

INPLASY PROTOCOL

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The Deployment Strategies of Public Access Defibrillators: A Systematic Review

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The authors have no conflicts
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article.

Review question / Objective: P: Out-of-hospital-cardiac-arrest (OHCA) patients in the public area; I: Novel public access defibrillator (PAD) deployment strategies; C: Conventional public access defibrillator (PAD) deployment strategies; O: Coverage rates of OHCAs by PADs; time-to-retrieve of PADs by the bystanders.

Condition being studied: Countries or cities with emergency medical services and public access defibrillators trying to improve the utility rates and OHCA coverage rate.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 02 September 2020 and was last updated on 02 September 2020 (registration number INPLASY202090008).

INTRODUCTION

Review question / Objective: P: Out-of-hospital-cardiac-arrest (OHCA) patients in the public area; I: Novel public access defibrillator (PAD) deployment strategies; C: Conventional public access defibrillator

(PAD) deployment strategies; O: Coverage rates of OHCAs by PADs; time-to-retrieve of PADs by the bystanders.

Condition being studied: Countries or cities with emergency medical services and public access defibrillators trying to

improve the utility rates and OHCA coverage rate.

METHODS

Search strategy: Pairs of the independent authors (C.H. Liu and C.W. Sung) separately performed the literature review, data extraction, and interpretation from the eligible studies separately using a standardized data extraction protocol. A senior investigator (P.C. Huang) made the final decision if any inconsistency. The authors followed the 4 steps – identification, screening, eligibility, and inclusion to review the relevant articles from the database including Pubmed (n=370), Embase (n=562), Web of Science (n=713), Cochrane Library (n=21), and examined the titles and abstracts of articles for topic correlation.

Participant or population: Countries or cities with emergency medical service system.

Intervention: Novel public access defibrillators deployment strategy.

Comparator: Conventional public access defibrillators deployment strategy.

Study designs to be included: Clinical trials; cohort studies; observational studies; cross-sectional studies; design models.

Eligibility criteria: (a) They were written in English; (b) full-text available; (c) the main topic was related to public access defibrillator or related synonyms.

Information sources: Four databases: Pubmed, Embase, Cochrane Library; Web of Science.

Main outcome(s): 1. Coverage rates of OHCA by PADs; 2. time-to-retrieve of PADs by the bystanders.

Additional outcome(s): 1. OHCA incidence; 2. 30-day survival rates; 3. Neurological outcomes.

Quality assessment / Risk of bias analysis: The quality assessment and risk of bias were conducted with study quality assessment tools from the National Health Institute in the US. Two authors conducted the quality assessment independently.

Strategy of data synthesis: Our systematic review doesn't include a meta-analysis.

Subgroup analysis: Our systematic review doesn't include a meta-analysis.

Sensibility analysis: Our systematic review doesn't include a meta-analysis.

Language: English.

Country(ies) involved: Canada, USA, France, Denmark, New Zealand, Japan, Taiwan, Australia.

Keywords: public access defibrillator; automated external defibrillators; out-of-hospital cardiac arrest; defibrillation; location; deployment.

Contributions of each author:

Author 1 - Cheng-Heng Liu - Author 1 drafted the manuscript and literature review.

Author 2 - Chih-Wei Sung - Author 2 did the literature review.

Author 3 - Cheng-Yi Fan - Author 3 did the manuscript proofread and quality assessment.

Author 4 - Yen-Ta Huang - Author 4 supervised the methodology of the systematic review.

Author 5 - Pei-Chung Lai - Author 5 supervised the methodology of the systematic review.

Author 6 - Matthew Huei-Ming Ma - Author 6 provided professional opinions of the systematic reviews and manuscript proofread.

Author 7 - Edward Pei-Chuan Huang - Author 7 supervised the whole process of research.