

Emergency Care Audit Report

2025



Quality Assurance and Regulations Division

Ministry of Health

Contents

INTRODUCTION	4
PARTICIPATION	5
ANALYSIS.....	6
PART A: COMPARATIVE ANALYSIS OF DIFFERENT LEVELS OF HOSPITALS	6
1. ER Infrastructure and emergency service availability	6
2. Staffing and human resource.....	7
3. Equipment, drugs and consumables.....	9
4. Protocols and guidelines	16
4.1 Procedure for triage:.....	16
4.2 Procedure for life-threatening emergencies and clinical pathways	17
4.3 Protocol for management of medicolegal cases and referrals for higher centres:.....	18
5. Emergency care delivery.....	18
5.1 Average waiting time for ambulance.....	18
5.2 Average waiting time of patient in emergency room (ER)	19
5.3 Availability of communication systems for emergency coordination	20
5.4 Readiness of resuscitation equipment and emergency drugs	20
5.5 Criteria implemented for mode of transport and escort staff for referrals	20
5.6 Procedures for continuous monitoring during transfers.....	20
5.7 Review and analysis of referred cases.....	20
6. Standardized process for prescribing, administration and monitoring of high alert medicine	21
7. GENERAL RECOMMENDATIONS.....	22
PART B: ANALYSIS OF ISLAND LEVEL HEALTH FACILITIES	24
1. Ha. Atoll	24
2. Hdh. Atoll.....	26
3. Sh. Atoll	29

Emergency Care Department Audit Report

4.	N. Atoll.....	32
5.	R. Atoll	34
6.	B. Atoll	37
7.	Lh. Atoll.....	40
8	K. Atoll	42
9	Aa. Atoll	44
10	Adh. Atoll	47
11	V. Atoll	49
12	M. Atoll	51
13	F. Atoll.....	53
14	Dh. Atoll health facilities	55
15	Th. Atoll	57
16	L. Atoll	59
17	Gdh. Atoll.....	61
18	Addu city.....	63
	RECOMMENDATIONS.....	65
	REFERENCE	65
	Annex 1: list of health facilities completed audit	66
	Annex 2: Availability of protocols and guidelines	71
	Annex 3: Emergency care delivery.....	72

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INTRODUCTION

Emergency care services are a critical component of healthcare systems, often serving as the first line of defence in saving lives during acute medical conditions, accidents, and other life-threatening emergencies. The effectiveness of emergency care depends significantly on the preparedness of health facilities, including the availability of dedicated emergency department infrastructure, adequate human resource, essential equipment, drugs, trained personnel, communication systems, well-defined protocols and quality management system. In this context, the Maldives Health Quality Standards (MHQS) emphasize the importance of maintaining robust emergency care services across health facilities to ensure timely and efficient patient care. Preparedness for emergencies not only enhances the ability to respond to emergencies effectively but also minimizes the risk of adverse outcomes.

This report presents the findings of a comprehensive audit conducted to assess the preparedness of emergency care services in health facilities across the Maldives. The audit evaluates critical domains such as ambulance preparedness, emergency room efficiency, availability of life-saving medications, compliance with established protocols, and systems for referral and patient transfer. The goal is to identify strengths, highlight gaps, and provide actionable recommendations for improving emergency care services across the healthcare network.

This audit aims to guide policymakers, hospital management, and healthcare providers in implementing strategies that strengthen emergency care and contribute to improved patient outcomes. The report has two parts. First part of the report focuses on comparative analysis of Atoll and regional Hospitals and second part of the report analyses preparedness for emergency care in the Island health centres.

PARTICIPATION

The audit tool developed for this audit was shared with all Island health centres, Atoll hospitals and regional hospitals. 122 health facilities submitted completed audit form and the list of health facilities participated in this audit is attached in annex 1. Percentage of participation by atoll is also shown in table 1. Out of 185 health facilities only 122 health facilities participated in this audit which calculates nationwide 66% participation. Remarkably, there were 100% participation from N. Atoll, Lh Atoll, K. Atoll and Gdh. Atoll. Results presented from Ha. Atoll Hospital was incomplete and hence, excluded from the report.

Table 1: Percentage of participation by Atolls

Atolls	No. of health facilities	No. of health facilities participated	Percentage of participation
Ha. Atoll	14	11	79%
Hdh. Atoll	13	12	92%
Sh. Atoll	13	8	62%
N. Atoll	13	13	100%
R. Atoll	15	13	87%
B. Atoll	13	9	69%
Lh. Atoll	4	4	100%
K. Atoll	9	9	100%
Aa. Atoll	8	6	75%
Adh. Atoll	10	5	50%
V. Atoll	5	2	40%
M. Atoll	8	4	50%
F. Atoll	5	3	60%
Dh. Atoll	6	3	50%
Th. Atoll	13	6	46%
L. Atoll	11	3	27%
Ga. Atoll	9	0	0%
Gdh. Atoll	9	9	100%
S. Atoll	6	2	33%
Gn. Atoll	1	0	0%
	185	122	66%

ANALYSIS

Analysis of this audit is divided into 2 main parts. Part A is a comparative analysis of all Hospitals and part B of the report focuses on the availability of emergency care services in island level health facilities.

PART A: COMPARATIVE ANALYSIS OF DIFFERENT LEVELS OF HOSPITALS

1. ER Infrastructure and emergency service availability

The Maldives Healthcare Quality Standards (MHQS) outlines 10-15 square feet as minimum Emergency Room (ER) space area for healthcare facilities. This may vary depending on the case load and catchment population. Availability of emergency care in populations exceeding 5,000 is a criterion stipulated in grading of health facilities. Additionally, the following are also requirements.

1. General and maternity accident and emergency services in level 1 hospitals.
2. Specialized accident and emergency services in grade 2 and 3 hospitals. This ensures that hospitals are equipped to stabilize and manage a wide range of both urgent and non-urgent conditions.

Healthcare facilities implementing comprehensive infrastructure solutions have reported significant improvements in service delivery efficiency. Therefore, it is vital for all levels of hospitals to have a dedicated emergency care area. Table 2 summarizes the availability of dedicated ER infrastructure and emergency care provision in the hospitals. A strong finding of this audit is availability of 24-hour emergency services across all health facilities, however, 4 hospitals are operating without a dedicated ER infrastructure.

Table 2: Availability of dedicated ER infrastructure ER provision

Health facility	Availability of dedicated ER infrastructure	ER service provision	Atoll population	Level
Kulhudhuffushi Regional Hospital	No	Yes	22,440	Hospital Gr 3
Sh. Atoll Hospital	Yes	Yes	13,698	Hospital Gr 2
N. Atoll Hospital	Yes	Yes	12,503	Hospital Gr 2
Ungoofaaruu Regional Hospital	Yes	Yes	17,581	Hospital Gr3
Lh. Atoll Hospital	Data NA	Yes	8,992	Hospital Gr 2
Aa. Atoll Hospital	Yes	Yes	8,017	Hospital Gr 1
V. Atoll Hospital	No	Yes	1995	Hospital Gr 1
Muli Regional Hospital	No	Yes	5490	Hospital Gr1
Dh. Atoll Hospital	No	Yes	6637	Hospital Gr1
Th. Atoll Hospital	Yes	Yes	10,000	Hospital Gr 2
Abdul Samad Memorial Hospital	Yes	Yes	12,500	Hospital Gr 3
Addu Equatorial Hospital	Yes	Yes	25,000	Tertiary

2. Staffing and human resource

According to MHQS, the clinical and specialist staff requirements vary based on the level of the health facility. The mandatory specialist services for each facility level are clearly defined in the health facility grading criteria. Table 3 shows specialist service availability across all levels of hospitals.

Table 3: Specialist service availability

Health facility	surgeons	Anaesthetist	Physician	Paediatrician	Obstetrician	Radiologist
Kulhudhuffushi Regional Hospital	✓	✓	✓	✓	✓	✓
Sh. Atoll Hospital	✓	✓	✓	✓	✓	✓
N. Atoll Hospital	✓	✓	✓	✓	✓	✓
Ungoofaaru Regional Hospital	✓	✓	✓	✓	✓	✓
Lh. Atoll Hospital	No data					
Aa. Atoll Hospital	✓	✓	✓	✓	✓	✓
V. Atoll Hospital	×	×	✓	×	✓	×
Muli Regional Hospital	✓	✓	✓	✓	✓	×
Dh. Atoll Hospital	✓	✓	✓	✓	✓	✓
Th. Atoll Hospital	✓	✓	✓	✓	✓	✓
Abdul Samad Memorial Hospital	✓	✓	✓	✓	✓	✓
Addu Equatorial Hospital	✓	✓	✓	✓	✓	✓

This table highlights the need for specialist services in V. Atoll hospital and radiologist services in Muli Regional hospital.

3. Equipment, drugs and consumables

Availability of drugs, equipment and consumables in ambulance and ER are crucial for timely management of emergencies. In this context, the National Standard for Ambulance Services in the Maldives plays a pivotal role by providing a comprehensive and detailed list of essential equipment required for ambulances operating within the country.

In this section, majorly two areas were assessed. Availability of drugs, equipment and consumables in the ambulance and in crash cart in ER, which aims to investigate the preparedness of ambulances and ER for handling emergencies.

3.1 Preparedness of Ambulance

Airway and breathing, circulation, diagnostics, drugs and fluids, first aid, and Immobilization are domains measured in this audit. Given its critical importance, three main domains of ambulance readiness, (airway and breathing, circulation, and drugs and fluids) must achieve 100% compliance. Additionally, at least 50% completeness in the remaining domains is considered preferable. Table 4 illustrates ambulance readiness in the health facilities and components failing to meet the requirement are highlighted in red. The following are key observations.

**Airway and breathing,
circulation, drugs and fluids
are the 3 key domains**

Table 4: Ambulance readiness in percentage

Health facility	Airway and breathing	Circulation	Diagnostics	Drugs and fluids	First aid	Immobilization	Type of ambulance
Measured elements	12	11	8	15	19	7	
Kulhudhuffushi Regional Hospital	50	54.5	63	40	63	71	ALS & BLS
Sh. Atoll Hospital	42	9.1	13	0	0	14	ALS & BLS
N. Atoll Hospital	75	82	88	87	74	14	ALS & BLS
Ungoofaaruu Regional Hospital	58	0	0	0	0	0	ALS
Lh. Atoll Hospital	Data not complete						
Aa. Atoll Hospital	33	63	63	80	42	0	ALS & BLS
V. Atoll Hospital	58	82	50	40	74	57	BLS
Muli Regional Hospital	58	82	100	87	84	14	ALS & BLS
Dh. Atoll Hospital	75	82	88	60	89	29	ALS & BLS
Th. Atoll Hospital	58	55	100	93	68	57	ALS & BLS
Abdul Samad Memorial Hospital	Data not complete						
Addu Equatorial Hospital	58	27	13	0	21	0	BLS

Note: Health facilities require to obtain 100% from Airway and breathing, circulation, drugs and fluids.

Meeting 50% from other domains is preferable

a) Overall performance:

- None of the health facilities fulfilled 100% requirement from the 3 key domains assessed.
- Data incomplete from Lhaviyani Atoll Hospital and Abdul Samad Memorial Hospital.
- Sh. Atoll Hospital, URH and AEH shows notable deficiencies in all domains which highlights a critical gap and necessitates immediate action.
- URH reported meeting only 58% of the requirements in the airway and breathing domain, with no compliance in the other domains assessed in this audit. This highlights a significant gap in readiness and necessitates immediate corrective action.

b) Airway and breathing

- Only 2 health facilities meet 75% of the requirements while remaining health facilities meet only less than 60% of the requirement.
- Notable deficiency found from Aa. Atoll Hospital as they meet only 33% of the requirement, which requires urgent action.

c) Circulation:

- High scores were achieved by N. Atoll Hospital (82%) and Muli Regional Hospital (82%), V. Atoll Hospital (82%) and Dh. Atoll Hospital (82%) reflecting adequate quantity of equipment for circulation support.
- Alarming, Ungoofaaruu Regional Hospital scored (0%), indicating a complete lack of resources in this domain.
- Sh. Atoll Hospital and 27% in Addu Equatoria Hospital identifies severe gap and necessitates urgent attention.

d) Drugs and Fluids:

- Notable deficiencies were identified in Sh. Atoll Hospital, URH and AEH.
- Th. Atoll Hospital led with 93%, while Muli Regional Hospital and N. Atoll Hospital also scored highly (87%).
- Remarkable deficiencies in this domain necessitates immediate corrective intervention from higher authorities.

e) Diagnostics:

- All health facilities must obtain 70% from this domain.
- Only 2 health facilities met 100% requirement.
- Facilities such as Sh. Atoll Hospital and AEH scored below 13%, revealing severe gaps.

f) First Aid:

- Notable low scores identified from Sh. Atoll Hospital, URH and AEH.
- Other health facilities scored above the requirement.

g) Immobilization:

- Only Kulhudhuffushi Regional Hospital achieved 71% in this domain.
- Many facilities, including Ungoofaaruu Regional Hospital, Aa. Atoll Hospital, and Addu Equatorial Hospital, scored 0%, exposing critical shortcomings in immobilization equipment. This also need urgent attention from relevant authorities.

Areas of concern:

Facilities such as Sh. Atoll Hospital, Ungoofaaruu Regional Hospital, and Addu Equatorial Hospital show consistently low or zero scores across multiple domains, particularly in essential areas like drugs, fluids, and circulation. The absence of data for Lh. Atoll Hospital and Abdul Samad Memorial Hospital creates substantial gaps in assessing overall preparedness. This lack of information also places emergency referral situations to these facilities at considerable risk.

3.2 Emergency Cart Preparedness

An emergency cart, also known as a crash cart, is a critical component of every healthcare facility, designed to provide immediate access to life-saving treatment. Its readiness can make the difference between life and death, ensuring timely interventions when seconds count. A well-prepared emergency cart is essential for the following reasons:

- **Rapid Response:** In the event of acute emergencies such as cardiac arrest, respiratory distress, or anaphylaxis, quick access to medications, defibrillators, and airway management tools is crucial. A fully stocked and organized emergency cart allows healthcare providers to respond swiftly.
- **Time Efficiency:** Searching for essential supplies during an emergency wastes precious time. A ready emergency cart eliminates time delays, and allows healthcare team to focus on patient care.
- **Improved Outcomes:** Prompt and efficient use of a well-stocked emergency cart can significantly improve patient survival rates and recovery outcomes by facilitating immediate and appropriate treatment.
- **Staff Confidence:** Knowing that the emergency cart is ready and properly stocked enhances the confidence of healthcare professionals, enabling them to act decisively and effectively in high-pressure and critical situations.

As previously mentioned, due to its critical role in saving lives, all domains of the emergency cart must achieve 100% compliance. Each facility's performance is assessed as a percentage, with scores below 100% highlighted in red, indicating a failure to meet the required standard. Regular periodic checks on stock in the cart is an essential component. However, this audit revealed that crash carts in many healthcare facilities are neither well-organized nor fully stocked. Table 5 provides an overview of the availability of mandatory drugs, equipment, and consumables in these crash carts, highlighting critical deficiencies.

The table evaluates the readiness of crash carts in various health facilities across five measured elements: drugs, intubation and resuscitation, IV cannulation, defibrillation, and other essential items.

a) Overall readiness:

- All health facilities demonstrated a high score for defibrillation readiness.
- Significant gaps were identified in the availability of drugs in the emergency carts at Sh. Atoll Hospital and V. Atoll Hospital, requiring immediate intervention.
- Intubation and resuscitation capabilities showed relatively high scores across all health facilities.

Table 5: Preparedness of emergency cart

Health facility	Drugs	Intubation and resuscitation	IV Cannulation	Defibrillation	Others
Measured elements	23	29	18	4	5
Kulhudhuffushi Regional Hospital	91.3	65.5	94.4	75	100
Sh. Atoll Hospital	43.5	72.4	94.4	100	100
N. Atoll Hospital	65.2	65.5	94.4	100	100
Ungoofaaru Regional Hospital	91.3	89.7	100	75	100
Lh. Atoll Hospital	100	75.9	88.9	100	100
Aa. Atoll Hospital	65.2	69.0	94	75	80
V. Atoll Hospital	47.8	75.9	94.4	100	80
Muli Regional Hospital	87	82.8	94.4	100	100
Dh. Atoll Hospital	91.3	82.8	94.4	100	80
Th. Atoll Hospital	91.3	79.3	100	100	80
Abdul Samad Memorial Hospital	91.3	65.5	100	50	100
Addu Equatorial Hospital	91.3	82.8	94.4	25	100

Note: Institutions are required to obtain 100% from drugs, resuscitation, IV cannulation and defibrillation.

b) Drug availability:

- High performers include Lh. Atoll Hospital (100%)
- Low performers such as Sh. Atoll Hospital (43.5%) and V. Atoll Hospital (47.8%) show significant gaps in drug availability.

c) Intubation and Resuscitation Equipment:

- None of the hospitals fully meet the 100% requirements in this critical domain, highlighting an urgent need for intervention by the relevant authorities.

d) IV Cannulation:

- Most facilities meet or exceed 94.4%, indicating widespread adequacy in this domain.

e) Defibrillation Equipment:

- Defibrillation is a critical intervention in life-threatening emergencies, and health facilities must always be fully equipped to handle such situations. The 75% compliance scores at KRH and URH indicate an urgent need for intervention.
- Facilities scoring below 50% reveal a severe deficiency in life-saving equipment, requiring immediate attention from the relevant authorities.
- The lowest score of 25% at AEH underscores a critical shortfall and demands immediate corrective action.

f) Other Essential Items:

- Most hospitals achieved 100% compliance, but gaps were noted in Aa. Atoll Hospital, V. Atoll Hospital, Dh. Atoll Hospital and Th. Atoll Hospital (80% each).

3.3 Life-saving drug

As mentioned previously, preparedness for emergencies saves lives. One of the most important first line drug is injection Adrenaline. Injection adrenaline (epinephrine) is one of the most critical medications in an emergency cart, essential for managing life-threatening conditions. Its inclusion ensures that healthcare providers can respond swiftly to emergencies where immediate intervention is required to save lives. Availability of this critical drug is assessed separately due to its vital role in saving lives.



**Inj. Adrenaline is available
in all main Hospitals**

4. Protocols and guidelines

According to MHQS, all health facilities are required to establish, implement, and maintain their own protocols for the emergency management of patients. Figure 1 shows availability of availability of procedure for triaging across health facilities. A detailed summary of the findings of availability of triage procedure across health facilities are attached in annex 2.

Key findings:

4.1 Procedure for triage:

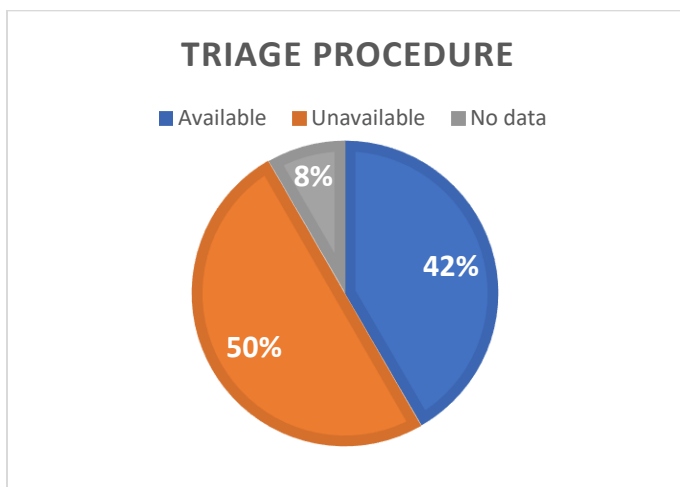


Figure 1: Availability of procedure for triage

The figure shows that triage procedure is available only in 50% of the health facilities. Lack of triage procedures in several facilities is concerning, as triage is fundamental for prioritizing emergency care. The absence of triage protocols in many facilities indicates a need for immediate attention, as it compromises the ability to prioritize care in emergencies.

4.2 Procedure for life-threatening emergencies and clinical pathways

Clinical standards and pathways provide a roadmap to navigate emergencies, ensuring quick and effective response that can save lives. Figure 2 summarizes availability of procedures for life-threatening emergencies and clinical pathways.

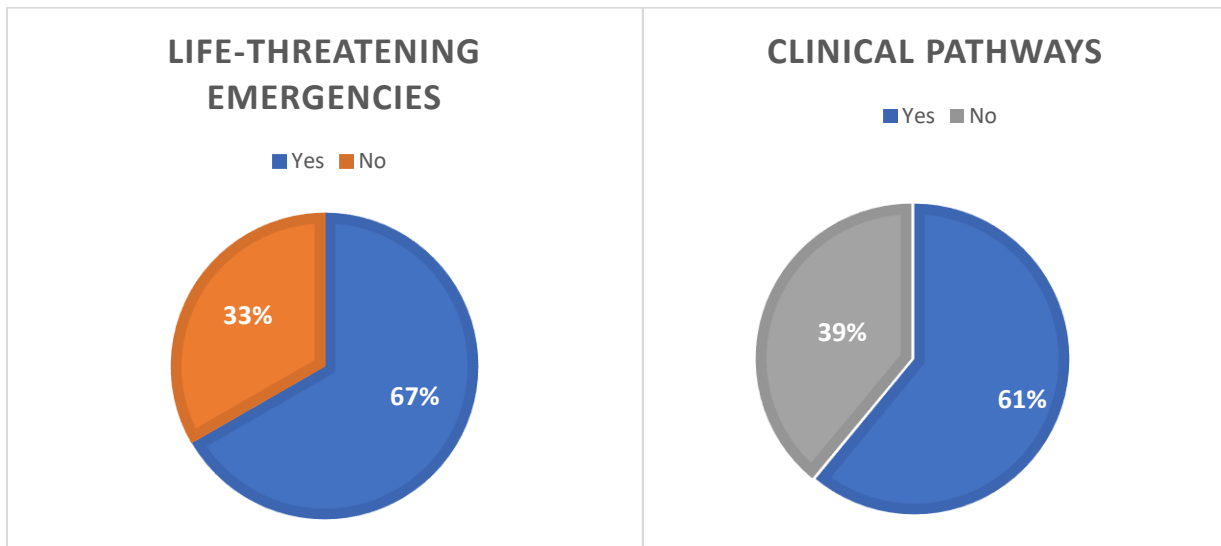


Figure 2: Procedure for life-threatening emergencies and clinical pathways

In 67% of hospitals, there is no established procedure for managing life-threatening emergencies, and only 61% have dedicated clinical pathways for assessing and managing common medical emergencies. This lack of standardized protocols may delay timely interventions, particularly for new healthcare team members who may be unfamiliar with the procedures, available equipment, and overall emergency preparedness. Therefore, this needs to be in utmost priority to ensure protocols are developed and followed within the health facility by every individual.

4.3 Protocol for management of medicolegal cases and referrals for higher centres:

Universally available across all facilities, demonstrating strong compliance in facilitating patient transfers for advanced care. High compliance in this domain reflects awareness of the legal implications and the need for standardized practices.

Areas of concern:

Tertiary level hospitals like Addu Equatorial Hospital show significant gaps across multiple domains, requiring urgent intervention from relevant authorities.

5. Emergency care delivery

In emergency situations, time is a critical factor that can determine life or death. Timely interventions in healthcare are essential to stabilize patients, prevent complications, and improve survival rates. Emergencies such as cardiac arrests, severe trauma, strokes, and anaphylaxis demand immediate and effective medical response to minimize irreversible damage and ensure the best possible outcomes. Detailed findings of this section are summarized in table in annex 3.

5.1 Average waiting time for ambulance.

Ambulance waiting times are highlighted in figure 3 below. The figure shows the following key points.

- An ambulance waiting time of less than five minutes in 6 hospitals is a key positive finding demonstrating the facility's ability to respond swiftly and effectively to emergencies.
- The four health facilities reporting waiting time of 5-10 minutes must strive to reduce it to <5 minutes to ensure faster and more effective emergency response.
- The two hospitals that did not respond to this question also must ensure their ambulances are deployed to the emergencies swiftly as waiting times exceeding 5 minutes may delay critical care, particularly in life-threatening emergencies.

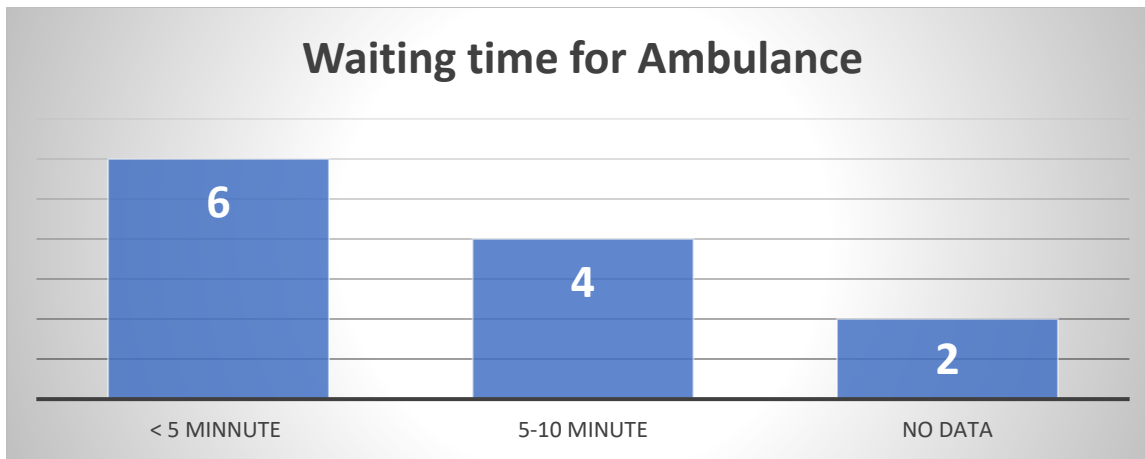


Figure 3: Average waiting time for ambulance

5.2 Average waiting time of patient in emergency room (ER)

ER waiting time is not specified in Maldivian context. However, in international best practice, triaged patients are categorized into 5 main categories and time frame allocated depending on the severity of patient condition. Many countries have a wait time of less than 30 minutes. The following are key findings.

- All facilities report ER waiting times of less than 30 minutes, reflecting a reasonable level of efficiency in patient triage and initial care. However, in an Atoll where ER cases are less frequent, a 30-minute waiting time may not be considered efficient in the context of healthcare standards in the Maldives.
- No data is available for N. Atoll Hospital and Aa. Atoll Hospital in this domain. This leaves a critical gap in ascertaining efficiency of emergency care.
- This audit found that 50% of the hospitals lack protocol or procedure for triaging of patients in ER and reveals a waiting time of 30 minutes in ER and the status of emergencies are unknown. Therefore, patient triaging is required to ensure that those in acute need receive priority based on the severity of the condition.

Average waiting time in ER <30 minutes in all

5.3 Availability of communication systems for emergency coordination

- Communication systems are available in most facilities, such as Kulhudhuffushi Regional Hospital, N. Atoll Hospital, and Th. Atoll Hospital.
- They are notably absent in facilities like Sh. Atoll Hospital, and Ungoofaaruu Regional Hospital and Aa. Atoll Hospital. This requires urgent attention.
- The absence of communication systems in certain facilities may impair emergency coordination and response efficiency.

5.4 Readiness of resuscitation equipment and emergency drugs

- All facilities report that resuscitation equipment and emergency drugs are always kept in a state of readiness.
- This universal compliance demonstrates strong adherence to emergency preparedness standards across the board.

5.5 Criteria implemented for mode of transport and escort staff for referrals

All facilities have established criteria for determining the mode of transport and the designation of escort staff for patient referrals, which is a positive finding of this audit and this ensures uniformity and safety in transferring patients to higher centres.

5.6 Procedures for continuous monitoring during transfers

Most facilities, including Kulhudhuffushi Regional Hospital, Sh. Atoll Hospital, and Addu Equatorial Hospital, have procedures in place for continuous monitoring during patient transfers. Those facilities lacking such procedures risk compromising patient safety during transfers.

5.7 Review and analysis of referred cases

- Monthly review and analysis of referred cases are only conducted at Muli Regional Hospital and Abdul Samad Memorial Hospital. Two of the largest hospital in south and north of the country found to lack engagement in this critical quality improvement activity. The absence of regular case reviews may hinder opportunities for system improvement and better patient outcomes.

6. Standardized process for prescribing, administration and monitoring of high alert medicine

The table below (table 6) assesses key components of medication safety and administration in hospitals, focusing on high-alert medication handling, hospital medication safety committees, and documentation practices.

Table 6: Availability of procedure for prescribing, administration and monitoring.

Availability of:	Kulhuhuffushi Regional Hospital	Sh. Atoll Hospital	N. Atoll Hospital	Ungoofaaruu Regional Hospital	Lh. Atoll Hospital	Aa. Atoll Hospital	V. Atoll Hospital	Muli Regional Hospital	Dh. Atoll Hospital	Th. Atoll Hospital	Abdul Samad Memorial Hospital	Addu Equatorial Hospital
There is established procedure for supply, handling, storage and administration of high alert medications	✓	✓	✓	✓	×	✓	✓	✓	✓	×	✓	✓
Hospital medication safety committee formulated		×	✓	×	×	×	×	✓	×	×	×	×
Proper documentation of medication administration is followed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

6.1 Established Procedure for Supply, Handling, Storage, and Administration of High-Alert Medications

Most facilities have established procedures in place for supply, handling, storage and administration of high alert medicines. However, Lh. Atoll Hospital and Th. Atoll Hospital lack these procedures, representing gaps in medication safety. The absence of these procedures in facilities could lead to increased risks associated with high-alert medications.

6.2 Hospital Medication Safety Committee

Only N. Atoll Hospital and Muli Regional Hospital have established medication safety committees and other health facilities do not have such committees in place. The lack of medication safety

committees in most facilities indicates a significant gap in monitoring and improving medication safety practices. This requires intervention from administration.

6.3 Documentation of Medication Administration

All facilities comply with proper documentation of medication administration, demonstrating a strong commitment to accountability and traceability. Uniform compliance across facilities in this domain is a positive result of this audit, ensuring accurate records for patient safety and legal purposes.

7. GENERAL RECOMMENDATIONS

- For facilities lacking specialists, establish robust referral systems with neighbouring hospitals to ensure timely access to advanced care in critical situations.
- Telemedicine programs to address the impact of specialist shortages that allow remote consultations with surgeons, radiologists, and other specialists can reduce time wastage in emergencies.
- Facilities scoring below 70% in any category should prioritize stocking essential drugs, resuscitation tools, and other equipment.
- Conduct routine checks to ensure crash carts remain organized and fully stocked, addressing any shortfalls proactively.
- Hospitals catering to large population should be fully prepared for emergencies as there may be increased number of road traffic accidents.
- Immediate action is required for health facilities lacking defibrillation and emergency equipments to improve its defibrillation capabilities and ensure compliance in other categories.
- Develop and disseminate a standardized set of emergency management protocols for all health facilities to follow.

Emergency Care Department Audit Report

- Prioritize the introduction and training of triage systems in facilities currently lacking this critical procedure.
- Conduct routine audits to monitor compliance with protocols and provide staff training to ensure effective implementation.
- Install or upgrade emergency communication systems in facilities where they are lacking
- Introduce a mandatory system for monthly review and analysis of referred cases across all facilities to identify areas for improvement and ensure accountability.
- Ensure that all facilities develop and implement procedures for the safe supply, handling, storage, and administration of high-alert medications.
- Encourage the formation of medication safety committees in all facilities to oversee and improve medication management practices.
- Conduct periodic audits to ensure that the procedures for high-alert medications are followed consistently.
- Build on the universal compliance in documentation to improve other areas of medication safety, using the records as a foundation for analysis and improvement.

PART B: ANALYSIS OF ISLAND LEVEL HEALTH FACILITIES

Part B of this report examines the availability of emergency care at the island health centre level and compares the findings to assess the atoll's readiness to handle emergencies originating within its boundaries.

1. Ha. Atoll

Table 7 below evaluates emergency preparedness in Ha. Atoll's health facilities, considering key domains such as infrastructure, human resources, equipment, protocols and guidelines, emergency care delivery, data quality management, and management of high-alert medicines in the health facilities.

Table 7: Emergency preparedness in Ha. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Ha. Baarah	No	Yes	Yes	No	65.2%	46.8%	60%	5-10min	<30min	No	Yes
Ha. Filladhoo	No	Yes	Yes	No	50.0%	48.0%	100%	5-10min	<30min	Yes	Yes
Ha. Hoarafushi	No	Yes	Yes	Yes	1.3%	58.2%	60%	5-10min	No Data	No	Yes
Ha. Ihavandhoo	No	Yes	No	Yes	26.3%	68.3%	40%	5-10min	<30min	No	No
Ha. Kelaa	Yes	Yes	No	No	60.0%	56.9%	80%	5-10min	<30min	Yes	No
Ha. Maarandhoo	No	Yes	No	Yes	62.5%	54.5%	20%	5-10min	<30min	No	Yes
Ha. Molhadhoo	Yes	Yes	Yes	No	0.0	48.1%	100%	5-10min	<30min	Yes	Yes
Ha. Muraidhoo	No	Yes	No	No	37.5%	No Data	100%	5-10min	<30min	Yes	Yes
Ha. Thakandhoo	No	Yes	No	No	52%	56.5%	60%	5-10min	<30min	No	Yes

Key Findings

1.1 ER Infrastructure

Dedicated ER infrastructure is reported to be available only in Kelaa and Molhadhoo, while the majority of other health facilities in the atoll lack this essential resource.

1.2 Human Resources

Presence of ACLS trained nurses and doctors is a strength and some health centres reported having paediatrician and physicians.

1.3 Equipment

All the health facilities reporting to have a lower readiness in ambulance, notably in Hoarafushi 1.3% and Molhadhoo 0% requires immediate attention, while the emergency cart readiness also remains at a lower level across the Atoll.

1.4 Protocols and Guidelines

Filladhoo, Molhadhoo, and Muraidhoo health centre report 100% availability of the five main emergency protocols. Other facilities range between 20% to 80%, which needs modification.

1.5 Emergency Care Delivery

All facilities report response times of 5-10 minutes, indicating consistent service across the atoll. Most facilities maintain ER waiting times of <30 minutes, except for Ha. Hoarafushi health centre, where data is unavailable.

1.6 Data Quality Management

Data review processes are only present in a few facilities, including Filladhoo, Kelaa, Molhadhoo, and Muraidhoo health centre.

1.7 High-Alert Medicines

Most facilities have established procedures for administering high-alert medicines, except for Ihavandhoo and Kelaah health centre. This necessitates immediate remedies as this can lead to life-threatening emergencies.

Areas of concern

Ha. Atoll demonstrates a mixed level of emergency preparedness, with notable strengths in response times and protocol availability in some facilities. However, critical gaps in ER infrastructure, equipment availability, and data management need urgent attention. A notable challenge was identified in assessment of emergency referrals within the atoll as data was unavailable from the primary care centre in the atoll (Atoll Hospital). This highlights a critical information gap. Furthermore, this deficiency complicates the analysis of healthcare availability across the atoll and hinders the assessment of referral needs, highlighting an urgent need for improved data management and transparency.

2. Hdh. Atoll

Table 8 below assesses the emergency preparedness of Hdh. Atoll, the second most populous atoll in the Maldives. Kulhudhuffushi Regional Hospital, located within the atoll, faces a significant patient care burden, catering to a high volume of patients from various atolls within its reach.

Emergency Care Department Audit Report

Table 8: Emergency preparedness in Hdh. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Hdh. Kulhudhuffushi Regional Hospital	No	Yes	Yes	Yes	55.5%	72.1%	100	5-10min	<30min	No	Yes
Hdh. Hanimaadhoo	No	Yes	Yes	No	66.6%	56.9%	0	5-10min	<30min	No	No
Hdh. Kumundhoo	No	Yes	No	No	29.1%	51.8%	40%	5-10min	<30min	No	Yes
Hdh. Kurinbee	No	Yes	No	No	66.6%	45.5%	40%	>10min	No data	No	Yes
Hdh. Makunudhoo	No	Yes	Yes	No	33.3%	58.2%	100%	5-10min	<30min	Yes	Yes
Hdh. Naavaidhoo	No	Yes	No	No	0	43.0%	20%	5-10min	<30min	No	Yes
Hdh. Nellaidhoo	No	Yes	Yes	No	0	58.2%	0	5-10min	<30min	No	Yes
Hdh. Neykurendhoo	No Data	Yes	Yes	No	54.1%	59.4%	100%	5-10min	<30min	Yes	Yes
Hdh. Nolvivaran	No	Yes	Yes	No	52.7%	56.9%	20%	<5min	<30min	No	No
Hdh. Nolvivaranfaru	No	Yes	Yes	No	8.3%	54.4%	0	>10min	<30min	No	Yes
Hdh. Vaikaradhoo	No	Yes	Yes	No	5.5%	64.5%	80%	5-10min	<30min	No	Yes
Hdh. Finey	Yes	Yes	Yes	No	0	25.3%	40%	5-10min	<30min	No	Yes

Key Findings

2.1 ER Infrastructure

A dedicated ER infrastructure and equipment is critically important for emergencies. This important infrastructure is available only in Finey health centre.

2.2 Human Resources

A positive finding of this audit is the availability of ACLS trained nurses and doctors in most of the health facilities. However, specialist services availability is limited to Kulhudhuffushi Regional Hospital, however, online specialist consultation from the main regional hospital is a positive finding of this audit.

2.3 Equipment

Three health centres (Naavaidhoo, Nellaidhoo and Finey) reported not having any of the equipment, drugs and consumables required for the ambulance. Kumundhoo, Makunudhoo, Nolvivaranafaru and Vaikaradhoo Health centre reports having less than 40% of the requirement, which necessitates urgent intervention.

Preparedness of emergency cart also varies widely across Hdh. Atoll, with Kulhudhuffushi Regional Hospital (72.1%) at the higher end and Finey (25.3%) at the lower end. Health facilities with lower scores on preparedness of emergency cart requires urgent intervention.

2.4 Protocols and Guidelines

Availability of the five main protocols is strong in Makunudhoo, Neykurendhoo, and Kulhudhuffushi Regional Hospital (100%). Several facilities, such as Hanimaadhoo, Nellaidhoo and Nolvivaranafaru health centre report 0% availability, indicating significant gaps.

2.5 Emergency Care Delivery

Most facilities report ambulance response time of 5-10 minutes, with Nolvivaran health centre being the fastest (<5 minutes). Delays are noted in Kurinbee and Nolvivaranafaru health centre where response times exceed 10 minutes, which requires corrective intervention as time is critical in any emergency. ER waiting times across all facilities remain below 30 minutes, aligning with standards for emergency care delivery.

2.6 Data Quality Management

Data review is established in Makunudhoo and Neykurendhoo health centre. However, this is lacking in all other health facilities, leading to challenges in performance monitoring and quality improvement. Additionally, this important component is missing in the key referral hospital in the atoll leaving a critical gap in service quality management.

2.7 High-Alert Medicines

Most facilities have procedures for administering high-alert medicines, except Hanimaadhoo and Nolvivaran health centre, where this remains unaddressed.

Areas of Concern

Hdh. Atoll shows strong capabilities in human resources and timely emergency care delivery but faces critical gaps in ER infrastructure, equipment availability, and data quality management. Addressing these deficiencies, particularly in facilities like Hanimaadhoo health centre, Nellaidhoo health centre, and Nolvivaranfaru health centre, will improve emergency preparedness and ensure equitable access to quality care across the atoll.

3. Sh. Atoll

Table 9 below provides an overview of emergency preparedness in Shaviyani Atoll healthcare facilities, focusing on infrastructure, human resources, equipment, protocols, emergency care delivery, data quality management, and high-alert medicines.

Table 9: Emergency preparedness in Sh. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Sh. Atoll Hospital	Yes	Yes	Yes	Yes	11.1%	75.9%	40%	5-10min	<30min	No	Yes
Sh. Feevah Health Centre	No	Yes	Yes	No	36.1%	45.5%	40%	5-10min	<30min	No	Yes
Sh. Feydhoo Health Centre	No	Yes	No data	No	41.6%	46.8%	40%	5-10min	<30min	No	Yes
Sh. Fokaidhoo Health centre	No	Yes	No	No	16.6%	41.7%	No Data	5-10min	<30min	No Data	No Data
Sh. Kanditheem Health centre	No	Yes	Yes	No	41.6%	56.9%	60%	5-10min	<30min	Yes	Yes
Sh. Komandoo Health centre	Yes	Yes	Yes	No	19.4%	37.9%	80%	<5min	30-60min	Yes	Yes
Sh. Maroshi health centre	No	Yes	Yes	No	72.2%	63.2%	100%	5-10min	<30min	Yes	Yes
Sh. Lahimagu Helath centre	No	Yes	Yes	No	0.0	31.6%	20%	5-10min	No data	No	No

Key Findings

3.1 ER Infrastructure

Only Sh. Atoll Hospital and Sh. Komandoo Health Centre have established ER infrastructure. The remaining six facilities lack ER infrastructure, highlighting limited preparedness across the atoll.

3.2 Human Resources

A positive finding of this audit is the availability of ACLS-trained doctors and nurses across most health facilities, ensuring baseline capacity for emergency response. Specialist availability is limited only to Sh. Atoll Hospital, highlighting the need for referrals from other health facilities.

3.3 Equipment

Availability of equipment in the ambulance found to be very low in the main hospital. Similarly, Lhaimagu health centre also reported not having any of the requirement for ambulance. Emergency cart stock also found to be less across all health facilities.

3.4 Protocols and Guidelines

The audit showed Maroshi Health Centre having all the protocols and 2 or 3 protocols available in other health facilities.

3.5 Emergency Care Delivery

Most facilities maintain a response time of 5-10 minutes, except Komandoo Health Centre (<5 minutes). All facilities report waiting times under 30 minutes, except Komandoo Health Centre, where waiting time extends to 30-60 minutes, which needs immediate modification.

3.6 Data Quality Management

Data review processes are absent in most facilities, except Kanditheem Health Centre, Komandoo Health Centre, and Maroshi Health Centre.

3.7 High-Alert Medicines

Procedures for administering high-alert medicines are established in most facilities, except Lahimagu Health Centre and facilities with missing data such as Fokaidhoo Health Centre, which calls for immediate modification.

Areas of Concern

Facilities like Sh. Atoll Hospital and Maroshi Health Centre exhibit strong preparedness. However, gaps in infrastructure, equipment, and data quality management exist across most facilities. Addressing these gaps will ensure a more uniform standard of emergency care across Shaviyani Atoll.

Emergency Care Department Audit Report

4. N. Atoll

The table 10 below evaluates emergency preparedness across 13 healthcare facilities in N. Atoll, covering infrastructure, human resources, equipment, protocols, emergency care delivery, data quality management, and high-alert medicines.

Table 10: Emergency preparedness in Noonu Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
N. Atoll Hopsital	Yes	Yes	Yes	Yes	73.60%	75.90%	80%	No Data	No Data	Yes	Yes
N. Fohdhoo Health Centre	No Data	Yes	No	No	65.20%	48.10%	20%	5-10min	<30min	No	Yes
N. Henbadhoo Health centre	Yes	Yes	Yes	No	63.80%	44.30%	100%	5-10min	<30min	Yes	Yes
N. Holhudhoo Health Centre	Yes	Yes	Yes	No	43%	65.80%	60%	5-10min	<30min	No Data	Yes
N. Kendhikulhudhoo health centre	No	Yes	Yes	No	9.70%	63.20%	60%	5-10min	<30min	No	Yes
N. Kudafari Health Centre	No	Yes	No	No	51.30%	49.30%	20%	5-10min	<30min	No	No
N. Landhoo Health Centre	No	Yes	Yes	No	50%	59.40%	100%	5-10min	<30min	No	Yes
N. Lhohi Health centre	No	Yes	Yes	No	66.60%	54.40%	60%	5-10min	<30min	Yes	Yes
N. Maafaru health Centre	No	Yes	Yes	No	20.80%	0	60%	>20min	<30min	No	No
N. Maalhendhoo health centre	No	Yes	No	No	30.50%	48.10%	80%	5-10min	<30min	No Data	No Data
N. Magoodhoo Health Centre	No	Yes	No	No	50%	41.70%	60%	5-10min	<30min	Yes	No
N. Miladhoo Health Centre	No	Yes	No	No	41.60%	43%	80%	5-10min	No Data	No	No
N. Velidhoo Health Centre	No	Yes	Yes	No	51.30%	54.40%	20%	No Data	<30min	No	Yes

Key Findings

4.1 ER Infrastructure

3 health facilities in the atoll reports having an established ER infrastructure, while other facilities lack it. Therefore, this leaves a critical gap in ER infrastructure across most health facilities in this atoll.

4.2 Human Resources

Out of 13 health centres, 8 health facilities report availability of ACLS trained doctors and nurses. None of the health centres reported availability of specialist services, except for N. Atoll Hospital, highlighting limited access to advanced care providers. Ensuring the continuity of advanced care within the atoll is vital, given its population of over 12,000 residents. This improvement would enhance emergency care services and significantly reduce the need for referrals.

4.3 Equipment

High availability of ambulance equipment found in N. Atoll Hospital, while moderate in some centres. The lowest score of 9.7% found in Kendhikulhudhoo health centre which requires urgent attention. Equipment, drugs and other necessary items are fairly available across all health facilities. However, some important items in emergency cart are found to be missing in many health facilities. Miladhoo Health Centre requires urgent attention to ensure their emergency cart is fully stocked and ready for emergencies.

4.4 Protocols and Guidelines

Availability of protocols in the atoll is fairly satisfactory across all health facilities. Those health facilities without the 5 main protocol needs urgent corrective intervention.

4.5 Emergency Care Delivery

Most facilities respond within 5-10 minutes of call for an ambulance, except Maafaru Health Centre, which exceeds 20 minutes, indicating delays in attending to emergency calls. Missing data from the

main health facility in the atoll is also a gap identified in this audit. However, all health facilities reported maintaining ER waiting times under 30 minutes, a positive indicator of operational efficiency.

4.6 Data Quality Management

Only a few facilities, such as Henbadhoo and Magoodhoo, have a data review process. Gaps in data review exist in most centres, hampering quality improvement efforts.

4.7 High-Alert Medicines

Established procedures are available in most facilities, except for gaps in Kudafari, Maafaru, Maalhendhoo, Magoodhoo and Miladhoo Health Centres.

Areas of concern

N. Atoll Hospital sets the standard for emergency preparedness but addressing the gaps through infrastructure upgrades, staff training, and equipment investments will improve emergency preparedness across N. Atoll.

5. R. Atoll

Table 11 below provides a snapshot of emergency preparedness across 12 healthcare facilities in R. Atoll, focusing on infrastructure, human resources, equipment, protocols, emergency care delivery, data management, and high-alert medicines.

Emergency Care Department Audit Report

Table 11: Emergency preparedness in R. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Ungoofaaru Regional Hospital	Yes	Yes	Yes	Yes	9.7%	94.9%	80%	5-10min	<30min	No	Yes
R. Alifushi Health Centre	No	Yes	No	No	13.8%	88.6%	60%	5-10min	<30min	No	Yes
R. Angolhitheem Health centre	No	Yes	Yes	No	27.7%	58.2%	60%	5-10min	<30min	Yes	Yes
R. Dhuvaafaru Health Centre	Yes	Yes	Yes	Yes	66.6%	59.4%	80%	5-10min	<30min	No	Yes
R. Fainu Health Centre	No	Yes	Yes	No	1.3%	55.6%	40%	5-10min	<30min	No	No
R. Hulhudhuffaru Health Centre	No	Yes	No	Yes	75.0%	59.4%	40%	5-10min	<30min	No	Yes
R. Inguraidhoo Health Centre	No	Yes	Yes	No	20.8%	60.7%	80%	5-10min	<30min	Yes	Yes
R. Kinolhas Health Centre	No	Yes	Yes	No	61.1%	56.9%	60%	5-10min	<30min	No	Yes
R. Maakurath Health centre	No	Yes	Yes	No	16.6%	62.0%	60%	5-10min	<30min	No	Yes
R. Maduvari Health Centre	No	Yes	No	No	0	54.4%	40%	5-10min	No Data	No	Yes
R. Meedhoo Health Centre	No	Yes	No	No	58.3%	46.8%	20%	5-10min	No Data	No	Yes
R. Rasmaadhoo Health Centre	No	Yes	Yes	No	No Data	No Data	40%	5-10min	<30min	No	Yes

Key Findings

5.1 ER Infrastructure

Only Ungoofaaru Regional Hospital and Dhuvaafaru Health Centre have established ER infrastructure. Absence of ER infrastructure in 10 facilities, highlights a significant gap in emergency care management.

5.2 Human Resources

In R. Atoll, except for 4 health facilities, all other health facilities reported having ACLS-trained doctors and nurses, ensuring basic staffing capabilities. Specialists are available in the main regional hospital and in some of the health centres reported having paediatrician services and physician services available in their centres.

5.3 Equipment

Ambulance preparedness is a critical component of any healthcare facility's capacity to deliver life-saving care. However, the primary hospital in the atoll has reported meeting only 9.7% of the required ambulance capacity, highlighting an urgent need for improvement. Additionally, four other health centres have reported meeting less than 20% of their ambulance requirements, potentially jeopardizing prehospital emergency care. While the readiness of emergency carts exceeds 50% in most health facilities, Meedhoo Health Centre falls below this threshold, and data remains unreported for Rasmaadhoo Health Centre, further emphasizing the need for comprehensive evaluation and action.

5.4 Protocols and Guidelines

Ungoofaaru Regional Hospital, Inguraidhoo Health Centre and Dhuvaafaru Health Centre is having 80% of the protocols and guidelines, but lower in facilities like Fainu Health Centre (40%) and Meedhoo Health Centre only 20%.

5.5 Emergency Care Delivery

All health facilities report response times within 5-10 minutes, meeting acceptable standards throughout the atoll. Additionally, less than 30 minutes of waiting time in ER for receiving care across the atoll is another strong finding of this audit, except for missing data in Maduvvari and Meedhoo Health Centre.

5.6 Data Quality Management

Data review is lacking across all facilities, indicating a critical gap in performance monitoring and quality improvement processes. This needs urgent intervention from the main hospital in the atoll.

5.7 High-Alert Medicines

Procedures for high-alert medicine administration are established in most facilities, except Fainu Health Centre.

Areas of concern

Ungoofaaruu Regional Hospital and Dhuvvaafaru Health Centre lead in preparedness, but significant gaps in infrastructure, equipment, and data management exist across most facilities. Addressing these gaps through targeted investments in infrastructure, equipment, and quality management will significantly enhance emergency preparedness in R. Atoll.

6. B. Atoll

Out of 13 Islands, only 9 health facilities participated in this audit and the primary health care facility in this atoll did not participate in the audit, creating a significant gap in assessing the effectiveness of referral systems across the atoll. The table below (table 12) evaluates the emergency preparedness of nine health facilities in B. Atoll based on key domains: ER infrastructure, human resources, equipment, protocols and guidelines, emergency care delivery, data quality management, and high-alert medicines.

Table 12: Emergency preparedness in B. Atoll health facilities.

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
B. Dharavandhoo	Yes	Yes	Yes	No	35%	70%	100%	5-10min	<30min	Yes	Yes
B. Goidhoo	No	Yes	No	No	65.2%	64.5%	40%	5-10min	30-60min	No	No
B. Hithaadhoo	No data	Yes	No	No	40.2%	60.7%	60%	5-10min	<30min	No	No
B. Kendhoo	No	Yes	Yes	No	58.3%	49.3%	100%	5-10min	<30min	No	Yes
B. Kihaadhoo	No	Yes	No data	No	4.1%	27.8%	80%	5-10min	No Data	No	Yes
B. Kudarikilu	No	Yes	No	No	72.2%	53.1%	40%	5-10min	<30min	Yes	Yes
B. Maalhoo	No	Yes	No	No	0	48.1%	20%	5-10min	<30min	No	No
B. Thulhaadhoo	No	Yes	No	No	15.2%	60.7%	40%	5-10min	<30min	No	No
B. Fehendhoo	No	Yes	No	No	58.3%	54.4%	80%	5-10min	<30min	Yes	Yes

Key Findings

6.1 ER Infrastructure

Only B. Dharavandhoo has established ER infrastructure. Eight other facilities lack dedicated ER infrastructure, indicating a significant gap in readiness for handling emergencies.

6.2 Human Resources

ACLS trained doctors and nurses, which is critical for immediate emergency response. However, only 2 health facilities report presence of ACLS trained doctors and nurses. Absence of specialist services in the island health facilities is a limitation for managing advanced cases.

6.3 Equipment

The audit revealed that Maalhos health centre lacking requirement for ambulances and Kihaadhoo health centre have only (4.1%). Additionally, readiness of emergency cart also remains at a lower-level jeopardizing emergency care across the atoll.

6.4 Protocols and Guidelines

Availability of protocol found to be inconsistent within the health facilities. Dharavandhoo health centre and Kendhoo health centre received 100% in this domain while other 4 health facilities scored below 40% in this domain. Most facilities fall in the 40-80% range, highlighting a need for uniform protocol adherence.

6.5 Emergency Care Delivery

All facilities report response times of 5-10 minutes, which is efficient and a strong positive finding of this audit. ER waiting time of <30 minutes for most of the health facilities except Goidhoo health centre which needs improvement.

6.6 Data Quality Management

Some of the health facilities conduct systematic data reviews and other health facilities indicating a lack of systematic data analysis for quality improvement in other facilities.

6.7 High-Alert Medicines

Established procedures for administration of high-alert medicine found in Dharavandhoo, Kendhoo, Kihaadhoo, Kudarikilu, and Fehendhoo, but lacks in other facilities. This also requires urgent attention from relevant authorities.

Areas of concern

With the absence of data from main health facility in the atoll (B. Atoll hospital) the analysis reveals considerable variability in emergency preparedness across health facilities in B. Atoll and the efficiency of referral systems in the atoll remain unassessed. While some facilities demonstrate

strengths in ambulance readiness and response times, others lack essential infrastructure, equipment, protocols, and data management systems. Addressing these gaps is critical for improving emergency care delivery and ensuring equitable access to high-quality healthcare across the Atoll.

7. Lh. Atoll

Table 13 below assesses emergency preparedness in three facilities in Lh. Atoll, focusing on infrastructure, human resources, equipment, protocols, emergency care delivery, data management, and medication administration.

Table 13: Emergency preparedness in Lhaviyani Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Lh. Atoll Hospital	No Data	Yes	No Data	No Data	No Data	88.8%	60%	5-10min	<30min	No	No
Lh. Hinnavaru	No	Yes	Yes	No	72.2%	16.4%	80%	<5min	<30min	No	Yes
Lh. Kurendhoo	No Data	Yes	Yes	No	38.8%	58.2%	60%	5-10min	<30min	No	Yes
Lh. Olhuvelifushi	No	Yes	No	No	59.7%	60.7%	80%	5-10min	<30min	Yes	Yes

Key Findings

7.1 ER Infrastructure

The main hospital in the atoll have not provided data on this domain and therefore availability of a dedicated ER infrastructure has not been assessed. Hinnavaru health centre and Olhuvelifushi health centre also lacks ER infrastructure.

7.2 Human Resources

Hinnavaru Health centre and Kurendhoo health centre reported having ACLS trained nurses and doctors. Additionally, availability of specialist care in the atoll could not be assessed as the main hospital have not provided information in this domain, limiting advanced care capabilities within the atoll highlighting the probable need for referrals.

7.3 Equipment

The preparedness of ambulances is critical for any healthcare facility. This audit revealed missing data from the main healthcare facility in the atoll. However, the emergency cart at the same facility meets 88.6% of the required standards. Lack of available requirement for emergency cart in Hinnavaru health centre (16.2%) requires urgent action.

7.4 Protocols and Guidelines

Protocol coverage is strong in Hinnavaru and Olhuvelifushi (80%), while the other facilities score 60%.

7.5 Emergency Care Delivery

The response time of 5-10 minutes for calls to emergency care is a strong finding in all health facilities. Similarly, all facilities maintain waiting times under 30 minute is commendable.

7.6 Data Quality Management

Data review mechanisms are absent in Atoll Hospital, Hinnavaru, and Kurendhoo, limiting the ability to monitor and improve emergency care. Olhuvelifushi is the only facility with data review practices.

7.7 High-Alert Medicines

Standard procedures for administering high-alert medicines are available in all facilities except in the main healthcare facility in the atoll.

Areas of concern

Unavailability of data regarding availability of infrastructure in the main atoll hospital limits assessment of capacity to manage patients requiring emergency care in the Atoll. Similarly, some gaps are identified in availability of ER infrastructure, readiness of emergency cart and data review. Addressing these weaknesses will significantly enhance emergency care across Lh. Atoll facilities.

8 K. Atoll

The table 14 below evaluates emergency preparedness across nine healthcare facilities in K. Atoll, focusing on infrastructure, human resources, equipment, protocols, and performance metrics.

Table 14: Emergency preparedness in K. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
K. Dhiffushi	No	Yes	No	No	16.6%	67%	60%	>10min	<30min	Yes	Yes
K. Gaafaru	No	Yes	No	No	65.2%	54.4%	60%	5-10min	<30min	No	Yes
K. Gulhi	Yes	Yes	Yes	No	55.5%	53.1%	60%	5-10min	<30min	Yes	Yes
K. Guraidhoo	No	Yes	Yes	No	41.6%	59.4%	0	>10min	<30min	No	Yes
K. Himmafushi	No	Yes	No	No	58.3%	53.1%	80%	5-10min	<30min	No	No
K. Huraa	No	Yes	Yes	No	59.7%	48.1%	20%	5-10min	<30min	No	Yes
K. Kaashidhoo	No	No	Yes	No	9.7%	51.8%	20%	5-10min	<30min	No	No
K. Maafushi Hospital	Yes	Yes	Yes	Yes	58.3%	68.3%	80%	5-10min	<30min	No	Yes
K. Thulusdhoo	No	Yes	No	No	65.8%	64.5%	60%	5-10min	<30min	No	Yes

Key Findings

8.1 ER Infrastructure

Only Gulhi health centre and Maafushi Hospital have ER infrastructure. Lack of ER facilities in most other locations significantly hampers emergency preparedness.

8.2 Human Resources

ACLS-trained doctors and nurses are present in all facilities except Dhiffushi Health Centre, Gaafaru Health centre, and Thulusdhoo Health centre. Specialist availability is limited, with only Maafushi Hospital having specialists.

8.3 Equipment

Ambulance equipment availability is generally low across the Atoll. Kaashidhoo health centre having only 9.7% and Dhiffushi health centre having 16.6% requirement requires urgent intervention. Other emergency equipment is fairly available in all other health facilities.

8.4 Protocols and Guidelines

Availability of the five main protocols varies, Maafushi Hospital (80%) and Himmafushi health centre (80%) have the highest availability. Guraidhoo health centre (0%) lacks protocol implementation entirely.

8.5 Emergency Care Delivery

Most facilities meet optimal response times (5-10 minutes), except for Dhiffushi and Guraidhoo health centre, where response times exceed 10 minutes. When considering ER waiting time, all facilities maintain waiting times under 30 minutes.

8.6 Data Quality Management

Data review mechanisms are present only in Dhiffushi health centre, Gulhi health centre, and Thulusdhoo health centre, indicating limited data-driven quality improvement efforts.

8.7 High-Alert Medicines

Procedures for administering high-alert medicines are present in most facilities, with the exception of Himmafushi and Kaashidhoo health centre.

8.8 Conclusion

Maafushi Hospital is the most prepared facility in the atoll, with robust infrastructure, equipment, and protocols. However, gaps in ER infrastructure, ambulance equipment, and data management across other facilities highlight critical areas for improvement. Addressing these challenges is essential to ensure consistent and efficient emergency care delivery across K. Atoll.

9 Aa. Atoll

According to the Maldives Census 2022, Aa. Atoll has a population of 7,997 spread across eight islands. The residents rely heavily on the healthcare services available within their islands. Therefore, ensuring that health facilities are equipped to effectively manage emergencies is crucial for safeguarding lives and providing timely, lifesaving care. Table 15 below shows availability of dedicated ER infrastructure in the health facilities.

Table 15: Emergency preparedness in Aa. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guideline	Emergency care delivery		Data quality management	High Alert medicines
	Dedicated infrastructure	Ambulance	ACLS trained Drs & nurses	Specialities	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Aa. Atoll Hopsital	Yes	Yes	No	Yes	50%	74%	80%	5-10min	<30min	No	Yes
Aa. Bodufulhadhoo	No	Yes	No	No	76%	57%	80%	5-10min	<30min	No	Yes
Aa. Feridhoo	No	Yes	No	No	26%	57%	80%	5-10min	<30min	Yes	Yes
Aa. Mathiveri	No	Yes	Yes	No	48%	51%	100%	5-10min	<30min	Yes	Yes
Aa. Ukulhas	No	Yes	No	No	29%	12%	40%	5-10min	<30min	Yes	
Aa. Thoddoo	No	Yes	Yes	No	27%	54%	80%	No data	No data	No	Yes

Key Findings

9.1 ER Infrastructure

ER infrastructure is available only in Aa. Atoll Hospital. All other facilities (Bodufulhadhoo, Feridhoo, Mathiveri, Ukulhas, Thoddoo) lack dedicated ER infrastructure. A strong finding of the audit is availability of Ambulance in all health facilities.

9.2 Human Resource

Aa. Atoll Hospital is the only facility with specialist availability. All other health facilities lack specialist services. None of the facilities, except Thoddoo and Mathiveri Health Centre have ACLS-trained doctors and nurses.

9.3 Equipment

None of the health facilities reported having more than 70% of the requirement for ambulance, which requires immediate action. Notably, Feridhoo, Ukulhas and Thoddoo health centre reports having less than 30% of the requirement. Urgent intervention is required for all the health centres to be prepared for managing emergencies.

The emergency cart also requires immediate action to fully stock and be prepared for emergencies. Even the primary health facility in the atoll reports 70% availability of requirement for emergency cart. Readiness of emergency cart and preparedness for emergencies are key elements in any health care setting.

9.4 Protocols and Guidelines

This domain assessed availability of 5 Main Protocols, availability of protocol for triaging, procedure for management of life-threatening emergencies, management of medicolegal cases, clinical pathways, and procedure for referral. Mathiveri scores the highest with 100%. Ukulhas lags far behind at 40% and the remaining facilities maintain an 80% compliance rate.

9.5 Emergency Care Delivery

All facilities with data report a response time of 5-10 minutes, except Thoddoo, where data is unavailable. This is a strong finding of this audit across Aa. Atoll.

For facilities with data, waiting times are consistently under 30 minutes. For this domain also Aa. Thoddoo do not have available data. However, a waiting time of less than 30 minutes is another strong finding across Aa. Atoll.

9.6 Data Quality Management

Periodic data review and auditing is an important component of quality improvement. This audit found that two of the health facilities in the atoll are conducting periodic data reviews. Periodic data reviews from rest of the health facilities are also highly recommended.

9.7 High Alert Medicines

All facilities except Ukulhas have an established procedure for administering high-alert medicines, which alarms urgent action.

Areas of concern

The lack dedicated ER infrastructure in most facilities is a major concern for handling emergencies. A lack of ACLS-trained doctors and nurses across most facilities jeopardizes emergency care. Absence of specialist services in all facilities except Aa. Atoll Hospital further weakens preparedness. Emergency carts and ambulance equipment scores are low, particularly in Feridhoo, Ukulhas, and Thoddoo.

10 Adh. Atoll

This analysis evaluates emergency preparedness across five key health facilities in Adh. Atoll, focusing on ER infrastructure, human resources, equipment, protocols and guidelines, emergency care delivery, data quality management, and high-alert medicines. Table 16 below summarizes emergency preparedness within Adh. Different health facilities of Adh. Atoll. Below are the key findings of this audit. This analysis highlights the urgent need for investments in infrastructure, equipment, and standardization of protocols to enhance the emergency preparedness of health facilities in Adh. Atoll.

Table 16: Emergency preparedness in Adh. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Adh. Dhangethi	No	Yes	Yes	No	15.3%	51.9%	40%	5-10min	No data	Yes	Yes
Adh. Dhigurah	No	Yes	Yes	No	13.9%	34.2%	40%	5-10min	No data	No	Yes
Adh. Hanyaameedhoo	No	Yes	Yes	No	No Data	No Data	80%	5-10min	<10min	No	No
Adh. Kunburudhoo	No	Yes	Yes	No	No Data	No Data	80%	5-10min	<30min	Yes	Yes
Adh. Maamingili	No	Yes	Yes	Yes	4.2%	64.6%	20%	5-10min	<30min	No	Yes

Key Findings

10.1 ER Infrastructure

Araciality of dedicated ER infrastructure in the main hospital in the atoll highlights availability of emergency care across the atoll. However, all other health facilities report not having dedicated ER infrastructure. Assistance is urgently needed to close the gap.

10.2 Human Resources

ACLS-trained doctors and nurses are available in all health facilities and Maamingili health centre reports availability of specialist services.

10.3 Equipment

Ambulance equipment availability across the atoll comparatively less and alarms urgent intervention. Similarly, emergency cart preparedness is inadequate and poorly managed, falling below the same threshold. This highlights an urgent need for immediate corrective action.

10.4 Protocols and Guidelines

Availability of the five main protocols for emergency care varies widely. None of the health facilities have the five main protocols identified in the audit. There is inconsistency in adherence to standard protocols, impacting the quality of care.

10.5 Emergency Care Delivery

Response times across all facilities are reported as 5-10 minutes, reflecting reasonable efficiency in initial emergency response.

Hanyaameedhoo: <10 minutes. Other facilities with data (Kunburudhoo, Maamingili): <30 minutes. No data is available for Dhangethi and Dhigurah.

10.6 Data Quality Management

Facilities lack structured data review systems except for Dhangethi and Kunburudhoo conduct data reviews, which is crucial for continuous quality improvement. This is also another important area that needs to be considered.

10.7 High-Alert Medicines

High-alert medication procedures are well-established in all facilities except Hanyaameedhoo, which does not meet this critical safety criterion.

This analysis highlights the urgent need for investments in infrastructure, equipment, and standardization of protocols to enhance the emergency preparedness of health facilities in Adh. Atoll.

11 V. Atoll

Table 17 below shows emergency preparedness in V. Atoll. This table evaluates the emergency readiness of healthcare facilities in V. Atoll, focusing on infrastructure, human resources, equipment, protocols, emergency care delivery, data management, and high-alert medicine protocols.

Table 17: Emergency preparedness in V. Atoll.

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
V. Atoll Hospital	No	Yes	No	Yes	61.1%	73.4%	40%	5-10min	<30min	No	Yes
V. Rakeedhoo	No	Yes	Yes	No	0	60.7%	80%	5-10min	<30min	Yes	Yes

Key Findings

11.1 ER Infrastructure

Neither V. Atoll Hospital nor Rakeedhoo Health Centre has established ER infrastructure, indicating limited readiness for emergencies.

11.2 Human Resources

Both facilities have ACLS-trained personnel, ensuring basic competency in emergency medical care. Specialists are only available at V. Atoll Hospital, leaving Rakeedhoo Health Centre without specialized care.

11.3 Equipment

V. Atoll Hospital has a moderate ambulance equipment availability (61.1%), while Rakeedhoo Health Centre has none (0%). Both facilities have emergency carts, with V. Atoll Hospital at 73.4% availability and Rakeedhoo Health Centre at 60.7%. Immediate action is required to ensure the emergency cart is fully equipped with all necessary drugs and medical supplies, making it fully operational and ready for use in the event of emergencies.

11.4 Protocols and Guidelines

Rakeedhoo Health Centre has a high adherence rate (80%), while the main hospital lags at 40%, suggesting uneven adoption of standardized protocols.

11.5 Emergency Care Delivery

Both facilities maintain a response time of 5-10 minutes, which is acceptable. Waiting times are under 30 minutes, indicating efficiency in managing patient inflow.

11.6 Data Quality Management

Rakeedhoo Health Centre has data review processes in place, whereas V. Atoll Hospital does not, highlighting a gap in monitoring and evaluation at the hospital level.

11.7 High-Alert Medicines

Both facilities have established procedures for administering high-alert medicines, which is a strength.

Areas of concern

Rakeedhoo Health Centre shows better protocol adherence and data management compared to V. Atoll Hospital, despite lacking specialists and ambulance equipment. Addressing the gaps in infrastructure, specialist availability, and equipment will strengthen emergency care delivery across Vaavu Atoll.

12 M. Atoll

Table 18 below evaluates emergency preparedness in four facilities in M. Atoll based on infrastructure, human resources, equipment, protocols, emergency care delivery, data management, and high-alert medicines.

Table 18: Emergency preparedness in M. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Muli Regional Hospital	No	Yes	Yes	Yes	75%	87.3%	80%	5-10min	<30min	Yes	Yes
M. Dhiggaru	No	Yes	No	No	59.7%	60.7%	40%	5-10min	<30min	No	Yes
M. Maduvari	No	Yes	No	No	54.1%	53.1%	40%	>10min	<30min	No	Yes
M. Veyvah	No	Yes	Yes	No	0	58.2%	100%	5-10min	<30min	No	Yes

Key Findings

12.1 ER Infrastructure

None of the facilities have dedicated ER infrastructure, indicating a critical area for immediate improvement.

12.2 Human Resources

ACLS-trained doctors and nurses are available across all facilities. Specialists are only available at Muli Regional Hospital, enhancing its advanced care capability.

12.3 Equipment

Muli Regional Hospital leads in ambulance equipment availability, while Veyvah has significant gaps of 0% in ambulance preparedness. Emergency cart preparedness found to be highest in Muli Regional Hospital, followed by moderate levels in other facilities, which calls for urgent action.

12.4 Protocols and Guidelines

Protocol coverage is highest in Veyvah Health Centre and in the main hospital while other health facilities cover lower levels.

12.5 Emergency Care Delivery

Most facilities respond within 5–10 minutes, except for Maduvvari (>10 minutes), which necessitates immediate modification. A positive indicator of this audit is less waiting time for patients in the ER across the atoll.

12.6 Data Quality Management

Only Muli regional Hospital has an active data review process, while the others lack this critical feature for monitoring and improvement.

12.7 High-Alert Medicines

Established procedures for high-alert medicine administration are present across all facilities, ensuring safety in medication management.

Areas of Concern

Muli Regional Hospital demonstrates the strongest overall emergency preparedness with comprehensive equipment, protocol coverage, and specialist availability. However, other facilities, such as Maduvvari and Veyvah, face notable gaps in equipment, response times, and data management. Addressing these shortcomings will enhance emergency care delivery across M. Atoll facilities.

13 F. Atoll

Table 19 below summarizes the preparedness of F. Atoll health facilities for emergencies. The table evaluates the emergency preparedness of three health facilities in F. Atoll. Bilehdhoo, Dharanboodhoo, and Feali across various critical domains for emergency response capabilities.

Table 19: Emergency preparedness in F. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Bilehdhoo	Yes	Yes	No	No	25.0%	49.3%	0%	5-10min	<30min	No	No
Dharanboodhoo	Yes	Yes	Yes	physician	27.7%	51.8%	40%	5-10min	<30min	No	Yes
Feali	No	Yes	No	No	69.4%	68.3%	40%	5-10min	<30min	Yes	Yes

Key Findings

13.1 ER Infrastructure

Bilehdhoo and Dharanboodhoo have ER infrastructure in place, while Feali lacks dedicated ER infrastructure, posing a challenge to effective emergency management.

13.2 Human Resources

All three facilities have ACLS-trained doctors and nurses, which strengthens emergency care delivery. specialist availability is limited to Dharanboodhoo, where only a physician is present.

13.3 Equipment

The overall preparedness of ambulances and emergency carts across the entire atoll is critically low, requiring urgent intervention. Ensuring their readiness is essential for effective emergency management.

13.4 Protocols and Guidelines

Availability of the five main emergency protocols varies and are found to be lacking in all 3 health facilities participated in this audit. This needs to be addressed for effective emergency patient management.

13.5 Emergency Care Delivery

Response time of less than 5-10 minutes, which meets acceptable standards among all health facilities. Similarly, ER waiting time of <30 minutes in all health facilities, indicating good patient flow.

13.6 Data Quality Management

Data review is only conducted at Feali, while Bilehdhoo and Dharanboodhoo do not engage in routine data review. This limits their ability to monitor and improve emergency care.

13.7 High-Alert Medicines

Established procedures for administering high-alert medicines are present in Dharanboodhoo and Feali, but not in Bilehdhoo.

13.8 Areas of concern

While all facilities demonstrate strengths in human resources and efficient emergency response times, gaps in ER infrastructure, equipment availability, and data management hinder the overall preparedness of emergency services in F. Atoll. Addressing these shortcomings is crucial to ensuring comprehensive and equitable emergency healthcare services for the atoll's population.

14 Dh. Atoll health facilities

The table below (table 20) evaluates the emergency preparedness of three health facilities in Dh. Atoll: Dh. Atoll Hospital, Maaenboodhoo, and Meedhoo, focusing on critical domains of emergency response capability.

Table 20: Preparedness of ER in Dh. Atoll health facilities

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Dh. Atoll Hospital	No	Yes	Yes	Yes	80.5	87.3	60%	5-10min	No Data	No	Yes
Dh. Maaenboodhoo	No	No Data	No	No	15.2	69.6	20%	5-10min	30-60min	No	Yes
Dh. Meedhoo	No	Yes	No	No	12.5	50.6	20%	5-10min	<30min	No	No

Key Findings

14.1 ER Infrastructure

None of the three facilities have dedicated ER infrastructure, indicating a significant gap in emergency preparedness at the facility level. Urgent action is required to close the gap.

14.2 Human Resources

Dh. Atoll Hospital and Meedhoo have ACLS-trained doctors and nurses, while Maaenboodhoo does not. Specialists are available only at Dh. Atoll Hospital, highlighting an increased need for referrals from other health facilities.

14.3 Equipment

Dh. Atoll Hospital (80.5%) has the highest availability, while Maaenboodhoo (15.2%) and Meedhoo (12.5%) have minimal equipment, which is a critical gap. The emergency cart in Dh. Atoll Hospital (87.3%) is well-equipped, while Maaenboodhoo (69.6%) and Meedhoo (50.6%) have lower availability, which needs improvement.

14.4 Protocols and Guidelines

Availability of protocols is low across the facilities and this requires corrective action from all relevant authorities.

14.5 Emergency Care Delivery

All three facilities report response times of 5-10 minutes, demonstrating efficient initial emergency response. However, ER waiting time for Maaenboodhoo 30-60 minutes, which is longer than the recommended standards.

14.6 Data Quality Management

None of the facilities conduct routine data reviews, indicating a significant gap in monitoring and improving the quality of emergency care services.

14.7 High-Alert Medicines

Established procedures for administering high-alert medicines exist in Dh. Atoll Hospital and Maaenboodhoo, but are absent in Meedhoo.

Areas of concern

While Dh. Atoll Hospital demonstrates relatively strong equipment availability and trained staff, the lack of ER infrastructure, incomplete protocols, and insufficient data management hinder its overall preparedness. Maaenboodhoo and Meedhoo face critical gaps in resources, protocols, and data quality, requiring immediate attention to improve emergency care delivery in Dh. Atoll. Addressing

these gaps is vital to ensuring equitable and effective emergency healthcare for all residents in the region.

15 Th. Atoll

This table 21 below assesses the emergency readiness of healthcare facilities in Thaa Atoll based on ER infrastructure, human resources, equipment, protocols, emergency care delivery, data management, and high-alert medicine protocols.

Table 21: Emergency preparedness in Th. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
Th. Atoll Hopsital	No	Yes	Yes	Yes	72.2%	86%	40%	5-10min	<30min	No	No
Th. Burunee Health centre	No	Yes	No	No	72.2%	51.8%	20%	5-10min	<30min	Yes	No
Th. Hirilandhoo Health Centre	No	Yes	No	No	55.5%	54.4%	40%	5-10min	<30min	Yes	Yes
Th. Kinbidhoo Health centre	No	Yes	No	No	2.7%	51.8%	40%	5-10min	<30min	No	Yes
Th. Thimarafushi Health Centre	Yes	Yes	No	No	54.1%	58.2%	100%	5-10min	<30min	Yes	Yes
Th. Vilufushi Health Centre	No	No	No	No	30.5%	58.2%	80%	5-10min	<30min	Yes	Yes

Key Finding

15.1 ER Infrastructure

None of the facilities, except Thimarafushi Health Centre, have established ER infrastructure. Limited infrastructure poses challenges for handling emergencies effectively in most facilities.

15.2 Human Resources

ACLS-trained doctors and nurses available only in Th. Atoll Hospital jeopardizing basic competency in emergency response. Additionally, specialist availability is confined to Th. Atoll Hospital, leaving other facilities dependent on external referrals.

15.3 Equipment

All health facilities report meeting less than 80% of the required standards, indicating inadequate readiness that demands urgent attention. Thinbidhoo health centre reports availability of only 2.7% of the requirement and this needs instant remedial action. Likewise, the insufficient availability of emergency cart equipment requires immediate corrective action.

15.4 Protocols and Guidelines

Thimarafushi Health Centre has full protocol implementation (100%). Other facilities lag this important domain significantly.

15.5 Emergency Care Delivery

All facilities maintain a response time of 5-10 minutes. Waiting times are under 30 minutes across all facilities, indicating efficiency in handling patient inflow.

15.6 Data Quality Management

Data review processes are missing in Th. Atoll Hospital and Th. Kinbidhoo Health Centre, indicating a need for systematic monitoring and evaluation.

15.7 High-Alert Medicines

Procedures for administering high-alert medicines are present in facilities, except Th. Atoll Hospital and Burunee Health Centre.

Areas of Concern

One of the most critical domains of the audit, ambulance and emergency cart preparedness for emergencies found to be lagging. This deficiency is observed across the entire atoll and requires urgent attention.

16 L. Atoll

The table 22 evaluates emergency preparedness across three healthcare facilities in L. Atoll, focusing on infrastructure, resources, protocols, and performance indicators.

Table 22: Emergency preparedness in L. Atoll

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
L. Hithadhoo	No	Yes	Yes	1 gyne	19.4%	54.4%	40%	<5min	<30min	No	Yes
L. Maabaidhoo	No	Yes	Yes	No	18%	48.1%	60%	<5min	<30min	Yes	Yes
L. Mundoo	No	Yes	No	No	0	43%	20%	5-10min	30-60min	No	No

Key Findings

16.1 ER Infrastructure

None of the facilities have established ER infrastructure, reflecting a significant gap in emergency care preparedness.

16.2 Human Resources

Two out of three facilities have ACLS-trained doctors and nurses, which ensures the presence of trained personnel for handling emergencies. Specialist availability is limited, however, Hithadhoo has one Gynaecologist, but no other specialists are available in any facility.

16.3 Equipment

Very low level of ambulance equipment is noted throughout atoll. Additionally, preparedness of cart also found to be low across the atoll and this requires urgent attention.

16.4 Protocols and Guidelines

Maabaidhoo (60%) has the highest availability of the five main protocols. Hithadhoo has moderate availability (40%), and Mundoo has the lowest (20%).

16.5 Emergency Care Delivery

Emergency response time in both Hithadhoo and L. Maabaidhoo meet optimal response times (<5 minutes). However, Mundoo has a slower response time (5-10 minutes), this needs modification. The waiting time in ER in Hithadhoo and Maabaidhoo maintained waiting times under 30 minutes, while Mundoo experiences longer waiting times (30-60 minutes). This requires investigation into the root cause of delay and urgent corrective intervention.

16.6 Data Quality Management

Only Maabaidhoo has a system for data review, which supports quality management. The other facilities lack such mechanisms.

16.7 High-Alert Medicines

Procedures for administering high-alert medicines are established in Hithadhoo and Maabaidhoo, but absent in Mundoo.

Ares of Concern

Important domains such as preparedness of ambulance and emergency cart found to be low across the three health facilities responded. Lack of participation from the main health facility in the atoll limits assessment on preparedness and the availability of specialist services on receiving referrals from other health facilities.

17 Gdh. Atoll

The table (table 23) assesses the emergency preparedness of health facilities in Gdh. Atoll across critical domains, such as infrastructure, human resources, equipment availability, protocols and guidelines, emergency care delivery, data management, and high-alert medicines.

Table 23: Preparedness for emergencies in Gdh. Atoll health facilities

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & nurses	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
ASMH	Yes	Yes	Yes	Yes	No Data	81.0%	100%	<5min	<30min	No	Yes
Gdh. Faresmathoda	No	Yes	Yes	Yes	0	62.0%	40%	5-10min	No Data	No	Yes
Gdh. Fiyoree	No	Yes	Yes	No	No Data	No Data	60%	5-10min	<30min	No	No
Gdh. Gadhoo	No Data	Yes	Yes	Yes	18%	58.2%	20%	5-10min	<30min	Yes	Yes
Gdh. Hoadedhoo	No	Yes	Yes	No	11.1%	58.2%	20%	5-10min	<30min	No	Yes
Gdh. Madaveli	Yes	Yes	Yes	No	15.2%	62.0%	40%	5-10min	<30min	No	No
Gdh. Nadella	No	Yes	No	No	34.7%	51.8%	40%	5-10min	<30min	No	No
Gdh. Rathafandhoo	No Data	No Data	No Data	No	36.1%	60.7%	100%	5-10min	<30min	Yes	No
Gdh. Vaadhoo	No	Yes	Yes	No	73.6%	58.2%	40%	5-10min	No Data	No	No

17.1 ER Infrastructure

ASMH and Madaveli have ER infrastructure in place, but the rest of the facilities lack this critical resource.

17.2 Human Resources

All facilities have ACLS-trained doctors and nurses, which strengthens their ability to respond to emergencies. Specialist services are limited to ASMH, Faresmathoda, and Gadhoo.

17.3 Equipment

The availability of ambulance equipment across the atoll was found to be significantly low, with no equipment available at the main health facility. This critical gap jeopardizes both emergency care within the hospital and the management of referred patients. Similarly, the overall preparedness of emergency carts across the atoll was relatively low. However, a key positive finding was the presence of all critical items in the emergency cart at the main health facility.

17.4 Protocols and Guidelines

ASMH and Rathafandhoo report 100% availability of the five main protocols. Other health facilities report having less than 60% of the requirement.

17.5 Emergency Care Delivery

All facilities in Gdh. Atoll report a response time of 5-10 minutes, except for ASMH, which has a response time of <5 minutes, indicating excellent performance. Similarly, all facilities report waiting times of <30 minutes.

17.6 Data Quality Management

Data review is conducted in Gadhoo and Rathafandhoo, but is absent in the majority of facilities. This requires corrective action by the relevant authorities.

17.7 High-Alert Medicines

Most facilities have established procedures for administering high-alert medicines, except for Fiyoree, Madaveli, Nadella, Rathafandhoo, and Vaadhoo.

Ares of Concern

While ASMH leads in emergency preparedness with robust infrastructure and high protocol availability, other facilities like Fiyoree, Hoadedhoo, and Vaadhoo exhibit significant gaps in infrastructure, specialist availability, and equipment. Addressing these shortcomings will improve the overall emergency care capacity in Atoll, ensuring equitable and effective healthcare services.

18 Addu city

Table (table 24) below shows preparedness of health facilities in Addu city health facilities.

Table 24: Emergency preparedness in Addu city

	ER Infrastructure		Human resource		Equipment		Protocols and guidelines	Emergency care delivery		Data quality management	High Alert medicines
	ER infrastructure	Ambulance	ACLS trained Drs & Specialists	Specialists	Ambulance equipment	Emergency cart	Availability of 5 main protocols	Response time	ER waiting time	Data review	Established procedure for administration
AEH	Yes	Yes	Yes	Yes	27.7%	86%	40%	5-10min	<30min	No	Yes
Feydhoo Health Centre	Yes	Yes	Yes	No	40.2%	58.2%	80%	5-10min	<30min	Yes	Yes

Key Findings

18.1 ER Infrastructure:

AEH: Comprehensive infrastructure with ambulances, ACLS-trained personnel, specialists, and well-equipped facilities. Feydhoo Health Centre.

18.2 Human Resources:

Both facilities have ACLS-trained doctors and nurses, ensuring skilled personnel are available to handle emergencies.

18.3 Equipment:

With only 27.7% of essential equipment available in ambulances, the delivery of emergency care is severely compromised, particularly given the high incidence of road traffic accidents on the city's main roads. Similarly, the emergency cart in the main referral hospital was found to be only 80% prepared, which could hinder the effectiveness and timeliness of emergency care during critical situations.

18.4 Protocols and Guidelines:

Another sad finding of this audit is availability of only 40% of the protocols in AEH and 80% in Feydhoo health centre.

18.5 Emergency Care Delivery:

Both facilities exhibit response times of 5–10 minutes and ER waiting times of less than 30 minutes, demonstrating efficient patient flow management.

18.6 Data Quality Management:

AEH: Data review procedures are absent, which could impede quality assessment and continuous improvement. Feydhoo Health Centre: Data review systems are in place, enhancing monitoring and accountability.

18.7 High-Alert Medicines:

Both facilities have established procedures for administering high-alert medicines, ensuring safe medication practices.

RECOMMENDATIONS

1. Ensure dedicated infrastructure/space availability in all health facilities especially in primary health facility within the Atoll
2. Establish mechanisms to ensure availability of all required equipment, drugs and other consumables for ambulances
3. Establish a robust system to ensure emergency cart is fully stocked and ready at all times.
4. Establish a robust system for data management and regular reviews

REFERENCE

WHO. (2024). Emergency and critical care. Retrieved from https://www.who.int/health-topics/emergency-care#tab=tab_1

Annex 1: list of health facilities completed audit

1	Ha. Atoll Hospital	Hospital grade 2
2	Ha. Baarah	Health centre grade 3
3	Ha. Filladhoo	Health centre grade 1
4	Ha. Hoarafushi	Health centre grade 4
5	Ha. Ihavandhoo	Health centre grade 1
6	Ha. Kelaa	Health centre grade 3
7	Ha. Maarandhoo	Health centre grade 1
8	Ha. Molhadhoo	Health centre grade 1
9	Ha. Muraidhoo	Health centre grade 1
10	Ha. Thakandhoo	Health centre grade 2
11	Ha. Thuraakunu	Health centre grade 1
12	Ha. Uligam	Health centre grade 1
13	Hdh. Kulhudhuffushi Regional Hospital	Hospital Grade 3
14	Hdh. Finey	Health centre grade 1
15	Hdh. Hanimaadhoo	Health centre grade 3
16	Hdh. Kumundhoo	Health centre grade 1
17	Hdh. Kurinbi	Health centre grade 1
18	Hdh. Makunudhoo	Health centre grade 3
19	Hdh. Naavaidhoo	Health centre grade 1
20	Hdh. Nellaidhoo	Health centre grade 2
21	Hdh. Neykurendhoo	Health centre grade 3
22	Hdh. Nolhivanaran	Health centre grade 3
23	Hdh. Nolhhvaranfaru	Health centre grade 3
24	Hdh. Vaikaradhoo	Health centre grade 3
25	Sh. Atoll Hopsital	Hospital Grade 2
26	Sh. Feevah	Health centre grade 2

Emergency Care Department Audit Report

27	Sh. Feydhoo	Health centre grade 2
28	Sh. Foakaidhoo	Health centre grade 3
29	Sh. Kanditheem	Health centre grade 2
30	Sh. Komandoo	Health centre grade 3
31	Sh. Lhaimagu	Health centre grade 1
32	Sh. Maroshi	Health centre grade 2
33	N. Atoll Hospital	Hospital Grade 2
34	N. Fohdhoo	Health centre grade 1
35	N. Henbadhoo	Health centre grade 1
36	N. Holhudhoo	Health centre grade 3
37	N. Kendhikulhudhoo	Health centre grade 2
38	N. Kudafari	Health centre grade 1
39	N. Maafaru	Health centre grade 3
40	N. Landhoo	Health centre grade 1
41	N. Lhohi	Health centre grade 1
42	N. Maalhendhoo	Health centre grade 1
43	N. Miladhoo	Health centre grade 2
44	N. Magoodhoo	Health centre grade 1
45	N. Velidhoo	Health centre grade 3
46	R. Ungoofaaruu Regional Hospital	Hospital grade 3
47	R. Alifushi	Health centre grade 3
48	R. Angolhitheem	Health centre grade 1
49	R. Dhuvaafaru	Health centre grade 4
50	R. Fainu	Health centre grade 1
51	R. Hulhudhuffaaruu	Health centre grade 3
52	R. Inguraidhoo	Health centre grade 3
53	R. Kinolhas	Health centre grade 1

Emergency Care Department Audit Report

54	R. Maakurath	Health centre grade 2
55	R. Maduvvari	Health centre grade 3
56	R. Meedhoo	Health centre grade 3
57	R. Vaadhoo	Health centre grade 1
58	R. Rasmaadhoo	Health centre grade 1
59	B. Dharavandhoo	Health centre grade 3
60	B. Fehendhoo	Health centre grade 1
61	B. Goidhoo	Health centre grade 3
62	B. Hithaadhoo	Health centre grade 2
63	B. Kendhoo	Health centre grade 3
64	B. Kihaadhoo	Health centre grade 1
65	B. Kudarikilu	Health centre grade 1
66	B. Maalhos	Health centre grade 1
67	B. Thulhaadhoo	Health centre grade 4
68	K. Dhiffushi	Health centre grade 2
69	Lh. Atoll Hospital	Hospital Grade 2
70	Lh. Hinnavaru	Health centre grade 4
71	Lh. Kurendhoo	Health centre grade 3
72	Lh. Olhuvelifushi	Health centre grade 3
73	K. Dhiffushi	Health centre grade 2
74	k. Gaafaru	Health centre grade 2
75	K. Gulhi	Health centre grade 2
76	k. Guraidhoo	Health centre grade 3
77	k. HImmafushi	Health centre grade 3
78	K. Huraa	Health centre grade 2
79	K. Kaashidhoo	Health centre grade 3
80	K. Maafusji	Health centre grade 3

Emergency Care Department Audit Report

81	K. Thulusdhoo	Health centre grade 3
82	Aa. Atoll hospital	Hospital Grade 1
83	Aa. Bodufulhadhoo	Health centre grade 1
84	Aa. Feridhoo	Health centre grade 2
85	Aa. Mathiveri	Health centre grade 3
86	Aa. Ukulhas	Health centre grade 3
87	Aa. Thoddoo	Health centre grade 3
88	Adh. Dhangethi	Health centre grade 3
89	Adh. Dhigurah	Health centre grade 2
90	Adh. Hangnaameedhoo	Health centre grade 1
91	Adh. Kunburudhoo	Health centre grade 1
92	Adh. Maamingili	Health centre grade 4
93	V. Atoll Hospital	Hospital Grade 1
94	V. Rakeedhoo	Health centre grade 1
95	M. Dhiggaru	Health centre grade 4
96	M. Maduvvari	Health centre grade 4
97	M. Regional Hospital	Hospital Grade 1
98	M. Veyvah	Health centre grade 1
99	F. Bilehdhoo	Health centre grade 2
100	F. Dhranboodhoo	Health centre grade 1
101	F. Feali	Health centre grade 2
102	Dh. Atoll Hospital	Hospital Grade 1
103	Dh. Maaenboodhoo	Health centre grade 1
104	Dh. Meedhoo	Health centre grade 3
105	Th. Buruni	Health centre grade 2
106	Th. Hiriandhoo	Health centre grade 3
107	Th. Kinbidhoo	Health centre grade 2

Emergency Care Department Audit Report

108	Th. Vilufushi	Health centre grade 3
109	Th. Atoll Hospital	Hospital Grade 2
110	Th. Thimarafushi	Health centre grade 3
111	L. Hlthadhoo	Health centre grade 3
112	L. Maabaidhoo	Health centre grade 2
113	L. Mundoo	Health centre grade 1
114	ASMH	Hospital Grade 3
115	Gdh. Faresmaathodaa	Health centre grade 3
116	Gdh. Fiyoree	Health centre grade 2
117	Gdh. Gahdhoo	Health centre grade 4
118	Gdh. Hoadehdhoo	Health centre grade 2
119	Gdh. Madaveli	Health centre grade 2
120	Gdh. Nadella	Health centre grade 2
121	Gdh. Rathafandhoo	Health centre grade 2
122	Gdh. Vaadhoo	Health centre grade 3
123	AEH	Tertiary

Emergency Care Department Audit Report

Annex 2: Availability of protocols and guidelines

Availability of:	Kulhudhuffushi Regional Hospital	Sh. Atoll Hospital	N. Atoll Hospital	Ungoofaaru Regional Hospital	Lh. Atoll Hospital	Aa. Atoll Hospital	V. Atoll Hospital	Muli Regional Hospital	Dh. Atoll Hospital	Th. Atoll Hospital	Abdul Samad Memorial Hospital	Addu Equatorial Hospital
Procedure for triage	✓	x	No data	✓	x	x	x	x	✓	x	✓	✓
Procedure for life threatening emergencies	✓	x	✓	✓	✓	✓	x	✓	x	✓	✓	x
Clinical pathways for assessment and management of common emergencies received in the facility and the pathway is displayed at the unit	✓	x	✓	x	x	✓	x	✓	x	x	✓	x
Protocol for management of medicolegal cases	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Procedure for referrals for higher centres for patients requiring high level care	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Emergency Care Department Audit Report

Annex 3: Emergency care delivery

Availability of:	Kulhudhuffushi Regional Hospital	Sh. Atoll Hospital	N. Atoll Hospital	Ungoofaaru Regional Hospital	Lh. Atoll Hospital	Aa. Atoll Hospital	V. Atoll Hospital	Muli Regional Hospital	Dh. Atoll Hospital	Th. Atoll Hospital	Abdul Samad Memorial Hospital	Addu Equatorial Hospital
Average waiting time for ambulance	<5 min	5-10 min		<5 min	<5 min		5-10 mins	<5 min	<5 min	5-10 min	<5 min	5-10 mins
Average waiting time for patients in Emergency Room	<30 min	<30 min		<30 min	<30 min		<30 min	<30 min	<30 min	<30 min	<30 min	<30 min
Availability of communication system for emergency coordination	✓	x	✓	x	✓	x	✓	✓	✓	✓	✓	✓
Resuscitation equipment and emergency drugs are always kept in a state of readiness	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
There is established criteria to determine mode of transport and escort staff for referral	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
There is established procedure for continuous monitoring of patient during transfer.	✓	✓	✓	✓	x	✓	x	✓	✓	✓	✓	✓
All referred cases are reviewed and analyzed for improvement on monthly basis.	x	x		x	x	x	x	✓	x	x	✓	x