





LETTER TO EDITOR

Air ambulance services program in Saudi Arabia: a national healthcare transformation plan in vision 2030

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The Kingdom of Saudi Arabia (KSA) is gaining international recognition after its commitment and development in many sectors over the past few years [1]. Due to its honorable hosting of the two Holy Mosques in Makkah and Madinah, the country holds annual responsibilities, in Ramadan and Hajj seasons, managing mass gatherings and active policy making in flow management and stampede prevention [2]. Moreover, tourism attractions have recently grown exponentially adding to the diversity and demand for healthcare services [3]. Therefore, the Kingdom's Vision 2030 addressed many strategic aspects including the building of a healthcare transformation plan to ensure healthcare security and access to healthcare services for citizens, residents, and tourists [4].

Saudi Red Crescent Authority is the national provider of prehospital services in the country with more than 6,000 Emergency Medical Service (EMS) personnel, 500 EMS centers, 200 Emergency Medical Dispatchers, and 5 main operation centers [5]. KSA has substantial geographical variations and terrain, limiting the access of Ground EMS (GEMS) to patients in rural areas [6]. In addition, responding to time-sensitive illnesses warrants the need for other modalities of transport to be implemented. Due to these reasons, the launch of the Air Ambulance Services Program (AASP) (Figure 1) is crucial for KSA and is planned in the healthcare transformation plan as part of Vision 2030 [4]. This review aims to highlight cornerstone aspects of AASP in KSA as it has a national health focus enhancing emergency care and saving lives. The program involves rotor EMS (REMS) and interfacility transfer (IFT) operations. Targeting more than 90% of the population with a fleet of over 25 helicopters and more than 5 fixed wings strategically distributed to serve the nation [7].

AASP ensures high-quality medical services by reaching incidents in rural areas, providing medical care by specialized teams, transferring patients with

time-sensitive illnesses, such as major trauma, cardiac ischemia, and stroke, on time to specialized healthcare facilities, and improving patients' hospital survival rates [8].

REMS operations follow specific regulations by the General Authority of Civil Aviation to fly lifeguard missions and have the advantage of reaching inaccessible areas by GEMS, however, with limited cabin space [9]. The REMS journey is triggered by 997 dispatch centers where if fulfilling a certain criterion, the auto launch of REMS takes place. AASP uses the National Advisory Committee on Aeronautics score to identify the severity of cases and prioritize the service [10]. Once at the scene, the helicopter was held until cleared to land by public safety officers who were trained in basic instructions to clear traffic, choose a landing site, and assess in helicopter landing. Incidents out of the helicopter's coverage radius benefit from GEMS resources to arrange a meeting point in a preset location. The medical director plays a crucial role in the final approval of cases before dispatch, overseeing medical services, arranging and communicating with healthcare facilities to receive patients, screening medical records and quality checks, and building educational and training materials. The medical crew onboard is composed mainly of trained paramedics in transporting critical cases, handling advanced airway scenarios, setting mechanical ventilators, establishing intravenous access, administering analgesics and sedatives, and transfusing blood for major trauma cases [11]. Cases not taken by REMS include patients

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Figure 1. REMS air ambulance services in KSA.

with pronounced death, cardiac arrest with active CPR, uncontrolled violence or self-destructive behavior, contaminated patients with hazardous materials before decontamination, and pregnant patients with imminent delivery [12]. IFT operations through fixed wings are suitable for long-distance patient transportation and can accommodate more crew members and passengers [13]. However, requires a landing strip to land and encounters complex logistics. The medical crew on board has a different configuration from the REMS in that specialized physicians and nurses are part of the crew to address more advanced medical care in this stable cabin.

This kind of operation requires precise timing with transfer teams from and to healthcare facilities to avoid unnecessary delays. Constant quality reports and clinical indicators are essential to ensure the continuity of operation and guide patients' interventions. In summary, AAPS will play a key role in the prehospital healthcare services deemed necessary with the outgrowing demand in KSA.

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List of Abbreviations

AASP Air ambulance services program

GEMS Ground EMS
IFT Interfacility transfer
KSA Kingdom of Saudi Arabia
REMS Rotor EMS

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