

Evaluation of ICD10 Application by Doctors and Statisticians in Baghdad Teaching Hospital-Medical City

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Abstract

Background: International classification of diseases (ICD) is the international standard diagnostic classification for all general epidemiological, many health management purposes and clinical use. These include the analysis of the general health situation of population groups and monitoring of the incidence and prevalence of diseases and other health problems in relation to other variables such as the characteristics and circumstances of the individuals affected. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records. The tenth revision of ICD (ICD-10) was endorsed by the Forty-third World Health Assembly in May 1990 and came into use in World Health Organization (WHO) Member States as from 1994.

Objectives: To evaluate the knowledge concerns ICD-10 of both doctors and statisticians working at Baghdad Teaching Hospital, to test the accuracy of coding and coding practice in a sample of patient's record at Baghdad Teaching Hospital.

Methods: A cross sectional study, was conducted at Baghdad Teaching Hospital – Medical City Health Directorate, from the 1st of April 2011 to the 5th of May 2011. Data collection was done for five hours a day, four days a week. A convenient sample of 121 doctors and 10 statisticians were interviewed and data were collected according to the questionnaire form. A pilot study was performed, data was gathered; organized, tabulated using Microsoft Office Word 2003. Percentages, graphs and figures were done.

Results: The study revealed that 56.5% knowing the ICD 10, most of those who know ICD10 43.5% get their information from college 24.6% and the roll of training courses was limited as only 7.6% attended training courses. Only 13.7% health professionals used ICD10 in their practice and the reasons behind not using ICD10 was attributed to lacking knowledge 25.7% and 23.9% didn't know the code. Among all surveyed health professional 41.2% found that ICD10 is beneficiary in medical practice and the benefit was mainly for diagnostic and statistical purpose 64.9%. In the evaluation of the accuracy of coding process it was found that 123 record out of 150 82% were correctly coded and only 27 18% were incorrectly coded.

Conclusion: The majority of health professionals working in Baghdad Teaching Hospital had no information especially doctors were not aware about the importance of using International classification. Most of those who knew ICD-10, didn't apply it due to poor administrative follow up. Statisticians were responsible for coding the record on discharging the patient according to the final diagnosis found in the record. The diagnoses of some patient's records were wrongly coded.

Key words: ICD 10, Application, health workers.

Introduction

International Classification of Diseases (ICD)

International classification of diseases (ICD) is the international standard diagnostic classification for all general epidemiological, many health management purposes and clinical use. These include the analysis of the general health situation of population groups and monitoring of the incidence and prevalence of diseases and other health problems in relation to other variables such as the characteristics and circumstances of the individuals affected, reimbursement, resource allocation, quality and guidelines. It is used to classify diseases and other health problems recorded on many types of health and vital records including death certificates and health records^[1].

The tenth revision of ICD (ICD-10) was endorsed by the Forty-third World Health Assembly in May 1990 and came into use in World Health Organization (WHO) Member States as from 1994. The classification is the latest in a series which has its origins in the 1850s. The first edition, known as the International List of Causes of Death, was adopted by the International Statistical Institute in 1893. WHO took over the responsibility for the ICD at its creation in 1948 when the Sixth Revision, which included causes of morbidity for the first time, was published. The World Health Assembly

adopted in 1967 the WHO Nomenclature Regulations that stipulate use of ICD in its most current revision for mortality and morbidity statistics by all Member States^[1].

ICD-10 codes consist of a single letter followed by 3 or more digits, with a decimal point between the second and third (e.g. K35.1, "Acute Appendicitis with peritoneal abscess"). As there are many thousands of variations at the 4 character level - where all three digits are used - it is common practice to summarize at the 3 character level (e.g.

K35, "Acute appendicitis ", which includes peritoneal abscess and all other forms of the condition)^[2].

Comparing ICD- 9 application with ICD-10 application revealed that ICD-9 can no longer keep up with medicine. After 30 years, the code set is outdated and can no longer meet the demands of healthcare's data needs. It cannot accurately describe the diagnoses and inpatient procedures for care delivered. Replacing ICD-9, with Clinical modification (ICD-9-CM) with ICD-10-CM and ICD-10- with Procedure Coding System (ICD-10-PCS) will provide higher-quality information for measuring healthcare service quality, safety, and efficacy.

This will in turn provide better data for [3]:

- Reduced coding errors
- Reduced labor costs and increased productivity
- Increased ability to prevent and detect healthcare fraud and abuse^[3]

In Iraq, ICD-10 was implemented on the year 2008 after intensive efforts headed by the Department of Health and Vital Statistics- Directorate of Planning - Ministry of Health- Iraq, to translate the Iraqi version and training of doctors and statistician in all Health Directorates including Kurdistan Region since 1997, supported by WHO to facilitate the implementation of ICD-10 and replacing the ICD-9^[4]

Objectives of the study

1. To evaluate the knowledge concerns ICD-10 of both doctors and statisticians working at Baghdad Teaching Hospital – Medical City Health Directorate.
2. To test the accuracy of coding and coding practice in a sample of patient's record at Baghdad Teaching Hospital.

Subjects and Methods

Study Design and Setting

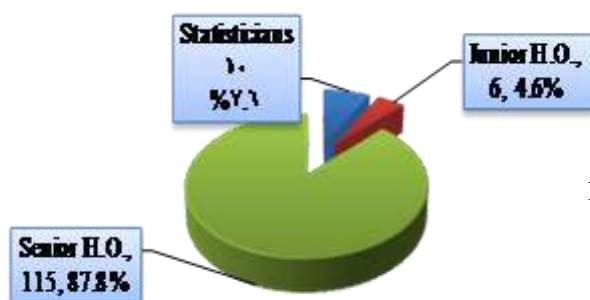
A cross sectional study, was conducted at Baghdad Teaching Hospital – Medical City Health Directorate, from the 1st of April 2011 to the 5th of May 2011. Data collections were done for five hours a day, four days a week.

Methods

To evaluate the knowledge regarding ICD-10; a convenient sample of 121 doctors and 10 statisticians were interviewed and data was collected according to the questionnaire form that involved the following questions:

- ✚ Do they know ICD10? If yes, from where?
- ✚ What is the importance of using ICD-10?
- ✚ Did they have training courses? If yes, how many?
- ✚ Did they train staff after their training?
- ✚ Are they using ICD10 in their practice?
- ✚ Are they having the ability to code correctly?

Note A copy of the questionnaire form (In Arabic) is found in the annex.



A pilot study was performed by interviewing five doctors and a statistician to check the questions and the time needed for each interview.

One hundred fifty case records were selected systematically, taking every 5th records to compare the code of the final diagnosis used according to ICD-10 with the list of ICD-10's code available at the statistical department of Baghdad Teaching Hospital.

Data Processing

Data were gathered; organized, tabulated using Microsoft Office Word 2003. Percentages, graphs and figures were done using Microsoft Office Excel 2003

Results

One hundred twenty one doctors (6 Junior House Officer (4.5%), 115 Senior House Officer (87.8%) and 10 statisticians (7.6%) were interviewed to assess their knowledge regarding ICD-10 (Figure (1)).

Table (1) showed the distribution of the study group by their knowledge regarding ICD-10; it was found that among the 131 surveyed professionals, 74 (56.5%) had no information about the ICD-10, and the remaining 57 professionals (43.5%) who had knowledge regarding ICD-10 most of them were Senior House Officer (89.5%), statisticians (8.8%) and only (1.7%) were Junior House Officer.

Among those 57 who knew the ICD-10; Ten persons only (17.5%) received the information from training courses performed by Ministry of Health concerning ICD-10, about quarter of them received their knowledge from college (24.6%), others from general information (35.3%), from books (21.1%), and (3.5 %) from Internet (Figure (2)).

Regarding training activities, out of those totally surveyed (131), only 10 professionals (7.6%) attended training courses about ICD-10 (7 Senior House Officer and 3 statisticians) (Figure(3), Table(2)), one of them attended two training courses the rest nine attended only one course (Figure (4)). None of the trainer performed a training session for their colleague (Table (2)).

Figure (1): Distribution of the study group by occupation

Total surveyed professional= 131

Table (1): Distribution of the study group by their occupation and their knowledge regarding ICD-10

Occupation	Have knowledge about ICD-10		Don't have knowledge about ICD-10		Total
	No.	%	No.	%	
Senior House Officer	51	89.5	64	86.4	115
Junior House Officer	1	1.7	5	6.8	6
Statisticians	5	8.8	5	6.8	10
Total	57	100	74	100	131

Figure (2): distribution of the study group by the source of their knowledge regarding ICD-10

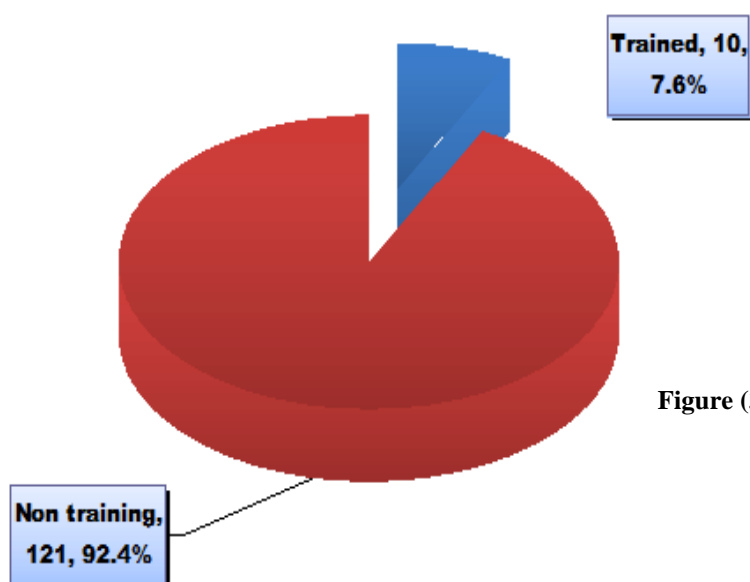
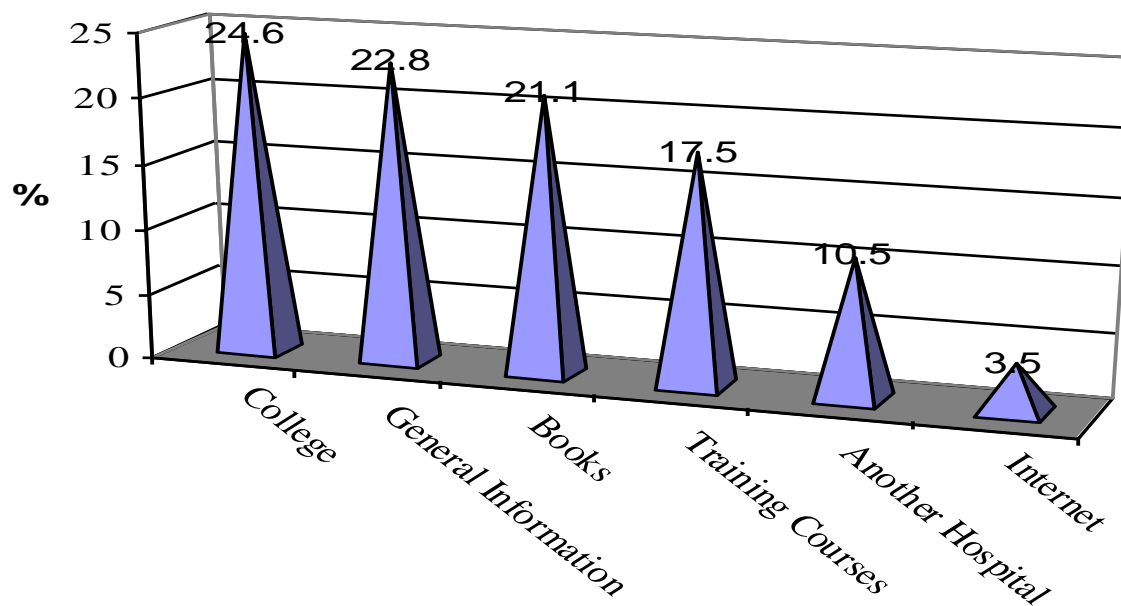


Figure (3): Distribution of the study group by their training regarding ICD-10

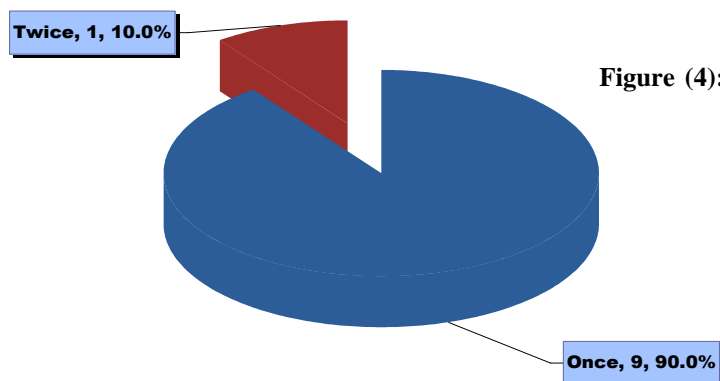


Figure (4): Distribution of the study group by number of training Courses attended

Table (2): Distribution of the study group by training and training outcome

Training Details	Total surveyed		Statisticians		Junior House Officer		Senior House Officer	
	No	%	No	%	No	%	No	%
Did you have training courses?								
Yes	10	7.6	3	30	0	0	7	6.1
No	121	92.4	7	70	0	0	108	93.9
How Many?								
Once	9	90	2	66.7	0	0	7	100
Twice	1	10	1	33.7	0	0	0	0
Training others								
Yes	0	0	0	0	0	0	0	0
No	10	100	3	100	0	0	7	100

Regarding the use of ICD-10 in practice; eighteen professionals (13.7%), fourteen Senior House Officers and three statisticians, were using ICD-10 in their practice, whereas all the Junior House Officers were not using it in their practice and 49 (37.4%) did not respond to the question (Table (3)).

To find the reasons for not using ICD-10 in the practice all those who were not using it and not responding were asked to give a reason for not using the ICD-10, it was found that nearly half of them (49.6%) either had no information about ICD-10 or don't know the codes (25.7% and 23.9% respectively), whereas the other reasons were; work load (9.7%), no administrative follow up (8.9%), a waste of time (3.5%) and few were depending on other classification like (DSM4) (1.8%) (Table (4)).

Table (5) showed the distribution of the study group by their response to certain codes and their opinion regarding ICD-10. It was found that all of the surveyed professionals did not answer the questions regarding coding, fifty four (41.2%) thought that using ICD-10 is of benefit in medicine, nineteen (14.5%) thought that it is useless and fifty eight (44.3%) did not respond. Among those who said that ICD-10 is important for medical practice (n=54), nearly two thirds of them (64.9%) thought it was important for diagnostic and statistical purposes, others (11.1%) for diagnostic purposes only, 1.8% for statistical importance only, 1.8% considered its important as a secret code and 20.4% did not respond. Whereas among those who considered it of no benefit (n=19); more than half of them (52.7%) found it difficult to use, 36.8% of them said it is not the job of a doctor and 10.5% thought it was the cause for documenting a wrong diagnosis.

Table (3): Distribution of the study group by using ICD-10 in their practice

Practice Details	Total surveyed		Statisticians		Junior House Officer		Senior House Officer	
	No	%	No	%	No	%	No	%
Using ICD-10 in diagnosis								
Yes	18	13.7	4	40	0	0	14	12.2
No	64	48.9	2	20	3	50	59	51.3
No response	49	37.4	4	40	3	50	42	36.5
Total	131	100	10	100	6	100	115	100

Table (4): Distribution of the study group by the reasons behind not using ICD-10 in their practice

Reasons	Surveyed Professionals	
	No.	%
Don't know ICD-10	29	25.7
Don't know the codes	27	23.9
Work load and wasting time	15	13.2
No administrative follow up	10	8.9
Using DSM4*	2	1.8
Total	113	100

* DSM4 stands for Diagnostic and Statistical Manual

Table (5): Distribution of the study group by their response to certain codes and their opinion regarding ICD-10

Variables	Surveyed Professionals	
	No.	%
No response to coding questions	131	100
Is ICD-10 of benefit in Medicine		
Yes	54	41.2
No	19	14.5
No response	58	44.3
The importance of ICD-10 is (N=54)		
For diagnosis & statistics	35	64.9
For diagnosis only	6	11.1
For statistics only	1	1.8
As a secret code	1	1.8
No response	11	20.4
Not beneficiary because (N=19)		
Difficulties of coding	10	52.7
Not the job of a doctor	7	36.8
Wrong diagnosis	2	10.5

Table (6): Distribution of the study group by their response to unknown code

Response	Surveyed Professionals	
	No.	%
Returned to the coding manual	32	24.4
Leave it without coding	23	17.6
Ask colleague	17	13
No response	59	45
Total	113	100

Table (8) showed the distribution of the study group by their response to unknown code. It was found that 24.4% returned to the coding manual for the correct code, (17.6%) leave it without coding, 13% asked other colleagues and the majority (45%) did not respond.

Regarding the accuracy of coding; one hundred fifty patient's records were reviewed to compare the final diagnosis written by the treating physician and the code given to that diagnosis by health professionals with the correct code from the ICD-10 coding booklet. It was found that right coding was found in the majority of records (82%) and wrong coding was noticed in only twenty seven records (18%) (Figure (5)).



**Figure (5): Distribution of patient's records according to the accuracy of coding
Total number of record=150**

Discussion

For over 100 years, ICD has stood as a major achievement of international statistical cooperation for public health. It is regarded as the authoritative classification for causes of death and illness and is available in the official languages of the United Nations—English, French, Arabic, Spanish, Russian, and Chinese—as well as in various other languages. Over time, ICD has become increasingly detailed and complex and its uses have gone well beyond its original intent: a classification conceived to classify causes of death for statistical tabulation and research [6].

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. 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. 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 [20].

The current study revealed that in spite of the intensive efforts hold by the Department of Health and Vital Statistics - Ministry of Health- Iraq, most of the health professionals especially doctors were either had no information about the ICD-10, or were lacking basic knowledge concerning the importance of coding and the use of internationally accepted version of classification of diseases. Most of them were not involved in training courses for implementing the ICD-10 version and

were not involved in the coding of the previous version, most of them thought that this was not the job of a doctor, ignoring its importance for calculating important mortality and morbidity statistics and for research purposes.

When comparing the implementation of ICD10 in Baghdad Teaching Hospital with that in Humber River Regional Hospital in Canada, there was a great amount of time, effort, and money put toward the implementation of ICD-10 at Humber River Regional Hospital. [21]

Preparation is a must, and this will go hand in hand with providing the appropriate resources. It was necessary to make sure that there was enough time to adequately prepare for the implementation by intensive training for all professionals and assigning responsibilities for accurate coding, this was not properly planned in the studied hospital as out of those totally surveyed (131), only 10 professionals (7.6%) attended training courses about

ICD-10 and (17.5%) received their information from training courses performed by Ministry of Health concerning ICD-10.

At Humber River Regional Hospital; one of the main tools used to prepare for and keep the implementation on track was the use of electronic software and made them available for the end users. [21]

It is necessary to ensure that there is an individual who is responsible for the coordination of the project, yet the key to the success of the implementation is teamwork. Without teamwork, there is no way that any project of this magnitude will succeed. This team should include besides the doctors and the statisticians, a Health Information Management team, and Hospital Administration. It is imperative that administration be kept informed of all that is going on with such an implementation, poor administrative supervision was obviously reflected in the current study by

not searching for the cods if they were unable to remember them and most of the doctors leave their records without coding.

Patience is necessary for an implementation of this magnitude. At Humber River Regional Hospital, the implementation lasted for approximately two years from initial education and planning to the time the staff reached their pre-ICD-10 productivity levels and they concluded that the implementation would be better if their project had more planning time, (three-year project from start to finish). [21]

Education and supervision are critical to the success of the implementation, as this is vital, throughout the implementation, to help with identifying whether or not correct codes are being selected during the coding process.

Conclusions

We conclude that in conclusion:

- ❖ The majority of the surveyed health professionals working in Baghdad Teaching Hospital – Medical City Health directorate had no information regarding ICD-10.
- ❖ All the surveyed professionals were not able to answer the coding questions correctly indicating poor knowledge even among trained people.
- ❖ Health professionals especially doctors were not aware about the importance of using International classification of Diseases.
- ❖ Most of the health professionals who knew ICD-10, don't apply it due to poor administrative follow up.

The diagnosis of some patient's records were wrongly coded **Recommendations**

- ❖ Educating all health professionals about the importance of ICD-10, differences between ICD-9 and ICD-10 and

proper coding practice is vital in the process of implementation.

- ❖ Availability of electronic software will facilitate the process of coding.
- ❖ Continuous training for all health professionals especially newly graduated doctors.
- ❖ Encourage doctors (seniors and juniors) to code the diagnosis before discharging the records.

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