

Advancements and Future Directions in Pediatric Critical Care: Perspectives from Taiwan

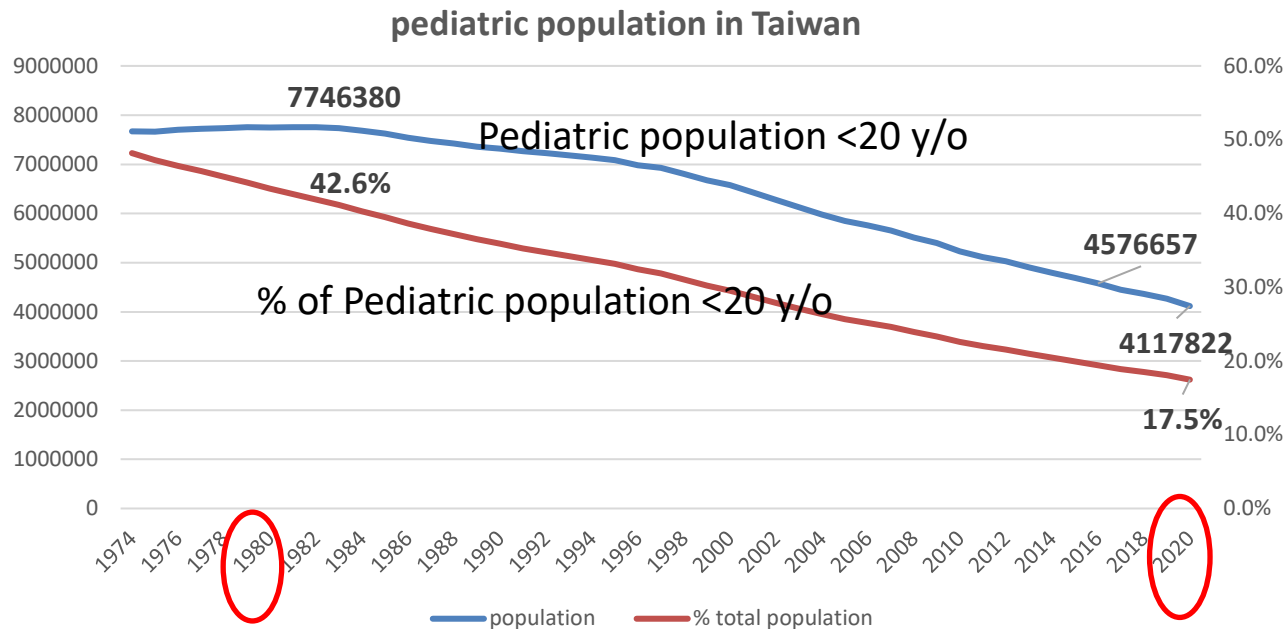
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- ✓ Taiwan's population 23,9 million
- ✓ Pediatrics Specialty Profession since 1906 (NTUH)
- ✓ Low birth rate, still unsatisfactory neonate mortality
- ✓ Nationwide health insurance program since 1995, nearly 100% coverage:
 - ✓ Pro: reimbursed health care, waived copayment policy for serious illness, etc.
 - ✓ Con: market-driven dynamics, etc.
- ✓ Paradigm shift of Healthcare workforce:
 - ✓ Pediatric workforce crisis?



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- ✓ Pediatrics Specialty Profession since 1906 (NTUH)
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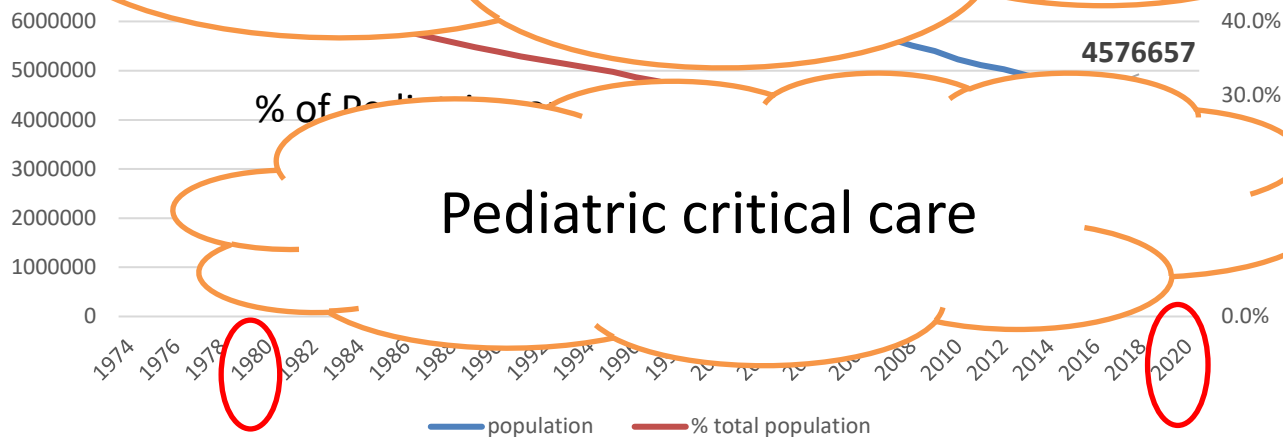
- ✓ Pro: reimbursed health care, waived copayment policy for serious illness, etc.

- ✓ Con: market-driven delivery, etc.

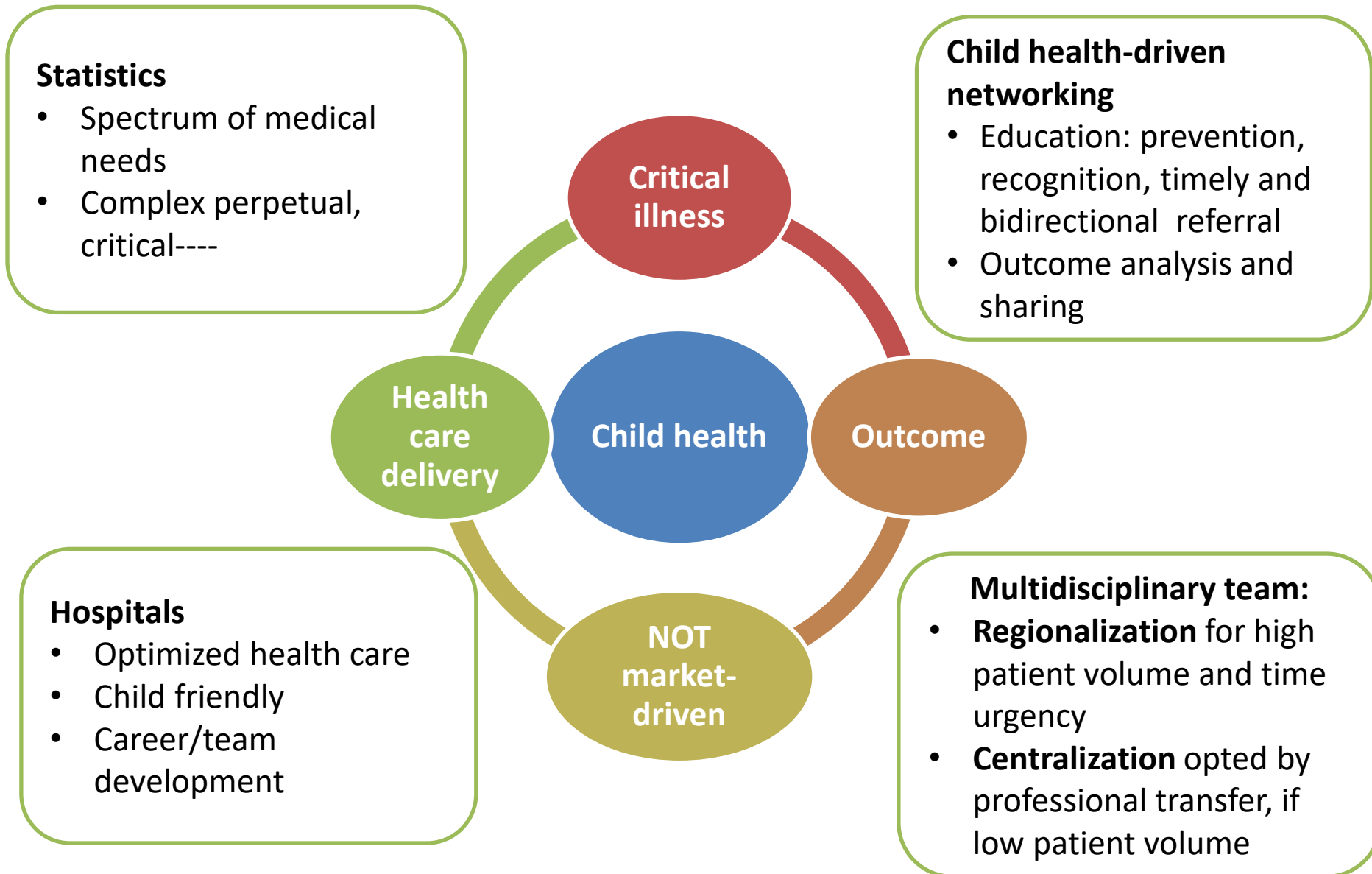
- ✓ Paradox

- ✓

Strategy to ensure excellent healthcare for every child!



Dynamic Strategic Approach for Child Health-Driven Pediatric Critical Care



Medical needs of children

Health promotion

Acute

Healthy child with acute illness

- ES
- Infectious Disease
- Fractures
- Tonsillitis and Otitis
- Appendicitis---

Perpetual

Child with low acuity chronic conditions, requiring special care

- Asthma
- Diabetes and endocrine disorder
- Autism
- ADHD---

Complex perpetual

Medically complex children with special health care need

- Congenital Heart Disease
- Cancer
- Major Anomalies
- Transplant---

Critical

Child with critical care need

- Neonatal care:
- Extreme prematurity
- Critical care
- Trauma---

Unknown diagnosis

Medical needs of children

Health promotion

Acute

Healthy child with acute illness

-

Perpetual

Child with low acuity chronic condition

研究單位：兒研中心(Child Health Research Center)；
資料來源：衛福部資料中心(Health and Welfare Data Center of Taiwan's Ministry of Health and Welfare)

- Congenital anomalies
- Cancer
- Major Anomalies
- Transplant---

- Prematurity
- Neonatal intensive care
- Trauma---

Unknown diagnosis

Medical visits in children (0-19): 2017-19

86.8%

Acute

Healthy child with acute illness

- ES
- Infectious Disease
- Fractures
- Tonsillitis and Otitis
- Appendicitis ---

Perpetual

Child with low acuity chronic conditions, requiring special care

- Asthma
- Diabetes and endocrine disorder
- Autism
- ADHD ---

47.7%

11.2%

Complex perpetual

Medically complex children with special health care need

- Congenital Heart Disease
- Cancer
- Major Anomalies
- Transplant ---

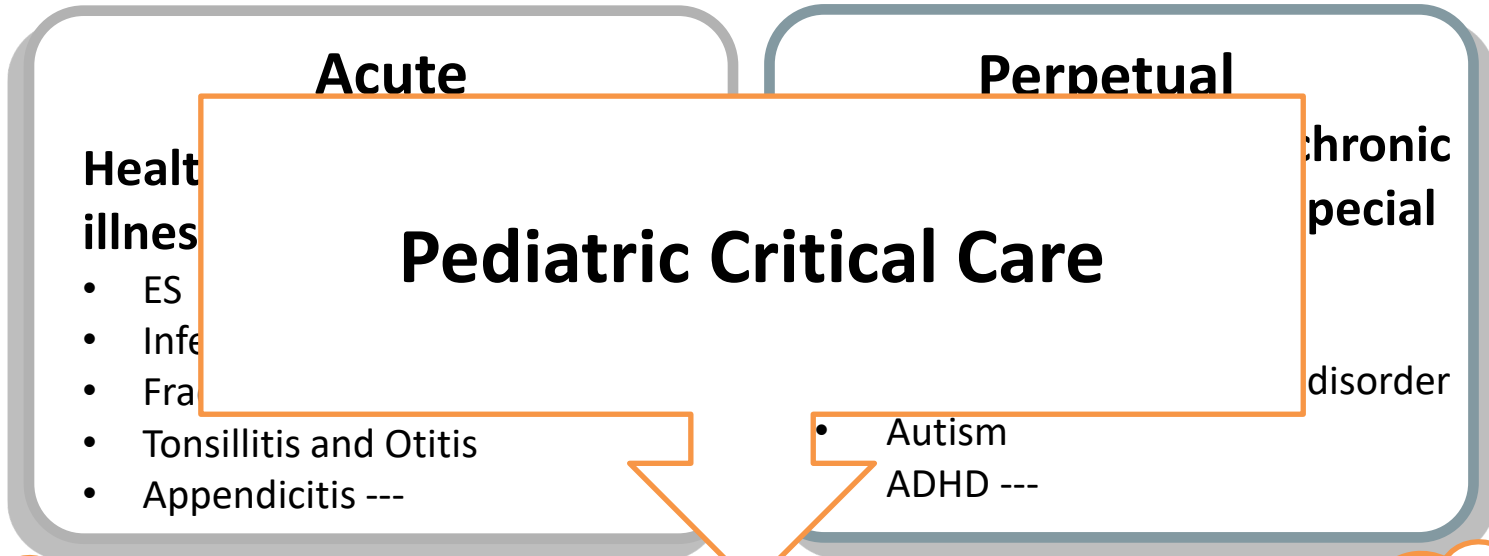
Critical

Child with critical care need

- Neonatal care:
- Extreme prematurity
- Critical care
- Trauma ---

2.4%

Medical visits in children (0-19): 2017-19



11.2%

Complex perpetual

Medically complex children
with special health care need

- Low patient no in each category.
- High medical complexity

Critical

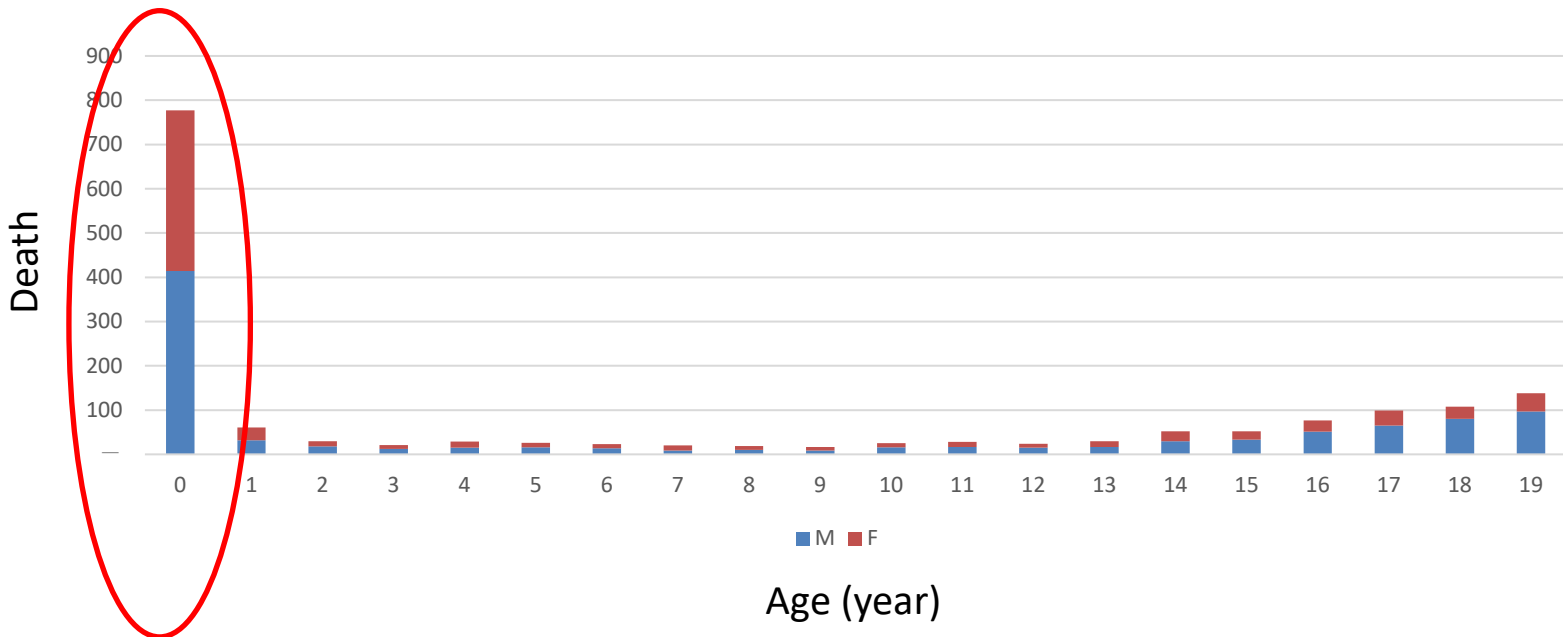
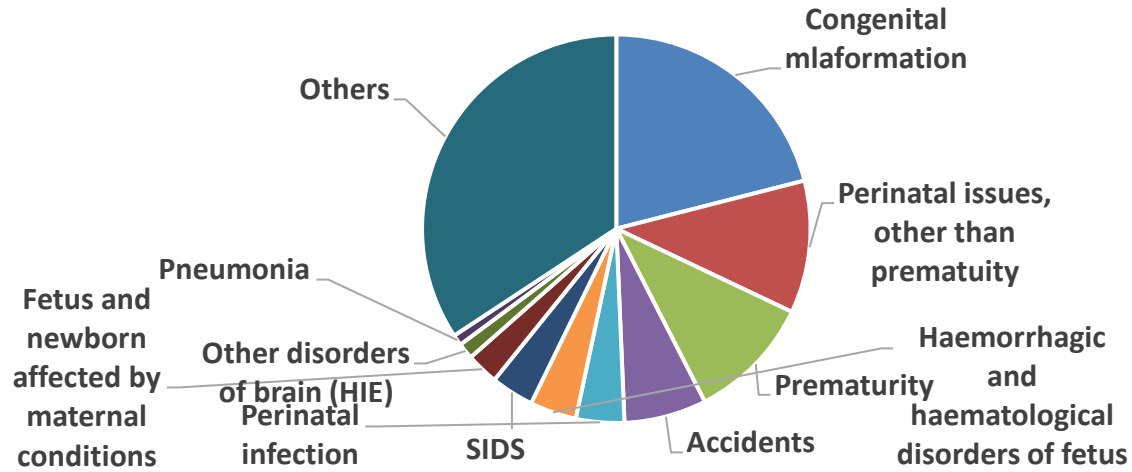
Child with critical care need

- N
- Varied patient no. in each category.
- Moderate to high medical complexity
- Time urgency

2.4%

Infants, Causes of death, 2019 in Taiwan

Mortality 3.83/1000



Medical visits in Infants: 2017-19

83.4%

Acute

Healthy child with acute illness

- ES
- Infectious Disease
- Fractures
- Tonsillitis and Otitis
- Appendicitis---

Perpetual

Child with low acuity chronic conditions, requiring special care

- Asthma
- Diabetes and endocrine disorder
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- ADHD---

57.4%

24.0%

Complex perpetual

Medically complex children with special health care need

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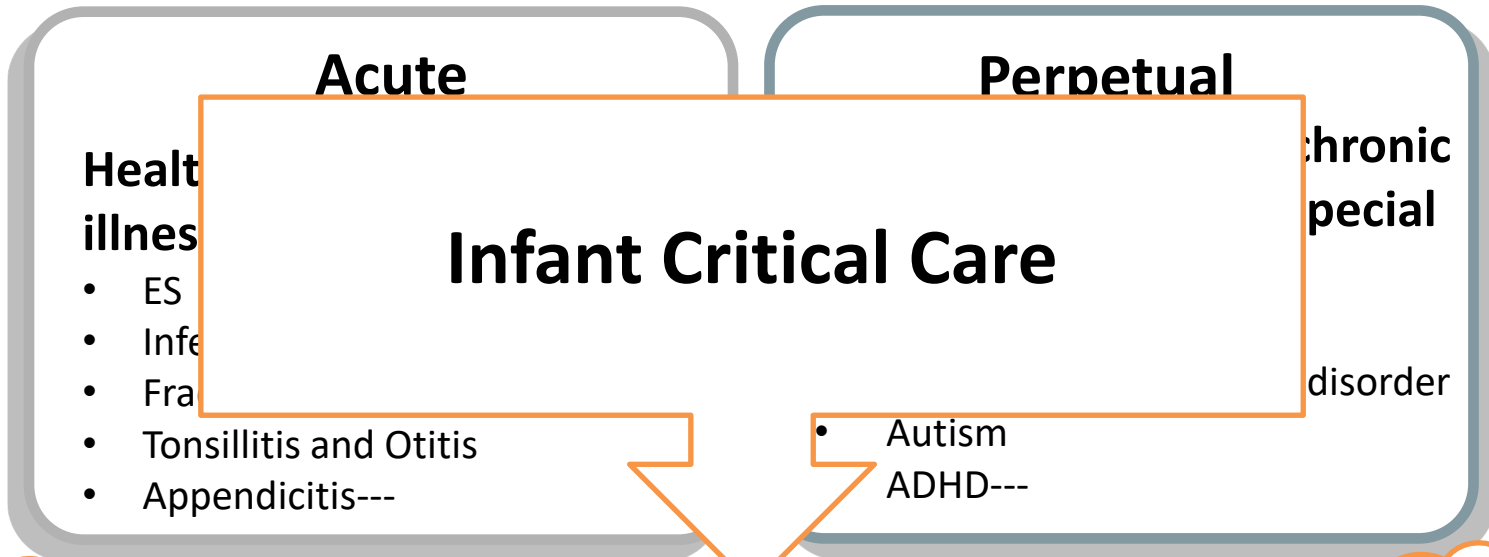
Critical

Child with critical care need

- Neonatal care:
- Extreme prematurity
- Critical care
- Trauma---

29.2%

Medical visits in Infants: 2017-19



24.0%

Complex perpetual

Medically complex children with special health care need

- Low patient no in each category.
- High medical complexity

29.2%

Critical

Child with critical care need

- N
- Varied patient no. in each category.
- Moderate to high medical complexity
- Time urgency

Community Hospital and Clinics

Medical needs of children

Health promotion

Occasional

Healthy child with self-limited injury or condition

- ES
- Infectious Disease
- Fractures
- Tonsillitis and Otitis
- Appendicitis---

Perpetual

Child with low acuity chronic conditions, requiring special care

- Asthma
- Diabetes and endocrine disorder
- Autism
- ADHD ---

Scope modification

Complex perpetual

Medically complex children with special health care need

- Congenital Heart Disease
- Cancer
- Major Anomalies
- Transplant ---

Critical

Child with critical care need

- Neonatal care:
- Extreme prematurity
- Critical care
- Trauma ---

Simple prematurity

Transportation support

Unknown diagnosis

Regional Hospital or Medical center

Medical needs of children

Health promotion

Occasional

Healthy child with self-limited injury or condition

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- Infectious Disease
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- Tonsillitis and Otitis
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Perpetual

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Complex perpetual

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Critical

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Scope modification

Unknown diagnosis

Tertiary Care Children's Hospital Pediatric Tertiary Care Medical Center

Medical needs of children

Health promotion

Occasional

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Perpetual

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Complex perpetual

Medically complex children with special health care need

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- Transplant---

Tailored to teams

Critical

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Unknown diagnosis

Children's Hospital with a Mission for Unknown Diagnoses

Medical needs of children

Health promotion

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Unknown diagnosis

Program for Excellence in Child Health Care, MOHW (優化兒童照護計畫) 2021-

**Integrate the perinatal,
critical and intensive
medical services**

**Strengthen primary
prevention and health
promotion**

**Reduce preventable
deaths and disabilities
in newborns and
children**

優化兒童醫療照護體系的策略

- 1 完備周產期醫療照護
- 2 建立分級分區急醫療網絡
- 3 提升重難罕症照護品質
- 4 發展兒童重症運送專業團隊
- 5 規劃兒童困難診斷疾病平臺
- 6 培訓兒科醫療照護人力
- 7 發展幼兒專責醫師制度
- 8 推展脆弱家庭育兒指導服務

**Enhance pediatric
critical care
empowerment.**



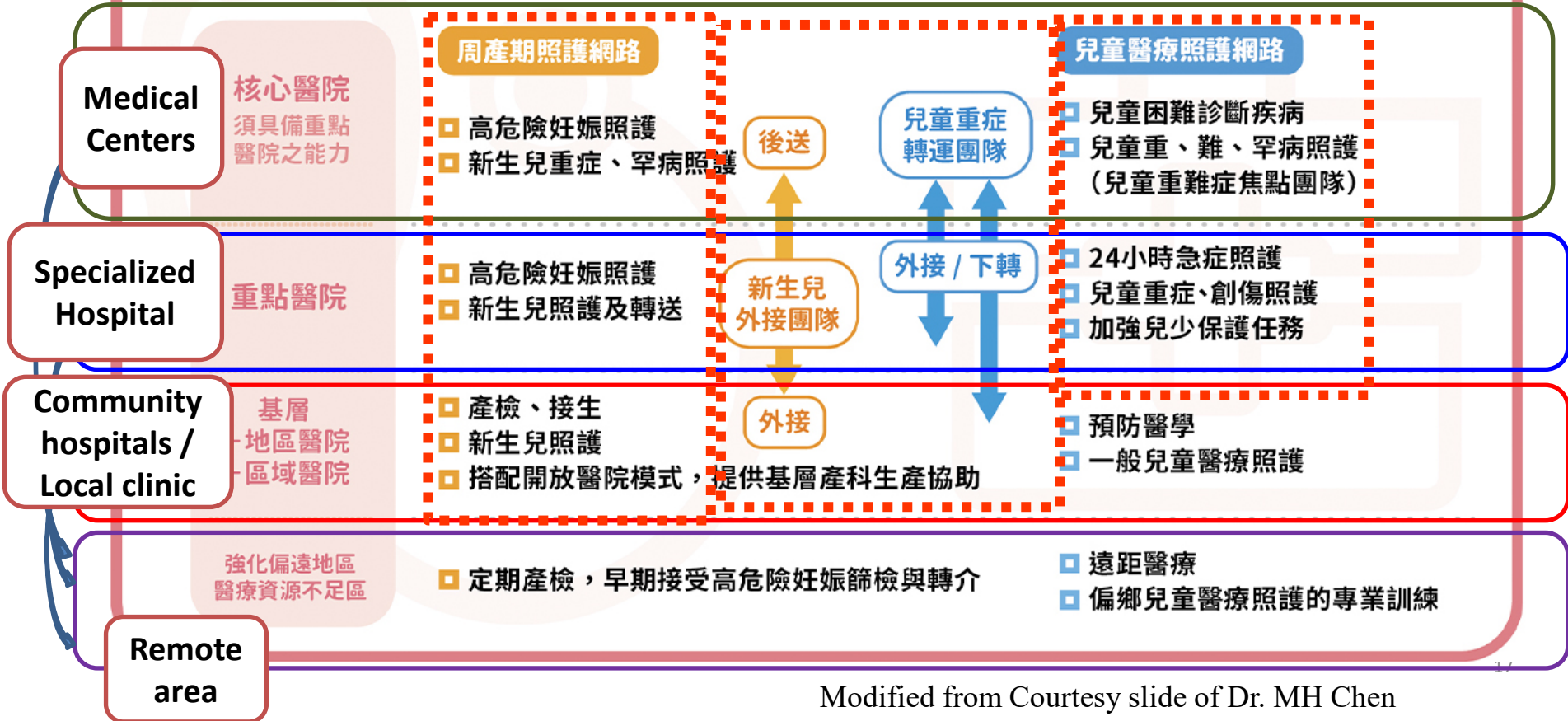
Framework of Program for Excellence in Child Health Care in Taiwan (MOH)

Perinatal care network

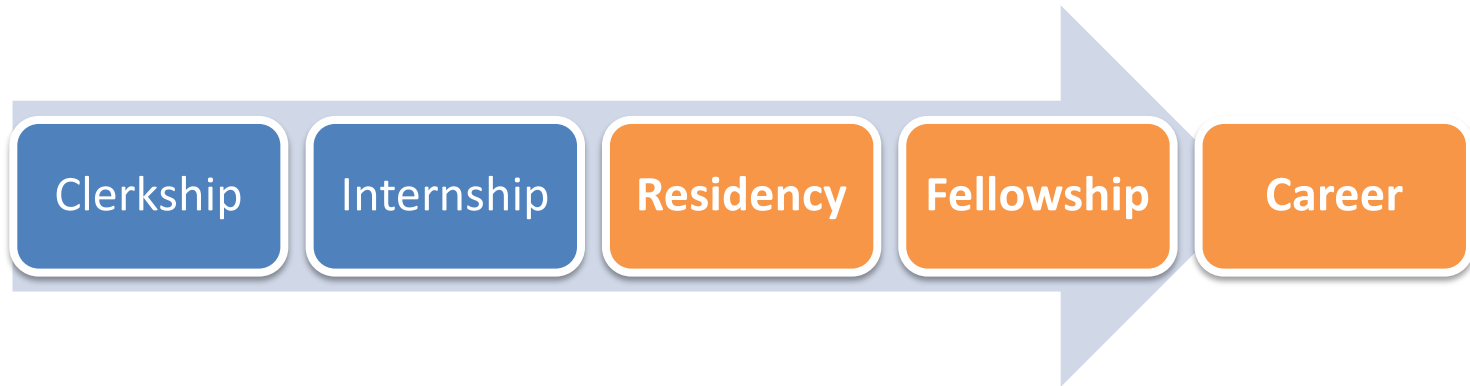
Pediatric critical care transport

Pediatric critical and intensive care network

優化兒童醫療照護計畫架構



Child Health Care Education



Medical needs of children

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Unknown diagnosis

1. Medical schools' pediatrics curriculum should be comprehensive to cover the scope.
2. Residency training should target general pediatrics and the link to care of chronic illness with high medical complexity (joined programs required sometimes).
3. Children's hospitals or medical centers serving care to children with high medical complexity, when providing a variety of fellowship training, should be patient-centered in conducting service.
4. National policies should be designed to enhance incentives for pediatric critical care.

Future directions:

1. Accreditation focuses on optimized child health care: prevention, recognition, regionalization vs centralization by patient population, outcome analysis.
2. Reimbursement mechanisms should be robust and dynamically adjusted to sustain a multidisciplinary team dedicated to critical patient care, evolving alongside the advancements in state-of-the-art medical complexities.
3. Education to foster timely recognition, referral, and the passion to join critical medical care.
4. National policy!

Future directions:

1. Accreditation focuses on optimized child health care: prevention, recognition, and care.

Program for Excellence in Child Health Care in Taiwan will provide us the importance reference of future direction in such a difficult scenario of persistent low birth for so many years.

3. Education, training, referral, and the passion to join critical medical care.
4. National policy!

Advancements and Future Directions in Pediatric Critical Care: Taiwan's Perspectives

Thank you

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