



Learning how to use ICD-10 for cause of death coding

12 – 18 October 2013
Beijing, China

C401

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Abstract Five coders, recently recruited by the Italian National Institute of Statistics were trained on the use of Icd10. After the course they coded a set of death certificates previously coded by senior coders. The agreement of new and senior coders on the underlying cause (UC) selected was used to evaluate the learning process. The study shows the effectiveness of training in increasing the reliability of UC and to correct errors in coding practices. Moreover it suggests that higher inter-coder variability is observed for certificates involving some specific coding topics.

Introduction

In the production of causes of death (CoD) statistics, the introduction of new coders can affect data series. The impact can be limited by an appropriate training. Five research assistants, recently recruited (October 2012) by the Italian National Institute of Statistics (Istat), were trained on the use of Icd10 for CoD coding. The present investigation analyzes the effect of the training course on the reliability of underlying cause of death (UC) coding performed by the recently trained coders.

Methods & Materials

The Icd10 course was scheduled in 13 teaching days (January-February 2013, 6 hours per day) with a following four-month period of training on the job. The course focused on the use of ICD10: rules of multiple cause (MC) modifications; selection and modification rules. Learning material was based on Icd10 volume 2, WHO training tool, USA (NCHS) training.

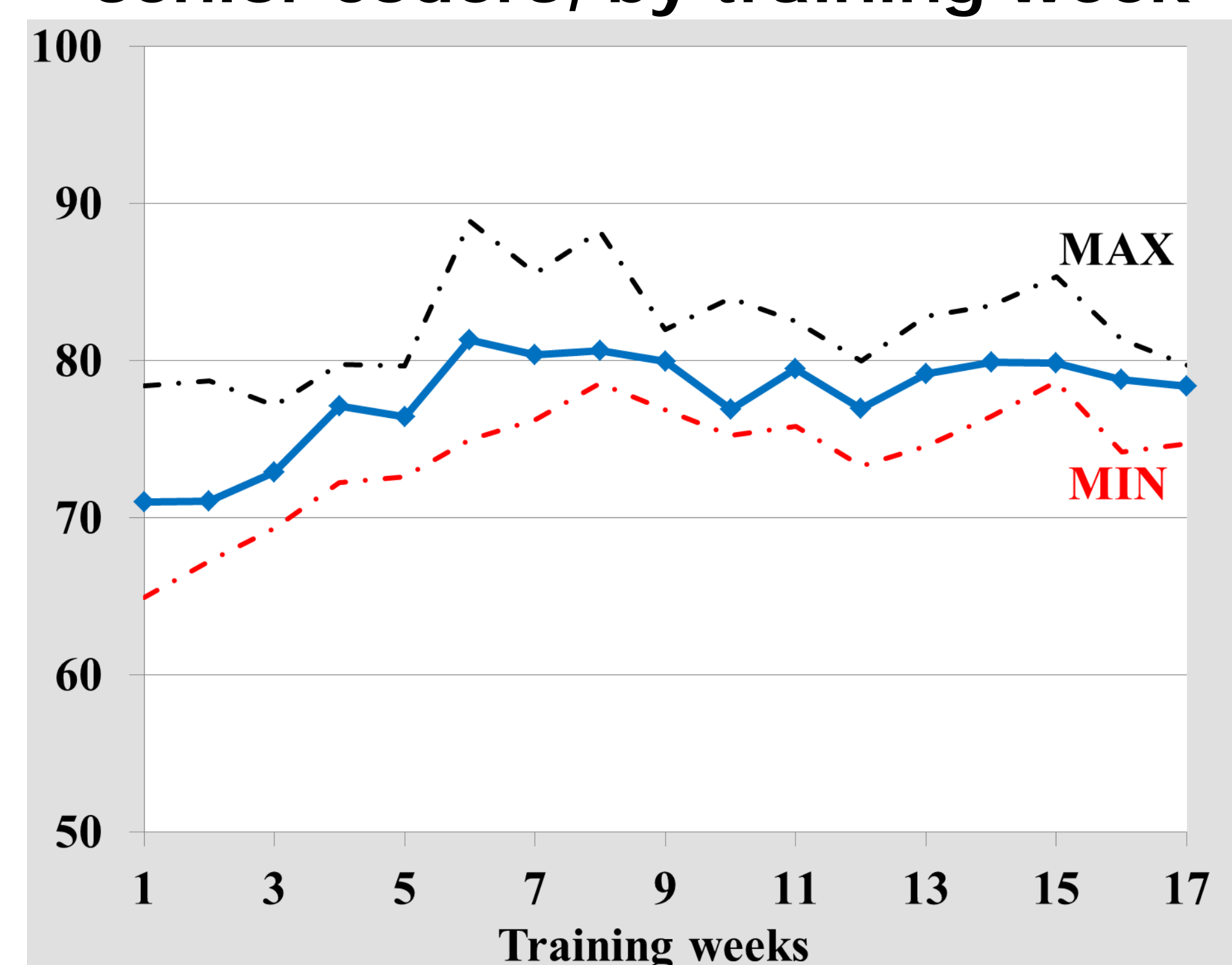
During the training on the job all students coded 4,050 death certificates rejected by the automated coding system and previously coded by senior coders. The coding was computer assisted and requested the completion of MCs. For certificates with complete MC, Acme software was used to select the UC; manual selection was performed on certificates with incomplete MC, certificates containing complications of surgery or external causes.

As indicator of the reliability of CoD coding was used the percentage of certificates in which there is an agreement on the UC between the newly trained and the senior coder.

Results

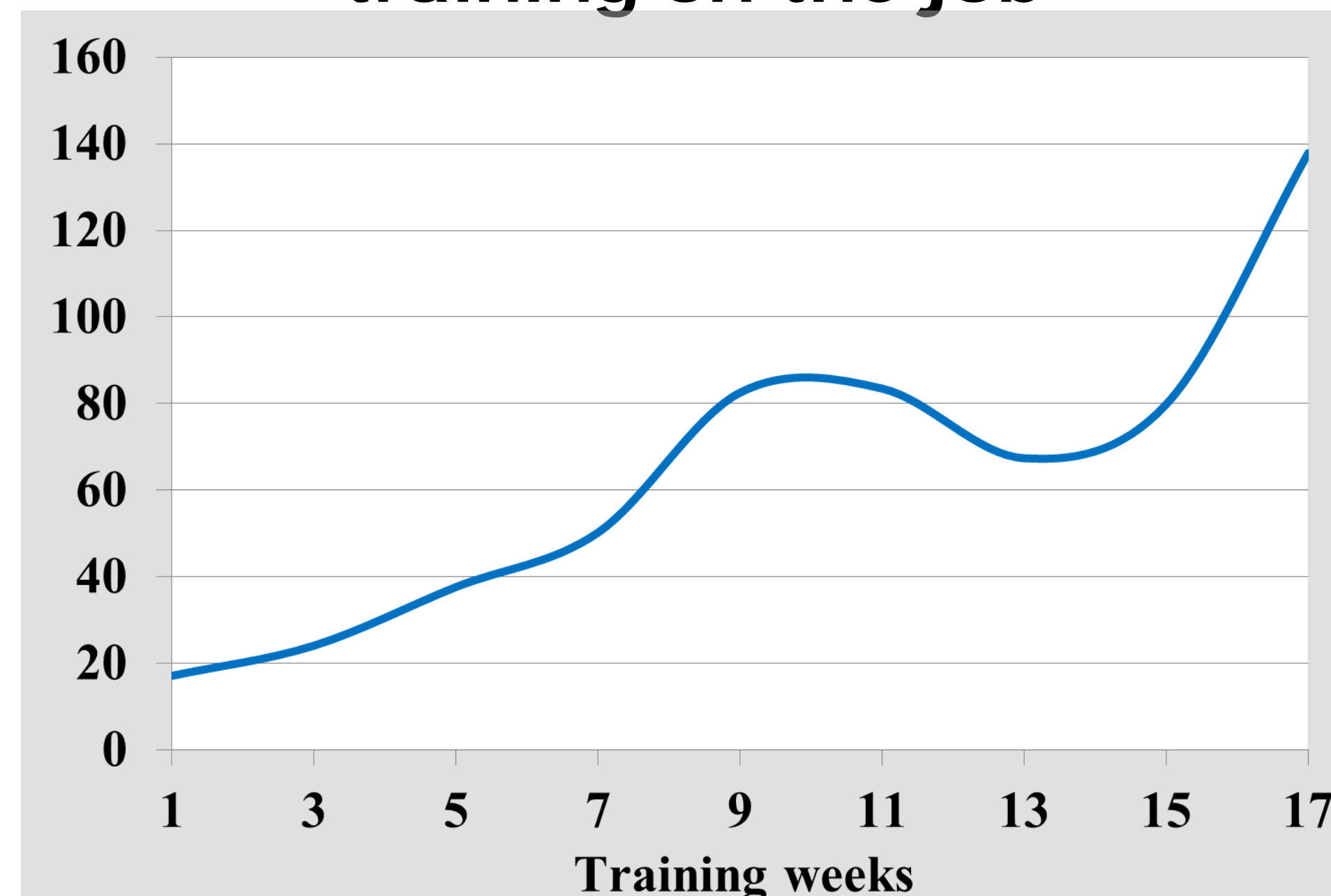
The percentage agreement on CoD coding between the new coders and the senior coders was on average 79% at four digit level, ranging from 76% to 80% by coder (+4% at three digit level). The indicator increased over time, from 71% in the first working week to 80% at the end of training period (Figure 1).

Figure 1. Percentage agreement on UC between new coders and senior coders, by training week



The average number of certificates coded (Figure 2) per day by younger coders improved progressively from 17 to 138.

Figure 2. Average daily number of certificates coded during the training on the job



The analysis by cause of death category (Figure 3) showed the highest inter-coder agreement for certificates with congenital malformations or neoplasms as UC. Lowest agreement for infectious diseases, blood diseases, skin and musculoskeletal diseases, as well.

Figure 3. Percentage agreement on UC with 95% confidence intervals, by group of CoD

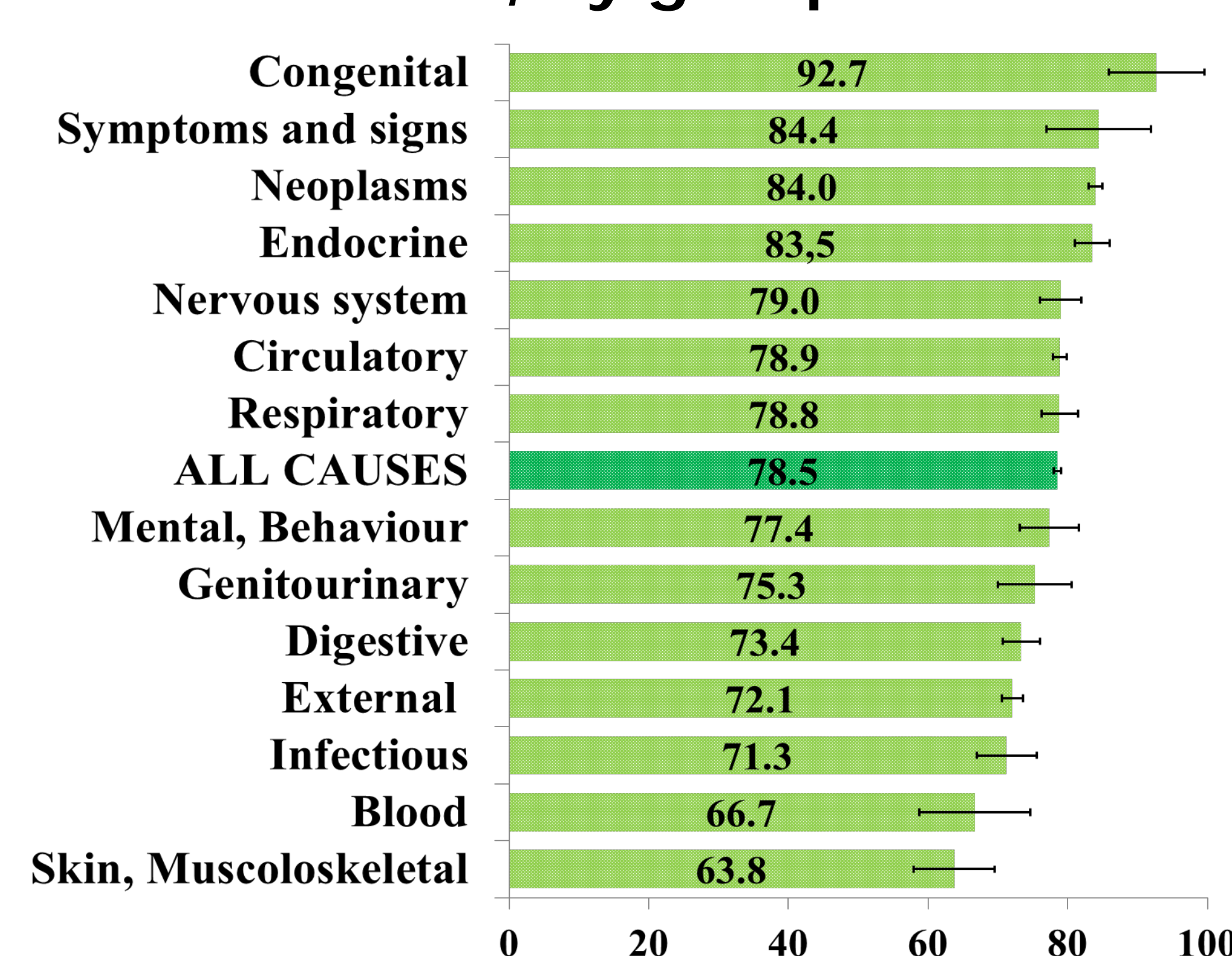
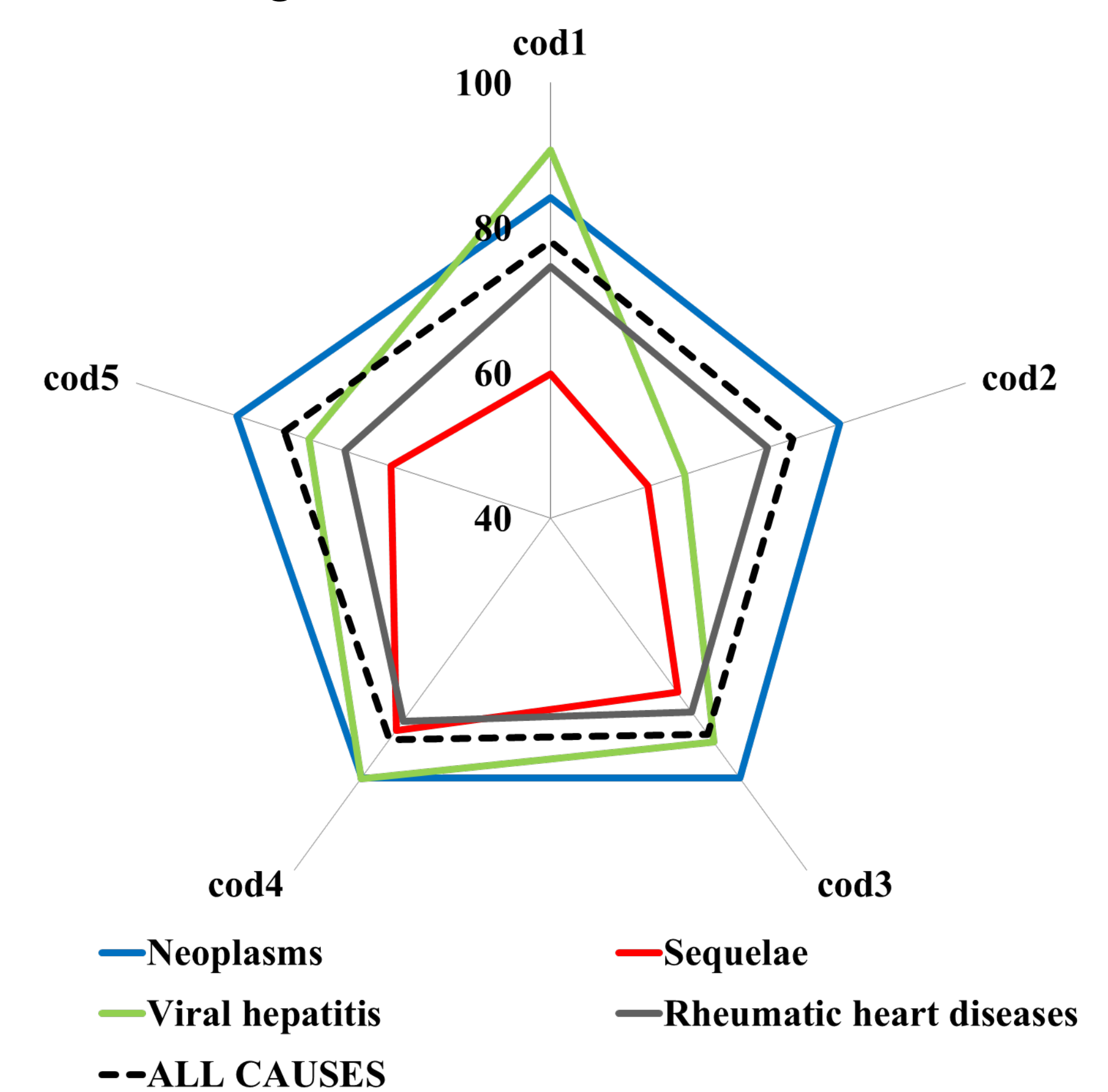


Figure 4 shows the agreement for some specific underlying causes by coder. A certain amount of variability especially for viral hepatitis and sequelae can be observed.

Figure 4. Percentage agreement on UC by coder, selected CoD.



Conclusions

The study shows the effectiveness of the training on the job period in increase the agreement of UC with the standard. The analysis of the inter-coder variability on specific coding topics highlights the needs of clearer instructions on some particular fields like sequelae and viral hepatitis.

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ICD10 Online in Italian: new perspectives for users, epidemiologists and coders

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C402

Istat – Italian National Institute of Statistics

Abstract The availability of an updated ICD10 is crucial for research purposes and correct data interpretation. With the intent to provide such a useful tool, the National Institute of Statistics (Istat) disseminated the ICD10 in the newly designed System of the Classifications. In this work the strategies to increase the usability of the ICD10 and the results achieved by disseminating this Classification in a web platform are described.

Introduction

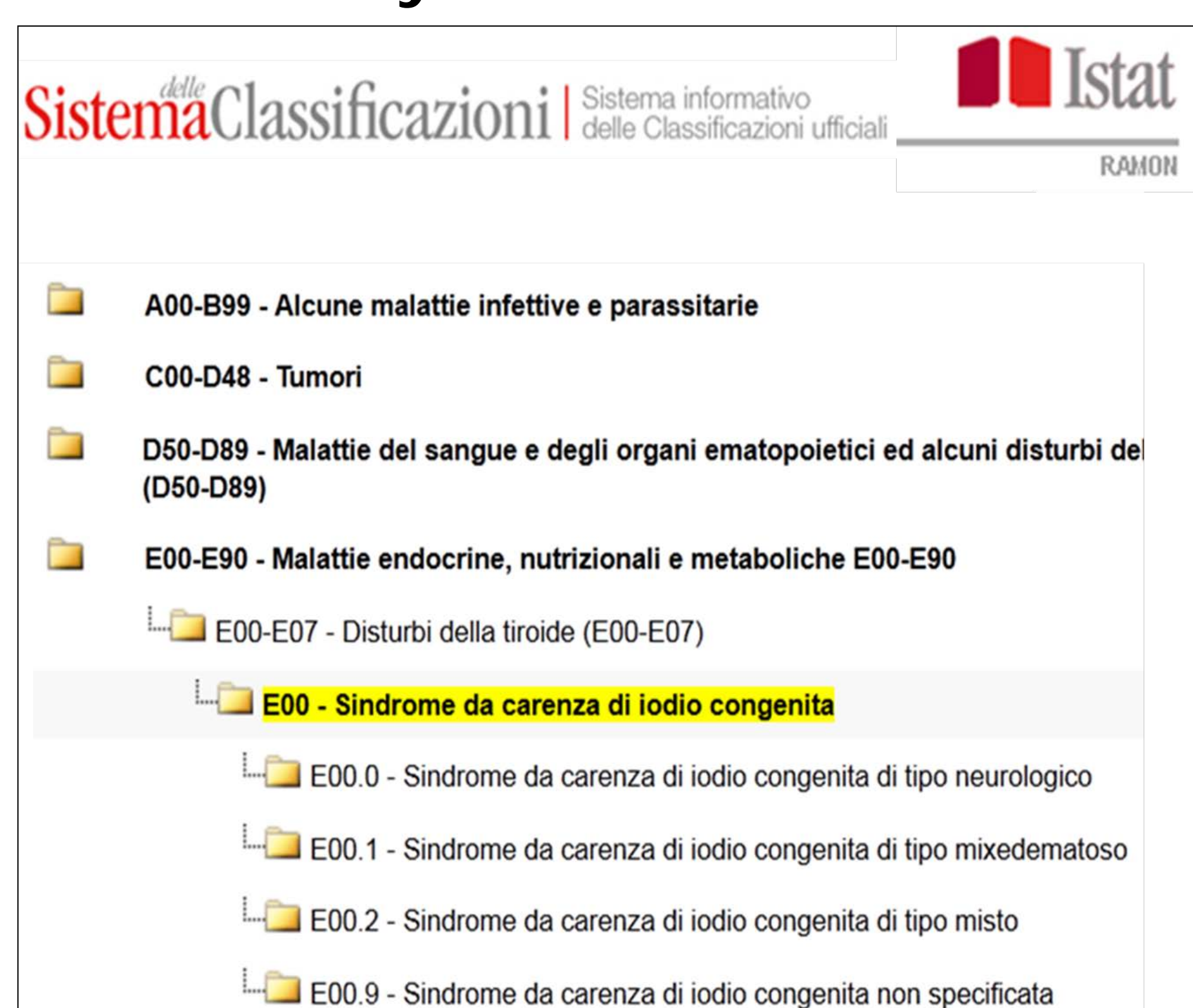
In Italy, ICD10 is used by the Italian National Institute of Statistics (Istat) for Causes of Death (CoD) coding since reference data year 2003. Version 2009 is being now used. Nevertheless, the version available for users is based on 1999 WHO updates produced by the Minister of Health as paperback. In order to provide metadata of CoD documentation and to provide a valid support for coders, Istat made an effort in the dissemination of ICD10 through the newly implemented System of Classifications, a web based tool for browsing classifications used in official statistics.

Methods & Materials

A web application was designed in order to navigate the ICD10 and provide all the useful information for coding: hierarchic structure of the classification, inclusions, exclusions, dagger/asterisk codes. Moreover, a module for the string search has been developed, based both on the Volume I and the Volume III. In this module, a system of string standardization and synonyms has been implemented in order to return the largest number of search results and the minimum number of false positive results.

All the information needed for the ICD consultation as well as the WHO updates up to 2009 were entered in a specific database compatible with Istat system of classifications.

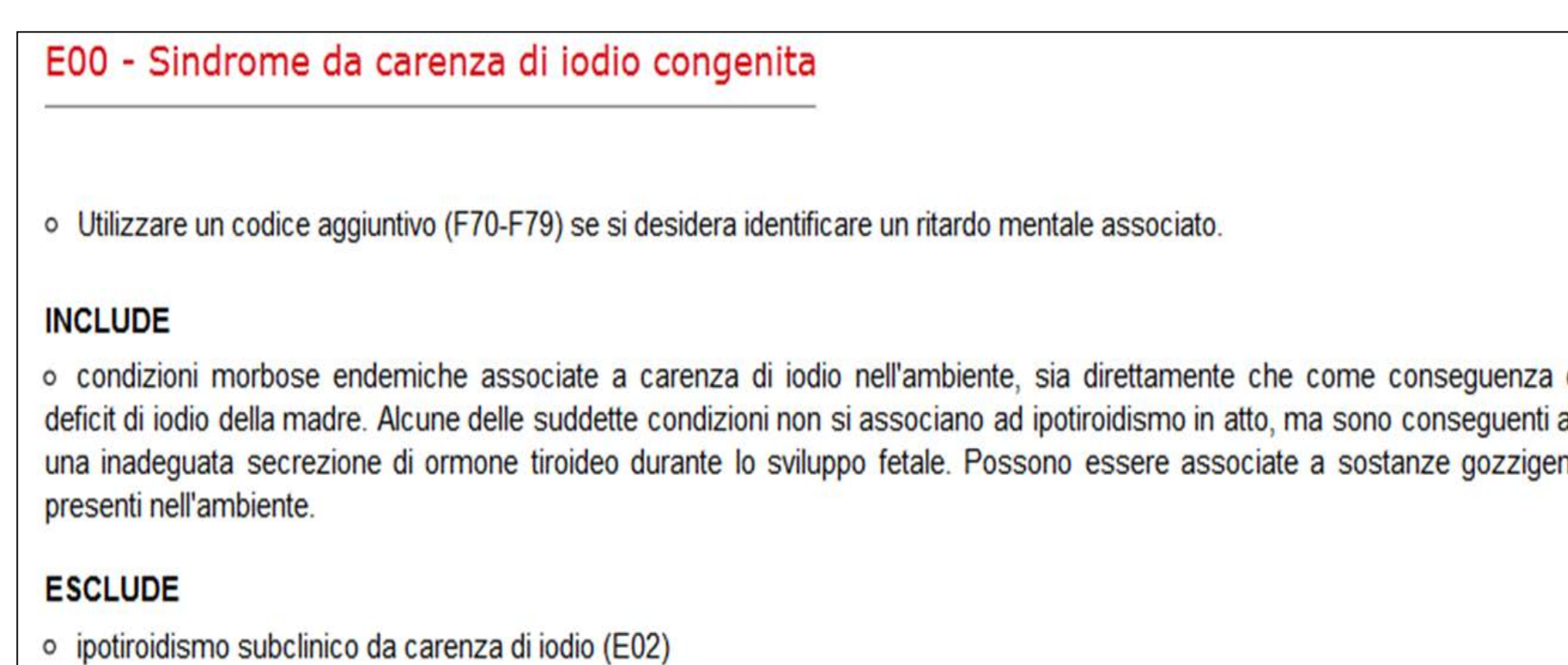
Figure 1: Browsing the ICD10 in the Istat System of Classifications



Results

The analytical classification is displayed as shown in figure 1, allowing the consultation of all the needed information. This tool, together with the additional information box (Figure 2), allows the user to have the complete information about the codes.

Figure 2: Additional information box contains all the information about the selected code. The user is redirected to the appropriate code by clicking on ICD10 codes mentioned in the “exclude” or somewhere else in the text



The search tool on the index is based on approximately 53 thousands terms. The power of the search is increased by the use of a system of synonyms (see and see *also* of ICD Vol III), and string standardization procedure. In order to better direct the user in the visualization of the many terms generated by the search, these are organized in the same way of the Volume III of the ICD10 (index) showing the results grouped by lead terms and indent. This view results to be very suitable for coding purposes (figure 3 and 4).

Figure 3: Results of the search of the term “infarto” (infarction). The 230 terms containing this string are displayed grouped as in ICD10 volume III, allowing the user to follow the correct lead term and indents

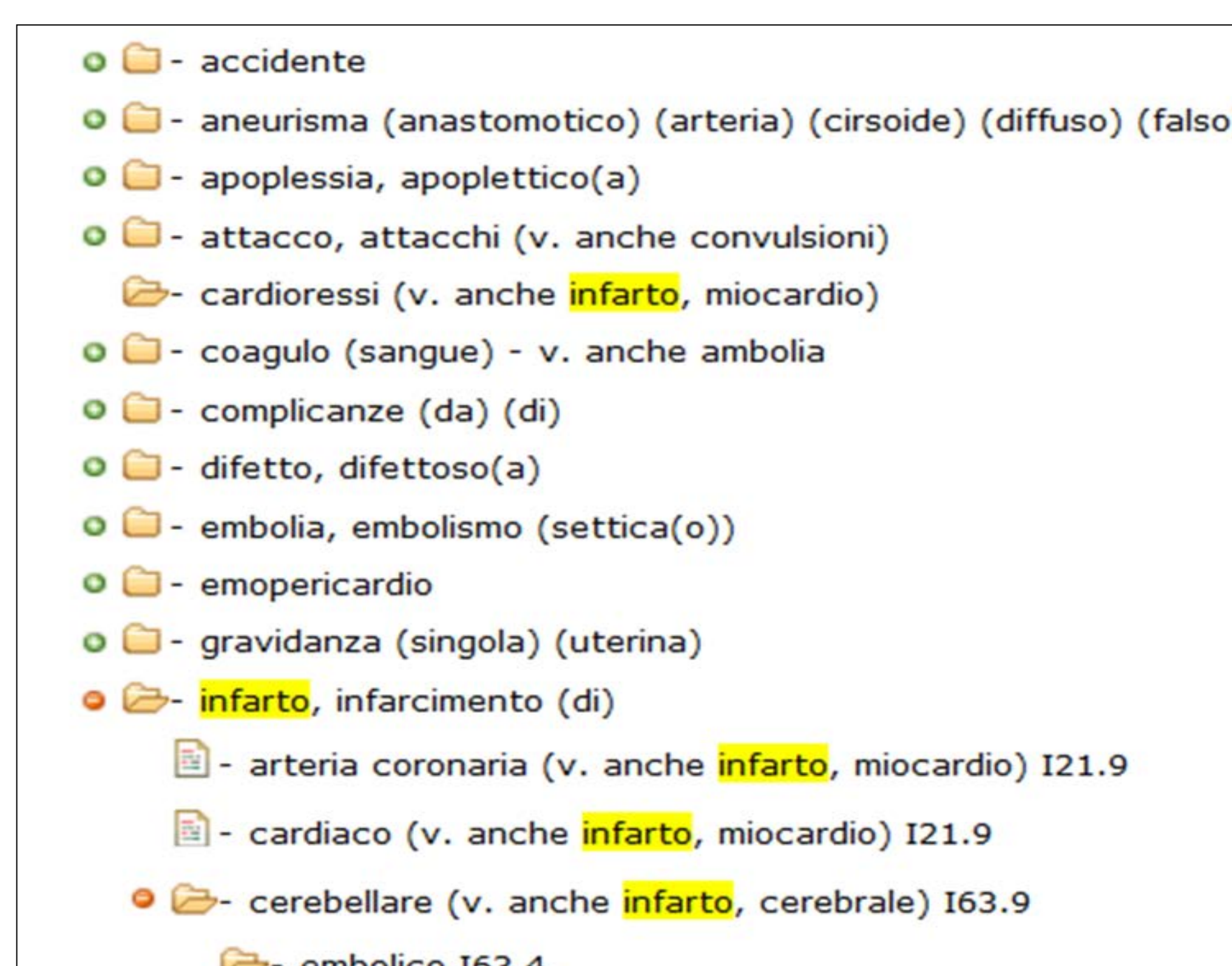
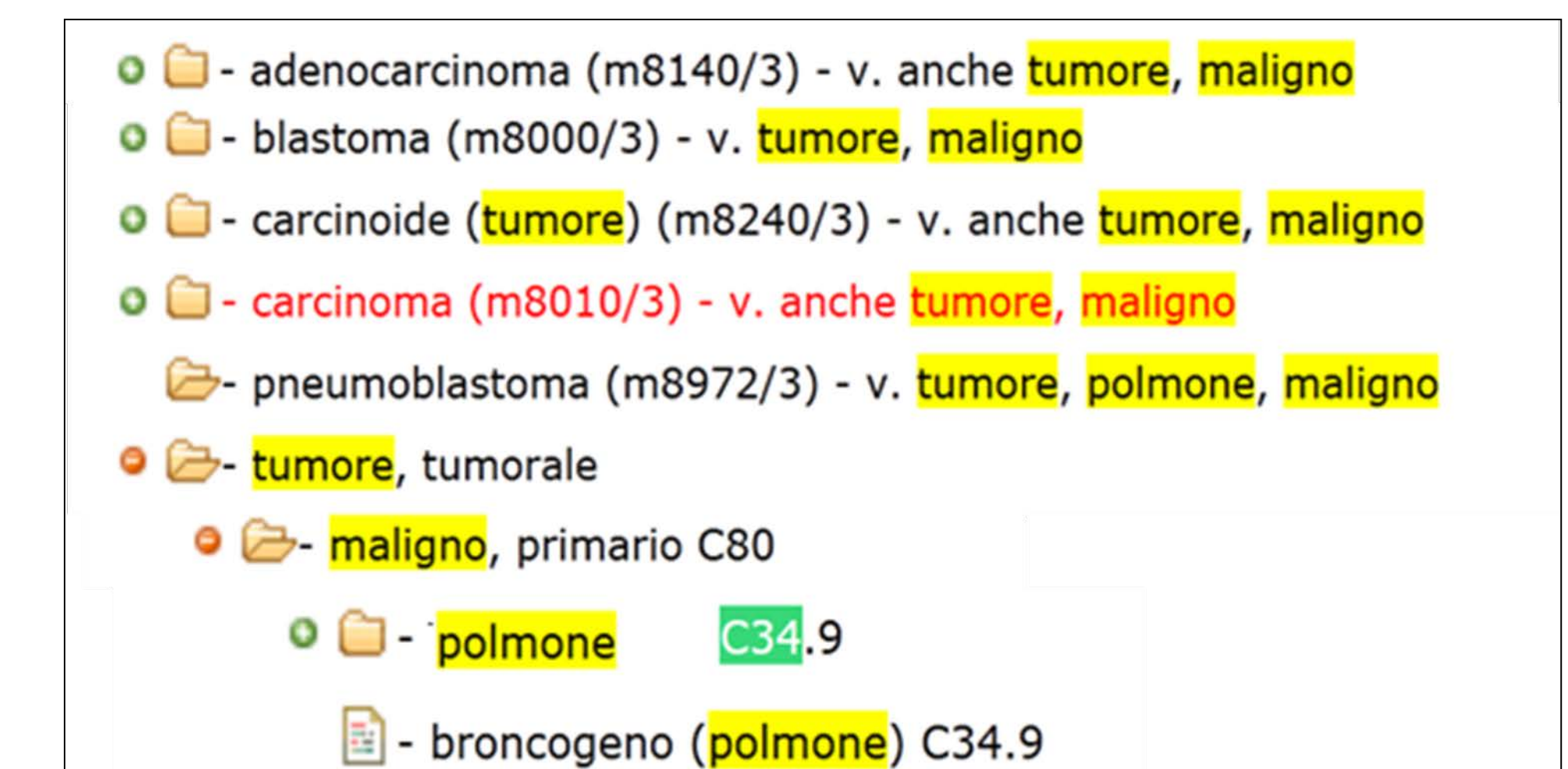


Figure 4: Part of results of the search “cancro del polmone” (lung cancer). The system automatically follows the “see also” reported in the the ICD volume III (Cancer, see also Neoplasm, malignant)



Conclusions

The ICD10 Online in Italian represents an essential tool for documenting statistics based on this Classification. The possibility of keeping updated the ICD together with the powerful integrated search tool, allows the use for coding purposes. Finally, the availability of the Online Classification is an opportunity for implementing the ICD10 in new fields.

Acknowledgements

This activity has been performed in the framework of the Istat working group of System of Classifications. ICD10 updates and data entry managed by research assistants of “mortality analysis and nosologic classification” unit of Istat.

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Estimates of Indigenous Infant Mortality Rates

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C403

Authors: Fadwa Al-Yaman (Australian Collaborating Centre and IGIHM), Ian Ring (University of Wollongong) and Sam Notzon (National Centre for Health Statistics, USA)

Abstract The quality of health information on the Indigenous population is at very different stages depending on region and country. Indigenous health information poses many problems and varies between regions, countries and over time. Accurate Indigenous health information is essential for monitoring and improving health. The poster provides an overview of Indigenous infant mortality estimation using data linkage methodology.

Significant disparities in outcomes exist between Indigenous and non-Indigenous Australians across a range of health and welfare measures. To combat this the Council of Australian Governments (COAG) announced 6 targets in 2007 focusing on early childhood (1), education (2), employment (1) and health (2). The health targets were: Close the gap in life expectancy between Indigenous and non Indigenous Australians by 2031 and halve the gap in mortality rates for Indigenous children under five by 2018. However, the extent of gap and monitoring the Closing the Gap is challenging due to the under identification in the classification of the ethnic identity of Indigenous people in many data collections. The AIHW works with the National Advisory Group on Aboriginal and Torres Strait Islander Health Information and Data to improve the quality and reporting of Indigenous health information.

Closing the gap in child mortality is a key COAG health Target and a key strategic area for NAGATSIHID. However most deaths of children under 5 happen during infancy. Infant mortality rates are worse for Aboriginal and Torres Strait Islander people than they are for non-Indigenous Australians. Several potential risk factors have been found for this disparity:

- Poorer health of Indigenous women of childbearing age
- Poorer socioeconomic status
- Higher rates of smoking during pregnancy
- Poorer nutrition
- Younger maternal ages
- Higher parities
- Higher rates of obesity
- Lack of access to culturally appropriate maternal and child health services

This presentation focuses on:

- 1.Current estimates of Infant Mortality
- 2.Data Quality issues and capture
- 3.Aims of the Infant Mortality Rate data linkage project
- 4.International collaboration

1. Current Estimates of Infant mortality

Figure 1 shows that in 2006-2010, 83% of all deaths in children under 5 years were from those under the age of 1 year. And that most Indigenous infant mortality happens during the neonatal period. Table 1 shows that estimates of infant mortality is variable among the Australian States and Territories and that because of data quality concerns data are published for five jurisdictions only. Some under identification in Indigenous infant deaths is evident in New South Wales and possibly South Australia.

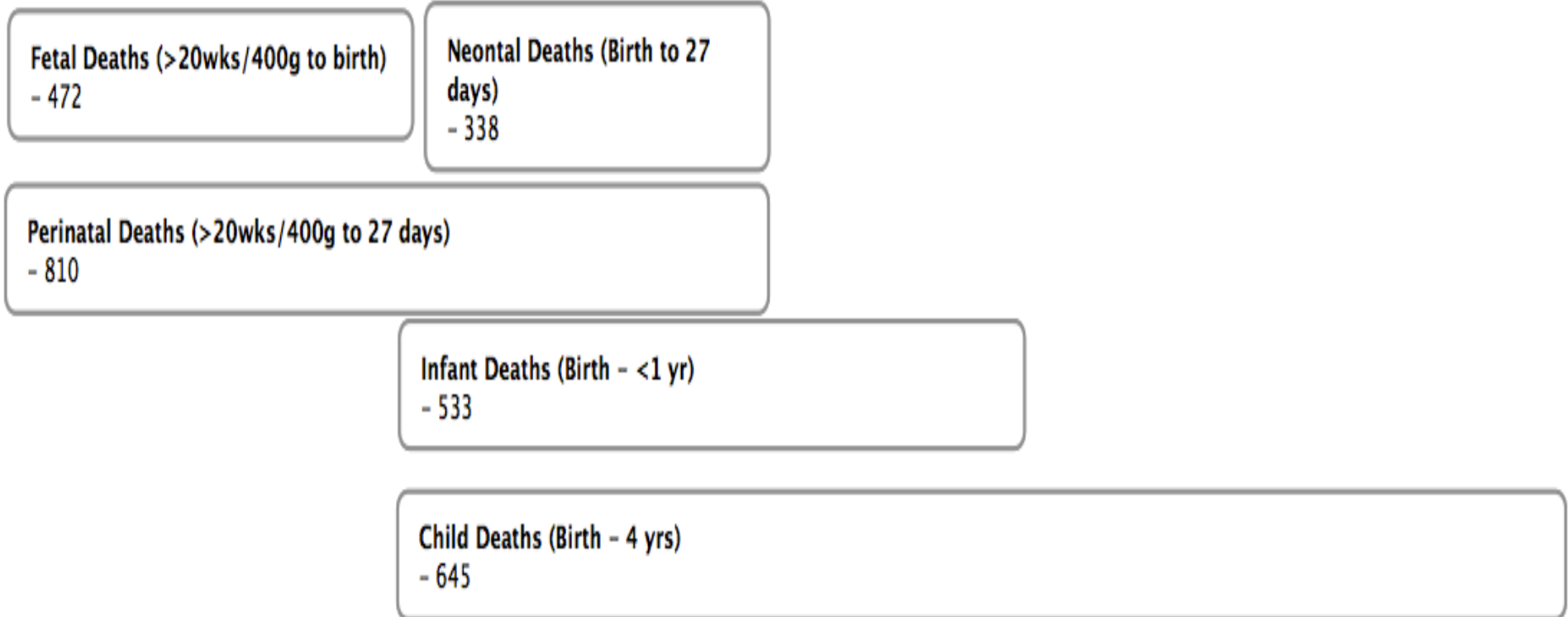


Figure1: Infant and child mortality, 2006-2010

Table1: Infant mortality estimates by state and territory, 2006-2012

State	Number Indigenous	Rate Indigenous	Number non-Indigenous	Rate non-Indigenous	Rate Ratio Indigenous /non-Indigenous	Rate difference Indigenous/n on-Indigenous
NSW	129	6.5	1835	4.2	1.5	2.3
Qld	182	8.0	1340	4.7	1.7	3.2
WA	94	8.3	416	3.0	2.8	5.3
SA	26	6.0	321	3.4	1.8	2.6
NT	102	13.1	43	3.8	3.4	9.3
Sub-total	533	8.1	3955	4.1	2.0	4.0

Table 2 shows that infant mortality rates have been declining over the last decade due mainly to declines in conditions originating in the perinatal period, sudden infant death syndrome, respiratory conditions and congenital malformations.

Table 2: Infant mortality rates 2001-05 to 2006-10, Indigenous Australians excluding Tas, Vic and ACT

Causes of infant mortality	Deaths per 1,000 live births			% contribution to fall in infant mortality rate
	2001-05	2006-10	Reduction in rate	
Certain conditions originating in the perinatal period	4.9	4.1	0.8	25.0%
Signs, symptoms & ill-defined conditions	2.6	1.2	1.4	45.1%
SUDI (R95, R96, R98, R99)	2.6	1.2	1.4	44.4%
Diseases of the respiratory system	0.7	0.3	0.4	13.1%
Congenital malformations	1.5	1.3	0.2	7.1%
Injury & poisoning	0.5	0.4	0.2	5.8%
Infectious and parasitic diseases	0.4	0.2	0.1	4.6%
Diseases of the circulatory system	0.1	0.2	-0.1	-3.4%
Other conditions ^(m)	0.5	0.4	0.1	2.7%
Total decline in Indigenous rate 2001-2005 to 2006-2010	11.3	8.1	3.2	100%

2. Data quality issues and capture

We need data linkage to estimate infant mortality rates for the following reasons:

- To estimate IMR accurately, need accurate estimates of the total numbers of births and deaths
- Different sources of birth and deaths data give different numbers of births and deaths
- Different data sets capture Indigenous status information on different clients (see Table 3)
- IMR current estimates vary across states and territories and by remoteness
- In some administrative data (e.g. hospital)- there is a link between increasing remoteness and better identification
- Compare admission records with bed-side interviews (gold standard)
- 20,099 interviews
- 88% agreement between the two records nationally
- Varied by remoteness -77% major cities to 99% in very remote areas

We don't know if this association holds for births and deaths data.

Table 3: Capture of Indigenous status information in different data sets

Data set	Mother	Child/client	Father
Birth registration (births)	Y	N	Y
Perinatal (births)	Y	Yes – from 2012	N
Hospital (births)	N	Y	N
Death registration (deaths)	N	Y	N
Death Cause of death Certificates (deaths)	N	Y	N
Total	2/5 (40%)	3 or 4/5 (60-80%)	1/5 (20%)

Quality of Births registration data for Indigenous populations

- No assessment of quality of births registration
- late registration especially for Indigenous Australians but what is the differential by remoteness
- level of unregistered births- both in urban and remote areas unknown (police data, NAGATSIHID concern)

Quality of Mortality data for Indigenous populations

- some national assessment
- under identification by state /territory
- no assessment of data quality by remoteness
- no adjustments made where the level is estimated
- Published data are underestimates
- No national reporting – data quality concerns for three jurisdictions

3. Aims of IMR data linkage project

- Link birth records in Perinatal Data Collection, the Registry of Births, Deaths and Marriages to produce an accurate account of births to Aboriginal (and non-Aboriginal) parent/s
- Create a complete birth-death linked record for each infant
- Review of disparities in maternal characteristics (maternal age and marital status) and birth outcomes (birth weight and gestational age), between Aboriginal and non-Aboriginal births.

4. International collaboration

International Group for Indigenous Health Measurement

The AIHW is the Australian Collaborating Centre for WHO FIC. In addition, the AIHW has been an active member in the *International Group for Indigenous Health Measurements (IGIHM)* since its establishment and hosted the most recent meeting in Canberra on the 21-24 February 2012.

The IGIHM held a workshop in Montreal Canada in August 2013 to focus on progressing Infant mortality and life expectancy estimates in the four countries (Australia, Canada, New Zealand, and the United States). The AIHW will be taking a lead role on coordinating the infant mortality work across the four countries.



ICD-10 implementation in the health information system of the Piedmont Region (Italy) to overcome WHO multiaxial classification of mental disorders of children

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C404

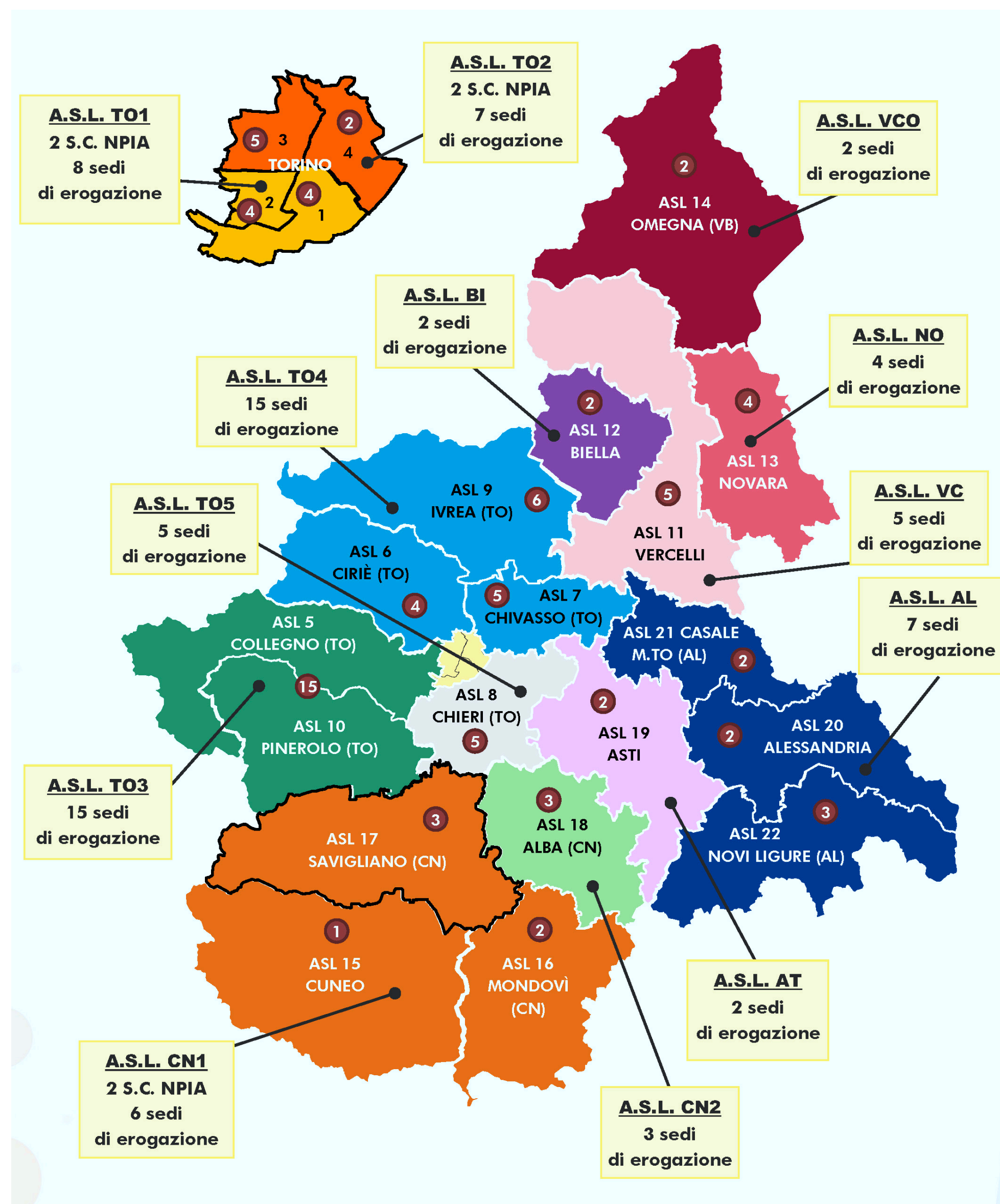
Lucilla Frattura, Francesco Gongolo, Flavia Munari
Central Health Directorate, Classification Area, Friuli Venezia Giulia Region, IT WHO-FIC CC, Udine

Abstract This poster presents the activities carried out by the Italian WHO-FIC CC to implement the full use of ICD-10 in the Piedmont region (Italy), where the derived Multiaxial Classification (MC) of Child and Adolescent Psychiatric Disorders is used for epidemiologic purposes in the NPI.net, the regional information system collecting data from child/adolescent neuropsychiatry services.

Introduction

Although ICD-10 is not mandatory for morbidity coding in Italy, Italian scientific societies have adopted the derived Multiaxial Classification (MC) of Child and Adolescent Psychiatric Disorders as a diagnostic tool (1). This has led to two misconceptions on ICD-10: ICD-10 is only a diagnostic tool and is limited to the categories of the MC (chapter V, some codes of chapter XXI, few codes from other Chapters). This paper presents the activities carried out by the Italian WHO-FIC CC to implement the full use of ICD-10 in the Piedmont region (Italy), where MC is used for epidemiologic purposes in the NPI.net, the regional information system collecting data from child/adolescent neuropsychiatry services.

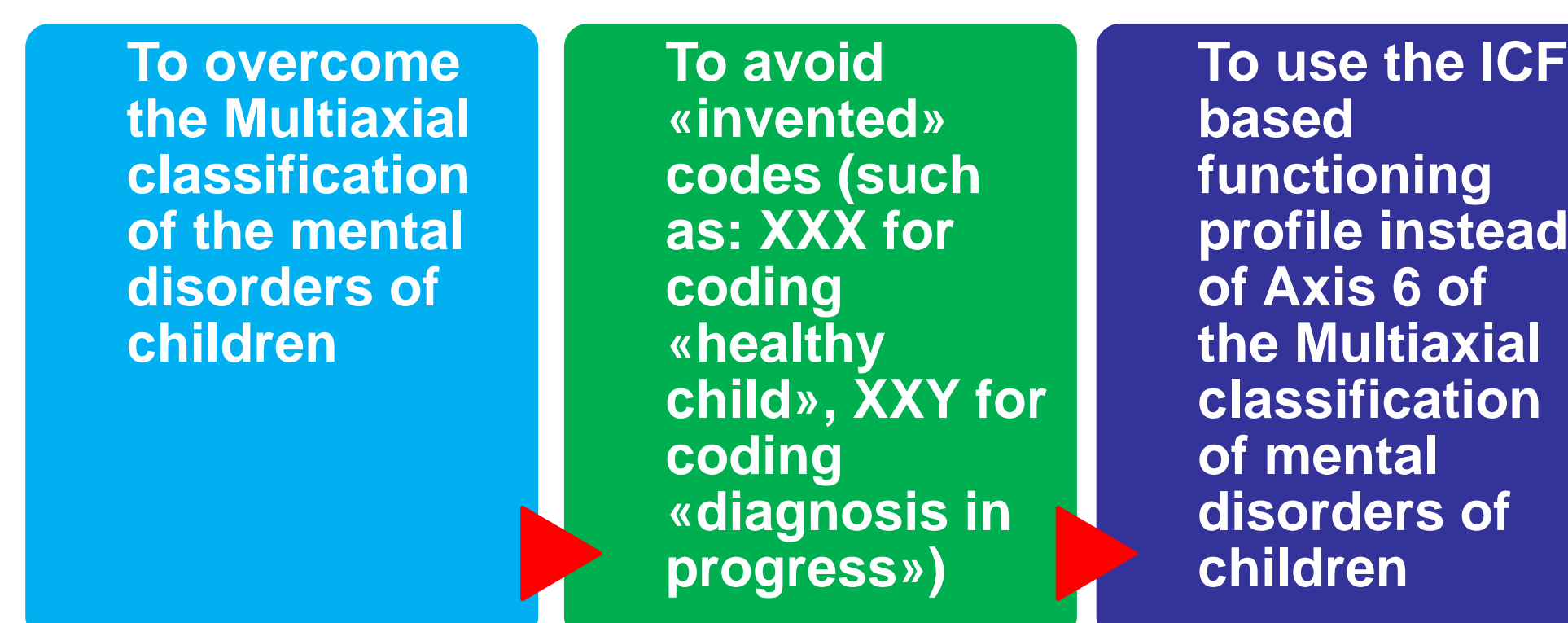
Figure 1: The local health authorities in Piedmont region



Methods & Materials

By formal agreement, the Italian WHO-FIC CC provided the Piedmont region with support in the training of professionals and in the revision of NPI.net. The training aims were: (i) to overcome the use of the MC; (ii) to avoid the use of codes invented to fill the gaps of the MC in the clinical practice; (iii) to replace the sixth axis of the MC with an ICF profile. The first ICD-10 training (14 hours, two consecutive days) was for a restricted group of health services directors (N=30) and was held in November 2012 in Turin. The second ICD-10 training course (14 hours, two consecutive days) was held in May 2013 for 90 health professionals (psychiatrists, neurologists, and psychologists).

Figure 2: Three operational aims of the training programme



Results

New education materials were developed, including three sets of coding exercises, tailored to the requirements of child/adolescent neurologists, psychiatrists, psychologists and rehabilitation operators; coding errors due to the outdated and approximate translation of the MC were addressed; wrong coding habits were corrected; and codes invented for conditions not present in the ICD-10 Tabular List as such were avoided by appropriate use of the ICD-10 Index. The distinction between the diagnosis and the coding of a health condition was made clear training was performed on the of the three decision trees designed by the Italian Collaborating centre. (2) At the end of the course, trainees were seamlessly switching from the use of the outdated MC to the use of the full ICD-10.

Figure 3: Use of Diagnostic categories, in the NPI.net database (pre-training analysis, ASL 12 only)

The 11 most frequent codes cover 50% of coded conditions		The most frequent code is 'XXY', «Diagnosis in progress»	
Diagnostic categories	N.	%	% CUM.
XXY Diagnosis in progress	511	19%	19%
F70 Mild mental retardation	176	6%	25%
G44 Other specified headache syndromes [. . .]	126	5%	30%
QXX Borderline cognitive capacity (I. Q. 70-84)	84	3%	33%
Z60.1 Atypical parenting situation	77	3%	36%
F80.1 Expressive language disorder	70	3%	39%
XXX Healthy	66	2%	41%
F81.0 Specific reading disorder	61	2%	43%
F81 Specific developmental disorders of scholastic skills	54	2%	45%
F81.3 Mixed disorder of scholastic skills	53	2%	47%
Z63.8 Other specified problems related to primary support group	52	2%	49%
All the rest	1345	50%	99%
Not determined	33	1%	100%
Total	2708	100%	

Figure 4: The first ICD-10 class (including the three trainers/authors) on November 2012



Conclusions

An appropriate use of ICD-10 allows users to keep the classification as a diagnostic tool and to fully code all conditions and reasons for encountering health services. The Italian translation of the WHO ICD-10 training tool is highly encouraged, although specific users needs should be considered. In the framework of the Italian WHO-FIC CC/ Piedmont region collaboration, a web application (FABER) will be implemented for an ICF-based evaluation of functioning, formerly described using the sixth axis of the MC (3). Although limited to the Piedmont region, the experience has national relevance as it is the first implementation of ICD-10 in a morbidity setting.

Figure 5: The second ICD-10 class on May 2013



Acknowledgements

The activities carried out by the the Italian CC were funded by the Piedmont Local Health Authority n.12 "Biella". The authors thank all the professionals who participated to the training programme, in particular: Guido Fusaro (standing in Figure 5), Giampiero Vellar, Francesca Ragazzo, Fulvio Guccione, Alessandro Mariani, Paola Chiadò Piat, Giuseppe Viriciglio, Orazio Pirro, Giulia De Marchi, Francesca Menegon. Thanks to Maria Maspoli at the Piedmont region, Heath Directorate for her appreciation. Linda Best provided her collaboration in the design of the basis of an intermediate/advanced training course on diagnostic coding using the International Classification of Diseases (ICD-10).

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FIC Trainings – Trainees View-Point 12 – 18 October 2013 Beijing, China

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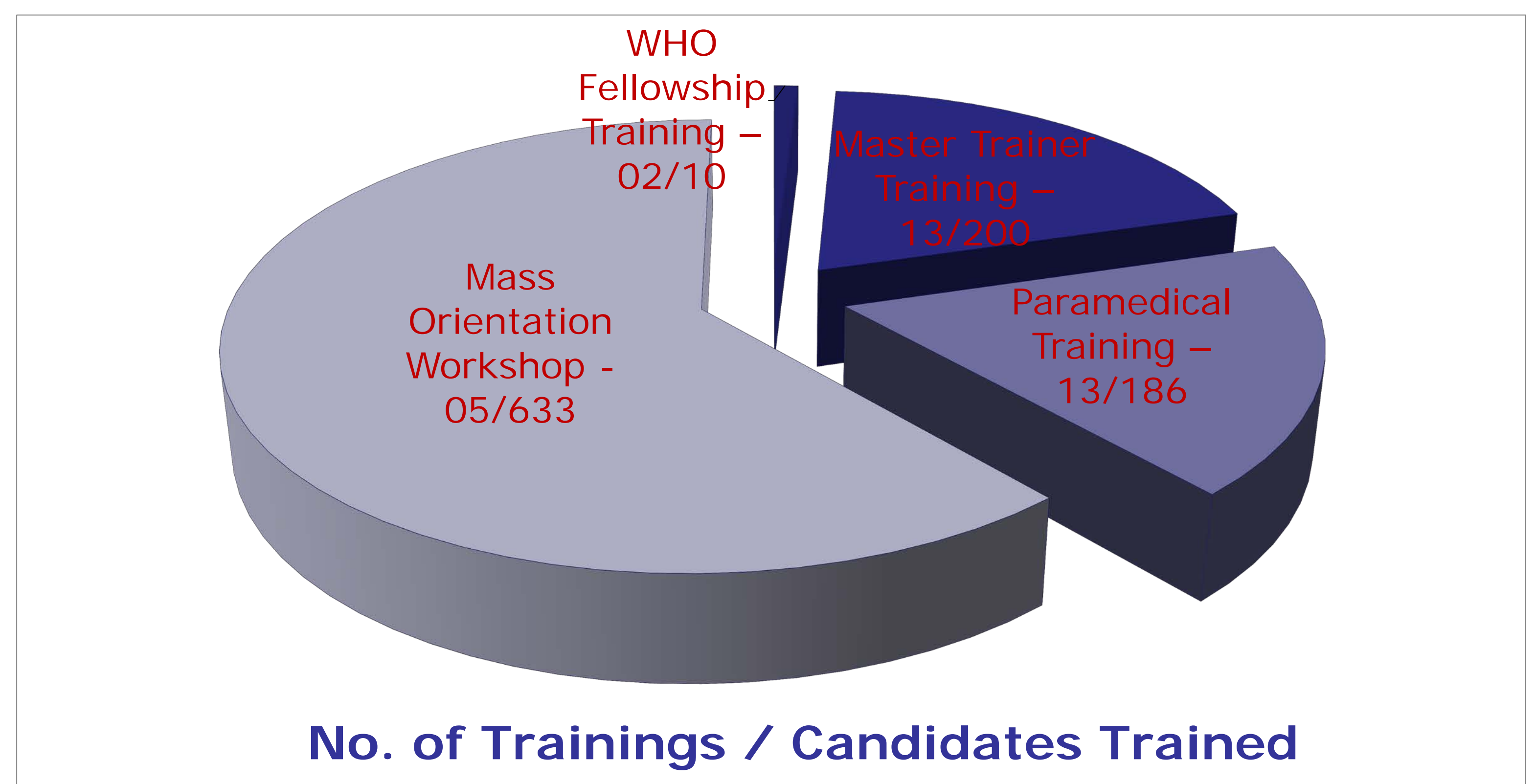
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Abstract : The feedback analysis provides inputs for further improvement of training approach, methodology and targeted outcome for the overall success to improve and strengthen the health information management chain. This presentation is based on the trainees viewpoint of all such 1029 international and national (both medical and paramedical) trainees from the year 2007 to 2013 trained through 28 such trainings on Family of International Classifications (ICD -10 & ICF) organised at RHSTC, Mohali, Punjab (02 International WHO fellowship training, 13 Master Trainer training, 13 Paramedical trainings) and 05 mass orientation workshops on FIC held at various Medical institutions.

INTRODUCTION

- Central Bureau of Health Intelligence (CBHI), New Delhi under Dte. General of Health Services in the Ministry of Health & Family Welfare (Govt. of India) is a WHO collaborating centre for FIC in INDIA is actively involved in implementation of WHO – Family of International Classifications (ICD -10 & ICF) in India.
- CBHI organizes various short term trainings and mass orientation workshops on FIC (ICD 10 & ICF) in various medical institutions of the country primarily through its national training centre RHSTC, Mohali & its 6 field survey units (FSU's)
- The wide spectrum of trainees includes international WHO fellow's, Medical College Faculty, in-service Medical Officers, Resident Doctors and Paramedical Staff of medical record department, data entry operators, staff nurses to even final year medical students.
- With continuous efforts of CBHI there is a gradual increase in awareness about FIC and capacity building of trained manpower.
- The pre & post-evaluation Performa's are important tools to assess the knowledge of the trainees while feedback and suggestions helps to assess the quality of training and its outcome.



RESULTS

Based on Pre & Post Evaluation Performa

- 869 (84%) trainees have no prior knowledge of FIC - importance & uses and method of coding
- 740 (72%) were not updated with Morbidity & Mortality guidelines, Death certificate, UCOD, Main Condition
- 92 % express to have learnt FIC satisfactorily
- 96 % agree that FIC training is useful for professional carrier
- 78 % convinced with duration of training
- 87 % were satisfactory about content of curriculum
- 76 % expressed more comfortableness with FIC books instead of software programme to do FIC coding

CONCLUSIONS

Based on Feedback & Suggestion of trainees

- FIC training may be divided into two parts :
(Part1) Orientation training– for 02 days
(Part 2) Advanced training for 07 working days
- ICF component should not be more than 25% of total duration in curriculum
- Percentage of theory & practical exercise component be changed to 30% & 70% respectively.
- Number of lectures for medical terminology should be more to build up medical vocabulary for paramedical staff
- Refresher course or retraining should be done
- FIC books should be bi-lingual in local languages to have better understanding

Later cross evaluations of medical records departments of various medical institutions is an important step to evaluate the impacts of our trainings and mass orientation programmes on FIC to receive quality outcome in the last.



METHODS & MATERIALS

Material used are written pre & post training evaluation Performa's & feedback and suggestion sessions of the 1029 international and national (both medical and paramedical) trainees from the year 2007 to 2013 trained through 28 such FIC trainings and mass orientation workshops organised at RHSTC, Mohali, Punjab



TCM Information and International Classification

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Authors:Chinese Work Group of
WHO International Classification of Traditional Medicine

Abstract

Since 2000, the State Administration of Traditional Chinese Medicine, P.R. China (SATCM) has selected 100 TCM hospitals from more than 2,000 TCM hospitals throughout China to build a surveillance network focusing on all data from the front page of inpatient medical records. During the period from 2000 to 2010, the surveillance network accumulated a huge number of medical records with double diagnoses which could provide effective data support for WHO’s ICTM project.

Key Words: Traditional Chinese Medicine; Information

INTRODUCTION

In 1995 and 1997, China released the GB/T15657-1995 and GB/T16751-1997, which regulated classifications and definitions of TCM diseases and patterns. Wide implementation of these standards made the surveillance of TCM clinical practice data possible. Under the management of SATCM, China has started its long-term surveillance on all data from the front page of inpatient medical records since 2000. Until 2010 the surveillance has accumulated over 2,500,000 cases with double diagnosis of both TCM and western medicine in database, which could provide strong support for allowing TCM classification be a member of WHO-FIC.

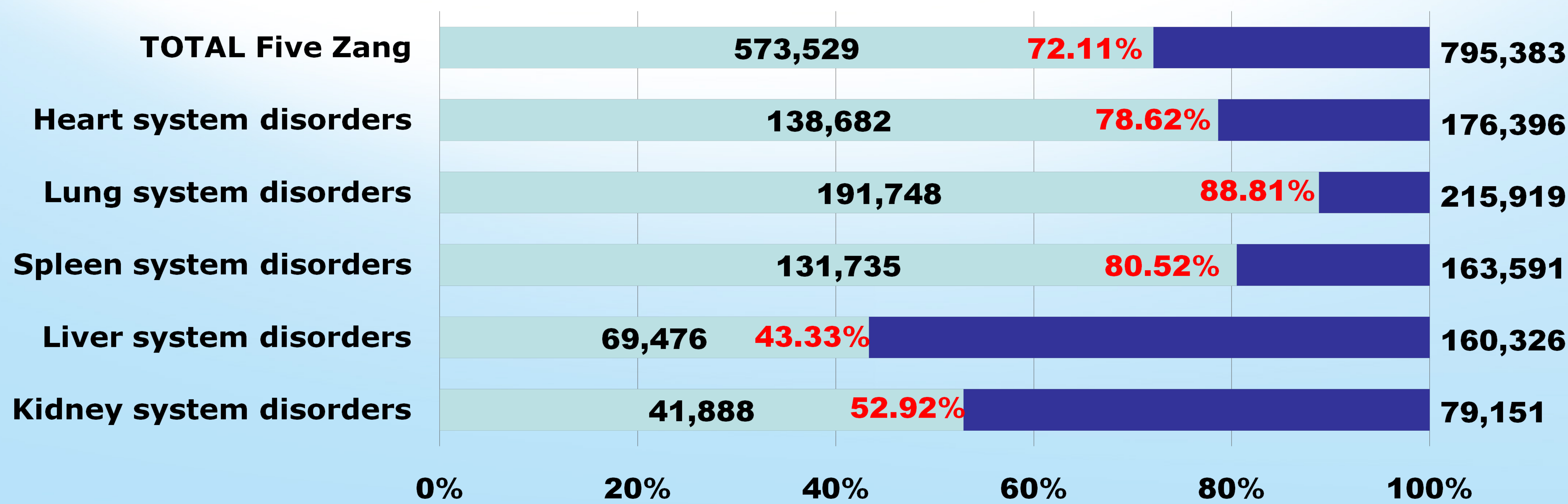
METHODS & MATERIALS

Based on the principle of stratified cluster random sampling, 100 hospitals were selected among over 2000 TCM hospitals (including and above county-level hospitals) as surveillance sites . Information of the front page of inpatient medical records among those 100 hospitals were collected, including TCM diagnosis(GB95 and GB97 codes) and western medicine(WM) diagnosis(ICD-9 and ICD-10 codes). This study compared the codes of Zangfu organ disorders between ICD-11 Beta (only the contribution from China) and the GB95 & GB97 by analyzing the medical record database(MR-database 2000-2010).

RESULTS

In MR-database 2000-2010, totally 795,383 cases with dual codes of both TCM & WM, which could be classified in to zangfu disorders according to GB, were retrieved. While 573,529 cases were retrieved according to the codes of zangfu disorders in ICD-11 beta(only the contribution from China), which is 72.11% of all cases in database. Among those data, the ICD-11 beta codes can cover78.62% cases in heart system disorders in GB, 88.81% in lung system, 80.52% in spleen system, 43.33% in liver system and 52.92% in kidney system.

Case Coverage Rate: the coverage rate of disordersTM in Zangfu systems of ICD-11 chapter23 beta version in MR-database



number of related cases with ICD-11 Chapter 23 Beta Version
Data source: 2000-2010, National Monitoring Center of Traditional Chinese Medicine Healthcare Services, SATCM

CONCLUSION

In GB95 and GB97, there are 226 disorders in Zangfu organ systems, 43 of them were included into ICD-11 Chapter 23, which is 19.03% of GB. According to the data above mentioned, although disorder codes in Zangfu organ systems in chapter 23 only are 19.03% of all the disorders in GB, they can still cover 72.11% of all the GB cases in MR-database, which showed good coverage rate & representativeness.



Lessons Learned from the International Training and Credentialing Program (ITCP)

12 – 18 October 2013
Beijing, China

C408

Cassia Maria Buchalla, Joon Hong & Carol Lewis

Abstract. During the process of developing the EIC International Exams for Morbidity and Mortality Coders, many issues appeared. Questions regarding the exam protocol, marking schemes, translation to other languages, were raised. During the pilot of these international exams we also discovered that we have to deal with more than one ICD-10 version, difficulties in interpreting ICD-10 volume 2 coding instructions and poor test results.

Background

The ITCP is aimed at promoting high quality and consistent health data. It is a project developed together with the International Federation of Health Management Associations (IFHIMA) and involves a process of qualify trainers and mortality or morbidity coders.

This project started by defining a Curriculum for ICD-10 mortality and morbidity coding and for ICF training courses. This allowed the group to certify training materials based on meeting Curriculum requirements.

International exams were developed in order to certify the competence of mortality coders and trainers and to assess the competence morbidity coders.

Mortality Coders Exam

The exam consists of a set of 60 questions for trainers and 50 for coders which are sampled from a total of 100 questions (plus 63 new questions to be added to the Exam)

The value assigned to each question depends on the correct Underlying cause of death (UC) selected and rules used for selecting it. The passing mark is 80%.

The mortality coders exam has been translated to Korean, Spanish, French, Portuguese, Japanese and piloted in many countries reaching more than 200 coders and trainers. Sixty coders and 19 coder/trainers have been awarded the certificate.

Morbidity Coders Exam

A survey confirmed the necessity of an international exam for morbidity coders. It is aimed at assessing coders' knowledge and skills in using ICD-10, without awarding certificate at present.

The exam consists of 20 multiple choice questions; 30 coding diagnosis questions and 10 short scenarios and 5 long scenarios. The passing mark is 80%.

The morbidity exam was piloted in 6 countries by 291 morbidity coders.

Lessons learned

Regarding the Exams:

Good communication is essential

- Provide a complete exam protocol
- Marking scheme
- Translation of the exam questions

Timing matters

- Scheduling of exam
- Time allotted to answer questions

Regarding ICD-10

Clearer and more detailed coding instructions by WHO (Vol. 2) are required

Need for standardized coding instructions to avoid different national coding instructions/interpretations

Use of different versions of ICD-10 by country and even in the same country by district is a challenge

Regarding the Exams results:

All results are very important as they identify weak points in morbidity and mortality coding and suggest ways for developing/improving coding education programs

Future plan

The international exams meet an important need and the EIC will continue to develop and promote them.





Attempts to Improve the Accuracy of Death Certificates through Intervention by Health Information Managers: Step 2

12 – 18 October 2013
Beijing, China

C409

Osahiro Takahashi, Shozo Kawai, Kazuo Matsumoto,
Koichiro Miki, Makoto Anan, Yasuo Arai, Toshio Oi

Abstract In the final stage of serial research on improving the accuracy of death certificates started in 2006, our research in 2012 revealed significant improvement of the accuracy of death certificates with advices to physicians completing death certificates by health information managers, who had been trained in the rules on underlying cause of death selection in ICD-10. In particular, the percentage of correspondence between death certificates and discharge summaries at the four-character level (i.e. the condition, site, and detailed site) was as high as 68%, clearly showing that a progress was made in correct description of death certificates. Prevalence of education on the writing of death certificates is expected to contribute to increasing the accuracy of mortality statistics.

Introduction

From 2006 to 2011, we conducted a series of research on improving the accuracy of death certificates.

Our surveys and research in 2007 and 2008 revealed that the accuracy of death certificates was rather poor.

Subsequently, we attempted to improve the accuracy by providing information regarding correct description of death certificate, using desk-pad sheet and remainder notes attached to the certificate form, but its effect was not clear.

In 2011, we conducted a workshop for health information managers regarding the rules of correct writing of death certificates, and in 2012, we analyzed the effect of intervention by health information managers in completing death certificates.

Materials & Methods

(1) Training of health information managers on death certificates and rules for underlying cause of death selection

In 2011, we developed an educational program that highlighted how underlying causes of death are selected from death certificates and reflected on mortality statistics in our country. We prepared textbooks, and provided training to health information managers from 177 hospitals across Japan.

(2) Analysis on the effect of health information managers advising physicians on improving accuracy of death certificates

We asked hospitals that participated in the training in 2011 and those consented to having the health information managers advise physicians on filling out death certificates, to submit sets of death certificates and discharge summaries of deceased patients.

Using the documents provided, we selected and coded the underlying causes of death from the death certificates. We also determined the likely underlying causes of death from the discharge summaries and coded them.

Based on the Japanese version of ICD-10 (2003 version) and the mortality tabulation list used in Japan, we compared and categorized the two sets of ICD codes into the following categories;

- “correspondence at the 4-character level (i.e. correspondence in the condition, site, and detailed site),”
- “correspondence at the 3-character level (i.e. correspondence in the condition),”
- and “correspondence in the mortality tabulation list,”
- “disparity in the mortality tabulation list,” and “disparity at the chapter level.”

We picked up and analyzed the following factors negatively affecting accuracy of death certificates;

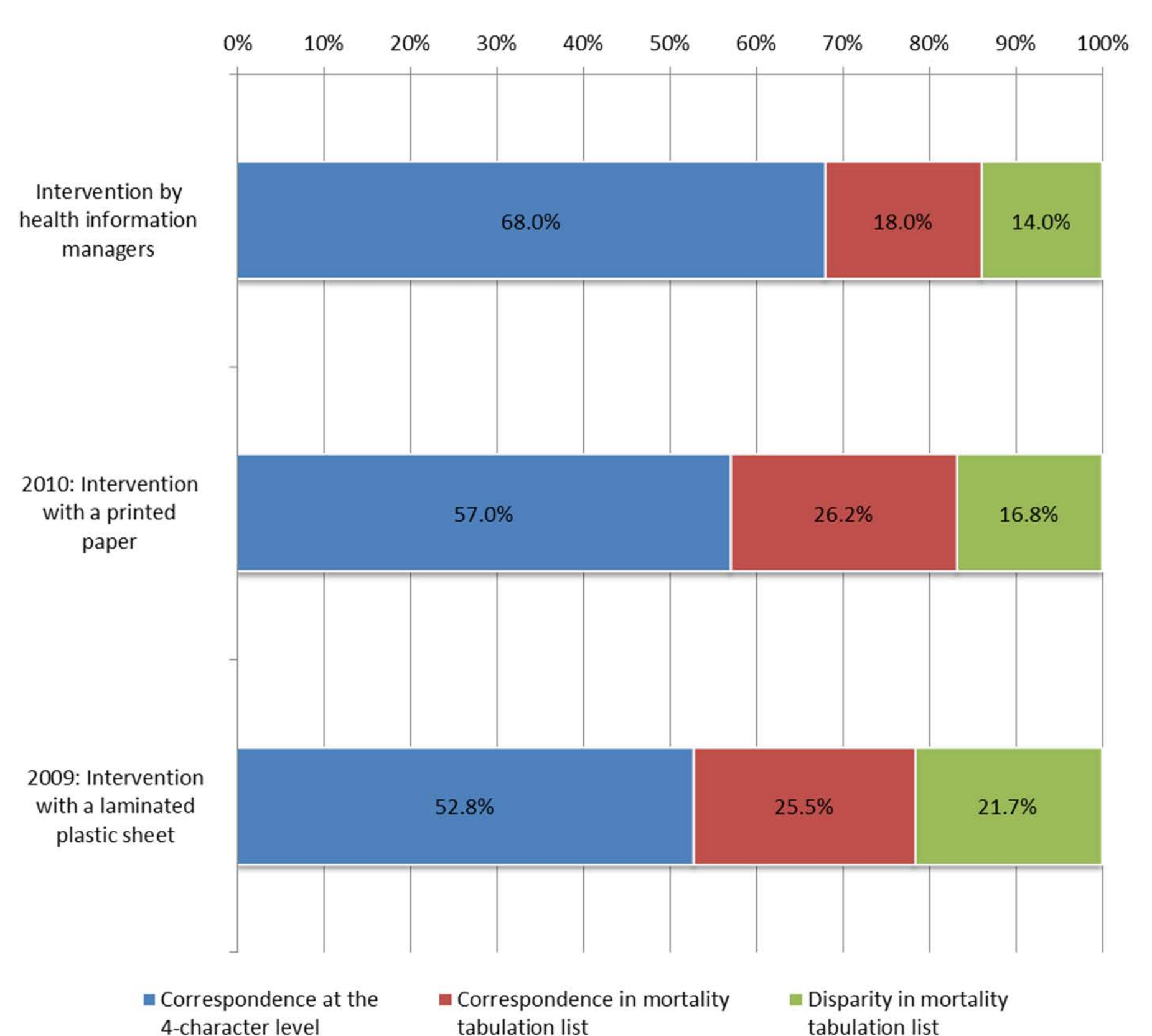
- (1)etiologic agents not specified
- (2)carcinoma cell type not specified
- (3)benign/malignant neoplasm not specified
- (4)site not specified
- (5)site inaccurate
- (6)other details not specified
- (7)inconsistencies between the contents of the death certificate and discharge summary
- (8)underlying conditions not specified
- (9)death certificate inappropriately written
- (10)inappropriate handling of emergency cardiac arrests
- (11)external causes ignored

Results

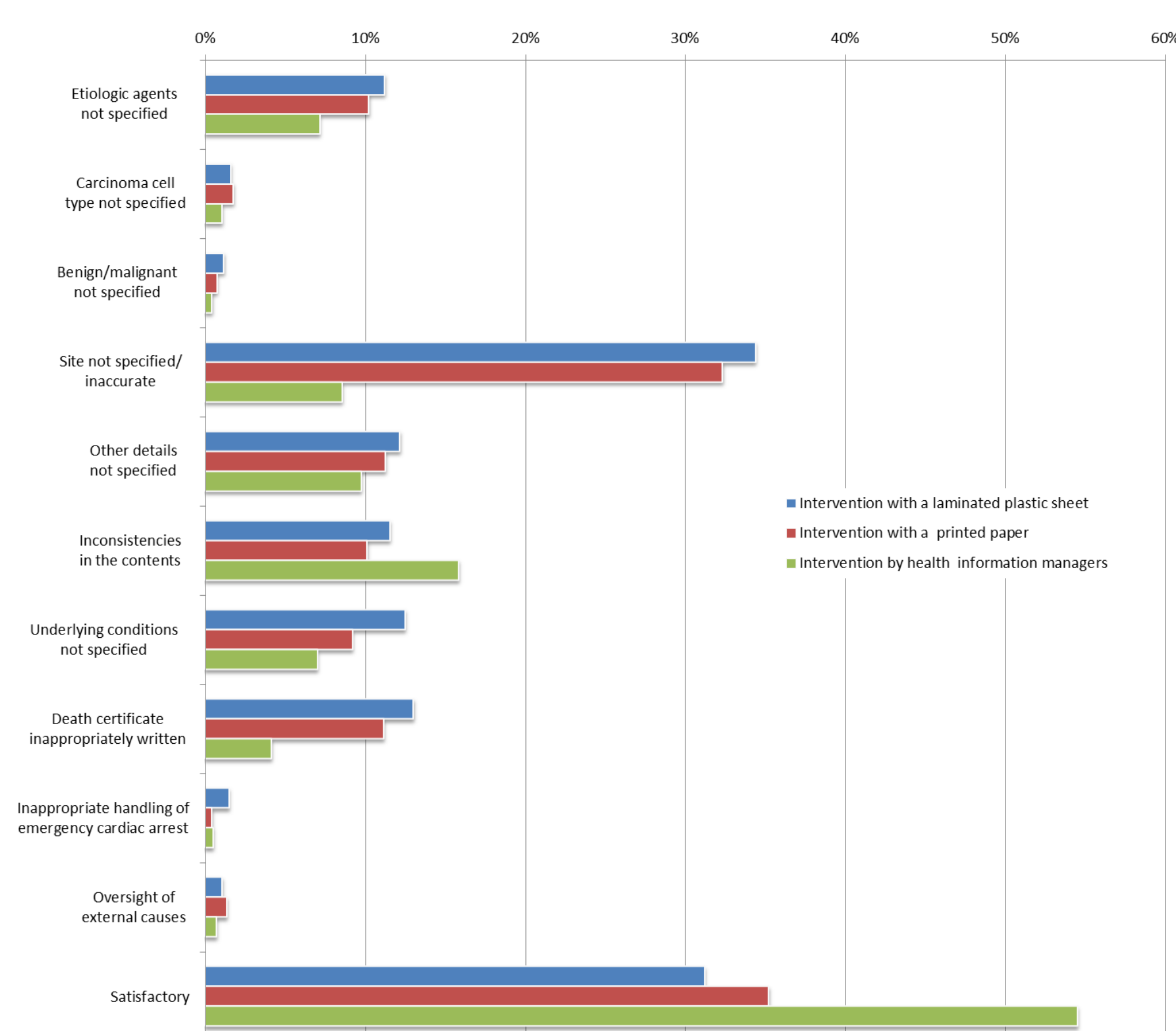
(1) Outlines of cases subject to analysis

The final analysis was made on 1,427 cases from 118 participating institutions. The distribution of the underlying causes of deaths by chapter did not differ significantly from that of the preceding research.

(2) Improvement in the accuracy of death certificates based on advice given by health information managers



(3) Changes in the frequency of factors affecting the accuracy of death certificates



Conclusion

Health information managers' advice on filling out death certificates in medical institutions was effective in reducing the frequency of negative factors on the accuracy of death certificates and in improving the accuracy of the contents of the certificates.

Such advice is expected to contribute to raising the accuracy of mortality statistics in our country.



ACROSS COUNTRY COMPARISONS OF VENOUS THROMBOEMBOLISM EVENTS OCCURRING IN PATIENTS UNDERGOING HIP ARTHROPLASTY USING AN EXTERNAL BENCHMARK

12 – 18 October 2013
Beijing, China

C410

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ABSTRACT

- This study provide a three steps analysis for developing an evidence-based benchmark **in-hospital symptomatic postoperative venous thromboembolism complications (VTE)** in **patients undergoing hip arthroplasty**, then for **estimating estimated of the PSI 12 related to postoperative symptomatic VTE** using two countries nationwide data (Switzerland and France), and finally for comparing these estimates against the benchmark that was established previously.
- Important **differences in occurrence rates of VTE** were potentially **related to various diagnostic practices of possible VTE events** before hospital discharges as confounding.

INTRODUCTION

- For across provider healthcare assessment, an **important issue is the choice of benchmark**.
 - Discussion usually revolves around the choice between no event as “zero risk” or the mean value across providers (e.g., funnel plot).
- ⇒ We proposed **to used an external valid benchmark for assessing comparisons based on the example of in-hospital venous thromboembolism complications (VTE)** in patients undergoing hip arthroplasty between two countries.

METHODS & MATERIALS

- **Step 1:** We developed an **external valid benchmark (evidence-based)** estimating the the pooled occurrence rate of in-hospital symptomatic postoperative VTE by a **systematic literature review with meta-analysis** for patients undergoing hip arthroplasty who received appropriate prophylaxis (*Januel et al. JAMA. 2012*).
- **Step 2:** We **calculated VTE outcomes using the Patient Safety Indicator #12 (PSI 12)** ICD-10 algorithm in nationwide databases from Switzerland (2008-2010) and from France (2006-2008). Adjusted occurrence rate of VTE was estimated with Swiss and French data independently, using hierarchical mixed logistic regression models based on the assumption that the dependent variable VTE ($Y=0$, $Y=1$) is a function of individual factors (inpatient level) and structure factors (hospital level).
- **Step 3:** We compared the Swiss and the French adjusted **occurrence rates** against **the evidence-based benchmark** for patient received prophylaxis using low weight molecular heparin (LWMH).

CONCLUSIONS

- This study reported **valuable comparison using an evidence-based benchmark** for **in-hospital symptomatic postoperative venous thromboembolism complications (VTE)** in **patients undergoing hip arthroplasty** using two countries nationwide data (Switzerland and France).
- Potential **important confounding due to various diagnostic practices** of possible VTE events should be taken into account in such analyses. Accordingly, the higher occurrence rate of VTE in France could be explained by the more systematic diagnostic investigations in asymptomatic patients using ultrasound in current practice.

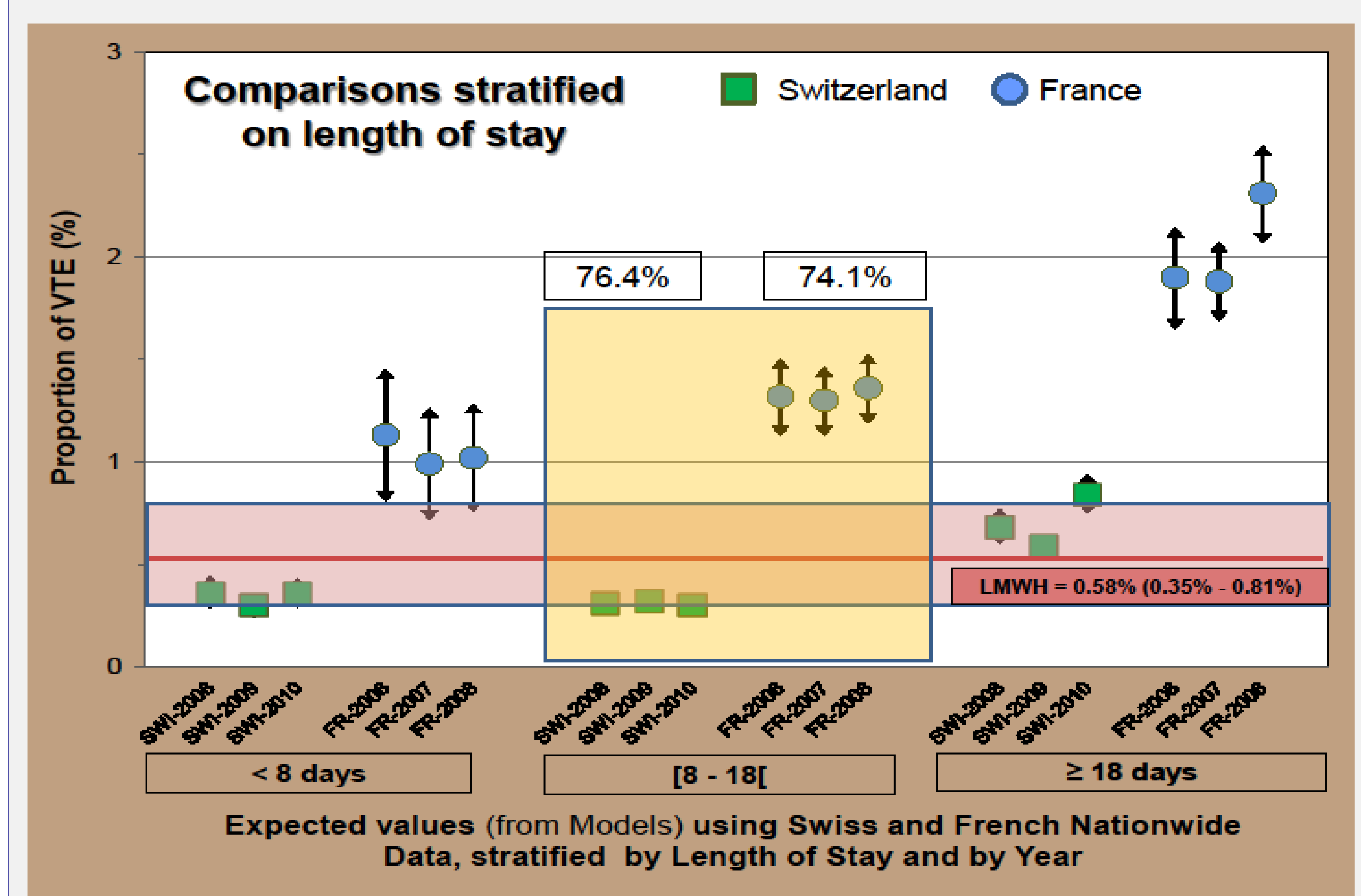
RESULTS

□ META-ANALYSIS:

- 27 studies
- 21'369 adult patients
- 38 prophylactic treatment subgroups
- From 58 to 70 years old
- Follow-up after surgery ranged from 8 to 17 days.

	%	(95% CI)	P	P
LWMH (OS)	0.83	(0.19 – 1.48)	67.3%	0.230
LWMH (RCT)	0.51	(0.26 – 0.76)	45.4%	0.010
Direct Inhibitor, Factors IIa/Xa (RCT)	0.31	(0.03 – 0.59)	32.8%	0.070
Indirect Inhibitor, Factors IIa/Xa (RCT)	0.68	(0.26 – 0.97)	0.0%	0.380
TOTAL	0.53	(0.35 – 0.70)	49.4%	<0.001

- **PSI 12 ESTIMATES and COMPARISONS:** 63'687 (Switzerland) and 417'938 (France) hip arthroplasty inpatients were included. We identified 236 (0.37%) cases in Switzerland the database and 5'898 (1.41%) in France. According study years, the adjusted occurrence rates of VTE were **between 0.34% (0.30%-0.38%) and 0.35% (0.31%-0.40%) in Switzerland** and were **between 1.31% (1.15%-1.47%) and 1.38% (1.22%-1.55%) in France**.





Strengthening Health Information Systems (HIS).The Latin American and Caribbean Experience

12 – 18 October 2013
Beijing, China

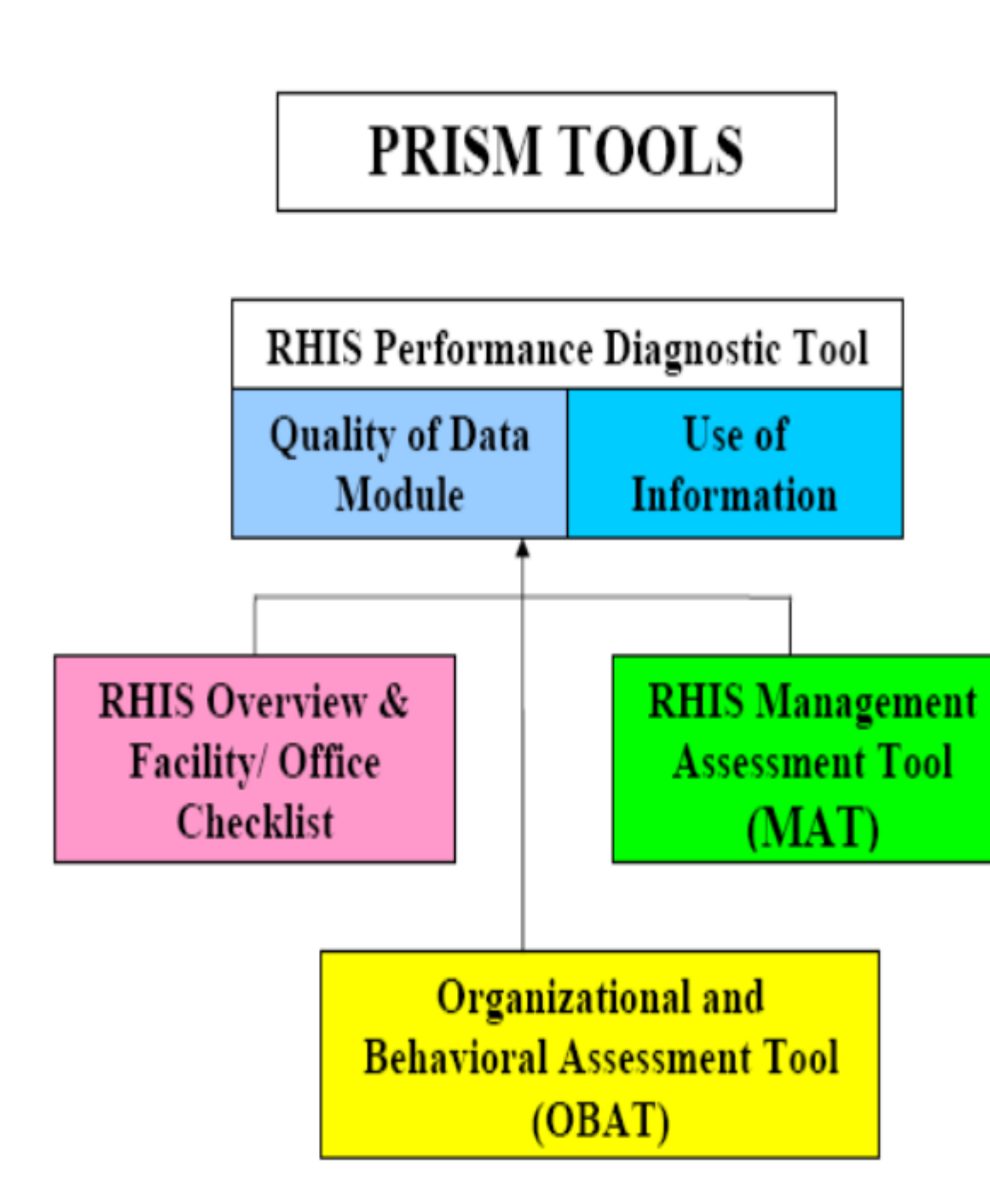
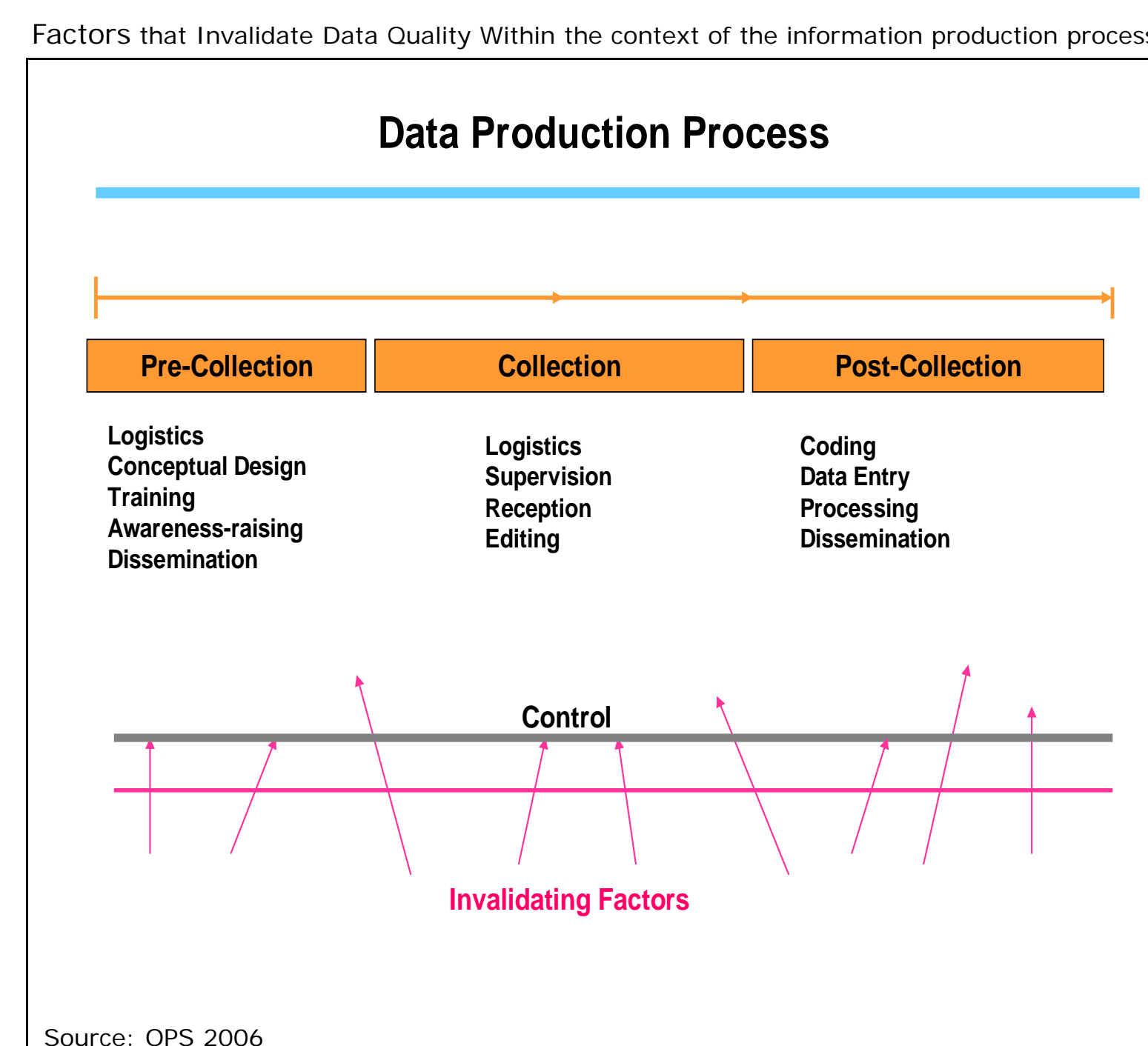
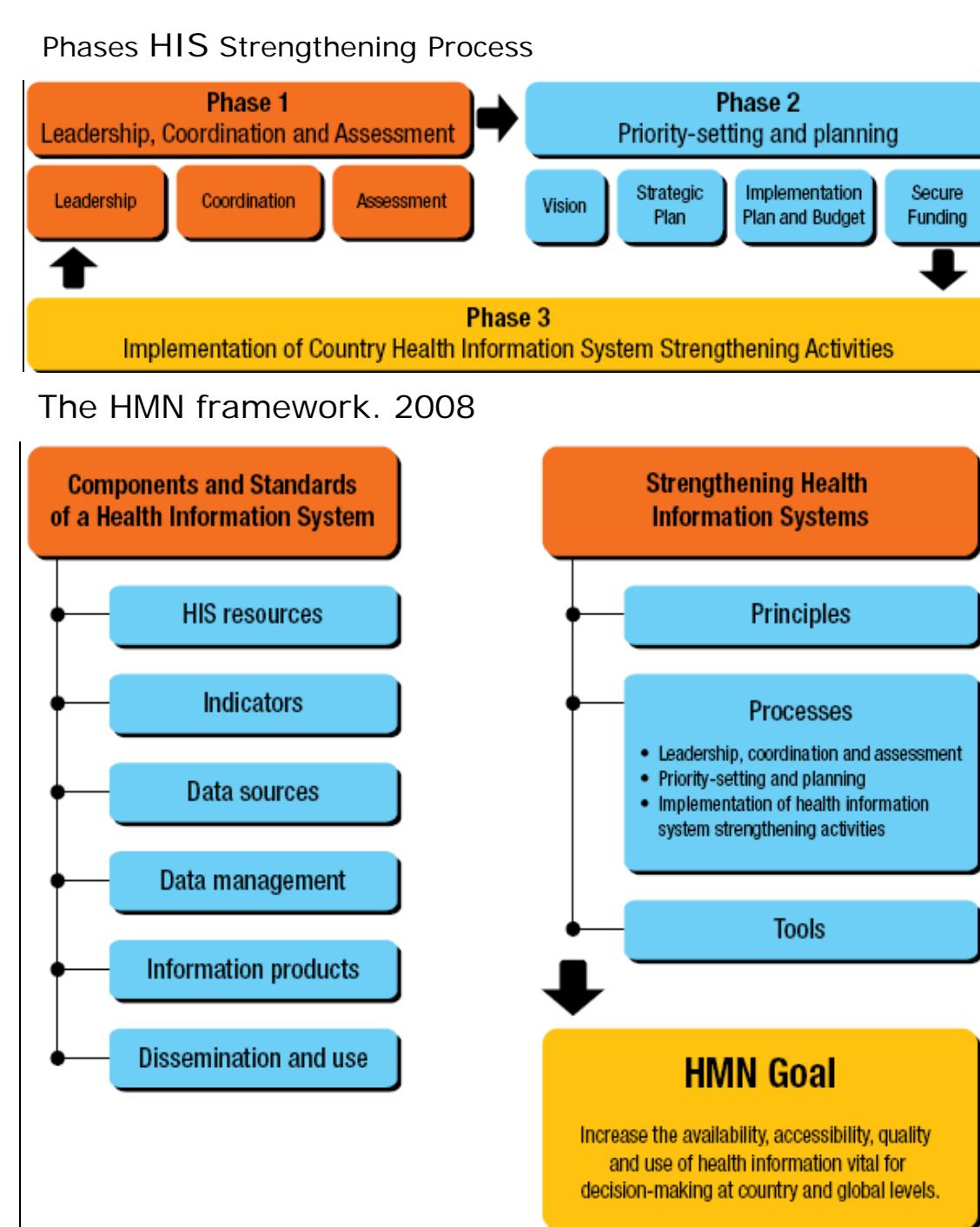
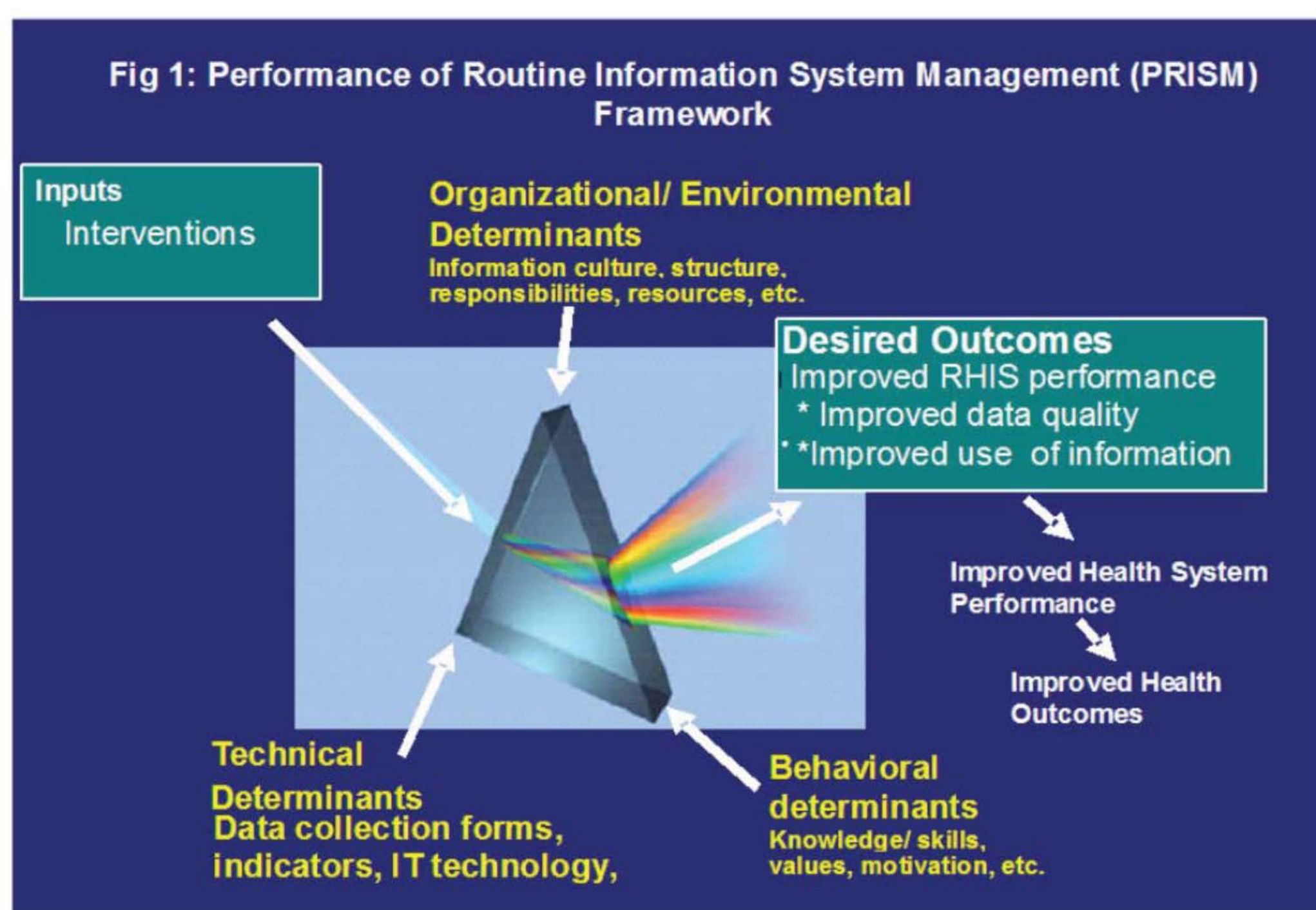
C411

Authors: Alejandro Giusti (AMRO), Beatriz Plaza (MEASURE-Evaluation) and Patricia Ruiz (AMRO)

The Pan American Health Organization (PAHO/WHO) and MEASURE-Evaluation have led the joint project on strengthening HIS in countries in the Americas, obtaining major results since 2007 and creating significant synergies between countries (particularly the Spanish speaking countries and Brazil). The project is financed by PAHO, USAID and CIDA Canada. The primary goals that have been achieved are: to establish a standardized reference framework, methods, and instruments to monitor performance of the HIS; to identify, document, and disseminate successful experiences, key processes, and lessons learned in assessment processes; and to design strategic plans to strengthen the HIS in selected countries.

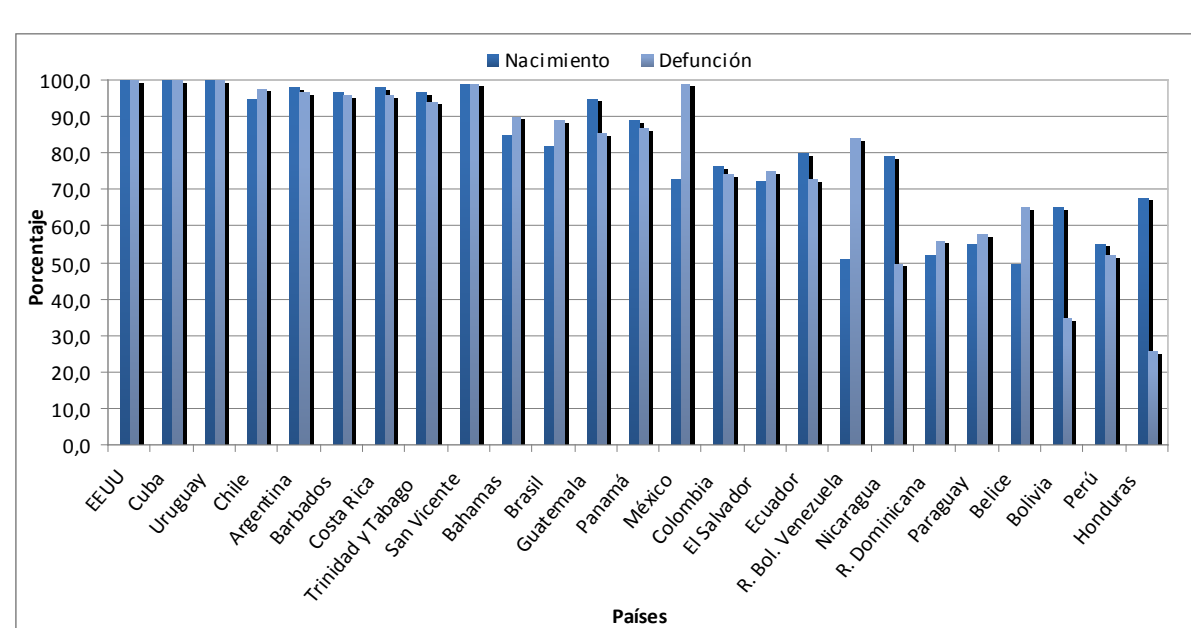
The project has increased its potential by integrating three current efforts in the region: the HMN initiative; the PRISM initiative; and the PAHO initiative. The poster will present the results and impact of assessments conducted and strategic plans developed in the region for the project and the countries themselves.

Conceptual Framework and tools for assessing HIS and developing Strategic Plans for improving HIS



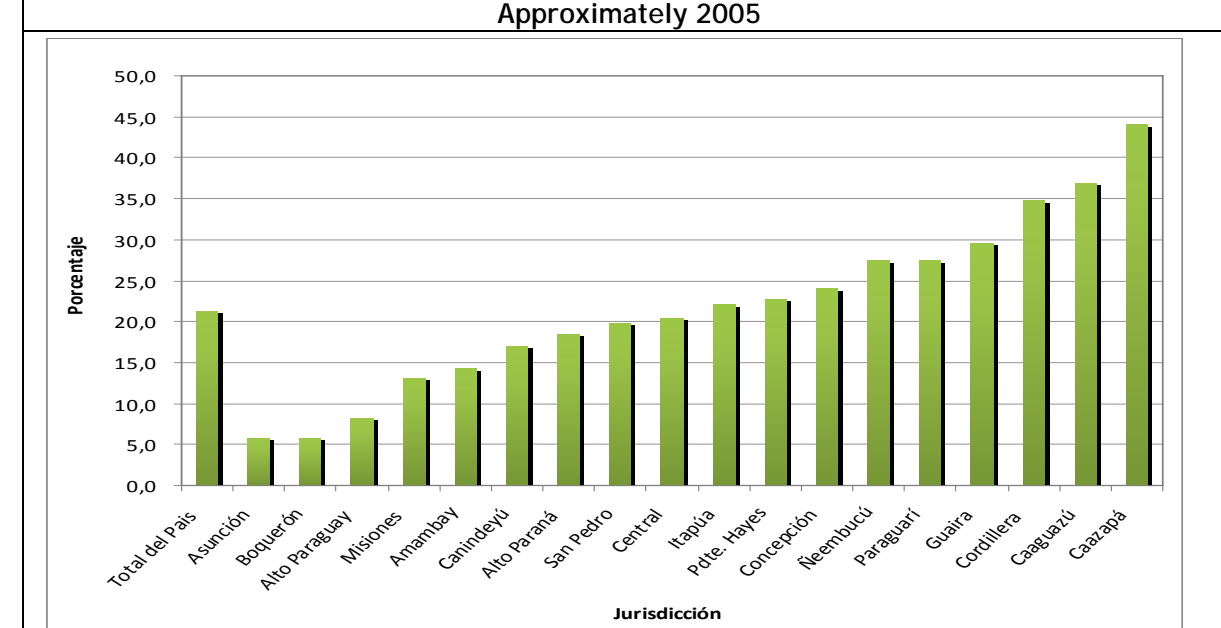
Results

Coverage of Births and Deaths by Country in the Americas: Approximately 2005

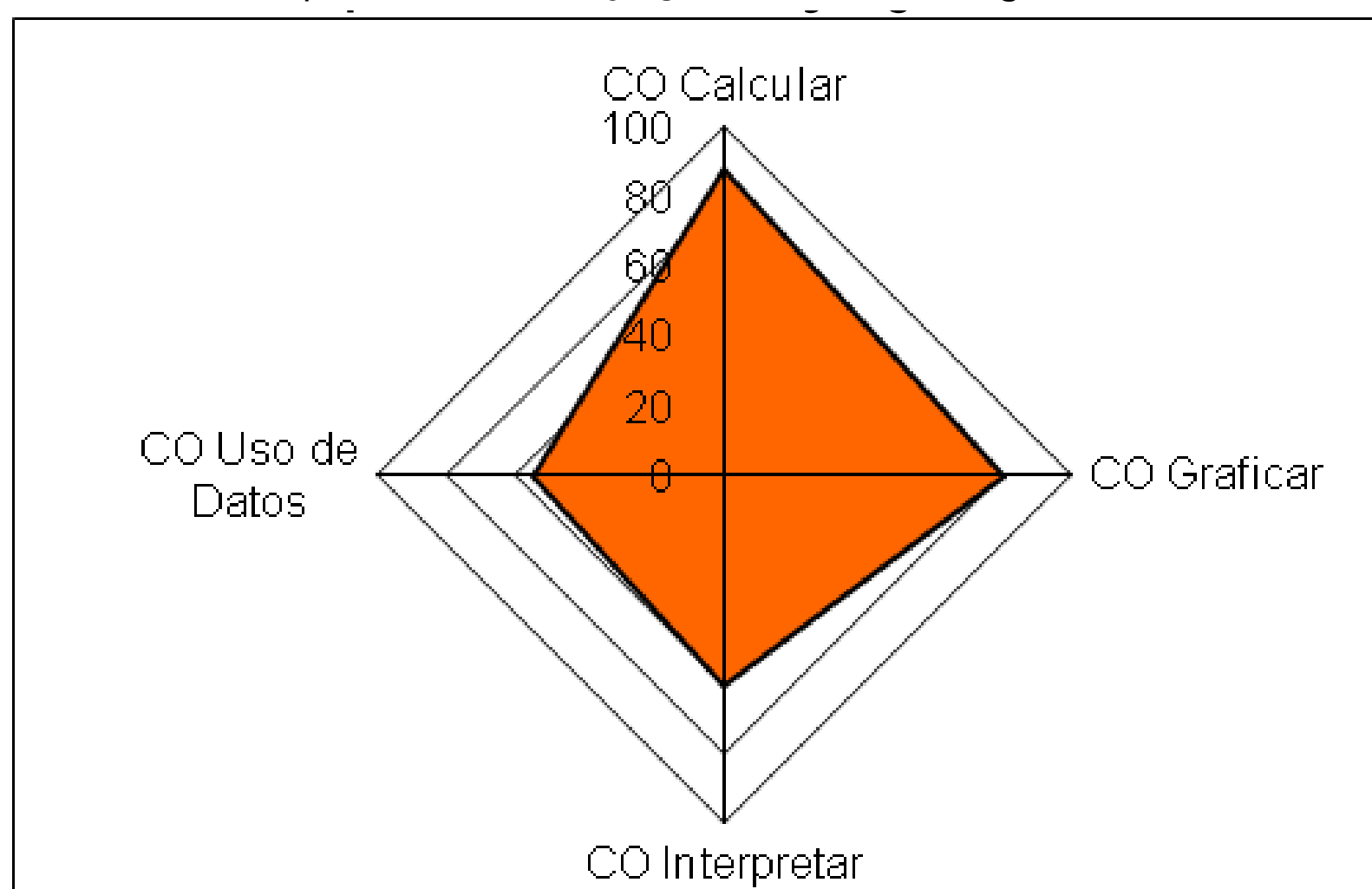


Source: PAHO, based on information provided by the countries

Figure 20 Paraguay: Proportion of Deaths with ill-Defined Causes of Death, by Jurisdiction, Approximately 2005

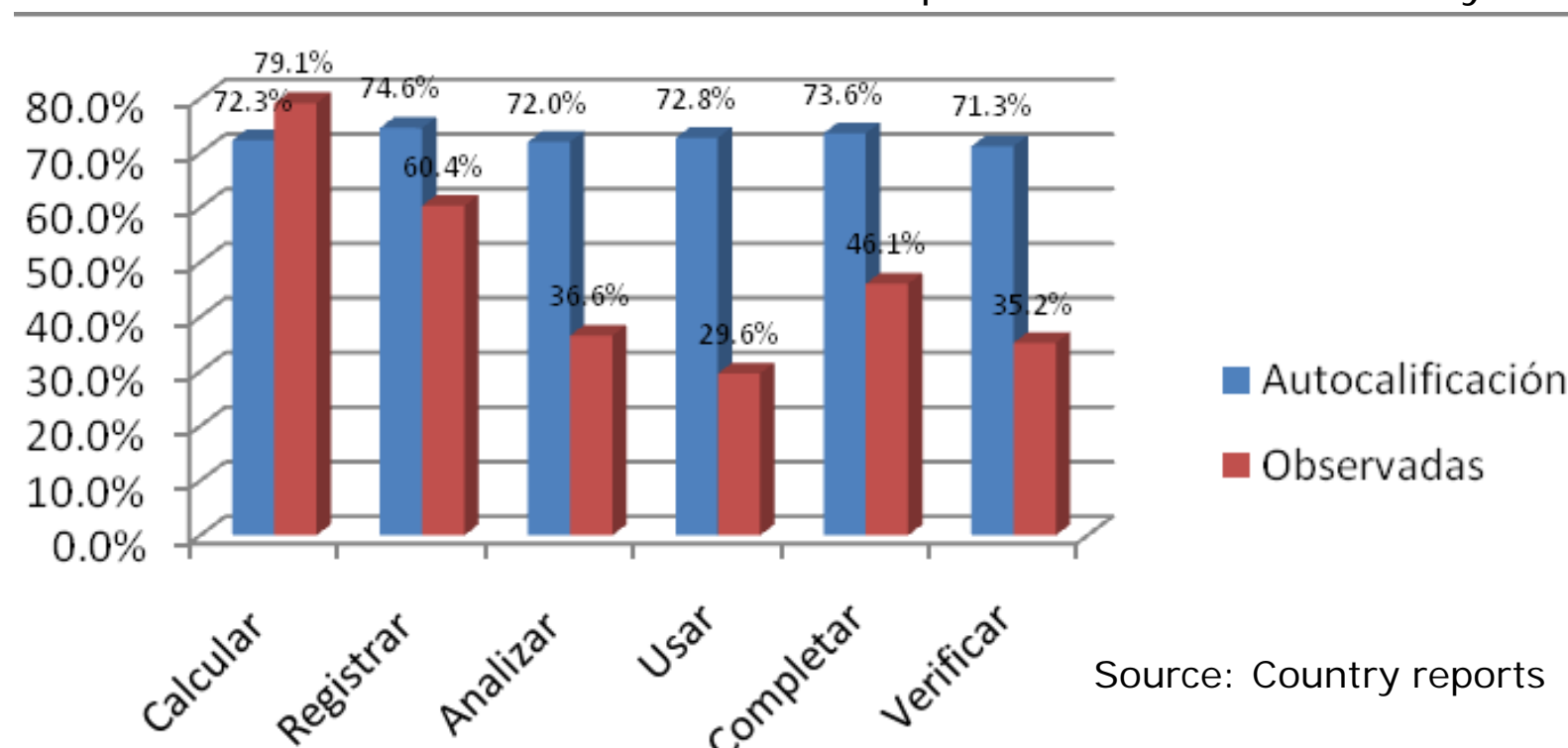


Observed Competencies in Carrying Out tasks relating to the HIS



Source: OBAT Questionnaire, Helath Secretariat, December 2005

PERU: Self-Evaluation and Observed Competencies in Health Facility Staff



Source: Country reports

Figure 15 Nicaragua: Deaths - Differences between Registers and Estimates, by Jurisdiction, 2003

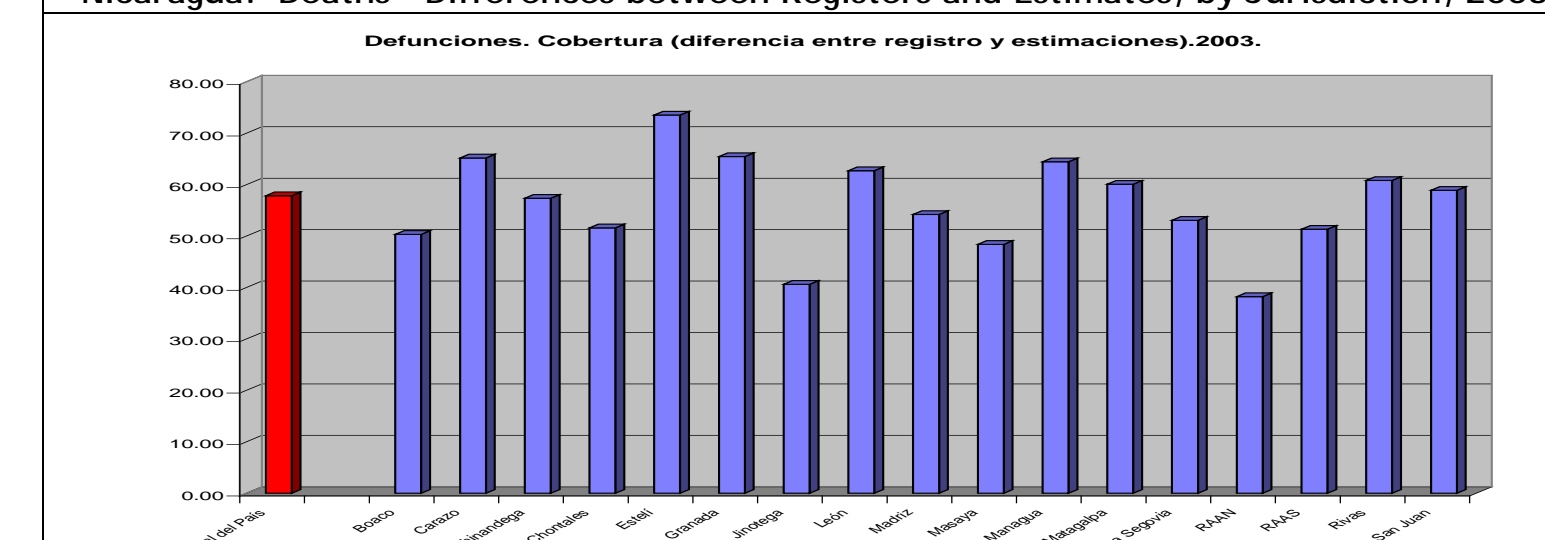


Figure 16 Panama: Deaths - Coverage According to Available Estimates, by Jurisdiction, 2004.

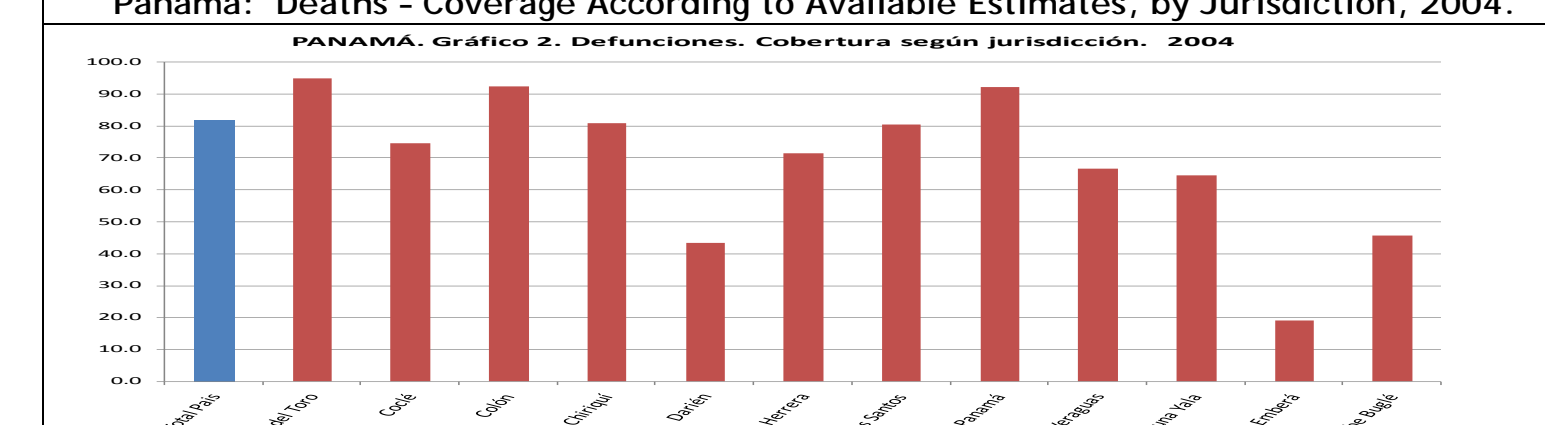
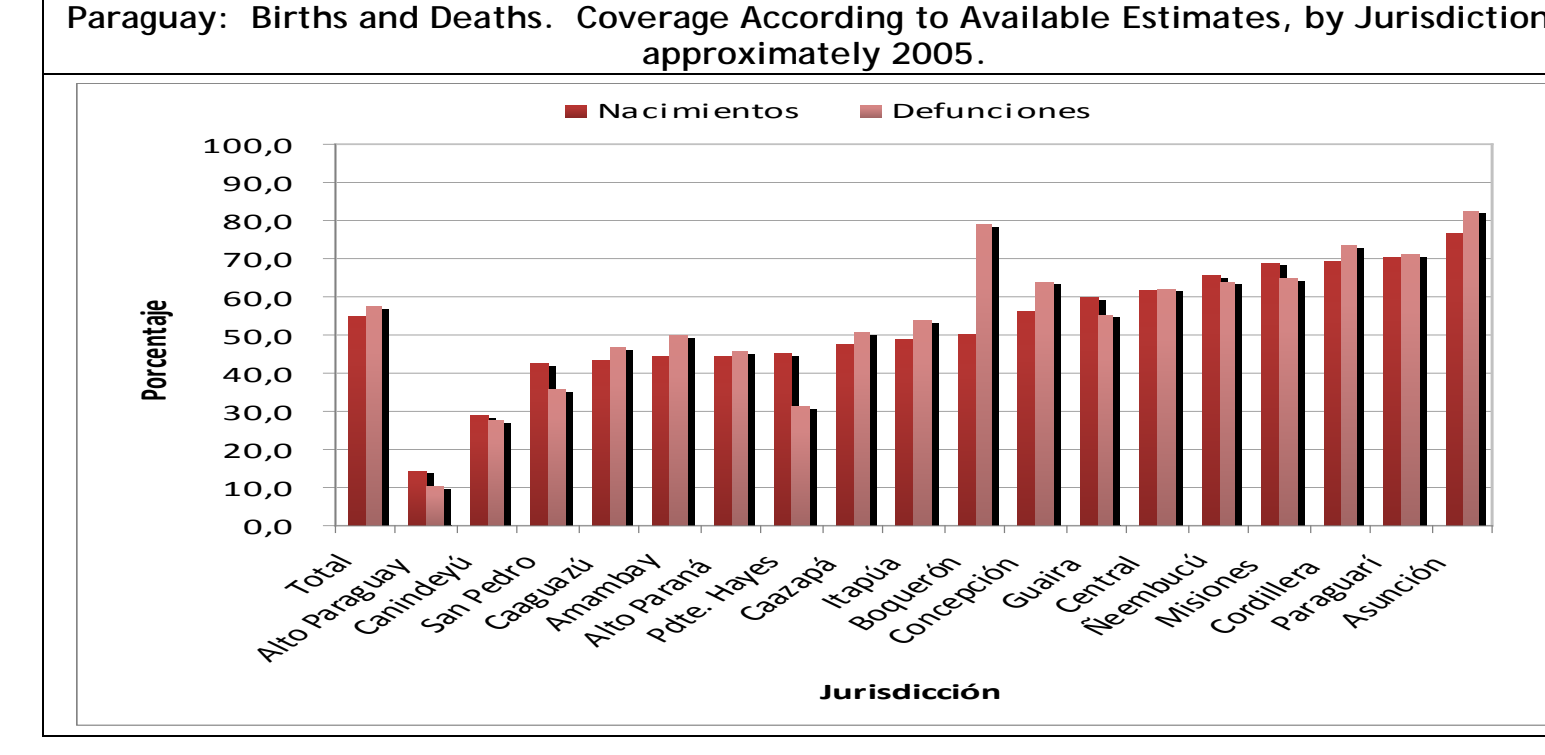


Figure 17 Paraguay: Births and Deaths. Coverage According to Available Estimates, by Jurisdiction, approximately 2005.



HIS ASSESSMENT AND MONITORING TOOL: COUNTRY RESULTS

COUNTRIES	I. RESOURCES				II. INDICATORS	III. DATA SOURCES							
	Planning (Legal Framework, & Context)	Institutions, Human Resources, & Financing	Infrastructure	Total		Census	Vital Stats.	Population Survey	Health Status Results	Health Facility Records	Admin. Records	Total	
Belize	38	43	59	45	74	70	53	54	57	59	33	54	
Costa Rica	71	61	88	72	74	100	97	71	67	74	34	74	
Ecuador	53	47	61	54	77	68	75	60	51	61	45	60	
El Salvador	54	38	33	38	52	52	40	61	42	36	36	45	
Honduras	44	48	48	46	71	68	67	75	58	54	42	61	
Mexico	60	62	73	64	83	81	91	75	73	71	46	74	
Nicaragua	35	43	54	43	70	77	62	39	69	48	38	64	
Panama	43	48	64	50	73	82	30	60	61	74	34	67	
Paraguay	48	37	38	40	49	52	67	61	54	48	40	47	
Peru	25	34	42	33	75	66	58	81	48	55	42	55	
Dominican Republic	37	31	45	37	63	70	70	70	50	50	50	60	

COUNTRIES	IV. INFORMATION MANAGEMENT				V. INFORMATION PRODUCTS				VI. DISSEMINATION AND USE				Total
	Indicators	Total Health Status	Health System Indicators	Risk Factor Indicators	Global Quality Indicators	Analysis and Use of Information	Policy Planning & Advocacy	Planning & Priority Setting	Resource Allocation	Implement. & Action			
Belize	29	77	62	67	66	38	75	44	42	28			41
Costa Rica	24	68	62	58	74	52	41	42	41	41			38
Ecuador	49	72	62	55	65	69	58	69	58	53			61
El Salvador	25	47	38	24	37	47	43	56	23	38			41
Honduras	42	s/d	58	45	62	64	62	73	49	51			60
Mexico	74	38	74	76	84	73	79	73	60	71			71
Nicaragua	15	22	77	64	76	76	67	67	88	88			77
Panama	50	s/d	s/d	s/d	s/d	96	71	75	33	33			64
Paraguay	41	72	58	62	64	60	51	61	43	55			54
Peru	30	66	52	74	60	43	28	46	26	32			33
Dominican Republic	33	70	50	70	70	50	50	50	30	50			50

Source: Country reports

MAJOR FINDINGS

The integration of the above-mentioned conceptual frameworks and tools enabled countries to achieve the following:

- Definition of the different stages of the HIS data production process, describing—for each level (local, intermediate, and central)—the processes, inputs, and products for each data source and thus, identifying data-related problems for each phase;
- Identification of the determining factors for each problem and establishing the required interventions to minimize their impact; acquired knowledge of the performance of the HIS resources (technological and, essentially, human resources) with the aim of developing HIS strengthening plans;
- Generation of qualitative and quantitative information about processes, inputs, and results that support decisions and prioritizing of the national and regional strengthening strategy.
- Definition and implementation of Strategic Plans for the Strengthening HIS

DEATHS Coverage in the Americas. Goals achievement in 2013. Progress from baseline (2000-2005). Selected countries						
Grup of coverage at baseline	Country	2000-2005	Target	2013 Target (%Cov)	2005-2010	Progress by 2010
1 91% y más	USA	100,0	Maintain level	100,0	100,0	Reached
	Cuba**	100,0	Maintain level	100,0	100,0	Reached
	Uruguay**	100,0	Maintain level	100,0	100,0	Reached
	Chile**	100,0	Maintain level	100,0	100,0	Reached
	Argentina**	99,0	Maintain level	99,0	99,0	Reached
	St Vicent	100,0	Maintain level	100,0	100,0	Reached
	Barbados	100,0	Maintain level	100,0	100,0	Reached
	Costa Rica**	97,3	Maintain level	97,3	93,5	Declined (3,8 points)
	Trinidad and Tobago	99,4	Maintain level	99,4	100	Reached and Improved
	Mexico*	94,9	Maintain level	94,9	100,0	Reached and Improved
2 80-90%	Ecuador*	93,5	Maintain level	93,5	94,6	Reached and Improved
	Guatemala	93,2	Maintain level	93,2	89,5	Declined (3,7 points)
	Venezuela**	89,1	Reach 90%	90,0	71,1	Declined (18,0 points)
	Brazil**	86,4	Reach 90%	90,0	87,0	Improve w/o reaching
	Panama*	84,4	Reach 90%	90,0	85,8	Improve w/o reaching
3 61-79,9%	Colombia	81,6	Reach 90%	90,0	78,0	Declined (3,6 points)
	Bahamas	75,6	Improve 10%	83,2	76,9	Improve w/o reaching
	El Salvador	75,6	Improve 10%	83,2	79,0	Improve w/o reaching
	Honduras	68,0	Improve 10%	74,8	nd	nd
	Paraguay**	62,4	Improve 10%	68,6	67,9	Improve w/o reaching
4 Hasta 60%	Nicaragua	57,4	Improve 20%	68,9	62,0	Improve w/o reaching
	Dom. Rep.**	50,4	Improve 20%	60,5	49,9	Declined (0,5 points)
	Peru	57,1	Improve 20%	68,5	58,8	Improve w/o reaching
	Belice	50,0	Improve 20%	60,0	80,5	Reached and Improved
	Bolivia**	31,1	Improve 20%	37,3	nd	nd

*Countries with adjusted estimates based on circa-2010 censuses

**Countries with circa-2010 censuses that have not yet release adjusted estimates. Current UN estimates are used.



A way to promote and disseminate best practices through horizontal cooperation

12 – 18 October 2013
Beijing, China

C412

Authors: Alejandro Giusti (AMRO), Patricia Ruiz (AMRO), Patricia Soliz (AMRO), Beatriz Plaza (MEASURE-Evaluation)

The purpose of the Latin American and Caribbean Network to Strengthen Health Information Systems (RELACSIS) is to develop a mechanism to coordinate regional efforts aimed at contributing to the ongoing improvement of HIS in countries included in the Network. The overall objective is to contribute to HIS strengthening, dissemination, and use of information by focused on: proposing standards to generate higher-quality, more reliable, and more timely information; developing and sharing practices, lessons learned, and knowledge; promoting the dissemination and use of generated information and knowledge; promoting monitoring and evaluation of the performance of national HIS; strengthening human and financial resources and developing and continually promoting south-to-south technical cooperation between countries. Countries as partners, owners, and actors in the process, professionals became aware of existing expertise present in their countries which could be helpful to others.

Officially launched in Lima, Peru in April 2010. RELACSIS implemented two BWP: 2011-12 and 2012-2013. Supporting by PAHO, USAID, CIDA-Canada, MEASURE-Evaluation International, ECLAC, CC-FIC and NRCs and promoting horizontal cooperation between countries of the Americas, its 5th Annual RELACSIS meeting will be held in Mexico in November 2013 in order to present practices developed by country working groups, pro and cons in the process of dissemination and to define the lines of action for the next BWP 2013-2014.

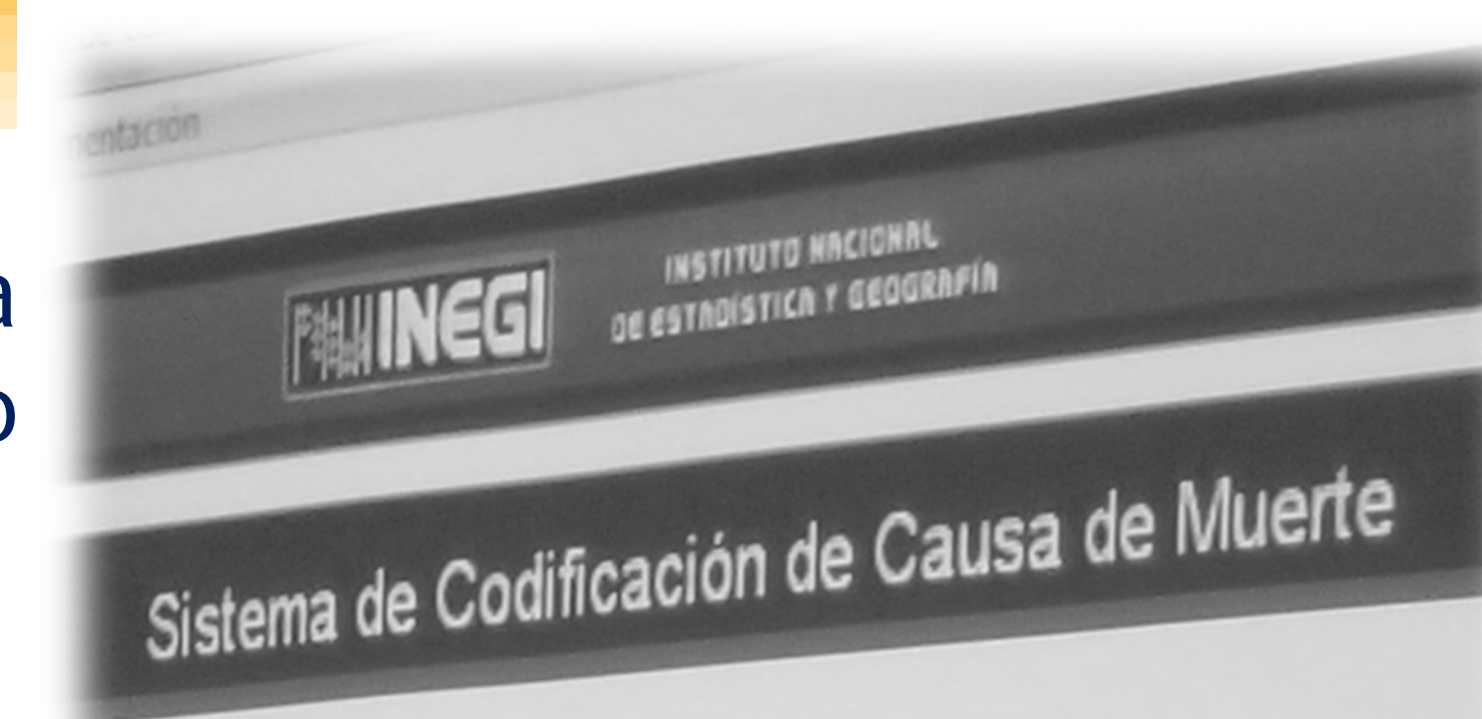
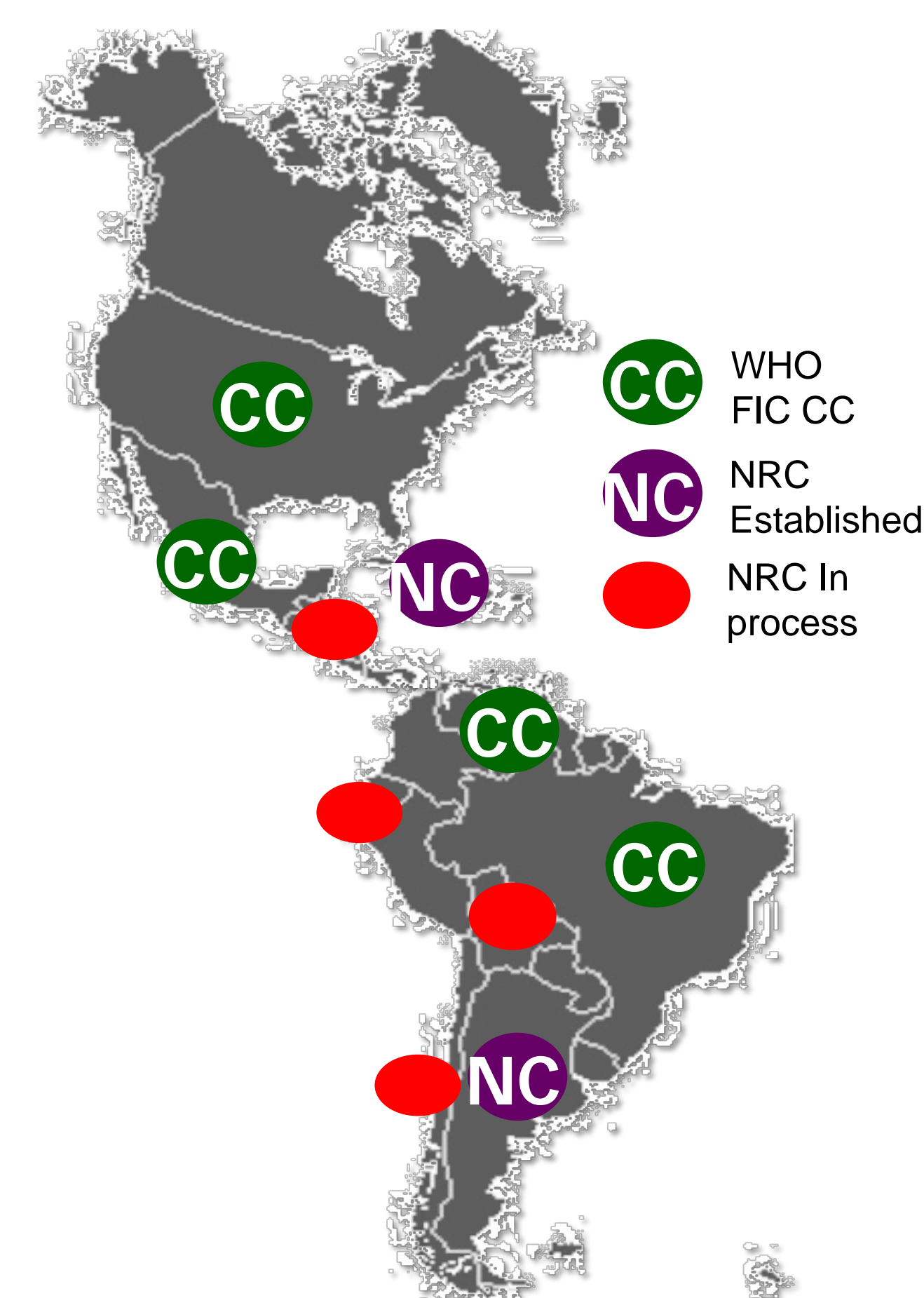
1st RELACSIS Work Plan (2011-12). Three main activities were implemented:

1. Mexico City, May 23-26, 2011. A meeting of the WHO International Collaborating Centers (Brazil, Venezuela, México) for the International Family of Classifications (IFC) and National Centers (Argentina and Cuba). Addressed four objectives: to establish the Collaborating Centers Network in the Region; to fortify the joint collaboration among the Centers and the PAHO/WHO, to define a Regional Plan for training people on the use of the WHO related health classifications.
2. Ecuador, June-July 2011. A Sub-regional Training of trainers course. Covered the IFC focusing on ICD-10 and will include the launch of a national center of reference. 25 participants from Ecuador, Bolivia, Peru and Paraguay.
3. April to July 2012. Honduras, Nicaragua, El Salvador and Guatemala. ICD-10 training courses for coders led by two CEMECE instructors. ICD-10 training courses for coders led by two CEMECE instructors. Almost 24 attendees (representing the subnational level) participated the training courses.

2nd RELACSIS Work Plan (2012-13). Five practices are disseminating and implementing:

1. Training of "information producers" to increase awareness of managers. Panamá (April 1-5, 2013). Paraguay led the course to 15 participants from Paraguay, Ecuador, Panama, Peru and Mexico.
2. Strengthening of coding with CIE-10 through virtual courses. Mexico and Argentina follow a road map for the designing, testing, implementation and M&E of the virtual course offered to Ecuador, Paraguay, Guatemala, Nicaragua, Dominican Republic and Uruguay.
3. Implementation of an electronic system to codify mortality. Mexico defined a road map for disseminating, testing and implementing the software to Argentina, Uruguay, Chile, Paraguay, Ecuador, Guatemala, and Venezuela. ECLAC is participating as an important stakeholder. A meeting will held in Costa Rica next May.
4. Online course for awareness of medical doctors in the adequate registration of the causes of death. Uruguay, Argentina and Mexico are designing an e-learning course to Costa Rica, Ecuador, Panama, Paraguay, Guatemala, Nicaragua y Dominican Republic).
5. Develop and disseminate an electronic tool to the countries for epidemiological surveillance. The software developed by El Salvador is disseminating to Dominican Republic, Ecuador, Peru, Bolivia and Cuba.

Website. www.relacsis.org Implement virtual forums to disseminate practices and discuss on methods, procedures, techniques, etc., to produce information of a higher quality, more reliable, and timely



WORKING
GROUPS

DISCUSSION
FORUM



12 – 18 October 2013
Beijing, China

Regional Training in the English Speaking Caribbean

C413

Tyringa Crawford, Celia Dickens, Sarah Quesnel
Research Triangle Park, NC and Port of Spain, Republic of Trinidad & Tobago

Abstract As part of a regional approach in support of the International ICD-10 Underlying Cause of Death Coding Exam offered by the WHO-FIC Education and Implementation Committee, instructors from the National Center for Health Statistics in Research Triangle Park, NC partnered with PAHO and the Caribbean Public Health Agency (CARPHA, formerly the Caribbean Epidemiology Centre, CAREC) to conduct a Basic Underlying Cause of Death coding course for English and Dutch-speaking Caribbean countries. This poster shares the incredibly valuable and rewarding experience in this initial attempt at regional support.

Introduction



2012 ICD-10 Mortality Coding Workshop
June 18-29, 2012
Port of Spain, Trinidad & Tobago

A total of 25 students attended this workshop representing 22 CARPHA Member Countries.

Major challenges facing mortality coders in the region include:

- High turn-over of coding staff with little hand over to new persons; this results in an on-going need to train new persons and can result in a significant back log of data
- Job packages insufficient to attract and maintain the appropriate staff
- Health information systems in country sometimes lacking
- Limited capacity for further analysis and interpretation of mortality data



Students at work during the training

Methods & Materials

NCHS with CARPHA support conducted a two week Underlying Cause training class.



Training Facilitators

The prerequisite for students attending this course was to complete all of the pre-classroom training. The pre-classroom materials used came from the WHO training products and included the WHO Electronic ICD-10 Training Tool.



Students at work during the training

The following training materials were provided by NCHS:

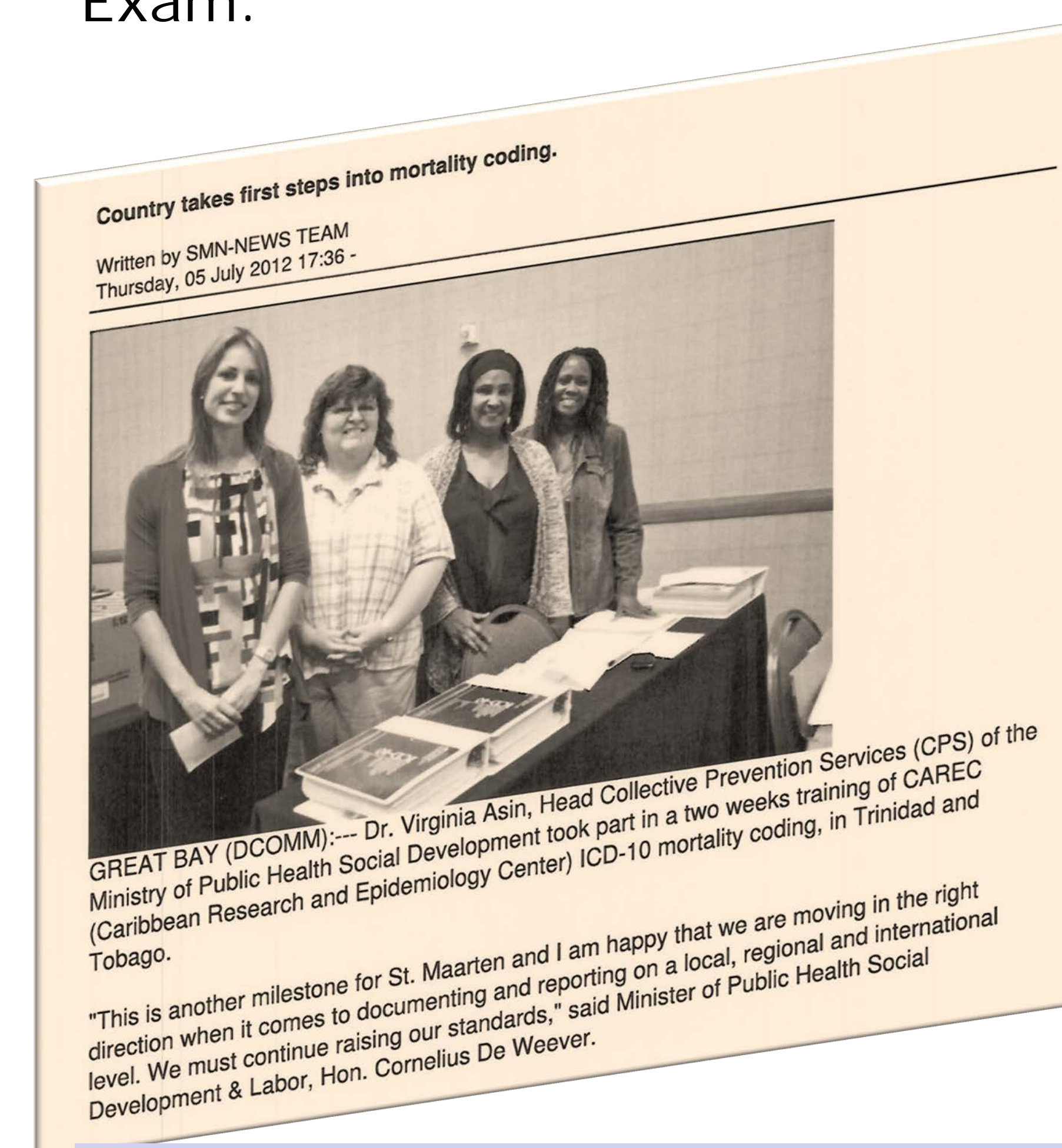
- Instruction Manuals Volumes 1 & 3
- Instruction Manuals 2a and 2c
- 2012 Erratas
- Class workbooks

To determine the impact of the workshop, CARPHA plans to conduct in-country audits of coded mortality data from a sample of the countries that participated in the training. For persons that were conducting coding prior to the workshop, a sample of certificates from before and after the training will be taken and re-coded and then the results will be compared to the coder-assigned codes. For new coders a sample of the most recent certificates will be re-coded and the results compared to the coder-assigned codes.

Results

The major results of the workshop are expected to be:

- ✓ Standardization of mortality data for the Caribbean sub-region
- ✓ Improved quality and timeliness of mortality data
- ✓ Establishment and maintenance of a Caribbean mortality coders network.
- ✓ Further training of persons in-country by those that attended the workshop.
- ✓ Ultimately students will be able to attempt the International ICD-10 Underlying Cause of Death Coding Exam.



Newspaper article published in St. Maarten News Network, July 5, 2012

Conclusions

Over the period 2005 – 2011, CARPHA has provided underlying cause training to the sub-region through six 1-week-long training workshops. Offering the complete 2-week training workshop and the collaboration between NCHS and CARPHA was completed for the first time in this region of the world in June 2012. This endeavor proved to be a valuable and productive effort and was well-received by both students and agencies.

The success of this initial attempt at regional partnership demonstrates that it could be a worthwhile and productive venture, should resources and personnel allow.



Development of a Unified Diagnosis List of Extended ICD Code in China

12 – 18 October 2013
Beijing, China

C414

Authors: Liu Aimin, Wu Xiaolin, Wu Liangming, Wu Yunhong, Zhang li, Wang Wenda, Lin Haili, Chen Caixia, Qin Anjin, You Ruiyu

Keyword: ICD, Database, Administration, extended coding, standardization

Abstract

INTRODUCTION

Hospital meticulous management is proposed recent years in China, therefore, specific diseases information to be retrieved is required from hospitals. But ICD is a scheme of classification that can not meet hospital's detailed demand. It may include a group of diseases under an ICD code. In response to detail retrieval demand, hospitals and even province expand ICD code from 4 digits to 6 digits. Various 6 digits classification scheme makes the information statistics impossible. So, National Health and Family Planning Commission (NHFPC, previous called Ministry of Health) entrusts the WHO-FIC CC and Chinese Medical Record Association to develop a unified national standard list for the 6 digit code of ICD using for both the hospital and government.

METHODS & MATERIALS

Thousands of disease databases in use are collected from nationwide hospitals. There are more than 60,000 remained after filtering duplicated items. By counting the rate of using in various hospitals and adding some administrative meaningful items to the list, for example, some special disease interested by NHFPC and infectious diseases reporting mandated by CDC, a final list is created. Eventually, over 20 physicians from various professional were invited to review the terms of the list one by one to make sure that the list is suitable to clinical diagnosis habit.

RESULTS

As a result, a fully consistent with the ICD structure 3-digit categories table, 4-digit subcategories is adopted and a 6-digit expanded code table is created. For each subcategory, there is a code ended by "00" extension. They are residual subcategories that allow hospital to expand more details. Hospital may have its own internal extended code table but the standard codes can not be changed.

CONCLUSION

After one year of application, the list has been modified several times to meet the goals for the management of medical institutions, CDC, cancer registration as well as NPFPC. It is being processed to the national standard and will be published officially soon.



Aspiration Pneumonia as a Cause of Death: Which aspiration pneumonia are we coding?

12 – 18 October 2013
Beijing, China

C415

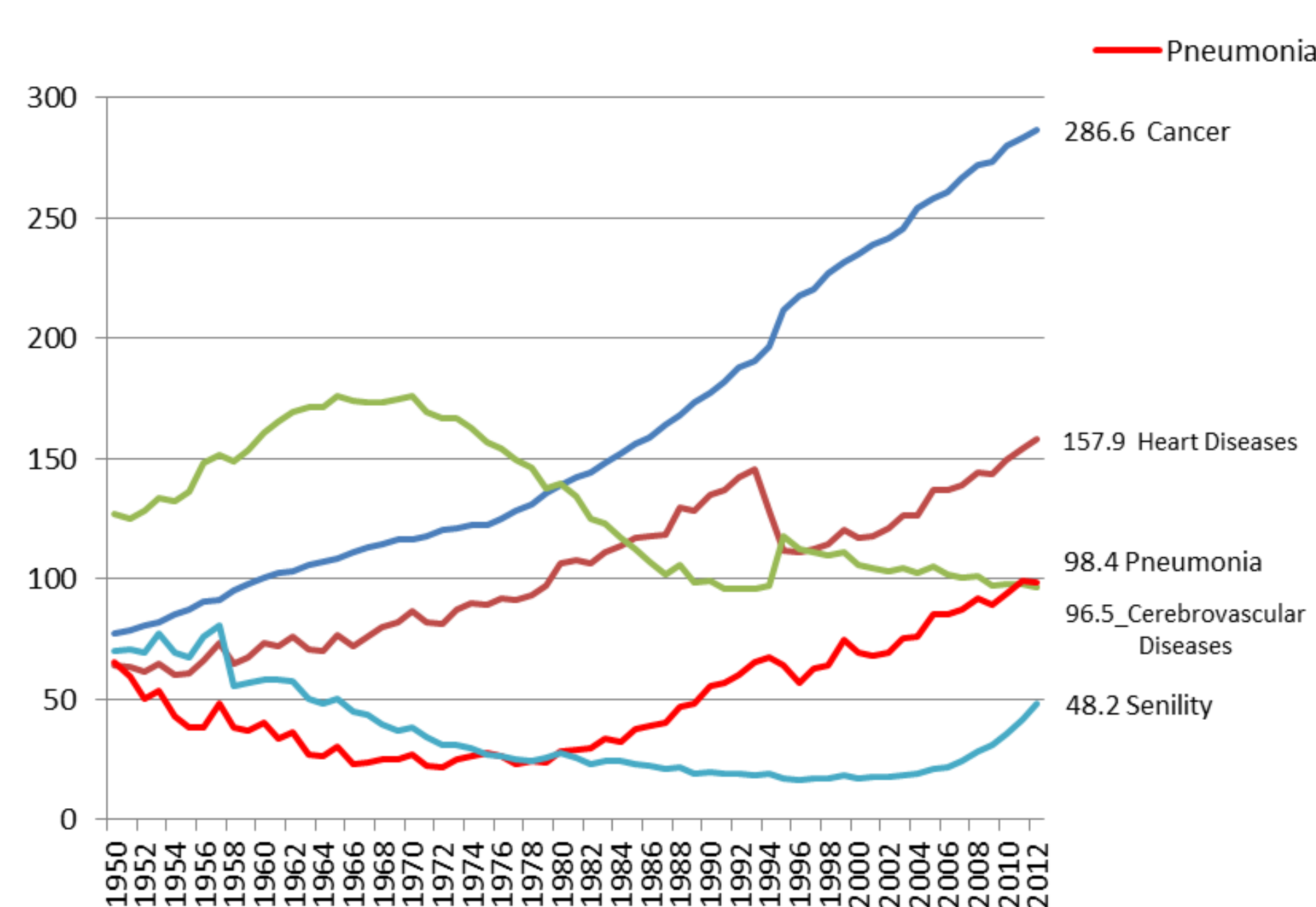
Kaori Nakayama, Hiroshi Nishimoto, Yoko Iwasaki,
Emiko Oikawa, Naoyuki Sato, Nobuyoshi Tani

Abstract In Japan, pneumonia has become the 3rd leading cause of death in 2011 at 98.9 deaths per 100,000 population. However, we have presumed that this number could even be an underestimation by omitting part of aspiration pneumonia due to a shortfall in the ICD structure. This study has focused on aspiration pneumonia reported in the death certificates and proposes to create a new code to measure more accurately the significance of pneumonia for population health.

Introduction

Pneumonia, a well-known cause of death for the elderly, has become the third leading cause of death following cancer and heart diseases, and by replacing cerebrovascular disease in 2011. And the ranking was the same in the most recent data of 2012.

Fig 1. Trends in Crude Death Rates for Leading Causes of Death in Japan, 1950-2012



Source: Vital Statistics 2012, Ministry of Health, Labour and Welfare

NHCAP Guideline

In general, pneumonia can be conceptualized as community-acquired pneumonia (CAP) which is caught in normal life, and hospital-acquired pneumonia (HAP) which affects people having low immunity in hospitals. And recently the new idea of healthcare-associated pneumonia (HCAP) has also been introduced¹⁾. In Japan where aging population is prominent, this concept has been redefined as **nursing and healthcare-associated pneumonia (NHCAP)** reflecting the situation having more elderly residing in long-term care facilities or receiving care at home²⁾.

And from the therapeutic aspect, in addition to the conventional vaccination and administration of antimicrobial agents, **oral care for the elderly** is gathering attention for its preventive effect on aspiration pneumonia.

Current ICD Coding

In ICD, inflammation in the lungs due to aspiration is largely grouped into pneumonia of **J12-J18** which represents inflammation in the pulmonary alveoli i.e. the lung's air sacs, and pneumonitis of **J69.0** which is inflammation in the pulmonary interstitium i.e. the tissue in between the air sacs.

Aspiration of food or saliva etc. often occurs under the conditions with dysphagia due to aging or certain diseases. And aspiration could lead to **a) pneumonia with an infectious origin due to pathogenic bacteria etc.** or **b) pneumonitis which is a chemical injury due to swallowing food or reflux etc.**, which is a critical distinction for diagnosis since the treatment is different: antibacterial drugs and oral care are effective for the former but not for the latter.

In ICD, the former should be coded to either of J12 to J18 and the latter should be coded to J69.0. However, there is a high possibility that the former case might actually be coded to J69.0 since the Alphabetic Index (Vol. 3) guides both "aspiration" "pneumonia" and "pneumonitis" to J69.0. This point should also be considered in analysing aspiration pneumonia.

Methods & Materials

From published official statistics (final data of 2012), death due to J12-J18 was 123,925 and J69.0 was 28,116 among 1,256,359 deaths of all causes. This study has reviewed death certificates of 2012 in perspective of causes of death and the interval between its onset to death. As the coding and extraction was made specially for this research, data may differ from official statistics.

At first, we extracted the certificates with the underlying causes of J69.0 aspiration pneumonia. And

Reference:

1) American Thoracic Society (ATS) and Infectious Diseases Society of America (IDSA). Guidelines for the management of adults with hospital-acquired, ventilator-associated, and healthcare-associated pneumonia. Am J Respir Crit Care Med Vol 171. pp 388-416, 2005
2) The Japanese Respiratory Society. Japanese new guidelines for nursing and healthcare-associated pneumonia.

Conclusions

We would like to propose to:

- 1) Limit the coding of J69.0 to aspiration pneumonitis or pneumonia due to specific solids and liquids.
- 2) Create a new code for "aspiration pneumonia NOS" and "aspiration pneumonia" that has led to any kind of infective status, which may also include those caused by aspiration of food, saliva and so on
- 3) And review whether this could be included in the data of "Pneumonia".

Aspiration pneumonitis → J69.0

Aspiration pneumonia:

(due to) food, gastric juice, and chemical substances → J69.0

(with mention of) regurgitation or vomiting → J69.0

(due to) saliva → new code

(with mention of) any infection → new code

NOS → new code

then, we reviewed the relation between J69.0 and other causes of death reported and divided the certificates into three groups: A) those that might be pneumonia, B) those that might be pneumonitis and C) others that do not tell either.

Specifically, we presumed aspiration pneumonia reported with sepsis or septic shock in Part I to be A), those reported with aspiration of foreign substances or written directly as pneumonitis as B), and those not otherwise specified etc. as C).

And death certificates with the underlying cause of death of J12-J16.8 was set as a control group for death due to pneumonia.

Results

Following results were obtained:

Fig 2-1
Interval: control group
[UCD: J12-J16.8]

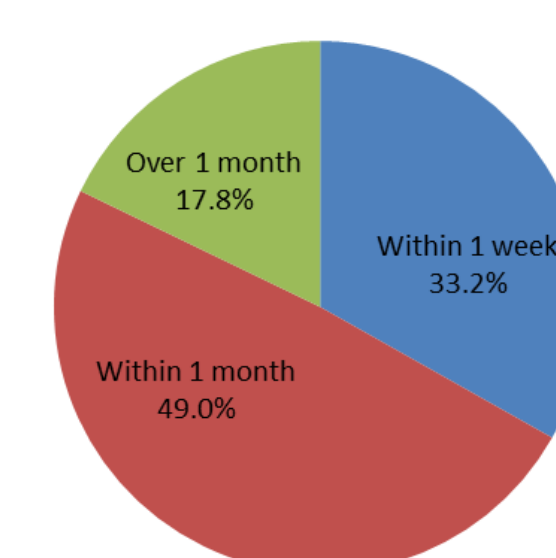


Fig 2-2
Interval: group A
[Certificates with mention of Sepsis etc.]

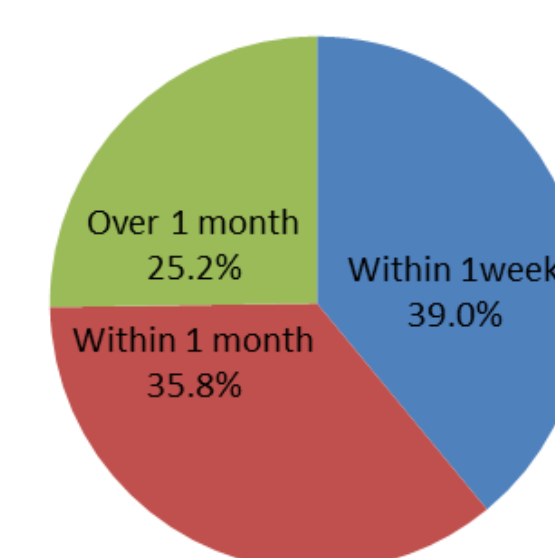


Fig 2-3
Interval: group B
[Certificates with mention of Food etc.]

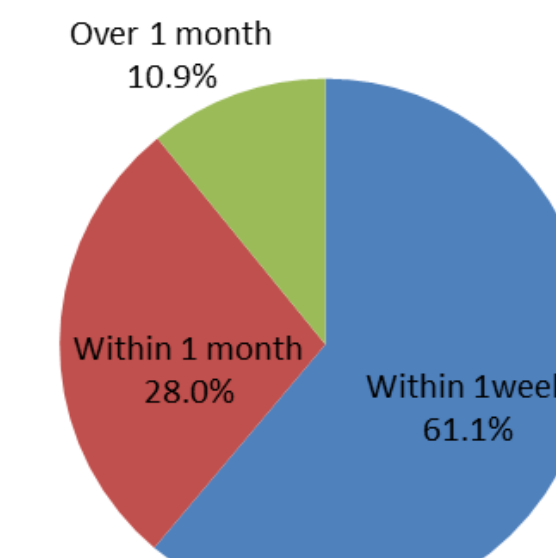


Fig 2-4
Interval: group C
[Other Certificates of J69.0]

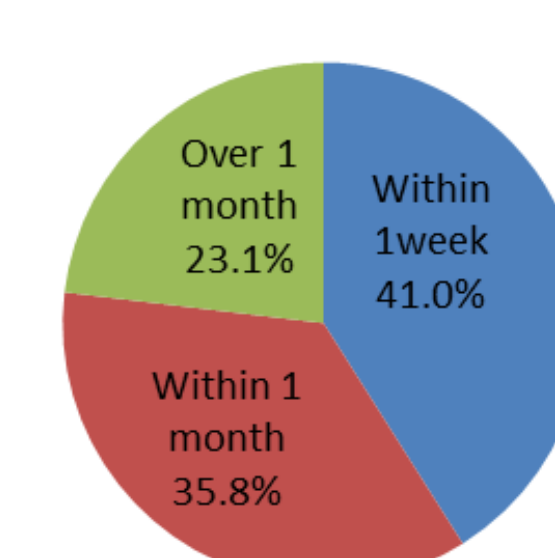
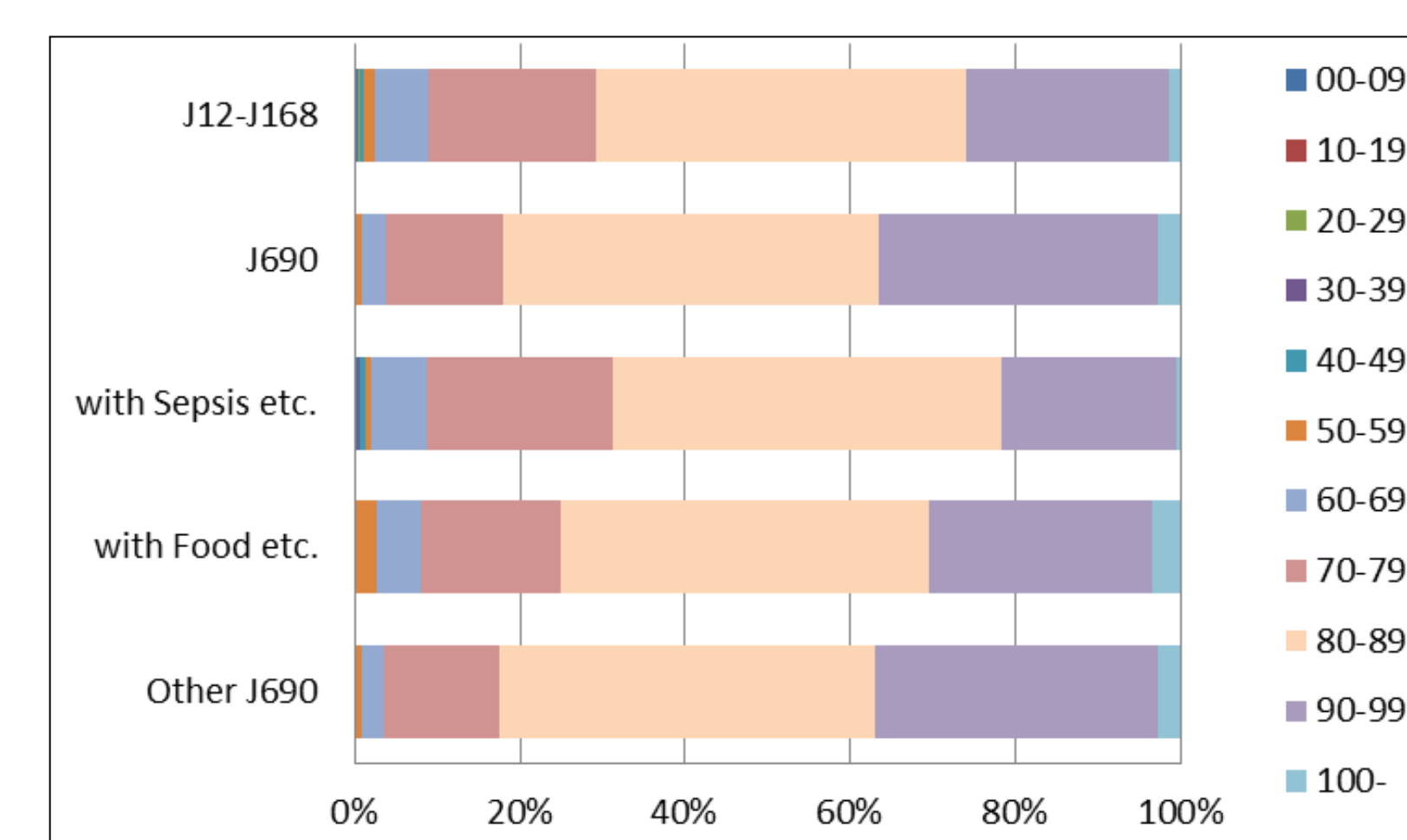
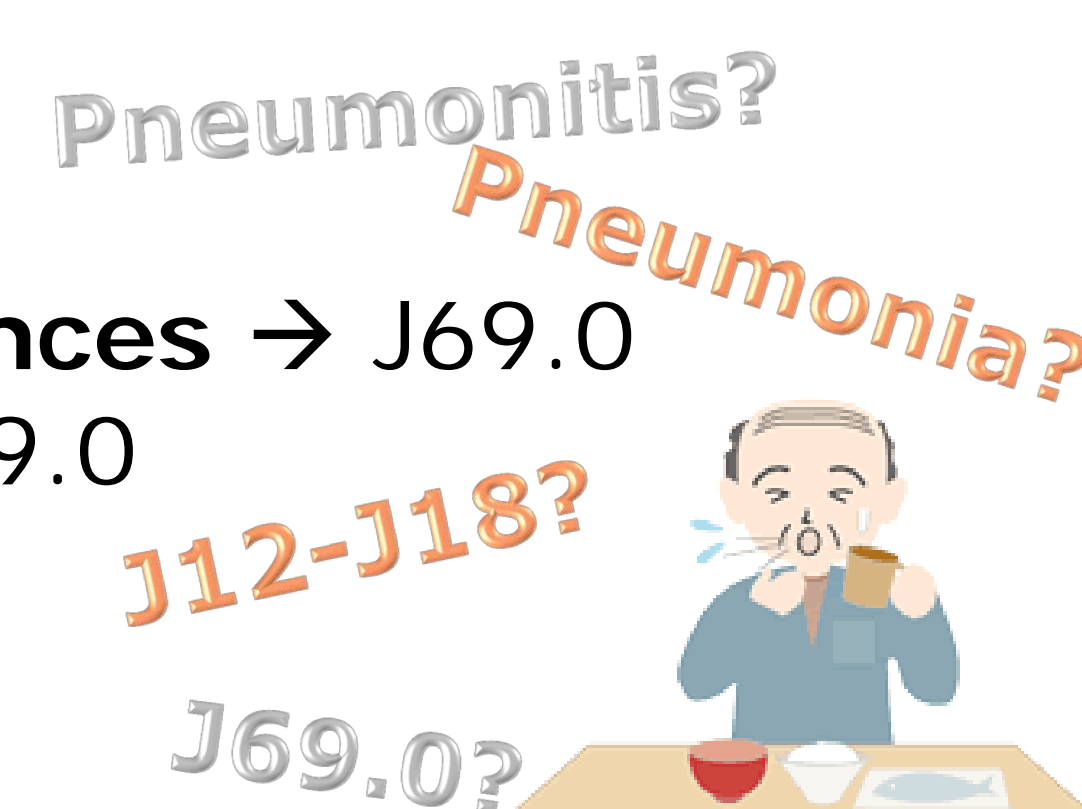


Fig 3. Age Structure of Each Group



Acknowledgement:

We would like to thank the Vital, Health and Social Statistics Division of the Statistics and Information Department at the Ministry of Health, Labour and Welfare for providing valuable data for our analysis.





National Efforts for improving the health information quality in Paraguay

12 – 18 October 2013
Beijing, China

C416

Bogado L., Salinas Z., Cuevas E., Almada R., Cuadras C.,
Samudio J., Alonso M.

Ministry of Public Health and Social Welfare (MPHSW)

Abstract The Ministry of Public Health through the Biostatistics Unit, part of the General Direction of Health Strategic Information (DIGIES), has been making progress in expanding and improving the quality and coverage of vital statistics (births and deaths). The Strategic National Plan 2007-2011 includes the Objective 7: Strengthening of Information System of Vital Statistics besides the correct use of the WHO Family of International Classifications (FIC). The DIGIES also are facing the challenge of establishing a National FIC Center (NFC) in the country.

Introduction

The Ministry of Public Health is the main institution responsible, (National Law No 836/80), for the integration of vital statistics.

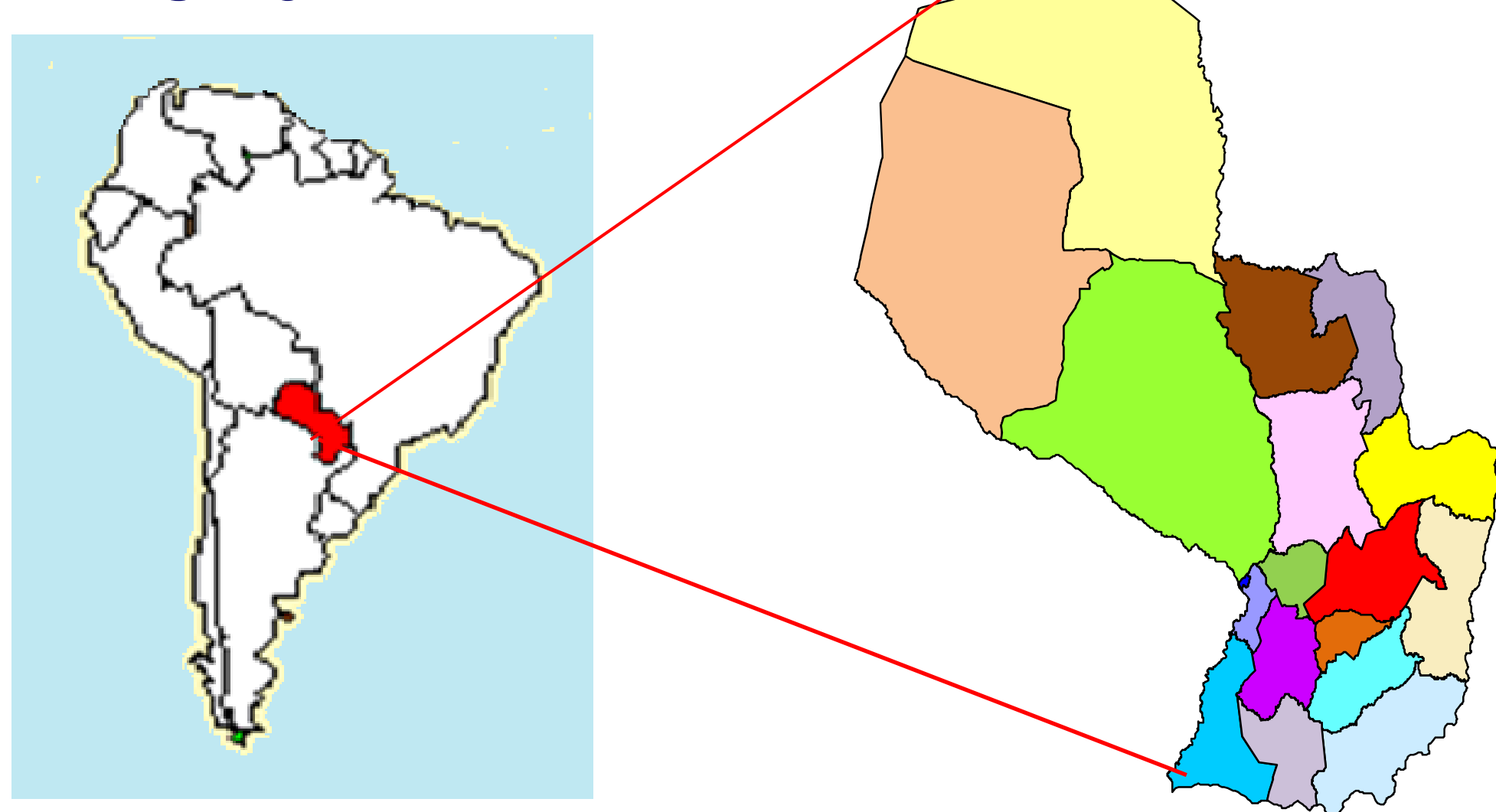
The whole process includes: compile, manage, integration, analysis and publish the vitals statistics of Health Sector every year.

All institutions, public and private, providers of health services should send the information generated as result of their activities to the Ministry of Health.

Background

- In 1995 the first Regional Workshop took place in Asunción to implement the ICD-10 in the country.
- The codification of mortality data using the ICD-10 started in 1996 and its adoption for morbidity topic was in 1997.
- The redesign of formats to collect the data and the Manual of Procedures to integrate Vital Statistics were discussed between 2002-2003

Paraguay

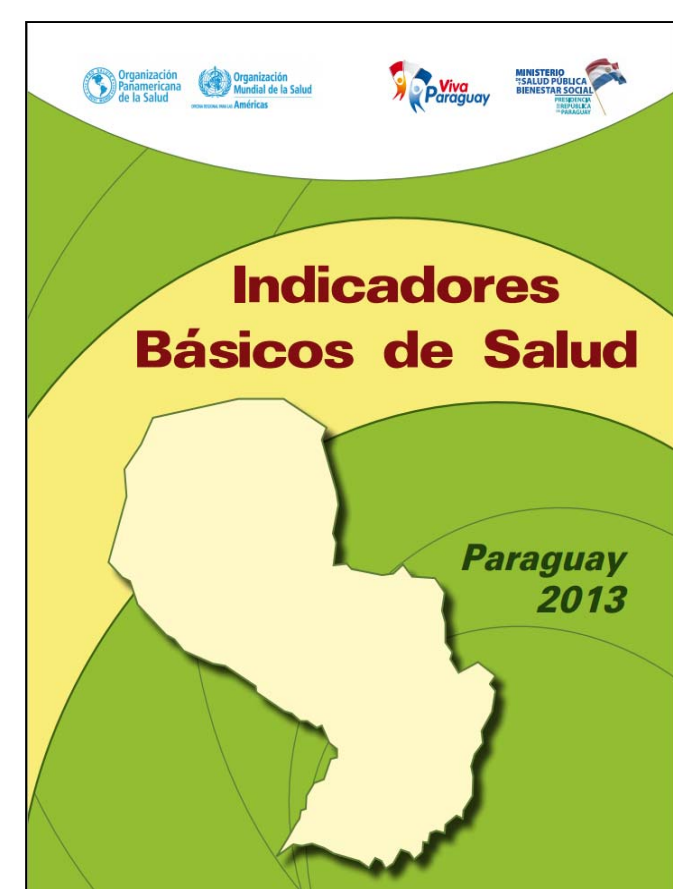


Strengthening of sub-system of Information of Vital Statistics

- All health institutions adopted the basic national formats in 2004.
- National situation analysis of Health Information System (HIS) between 2005-2006
- Since 2006 each Regional Office has been charged of the integration of vital statistics at sub-national level. This process started in the Regional Hospitals in 2009.
- Paraguay is member of Health Metrics Network in 2007.
- The Strategic National Plan to improve the HIS was developed in the period 2007-2011.
- 180 coders were trained from 2000 to 2008.
- The variable "Ethnic" was included on the national formats in 2010.
- Since 2010 the DIGIES has been recoding the 10% of total deaths (sample) to verified the process of certification, codification and selection of underlying cause of death every year.

Activities

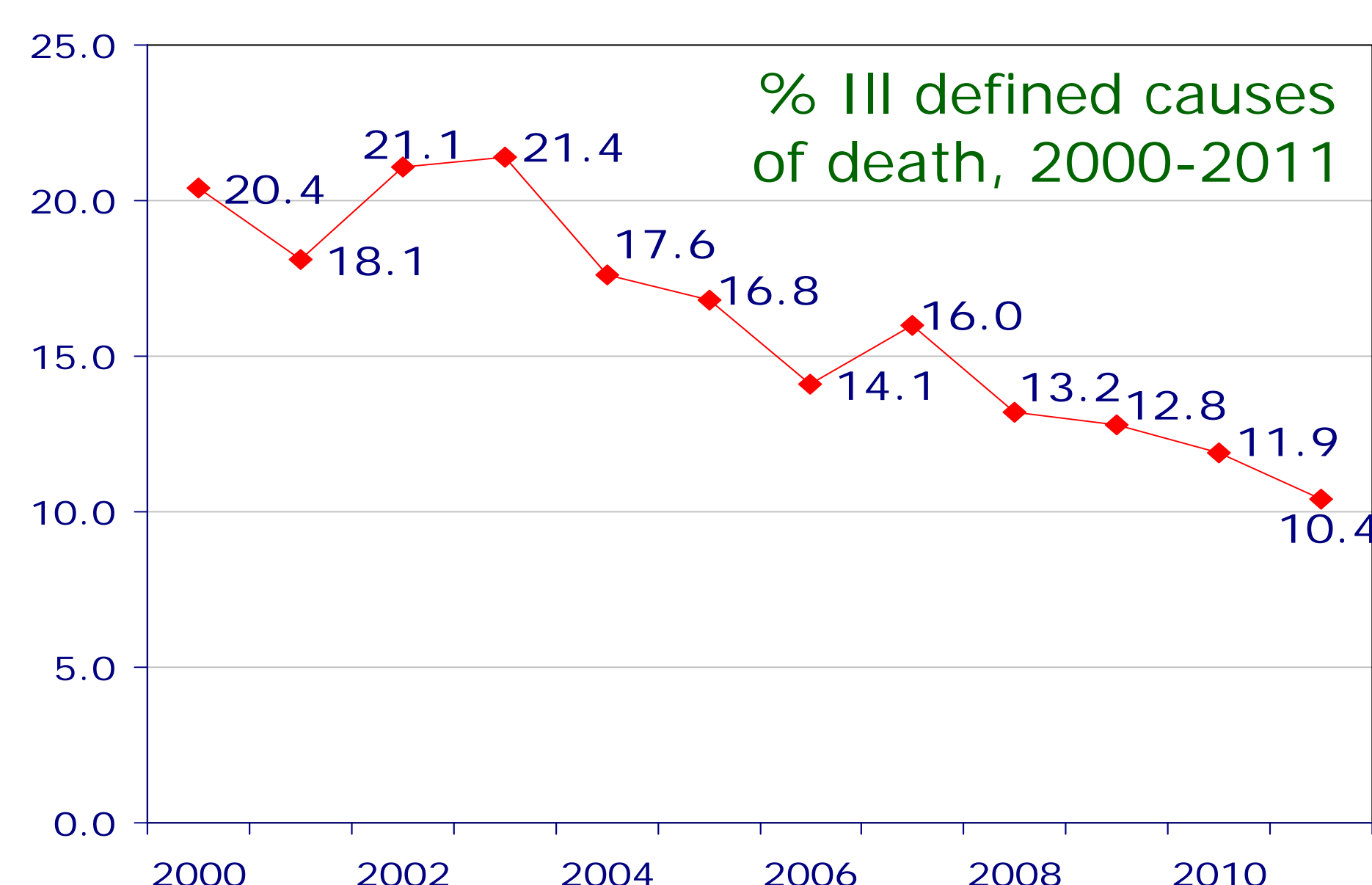
Health Basic Indicators 2013



- The Indicators constitute an input for decision-making based on evidence.
- The last version presents data of 2011: www.mspps.gov.py

- Since 2011 the process of seeking maternal deaths has carried out, recoding 100% of deaths among women of reproductive age (10-54) every year.

All activities implemented by institutions led by the Ministry of Health have contributed in decreasing the % of under-registration (from 33,7% in 2004 to 29,5% in 2011; and from 33,7% to 30,8% for live births).



International training course for trainers

In 2011, PAHO in collaboration with USAID & Measure Evaluation and the Mexican WHO-FIC Collaborating Center conducted a course aimed to train trainers and to establishment NFC. The venue was Quito, Ecuador. Five coders of Paraguay were trained during one month.



Since that year the national instructors have developed a national plan of training, focused on ICD-10, conducting courses at national and sub national level such as:

- Workshop for mortality coders in Itapua, August-September in 2011.
- Two courses for training coders (mortality and morbidity).
- One course of ICD-10 updates for mortality coders.

Activities

The instructors also participated in the Research of Maternal Mortality Project in 2011. All technical guides for FIC implementation in the country are provided for them as well.

Course in Oviedo

April, 2012



Course in Asuncion

April, 2013

Paraguay, as an active member of Latin American and Caribbean Network for improving vital statistics (RELACIS) is participating in the following project:

- Implementation of the automated coding system of the Underlying Cause of Death develop by National Institute of Statistics of Mexico (INEGI). The national group attended the Workshop in Costa Rica in May, for analysing the implementation process of this system in the country.

Conclusions

- Professionals of statistics units (73) and mortality coders (14) have been trained. These activities have been developed with the financial support from PAHO-country office, CIFD and CIDA-Canada.
- In 2012 the first national meeting took place to discuss and organize the establishment of NFC.
- The role of the Center is key in facing the new challenges of its implementation in the national health information system.
- The proper use of FIC requires technical experience and knowledge to contribute to evidence-based decisions making.
- It is important to recognize and strengthen the current role of training of national WHO-FIC instructors and coders.
- Improving the quality of health information needs to mobilize resources: human and financial. In addition, the legislation should support the implementation of the Strategic National Plan.

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Testing the Mortality International Exam in Central America

12 – 18 October 2013
Beijing, China

Soliz P¹, Torres L², Lara J², Alanis R², Navarro A², Santillan A²,
Gloria R², Guzman C², Rocha H²

C417

¹Pan American Health Organization, ²Mexican Collaborating Center for FIC (CEMECE)

Abstract As a part of training activities sponsored by USAID/Measure Evaluation and PAHO in Central America in 2012, four courses for ICD mortality coders were conducted in Honduras, Nicaragua, El Salvador and Guatemala with the technical support of the Mexican Collaborating Center for FIC. The international mortality exam developed by the WHO FIC Network was tested. Before those courses, the exam had been used in Mexico after its translating into Spanish in 2009. PAHO and CEMECE considered those courses as a good opportunity to test the exam demonstrating its utility as an international standard. The poster presents the main results and recommendations of this experience.

Background

The Latin American and Caribbean Network for Strengthening Health Information Systems (RELAC SIS) has recognized the need to strengthen the process of training human resources at the country level through the support and coordination with the WHO-FIC Collaborating Centers, the PAHO/WHO, MEASURE/Evaluation, donors and countries.

In 2012, four courses were conducted for mortality coders in Central America according to the plan of the Network in collaboration with CEMECE. Each national course included two components:

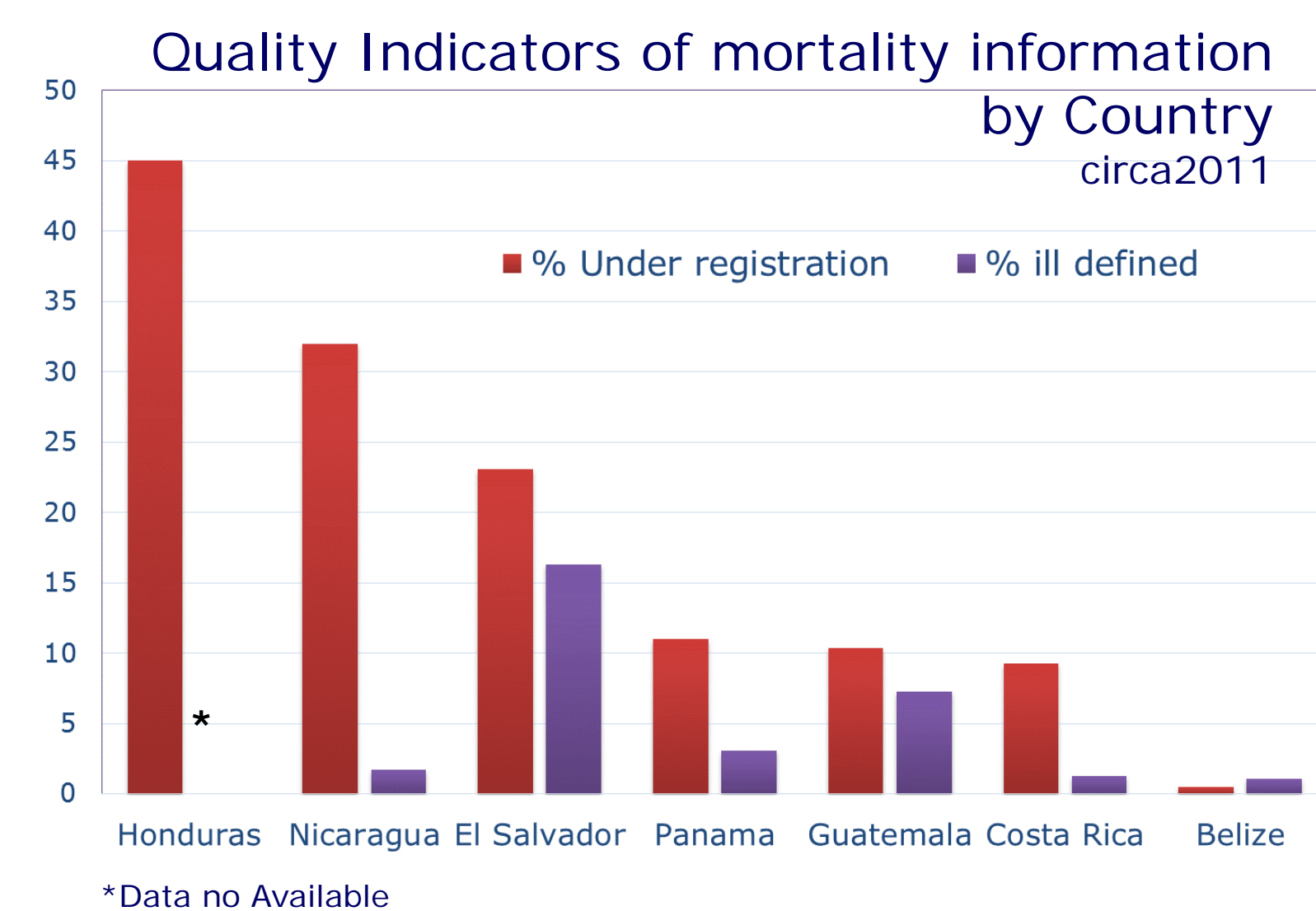
1. Training of coders focus on ICD-10 mortality but the course also includes morbidity.

2. Promoting the establish of a National Center for FIC to encourage the proper and comprehensive use of FIC in the respective country



Criteria for selecting the countries:

- the proportion of ill-defined causes of death.
- the proportion of completeness and coverage of death registration.
- the number of national instructors and coders
- last training course received (date)
- official commitment of country to foster the establishment of a National Centre.



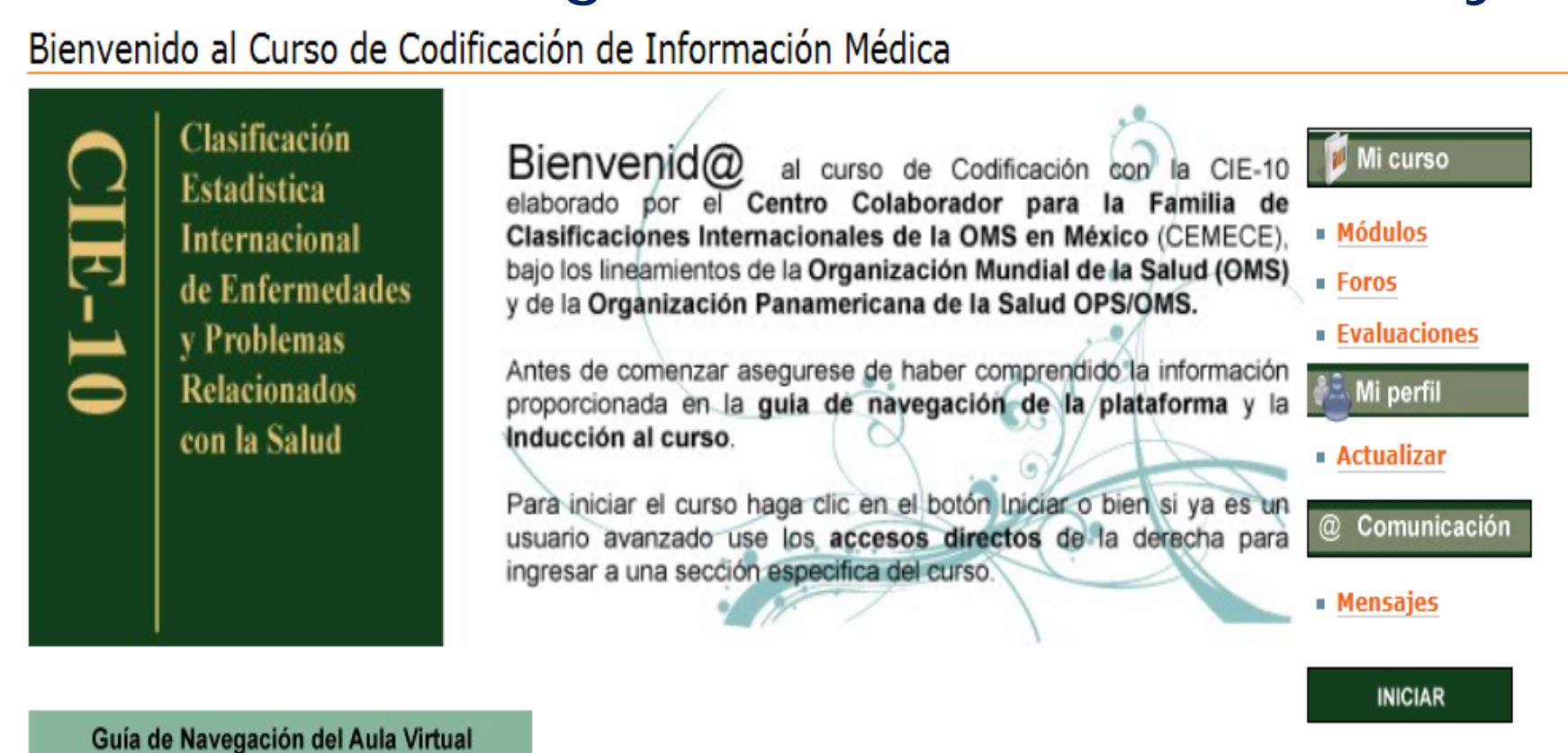
Honduras, El Salvador, Nicaragua and Guatemala were selected as priority countries based on quality indicators.

Criteria for selecting the coders:

- technical expertise as a mortality or morbidity coder
- nominated by institution
- participants should belong to the main institutions related to the integration of information
- passed the selection exam with 8 on a scale of 10.

Methods & Materials

The course included a virtual phase using the ICD tool developed by CEMECE and a face to face course during 2 weeks in each country.



Process for selecting the questions

The following activities were carried out for this process:

1. Review and analysis of the mortality exam by CEMECE instructors.
 - composition by ICD chapters and basic topics
 - necessary time to complete the whole exam (on average 5 hours)
 - level of difficulty
 - rules, notes and procedures for selecting the Underlying cause of death (UCD)
2. Identify the level of knowledge of coders selected in each country. This course was the first formal experience with ICD for most of the coders.

Twenty questions were randomly selected covering the following topics:

Topic	Description	Number of questions
		Total 20
ICD Chapter	Cap. I	3
	Cap. II	7
	Cap. IX	1
	Cap. X	2
	Cap. XI	1
	Cap. XIV	1
	Cap. XV	1
	Cap. XVI	2
	Cap. XX	2
Gender	Female	9
	Male	11
Procedures	-General Principle	15
	-Rule 1	2
	Rule 2	3
	Rule 3	1
Modification Rules	Rule A	1
	Rule B	1
	Rule C	1
	Rule D	4
	Rule F	1
Notes	Neoplasms	3
	Naure of injury and external causes	1

- The questions were administered at the end of each course.
- Two instructors from CEMECE imparted each course.
- A total of 112 coders were trained:
- Honduras (24), Nicaragua (30), El Salvador (26) and Guatemala (32).
- Due to time constraints it was not possible for coders from Honduras and Nicaragua to take the virtual course

Results

- The time to complete the questions was one of the most important factors. For this reason in both courses in Guatemala and El Salvador the exam was pre-coded and only asked for selection of the UDC.
- The average scores were higher in Guatemala, El Salvador and Nicaragua compared with Honduras where some administrative issues affected upon the final assessment of coders.

- Seven questions presented more differences in selecting the UCD among coders and CEMECE instructors. The concordance inter-coders and instructors will be analyzed considering the 20 questions individually.
- This experience was very interesting and extremely useful for the instructors from the CEMECE and PAHO.

Recommendations

What it is more important? – the process of coding each cause of death or selecting the UCD correctly

Both processes require different time and assess different level of knowledge.

One option might be the exam includes previously coding for each cause and the assessment only focused on the process of selecting the UCD. We think this option is useful and efficient.

This matter also should be considered for the scoring process and as part of international protocol for using the exam correctly.

- The question bank should be composed by a large number of questions, at least 800, including the same proportion of questions by gender, age group, ICD- 10 chapters, topics, multiples causes, notes, rules in order to discriminate different level of knowledge of ICD.

- Questions with different opinions and answers for UCD should be excluded.

- For some questions is needed to include additional information (external causes, maternal deaths), for others review the ICD-10 updates, because it would be possible the answers and procedures have changed.

- It is very important to encourage the use of the international mortality exam as a validated tool for training activities at global level.

- This experience allowed PAHO and CEMECE analyze and discuss important elements of the training activities with the aim of improving the level of knowledge of coders, the instructors performance as well as to foster the quality of mortality information.

Further information:
Patricia Nilda Soliz Sánchez
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Abstract

Aimed at preparing new questions for the International Underlying Cause of Death Coding Exam, the EIC and the MRG developed this project . The objective was to prepare new questions to be added to the existing bank of one hundred questions. To prepare the new questions we established some steps to reach consensus on the underlying cause of death and on the ICD-10 selection and modification rules. The consensus-reaching process is presented in this poster.

Introduction

Results

Conclusions

This is a project coordinated by the EIC in a partnership with the MRG. In 2006-2007 there were 100 questions prepared for an international underlying cause of death coding exam for trainers and coders. During 2012 - 2013 new questions were proposed and discussed aimed at increasing the exam question bank. The process of this joint collaboration project is reported in this poster.

Methods

- MRG members were asked to send 10 examples of death certificates (DC) completely coded and with information on the rules used to select the underlying cause of death (UC).
- A set of 86 new “certificates” were sent from 5 countries.
- This set of 86 cases was sent to MRG members who were asked to code and select the UC, and to indicate the rules applied to get the UC. The process was the same used in the previous exam question building.
- All answers were compared and sets of questions were made regarding the agreement obtained:
 - total agreement (UC and selection rules);
 - partial agreement (UC but not selection rules);
 - total disagreement (UC and selection rules).
- Questions were considered for inclusion when there was consensus on the UC and the rules used to select it.
- A second and a third round of discussion and coding was done aimed to address specific questions.

After collecting and comparing the answers, those to be included in the exam question bank were identified. This process was repeated 3 times. In the first round those questions for which we have complete agreement were selected. The others were divided in 2 groups:

- 40 questions with differences related to only the rules applied;
- 27 questions with differences related to both UC and the rules.

In the second and third rounds these two groups were analyzed again.

Discussion aimed at not only determining the proper UC of death but also improving questions regarding the interpretation of the selection and modification rules.

Figure below shows the results of each round of discussion

This process allowed a discussion on the different interpretations of ICD-10 underlying causes of death selection and modification rules. Some conclusions may help to improve the wording or the description of the rules. Some conclusions could lead to improvements in the ICD-10 Volume 2 guidelines.

- Interpretation and application of ICD-10 rules is not yet consistent internationally .
- Some fairly usual DC may lack agreement on the UC and/or on the rules applied
- There is a lack of, but a need for, international agreement on rules for multiple cause coding
- Many linkages are still evolving (e.g diabetes).
- UC chosen depends on the decision tables consulted or ICD-10 version

86 cases from 5 countries					
FIRST ROUND of Coding	19 agreed	40 with differences in the use of rules		27 with discordance in the UC and rules	
SECOND round OF CODING	↓ 1 on hold	33 accepted ↓ 1 on hold	6 refused	10 accepted ↓ 3 on hold	14 refused
THIRD round	↓ Excluded	↓ 1 agreed	↓ 1 table group	↓ 2 excluded 1 agreed	↓ 1 agreed 1 table group 1 to be discussed at MRG
Total new questions	18	33	-	11	1

The ICD-10 implementation process in the Americas

12 – 18 October 2013
Beijing, China

C419

Are we ready for ICD-11?

Soliz P¹, Gerger A¹, Torres L²

¹Pan American Health Organization, ²Mexican Collaborating Center for FIC (CEMECE)

Abstract ICD-10 was endorsed by the 43rd World Health Assembly (WHA) in May 1990 and came into use in WHO Member States as from 1994. The transition from ICD-9 to ICD-10 demanded a tremendous efforts for the countries in order to adopt a better classification as an essential tool for generating better information. This poster provides the highlights of the ICD-10 implementation process for mortality information in the Region of the Americas in view of ICD-11.

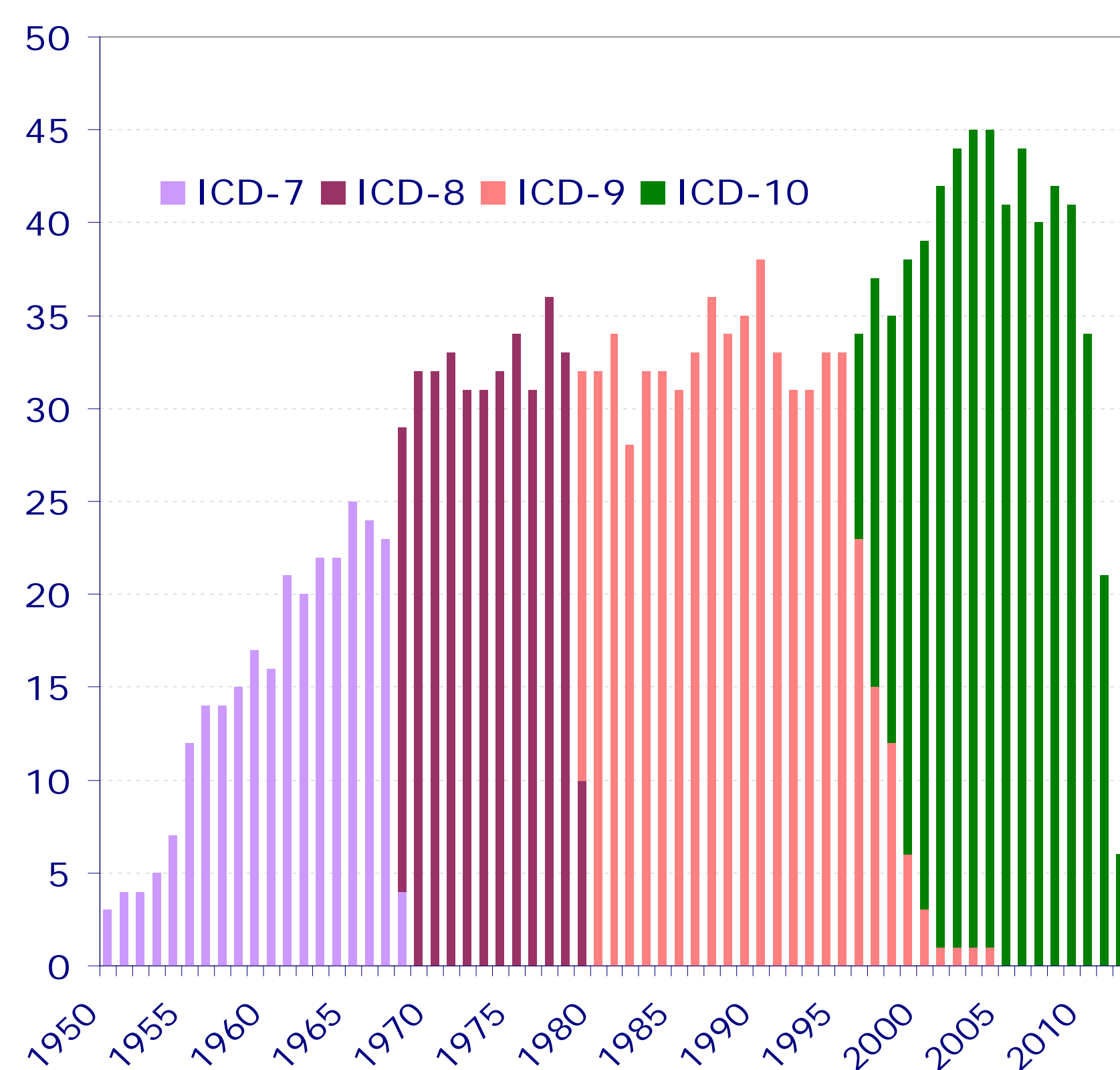
Background

In response to the recommendation to implement ICD-10, countries tackled this challenge by developing different strategies:

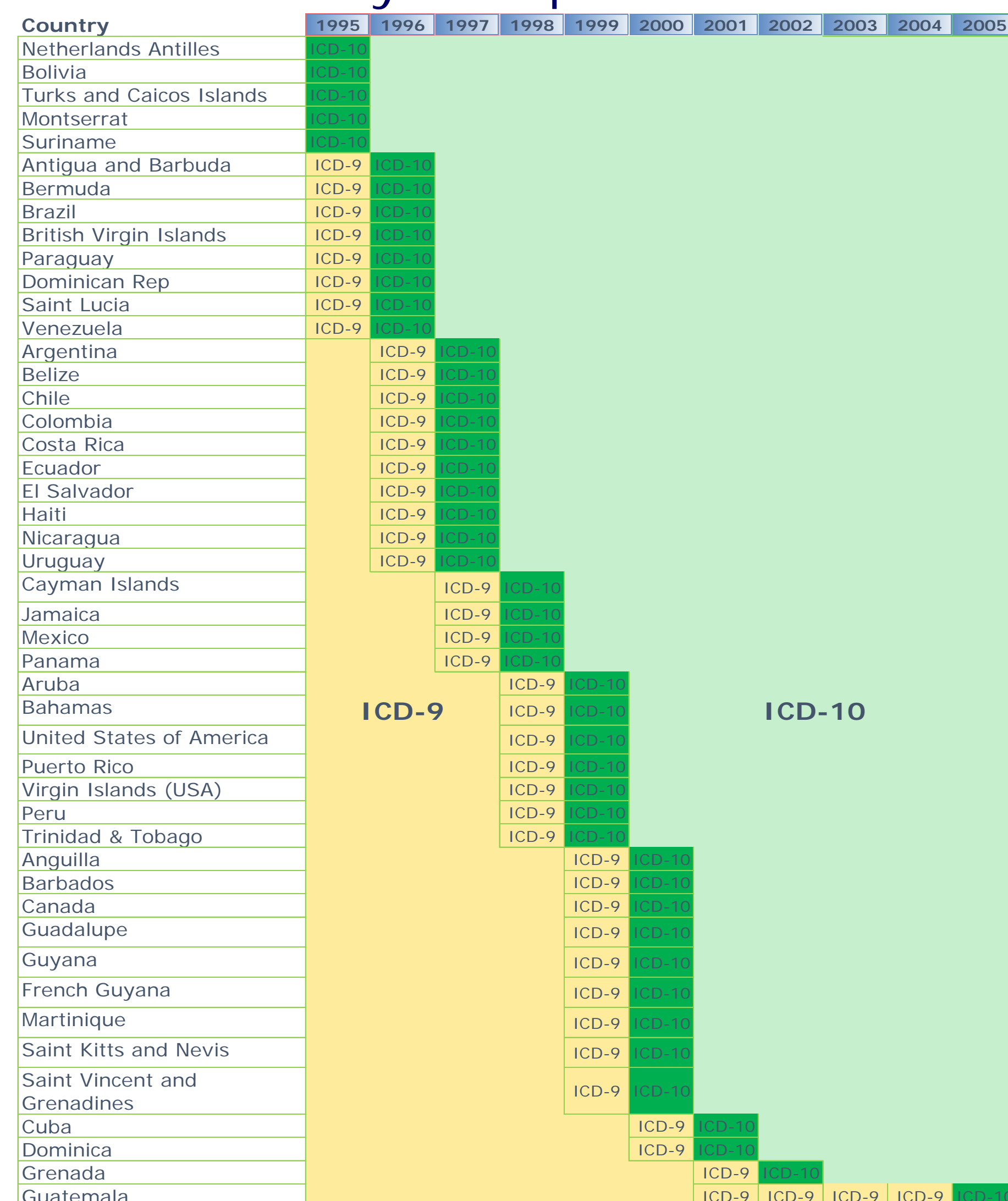
- Carrying out bridge coding: comparison of ICD-9 with ICD-10;
- Training coders, physicians and statistical personnel from Ministry of Health and National Statistics Institute;
- Modifying and adapting electronic tools, formats, mortality data bases as components of the health information system and vital statistics system;
- Measuring the effect of implementing ICD-10 in statistics. Many countries published in depth analysis to avoid misinterpretations.

PAHO and the WHO FIC Collaborating Centers provided technical support during this process. Each country implemented ICD-10 in a different moment, depending on resources (human, financial and technical) as well as political and legal support that was provided by national authorities.

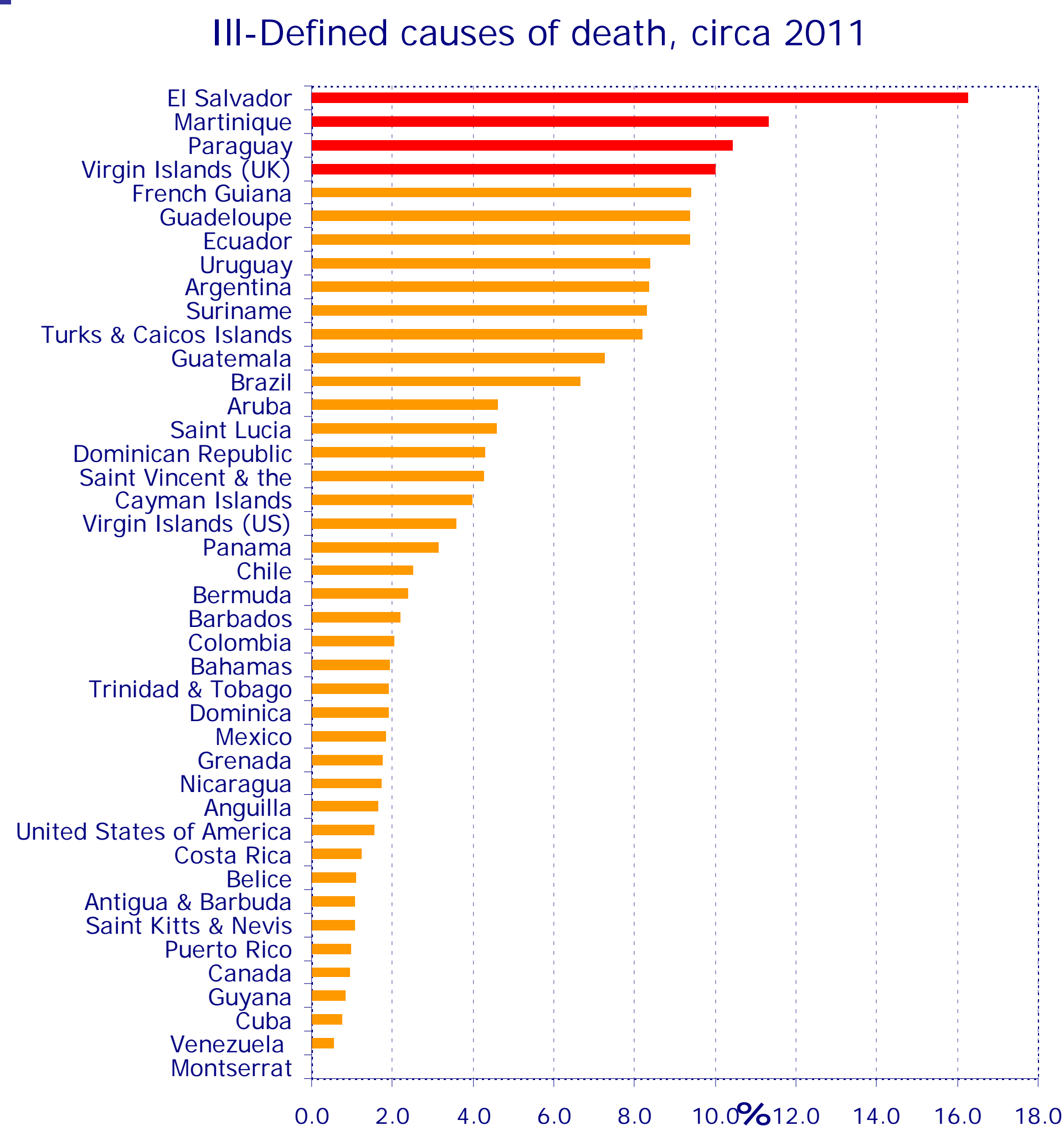
The following figure shows the number of countries according the ICD version by year, starting in 1950, in the Americas.



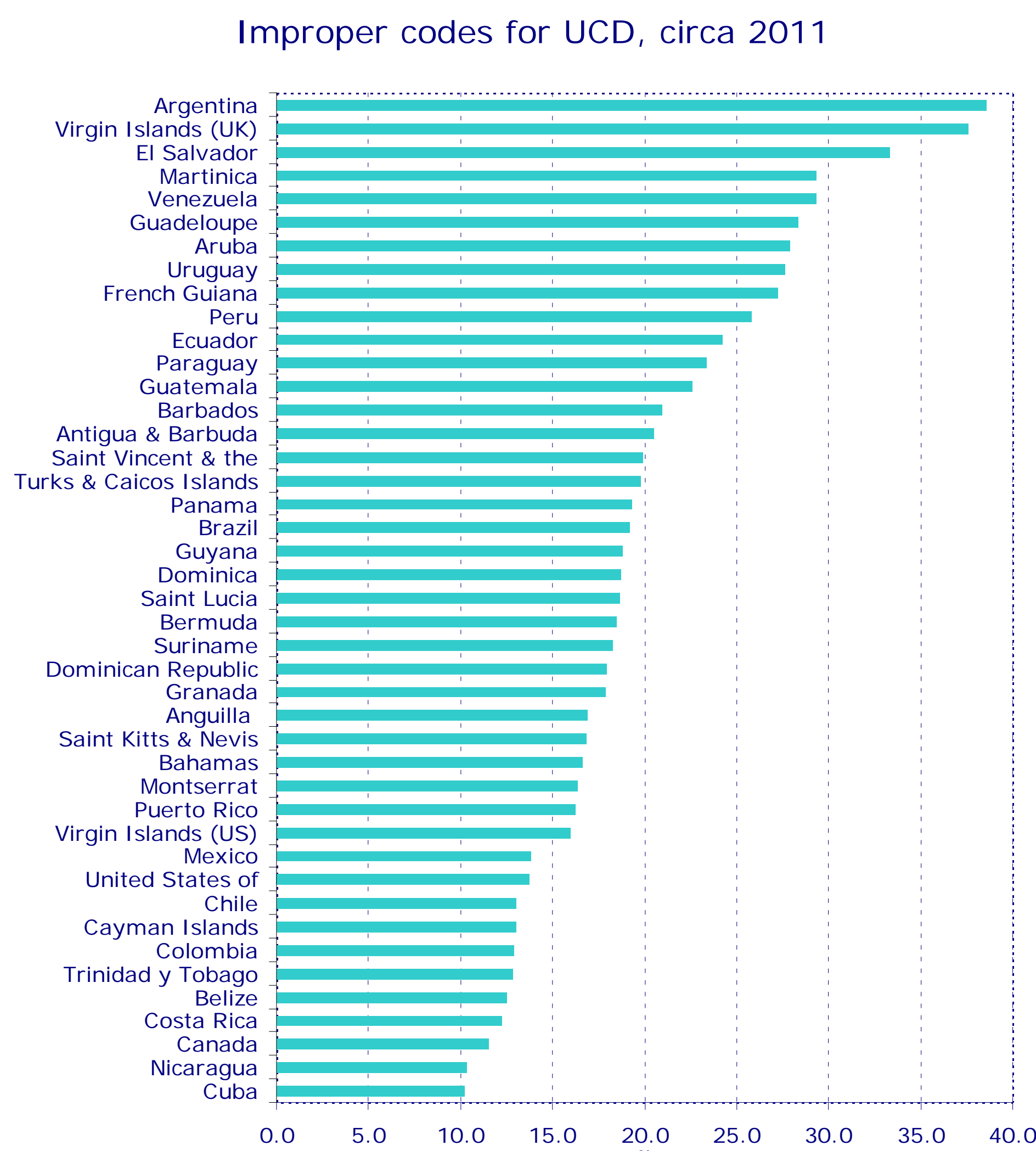
The period of ICD-10 implementation process started in 1995. Guatemala was the last country to implement in 2005.



Status of ICD-10 implementation



Undoubtedly, quality and coverage of mortality information have improved due to the national strategic plans. The 'proportion of ill-defined causes of deaths' for most of countries is less than 10%. Indicators like improper codes for UCD (underlying causes of death) should also form part of M&E as well as ICD-10 restrictions and the correct use of rules and notes.



Status and challenges of ICD-10 implementation

- All countries use ICD-10 for mortality
- ICD-10 updates are not implemented on time. Even countries with WHO FIC CC cannot implement them annually
- Coders with different level of training, unrecognized by administrative structure, with few opportunities to improve their skills
- Different levels of quality in filling out the death certificate by physicians
- Distinct editions of ICD-10 used (1993, 1998, 2003, 2008) across and within countries
- National adjustments of the death certificate, some of them not according to the ICD-10 recommendations.

Status of ICD-10 implementation

- Expensive ICD-10 manuals need to be bought by the countries and this is a first and big barrier for successful ICD-10 implementation.
- The automated coding of mortality is not used in many countries, where manual coding is usual.
- The PAHO/WHO regional mortality data base is being timely integrated and disseminated, representing the speedy processes of data integration in the countries. Variables such as 'place of occurrence of death', 'personnel who certified death' and questions 'women in reproductive age' will be included in the enhanced regional mortality data base.
- PAHO projects have been developed by the invaluable support of the WHO FIC Collaborating Centers (CC):
 - North American CC
 - Brazilian CC
 - Venezuelan CC
 - Mexican CC

Training courses for coders, instructors physicians and statisticians have been conducted across the Region.

•Countries are establishing their National Center for FIC, following the international recommendation to support correct implementation of ICD-10 and ICF. The FIC CC Network of the Americas (established in 2011) should be expanded and strengthened

•There are many excellent and important national experiences in the Region of the Americas, at the same time there are important gaps to overcome.

Towards ICD-11

- The ICD-10 revision process started 6 years ago. The CCs and PAHO have contributed in different ways to this process, in varying levels, depending on available resources.
- Contributing to the current phase, participating in test trials, bridge coding studies and in developing all multilingual materials necessary. These activities should be utmost priority for the CC and PAHO/WHO.
- The date for adopting the ICD-11 by WHA is different than the date for its implementation.
- It is strongly recommended to improve the communication strategy regarding ICD-11 across WHO FIC Network, Regional Offices, CC and countries.
- Countries will implement ICD-11 at their own convenience. However, we think that PAHO/WHO need to develop a regional transition and implementation plan to facilitate the countries' processes taking into account the upcoming classification dates and the lessons learned from the ICD-10 implementation.
- We need to start now.

Further information:
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Cause of death data from hospitals in Mozambique

12 – 18 October 2013
Beijing, China

C420

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Abstract Extensive and sustained efforts to improve cause of death (COD) data for Mozambique were initiated by the Ministry of Health in 2008. The initial focus on intra-hospital mortality registration resulted in the publication of a report on causes of death among inpatients in Mozambique for 2009 to 2011; the first report for the country based on routine COD data. The extension of the mortality registration system to cover all deaths is under way.

Background

The Mozambican context:

- Ranking 180/190 per GDP
- Health Sector
 - Limited diagnostic capacity: e.g. X-rays at 5% of facilities
 - 1 doctor/40,000 population.

HIS in Mozambique:

- 90% PAPER BASED
- No dedicated HIS human resources
- No systematic data quality control
- Lack of analysis of the data
- HIS architecture undefined
- Lack of standard and integration of the subsystems
- Lack of IT infrastructure and connectivity

Mortality registration

The Mozambican CRVS

- Statistics on causes of death mainly through surveys and ad hoc studies
- Currently CR is not providing information on causes of death (COD)
- According to Mozambican law the mandate to certify COD relies on NHS
- Collaboration between health sector, civil registration and other sectors for CRVS is weak.

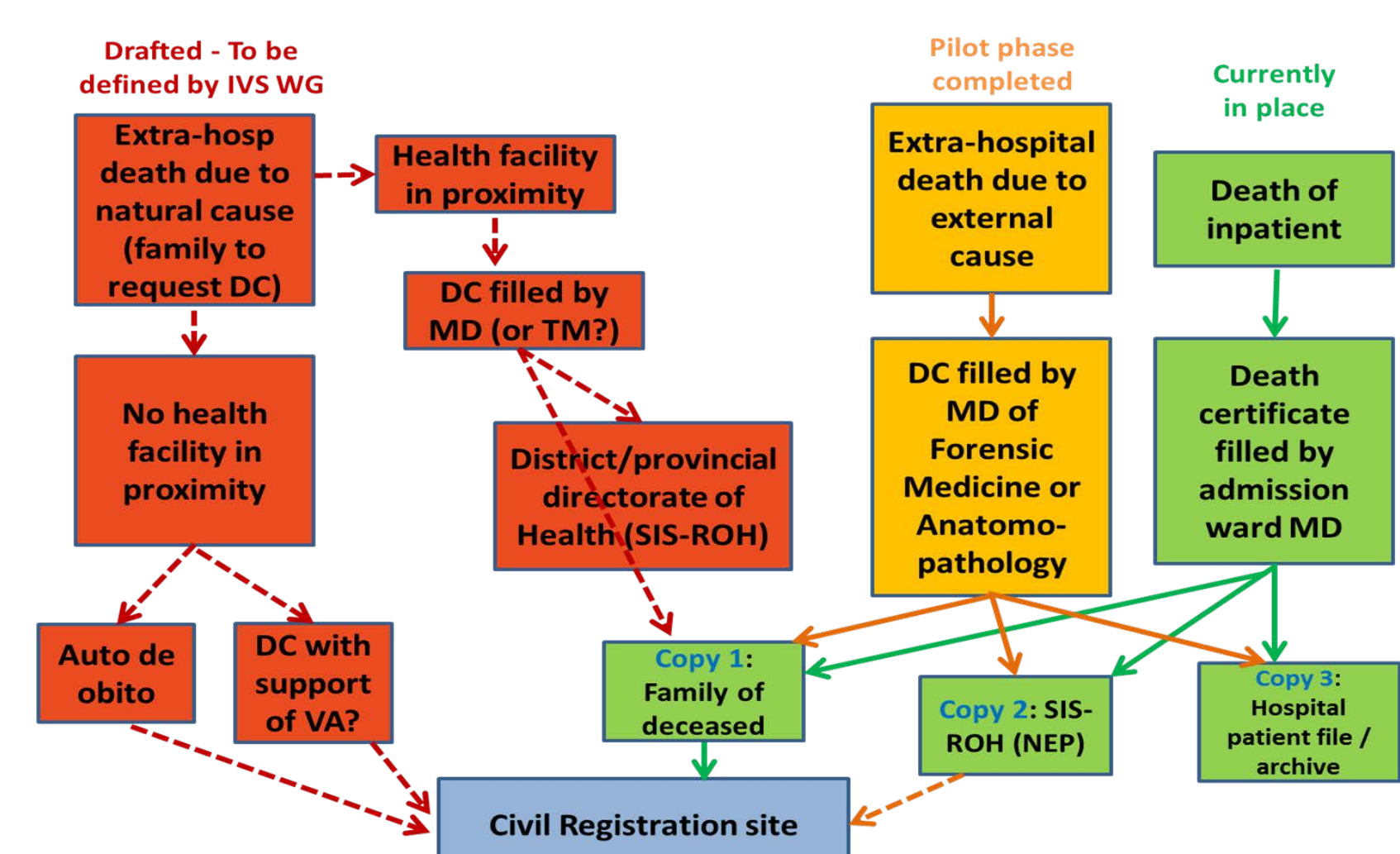
Revision of the mortality registration system

- Commenced by MISAU (Ministry of Health) in 2008
- ICD-10 was adopted as national standard for selection and codification of COD.

•Phase 1: Set up intra-hospital mortality registration (death and causes of death) with full national coverage.

- Phase 2: Expand mortality registration system to all deaths
 - high level Inter-institutional Vital Statistics Working Group (IVS WG)
 - commenced in January 2013.

Mozambique mortality registration process - Data flow



Intra-hospital register

Data source: Revised death certificate
• Introduced nationwide in 2009 (books, 3 carbon copies); 9 sections

Data management: Electronic tool for data management (**SIS-ROH**)

- Individual based electronic register
- Using full ICD-10 list
- Co-developed by mOASIS and MOH using national expertise
- Data quality through in-built data validations
- Basic hardware requirements for installation.

Current status:

- Register already implemented in 28 sites
 - 18 of 52 Hospitals:
 - 10 central/provincial (100%)
 - 8 district/rural (19%)
 - 10 Provincial Directorates of Health
- Extensive training at central and provincial level, on ICD-10 coding and SIS-ROH software:
 - Clinicians: fill in death certificate
 - Statistical unit: COD coding.
- **Analysis of causes of death among inpatients at national level completed for 2009-2011.**
- Analysis of COD among inpatients at national level for 2012 currently in preparation.
- Aim for scale up to national level within 2,5 years (by 2015).

The project:

The National Mortality System development (SIS-ROH), including the intra-hospital mortality register, is a strategic project of Jembi/mOASIS, in support of the Ministry of Health of Mozambique (MISAU).

Partners:

MOH → ownership, overall direction and supervision
mOASIS (eHealth oriented project of UEM) → support for development, implementation and maintenance of IT solutions
Jembi Health Systems → technical and financial support to development and implementation

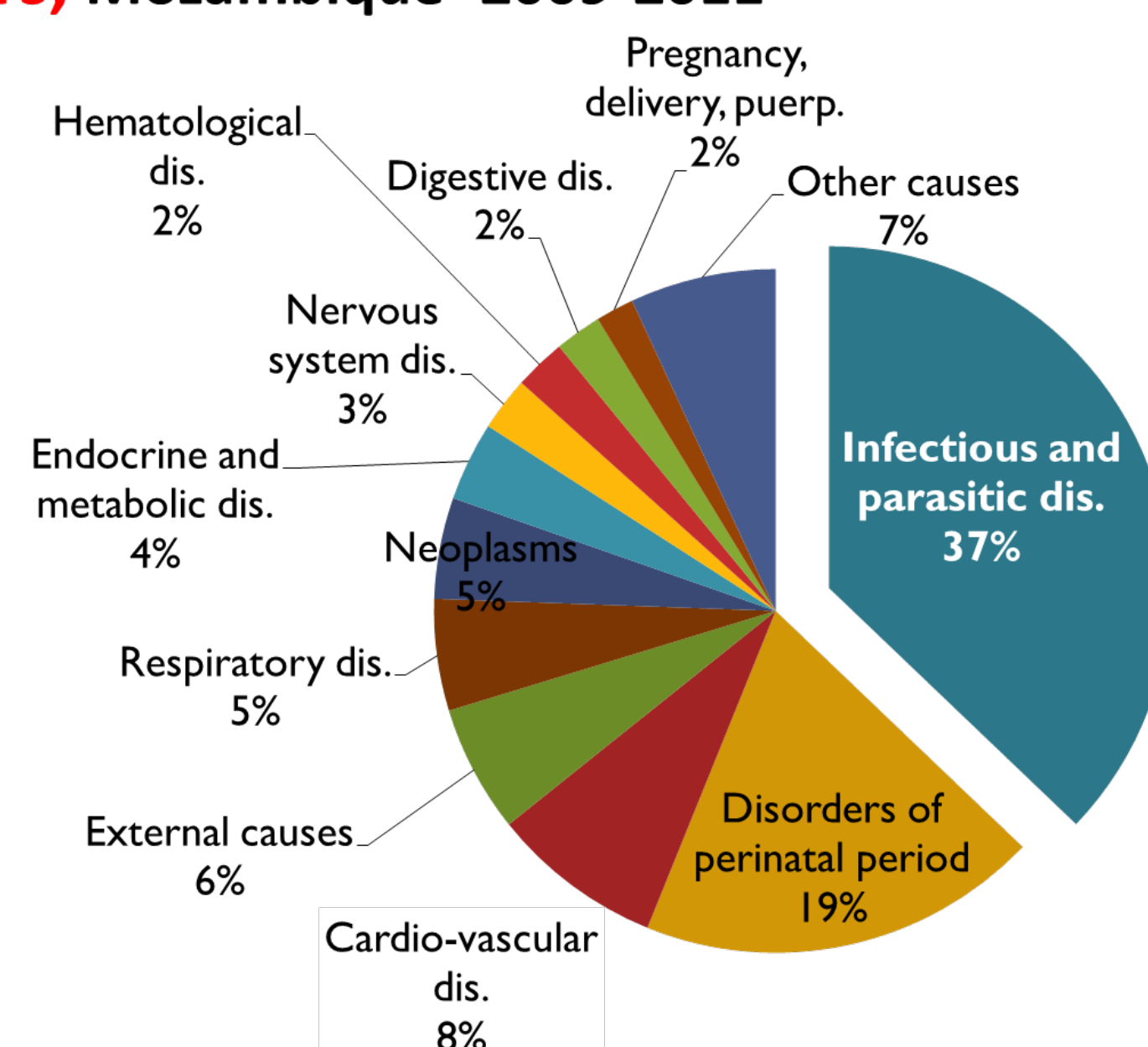
MoH/Jembi/mOASIS
→ 5 year MOU & joint planning.

WHO and HMN → technical and financial support for development & implementation
South African WHO-FIC CC → technical support for implementation of ICD-10
CDC → financial support for Jembi/mOASIS institutional development.

Data analysis

An example is given below. Further details are available in the report.

Mortality by underlying cause of death – ICD-10 Chapters, Mozambique 2009-2011



Success factors

Challenges

- Increase the coverage and quality of data
- Funds for full expansion of SIS-ROH and supervision
- Funds for in depth assessment of current situation of CRVS
- Promote innovative tools/approaches.

Success factors

- Bottom-up approach
 - Start little, be pragmatic
 - Obtain concrete results and grow based on success
- Local ownership and political commitment
- Informatics solutions suitable to the country setting
- Data used locally and in real time.

Conclusions

- Simple locally developed system enabled recording and timely use of high quality mortality data
- Hospital mortality register showed to be suitable first step in the process of building routine national system to collect mortality data in Mozambique
- Creation of high level WG is milestone to reach governmental commitment to strengthen the overall CRVS.

Add logos: MISAU, mOASIS, Jembi