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Current Status of Perinatal Transfer: Practice in Clinics

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Ping-Kun Hung, superintendent,
BinKun Women's and Children's Hospital

Preface-1

- The medical care system grading in Taiwan is mainly separated into **4 levels: medical center, regional hospital, local hospital** and **clinic**.
- Each medical facilities have their own **responsibilities** and **obligations**, as well as **means** and **strengths** to attract their own patient groups.

Preface-2

- In Taiwan, approximately **70%** of the patients receive health care at the primary medical institutions (**local hospital** and **clinic**).
- Therefore, a **robust referral system** among the medical facilities is important, especially in terms of **upward transfer for perinatal care**.

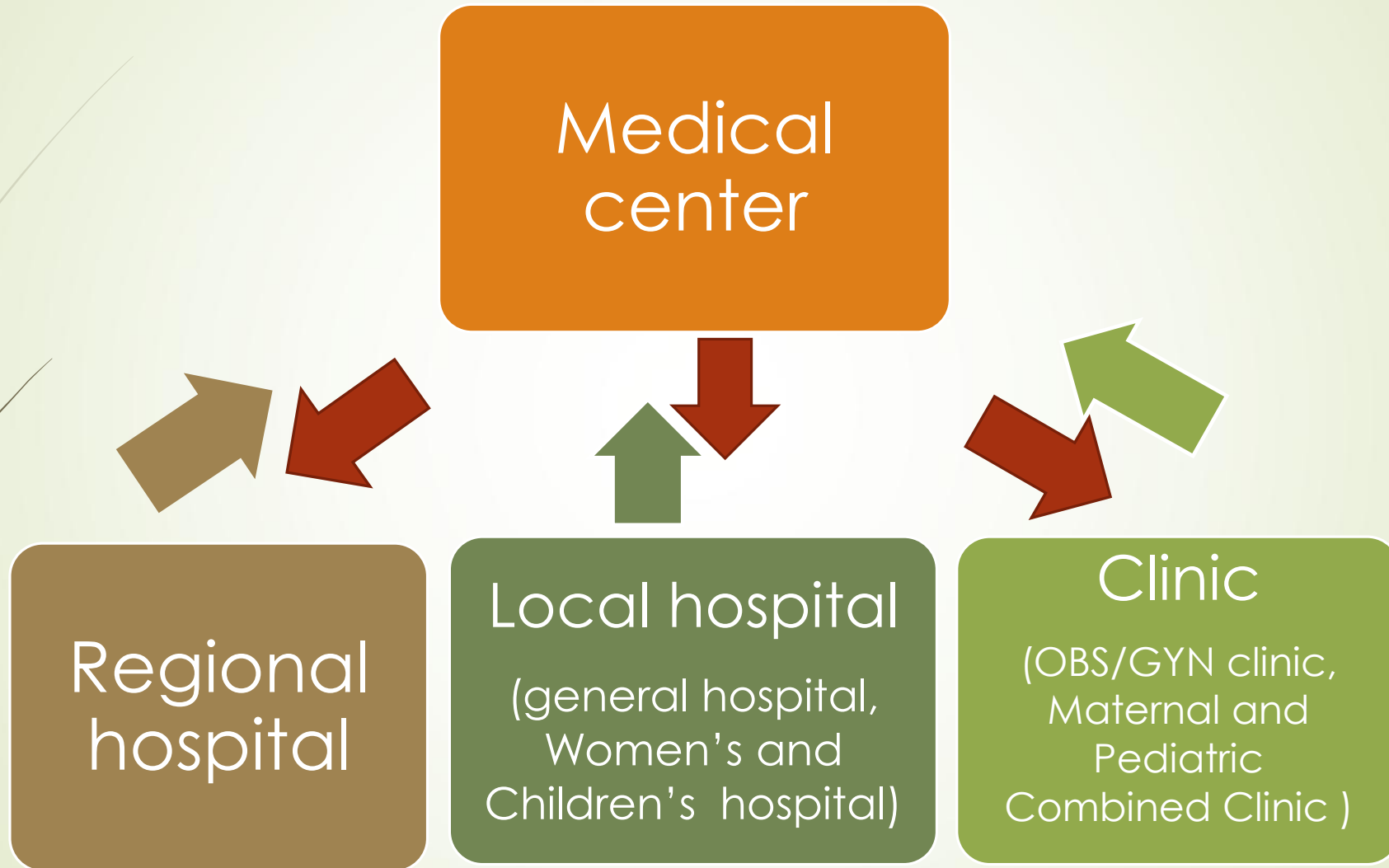
Preface-3

- We all know that there are many sudden and critical situations in delivery. When a **obstetric critical condition** has occurred, a **fast and accurate upward referral** is vital in saving the patient's life.
- On the other hand, it is common for a **newborn** to require greater facilities and personnel intervention during the **first 3 days of birth** and **the moment they are delivered**. Hence the **resource sufficiency** in **newborn care** and **smooth flow** of the **transfer process** is critical.

Preface-4

- In this low birth rate country (Taiwan's birth rate is second to the last in the world, beating South Korea by a glitch). it is important to **promote maternal birth satisfaction and safety**, encouraging them to be willing to go for a second or third pregnancy. On the other hand, due to the extremely low birth rate, **“one less is not possible”** has become the highest goal for obstetricians. Below, I will be introducing the current situation in Taiwan primary medical institutions perinatal transfer.

Level of Taiwan's Medical Care System





Baby Room



Ward



Registration



labor room



Operation Room



labor room



Delivery Room



- 5F Postpartum care center
- 3F Ward
Lounge
Kitchen/drinking Water
- 2F Labor Room、LDR
Delivery Room
Operation Room
Baby Room
Breastfeeding Room
- 1F Pediatrics OPD×2
OBS/GYN OPD×3
Registration/Cashier
Medical Records Department
Pharmacy, Injection Room
Breastfeeding Room
Health Education Office
Conference Room
Toilet
- B1, B2 Parking garage/Parking lot

Registration



Pediatrics OPD



Pediatrics OPD



OBS/GYN OPD



Health Education Office



Pharmacy









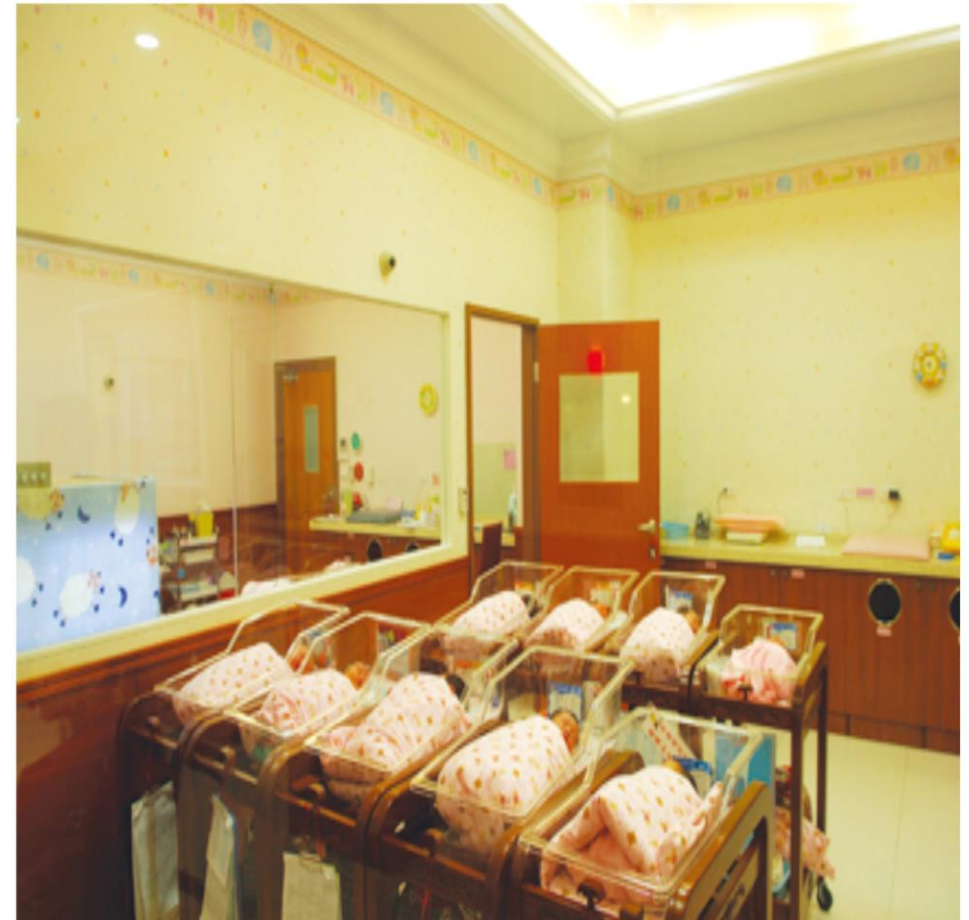
Isolated labor room



LDR



Baby Room



Baby Room



Baby Room



Baby Room



Breastfeeding Room



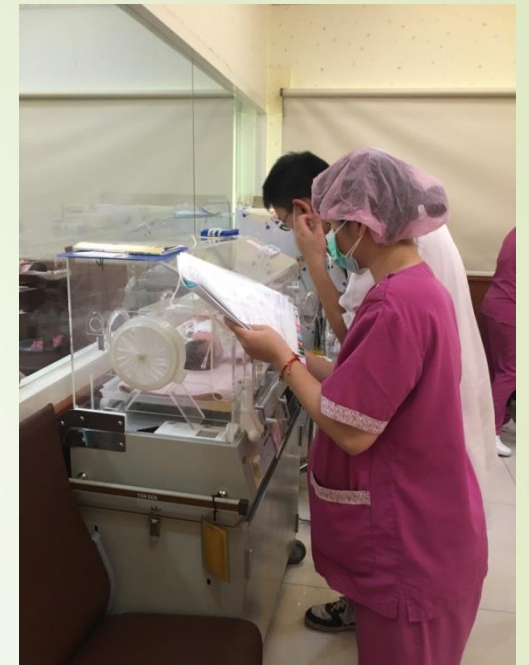
Parking garage



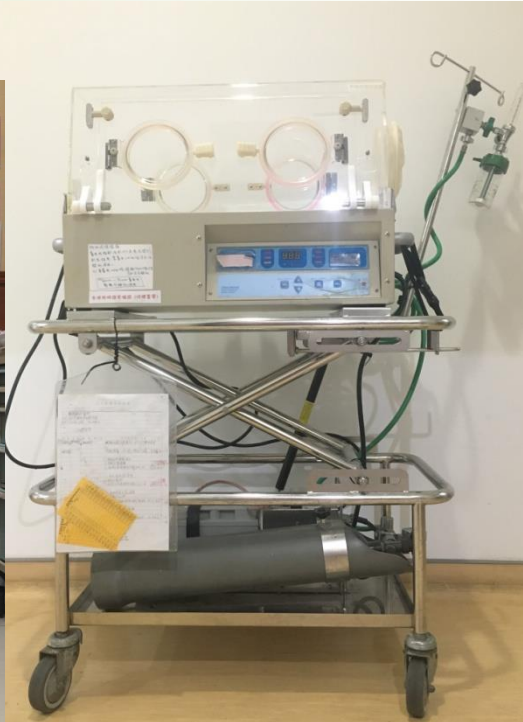
Parking lot



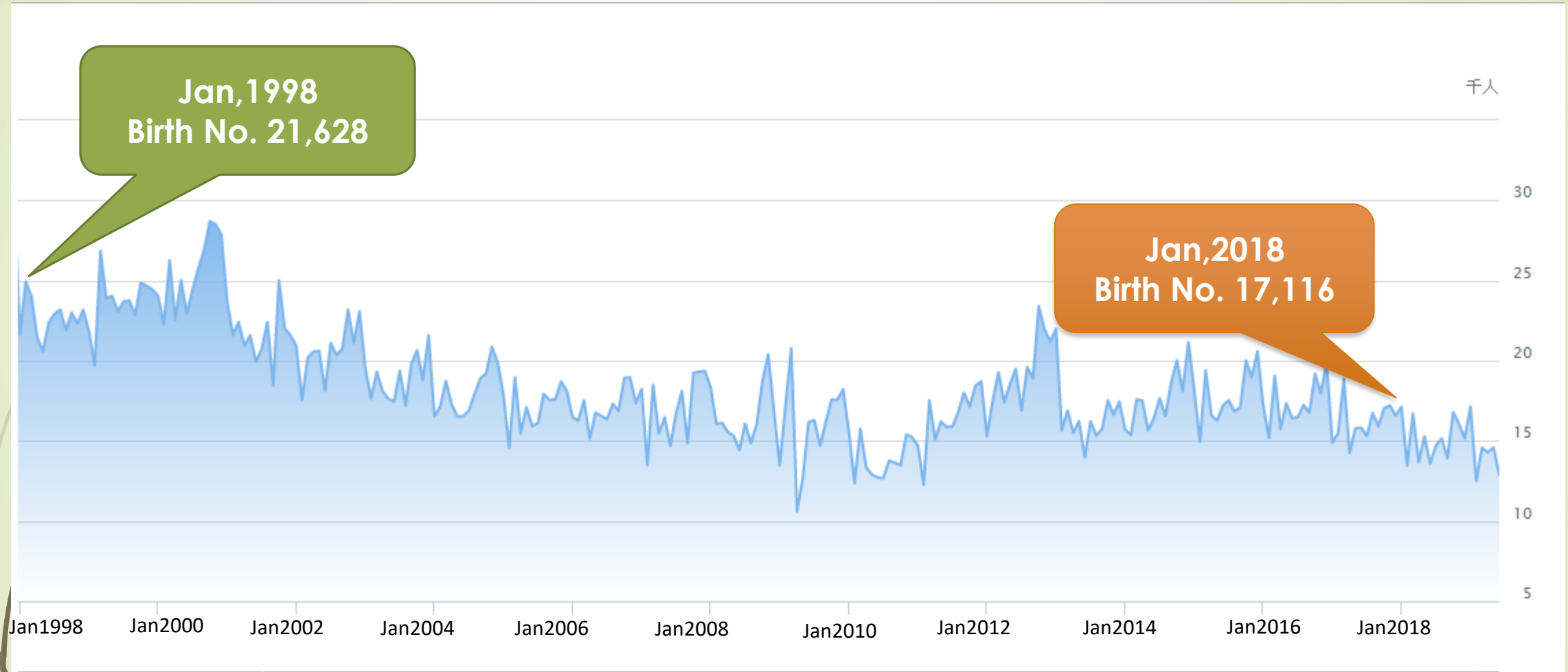
Neonatal transport incubator



handover process

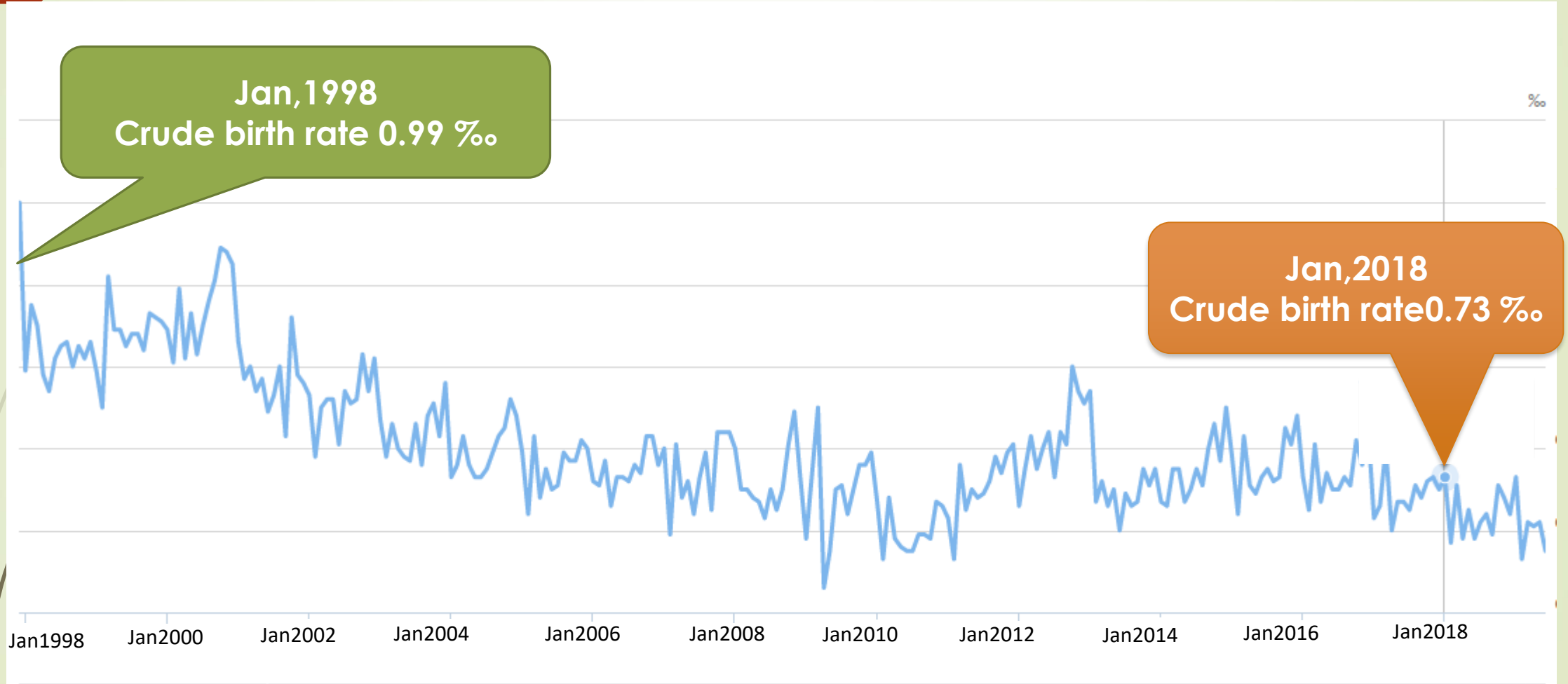


1998-2018 Birth Number



Reference: Ministry of the Interior, R. O. C. (Taiwan)

1998-2018 Crude Birth Rate

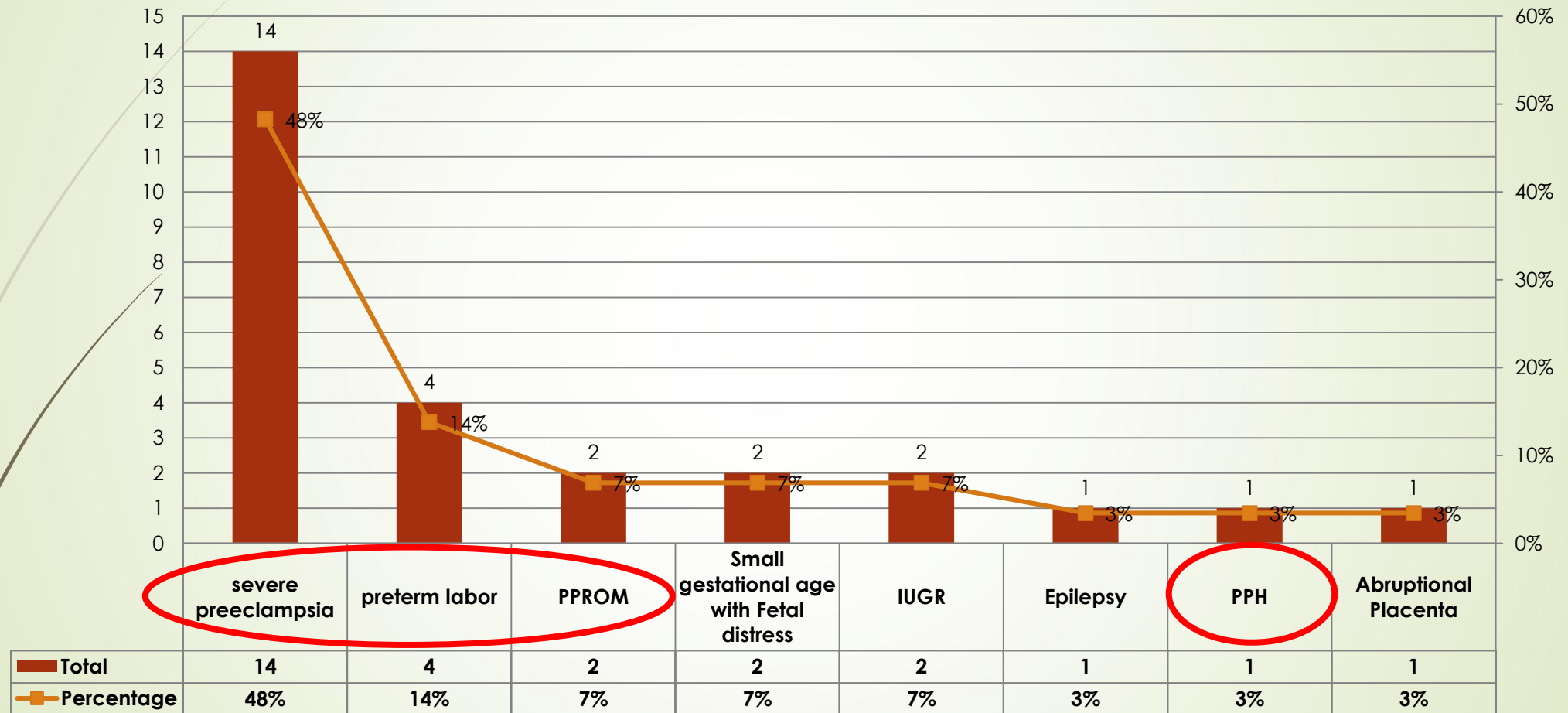


Reference: Ministry of the Interior, R. O. C. (Taiwan)

Data of Maternal transfer

	Diagnosis	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Total	Percentage
1	Severe preeclampsia		1		3	2	1	2	1	4										14	48%
2	Preterm labor								1								2	1		4	14%
3	PPROM					1										1				2	7%
4	Small gestational age with Fetal distress		1					1												2	7%
5	IUGR				1			1												2	7%
6	Epilepsy														1					1	3%
7	PPH															1				1	3%
8	Abruptional Placenta						1													1	3%
	Subtotal/month	0	2	0	4	3	2	4	3	5	0	0	0	0	1	2	2	1	0	29	
	Number of admissions	272	259	288	266	267	245	255	283	282	261	277	279	297	231	246	254	226	226	4951	
	Percentage	0.0%	0.8%	0.0%	1.5%	1.1%	0.8%	1.6%	1.1%	1.8%	0.0%	0.0%	0.0%	0.0%	0.4%	0.8%	0.8%	0.4%	0.0%	0.6%	

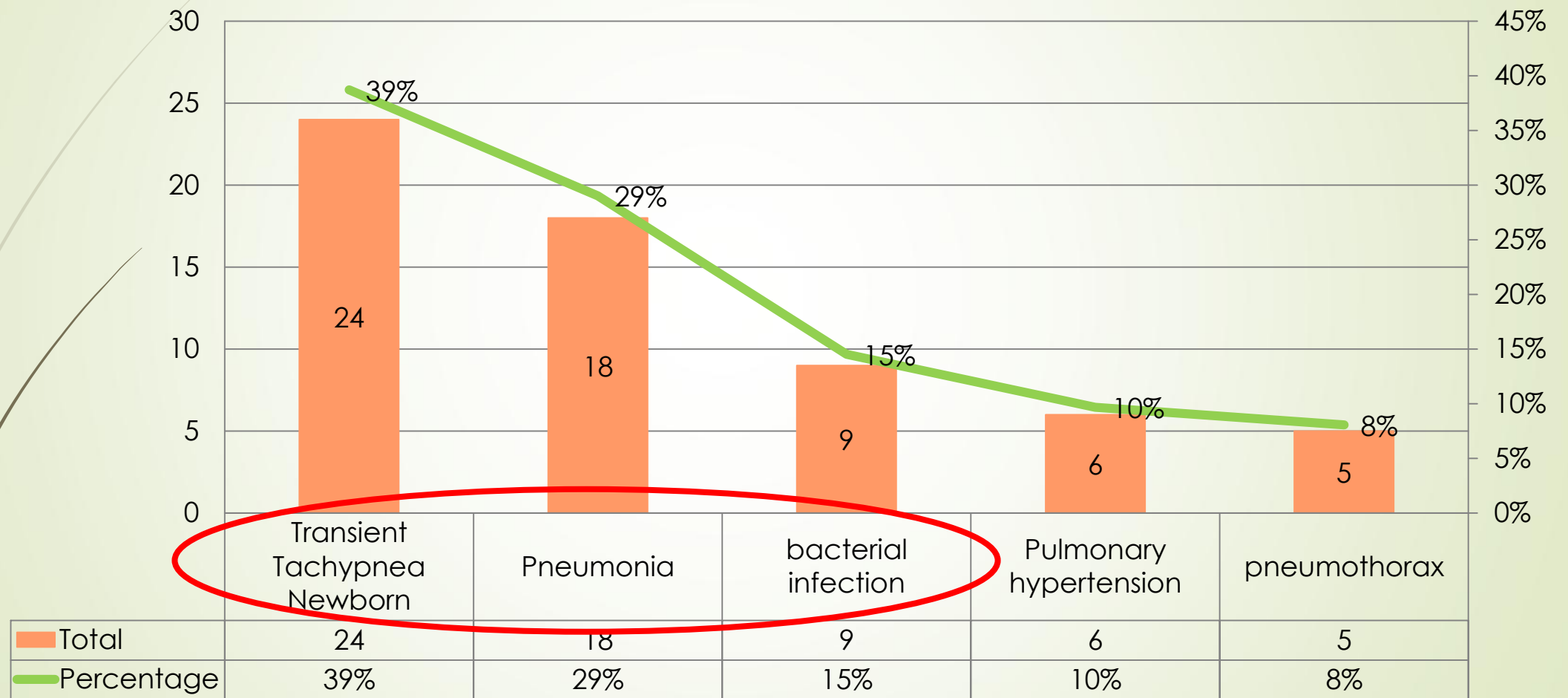
Percentage and Causes of Maternal transfer



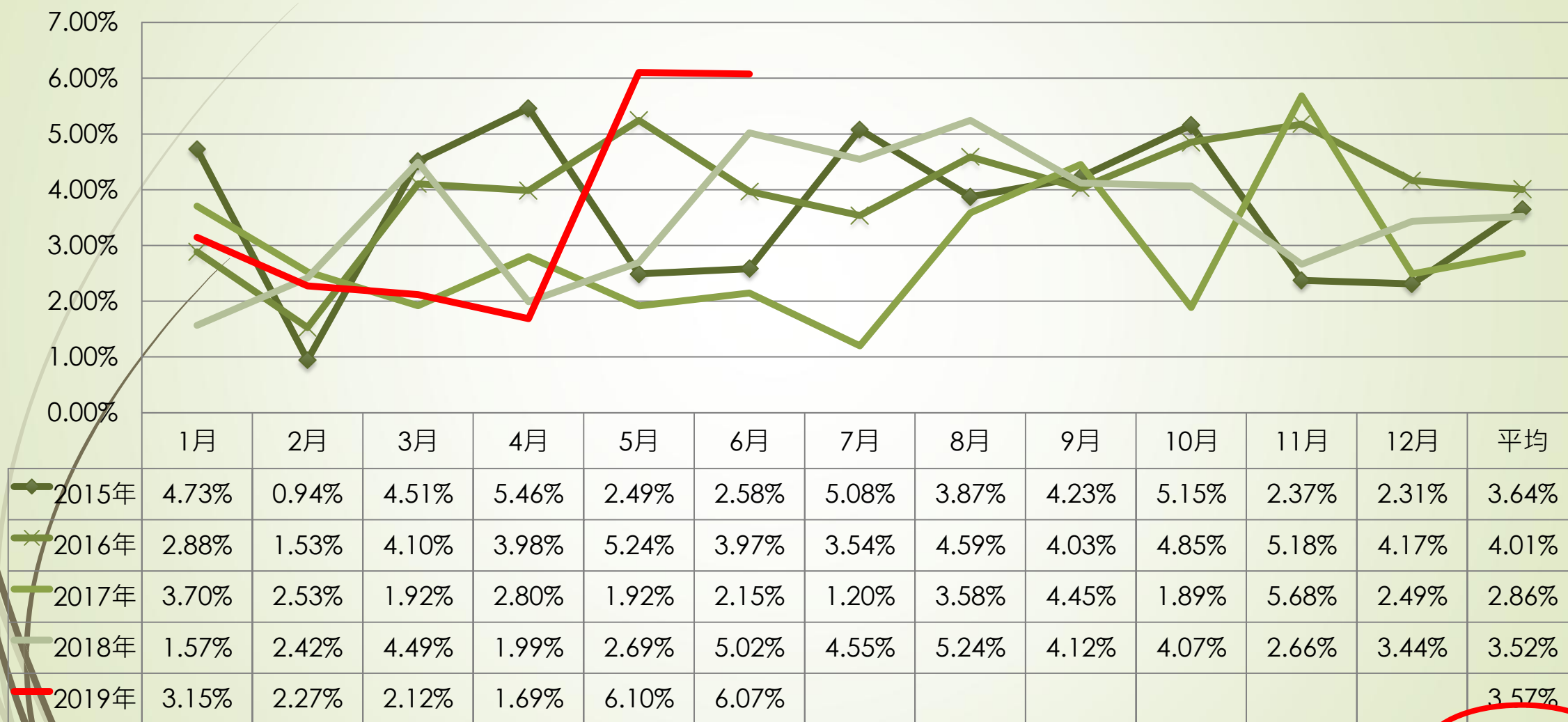
Data of Neonatal transfer

Diagnosis	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Total	Percentage
TTNB	4	3	5		1	1		1		3	3	3	24	39%
Pneumonia	3	3	1	3	4	1	2			1			18	29%
bacterial infection	1	2			1					1	2	2	9	15%
Pulmonary hypertension						1			1		2	2	6	10%
pneumothorax						1					2	2	5	8%
Subtotal/Month	8	8	6	3	6	4	2	1	1	5	9	9	62	
Birth No.	267	267	246	263	262	286	220	236	237	213	214	230	2941	
Percentage	3.0%	3.0%	2.4%	1.1%	2.3%	1.4%	0.9%	0.4%	0.4%	2.3%	4.2%	3.9%	2.1%	

Percentage and Causes of Neonatal Transfer



Neonatal Transfer Rate of 2015~2019



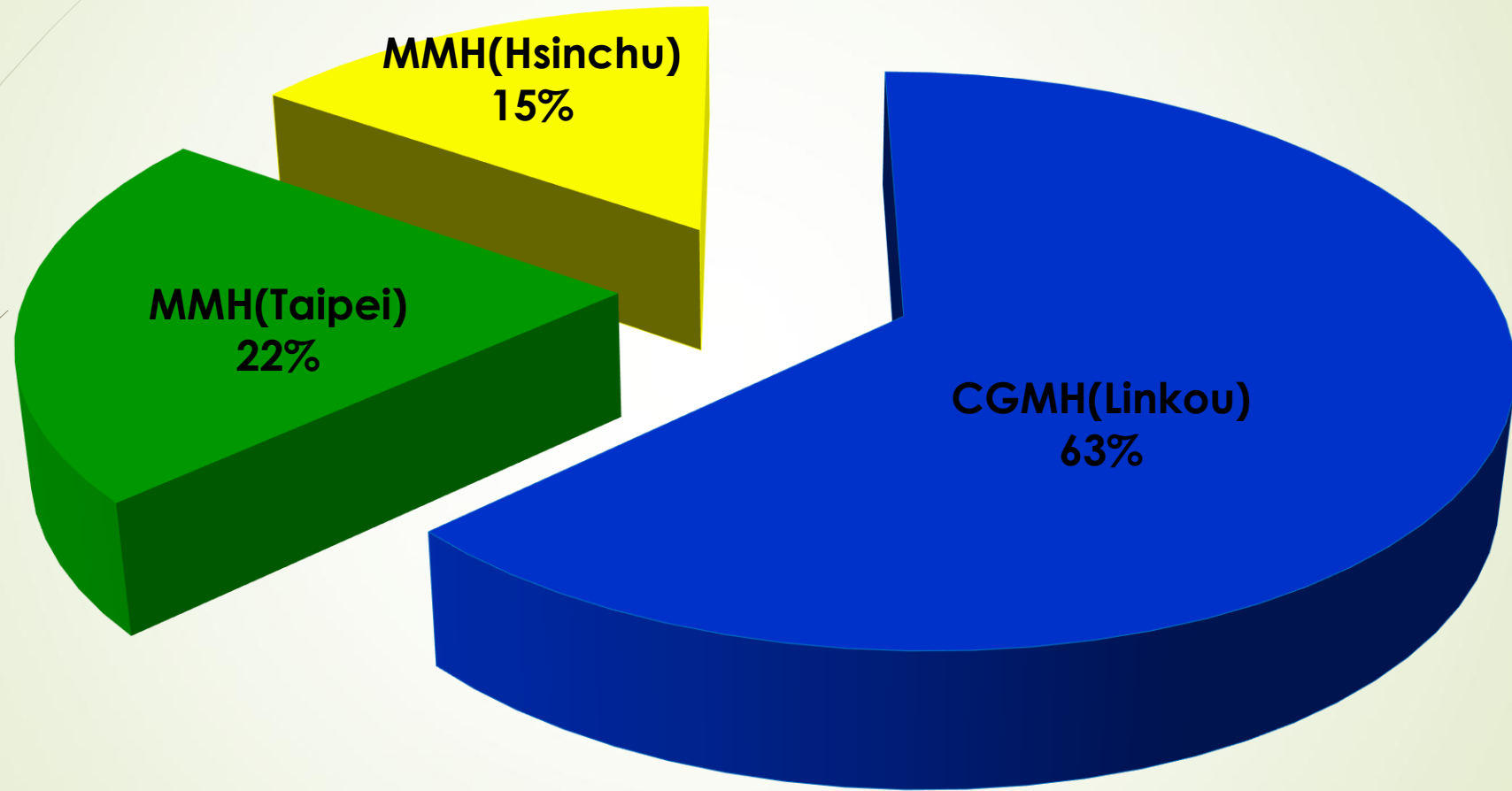
3.52%

2013-2019Aug

GA	2013	2014	2015	2016	2017	2018	2019-8
≤ 34	0	0	0	1 (29)	1 (31)	0	1 (33)
34+1-36+6	5	5	3	3	3	2	6
37	5	2	9	3	1	2	1
≥ 38	19	14	13	22	14	18	13
Total	29	21	25	29	19	22	21

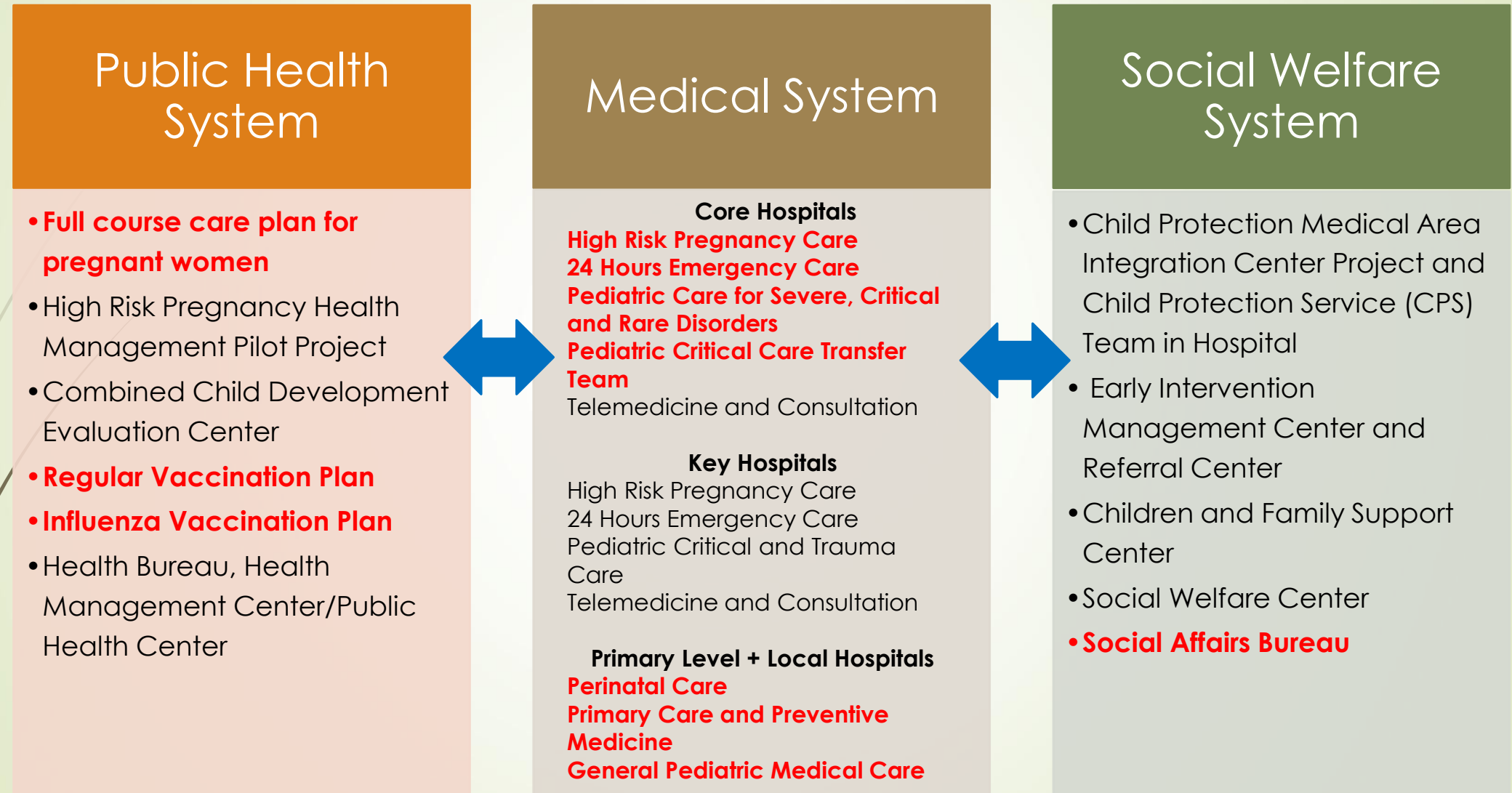
Data sources : MMH

	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Total	percentage
CGMH(Linkou)	6	8	6	4	9	8	2	2	3	6	8	8	70	63%
MMH(Taipei)	5	3	0	1	0	1	1	1	1	5	3	3	24	22%
MMH(Hsinchu)	2	0	4	2	0	0	2	2	0	1	2	2	17	15%
Subtotal	13	11	10	7	9	9	5	5	4	12	13	13	111	



Mechanisms for connection between systems

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Complete Perinatal Care Network: **Key Work Elements**

- Planning to have at least **1 key hospital in each county**, as well as **perinatal medical care center**, responsible **for high risk pregnancy** and **newborn intensive care**. Additionally, establishment of **collaboration network** relationship between primary health care institutions, obstetricians at local hospitals and pediatric core hospitals.
- Establishment of **perinatal (Prenatal) referral process**, as well as collaboration with **open hospital** model according to each local resource (need).
- Set up **newborn transfer process**, continuation of care and actively follow-up of high risk premature baby or neonatal discharge health development (should include newborn hearing screening) and complication evaluation and early intervention.
- Evaluate the feasibility **of specialist consultation (distance services)** for rural or resource-deficient areas.
- Collaboration with the health departments and assists the **rural or resource deficient areas** in each county with active maternal care service.

Complete Perinatal Care Network: **Reward Method**

- As a matter of principle, **1 hospital is** allowed for each county (adjustments can be made according to population and transport) with a **5 million TWD annually** as the upper limit. The funding should be used to replenish the inadequacy in specialist numbers, duty fee, expanding newborn transport equipment and so forth. Areas with **resource inadequacy** shall be allowed for **7.5 million TWD** as their upper limit. Receiving overlapping funding from other relevant support schemes is not allowed.
- **Individual case management personnel:** Funding 1-2 individual case management personnel to assist with neonatal transport for high risk premature baby or newborn.
- **Neonatal transport expense:** Verified payment that is paid by number of attendance and mileage. The basic expense for ambulance attendance in each county is 200-800 TWD; transport fee is 20-30 TWD per Km. The attendance fee for medical staff is 1000-2000 TWD for doctors and 500-1000 TWD for nurses.
- **Midwifery human resource expense:** Execution of **open hospital** model to provide those that deliver support and provide funds for 1 midwife.
- Those who arranged for maternal care service will also be funded for an **individual case management personnel**.

Conclusion and Suggstion

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- **Urgent maternal transfer** is a demanding situation for most obstetricians. Maternal mortality and morbidity are commonly due to delay transfer to medical center, inadequate equipment in nearby regional hospital, incompetent delivery team, and unfamiliarity between the obstetricians once patient is transferred to medical center.
- The most essential assistant required by primary level Gynecology and Obstetrics institutions is through sharing **blood bank** resources via government coordination.
- **Maternal transfer** means **loss of performance** in a primary medical institution. Therefore, strengthening medical ethics education and adequate compensation for loss is a feasible direction. Nevertheless, audit and guidance can be provided for abnormal upward transfers in primary medical institutions.

- Since many Gynecology and Obstetrics clinics later transition into Maternal and Pediatric combined clinics or larger Women's and Children's hospitals. These facilities have **pediatric physicians on-call** for immediate newborn care for infants of low-birth weight and premature infants with greater confidence. However, this **transformation** is like a **double edge sword** with both pros and cons.
- **Inadequate medical staff** and **neonatal intensive care unit (NICU) distribution** are problems which the government needs to address, especially in areas outside Taipei City and New Taipei City.



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Thanks for your attention