People-centred Healthcare for secure and safety birth in Japan

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Joint distribution of causes of maternal death(%) in Asia

## Obstetric and neonatal epidemiology: timing of onset of condition

<table>
<thead>
<tr>
<th></th>
<th>Days</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>% of maternal deaths</td>
<td>60%</td>
<td>17%</td>
</tr>
<tr>
<td>Metritis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eclampsia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anaesthesia and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>thromboembolism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Septic thrombophlebitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>/ Perineal wound infection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdominal wound infection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary postpartum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>haemorrhage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urine retention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Severe anaemia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obstetric fistula</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression and anxiety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women with female genital mutilation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: WHO Technical Consultation on Postpartum and Postnatal Care, 2010)
## Obstetric and neonatal epidemiology: timing of onset of condition - infant health

<table>
<thead>
<tr>
<th>Condition</th>
<th>Days</th>
<th>Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>% of neonatal deaths</td>
<td>32%</td>
<td>8%</td>
</tr>
<tr>
<td>Asphyxia / Trauma</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respiratory Distress Synd</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other preterm breathing problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sepsis</td>
<td>early</td>
<td></td>
</tr>
<tr>
<td>Nosocominal inf. (special care)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community-acquired severe infection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serious jaundice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malformation (visible / treatable)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congenital syphilis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gonococcal ophthalmia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV-exposed infant</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Fatality rate
- High
- Low/medium

(Source: WHO Technical Consultation on Postpartum and Postnatal Care, 2010)
Japan
Japanese population pyramid

Total population = 102,941,627

Total population = 125,319,299

Aging population combined with the diminishing number of children
Trends in Live Births and Total Fertility Rate, 1947-2015, Japan

![Graph showing trends in live births and total fertility rate from 1947 to 2015 in Japan.](image-url)
From Vital Statistics of Japan

- Maternal mortality rate per 100,000 live births
- Infant Mortality Rate per 1,000 live births

Data from 1890 to 2015.
Maternal Deaths and Main causes

1950 (ICD-8)

- Ectopic pregnancy: 9%
- Toxaemia of Pregnancy: 34%
- Haemorrhage: 28%
- Septicemia: 8%
- Others: 21%

N=4117
176.1/100 000 Live Births

2015 (ICD-10)

- Ectopic pregnancy
- Oedema, proteinuria & hypertensive disorders
- Placenta praevia and premature separation of placenta
- Postpartum Haemorrhage
- Obstetric embolism
- Others
- Indirect obstetric causes
- Unspecified

N=39
3.9/100 000 Live Births
Infant Deaths by Age and Cause of Death (2015)

N=1916
1.9 / 1000 Live Births

- Heart diseases (except for Hypertension)
- Haemorrhagic and Haematological disorders of fetus and newborn
- Accidents
- Sudden infant death syndrome
- Respiratory and cardiovascular disorders specific to the perinatal period
- Congenital malformations, deformations and chromosomal abnormalities
Numbers of childbirth and Mothers’ age 1951-2015

- Mean Mother’s age at 1st childbirth: 30.7 years old (2016)
- Mean birthweight: 3000 g (2015)
Early Neonatal (< 1 week) Mortality Rates by Birthweight (2015)

<table>
<thead>
<tr>
<th>Birthweight Range</th>
<th>Mortality Rate / 1000 Live Births</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;500g</td>
<td>152.6</td>
</tr>
<tr>
<td>500-999g</td>
<td>42.3</td>
</tr>
<tr>
<td>1000-1499g</td>
<td>18.8</td>
</tr>
<tr>
<td>1500-1999g</td>
<td>9.5</td>
</tr>
<tr>
<td>2000-2499g</td>
<td>1.2</td>
</tr>
<tr>
<td>2500-2999g</td>
<td>0.3</td>
</tr>
<tr>
<td>3000-3499g</td>
<td>0.2</td>
</tr>
<tr>
<td>3500-3999g</td>
<td>0.2</td>
</tr>
<tr>
<td>4000g+</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Total 0.7 / 1000 Live Births
Place of Birth in Japan (1950-2015)

- Hospital: 54%
- Clinic: 45%
- Maternity home: 1% (n=6885)
- Home: 92% (n=1426)

Percentage of births in different places over the years:
- Home: 1950: 92%, 2015: 2%
- Clinic (< 20 beds): 1950: 1%, 2015: 5%
- Maternity home: 1% (n=6885)
- Hospital: 54%

Note: The number of births in clinics is not provided for individual years.
Health Care System for expectant / nursing mothers in Japan

• All citizens covered by national health insurance

• Lump-sum allowance for childbirth provided by health insurance (¥420,000) (delivery expenses depends on the place; hospital, clinic, maternity home)

• Any medical costs (C-section, etc) covered by health insurance

• For the safety & quality improvement of delivery (2009- Japan Council of Quality Health Care)
  - compensating for the economic burden affecting families with children who developed severe cerebral palsy (not congenital or neonatal reasons) analyzing the cause and providing knowledge to prevent the recurrence of similar cases
  - ¥16000/birth ⇒ Once certified for compensation, a lump-sum payment for preparation and installment payment totaled of 30 million yen.
  - (registered hospital/clinic: 99% (2813/2816), maternity home 100% (444))
Human resources for maternal care

OBGN=10,652 (2015)
99 / 10000 Live Births

Delivery at Maternity Home
Mean Mother’s age at 1st childbirth: 30.7 years old (2016)

Background of current Mothers (and children)

Increasing fertility treatment
51,001 babies (5% of total births) with extracorporeal fertilization (2015)
<Japan Society of OBGN>

Decreasing three-generation family with children
27% (1986) ⇒ 14.7% (2016)*

67% working mothers (regular 22%)*

*Source: Comprehensive Survey of Living Conditions 2016
A **people-centred service** must begin with the user’s views on what precisely the problem is within their own unique situation (1998 Williams B, Grant G)

The Mother has a choice after well informed.

But the Gap is still there, between mother and healthcare professionals
To achieve secure and safety birth

Health Policy
Central/Local gov.

Prevent
Health Checks
Vaccination
Screening

Support
working environment
Maternity / childcare Leave

Public Health Service
Cure / Care
Risk Control
High risk pregnancy/delivery
Referral Network
NICU/MFICU
Subsidy for infertility treatment

Medical Service

Social Care / Welfare
Subsidy for chronic diseases
Beneficiaries for Handicapped Children

The Japan Obstetric Compensation System for Cerebral Palsy
Maternal and Child Health Law

1965 In order to improve the maternal mortality rate that still remained high, efforts were made to strengthen mother and child health measures, including providing health checkups and health guidance focusing on motherhood.

1977 and later

- Reorganizing health checkups and health guidance for pregnant women, infants, and toddlers and other services as familiar municipal services
- Establishment of a public expenditure system for the medical care of chronic diseases of children
- Institutionalization of physical examinations for 18-month-old children (mass examination)
- Commencement of mass screenings for inborn errors of metabolism
- Improvement of perinatal medical facilities

2000: “Healthy Parents and children 21” 2015 - Phase II
1. Health guidance (Article 10)
Municipalities shall provide necessary health instructions on pregnancy, delivery and child rearing and encourage to receive the health instructions.

2. Health examination (Article 12 and 13)
• Municipalities shall provide physical examination to 18-month old and 3-year old.
• In addition to the above, municipalities shall provide physical examination to pregnant and parturient women, infants and children as necessary and encourage them to receive one.

3. Pregnancy notification (Article 15)
Women who were found to be pregnant shall immediately notify the pregnancy to municipalities.

Municipalities shall provide Maternal and Child Healthcare Handbook to pregnant women.

5. Notification of low birth weight infants (Article 18)
Parent of infants less than 2,500g weight shall immediately notify it to the municipalities they belong.

6. Medical and infant care services (Article 20)
Prefectures shall provide either medical benefit or medical expenses for premature infants.
### Example of a Standard “Maternal Health Check”

<table>
<thead>
<tr>
<th>Period</th>
<th>Early pregnancy period - 23rd week (4 series)</th>
<th>24th - 35th week of pregnancy (5 series)</th>
<th>36th week up to delivery (4 series)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval between examinations</td>
<td>every 4 weeks</td>
<td>every 2 weeks</td>
<td>every week</td>
</tr>
</tbody>
</table>

#### Basic items checked during every visit
- **general health condition**
- **Examination and measurement**: Example of basic examination: Fundal height, waist circumference, blood pressure, edema, and urinalysis (glucose, protein), weight (body height also measured during first examination)
- **Health guidance**

#### Medical examinations conducted as necessary
- **Blood test**
  - Once during the early stage
  - Blood type (ABO blood type / Rh blood type / irregular antibodies), blood count, blood sugar, hepatitis B antigens, hepatitis C antibodies, HIV antibodies, serological test for syphilis, rubella virus antibodies
- **Screening for cervical cancer** (cytodiagnosis)
  - Once during the early stage
- **Echographic examination**
  - Twice within the period

- **Blood test**
  - Once within the period
  - Blood count, blood sugar
- **Group B hemolytic streptococcus**
  - Once within the period
- **Echographic examination**
  - Once within the period

- **Blood test**
  - Once by 30th week of pregnancy
  - HTLV-1 antibody test

- **Genital chlamydia**
  - Once by 30th week of pregnancy

- **Blood test**
  - Once within the period
  - Blood count
- **Echographic examination**
  - Once within the period
Mother and Child Health Handbook

- A consistent health record on pregnancy, delivery, and child rearing
- Information provision
- Recorded by guardians themselves
- Integrated health examinations and health guidance

For mothers with baby with low birth-weight
– Little baby handbook,
by NPO & local gov. 2017
Number of Reported Cases of Pregnancy By Weeks of Gestation

1965:
- <11W: 14%
- 12-19W: 27%
- 20-27W: 57%
- >28: 0%
- not stated: 0%

2015:
- <11W: 0%
- 12-19W: 1%
- 20-27W: 6%
- >28: 92%
- after delivery: 0%
- not stated: 1%
System of maternal and child health

**Pregnancy**
- Issuance of Maternal and Child Health Handbook
- Health Services
  - Public Health Center
- Health checks Tickets (14)
  - for expectant/nursing mothers

**Delivery**
- Hello Baby! Program
  - Visiting all households with infants
- Newborn baby visiting consultation services
- Health Services
  - Public Health Center
- Health checks Tickets (14)
  - for expectant/nursing mothers
- Mother’s / Father’s class
- Medical Services
  - Hospital & Clinic
  - Subsidy for treatment of infertility
- Perinatal medical care networks (NICU, MFICU)
  - Compensation System for Cerebral Palsy
  - Medical care services for raising premature babies
  - Specified chronic diseases in children
  - Children’s Mental Health Clinic Network Program

**Infant**
- Vaccination
  - Postpartum care

**Child**
- Research programs
  - Promotion of Healthy Parents and children 21
Number of Reported Cases of Pregnancy By Weeks of Gestation

1965
- <11W: 14%
- 12-19W: 57%
- 20-27W: 27%
- >28: 0%
- after delivery: 0%
- not stated: 1%

2015
- <11W: 0%
- 12-19W: 1%
- 20-27W: 0%
- >28: 1%
- after delivery: 92%
- not stated: 0%
Public Health Services after childbirth

Nationwide Survey

• Lack of formal Postpartum care
  – depressive state within 3 months: 5-6% in Japan (Kitamura et al)

• Hello Baby Program
  – Visiting all households with infants

• Newborn baby visiting consultation services

Mostly paid attention to the infant and baby
<table>
<thead>
<tr>
<th>Disorder</th>
<th>Cases</th>
<th>Disorder</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galactosemia</td>
<td>1257</td>
<td>Isovaleric Acidemia</td>
<td>4</td>
</tr>
<tr>
<td>Phenylketonuria</td>
<td>658</td>
<td>MEthylcrotonylglycinuria</td>
<td>16</td>
</tr>
<tr>
<td>Maple Syrup Urine Disease</td>
<td>91</td>
<td>Multiple Carboxylase Deficiency</td>
<td>3</td>
</tr>
<tr>
<td>Homocystinuria</td>
<td>209</td>
<td>Glutaric Acidemia (I)</td>
<td>10</td>
</tr>
<tr>
<td>Citrullinemia (I)</td>
<td>12</td>
<td>MCAD deficiency</td>
<td>22</td>
</tr>
<tr>
<td>Argininosucciincaciduria</td>
<td>3</td>
<td>VLCAD deficiency</td>
<td>30</td>
</tr>
<tr>
<td>Methylmalonic Acidemia</td>
<td>29</td>
<td>TFP deficiency</td>
<td>4</td>
</tr>
<tr>
<td>Propionic Acidemia</td>
<td>63</td>
<td>CPT-1 deficiency</td>
<td>4</td>
</tr>
</tbody>
</table>

Mass Screening Program for Cretinism, 1979-2015: n=15,532 (rate: 1/2,900)

Perinatal Medical Care Network System since 1996, covered all prefectures in 2011

Comprehensive Center for Perinatal Medicine (per 1 million) n=104
MFICU • NICU
LBW<1000g, GA<27 weeks

Regional Center for (per 0.3 million) n=292
Emergency C-section NICU

General Maternity Unit
Hospital 711
Clinic 1498

Perinatal Information Center
Transport Coordinator
Conclusion

- Health Care System in Japan achieved low Maternal Mortality Rate and Infant mortality rate, but still needs to improve “mother and child centred” continuum and seamless care in the community.