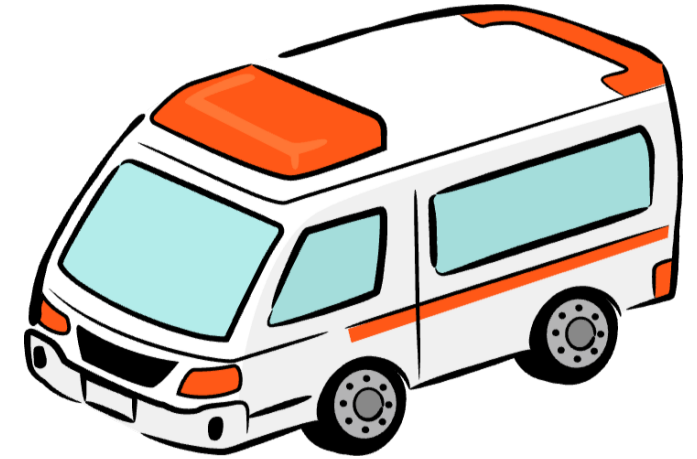


Increasing EMS Demand in JAPAN

Challenges and Solutions

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Disclosure

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- The JSPS Overseas Research Fellowship
- The ZOLL foundation research fund

These organizations have no role in this presentation.

The figures in this presentation from iStocks, いらすとや and ダ鳥獣戯画.



Yohei Okada, MD, Ph.D.

Clinical qualification

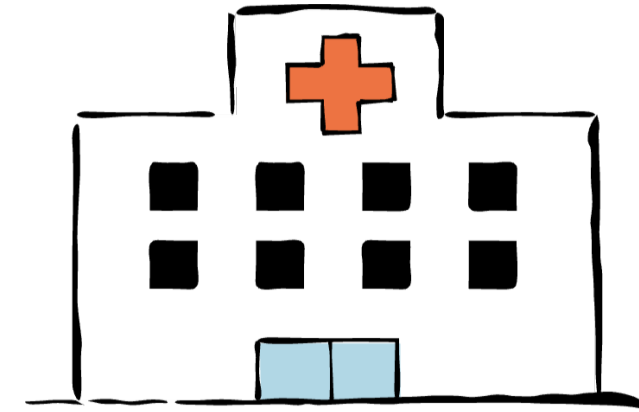
Certified Emergency physician (JAPAN)

Certified Intensive care physician(JAPAN)

Research fields

- Resuscitation, ECPR
- Heat related illness
- Machine learning

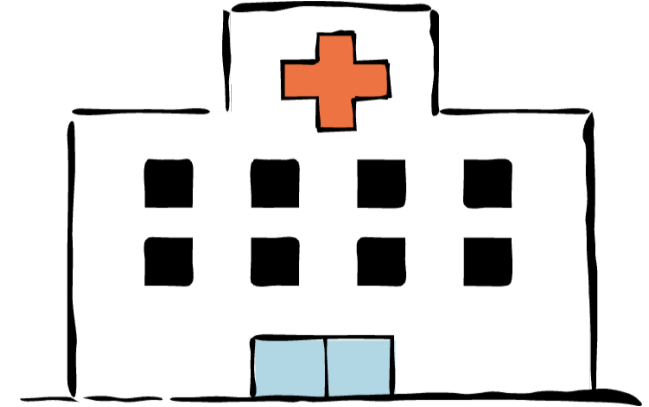
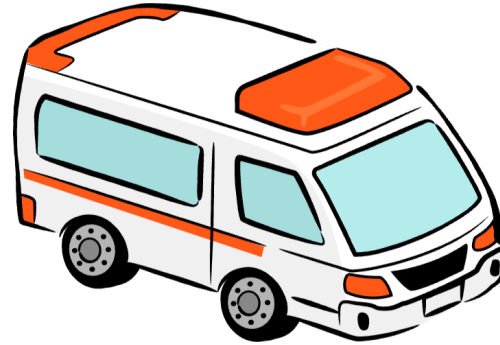
Background



EMS demand is globally increasing.
Effective measures are needed to address this situation.

**This talk aims to introduce the EMS system in Japan,
challenges and potential solution**

Agenda



- **EMS system in Japan**
- **Challenges: Increasing EMS demand**
- **Potential solutions**

EMS and Paramedics in Japan

FDMA: Fire and disaster management agency

Fire-department based system

Call “**119**” in all regions

724 Headquarters
(in 1,690 cities/towns)

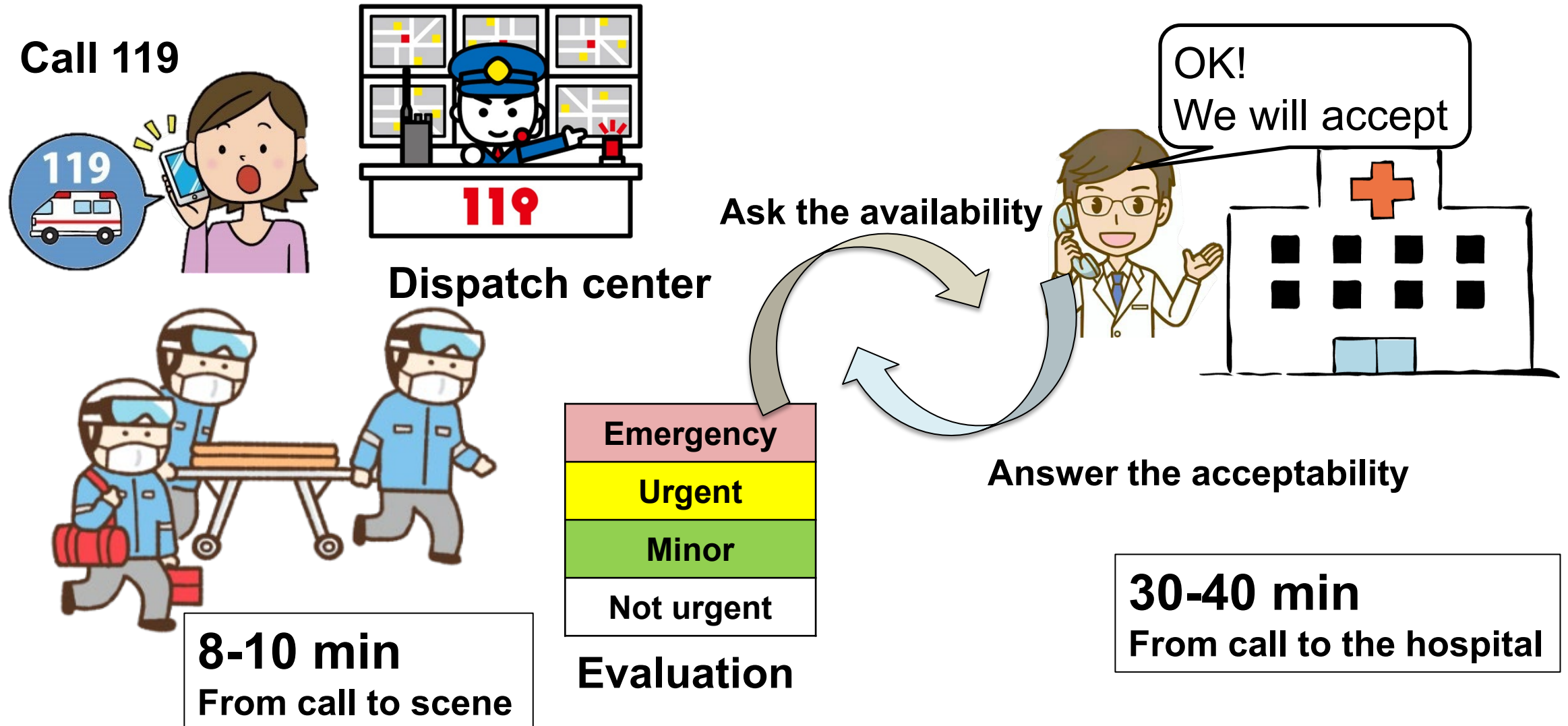
5,275 units Paramedics

3 crews (1 EMT at least)

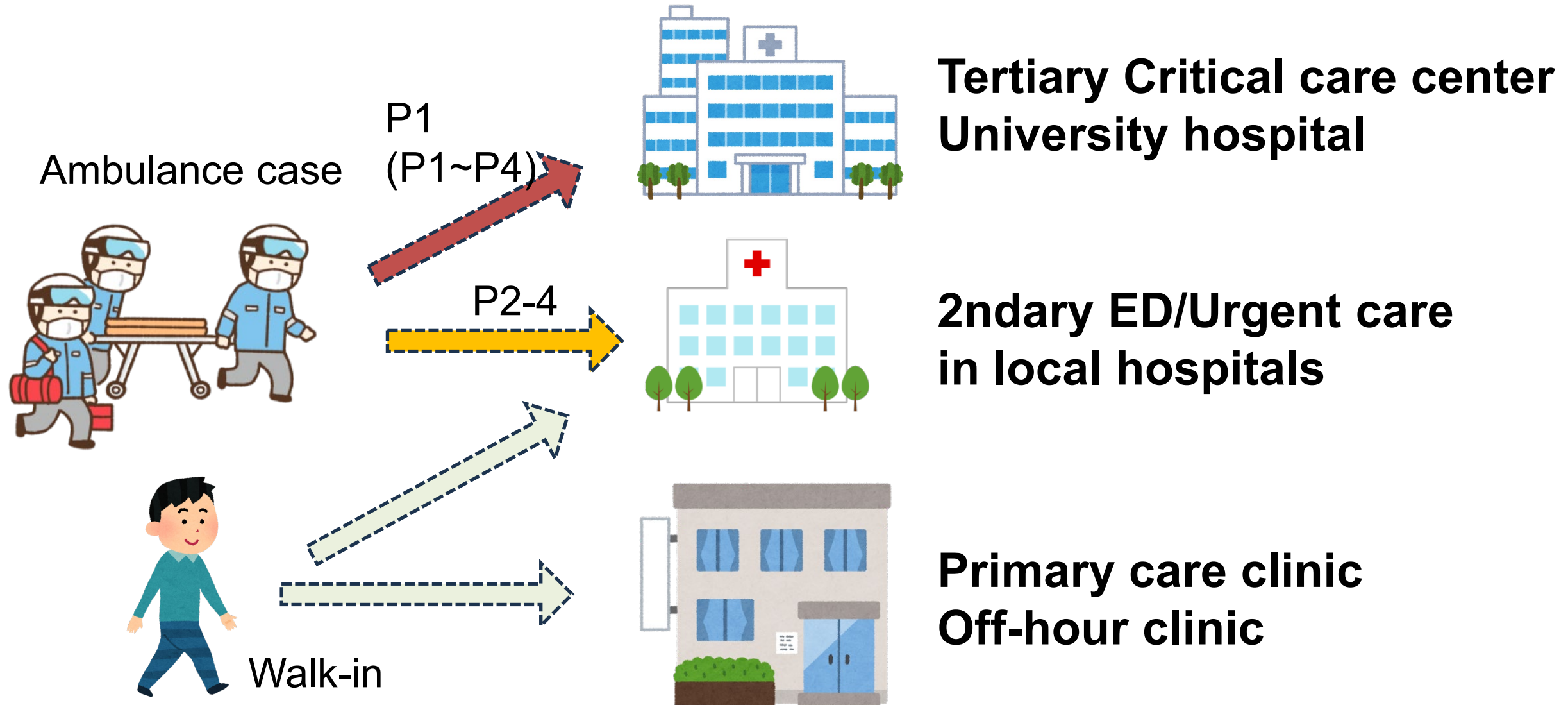
Statistics in 2021, FDMA



General cases



3-tier Emergency system in Japan



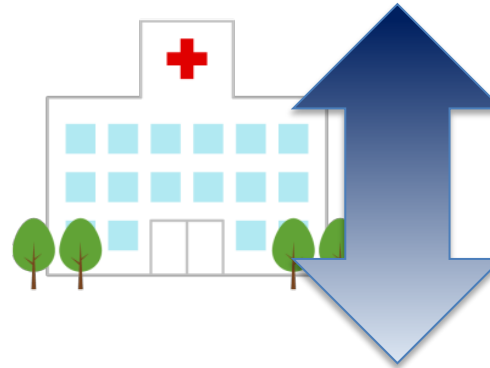
Hospital function

Tertiary Critical care center
University hospital



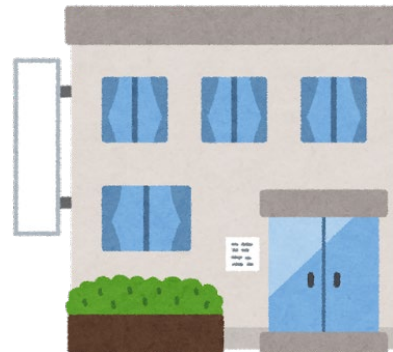
Emergency physician working
ICU/Specialty care/Surgery: 24/7
Trauma, cardiac arrest, Sepsis, etc.

2ndary ED/Urgent care
in local hospitals



Varied capacity
some are close to tertiary care
others are like off-hour clinic

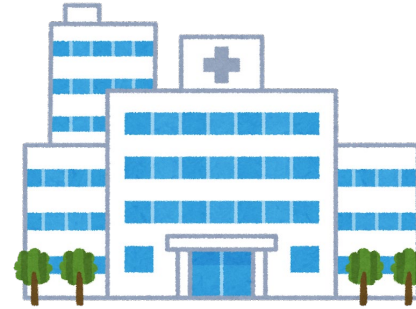
Primary care clinic
Off-hour clinic



Primary care physician working
Limited facility (Only Xray?)
No admission

In Osaka Pref, 8.7 mil people

Tertiary Critical care center
University hospital



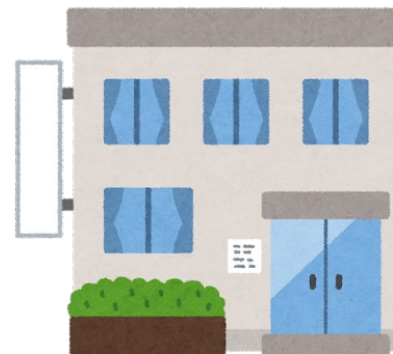
16 centers (6 Univ hospitals)
3 centers for Pediatric centers

2ndary ED/Urgent care
in local hospitals



250 hospitals

Off-hour clinic



49 polyclinics

In Osaka Pref: 500,000 ambulance cases

**Tertiary Critical care center
University hospital**



18~20% of the cases

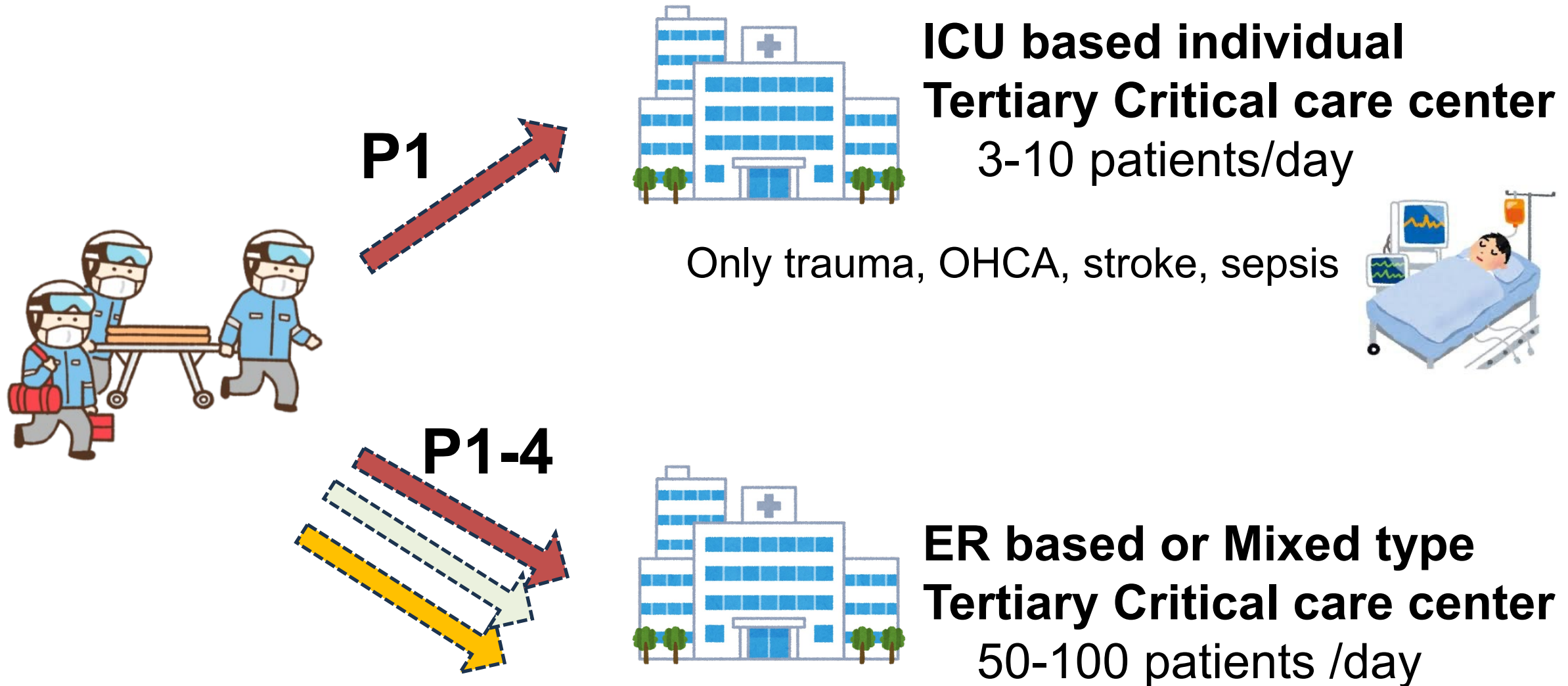
**2ndary ED/Urgent care
in local hospitals**



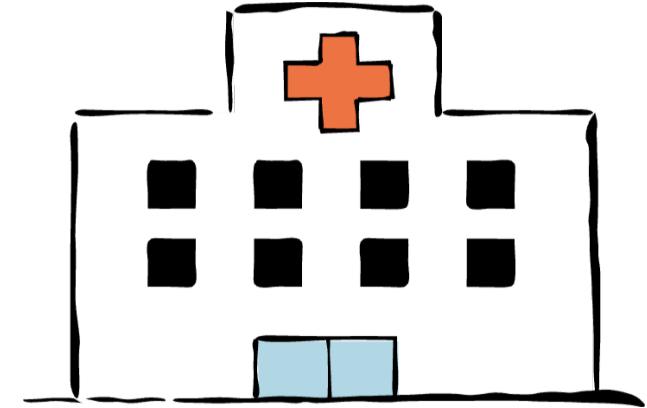
80% of the cases

- Tertiary care hospitals can focus on severe patients
- Efficient to save the pts with life-threatening condition
- Sometimes, under-triage occurs

Tertiary care center: 2 types of EDs

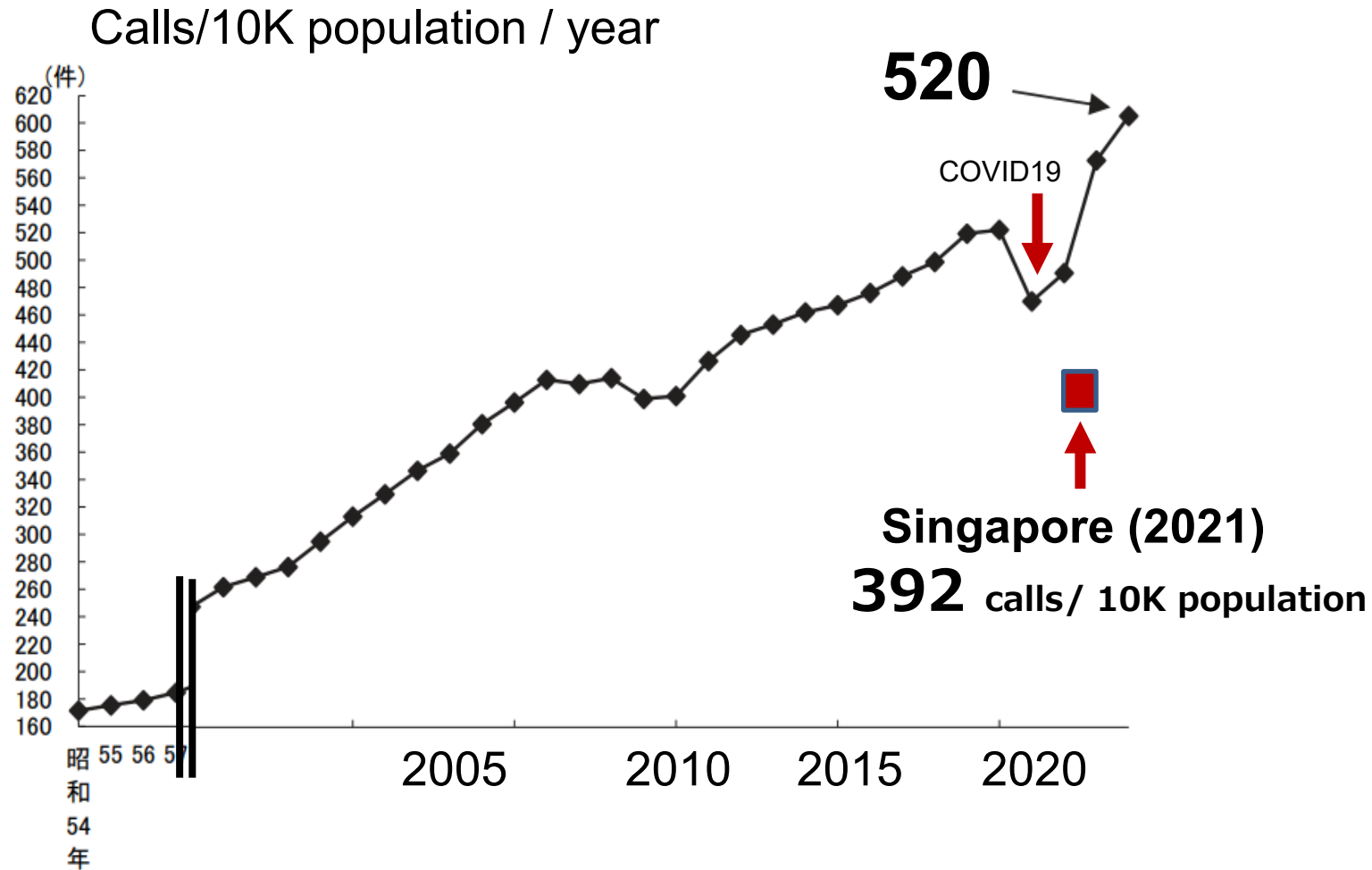


Agenda

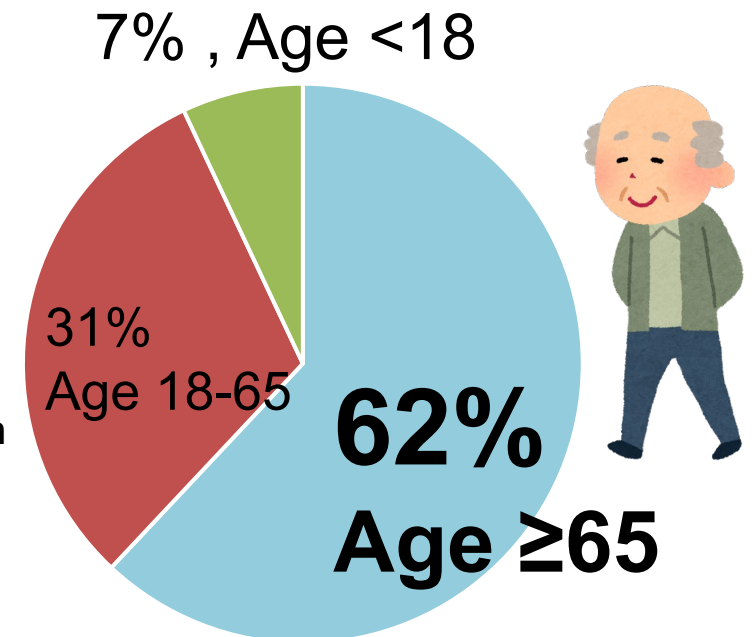


- EMS system in Japan
- **Challenges: Increasing EMS demand**
- Potential solutions

Call 119 is increasing

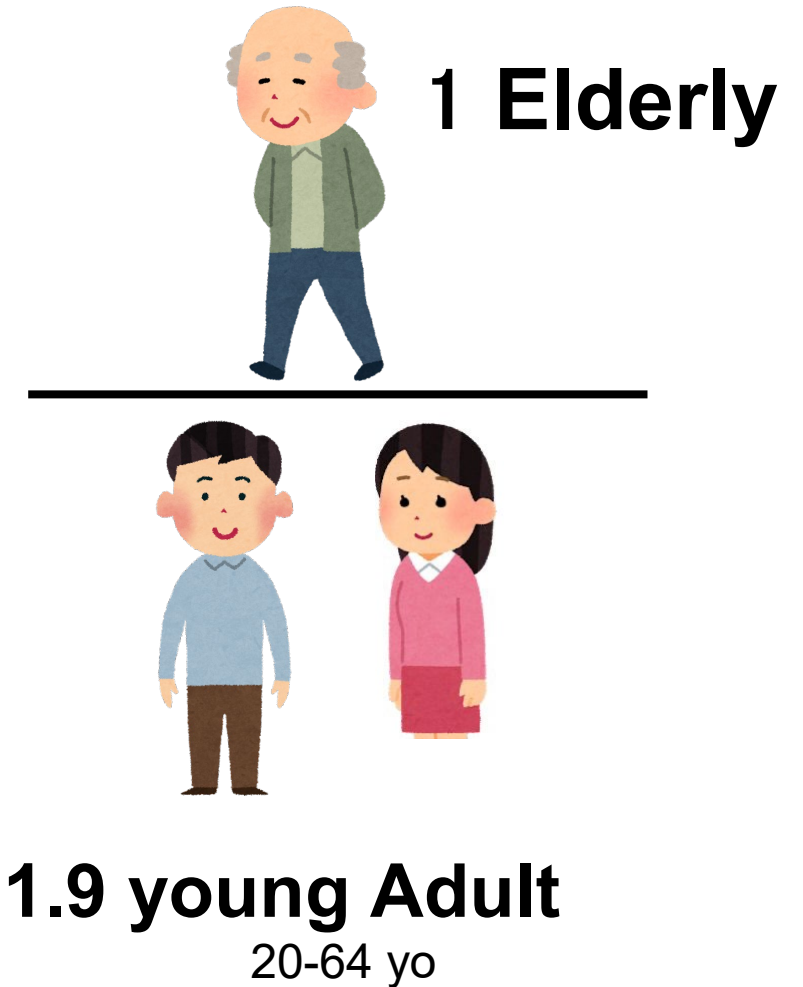
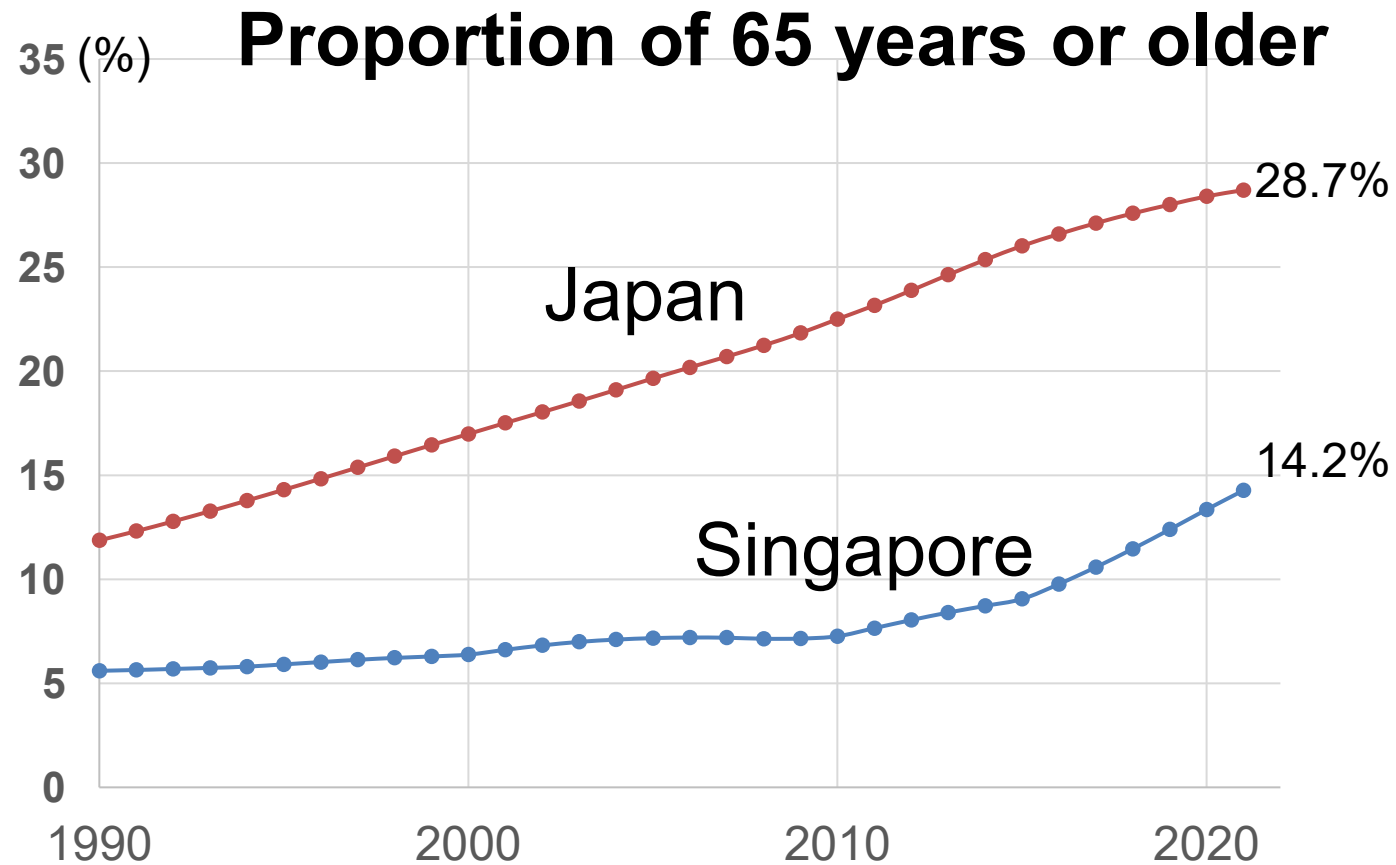


Age of the patients



Annually 520 calls/10k population

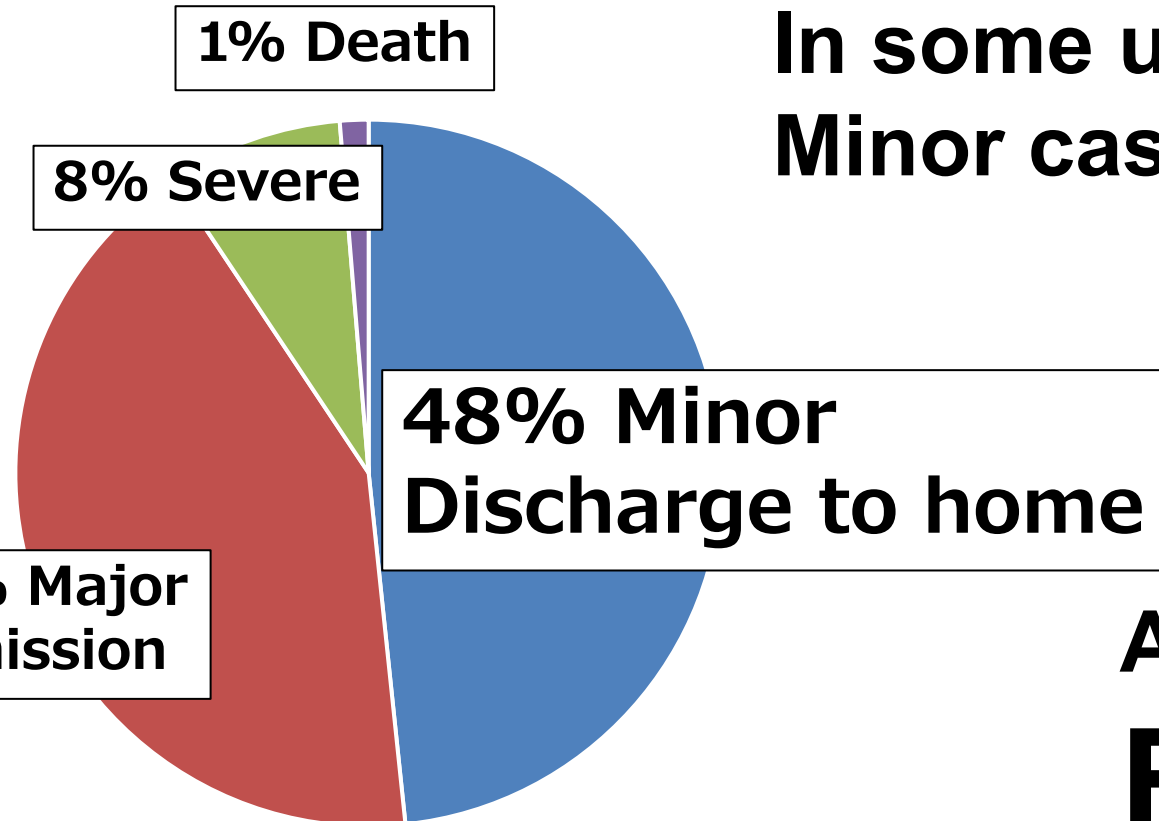
Super Aged society in Japan



Japan is Top of the world

Half of the cases are Minor

**In some urban areas,
Minor cases are up to 60%.**



**Ambulance is
FREE in all case**

No refuse policy



**I cannot sleep.
I am lonely.
I need ambulance.**



This men needs ambulance?



95 yo male

Long stay in a nursing home
Post-stroke disability
Bedridden, no communication
Need fully assistance

In these 2 weeks,
Less appetite
Lost the body weight
Mild fever
No vital sign change



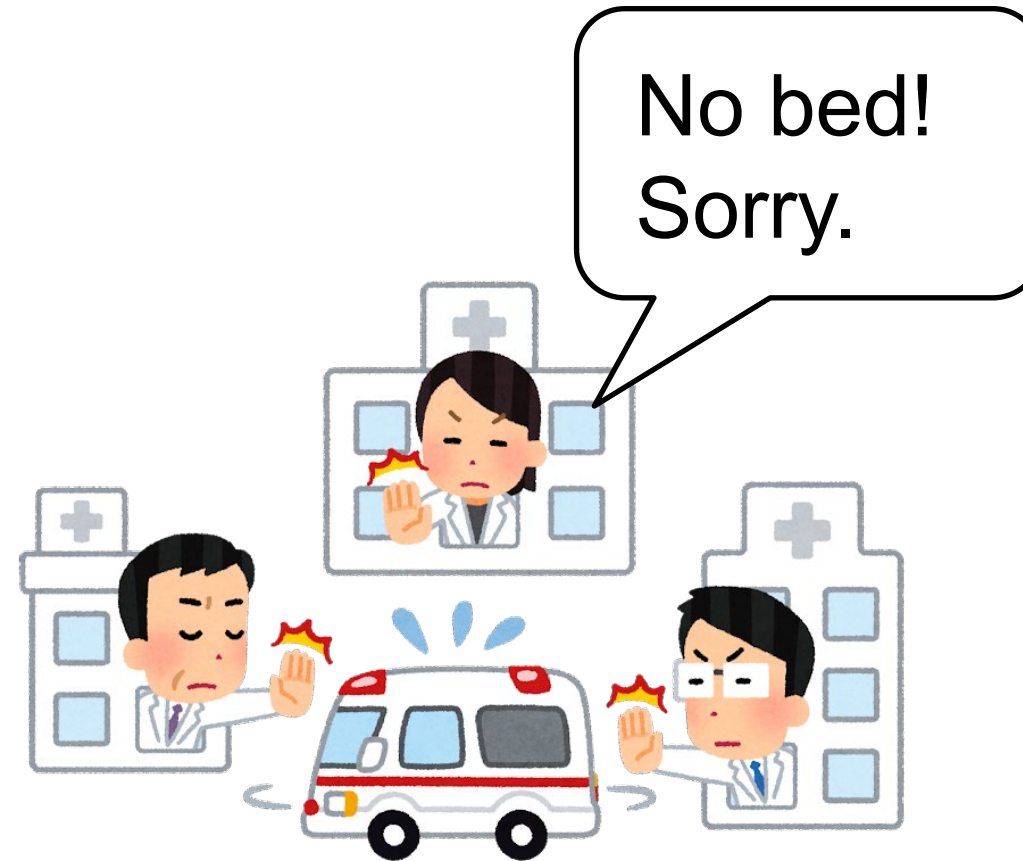
Hospitals can refuse them!

30 yo Male

Drunken

Fight with mafia

Shouting & arguing



Patients with social problem have a risk of refusal.

Difficult case in COVID19 era



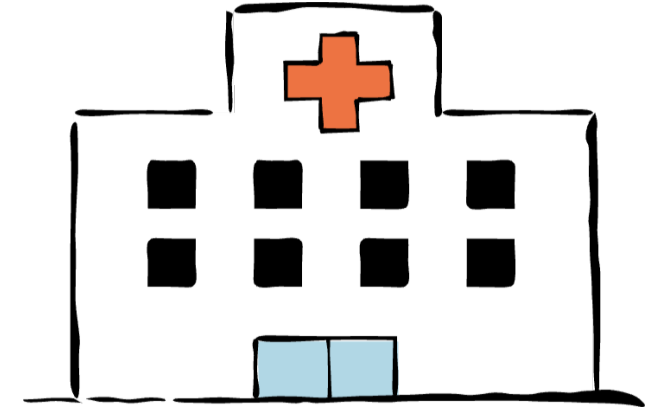
70 yo female
COVID19 diagnosed
Observing at home
But she felt difficulty of breathing

No bed due to surge of the demand



More than 100 hospitals refused
➤ **48 hours stay** in the ambulance

Agenda



- EMS system in Japan
- Challenges: Increasing EMS demand
- **Potential solutions**

Tele-triage system

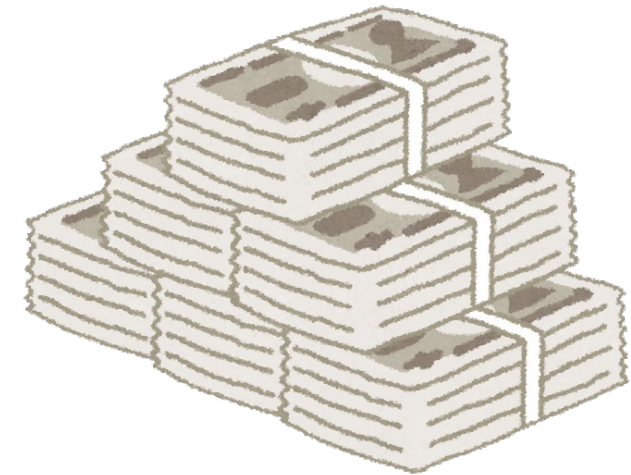
- #7119
- Consultation with nurse
 - Protocol based advice
 - Only in some urban areas
 - **2~10% ↓ Amb cases** after implementation



Drawbacks

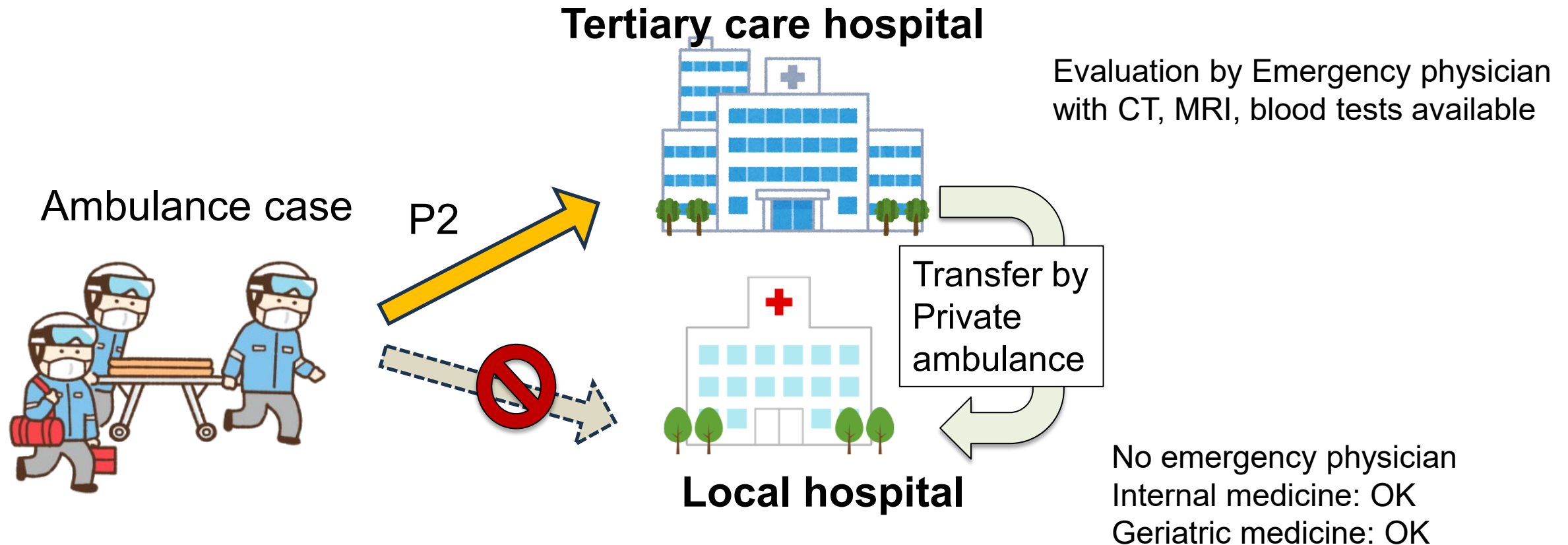
Examples in Osaka Pref (24/7 works)

- 242,473 calls/year in Osaka
- 10~16 Nurses in each shift
- 5-7 min talk in each call
- Cost 2.8 M (SGD) / year
- Free for patients



Some local governments cannot implement it.

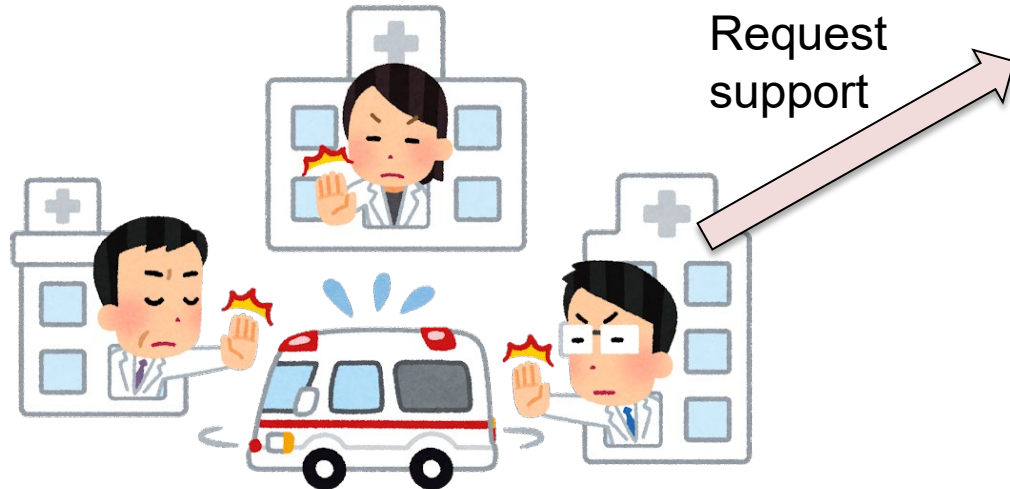
Step-down inter-hospital transfer



To Reduce the demand and
To maximize the capacity in tertiary care hospitals

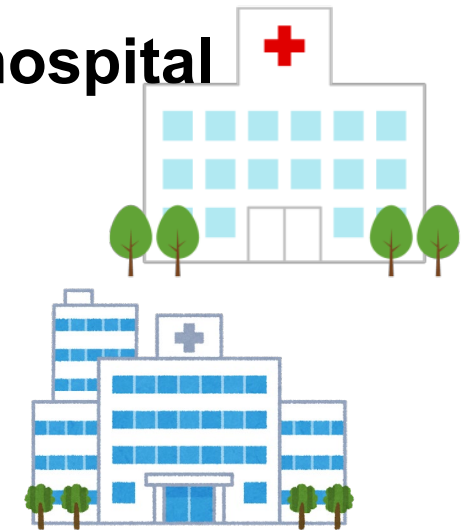
Designated Area Coordinator

Rejected by more than 5 hospitals
Waiting time >30 min
AND P1 cases



Designated tertiary care hospital

Accept the patient
or Coordinate to decide the hospital



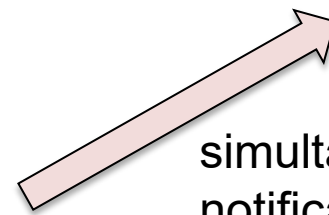
Designated hospital has a responsibility to accept (with incentives)

Request to multi hospitals at one moment

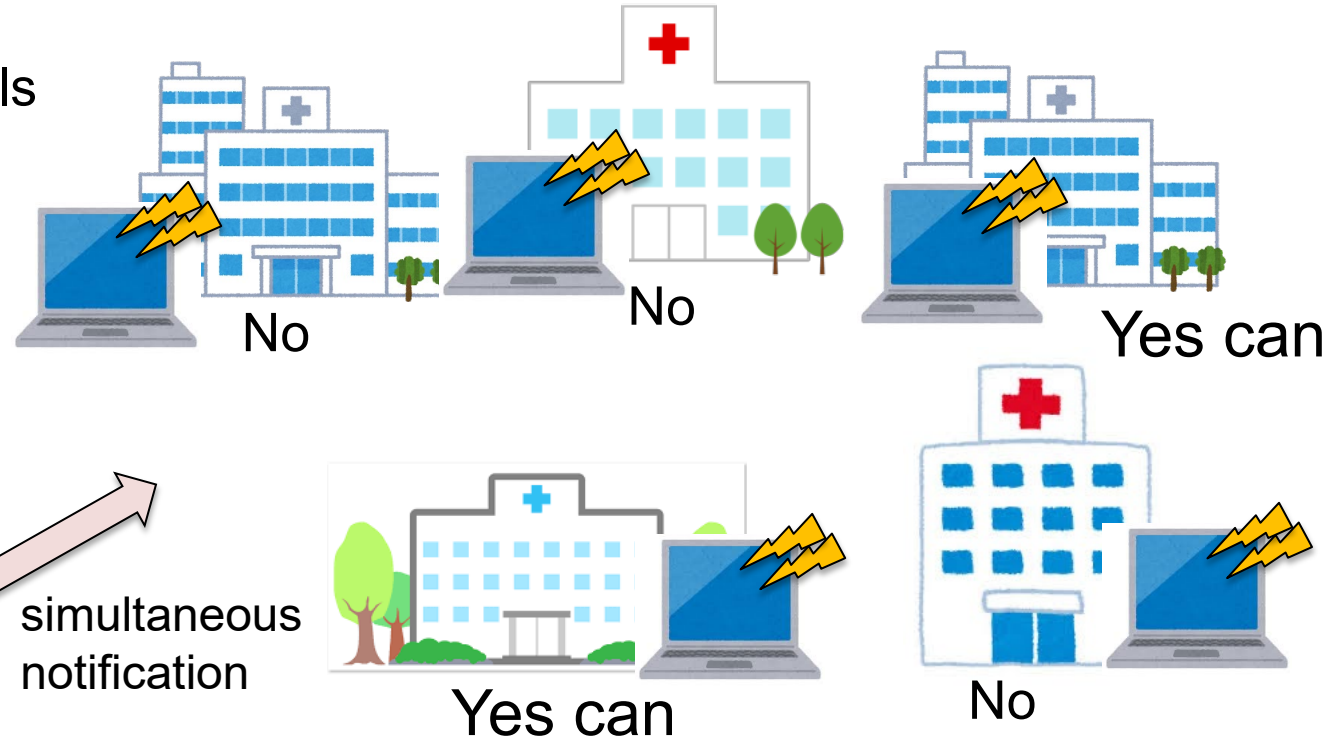
Rejected by more than 5 hospitals
Waiting time >30 min
(but not P1)



Could you accept this patients?



simultaneous
notification



This system is also activated in mass casualty incidence

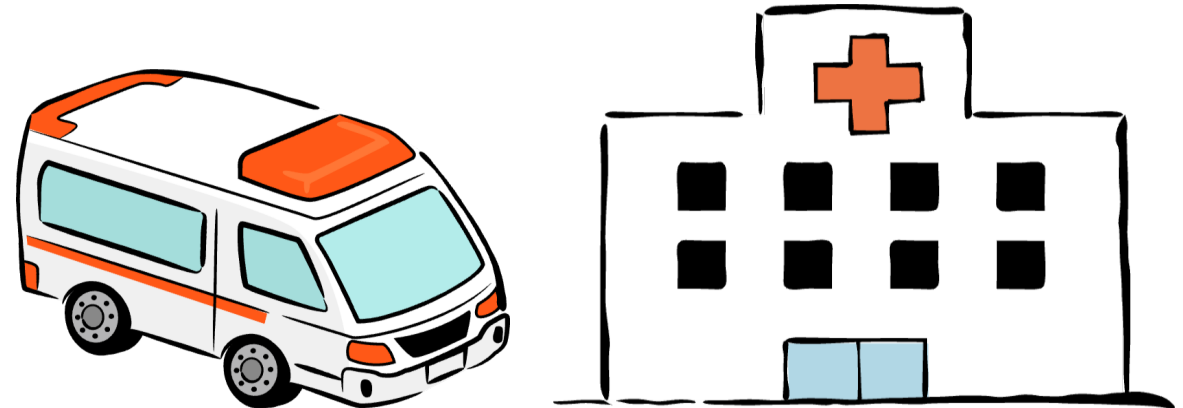
To Reduce the waiting time to decide the destination hospital

Summary



Pre-hospital &
Emergency Research Centre

- I have introduced EMS in Japan, challenges and potential solutions.
- 3-tier EMS is an original approach to save severe patients.
- Several initiatives has been implemented to address the challenges.
- We are struggling to handle the over demands.
- I hope to find a good solution by data and further research.



Physician staffed car/Heli

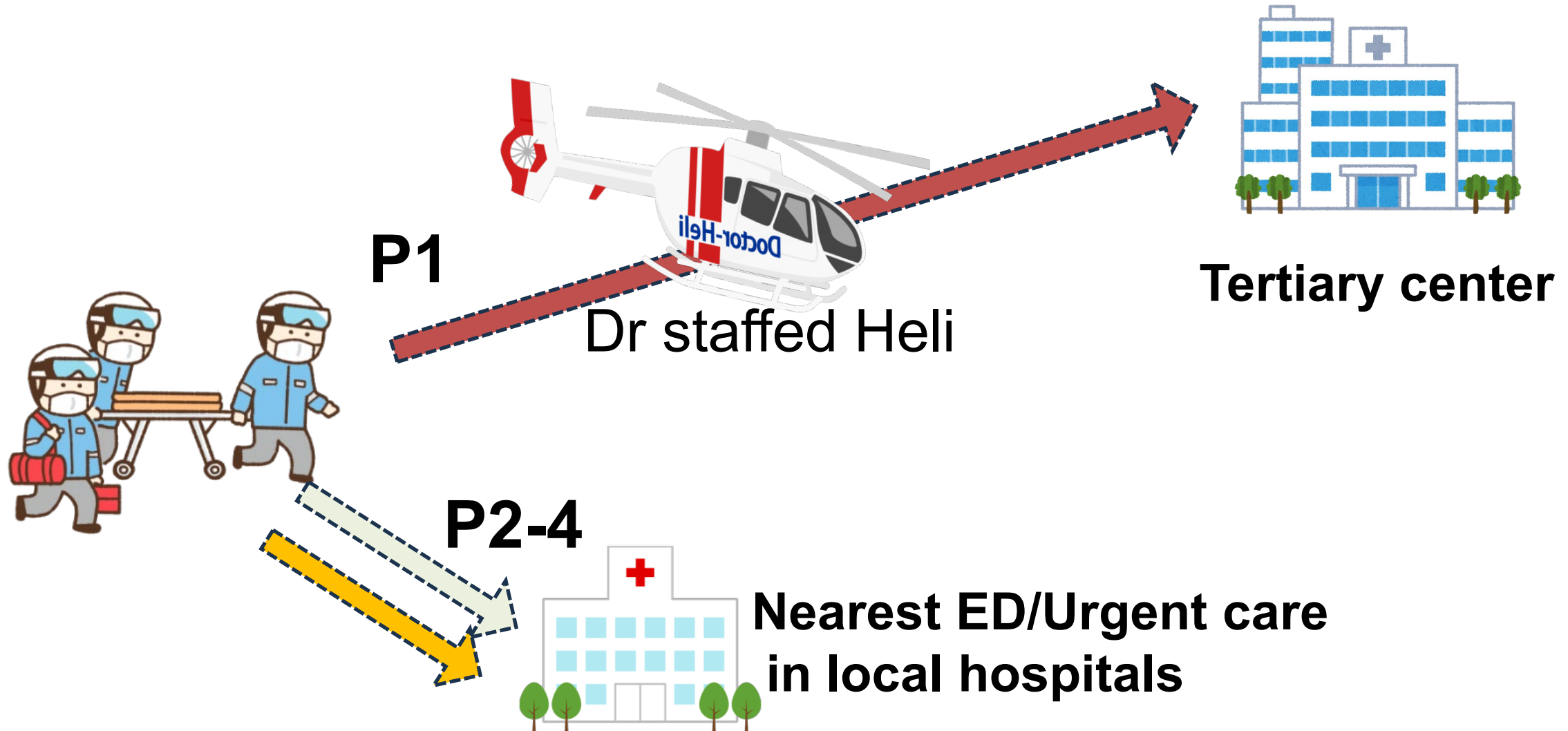
56 Heli flying in Japan



Dr & Ns collaborating with Paramedics

Good tools for Rural or mountain area

In Rural area, trauma bypass



Everyone wants Zero risk

40 yo male
Hit the head



Looks very minor injury.
I would suggest cancel
ambulance and observe
by yourself?
Sign the document of
cancellation?

8 hours



Severe disability

Got Sued
Paid
\$1.3M (SGD)

2009



20 yo male
living alone



You looks very minor
You can go to primary
care clinic by Taxi?
Ok, pls try it.

24 hour



Dead found at home

Got Sued
\$1M (SGD)

2011

Defensive policy...