WHO-FIC 2005/I.2

WHO Business Plan for Classifications

… building blocks of health information …

a suite of classifications
for international use
as meaningful information tools to capture the ***core health dimensions***
such as ***deaths, disease, disability and health***
as well as related health system parameters such as ***health interventions.***

WHO, Geneva 2005 - Version 1.0
This business plan covers the period 2005 - 2010.
It will be revisited each year as a dynamic evolving document
with annual reports to account for progress.

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Executive Summary

The overall need

This business plan outlines what needs to be done to take the WHO Classifications and the supporting infrastructure into the 21st century and position them in the developing universe of health information - from the patient care end to health statistics. It spells out strategic directions, business drivers and required resources, potential partnerships and future actions. It informs the existing and future stakeholders about the portfolio priorities and addresses a number of recognized challenges in making classifications useful for current health initiatives.

Information base

Effectively addressing major health challenges depends on a strong information base. Problems need to be identified and described. Underlying causes must be explored and documented. Progress needs to be monitored, and actions taken need to be evaluated. WHO's classifications in the health area presented as an integrated suite as the "Family of International Classifications" (WHO-FIC) are an essential base for health information.

Family of Classifications

WHO-FIC aims to present meaningful information tools to capture the core health dimensions such as deaths and diseases with the ICD (International Classification of Diseases), and, disability and health with the ICF (International Classification of Functioning, Disability and Health). The suite of family products cover other "derived" classifications for specialty use or primary care as well as some "related" products for reason for encounter coding, nomenclature or terminologies. These products have become the cornerstone of health reimbursement systems in many developed countries. These systems are in fact substantial industries in themselves.

International public goods

WHO holds the invaluable intellectual property rights of these international public goods having developed them together with multiple knowledge networks. These classifications are widely used international standards. They have yielded extremely useful knowledge about the progress in health care in the last century such as changes in life expectancy, epidemiological transitions, and burden of disease. WHO has the constitutional mandate to develop and maintain these tools in the service of its Member States.

Knowledge Networks: WHO Collaborating Centers

WHO has developed the WHO-FIC with the collaboration of an active knowledge network over the past 50 years. Today this network includes 13 Collaborating Centres, --and is constantly growing --, which comprise national statistical agencies covering major language groups and geographic regions. This network provides an immense knowledge resource in the implementation and further development of WHO-FIC.

Rethinking Classifications for our global village

Given the advances in health information technology and health care systems, today we need to rethink the classifications better suited for the purpose of data collection to capture different health dimensions and serve for global comparisons across countries. We live in a world full of unbearable contrasts: on the one hand some people have all their health information properly stored in electronic databases; on the other hand we have no information for billions who have the greatest health problems.

WHO and the international health information standards

With limited allocation of its regular resources to maintain international public goods, the WHO ought to be a more active player in involving other stakeholders to undertake various developments within the WHO FIC network. WHO has to act as the steward of health information and lead international standards in this field. International classifications would require substantial investments, but could bring substantial benefits. Moreover, the existing separate efforts across many countries could be leveraged and harmonized with skilled staff and financial savings. The use of the ICD as a global standard worldwide for mortality has to be integrated into the success metrics to monitor the outcomes of major health initiatives for HIV/AIDS, malaria and tuberculosis as well as MDGs. The use of the ICF in evaluating health outcomes and assessing productivity would add to this potential. As electronic health records demand systematic standard terminologies to allow health information to be shared within and across different health services and settings, there may well emerge new applications of WHO-FIC to provide a base for terminologies.

Problems and Solution Scenarios

This plan outlines major issues and possible solutions and discusses the business case around them which aims to justify investment, to assure continuous improvement and evaluation and to describe the gains that will flow in return. The role of the WHO-FIC Network and other agencies are explored. The risks associated with not maintaining and further developing the WHO-FIC are also made clear: given the urgency and gravity of global health problems, business-as-usual cannot be an option; without basic information on counting deaths and measuring health we cannot evaluate the success of major health projects; there is a real risk of fragmentation and non-comparability of health information if various components are developed by others on a for-profit basis. The result is a multi-faceted business case, describing the basic resources to maintain and develop the reference classifications, the case for resourcing further development of the WHO-FIC, and additional business applications.

1. Introduction

WHO has the constitutional mandate to establish and revise as necessary international classifications for diseases, causes of death and other public health parameters. To this end, WHO in collaboration with various national and international partners has developed an integrated suite of health and health-related classifications. WHO owns valuable intellectual property of the "family" of international classifications (WHO-FIC) and exercises leadership in supporting classifications as the building blocks of health information systems for the international community.

Given the advances in health and management sciences and technological developments, we face a great challenge to meet the need for scientifically updated classifications on the one hand, and to implement these standards where their implementation is low on the other hand. To meet the challenges facing the WHO-FIC, it is imperative to recognize the knowledge assets we own and manage them effectively. To this end a business plan needs to be formulated to improve the management of WHO FIC.

This business plan outlines what needs to be done to take the WHO classifications and the supporting infrastructure into the 21st century and position them in the developing universe of health information - from the patient care end to health statistics. It spells out strategic directions, business drivers and required resources, potential partnerships and future actions. It informs existing and future stakeholders about the portfolio priorities and addresses a number of recognized challenges in making classifications useful for current health initiatives.

1.1 Our Portfolio: "Family of International Classifications"

Effectively addressing major health challenges depends on a strong information base. Problems need to be identified and described. Underlying causes must be explored and documented. Progress needs to be monitored, and actions taken need to be evaluated. WHO's classifications in the health area presented as a suite as the "Family of International Classifications" (WHO-FIC) form an essential base for health information. The concept of "Family" designates a set of integrated tools to classify main health parameters such as deaths, diseases, disability and health in practical, measurable terms with accompanying tools to educate users, to implement and use data within their health information systems.

WHO-FIC aims to present meaningful information tools to capture the core health dimensions such as deaths and diseases with the ICD (International Classification of Diseases), and, disability and health with the ICF (International Classification of Functioning, Disability and Health). The suite of family products cover other "derived" classifications for specialty use or primary care as well as some "related" products for reason for encounter coding, nomenclature or terminologies. Figure 1 represents the types of classifications in the WHO-FIC.

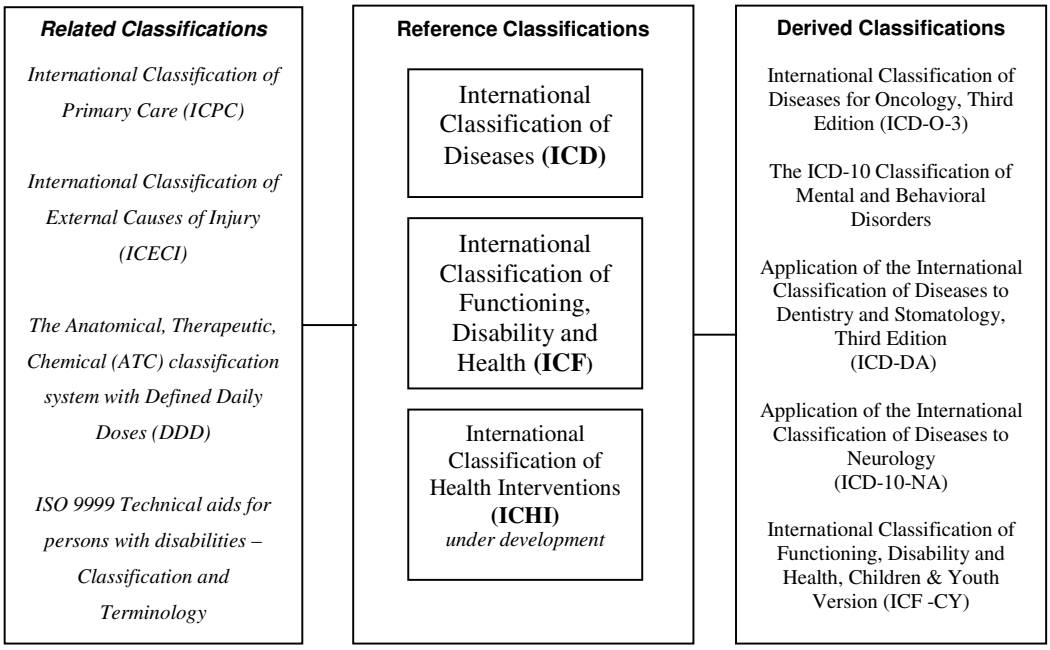


Figure 1. Members of the WHO-Family of International Classifications (WHO FIC)

Reference classifications cover the main parameters of the health system, such as death, disease, functioning, disability, health and health interventions. WHO reference classifications are a product of international agreements. They have achieved official agreement for use and are approved and recommended as guidelines for international reporting on health. *Derived classifications* are based upon reference classifications prepared by adopting the reference classification structure and classes, providing additional detail or rearrangement of items. *Related classifications* are those that partially refer to reference classifications, or that are associated with the reference classification at specific levels of the structure only. Maintaining classifications as a "family" encourages the resolution of problems of compatibility and joint use among members of the family and offer opportunities for increased harmony over time for better use in health information systems (for further information see www.who.int/classifications/family).

1.2 WHO's Assets

Intellectual Property Rights: Having developed the family of international classifications together with multiple knowledge networks as international public goods, WHO holds their valuable intellectual property rights. These classifications are widely used international standards. They have yielded extremely useful knowledge about the progress in health care in the last century such as the changes in life expectancy, epidemiological transitions, and burden of disease. Furthermore the classification products have become the cornerstone of health reimbursement systems in many developed countries. These systems are in fact substantial industries in themselves.

Knowledge Networks: WHO has developed the WHO-FIC with the collaboration of an active knowledge network over the past 50 years. Today this network includes 13 Collaborating Centres, --and is constantly growing to include centers in Africa, South East Asia and the Western Pacific --, which comprise national statistical agencies covering major language groups and geographic regions. This network provides an immense knowledge resource in the implementation and further development of WHO-FIC.

Position: Given its constitutional mandate and international public health responsibility WHO should act as a steward to mobilize all stakeholders to address the challenges jointly towards building solutions. There is a growing interdependence of products, users and providers and no other agency can catalyze the creation of better health information systems.

1.3 Challenges

There is a growing set of challenges that we need to face in developing, maintaining, implementing and updating WHO classifications. These run across different topics and have major impact on the business we are running. The following list is not exhaustive but highlights the major concerns that face the WHO Portfolio:

Boundaries of use: Historically, WHO Classifications were developed merely as statistical tools to classify causes of deaths. As the needs of the users evolved, the classifications have also evolved to capture disease, disability and health reporting. This evolution poses a challenge to rethink the original purpose as to whether we would use classifications for statistical reporting only or go beyond to use them for reimbursement purposes or monitoring care? A classification without actual utility beyond dry statistical compilations is not of interest for many users.

Design for purpose: Current management sciences demand better identification of inputs into the information system. These include multiple dimensions in addition to causes of death to better monitor and evaluate the performance of the health systems. For example,

we need to identify user needs, describe problems, code diseases and interventions, measure outcomes and so on. Information technology has made great strides to develop electronic health records and integrate data from various sources such as primary care or emergency settings, laboratories, x-rays and imaging, pharmacies and so on. This requirement of interoperability of different information systems, put together with the unified use of WHO FIC products calls for a better blueprint for the design of the classifications.

Application tools: Creating perfect classifications does not automatically guarantee their implementation. Their uptake by the users also depends on the articulation of the need and suitability of the product for the real world use. Appropriate tools are essential for classifications be implemented. Generic solutions that can be customized to the needs of particular Member States are needed. To this end the WHO FIC network and the stakeholders should develop a coherent view of the needs of the users around the globe and create a set of operational programs and businessware for their implementation.

Global Contrasts: Currently the disparities on the health information are very striking. On the one hand some people have all their health information properly stored in electronic databases; on the other hand we have no information for billions who have the greatest health problems. Unless systematic measures are taken this gap is likely to remain and widen. Although the WHO FIC network has made systematic efforts to implement the WHO Classifications worldwide, implementation falls short of desired targets. Basically lack of infrastructure from other sectors (e.g. vital registration), and lack of routine health information systems set a block against implementation. Therefore intelligent problem-solving strategies are needed to address these contrasts (see *2.1 Information Paradox page 10*)

Revisions, Updates and synchrony with e-health applications: Classifications continuously evolve with their use and the advance of scientific knowledge. ICD was approved by the World Health Assembly in its 10th revision in 1990 with a view of a proper update of the system within a ten-year revision cycle. Given the heterogeneity of health care applications, services and systems creating international tools and updating to meet the needs of users is a grand challenge. A common framework is needed as well as transparent mechanisms for an evidence-based consensus building approach. This approach requires collaboration with multiple national and international stakeholders and leading a process to arrive at common practical tools (e.g. an electronic version that can go into national information system).

Primary Care Versions: A great majority of populations worldwide seeks and receives care at primary care settings. However, WHO FIC elements are not currently suitable for use in primary care. They are complex, too detailed and do not offer any reward to the user. To make user-friendly versions of WHO FIC to capture relevant information and documentation in primary care settings is a big challenge.

2. Priorities in our Portfolio

2.1 Information Paradox

> Health information is the glue that holds a health system together.
> In most countries stronger, more integrated information systems are required.
> One example is vital registration systems
> - the ability to count births and deaths.
> These systems are still missing for most of the countries' population,
> especially in countries with high disease burdens.
> To make people count, we first need to be able to count people.
>
> *J. W. Lee - WHO Director General*

Today sadly there is an *'information paradox'* in the world: countries with the greatest health burdens and needs have the biggest information gaps. They not only have the least information but also limited capacity (skills, systems) to generate, analyze, present and disseminate information.

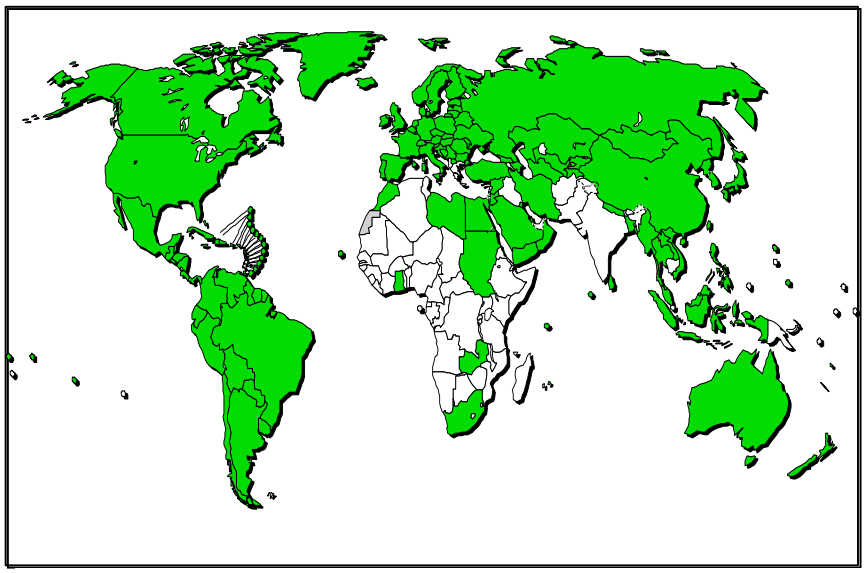


Figure 2 an Information Paradox: Reporting of Mortality in the World

Figure 2 depicts the compilation of mortality statistics reported to WHO by its member states. Many African countries and some South-East Asian Countries are not covered. This is a great information gap in terms of both the population size and the health burden. Of 192 WHO Member States, 83 are not in a position to provide recent mortality data. Of these 83 countries 70 are located in three regions: 40 are in the African Region, 10 in the Eastern Mediterranean Region and 20 in the Western Pacific Region [i].

The 83 countries which cannot report basic mortality figures, in fact, have an estimated burden of mortality that is 4.17 times that of those who report. Figure 3 shows a comparison of the burden of mortality estimated in terms of years of life lost (YLL) in countries that have vital registration reports in comparison to those countries that do not. This is no surprise given the toll of HIV/AIDS, tuberculosis and malaria as well as injury and violence in those countries.

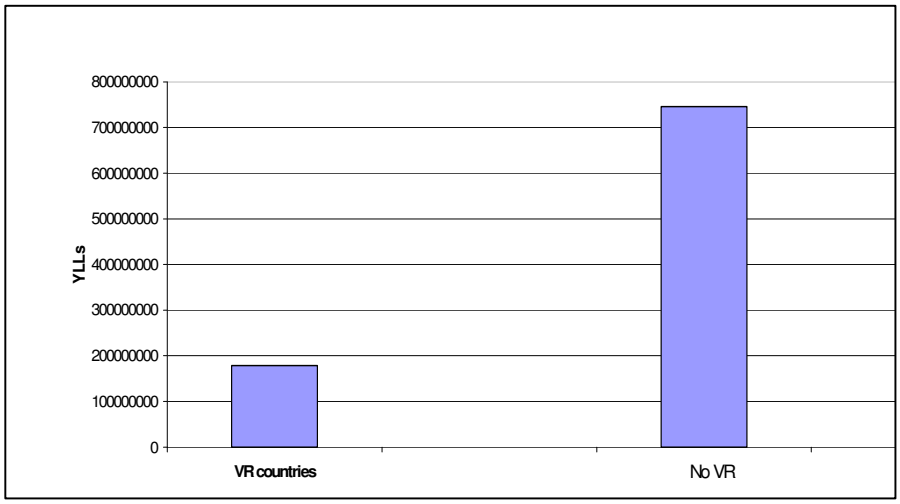


Figure 3 Burden of Mortality in countries with good Vital Registration Systems versus countries with no good vital registration systems (units expressed in terms of Years of Life Lost (YLLs)

It is not only the mortality but also the level of health that matters. Figure 4 makes the same comparison in terms of years of life lived with disability (YLD).

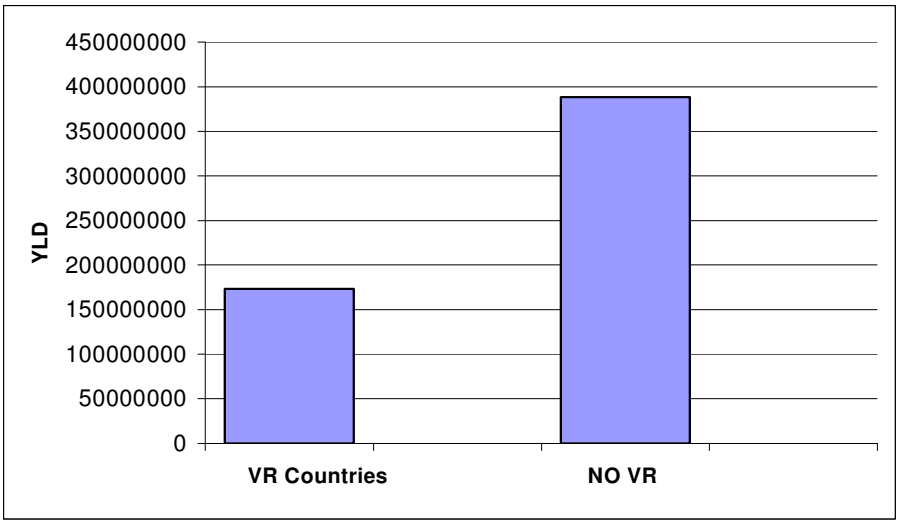


Figure 4 Burden of Disability in countries with good Vital Registration Systems versus countries with no good vital registration systems (units expressed in terms of Years Lived with Disability (YLDs)

There is currently no information available on the number of live births and the number of deaths in countries without vital registration.

Additionally, even in those countries where ICD has been implemented, there is a wide divergence of approach and consistency in its use for something as fundamental as the recording of causes of death. Many countries continue to use ICD-9, some use short lists rather than the full classification. While some countries have moved largely to automated coding, others rely wholly or in a large part on manual coding. Where manual coding is used, in some countries it is performed by trained clerical or higher level coders and in others by certifying physicians. Moreover, the use of automated coding is somewhat dependent on the availability of appropriate language versions. All of these factors lead to significant inconsistencies in the compilation of mortality statistics, which adversely affects the comparison of health burdens between even the most resource-rich members of WHO.

Strategic Directions

- To make the "Information Paradox" a major flag to attract the attention of governments and other stakeholders so that they invest in a proper infrastructure to set up vital registration systems as an integral part of their monitoring and evaluation programs.

- To develop easy-to-use ICD-10 mortality applications that are suitable for use in the information paradox countries and within global health intervention programs (such as 3by5, RBM, StopTB, IMCI) and demonstrate their feasibility and utility

- To improve the level and quality of implementation of ICD coding of mortality across member states, so as to improve the quality and comparability of mortality statistics for national and international purposes.

Business Drivers

- ***Monitoring and evaluation of major global health initiatives***

Millennium Development Goals (MDGs) , as well as various global health initiatives that address the burden of HIV/AIDS, Malaria and Tuberculosis, and childhood disease require a sound information base to monitor their outcomes. Implementation of ICD (and possibly ICF) and vital registration could be built into their success metrics to measure the effectiveness of these programs in terms of reduced mortality and health gains.

- ***Providing reliable information for health planning***

Progressive implementation of ICD-10 for mortality classification in Africa, South and South-East Asia and the Eastern Mediterranean will assist these countries to improve the health of their populations

- ***Meeting the demands from Member states***

Many countries that are interested in developing a vital registration and health information system are confronted with the task of building their own. With proper investment the application of such systems could be made available as turn-key solutions with proper education and expert advice.

- ***Need for better health information***

Better information tools are needed that will assist health planning at the national and international level to quantify the impact of the determinants of fatal illnesses, to study inequities in health

Risk Benefit Analysis

Business as usual scenario: WHO FIC Network carries out routine efforts to develop and implement the classifications without any assurance towards their uptake. Although there is a legal obligation through WHO Nomenclature Regulations, such measures have not changed the picture. In the past, the response to this *"information paradox"* has been the establishment of multiple, overlapping and separate data systems that primarily met the needs of international agencies and donors rather than countries. Major health initiatives make spot analyses of local data without major international comparability. Surveys were carried out to serve to fill the information gap without validation studies and time series. Few and sporadic efforts take place to instate vital registration systems in information paradox countries. Translation and education efforts take place on an as needed basis if funds are available. Without proper attention and allocation of resources to address this issue the gap will grow and will be more difficult to address in the future.

Concerted effort on Information Paradox: Substantial investments are required in terms of human and financial resources. As risks these estimates may require more resources than the initial forecasts. However benefits will be substantial too in terms of harmonization of efforts by multiple vertical programs to monitor mortality; contributing to the health system platform by providing major information input. It will be important to assess the level of information in countries in terms of their readiness to take up any substantive program and its sustainability. As a result differing approaches can be applied for different groups of countries. This may increase benefits and increase local capacity and networking.

Relevant tasks

- Vital registration also has to be understood and presented as **a human rights issue**. Each human life counts, and registration by governments are at the least to demonstrate this value.
- WHO maintains a **database of ICD implementation in the Member States**, and their needs, resources for vital registration systems and plan studies of barriers to implementation in specific countries.
- The mortality information is a crucial piece of outcomes information, which should be regarded as the priority piece of health information in all health systems. All major health initiatives should take proper measures to contribute to collection of mortality information.
- Arrangements for working with partner organizations: to **integrate ICD implementation in the monitoring and evaluation programs of major global health initiatives.**
- Reminder to countries that reporting mortality statistics is a legal obligation as part of the **"WHO Nomenclature Regulations"** starting 1 Jan 1968.
- **"Information Paradox Countries"** should be graded in terms of readiness to implement a strategy for improving mortality statistics. Country specific implementation strategies should consider the coverage and quality of mortality reporting within the country.
- Apart from supporting the creation of fully functional **vital registration systems**, alternative options like **sample registration** and **verbal autopsy** should be institutionalized which have proven to be sustainable and cost-effective.
- Use of **proper death certification and automated coding tools** for selection of underlying causes of death needs to be supported. Use of a **Short Mortality List (SML)** should be targeted to facilitate mortality reporting rather than a data collection tool.
- Expand the WHO FIC Collaborating Centres (especially in Africa and Southeast Asia and Eastern Mediterranean).
- Identify partners and donors to develop tools and projects that will install proper systems for vital registration, ICD implementation as part of health information systems (including automated coding systems).
- Develop and disseminate **quality assurance procedures** and best practices for mortality classification

Outcomes expected

- A condensed effort for expanded coverage of ICD for mortality, particularly among the Information Paradox countries with the aim of having the whole world covered by 2015.

- Mobilization of the donor community to support the installation of vital registration and ICD implementation in information paradox countries

- Increased quality and greater comparability of cause of death information.

Resources

To address the information paradox, we need to start to gather data by counting births and deaths and building culture and capacity using all available methods and local data. Consultations with key stakeholders are needed on the basic criteria for the relevance, reliability, validity and comparability of information.

There are already proven technical solutions available. Apart from supporting the creation of fully functional **vital registration systems**, alternative options like **sample registration** and **verbal autopsy** could be implemented in a sustainable and cost-effective way. Use of **proper death certification and automated coding tools** for selection of underlying causes of death needs have proven to be feasible in individual studies. The WHO-FIC Network has developed a **short-mortality list (SML)** which shows that 90% of the mortality is explained by 100 ICD-10 three-character codes. The SML is accompanied by a set of associated guidelines and training materials. In addition, there is an extended list of 116 causes which has increased detail for HIV/AIDS and its complications for use in 3 by 5 countries. In collaboration with Member States and potential stakeholders, these methods could be implemented in data collection using appropriate tools. The fact and cause of death could be recorded where an appropriate infrastructure exists or through sample registration surveys in the absence of a sustainable administrative structure. The next step would be to work to improve the coverage of registration and the quality of certification of the cause of death.

A demonstration project is needed in a group of selected African countries with all basic means of vital registration and other population studies and putting the available technology in action in a stepwise and sustainable fashion. Such work will improve above and beyond traditional mortality indices leading by example to gather data on selected areas. Focused but in-depth studies should be conducted to provide evidence on relevance, reliability, validity and comparability parameters and study the cultural applicability, transportability and dissemination/uptake of these methods

Funding and human resources are needed to carry out these studies to increase the coverage of ICD for mortality. These may come from different sources:

- Member States that are involved
- Major Global Health initiatives as taxation for their country programs
- Application projects from Health Metrics Network
- Foundations and other philanthropic sources
- Revenues of WHO FIC products to WHO[1]

[1] *A substantial revenue flow to WHO is anticipated from the release of ICD-10 Second edition (2004) in hard copy and electronically. The revenue expectation is based on current charging practices, consistent with WHO's commitment to make the classification readily available. WHO adopted a policy in 2002 to allow program areas to share in the proceeds from the sale of products. This agreement must be operationalized and implemented.*

To roll out ICD implementation to cover all information paradox countries on the scale envisaged will require substantial development funding, which will require the commitment of partner organizations (e.g., UNSD, UNDP, UNICEF, World Bank) to the integrated development of vital statistics systems. Persuading the Member States involved to take up the package will be essential.

Further, the creation of a wider base of usage of ICD-10, in a greater variety of languages, will generate greater capacity around the world. This will reduce the scarcity of ICD related training products and trainers or expertise. Initial training investment should lead in turn to a greater pool of people able to assist in further implementation.

2. 2 From National to International Disease Statistics: ICD X M

Beyond mortality, ICD can be used to code diseases in health care settings. To serve this need several countries have found it necessary to develop clinical modifications beyond the international core. Examples include the United States (ICD-9 CM and ICD 10 CM); Australia (ICD-10 AM), Canada (ICD-10 CA), and Germany (ICD-10 GM).

The modifications are typically the basis for casemix groupings (aka Diagnostic Related Groupings DRGs), which are used for reimbursement and related purposes. Their use for this purpose has justified the investment necessary to build the clinical modification, but the modification is then used for routine reporting and so has far wider application than casemix groupings

Clinical modifications are extensions of the reference ICD classification. These allow new content to be added to the derived classification which has not yet been included in the reference classification. As such, these modifications provide ready material for the updating or revision of the reference classification.

Each country must invest heavily to produce and maintain its clinical modification, yet there is much common content between them. The different ICD-10 clinical modifications are, however, neither compatible with each other nor fully compatible with ICD-10. The coding standards for at least some of them differ from the international rules e.g. the definition of the principal diagnosis for morbidity coding. This situation is a threat to the comparability of morbidity data at the international level.

In addition many other countries try to adopt one or more of these systems to have an operational system for reimbursement purposes and better planning of purchasing of care.

Strategic Directions

- WHO should encourage a harmonization of existing clinical modifications, leading potentially to an international clinical modification (working name "ICD-10-XM") that could encourage correspondence and if possible convergence among modifications.

- ICD-10-XM could be used by countries that need a clinical modification (i.e. as a "Lego system" to pick relevant extensions) but who lack the resources to develop and maintain their own.

- The backbone of ICD-10-XM can be used by WHO to compile international disease statistics. WHO will also use it towards the update and revision of the ICD as naturally the national modifications indicate the user needs and advances in science.

- ICD-10-XM will serve as a business application for reimbursement schemes. Given the internationalization of the managed care and insurance industry, an ICD-10-XM provides a logical basis for development of business applications for use in health systems management.

Business Drivers

- **The efficiencies to be gained from a single common platform**

To date countries have been building their own clinical modifications. These modifications have not built one upon another, leading to significant differences between them and inefficient use of scarce resources. Maintenance of these different versions means that substantial resources continue to be required to keep the various clinical modifications up to date. A single common 'XM' clinical modification would link and harmonize various developments. Also duplication can be avoided and development timetables shortened.

- **Development platform for ICD updates and revisions**

ICD XM platform will be a natural development site as the national modifications indicate the user needs and advances in science.

- **To use in casemix classifications**

Most casemix systems are based on a clinical modification of ICD-9 or ICD-10, as only a clinical modification offers sufficient specificity and clinical currency. The availability of a WHO endorsed XM clinical modification early in the life of a classification would provide a worldwide base for systems developers.

- **To establish comparability among morbidity data at the international level**

The lack of compatibility between the existing clinical modifications and the reference ICD-10 has limited the comparability of morbidity data at the international level.

Risk Benefit Analysis

- If an ICD-10-XM is not available, more and more countries will develop their own modifications and the divergence will become even broader.

- The work will require high level technical input and minor omissions and errors may occur.

- An international clinical modification will facilitate comparison of morbidity data at the international level.

- WHO will be able to support countries in need of a clinical modification that cannot afford to develop and maintain their own. Countries developing their own modification of ICD-10 will be likely to base it on ICD-10-XM.

- Training of coders will be much simplified by development of ICD-10-XM. Education programs and materials at national level could be built on a common international base, with evident savings in resources and skilled staff.

Relevant tasks

- Developing an XML database version of ICD-10 and meta-database of existing clinical modifications
- Identify areas for harmonization, establish rules of use
- Develop short lists for morbidity reporting internationally - exploration for use in Primary Care
- Develop and disseminate core curricula and best practices for morbidity classification

Outcomes expected

ICD-10-XM should be available as an electronic tool database

Possible Coding Scheme for Primary Care version of ICD.

Resources

The development of an ICD-XM meta-database of the existing modifications will need time and resources. The harmonization is mainly an intellectual process and will also need resources. The WHO-FIC Network is well-positioned to lead and, subject to resources, undertake this work.

ICD XM would be seen as a global health information standard. It will be the basis of casemix systems, DRGs and clinical risk groups. Possible partnerships with developers and users of such systems should be explored as a means of spreading the resource load. The international education task surrounding ICD-10-XM should also be part of any such partnerships.

WHO's International Property Rights (IPR) on ICD and those of the countries that have clinical modifications should be sorted out legally and a business case for the creation of the ICD XM be clearly formulated.

Creation of ICD XM should be based on integration to terminologies through knowledge representation schemes which indicate the scientifically-known underpinning disease process. If such an ontological space is constructed creation of ICD XM would be a relatively easier through more essential mapping with core disease entities rather than correspondence tables.

2. 3 Revising the ICD

The ICD was approved by the International Conference for the Tenth Revision of the ICD in 1989 and adopted by the **43rd World Health Assembly in 1990.** In the same resolution the article (3) endorsed the need for the establishment of an updating process within the **ten-year revision cycle**. (The resolution can be found at hyperlink: WHA ICD Resolution (WHA 43.24)) The revision process which has almost always occurred within 10 year cycles beginning 1900 has nevertheless purposefully been deferred for a 20 year interval to be ready by 2010 or thereafter in order to enable a wider implementation of the ICD.

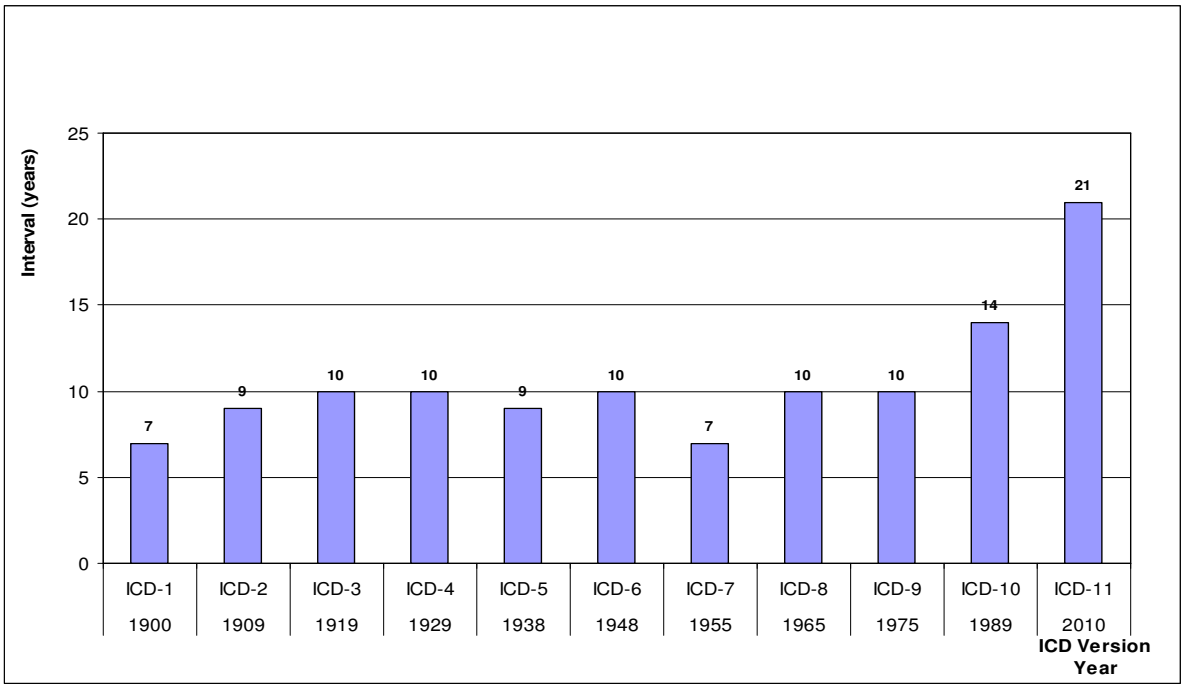


Figure 5 Time intervals for ICD Revisions

Given the preparations to issue an **ICD-11 by 2010** we need to compile the work starting now and therefore WHO has initiated a systematic effort for the ICD Revision process to respond to the **needs of member states and users,** and **keep up with new scientific knowledge**. This will be a major evidence-based review process that will address the **structural changes** and **new disease entities** and end up in a final product of a **user-friendly and scientific** ICD-11. This revision process also enables to design the ICD as a core element in the information technology and e-health applications with proper linkages.

WHO has planned to embark on a large-scale revision activity for the ICD that will require resources which will be raised by the WHO FIC Network. The revision process will involve **multiple parties and professionals** and consider the use of classifications at

hospitals, primary care and other health care settings such as **rehabilitation and long term care**. Once the problems and proposed solutions are obtained from different sources, we plan to synthesize them in **an evidence-based proposal with transparent rules and knowledge sharing tools**. The development will be made in a **well-defined database using IT technology and the Internet.** Various **expert groups** will be consulted and relevant sections of the classification will be tested in **field trials.**

Strategic Directions

- respond to the **needs of member states and users,** Clinicians, Administration, Patients, families; Data-users for a **user-friendly** ICD-11

- **keep up with new scientific knowledge** by setting up a major evidence-based review process that will address the **structural changes** and **new disease entities** and information

- Redesign the **ICD as a core element** in the information systems and e-health applications with proper linkages and supporting tools such as **terminologies** and **DRGs** for better health information management (e.g. development of **electronic health record**).

- Creation of an improved network and dissemination with multiple partners and stakeholders including better mortality recording, electronic health record and clinical terminologies, operational plan and business model

Business Drivers

- **User needs for a better documentation and classification system**

ICD-11 will attempt to synthesize the current scientific knowledge and establish a mechanism to periodically update the classification

- **Linkage with health information systems**

In recent years e-health applications have expanded enormously. ICD -11 will be designed to meet the needs towards electronic health records, clinical care systems for patient safety and decision support, automated documentation, interfacing with terminologies and other classifications.

Risk Benefit Analysis

If ICD-11 is not undertaken now, ICD-10 will become obsolete as a credible system given the advances in the health sciences. Specialty groups use alternative classifications of their own and more and more countries develop their own national classifications with significant modifications. Scientific knowledge is having new diseases and genetic

factors identified which makes the taxonomy used in ICD outdated. Lack of comparability is great when multiple schemes are used.

ICD-10 was developed before ICF and other related classifications such as ICECI and contains conceptual inconsistencies which makes the joint use of the WHOFIC classifications as a suite impossible.

ICD use was limited to statistical reporting - however today's management requires active use of information for service provision, care documentation, expense accountability. With a better design fit for these purposes ICD-11 can be more relevant for many users.

Relevant tasks

- Consultations with Member States, multiple parties and professional organizations to ensure to respond to different aspects of health care

- Creation of an **internet platform** in multiple languages to enable participation of all interested parties using transparent knowledge management and sharing mechanisms

- Convening **expert groups** in different areas (e.g. oncology, gastroenterology, sleep disorders, mental health and others) which are subject to significant specialty interest.

- Explore the **congruence within the WHO FIC**: ICD with derived classifications such as ICD-O and related classifications such as ICECI and ICPC-2; as well as ICF and ICHI for conceptual overlaps, joint use.

- Explore **changes in national classification schemes** and ICD modifications (ICD-XM) to respond to the need expressed in national classifications as these will indicate the user needs and advances in science.

- Evaluation of **ICD-10 Implementation Process and ICD-10 Update Process**

- Explore the **IT and standards requirements** such as terminology links and mappings, indexes, rules. The ICD-11 should be devised as an ontology-based third generation classification.

- Conduct a **staged development process** including successive drafts, and **systematic field testing** before approval including: relevance, coverage, utility, translatability and links with other IT applications.

- **Packaging** training and implementation tools such as coding software and linkage to IT Systems; translation tools; bridge-coding with ICD-10 and so on.

- **Clear communication and dissemination strategy**

Outcomes expected

- ICD-11 in electronic format that allows multiple applications including printing, multiple translations, electronic tools for coding and other purposes.

- ICD- 11 in service of other integrated IT applications for electronic health records, patient care and management software

- Training tools

Resources

Resources for human skills to distill new knowledge and construct classification schemes that will serve multiple uses are indispensable and difficult to find. A key group to design the system that will allow multiple channels of information harvested at a central depository is necessary.

Current and future users of classification should be involved in its development. These would include technical experts, clinicians, administrators and consumers.

Sizeable financial resources are necessary to run the whole enterprise and constantly glean information from the knowledge sources. For these purposes IT resources are necessary to have all the development in a database environment using XML – classification mark-up language and documenting with standard metadata.

2.4 A Swiss-army knife for measuring health outcomes: ICF?

Evolution of health information systems have come to a "show-me" point - that is you should prove what difference you make. Do you improve health? To measure the outcomes on health one needs a common ruler. For example by removing a cataract you provide better vision, by replacing a knee better mobility. A classification of various domains of health and its decrements was achieved by the International Classification of Functioning, Disability and Health (ICF).

WHO published ICF at the end of 2001 after 10 years of successive field tests. ICF replaced the former International Classification of Impairments, Disabilities and Handicaps (ICIDH) (WHO, 1980). It was developed in multiple languages and published simultaneously in the six WHO official languages: Arabic, Chinese, English, French, Russian, and Spanish. Another 28 language versions have been prepared since 2001.

ICF has an appeal for a much needed common framework in this field, however, implementation needs more than just a conceptual tool. The spectrum of ICF use is very large. It includes surveys, censuses and statistics, health care, social security, education, labor and many others. Work is required to ensure information sharing, development of educational materials, calibration of assessment tools, evaluation of use in the field, overall, the development of a dynamic implementation strategy.

Strategic Directions

Effective implementation of the ICF worldwide to provide meaningful and reliable information on functional outcomes:

- To make the ICF as a major health outcome assessment framework
- To develop easy-to-use ICF linked instruments that are suitable for outcome assessment of the effectiveness of interventions within the global health intervention programs (such as 3by5, RBM, StopTB, IMCI)
- To improve the level and quality of implementation of ICF coding of health and disability across member states, so as to improve the quality and comparability of health and disability statistics for national and international purposes.

Business Drivers

- ***Governments demand information on outcomes***

As stewards of health systems governments are looking for outcome data. Today we are confronted with diseases that do not kill but disable. How do you measure the effects of interventions? ICF can provide data for monitoring the continuum of care allowing

comparisons across various services. Aging populations with chronic diseases increase the demand for monitoring changes in health status.

- ***Consumer rights are being recognized***

There is increasing interest in addressing the rights of the people for health and in particular the special needs of persons with disabilities and their integration into the community.

- ***Common framework for better data collection***

Although outcomes data are important, lack of uniform standards have created a "Tower of Babel". Better definitions and measurement efforts are needed. Application of ICF will provide a common language and common ruler to measure health outcomes.

- ***Measuring effectiveness of major health initiatives***

Like any other intervention, major health initiatives need to include a measure of success in their performance evaluation. For example by providing interventions for HIV/AIDS, Tuberculosis or Malaria what difference are you actually making in terms of standard health gains?

Risk Benefit Analysis

ICF implementation is in its infancy. While it is an adopted international standard, its interpretation may vary between users. Application tools and expertise are being developed on the run. Lack of coordination and duplication of efforts is a risk if potential users are not informed of successful applications.

Specialty fields have their own outcome measures. Their acceptance and migration into a common framework may take time and meet some resistance. A common measure may not be welcome in view of possible losses as a result of its use.

Relevant tasks

- Creation of a knowledge network for information sharing about research, implementation, uses and educational materials and efforts

- Development of an implementation strategy for censuses, surveys and clinical settings. Coordination of measurement and calibration efforts

- Demonstrate the utility of ICF in selected demonstration projects on major health initiatives to monitor their effectiveness

- Better explanatory value of health status information by using ICF-based assessment and application instruments - e.g. demonstrate the added value of ICF

in increasing the explanatory power of case mix groupings (CMGs) and in the further development of diagnosis related groupings (DRGs).

- Demonstrate the linkages between ICF and commonly used micro classifications and terminologies, such as SNOMED and others (e.g. studies in the US and work in the UK on the National Care record)

- Inclusion of functional status indicators in disease management programs and electronic health records

- Disability certification and pension system should be considered as a business case for ICF - although this is usually dealt outside of ministries of health.

Outcomes expected

Knowledge sharing mechanism up and running—coordinated and linked ICF web sites to share and promote ICF information and findings will be created.

Collaboration on measurement and calibration work.

Demonstrated utility and feasibility of using the ICF in areas of strategic importance such as health and disability reporting, outcome measurement for clinical and epidemiological use and disability certification by 2008.

ICF-based data sets including ICF population norms, disability prevalence rates by 2010

Resources

To effectively implement the ICF and run demonstration projects requires a sound financial and human resource base.

Current WHO resources will support the overall ICF implementation and disseminate information via the web.

Countries will need to identify resources to undertake the implementation activities. Infrastructure development will concentrate on the development of application tools and training material (ICF in a BOX) and guidelines. Fund raising activities will focus on mobilizing the needed financial and human resources from different sources:

- National or international institutions that are involved
- Private Public Partnerships
- Major global or national health initiatives
- Multilateral or bilateral development programs
- Revenues of WHO FIC products

2.5 Mission Possible: Classifying Health Interventions?

Taking stock of health interventions is important because they reflect what the health systems actually deliver. To achieve this goal one needs a relevant framework. There is, however, no international classification of health interventions. WHO's International Classification of Procedures in Medicine (ICPM) which was developed in 1979 is now out of date. The need, however, still exists as evidenced by the fact that individual countries have produced their own classifications of interventions. These include, for example, the Canadian Classification of Interventions (CCI), variations of the NOMESCO Classification of Surgical Procedures (NCSP), the French Classification des Actes Médicaux (CCAM), the UK classification of Interventions (OPCS4) and the Australian Classification of Health Interventions (ACHI). In the US, the ICD-10 Procedure Classification System (ICD-10 PCS) has been prepared as a replacement for ICD-9-CM, Volume 3 and for use in conjunction with ICD-10-CM.

Most national classifications serve reimbursement schemes and/or casemix (diagnostic related) groups which are basically driven by the need to explain health care expenditures. These classifications are particularly focused on medical or surgical interventions and mostly on inpatient care. Given the local developmental base their content and style are different disallowing international comparisons.

There is a gap within the WHO suite of classifications to address health interventions. We need such a classification to compare international data, and to respond to the needs in countries without an intervention classification of their own for use in conjunction with other members of WHO FIC. Given the recognition of this need, WHO FIC network agreed to produce and maintain an internationalized version of the Australian Classification of Health Interventions as a starting point towards the International Classification of Health Interventions (ICHI).

ICHI is currently in its beta version for field tests that will elicit the feasibility and utility given the needs of the users in different parts of the world. Currently it is a summary list (e.g. like the ICD Special tabulation lists for mortality) and there may be a need for an expanded and detailed classification of health interventions. A flexible electronic data base may allow zooming in and out between the large groupings for international comparisons and a detailed finer granularity for national modifications. The international comparisons need not be as detailed as national versions. For example, at the international level there may be a desire to know how many caesarian sections or hysterectomies are done, but less of a desire to know the very detailed procedures.

Strategic Directions

1. Provide a standard for the classification of health interventions for international comparisons.
2. Provide to countries without a procedure classification a basic framework to allow collection of national data on health interventions and notification internationally of an agreed list of salient interventions (ICHI)

Business drivers

Given the plethora of national intervention classifications and the need for international comparisons, and the long-standing success of ICPM (in its original or amended form still being used in many countries) it is time to consider the development of a new international classification of health interventions within the Family of International Classifications.

- **As a member of WHO FIC to address the gap on health interventions**

The ICD and ICF use will be enhanced with a joint use of health intervention classification because diagnosis and monitoring data will then be coupled with actual management data within the health information systems.

- **Need for more attention to public health, primary care and other non-surgical interventions**

Existing classifications of interventions have a skewed focus on surgical and inpatient care as these drive the expenditures. The vast majority of health interventions however are non-surgical. There is a need to monitor outcomes as a result of public health, preventive, primary care and other health care (non-surgical) interventions. An international classification should span the full range of health interventions.

- **To use in international casemix or diagnosis-related groups calculations**

Many international casemix systems are used by decision makers in resource allocation and monitoring the flow of health expenditures. Commercial systems based on ICD-9-CM (and ICD-10-AM to come) are in demand for this purpose. An acknowledged and appropriately detailed international classification of interventions would meet this need based on a useful scientific foundation.

Risk Benefit Analysis

A relevant intervention classification is essential for measuring inputs in terms of resources and outputs in terms of individual and public health outcomes. However, there is much duplication of developmental work in national systems, and comparison is next to impossible given the differences between the various national systems.

There are many countries unable to collect any meaningful national data on interventions for the lack of an international standard classification.

Relevant tasks

- Establish criteria for international work

Purpose: The current ICHI Beta version was intended for countries who can not afford their own classification and countries in need of cross-border comparison. For countries which already have their own intervention classification ICHI could be useful for international comparisons.

ICHI development process:

- serve as a model case for a third generation classification evaluating how well terminological components can link to classification elements
- harvest and share the knowledge embedded in the existing national classifications
- test the feasibility and utility of merging the index with the tabular list
- be multi-axial - given the complexity and heterogeneity of health interventions and how they are delivered it is essential to capture this information in a parsimonious fashion.

- Develop sections of the classification to cover public health, preventive, primary care, allied health and other community based interventions

- A classification has to be "fit for purpose". In the UK, for example, is the need for an interventions classification for reimbursement. From a users' perspective the notion of international comparison should also be linked to a specific purpose (e.g. costing).

- In many countries ongoing health system reforms create a window of opportunity for ICHI. Primary care interventions and issues around packaging of interventions should also be considered in the development of ICHI.

- An area for potential addition is one for patient safety. WHO's efforts on patient safety taxonomy should be merged with ICHI.

Outcomes expected

1. Desiderata for classifications of interventions
2. A “common international standard" for international comparison of health interventions

Resources

Extensive resources are necessary if a new international classification is built from scratch. However, the development of a “common structure” from existing national classifications provides the opportunity for progress at more manageable cost. The work

could be done by a small international team of classification experts and the use of appropriate electronic tools.

The value of an international classification of interventions to developers of health reimbursement systems is evident. A partnership with interested parties should provide the necessary base.

2.6 E- Health Record - linking Terminologies to Classifications

Current information technology has made it possible to capture and encode the medical records of patients in electronic format. This progress is a huge advance for the recording, retrieval and analysis of data for individuals or groups of patients. It also offers the possibility of integration with decision support systems for clinicians, patient safety systems, outcomes reporting, automated summary and statistical monitoring as well as billing and resource allocation.

The electronic health record operates through clinical terminologies which provide standardized terms as a primary means of storing patient data. Classifications are essential aggregate categories which have clinical and public health relevance. Terminologies do not themselves currently contain the necessary structure to arrive at the classification entities for the diagnosis, health status or interventions. Some rules could be included in the health information systems that "map" the relevant terms to classifications. Terminologies linked with classifications through the use of evidence-based mappings will allow WHO-FIC coding to be done automatically, and increase the information value of the electronic health record. WHO FIC is therefore an essential partner in terminology development. The classifications will become embedded as standard (protecting WHO's valuable intellectual property) in all health informatics systems that use the terminology and lead to more universal usage of the classifications. In addition, greater consistency and comparability will be achieved through the use of standard terminologies.

At present, considerable developments are being undertaken in the developed countries, particularly in the USA and the UK, where licenses for public sector use of SNOMED[2] Clinical Terminology have been provided. This terminology belongs to the College of American Pathologists and there is interest in establishing mappings to WHO-FIC classifications. The terminology field is a recent and fast-developing field and there are many other competing developments.

Strategic Directions

To ensure that clinical terminologies commonly used in health informatics systems properly support WHO-FIC classifications.

To ensure that WHO intellectual property is available for use by proprietors of terminologies on appropriate conditions.

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[2] *SNOMED-CT: Systemized Nomenclature of Medicine - Clinical Terms is the largest clinical terminology which has been adopted as a US. National Standard and working platform for the National Program for IT in the UK.* (see http://www.snomed.org)

Business Drivers

- **Efficiencies of using terminologies and classifications in integrated health information systems**

WHO-FIC classifications are available for use in clinical terminologies with supporting materials such as inclusion terms, indexes and, in part, with diagnostic guidelines and criteria to drive a proper linkage. Initiatives to produce the required mappings must be developed. This integration will have efficiencies in production of national health statistics by automating coding processes

- **To achieve comparability in morbidity & disability coding and effectiveness of health interventions**

The mappings from terminologies to classifications will provide a standardized method to obtain morbidity statistics (ICD), outcome evaluation (ICF) and intervention coding (ICHI) which will allow the evaluation of the effectiveness of health interventions.

- **To wider application of WHO-FIC will bring in further resources**

WHO FIC members will be used widely. Mappings will serve as a natural platform of application which will be beneficial to the maintenance and further development of WHO-FIC and may result in revenues that can be used for the further development of relevant tools.

Risk Benefit Analysis

Lack of readiness for the inclusion of WHO-FIC members in clinical terminologies will be inefficient. At worst it could cause WHO-FIC members to be ignored in favor of other options. An ontology mechanism should definitely become the basis for WHO classifications. Classification work without terminologies will be irrelevant in the 21st century. Putting classifications and terminologies as alternatives is a misconception. The knowledge organization from lower level constructs to higher order classification entities is essential to make sense of data and create meaningful summary mechanisms.

The use of terminologies relate mainly to developed countries. There are substantive issues over the construction and validation of language versions. In fact the classification and terminology systems need to be language-independent but language-sensitive. If the objective is to provide a truly international and multi-lingual framework for integrating classifications with terminologies within the health informatics systems, then substantive investment has to be made to avoid biased development efforts.

In the English speaking countries other than USA and UK there is substantial concern that SNOMED-CT could establish a de facto monopoly without ensuring participation by all English speaking countries.

Clinical terminologies are more dynamic than classifications and evolve at a faster pace than classifications, thus providing a challenge for mapping process which may need to be a continuous process.

An immediate challenge is the support of WHO-FIC members by SNOMED International. Technical issues, as well as intellectual property issues need to be addressed properly. The intellectual property right issues around SNOMED need to be sorted out before linking them with WHO-FIC products. The current IP model of SNOMED is not conducive to a global adoption. An appropriate model as a basis for a WHO sponsored terminology should be sought that should be acceptable by all countries and the scientific community.

Relevant tasks

- Build stronger relations between WHO-FIC network and main terminologies (SNOMED, Galen…)
  - (i) to ensure that clinical terminologies commonly used in health care systems properly support WHO-FIC classifications;
  - (ii) WHO should engage with international terminology efforts, for example the internationalization of SNOMED CT;
  - (iii) WHO to use its credibility and position to play a lead role in ensuring that international standard terminologies and classifications are mutually respectful and mutually dependent;
  - (iv) consistent with WHO principles, WHO's goal for international terminology standards should be open, consensual, democratic and use proven state of the art computer science principles.

- Examine legal and copyright issues
- Identify processes for validation of mappings
- Consider language version issues

Outcomes expected

An agreed process for the production and validation of mappings from any clinical terminology to WHO-FIC.

Expanded and more consistent use of WHO-FIC classification for which validated mappings from clinical terminologies exist.

A sound legal and copyright base for commercial use of WHO-FIC classifications within the context of the use of clinical terminologies in health information systems.

Safeguard the ongoing longevity and utility of the WHO FIC systems while preventing their erosion and demise.

Resources

Adequate expertise is needed to develop the following:

- a sound legal and copyright basis for further development,
- development of mappings,
- resolving language version issues.

The creation of a wider range of uses of WHO-FIC and terminologies jointly in health information systems has the potential to ensure a substantial ongoing revenue stream in the future. This will be crucially dependent on the business model and the licensing and copyright agreements.

3. Overall Strategic Directions

Over the last 50 years WHO has delivered state-of-the-art classification products for international use. These classifications have served to monitor changes in international health and health care over time and improve comparability across countries, regions or services. The results are better health information, analysis and policy support which are all WHO's core business.

There is an enormous activity in many countries to build better health information systems for better management and accountability. Information technology has made great strides and new standards are being developed. If WHO is to continue to own and develop classifications -- as opposed to this development being done at the country level or not at all -- WHO has not only to keep in touch with these developments but has also lead the way to establish, maintain and develop them by networking all major stakeholders.

Current view is problematic for various reasons:

- Traditionally WHO classifications have been seen as **international public goods** and their development has been sponsored through WHO's internal funds and as well as the in-kind contributions of collaborating centers. Exceptionally extrabudgetary funding has been made available which has been at times seen as skewing the development drivers and the ongoing ownership and support for the standard. Given the long-term underfunding of this activity, even the routine tasks regarding classifications could hardly be maintained at a sufficient level. The classifications activity cannot be dependent on goodwill and therefore volunteers' availability and timescales. It is urgent to radically rethink the **business model that will generate income** commensurate with the worth of the classifications, and to build public-private partnership models that will provide solutions to the users.

- Traditional approach to classifications as international standards has been a bureaucratic one such as the enforcement of the adoption of regulations, resolutions and provision of products without systematic attention to the market needs. The result has been an information paradox which epitomizes a market failure. The people who are in greatest need of information have the least and do not use these tools. This **market failure** needs to be addressed beyond the bureaucratic or technocratic solutions.

- The normative dimension of classification work could serve as the common denominator which applies to both developed and information paradox countries equally. In the context of information technology, the normative dimension of classification work could be presented in multiple overlays that can represent a gradient from simple to complex systems.

- The universe of health information systems is developing at a great speed. WHO classifications are **not positioned to keep up with the user demands** in this field and respond with the bare minimum requirements such as making the electronic versions of the classifications available and running internet services. Better use of classifications with practical tools within health information systems such as linking them with terminologies and electronic health records would require additional resources and a different management approach. The same goes for establishing educational programs and quality assurance procedures.

The wide spectrum of work provides a huge challenge: on the one hand making classifications fit for purpose in e-health systems of developed countries; on the other hand implementing them in elementary health information systems of information paradox countries. How can WHO and its network address this broad and diverse spectrum of tasks? What desiderata and targets should be set? A common understanding integrated within the WHO's overall global programme of work is essential.

WHO work on Health Systems and Classifications

WHO work on the Health Systems should be operationally be linked to HIS and appropriate classification infrastructure. This linkage should be identified at the beginning and due consideration be given to the development issues. Given the importance of primary care in all WHO Regions, systematic efforts to make health information systems and classifications useable in primary care settings should be seen as a priority. Building an integrated system that encompasses population health, and primary- secondary- tertiary levels of health systems is essential. Classifications and HIS should be seen as the main information network or "the nervous system" of the health systems work.

Health Information Systems and Classifications

The existing "Health Information Systems" (HIS) are usually a non-systematic compilation of available data collection efforts without any in-depth consideration of the overall architecture as to what information should be obtained, which methods and tools be used, how data be analyzed in terms of meaningful reports. WHO-FIC provides these dimensions of the health information system in a useful way. This information model could successfully be used to build up new HIS or improve the existing HIS at differing levels of complexity. Most important issue will be to capture information on various dimensions such as mortality, morbidity, disability and health, health interventions and other health system parameters in a systematic fashion.

Classifications and Application Tools

One of the basic difficulties in the implementation of WHO Classifications is the lack of practical tools (e.g. coding instruments, computerized systems and associated training materials). This lack should be addressed by a coherent strategy to create tools as needed. Furthermore the private sector should be incorporated both in the development and dissemination strategy of these materials and tools.

WHO as the key health information standards developer

WHO and its current collaborating network with all their experience and skills have developed a strategic work plan that has fed into the current business plan. The problems in various application areas have been identified and there have been certain proposals toward solutions which call for further resources. Given the current view, the following questions need to be addressed to **re-establish WHO as a key health information standards developer and owner:**

- How best can WHO lead and manage this work? What arrangements need to be made within WHO Headquarters, with Regional Offices, with Collaborating Centers, and other public partners?

- How could WHO bring together the efforts in individual Member States in a coherent way to make better classification tools for health information systems and enhance their use?

- What type of relationships should it enter with other standards organizations such as ISO and CEN? How would the requirements for international standards in the classifications area be developed, applied and maintained?

- How would WHO position itself with the new emerging standards consortia like HL7 and SNOMED International? These standards interface with classifications and there is a huge demand on the part of end-users to work on these interfaces.

- How best can WHO utilize the potential private industry partners in the health informatics area?

Financial Input to the Classifications Work

- The current status and prospects of classification work to the attention of the WHO Executive Board and the World Health Assembly. Participating countries would bring this up in the agenda discussions.
- First priority for WHO has to be the support of existing reference classifications, namely ICD and ICF. If this work is not done by WHO, no one else could do it and WHO would not be fulfilling one of its core functions. Measures should be taken to sustain the core work at an optimal level.
- In the context of the upcoming financial decentralization within WHO, the question of how to use regional budgets for classification work has to be addressed
- Classifications work needs more international recognition. Getting classification work onto the agenda of bilateral meetings between individual Member States and WHO would be another possibility to raise international recognition

- WHO should consider establishing a "Foundation" which could manage the international public goods by generating income from their sales and licensing and consequently funding the future developments in this area. PAHO has done this with PAHEF (Pan American Health and Education Foundation) and a similar approach could be adopted. This approach should be explored more systematically.

- WHO should create a revenue sharing mechanism which will allow a certain percentage of income generated from ICD and ICF book sales and licensing to go back to support classification work. Currently all revenues generated from classifications remain in the revolving sales fund. WHO has created a "WHO Press" which sets the way for a more coherent publication policy. In this context, the issue of revenue sharing between the publication department and technical units is currently reviewed. WHO expects that in the proceedings of the policy review a revenue sharing mechanism will be identified.

- Mobilizing extra budgetary sources will be important. WHO Secretariat has been active in establishing contacts and exploring possibilities with donor agencies and formulating project activities that are consonant with the overall classification work plan.

- WHO can house the International Standard Terminology Organization that would serve for the internationalization of SNOMED and linking WHO-FIC with terminologies. If a global foundation or international health standards governance is placed within WHO, the organization can ensure the earmarking of funds for specific purposes.

- There is need for adapting WHO's rules of engagement with private sector to the realities of information technology industries. The current set of rules is mainly focused on the pharmaceutical industry.

[i] ***AFRO:*** *In the WHO Region of Africa of 46 Member States only six (Cape Verde, Ghana, Mauritius, Seychelles, South Africa and Zambia) submit mortality data to WHO mortality database.*

AMRO: *In the WHO Region of the Americas, of 35 Members States only three (Dominica, Guatemala and Trinidad & Tobago) DO NOT provide mortality data, although all countries in the region have implemented ICD-10.*

EMRO: *In the WHO Region for the Eastern Mediterranean, of 21 Member States, 10 have not implemented ICD-10 and are unable to provide mortality data (Afghanistan, Djibouti, Iraq, Lebanon, Pakistan, Saudi Arabia, Somalia, Sudan, Tunisia, and the United Arab Emirates).*

EURO: *In the WHO European Region only seven of 52 Member States are currently unable to provide mortality data according to ICD-10. These are Armenia, Bulgaria, Greece, Kazakhstan, Monaco, San Marino and TFYR of Macedonia.*

SEARO: *In the WHO Region of South-East Asia only three of 11 countries have not implemented ICD-10. These are Bhutan, Timor Leste and, most importantly, India.*

WPRO: *In the WHO Western Pacific Region only seven of 27 Member States have implanted ICD-10. These are Australia, China, Japan, New Zealand, Papua New Guinea and the Republic of Korea.*