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Neonatal health care delivery system in Japan



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Japan tops the world as the country with the lowest rate of newborn mortality in 2016, followed by Iceland and Singapore, while Pakistan is the riskiest place to be born according to a new [UNICEF report](#) launched on Tuesday.

"Japan, Iceland and Singapore are the three safest countries in which to be born, as measured by their newborn mortality rates," the report, called **"Every Child Alive,"** said. "Babies born in Japan stand the best chance of surviving," it said, reporting a 1 in 1,111 risk of death for newborns in the country, followed by Iceland with a 1 in 1,000 risk and Singapore at 1 in 909.

Keys to success

- Distribution of maternal and child health (MCH) handbooks to all pregnant women **since 1942**
- Development and maintenance of system to provide perinatal medicine **since 1996**
- Spread of neonatal cardiopulmonary resuscitation (NCPR) program **since 2007**
- Japanese cultural aspect of caring well for things that are small and weak.

Keys to success

- Distribution of maternal and child health (MCH) handbooks to all pregnant women
- **Development and maintenance of systems to provide perinatal medicine**
- Spread of neonatal cardiopulmonary resuscitation (NCPR) courses
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Outline

- Background of neonatal medicine in Japan
- Current status of neonatal health care delivery system in Japan
- Our history of Establishment of Perinatal Transfer and Referral System

Outline

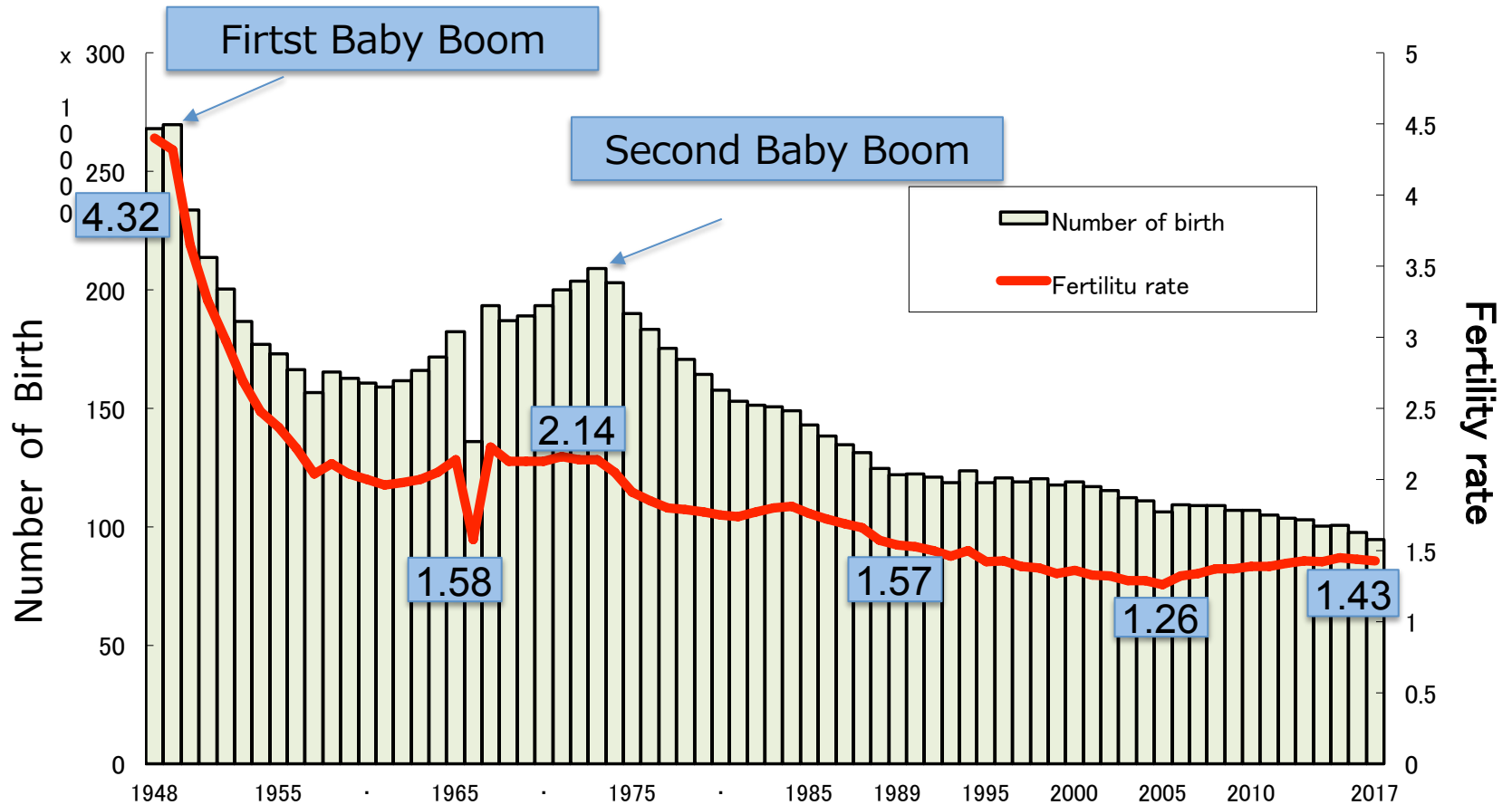
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Basic Birth Statistics in Japan 2017

✓ Population	124.8 million
✓ Total fertility rate	1.43
✓ Total live birth	946,065
✓ LBWI	99,353 (10.5%)
✓ VLBWI	6,903 (7.2%)
✓ ELBWI	2,660 (0.28%)
✓ Neonatal Mortality Rate	1.0

Overviews

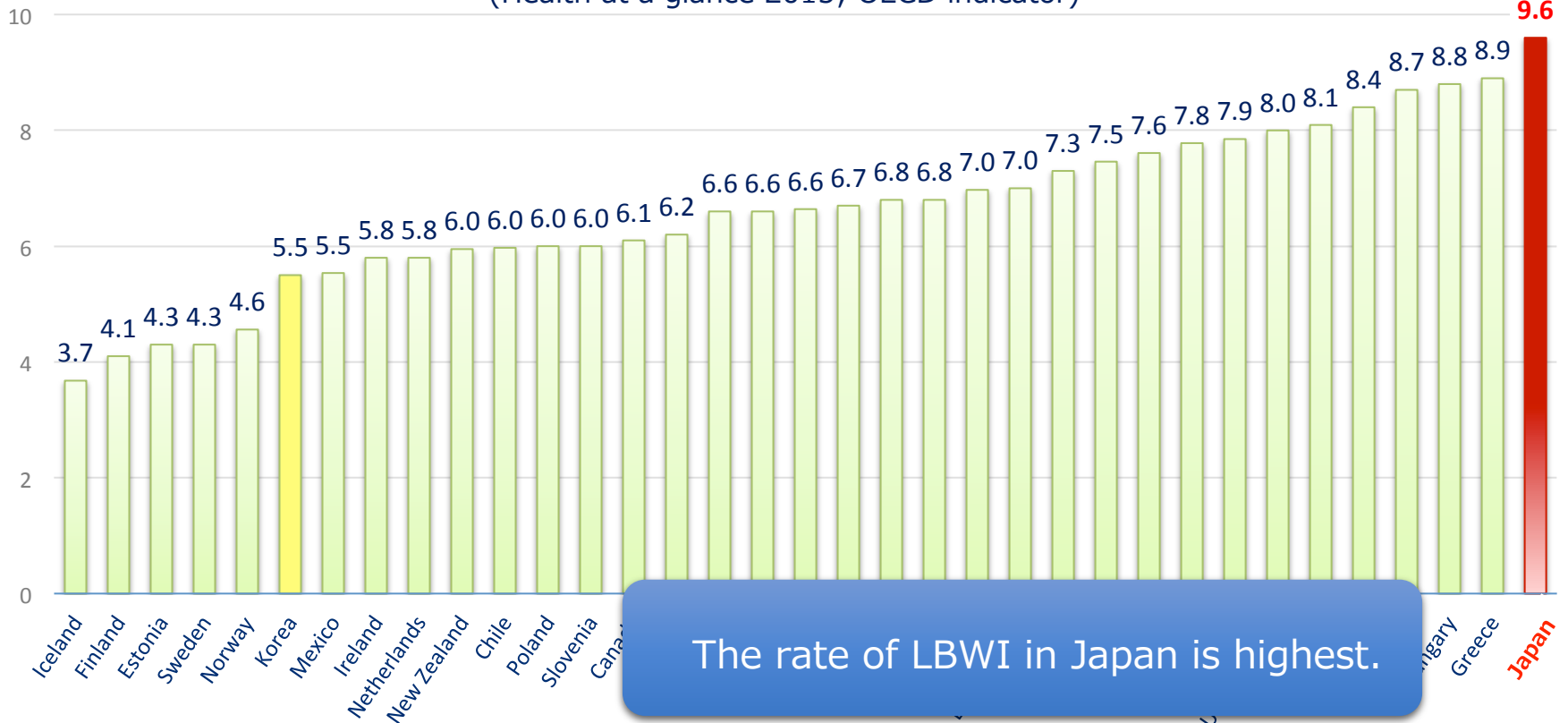
Trends in Low Birth Weight Infants in Japan



Overviews

Trends in Low Birth Weight Infants in Japan

% of Low Birth Weight Infants
(Health at a glance 2015; OECD indicator)



The rate of LBWI in Japan is highest.

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Current status of perinatal System Guideline by government

For 10 thousand births..
For all prefecture...

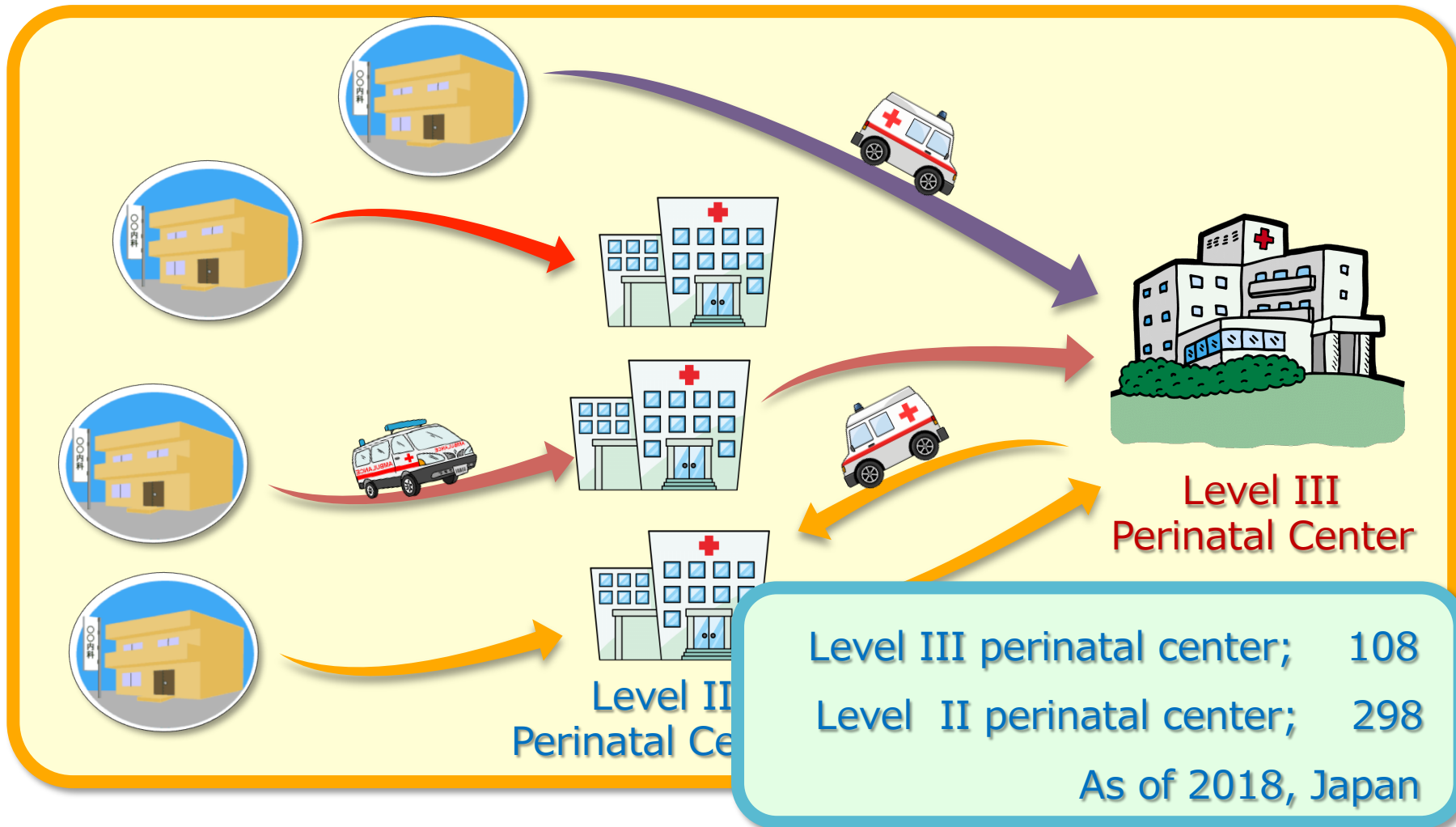
- ✓ One Level III perinatal center
- ✓ Several Level II perinatal center
- ✓ 25-30 NICU Beds

Major Contents of the “Guidelines for the Perinatal Medical Care System”

- Installation of a committee for perinatal medical care and its cooperation with the emergency medical care system
- Research and analysis concerning the perinatal medical care system
- Formulation of a plan to enhance the perinatal medical care system
 - An NICU shall aim to be equipped with 25-30 beds per 10,000 births.
 - Local communities shall have institutions such as GCU, general pediatric ward and facilities for children with severe mental/physical disabilities depending on the actual needs in the community.
- Designation of general/local perinatal medical care centers
- Promotion of the perinatal medical care enhancement plan
- Survey ,Research, Education,,

Perinatal Transport Network since 1996

- for 1 million population, 10 thousand births -





Brief Report

Nationwide survey of neonatal transportation practices in Japan

Takehiko Hiroma,¹ Hiroyuki Ichiba,² Kazuko Wada,³ Jun Shiraiishi,⁴ Hiroshi Sugiura⁵ and Tomohiko Nakamura^{1,6}

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Abstract Rapid resuscitation and appropriate transportation of sick infants can greatly improve infant survival and neurological prognosis. To gain an understanding of the status of neonatal transport in Japan, we conducted a survey of neonatal transportation capabilities at perinatal medical centers across the country. Survey content included the number of neonatal transportation cases and the method of transportation. Twenty percent of infants admitted to neonatal intensive care units were transported to the medical centers from other institutions. Half of the level III perinatal medical centers owned an ambulance specialized for neonatal transport. A total of 36% of sick newborns, however, were transported by fire department ambulances that are ill-equipped to care for infants. Thirteen percent of centers reported problems with the emergency transportation of newborns in fire department ambulances. Centers lacked specialized ambulances primarily because of financial constraints. Adequate medical insurance coverage is needed to increase the number of specialized ambulances at perinatal medical centers.

Key words ambulance, back transfer, neonatal transport.

Approximately 15,000 newborns are transferred each year in Japan.

Half of level III perinatal centers has ambulances specialized for neonatal transport.

One third of sick newborn were transferred by fire department ambulances.

Budget in Osaka , 2018

- Perinatal care center management
Total One Billion JPY
- Level III perinatal center :
6 locations 250 million JPY
- Level II perinatal center :
17 locations 750 million JPY

In addition,
the Osaka Medical Association provides 4 million JPY

Budget in Osaka , 2018

➤ Perinatal care center management
Total One Billion JPY
280 million TWD

➤ Level III perinatal center :
6 locations 250 million JPY
70 million TWD

➤ Level II perinatal center :
17 locations 750 million JPY
200 million TWD

In addition,
the Osaka Medical Association provides **1 million TWD**

Outline

- Background of neonatal medicine in Japan
- Current status of neonatal health care delivery system in Japan
- **Our history of Establishment of Perinatal Transfer and Referral System**

History of Research for Perinatal Medical System

Ministry of health

1989 Prof Tada

Improvement and assessment for

Project of Perinatal system
Perinatal center

1994 Prof Tada

Perinatal system and data management

1998 Prof Nakamura

Perinatal medical system

Guideline for perinatal medical system

2004 Prof Fujimura Establishment of Perinatal medical system and research network

2007 Prof Fujimura Quality assessment and improvement by Perinatal medical network

2010 Prof Fujimura Multi-center study for improvement of outcome of high-risk infant

The number of NICU Beds required

- Based on survey results.
Number of high risk infants.
Duration for hospitalization.

1994 **20** beds per 10,000 birth



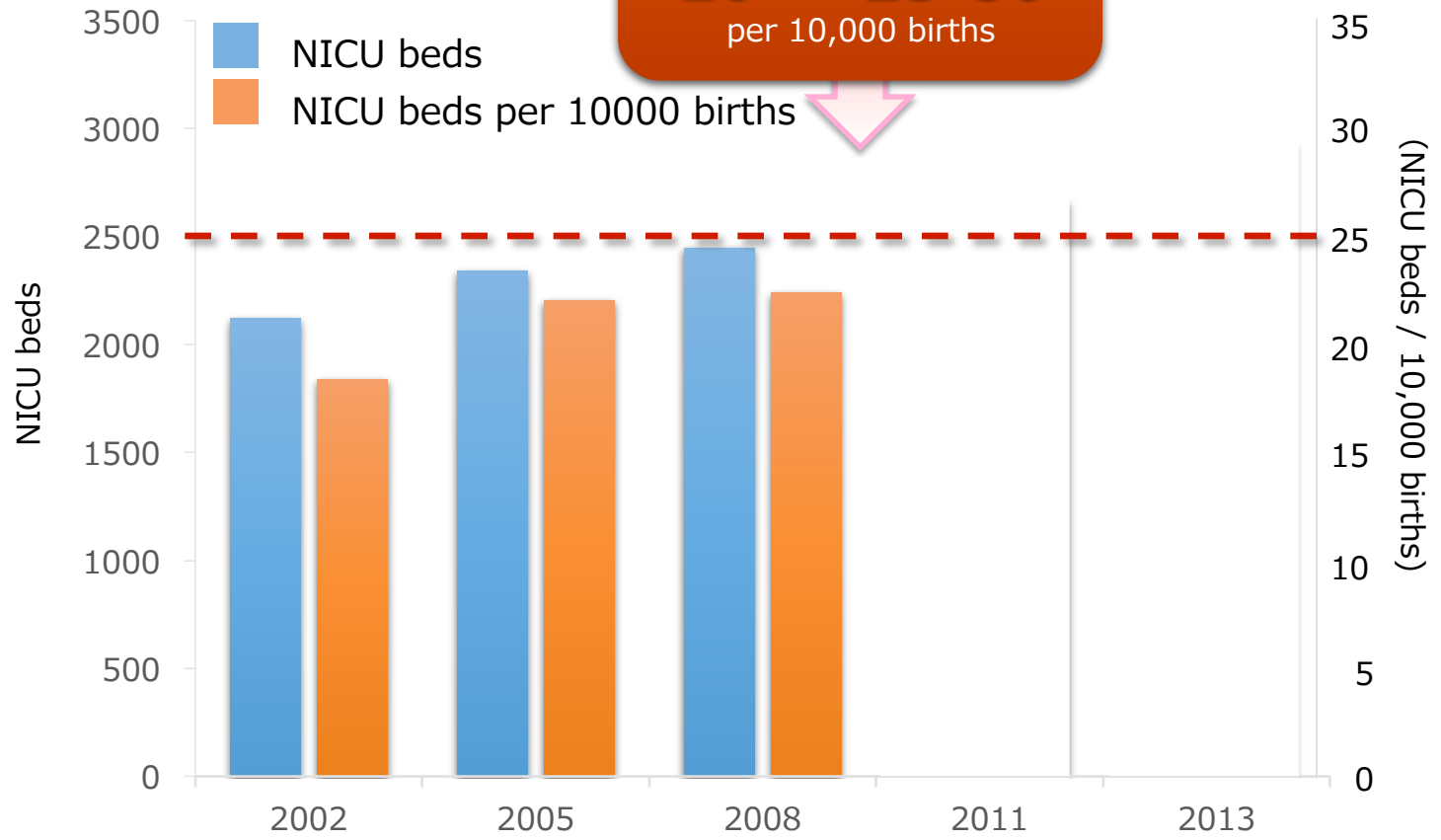
Low birth weight infants ↑
Mortality rate ↓

2007 **25-30** beds per 10,000 birth

Overviews

The Number of NICU Beds

Target Value of NICU Beds was increased
20 → 25-30
per 10,000 births



History of Research for Perinatal Medical System

Ministry of health ,Labour and Welfare

1989 Prof Tada

Improvement and assessment for perinatal system

1994 Prof Tada

Perinatal system and data network

Neonatal research
Network Japan

1998 Prof Nakamura

Perinatal medical system

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Neonatal research network Japan

<http://nponrn.umin.jp/>

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子どもの成長を見守ります
For the children's study



Information

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特定NPO法人新生児臨床研究ネットワークのホームページへようこそ。

わが国の新生児医療レベルは国際的に高い水準を過去20年以上維持しております。その結果、新生児死亡率は先進国のなかで一番低くなっています。しかしながら、新生児医療に関する臨床研究のレベルは必ずしも世界のトップではありません。むしろ後進国の状態です。その理由は、わが国の新生児医療現場では、目の前のハイリスク児を救命することに多くの時間を取られ、臨床研究を行う時間的余裕が無かったことがあります。さらに、わが国には新生児の臨床研究を継続してサポートする組織が存在していなかったことも大きな理由です。わが国の臨床研究は、一部の大学あるいは病院の新生児科医が個人的に努力することによって維持されてきました。一方、欧米では、新生児の臨床研究を継続して支援する組織があり、個々の医師の努力ではなく、組織的に大規模な臨床研究を実施する素地が整備されています。その結果、欧米のハイリスク児の予後は急速に改善し、わが国との差は着実に縮まっている状況です。そこで、わが国でも、新生児の臨床研究を欧米並みの水準に維持できるように、平成16年に組織されました新生児臨床研究ネットワーク（NRNJ: Neonatal Research Network Japan）を、特定非営利活動法人として再編成し、今後も運営していきたいと考えております。是非本法人の活動にご協力をお願いしたいと思います。

平成26年4月
理事長：楠田 聡

iNeo



International **N**etwork for **E**valuation of **O**utcome of **N**eonates

- A quality improvement project via collaborative comparison of population-based international health services for neonatal care

Australia & New Zealand (ANZNN)

Japan (NRNJ) UK (UKNC)

Canada (CNN) Israel (INN)

Spain (SEN 1500) Sweden (SNQ)

Switzerland (Swis NeoNet)

Evacuation from Neonatal Intensive Care Centre: Lessons from the 2016 Kumamoto Earthquake

Osuke Iwano

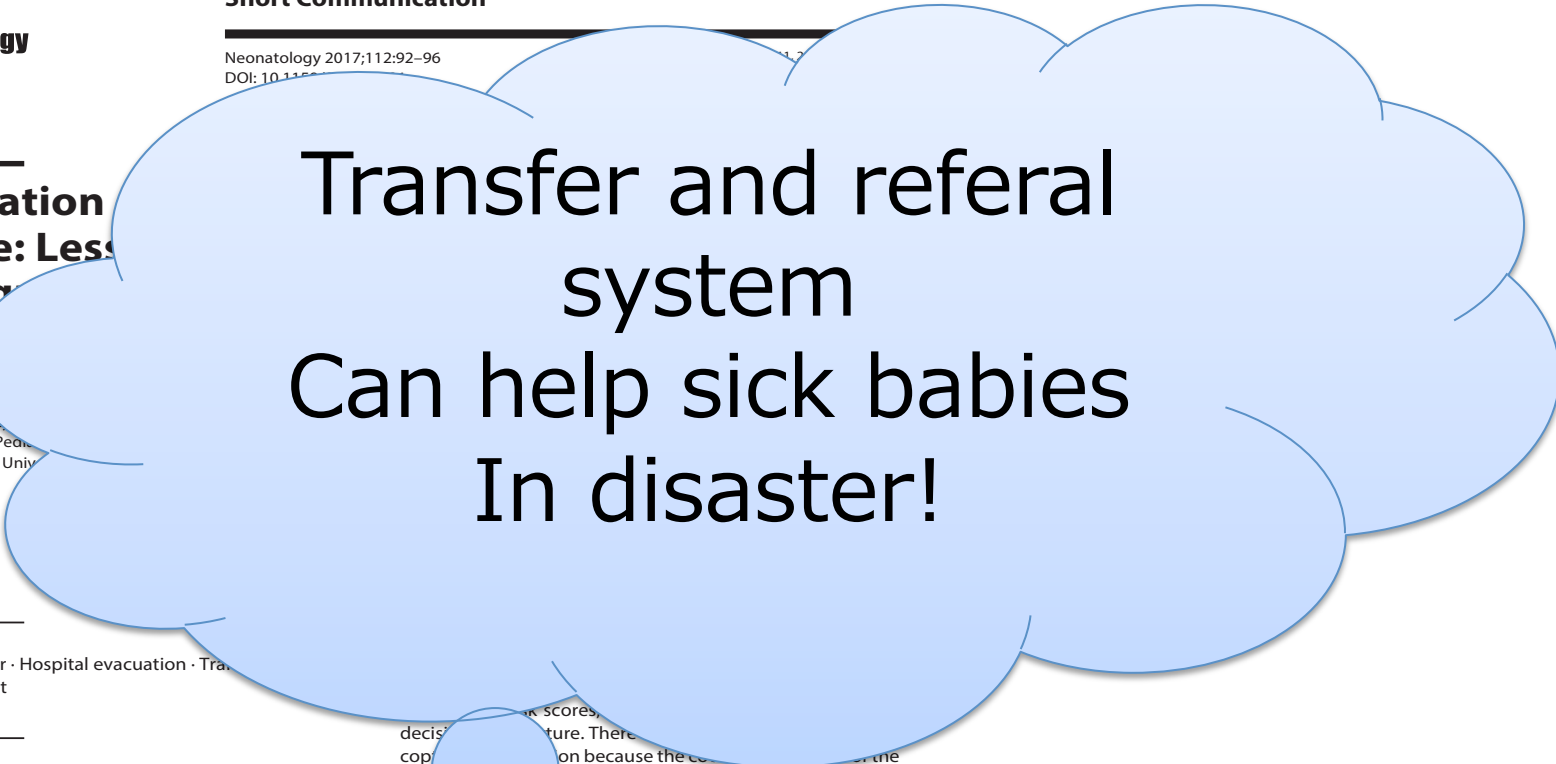
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^bDepartment of Pediatrics, Pediatrics, Osaka University, Suita, Japan

Keywords

Natural disaster · Hospital evacuation · Transportation · Newborn infant

Abstract

Background: Newborn infants hospitalised in the neonatal intensive care unit (NICU) are vulnerable to natural disasters. However, publications on evacuation from NICUs are sparse. The 2016 Kumamoto Earthquakes caused serious damage to Kumamoto City Hospital and its level III regional core NICU. Local/neighbour NICU teams and the disaster-communication team of a neonatal academic society cooperated to evacuate 38 newborn infants from the ward. **Objective:** The aim of this paper was to highlight potential key factors to improve emergency NICU evacuation and coordination of hospital transportation following natural disasters. **Methods:** Background variables including clinical risk scores and timing/destination of transportation were compared between infants, who subsequently were transferred to destinations outside of Kumamoto Prefecture, and their peers. **Results:** All but 1 of the infants were successfully evacuated from their NICU within 8 h. One very-low-birth-weight infant



Transfer and referral system
Can help sick babies
In disaster!

... risk scores...
... decision...
... cop...
... assistance Team had requisitioned most air...
... for 13 low-risk infants. Transportation for all...
... infants (risk scores greater than or equal to the...
... quartile) was arranged by local/neighbour NICUs.
Conclusions: Although the overall evacuation process was satisfactory, potential risks of relying on the adult-based emergency transportation system were highlighted. A better system needs to be developed urgently to put appropriate priority on vulnerable infants.

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Introduction

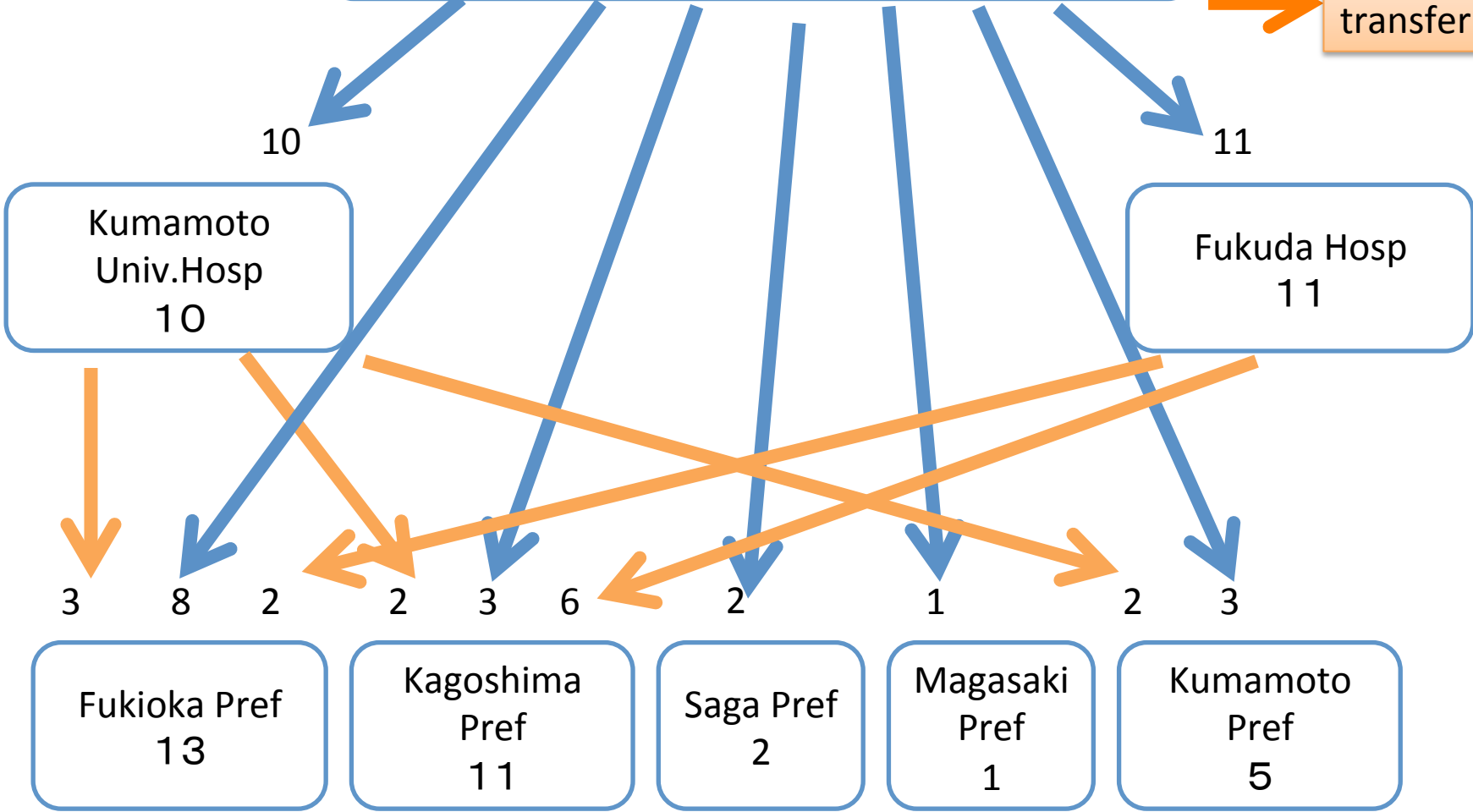
Japan is subject to frequent earthquakes, which have caused serious damage to hospitals [1–3]. Newborn in-

Evacuation of tertiary Neonatal center 2016 Kumamoto earthquakes

Kumamoto city Hospital
NICU 18 Patients, GCU 20 Patients

First transfer

Second transfer



Take Home Message

- Japan's superior perinatal care is supported by perinatal system.
- Our perinatal system have been systematically built and improved through research.
- Our system has developed into a research network and is useful for international research.
- Transfer and referral system is also beneficial in disaster.

Thank you for your attention !

