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| IALA Guideline |

G1141

Operational Procedures for DELIVERING VTS

Edition 1

December 2018

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|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

1 INTRODUCTION 5

1.1 Objective 5

1.2 Scope 5

2 Internal VTS Procedures 6

2.1 Routine Procedures 7

2.1.1 Gathering and Recording of Information 7

2.1.2 Operational Staff 7

2.1.3 Equipment Operation, Maintenance, Calibration and Updating 7

2.1.4 Public Relations 8

2.1.5 Security 8

2.1.6 Training 8

2.1.7 Watch Handover 8

2.1.8 Vessel Handover 8

2.1.9 Maintenance of Marine Publications and nautical charts 9

2.1.10 Collecting information on incidents and accidents 9

2.2 Emergency Procedures 9

3 External VTS Procedures 10

3.1 Routine Procedures 10

3.1.1 VHF Communication 10

3.1.2 Pre-Arrival Information 10

3.1.3 Vessels Entering VTS Area 11

3.1.4 Vessels movements Within VTS Area 11

3.1.5 Monitoring and management of ship traffic 12

3.1.6 Responding to developing unsafe situations 13

3.1.7 Vessels at Anchor 13

3.1.8 Vessels at Berth 13

3.1.9 Vessels Departing the VTS Area 14

3.1.10 Transition between Adjacent VTS Areas 14

3.1.11 Adverse Environmental Conditions 14

3.1.12 Digital Maritime Services 15

3.1.13 Interaction with Allied Services 15

3.2 Emergency Procedures 15

3.2.1 Collision, Capsizing, Sinking, Grounding, Fire onBOARD, Man Overboard 15

3.2.2 Pollution 16

3.2.3 Places of Refuge 16

3.2.4 Medical Emergency 16

3.2.5 Vessel Not Under Command (NUC) 16

3.2.6 Security Incident 16

3.2.7 Protest Action 16

3.2.8 Natural Disaster 17

4 Evaluation of Procedures 17

# INTRODUCTION

The purpose of vessel traffic services is to contribute to safety of life at sea, safety and efficiency of navigation and the protection of the marine environment within the VTS area by mitigating the development of unsafe situations.

VTS authorities are responsible for ensuring that the objectives set by the competent authority are met (IALA Guidline G1131 – Setting and Measuring VTS Objectives). The authority delegated to VTS staff should be clearly identified in the documented operational procedures of a VTS.

The nature of the tasks and activities to be performed will depend on the operational objectives for the VTS. In general, these tasks and activities all involve collecting, processing, evaluating and disseminating information. The collection and dissemination of this information will involve both internal and external communications, while information will be processed within the VTS centre itself. The level of decision-making that can be taken within the VTS centre should be clearly identified.

## Objective

This Guideline has been prepared to assist a VTS in developing operational procedures for a VTS centre, noting that, differing procedures may cause confusion to ship/masters, and that vessel traffic services should be established and operated in a harmonized manner and in accordance with internationally approved guidelines.

## Scope

The guideline covers the operational procedures required to achieve the purpose of a VTS to ;

* Provide timely and relevant information on factors that may influence the ship's movements and assist onboard decision-making
* Monitor and manage ship traffic to ensure the safety and efficiency of ship movements
* Respond to developing unsafe situations

The VTS authority should also consider implementing procedures in regards to the overall management of a VTS including;

* Procedures to ensure the VTS conforms to the regulatory framework set by the competent authority including deviation reporting both to the VTS Authority and the Competent Authority.
* Setting Objectives and Targets for the VTS that are consistent with improving safety and efficiency of ship traffic and protection of the environment

A clear distinction is made in this document between internal and external procedures.

***Internal Procedures*** *– procedures that cover the day-to-day running of a VTS centre, including but not limited to the operation of systems and sensors, interactions among the staff and the internal management etc.*

***External Procedures*** *– procedures that govern the interaction with participating vessels and allied services .*

A further distinction is made between routine and emergency procedures.

To achieve a standardised operations/performance within the VTS centre, clearly defined operating procedures are paramount. This will assist the user in understanding information or instructions given by the VTS.

It is recommended that the operating procedures are documented and updated in electronic and / or printed version. The records of updates should be kept. Updated procedures should be available to VTS personnel in all applicable locations. These standard operating procedures should be an integral part of training and adherence should be monitored.

To achieve collaboration, it is recommended that these procedures (or part of them) may be shared with allied services.

# Internal VTS Procedures

VTS authorities should develop and document procedures for all operations, both routine and emergency, internal to the VTS.

The following are examples of the type of operational internal activities for which procedures should be developed. The examples are neither mandatory nor exhaustive and should be adapted to suit local needs.

## Routine Procedures

### Gathering and Recording of Information

The period of time for which information gathered by a VTS is required to be stored should be identified in internal procedures. This time period should be such that it allows for the full retrieval of data post-incident/accident, in compliance with national requirements and those of the incident/accident investigation procedures of the VTS authority and other interested parties. This type of information may include:

* Communications (internal and/or external);
* Sensor data (i.e. data used to generate the traffic image such as radar, CCTV, AIS);
* Shipping information data (e.g. vessel and cargo data, including vessel movement information);
* Meteorological and hydrological data; and
* Data from other sources.

Provision should be made for the storage, security, retrieval and presentation of this information.

### Equipment Operation, Maintenance, Calibration and Updating

All manuals and handbooks for equipment operation, maintenance (preventative and remedial), calibration and updating should be properly maintained and be readily available to the appropriate personnel.

Key considerations include:

* Descriptions of all VTS equipment and systems used in the VTS
* Operation of equipment, to cover all normal and emergency procedures;
* Determination of acceptable availability criteria for equipment;
* Categorisation and prioritisation of maintenance and defects;
* Calibration of all sensors within specified tolerance level; and
* Updating of equipment (hardware and software) and their associated manuals/handbooks.
* VTS availability due to maintenance or other outages

### Public Relations

There should be a documented policy for contacts with the media and the public. Issues for consideration may include:

* Nominated lead department for public relations;
* Publication of ongoing activities within the VTS area; and
* Protection of sensitive information.

### Security

Procedures should be in line with local and national requirements and should be clearly documented. They should, as a minimum, ensure the security:

* Data transmission and storage (e.g. Cyber Security);
* VTS personnel; and
* VTS buildings and structures.

Procedures should reflect any involvement of the VTS with the Port Facility Security Plan (PFSP) as per the International Ship and Port facility Security Code (ISPS).

### Training

There should be arrangements for regular assessments and application of appropriate measures for compliance in accordance with IALA Recommendation R0103 – Standards for Training and Certification of VTS Personnel.

### Watch Handover

Watch handover arrangements should be formalised and include, as an example, information on:

* Present traffic situation;
* Expected / developing traffic situations;
* Incidents and special operations (e.g. SAR or military operations);
* Waterway conditions;
* Environmental conditions (e.g. meteorological conditions and tidal conditions);
* Status of AtoNs;
* Equipment performance / availability;
* Status of allied services;
* Personnel availability;
* Appropriate times for watch handover; and
* Method for documenting the handover.

### Vessel Handover

The arrangements for vessel handover between adjacent sectors or areas should be clearly laid down. Components may include:

* Mutual understanding of the handover procedures;
* Identification of information to be communicated between operators (e.g. communication channel, vessel identification, etc.);
* Method for documenting the vessel handover.

### Maintenance of Marine Publications and nautical charts

A VTS authority should ensure that arrangements are in place for maintaining, updating and disseminating charts and nautical and associated publications (paper and electronic).

### casualty, incidents and near miss recording

The arrangements for the gathering and exchange of information on incidents, accidents and/or near misses in the VTS area should be described. This may also include the procedures for incident reporting and dissemination of information to relevant parties. IALA Guideline 1118 – “Marine casualty / incident reporting and recording, including near‐miss situations as it relates to VTS” refers.

### Administrative/ Management

Procedures should be implemented to demonstrate that the responsibilities and practices, policies and procedures, exercised by an authority to provide strategic directive, ensure objectives manage risk and use resources responsibly and with accountability are monitored and evaluated on a routine basis**.** This should include documentation relating to:

* **VTS** **Objectives** – Procedures to monitor and assess that the objectives set for the VTS are met and regularly reported to management.  Aspects and considerations include:
* Setting performance measures, including both positive (leading) and negative (lag) performance measures.
* Establishing a framework to regularly assess the performance measures.
* Reporting to management.
* **Evaluation** – Procedures to assist carry out an evaluation to ensure that the VTS operational objectives have been met, and the problems identified and defined for implementing the VTS have been either alleviated or at least reduced to an acceptable level.  Aspects and consideration in undertaking the evaluation include:
* The need for the VTS and - Monitoring and identifying changes that may have occurred since the VTS was implemented / previous evaluation regarding the volume of traffic and degree of risk.
* An operational evaluation of the VTS.
* An evaluation of the operational objectives and the list of problems requiring attention.
* **Policies** – Procedures for maintaining policies associated with VTS, such as qualifications and training, compliance and enforcement.

## Emergency Procedures

A VTS authority should have documented contingency plans to ensure the safety of VTS personnel and for the continuity of operations in the event of an emergency. The authority should have plans to address events such:

* System and equipment Failure:
* Loss of external communications;
* Loss of internal communications;
* Loss of functionality of sensor equipment;
* Loss of information management systems.
* Internal emergencies, for example fire and flood;
* Forced evacuation of VTS centre;
* Personnel medical emergencies; and
* Security incidents.

The following issues may be included in these plans:

* Remedial action;
* Callout procedures;
* Fall-back options;
* Media or allied services communications;
* Recording of incident;
* Data safeguarding;
* Post-emergency debriefing.

# External VTS Procedures

VTS authorities should develop and document procedures for all operations, both routine and emergency, external to the VTS. Such procedures should cover interactions between the VTS, participating vessels and allied services. External information exchange should be standardized as much as possible.

The following are examples of the type of external operational activities for which procedures should be developed. The examples are neither mandatory nor exhaustive and should be adapted to suit local needs.

## Routine Procedures

### VHF Communication

Procedures to ensure that VHF Communication is timely, clear, concise and unambiguous should be established. In VHF communications with vessels, the IMO Standard Marine Communication Phrases (SMCP) (reference Resolution A.918(22)) and IALA Guideline G1132 – VTS VHF Voice Communication - should be used whenever applicable.

Procedures should also include list of the VHF channels used and monitored in the VTS area.

### Pre-Arrival Information

Pre-arrival information is basic information regarding the vessel and its intent to enter the VTS area. The VTS authority and / or Competent Authority should specify the format and timing of pre-arrival information. Aspects for consideration may include:

* Contents of Pre-arrival:
* Route information;
* ETA;
* Vessel Identity (Name, IMO number, Call Sign, MMSI);
* Vessel dimensions as relevant;
* Vessel draft;
* Air draft
* Hazardous, dangerous or polluting goods details;
* ISPS security level;
* Information about any vessel defects or deficiencies; or
* Other specified details.
* Communication requirements for participating vessels;
* Procedures to ensure advanced information has been obtained;
* Procedures for non-compliance; and
* Procedures for information exchange with allied services.

### Vessels Entering VTS Area

When a vessel enters the VTS Area the following procedures should be considered:

* Procedures for establishing communications and verifying vessel identity, position and intention;
* Procedures for information exchange, which may include:
* Reporting requirements;
* Provide relevant traffic information;
* Provide navigational / fairway information;
* Vessel defects or deficienciess, such as navigation or manoeuvring equipment failure.
* Procedures for updating information with allied services.

### Vessels movements Within VTS Area

Procedures should be established for vessel movements within a VTS area. These may include:

* Reporting formalities;
* Provision or exchange (AIS, VDES or other means) of relevant information to participating vessels at regular intervals or on demand or deemed necessary by the VTS, including:
* Environmental conditions;
* Traffic situation;
* Navigational conditions;
* Traffic separations/overtaking restrictions;
* Warnings and restrictions concerning the movement of traffic in the area; and
* Maritime Safety Information.
* Special provisions for vessels carrying hazardous, dangerous or polluting cargo;
* Compliance with pilotage requirements;
* Procedures for non-compliance;
* Track/monitor and communicate with vessels not required to participate in the VTS; and
* Procedures for information exchange/update on allied services.

### Monitoring and management of ship traffic

Procedures for the monitoring and management of ship traffic should be established. These may include:

* forward planning of ship movements;
* organizing ship underway;
* organizing space allocation;
* establishing a system of voyage or passage plans; and
* ensuring compliance with the regulatory provisions.

### Permission to Proceed From or To an Alongside Berth or Anchorage

The departure or arrival of a vessel from or to a berth or anchorage or when entering a lock or confined waterway is a critical moment when a vessel’s movements may have a direct influence on other vessels nearby.

In particular, the departure of a ship from a berth is a critical moment when situational awareness of bridge staff on the departing ship may be diverted and impaired by internal or jetty-side issues and when other ships in the immediate vicinity might be surprised by the unexpected movement of another ship into the fairway.

Procedures for a VTS responding to a request from a ship for permission to proceed from or to an alongside berth or anchorage may include:

* requirements for a ship to request permission to proceed when it is ready to depart;
* provision of relevant traffic information to the departing ship prior to departure;
* standard and formal message for approval from the VTS for a ship to proceed; and
* standard and formal message for refusal from the VTS for a ship to proceed

Permission for a vessel to proceed means that, based on the information available, the VTS assesses that it is safe and gives approval for the vessel to proceed on her intended course of action, subject to the discretion of the Master.

Permission for a vessel to proceed may be subject to conditions (e.g. details received from the vessel, known fairway and traffic) which may be contained in the message.

Refusal for a vessel to proceed should be unambiguous, clear and may be issued as an instruction.

### Responding to developing unsafe situations

Procedures for responding to developing unsafe situations should be established, and may include:

* a ship unsure of its route or position;
* a ship deviating from the route;
* a ship requiring guidance to an anchoring position;
* a ship that has defects or deficiencies, such as navigation or manoeuvring equipment failure;
* meteorological conditions (e.g. low visibility, strong winds);
* a ship at risk of grounding or collision;
* emergency response or support to emergency services;
* ship deviating from passage plan; and
* assistance to a ship to support the unexpected incapacity of a key member of the bridge team.

### IALA Guideline G1089 advices that “before navigational support is provided and if time permits, a VTS should make an assessment of capabilities and conduct other relevant checks” whilst recognizing that, when the need is observed to be necessary by the VTS, early intervention is likely to be necessary, which may preclude pre-assessment checks being carried out.

Some considerations for making a pre-assessment prior to the provision of navigational support are provided at ANNEX A.

### Vessels at Anchor

Procedures should be established for vessels at anchor in a VTS area. Depending on the capability of the VTS to monitor the vessel position under prevailing conditions, these may include:

* Anchorage assignment;
* Communication requirements;
* Reporting requirement for vessels prior to leaving the anchorage;
* Non-compliance by a vessel with the requirements and procedures laid down for the VTS area; and
* Procedures for information exchange/update on allied services.

### Vessels at Berth

Procedures should be established for vessels at berth in a VTS area. Depending on the capability of the VTS to monitor the vessel position under prevailing conditions, these may include:

* Reporting requirements for vessels on arrival at berth;
* Non-compliance with the reporting requirements;
* Security requirements including security level;
* Special requirements to maintain communications watch;
* Need for restrictions for other vessels passing the berth, for example when bunkering;
* Reporting requirement for vessels prior to leaving the berth; and
* Procedures for information exchange/update on allied services.

### Vessels Departing the VTS Area

Procedures should be established for vessels departing the VTS area. These may include:

* Reporting requirement for vessels prior to departing the area;
* Non-compliance with the VTS area requirements; and
* Handover requirements with adjacent or next VTS.

### Transition between Adjacent VTS Areas

Procedures should be established for vessels transiting between adjacent VTS areas. The handover arrangements may include:

* Transfer of vessel information such as identification, cargo, destination and ETA
* Process for communication procedures; and
* Process to ensure vessel monitoring.

### Adverse Environmental Conditions

In situations of adverse environmental conditions within the VTS area, such as poor visibility, strong currents or tidal streams, high winds, ice etc. special procedures may be required. These may include:

* Restriction or prohibition on movement;
* Additional reporting requirements;
* Additional separation between vessels;
* Additional requirements (e.g. mandatory tug service, pilot, etc.).

Special consideration may need to be given depending on vessel characteristics and local geography and conditions.

### Environmental Protection

The role of VTS to assist with environmental protection and marine conservation measures is increasingly being recognized internationally as a means to:

* mitigate risks such as ship collisions with cetaceans, disturbance of marine mammals in nursery areas;
* mitigate the effect of ship wash on the shore in the vicinity of low lying communities; and
* support the protection of PSSA’s or locally declared environmentally sensitive areas.

It may be appropriate to develop procedures to:

* broadcast relevant information on times and locations;
* interact with individual ships in the vicinity of marine mammals;
* keep protected areas clear of traffic;
* advise speed restrictions where marine mammals have been sighted, or to reduce ship wash on the shore;
* re-route traffic away from sightings; and
* collect information to identify potential interaction hotspots to assist in planning future mitigation measures.

### Digital Maritime Services

If the VTS, in addition to VHF communication, also provides information in digital format, procedures on digital information exchange should be established. This information may include e.g. use of AIS messages to provide information on weather and virtual AtoN's or the exchange of route information.

The procedures should include a description of the information delivered digitally and the communication means used for the information exchange.

### Interaction with Allied Services

This should include procedures for interaction with, for example:

* Pilots;
* Tugs and tug operators;
* Icebreakers and icebreaker operators;
* Shipping agents; and
* Government agencies, including law enforcement agencies

IALA Guideline G1102 – VTS Interaction with Allied or Other Services– refers.

## Emergency Procedures

The activities of the VTS centre should be maintained during any emergency response.

Other authorities (e.g. Maritime Rescue Co-ordination Centre (MRCC)) might be responsible for handling external emergencies within the VTS area. In that case procedures on the interaction between the VTS and these authorities need to be established.

Despite of this, the VTS may be one of the first to respond to a call from a vessel that has an emergency situation. It is important that VTS requests and collects any further information to help in response activities and to pass on to other authorities. Some considerations for information that a VTS might try and establish from the vessel under these situations can be found at Annex B.

### Collision, Capsizing, Sinking, Grounding, Fire onBOARD, Man Overboard

Procedures should be established to deal with situations such as collision, capsizing, sinking, grounding, fire onboard, man overboard, which may include the following actions:

* Alert MRCC;
* Inform and co-operate with relevant emergency services;
* Inform relevant regulatory authority/ies;
* Act on local call-out procedures;
* Consider back-up VTS personnel;
* Promulgate or relay information concerning situations with vessels in VTS area;
* Restrict traffic in the area;
* Alert allied services and other support units; and
* Ensure all recording equipment is operating correctly.

### Pollution

Pollution incident procedures should be established. The following actions may be included:

* Alert relevant environmental authority and/or service(s);
* Alert relevant response authority and/or service(s)
* Inform and co-operate with relevant regulatory authority/ies;
* Assess scale of incident and call in specialist support, as appropriate;
* Promulgate information concerning incident to vessels in VTS area; and
* Restrict traffic in the area.

### Places of Refuge

Places of Refuge procedures should be developed, depending on national requirements and the particular arrangements arising out of the implementation of IMO Resolution A.949(23) Guidelines on Places of Refuge for Ships in Need of Assistance.

### Medical Emergency

Procedures for medical emergencies should be established. Actions may include:

* Inform MRCC ;
* Inform coastal radio station;
* Consider special manoeuvring requirements.

### Vessel Not Under Command (NUC)

Procedures in the event of a “vessel not under command” should be established. Actions may include:

* Promulgate information concerning incident to vessels in the VTS area;
* Obtain detailed information about onboard situation;
* Maintain communication with vessel;
* Assess vessel’s proximity to danger (danger to vessel itself and other traffic);
* Alert allied services and other support units, if appropriate.

### Security Incident

Procedures in the event of a security incident should be established. Procedures should reflect any involvement of the VTS with the PFSP (Port Facility Security Plan) as per the International Ship and Port facility Security Code (ISPS).

### Protest Action

Procedures should be established to respond to protest action against a vessel transiting the

VTS area. Actions may include:

* Alert responsible authority;
* Act on local call-out procedures, including but not limited to VTS manager;
* Promulgate information concerning incident to vessels in the VTS area.

Throughout any protest action, the safety of ships and protestors is paramount.

### Natural Disaster

Natural disaster procedures should be established to deal with situations such as earthquake, tidal wave, fire, exceptional weather conditions. Actions may include:

* Promulgate information to vessels in the VTS area;
* Act on local call-out procedures;
* Inform MRCC.

# Evaluation of Procedures

All procedures should be reviewed and evaluated regularly and also at relevant times to evaluate their adequacy and to support the objectives of the VTS.

Such relevant times may include;

* Changes to regulatory requirements;
* Changes to VTS infrastructure including systems and equipment changes and upgrades;
* Changes of VTS areas and sectors;
* Changes of port or fairway infrastructure;
* After a significant near miss or incident; and
* As part of the ongoing evaluation of the VTS.

The VTS authority should also ensure that VTS personnel are updated with changes to procedures and competence verified through revalidation training.

1. NAVIGATIONAL Support – Pre-Assessment considerations

Some considerations for making a pre-assessment prior to the provision of navigational support may include:

**Capabilities:**

1. VTS operator loading.
2. VTS equipment capabilities and limitations, performance, serviceability and back-up (particularly key elements of communications, radar and AIS).
3. Capability of the vessel and bridge staff to continue passage under NAS:
   1. Status of the ship’s navigational/communications equipment and machinery;
   2. Knowledge and understanding of VTS and knowledge of the local area;
   3. Language ability; and
   4. Carriage of up-to-date charts.

**Operational Considerations:**

1. Positive identification of ship to be supported.
2. Alternative options (e.g. anchor, provision of pilot, amendment to passage plan).
3. Cargo carried.
4. Risk if navigational support is not provided.
5. Environmental conditions (wind, day/night, visibility, tidal height, tidal stream).
6. Other ship traffic.
7. Communications channel for navigational support.

**Checks**:

1. Master’s understanding that VTS navigational support does not absolve him from responsibility for the safety of his vessel or for collision avoidance.
2. Master’s acceptance of navigational support.
3. Commencement of navigational support.
4. Completion of navigational support.
5. CONSIDERATIONS FOR INFORMATION THAT A VTS MIGHT TRY TO ESTABLISH FROM THE VESSEL IN EMERGENCY SITUATIONS

Some considerations for information that a VTS might try and establish from the vessel under emergency situations are listed below. These considerations are not intended to be exhaustive or mandatory:

| Situation | Considerations |
| --- | --- |
| COLLISION | When and where the accident happened?  Any injuries to persons?  Any dangerous cargo?  Is there any pollution?  Are you taking water? Are you flooding?  Are you sounding your tanks?  Can you proceed by yourself?  What is the damage/casualty situation?  What assistance is required? |
| GROUNDING | When and where the accident happened?  Any dangerous cargo?  Is there any pollution?  Are you stuck fast/attempting to get off?  Are you taking water? Are you flooding?  Are you sounding your tanks?  Do you have any list?  What is the damage/casualty situation?  What assistance is required? |
| FIRE / EXPLOSION | When did the accident happened?  What part is on fire/explosion?  Is the fire under control?  What is the damage/casualty situation?  Is there any pollution?  What assistance is required? |
| MARINE POLLUTION | When and where did the pollution/discharge happened?  What type of oil (diesel, oil, HFO, bilge) / dangerous goods or hazardous substances have been discharged?  What is the approximate size of the spill (length and breadth)?  What direction is it heading?  If source of pollution is from the reporting ship:  - What time did the discharge occur?  - How did the discharge occur?  - How much oil / dangerous goods or hazardous substances has been discharged?  - Has the discharge stopped?  - Can you stop the discharge?  - What assistance is required? |
| MAN OVERBOARD | When and where the accident happened?  How many persons overboard?  Can you still see them?  Did anyone see the person go overboard?  When was the person last seen?  Was the person overboard wearing a life jacket?  What assistance is required? |
| NOT UNDER COMMAND | What problems do you have? (eg Nature of the mechanical failure)  Can you repair by yourself?  How long [will it take] to repair?  What kind of assistance is required? |
| FLOODING / SINKING | Is the flooding under control?  Can you proceed by yourself?  What assistance is required? |
| CONTAINERS / CARGO OVERBOARD | When and where the accident happened?  What kind of cargo overboard?  How much cargo/ how many containers overboard? |
| MEDICAL ASSISTANCE | What assistance is required?  Is the casualty conscious and breathing?  Is the casualty male /female? What is their age?  Does the casualty speak English?  Does the casualty have any known health problems?  What treatment has been provided to the casualty on board?  Has the casualty been taking any medication?  Is your ship able to accept a helicopter? |