



## MEXC Token ICO White Paper

<https://mexc.life>

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(MEXC Program Executor)

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## (ii) Definitions

Unless defined otherwise:

Definition	Descriptions
ALS	Advanced Life Support
Blockchain	Distributed Database Technology deployed over the internet networks
BLS	Basic Life Support
CAGR	Compounded Annual Growth Rate
DApp	Distributed Application on web where Web Application is powered by Ethereum Smart Contracts as the core engine
EMS	Emergency Medical Services
MEXC Token	An ERC20 utility token created on Ethereum Network for the use in Emergency Medical Services (EMS) industry
MEXC Token Program	A program where MEXC Token holders obtains a benefit connected to the forward purchase of EMS products and services
ERC20	Ethereum Request for Comment #20 to create fungible tokens on the Ethereum Network
ERP	Enterprise Resource Planning
Ethereum	An advanced Blockchain System with Smart Contracts that runs on any public or private network
$M_X$ Token	The internal token for Medical Industry where all prices of products and services are based upon
$M_X$ P2P Exchanger	Where MEXC tokens are exchanged for $M_X$ token by the participants in the Medical Industry in general, and EMS industry specifically prior to the purchase of Emergency and Medical products and services.
P2P Exchanger	Peer-to-Peer Exchange system whereby users have full control of their private keys
Program Executors	MEXC Program Key Members
Smart Contract	Computer codes that run the program logic on the Blockchain platform
Solidity	The Contract-Oriented programming language on Ethereum Virtual Machine
Token	A voucher that can be exchanged for goods and services

*Table 1: Definition*

## Table of Contents

Introduction	8
EMS Overview	10
EMS Market Size	12
Our EMS Patent-Pending Products	15
Purpose of MEXC Tokens	17
Products Pricing	19
Building Fundamental Value	21
Howey Test	23
The MEXC Economy	24
ICO Mechanics	28
MEXC Token Issuance	30
MEXC Token Allocations	31
Funds Allocation	32
MEXC Roadmaps	33
Conclusion	34
References	35
Appendix A	37
Appendix B	42
Appendix C	46

## Introduction

Emergency Medical Services (EMS) or ambulance services provide pre-hospital medical care and transportation services to hospitals and medical facilities. The rise in demand for emergency medical services has led to the growth in the ambulance equipment market. This accelerated demand is partly due to the recession, which led to a large number of people losing their health insurance coverage. As a result, many of these individual's health issues escalated into conditions requiring emergency medical services. Another factor driving the growth of this market is the increase in the ageing population and consequently, the increase of chronic health issues that require emergency healthcare services. The population of people age 65 and older will continue to grow throughout 2018 and will impact the growth of this market in future <sup>1</sup>.

MEXC Initial Coin Offering (ICO) is a unique creation of forward purchase Utility Token for the users in the EMS industry. The players in the industry would use the MEXC Token indirectly to purchase patented, and patent-pending equipment and services to save lives. The MEXC Token has its own eco-system from the use of the token to purchase EMS products and services, to the exchange of the MEXC Tokens with other tokens, or fiat currency in a peer-to-peer (P2P) marketplace, called M<sub>X</sub> P2P Exchanger. P2P Exchanger is a unique P2P exchange system that empowers them to do that between their peers, without incurring high cost and other limitations<sup>2</sup>.

The buyers of the MEXC Tokens during this ICO benefit from the low price offerings of the tokens, which they can trade later in the marketplace either at participating

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<sup>1</sup> in verbatim, with minor modifications from BCC Research. Chapter 2.

<sup>2</sup> MX p2p Exchanger is pure peer-to-peer exchanger where participants control their own private keys.

exchangers<sup>3</sup> or with EMS players in the industry through M<sub>X</sub> P2P Exchanger. Think of it as buying a low cost airline ticket 1 year in advance where you can enjoy a low price to go from point A to point B. This pricing strategy is used by low-cost airlines around the world. Those who booked closer to the travel date have to pay the full market price for the ticket. Unlike the airline industry where the ticket purchased cannot be transferred to other parties, MEXC Tokens can be freely transferred to another party at an agreed price prior to purchasing the patented equipments, or services from us. The price offered during the ICO is part of the “Dynamic Pricing Strategy” that we offered to our MEXC early backers.

After the ICO has ended, the MEXC Tokens can only be purchased from the participating exchangers, or MEXC buyers who purchased during the ICO period, through M<sub>X</sub> P2P Exchanger. As our EMS products and services are priced in M<sub>X</sub>, the EMS industry players can use the M<sub>X</sub> P2P Exchanger to convert the MEXC Tokens to M<sub>X</sub> tokens prior to purchasing our products and services.

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<sup>3</sup> MEXC participating exchangers shall be announced within a month, or earlier, after the ICO has ended.

## EMS Overview

Emergency Medical Services (EMS) provides professional and reliable Basic Life Support (BLS) and Advanced Life Support (ALS) care to the sick and injured. The ambulance, or EMS provider, delivers prehospital medical transportation which is equipped with pre-hospital care to help reduce further damage and manage life-threatening conditions through a series of well-defined and appropriate interventions, thus ensuring patient safety. Emergency medical responders help sustain life, reduce pain and minimise the consequences of injury or illness until advanced medical care is available.

Emergency and ambulance equipment includes apparatus for Cardiopulmonary Resuscitation (CPR), Automated External Defibrillators (AE), airway and ventilation, and trauma emergencies. Additionally, EMS equipment is also required for transporting patients between facilities. EMS and ambulatory equipment are broadly divided into the following main categories: Basic Life Support equipment and Advanced Life Support equipment.

### Basic Life Support equipment:

- Ventilation and airway equipment
- Monitoring and defibrillation
- Immobilisation devices
- Bandages
- Infection control
- Injury prevention equipment

### Advanced Life Support equipment:

- Vascular access

- Pacemaker
- Respirator
- Other advanced equipment (e.g., nebulisers and glucose meters)
- Medications (preloaded syringes).

## EMS Market Size

The market research information, and information on EMS are taken with small modifications, and sometimes in verbatim from BCC Research<sup>4</sup> throughout this document, including the appendix.

The global market for ambulance and EMS equipment increased from \$5.8 billion in 2012 to \$5.9 billion in 2013. This market is expected to continue to grow at a five-year Compounded Annual Growth Rate (CAGR) of 2.9% to **\$6.8 billion in 2018**.

The transportation equipment segment increased from \$593.6 million in 2011 to \$598.5 million in 2012. This segment is expected to increase from \$606.3 million in 2013 to **\$638.4 million in 2018** at a CAGR of 1%.

Sales of equipment used in the blood and haemorrhage control application segment grew from \$32.1 million in 2011 to \$33.0 million in 2012. Sales are expected to increase from \$34.0 million in 2013 and to **\$39.0 million in 2018** at a CAGR of 2.8%.

The trauma and burn care market grew from \$38.8 million in 2011 to \$39.4 million in 2012. Trauma and burn care and diagnostic equipment are expected to generate respective revenues of \$43.6 million and **\$54.1 million in 2018**.

Cardiac and respiratory market grew from \$2.37 billion in 2012 to \$2.4 billion in 2013. This market is forecast to grow to **\$2.7 billion in 2018** at a five-year CAGR of 2.2% during the next five years.

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<sup>4</sup> BCC Research. Market Analysis of Ambulance and Emergency Medical Service Equipment. ISBN: 1-56965-882-X

Infection control market grew from \$2.7 billion in 2012 to \$2.74 billion in 2013. The hypothermia and infection control segments is forecast to grow to **\$32.8 million and \$3.3 billion, respectively, in 2018.**

The market for cardiac and respiratory, infection control and hypothermia prevention is expected to continue to grow at CAGRs of 2.2%, 3.8% and 6.7%, respectively, in 2018.

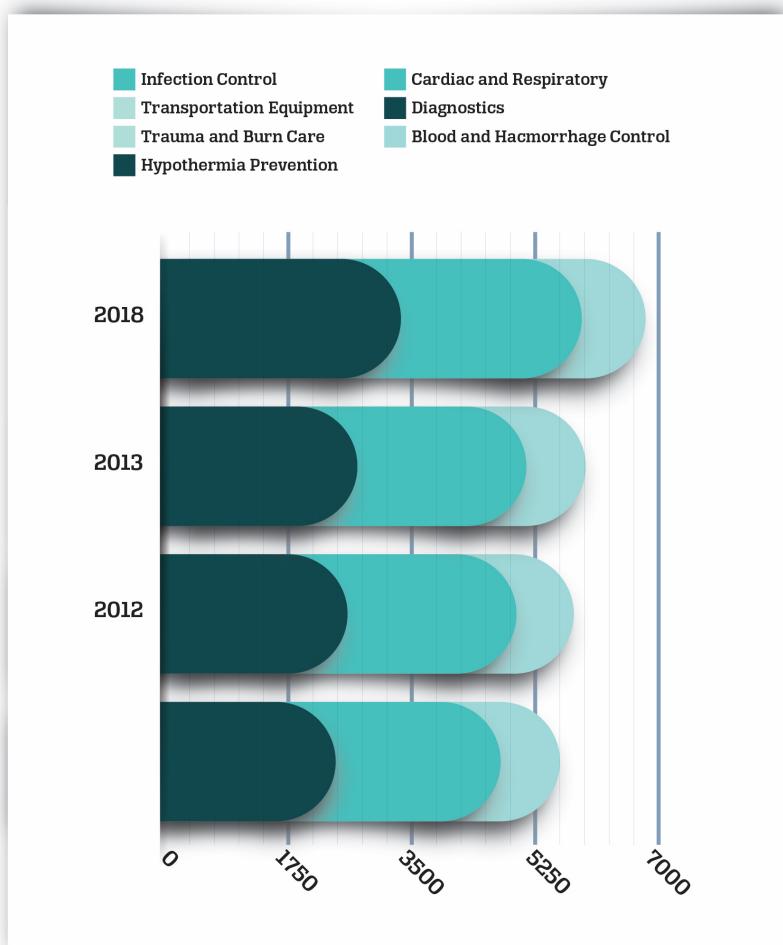


Figure 1: EMS Market Size from 2011 to 2018

## Market Size Summary (in Millions)

Ambulance and EMS Equipment	2011	2012	2013	2018	CAGR% (2013-2018)
Infection Control	US\$ 2,548.20	US\$ 2,696.80	US\$ 2,739.60	US\$ 3,304.20	3.80
Cardiac and Respiratory	US\$ 2,311.00	US\$ 2,373.00	US\$ 2,424.70	US\$ 2,707.60	2.20
Transportation Equipment	US\$ 593.60	US\$ 598.50	US\$ 606.30	US\$ 638.40	1.00
Diagnostics	US\$ 47.50	US\$ 48.40	US\$ 49.30	US\$ 54.10	1.90
Trauma and Burn Care	US\$ 38.80	US\$ 39.40	US\$ 40.10	US\$ 43.60	1.70
Blood and Haemorrhage Control	US\$ 32.10	US\$ 33.00	US\$ 34.00	US\$ 39.00	2.80
Hypothermia Prevention	US\$ 20.40	US\$ 21.70	US\$ 23.70	US\$ 32.80	6.70
Total	US\$ 5,591.60	US\$ 5,810.80	US\$ 5,917.70	US\$ 6,819.70	2.87

*Table 2: Market Size of EMS Products and Services*

## Our EMS Patent-Pending Products

Our EMS products and services are the brainchild of Prof. Dato' Sri Dr. Abu Hassan Asaari bin Abdullah, long has been heralded as the "*father of Traumatology*" in Asia. All the products and services are based on years of experience in this field, have been used extensively and proven to save lives.

Our products are based on new inventions, new innovations and creativities in providing the best and cost effective products and solutions for the EMS industry. The main criteria for our products are based on these philosophies:

1. Life saving interventions
2. Functional savings interventions
3. Complication treatment interventions

The whole philosophies centred on the idea of bringing the complex orthopedic functions and facilities in hospitals to the accident and emergency scenes with the emphasis on mobility and space constraints of the site and ambulance themselves. With these philosophies, we have created new products and services that can be used outside of the hospitals for emergency services. If we can intervene in the process of transporting the patients from the accident and emergency scenes to the hospital with proper orthopedic care, more lives can be saved.

With these products, MEXC Token holders can participate in this industry, and collaboratively reducing the cost of services for the benefit of mankind.

Over the years since 1998, we have 25 (twenty-five) new inventions that are patentable, 5 (five) industrial designs, and 6 (six) copyrights in the EMS industry. All of the products have been used in hospitals and ambulances, and are well within the product category and market as per Table 3 below.

Our products cover 90% of the 7 (seven) EMS categories as defined below:

Ambulance and EMS Equipment	Our Products	2018 Market Size (millions USD)
Infection Control	<ul style="list-style-type: none"> <li>• First Responder Bag</li> <li>• Hands Free Sharp Bin</li> <li>• Universal Protection Kit</li> <li>• Self Decontamination Kit</li> <li>• CBRN Suite Cabinet</li> </ul>	US\$ 3,304.20
Cardiac and Respiratory	<ul style="list-style-type: none"> <li>• First Responder Bag</li> <li>• Code Blue Trolley</li> <li>• <i>Damage Control and Resuscitation Kit</i></li> </ul>	US\$ 2,707.60
Transportation Equipment	<ul style="list-style-type: none"> <li>• Lower Limb Immobiliser</li> <li>• Traction Immobiliser</li> <li>• Pelvic Clamp</li> <li>• Triage Card</li> <li>• Malleable Splint</li> <li>• Malleable Hand Splint</li> <li>• Malleable Arm Sling</li> <li>• Dead Body Management Kit</li> <li>• Trauma Kit</li> <li>• Disaster Management Chest</li> <li>• Examination Couch</li> <li>• Ortho Set Trolley</li> </ul>	US\$ 638.40
Diagnostics	<ul style="list-style-type: none"> <li>• Examination Kit</li> <li>• <i>Aggression Management Kit.</i></li> </ul>	US\$ 54.10
Trauma and Burn Care	<ul style="list-style-type: none"> <li>• Trauma Kit</li> <li>• <i>Fluid Therapy Kit</i></li> </ul>	US\$ 115.40
Blood and Haemorrhage Control	<ul style="list-style-type: none"> <li>• Disaster Management Chest</li> </ul>	
Hypothermia Prevention		
<b>Total</b>		<b>US\$ 6,819.70</b>

Table 3: Mapping of Our Patent-Pending Products by Category.

## Purpose of MEXC Tokens

The EMS industry is a huge market, USD 6.8 billion in 2018, that is controlled by a few market players. The products and services are mostly patented and specialised. Therefore, there is a premium price to be paid for each of the products and services.

The main mission of MEXC Program is to make affordable EMS products and services by giving crypto holders a chance to be part of this huge market. As the patents, copyrights and industrial designs belong to us, we can lower the cost of EMS products and services from the support of our MEXC backers. MEXC Program is created mainly to reduce the price points for EMS products and services by:

- Continuing our R&D, trials and acceptance for affordable EMS products and services
- Protecting the results through patents, copyrights and trademarks of our existing, and new EMS products and services
- Delivering the EMS products and services at cheaper price points through decentralization of deliverables and activities.

MEXC Token is created solely for the use in Emergency and Medical Services, the first in the industry. To date, we have 25 (twenty-five) patent-pending products and growing, that serve all the 7 (seven) categories as discussed above. The MEXC Token shall be the de-facto standard token for the EMS industry, where everybody can be part of this huge market, including creation, participation and rewards, by participating in the MEXC

Economy for more efficient, transparent, immutable, fair and affordable EMS products and services.

MEXC Utility Token (ticker: MEXC, pronounced as “Maxi”) shall enable users to participate in this EMS industry, especially during the ICO period, by purchasing MEXC Tokens at discounted price. The MEXC Tokens can be traded at participating exchangers once the ICO has ended.

The EMS industry players have to purchase our patent-pending EMS products and services only by using  $M_X$  Token, an internal token to be used in Medical industry.  $M_X$  Token can only be obtained by purchasing the MEXC Tokens from the existing token holders, and convert them into  $M_X$  Tokens from MEXC Tokens via our  $M_X$  P2P Exchanger. This is another avenue for our early backers and MEXC Token holders to cash out their MEXC Tokens, rather than just relying on the participating exchangers.

## Products Pricing

All these products have been used extensively in the public and private hospitals since 1998. They have been thoroughly tested and certified to work in ambulances and harsh outdoor environment. These products have been designed based on years of experience dealing with real-life scenarios to save lives<sup>5</sup>.

As described above, the pricing is based on M<sub>X</sub> Token as per below:

No.	Our Products	Price (M <sub>X</sub> )
1	First Responder Bag	100
2	Hands Free Sharp Bin	1,000
3	Universal Protection Kit	10
4	Self Decontamination Kit	200
5	CBRN Suite Cabinet	1,000
6	First Responder Bag	100
7	Code Blue Trolley	2,000
8	<i>Damage Control and Resuscitation Kit</i>	1,000
9	Lower Limb Immobiliser	100
10	Traction Immobiliser	300
11	Pelvic Clamp	5,000
12	Triage Card	25
13	Malleable Splint	50
14	Malleable Hand Splint	50
15	Malleable Arm Sling	75
16	Dead Body Management Kit	200
17	Trauma Kit	250

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<sup>5</sup> We shall not disclosed the details of the products until all are patented to protect the interest of MEXC Token holders.

No.	Our Products	Price ( $M_X$ )
18	Disaster Management Chest	1,000
19	Examination Couch	2,500
20	Ortho Set Trolley	1,000
21	Examination Kit	100
22	<i>Aggression Management Kit.</i>	1,000
23	Trauma Kit	1,000
24	<i>Fluid Therapy Kit</i>	1,000
25	Disaster Management Chest	1,000

Table 4: Pricing of Products in  $M_X$

## Building Fundamental Value

Our EMS patent-pending products and services are priced in  $M_X$ .  $M_X$  Token represents Medical Industry de-facto standard tokens that is pegged to the US dollar:

$$1M_X \equiv 1USD$$

The fundamental reason for the products to be priced in  $M_X$  is that MEXC Tokens, or any other participating tokens in the future, theoretically appreciate in values in the course of time. As such, if the products are priced in the MEXC Token itself, the EMS products and services would be more expensive over time. With  $M_X$  Tokens as the internal tokens, the amount of MEXC Tokens to be used to purchase our patented products and services shall decrease, (or increase) without affecting the price to the end users.

$$\sum_{n=0}^M MEXC_n \cdot P_{MEXC} = \sum_{j=0}^K M_{X_j} \quad (1)$$

$$P_{MEXC} = \frac{\sum_{x=0}^T P_x}{T} \quad (2)$$

The conversion from MEXC Tokens to  $M_X$  Tokens is done at  $M_X$  P2P Exchanger as per the equations above. The total number of MEXC Tokens ( $MEXC_n$ ) multiplied with the price of MEXC token ( $P_{MEXC}$ ) at the time of exchange would yield the number of  $M_X$  Tokens ( $M_{X_j}$ ), to be used for further purchases of EMS products and services, as per equation

1. The  $P_{MEXC}$  is calculated as the average price of all the participating exchangers. For a number of  $T$  exchangers, the price of MEXC Token in each exchanger ( $P_x$ ) are summed up, and divided by the number of exchangers ( $T$ ) as per equation 2.

M<sub>X</sub> P2P Exchanger is an online service provided by us whereby the exchange of tokens can be done using fiat money by bank transfer or cash. The exchange can be done offline as well, whereby the willing buyer and seller do the transaction face-to-face. This is similar to services by the likes of Remitano<sup>6</sup>, LocalBitcoin<sup>7</sup> and LocalEthereum<sup>8</sup>.

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<sup>6</sup> <https://www.remitano.com>

<sup>7</sup> <https://www.localbitcoins.com>

<sup>8</sup> <https://www.localethereum.com>

## Howey Test

The “Howey Test” is a test created by the Supreme Court in the US to determine whether certain transactions qualify as “investment contract”<sup>9</sup>. If so, then under US Securities Act of 1933 and the Securities Exchange Act of 1934, those transactions are considered securities and therefore subject to certain disclosure and registrations requirements.

Under the Howey Test, a transaction is an investment contract if:

1. It is an investment of money
2. There is an expectation of profits from the investment
3. The investment of money is in a common enterprise
4. Any profit comes from the efforts of promoter or third party.

MEXC Token is not an investment contract, but just a Utility Token, sold in Ether<sup>10</sup> as a forward purchase of our EMS products and services. It can be transferred to other individuals or entities freely. The token holders purchase MEXC Tokens at a discounted price during the ICO period and can resell the MEXC Tokens to EMS players in order for them to purchase our EMS products and services at market price. Please refer to Appendix A for a more detailed Howey Test scenarios.

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<sup>9</sup> What Is the Howey Test? <http://consumer.findlaw.com/securities-law/what-is-the-howey-test.html>

<sup>10</sup> Ether is a currency for the Ethereum Network to interact with Ethereum Smart Contract, primarily.

## The MEXC Economy

The MEXC Economy is a full loop eco-system that connects the buyers of MEXC Tokens during ICO as well as post-ICO at participating exchangers, to the industry players in the EMS industry to purchase our patent pending EMS products and services using M<sub>X</sub> Tokens.

It addresses the volatility of the token prices by introducing the internal token, M<sub>X</sub> Token, to dampen the effects on price volatilities when mapping real world products and services to fixed price points. It also provides exchange solutions whereby, prior to this, all tokens have to be converted to Bitcoin, or Ethereum before they can be cashed out to fiat currency. With the clamp downs on crypto-currency, especially Bitcoin, token holders are limited by available avenues to exchange their tokens from crypto to fiat. With M<sub>X</sub> P2P Exchanger, MEXC Token holders can swap, or exchange their EMS Tokens directly to fiat currency in a peer-to-peer fashion. This is among the first in ERC20 tokens.

A blockchain-based Enterprise Resource Planning (ERP) platform is another novelty. It is a decentralised ERP system whereby all processes, from the sales, to the manufacturing, and to the delivery of the products are mapped, tracked and monitored to ensure transparent non-repudiation process, as well as secure traceability on the Ethereum Network through the use of Ethereum Smart Contracts. These smart contracts are being queried via DApp that can be accessed via Mobile Application, or even through the Chrome Web Browser itself. This is also the first in the EMS industry.

With the use of decentralised ERP, we can achieve more, such as:

- **Decentralised Manufacturing:** decentralised manufacturing ensures efficient resources are being used. Only the core components should be manufactured directly by us, while the rest of the components and assemblies should be done at a location where there is a price advantage over material costs and finishing. This should lower the price to the end users by locality.
- **Decentralised Marketing:** we can make our marketing efforts more efficient by targeting specific needs and concerns for each geographical location. Only the local distributor knows the affordability of the local market. The price point is set by us based on the local affordability.
- **Decentralised Distributions:** we can orchestrate the distribution in a transparent, immutable and secure traceability through the use of our Decentralised ERP on Blockchain. No single conglomerate can control, and manipulate the prices to their advantage.

These benefits are then plowed back to the community where more efficient, cheaper and transparent EMS products and services could be delivered to the masses.

MEXC Economy consists of a few components:

- **The MEXC Tokens:** where the ERC20 utility token is created for EMS industry
- **The M<sub>X</sub> tokens:** the internal ERC20 tokens for Medical and Emergency industry that is pegged to the US dollar
- **P2P M<sub>X</sub> Exchanger:** a P2P application for converting MEXC Tokens to M<sub>X</sub> tokens
- **The Mobile Applications:** where the EMS industry players use to purchase products and services using M<sub>X</sub> tokens
- **Decentralised Voting:** all decisions regarding the MEXC Token directions are open for voting by the MEXC Token holders.
- **The Blockchain Enterprise Resource Planning Platform:** A Web Application with smart contracts that track the resource and utilisation of EMS activities that consists of:
  - **The Web Store:** Distributed Application (DApp) that manages the listing of products and services on EMS
  - **The Manufacturing Tracking System:** DApp to monitor manufacturing activities of EMS products
  - **The Delivery Tracking System:** DApp to monitor delivery of EMS products and services

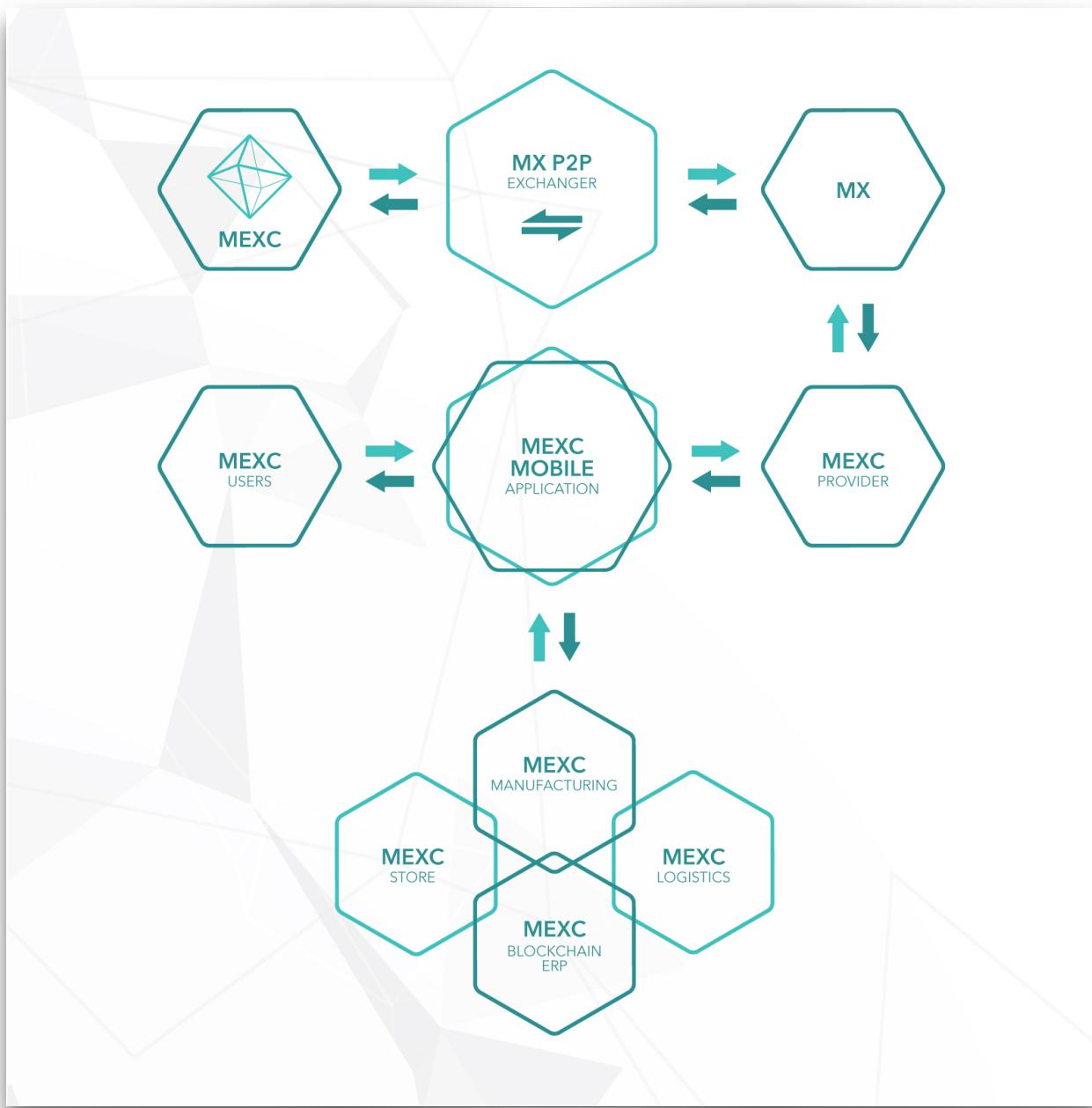


Figure 2: MEXC Economy

## ICO Mechanics

The ICO would run for a maximum period of 80 days starting from the private sale on February 8<sup>th</sup>, until May 3<sup>rd</sup> to allow more parties to join the ICO. The Ether contributions should be sent to our ICO Smart Contract (`0xeFAB21B4dE8BoA8C167e9aFa8183eoE14cEF400f`)<sup>11</sup> that is linked to the MEXC Token Smart Contract (`0x59C22292f7A1C6Fa4fE8B2F5794E72903521b085`)<sup>12</sup>. For the stage 1 of the ICO, (Feb 8<sup>th</sup> to Feb 23<sup>rd</sup>), only whitelisted addresses shall participate in the ICO. Thereafter, there is no limitation on participating.

Participations using Ether shall receive MEXC tokens almost instantaneously<sup>13</sup>, while participations using Bitcoin shall receive the MEXC tokens after the ICO audit has been done, based on the Bitcoin to Ether price on the day of the transaction<sup>14</sup>. Bitcoin address for the ICO is `3BCwFWshhau8pMA86NncET8X9sUwNSrS8P`<sup>15</sup>.

There will be 2 (two) tokens - MEXC and M<sub>X</sub>. MEXC Token is the token that will be sold to the public to take part in the EMS industry. M<sub>X</sub> Token, on the other hand, is the private token that the EMS players shall use to purchase the patented EMS equipment and services. M<sub>X</sub> Token can only be exchanged from MEXC Token, or other future tokens. The EMS players in the industry will then have to purchase the MEXC Tokens from the initial

<sup>11</sup> MEXC ICO Contract <https://etherscan.io/address/oxefab21b4de8boa8c167e9afa8183eo14cef400f>

<sup>12</sup> MEXC Token ERC20 Contract <https://etherscan.io/address/0x59c22292f7a1c6fa4fe8b2f5794e72903521b085>

<sup>13</sup> MEXC token transfers are disabled until listed on exchangers.

<sup>14</sup> Price are According to CoinMarketCap (<https://coinmarketcap.com>) ETH/BTC price.

<sup>15</sup> MEXC Bitcoin ICO Address <https://blockchain.info/address/3BCwFWshhau8pMA86NncET8X9sUwNSrS8P>

buyers who purchased during the ICO, or from the participating exchangers after the ICO has ended.

M<sub>X</sub> Token is meant for internal use, and only MEXC Token shall be traded on the big exchangers after the ICO has ended. The list of the participating exchangers shall be disclosed within a month, or earlier, after the ICO has ended<sup>16</sup>.

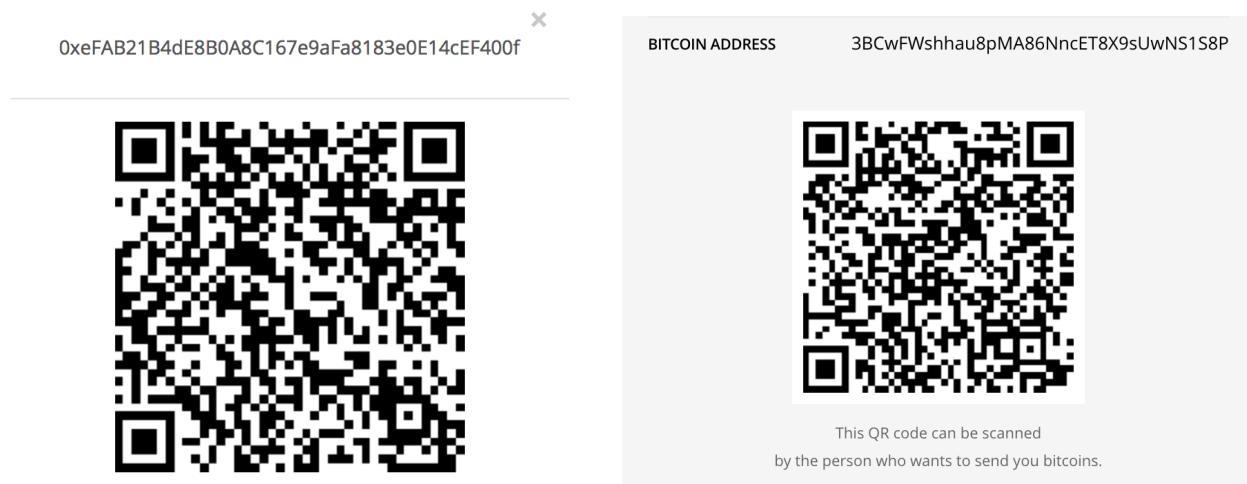


Figure 3: ICO addresses for MEXC Program.

<sup>16</sup> ICO Ended on May 3<sup>rd</sup>, 2018.

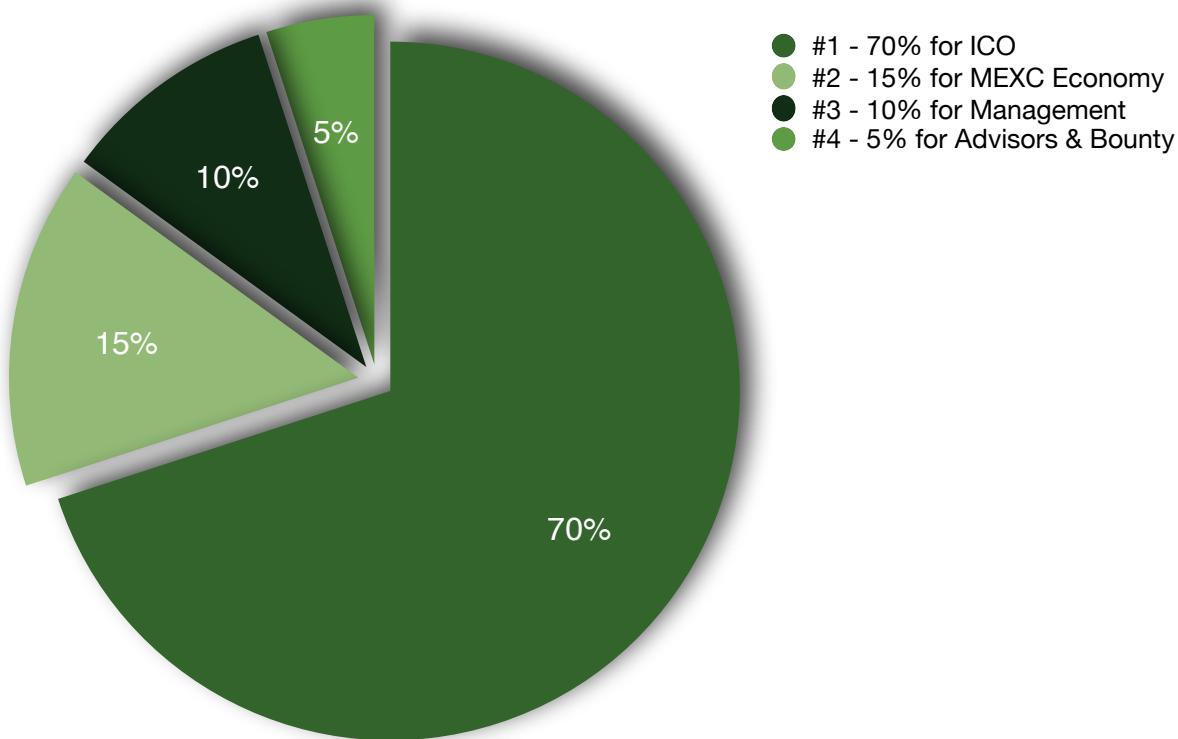
## MEXC Token Issuance

MEXC Token Issuance brief summary is as follows:

Item	Description
<b>MEXC Utility Tokens</b>	MEXC token is categorised under 'Utility Token', therefore it is not classified as security. See Appendix A for detailed explanations.
<b>Ticker Name</b>	MEXC
<b>Number of Decimals</b>	18
<b>Platform</b>	Ethereum Network
<b>ICO Start Date</b>	Stage 1: February 8 <sup>th</sup> , 2018. 00:00:01 GMT. (whitelisted addresses only) Stage 2: February 24 <sup>th</sup> , 2018. 00:00:01 GMT. Stage 3: March 26 <sup>th</sup> , 2018. 00:00:01 GMT. Stage 4: April 15 <sup>th</sup> , 2018. 00:00:01 GMT. Stage 5: April 25 <sup>th</sup> , 2018. 00:00:01 GMT.
<b>ICO Closing Date</b>	Apr 29 <sup>th</sup> , 2018. 23:59:59 GMT.
<b>Duration of ICO</b>	Stage 1: 15 days (whitelisted addresses only) Stage 2: 30 days Stage 3: 20 days Stage 4: 10 days Stage 5: 5 days
<b>Maximum Supply</b>	1,714,285,714 MEXC Tokens
<b>Total Number of Tokens for ICO</b>	1,200,000,000 MEXC Tokens (70% of total)
<b>Base Price</b>	4,000 MEXC = 1 ETH during Stage 1 (whitelisted addresses only) 3,500 MEXC = 1 ETH during Stage 2 3,250 MEXC = 1 ETH during Stage 3 3,125 MEXC = 1 ETH during Stage 4 3,000 MEXC = 1 ETH during Stage 5
<b>Fundraising Limits</b>	Hard Cap: 300,000.00 ETH
<b>Terms of ICO Closing/Termination</b>	MEXC ICO shall be closed, subject to the fulfilment of one of the terms: Hard Cap, or ICO closing date is reached.
<b>Additional Issue/Mining</b>	No additional issue or mining. The MEXC Token minting functionality shall be disabled after the ICO audit.
<b>Supported Currencies</b>	ETH - would receive MEXC Token immediately. BTC - based on the converted ETH value at the transaction day, according to CoinMarketCap ( <a href="https://coinmarketcap.com/">https://coinmarketcap.com/</a> ) ETH/BTC price, to be delivered after the ICO audit.
<b>ICO Smart Contract/ Wallet Addresses</b>	ETH: oxFAB21B4dE8BoA8C167e9aFa8183eoE14cEF40of BTC: 3BCwFWshau8pMA86NncET8X9sUwNSrS8P

*Table 5: MEXC Token Issuance*

### MEXC Token Allocations



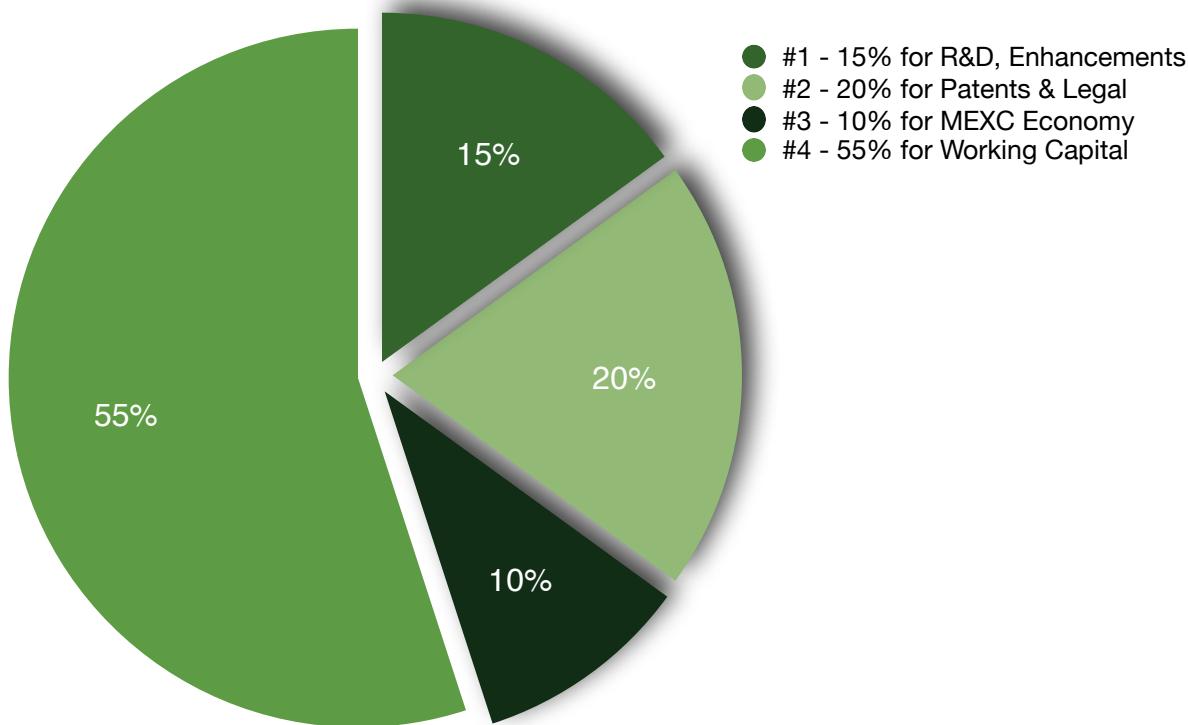
*Figure 3: MEXC Tokens allocations*

**#1:** 70% of the MEXC Tokens are reserved for the ICO

**#2:** 15% of the MEXC Tokens are reserved for the future development of the MEXC Economy

**#3:** 10% of the MEXC Tokens are reserved for the Management Team

**#4:** 5% of the MEXC Tokens are reserved for Project Advisors and Bounty Program.



*Figure 4: Funds allocation*

## Funds Allocation

**#1:** 15% of the proceeds shall be used for R&D - product enhancements and new inventions in EMS products and services

**#2:** 20% of the proceeds shall be used for patents and legal related activities throughout the world, including from new development of products and services as per item #1 and litigations.

**#3:** 10% of the proceeds shall be used to further develop the MEXC Economy

**#4:** 55% of the proceeds shall be used for working capital, including manufacturing, distributions, marketing, certifications and raw materials for core components.

## MEXC Roadmaps

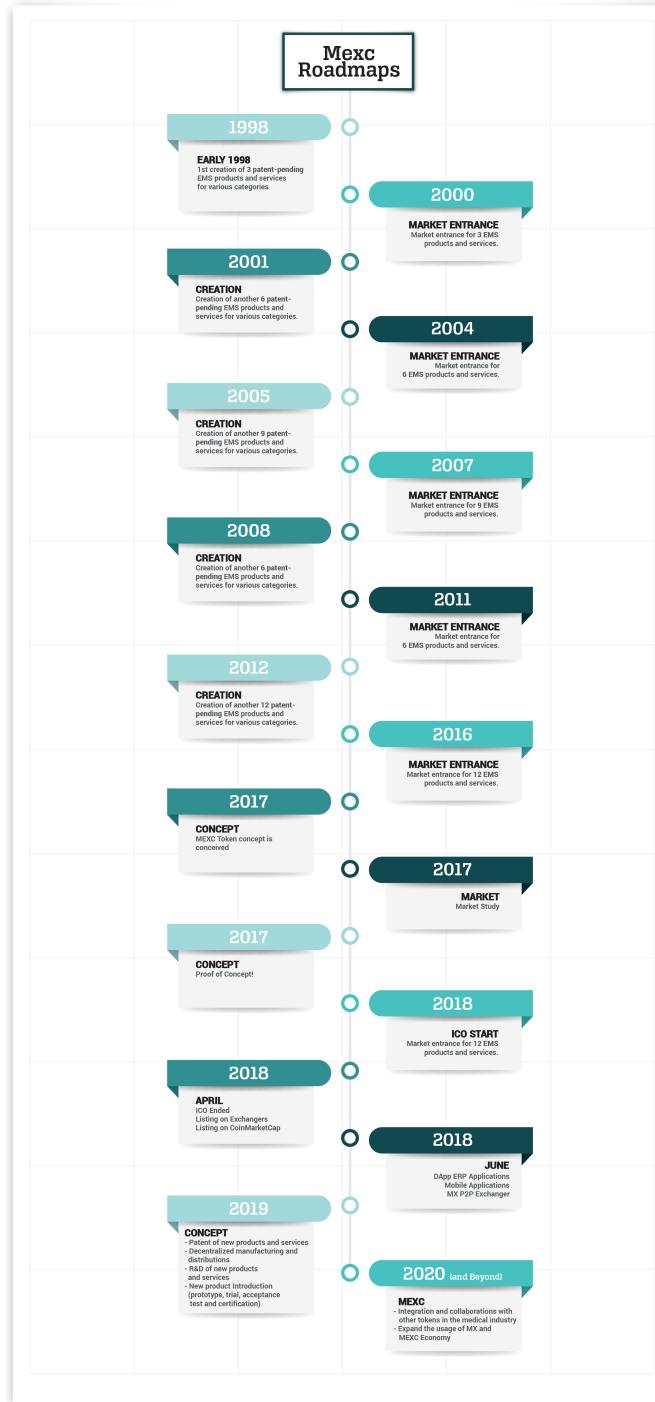


Figure 5: MEXC Roadmap

## Conclusion

The MEXC Token is created to fill the gap in the Medical industry, especially by using Blockchain technology for transparent, immutable records and secure transactions. The future ability to trace all actions taken during emergency services is quite vital, especially for the non-repudiation in the insurance industry. Research and Development in this field is expensive and expansive in nature<sup>17</sup>. We hope that MEXC Tokens could democratise the usage, as well as the development of new products and services at a lower price point than it is now. Appreciation of MEXC Token price in the marketplace can ensure that further development of new products and services is not an illusion anymore, but could be achieved when everybody is collaborating through decentralisation.

At a market size of \$6.8 billion USD this year, we are addressing a huge market potential where no financial institution could facilitate the capital needed to address the industry, especially when aiming for affordable EMS products and services.

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<sup>17</sup> All products are to be tested and certified, which are costly in terms of money and time, before they are deemed fit to be used in EMS and Medical industry

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## Appendix A



**PEJABAT PENGARAH  
HOSPITAL KUALA LUMPUR  
JALAN PAHANG  
50586 KUALA LUMPUR**

**TEL : 03-26155069  
FAX : 03-26156450  
E-MAIL: www.hkl.gov.my**

Ruj. : HKL/JK/98/P.001  
Tarikh : 28 Jun 2007

Kepada Sesiapa Yang Berkenaan.

Tuan/Puan,

**PENGESAHAN PEMBERITAHUAN RASMI SETIAP INVENSI, INOVASI DAN CIPTAAN PROF. DATO' DR. ABU HASSAN ASAARI BIN ABDULLAH KEPADA KEMENTERIAN KESIHATAN MALAYSIA**

Dengan segala hormatnya merujuk perkara diatas,

2. Saya mengesahkan yang Dato' Dr. Abu Hassan Asaari Bin Abdullah telah membuat pemberitahuan rasmi kepada kementerian kesihatan malaysia setiap Invensi, inovasi dan ciptaan Prof. Dato' Dr. Abu Hassan Asaari Bin Abdullah kepada pihak Hospital Kuala Lumpur dan Kementerian Kesihatan Malaysia secara bermula sejak tahun 1995 sehingga 2007. Beliau telah juga secara rasmi membuat demonstrasi, pameran dan peraduan ciptaan peringkat hospital Kementerian Kesihatan Malaysia dan juga Antarabangsa.

3. Ini juga mengesahkan bahawa beliau telah berjaya memenangi anugerah invosi keatas ciptaan-ciptaan beliau pada tahun 2002 (gambar sijil anugerah dilampirkan bersama). beliau juga telah diberi pengiktirafan antarabangsa dan World Health Organisation (WHO) terhadap inovasi dan ciptaan-ciptaan beliau dalam pengurusan mangsa penderaan wanita dan kanak-kanak dan mangsa rogl dalam bentuk perkhidmatan One Stop Crisis Center (OSCC).

4. Bersama-sama ini dilampirkan senarai hasil tulisan, ciptaan dan rekabentuk yang telah dibuat oleh Prof. Dato' Dr. Abu Hassan Asaari Bin Abdullah yang telah dibentangkan kepada Kementerian Kesihatan Malaysia secara demonstrasi, surat makluman dan pameran KMK berserta gambar majlis-majlis penghargaan, sijil-sijil penghargaan dan trofi.

Sekian, terima kasih.

**"BERKHIDMAT UNTUK NEGARA"**

Yang menjalankan tugas,

  
**(DATO' DR. ZAININAH BINTI MOHD ZAIN)**  
 Pengarah  
 Hospital Kuala Lumpur.

S/K : Dato' Dr. Abu Hassan Asaari Abdullah, Ketua Jabatan Kecemasan, HKL.



PENYAYANG, KERJA BERPASUKAN DAN PROFESIONALISME  
ADALAH BUDAYA KERJA KITA



ACCREDITED  
HOSPITAL



## Translations

The Director's Office  
Kuala Lumpur Hospital  
Jalan Pahang  
50586 Kuala Lumpur

Ref. : HKL/JK/P.001  
Tarikh : 28 June 2007

To whom it may concern.

Confirmation of the Official Declaration by Prof Dato Dr Abu Hassan Asaari bin Abdullah on every invention, innovations and creation to Ministry of Health, Malaysia.

The above-mentioned subject refers.

2. I would like to confirm that Prof. Dato' Dr. Abu Hassan Asaari Bin Abdullah had officially notified the Ministry of Health Malaysia on each of his invention, innovation and creation to the Kuala Lumpur Hospital and the Ministry of Health of Malaysia in writing from 1995 to 2007. He was also officially involved and contributed in demonstrations, exhibitions and competitions at the hospital level in the Ministry of Health Malaysia and also at International level.

3. This letter is to confirm that he had successfully won the innovation award on his creations in 2002 (picture award certificate attached). He was also given the international recognition and/from the World Health Organisation (WHO) as the recognition on the innovations and inventions in the management victims of abused of women and children and victims of sexual harassment in developing the one stop crisis center (OSCC) services.

4. Attached herewith are the journals, creation and design by Prof. Dato' Dr. Abu Hassan Asaari bin Abdullah that was presented to the Ministry of health via demonstrations, notification letters and exhibition QCC as well as copies letter of appreciation, certificates of appreciation and trophies.

Best Regards.,

"BERKHIDMAT UNTUK NEGARA"

Yours faithfully

(DATO' DR. ZAININAH BINTI MOHD ZAIN)  
Director  
Hospital Kuala Lumpur.

Copy : Dato' Dr. Abu Hassan Asaari Abdullah, Head Of Emergency Department, HKL.

## LIST A

### INVENTIONS

1. Aqil Lower Limb Immobiliser
2. Aqil Upper Limb Immobiliser
3. Aqil Traction Immobiliser
4. Nina Pelvic Clamp
5. Azri Triage Clamp
6. Azri Malleable Splint
7. Azri Malleable Hand Splint
8. Azri Malleable Arm Sling
9. Dead Body Management Kit
10. OSCC Examination Kit
11. First Responder Bag
12. Trauma Kit
13. Disaster Management Chest
14. Code Blue Trolley
15. Hands Free Sharp Bin
16. Universal Protection Kit
17. Self Decontamination Kit

18. Foldable Examination Couch
19. Ortho Set Trolley
20. CBRN Suite Cabinet

## LIST B

### BOOKS /JOURNAL/SOFTWARE

1. Trauma Care For The Love of Life
2. First Responder Life Support - The Golden Hour
3. Prefix Ensures Continuity Of Care For Life
4. Basic Life Support Manual - CODE BLUE
5. OSCC Software
6. Telehealth Injury Prevention Software

## LIST C

### INNOVATIONS & DESIGN

1. Modular OT - Mobile OT
2. Ergonomic Resuscitation Cubicle
3. Structural Layout and Floor Plan for Emergency Dept - Dedicated and Colour coded Zone Concept
4. Ambulance Layout Design
5. Jany's Type Chair Reclinable for Ambulance

## Appendix B

This section deals with detailed Howey Test according to A Securities Law Framework for Blockchain Token<sup>18</sup>. Our overall risk score is 30, which is unlikely to be considered as a security.

### **A Securities Law Framework for Blockchain Tokens**

To estimate how likely a particular blockchain token is be a security under US federal securities law

[Refer to: full legal analysis](#)

#### **Instructions**

**Step 1: Copy to a new google sheet (File > Make a copy) or download as .xls**

Step 2: Review each characteristic and determine whether or not it applies to the token

Step 3: Select Y or N for each characteristic from the drop down menu

Step 4: Review results at the bottom of this page

#### **Element 1: Investment of Money**

Is there an investment of money?

Characteristic	Points	Explanation	Examples	Y or N
There is no crowdsale. New tokens are given away for free, or are earned through mining	0	Tokens which are not sold for value do not involve an investment of money.  For example, if all tokens are distributed for free, or are only produced through mining, then there is no sale for value.	There was never any token sale for Bitcoin. The only way to acquire new bitcoin is via mining.  A token which is randomly distributed for free	N
Tokens are sold for value (crowdsale)	100	Tokens which are sold in a crowdsale, at any time, regardless of whether sold for fiat or digital currency (or anything else of value) involve an investment of money	A token which is sold for bitcoin in a crowdsale.  A token which is sold for ether in a crowdsale.	Y

**Total for Element 1** 100

#### **Element 2: Common Enterprise**

What is the timing of the sale?

Characteristic	Points	Explanation	Examples	Y or N
Pre-deployment	70	A sale of tokens before any code has been deployed on a blockchain is more likely to result in a common enterprise where the profits arise from the efforts of others. This is because the buyers are completely dependent on the actions of the developers, and the buyers cannot actually participate in the network until a later time.	A developer has an idea for a new protocol, writes a white paper and does a crowdsale.	N

<sup>18</sup> A Securities Law Framework for Blockchain Token, <https://www.coinbase.com/legal/securities-law-framework.pdf>

The protocol is operational on a test network	<b>60</b>	If there is a functioning network there is less likely there is to be a common enterprise where the profits arise from the efforts of others. The closer the sale is to launch of the network, the less likely there is to be a common enterprise.	A developer has an idea for a new protocol, writes a white paper and deploys a working test network before doing a crowdsale.	N
Live network is operational	<b>50</b>	If the token is sold once there is an operational network using the token, or sold immediately before the network goes live, it is again less likely to result in a common enterprise	The crowdsale is done at the same time the network is launched.	N

#### What do token holders have to do in order to get economic benefits from the network?

Characteristic	Points	Explanation	Examples	Y or N
All token holders will always receive the same returns	<b>25</b>	If returns are paid to all token holders equally (or in proportion to their token holdings) regardless of any action on the part of the token holder, then their interests are more likely aligned in a common enterprise	'HodlToken' holders are automatically paid an amount of ETH each week, based on fees generated by other users of the network  'FoldToken' does not pay any return, and there is no way to earn more tokens within the network (but they can be bought, sold or traded)	N
There is a possibility of varying returns between token holders, based on their participation or use of the network	<b>-20</b>	If token holders' returns depend on their own efforts, and can vary depending on the amount of effort they each put in, then there is less likely to be a common enterprise	'CloudToken' holders can earn more tokens by providing data storage on the network, or can spend tokens to access data storage. Holders who do not provide data storage do not earn any more tokens.	Y

Total for Element 2 -20

#### Element 3: Expectation of Profit

What function does the token have?				
Characteristic	Points	Explanation	Examples	Y or N
Ownership or equity interest in a legal entity, including a general partnership	<b>100</b>	Tokens which give, or purport to give, traditional equity, debt or other investor rights are almost certainly securities.	A developer releases and sells 100 'BakerShares' tokens. Each token entitles the holder to 1 share in Baker, Inc.	N
Entitlement to a share of profits and/or losses, or assets and/or liabilities	<b>100</b>	<b><i>If one or more of these characteristics apply, the token is almost certainly a security, notwithstanding the results of the other elements</i></b>	A developer releases and sells 100 'BakerProfit' tokens. Each token entitles the holder to 1% of the profits of Baker, Inc. for the next year.	N
Gives holder status as a creditor or lender	<b>100</b>		A developer releases and sells 100 'BakerDebt' tokens. Each token entitles the holder to principal and interest repayments based on the initial token sale price.	N
A claim in bankruptcy as equity interest holder or creditor	<b>100</b>			N
A right to repayment of purchase price and/or payment of interest	<b>100</b>			N
No function other than mere existence	<b>100</b>	A token which does not have any real function, or is used in a network with no real function, is very likely to be bought with an expectation of profit from the efforts of others, because no real use or participation by token holders is possible.  Voting rights alone do not constitute real functionality.	A developer releases and sells 100,000 'SocialCoin' tokens to fund the development of a new Social Network. However, SocialCoin is not required to access the network and has no real function after the sale.	N

Specific functionality that is only available to token holders	<b>0</b>	A token which has a specific function that is only available to token holders is more likely to be purchased in order to access that function and less likely to be purchased with an expectation of profit.	'CloudToken' is the only way to access and use a decentralized file storage network.	<b>Y</b>
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#### Does the holder rely on manual, off-blockchain action to realize the benefit of the token?

Characteristic	Points	Explanation	Examples	Y or N
Manual action is required outside of the network (e.g. off-blockchain) in order for the holder to get the benefit of the token	<b>80</b>	A token whose value depends on someone taking specific manual action outside of the network means that the token is not functional in and of itself. Instead, the token relies on a level of trust in a third party taking action off-blockchain. This sort of token is more likely to be bought for speculation - i.e. the expectation of profits.	A developer releases and sells 'FreightCoin', which will allow the holder to pay FreightCoin to access capacity on a new real-world freight network. The network relies on legal contractual relationships and manual actions. (This alone does not make FreightCoin a security)	<b>N</b>
All functionality is inherent in the token and occurs programmatically	<b>0</b>	A token which is built with all the necessary technical permissions means that the token holder does not rely on manual actions of any third party. This means that the buyers are more likely to purchase the token for use rather than with the expectation of profit from the efforts of others.	Holders of 'SongVoteToken' can sign transactions on the network as votes for their favorite new songs and earn rewards for doing so.	<b>Y</b>

#### What is the timing of the sale?

Characteristic	Points	Explanation	Examples	Y or N
Pre-deployment	<b>20</b>	A sale of tokens before any code has been deployed on a blockchain is more likely to result in buyers purchasing for speculative reasons with the expectation of profit, rather than practical use cases.	A developer has an idea for a new protocol, writes a white paper and does a crowdsale.	<b>Y</b>
The protocol is operational on a test network	<b>10</b>	If the sale occurs after code has been deployed and tested, the token is closer to being able to be used	A developer has an idea for a new protocol, writes a white paper and develops a working test network before doing a crowdsale.	<b>Y</b>
Live network is operational	<b>0</b>	If the token is sold once there is an operational network using the token, or immediately before the network goes live, it is more likely to be purchased with the intention of use rather than profit.	The live network is launched before the crowdsale.	<b>N</b>

#### Can the token holders exercise real and significant control via voting?

Characteristic	Points	Explanation	Examples	Y or N
Token holders as a whole are able to control the development team's access to funds	<b>-20</b>	If the collective approval of token holders is required in order for the development team to access the funds raised in the crowdsale, then any value realized by the token holders is more closely tied to their own decisions, and less reliant on the efforts of others.	A development team sells 100,000 Tokens for a total of 100,000 ETH. 50,000 ETH will be released from the token contract to the development team immediately, but the remainder is only released once milestones are met, which requires approval of a majority of the token holders each time. If the milestones are never met, the remaining ETH will be returned to the token holders.	<b>Y</b>
Token holders as a whole are able to vote on significant decisions for the protocol	<b>-10</b>	If the collective approval of token holders is required in order to make significant changes to the protocol, then any value realized by the token holders is more closely tied to their own decisions, and less reliant on the efforts of others.	Changes to the protocol require a vote by token holders.	<b>Y</b>

**Note:** Voting rights must be in addition to functionality. A token with voting rights alone and no other real function

How is the token sale marketed?				
Characteristic	Points	Explanation	Examples	Y or N
Marketed as an 'Initial Coin Offering' or similar	50	<p>It is not possible to prevent some buyers from buying a token purely for speculation. However, marketing the token as an investment leads buyers to believe they can profit from holding or trading the token, rather than from using the token in the network.</p> <p>Using terms like 'Initial Coin Offering' or 'ICO', and investment-related language like 'returns' and 'profits' encourages buyers to buy a token for speculation, rather than use.</p>	'ProfitCoin' includes potential of 'high ROI' and 'investor profits' in its marketing material.	Y
Marketed as a Token Sale	0	Marketed as a sale of tokens which give the right to access and use the network		Y
There is no economic return possible from using the network	-100	If there is genuinely no economic return possible for the token holders, then there is unlikely to be a common enterprise. This will be rare.	Backers contribute to a cause and receive a 'thank you' token which has no economic value.	Y

Results		Your results	
Guide			
Total Points	How likely is the element to be satisfied?		
0 or less	Very unlikely	Total for Element 1	100
1 - 33	Unlikely	Total for Element 2	-20
34 - 66	Equally likely and unlikely	Total for Element 3	-50
67 - 99	Likely		
100 or more	Very likely	Overall Risk Score	30

A token will only be a security if it satisfies all three elements. The higher the point score for each element, the more likely the element is to be satisfied.

For many blockchain tokens, the first two elements of the Howey test are likely to be met. The third element has the most variables and the most different outcomes depending on the characteristics of the particular token.

#### Important notes

*Please remember that this methodology produces nothing more than an estimate. The Overall Risk Score and the categories of likelihood are a guide only.*

*The Howey test has not yet been directly applied by the courts to any digital currency or blockchain token. The Howey test as applied by the courts does not involve any points-based calculation. The points system is intended as a guide - to highlight the characteristics of a token which are relevant to the securities law analysis.*

*This Framework should be read together with the full legal analysis. This Framework and the full legal analysis may be updated in the future as the law in this area develops.*

**You should not rely on this Framework as legal advice. It is designed for general informational purposes only, as a guide to certain of the conceptual considerations associated with the narrow issues it addresses. You should seek advice from your own counsel, who is familiar with the particular facts and circumstances of what you intend and can give you tailored advice. This Framework is provided "as is" with no representations, warranties or obligations to update, although we reserve the right to modify or change this Framework from time to time. No attorney-client relationship or privilege is created, nor is this intended to be attorney advertising in any jurisdiction.**

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## Appendix C<sup>19</sup>

### Classification of Ambulance/EMS Equipment

ALS and BLS equipment can be categorised based on their functionality:

- Transportation equipment
- Blood and haemorrhage control
- Burn care
- Diagnostics
- Cardiac and respiratory
- Infection control
- Hypothermia.

### TRANSPORTATION EQUIPMENT

Prehospital providers transfer patients to facilities, depending on their need for a low or high level of medical care. The type of equipment used depends on the nature of the care needed during the transport of patients. Hence, ambulances must be prepared accordingly and are equipped with transport equipment such as stretchers, cots, wheelchairs, and immobilisation equipment such as cervical collars and splints. Transportation equipment also includes a neonatal retrieval system and equipment designed specifically to transfer infants to medical facilities.

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<sup>19</sup> This is taken in verbatim from BCC Research, with minor modifications.

## **Stretchers and Cots**

Ambulance cots are designed with features that support the patient's body. They help reduce strain, and control and maintain proper body mechanics while loading and unloading patients. The folding emergency stretchers are simple, flat stretchers used for transferring patients. They are primarily made of lightweight aluminium frames and heavy duty, bacteriostatic, vinyl coated nylon covers that are impermeable to blood and bodily fluids.

## **Immobilisation Set**

Immobilisation Set immobilises arms and legs, and are used for temporary emergency medical support. The immobilisation set provides dependable support for heavy bleeding, sprains, swelling, fractures, and broken, crushed or burned extremities. These sets are designed to be applied and removed painlessly from the injury site, as they are equipped with a push-pull valve that controls pressure and makes inflating them effortless. The set delivers pain relief, immobilises and cushions the injury to prevent further damage to the soft tissue. Transparent vinyl plastic splints are also X-ray transparent and act as a tool for doctors to use to monitor injuries and the healing process. Immobilisation sets are available in a convenient storage/carrying case. Various assortment packs include half-arm, full-arm, half-leg, full-leg, hand/wrist and foot/ankle sized splints.

## **Triangular Bandage**

As the name suggests the triangular bandage is triangular in shape. Triangular bandages are made from square cloths that are roughly 40 inches and are usually made of calico or cotton. This bandage is cut in half diagonally and used in various ways as a sling for

immobilisation of broken bones and soft tissue injuries. The bandage has a long edge and a short edge and can be tied as a collar and cuff sling, elevation sling or reef knot.

## **Cervical Collars**

Cervical spine immobilisation is necessary during acute cervical injury to avoid spinal cord damage. The spine needs to be protected at all times when managing patients with multiple injuries. There are a numerous types of cervical collars available in the market today. These collars are made of rigid or semi-rigid materials, such as plastic or foam, which are reinforced by plastic struts and Velcro straps. The collars primarily function to restrict flexion and extension of the middle and lower cervical spine.

## **Collapsible or Folding Wheelchair**

Folding or collapsible wheelchairs are portable and hence more convenient to use than a standard wheelchair during emergency situations. The collapsible or folding wheelchairs contain a collapsible frame. These chairs are easy to carry around, as they are often made from lightweight aluminium. Folding wheelchairs are very versatile, as they allow easy access and freedom of movement. Folding wheelchairs also come with detachable leg rests and a folding back, which make them ideal to fold to store in an ambulance. Folding wheelchairs are very accessible, as they do not require upper body strength to be moved around. They are available with two options: self-propelled and transit options. Their attendant handbrakes provide additional safety and control for EMS personnel. Due to moving parts and movable joints, folding chairs are not as durable as a rigid frame

wheelchair. These chairs therefore require higher maintenance to keep them in good condition.

## **Neonatal Transport Equipment**

Transportation of high-risk and critically ill infants requires specialised equipment. Neonates generally require urgent transfer to a tertiary care centre often because of medical, surgical or postpartum issues. There are various commercial products in the market used for the neonatal patients during transportation. Most sick neonates require peripheral or central intravascular access during transport and hence the ambulance must be equipped with intravenous (IV) access for these tiny and challenging patients.

Many neonatal units are equipped to simultaneously transport two or more patients in the event of twins or higher-order multiple transport requests. Neonatal transport units are mobile-intensive care incubators fitted with mechanical ventilators, suction equipment, warming equipment, infusion pumps and physiological monitors capable of being used in a mobile environment.

## **BLOOD AND HAEMORRHAGE CONTROL**

One of the leading causes of death in civilian and military injuries is uncontrolled bleeding. Despite new advances in trauma care, EMS services and medical devices, massive haemorrhaging continues to result in morbidity and mortality. Therefore, adequate haemorrhage control is required in the prehospital environment. EMS equipment contains different types of gauze, which are compressed and haemostatic, to help the medical personnel during haemorrhage-related emergencies.

## **Haemostatic Gauze**

The combination use of absorbable haemostatic gauze with medical adhesive is an effective method for achieving haemostasis. The gauze is primarily used when massive presacral haemorrhaging occurs. Haemostatic gauze helps to stop a range of bleeding from oozing to severe arterial within minutes, which minimises blood loss and reduces the risks associated with transfusions. Most haemostatic gauzes are intended to end bleeding with three minutes of compression.

## **Compressed Gauge**

Compressed gauze is used during moderate to severe wounds involving heavy blood loss. It is usually made of high-quality cotton for maximum absorption and stability. Although they are available in vacuum-packed form for small, easy storage, they expand to cover large wound areas. The compressed gauze is ideal for fast and easy wound packing. During prehospital emergency care, rolled gauze generally becomes damaged and loses its sterility, but compressed gauze maintains its sterility due to its compact vacuum packaging.

## BURN CARE

Burn injuries require immediate cooling, otherwise the heat may continue to destroy the surrounding and underlying tissue. The unattended burn may progress to a partial thickness (second-degree) burn and later into a full thickness (third-degree) burn. Such situations could result in serious consequences for the patient and considerable cost to the receiving hospital or burn unit. The burn kits in ambulances are assembled to provide immediate first aid for all types of burns. The kits contain equipment to relieve the pain, rapidly removing the heat and cooling the burn. The kits usually contain gel in unit dosage packages, sterile burn dressings in various sizes and burn blankets.

### **Burn Blankets**

Burn or fire blankets are designed for emergency use and provide physical protection from heat, fire and smoke. During transport to a medical facility, the blanket soothes the victim by cooling the burn and drawing the heat out to prevent further tissue and nerve damage. These blankets help reduce the physiological and psychological trauma of burn victims.

Burn blankets are usually made of wool, woven with a unique interlinking cell construction. Burn blankets are specially formulated with gel that is easily removed and does not adhere to the victim's skin. When the gel soaked blanket is placed on a victim's body, it cools the burn and helps to protect against airborne contamination. The burn or fire blanket can also be used to extinguish flames on a victim. These blankets are conveniently packaged in handy canisters that can be mounted on a wall.

The wrap used for body heat conservation for a newborn is known as sterile foil baby bunting. The blanket is made of sterilised metallised polyester film that is latex free and usually has a hood with an opening for the infant's face.

### **Burn Dressings and Masks**

Burn dressings are made of gelatinised water mix. Due to their gelatinous nature, these dressings seal the burn from further contamination, cool the burn site and relieve pain. The fluids on the burn site cannot soak into the dressing. As the burn cools down, the dressing warms up, which helps prevent hypothermia. The burn dressings available today are capable of absorbing temperatures in excess of 2,000°F.

Non-adherent, non-toxic and non-irritant burn face-masks are designed for emergency first aid on first- or second-degree burns. They cool the burn site and ease trauma, which reduces the risk of infection. These masks are designed with cutouts for the eyes, nose and mouth. The cuts are designed to keep the nasal passages, eyes and mouth clear. The dressing brings cooling relief from pain while protecting covered the area from further contamination.

### **Burn Gels**

Burn gels cool the burn, soothe the skin and ease pain upon application to the burn site. The burn gel draws the heat out of the burn wound, which helps relieve pain and prevents infections. It acts as an external analgesic, provides temporary relief for minor burns, cuts and scrapes and may contain aloe vera for cooling.

## DIAGNOSTICS

The diagnostic equipment found in an ambulance or EMS vehicle includes, for example, stethoscopes, thermometer, oximeter and blood pressure kits.

### **Stethoscope**

A stethoscope is used to listen to the respiratory and cardiac sounds in a patient's chest. The stethoscope transmits low-volume sounds such as a heartbeat or intestinal, venous or fetal heart sounds. A stethoscope consists of two earpieces connected by means of flexible tubing that is placed against the skin of the patient. Stethoscopes also come with interchangeable chest piece fittings—adult and paediatric diaphragms.

### **Thermometer**

A thermometer is a glass tube with a bulb containing a liquid, typically mercury or coloured alcohol. The liquid expands and rises in the tube as temperature increases. The types of thermometer available on the market are mercury glass, electronic digital and infrared thermometers.

Mercury glass thermometers have been used in past years to measure temperatures in the rectum, mouth or under the arm. They are not used today because they can break easily and release toxic mercury.

Electronic digital thermometers have advantages over glass thermometers. Digital thermometers record temperature readings faster and the digital display is easy to read.

While using digital thermometers, there is no peril of injury caused by broken glass or mercury.

Infrared thermometers measure heat generated by surfaces and cavities, and record temperature reading in seconds. Infrared ear thermometers measure the heat generated by the eardrum and surrounding tissue and generate a digital display in a few seconds. Infrared skin thermometers measure the heat produced by the skin. The sensors in the infrared skin thermometer do not measure the temperature below the skin surface, and so their measurements may not record body temperature accurately.

### **Blood Pressure Monitor and Sphygmomanometer**

The sphygmomanometer, also called a blood pressure meter, is a small piece of equipment found in ambulances. It quickly measures blood pressure, particularly in arteries. The sphygmomanometer primarily consists of a gauge attached to a rubber cuff. The rubber cuff is wrapped around the upper arm and is inflated to constrict the arteries.

There are two types of sphygmomanometers available: digital and manual. Digital sphygmomanometers are automated. They provide a blood pressure reading and do not require medical personnel to operate the cuff or listen to the blood flow sounds. Although they are easy to use, the digital models are less accurate. Healthcare providers often use manual sphygmomanometers to validate digital readings. Manual sphygmomanometers consist of either an aneroid dial or a mercury column. Although aneroid and mercury devices operate in a similar manner, aneroid devices require periodic calibration.

The aneroid sphygmomanometer requires no liquid. The absence of a liquid provides mobility and so the aneroid sphygmomanometer can be moved easily from one location to another. In addition, it can be placed on walls. In addition, while the mercury sphygmomanometer must be kept in a level location for the mercury to remain in place, the aneroid sphygmomanometer can be placed on the wall. Transportation of the mercury sphygmomanometer affects its accuracy, due to movement in the level of the mercury column.

### **Pulse Oximeter**

The pulse oximeter is used for indirect measurement of the percentage of oxygenated haemoglobin. Pulse oximetry is often used in emergency rooms to evaluate oxygen levels in patients. The pulse oximeter is a common piece of EMS monitoring equipment. Pulse oximeters measure the light absorption properties of haemoglobin. The oximeter uses a red-infrared light source to measure oxygenated haemoglobin.

The quantity of light absorbed by the blood varies with the proportion of oxygenated haemoglobin in the blood. This is analysed with an oximeter to generate a numerical saturation reading. Most of pulse oximeters provide a digital waveform in a visual display.

It also generates an audible display of arterial pulsations and heart rate. The pulse oximeters come with a variety of sensors to accommodate individuals regardless of age, size or weight. The latest wireless pulse oximeter generates pulse signal quality assessment and heart rate alarms. The oximeter is an important part of ambulance equipment.

## Otoscope

The otoscope is a valuable piece of device used as a tool for detecting ear problems. It can also be used as a light source for examination of the eye and body orifices other than the ear. The otoscope contains a magnifying glass with a source of light and a cone shaped speculum at the end of a tube.

## CARDIAC AND RESPIRATORY

Sudden death due to cardiac arrest is a global concern today. Performing CPR on patients during ambulance transport is crucial for patients undergoing prehospital emergency care. The quality of the CPR administered during ambulance transport is the key factor affecting the probability of survival of patients in cardiac arrest. Effective CPR is often a prerequisite for effective defibrillation.

### Airway Management Systems

Airway management is the process that ensures an open airway in a patient. Ambulance staff is trained in advanced airway skills, which also include tracheal intubation. Tracheal intubation has been used to address prehospital cardiac arrest since the 1970s. There are many ways to perform advanced airway management. Tracheal intubation is been replaced by other advanced airways such as supraglottic airways. Airway management systems include disposable and reusable supraglottic airways, bite blocks, laryngeal airway devices and video laryngoscopes. Separate paediatric supraglottic airway management tools are also available on the market.

## **Cardiac Monitor and Defibrillators**

Cardiac monitors are used to monitor heart activity, continuously. Cardiac monitors are also equipped with external pacing, pulse oximetry, end-tidal carbon dioxide (ETCO) 2 capnography, non-invasive blood pressure (NIBP) and P-oximeters.

During EMS transport, the heart rhythms of the cardiac patient are routinely monitored with the cardiac monitor. If there is a cardiac emergency during patient transport, a 12 lead electrocardiogram (ECG) can be performed. Performing an ECG allows paramedics in the field to treat a patient's condition accordingly and speeds up the treatment process when the patient arrives at the treatment facility.

## **CPR Mask and CPR Life-shield**

The disposable bag resuscitator is a semi-transparent CPR resuscitator used for emergency situations. These resuscitators are ideal for adult, infants and children, as they feature a see-through patient valve allowing for visual check of operation. The textured surface and support strap facilitate a steady grip and uniform tidal volumes. Most EMR resuscitators are fully disposable, which eliminates the need for cleaning, disinfecting and sterilising, as well as the chances of cross-contamination.

## **Rescue Mask and Non-rebreathing Mask**

Mouth-to-mouth resuscitation has traditionally been the method used to provide respiration to a patient in an emergency situation. Now the rescue mask is used by first responders to provide immediate respiratory support without concerns regarding the transmission of infectious diseases.

These masks are available with and without an oxygen inlet. An oxygen tube can be attached to the oxygen inlet for supplemental oxygen. In addition, the transparent design of these masks allows the rescuer to visually check the patient's condition. The masks are usually equipped with a head strap to affix the device to the patient's face.

## **Oxygen Regulator**

An oxygen regulator regulates the flow of the oxygen from the tank to administer the correct dose of oxygen to the patient. Oxygen regulators are used to adjust litre flow, usually starting from 1–25 L/min. Paediatric oxygen regulators are for those that need 1/32 L flow in small increments. Emergency personnel primarily require 0–25 L/min oxygen regulators to provide high litre flow in emergency situations. The two main categories of regulators are:

- Continuous flow oxygen regulators
- Oxygen conserving regulators.

### **Continuous Flow Oxygen Regulators**

Continuous flow oxygen regulators are attached to the top of the oxygen tank. They contain a dial that allows emergency personnel to adjust the litre flow. Continuous flow oxygen regulators provide continuous flow settings so they empty the oxygen tank fairly quickly. The flow depends on the flow setting and usage frequency of oxygen tank.

### **Oxygen Conserving Regulators**

Oxygen conserving regulators are attached to the top of the oxygen tank. They are available in two styles: a pneumatic conserver and a battery operated oxygen style. Oxygen

conserving regulators enable oxygen tanks to last five times longer than a continuous oxygen regulator at the same flow rate. They provide a pulse dose of oxygen to the patient. When the patient breathes, it causes back-pressure in the oxygen tubing, which triggers the regulator to provide oxygen. These types of regulators do not work unless the patient breathes deeply enough.

### **Nasal Cannula**

Nasal cannulas are used to deliver oxygen at a low flow where a low concentration of oxygen is required. They are used for the patients who are in a stable state. Nasal cannulas are advantageous for patients who have chronic respiratory problems. Patients can eat and drink while using them. Cannulas also reduce the risk of carbon dioxide rebreathing.

## **INFECTION CONTROL**

First aid team members and EMS professionals in the healthcare industry are at risk of exposure to blood-borne pathogens and body fluid spills. Potential infectious materials include semen, vaginal secretions, cerebrospinal fluid, amniotic fluid, saliva or any body fluid visually contaminated with blood, any unfixed tissue or organs, HIV cells or tissue cultures.

The emergency cleanup kit for blood or bodily fluids guards caregivers of ill or injured patients and protects during biohazard cleanup. The kit usually includes a gown, fluid-resistant mask, nitrile exam gloves, hand wipes and cap. Ambulances are also equipped with a biohazard lock-up container.

## **Biohazard Lock-up Container**

Medical waste generated during medical emergencies includes dripping liquid or semi-liquid blood, infectious materials that could release flakes, human blood and blood products (including serum, plasma and blood components), haemodialysis waste, human or animal isolation wastes (from humans or animals that have been isolated to protect others from communicable diseases), sharps waste, autopsy tissue, organs or body parts also known as pathological wastes, autopsy wastes (e.g., soiled dressings, sponges, drapes, lavage tubes, drainage sets, under-pads and surgical gloves), discarded medical equipment. The biohazard lock-up container is used to discard such medical waste. These containers are leak proof and have a locking translucent top seal that shuts permanently when full. They are conveniently placed for quick disposal of medical waste while attending to the patient.

## **Germicidal Wipes/Sprays/Sanitisers**

Germicidal wipes, sprays and sanitisers protect against TB (tuberculosis), MRSA (methicillin resistant Staphylococcus aureus), VRE (vancomycin resistant Enterococcus), HIV-1 (human immunodeficiency virus), Staphylococcus aureus, Salmonella choleraesuis. They are used to clean, disinfect, decontaminate and deodorise equipment. Germicidal wipes are disposable wipes, which are available in containers that allow wipes to be pulled out one at a time for use. Disinfectant wipes are an essential disinfecting tool used on the surface of furniture and equipment.

## Gloves and Safety Gowns

Ambulance personnel are continually at risk while attending to accidents and fatalities as they perform first aid on victims without the availability of medical information or records. EMS personnel are at risk of coming into contact with blood while removing injured people from the scene of an accident or providing first aid to victims. Therefore, EMS providers require personal protection equipment.

Personal protective equipment for EMS and healthcare providers includes gloves, gowns and caps to protect those who are vulnerable to the transmission of disease while providing medical care. A wide range of exam gloves is available made of latex, vinyl or nitrile. Medical gloves serve as protection and help prevent the spread of germs. Whereas gloves protect hands, gowns protect skin and clothing. Gowns and caps are fluid-resistant and available in reusable and disposable forms.

## HYPOTHERMIA

During hypothermia, the body's core temperature falls below a normal 98.6°F (37°C) to 95°F (35°C) or cooler. Exposure to cold temperatures or cold water dangerously accelerates the onset and progression of hypothermia. Hypothermia can affect the brain, heart, lungs and other vital organs. A mild case of hypothermia may diminish a victim's physical and mental abilities, and a severe case of hypothermia may result in unconsciousness or the death of the victim. During hypothermia-related emergencies, medical providers work to prevent further heat loss, rewarming the victim, and work to quickly get the patient to a medical facility. Hypothermia prevention kits available to EMS personnel contain a reinforced heat reflective shell (HRS). The heat reflective shell is strong, flexible,

lightweight and resistant to both wind and rain. The kit is usually vacuum-sealed in a rugged pouch with quick-rip tabs that allow easy access and rapid deployment, during an emergency.

### **Heat Reflective Shells**

New heat reflective shells are designed to meet the extreme and specific needs of patient warming during causalities. The latest high-performance, heat reflective shell closes toward the underside, with hook and loop closures for weather protection during casualty evacuation. The heat reflective shells available today contain a built-in hood to provide protection for the patient during transportation. Along with the HRS, the hypothermia prevention kit also contains a self-heating, four-cell shell liner designed to sustain continuous dry heat.