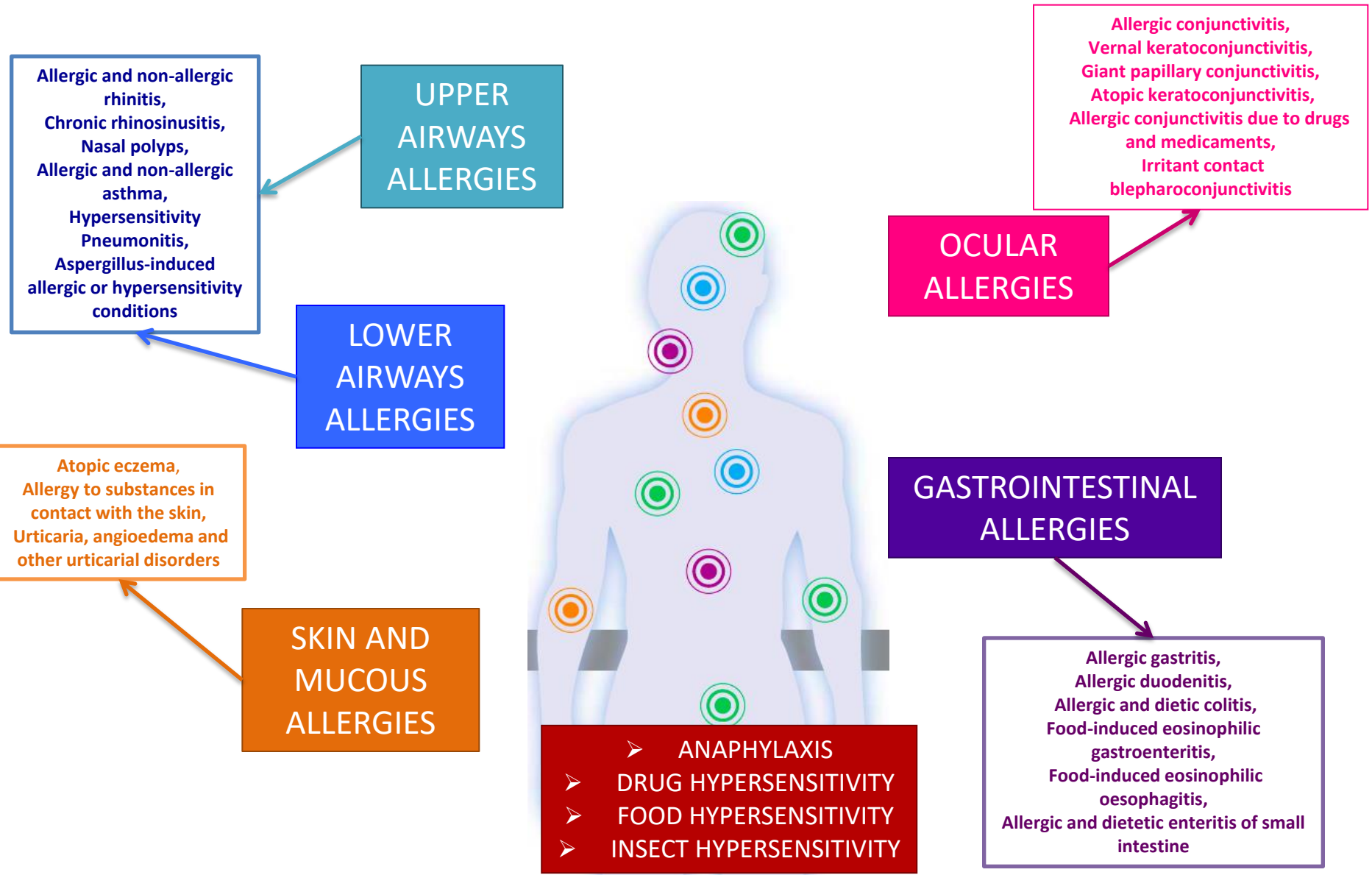




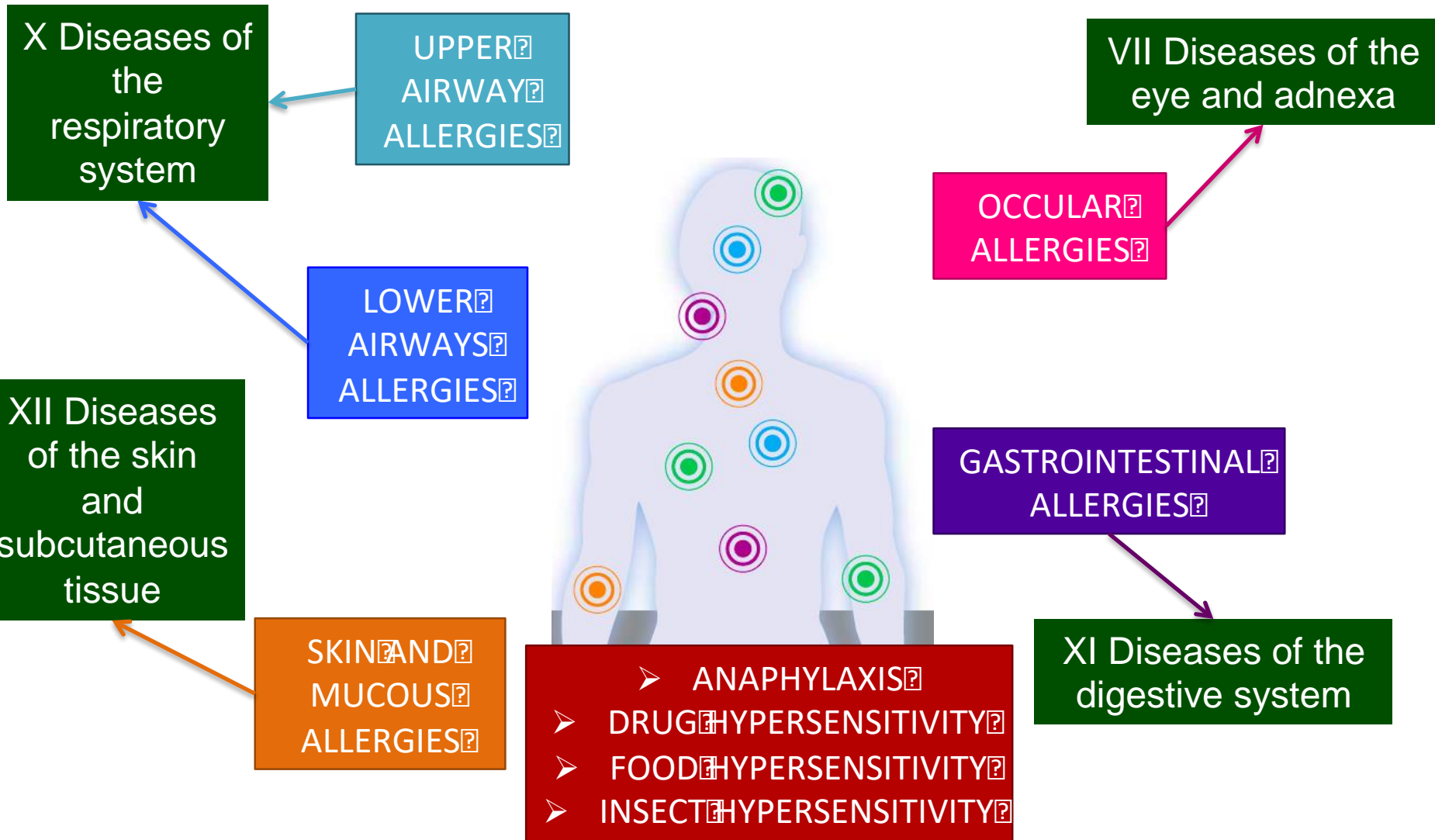
ALLERGY in ICD-11  
Coding it right!

# Allergy, allergies...

# ALLERGIES ARE MULTI-FACETED CONDITIONS



# MISCLASSIFICATION OF ALLERGIC AND HYPERSENSITIVITY CONDITIONS UNDER THE ICD-10



## REVIEW

**Global classification and coding of hypersensitivity diseases – An EAACI – WAO survey, strategic paper and review**

P. Demoly<sup>1</sup>, L. K. Tanno<sup>2,\*</sup>, C. A. Akdis<sup>3</sup>, S. Lau<sup>4</sup>, M. A. Calderon<sup>5</sup>, A. F. Santos<sup>6</sup>,  
M. Sanchez-Borges<sup>7</sup>, L. J. Rosenwasser<sup>8</sup>, R. Pawankar<sup>9</sup> & N. G. Papadopoulos<sup>10</sup>

*Allergy* 2014; 69: 559–570

- 7937 e-mails sent, 612 responses



## Main Conclusions:

- ICD-10: most frequent classification in use
- **NOT** enough accurate or easy to use

# Strategic Actions



EAACI-WAO WFOT  
Classification of Allergic  
Diseases was activated (2013)

Presentation of the  
classification proposal to WHO  
ICD leaders (Dec 2014)

Undernotification of anaphylaxis deaths in Brazil due to difficult coding under ICD-10  
*(Tanno et al. Allergy 2012;67:783-789)*

EAACI-WAO survey on global classification and coding of hypersensitivity diseases  
*(Demoly et al. Allergy 2014;69:559-570)*

Categorization of allergic disorders in the new WHO ICD  
*(Tanno et al. CTA 2014, 4:42)*

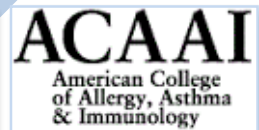
Constructing the classification of allergic diseases for the ICD-11 by crowdsourcing the allergy community  
*(Tanno et al. Allergy 2015, 70(6):609-15)*

Mapping hypersensitivity/allergic diseases in the ICD-11: cross-linking terms and unmet needs  
*(Tanno et al. CTA 2015, 3:5:20)*

Making allergic and hypersensitivity conditions visible in the International Classification of Diseases-11  
*(Tanno et al. Allergy 2015, 66:520-525)*

**CONSTRUCTION OF THE "ALLERGIC AND HYPERSENSITIVITY CONDITIONS" CHAPTER IN THE ONLINE ICD-11 BETA DRAFT (2015)**

- Discussion with WHO members (TAGs and RSG)
- Official position posts into the ICD-11 beta draft
  - Discussion with SNOMED-CT experts



- Validation process: field trial
- Dissemination: education, select the audience

# THE NEW ALLERGIC AND HYPERSENSITIVITY CONDITIONS SECTION

Signed in as: LUCIANAKASE TANNO | Manage Account | Log out

Last Update: Mar 31

ICD-11 Beta Draft (Foundation)

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## Allergic and hypersensitivity conditions

Parent(s)

Definition

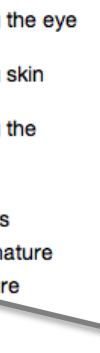
Allerg

Hyper  
signs,

Narrow

### Allergic and hypersensitivity conditions

- ▶ Allergic or hypersensitivity disorders involving the respiratory tract
- ▶ Allergic or hypersensitivity disorders involving the eye
- ▶ Allergic or hypersensitivity disorders involving skin and mucous membranes
- ▶ Allergic or hypersensitivity disorders involving the gastrointestinal tract
- ▶ Anaphylaxis
- ▶ Complex allergic or hypersensitivity conditions
- ▶ Allergy and allergic reactions of unspecified nature
- ▶ Hypersensitivity reactions of unspecified nature



## ICD-11 Beta Draft

- ▶ Infectious diseases
- ▶ Neoplasms
- ▶ Diseases of the blood and blood-forming organs
- ▶ Disorders of the immune system
  - ▶ Immune system disorders by clinical syndromes
  - ▶ Immune system disorders by white cell lineages
  - ▶ Symptoms, findings and clinical forms of blood, blood-forming organs and the immune system
  - ▶ Non-organ specific systemic autoimmune disorders
  - ▶ Autoinflammatory syndromes
  - ▶ Allergic and hypersensitivity conditions
    - ▶ Allergic or hypersensitivity disorders involving the respiratory tract
    - ▶ Allergic or hypersensitivity disorders involving the eye
    - ▶ Allergic or hypersensitivity disorders involving skin and mucous membranes
    - ▶ Allergic or hypersensitivity disorders involving the gastrointestinal tract
    - ▶ Anaphylaxis
    - ▶ Complex allergic or hypersensitivity conditions
    - ▶ Allergy and allergic reactions of unspecified nature
    - ▶ Hypersensitivity reactions of unspecified nature
- ▶ Endocrine, nutritional and metabolic diseases
- ▶ Conditions related to sexual health
- ▶ Mental and behavioural disorders
- ▶ Sleep-wake disorders
- ▶ Diseases of the nervous system
- ▶ Diseases of the eye and adnexa



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# The example of anaphylaxis



# ANAPHYLAXIS: THE “KILLING ALLERGY”



**HIS LIFE IS IN IMMINENT DANGER**



**Are you ready to react on time?**



**STOP ANAPHYLAXIS**

Anaphylaxis can occur without warning, putting the life of your children in danger in just a few minutes. So it is very important to be prepared to react on time in case of an anaphylaxis shock. Ask your doctor how to protect your loving ones.

www.stopanaphylaxis.com



DRUG ALLERGIES



Food Allergies



I'm allergic to bees

www.stopallergyalerts.com.au



**STOP**

your name about the risk of severe allergy

NEALS

# MISCLASSIFICATION OF ANAPHYLAXIS IN ICD-10

➤ Anaphylaxis deaths are under-notified: *Tanno et al. Allergy 2012* (research pioneer paper)

## ICD-10 Version:2015

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ICD-10

Versions - Languages

Info

### causes

T66 Unspecified effects of radiation

▶ T67 Effects of heat and light

T68 Hypothermia

▶ T69 Other effects of reduced temperature

▶ T70 Effects of air pressure and water pressure

T71 Asphyxiation

▶ T73 Effects of other deprivation

▶ T74 Maltreatment syndromes

▶ T75 Effects of other external causes

▼ T78 Adverse effects, not elsewhere classified

T78.0 Anaphylactic shock due to adverse food reaction

T78.1 Other adverse food reactions, not elsewhere classified

T78.2 Anaphylactic shock, unspecified

T78.3 Angioneurotic oedema

T78.4 Allergy, unspecified

T78.8 Other adverse effects, not elsewhere classified

T78.9 Adverse effect, unspecified

▶ T79-T79 Certain early complications of trauma

▶ T80-T88 Complications of surgical and medical care, not elsewhere classified

▶ T90-T98 Sequelae of injuries, of poisoning and of other consequences of external causes

▶ XX External causes of morbidity and mortality

▶ XXI Factors influencing health status and contact with health services

▶ XXII Codes for special purposes

### T78 Adverse effects, not elsewhere classified

**Note:** This category is to be used as the primary code to identify the effects, not elsewhere classifiable, of unknown, undetermined or ill-defined causes. For multiple coding purposes this category may be used as an additional code to identify the effects of conditions classified elsewhere.

**Excl.:** complications of surgical and medical care NEC (T80-T88)

#### T78.0 Anaphylactic shock due to adverse food reaction

#### T78.1 Other adverse food reactions, not elsewhere classified

**Excl.:** bacterial foodborne intoxications (A05.-)  
dermatitis due to food (L27.2)  
dermatitis due to food  
• in contact with the skin (L23.6, L24.6, L25.4)

#### T78.2 Anaphylactic shock, unspecified

Allergic shock	
Anaphylactic reaction	NOS
Anaphylaxis	

**Excl.:** anaphylactic shock due to:

- adverse effect of correct medicinal substance properly administered (T88.6)
- adverse food reaction (T78.0)
- serum (T80.5)

#### T78.3 Angioneurotic oedema

Giant urticaria  
Quincke oedema

**Excl.:** urticaria (L50.-)  
urticaria  
• serum (T80.6)

#### T78.4 Allergy, unspecified

Allergic reaction NOS  
Hypersensitivity NOS  
Idiosyncrasy NOS

The only reference for food allergy?

The ICD-10 selects just severe cases of anaphylaxis?

• Misclassification?  
• Unawareness of Hypersensitivity/allergy concepts?

# GLOBAL AVAILABILITY OF AUTO-INJECTABLE ADRENALINE: A MATTER OF LIFE OR DEATH



# PROPER CLASSIFICATION OF ANAPHYLAXIS IN ICD-11

## ICD-11 Beta Draft (Joint Linearization for Mortality and Morbidity Statistics)

Last Update: Jul 10

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Linearizations

Contributions

Info

### ▼ Allergic and hypersensitivity conditions

- ▶ Allergic or hypersensitivity disorders involving the respiratory tract
- ▶ Allergic or hypersensitivity disorders involving the gastrointestinal tract



### ▼ Anaphylaxis

- 4E00 Anaphylaxis due to allergic reaction to food
- 4E01 Drug-induced anaphylaxis
- 4E02 Anaphylaxis due to insect venom
- ▼ 4E03 Anaphylaxis provoked by physical factors
  - 4E03.1 Exercise-induced anaphylaxis
  - 4E03.2 Cold-induced anaphylaxis
  - 4E03.Y Anaphylaxis provoked by other specified physical factors
  - 4E03.Z Anaphylaxis provoked by unspecified physical factors
- 4E04 Anaphylaxis due to inhaled allergens
- 4E05 Anaphylaxis due to contact with allergens
- 4E06 Anaphylaxis secondary to mast cell disorder
- 4E0Y Other specified anaphylaxis
- 4E0Z Anaphylaxis, unspecified
- ▶ Complex allergic or hypersensitivity conditions
  - 4E6Y Other specified allergic and hypersensitivity conditions
  - 4E6Z Allergic and hypersensitivity conditions, unspecified
- 4E8Y Other specified disorders of the immune system
- 4E8Z Disorders of the immune system, unspecified

Foundation Id : <http://id.who.int/icd/entity/1868068711>

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## Anaphylaxis

### Parent

Allergic and hypersensitivity conditions

[Show all ancestors up to top](#)

### Definition

Anaphylaxis is a severe, life-threatening systemic hypersensitivity reaction characterized by being rapid in onset with potentially life-threatening airway, breathing, or circulatory problems and is usually, although not always, associated with skin and mucosal changes.

### All Index Terms

There are no index terms associated with this entity

### Post-coordination

**Has severity** (use additional code, if desired)

- XA01 Mild
- XA02 Moderate
- XA03 Severe

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Last Update: Aug 23

## ICD-11 Beta Draft (Joint Linearization for Mortality and Morbidity Statistics)

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Linearizations

Contributions

Info

Foundation Id : <http://id.who.int/icd/entity/979408586>

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## Extension Codes

### Definition

These categories should never be used in primary coding. They are provided for use as supplementary or additional codes when it is desired to identify more detail in diseases classified elsewhere.

### All Index Terms

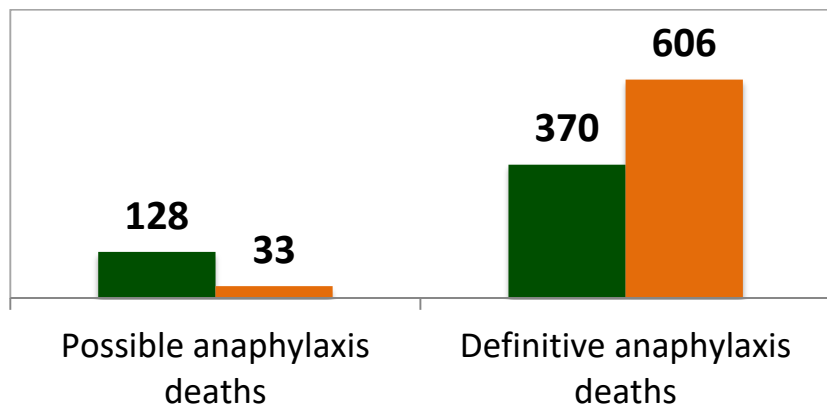
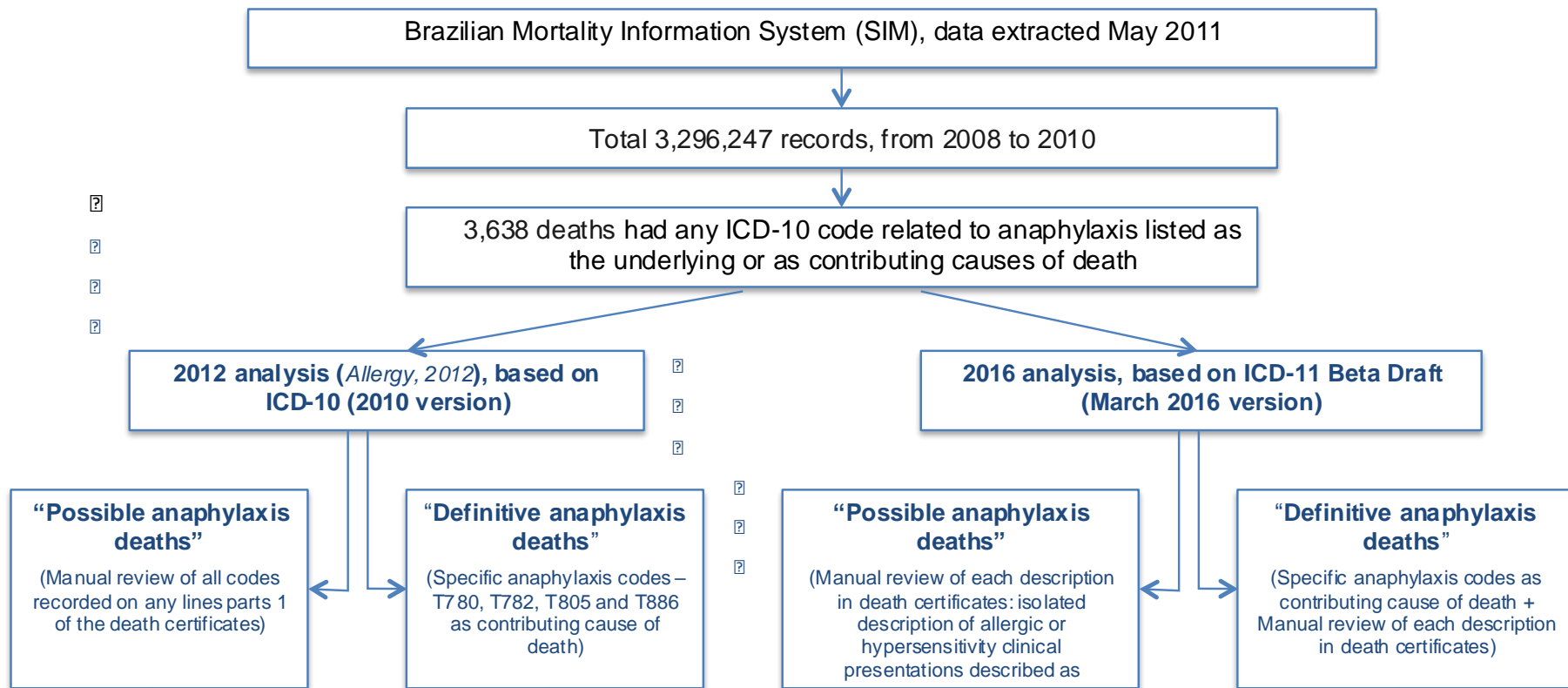
There are no index terms associated with this entity

- ▶ 16 Diseases of the musculoskeletal system or connective tissue
- ▶ 17 Diseases of the genitourinary system
- ▶ 18 Pregnancy, childbirth or the puerperium
- ▶ 19 Certain conditions originating in the perinatal or neonatal period
- ▶ 20 Developmental anomalies
- ▶ 21 Symptoms, signs or clinical findings, not elsewhere classified
- ▶ 22 Injury, poisoning or certain other consequences of external causes
- ▶ 23 External causes of morbidity or mortality
- ▶ 24 Factors influencing health status or contact with health services
- ▶ 25 Codes for special purposes
- ▼ Extension Codes
  - ▶ Severity Scale Value
  - ▶ Temporality
  - ▶ Aetiology

Proposals



# DECREASING THE UNDER-NOTIFICATION OF ANAPHYLAXIS DEATHS IN BRAZIL THROUGH THE INTERNATIONAL CLASSIFICATION OF DISEASES (ICD)-11 REVISION



■ 2012 (ICD-10)  
■ 2016 (ICD-11)

↑ **Sensitivity:** identification of cases 25% higher  
↑ **Accuracy:** reaching 95% for definitive anaphylaxis deaths

# Supporting the transition...

## Current-prospective action plan

### Supporting the Validation/Transition process

- **Bridge** ICD-10 (and adaptations) to ICD-11
- **Survey**
  - Accuracy/easy to use
- **Field testing**
  - Classification ICD-10 and ICD-11
  - Case definitions
- **Support mortality data**
- **Economic impact**
- **Clinical utility ICD-11**

### ICD-11 Beta Draft Platform

- Keep working with the RSG and TAGs
- **Translation** in different languages

### Dissemination

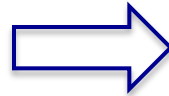
- **Publication different targets**
  - Into Allergy
  - With other specialties
- **ALLERGY in ICD-11 Newsletter**
- **Allergy Academies**
  - Cascade down
  - Social media

### Education program

- Slides
- Real-life case discussions
- Guide

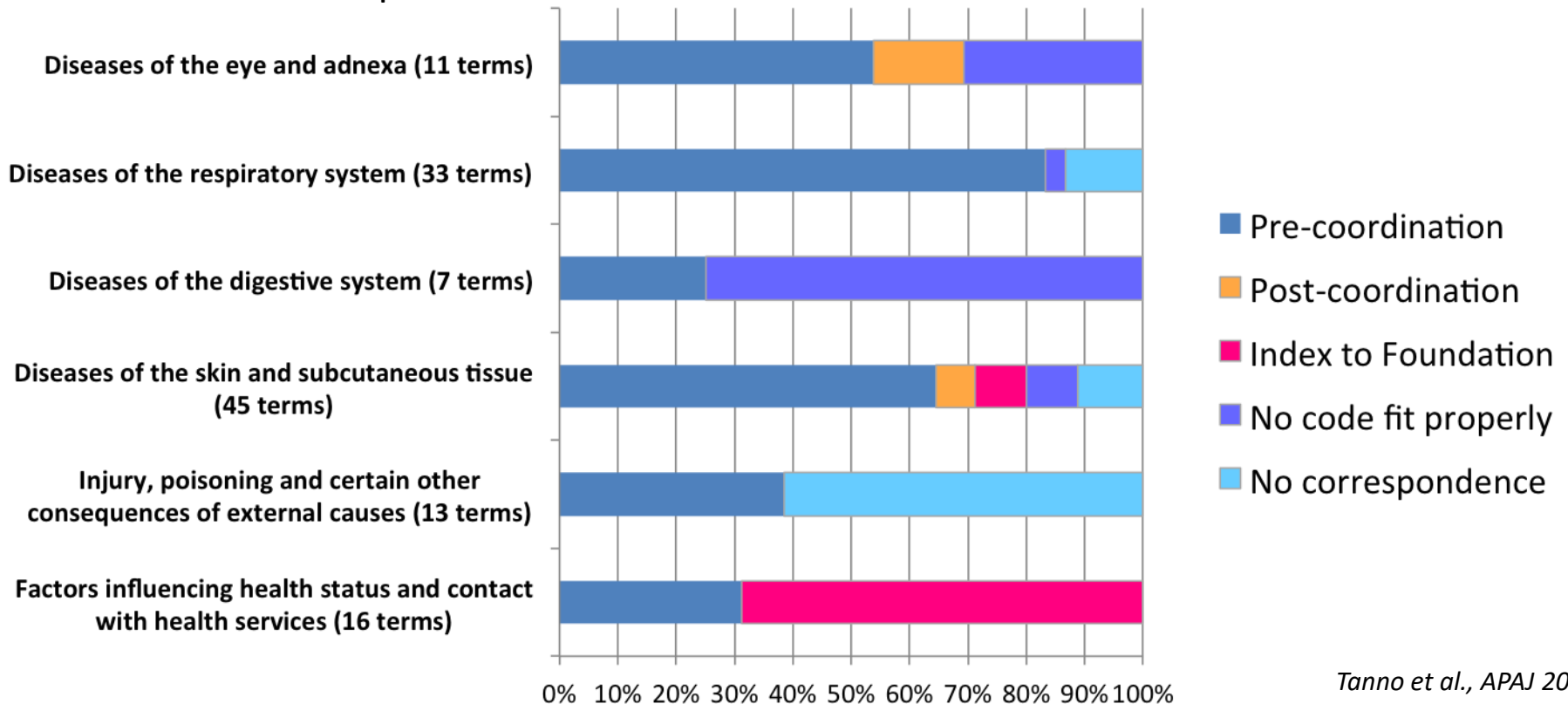
# SUPPORTING THE VALIDATION OF THE NEW ALLERGIC AND HYPERSENSITIVITY CONDITIONS SECTION OF THE WHO ICD-11

**ALLERGIC AND HYPERSENSITIVITY  
CONDITIONS IN ICD-10**  
(version 2016 WHO website, access April 2016)



**ALLERGIC AND HYPERSENSITIVITY  
CONDITIONS CHAPTER IN ICD-11**  
(Linearization ICD-11 Beta draft, access April 2016)

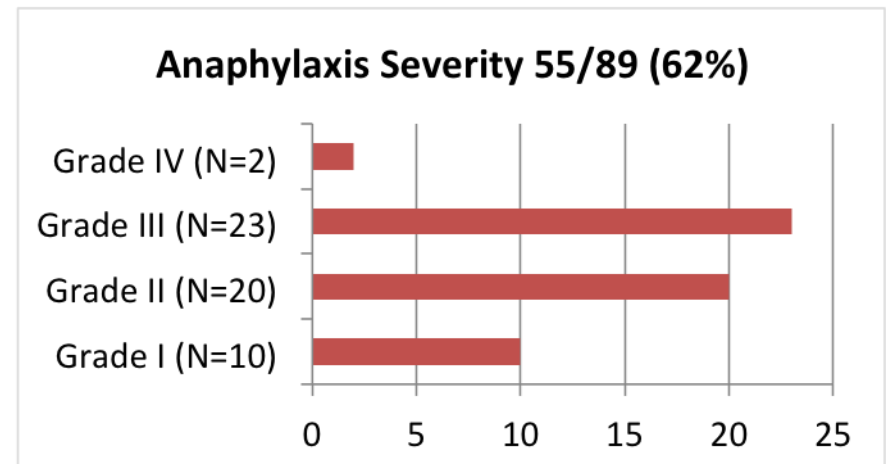
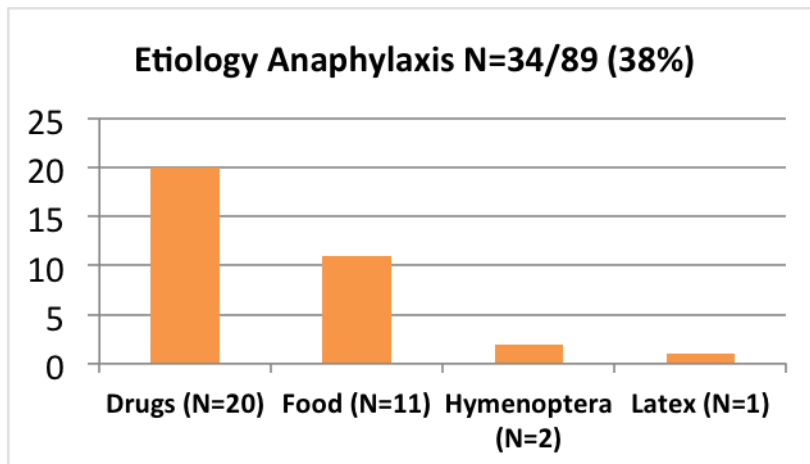
- 125 conditions
- 6 chapters





# Anaphylaxis morbidity data from the ICD-11 perspective

- Montpellier population: 270,000 inhabitants
- Total number of *hospitalization/year*: 40,000
- Total number of hospitalizations due to *allergic and hypersensitivity conditions/year*: 2,318 (6%)
- Anaphylaxis cases/year (2014): 89 cases



- Classification/coding procedures (Kappa value: 0.63)
- Sensible enough (Kappa value: 0,73)

# Conclusion

# The ALLERGY IN ICD-11 initiative

## NEXT STEPS IN THE ICD-11 REVISION



### PREVIOUS STEPS

- Under-notification of morbidity and mortality due to ICD-10 and ICD-11
- Surveying the allergist community
- Constructing a classification proposal
- Mapping procedure
- Collaboration with WHO ICD
- Construction of the “Allergy and Hypersensitivity conditions” section into the ICD-11

### WORKING IN PROCESS

- Support the validation/transition process
- Keep updating/ working in ICD-11 platform
- Dissemination process
- Educational program

#### DIRECT IMPACT:

- ★ Clinical diagnosis and management
- ★ Prevention
- ★ Support Public Health decision-making: accurate morbidity and mortality data

### NEXT STEPS

- Quality assurance testing
- ICD-11 platform stability, feasibility and translation
- Estimate economic impact of move
- Adapt the ICHI
- Discuss the involvement in the ICPC and ICF
- Dissemination
- Education program

### EXPECTED OUTCOMES:

- Strengthen AWARENESS of current concepts
- HEALTH CLINICAL MEDICINE
  - Ensure quality management of allergic patients
  - Support research in the field
- PUBLIC HEALTH
  - Reliable epidemiological data (morbidity/mortality) – decision-making and prevention
  - Appropriate allocation of resources
- Support ALLERGY specialty

- **Academic/scientific process:** 21 peer-review publications, 20 ongoing
- **Communication and collaboration:** Joint Allergy Academies, TAGs/RSG, Patients’ organization, Junior Members