

Improving Emergency Medical System using Machine Learning through E-emergency to Overcome Trauma Care Problems in Indonesia

Introduction In Indonesia, the number of road traffic accidents (RTA) in 2019 shows an increasing trend where they caused high mortality and morbidity rate. It is crucial to establish adequate early management of RTA victims by shortening the time needed to mobilize the victims into nearby hospitals and for the bystanders to perform first aid care. Despite its importance, Indonesian citizens' knowledge in first aid seems to be low, and there are no current systems capable of solving RTA prehospital care-related problem gaps.

Methods This paper is created through the discussion outcomes with several stakeholders and analysis of journal articles and media reports in Indonesia.

Findings No concrete studies examined Indonesian citizens' knowledge about first aid care, and no proposals regarding emergency-designed applications had all the qualities we looked for.

Proposed Solutions We proposed E-emergency, which uses Machine Learning in its back-end to provide features for (1) reporting RTAs based on their precise location, (2) sending the best suggestion to the integrated networks of nearby ambulances, trauma centers, health facilities, or hospitals, (3) describing the overall situation of RTAs and general status of the victims, (4) Badan Penyelenggara Jaminan Sosial (BPJS) insurance payment options via digital wallets to the assigned hospital that would accept the patients, and (5) providing instructional first aid videos that the users can watch as guidance for them to help the victims before paramedics

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come to prevent most of the mortality and morbidity rate caused by RTA in Indonesia.

Conclusion Comprehension and capability of first aid by bystanders and the victim themselves could be an effective way to optimize golden hour usage and, thus, prevent most of the mortality and morbidity rate caused by RTA in Indonesia. Developing E-mergency by utilizing smartphone technology could be a new solution to overcome the trauma problems in Indonesia.