Enhancing Korean Infant Mortality Statistics by Linking Administrative Data and Survey

UN Expert Group Meeting on the Methodology and Lessons Learned

to Evaluate the Completeness and Quality of Vital Statistics Data from Civil Registration
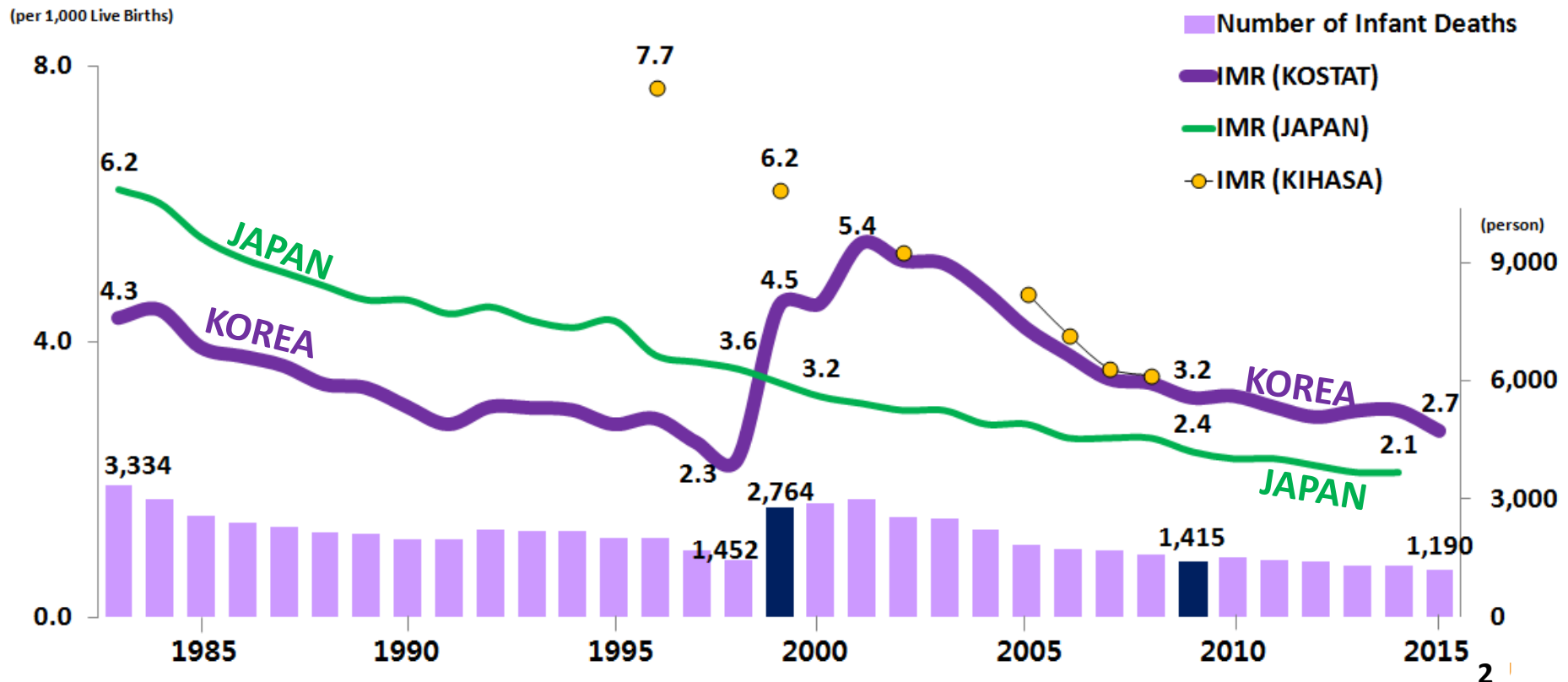
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STATISTICS KOREA

APPI

Korean Infant Mortality Rates, 1983-2015

1. **In 2015, Korean IMR was 2.7 deaths per 1,000 live births.**

2. **However, 20 years ago, the observed IMR was much lower than that of recent years due to the severe under-reporting of infant deaths.**

- Source : Death Statistics in 2015 (STATISTICS KOREA) , OECD Health Data
  * KIHASA : Korea Institute for Health and Social Affairs

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1.Civil Registration & Vital Statistics System in Korea
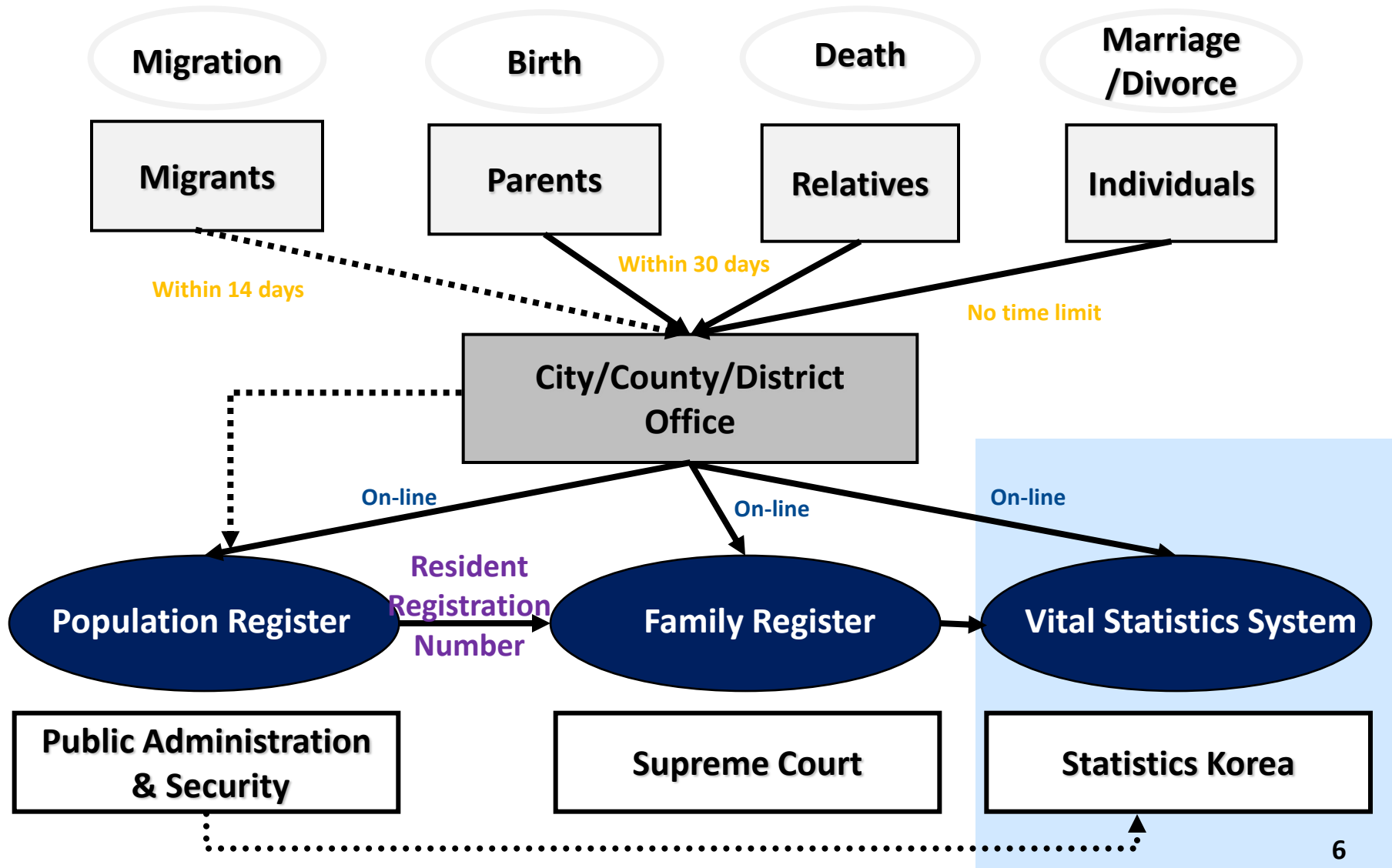
Civil Registration Systems in Korea

Family Register

- Administered by Supreme Court.

- Birth, death, marriage, and divorce are legally effective when they are recorded into family register.

Population Register

- Administered by Ministry of the Interior.

- Includes name, *Resident Registration Number*, place of residence, relationship of household members, etc.

Civil Registration & Vital Statistics Systems in Korea

Migration

Birth

Death

Marriage/Divorce

Migrants

Parents

Relatives

Individuals

Within 14 days

Within 30 days

No time limit

City/County/District Office

On-line

On-line

On-line

Population Register

Resident Registration Number

Family Register

Vital Statistics System

Public Administration & Security

Supreme Court

Statistics Korea

Vital Statistics System in Korea

1. **Statistics Korea operates online real-time web-based vital statistics system across all local registration offices.**

2. **All vital events have been first filed in online family register and then the registered information is sent directly to the online vital statistical system.**

3. **For statistical purposes only, the demographic characteristics are added in the vital statistics system.**

4. **Although Korea has a long tradition of family register, current type of CRVS was established in 1970. Since 1970, birth and death registration forms has included statistical purpose items.**

5. ***Rules of Vital Statistics* promote uniformity of practice in collecting, processing, and disseminating vital statistics across all regional offices.**

Birth Registration Form in Korea

Birth Registration
(Day Month Year)

※ Please complete this form according to the instructions on the reverse side. Circle where appropriate.

① Newborn

Name	Korean	Place of family origin (Chinese)	Sex	(1) Male (2) Female	(1) Birth in wedlock (2) Birth out of wedlock
	Chinese characters				

Time & Date of birth (Hour) (Min.) (Day) (Month) (Year) (Time of birth : 24-hour clock format)
Birthplace address (1) Own residence (2) Hospital (3) Other
Permanent address designated by parents
Address — Relationship to the head of household — of
If the child has dual nationality, please indicate this fact and enter the other nationality.

② Parent

Father Name (Chinese characters :) Place of family origin (Chinese) — Resident registration No. -
Mother Name (Chinese characters :) Place of family origin(Chinese) — Resident registration No. -
Father's permanent address
Mother's permanent address
When reporting a marriage, did you submit the agreement certifying that your child will carry his/her mother's surname and the place of family origin? Yes ☐ No ☐
③ Indicate below if you are registering the birth again after the Family Register was closed in accordance with a court Judgement confirming the non-existence of parent-child relationship.
Particular details in the closed Family Register — Name — Resident registration No. -
Permanent address
④ Remarks

⑤ Applicant

Name Seal or Signature Resident registration No. -
Qualification (1) Father (2) Mother (3) Cohabiting relative (4) Others (Eligibility :)
Address
Tel. E-mail
⑥ Submitting person Name Resident registration No. -

※ A person filing a false registration form making a fraudulent use of other person's signature or seal or causing a false entry on the Family Register as a result of a false report is punishable by imprisonment for not more than five years or fine of up to KRW 10,000,000 under the Criminal Act.

※ The following information is required for national population policy. You are obliged to provide accurate information in a faithful manner according to Articles 32 and 33 of the Statistics Act. All personal information will be strictly protected.

Newborn Information

⑦ Duration of pregnancy Pregnancy ☐☐ weeks ☐☐ days ⑧ Weight of the new born baby ☐.☐☐☐ kg
⑨ Multiple birth & birth order (1) Single (2) Twins → (1) First or (2) Second of the twins (3) Triplets or more → ☐ out of ☐

	Father's Information	Mother's Information
⑩ Nationality	(1) Korean(obtained at birth) (2) Korean(naturalization [Previous nationality :] (3) Foreign(Nationality :)	(1) Korean(obtained at birth) (2) Korean(naturalization [Previous nationality :] (3) Foreign(Nationality :)
⑪ Actual date of birth	Solar / Lunar Day Month Year	Solar / Lunar Day Month Year
⑫ Highest education level	(1) unschooled (2) Elementary school (3) Middle school (4) High school (5) College (University) (6) Graduate school or higher	(1) unschooled (2) Elementary school (3) Middle school (4) High school (5) College (University) (6) Graduate school or higher
⑬ Occupation	(1) Manager (2) Specialist (3) Office worker (4) Service worker (5) Sales worker (6) Agriculture, forestry or fishing expert (7) Technician or technician related worker in the relevant field (8) Equipment, machinery operator or assembler (9) Simple laborer (10) Student (11) Housewife (12) Soldier (13) Unemployed	(1) Manager (2) Specialist (3) Office worker (4) Service worker (5) Sales worker (6) Agriculture, forestry or fishing expert (7) Technician or technician related worker in the relevant field (8) Equipment, machinery operator or assembler (9) Simple laborer (10) Student (11) Housewife (12) Soldier (13) Unemployed

⑭ Date when your actual marriage began — From Day Month Year
⑮ Total number of birth bone to the mother — ☐☐ births total (☐☐ alive, ☐ dead)

※ For official use only (Please do not write below details)

Filed at Eup/Myeon/Dong | Sent to the Family Relationship Registrar's office | Filed and Processed by the Family Relationship Registrar's office
Resident registration No. -
Day Month Year (Seal)

Family Registration Items

The following information is required for national population policy. You are obliged to provide accurate information in a faithful manner according to Articles 32 and 33 of the Statistics Act. All personal information will be strictly protected.

Vital Events Items

Vital Statistics Dissemination

Data	Release time	Format	Items
Provisional	• **1 month after the registration of vital events**	• **Monthly Vital Statistics Report**	•**Total number of vital events by province**
Final	• **Marriage/ Divorce: 4 months after the year of events** • **Birth: 8 months after the year of events** • **Cause of death: 9 months after the year of events**	• **News release** • **Annual report** • **On-line database (KOSIS)** • **CD-Rom (Micro data)** • **National Death Index**	•**Total number of vital events** • **Vital rates by age, sex, education, occupation, and other characteristics (including cause of death and etc.)**

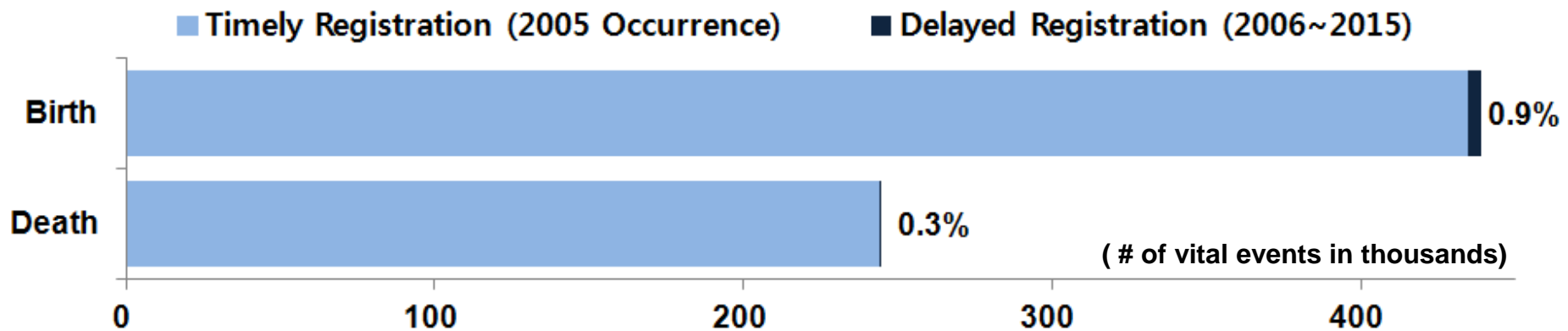# 2. Estimating Completeness of Birth and Death Registration

Completeness of CRVS

1. **According to *the UN principles and recommendations*, a complete civil registration and vital statistics systems are achieved when every vital event has been registered in the system within a specified time period.**

2. **Completeness of the CRVS can be measured in terms of late registration and coverage. In this section, we illustrate the level of completeness of the birth and death registration in Korea.**

Late Registrations of Births & Deaths

1. **Late registrations* of births accounted for 0.9 % of the total births in 2005.**

2. **Late registrations of deaths for 2005 explained 0.3% of the total deaths.**

* Late registrations: registrations being made after the obligatory dues and within 10 years after the year of vital events

■ Timely Registration (2005 Occurrence)　　■ Delayed Registration (2006~2015)

(# of vital events in thousands)

Vital events	Number of timely registered records (A) (2005 Occurrence)	Number of late registered records (B) (2006~2015)	Total Events (C)	10-years delayed registration rates (B/C × 100)
Birth	435	3.8	439	0.9%
Death	244	0.8	245	0.3%

Birth (in thousands); Death (in thousands)

Coverage of Death Registration System

1. The registration of deaths is a legal requirement in Korea. When a death occurs, a family should file the registration form along with the medical certificate at a local administrative office within a month.

2. Under coverage of deaths is minimal. More than 99 percent of the deaths is thought to be registered. For all Korean deaths, estimated under reporting rate in 2015 was 0.2%.

3. However, fetal and infant deaths are reported less accurately than other deaths.
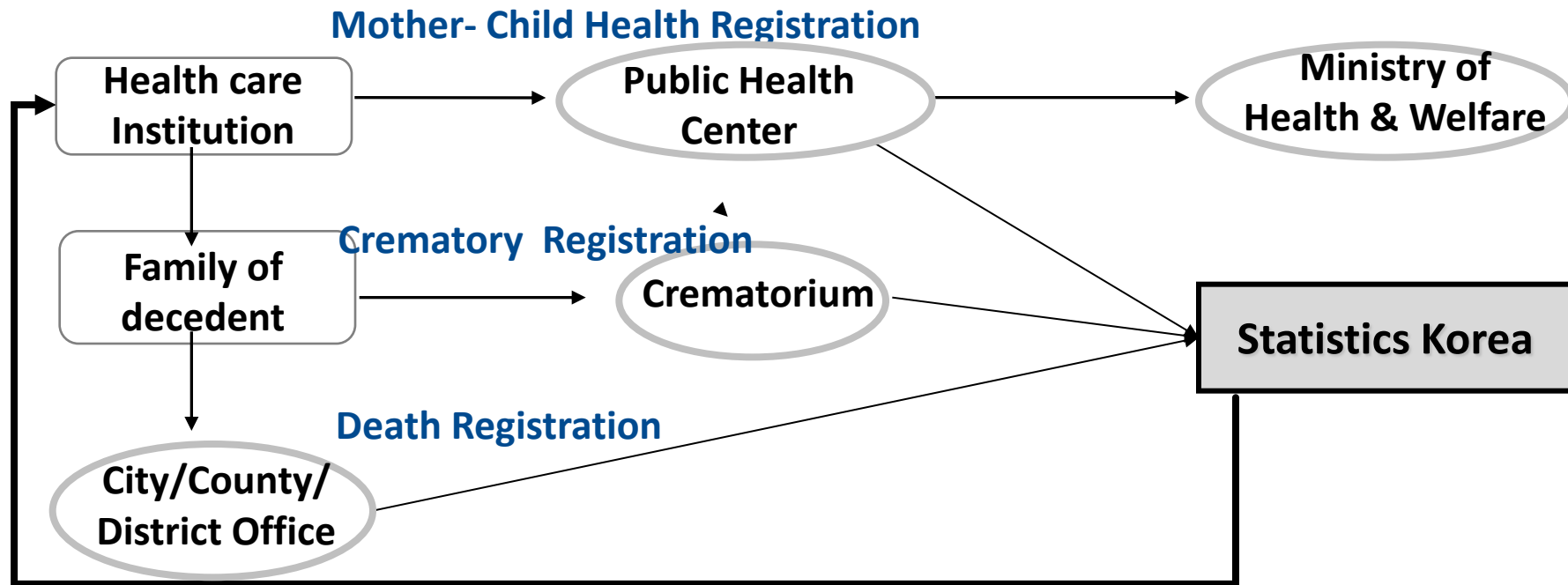
3. Improving Infant Mortality Statistics by Linking Administrative Data and Survey

Complementary Data Sources for Infant Mortality Statistics

1. Since the late 1990s, more attention has been drawn for improving the coverage of infant mortality statistics and making them more useful.

2. Statistics Korea added two unique sources of death statistics to complement the routine method of infant mortality statistics using civil registration: the Crematory Registration and the Infant and Maternal Mortality Supplementary Survey.

3. Since 1999, Statistics Korea has collected extra information on infant deaths from crematories.

4. Since 2009, the Infant and Maternal Mortality Supplementary Survey conducted by Statistics Korea has expanded its coverage to include birth, fetal death, maternity care and demographic & health risk factors.
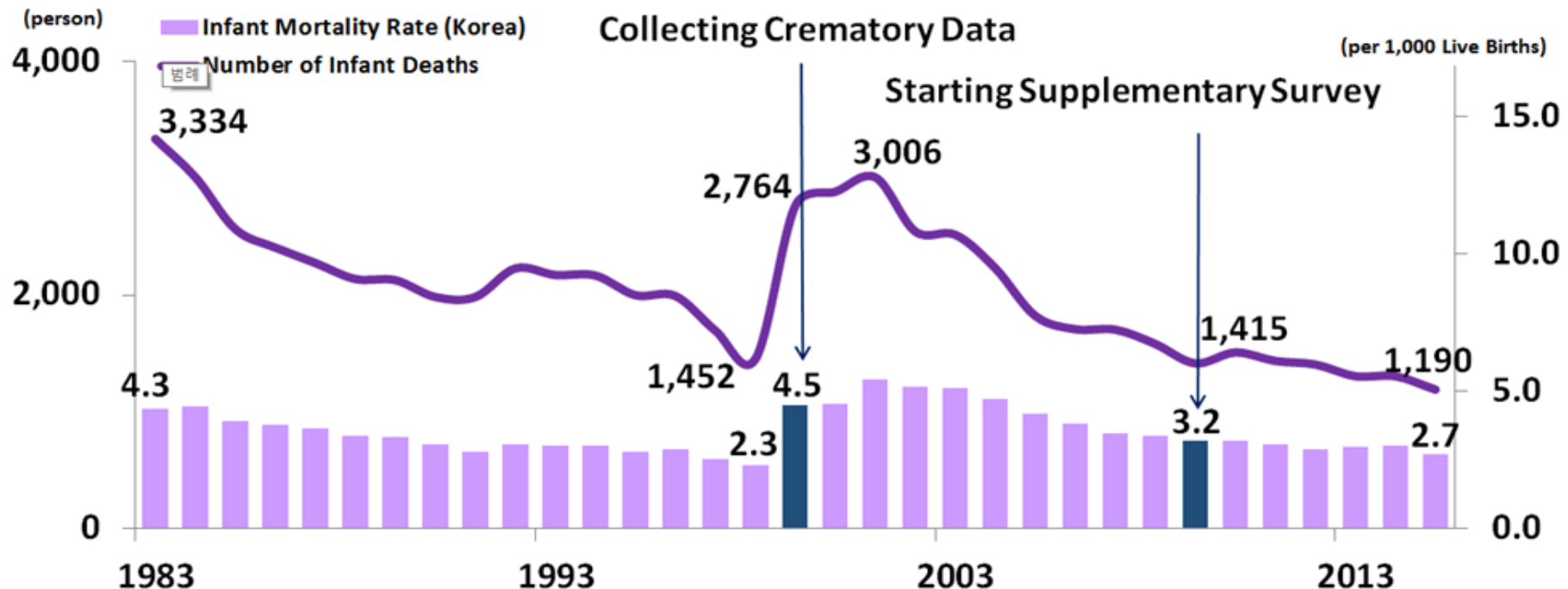
The Data Collection System on Infant Deaths

1. **The infant, maternal mortality supplementary survey is a follow-back survey of hospitals and other medical care providers recorded on the death certificates, the Crematory Registration, and the Mother-Child Health Registration.**

Mother- Child Health Registration

Health care Institution → Public Health Center → Ministry of Health & Welfare

Crematory Registration

Family of decedent → Crematorium

Death Registration

City/County/District Office

Statistics Korea

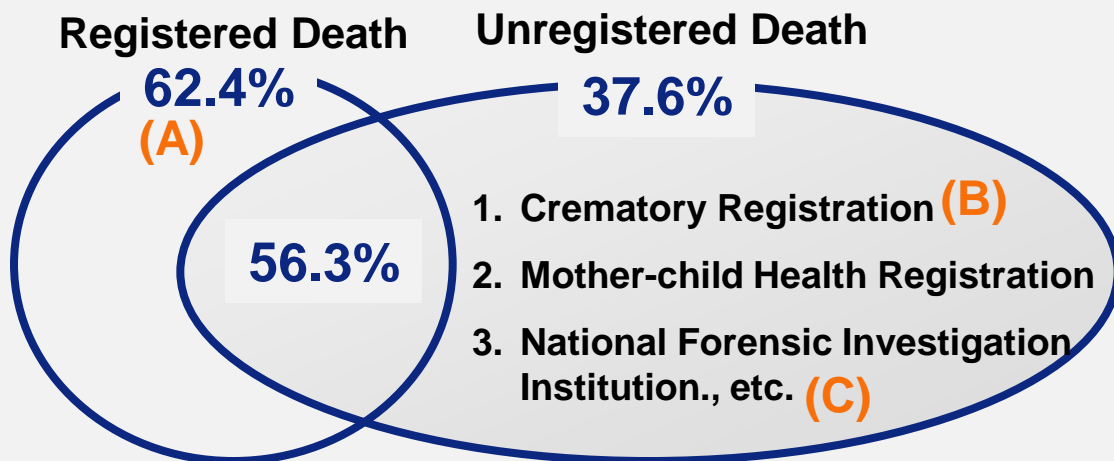**Infant, Maternal Mortality Supplementary Survey**

Number of Infant Deaths and Infant Mortality Rates in Korea, 1983-2015

1. As a result of record linkage between registered infant deaths and complementary data, IMR increased from 2.3 deaths per 1,000 births in 1998 to 4.5 deaths in 1999.

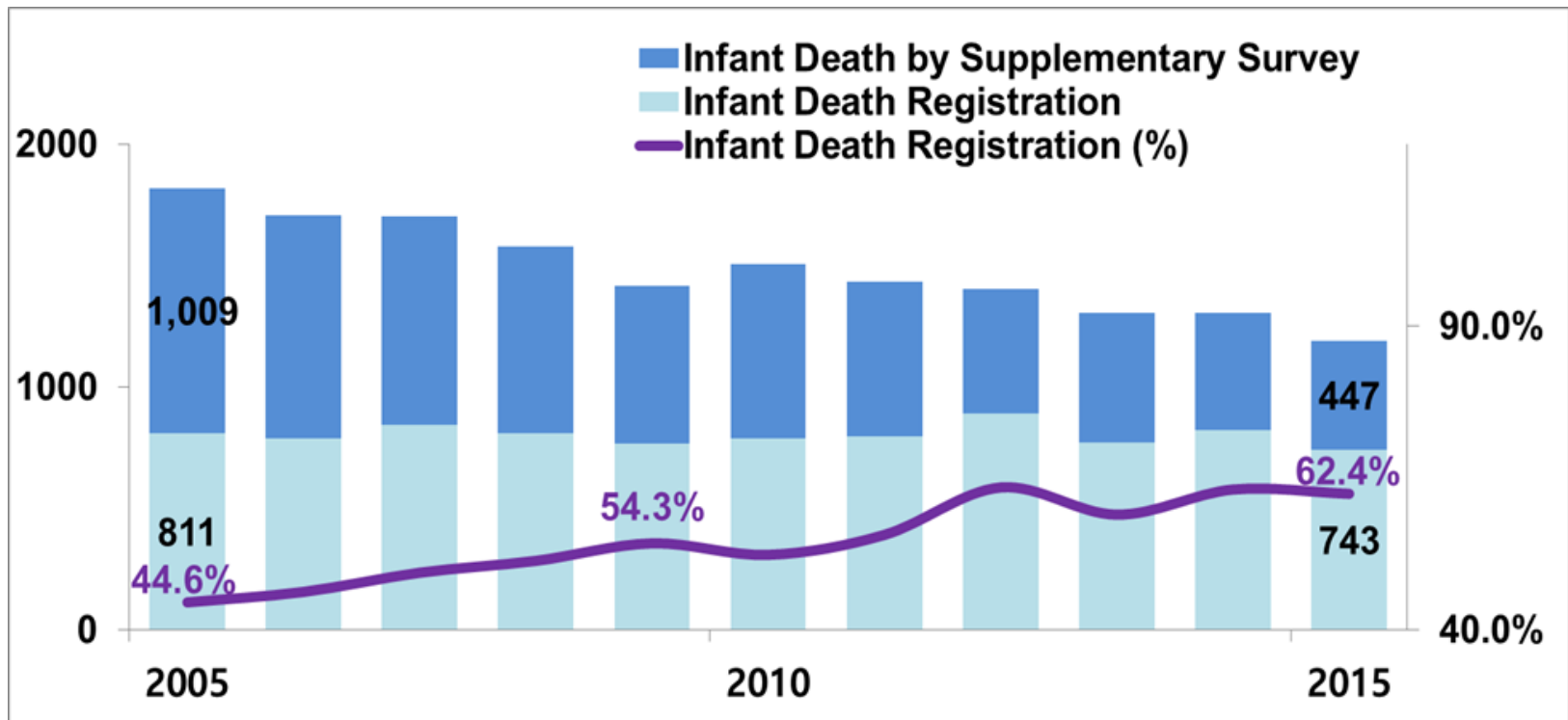2. After a few years of adjustment, IMR has steadily decreased to 2.7 deaths in 2015.

- Source : Birth Statistics in 2015, Death Statistics in 2015 (STATISTICS KOREA)

Linkage System of Infant Deaths

Total number of infant death in 2015

(A+B+C)

Registered Death
62.4%
(A)

Unregistered Death
37.6%

56.3%

1. Crematory Registration **(B)**
2. Mother-child Health Registration
3. National Forensic Investigation Institution., etc. **(C)**

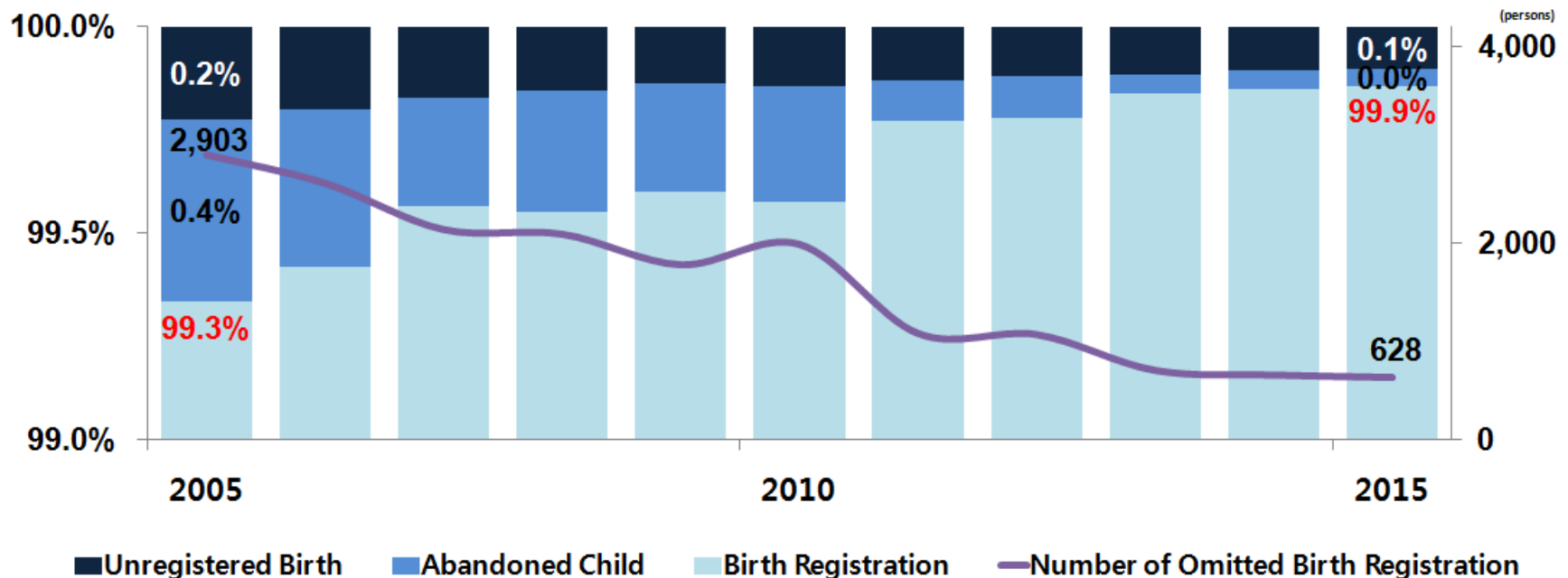| Data Linkage Source	Linkage Key	Coverage from each source	Total Coverage
(A) Death Registration	Resident Registration No. Date of death, address/ name of Infant	62.4%	**62.4%**
(B) Crematory Registration	Name of hospital/ Doctor, Hospital Charts No.	27.4%	**89.8% (A+B)**
(C) Mother-child Health Registration + National Forensic Investigation Institution, etc.	Name of mother Date of death, address of Infant Name of hospital	10.2%	**100% (A+B+C)**

Trends in the Proportion of Infant Deaths from the Civil Registration

1. **Due to the improvements in public consciousness and public health insurance coverage, the proportion of infant deaths from the civil registration increased from 44.6 percent in 2005 to 62.4 percent in 2015.**

- Source : Death Statistics in 2015 (STATISTICS KOREA)

Birth Registration Completeness in Korea, 2005-2015

1. One of the consequences of the improvements in the infant mortality statistics is the increased completeness of the birth registration. Now we have extra information about births from the infant death statistics, the coverage of the birth registration has become very close to 100 percent recently.

Legend: Unregistered Birth | Abandoned Child | Birth Registration | Number of Omitted Birth Registration

- Source : Birth Statistics in 2015 (STATISTICS KOREA)

Improvement of Data Richness by the Supplementary Survey

1. **Compared to the death registration, the Survey provides additional information on infant, mother, and delivery, which will be useful in supporting policies related to the healthy pregnancy and delivery.**

Registration items	※ Common Items in the Death Registration : Name of the Infant, Resident Registration No. , Time/Date/Place/Cause of Death			
Survey items	Nationality	Resident registration No.	Duration of pregnancy	Multiple births
	Education level	Diseases during pregnancy	Time of delivery	Birth order
	Occupation	Height	Method of delivery	Height, Weight
	Marital status	Weight	Antenatal care	Girth of the head
	Blood pressure	Smoking status	Previous pregnancy result	Apgar score

▲ **Mother Info**   ▲ **Delivery Info**   ▲ **Infant Info**

4. Summary & Concluding Remarks

Summary and Concluding Remarks

1. **Statistics Korea has made considerable efforts to enhance the infant mortality statistics, particularly by diversifying the data sources of infant deaths such as Crematory Registration as well as by implementing the Infant and Maternal Mortality Supplementary Survey.**

2. **Collecting and combining information from several data sources could improve the coverage of vital statistics and identify the under-reporting cases.**

3. **Linking the administrative data and survey data contributed to the enhancement of vital statistics such as infant mortality and birth statistics. It also brought the richness to the data by addressing additional information which was not available in the civil registration systems.**

THANK YOU !

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