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National cause-of-death data in the English- and Dutch-speaking Caribbean, 2000-2010: A quality assessment

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Abstract The Caribbean Public Health Agency (CARPHA) maintains a regional database of cause-of-death data, which is populated by data submitted by the English- and Dutch-speaking Caribbean. Data for the period 2000-2010 were extracted and analysed using four types of "garbage codes" developed by Naghavi et al. (2010) [1]. This was then compared to a review of CARPHA initiatives conducted over the same time period. The proportion of garbage codes observed varied substantially over time and between countries. There is evidence to suggest that CARPHA training initiatives have led to an improvement in the quality of cause-of-death data in member states.

Introduction

Accurate mortality and cause-of-death data are essential to public health planning. However, the quality of such data needs to be routinely assessed. A recommended way of assessment is to quantify the proportion of deaths attributed to uninformative or ill-defined causes [1-4] also termed *garbage codes (GCs)* [1, 4-5].

CARPHA maintains a regional database of cause-of-death data, populated by data received from its member states on an annual basis. We aimed to asses the quality of the national mortality data in our regional database.

Methods & Materials

Data for the period 2000-2010 was assessed and included: age, gender and ICD-10 underlying cause of death (UC) codes.

UC codes were grouped according to the classification proposed by Naghavi et al. (2010) [1]. These are:

Type 1	Causes that cannot or should not be considered as underlying causes of death
Type 2	Intermediate causes of death
Type 3	Immediate causes of death
Type 4	Unspecified causes within a larger cause grouping

An analysis of the total proportion of garbage codes reported annually, for the period 2000-2010 was conducted.

CARPHA initiatives to improve quality of cause-of-death data, over the same time period, were also reviewed. Such initiatives included training in ICD-10 mortality coding and training of physicians in the correct completion of medical cause-of-death certificates.

Results & Discussion

Results are outlined in Table 1.

For the 11 year period:
- 211 country-years national cause-of-death data available
- 433,459 total deaths
- Proportion of annual deaths attributed to GCs varied widely by country and time; ranges from 11% - 48%.

For the period 2000-2004:
- 32% of reported data had 30-50% GCs

For the period 2005-2010:
- proportion of reported data with 30-50% GCs reduced to 12%.

Reduction coincides with training initiatives which began in 2005 that targeted mortality coding and physician completion of medical cause-of-death certificates.

Table 1 - Proportion of Deaths attributed to Garbage Codes by CARPHA Member State, 2000-2010

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Anguilla	31%	40%	32%	30%	17%	18%	21%	15%	18%	13%	12%
Antigua/ Barbuda	22%	26%	24%	27%	24%	32%	30%	18%	25%	23%	
Aruba	41%	30%	28%	27%	32%	27%	31%	27%	31%	28%	27%
Bahamas	15%	17%	20%	17%	15%	18%	16%	17%	18%	15%	17%
Barbados	27%	29%	28%	30%	30%	31%	23%	21%	24%	23%	22%
Belize	30%	29%	24%	26%	26%	23%	22%	25%	21%	18%	18%
Bermuda	14%	17%	13%	13%	13%	15%	19%	18%	18%	21%	21%
British Virgin Islands	41%	26%	28%	29%	30%		30%		38%	38%	22%
Cayman Islands	18%	21%	21%	15%	15%		20%	30%	23%	30%	18%
Dominica		33%	38%	30%	33%	18%	15%	23%	21%	21%	33%
Grenada	21%	31%	27%	31%	27%	22%	24%	23%	28%	24%	19%
Guyana	13%	19%	17%	14%	16%	14%	16%	17%	17%	22%	20%
Jamaica	25%	31%	34%	25%	20%	22%	15%	15%	18%		
Montserrat	22%	33%	28%	21%	41%	28%	21%	28%	18%	25%	13%
Netherlands Antilles	24%										
St. Kitts/ Nevis	30%	46%	26%	26%	30%	26%	20%	15%	14%	18%	14%
St. Lucia	27%	24%	28%	27%	26%	34%	31%	27%	28%	17%	22%
St. Vincent/ Grenadines	18%	21%	19%	19%	18%	19%	12%	13%	22%	28%	21%
Suriname	26%	23%	23%	21%	25%	24%	19%	20%	21%	20%	21%
Trinidad/ Tobago	12%	13%	11%	11%	12%	12%	13%	14%	14%		
Turks and Caicos Islands	31%	41%	38%	43%	45%	43%	45%	49%	45%	31%	
Number of countries targeted by CARPHA initiatives	0	0	0	0	0	13	3	18	4	4	20

Notes: Blank squares indicate missing cause-of-death data

Legend: Proportion of deaths attributed to GCs 0% – 50%

The relationship between proportion of GCs and knowledge of physicians and coders was also documented by Naghavi et al. as a cause of differing distributions of GCs over time and across countries [1].

An analysis of the different types of GCs for each member country indicated that 18 out of 21 countries reported deaths most frequently attributed to GC Type 2. The reporting of intermediate causes of death by certifying physicians indicates that either physicians do not know the underlying conditions causing death or are not sufficiently trained in completing the medical cause-of-death certificate.

Conclusions

The proportion and distribution of GCs varies substantially over the time period under review and between member states. This may be as a result of variations in the level of training and understanding of both certifying physicians and mortality coders throughout the region. Despite the variations, there has been a general decline in the proportion of GC's which may be attributed to the CARPHA training initiatives aimed at improving the quality of cause-of-death data. However, it is clear that further training and education campaigns need to be conducted and targeted to both certifying physicians and mortality coders.

References

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