

The Evaluation of the Medical Information Exchange on 24-Hour Operation at North Kyushu Area in Japan

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Abstract

We report on triage before transportation by sharing patient information between hospitals, making it possible to use the Ajisai-net for 24 hours. Fifty-six times hospital collaboration was conducted during the period from start of hospital cooperation operation until October 2018. Transportation cost reduction of 3,935,000 yen (34,620 dollars) was estimated. It is expected to contribute to improvement of efficiency of emergency medical care in North Kyushu.

Keywords:

Medical information exchange, triage before transportation.

Introduction

Health Information Exchange (HIE) has been gradually spreading in Japan [1]. The Japan Ministry of Health, Labour and Welfare reported that the number of these networks were spreading to 26 prefectures (55%) in Japan. Ajisai (hydrangea)-net, one of the most popular health information exchange (HIE), has been used since 2004 [1]. The electric medical records of 35 large hospitals of North Kyushu area (Fukuoka, Saga and Nagasaki prefecture) are shared among hospitals, clinics, pharmacies and other medical institutions. However, since regional collaborating room of each information provision hospital which implements access right setting cannot respond outside weekends, public holidays and weekday hours, it is difficult to operate for 24 hours, and lack of function has been pointed out in emergency medical care. We report on triage before transportation by sharing patient information between hospitals, making it possible to use Ajisai (hydrangea)-net 24 hours a day, 7 days a week.

Methods

The electric medical records of 84,332 patients were shared with their consent in Ajisai (hydrangea)-net from 2009 to 2018. This network system when utilized at the right setting is required to carry out strict protection of personal information of each patient.

The regional collaboration room of the information provision hospital's inability to set access right outside weekends, public holidays, weekday hours and lack of function in overtime medical examination has been pointed out. In addition, despite acute phase hospital collaboration with secondary and tertiary hospitals, spoil cases have been found to be appropriate for patients who really need transport outside of the indication. For these problems, it was decided to outsource weekends, public holidays and outside of weekday hours access right setting. To

obtain written consent from the patient or a representative at the hospital, fax is sent to outsourced facility and consent form is confirmed by outsourcer. It performs setting of access right by outsourcer and makes completion report to requesting facility. Outsourcing facility further sends work report and consent form to regional collaboration office of each information provision hospital. The work of outsourcer is then terminated. Fax is sent to regional collaboration room of each hospital from the outsourced facility and work of outsourcer terminated. In addition, associated outsourcing costs were 1.2 million yen (10,909 dollars) per year. We examined triage before transportation using Ajisai (hydrangea)-net by cases where hospital-to-hospital cooperation was utilized.

Results

Fifty-six times hospital collaboration was conducted during the period from start of hospital cooperation operation until October 2018. Details were 39 cases (70%) before hospital transfer, 9 cases (16%) consultation, and 8 cases (14%) unknown (see Table 1).

Table 1 – The reason for between hospital cooperation

	Number	Proportion (%)
All	56	100
Before hospital transfer	39	70
Consultation	9	16
Unknown	8	14

Further investigation revealed that of the 39 cases conveyed before triage, 27 cases were transported [16 cases by helicopter (41%) and 11 by ambulance transportation (28%)], and 12 cases (31%) were not transported (see Table 2). We examined cases that were not transported further, and we found 7 cases scheduled to be conveyed by helicopter and 5 patients scheduled to be transported by ambulance.

Table 2 – Hospitalty transfers by between hospital cooperation

	Number	Proportion (%)
All	39	100
Transported:	27	
Helicopter	16	41
Ambulance	11	28
Not transported	12	31

According to previous reports, we estimated 530,000 yen (4,660 dollars) for helicopter transportation per case and 45,000

yen (395 dollars) for ambulance transportation in Japan [2,3]. Estimated total transportation cost reduction was 3,935,000 yen (34,620 dollars), helicopter transport cost reduction of 3,710,000 yen (32,640 dollars), and ambulance transport cost reduction of 225,000 yen (1,980 dollars).

Discussion

The medical network system started from paper media and has shifted from the fax using telephone communication network to the internet system. With these advances, it has become possible to confirm patient information in real time, which has greatly contributed to telemedicine and medical treatment support [4,5]. However, protection of patient's personal information, response at time of remote medical care, response to overtime, and so on still often must be solved.

We reported that to construct a method for registering out of time to the online system. By using outsourcing to solve the problem posed by holidays and weekday outside hours, it is possible to share information at emergency medical scene by enabling the use of hydrangea 24 hours a day, 7 days a week.

In Japan, several hospitals in the region cooperate with each other for emergency medical care. It is important to share imaging findings and laboratory data when linking between hospitals. In our study, by establishing a 24-hour hospital-to-hospital linkage, these results could be shared to allow treatment decisions to be made prior to transport, thus reducing emergency ambulance or helicopter transport by 31%. As a result, cost savings estimated at 3,935,000 yen (34,620 dollars) was reported. The role sharing of hospitals by triage before transportation, and reduction of medical cost is expected to contribute to improvement of efficiency of emergency medical care in North Kyushu.

Conclusions

It was possible to review the trial and treatment method before transporting by confirming the medical information in the receiving hospital before medical examination.

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