

Inter-regional comparison of accessibility
of children to the nearest hospital with
at least 5 full-time pediatricians in Japan

Hiroshima International University

Akira Ehara, MD. PhD



European Academy of Paediatrics

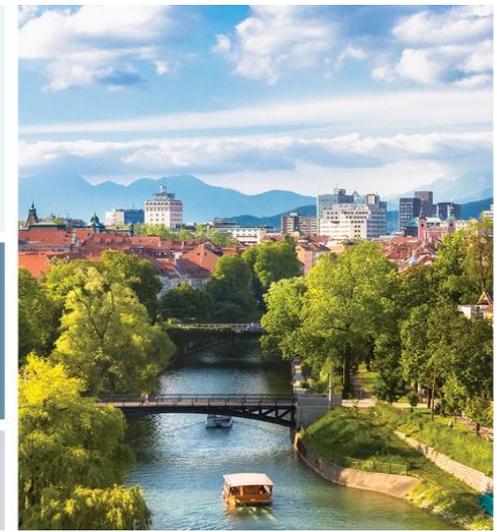
Paediatric Section of U.E.M.S
Union Européenne des Médecins Spécialistes

EAP 2017

October
12-15, 2017
Ljubljana, Slovenia

Congress and MasterCourse

www.eapcongress.com



<input checked="" type="checkbox"/>	No, nothing to disclose
<input type="checkbox"/>	Yes, please specify:

Background

- 2,656 hospitals had pediatric department in Japan and 10,108 pediatricians worked in these facilities in 2014.
- Only **3.80** pediatricians worked in a hospital on average.
- Sick children in Japan do not visit a general practitioner but a pediatrician, and children must visit a big pediatric department in order to receive medical treatment at night and in holidays (24-hour basis).

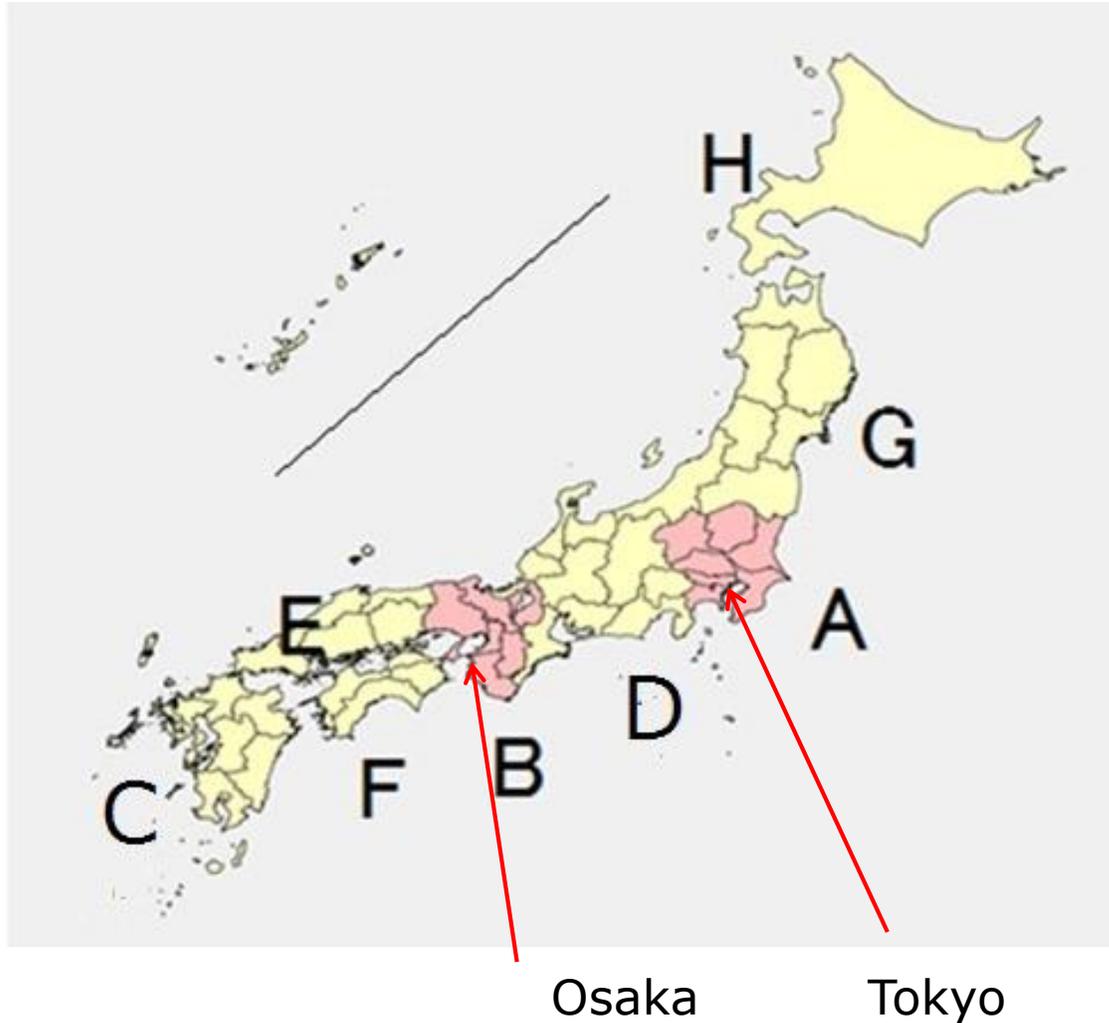
Objects

- To know the number and percentage of children who lived within 30 km, equivalent to reachable areas within 1 hour by automobile, of the nearest hospital with at least 5 full-time pediatricians, which can provide pediatric services on a 24-hour basis.

Methods

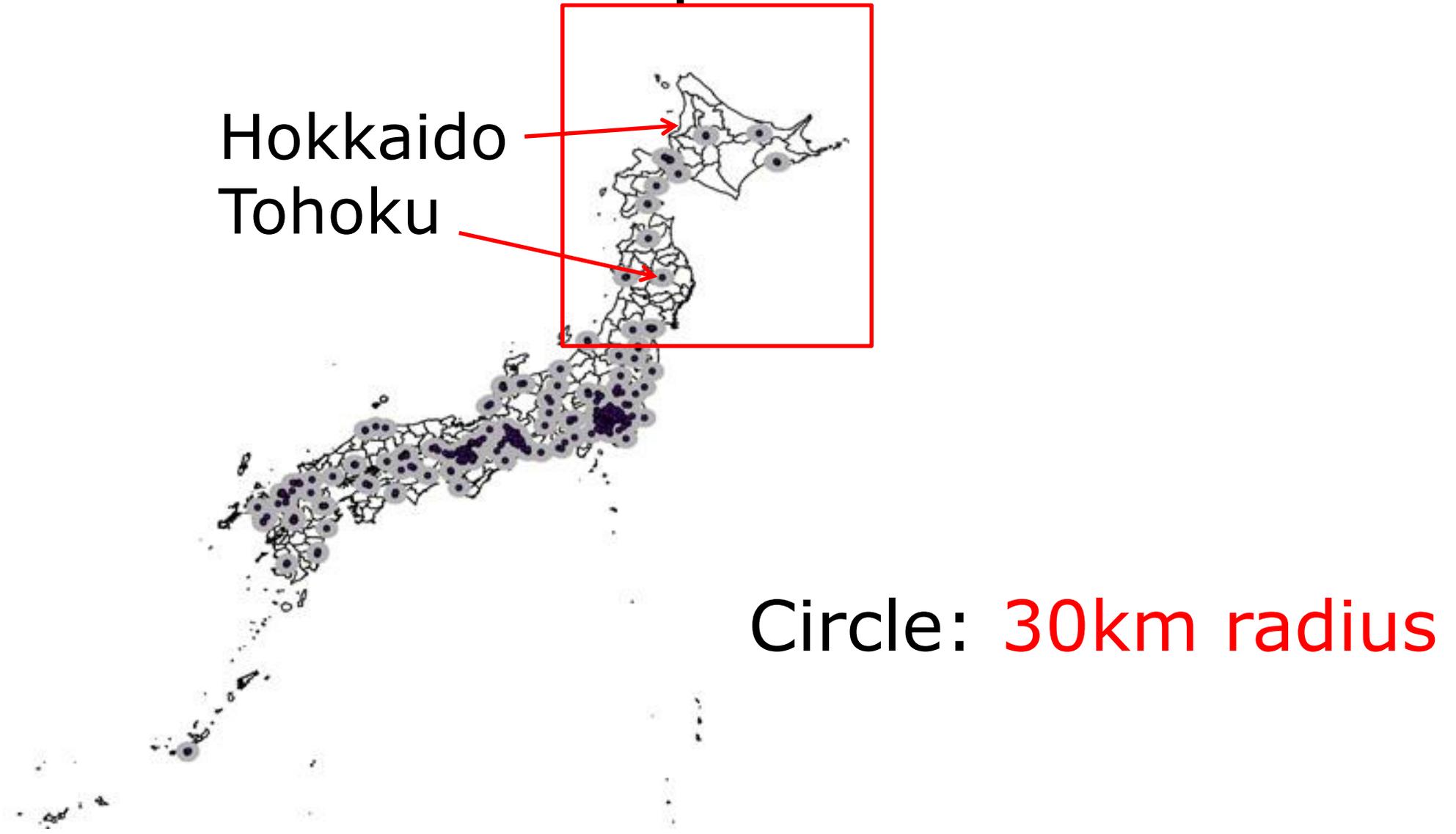
- Japan was divided into 109,514 residential blocks.
- Child population under 15 years in each block was drawn from the 2010 Population Census.
- The list of hospitals with at least 5 full-time pediatricians as of 2014 was from the regional health authorities.
- The number and percentage of children who live in the residential blocks within 5, 10, 20, 30, and 50 km of the nearest pediatric department with at least 5 full-time pediatricians was calculated by Geographic Information Systems (GIS) and compared among 8 regions of Japan

Eight regions in Japan



Region	Population density (persons/km ²)
Year	2014
A Kanto	1,320
B Kinki	759
C Kyushu and Okinawa	325
D Chubu	321
E Chugoku	233
F Shikoku	206
G Tohoku	135
H Hokkaido	69
Total	341

Pediatric department with at least 5 full-time pediatricians



Results

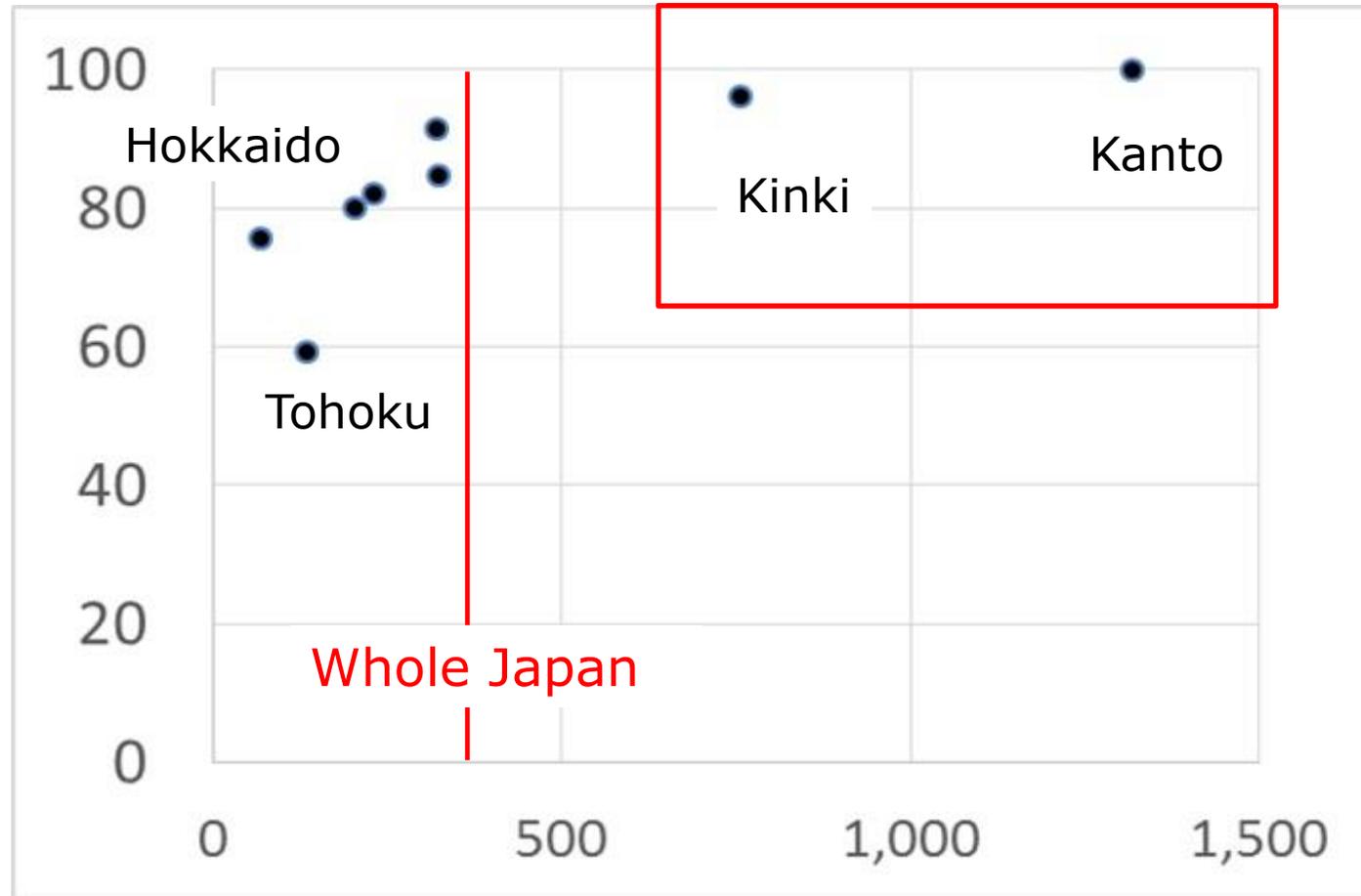
- 90.2% of children in Japan live within 30 km of the nearest pediatric department with at least **5 full-time pediatricians**.
- However, in under-populated northern regions with low population density, such as Tohoku (59.1%) and Hokkaido (75.5%), the percentage was lower compared with other regions.

Child population within the stated distance from the nearest hospital with at least 5 full-time pediatricians

Region		< 5km	< 10km	< 20km	< 30km	< 50km	Total
1 Hokkaido	Child Population	325,075	422,229	466,320	496,376	563,374	657,312
	Rate	49.5%	64.2%	70.9%	75.5%	85.7%	100.0%
2 Tohoku	Child Population	290,811	451,736	597,161	708,955	929,859	1,198,736
	Rate	24.3%	37.7%	49.8%	59.1%	77.6%	100.0%
3 Kanto	Child Population	3,708,411	4,649,607	5,230,185	5,344,998	5,359,808	5,363,114
	Rate	69.1%	86.7%	97.5%	99.7%	99.9%	100.0%
4 Chubu	Child Population	1,253,175	2,050,011	2,629,792	2,965,282	3,150,843	3,245,949
	Rate	38.6%	63.2%	81.0%	91.4%	97.1%	100.0%
5 Kinki	Child Population	1,772,957	2,316,632	2,604,984	2,674,201	2,711,031	2,781,690
	Rate	63.7%	83.3%	93.6%	96.1%	97.5%	100.0%
6 Chugoku	Child Population	291,443	501,625	704,813	823,288	934,288	1,005,881
	Rate	29.0%	49.9%	70.1%	81.8%	92.9%	100.0%
7 Shikoku	Child Population	153,685	283,471	353,747	404,791	467,661	506,243
	Rate	30.4%	56.0%	69.9%	80.0%	92.4%	100.0%
8 Kyushu &Okinawa	Child Population	875,781	1,215,470	1,565,401	1,731,088	1,937,293	2,044,519
	Rate	42.8%	59.5%	76.6%	84.7%	94.8%	100.0%
Total	Child Population	8,671,338	11,890,781	14,152,403	15,148,979	16,054,157	16,803,444
	Rate	51.6%	70.8%	84.2%	90.2%	95.5%	100.0%

Population Density & Percentage of Children < 30km

<30km
(%)



Population density(persons/km²)

Conclusion

- Most of children in Japan live in the residential blocks within 30 km of the nearest hospitals with at least 5 full-time pediatricians.
- However, in under-populated northern regions which have low population density, accessibility is lower compared with other regions.

The study was funded by JSPS KAKENHI 15K01786.