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.

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).
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 OHCAs 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.