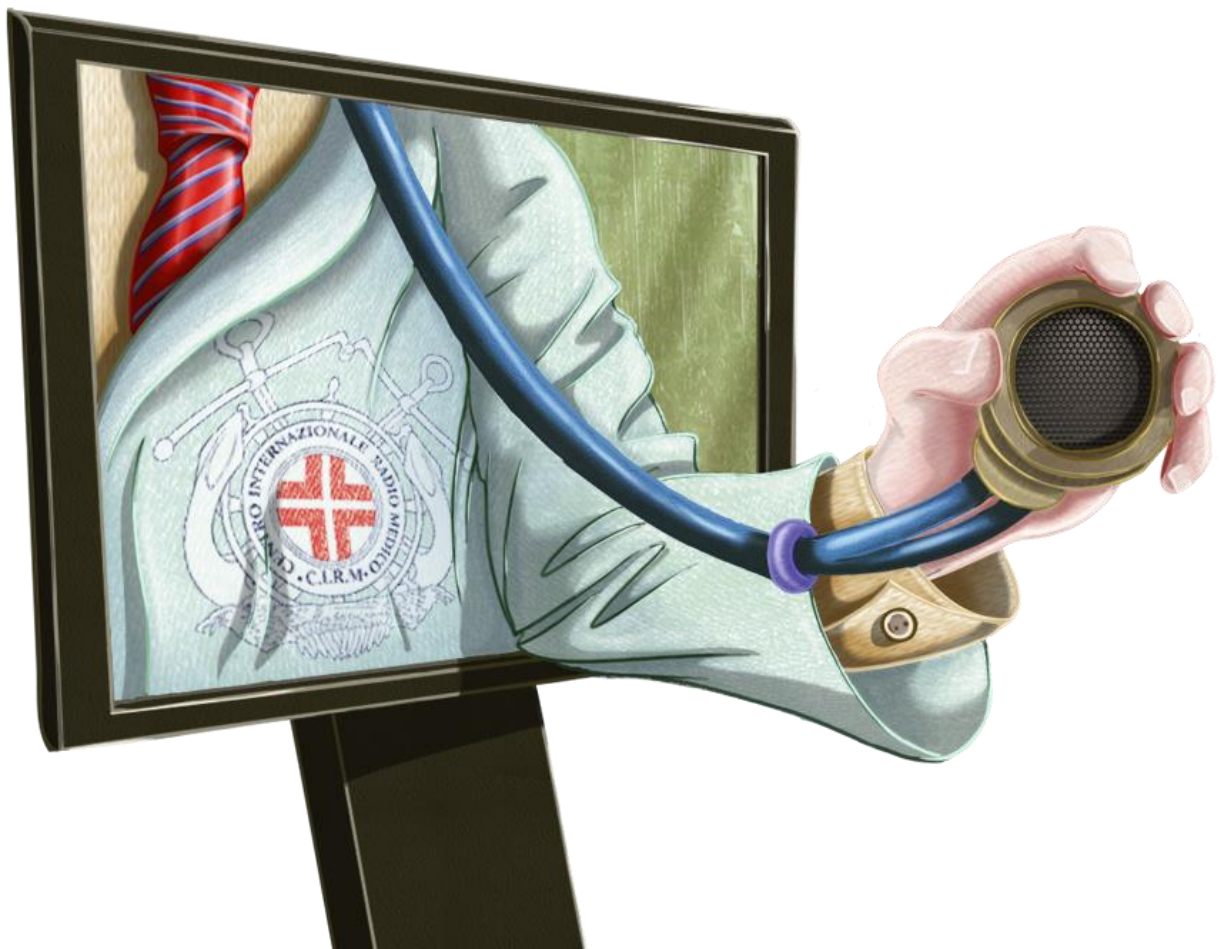


# MARINE DOCTOR

(A system to make easier and more effective requests of medical advice from ships to onshore)



## User instructions

Rome, April 2021.

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## **MARINE DOCTOR (WHAT AND WHY)**

Seafarers have come across a proper medical check-up before they entering into a vessel, but because of anomalies in marine life, there is always a constant risk of getting sick or experiencing injuries. In this case, the lack of health professionals onboard makes the situation even worse. In general merchant ships do not have medical facilities on board. When seafarer got a sickness or accident, either the ship captain or the officers who are in charge will assist them, but these people do not have enough medical knowledge.

There is a constant advantage for expert systems and the internet of things (IoT) in particular. Expert systems help solve complex problems with human knowledge, and these systems can represent the human intelligence or commands of machine language. On the other hand, a person who is in charge of the healthcare onboard had limited medical knowledge and provide nominal medical support.

To overcome this, we developed a Marine Doctor (MD) System that can facilitate telemedical services in an emergency. Sometimes, symptomatic information of pathology could hinder by lack of medical expertise to ship captain or medical officers. In such a condition, the TMAS doctor cannot identify the exact medical condition of the seafarer. By digital healthcare equipment like SHES, an onshore doctor can access patient data without a problem.

A comprehensive analysis of seafarers' medical issues that were conducted from medical records of patients assisted onboard ships by the International Radio Medical Centre (C.I.R.M.), Italy. In the first phase, the common pathologies that occurred onboard were analysed, later a detailed questionnaire for each medical problem was developed to provide precise symptomatic information to the onshore doctor.

## **MARINE DOCTOR PLAYERS**

Total of three players involved in this operation of marine doctor software.

- In the seafarers' panel, the onboard healthcare staff operates SHES with predefined credentials for generating new medical requests. After adding the seafarer's details like gender, age, nationality, blood pressure, pulse rate, BMI, etc. In the follow-up screen, it asks to select a medical problem from the dropdown list. Thereafter the system presents a new screen with a symptomatic questionnaire of a selected category. The collective response of each questionnaire is directly transmitted to a doctor panel called 'medical flag'.
- TMAS doctor panel assesses the medical flag. Subsequent analysis of seafarers' requests and specialists delivers responses including diagnostic and drug information, treatment measures, and immediate precautions that have to follow onboard.
- The Administrative (TMAS centre) panel is update medical flag status and keeps active in the system until the seafarer completely recovers.

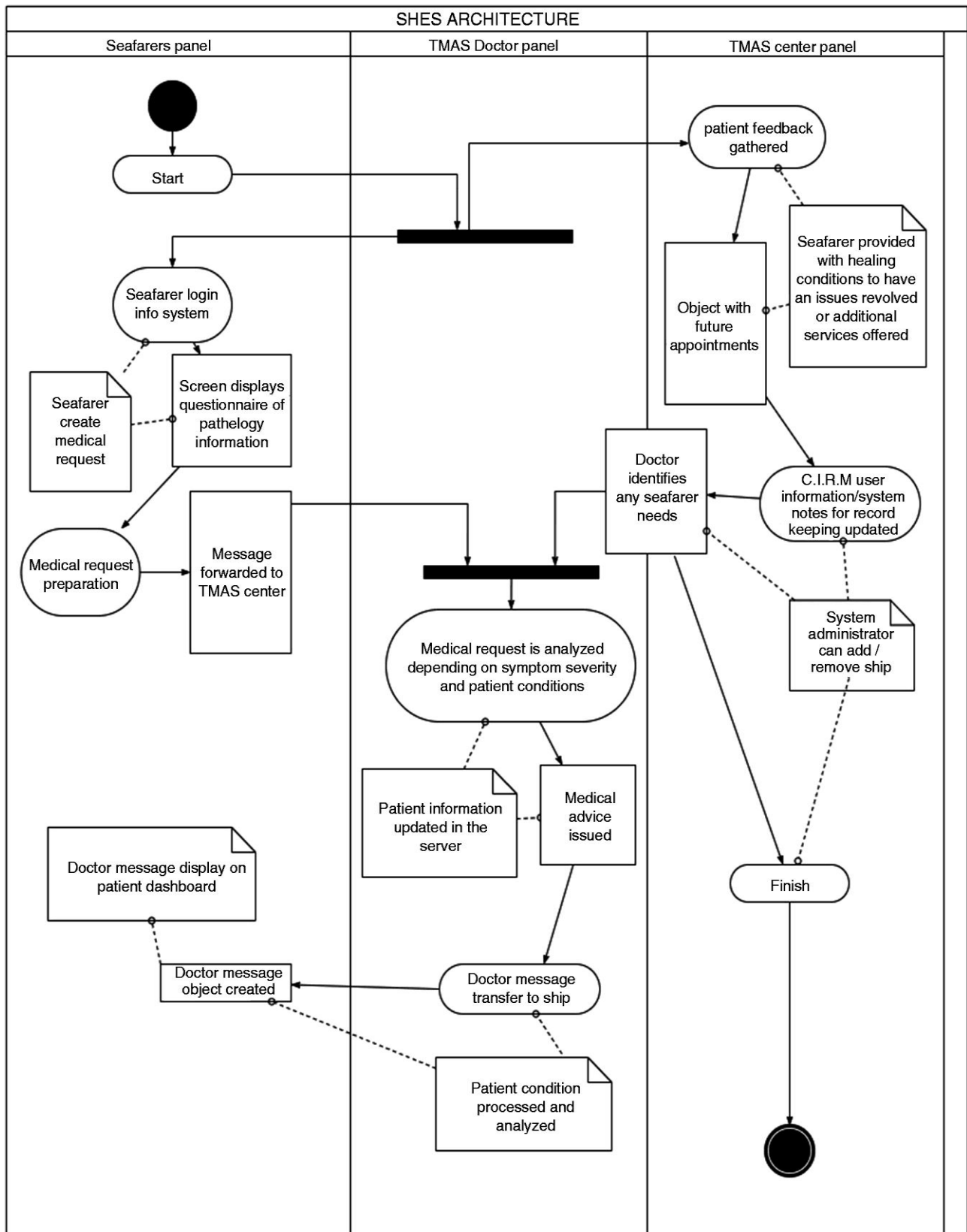


Figure. Marine doctor functionality






## WORKING FUNCTIONALITY OF MARINE DOCTOR

- ✓ We will send you one Zip file containing the marine doctor software folder via Email or web cloud link.
- ✓ The user has to unzip the folder and save that folder on the desktop screen.

|   |               |                  |                |           |
|---|---------------|------------------|----------------|-----------|
|  | MARINE DOCTOR | 10/11/2020 12:03 | File folder    |           |
|  | MARINE DOCTOR | 18/11/2020 16:38 | WinRAR archive | 52,184 KB |

- ✓ After extraction, if a user opens the marine doctor folder, you can find one executable file (.exe) named **"MD"**

This PC > Desktop > ITF new update > MARINE DOCTOR >

| Name  | Date modified    | Type        | Size      |
|---|------------------|-------------|-----------|
|  Const      | 10/11/2020 07:01 | File folder |           |
|  Databases | 12/03/2021 15:03 | File folder |           |
|  Log       | 06/04/2021 13:46 | File folder |           |
|  Pictures  | 06/04/2021 13:47 | File folder |           |
|  MD        | 10/11/2020 04:48 | Application | 28,749 KB |


- ✓ Please give a double click on the MD file and wait for 2-3 seconds to open.

### Main duties

- ❖ The captain or medical in charge onboard should add all the seafarer's details.
- ❖ When the Captain creates a medical request, then the front-end desktop application collects the medical request, and transfer the request to the doctor via the web (HTTP. protocol).
- ❖ Front end-user interface (UI) elements can enable the users to create a medical request on the application.
- ❖ Once the medical request has been transferred to the MD web server, request assessment will be done on the application logic. After that, ship messages can be assigned to the particular health professional, and a request will be stored in a central server.

## USER MANUAL

1. Primarily, the captain or medical in charge onboard has login into the system for seafarer's registration.



The logo for Seafarers' Trust, featuring a stylized white silhouette of a seafarer standing on a green ship's hull against a blue background. Below the image is the text "Seafarers' Trust" in a bold, sans-serif font, with the tagline "We Put Seafarers First" in a smaller font underneath.

### Ship Login

Username :

Password :

2. The follow-up to log in the system will display a page of three separate Icons such as

- Seafarer registration
- Registered seafarers Details
- Medical Doctor Requests (MDR) list





3. When the onboard person clicks on Add seafarer, the system will request to fill seafarer details form to fill. After adding the seafarer, personal information is securely stored in the system.



|               |   |   |
|---------------|---|---|
| Name          | : | <input type="text"/>                                    |
| Surname       | : | <input type="text"/>                                    |
| Age           | : | <input type="text"/>                                    |
| Sex           | : | <input type="radio"/> MALE <input type="radio"/> FEMALE |
| Date of Birth | : | <input type="text"/>                                    |
| Nationality   | : | <input type="text" value="v"/>                          |
| Rank          | : | <input type="text" value="v"/>                          |



4. All registered seafarer details can be displayed on the seafarers' list.



| S.No | Name           | age  | Sex    | Request                         | More Info            | Action                 |
|------|----------------|------|--------|---------------------------------|----------------------|------------------------|
| 1    | NALINI CH      | 25   | female | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |
| 2    | VB BVC         | BVCB | female | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |
| 3    | NALINI CHIN    | 25   | female | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |
| 4    | Gopi Battineni | 29   | male   | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |

5. If a seafarer is ill, the captain has to click on a medical request.



| S.No | Name           | age  | Sex    | Request                         | More Info            | Action                 |
|------|----------------|------|--------|---------------------------------|----------------------|------------------------|
| 1    | NALINI CH      | 25   | female | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |
| 2    | VB BVC         | BVCB | female | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |
| 3    | NALINI CHIN    | 25   | female | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |
| 4    | Gopi Battineni | 29   | male   | <a href="#">Medical Request</a> | <a href="#">More</a> | <a href="#">Delete</a> |

6. After clicking on the medical request button, the system will request a ship position and symptomatic details.



| Vessel Position  |               | Vital Sign            |                                      |
|------------------|---------------|-----------------------|--------------------------------------|
| Departure Port   | : ANACORTES ▾ | Temperature           | : 38 <span>°C</span> <span>°F</span> |
| Arrival Port     | : ANCHORAGE ▾ | Blood Pressure(mmHg)  | : 88                                 |
| Arrival Time     | : 19/09/2020  | Pulse Rate (Bits/min) | : 70                                 |
| Present Position | : Rome        | Weight(Kg)            | : 81                                 |
| Latitude         | : 181.11      | Category              | : Accidents ▾ <span>i</span>         |
| Longitude        | : 147.32      | Primary Symptom       | : Burns caused by fire/heat ▾        |
|                  |               | Secondry Symptom      | : Electrocutation injury cause ▾     |

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7. As a next step, the system will ask the captain to fill the questionnaires to understand precise symptomatic information.



|   |                                 |                                 |
|---|---------------------------------|---------------------------------|
| 1. The person fell down while walking or running                        | <input type="radio"/> Yes       | <input type="radio"/> No        |
| 2. The person fell down from the height(in metres)                      | <input type="text"/>            |                                 |
| 3. The person was hit by an object; specify                             | <input type="radio"/> Yes       | <input type="radio"/> No        |
| a. The type   | <input type="text"/>            |                                 |
| b. The material   | <input type="text"/>            |                                 |
| c. The dimensions   | <input type="text"/>            |                                 |
| d. The weight   | <input type="text"/>            |                                 |
| e. The speed of the impact  | <input type="text"/>            |                                 |
| f. Whether the object in question had any pointed angle or sharp corner | <input type="radio"/> Yes       | <input type="radio"/> No        |
| 4. The person got burnt:  | <input type="radio"/> By a fire | <input type="radio"/> By vapour |



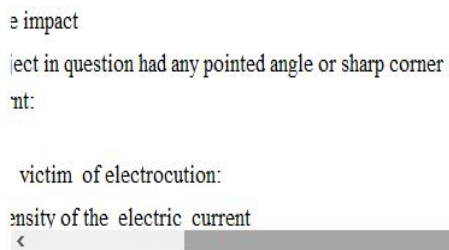
|  |                           |                          |
|--|---------------------------|--------------------------|
| 7. The person had an intoxication/poisoning:                                   | <input type="radio"/> Yes | <input type="radio"/> No |
| a. He/she had unsafe food or drinks  | <input type="text"/>      |                          |
| b. He/she ingested chemical substances   | <input type="text"/>      |                          |
| c. He/she took some medicines or drugs   | <input type="text"/>      |                          |
| d. He/she had alcoholic drinks   | <input type="text"/>      |                          |
| e. He/she inhaled fumes  | <input type="text"/>      |                          |
| 8. He had an accident while fishing:   | <input type="radio"/> Yes | <input type="radio"/> No |
| a. He got stung by a fish  | <input type="radio"/> Yes | <input type="radio"/> No |
| b. A fish hook got stuck in his skin   | <input type="radio"/> Yes | <input type="radio"/> No |
| 9. Describe, in a text, the dynamics of the accident:                          | <input type="text"/>      |                          |
| a. Specify how the accident happened   | <input type="text"/>      |                          |
| b. Describe the type of work the person was doing before the accident happened | <input type="text"/>      |                          |

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- vn while walking or running  
vn from the height(in metres)  
by an object; specify

|   |  |
|---|--|
| <input type="radio"/> Yes<br><input type="radio"/> No | <a href="#">Body</a>                   |
| <input type="radio"/> Yes<br><input type="radio"/> No | <a href="#">Head</a>                   |
| <input type="radio"/> Yes<br><input type="radio"/> No | <a href="#">Anatomical terminology</a> |



9. Once filled with all the questionnaires, MDR is ready to generate immediate first aid information.



Upload if any images

No. of Selected files : 1

Other Information

Wood object forcibly hit on head

<<Previous

Submit

First Aid

X

1

Medical Request Send Successfully

First Aid:

1. Put out the fire, remove the source of heat or the burning agent and value the patient's general conditions
2. Remove only the hot objects, those that could keep on burning without an evil-dent flame belts, metal or rubber objects, synthetic fabrics and those that could be drenched with irritating chemical substances
3. Protect the whole burned area with sterilized, antiseptic gauzes or with a clean cloth, refreshing it with cold water or with an ice-bag
4. Move the injured person to a room suitable for carrying out the medication, where his clothes can be taken off. Wash in an extremely delicate way all the burned parts with sterile physiologic solution or with fresh water and remove all the dirt.
5. Apply at least three layers of greasy gauzes on the burns, or, if they are not available, apply sterilized gauzes drenched with antibiotic ointment WHO drug list, number 57 or with sterilized physiologic solution they must not stick to the patient's skin
6. Cover the whole part with a sterilized gauzes or a clean cloth, keeping it with a band or a net that does not press the injured part. Renew the medication after 48-72 hours.
7. Give the patient a lot to drink, at least two or three litres per day. If the burn is widespread, apply a drip of physiologic solution and start giving the patient an antibiotic WHO drug list, number 9-13-63-67 and an analgesic WHO drug list, number 60
8. Check whether the patient's anti tetanus immunization is still valid, otherwise administer a booster.

What must not be done:

9. Do not take the patient's clothes off before getting to a room suitable to perform medications, unless they are wet with boiling water or some other material that has a high temperature
10. Do not pierce the blisters, they are an element of defence and their incorrect opening can cause infections
11. Do not cover the burns with antibiotic powder, oil or other substances.

OK

## 10. All MDR requests successfully stored under the MDR list icon



| Medical Request ID | Seafarer Name | Departure Port | Arrival Port | Present Position | Images                      | Replay                             |
|--------------------|---------------|----------------|--------------|------------------|-----------------------------|------------------------------------|
| MDR-10001          | NALINI        | AARHUS         | ABIDJAN      | 4                | <a href="#">View Images</a> | <a href="#">View Doctor Replay</a> |
| MDR-10002          | NALINI        | AARHUS         | ABBOT POINT  | HFD              | <a href="#">View Images</a> | <a href="#">View Doctor Replay</a> |
| MDR-10003          | Gopi          | ANACORTES      | ANCHORAGE    | Rome             | <a href="#">View Images</a> | <a href="#">View Doctor Replay</a> |



## 11. The Medical request transfer to the doctor mail. Then the doctor will assess the symptomatic information and suggests necessary prevention measures.

### TMAS001-104\_MDR-10003\_1600520511\_Medical Request



**tmasmaritimedoctor@gmail.com**

to me ▾

Patient Info:

1. Name: - Gopi Battineni
2. Date of Birth: - 25/05/1991
3. Age: - 29
4. Sex: - male
5. Rank: - CASTAWAY
6. Nationality: - INDIA

Basic Info:

1. Departure Port: - ANACORTES
2. Arrival Port: - ANCHORAGE
3. Arrival Time: - 19/09/2020
4. Present Position: - Rome
5. Latitude: - 181.11
6. Longitude: - 147.32
7. Temperature: - 38-C
8. Blood Pressure(mmHg): - 88
9. Pulse rate(Bits/min): - 70
10. Weight(Kg): - 81
11. Symptom: - Burns caused by fire/heat/radiation, Electrocution injury caused by electricity
12. Other Info: - Wood object forcibly hit on head

Static Question:

1. The person fell down while walking or running - Yes
2. The person fell down from the height(in metres) - 32
3. The person was hit by an object; specify - Yes
  - The type - Square
  - The material - Wood
  - The dimensions - 32\*81
  - The weight - 12
  - The speed of the impact - 120
  - Whether the object in question had any pointed angle or sharp corner - Yes
5. The person got burnt - By chemical substances
6. The person was the victim of electrocution - Yes

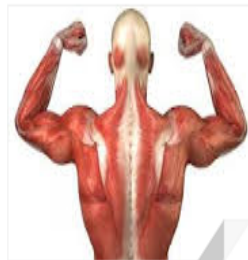


- Specify the ambient temperature - -
- Specify the duration of the exposure - -
- Specify whether he had some liquids to drink - -
- Specify whether there were also smokes or vapours - -
- 10. The person had an intoxication/poisoning - 0
  - He had unsafe food or drinks - No
  - He ingested chemical substances - No
  - He took some medicines or drugs -
  - He had alcoholic drinks -
  - He inhaled fumes - No
- 12. He had an accident while fishing - Yes
  - He got stung by a fish - Yes
  - A fish hook got stuck in his skin - Yes
- 14. Describe, in a text, the dynamics of the accident -
  - Specify how the accident happened - No
  - Describe the type of work the person was doing before the accident happened - None

Information:

1. Did he inhale boiling gas or vapors? - Yes
2. Did the patient get any traumatism because of falling down? - Yes
3. Does he have a fever? - Yes
4. Does he have a cough or breathing difficulties? - Yes
5. Does he have nausea or vomit? - Yes
6. Does he feel like fainting? - Yes
7. Give an accurate description of the accident? - NA
8. How long did the exposure last? - NA
9. What was the temperature of the burning agent? - NA
10. Describe what happened to the victim? - NA
11. How long after the accident did he get rescued? - NA


Regards,  
SHES Team

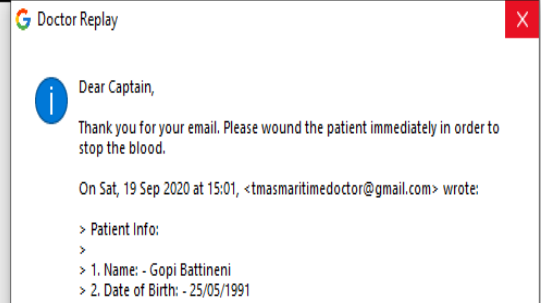


12. The doctor's response can be displayed by clicking view doctor replay.



| S.No | Medical Request ID | Seafarer Name | Departure Port | Arrival Port | Present Position | Images                      |                         |
|------|--------------------|---------------|----------------|--------------|------------------|-----------------------------|-------------------------|
| 1    | MDR-10001          | NALINI        | AARHUS         | ABIDJAN      | 4                | <a href="#">View Images</a> | <a href="#">View Do</a> |
| 2    | MDR-10002          | NALINI        | AARHUS         | ABBOT POINT  | HFD              | <a href="#">View Images</a> | <a href="#">View Do</a> |
| 3    | MDR-10003          | Gopi          | ANACORTES      | ANCHORAGE    | Rome             | <a href="#">View Images</a> | <a href="#">View Do</a> |





### **Additional instructions**

- The marine doctor is a desktop application that is always connected with the local database. So please careful because the MD.exe file should be saved and operated from the same marine doctor folder.
- It is mainly designed to provide or transform primary request of patient information in a structured manner to onshore doctor email. So, the system allows a single doctor response at a time for each medical flag.
- Further doctor and captain communication can be done through mail chats.
- If any unnecessary or extra medical flags generated in the software, please try to delete them that effectively makes the system operation.

Thank you for your kind involvement