

Medications Onboard Aircraft: New Initiative System in the Kingdom of Saudi Arabia

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ABSTRACT

Objectives: To declare the medications onboard aircraft as a new initiative in the Kingdom of Saudi Arabia. **Methods:** It is a new initiative project drove by national medications onboard aircraft services guidelines. The projects formulated from the international business model, pharmacy project guidelines and project management institution guidelines of a new project. The initiative project is written through project management professionals and consisted of several parts, including the initial phase, the planning phase, the execution phase, the monitoring and controlling phase. **Results:** The medications onboard aircraft services with a defined vision, mission and goals. The services had various benefits including clinical and economic on patients as exemplified in the review. The continuous of the project assured by risk management model description. In addition, the monitoring and controlling of the services as declared. The transition to operation project though closing project stage discovered in the analysis. **Conclusion:** The medications onboard aircraft services is new initiative part of the medical and healthcare airlines program. The medications onboard aircraft properly meet the emergency need during aircraft journey and improve patient satisfaction on airlines healthcare and medical services; it is highly recommended to implement in Saudi Arabia.

Key words: Medications, Onboard, Aircraft, Airplane, Services, Initiative, Saudi Arabia.

INTRODUCTION

Every day or every weekend, many passengers travel from place to another to enjoy or for medical search management. Various patients are resounding their medications with them to meet their needs of the disease for management and to improve their quality of life. Some medications need special storage conditions and others had several bits of advice to administer. On the other hand, multiple healthily passengers got sick during traveling as reflect on aircraft. The passengers might suffer from various ailments. For instance; syncope, headache, gastrointestinal disorders, mission sickness, nausea and vomiting. Moreover, obstetric and gynecological emergencies, psychiatric problems, the allergy, heart attack and hypoglycemia.^[1-5] The difference required certain medications for emergency management during aircraft journey. As a result, the International Air Transport Association (IATA) agency responsible for airline regulations set up medical and healthcare services guidelines that can be provided to the passengers.^[6] The IATA suggested medications list onboard aircraft.^[7] However, several studies showed the medications list used during aircraft trips.^[3,8-12] Multiple studies have shown the implementation of emergences kits that have efficiently reduced mortality including preflight medical screening of patients, health tips for airline travel and also protection from high altitude atmospheric by pressurized cabin.^[13-15] All national and international airlines should follow IATA medical guidelines. However, some local airlines followed some of the medical guidelines and they had not medications onboard aircraft. They provide first

aid kits without the medications list. The authors were not acquainted with any local or Gulf and Middle East studies about medications onboard aircraft. The aim of this project is to declare the project of medications onboard airplanes as new initiatives project in the Kingdom of Saudi Arabia.

Method of the Project

It is a new initiative project drove by international traveler medicine programs. The task force team of medications onboard airplane formulated and contained of from the author's expertise in the traveler medicines or emergency medicines. All medications and related issues for military or medical transportation or transition will be excluded from the revision. The committee unitized and drove from the emergency pharmacy and cardiopulmonary resuscitation (CPR) guidelines, from The International Air Transport Association (IATA) and international litterateur medications onboard aircraft. It was written by applying the international business model, pharmacy project guidelines and project management institution guidelines of a new project.^[16-19] The project is written through project management professionals and contained of several parts, including the initial phase, the planning phase, the execution phase and the monitoring and controlling phase.

Initiative Phase

Assessment Needs

All national and international airlines should follow the IATA guidelines for licensing and

Table 1: Suggested Devices and others.

	Type	Quantities
1	Oxygen	NA
2	Antiseptic wipes Venous	30
3	Syringes 3 ml	3
4	Syringes 5 ml	3
5	Gloves (disposable)	3
6	Thermometer (non-mercury)	2
7	Sphygmomanometer (electronic preferred)	1
8	Stethoscope	1
9	Sponge gauze	2
10	Tape adhesive	2
11	Gauze 7.5 cm x 4.5 cm	5
12	Scissors	1
13	Hand cleanser	3
14	Surgical mask	3
15	Automated external defibrillator (AED)	1
16	Adults Resuscitation mask with one-way valve	1
16	Pediatrics Resuscitation mask with one-way valve	1

accreditation. The majority of airlines followed the guidelines. However, the implementation of all medical or healthcare services is various from airline to another including medications onboard airplanes. The medications required to treat the essential emergency or life-saving cases occurred at aircraft. IATA published a medical manual for all medical and healthcare services or guidelines for all aircraft or airlines and they should be implemented. The guidelines consisted of healthcare services for patients before onboard or during and after aircraft landing, the medical accident, documentation of medical cases at all stages of aircraft. It also contained the medications list and related accessories. The healthcare providers or pharmacists and pharmacy technicians not familiar with IATA medical manual or medications list should be available onboard aircraft. Moreover, the published local annual report of medical cases onboard or common diseases the passengers suffered not existed. The medications list onboard aircraft through following IATA guidelines and if there are any supplementary medications according to the report of passenger's common diseases. The importance of the health care provider's physicians and pharmacist as a team in case of emergency. role of pharmacist consultation to crew and patients about suitable medications for each case that have been stated by saying of two pharmacists about medical emergency kits provided to ill people in flight.^[20,21] The passenger's satisfaction with onboard aircraft healthcare services not published including the management of common diseases during aircraft journeys. If the combined medications list onboard with the solution will save life and disease morbidity and mortality. Also, it will improve the patient's satisfaction with airline services, including the medical and healthcare onboard aircraft.

SWOT Analysis

The SWOT analysis measured one of the standard tools for each new project analysis. The SWOT analysis is meaning strength, weakness, opportunities and threats, the strengths points of the project are setup up the medication's onboard aircraft, recovers healthcare services for

Table 2: Suggested medication onboard aircraft.

	Oral	Strength	Dosage form	Quantities
1	Acetyl salicylic acid (aspirin)	75-100 mg	Tablet	10
2	Paracetamol	500 mg	Tablet	40
3	Diclofenac	50 mg	Tablet	10
4	Ondansetron	4 mg	Tablet	20
5	Prednisolone	5 mg	Tablet	10
6	Nitroglycerin tablets	5 mg SL	Tablet	10
7	Diphenhydramine	25 mg	Tablet	10
8	Hyocine-N-Butyl Bromide	10 mg	Tablet	10
9	Pantoprazole	20 mg	Tablet	10
10	Salbutamol	2.5 mg	Inhaler	2
11	Betamethasone		cream or ointment	2
	Injection	Strength	Dosage form	Quantities
1	Epinephrine	1:1000	Prefilled syringe	3
2	Glucagon	1mg	vial	2
3	Methylprednisolone 40-50mg	40 mg	Injection	
4	Dextrose	50%- 50 ml	Injection or vial	1
5	Sodium Chloride 0.9%	500 ml	Bags	2
6	Salbutamol	2.5 mg	Solution	2

travelers, increase patient's satisfaction of airlines services. While the weak points are limited number medication list to cover all common diseases during aircraft journey. The opportunity points are to meet the IATA requirements for accreditation and patient safety program implementation. The threat points are if the pharmacy strategic plan does not exist and if the administration planner not existed.

Market Analysis

There are various airlines in the Kingdom of Saudi Arabia had first aid kits. All pilot and staff aircraft well trained on first aid and basic cardiopulmonary resuscitation (CPR) or basic life support (BLS). Moreover, they are following some of the IATA guidelines of healthcare services.

However, they had not an emergency medication kit onboard aircraft. Most of the governmental or private healthcare organizations had all medications that are obligatory for onboard aircraft but not familiar with IATA medical and healthcare guidelines. There is no standardized medications list onboard aircraft for the Saudi or non-Saudi airlines. Moreover, there are not any scientific publications about the occurrence of the common diseases during aircraft journey to adopt the medications list according to the medical incidence disease occurred locally. The majority of healthcare organizations or professionals not familiar with medications list guidelines suggested by the IATA guidelines.

Planning Phase

Scope of the Project

The project covers medications and related issues onboard the airplane. It is not included medications onboard military aircraft or medical transition aircraft, including commonly used onboard regular aircraft and the accessories need for medications. The medications consisted of some emergency medications or over the counter medications used for common diseases during onboard aircraft journey.

Vision, Missions, Goals

The vision of the project is to reach the best medications onboard airplane and related medications accessories; while the message to provide the appropriate and updated medications onboard aircraft. The goals of the project is to fix medications onboard, to train aircraft staff of using medications list, safe patients life In case of emergencies, to reduce the incidence of common diseases occurred during aircraft trip, to improve the passenger satisfaction of onboard about the healthcare, to provide healthcare services to patients suffering from medical illness and to avoid the additional redundant and added cost on the absent of appropriate onboard medications related problems.

Project Description

The following policies were set up put in place for every aircraft and pharmacy staff and other health care individuals:

- ✓ The medications list onboard aircraft should be formulated for all local airlines and healthcare organizations.
- ✓ The medical and pharmacy aircraft committee should consist of pilot representatives, aircraft staff representatives, pharmacists and pharmacy technicians, nursing representative, physician, surgery, pharmacy quality management and medications safety officer.
- ✓ The committee revises the standardized medications list onboard aircraft and updates at least annually.
- ✓ The education and training sessions should be conducted by the committee to all pilots and aircraft staff with healthcare providers, including physicians and nurses, with pharmacy staff.
- ✓ The Medications list and related devices onboard aircraft distributed to all local airlines and healthcare sectors at the organization as declared (Table 1 and 2).
- ✓ The medications list onboard aircraft should send to the pharmacy and pharmacist and the pharmacy technician will prepare it based on the standardized medications list for each aircraft.
- ✓ The airport pharmacy staff sends the medications to each aircraft and the aircraft staff administers the medications based on common disease passengers.
- ✓ After each trip, the aircraft staff should check any deficiencies of medications and send to the airport pharmacy for replacements with complete documentation.
- ✓ The aircrafts staff and pharmacy department should measure the clinical outcome of the medication's onboard aircraft.
- ✓ The aircrafts staff and airport pharmacy department should measure the economic outcome of the medication's onboard aircraft.
- ✓ The aircrafts staff and airport pharmacy department should document any drug-related problems or demand for new medications.
- ✓ The airport pharmacy department should measure the medications onboard utilization and send it to the airline's companies.

Plan Cost Management

Every new project, the management team must forecast the financial budget, which comprises the cost of educational courses to all aircraft staff about medications onboard airplanes including medications therapeutic indication and how to use the cost of the management team meeting and

the cost of updated references. The budget must be monitored over a while until the project finished and switch to the operating system.

Executing Phase

Management Team

Project management professionals had various steps. One of the essential steps was executing phase, which had a team lead the program or the project from the beginning until becoming one of the operating systems at a healthcare organization. The team contained of several members, including pilot staff representatives, assistant pilot representatives, aircraft staff representatives, physician, surgery, nurses, pharmacist, clinical pharmacists, pharmacy technician experts in medications onboard aircraft, pharmacy quality and medications safety officer representing. The team should implement and follow up on the new services with regular updating of medications list with their related accessories. Moreover, the team should educate and train the pilots and aircraft staff about the new services and measure the clinical and economic outcome of the project.

Education and Training

Each new project needs special education and training for concern people. This project wants education and training for all aircraft staff, pharmacy staff, including clinical pharmacists, pharmacists and pharmacy technicians who deal with aircraft staff. Moreover, healthcare professionals, counting physicians and nurses, need another special education and training. Furthermore, the team management desires orientation education about the project for all aircraft staff and healthcare professionals. The orientation emphasis for any new aircraft staff and healthcare providers joined the local airlines and traveler medicine or emergency healthcare institutions.

Monitoring and Controlling Phase Project

Total Quality Management

There are multiple tools used for total quantity management with new project medications onboard aircraft during the employment phase, which called and the balance scored cards^[22] were among them. The tools monitor contained of four-part that's including the customer, finance, internal process, education and innovation. The assessment of healthcare services of medications onboard aircraft was an example of an internal process type. The clinical outcome of medications on board aircraft, which might reproduce the education and competency of aircraft staff as an example of the education type. The financial type had another example of measuring the cost avoidance of the medications on board airplanes. The fourth type was the customer types with computing the patient's satisfaction with aircraft staff and healthcare services and including medications onboard aircraft in Saudi Arabia.

Risk Management

There are multiple measured risks including schedule risks, scope risks, budget risks, personal risks, technical risks and quality risks.^[23,24] The project mostly exposed to risks; such as personnel, budget, technical and quality risks. The project might suffer from personal risks with not trained aircraft staff or not sufficient medications and related accessories. The budget risk not covered the education and training courses for all pilots and aircraft staff and including pharmacy staff and healthcare professionals. There is another technical risk that might be exposed. The technical, which is limited to electronic recourses, or not the proper place for storage the medications onboard. The project might be exposed to quality risks with not applied medications onboard aircraft safety tools or non-trained personnel.

Closing of the Project

The medications onboard aircraft at all airlines and supportive healthcare organizations of governmental and private sectors are desirable to prevent the safe life of patients, to prevent disease morbidity and mortality and to prevent an economic burden on the airline's institutions in Saudi Arabia. The project should remain at the airlines, support healthcare and pharmacy organizations and keep supervision through related committees. The medications onboard airplane education and training should be executed accordingly. Medications onboard aircraft and related accessories should update regularly and expand the number of medications is recommended in the future. The annual celebration of pilots, aircraft staff with all supported healthcare and pharmacy staff is highly suggested in Saudi Arabia.

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CONFLICT OF INTEREST

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CONSENT FOR PUBLICATIONS

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ETHICAL APPROVAL

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<https://www.hhs.gov/ohrp/regulations-and-policy/decision-charts-2018/index.html>

ABBREVIATIONS

MOH: Ministry of Health; **KSA:** Kingdom of Saudi Arabia; **CPR:** Cardiopulmonary Resuscitation; **IATA:** The International Air Transport Association; **SWOT:** Strengths, Weaknesses, Opportunities and Threats; **BSC:** Balance Scored Cards.

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