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Measurement of the bad classification of Maternal Mortality in Mexico 2002-2004

Lozano R, Torres L, Lara J, Santillan A, Muradas M
CEMECE, Ministry of Health, Mexico

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Abstract A national study took place to correct the number of maternal deaths and its causes of death (2002-2004) by means of the RAMOS methodology "modified". Experts of the CEMECE again reviewed and codified the causes of death of each case with the support of complementary information. Hidden deaths under other diagnoses were detected and the death causes were corrected, mainly by hemorrhage. It is necessary to use several information sources and additional data to the certificate for the correct coding. It is proposed inclusions in the ICD-10 to code the hemorrhage postpartum.

Introduction

Previous studies have shown the underestimation of maternal mortality in some regions of Mexico

It was necessary to determine the magnitude of the MMR and its causes with object to implement measures to diminish it and to evaluate the results.

A national study took place for the first time, with object to know the number of maternal deaths and its causes.

It was determined to make use of the different sources of data and to apply to the RAMOS methodology, modified by us.

The revision of each case confirmed or suspicious was made for coders of the CEMECE, and allowed us to detect problems in the registry and coding.

The study promoted that the methodology to correct the under-estimation of maternal mortality, between 2002 to 2004, is being implanted in all the country.

Sources of information for each case:

-Data bases of institutions of health and the National Institute of Statistic
-Death certificate
-Acts of death
-Clinical summaries
-Verbal autopsies
-Result of autopsies
-Opinions of the mortality committees
-Explanations of the doctors



Methods & Materials

Identification of the women deaths of 12 to 49 years in the data bases of deaths of the information system of the Ministry of Health and the hospital discharges.

Search of the happened maternal deaths in hospitals of other institutions of health that had not been caught in these systems.

Selection of the maternal deaths (O00-O99) and other that presented, like underlying or multiple causes, some of 46 suspicious causes to conceal a maternal death.

Revision and new codification of all death certificates by three experts of the CEMECE with the help of the additional information (clinical summary, verbal autopsy, etc.) for an increasing number of cases followed of the rectification or ratification of the death causes.

Comparison of the data of the study with those of the official institution that generates vital statistics (INEGI), to make the modifications in the number and codification of the causes of maternal death.

Proposals of ICD-10 modification related with postpartum haemorrhage

Volume 3 ICD-10
Atonia, atony, atonic
- uterus, uterine
-- during labor O62.2
--- affecting fetus or new born P03.6
--- primary O62.0
--- secondary O62.1
--postpartum (with hemorrhage) O72.1
Inertia
-- psychogenic F45.3
- uterus, uterine
-- during labor O62.2
--- affecting fetus or new born P03.6
--- primary O62.0
--- secondary O62.1
--postpartum (with hemorrhage) O72.1

Volume 1 ICD-10

O62 Abnormalites of forces of labour
Exclude atony, hipotonía and uterine inertia postpartum (O72.1)
O72.1 Other immediate postpartum hemorrhage
Hemorrhage:
Folowing delivery of the placenta
Postpartum (atónic, atony, hypotonia and uterine inertia) NOS

Results

Additional information to the death certificate allowed to rectify the diagnoses and to correct the codification of the underlying cause of death. This information rose from 10% to 68% in the 3 years of the study, and improved coding of causes attributable to the abortion, hypertensive disease of the pregnancy, puerperal sepsis, and mainly to the hemorrhage.

The underestimation of maternal mortality with respect to the preliminary numbers of the INEGI was of 17% for 2002 and 12% for 2003.

The deaths whose basic cause originally was O62.2 (other uterine inertias) happened to comprise of the O72 category (hemorrhage postpartum), reason why 23% of the deaths by hemorrhage were recovered.

The present elevation of the obstetrical hemorrhage in Mexico obeys to correction by our study and shows more real numbers about this complication.

Difficulties were detected to code the indirect obstetrical causes, since frequently the doctors do not specify if the pregnancy complicated to the preexisting or incidental disease or if this last one had a negative effect on the evolution of the pregnancy. A subjective component was also evident to determine or to discard a maternal death as indirect.

Conclusions

Correction of the numbers and causes of maternal deaths and their acceptance by the INEGI.
Greater communication with the heath care practitioner to improve the registry of the causes.
Verification of the utility of different sources of information to improve the cover and quality of the data.
A continuous procedure to search of the maternal deaths badly classified in all the country and of the joint revision with the INEGI settled down, which approaches us the real knowledge of the magnitude of maternal mortality and its causes.
Proposals of ICD-10 modification related with postpartum haemorrhage

Maternal deaths in Mexico according to source. 2002 to 2004

Source	2002	%	2003	%	2004	%
SEED 1/	1,180	88.7	1,215	90.7	1,160	91.1
SAEH 2/	59	4.4	15	1.1	10	0.8
INEGI 2/	86	6.5	79	5.9	62	4.9
IMSS 2/	-	-	17	1.3	32	2.5
ACTS 2/	5	0.4	4	0.3	1	0.1
Others 2/	-	-	9	0.7	8	0.6
Total study 3/	1,330	100.0	1,339	100.0	1,273	100.0

1/ Initial source.
2/ Deaths that had not been caught by the SEED.
3/ It includes maternal deaths coded in O98, O97.

Table 2. Comparison of the coding of the maternal deaths by an expert coder without and with the support of complementary information. 2003

	Without information 1/		With information 2/	
Causes	Num.	%	Num.	%
Total	1,339	100.0	1,339	100.0
Non obstetric diseases	37	2.8	0	0.0
External causes	11	0.8	0	0.0
Maternal causes	**1,291**	**96.4**	**1,339**	**100.0**
- Abortion	78	5.8	86	6.4
- Hipertensive disease of pregnancy	399	29.8	412	30.8
- **Haemorrahge**	**264**	**19.7**	**344**	**25.7**
- **Other complic. of pregnancy & labour**	**211**	**15.8**	**183**	**13.7**
- Puerperal sepsis	36	2.7	45	4
- Other complications of the puerperium	51	3.8	53	4.0
- Unspecified cause	7	5	4	0.3
- After 42 days deaths	18	1.3	26	1.9
- **Indirect obstetric deaths**	**219**	**16.4**	**181**	**13.5**
- Others	8	0.6	5	0.4

1/ Only Death Certificate
2/ Summaries of clinical cases, opinions of mortality committees, verbal autopsies, information of doctors, autopsies an others documents.

Table 3. Proportion of deaths coded in O620-O622 respect to the deaths of a new group (hemorrhage postpartum: O72, O620-O622). 1996-2003

Country	Postpartum haemorrhage (O72)	Uterin hipotonia, inertia & atonic during labor (O620-O622)	Postpartum haemorrhage (Corrected) O72, O620-O622	% of O620-O622
Argentina	130	28	158	17.7
Brasil	729	413	1142	36.2
Chile	15	8	23	34.8
Colombia	363	117	480	24.4
Costa Rica	4	3	7	42.9
Cuba	5	4	9	44.4
Rep. Dominicana	8	19	27	70.4
Ecuador	186	39	225	17.3
El Salvador	28	7	35	20.0
Haiti	32	10	42	23.8
Mexico	1097	451	1548	29.1
Nicaragua	187	32	219	14.6
Panama	14	6	20	30.0
Paraguay	185	25	210	11.9
Peru	162	48	210	22.9
United States	45	6	51	11.8
Uruguay	0	3	3	100.0
Venezuela	91	121	212	57.1

Data source: PAHO/ WHO
Deaths by these causes for some or all years of the indicated period.