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Title： IS A REGIONAL AIR AMBULANCE SYSTEM COST-EFFECTIVE?

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1.Introduction

Air ambulance services are an integral part of modern trauma system and can help achieve “The right patient goes to the right hospital at the right time”. The Guangdong-Hong Kong-Macao Greater Bay Area（GD-HK-Macao GBA）is a national strategy for further development and low altitude opening has been recently approved. Therefore, it is worthy to explore the possibility to establish a regional air ambulance system in GD-HK-Macao GBA.

2.Materials & Methods

Data from official website of air ambulance service in different countries and regions were collected.Population,area,number of air ambulance rescue and cost is indicator for analysis. Similar data from GD-HK-Macao GBA is also collected and analyzed with assistant by geospatial analysis technology. From the perspective of real world study, it is defined artificially that more than 3 times of air ambulance rescue per day is cost-effective for those countries or regions where are affordable.

3.Results

Switzerland has a population of 8.6 million and a land area of 41,284 square kilometers. There are 16,273 air ambulance rescues in a financial year during 2020-2021, with an average of about 45 air ambulance rescues per day.The annual cost is nearly 160 million euros, and the average cost of each air ambulance rescue is nearly 10,000 euros.Germany has more than 24,000 air ambulance rescues, with an average of about 66 air ambulance rescues per day.Norway has 20,000 air ambulance rescues, with an average of about 55 air ambulance rescues per day. London has 1494 air ambulance rescues, with an average of about 4 air ambulance rescues per day. Victoria in Australia has 7707 air ambulance rescues, with an average of about 21 air ambulance rescues per day.Hong Kong has about 1500 air ambulance rescues,with an average of about 4 air ambulance rescues per day (Table 1). Data from GD-HK-Macao GBA is shown in Figure 1.

Table 1 Data collected from official website of air ambulance service worldwide in last two years (2020 to 2021)

Country/Region	Population (million)	Area Covered (km²)	Number of Air Ambulance /year	Average Number of Air Ambulance /day	Cost(€)	Average Cost of Once Air Ambulance(€)
Switzerland	8.6	41284	16273	44.58	157343329	9668.9
Germany	83	357582	24000	65.75	897810	37.4
Norway	5.4	385000	20000	54.79	98295555	4914.7
London	9.2	1577	1494	4.09	65766	44
Victoria of Australia	6.7	227000	7707	21.16	–	–
Hong Kong	7.4	1106	1496	4.09	–	–

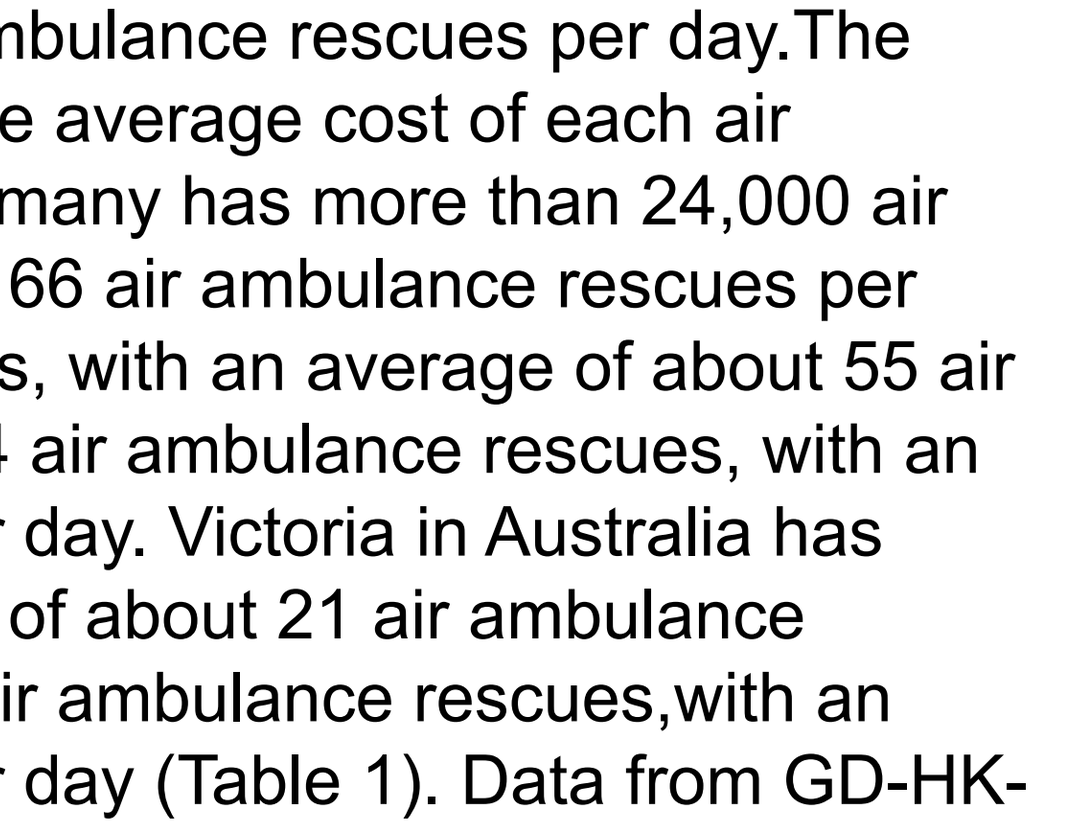

Figure 1. Helipad distribution and regional major trauma centers in GD-HK-Macao GBA

4.Conclusion

All the regional air ambulance systems in the above study are cost-effective. The study outcome will provide positive drive for GD-HK-Macao GBA to go forward with its air ambulance system development. An integrated trauma system should be in place to support the operation of this air ambulance system.