



臺北醫學大學  
TAIPEI MEDICAL UNIVERSITY

# Communication and understanding of system resilience through RAG survey in EDs

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➤ Taipei Medical University has three hospitals

**TMU hospital, 800 beds**



**Wan Fang hospital,  
934 beds**



**Shuangho hospital, 730 beds**



# Study aims

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1. Direct communicate with five directors of EDs to understand how they think about system resilience.
2. Compare system resilience of EDs across four hospitals
3. Try to develop an approach of implementing resilient health care based on the baseline of system resilience through a RAG survey under the QLLM framework.

# Background – 1/2

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- Almost EDs in medical centers and some regional hospitals are overcrowding
- EDs in Taiwan are requested to plan a event list that has a prepared response.

During Time Period



The event list includes

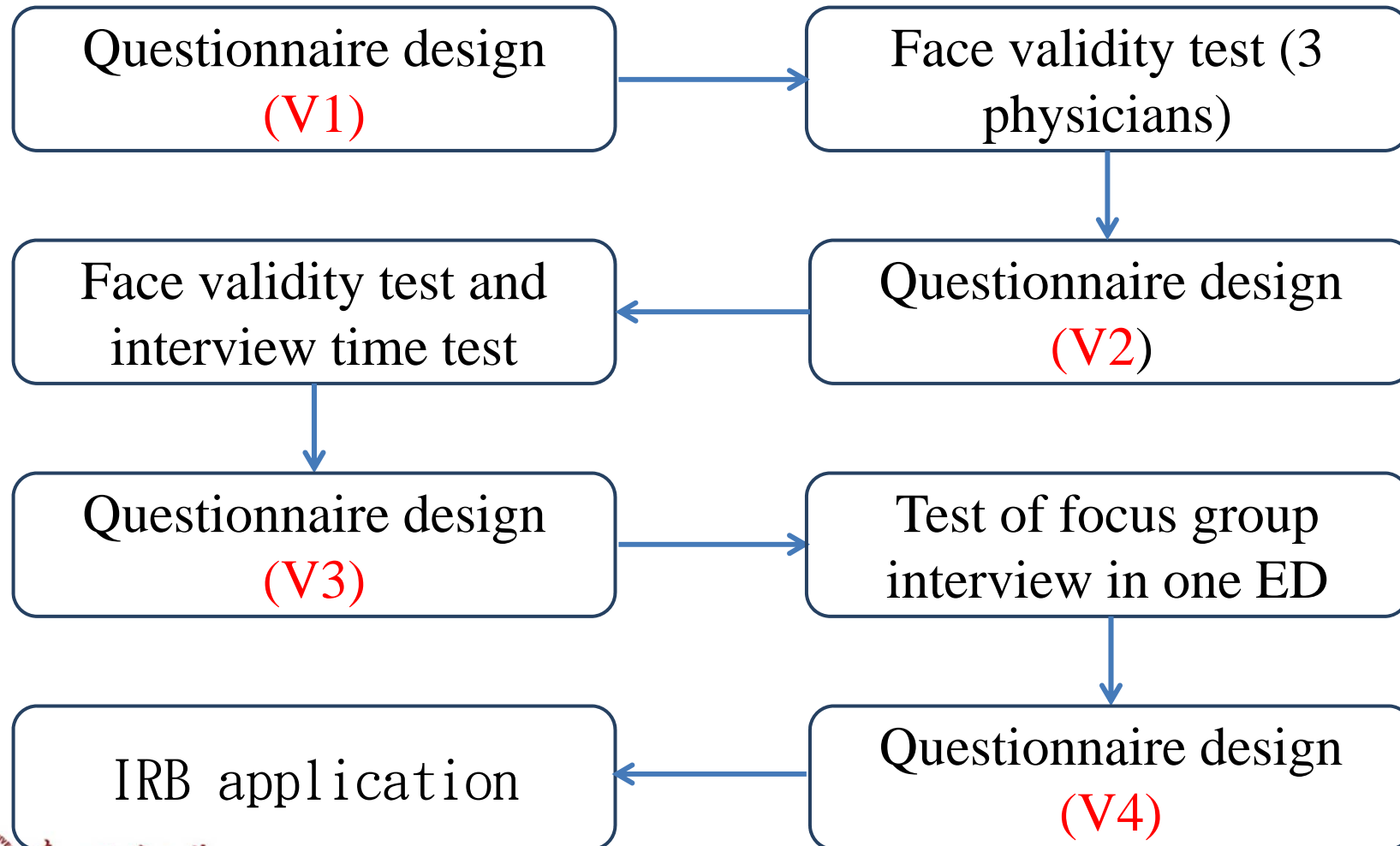
- Extraordinary events: Multiple Casualty Incident, fire incident, violence, emergency power(air) shutoff,
- Everyday clinical work

# Research Method – Questionnaire design

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- Erik Hollngel's Resilience Analysis Grid
  - Assessment of four abilities of system resilience
    - Ability to respond
    - Ability to monitor
    - Ability to anticipate
    - Ability to learn
  
- Four versions, the first version was designed according to SOPs

# Research Method – Questionnaire design



# Research Method – Questionnaire design

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The final version has

- **Structured questions** for analysis of the ability to learn
- **Open questions** for analysis of the ability to respond, monitor, anticipate with the modification suiting for EDs' context
- **maximum two hours** of interview time

# Hospital characteristics

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Hospital	A	B	C	D
Contract - Level	Regional Hospital	Medical Center	Medical Center	Regional Hospital
Public/Private	Public (city government)/private	Public (city government)/private	Public (MoD)	Public (MoHW)
Beds in ED	34	26	100	20
Patient visits in 2014	98,213	65,397	65,615	59,873
No. of Health care staff	94	75	<b>135</b>	48



# Results – 1/5

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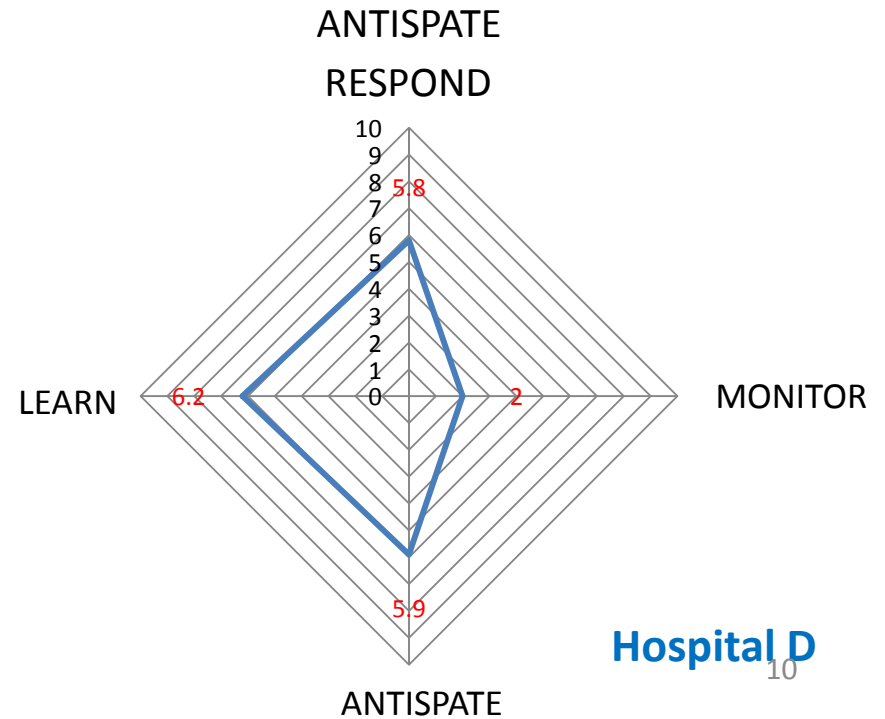
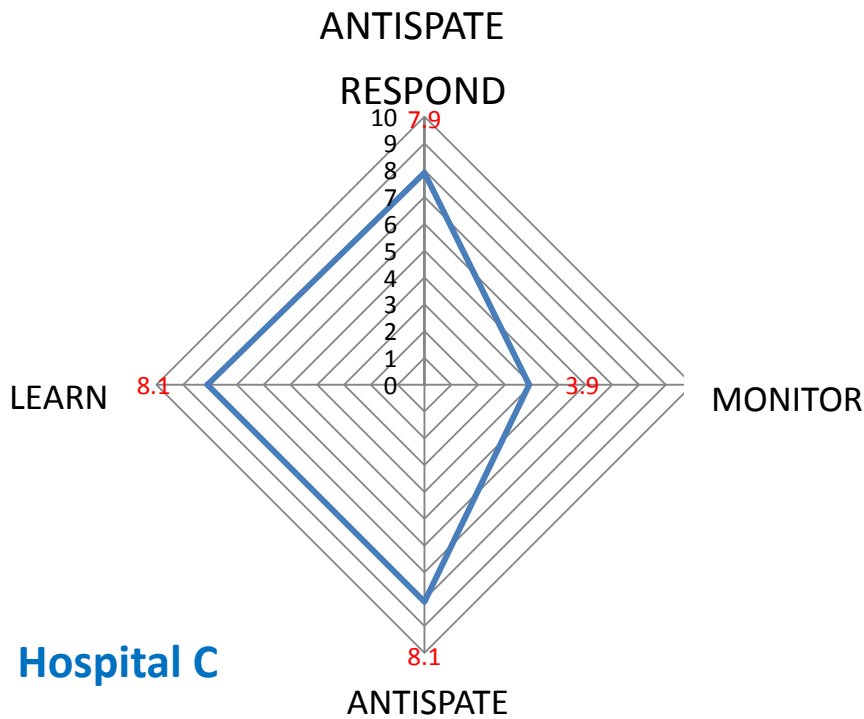
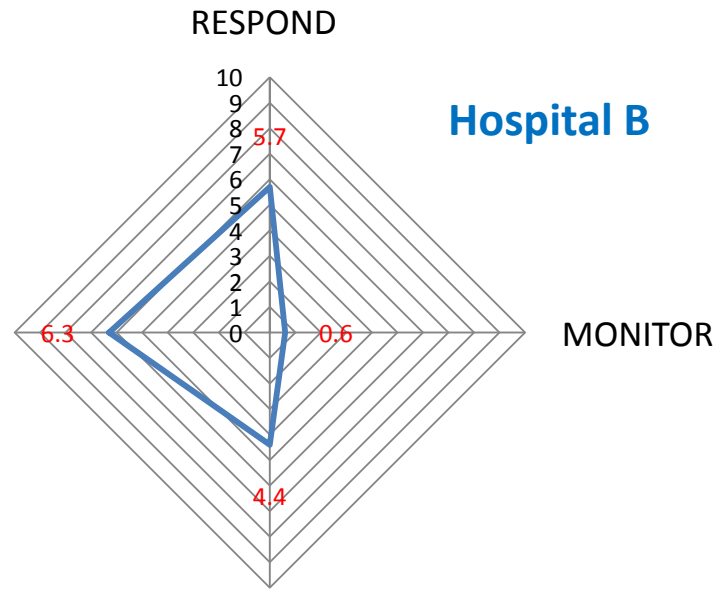
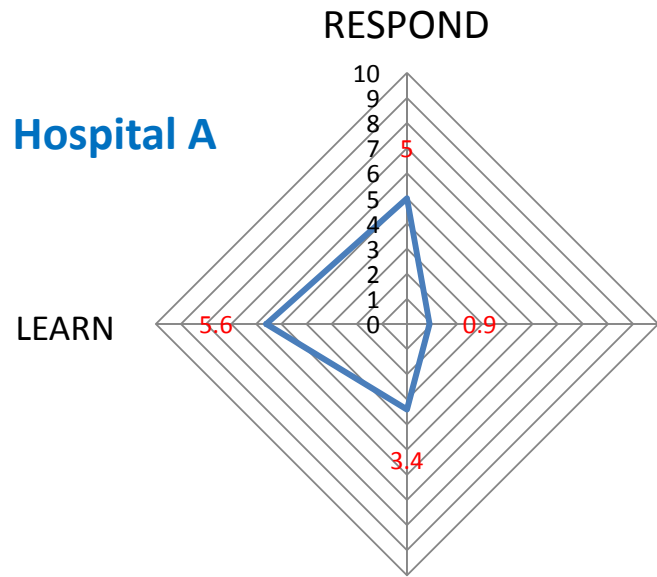
## ➤ Overall system resilience of EDs in four hospitals

### – ECW work:

- Four hospitals have similar patten of system resilience
- strength is in LEARN, weakness is in MONITOR
- Hospital C has the higher resilience than other hospitals
- Hospital A, B have less ANTISPATE ability than other

hospitals

# System Resilience - ECW

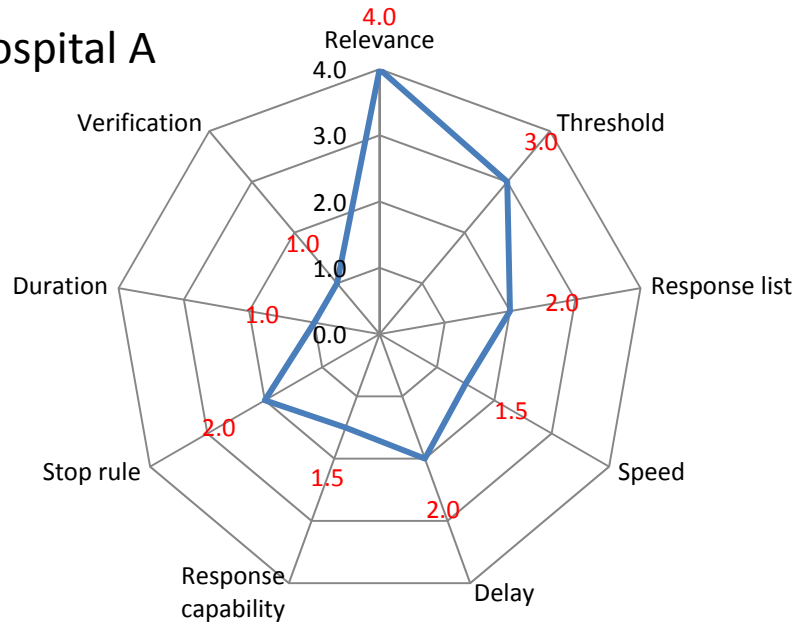


# Results – 2/5

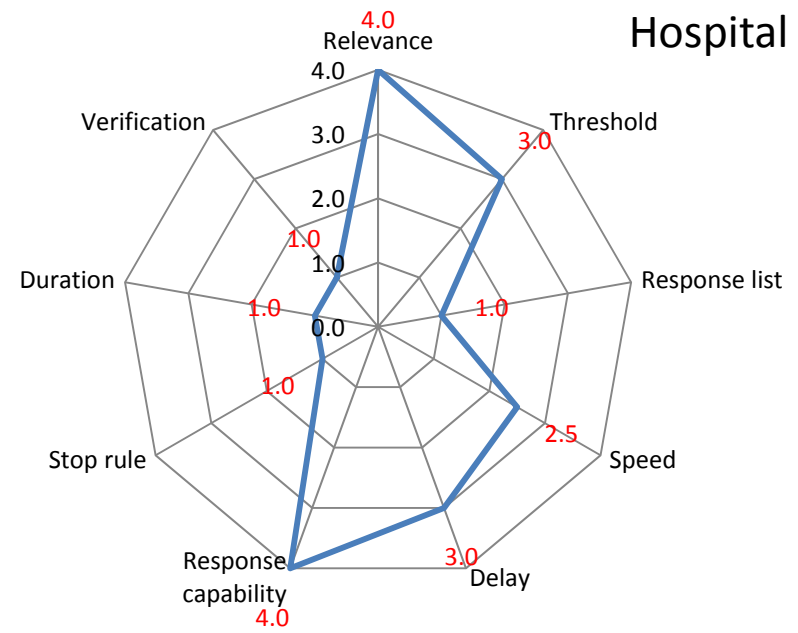
- Comparison of individual ability in ECW across four EDs
  - RESPOND
    - 9 domains: Relevance , Threshold ,Response list , Speed , Delay , Response capability , Stop rule , Duration , Verification
    - Lack of verification is in common
    - Every hospital has different pattern of ability to RESPOND

# Ability to respond in ECW

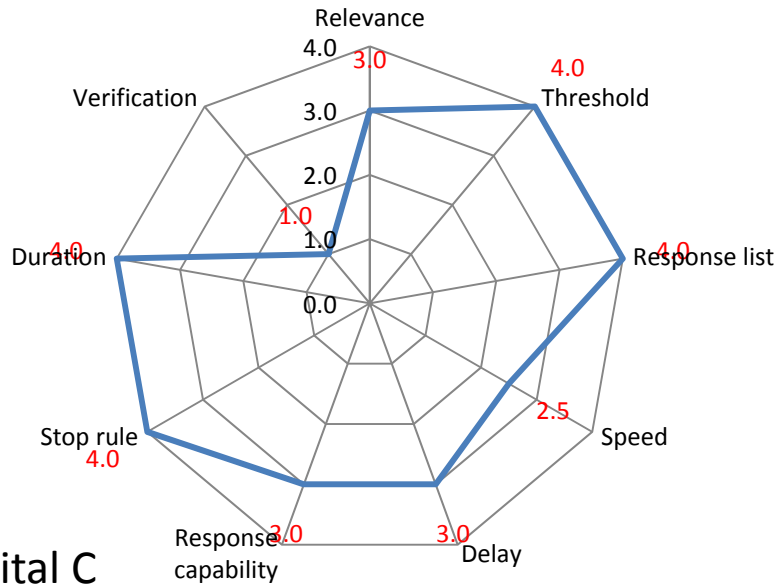
Hospital A



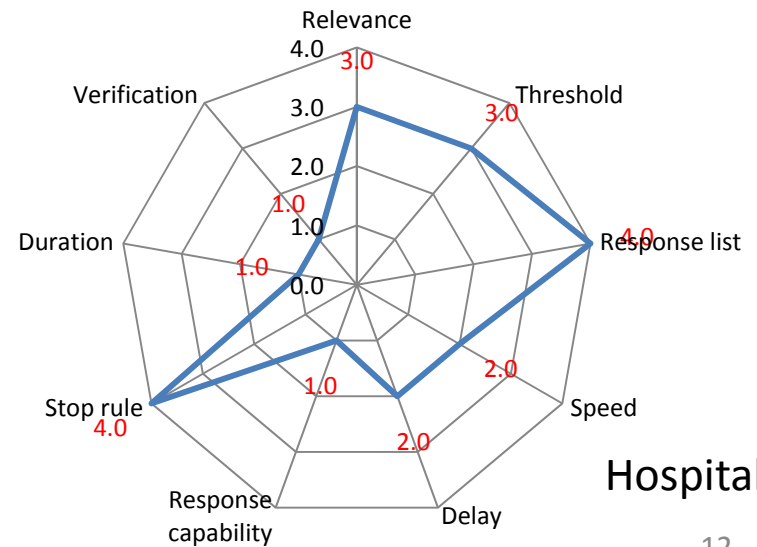
Hospital B



Hospital C



Hospital D

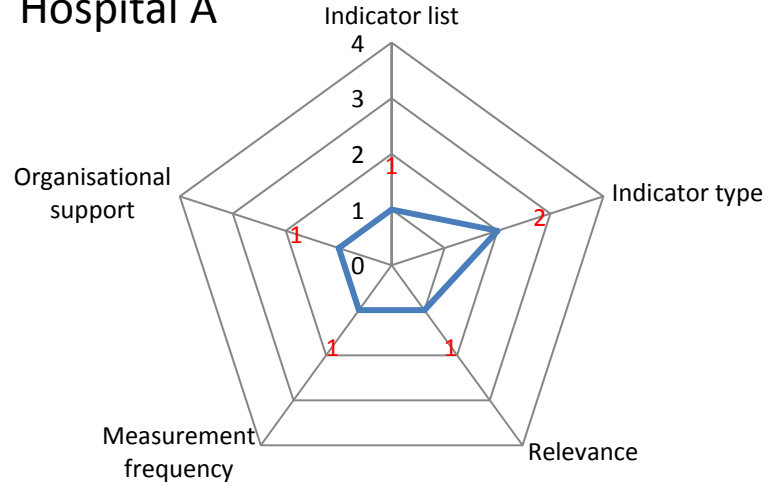


# Results – 3/5

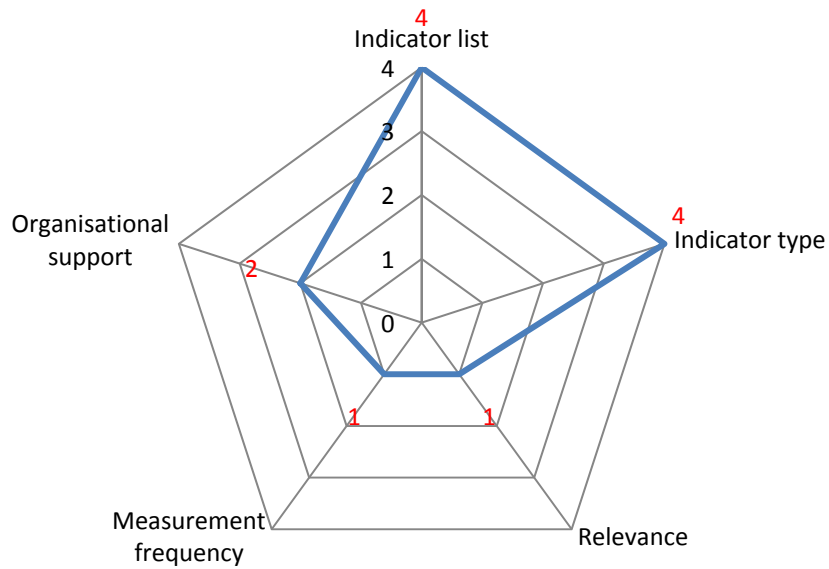
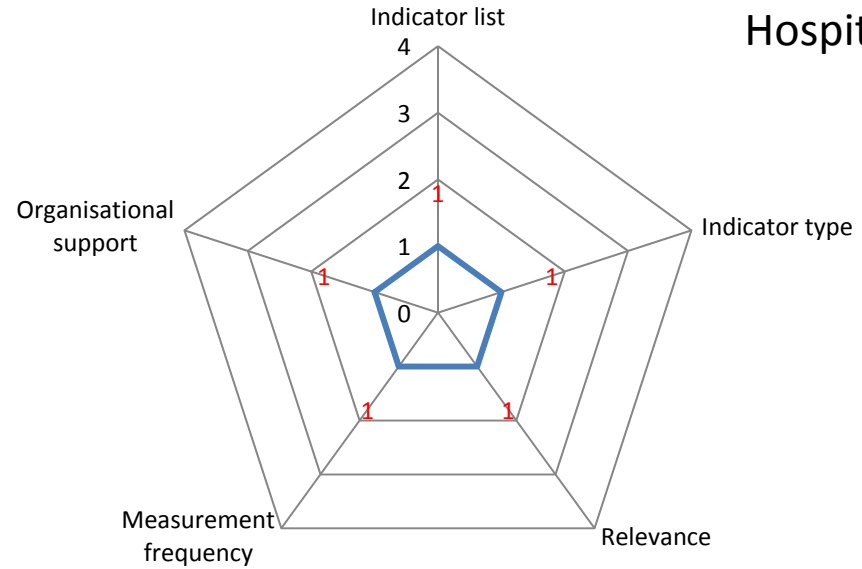
- Comparison of individual ability in ECW across four EDs
  - MONITOR
    - 5 domains: Relevance , Indicator list , Indicator type , Relevance , Measurement frequency , Organisational support
    - Lack of monitor frequency in common
    - Every hospital has different pattern of ability to MONITOR
    - Hospital C performs better monitoring in indicator list and indicator type
    - Hospital A and B have less monitoring ability than other two hospitals

# Ability to monitor in ECW

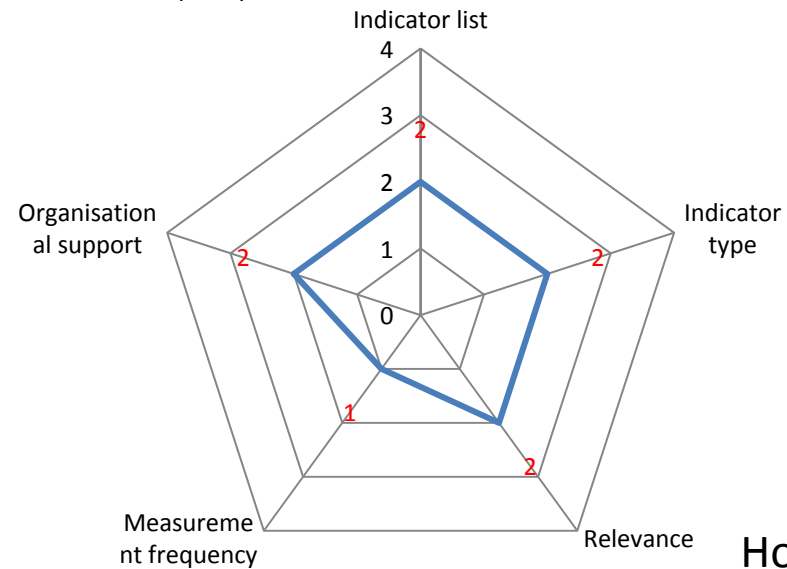
Hospital A



Hospital B



Hospital C

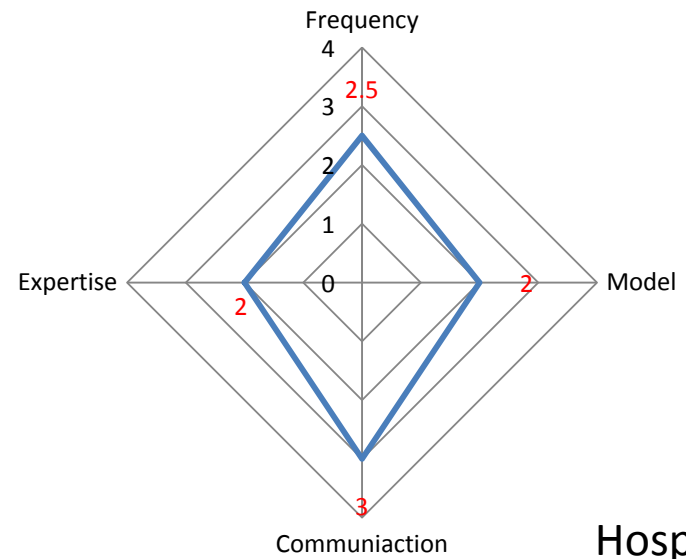
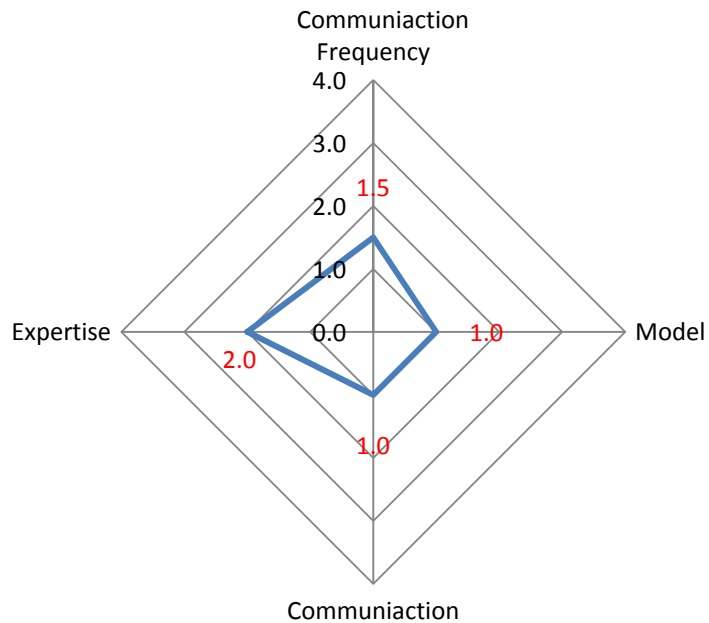
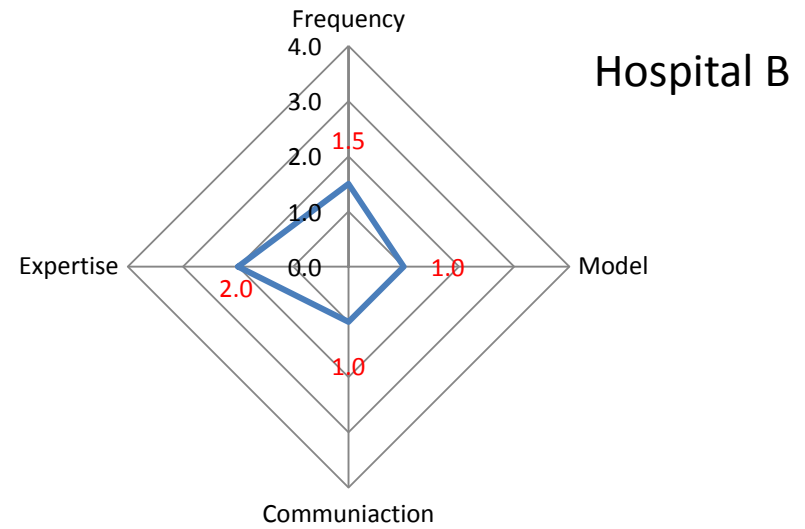
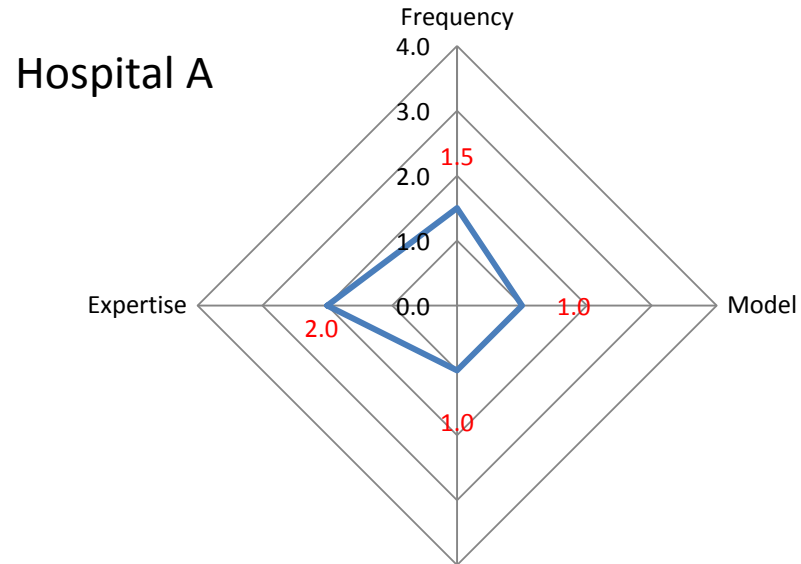


Hospital D

# Results – 4/5

- Comparison of individual ability in ECW across four EDs
  - ANTISPATE
    - 4 domains: Relevance , Frequency , Model , Communication , Expertise
    - Hospital D performs better anticipating than other hospitals
    - Hospital A, B and C have similar patter of anticipating ability

# Ability to anticipate in ECW



Hospital C

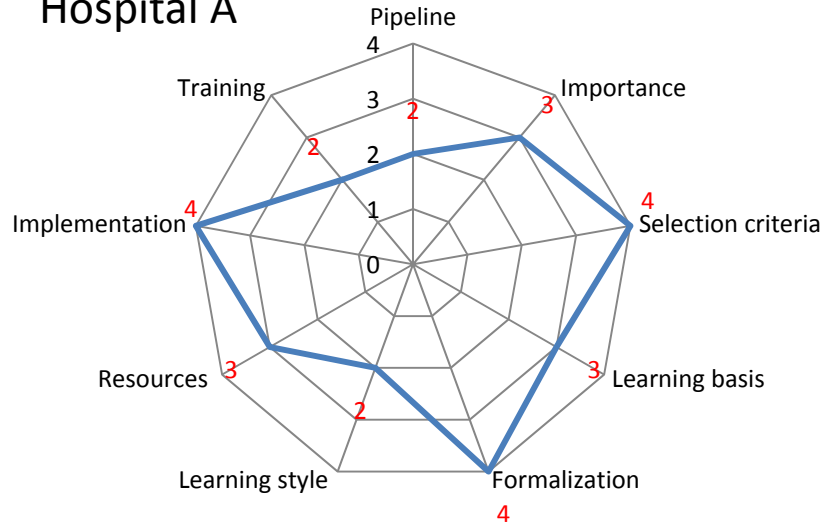


# Results – 5/5

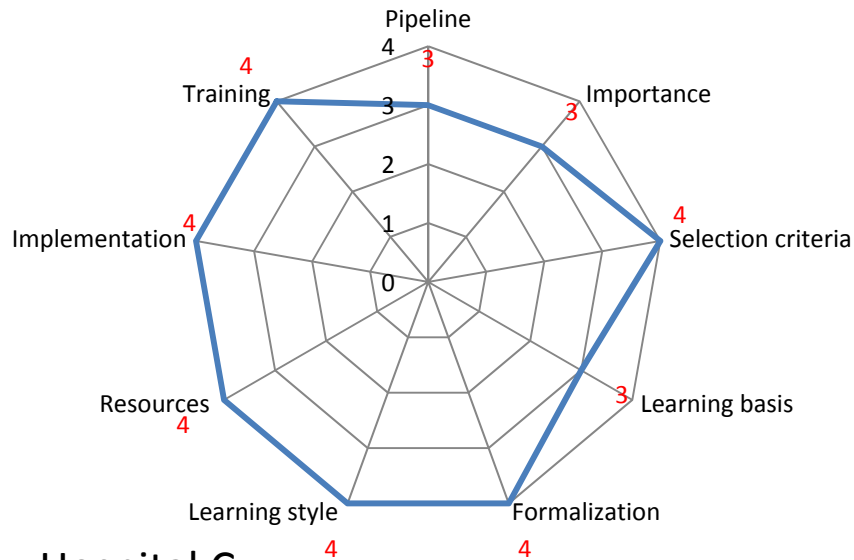
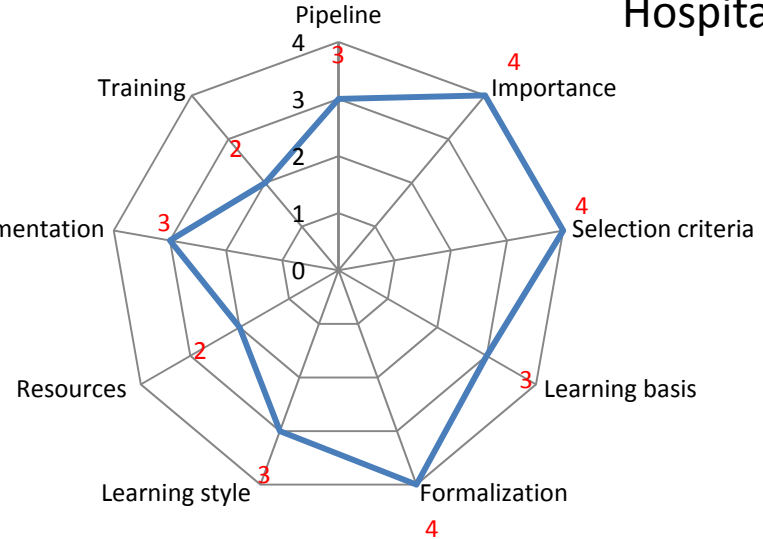
- Comparison of individual ability in ECW across four EDs
  - LEARN
    - 9 domains: Selection criteria, Learning basis , Formalization , Training , Learning style, Resources , Pipeline, Importance, Implementation
    - Hospital C performs better learning than other hospitals
    - Four hospitals have different patter of learning ability

# Ability to learn in ECW

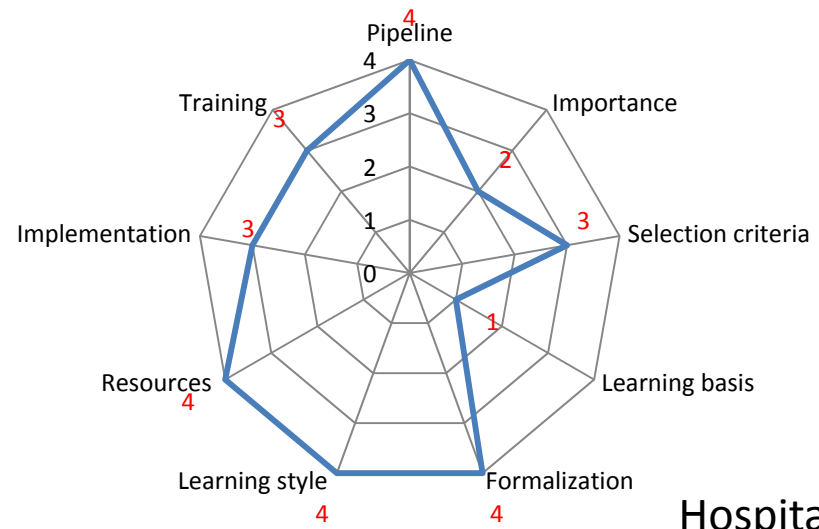
Hospital A



Hospital B



Hospital C



Hospital D

# Conclusion

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1. ED has different levels of system resilience between the situation of ECW and extraordinary events.
2. Hospital with more responsibilities required by the Central government and IT capacity shows a better resilience in the four abilities.
3. The result of RAG survey provides an insight of ED's resilience to the five hospitals (directors of ED) and facilitates a better understanding how ED's current ability structure of resilience.
4. It is a good approach of communicating system resilience between researchers and healthcare professionals.

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# Thank you very much

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