



U.S. Centers for Disease Control and Prevention  
National Center for Health Statistics  
International Statistics Program



# Data Uses and Dissemination



These materials have been developed by the National Center for Health Statistics, International Statistics Program, Hyattsville, Md., as part of the CDC Global Program for Civil Registration and Vital Statistics Improvement.



- **Using vital statistics**
- **Publications**
- **Electronic media/internet**
- **Special uses of data**
- **Professional/technical meetings**
- **International comparisons**



- **Goal of presentation: to explain how vital statistics processes *should* work**
- **Information may not be directly relevant to your work, but you can:**
  - Use the information to **evaluate** available CRVS data
  - **Advocate** for improvements to CRVS system
  - **Apply** the information in own work setting (i.e. local area or hospital)



# Using Vital Statistics

- **United Nations minimal goals:**
  - 1) Total monthly or quarterly **summary counts** prompt enough to provide info for administrative or other needs
  - 2) Detailed **annual tabulations** for vital events cross classified by demographic and socioeconomic characteristics

- **Central agency needs to:**
  - **Identify and assess needs of users**
  - **Understand problems of VS suppliers & users**
  - **Make sure VS suppliers & users understand their obligations and constraints**
  - **Disseminate VS information **widely****
- **Alternative: make micro-level data available to outside users/researchers**



- **Annual data**

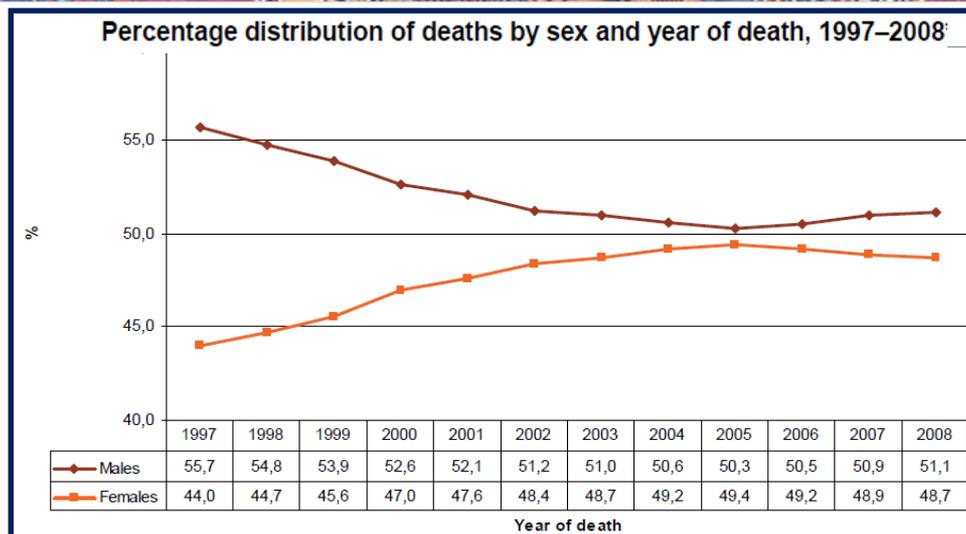
- **Time trends**

- **Geographical differentials**

- **Frequency distributions of vital events, including:**

- **Causes of death tabulations**
- **Leading cause of death lists**

- **Include delayed & late registration by year of occurrence**





## Contents

List of tables .....	vi
List of figures .....	vii
Acknowledgements .....	viii
1. Introduction .....	1
1.1 Background .....	1
1.2 Objectives of this statistical release .....	1
1.3 Scope of the report .....	1
1.4 Organisation and presentation of this statistical release .....	2
2. Data and methods .....	3
2.1 Data source .....	3
2.2 Data quality .....	3
2.3 Methods .....	7
2.4 ICD-10 coding .....	8
3. Overall levels, patterns and differentials of mortality .....	10
3.1 Levels and trends of registered deaths .....	10
3.2 Age differentials .....	11
3.3 Sex differentials .....	14
3.4 Age and sex differentials .....	15
3.5 Population group differentials .....	19
3.6 Marital status differences in mortality .....	19
3.7 Differences in mortality by place of death occurrence .....	20
3.8 Provincial differences in mortality .....	21
4. Causes of death in South Africa .....	22
4.1 Introduction .....	22
4.2 Reported causes of death .....	22
4.3 Method of ascertaining the cause of death .....	23
4.4 Main groups of the underlying causes of death .....	25
4.5 Natural and non-natural causes of death .....	25
4.6 Underlying natural causes of death .....	27
4.7 Non-natural causes of death .....	35
4.8 Comparison between natural and non-natural causes of death .....	41
5. Summary and concluding remarks .....	43
References .....	45

# Publications

**Major sections**

**Preface & letter of transmittal**

**Table of contents & lists of tables and figures**

**Introductory & explanatory notes**

**Summary highlights**

**Mid-year population estimates (data used in computations)**

**Statistics: natality & mortality (marriage & divorce)**

**Annex / appendix**

Background table of contents from Statistics South Africa Mortality Report, 2008



# Publications

## ■ Include in annex / appendix:

- Details of national tabulation program
- Outlines of essential tables
- Technical notes & definitions
- Confidence interval calculation / table

Statistics South Africa, Mortality Report, 2008

Table 2.4: Changes in coding unique South African codes

Cause of death	Old code	New code
Herbal poisoning	Y67	X49 <i>(Accidental poisoning by and exposure to other and unspecified chemicals and noxious substances)</i>
Enemas by traditional doctors	Y68	Y53 <i>(Agents primarily affecting the gastrointestinal system)</i>
Mine accidents	Y37	W77 <i>(Threat to breathing due to cave-in, falling earth and other substances)</i>
Accidents in sports	Y38	X58 <i>(Exposure to other specified factors)</i>
Circumcision	Y39	Y65 <i>(Other misadventures during surgical and medical care)</i>



# Publications

- **Available on a regular & timely basis**
  - **Printed report**
  - **Ad hoc tabulations**
  - **CDs, diskettes, online, other media**
  
- **Conform to a designed plan to meet user needs**
  - **Part of a series**
  - **Easily identifiable for filing and reference in libraries**



- **Printed reports**

- **Clear formatting**

- **Tables with supporting text**

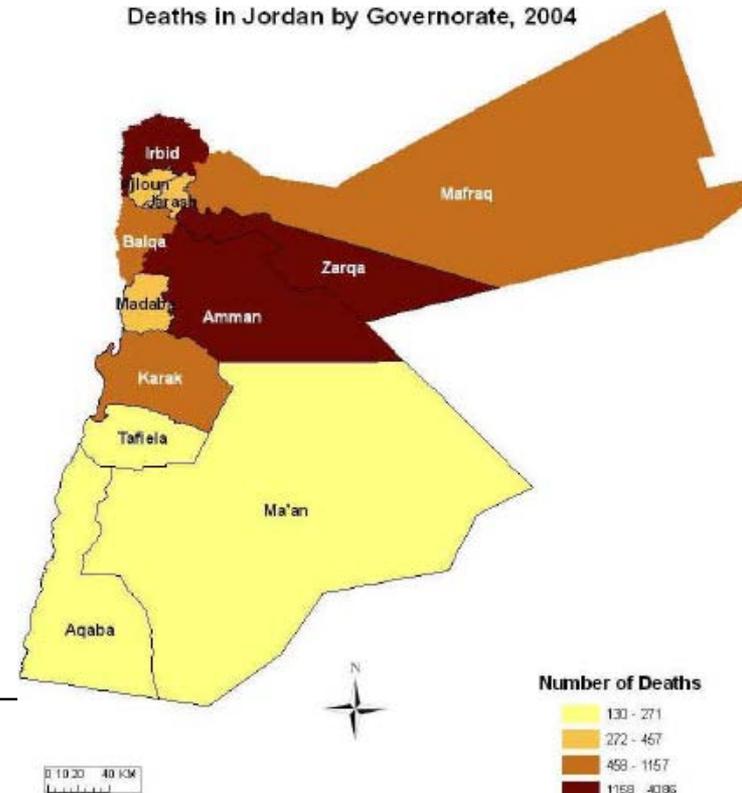
- **Annotations on data limitations**

- **Analysis of meaning of data**

- **Calculation of vital rates**
    - **Figures, maps, graphs for important points**
    - **Confidence intervals**

# Publications

Deaths in Jordan by Governorate, 2004



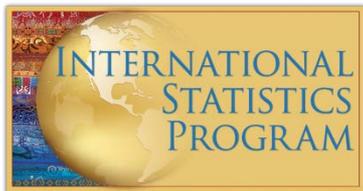
SOURCE: PRVSS2, Chapter II.I.1; NCHS, Unit 17.



**What items might go into the technical appendices of a printed annual report?**



- **Electronic report**
  - **Follow guidelines for printed reports**
  - **Prominently display instructions for use of electronic material**
  
- **Brochure with summary highlights**
  - **Sufficient for many users**
  - **Can cut down on printing & distribution costs**



## Publications: Monthly/Quarterly Bulletins

- **Extensive cross-classification not necessary**
- Alerts of **unusual changes** in vital events (epi surveillance)
- **Quality control** tool to identify missing/mis coded data
- **Targeted distribution** to those with need for provisional information



# Publications: Monthly/Quarterly Bulletins

- May use a systematic sample of records for preliminary tabulations (final tabulations should include all records)
- By **place of occurrence** faster than usual residence
- By **date of registration** faster than date of occurrence
- Allows calculation of 12-month moving average
  - Drop oldest month's frequency
  - Replace with value of most recent month



# Publications in [Country]

Slide to describe the types of vital statistics publications that are produced in the country.



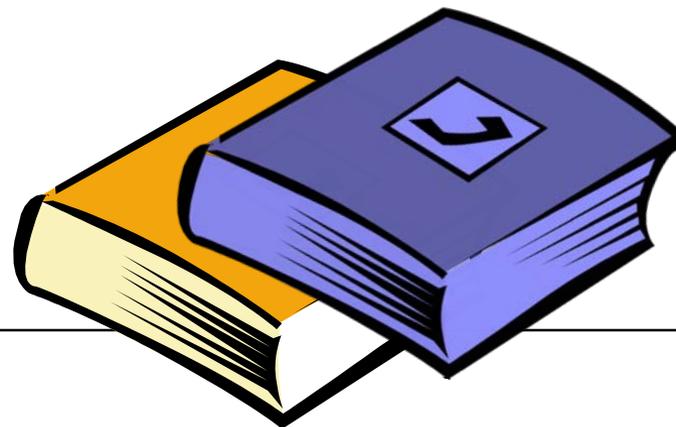
**What are some advantages and disadvantages of utilizing sampling rather than all records in preparing vital statistics reports?**



# Publications: Directory of Users

- **Efficient & targeted** dissemination of reports
- **Track publication users and dissemination activities**
  - Record names, addresses, fax numbers, email addresses, & products of interest (i.e. monthly report)
  - Update regularly

SOURCE: PRVSS2, Chapter II.I.3, 7, Chapter II.I.2; UN Handbook, Module 19, B, F.





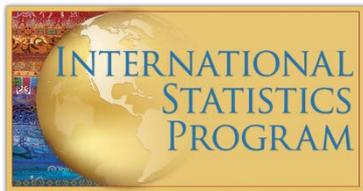
# Publications: Directory of Users

- **For announcing release of products & meetings**
- **Separate by publication type**
- **General distribution list can include:**
  - **Demographic & other research centers**
  - **Major libraries**
  - **Health, education, planning ministries**
  - **Commercial users**
  - **Vital statistics offices of selected countries**
  - **International agencies**



# Review: Publications

- **Annual data**
- **Major sections**
- **Availability**
- **Design plan**
- **Printed & electronic reports**
- **Monthly/quarterly bulletins**
- **Directory of users**

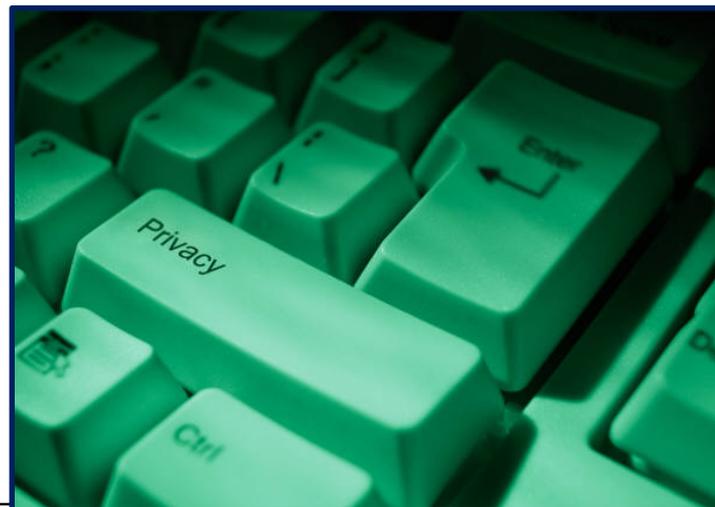


**What factors would you consider in determining the contents of vital statistics reports?**



# Electronic Media/Internet

- **Public use data**
  - Data tapes, disks, downloadable internet files
  - For purchase or free
  - Contain de-identified data to **protect privacy**
  - Publicize availability of data
  
- **Used to update local population databases**
  - Planning
  - Evaluating
  - Monitoring





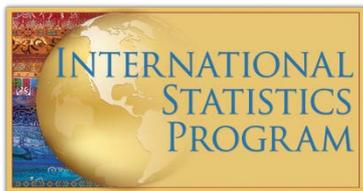
# Special Uses of Data: Special Files for Research

- **“Public use” data**
- **Availability of original datasets**
  - **Without corrections (editing and imputations)**
  - **Need documentation of changes made**
  - **With/without identifiers (need approval for identifiable data)**
- **Administrative procedures for requests, guarantees of confidentiality**



- **Special tabulations on request**
  - **Examples:**
    - Small area data analysis
    - Sample data analysis
    - Analysis of VS data matched to another source
  - **Helpful to offer analytic consulting**
  - **Recommendations on use & interpretation of data, including confidence intervals**





# Special Uses of Data: Information for Non-health Uses

## ■ Potential Users

- Police
- Social security
- Worker's insurance
- School planning
- Economic planning
- Population projections
- Sampling frame for various projects

## ■ Considerations for data use

- Terms of use
- Limitations of data





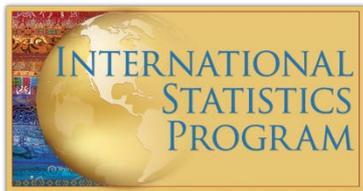
# Review: Special Uses of Data

- **Research**
- **Public use data**
- **Original data sets**
- **Special tabulations**
- **Non-health data users**



# Special Uses of Vital Statistics Data in [COUNTRY]

- If applicable, list special uses of vital statistics data in [country].

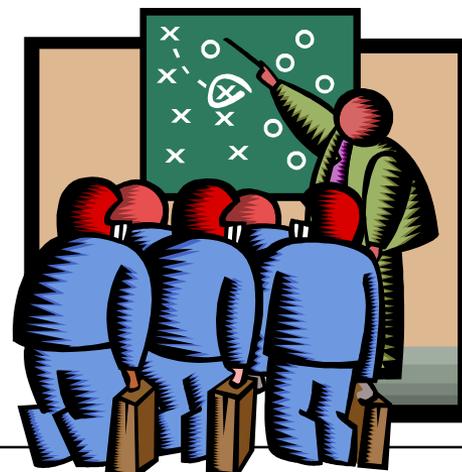


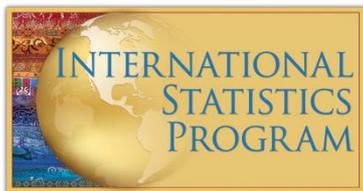
**How would you disseminate vital statistics to the general public? How and to whom would you distribute the vital statistics reports?**



# Professional/Technical Meetings

- **Good communication with data users is essential, especially for:**
  - Data released in electronic format
  - Special tabulations
- **Periodic meetings to discuss data with users**
  - Content of data files
  - Limitations of data
  - Best uses of data





# Professional/Technical Meetings

- **Reduce questions for office**
- **Help frequent users of vital statistics info**
- **Forum to solicit direct user input to stay attuned to needed changes**
- **Announce widely**
- **Address media needs**





# Professional/Technical Meetings in [COUNTRY]

- List professional or technical meetings that are hosted in [COUNTRY] to help users better understand the country's vital statistics data.



# Using Vital Statistics: International Comparisons

## Data Quality

- Consistency
- Methodology
- Coverage
- Time period

## Presentation & Interpretation

- Presentation
- Explanation
- Underlying differentials
- Context

## Choice of Countries

- Comparability



# Using Vital Statistics: International Comparisons

## Data Quality

- **Consistency:** *Are the data defined consistently across countries?*

**EXAMPLE:** Enumeration of live births in OECD countries

Include very premature babies	Minimum gest. age = 12 weeks	Minimum gest. age = 22 weeks and/or 500 grams birthwt.	No minimum gest. age or birthweight
<ul style="list-style-type: none"> <li>• Canada</li> <li>• Japan</li> <li>• Norway</li> <li>• United States</li> </ul>	<ul style="list-style-type: none"> <li>• Norway</li> </ul>	<ul style="list-style-type: none"> <li>• Czech Republic</li> <li>• France</li> <li>• the Netherlands</li> <li>• Poland</li> </ul>	<ul style="list-style-type: none"> <li>• Australia</li> </ul>



# Using Vital Statistics: International Comparisons

## Data Quality

- **Methodology:** *Do all countries use the same method to collect the data?*
  - Birth and death certificates/registries
  - Mortality data
  - National disease registries
  - Hospital utilisation data
  - Household surveys



# Using Vital Statistics: International Comparisons

## Data Quality

- **Coverage:** *Do the data cover similar parts of the population?*
  - **Legislation**
  - **Geography**
  - **Information systems**
  - **Population surveys of “broader” population**



# Using Vital Statistics: International Comparisons

## Data Quality

- **Time period:** *Do the data refer to the same time period?*
  - Should cover approximate same year/range of years
  - If comparable years not available:
    - Clearly label years covered by each country
    - May use latest available data
    - May only use countries whose data meet a particular range (e.g. the last 5 years)



**Review the table comparing maternal mortality ratio across European countries. What issues with data quality are noted?**



# Using Vital Statistics: International Comparisons

## Choice of Countries

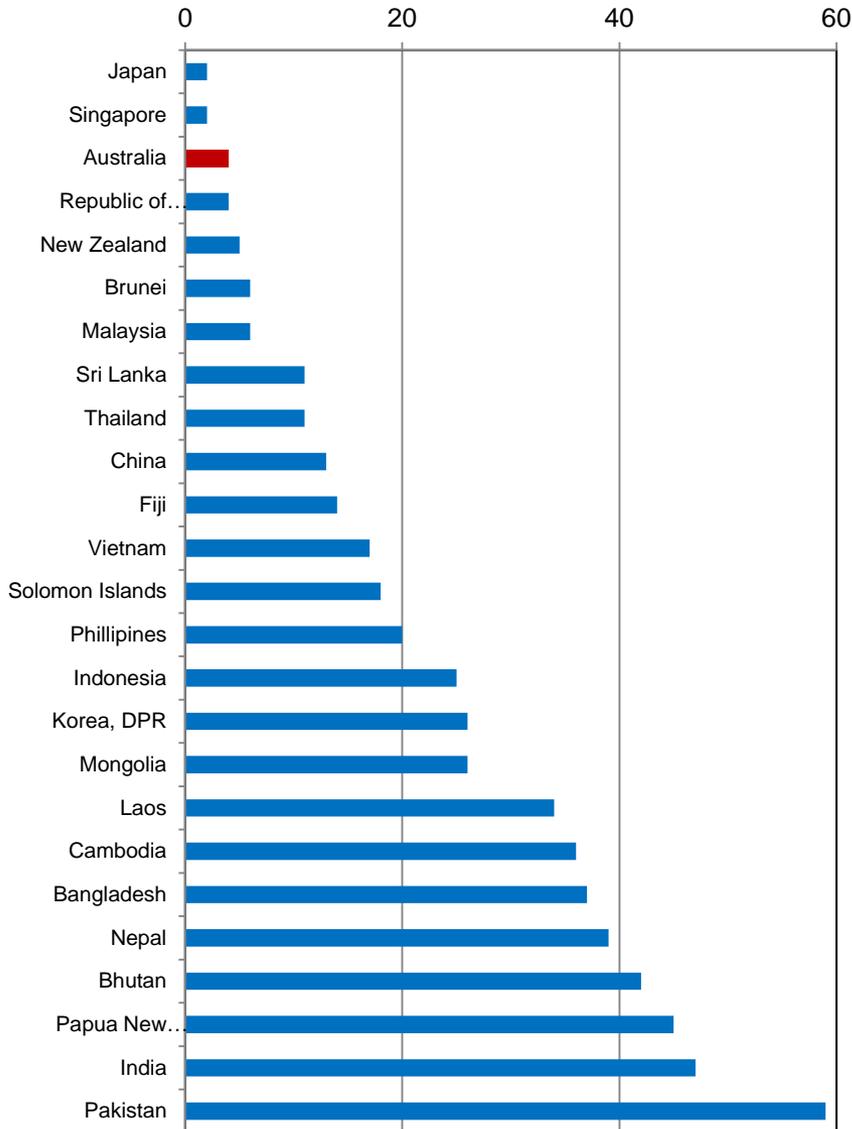
- **Comparability:** *Are countries sufficiently similar to support comparison?*
  - **Economic status / income per capita**
  - **Population size**
  - **Geographical land mass**
  - **Geographic proximity**



# INTERNATIONAL COMPARISON OF COUNTRIES

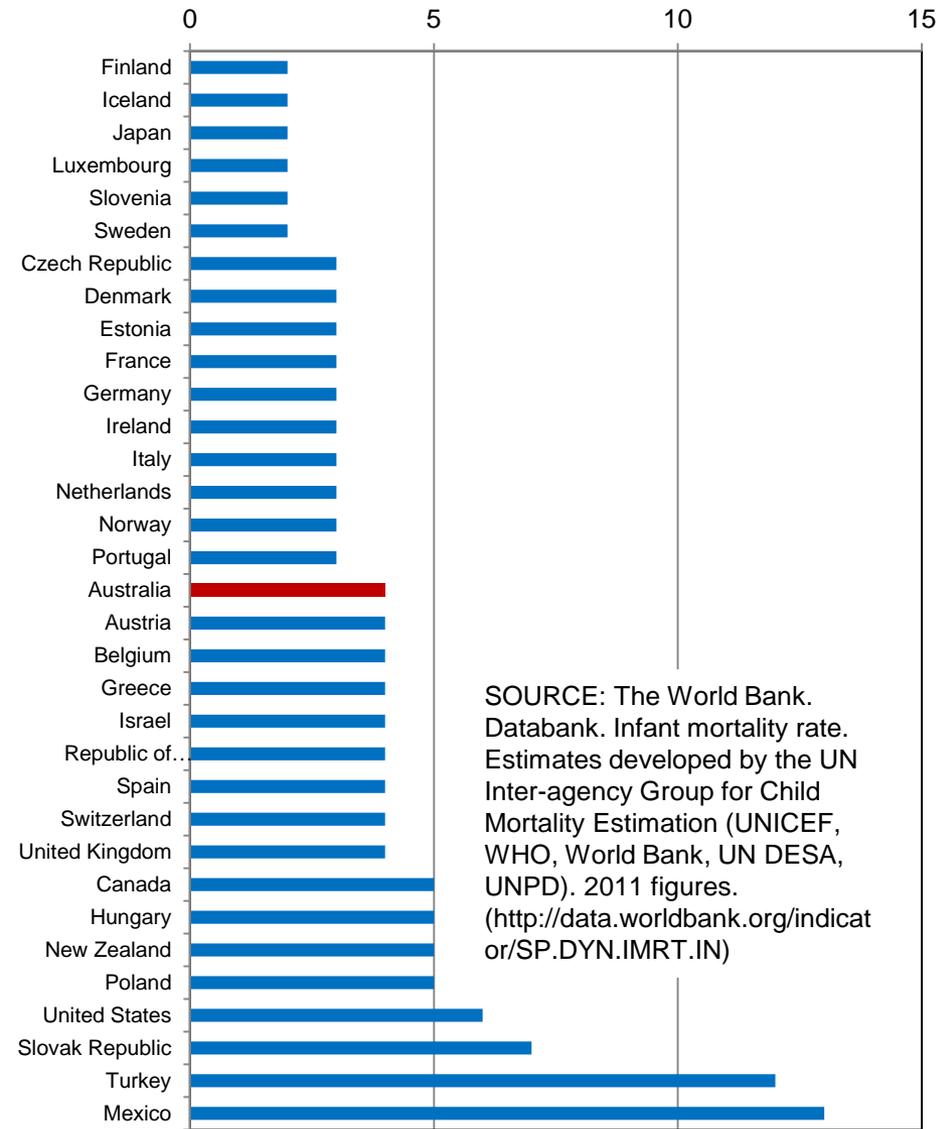
## Asia-Pacific Countries

Infant Mortality Rate, per 1,000 live births

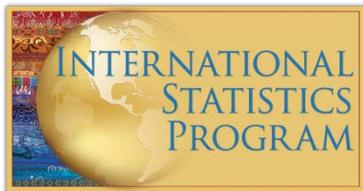


## OECD Countries

Infant Mortality Rate, per 1,000 live births



SOURCE: The World Bank. Databank. Infant mortality rate. Estimates developed by the UN Inter-agency Group for Child Mortality Estimation (UNICEF, WHO, World Bank, UN DESA, UNPD). 2011 figures. (<http://data.worldbank.org/indicator/SP.DYN.IMRT.IN>)

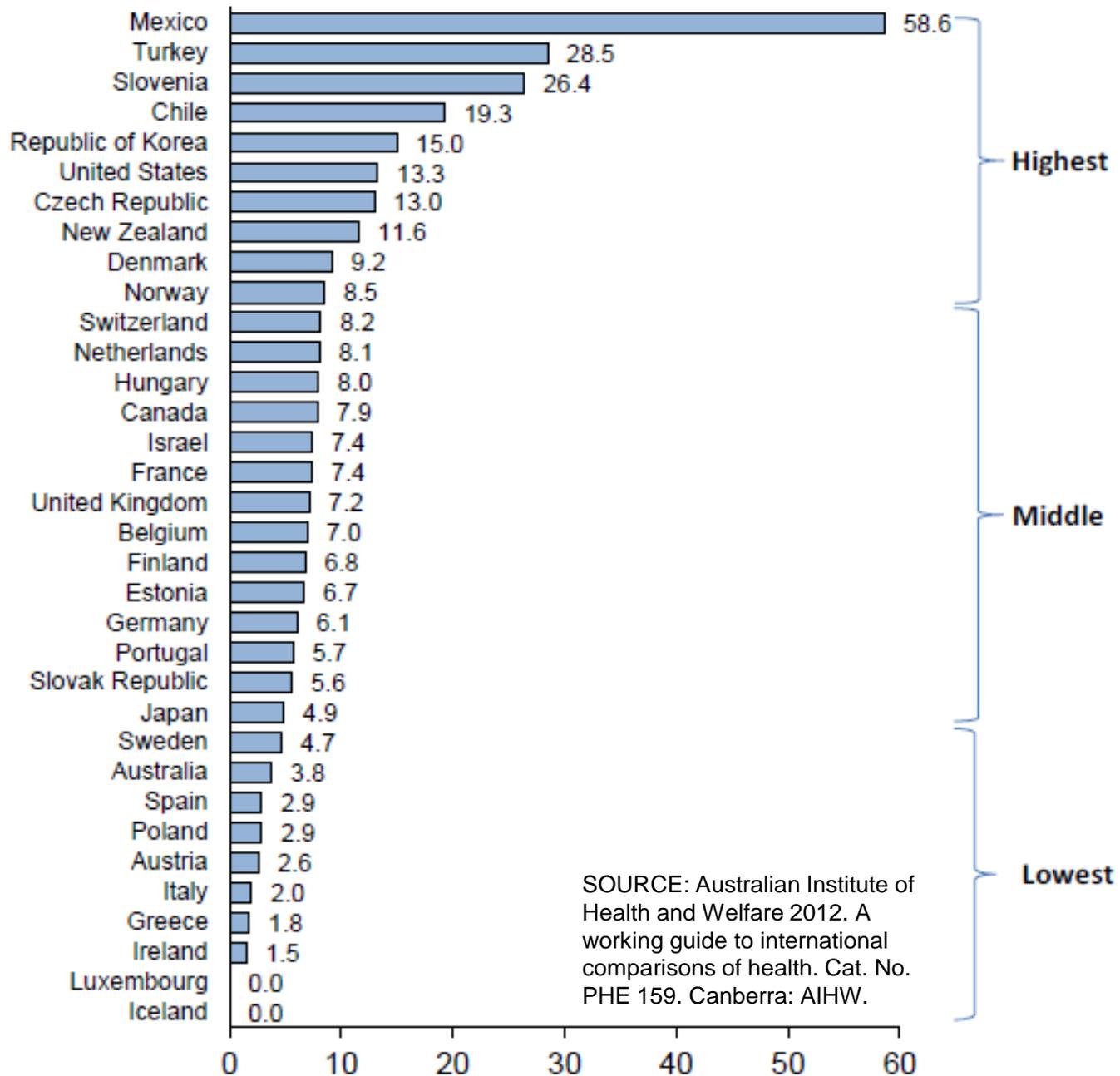


# Using Vital Statistics: International Comparisons

## Presentation & Interpretation

- **Presentation:** *Are the data presented appropriately?*
  - **Can (and should) the data be ranked from best to worst?**
  - **Is there agreement on which indicator is best?**
  - **What size are the differences separating country ranks?**
  - **Has the country's performance been considered independently of the international context?**

# MATERNAL DEATHS PER 100,000 LIVE BIRTHS



SOURCE: Australian Institute of Health and Welfare 2012. A working guide to international comparisons of health. Cat. No. PHE 159. Canberra: AIHW.



# Using Vital Statistics: International Comparisons

## Presentation & Interpretation

- **Explanation:** *Is the variation between countries adequately explained?*
  - Genetic
  - Cultural
  - Economic
  - Political
  - Environmental
- **Focus on *what* differences are present rather than *why* the differences are present**

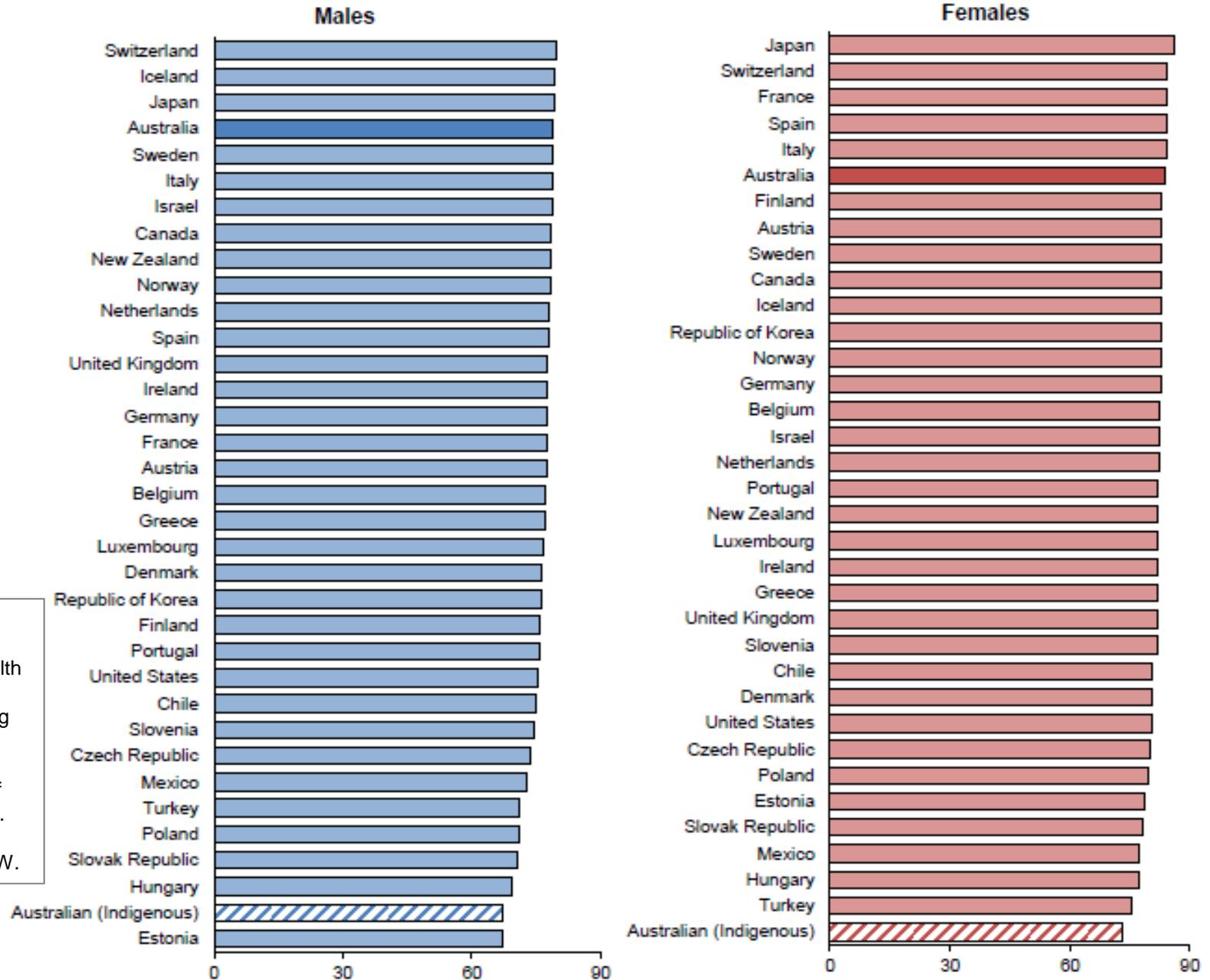


# Using Vital Statistics: International Comparisons

## Presentation & Interpretation

- **Underlying differentials:** *Are differences within countries considered?*
  - Cultural groups
  - Administrative sectors
  - Socioeconomic status & income
  - Rural-urban divides
  - Literacy levels

# LIFE EXPECTANCY AT BIRTH (YEARS)



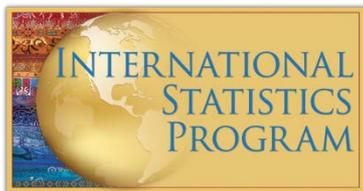
SOURCE:  
 Australian  
 Institute of Health  
 and Welfare  
 2012. A working  
 guide to  
 international  
 comparisons of  
 health. Cat. No.  
 PHE 159.  
 Canberra: AIHW.



# Using Vital Statistics: International Comparisons

## Presentation & Interpretation

- **Context:** *Can the data be used outside of the international comparison?*
  - **Standardization of data for comparisons**
  - **Methods and definitions may differ**
    - **International comparisons**
    - **Official country estimates**



# Mortality Statistics for Australia Using Different Data Sources

Cause of death	Number of deaths		Rates (deaths per 100,000 population)	
	Australia <sup>(a)</sup>	OECD <sup>(b)</sup>	Australia <sup>(d)</sup>	OECD <sup>(e)</sup>
Breast cancer (females only)	2,618	2,505	22.1	18.5
Cerebrovascular disease	11,465	10,975	50.5	35.2
Colon and rectum cancer	3,858	3,669	17.5	14.3
Coronary heart disease	22,983	21,940	101.8	73.5
Diabetes	3,662	3,490	16.4	12.5
Lung cancer	7,348	7,054	33.6	28.7
Prostate cancer	2,952	2,826	32.3	24.3
Suicide	1,799	1,673	8.6	7.5
<b>All causes</b>	<b>133,739</b>	<b>127,632</b>	<b>600.3</b>	<b>459.3</b>

SOURCES: Australian Institute of Health and Welfare 2012. A working guide to international comparisons of health. Cat. No. PHE 159. Canberra: AIHW.

**National counts by year of registration**

**International counts from WHO mortality database, by year death occurred; age standardized**



## Data Comparison:

*See handout for activity details.*

- **Review the international comparison of Maternal Mortality Ratio**
  - **Using the materials provided:**
    - A.** Comment on the strengths and weaknesses of the information presented.
    - B.** What are the implications of these strengths and weaknesses on the interpretation of the results?
    - C.** What additional information about the data would you like to have?

- **(Freedman) Freedman, MA. Improving Civil Registration and Vital Statistics. The World Bank. 2003.**
- **(NCHS) National Center for Health Statistics. Methods of Civil Registration: Modular Course of Instruction.**
- **(NVSS Births) National Vital Statistics Reports. Births: Final Data for 2006. 57(7). 7 Jan 2009.**
- **(PRVSS2) UN. Principles and Recommendations for a Vital Statistics System, Revision 2. New York. 2001.**
- **(UN Handbook) UN. Handbook on Training in Civil Registration and Vital Statistics Systems. Studies in Methods, Series F, No. 84. UN: New York. 2002.**



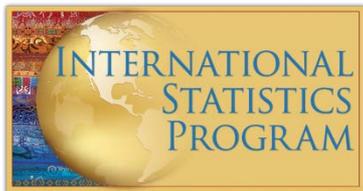
## Table of Contents:

- **In small groups, prepare the table of contents for an annual vital statistics report on the population of your country.**
- **Compare your list with the actual report and with the table of contents of other groups.**
- **Discuss the agreements and disagreements.**



## Report Content:

- **In small groups, review sample reports from various countries. Compare and discuss:**
  - **Report content (statistics, tables, text, etc)**
    - **Use characteristics for evaluating international comparisons**
  - **Report style**
  - **Appendices**
- **Share and compare your observations with the class.**



## Vital Statistics Report Review:

- **In small groups, review the annual report and answer the questions on the handout.**
- **Compare your answers with those of other groups.**
- **Discuss the agreements and disagreements.**



## **Lists of Users:**

- **In small groups, compile lists of the types of users for:**
  - **printed annual publications**
  - **monthly or quarterly bulletins**
  - **electronic media data releases**
  - **special tabulations**



# Overall Review

- 1. The UN minimal goals for using vital statistics call for detailed (*semi-annual / annual*) tabulations for vital events.**
- 2. A publication annex (*should / should not*) include details of the national tabulation program.**
- 3. Publications should conform to a designed plan to meet (*user / developer*) needs.**
- 4. Monthly and quarterly bulletins (*should / should not*) be used as a data quality control tool.**
- 5. Tabulation by place of (*usual residence / occurrence*) is faster than by (*usual residence / occurrence*).**



6. Tabulation by date of (*registration / occurrence*) is faster than by (*registration / occurrence*).
7. Having a directory of users provides for (*wide / targeted*) dissemination of reports.
8. Data sets with identifiable data used for special research (*do not require / require*) approval.
9. Vital statistics information (*can / cannot*) be used for non-health purposes.
10. Good communication with data users is (*ideal / essential*).