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Expert Group Meeting on Management and Evaluation of Civil Registration and Vital  
Statistics Systems  
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Review of completeness estimates and methods of completeness  
evaluation reported to United Nations Statistics Division

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# Background

- UNSD collects annually official demographic and social statistics of all countries and areas
  - Annual questionnaires
  - Census questionnaires
- Data collected
  - Population census data, by several characteristics
  - Vital statistics
  - Population estimates
  - Migration data
- Dissemination
  - United Nations *Demographic Yearbook*
  - *Population and Vital Statistics Report*
  - online outputs
  - <http://unstats.un.org/unsd/demographic/products/dyb/dyb2.htm>

# Vital statistics; UN *Demographic Yearbook*

- UNSD collects annually statistics on vital events compiled from civil registration records, and their metadata via the Demographic Yearbook Vital Statistics questionnaire, completed by the National Statistical Offices (NSOs)
- The template of the questionnaire is available online at:  
<http://unstats.un.org/unsd/demographic/products/dyb/dybquest.htm>
- The questionnaire is comprised of many tabulations covering a wide range of vital events according to the *Principles and Recommendations for a Vital Statistics System*  
<http://unstats.un.org/unsd/demographic/standmeth/principles/default.htm>
- The two beginning worksheets of the VS questionnaire are reserved specifically to the metadata

# Vital statistics questionnaire

## Births

Total live births by sex and urban/rural residence

Live births by age of mother and sex of child

Total Fertility rate

Live births by sex of child and live birth order

Live births by age of mother and live birth order

Live births by plurality

Live births by marital status of mother

Live births in wedlock by duration of marriage

Live births by age of father

Live births by sex of child and birth weight

Live births by sex of child and gestational age

Live births by month of birth

# Vital statistics questionnaire

## Deaths

Total deaths by sex and urban/rural residence

Deaths by age and sex

Life expectancy at birth

Deaths by month of death

Complete life tables for males, females

Abridged life tables for males, females

# Vital statistics questionnaire

## Infant deaths

Total infant deaths by sex of infant and urban/rural residence of mother

Infant deaths by age and sex

Infant deaths by month of death

## Foetal deaths

Late foetal deaths by sex of foetus and urban/rural residence of woman

Late foetal deaths by age of woman

Foetal deaths by gestational age

## Abortions

Legally induced abortions by urban/rural residence of woman

Legally induced abortions by age and number of previous live births of woman

# Vital statistics questionnaires

## Marriage

Marriages by urban/rural residence

Marriages by age of groom and bride

Marriages by marital status of groom and bride

First marriages by age of groom and bride

## Divorce

Divorces by urban/rural residence

Divorces by age of husband and wife

Divorces by duration of marriage

Divorces by number of dependent children

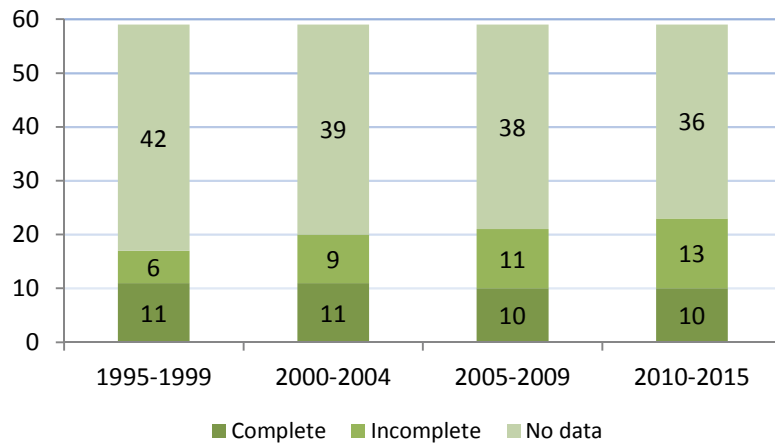
## Vital statistics annual data and metadata collection

- As part of the annual vital statistics data collection, NSOs are requested to provide as well, an estimate of the completeness (at the national level and also for all ages combined in the case of deaths) of the reported births, deaths, infant deaths, marriages, divorces (vital statistics).
- The completeness of vital statistics, depends respectively on the coverage and completeness of the registration of these vital events.
- For the purpose of Demographic Yearbook, an estimate of more than or equal to 90 per cent refers to “complete” data, otherwise “incomplete”.

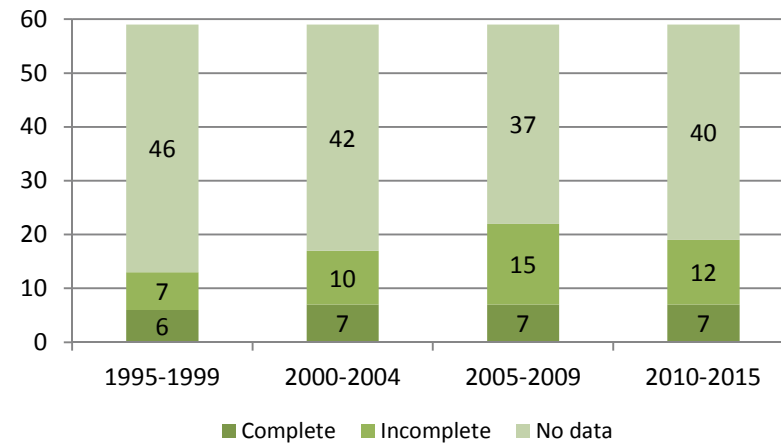


# Births and deaths statistics – Africa

**Figure 1: Total CRVS births, number of reporting countries/areas, Africa**

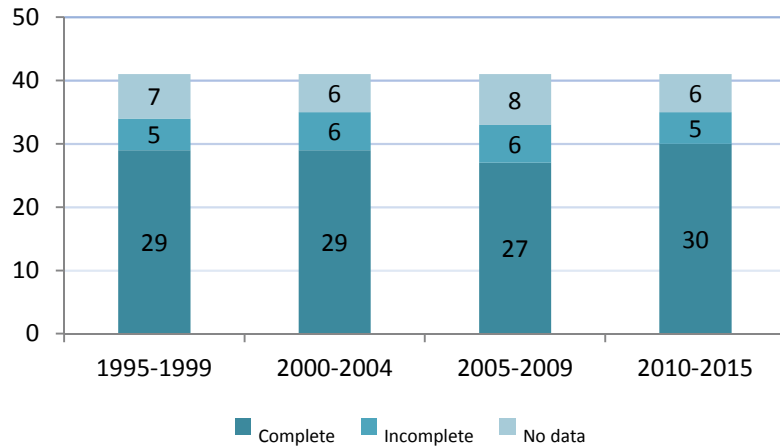


**Figure 2: Total CRVS deaths, number of reporting countries/areas, Africa**

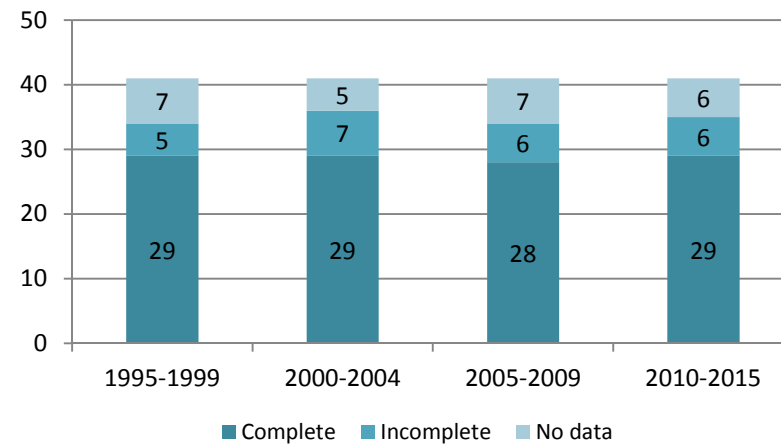


# Births and deaths statistics – America, North

**Figure 3: Total CRVS births, number of reporting countries/areas, North America**

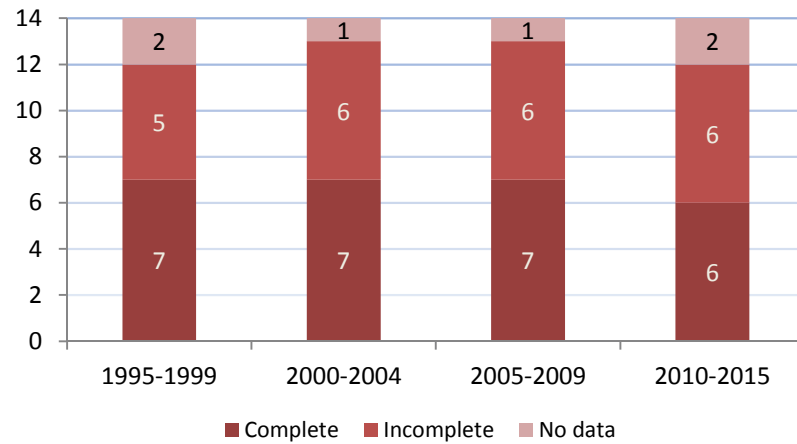


**Figure 4: Total CRVS deaths, number of reporting countries/areas, North America**

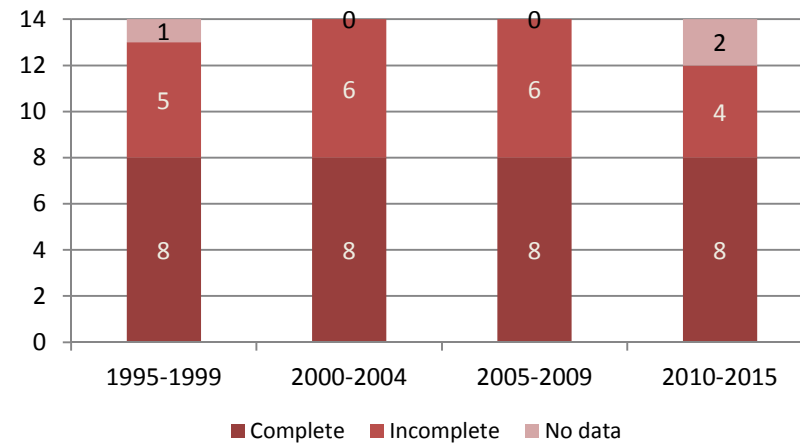


# Births and deaths statistics – America, South

**Figure 5: Total CRVS births, number of reporting countries/areas, South America**

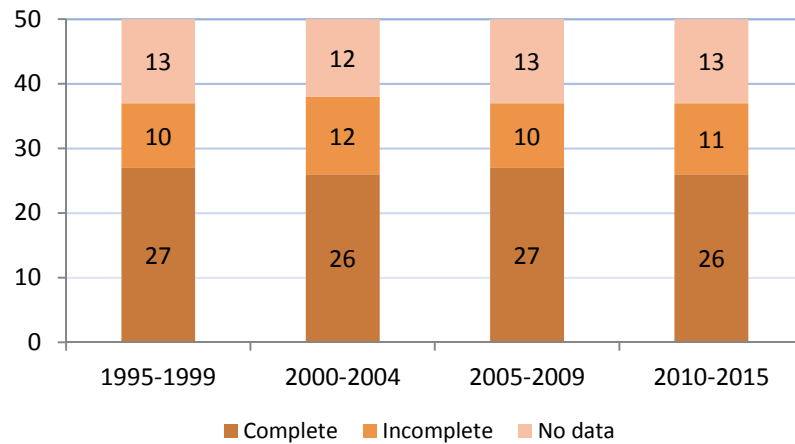


**Figure 6: Total CRVS deaths, number of reporting countries/areas, South America**

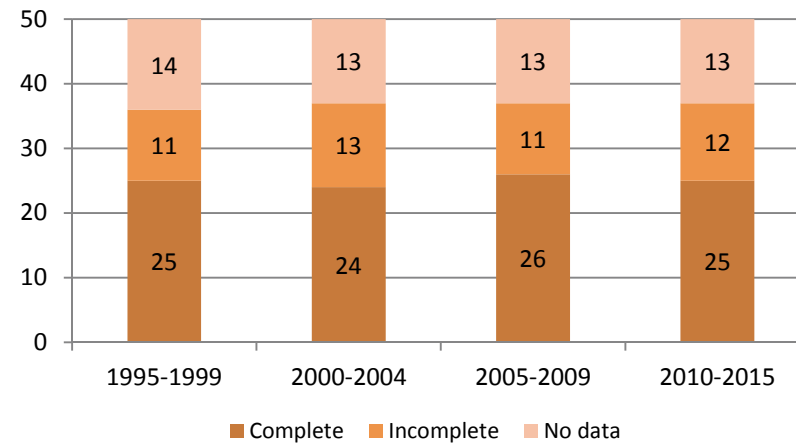


# Births and deaths statistics – Asia

**Figure 7: Total CRVS births, number of reporting countries/areas, Asia**

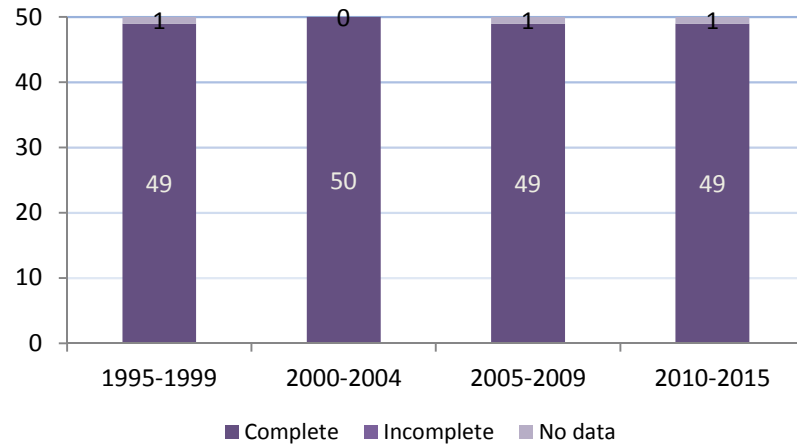


**Figure 8: Total CRVS deaths, number of reporting countries/areas, Asia**

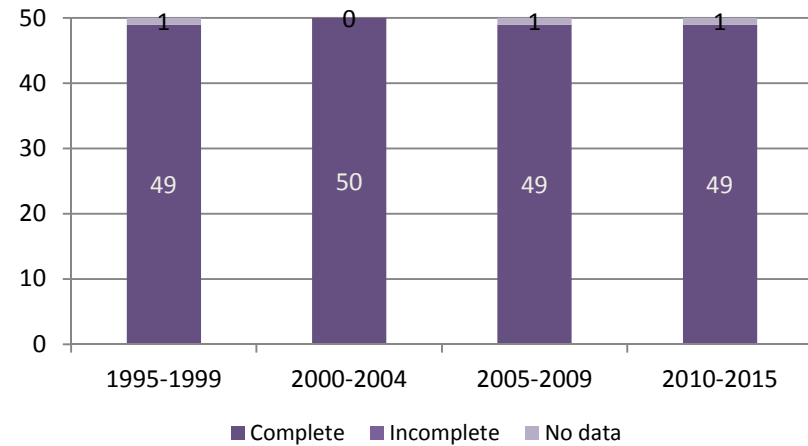


# Births and deaths statistics – Europe

**Figure 9: Total CRVS births, number of reporting countries/areas, Europe**

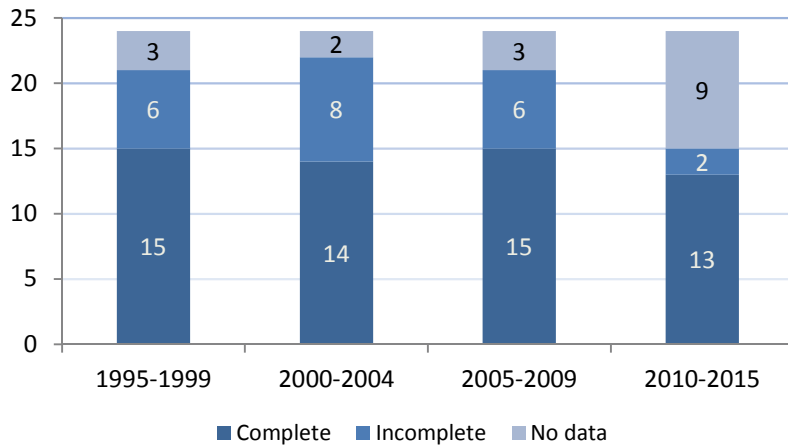


**Figure 10: Total CRVS deaths, number of reporting countries/areas, Europe**

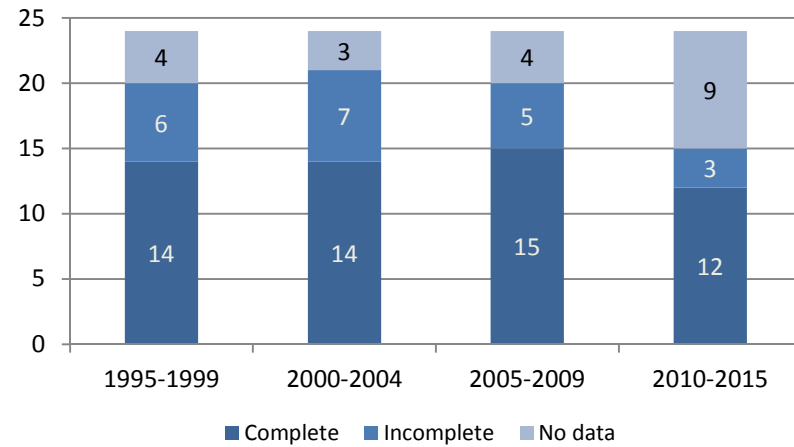


# Births and deaths statistics – Oceania

**Figure 11: Total CRVS births, number of reporting countries/areas, Oceania**

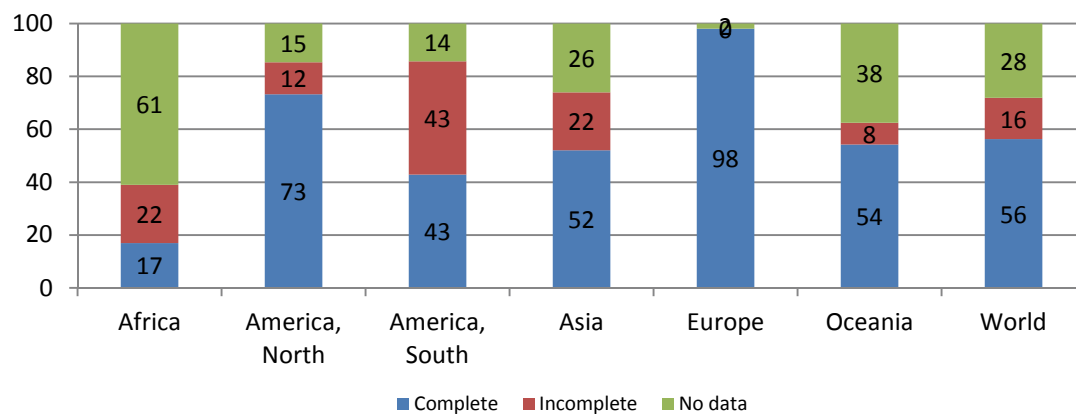


**Figure 12: Total CRVS deaths, number of reporting countries/areas, Oceania**

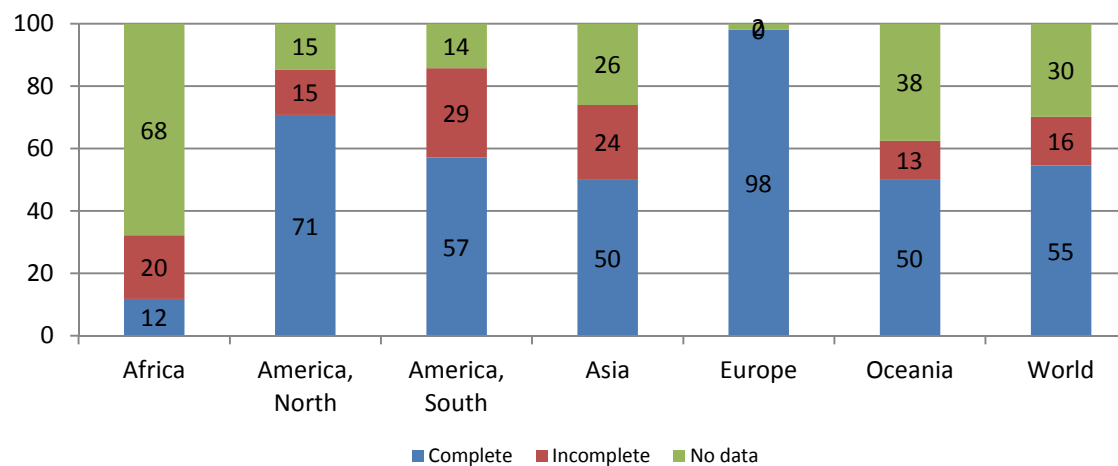


# Summary

**Figure 13: Availability of total CRVS births, by completeness status and region, 2010-2015, percentages of reporting countries in the respective region**



**Figure 14: Availability of total CRVS deaths by completeness status and region, 2010-2015, percentages of reporting countries in the respective region**



# Vital statistics metadata

United Nations Statistics Division - Demographic Statistics Section  
Questionnaire on Vital Statistics

Country-Name  
Reporting Year: 2016

## Quality of vital statistics obtained from civil registration

I. Basis of tabulation	Live births	Deaths	Infant deaths	Late foetal deaths	Marriages	Divorces
Present basis of tabulation:						
- date of occurrence						
- date of registration						
How long has the present basis of tabulation been used?						

II. Estimated completeness of registration	Live births	Deaths	Infant deaths	Late foetal deaths	Marriages	Divorces
90 per cent or more						
75-89 per cent						
50-74 per cent						
Under 50 per cent						
Please specify:						
(a) Year(s) to which completeness estimate refers						
(b) Basis of completeness estimate						
-Demographic analysis						
-Dual record check						
-Questions in population census						
-Questions in sample surveys						
-Other (specify)						
-No evaluation						

Please include any reports describing completeness of registration and methods used in arriving at estimated completeness:

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## Quality of vital statistics obtained from other sources

Basis of vital statistics estimates is						
- Population censuses (date)						
- Sample surveys						
- Population registers						
- Dual record systems						
- Other (specify)						

Please include any reports describing the methods used for estimates of vital statistics based on other sources than civil registration:

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## Vital statistics metadata

- 131 countries/areas in all regions have provided some metadata
- Summary and detailed tabulations are presented in the following slides, with results of the reported metadata on completeness levels and groups of methods for evaluating completeness for CRVS births, deaths and infant deaths.
- The unit of tabulation is the reporting country

## Summary: Live births metadata, number of reporting countries

Table 1	Completeness 90 % or more	Completeness 75 – 89 %	Completeness 50 – 74 %	Completeness under 50 %
	96	6	6	1
Africa	4	1	2	1
America, North	21	2	1	0
America, South	5	2	2	0
Asia	20	0	0	0
Europe	43	1	0	0
Oceania	3	0	1	0

Table 2	Demographic analysis	Dual record check	Census	Surveys	Other	No evaluation
	26	21	7	4	18	8
Africa	5	0	0	1	2	0
America, North	4	7	1	0	1	3
America, South	2	2	1	0	0	0
Asia	5	3	1	2	6	2
Europe	8	8	3	0	7	3
Oceania	2	1	1	1	2	0

Table 3	Demographic analysis	Dual record check	Census	Surveys	Other	No evaluation
	26	21	7	4	18	8
Reporting period						
< 2000	0	0	0	0	0	0
2000 - 2004	3	2	1	1	4	0
2005 - 2009	3	3	1	1	2	2
2010 +	20	16	5	2	12	6

## Summary: Deaths metadata, number of reporting countries

Table 4	Completeness 90 % or more	Completeness 75 – 89 %	Completeness 50 – 74 %	Completeness under 50 %
	96	5	5	2
Africa	5	0	1	2
America, North	21	1	2	0
America, South	8	0	1	0
Asia	16	3	0	0
Europe	43	1	0	0
Oceania	3	0	1	0

Table 5	Demographic analysis	Dual record check	Census	Surveys	Other	No evaluation
	26	21	3	2	13	9
Africa	5	0	0	1	1	0
America, North	3	7	1	0	0	3
America, South	3	1	0	0	0	1
Asia	6	3	0	0	4	2
Europe	7	9	1	0	6	3
Oceania	2	1	1	1	2	0

Table 6	Demographic analysis	Dual record check	Census	Surveys	Other	No evaluation
	26	21	3	2	13	9
Reporting period						
< 2000	0	0	0	0	0	0
2000 - 2004	3	2	1	1	4	0
2005 - 2009	3	3	0	0	0	3
2010 +	20	16	2	1	9	6

## Summary: Infant deaths metadata, number of reporting countries

Table 7	Completeness 90 % or more	Completeness 75 - 89 %	Completeness 50 - 74 %	Completeness under 50 %
	90	2	7	4
Africa	4	0	0	3
America, North	20	0	2	1
America, South	7	1	0	0
Asia	14	1	3	0
Europe	42	0	1	0
Oceania	3	0	1	0

Table 8	Demographic analysis	Dual record check	Census	Surveys	Other	No evaluation
	25	21	6	4	10	8
Africa	4	0	0	1	1	0
America, North	2	6	1	0	1	2
America, South	3	2	1	1	0	1
Asia	6	2	1	1	2	2
Europe	8	10	2	0	4	3
Oceania	2	1	1	1	2	0

Table 9	Demographic analysis	Dual record check	Census	Survey	Other	No evaluation
	25	21	6	4	10	8
Reporting period						
< 2000	1	0	0	0	0	0
2000 - 2004	2	2	1	1	2	0
2005 - 2009	3	4	0	0	1	2
2010 +	19	15	5	3	7	6

## Overall observations regarding the reported metadata

- 109 countries have reported completeness of their CRVS births: for 96 countries it is complete and for 13 countries it is incomplete as of the latest reference period reported
- 108 countries have reported completeness of their CRVS deaths: for 96 countries complete and 12 incomplete as of the latest reference period reported
- 103 countries have reported completeness of their CRVS infant deaths: for 90 countries complete and for 13 incomplete as of the latest reference period reported
- Demographic analysis followed by dual record check are the most commonly used methods of completeness evaluation for CRVS births, deaths and infant deaths

<b>Completeness evaluation methods employed by reporting countries</b>						
	<b>Demographic Analysis</b>	<b>Dual record check</b>	<b>Census</b>	<b>Surveys</b>	<b>Other</b>	<b>No evaluation</b>
<b>AFRICA</b>						
Burundi	b, d, i			b, d, i		
Egypt	b, d, i					
Kenya	b, d, i					
Mauritius	b, d, i					
Morocco					b	
Réunion					b, d, i	
South Africa	b, d					
<b>AMERICA, NORTH</b>						
Anguilla						b, d, i
Aruba			b, d, i			
Bahamas		b, d, i				
Bermuda						b, d, i
Cayman Islands					i	b, d
Cuba		b, d, i				
Dominican Republic	b, d					
El Salvador		b, d, i				
Guatemala					b	
Jamaica		b, d, i				
Mexico	b, d, i					
Montserrat		b, d, i				
Panama	b, d, i					
Saint Lucia		b, d, i				
Saint Vincent and the Grenadines		b, d				
United States of America	b					

Completeness evaluation methods employed by reporting countries						
	Demographic Analysis	Dual record check	Census	Surveys	Other	No evaluation
<b>AMERICA, SOUTH</b>						
Argentina	b, d, i					
Brazil	i	i	i	i		
Chile	b, d, i					
Peru	d					
Uruguay		b				d, i
Venezuela (Bolivarian Republic of)		b, d, i	b			
<b>ASIA</b>						
Armenia					b	
Bahrain					b, d, i	
China, Hong Kong SAR	b, d, i					
China, Macao SAR						b, d, i
Cyprus		b, d, i				
Israel	d, i	b, d, i				
Kyrgyzstan					b	
Malaysia	b, d	b, d			b, d	
Philippines	i				b, d	
Qatar	b, d, i					
Republic of Korea	b, d, i					
Sri Lanka						b, d, i
State of Palestine	b, d, i			b		
Tajikistan			b, i	b, i		
Uzbekistan					b, d, i	

<b>Completeness evaluation methods employed by reporting countries</b>						
	<b>Demographic Analysis</b>	<b>Dual record check</b>	<b>Census</b>	<b>Surveys</b>	<b>Other</b>	<b>No evaluation</b>
<b>EUROPE</b>						
Albania	b, i		b, i			
Austria	b, d, i	b, d, i				
Belgium		b, d, i				
Bulgaria	b, d, i					
Denmark					b, d, i	
Estonia	b, d, i	b, d, i				
Faeroe Islands		b, d, i				
Germany					b, d, i	
Gibraltar					b, d	
Hungary		b, d, i				
Iceland						b, d, i
Ireland		i	b			d, i
Italy	b, d, i	b, d, i				
Latvia	b, d, i	b, d, i				
Liechtenstein					b, d, i	
Lithuania	b, d, i	d, i				
Romania	b, d, i					
Russian Federation			b, d, i			
Slovakia					b, d	
Slovenia					b	
Spain						b, d, i
Sweden					b, d, i	
Switzerland		b, d, i				
Ukraine						b
<b>OCEANIA</b>						
Australia					b, d, i	
Guam					b, d, i	
New Zealand	b, d, i	b, d, i				
Papua New Guinea	b, d, i		b, d, i	b, d, i		
<b>Note:</b> b, d, i - if method is used respectively for evaluation of births, deaths or infant deaths completeness						



# Country notes on methods

## Demographic analysis

- Evaluation of births completeness by comparing observed births to estimated births. Estimated births computed by using Brass P/F method to adjust ASFRs.
- Evaluation of births completeness using a relational Gompertz model, to compare cohort parities from a census with vital birth registration.
- Evaluation of births completeness, by reconstructing the births up to 35 months of late registration, and comparing with the results of answers to fertility questions posed in the census.
- Comparing the numbers of registered births or deaths for the reference year to the estimates referring to the same year provided by indirect methods using census data and demographic projections.

## Dual record check

- Comparison of birth registration data with vaccination records
- Continuous evaluation of population register to administrative sources other than civil registration

## Other

- Rapid Assessment of National Civil Registration and Vital Statistics Systems
- Complete as a result of legal, administrative, institutional arrangements

# Vital statistics metadata – reporting year 2017

United Nations Statistics Division - Demographic Statistics Section

Country-Name

Questionnaire on Vital Statistics

Reporting Year:  
2017

## Quality of vital statistics obtained from civil registration

I. Basis of tabulation	Live births	Deaths	Infant deaths	Late foetal deaths	Marriages	Divorces
Present basis of tabulation:						
- date of occurrence						
- date of registration						
How long has the present basis of tabulation been used?						

II. Estimated completeness of registration	Live births	Deaths	Infant deaths	Late foetal deaths	Marriages	Divorces
100 per cent						
90 - 99 per cent						
80 - 89 per cent						
70 - 79 per cent						
60 - 69 per cent						
50 - 59 per cent						
Under 50 per cent						
Please specify:						
(a) Year(s) to which completeness estimate refers						
(b) Basis of completeness estimate						
-Demographic analysis						
-Dual record check						
-Questions in population census						
-Questions in sample surveys						
-Other (specify)						
-No evaluation						

Please include any reports describing completeness of registration and methods used in arriving at estimated completeness:

## Quality of vital statistics obtained from other sources

Basis of vital statistics estimates is						
- Population censuses (date)						
- Sample surveys						
- Population registers						
- Dual record systems						
- Other (specify)						

Please include any reports describing the methods used for estimates of vital statistics based on other sources than civil registration:



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# Thank you!

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