

Pediatric Critical Care Transport: Team Composition & Training

-- 以臺大兒童醫院急重症兒童轉院外接團隊為例

台大醫院急診醫學部/台大兒童醫院兒童急診科
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05 December 2021



Pediatric critical care transport:

**A Low-volume, High-cost,
High complexity specialty.**

Key elements

1. Regional network
2. Hotline
3. Team of specially trained pediatric transport professionals
4. Experienced medical control physicians
5. Appropriate equipment and supplies
6. Operational and clinical protocols
7. Database

Pediatrics 1986;78:943-50.

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Pediatrics 1986;78:943-50.



團隊組成

Team Composition

Study reviews

- 1) AAP database survey: 145 transport teams
 - At least ≥ 1 RN, **<15% physician**
 - A great degree of variability.
- 2) Cross-sectional survey in Canada: 13 teams
 - **63% RN–RT, 75% RN–RT–physician**
 - A complexity and variability in composition.
- 3) PICANet dataset in U.K & Ireland:
 - Most common composition: **MD–RN**
 - >50% runs involved senior RN (>4yr experience)

Pediatr Emer Care 2020;36: e263–e267

Pediatr Emer Care 2019;35: 32–37

Pediatr Crit Care Med 2018; 19:e300–e311

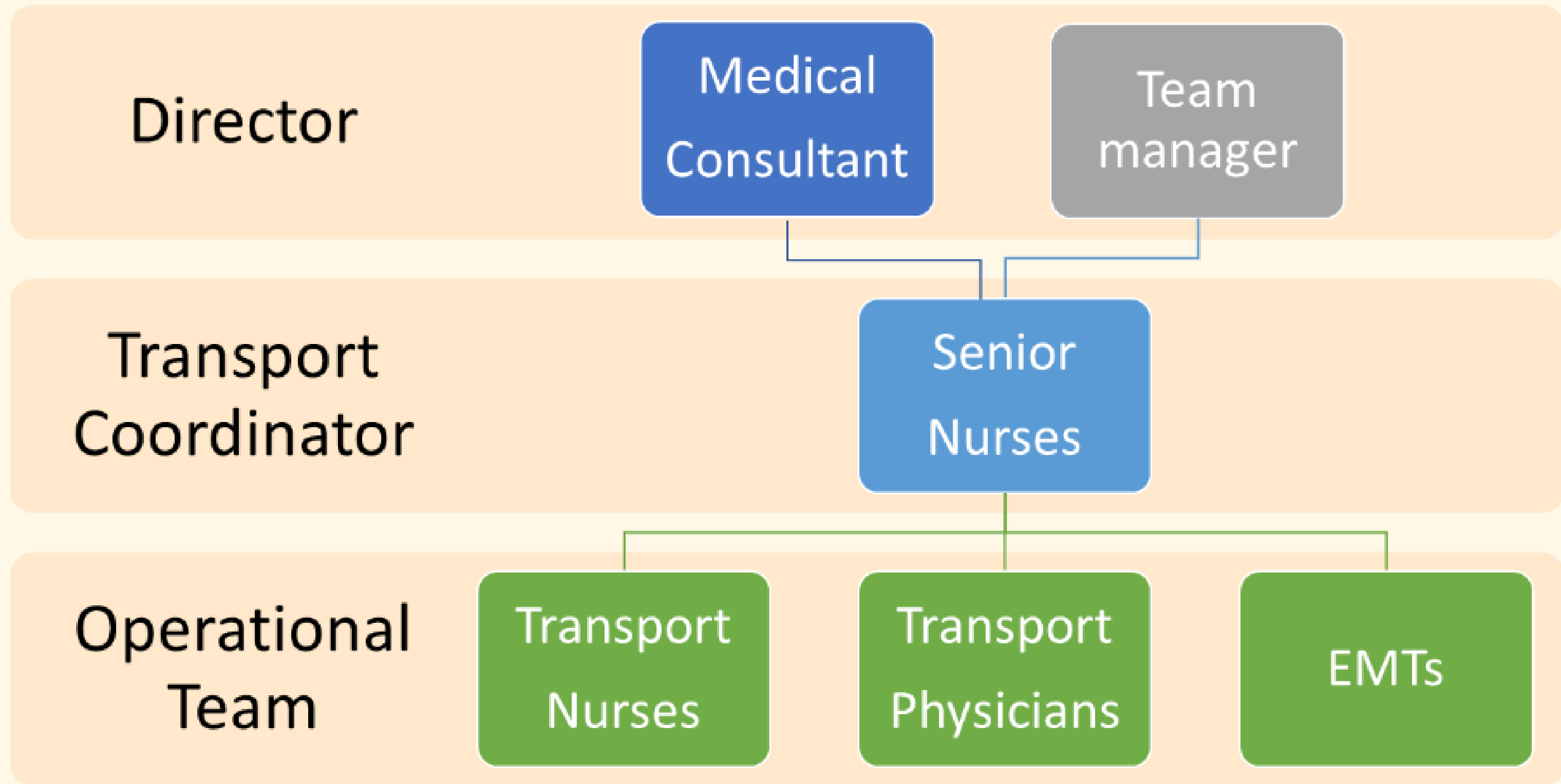
Study reviews

- 4) Pediatric transport medicine in Korea:
- A yet unknown territory.
 - Medical control physician (MCP):
 - Expertise in emergency medicine & critical care.
 - Available on phone/radio, not accompany the team.
 - This position is not fully established in Korea.

Clin Exp Pediatr. 2020 May;63(5):182-183.

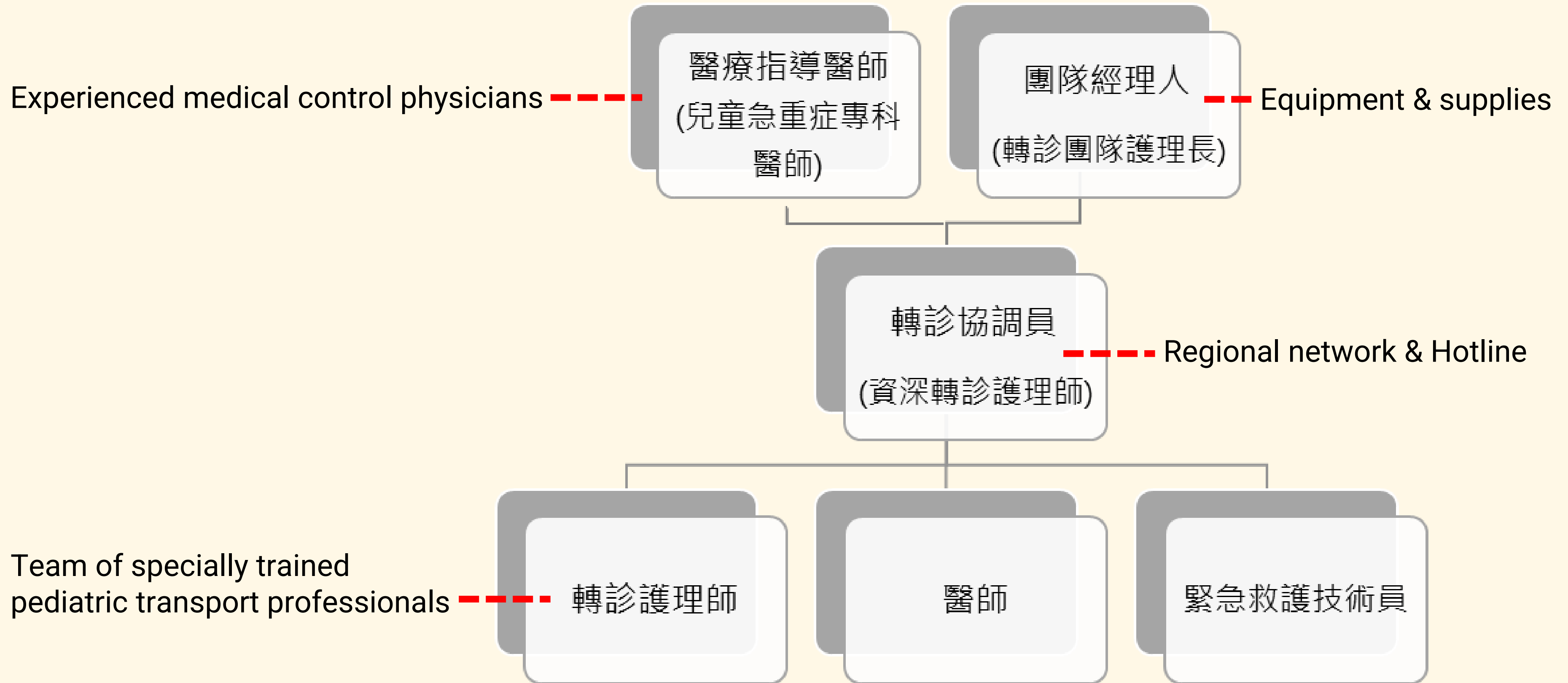
Team Composition

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Team Composition

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行政團隊

行政團隊成員: 醫療指導醫師群、團隊經理人(團隊督導長及護理長)、轉診協調員。

定期會議: 品質管理，討論未來工作方向。



轉院外接護理團隊

具備兒童加護病房二年以上工作經驗，經訓練及考核，成為轉院外接團隊正式成員。

Team Composition

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[疫情前出勤]

外接雙人團隊：
轉診護理師+資深住院醫師



[疫情期間出勤]

於COVID-19社區感染
疫情尖峰期間，外接團
隊持續服務急重症病童。

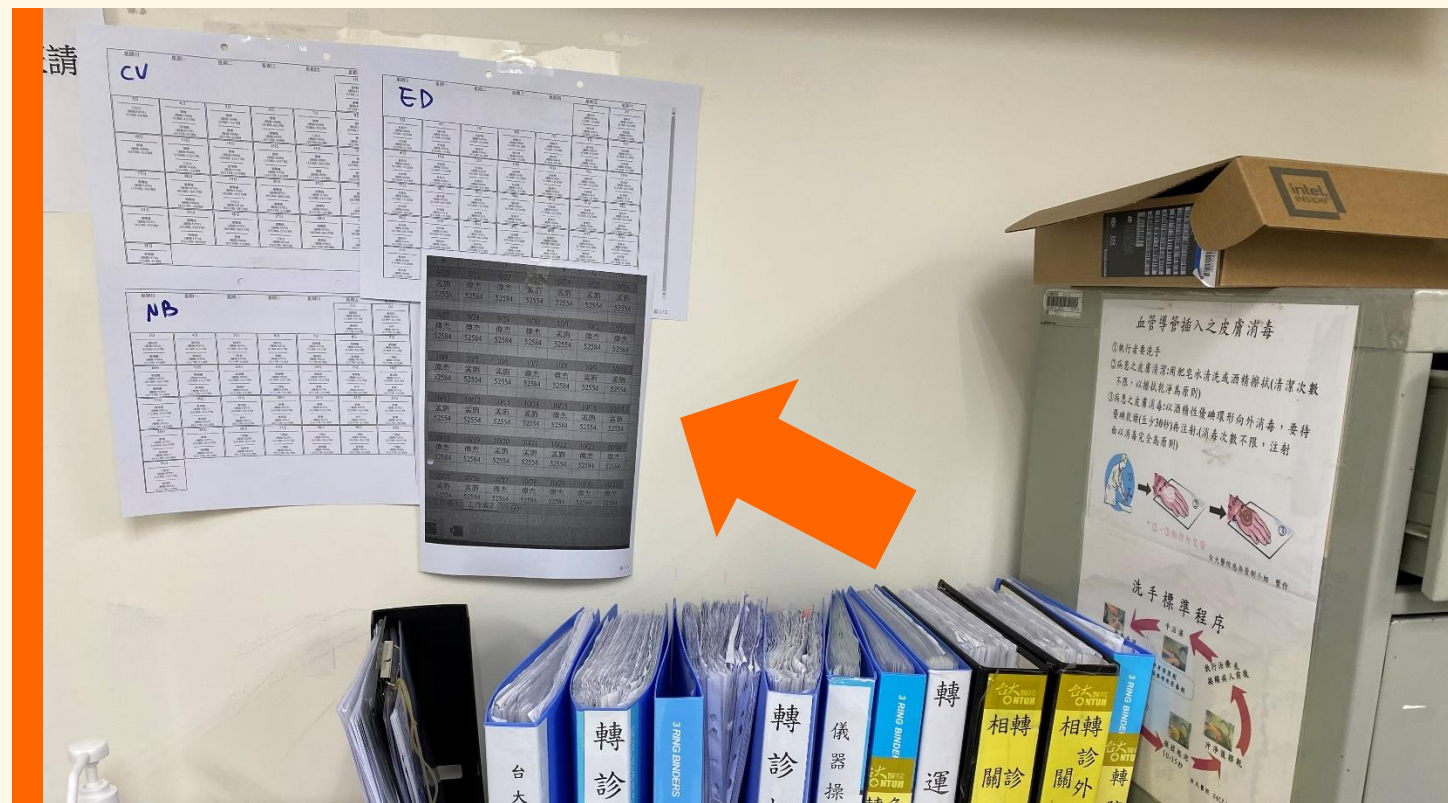


[疫情期間出勤]

轉診護理師及醫師針對
外接疑似空氣傳染個案
著裝防護措施。

Team Composition

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醫療指導醫師 (MCP)

指導醫師隨時on call，提供出勤線上諮詢。

110 年度台大醫院會議紀錄			
會議名稱：兒童轉院外接執行工作小組會議	地點：8PE小教室		
主席：范綱翔	記錄者：范綱翔	日期：4月23日	8時30分
出席人員			
范綱翔 黃士凡 陳宇統 李孟海 曾偉杰 溫淑如			
此次議程與課程內容摘要：			
① 轉院外接在職教育相關規劃 可由張初育結合?			

執行工作小組

每月定期討論：優化工作流程，文獻研讀，課程規劃。

教育訓練

Training Program

Study reviews

- 1) AAP database survey: 145 transport teams
 - **No national standard or consistency** for qualifications for credentialing, and criteria for maintenance of skills and education.
- 2) ACGME-approved fellowship program:
 - 6 curricular elements:
 - Transport physiology
 - Medical control
 - Vehicle safety
 - Medicolegal issue
 - Medical protocols
 - State and federal regulations

Pediatr Emer Care 2020;36: e263–e267
BMC Pediatrics (2017) 17:13

Abilities of a competent transport specialist 16

Medical Knowledge

兒童轉運生理

Special diseases: NB, CV...

Assessments

兒童評估

POCUS

Technical skills

儀器操作

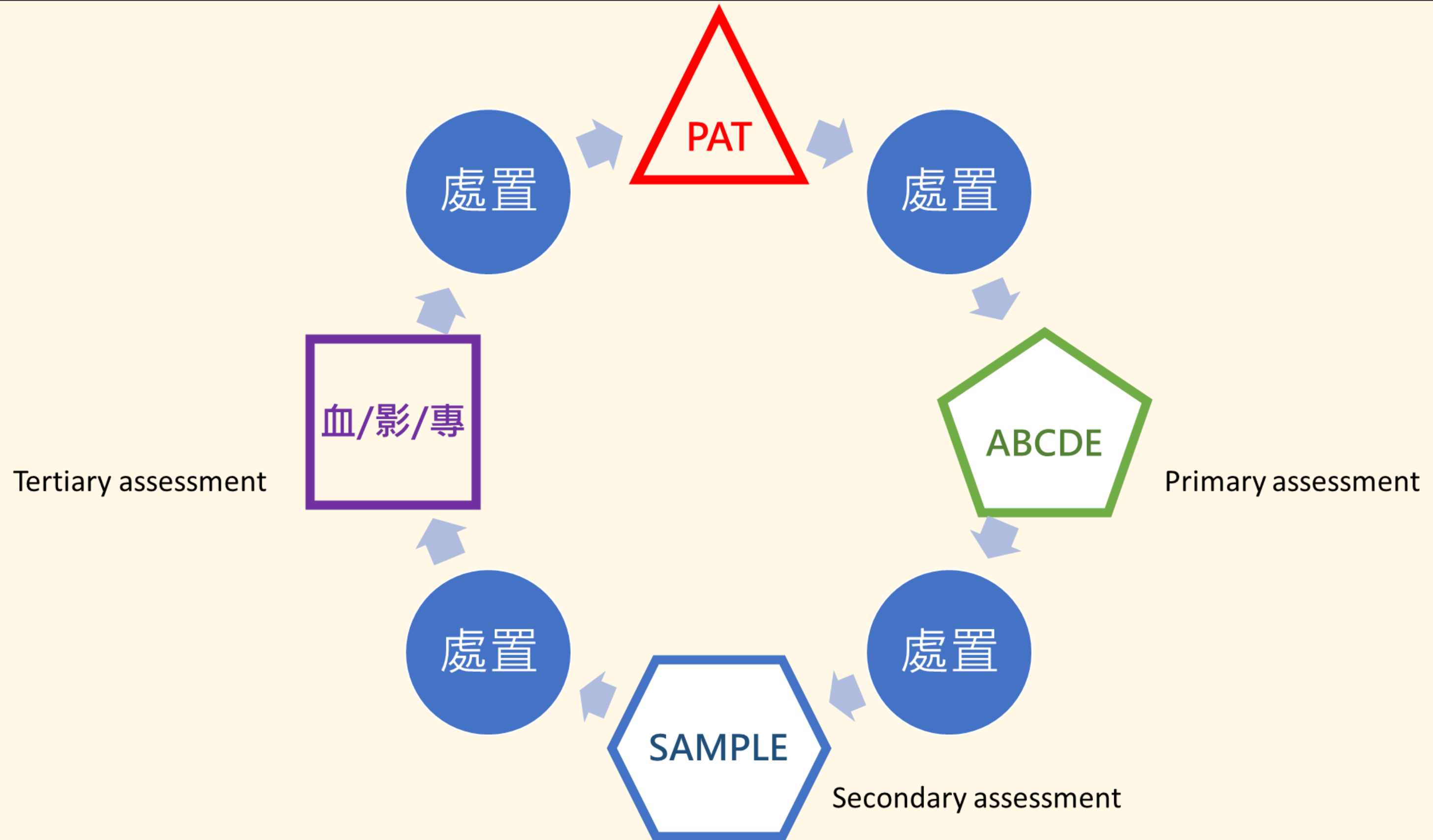
PASL & APLS, NRP

Communication & cooperation

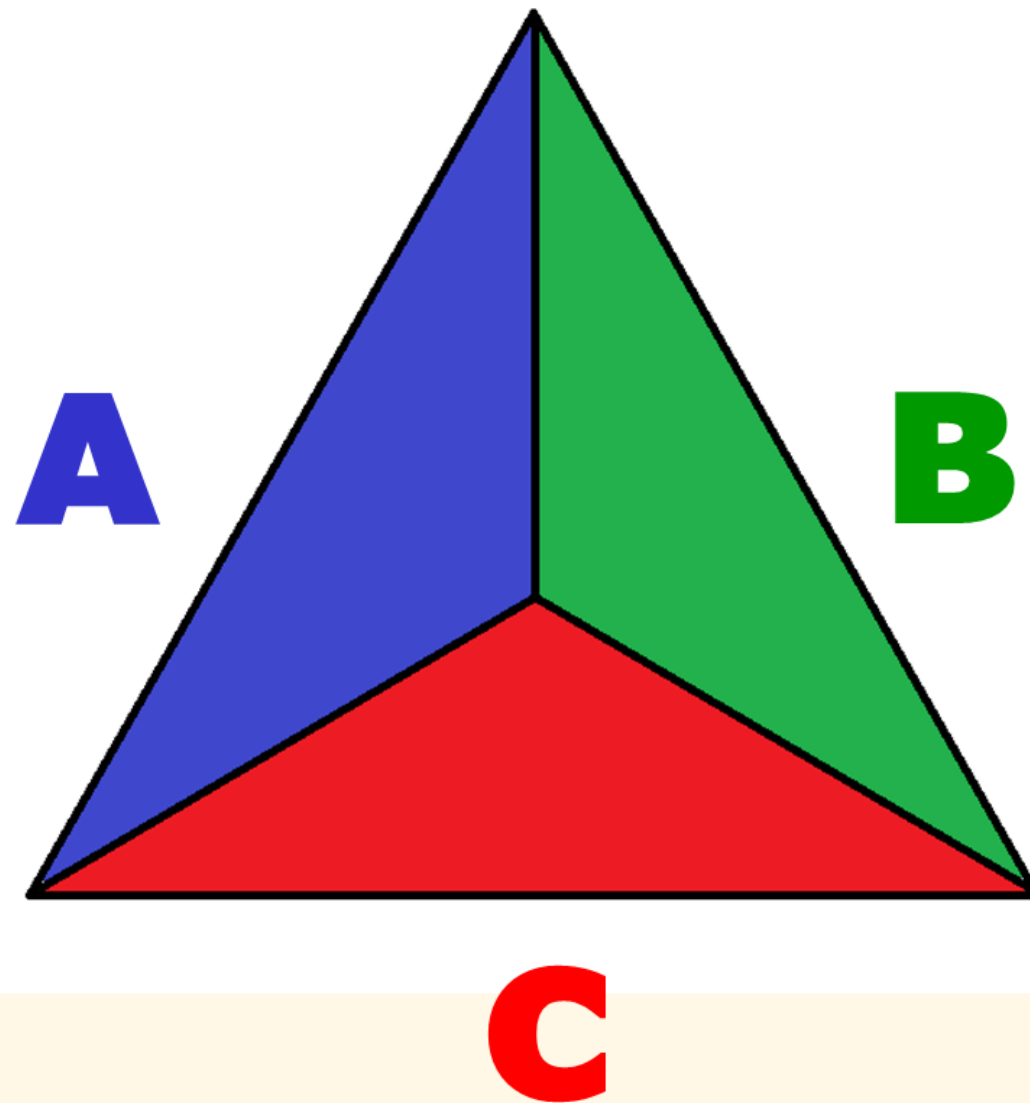
兒童轉診流程

個案討論會

情境模擬



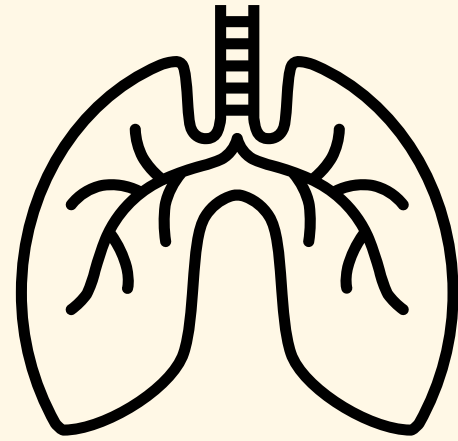
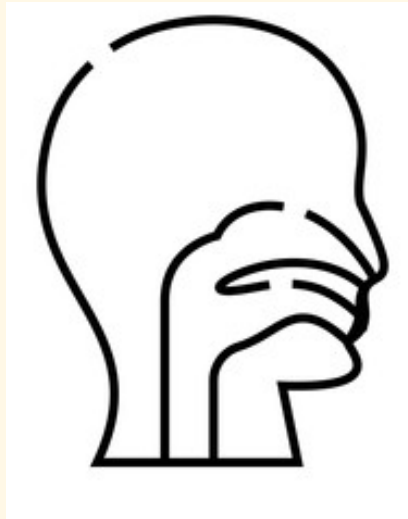
兒童評估三角



- Unstable ?
 - Resuscitation: PALS & APLS
- Stable ?
 - Assessment & Management

Primary Assessment

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A

B

C

D

E

Respiratory failure

Shock

兒童評估/轉運生理



Secondary Assessment

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Symptoms

Allergy

Medicine

Past history

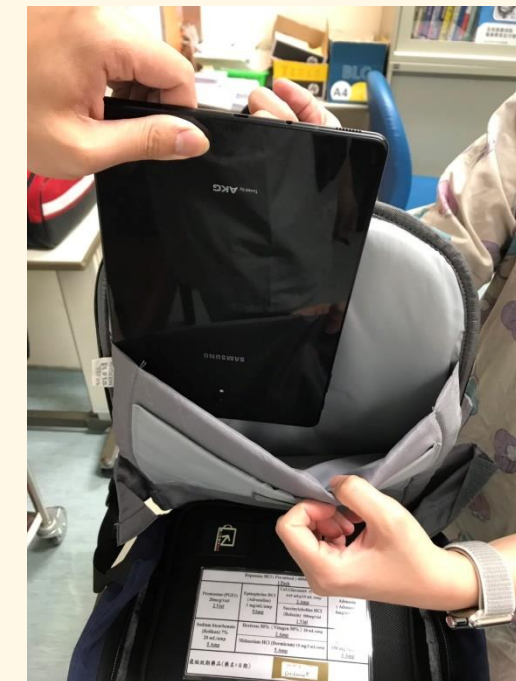
Last meal

Events to present

Focused Hx

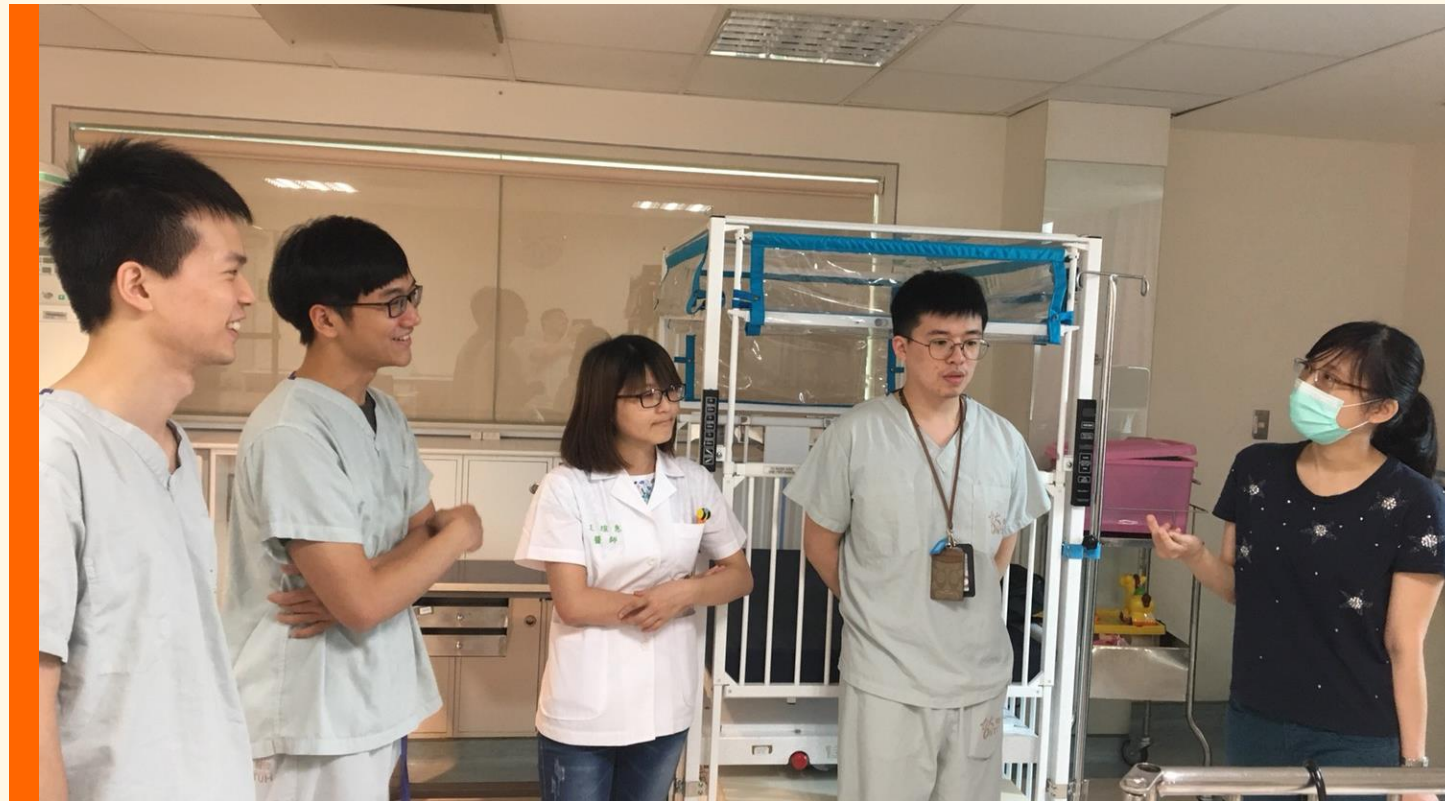
Focused PE

- 兒童轉診流程
- POCUS
- Medical knowledge: NB, CV...



High Fidelity Simulation

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團隊運作: 情境模擬

Briefing



團隊運作: 情境模擬

Debriefing

High Fidelity Simulation

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團隊運作: 情境模擬

Airway management



團隊運作: 情境模擬

Situation Monitoring

Abilities of a competent transport specialist 23

Medical Knowledge

兒童轉運生理

Special diseases: NB, CV...

Assessments

兒童評估

POCUS

Technical skills

Equipment --- 儀器操作

PASL & APLS, NRP

情境模擬

Communication & cooperation

兒童轉診流程 --- Operational protocols

Data base --- 個案討論會

年度考核

- 檢核效期內APLS/PALS、NRP證書
- 繼續教育時數檢核
- 完成操作技術考核:每年考核三項臨床技術
 - 兒童身體評估、呼吸器操作(含異常警訊處置)、保溫箱操作、生理監視器操作、點滴幫浦操作、外接流程處置等
- 輔導未通過檢核之成員: 個別面談及技術加強

Thank You!

Any Questions?

特別感謝

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國家衛生研究院
National Health Research Institutes



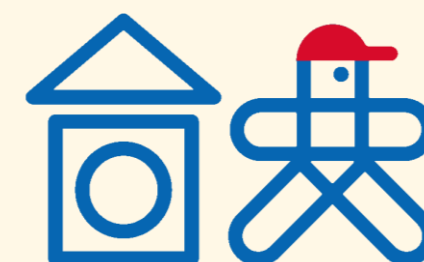
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