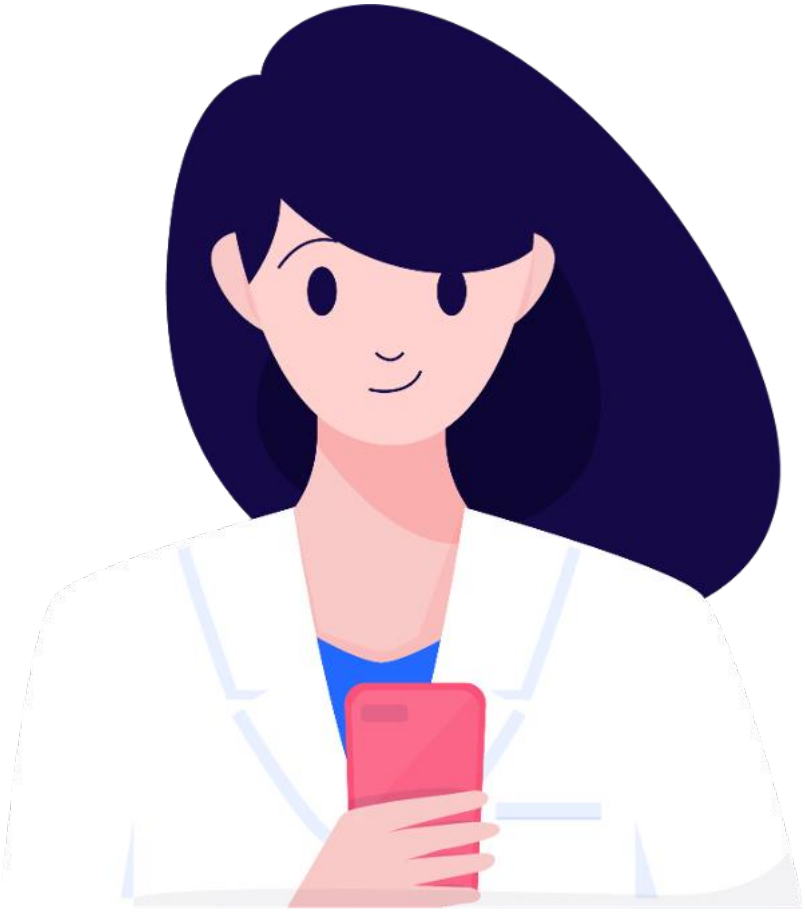


1.4.X - Instructions for Use - WARD-CSS Version (English - EU) - Version 16

Approved by Madolina Christian on 09/25/2026

1 Contact information

For support, feedback or to receive a hard copy of this manual, please use the following contact options:

Service portal:

https://ward247.atlassian.net/servicedesk/customer/portal/1

Support email:

support@ward247.com

Website for other questions:

http://ward247.com

EUDAMED UDI URL:

https://ec.europa.eu/tools/eudamed/#/screen/search-device/2e880d19-59ce-45ab-8695-a573e91a7372

2 Introduction

This user guide provides comprehensive instructions on how to use the WARD Clinical Support System (WARD-CSS):

- Software version: 1.4.0
- Basic UDI-DI: 5745000697WardCSSKK
- UDI-DI: 05745000697014

The exact software version can always be found on the home screen (login screen) of the Mobile App and Web App. The UDI number is not relevant to the average user.

PLEASE READ THESE INSTRUCTIONS FOR USE BEFORE OPERATING THE SYSTEM.

ONLY TRAINED AND AUTHORISED USERS MAY USE WARD-CSS.

	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS

	CAUTION: ONLY use WARD-CSS according to intended use

WARD-CSS is a stand-alone software consisting of a back-end (data storage and processing), an API and two user interfaces: web app and mobile app. WARD-CSS must be used in conjunction with standard continuous vital sign monitoring devices. WARD-CSS is an adjunct to, and is not intended to replace, any of the hospital's existing monitoring practices.

3 System overview of WARD-CSS

3.1 System overview and parts

⚠	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

WARD-CSS is used in conjunction with a sensor system which consists of **sensors** that measure the patient's vital signs and a **monitor** that captures the vital signals and forwards them on the hospital's Wi-Fi to a locally placed **sensor server**. This monitor can be a tablet placed near the patient or a part of the sensor system attached to the patient.

The **WARD-CSS server then collects this** data from the sensor server and processes it further to visualise the data and subsequent alerts in the **mobile app** and **web app** (see Figure 1).

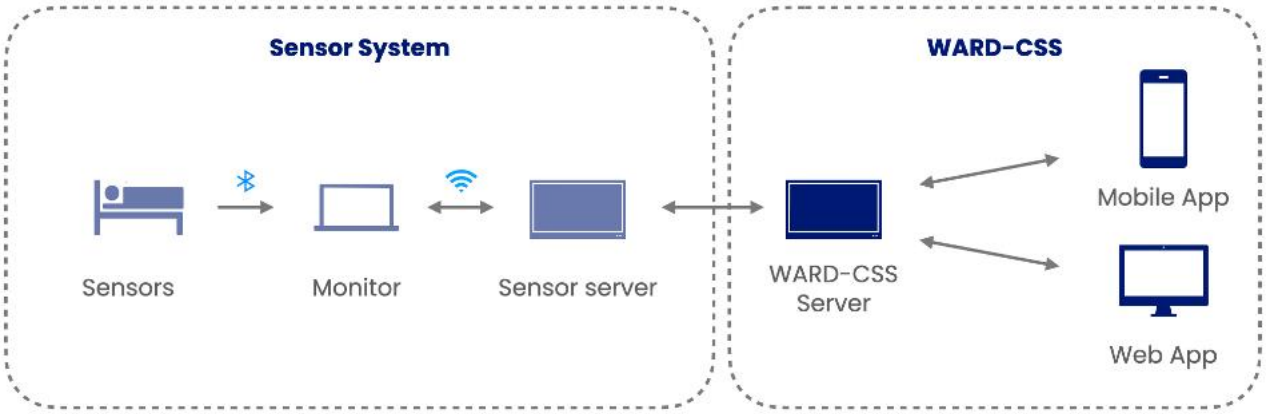


Figure 1: High level overview of WARD-CSS and link to sensor system

3.1.1 Sensor system

	CAUTION: Contact sensor company if you experience problems with the sensors - the accuracy of the vital signs data is the responsibility of the sensor company

	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

WARD-CSS can receive data from any sensor system capable of sending data in HL7 format at the required frequency (*see section: Sensor requirements*), provided the sensor system holds the relevant MDR or FDA certification. As an example, this includes the following sensor systems:

- Isansys Lifecare
- GE Portrait Mobile
- Masimo Patient SafetyNet
- Sotera ViSi Mobile
- Mindray mWear
- CheckpointCare CPC12S
- Caretaker VitalStream
- SmartQare Viqtor
- IMP

The patient will be equipped with wired or wireless sensors to measure standard vital signs continuously (see section: *Sensor requirements*). These sensors will send data through a monitor to a local sensor server. The monitor can be a tablet next to the patient's bed or embedded in the sensors of the patient.

When creating a patient in the WARD-CSS app, you will also need to assign a monitor (see section: *Managing Patients*).

You can find the **monitor** identifier number on the monitor (tablet/sensor). You will need this identifier to be able to connect the created patient in the app with the vital sign data from the sensors.

3.1.2 User Interfaces (mobile app and web app)

	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS

	WARNING: Keep the phone with you to receive alerts and notifications

	CAUTION: ONLY use WARD-CSS according to intended use

WARD-CSS can be used through two different user interfaces, with a lot of the same features, but some different features. The following sections highlight examples of key functionality in each interface:

3.1.2.1 Web App

The web app can be accessed through a standard web-browser, where the local IT department will create a URL. In the web app there is an overview of the patients and current vital signs as well as the trends over time and alerts are also displayed. Alerts can be managed (accepted, silenced, or forwarded) from the web app, and pending notifications are shown in the web app. Push notifications themselves are only sent to the mobile app.

Super users can configure alerting profiles, custom alerts, and message suppression profiles.

The web app can also be used by admin users to create, edit and delete users.

3.1.2.2 Mobile App

In the mobile app it is possible to have an overview of patients, alerts and real-time vital signs. In the mobile app the user will receive notifications if a patient deteriorates or if a sensor is not connected or having battery issues. Alerts can also be managed in the mobile app. Furthermore, it is possible to document vital signs into the electronic medical record and to move one or multiple patients between users or departments.

4 Conditions for use

4.1 Intended use

	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS
	CAUTION: ONLY use medical devices for vital sign monitoring according to intended use
	CAUTION: ONLY use WARD-CSS according to intended use

WARD-CSS is a clinical decision support system that remotely integrates, analyzes and displays continuous vital sign data (via a mobile or web application) from medical vital signs sensors within non-critical care units.

WARD-CSS uses a set of standardized rules based on scientific and clinical evidence to detect and alert on clinically relevant vital sign deviations and changes.

WARD-CSS is not intended to replace current (intermittent) monitoring practices.

4.2 Indications for use

WARD-CSS is indicated for non-paediatric hospitalized patients in non-critical condition.

4.2.1 Contraindications

- Children and adolescent, i.e. patients younger than 18 years of age, are preliminary excluded for precautionary reasons.
- Pregnant and breastfeeding women are preliminary excluded for precautionary reasons.

No other contra-indications to the WARD-CSS software exists, but there may exist sensor-specific contraindications such as allergy to sensor material or condition with pacemaker.

4.3 Target population

WARD-CSS is intended to be used on adult patients continuously monitored by multi-parameter devices.

4.3.1 The rationale for the intended target populations

A relatively broad patient population is intentionally selected due to several reasons:

- State-of-the-art monitoring of vital signs the National Early Warning Score (NEWS) is a standardised, uniform approach generally adopted at European and North American hospitals.
- There exist no clinical rationale for some patient groups having different risk profile for vital sign deviations (such as desaturation and tachycardia) than others. Specific patient groups certainly have different risks for developing a severe complication during hospital admission, but we find no evidence to support that a given vital sign deviation in itself is associated with more severe complications in some patient groups compared to others. There are, however, some conditions that necessitate different vital sign alert thresholds (such as patients with chronic obstructive pulmonary disease or patients with body mass index >=40 kg/m^2), and WARD-CSS can take these conditions into account by configuring alerting profiles (see section: *Alert configuration and customisation*).

4.3.2 Limitations

WARD-CSS is intended to be used on units within hospitals without continuous vital sign monitoring as an adjunct to current monitoring practices.
This means that high-dependency and intensive care units are outside of the scope of WARD-CSS.
Additionally, WARD-CSS is not intended to be used as for the primary monitoring of patients.

4.4 Clinical improvement

WARD-CSS enables the use of continuous monitoring of vital signs in the medical and surgical units.

4.4.1 Continuous monitoring of vital signs

	CAUTION: Contact sensor company if you experience problems with the sensors - the accuracy of the vital signs data is the responsibility of the sensor company

	CAUTION: ONLY use medical devices for vital sign monitoring according to intended use

Patients admitted to hospitals for surgical or acute medical conditions are at high risk of complications, evidenced by the 30% risk for serious adverse events (SAE) within the first 30 postoperative days. One of the underlying reasons behind the failure to rescue is the clinical standard of manual intermittent monitoring with up to 8-12 hour intervals. Manual intermittent monitoring is prone to late detection of deviations and low adherence to escalation protocols.

Continuous monitoring of vital signs shows a potential for reducing these SAEs. Continuous monitoring of vital signs is a new way of monitoring vital signs compared to manual spot readings. With continuous monitoring a single vital signs reading provides less information, than the change over time or the consistent deviation of a vital sign. Therefore, using WARD-CSS changes the way users collect and respond to vital sign deviations.

4.4.2 WARD-CSS clinical benefits and evaluation

WARD-CSS enhances patient safety by enabling better monitoring while making it possible to detect deterioration earlier.

Using basic continuous monitoring induces many alerts (+100 per patient/day) increasing the risk of alert fatigue, where relevant alerts might be ignored. By receiving vital signs data from standard vital sign monitoring devices, WARD-CSS uses clinically modelled algorithms to detect clinical deterioration that may lead to an increased risk of complications.

By displaying the patient’s vital signs in real-time, on a mobile app, healthcare professionals can perform other tasks as they do not need to be physically close to the patient to monitor the patient’s condition.

4.5 Warnings and cautions

4.5.1 General precautions

Users must take the following precautions when using the system:

- The product is to be used only by healthcare professionals.
- The user must be aware to keep login information confidential for others to avoid unauthorised access.
- No modification of the WARD-CSS software is allowed.
- The user must at all times use the medical device in accordance with the intended use.
- The user must have received appropriate and adequate training given by WARD-educated staff.
- The user must read and fully understand the Instructions for Use of the medical devices used in conjunction with WARD-CSS.
- WARD-CSS contains sensitive personal information about patients which must never, in any way, be disclosed to unauthorised persons.

4.5.2 Warnings

	WARNING: For trained healthcare professionals only
	WARNING: DO NOT modify the WARD-CSS software
	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
	WARNING: Assign every patient to an active user to receive alerts and notifications
	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

	WARNING: Keep the phone with you to receive alerts and notifications
	WARNING: To silence an alert of a patient remains the responsibility of the Health Care Professional
	CAUTION: Avoid unauthorised access by keeping login information secret
	CAUTION: ONLY use WARD-CSS according to intended use
	CAUTION: ONLY use medical devices for vital sign monitoring according to intended use
	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS
	CAUTION: Contact sensor company if you experience problems with the sensors -the accuracy of the vital signs data is the responsibility of the sensor company

4.6 Intended user

	WARNING: For trained healthcare professionals only

	CAUTION: ONLY use WARD-CSS according to intended use

	WARNING: Keep the phone with you to receive alerts and notifications

The intended user of the WARD-CSS system is a healthcare professional with the responsibility of measuring and documenting patient vital signs or any other authorised user within the hospital who has undergone training in the system.

The following users are intended to use WARD-CSS:

- WARD Staff: Employees of WARD 24/7.
- External implementation partners and distributors: trained and authorised by WARD 24/7 ApS to support the implementation, configuration and support of WARD-CSS.
- Customer representatives (e.g. IT personnel, technical specialists or project leads): trained users authorised by the healthcare institution to support the installation, integration and administration of WARD-CSS.
- Health care professionals (HCP):
    - Admin: a manager of health care professionals of a unit/department.
    - General user: a health care professional, most often a nurse.

4.6.1 Intended clinical benefits to patients with relevant and specified clinical outcome parameters

WARD-CSS detects clinically relevant vital sign deviations.

4.7 Deterioration alerts

	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Keep the phone with you to receive alerts and notifications
	CAUTION: Contact sensor company if you experience problems with the sensors - the accuracy of the vital signs data is the responsibility of the sensor company

WARD-CSS has 11 alert groups (with one or more alert types per group) to detect patient deterioration - 8 single alert groups and 3 combination alert groups. The alerts have all been validated through a systematic and narrative literature review. All alerts consist of a combination of thresholds and a time duration.

4.7.1 Alerts

Alert class	Threshold	Duration
Bradypnea*	RR less than or equal to 5 bpm AND HR greater than 20 bpm	For at least 1 min.
Tachypnea*	RR greater than or equal to 24 bpm	For at least 5 mins.
Bradypnea and desaturation	RR less than 11 bpm AND SpO2 less than 88%	For at least 5 mins.

Desaturation: • Desaturation 80%* • Desaturation 85%* • Desaturation 88% • Desaturation 92%	• SpO2 less than 80% • SpO2 less than 85% • SpO2 less than 88% • SpO2 less than 92%	• For at least 1 min. • For at least 5 min. • For at least 10 min. • For at least 60 min.
Tachycardia: • Tachycardia 130* • Tachycardia 111	• HR greater than 130 bpm • HR greater than or equal to 111 bpm	• For at least 30 min. • For at least 60 min.
Bradycardia: • Bradycardia 30* • Bradycardia 40	• HR less than 30 bpm • HR less than or equal to 40 bpm	• For at least 1 min. • For at least 5 min.
Hypotension: • Hypotension 91 • Hypotension 70*	• (Median) SBP less than 91mmHg • (Median) SBP less than 70 mmHg	• For two 30-minute periods • For one 30-minute period
Hypertension: • Hypertension 180 • Hypertension 220*	• (Median) SBP greater than or equal to 180 mmHg • (Median) SBP greater than or equal to 220 mmHg	• For two 30-minute periods • For one 30-minute period
Hypotension and tachycardia: • Tachycardia 110 • Tachycardia 130	(Median) SBP less than 100 mmHg AND • (HR greater than 110 bpm OR • HR greater than 130 bpm)	For two 30-minute periods AND • For at least 30 min. • For at least 5 min.
Hypotension and bradycardia	(Median) SBP less than 100 mmHg AND • HR less than 50 bpm)	For two 30-minute periods AND • For at least 30 min.
Fever	T above 38C	For at least 1 min.

Table 1: Alert Specifications

* Cannot be disabled from an alerting profile.

4.7.2 Reissue and prioritisation filter

WARD-CSS has additional alert filters to make sure the staff is not overloaded with alerts. There are currently two alert filters active in the system to lower the amount alerts over time:

- Reissue filter:
    - Definition: this filter does not allow the alert to trigger again for a specific time window called the ‘reissue time’. This filter has mainly been implemented to reduce the amount of alerts when a condition is continuously fulfilled.
    - Example: when a patient has a continuous oxygen saturation below 80% it will only be allowed to trigger again after 5 minutes of not fulfilling the condition.
- Prioritisation filter:
    - Definition: this filter is all alerts with multiple variations, but the general idea is that an alert of lower priority cannot trigger within the reissue time of a higher priority alert. The priority of the desaturation alerts increases with decreasing threshold value (thus the desaturation 80 is of higher priority than desaturation 85).
    - Example: when a desaturation 85 alerts triggers within 5 minutes of a desaturation 80 alert it will not trigger.

4.7.3 Deviation from default alert configuration

The reissue and prioritisation behaviour described above reflects the default, clinically validated alert configuration. Super users can deviate from this default - see section: *Alert configuration and customisation.*

4.8 Alerts and notifications

⚠	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
⚠	WARNING: Ensure sound and notifications are enabled on the phone
⚠	WARNING: Keep the phone with you to receive alerts and notifications

Alerts are shown both in the Mobile App and the Web App. Notifications are only sent to the Mobile App.

An **alert** will be shown in the app if one of the above-mentioned deterioration criteria are fulfilled. If a condition is fulfilled and an alert has been activated, a **notification** will be delivered to the mobile app. An **alert** can be forwarded to another user and thus create more than one **notification.** If a condition persists, it will create a new alert.

In the Mobile App new and active alerts pop up as a red info banner at the top of the screen. This shows the unit/bed number, alert type, and time of the alert. If multiple alerts has been triggered for a patient, this will be indicated in the banner as “+X more alerts”.

In the Web App, active alerts are instead shown by a red outline around the patient in list view, or a red alert icon on the patient box in grid view, and are listed in the Active alerts panel (*see section: Managing alerts in the web app*).

A notification pops up on your mobile phone if you are not in the app. The notification shows the app’s logo, unit/bed number and type of alert. Pressing on the notification will take you directly to the relevant patient.

Alert notification on locked screen in the Mobile App

Image 1: Alert notification on locked screen

Alert in the Mobile app

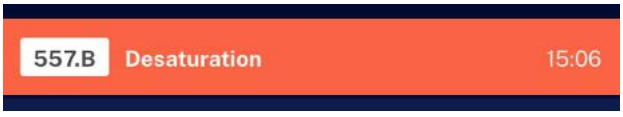


Image 2: Alert banner in the top of the screen in the Mobile app

4.8.1 Managing alerts

⚠	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
⚠	WARNING: Ensure sound and notifications are enabled on the phone
⚠	WARNING: Keep the phone with you to receive alerts and notifications
⚠	WARNING: To silence an alert of a patient remains the responsibility of the Health Care Professional

The following actions are possible when receiving an alert: Accept, Silence and Forward.

Accept:
This means that the user assigned to the patient attends to the patient. This makes the alert inactive and the red info box at the top of the screen disappears. The alert can then be found under the *Alerts* tab on the Overview screen or the *Patient overview* under Alerts. This action changes the colour of the alert to **DARK BLUE.** Select this option only if you plan to attend to the patient. To silence the alert without attending, use the 'Silence' option instead.

Silence:
The silence action temporarily silences that specific alert type for a time window. This action changes the colour of the alert to **PURPLE**. The alert can be silenced to a self-set time, of which every alert has a certain maximum silence time based on clinical safety. To set the silence time, use the slider after selecting 'Silence'. The maximum silence durations are longer for less severe alerts, and shorter when the alert is considered more severe. The alert type cannot trigger again (with accompanying notification) within the set time window. After the time window the alert will switch back to 'active'.

Forward:
The alert is forwarded to a colleague. This means that the notification of the alert is sent to the mobile phone of the colleague, and the patient will also be assigned to that colleague. The patient will then be added to that users list, meaning they will receive any new alert for this patient.

Forwarded alert notification

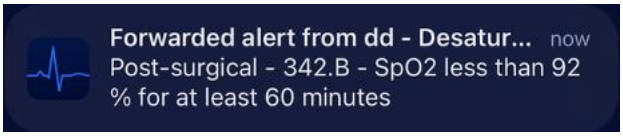


Image 3: Forwarded alert notification

Inactive alert:

If no action is taken on an alert and a new alert of the same type is triggered, the previous alert will become inactive. Once an alert is marked as inactive, it is no longer possible to take any action on it. However, actions can still be taken on the new alert.

Status colours:

An alert can have one of the following colours, based on the status of the alert:

RED: Active alert – alert has not been accepted or silenced.
DARK BLUE: The alert has been accepted or is inactive.
PURPLE: Silenced alert.

An alert will stay active for 4 hours and will disappear after 12 hours.

4.8.2 Notifications

	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Keep the phone with you to receive alerts and notifications

4.8.2.1 Notification center in the Mobile App

All notifications received within the past 24 hours are collected in the Notification Center in the Mobile App. Accessing the Notification Center is done by pressing the bell icon on the landing page. Unread notifications are displayed on the bell as an indicator, which disappears once the Notification Center is opened. Notifications are shown in chronological order, and alert notifications are marked in red.

When a notification occurs, it appears briefly at the top of the screen or on the phone's locked screen. After this, the notification is stored in the Notification Center.

The Notification Center displays different types of notifications:

	Alert notification: Shown when an alert is triggered. Forwarded alerts also generate a notification.
	Patient hand over notification: Shown when a patient is handed over to another user.
	No data notification: Shown if an active session has disconnected (no data received for 10 minutes).
	Battery notification: Shown when a sensor has low battery.

4.8.3 Alert configuration and customisation

The alerts described in section: Alerts (*Table 1: Alert Specifications*) represent the default, clinically validated alert configuration.

Using alerting profiles, super users can deviate from this default by enabling or disabling individual conditional alerts for a hospital, unit, or patient (*see section: Alerting Profiles*), allowing the alert configuration to be tailored to local clinical needs.

However, the following alerts represent conditions of immediate danger to the patient and therefore cannot be disabled, remaining active regardless of the configured alerting profile:

- Bradypnea
- Tachypnea
- Desaturation 80
- Desaturation 85
- Tachycardia 130
- Bradycardia 30
- Hypotension 70
- Hypertension 220

In addition, super users can define custom alerts based on one or more vital sign conditions, with their own thresholds, durations, and reissue settings, extending beyond the standard conditional alerts described above (*see section: Custom Alerts*). Custom alerts only take effect once added to an alerting profile (*see section: Alerting Profiles*).

Alerting profiles and custom alerts are configured in the web app and are restricted to super users. Any deviation from the default validated alert configuration — including disabling alerts and adding custom alerts — is the responsibility of the healthcare institution or department operating the system under that configuration.

4.8.4 Document vital signs

From the patient overview in the app, it is possible to document vital signs directly from the app into the electronic health record. All available vital sign will automatically load with the latest data and the user can fill in additional manual readings (like oxygen supplement and consciousness level) and send the data directly into the electronic health record.

This functionality of the application can be fully customised to the local practices of vital sign documentation. It is possible to modify the list using other parameters (such as pain or urine output).

WARD-CSS also offers the possibility to calculate a score upon the vitals which are documented. If the hospital is familiar with the National Early Warning Score (NEWS), the calculated Early Warning Score can be enabled. The Early Warning Score is based on the National Early Warning Score developed by the Royal College of Physicians, and used on a large scale by nurses in hospitals worldwide. The NEWS is a sum of values given for each vital sign, based on the deviation from the normal range. The more a vital sign deviates from the normal range, the higher the given value. The NEWS score ranges from 0-20. This optional piece of functionality can be modified to local practices as well, so a different score than the NEWS can be shown when documenting the vital signs. See section: *Vitals configuration* for details about configuration.

4.9 Integration and installation

4.10 Integration

	WARNING: DO NOT modify the WARD-CSS software

WARD-CSS is designed for integration and complements existing data channels in the hospital.

WARD-CSS is able to document vital signs into the electronic medical record based upon HL7 or FHIR messaging. WARD-CSS can also escalate alerts to nurse call systems or other hospital systems via HL7 ORU R40 messages

WARD-CSS can enable single sign-on to allow authentication into the app with your hospital credentials. WARD-CSS uses OpenIDConnect to facilitate the single sign-on piece of functionality. WARD-CSS will also integrate with AD feed to create patients more efficient and safe.

WARD-CSS must be installed on a linux server and this must be configured to allow traffic to the electronic medical record and external services for the back-end. Furthermore an integration from the sensor server to the WARD-CSS server must also be configured locally. See section: *System requirements and supported platforms* for more details. WARD-CSS also offers a document specifically related to the IT implementation.

4.11 Sensor requirements

	CAUTION: Contact sensor company if you experience problems with the sensors - the accuracy of the vital signs data is the responsibility of the sensor company

	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

WARD-CSS must be used with a patient monitoring system that provides sensors to measure the patient's vital signs. The following vital signs at minimal frequencies are needed in order to use WARD-CSS:

- Heart rate - once per minute
- Respiration rate - once per minute
- Oxygen saturation - once per minute
- Pulse rate - once per minute
- Temperature - once per minute
- Systolic and diastolic blood pressure - once every 30 minutes

Any sensor system that delivers these vital signs at the specified minimal frequencies and is CE/FDA approved can be used with WARD-CSS. If a vital sign is provided at a higher frequency than specified, it will be downsampled to the required frequency for alerting consistency.

For data aggregation:

- **'Once per minute' values** will be averaged over a 1-minute period if received at a higher frequency.
- **'Once every 30 minutes' blood pressure** will be averaged over a 30-minute period if received at a higher frequency.

This approach ensures consistent input frequencies for all alerts.

4.12 Installation of WARD-CSS

	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications

	WARNING: DO NOT modify the WARD-CSS software

The installation is made up of different components:

- Back-end: The back-end application is installed by the manufacturer on a server.
- Mobile App: The Mobile App must be installed by the IT department. This can be done in the following ways:
    - The manufacturer provides the organisation with an APK file that is installed on the mobile phones.
    - The manufacturer adds the organisation to a private Google PlayStore or AppStore account from where the app can be downloaded and installed.

4.13 Data protection and privacy information

WARD-CSS adheres to internal procedures addressing data integrity, data retention, cyber security, data protection, and GDPR to comply with data protection regulations.

4.13.1 Data storage

Storage of data on the WARD-CSS server is located at the organisation of the end user and protected by their overall IT safety measures. Deletion of storage is the responsibility of the user organisation.

The web app and the mobile app functions as user interfaces and does not store data on phones or computers.

4.13.2 Data governance

The system operates within the infrastructure and environment given by the user organisation. The user organisation is also owner of the data and WARD 24/7 ApS cannot use or distribute data. This will be regulated through a data processing agreement, either as part of the contract or separately, depending on organisational preferences.

WARD 24/7 ApS activities require system maintenance and support which will be done by WARD 24/7 ApS employees via external access or on site and specified in the contract and regulated by the user organisation.

When installing and using WARD-CSS the user organisation takes responsibility for the data processing of personal data within its own environment and under its own policy in relation to national and other relevant regulations. Also, the liability for the data lies entirely with the user organisation.

5 Users and passwords

	CAUTION: Avoid unauthorised access by keeping login information secret

	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS

5.1 User levels and permissions

Users can be managed in the Web App. WARD-CSS has three different user levels.

- **Super User** with super privileges (used by WARD 24/7 ApS staff or by other trained users authorised to access advanced system functions)
- **Admin User** with administrator privileges (used by unit administrators).
- **User** with general privileges (used by healthcare professionals monitoring patients).

The specific permissions for the respective user levels are shown below in Table 2: User permissions:

Functions	`user`	`admin`	`super`
Managing hospitals	✗	✗	✔
Managing units	✗	✗	✔
Managing users	✗	✔[1]	✔
Managing patients	✔[2]	✔[2]	✔
Managing alert actions	✔[3]	✔[3]	✔
Managing usage dashboard	✗	✔	✔
Vitals configuration	✗	✗	✔
Managing alerting profiles/ custom alerts	✗	✗[4]	✔
Managing message suppression profiles	✗	✗[4]	✔
Managing configure settings	✗	✗	✔
Managing patient exports	✗	✗	✔

Table 2: User permissions

1. Only the general user level for the assigned unit can be managed.

2. Only assigned units can be managed.

3. Only patients in assigned units can be managed.

4. Creating and managing profiles at hospital or unit level is restricted to super users. Assigning an existing profile to an individual patient is also available to admin users, via the patient's Edit patient screen or when adding a patient.

5.2 User creation

The username and password for a user can be created by:

- An admin - For example, a managing nurse on the unit or the hospital IT department.
- A super user - This level is for WARD 24/7 ApS staff. An admin user in the hospital can be trained to become a super user, if needed.

Once a username has been created by an admin user or a super user, the new user can log in.

If the user receives a password from the administrator, this can be used - if the user does not receive a password, the user will receive an email containing a link to create a password.

5.3 User and password requirements

	CAUTION: Avoid unauthorised access by keeping login information secret

- Each user must use a unique username that is only accessible to that user.
- Usernames and passwords must not be shared with other users.
- Passwords must contain: at least 8 characters, uppercase letter, lowercase letter, number and symbol.

It is not possible for a user to be logged in to both the Mobile App and the Web App at the same time. If a user tries to log in to one app while logged in to the other app, the user will be logged out of the app they are already logged in to.

6 Status icons in the app

Icon	Meaning
	The patient has not given consent *For clinical research only*
	No user assigned to the patient

	All sensors have sent data in the past 5 minutes and all battery percentages are above 20%
	One or more of the sensors have not received data in the past 5 minutes and/or has a battery percentage below 20%
	No monitor assigned to patient
	No active alerts
	Active alerts
	No monitor assigned to patient

Table 3: Status icons in the app

7 Training requirements

Each user of the app must be trained in its use so that they are able to use the app at the appropriate user level. Training takes place in one of the following ways:

- Super users: must be trained in all functions of the system, including configuration of alerting profiles, custom alerts, message suppression profiles and system settings, and must be informed about the responsibilities and risks of the role.
- Admin users: must be trained in all functions of the system so they are able to train general users.
- General users: must be trained by an Admin user, focusing on patient creation and deletion, managing alerts and sending vital signs to the electronic patient record.

7.1 Training platform for mobile app

Users can be trained through an active learning platform from LeQuest. Users get an invitation to access the training course ‘WARD Clinical Support System’. This course contains three modules:

1. Introduction WARD-CSS
2. Working with the App
3. Alerts, documentation and sensors

Each module contains of different chapters, which will be closed with assessment questions. The learning platform can be accessed at any time and progress will be saved, in order to continue at a later time.

7.2 Training for web app

Users will be trained in the use of the web app through groups sessions by admin users.

8 Instructions for use for WARD-Clinical Support System

8.1 Mobile App

	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
	WARNING: Keep the phone with you to receive alerts and notifications
	CAUTION: Avoid unauthorised access by keeping login information secret

8.1.1 Getting started with the Mobile App

8.1.1.1 Log in to the Mobile App

Go to the app on your phone.

Image 4: Logo of the Mobile App on the phone

⚠	CAUTION: Avoid unauthorised access by keeping login information secret

Log in to the Mobile App

- Enter **Username** and **Password**.
- Select the **Login** button.

Before the first login, you will have received a welcome email with a link to set your password.

When creating a password, it must be at least 8 characters and consist of upper and lower case letters, numbers and symbol. After you have set your password you can login to the mobile app.

After logging in you will be able to select a unit. When you press on a unit you will be taken to the overview screen of the mobile app.

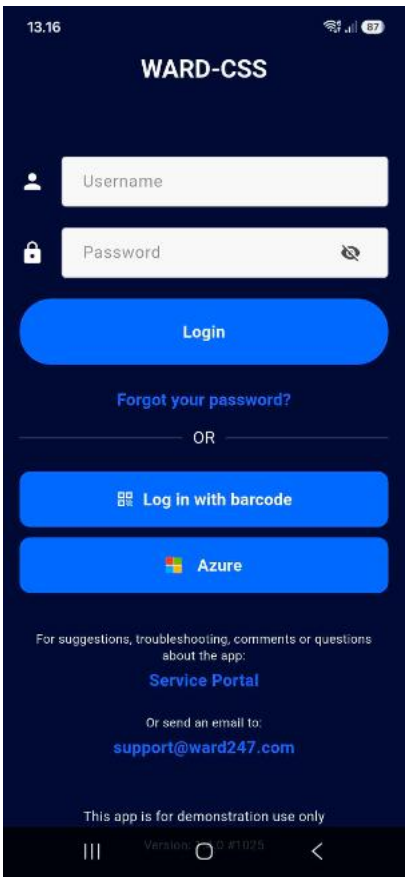


Image 5: Login screen of the Mobile App

Image 6: Select hospital unit after login

Log in with barcode

- Select the **Main menu** (three dashes) in the top left corner.
- Select **Barcode login setup**.
- Follow the instructions in the app by:
    - Selecting **Register barcode**
    - Scanning your ID-card with the mobile phone.
    - Enter and repeat your pin and confirm.

Now you can log in to the app with your ID-card.

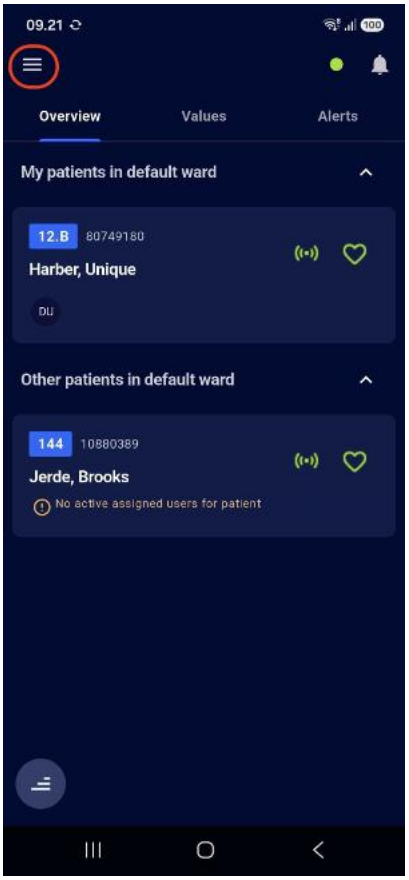


Image 7: Main menu (the three dashes)

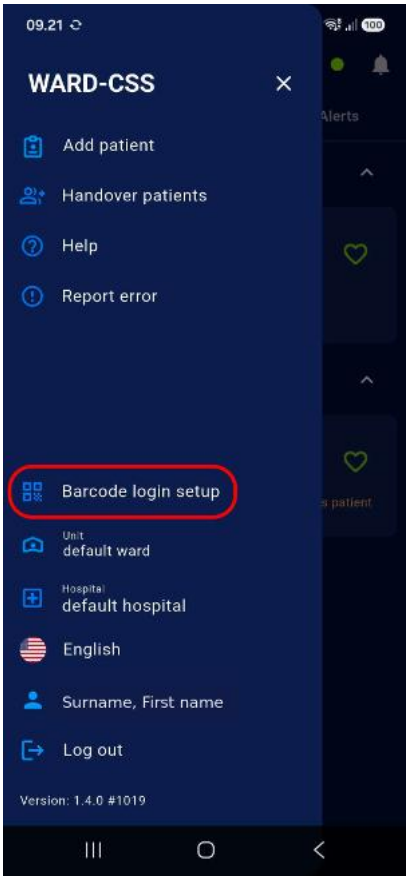


Image 8: Barcode login setup

8.1.1.2 Select language

- Select the **Main menu** (the three dashes in the upper left corner).
- Select **Language.**
- Select the preferred language.

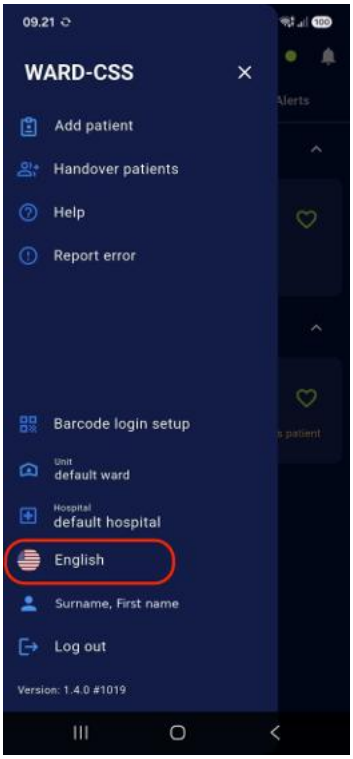


Image 9: Set language

8.1.1.3 Change unit

If you wish to change the unit you are currently working in

- Select the **Main menu** (three dashes).
- Select your current **unit**, to change the unit.

A popup screen will appear with the active units.

- Select the **unit** that is relevant for the shift.

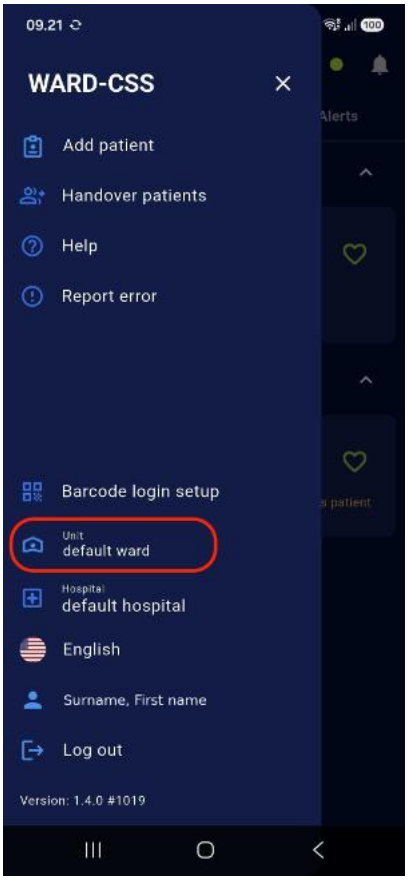


Image 10: Select unit

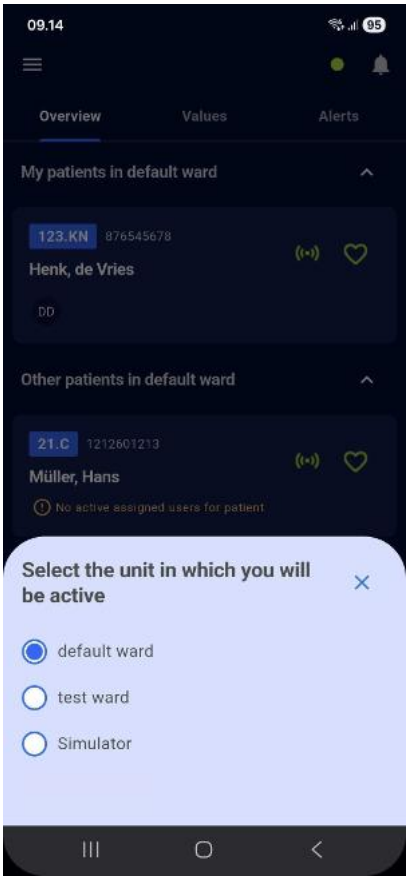


Image 11: Active units will be shown

8.1.2 Managing patients

	WARNING: Assign every patient to an active user to receive alerts and notifications
	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Keep the phone with you to receive alerts and notifications
	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

WARD-CSS can be integrated with the Admission-Discharge-Transfer (ADT) feed of the hospital or data can be directly transferred from the hardware systems. This allows the system to share the information with WARD-CSS, which will allow WARD-CSS to automatically create a patient with the correct information.

The user can add a patient to be monitored by searching in EHR and adding the patient or manually creating a patient.

8.1.2.1 Add patient by searching

- Select **Main menu** (three dashes)
- Select **Add patient**
- Select **Search for patient**

Follow the instruction by either selecting or searching for:

- Medical record number
- Monitor no. (Device ID)

Confirm addition of patient by pressing **Perform**.

Fill in:

- Unit (preselected with your current unit)
- Room and bed (bed is optional)
- If you are an admin or super user, you can select an Alerting profile (optional).
- Select **Add patient**
- Verify the following data to proceed and select **Perform**

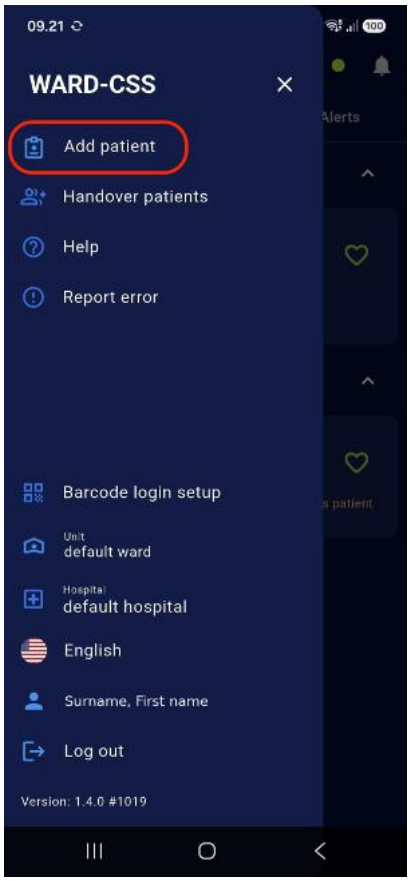


Image 12: Add patient

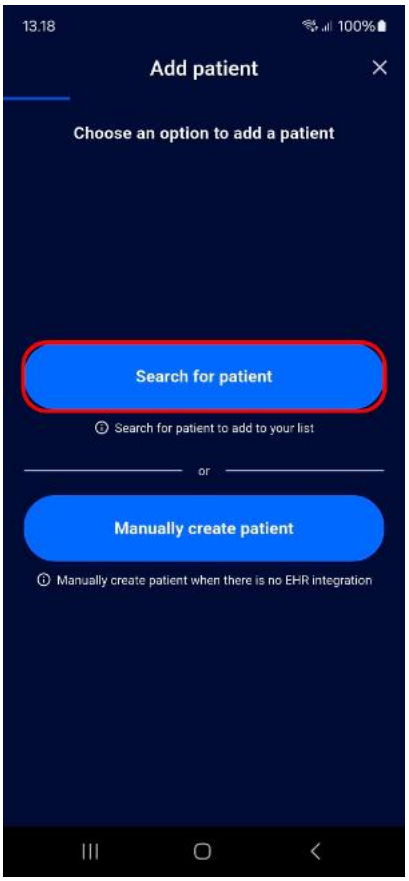


Image 13: Select Search for patient

Image 14: Select or search for a patient to add

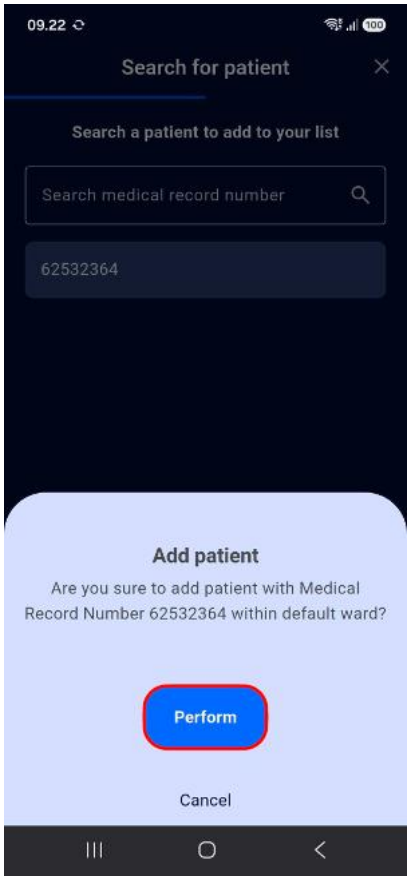


Image 15: Add patient confirmation modal

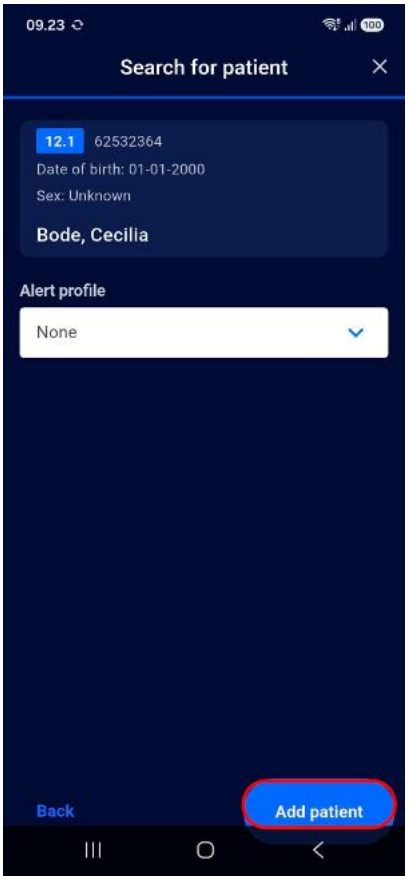


Image 16: Select Add patient

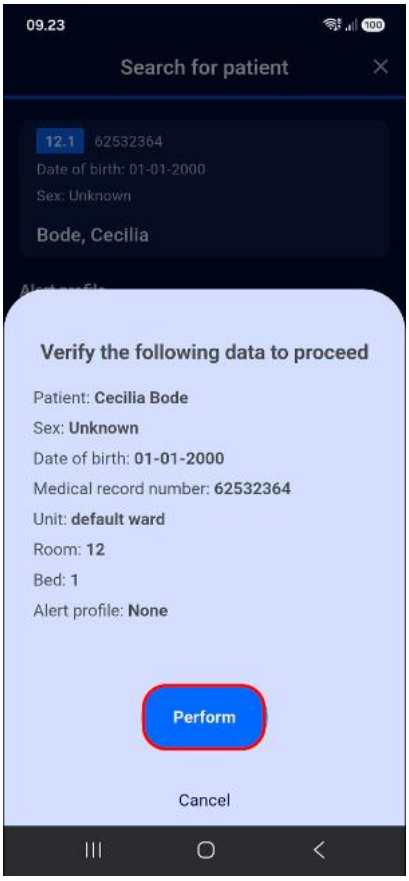


Image 17: Verify data and select Perform (add patient)

The patient will be added to *My Patients* in the *Overview*.

8.1.2.2 Manually create patient

- Select **Main menu** (three dashes)
- Select **Add patient**
- Select **Manually create patient**

Follow the instructions by filling in:

- Surname and First name
- Date of birth
- Sex
- Medical record number
- Monitor no. (Device ID)
- Unit (preselected with your current unit)
- Room and bed (bed is optional)
- If you are an admin or super user, you can select an Alerting profile (optional).
- Select **Add patient**
- Verify the following data to proceed and select **Perform.**

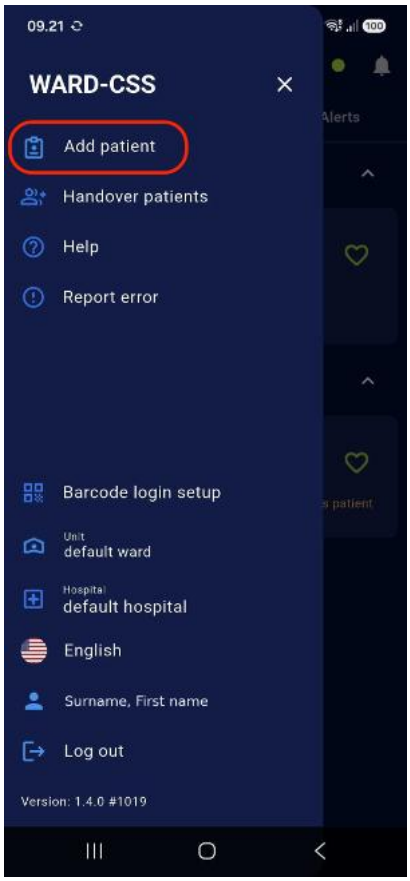


Image 18: Add patient (create patient)

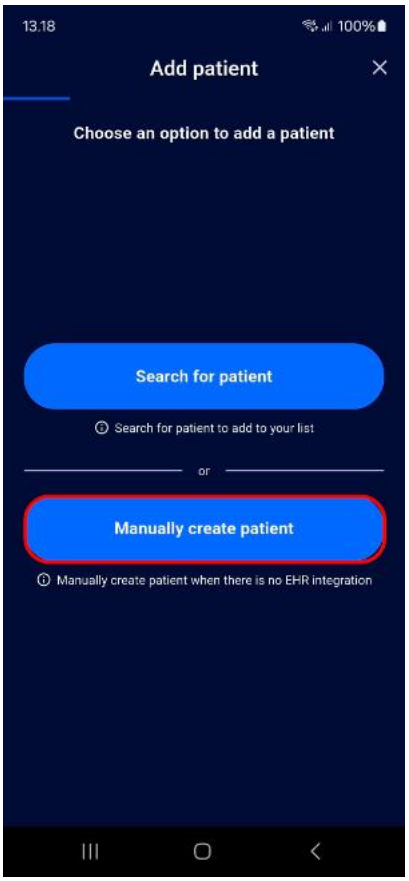


Image 19: Select Manually create patient

Image 20: Insert patient information

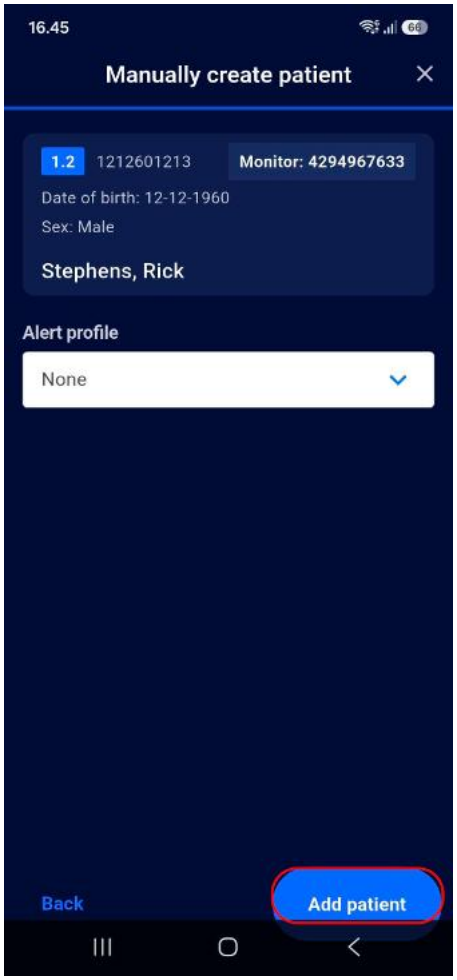


Image 21: Select Add patient

Image 22: Verify data and select Perform (create patient)

When you manually create a patient, the patient is automatically added to *My Patients* in the *Overview*.

8.1.2.3 Edit patient

Here you can change information about the patient.

In the *Patient overview*

- Select the patient's name.
- Select the **Patient menu** to the right (the three dots).
- Select **Edit patient.**
- Edit patient information, scroll down and select **Save.**
- Verify the following data to proceed and select **Perform.**

Image 23: Patient menu

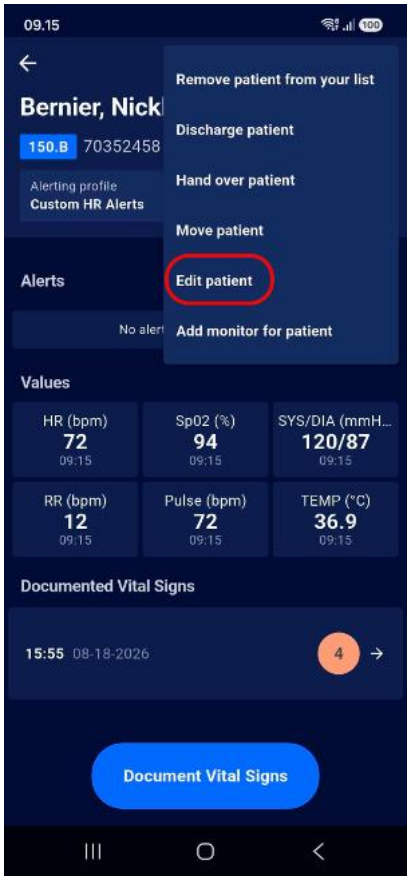


Image 24: Edit patient

Image 25: Edit patient modal

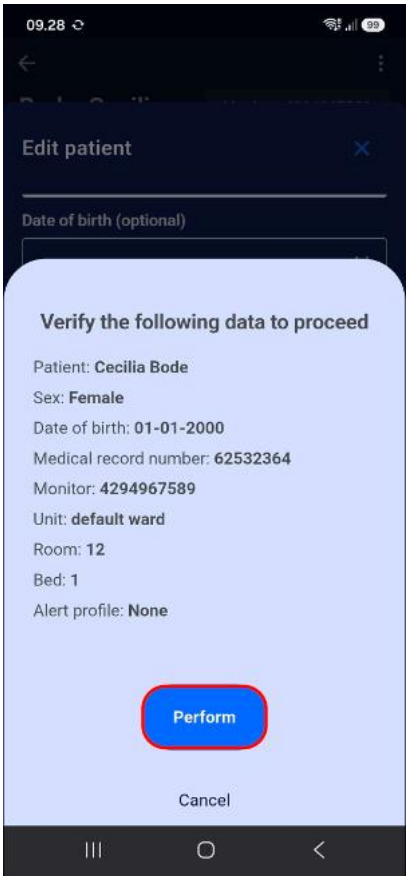


Image 26: Edit patient confirmation modal

⚠	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

8.1.2.4 Add monitor

Go to *Overview*

- Select the **Patient** you want to add a monitor to.
- Select the **Patient menu** to the right (the three dots).
- Select **Add monitor for patient.**
- Select correct **Monitor no.**
- Confirm by pressing **Perform**.

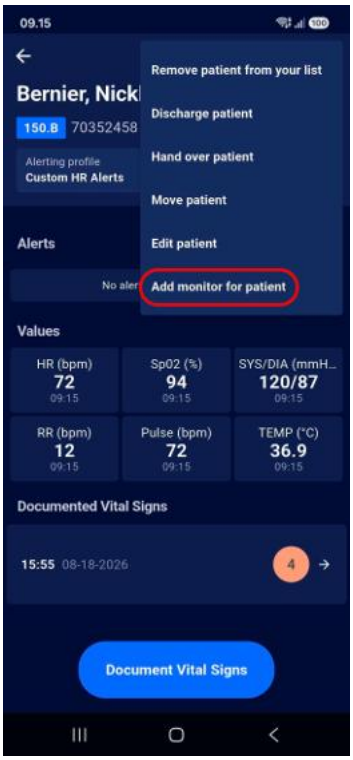


Image 27: Add monitor for patient

⚠	WARNING: Assign every patient to an active user to receive alerts and notifications

8.1.2.5 Assign Patient

If patients are placed under **Other patients in the unit,** they are assigned to another user.

If the warnings message

"No active assigned users for patient"

is shown, the patient is not assigned to user.

This means, that no user will received notification from that patient (see section: *Warnings and cautions*).

- Select the unassigned **Patient**.
- Select the **Patient menu** (the three dots) in the upper right corner.
- Select **Add patient to your list.**

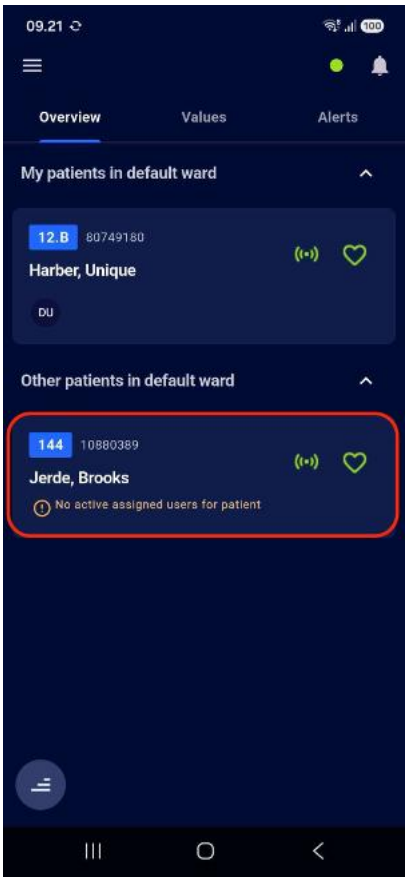


Image 28: Assign Patient

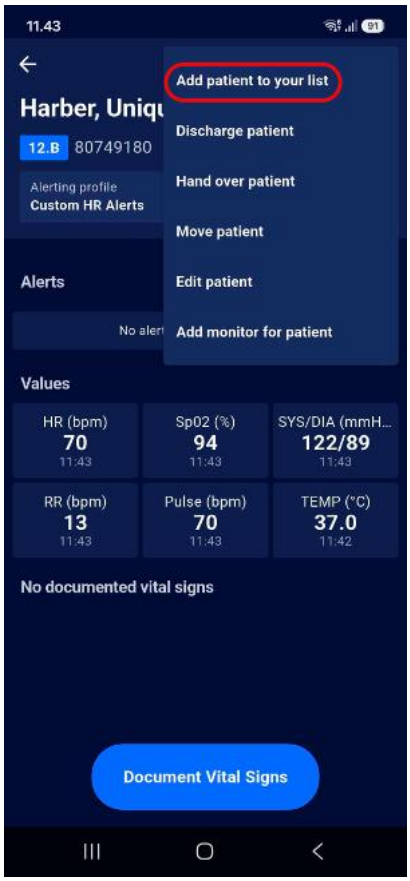


Image 29: Add patient to your list

⚠	WARNING: Assign every patient to an active user to receive alerts and notifications

8.1.2.6 Transfer patient

Go to the *Patient Overview*.
You can transfer a patient by **Move** or **Hand over patient**.

If you hand over the patient, the patient will be assigned to another user (of your choice) in your department. The patient will then be added to that users list, meaning they will receive any new alert for this patient.

If you move a patient, the patient will be moved to another department/unit of your choice and that department/unit must assign the patient to a user.

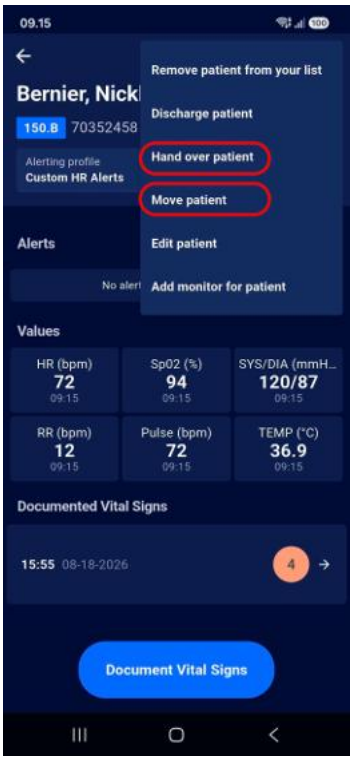


Image 30: Transfer patient

Hand over patient

- Select **Patient menu** (the three dots) in the upper right corner.
- Select **Hand over patient**.
- Select the user you want to transfer the patient to and press **Hand over patient**.
- Select **Perform.**
- A notification will be sent to the selected user, and the patient will be placed in that user's list.

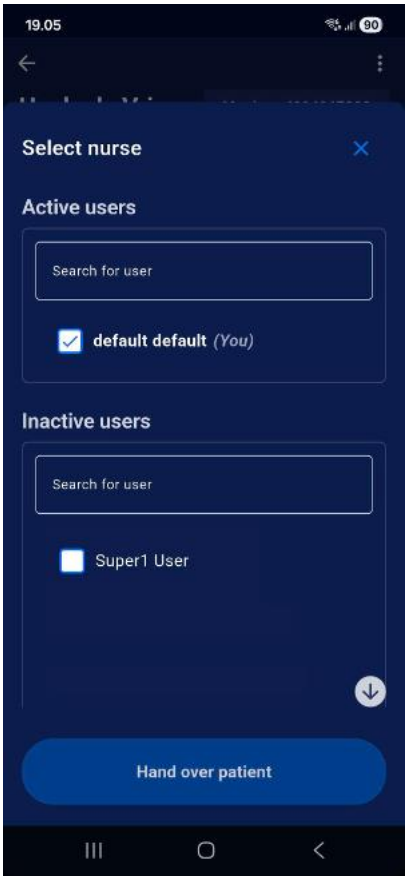


Image 31: Select user for hand over

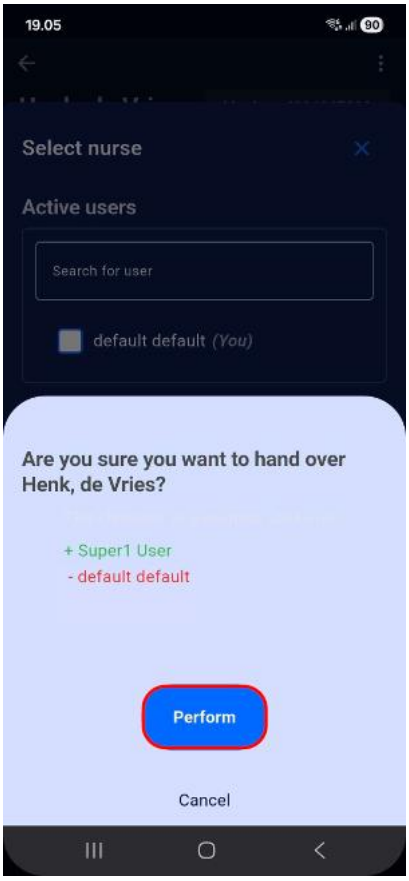


Image 32: Hand over patient confirmation modal

Hand over multiple patients

- Select **Main menu** (three dashes).
- Select **Handover patients.**
- Step 1: Select the checkbox for each patient to hand over, or search for a patient, and select **Continue.**
- Step 2: Select the checkbox for the target user to hand the patients over to, or search for a user, and select **Submit handover.**

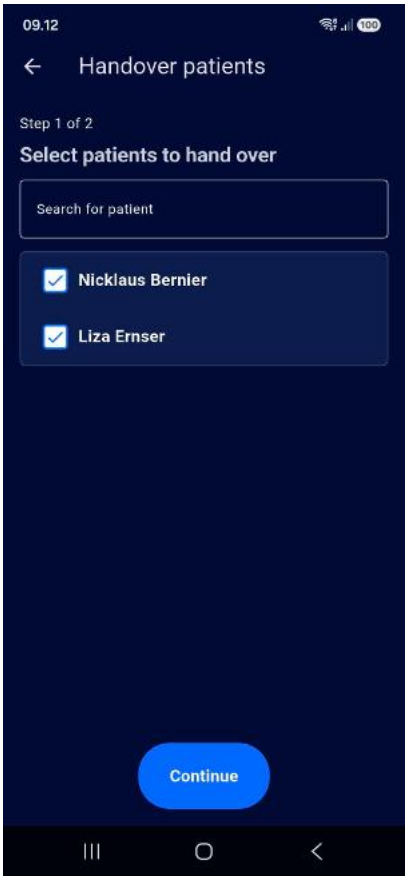


Image 33: Handover multiple patients

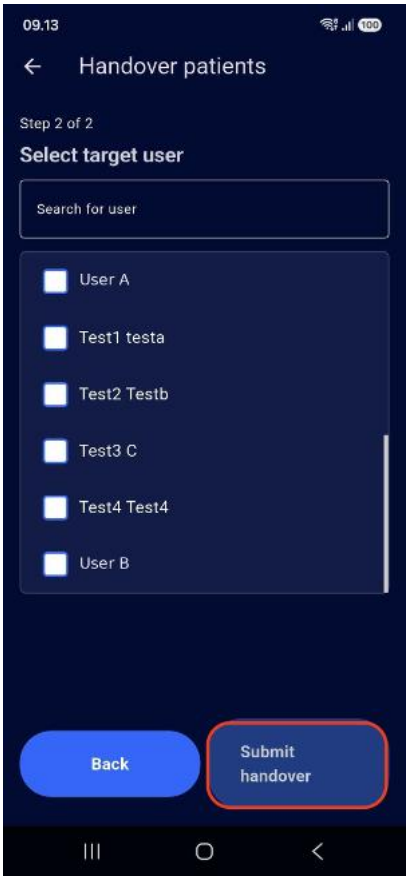


Image 34: Select user for handover

Move patient to another unit

- Select **Patient menu** (the three dots) in the upper right corner.
- Select **Move patient**
- Select the hospital unit (and enter new room and bed number) you want to move the patient to.
- Select **Perform**

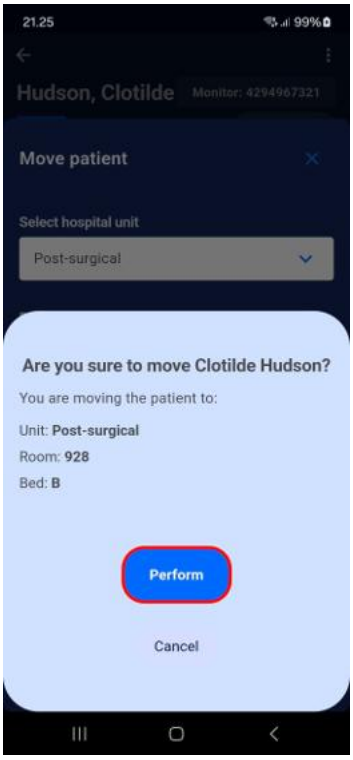


Image 35: Move patient confirmation modal

8.1.2.7 Discharge Patient

Go to the *Patient Overview*.

- Select **Patient menu** (the three dots) in the upper right corner.
- Select **Discharge patient** and confirm by pressing **Discharge patient**.

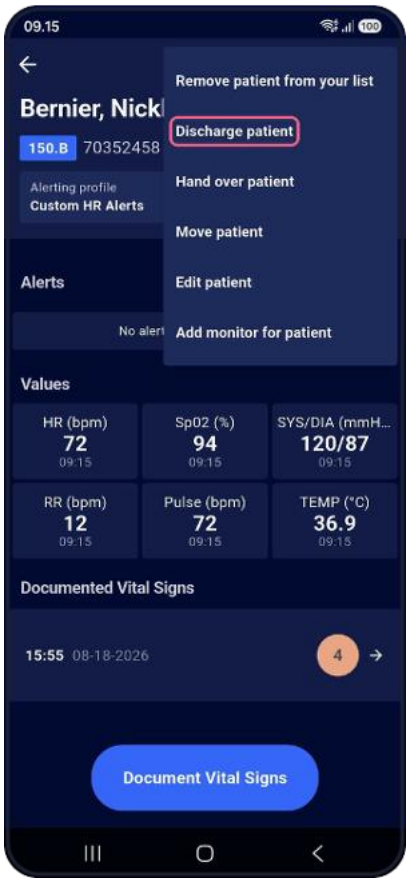


Image 36: Discharge patient

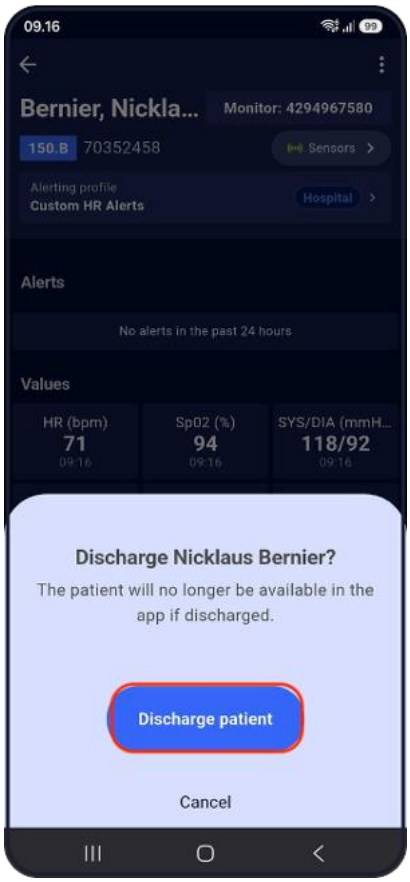


Image 37: Discharge patient confirmation modal

⚠	WARNING: Assign every patient to an active user to receive alerts and notifications

8.1.2.8 Remove patient from My patients

In the Patient O*verview*

- Select the patient in question.
- Select **Patient menu** (the three dots) in the upper right corner.
- Select **Remove patient from your list**.
- Confirm the selection by pressing **Remove patient.**

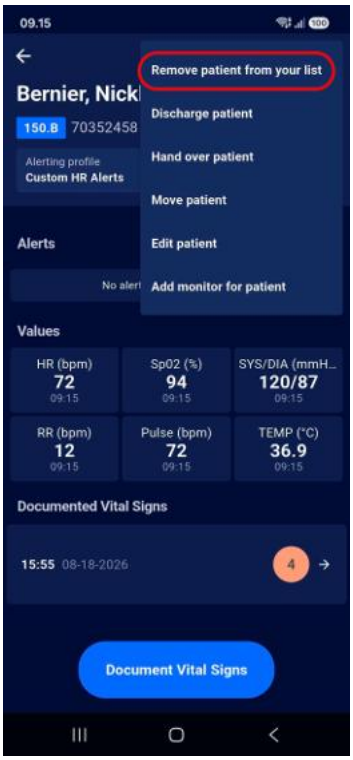


Image 38: Remove patient from your list

8.1.3 Overview

8.1.3.1 Overview in the Mobile App

When you log in, the *Overview* opens. This is the main screen of the app. This page also opens after logging in.

This page shows an overview of patients in your assigned unit divided into:

1. My patients
    a. patients assigned to you, including:
        i. patients handed over to you.
        ii. patients with alerts forwarded to you.
2. Other patients in the unit
    a. patients that are not assigned to you.

Sorting patients

- Select the sort icon in the bottom-left corner to open Patient sorting, where you can choose Ascending or Descending order and sort by Last name, First name, Medical Record Number, or Room/ Bed.

Connection status

- A green dot in the top right corner indicates the connection status. Select the green dot to open Connection status, showing whether the app is receiving live updates (Web Socket) and whether the phone can receive push notifications (Notification Service).

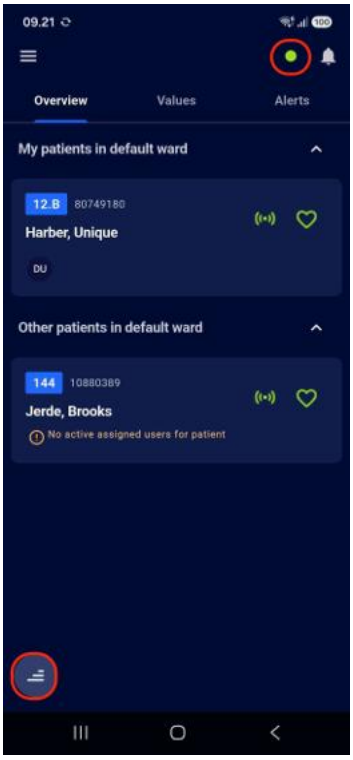


Image 39: WARD-CSS overview (main screen) Mobile App

8.1.3.2 Notification Center in the Mobile App

All notifications received within the past 24 hours are collected in the Notification Center.
New notifications are indicated on the bell icon. Press the bell to open the Notification Center. This removes the unread indication.
Notifications are listed in chronological order, and red notifications indicate alerts.
Press a notification to open the relevant alert or patient.

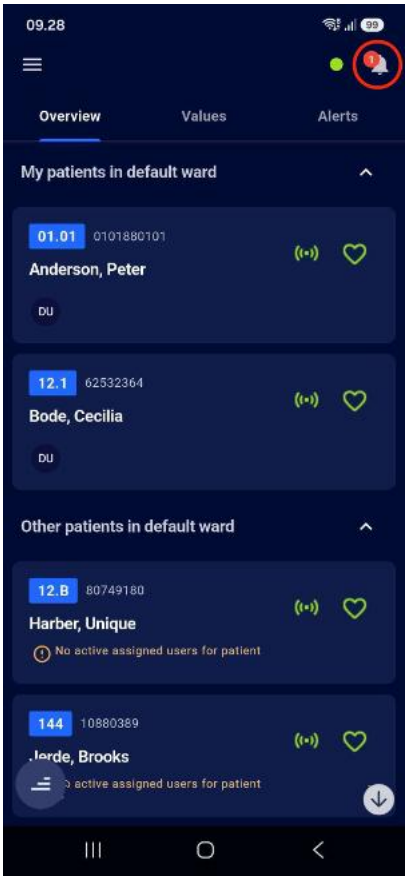


Image 40: Bell icon on the Mobile App

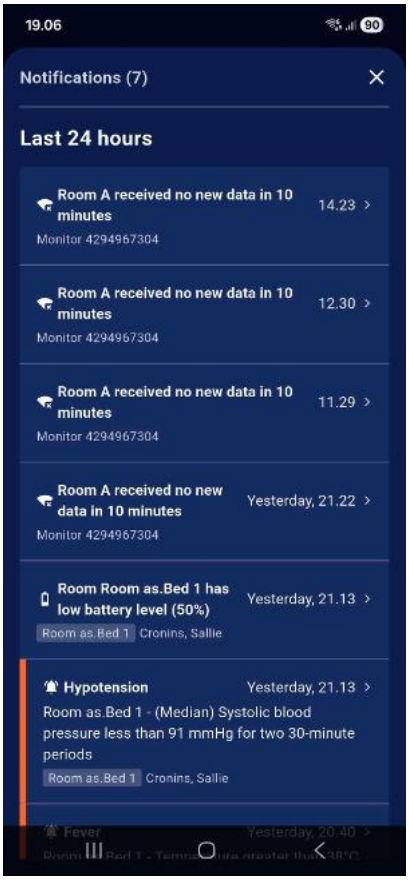


Image 41: Notification Center

8.1.4 Values view

8.1.4.1 Real-time values

Values

The second tab shows the latest measured vital signs for each patient, divided into:

- **My patients**
- **Other patients in the unit**

If the vital sign is older than five minutes, the text color changes to **orange** and the clock icon and the time of the last reading are displayed below the vital sign.

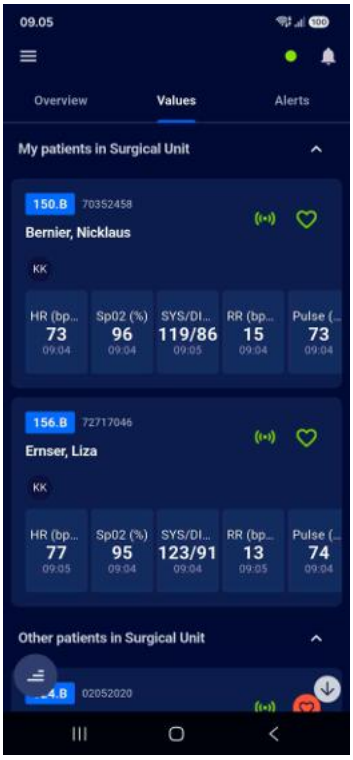


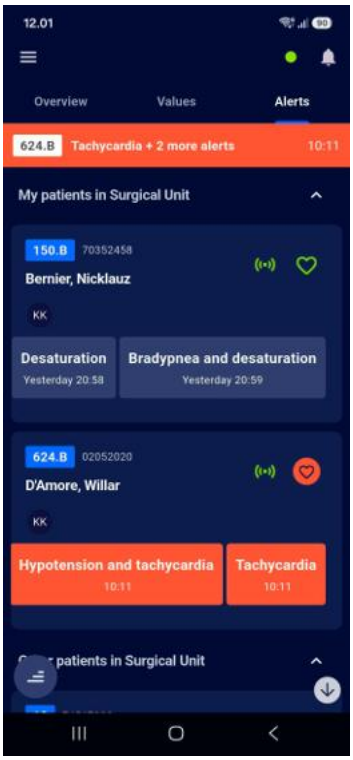
Image 42: Patient Values

8.1.5 Alert view

⚠	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
⚠	WARNING: Ensure sound and notifications are enabled on the phone
⚠	WARNING: Keep the phone with you to receive alerts and notifications
⚠	WARNING: To silence an alert of a patient remains the responsibility of the Health Care Professional

8.1.5.1 Alerts

The third tab shows the active and previous alerts for each patient, divided into *My patients* and *Other patients in the unit (see Image 43)*. When you have selected an alert you have three following actions:



Accept:
This means that the user assigned to the patient attends to the patient. This makes the alert inactive and the red info box at the top of the screen disappears. The alert can then be found under the *Alerts* tab on the Overview screen or the *Patient overview* under Alerts. This action changes the colour of the alert to **DARK BLUE.** Select this option only if you plan to attend to the patient. To silence the alert without attending, use the 'Silence' option instead.

Silence:
The silence action temporarily silences that specific alert type for a time window. This action changes the colour of the alert to **PURPLE**. The alert can be silenced to a self-set time, of which every alert has a certain maximum silence time based on clinical safety. To set the silence time, use the slider after selecting ‘Silence’. The maximum silence durations are longer for less severe alerts, and shorter when the alert is considered more severe. The alert type cannot trigger again (with accompanying notification) within the set time window. After the time window the alert will switch back to ‘active’.

Image 43: Alerts view

Forward:
The alert is forwarded to a colleague. This means that the notification of the alert is sent to the mobile phone of the colleague, and the patient will also be assigned to that colleague. The patient will then be added to that users list, meaning they will receive any new alert for this patient.

Image 44: Alert status icons

For more information see *Managing alerts*.

8.1.6 Patient overview

When you select an alert or a patient, the *Patient overview* opens. This is a detailed overview of patient information, vital signs and alerts.

The following details are shown for the patient in the Overview:

1. Name
2. Room and bed
3. Medical Record Number
4. Monitor number
5. Sensor status
6. Alerting profile (and the level it is applied from: hospital, unit, or patient)
7. List of alerts
8. Vital signs

Select the alerting profile to see the list of suppressed and added alerts.

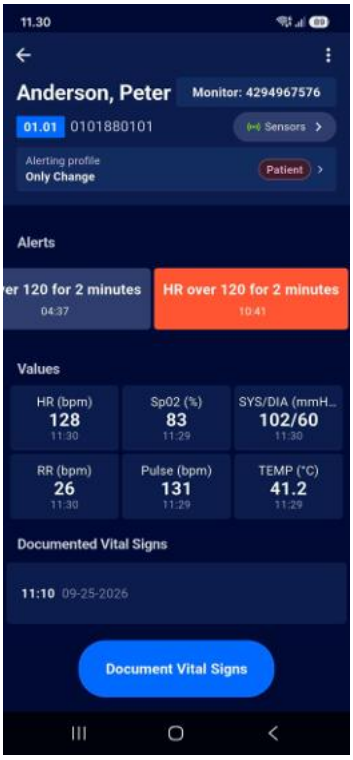


Image 45: Patient overview

8.1.6.1 Graphs for historical values

When you press one of the real-time the vital values, an overview will open with a visualisation of both real-time and historical values as trend data. The previous values are displayed in a graph as trend data containing the historical vital signs. Alerts are displayed on the x-axis as red dots.
Here you can do the following actions:

- See at what time an alert was triggered, and check what vital value triggered it.
- Show multiple trend data graphs at the same time: Press on a vital value to add it to the overview graph, or press again to delete it from the overview.
- Scroll through the chart to a specific time, hold your finger for one second on the graph and drag the white dotted line to the right or left.
- Select to see either the last 1 hour, 2 hours, 6 hours, 12 hours or everything.
- Zoom into the data and pan (move) the timeframe.

The last measured value for the respective vital sign is displayed to the right of the chart. If data is missing, it will be stated in the respective vital sign box.

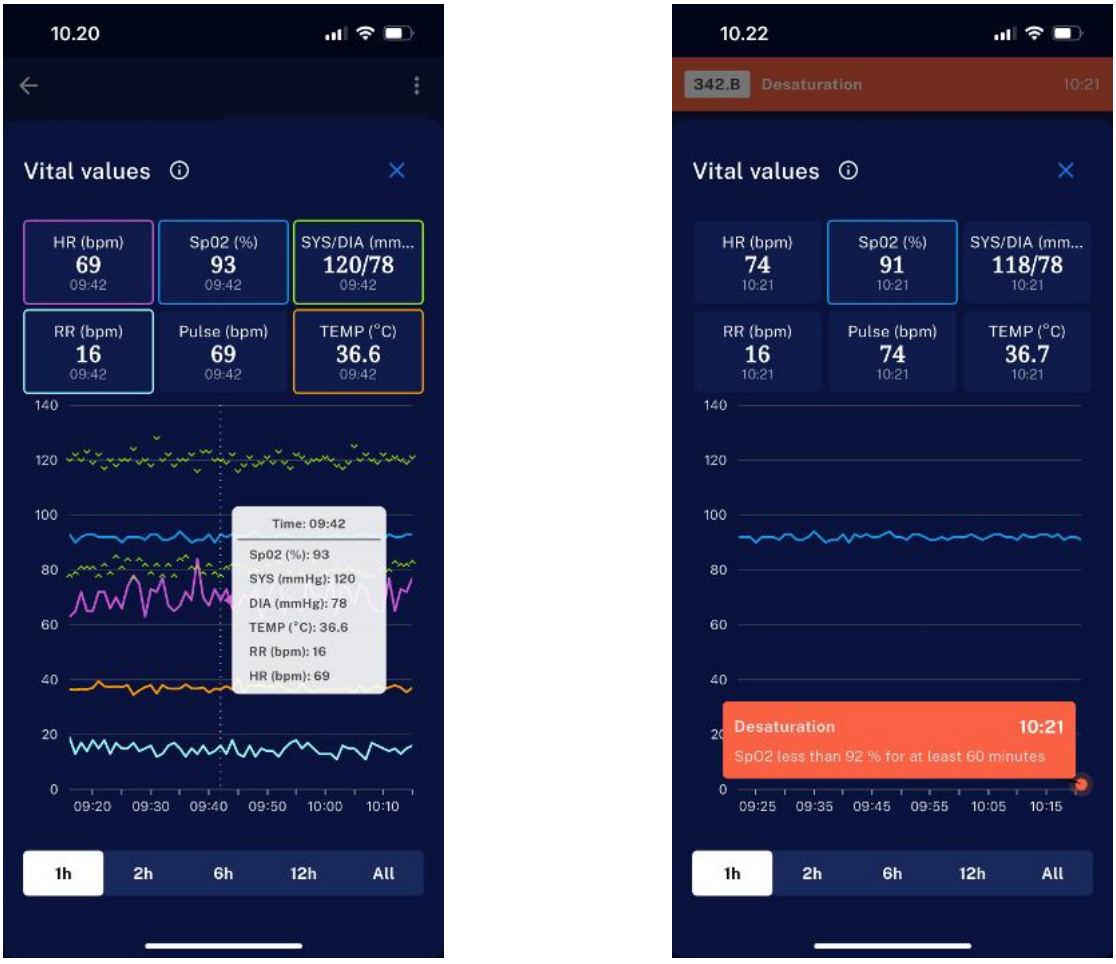


Image 46: Graphs for historical values

Image 47: Historical trend data including indication of alert

8.1.7 Document vital signs

Document vital signs to the electronic medical record

- Select the **Patient** in question and enter the Patient Overview.

At the bottom of the screen

- Select **Document Vital Signs** and a modal opens.

Image 48: Document vital signs

Enter and edit vital signs

Enter and edit vital signs for documentation.

The last recorded values will be shown in the fields.

- Verify that the listed values are correct.
- Edit any pre-filled vital sign, if needed. When the documented vital signs are shown in the electronic medical record, the value will be marked as edited.
- Fill in any other fields (depending on your local practices), such as supplemental oxygen or level of consciousness.
- **Add a comment** if needed.
- Scroll down and swipe right to approve and send the values to the electronic medical record.

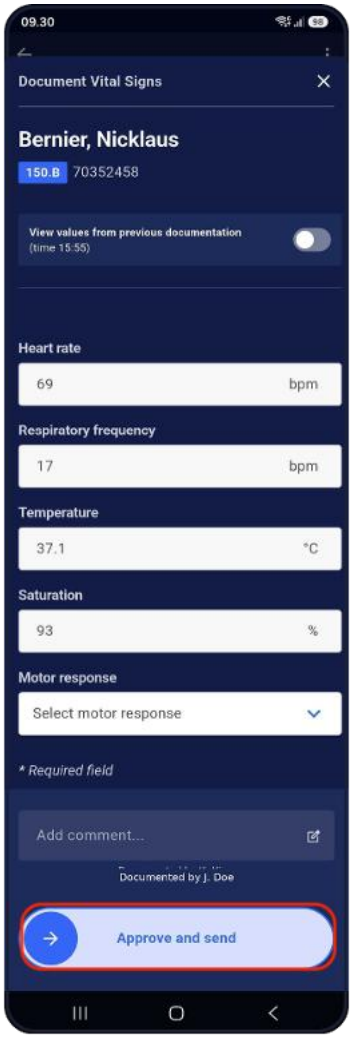


Image 49: Approve and send vital signs for documentation

Documented vital signs

The documented vital signs are now shown with the timestamp of the documentation and the user.

It is possible to have an EWS score calculated from each vital sign together with a total score in the bottom. This score can be customised to local practices.

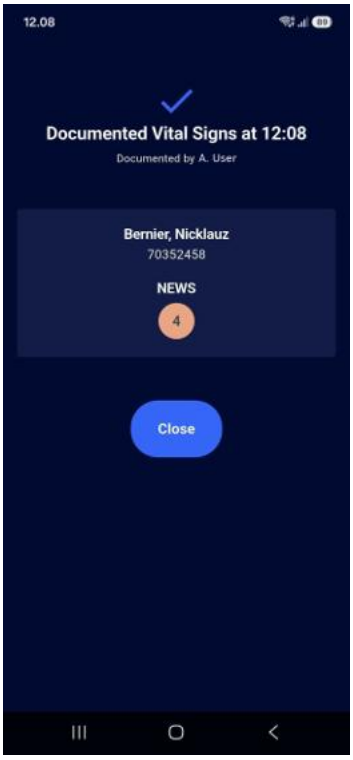


Image 50: Documented vital signs with EWS score

History of documented vital signs

At the bottom of the *Patient overview* you will see *Documented Vital Signs*. By pressing on time and date, the documented vital signs, an EWS for each individual value and an overall EWS score are displayed. See Image 51.

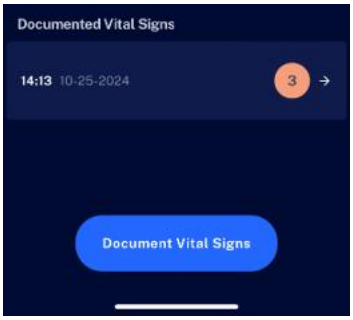


Image 51: History of documented vital signs with EWS score

8.1.8 Managing alerts

⚠	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
⚠	WARNING: Ensure sound and notifications are enabled on the phone
⚠	WARNING: Keep the phone with you to receive alerts and notifications
⚠	WARNING: To silence an alert of a patient remains the responsibility of the Health Care Professional

You can see and access the alerts from the patient overview, where the alerts will be shown as a banner in the top of the screen or from the alert view, where all alerts for patients will be shown.

You can manage an alert from the A*lerts* tab or from the *Patient overview* by pressing on the alerts you want to manage. The following actions are possible:

- Accept:
  This means that the user assigned to the patient attends to the patient. This makes the alert inactive and the red info box at the top of the screen disappears. The alert can then be found under the *Alerts* tab on the Overview screen or the *Patient overview* under Alerts. Select this option only if you plan to attend to the patient. To silence the alert without attending, use the 'Silence' option instead.
- Silence:
  The silence action temporarily silences that specific alert type for a time window. This action changes the colour of the alert to **PURPLE**. The alert can be silenced to a self-set time, of which every alert has a certain maximum silence time based on clinical safety. To set the silence time, use the slider after selecting ‘Silence’ (See Image 52a). The maximum silence durations are longer for less severe alerts, and shorter when the alert is considered more severe. The alert type cannot trigger again (with accompanying notification) within the set time window. After the time window the alert will switch back to ‘active’.

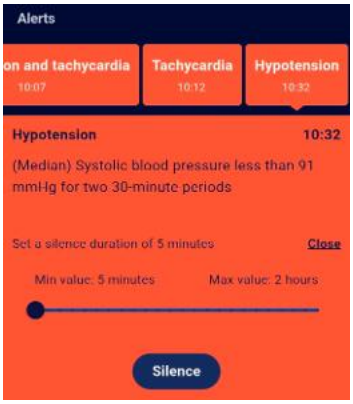


Image 52a: Silencing an alert

Image 52b: Silenced alert

- Forward:
  The alert is forwarded to a colleague. This means that the notification of the alert is sent to the mobile phone of the colleague, and the patient will also be assigned to that colleague. The patient will then be added to that users list, meaning they will receive any new alert for this patient.

Inactive alert:

If no action is taken on an alert and a new alert of the same type is triggered, the previous alert will become inactive (see Image 52e). Once an alert is marked as inactive, it is no longer possible to take any action on it. However, actions can still be taken on the new alert.

RED: Active alert (see Images 52a and 52d).

PURPLE: Silenced alert (see Image 52b).

DARK BLUE: The alert has been accepted (see Image 52c) or is inactive (see Image 52e).

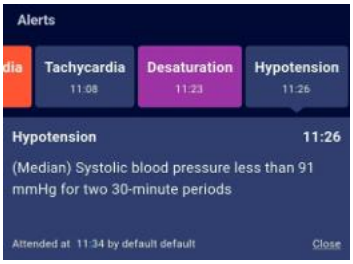


Image 52c: Accepted alert

Image 52d: Forwarded active alert

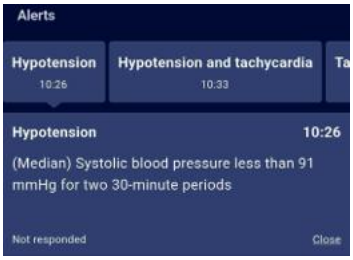


Image 52e: Inactive alert

8.1.9 Sensor connection

⚠	CAUTION: Contact sensor company if you experience problems with the sensors -the accuracy of the vital signs data is the responsibility of the sensor company

⚠	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

From the *Patient Overview* page

- Select **Sensors** in the upper right corner.

This opens a popup with information about sensor connectivity and battery status.

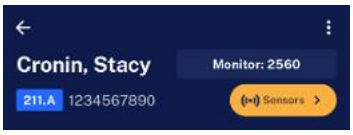


Image 53: Sensor connection

Next to each sensor, the battery status is displayed as a percentage, a time and a colour code.

The colour **orange** indicates that the sensor is not delivering data in the last 5 minutes or a battery is low.

The colour **green** indicates optimal connectivity.

The time indicates the time of the latest data from the sensor.

Select **Remove monitor from the patient** and confirm in the dialog to remove the active monitor.

To close the pop-up, press the cross in the top right corner. You will then return to the *Patient Overview*.

If no sensors have received data for 10 minutes, the system will send out a notification to the user assigned to the patient.

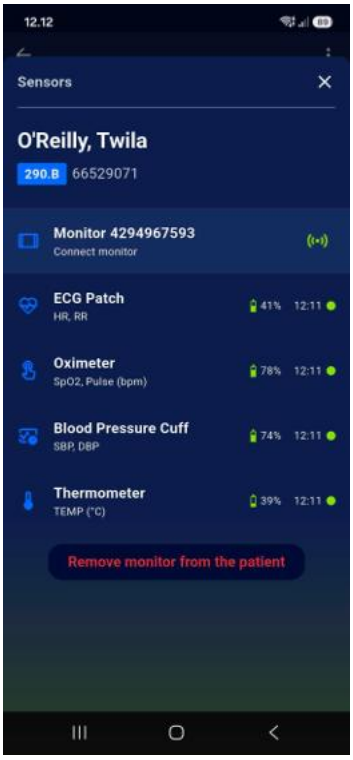


Image 54: Sensor status

8.1.10 Log out of the Mobile App

Go to *Overview*.

- Select **the three dashes** in the upper left corner.
- Select **Log out** at the bottom of the screen.

Automatically logout

After 8 hours your account will automatically be logged out.

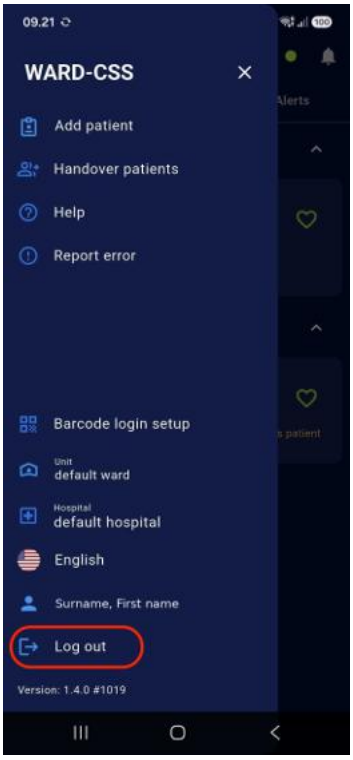


Image 55: Log out

8.1.11 Safety Mode

Safety Mode is a protective feature of WARD-CSS that activates automatically when it detects a malfunction or unusual activity that could pose a potential security risk.

This feature is designed to ensure the security and integrity of your data.

When Safety Mode is activated, you will be unable to use the app and an information banner will appear to notify you (Image 56).

If the app switches to Safety Mode, you must contact your system administrator for further information.

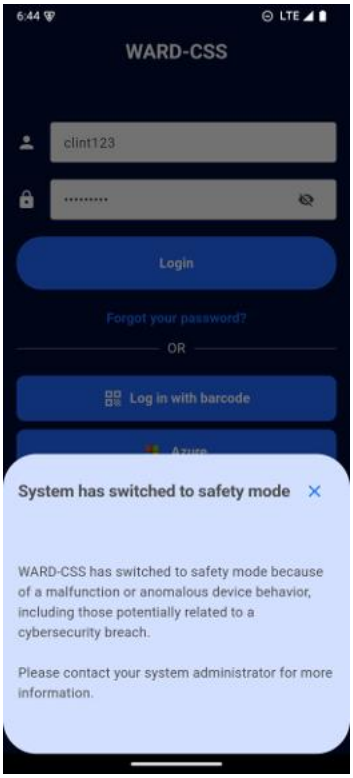


Image 56: Safety Mode

8.2 Web App

8.2.1 Getting started with the Web App

⚠	CAUTION: Avoid unauthorised access by keeping login information secret

⚠	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS

8.2.1.1 Log in to the Web App

Go to the designated URL of the Web app.

- Enter **Username** and **Password.**
- Press the **Login** button

Before the first login, you will either have received a password creation e-mail or temporary code.

When creating a password, it must be at least 8 characters and consist of upper and lower case letters, numbers and a symbol.

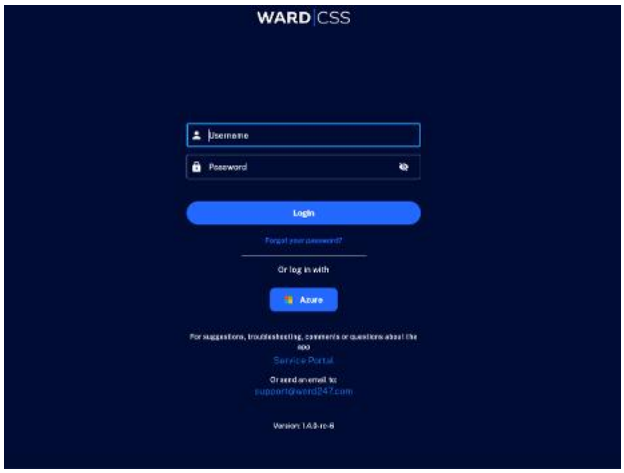


Image 57: Login screen of WARD-CSS

8.2.1.2 Select Language

Select your name in the upper right corner.

- Select the **Language**
- Select your preferred language

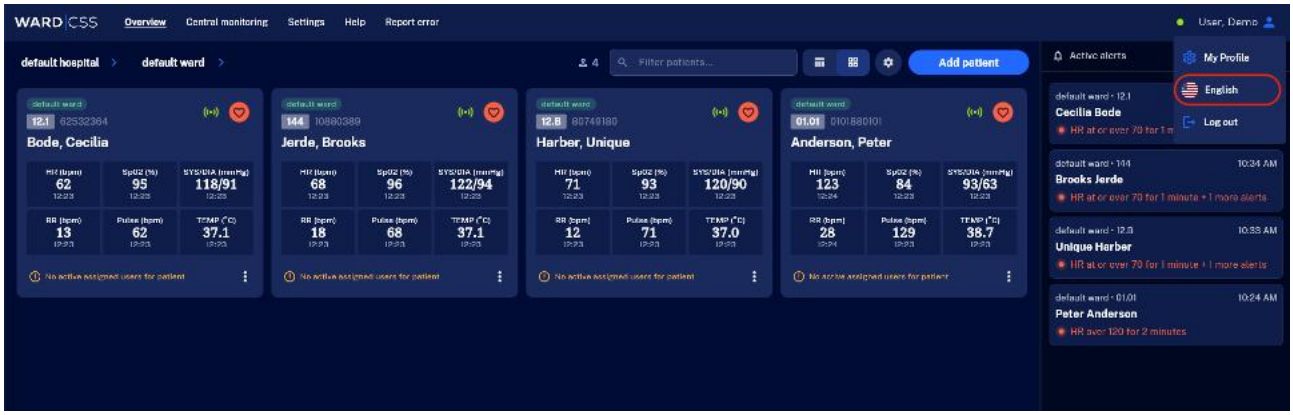


Image 58: Select language in the Web App

8.2.2 WARD-CSS Overview (Main screen)

When you log in, the *Overview* (see Image 59) opens. Here you can see all patients connected to WARD-CSS at your assigned hospital and selected unit or units.

In the top bar you will see *Overview* (main screen), *Central monitoring*, *Settings, Help and Report an error*.

Under *Settings* you will find *Hospitals, Units, Staff, Archived users, Discharged patients, Usage dashboard, Vitals configuration, Alerting Profiles, Message Suppression Profiles, Configure settings and Patient exports.*

Under *Help* you will find instructions for use and an explanation of icons.

Under *Report error*, you can access the *Service Portal* and report an error or get some kind of other support.

Patients are visible in both the Web App and the Mobile App.

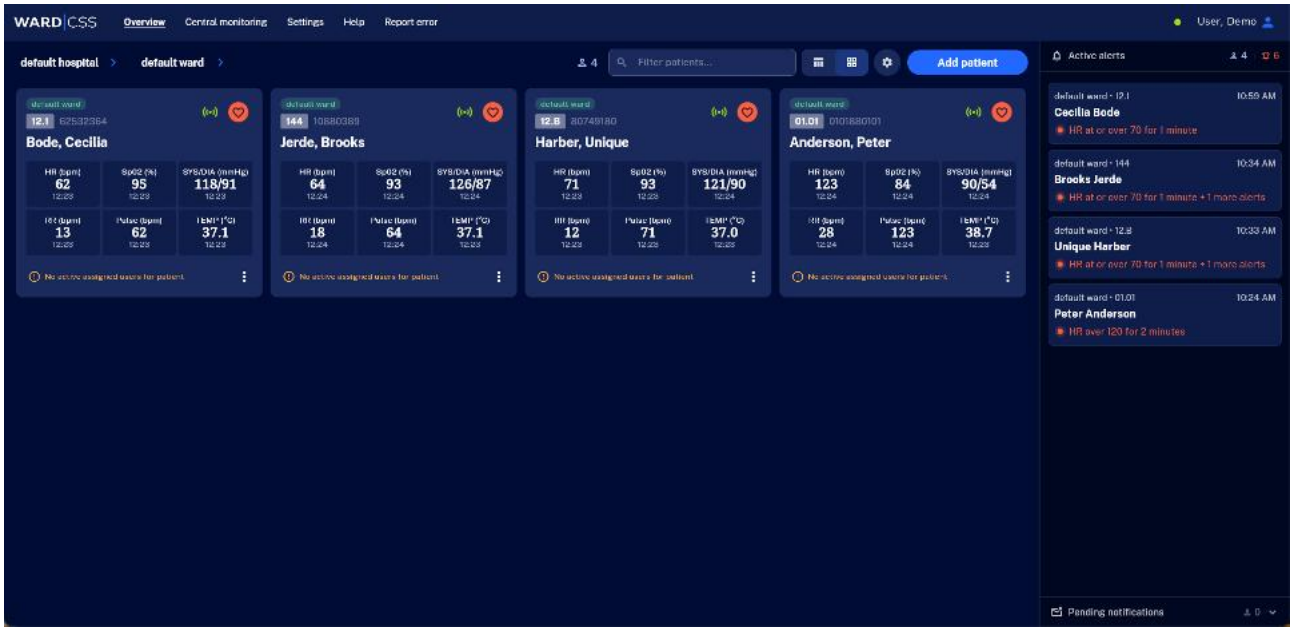


Image 59: WARD-CSS Overview (Web App)

The Overview can be customised in several ways: displaying multiple units together, switching between grid and list view, sorting patients, and choosing which vital signs are shown.

8.2.2.1 Visualising multiple units

From the *Overview*, you can display patients from multiple units within your selected hospital.

- Select your hospital
- Select the name of your current unit (or select a unit if none is chosen) to open the list of available units.
- Tick the box next to the units you wish to display simultaneously.

The patients from the selected units will now appear together in a single combined list or grid in the Overview. Each patient's unit is shown on their patient box in grid view, or in the Unit column in list view.

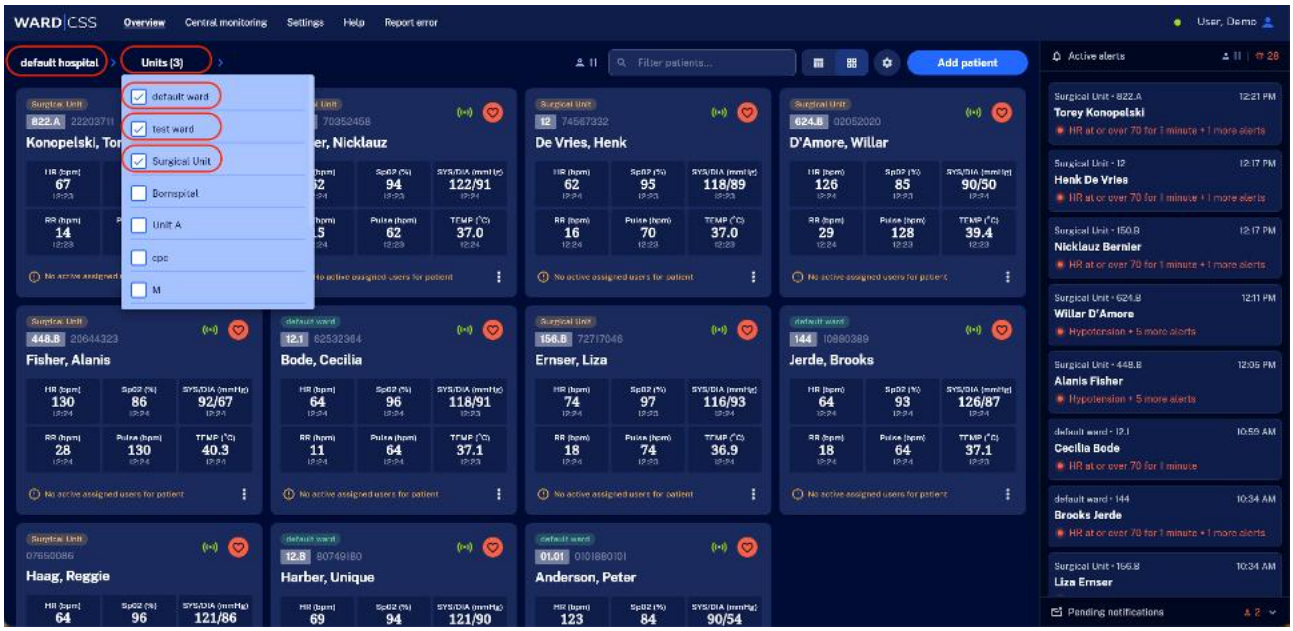


Image 60: Visualising multiple units in the Overview.

8.2.2.2 Filter or search for patients

Enter a search term in the Filter patients field to show only patients matching the search by patient name, Medical Record Number, room/bed, or unit.

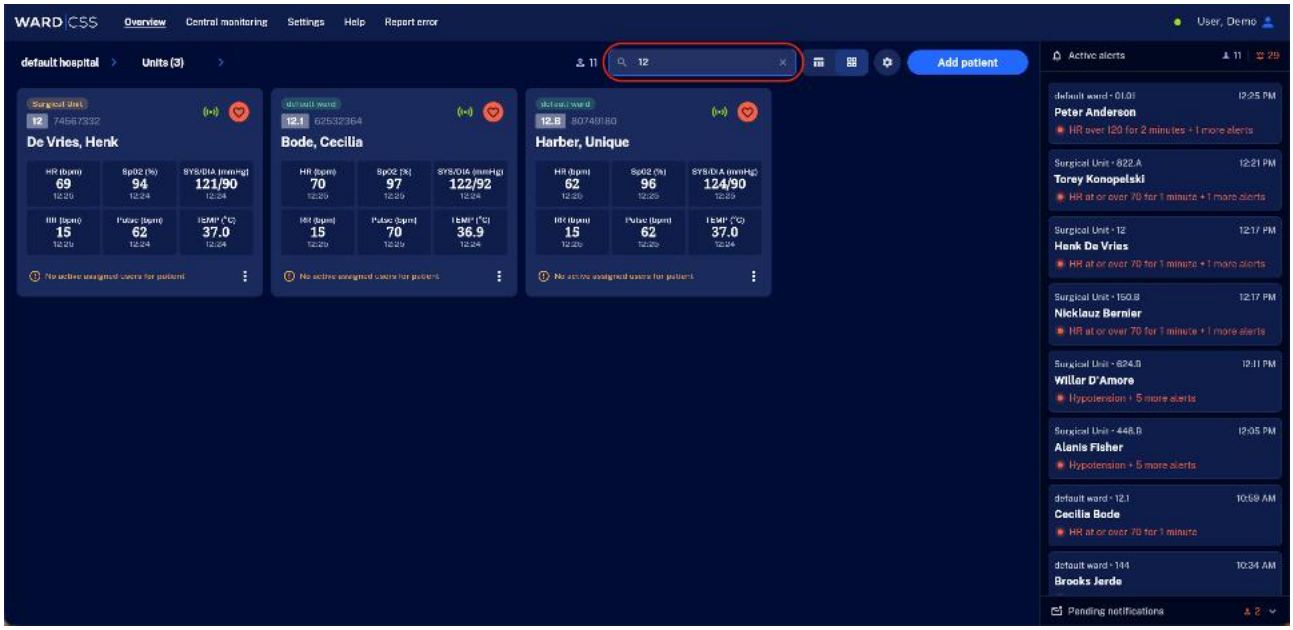


Image 61: Filter patients

8.2.2.3 Grid and list view

- Select the grid or list icon next to the Filter patients field to switch between grid and list view.

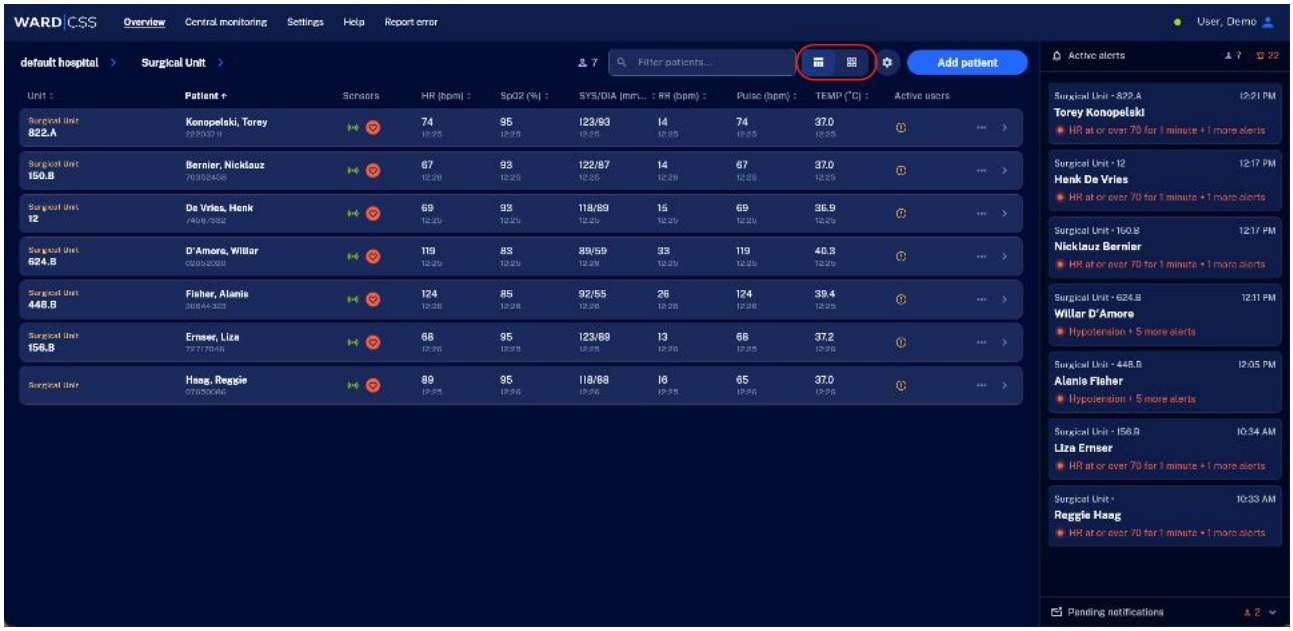


Image 62: Grid and list view toggle

8.2.2.4 Sorting patients

- Select the settings icon and select **Alerts first** to always sort patients with active alerts to the top, regardless of view. When Alerts first is enabled, patients with active alerts are always shown above patients without active alerts; the column or grid sorting is then applied within each of these two groups.
- In list view, select a column header, such as HR (bpm) or SpO2 (%), to sort patients by that value.
- In grid view, select the settings icon and then the current sort option (e.g. Last name) to open Patient sorting, where you can choose Ascending or Descending order and sort by Last name, First name, Medical Record Number, or Room/Bed

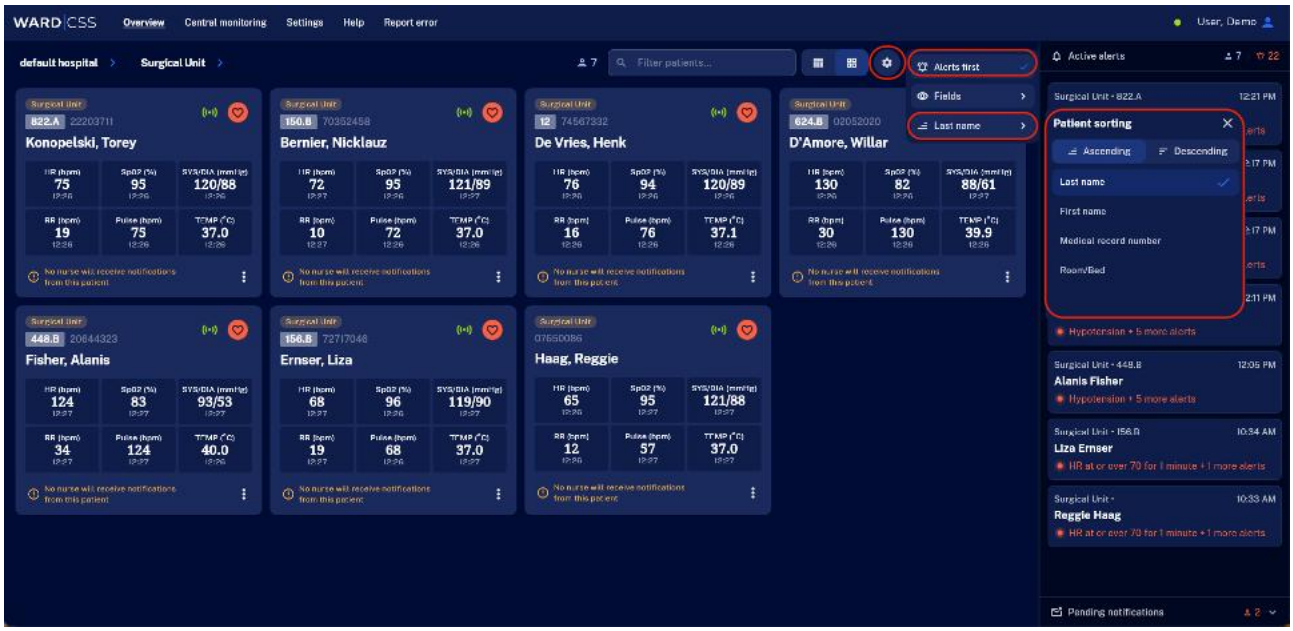


Image 63: Sorting patients in grid and list view

8.2.2.5 Show or hide values

- Select the settings icon and then **Fields** to choose which information is shown for the individual user.
  - Select **Hide all** to hide all vital signs, or select the eye icon next to a vital sign to show or hide it individually.
  - Select the eye icon next to **Medical Record Number** to show or hide that column.

  Which vital signs are available at all is controlled globally in Configure settings (see section: Configure settings).

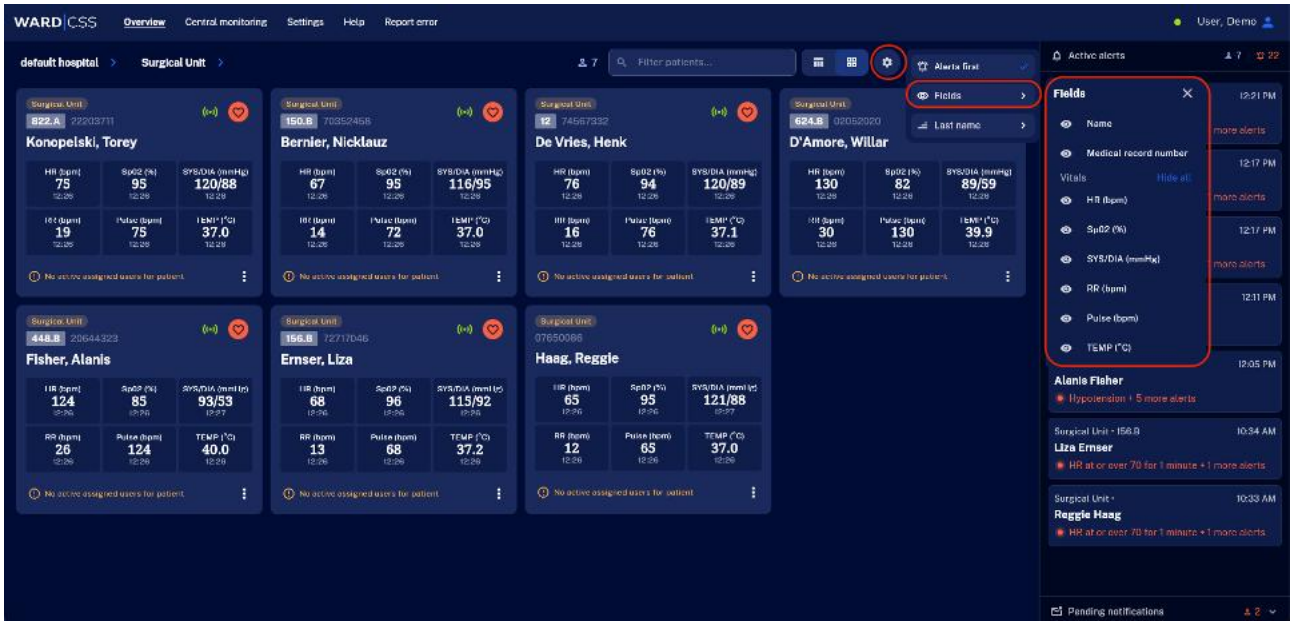


Image 64: Show or hide values

8.2.2.6 The patient box

⚠	WARNING: Assign every patient to an active user to receive alerts and notifications

In the patient box, you can see status of the sensors and alerts for the patients (see section: *Status icons in the app*).

If the warnings message *"No active assigned users for patient"* is shown, the patient is not assigned to user.

This means, that no user will receive notifications from that patient (see section: *Warnings and cautions*) in the mobile app.

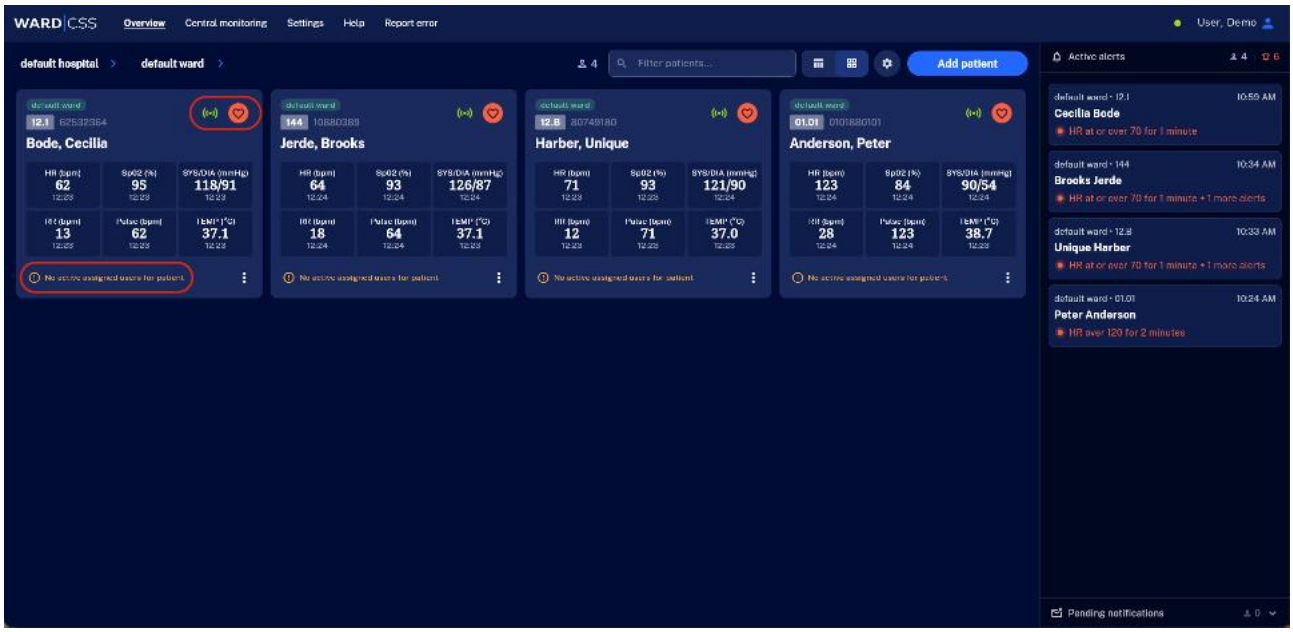


Image 65: Patient status icons

8.2.2.7 Patient details

- Select the *Patient box* to access the *Patient details*.
- You can see the following details:
    - name of the patient
    - monitor number
    - bed number
    - civil registration number or medical record number
    - start of monitoring
    - last known data
    - alerts
    - graph of the values
    - alerting profile and message suppression profile (and the level each is applied from: hospital, unit, or patient). Select the profiles to see details.
- Select **Sensors** in the upper right corner to see all sensors connected to the patient (such as the monitor, ECG patch, oximeter, blood pressure cuff, or thermometer), each shown with its battery level, time of last update, and a status colour, and to remove the active monitor.

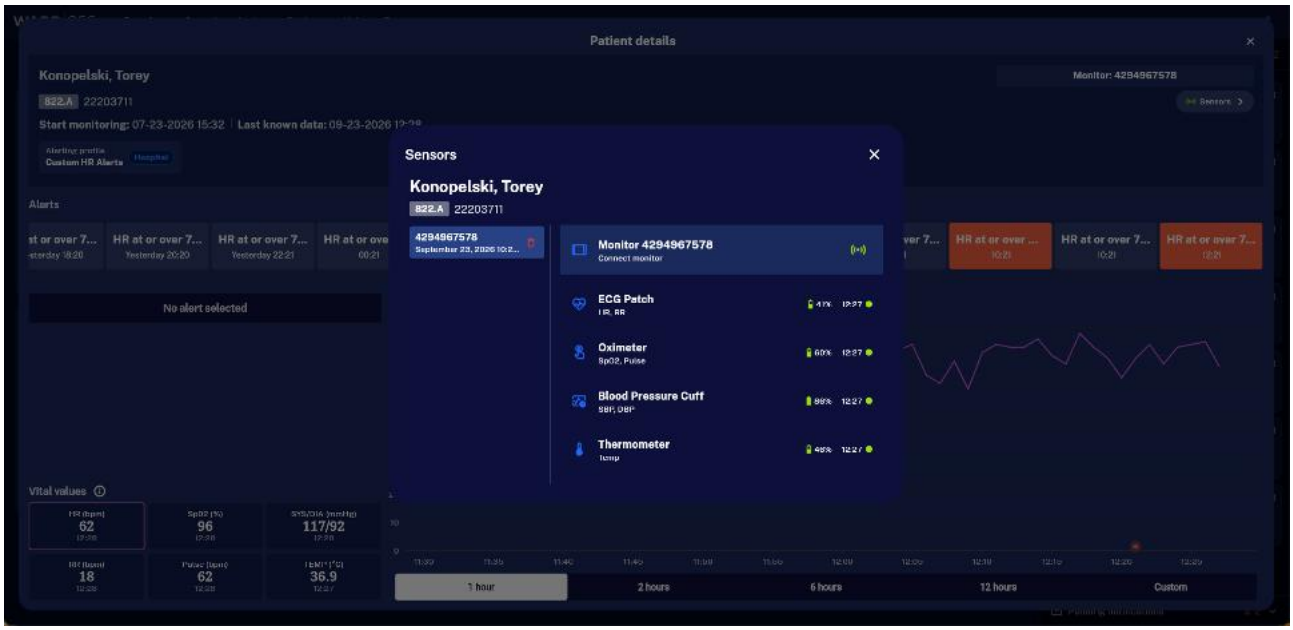


Image 66: Sensors panel in patient details

When you select one of the real-time vital values, a visualisation of both real-time and historical values are presented as trend data. The previous values are displayed in a graph as trend data containing the historical vital signs. Alerts are displayed on the x-axis as red dots.

Image 67: Patient details overview

Here you can do the following actions:

- See at what time an alert was triggered, and check what vital value triggered it.
- Show multiple trend data graphs at the same time; press on a vital value to add it to the overview graph, or press again to delete it from the overview.
- Scroll through the chart to a specific time; hold your mouse cursor over the graph and move the white dotted line to the right or left to see the exact vital sign values at that time.
- Zoom into the data and pan (move) the timeframe.
- Select to view either the last 1 hour, 2 hours, 6 hours, 12 hours or a custom range by pressing **1hour, 2hour, 6hour, 12hour** or **Custom**.
    - To set a custom range, enter the start date and time, the end date and time, and then select **Perform**.

The last measured value for the respective vital sign is displayed to the left of the chart. If data is missing, it will be stated in the respective vital sign box.

8.2.3 Central monitoring

The Central monitoring screen provides a hospital-wide overview across all units, allowing clinical staff to quickly identify which units require attention.

At the top, the following totals are shown for the selected hospital: number of active alerts, number of units with an active alert, number of patients monitored, and number of unassigned patients.

For each unit, the following is shown: number of active alerts, the age of the oldest active alert, number of patients, number of nurses assigned, and a graph of alerts over the last 4 hours.

You can select which hospital and units are shown (*see section: Visualising multiple units*), and switch between grid and list view (*see section: Grid and list view*). Select a unit to open the Overview filtered to that unit.

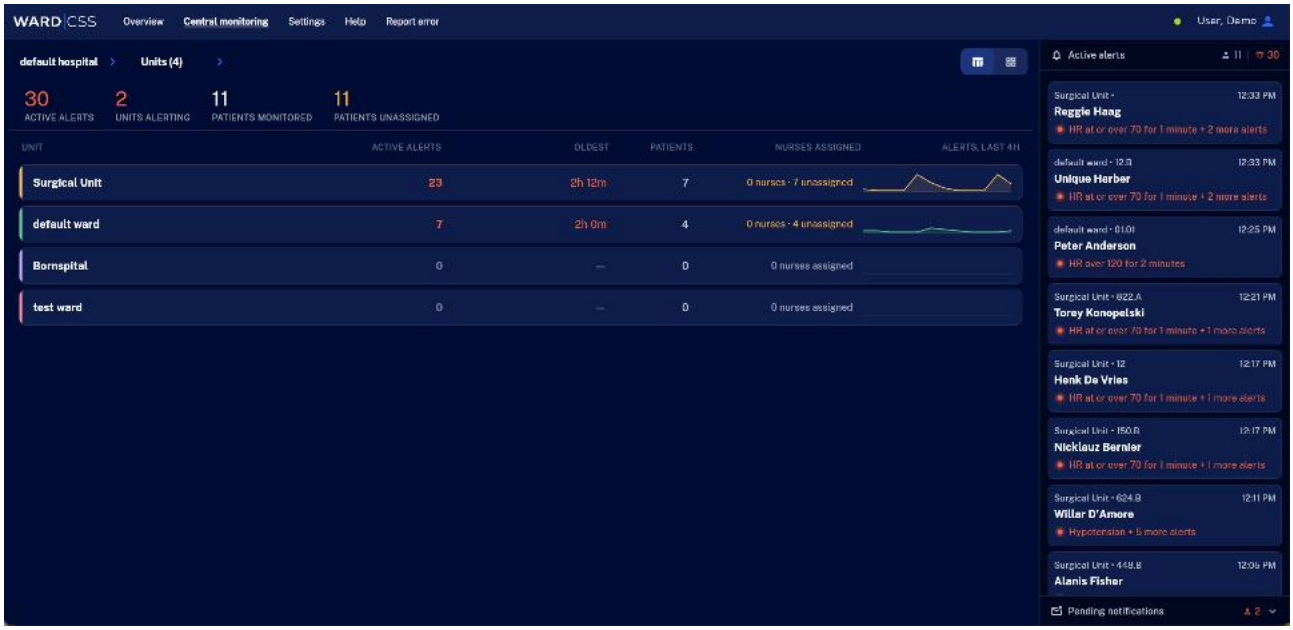


Image 68: Central monitoring

8.2.4 Managing patients in the web app

⚠	WARNING: Assign every patient to an active user to receive alerts and notifications
⚠	WARNING: Ensure sound and notifications are enabled on the phone
⚠	WARNING: Keep the phone with you to receive alerts and notifications
⚠	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

From the *Overview*, users can manage patients. You can add patients using the **Add patient** button at the top, or access individual patient actions via the **Patient menu** (the three dots) - shown in the bottom-right corner of the patient box in grid view, or at the end of the row in list view.

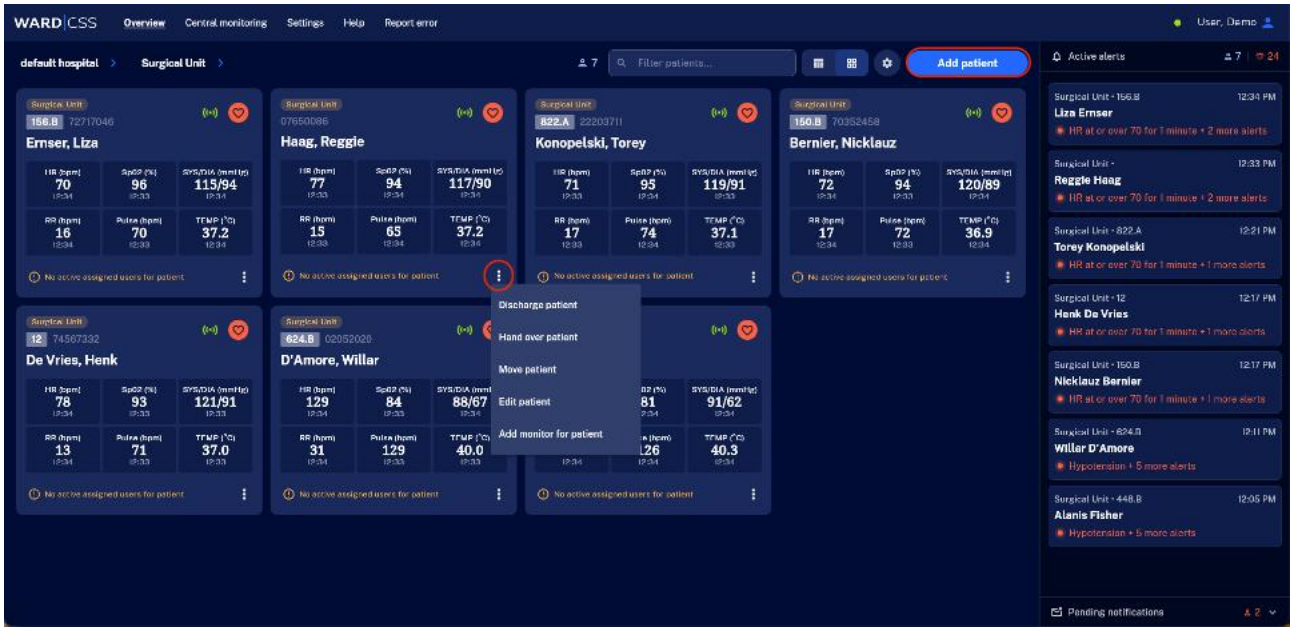


Image 69: Managing patients in the web app

The user can add a patient to be monitored by searching in EHR and adding the patient, or by manually creating a patient.

8.2.4.1 Add patient by searching (web app)

Go to *Overview*

- Select **Add patient**
- Select **Search for patient**

Follow the instruction by either selecting or searching for:

- Medical record number
- Monitor no. (Device ID)

Press the arrow to continue.

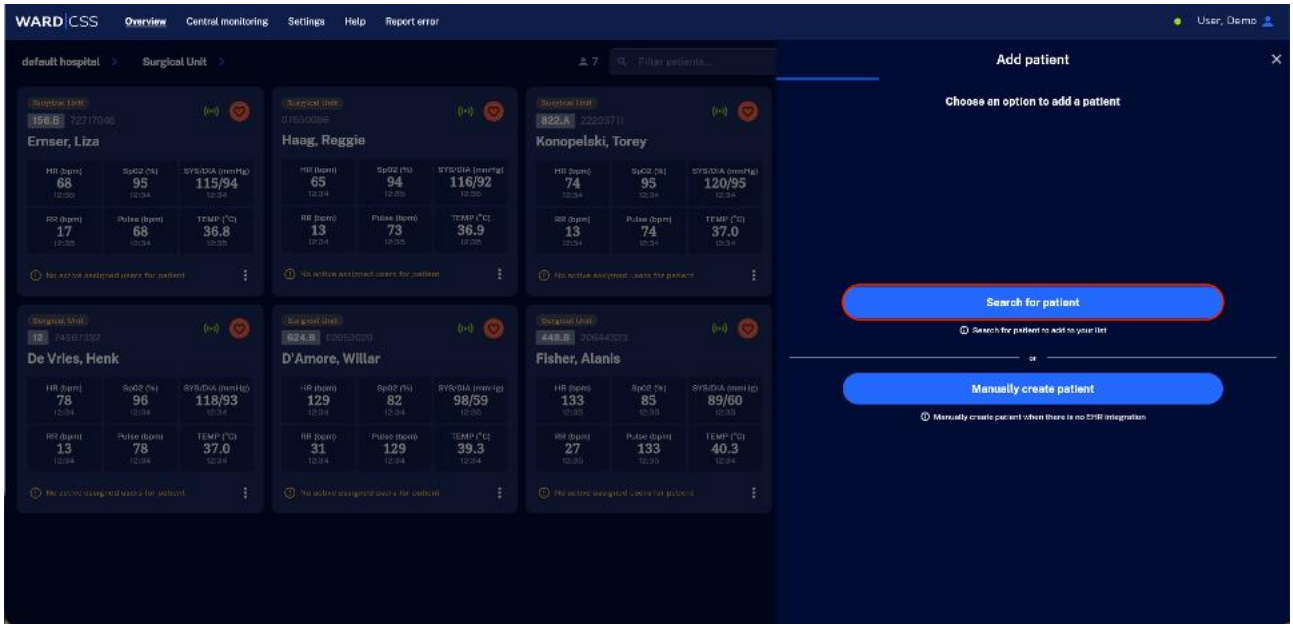


Image 70: Add patient by searching (web app)

Fill in:

- Unit (preselected with your current unit)
- Room and bed (bed is optional)

Confirm addition of patient by pressing **Perform**.

- If you are an admin or super user, you can select an Alerting profile (optional).
- Select **Add patient**
- Verify the following data to proceed and select **Perform**

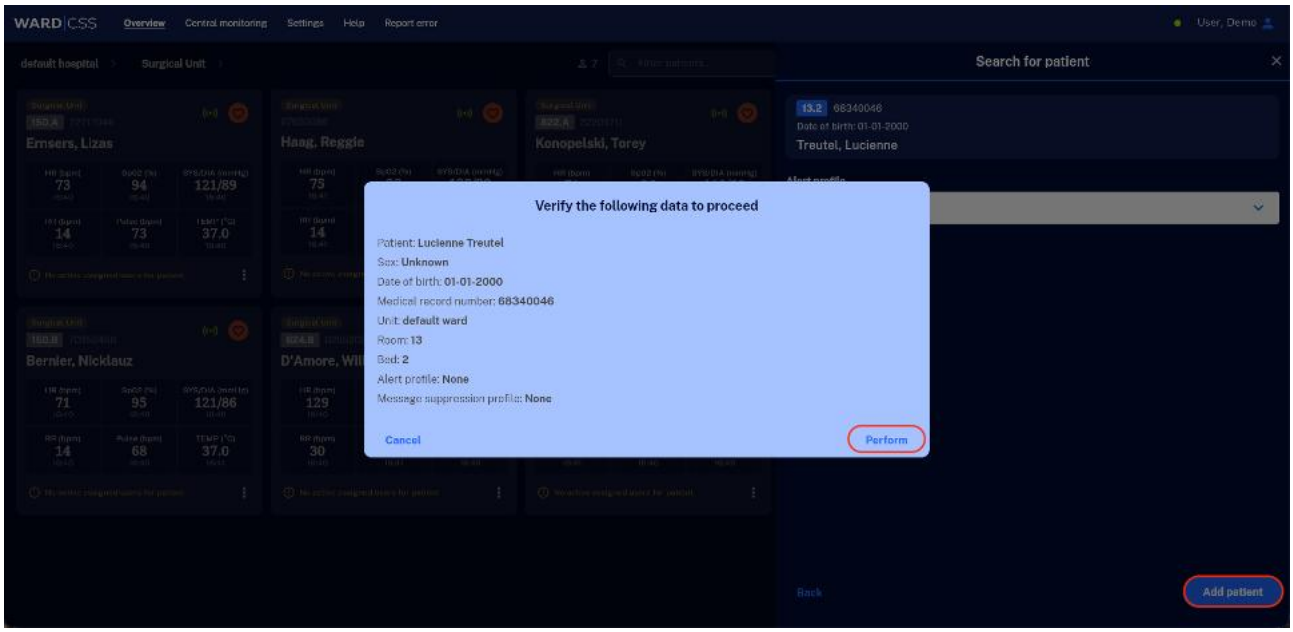


Image 71: Verify data and select Perform (add patient by searching in the web app)

The patient will now be visible in the *Overview*.

8.2.4.2 Manually create patient in the web app

Go to *Overview*

- Select **Add patient**
- Select **Manually create patient**

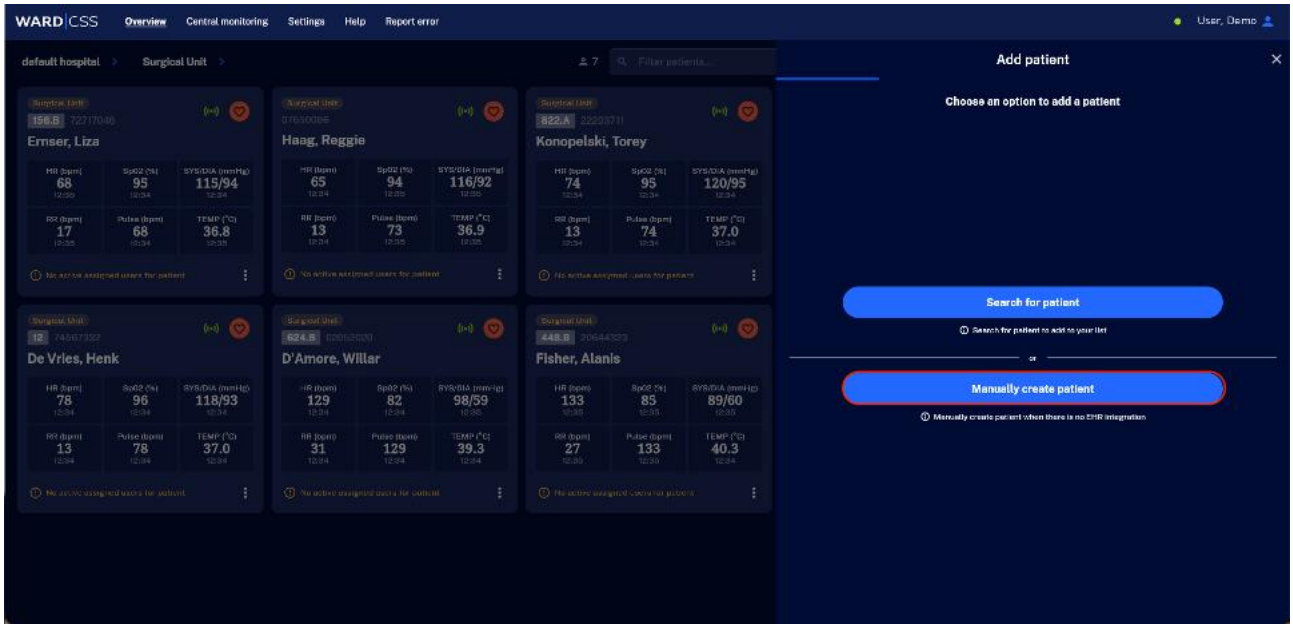


Image 72: Manually create patient in the web app

Follow the instructions by filling in:

- Surname and First name
- Date of birth
- Sex
- Medical record number
- Monitor no. (Device ID)
- Unit (preselected with your current unit)
- Room and bed (bed is optional)
- If you are an admin or super user, you can select an Alerting profile (optional).
- Select **Add patient**
- Verify the following data to proceed and select **Perform.**

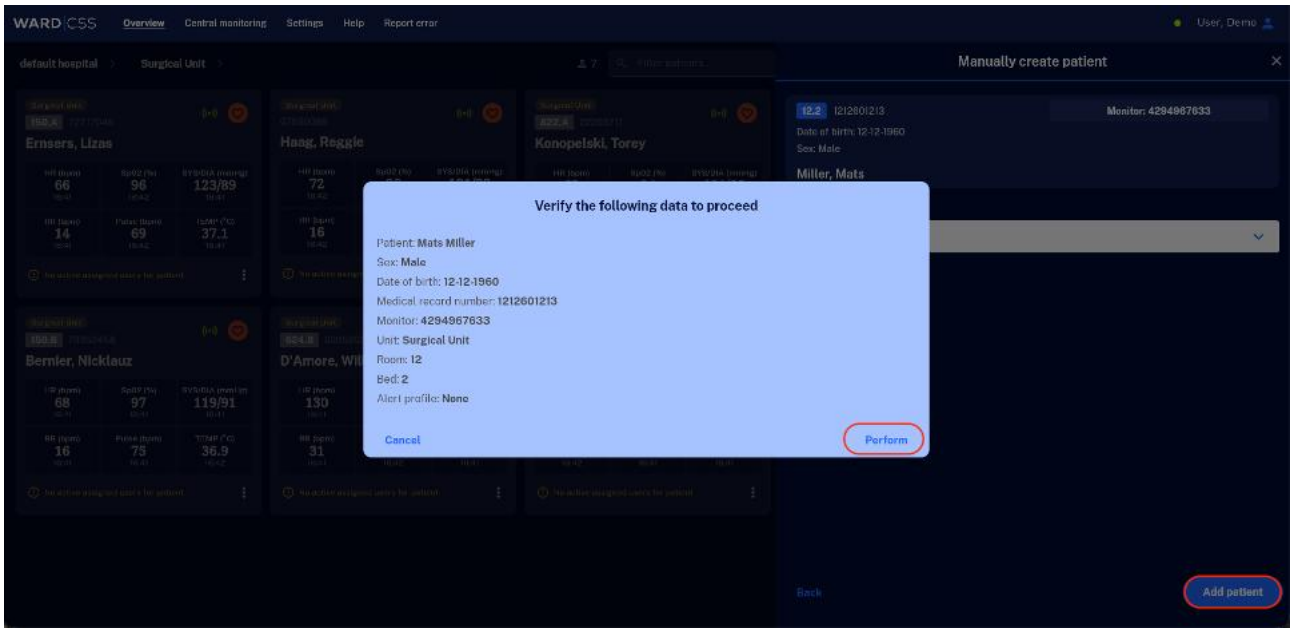


Image 73: Verify data and select Perform (manually create patient in the web app)

The patient will now be visible in the *Overview.*

8.2.4.3 Edit patient in the web app

To change information on a patient, you must use the Patient menu.

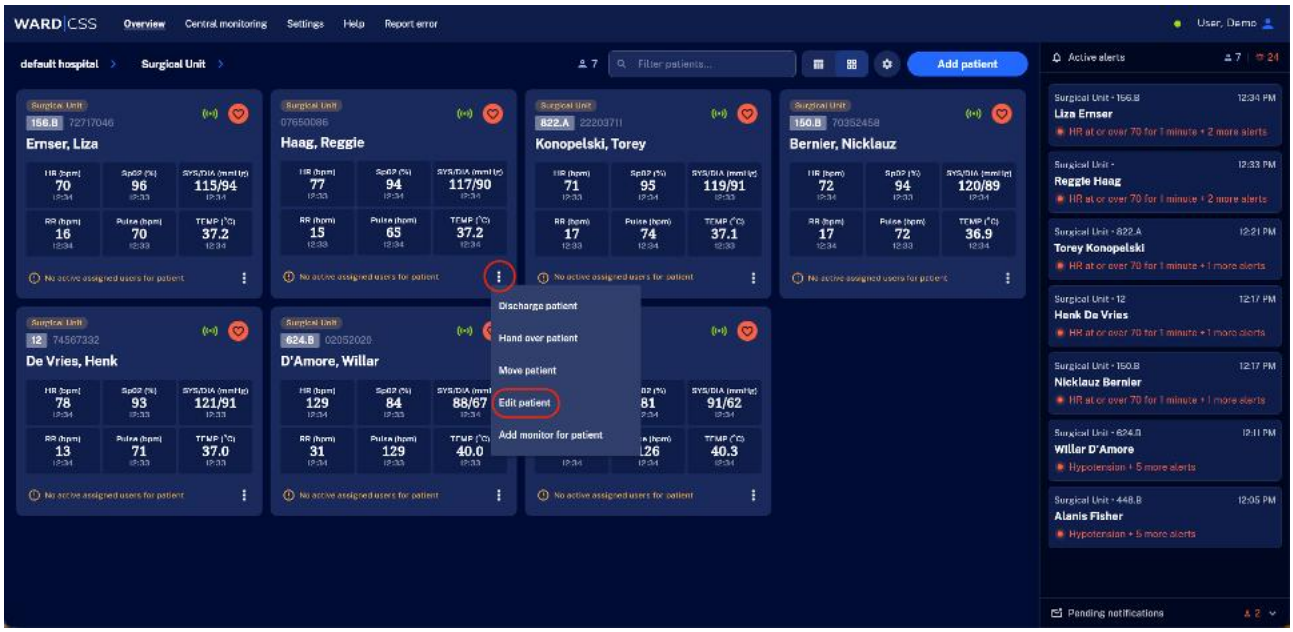


Image 74: Patient menu

- Locate the patient in the *Overview*.
- Select the **Patient menu** in the bottom right corner of the patient box (the three dots).
- Select **Edit patient.**
- If you are an admin or super user, you can select an **Alerting profile** and/or a **Message Suppression Profile** for the patient (optional).
- Edit patient information and select **Save.**
- Verify the following data to proceed and select **Perform.**

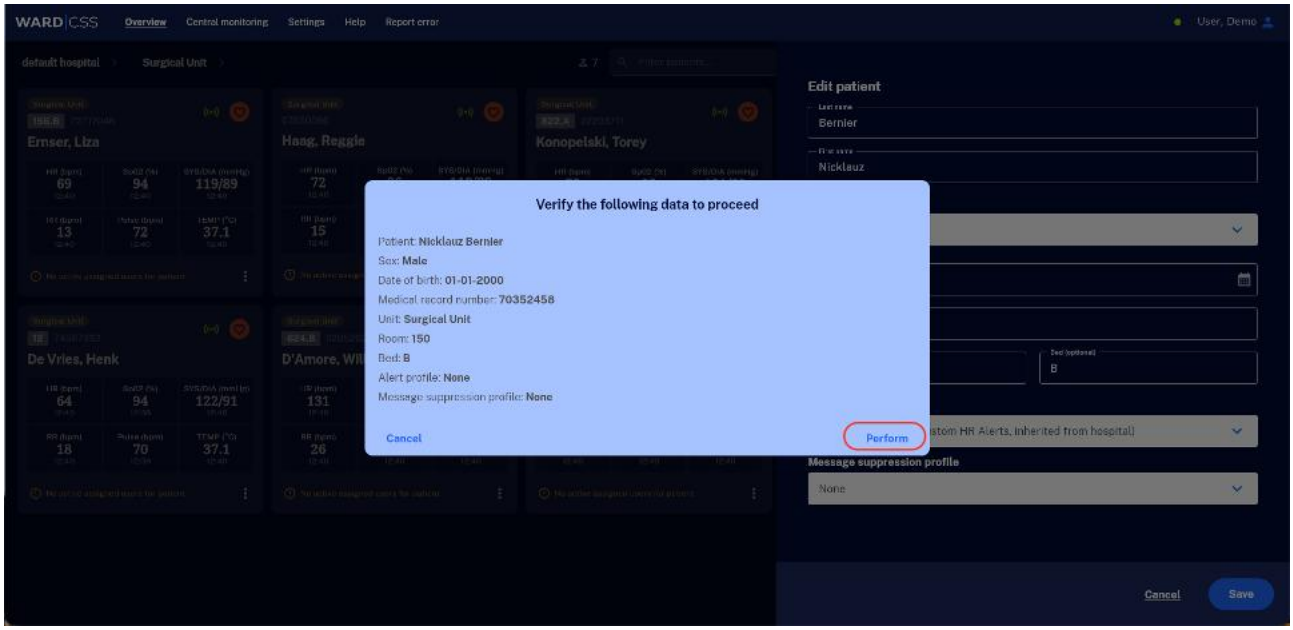


Image 75: Edit patient confirmation modal

⚠	WARNING: Assign the correct monitor to the patient to receive alerts and notifications

8.2.4.4 Add monitor in the web app

This function is configurable and must be activated before users can add a monitor. See section *Configure settings* for details.

Go to *Overview*

- Locate the **patient** you want to add a monitor to.
- Select the **Patient menu** in the bottom right corner of the patient box (the three dots).
- Select **Add monitor for patient.**
- Select correct **Monitor no.**
- Confirm by pressing **Save**.

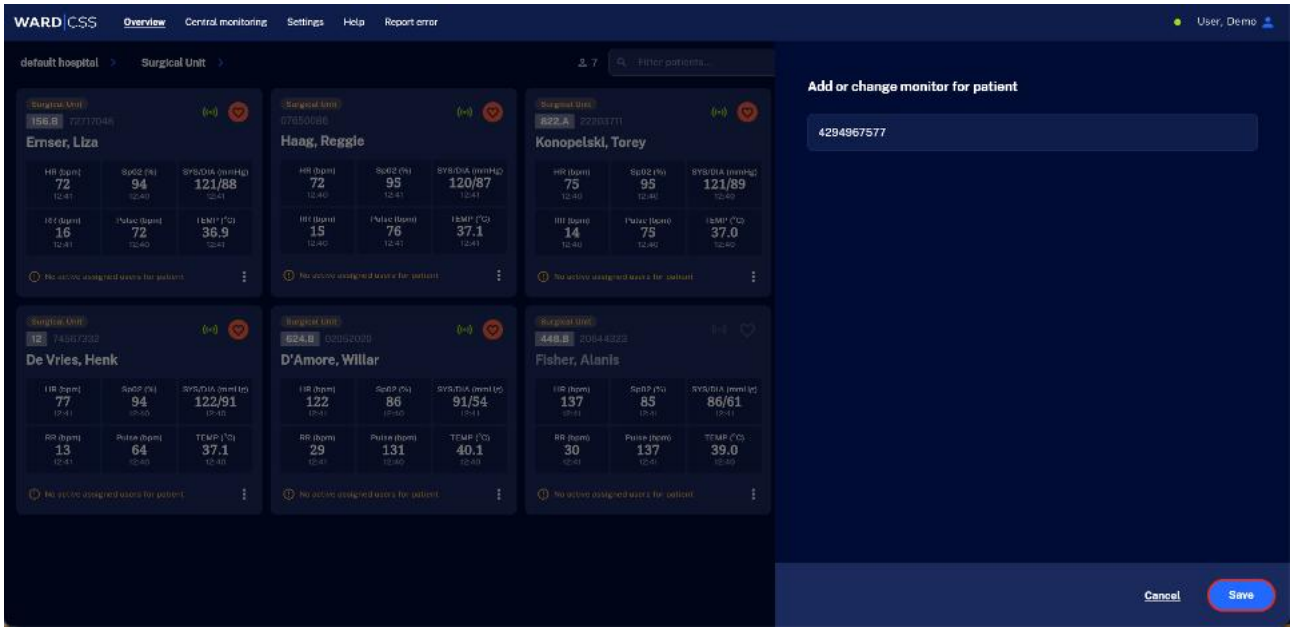


Image 76: Add monitor for patient in the web app

⚠	WARNING: Assign every patient to an active user to receive alerts and notifications

8.2.4.5 Transfer patient in the web app

Go to *Overview*.
You can transfer a patient by **Move** or **Hand over patient**.

If you hand over the patient, the patient will be assigned to another user (of your choice) in your department. The patient will then be added to that users list, meaning they will receive any new alert for this patient.

If you move a patient, the patient will be moved to another department/unit of your choice and that department/unit must assign the patient to a user.

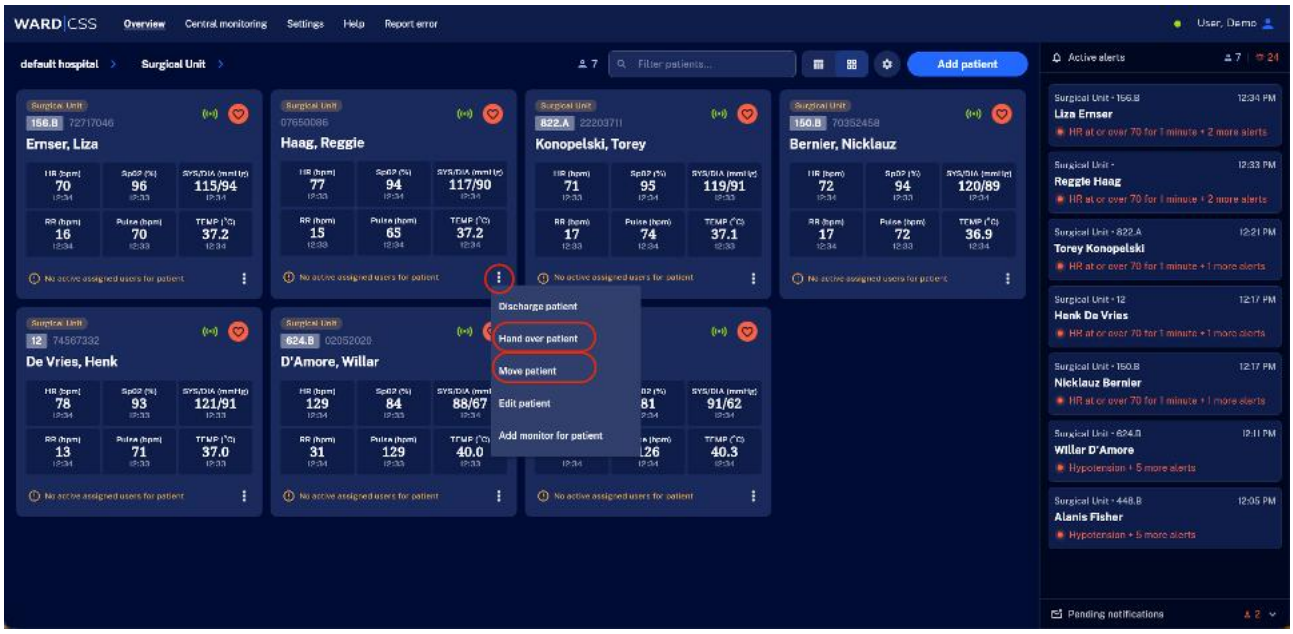


Image 77: Transfer patient in the web app

Hand over patient in the web app

- Select the **Patient menu** in the bottom right corner of the patient box (the three dots).
- Select **Hand over patient**.
- Select or search for the user you want to transfer the patient to and press **Hand over patient**.
- Select **Perform.**

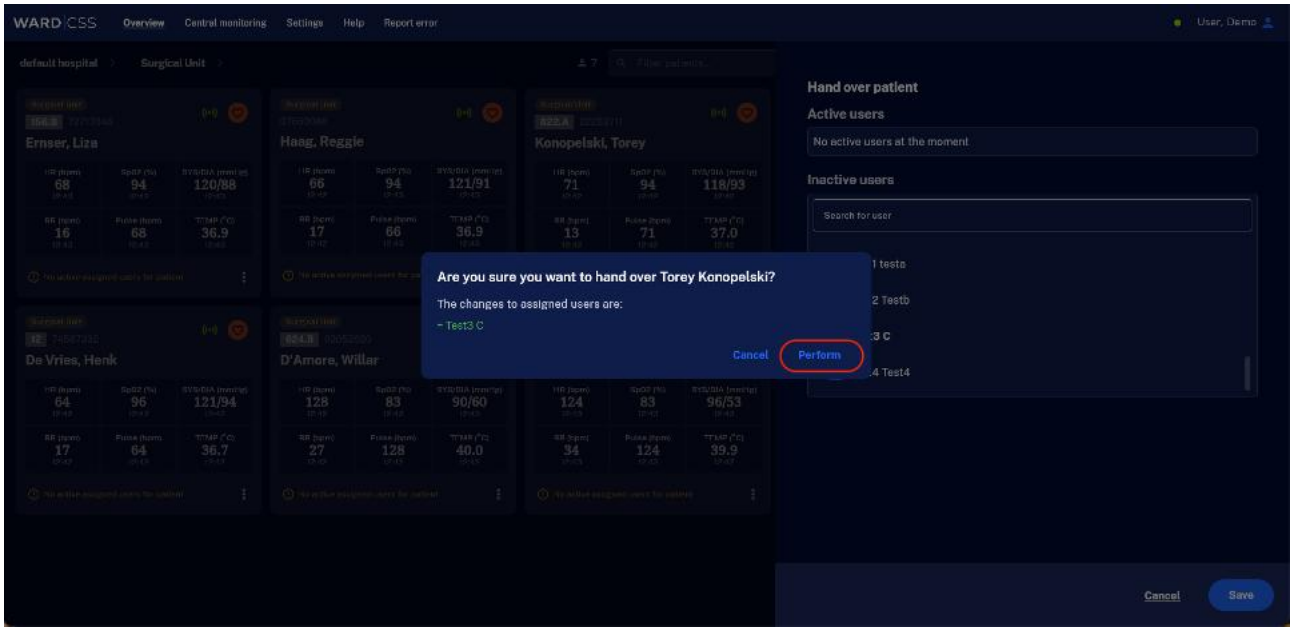


Image 78: Hand over patient in the web app

Move patient to another unit in the web app

- Select the **Patient menu** in the bottom right corner of the patient box (the three dots).
- Select **Move patient**
- Select the hospital unit (and enter new room and bed number) you want to move the patient to and press **Save**.
- Select **Perform**

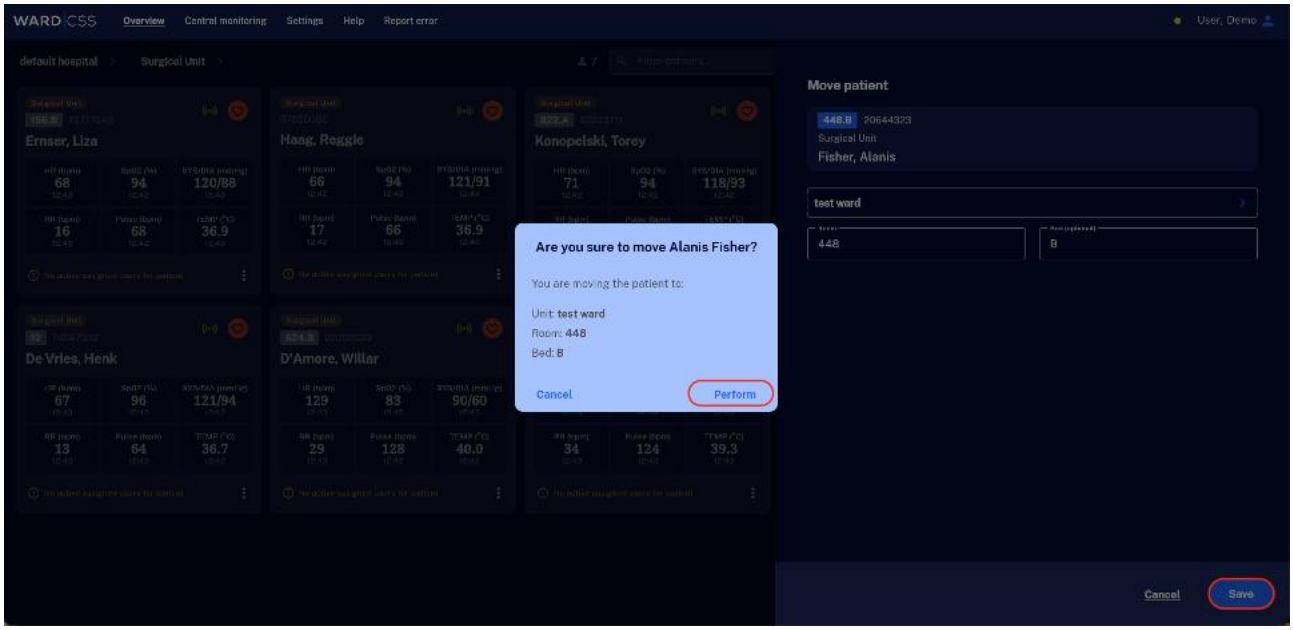


Image 79: Move patient to another unit in the web app

8.2.4.6 Discharge patient in the web app

Go to *Overview*.

- Select the **Patient menu** in the bottom right corner of the patient box (the three dots).
- Select **Discharge patient** and confirm by pressing **Discharge patient.**

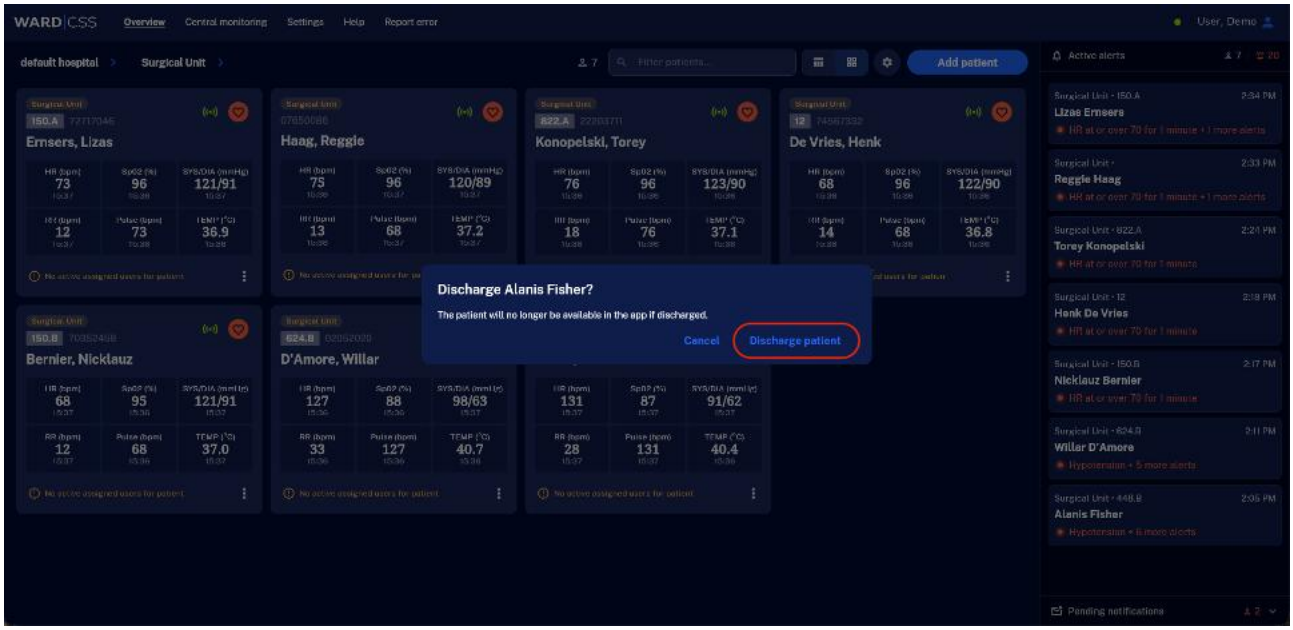


Image 80: Discharge patient confirmation modal (web app)

8.2.5 Managing alerts in the web app

	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications
	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Keep the phone with you to receive alerts and notifications
	WARNING: To silence an alert of a patient remains the responsibility of the Health Care Professional

From the *Overview*, users can see whether there are active alerts in one or more units. In list view, a patient with an active alert is shown with a red outline. In grid view, the alert icon on the patient card turns red.

An Active alerts panel on the right-hand side of the Overview lists all active alerts across the hospital or unit, with the patient name, unit, and time of the alert.

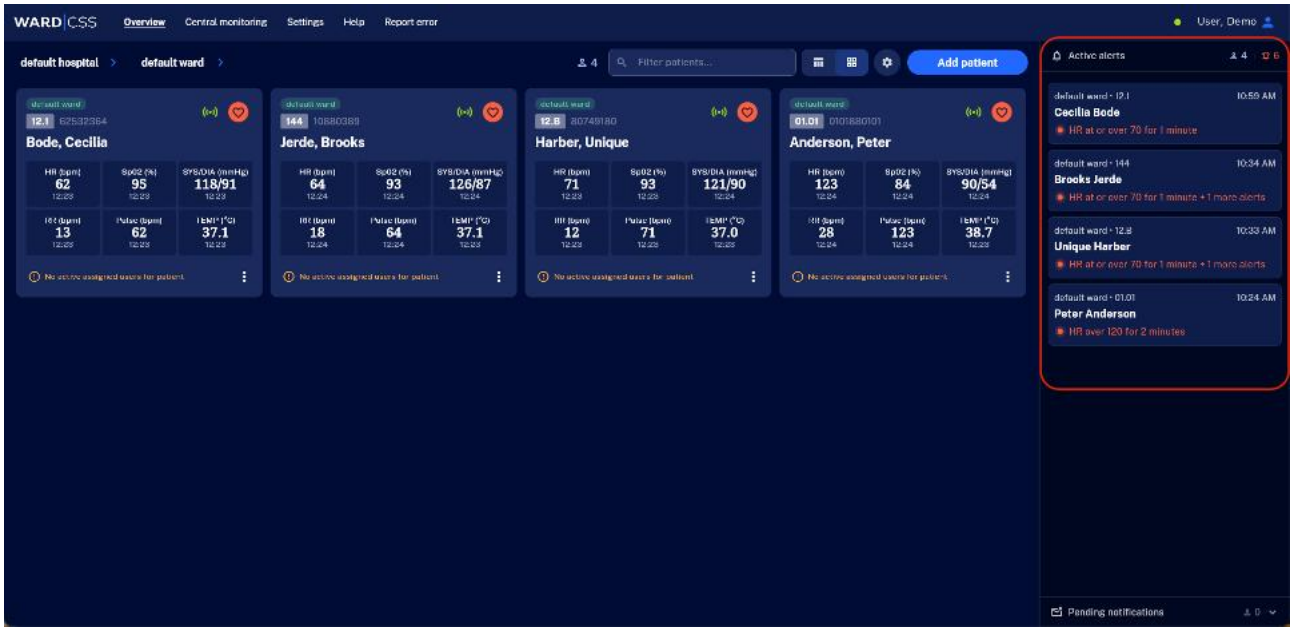


Image 81: Active alerts in the Overview

A Pending notifications panel below the Active alerts panel lists alerts where the push notification did not reach the mobile phone of the assigned user. Select the panel to expand it and see, for each affected user, the number of pending notifications and the time of the most recent one. Select a user to see the individual pending notifications and how long each has been pending.

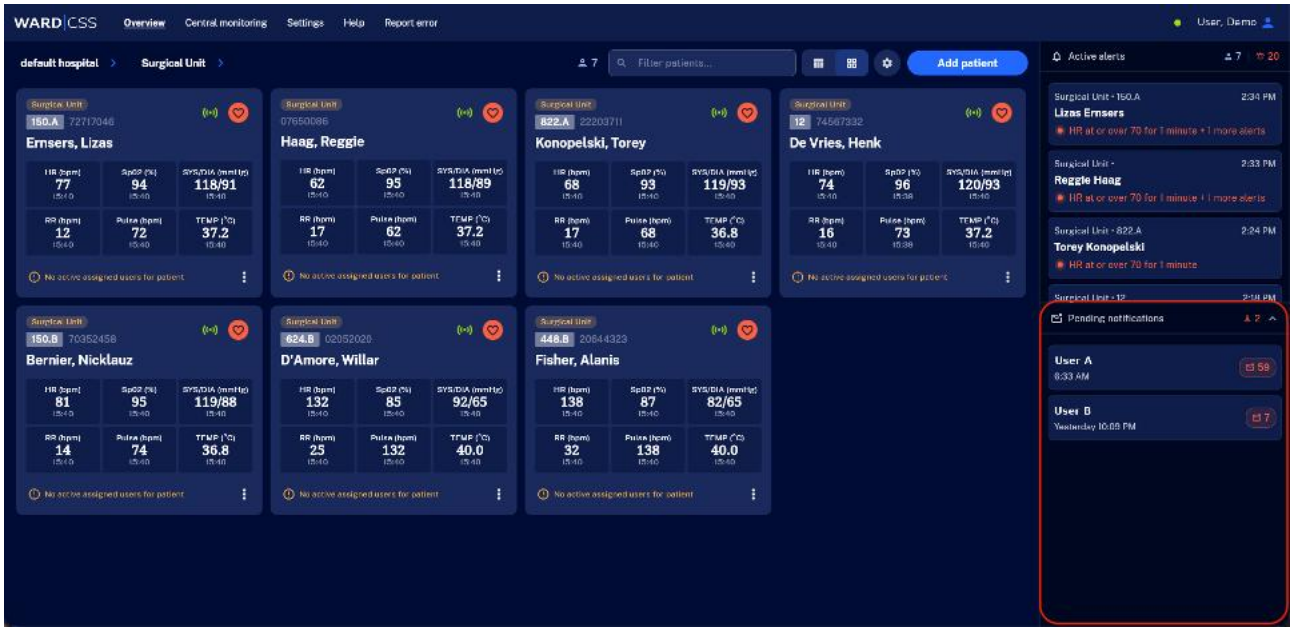


Image *82: Pending notifications panel*

Alerts are managed in the *Patient details* screen, which you can access by selecting either the alert or the patient. In the *Patient details* screen, select the alert you want to manage.

Image 83: Alert actions in Patient details screen

The following actions are possible:

- Accept:
  This means that the user assigned to the patient attends to the patient. This makes the alert inactive and the red alert indication on the patient in the Overview disappears. The alert is still visible in the *Patient details* screen, but will now be **DARK BLUE** to indicate that it has been accepted. Select this option only if you plan to attend to the patient. To silence the alert without attending, use the 'Silence' option instead.
- Silence:
  The silence action temporarily silences that specific alert type for a time window. This action changes the colour of the alert to **PURPLE**. The alert can be silenced to a self-set time, of which every alert has a certain maximum silence time based on clinical safety. To set the silence time, use the slider after selecting ‘Silence’. The maximum silence durations are longer for less severe alerts, and shorter when the alert is considered more severe. The alert type cannot trigger again within the set time window. After the time window the alert will switch back to ‘active’.
- Forward:
  The alert is forwarded to a colleague. This means that the notification of the alert is sent to the mobile phone of the colleague, and the patient will also be assigned to that colleague. The patient will then be added to that users list, meaning they will receive any new alert for this patient.

If no action is taken on an alert and a new alert of the same type is triggered, the previous alert will become inactive. Once an alert is marked as inactive, it is no longer possible to take any action on it. However, actions can still be taken on the new alert.

8.2.6 Settings in Web App

⚠	CAUTION: ONLY use WARD-CSS according to intended use

Admin and super users have access to the Web App settings.

- Admin users can access settings for Staff, Discharged Patients, and the Usage Dashboard.
- Super users have access to all available settings.

8.2.6.1 Hospital selection

- Select **Settings** in the top bar.
- Select **Hospitals** on the left side.

You will see the hospital(s) you are connected to as a user.

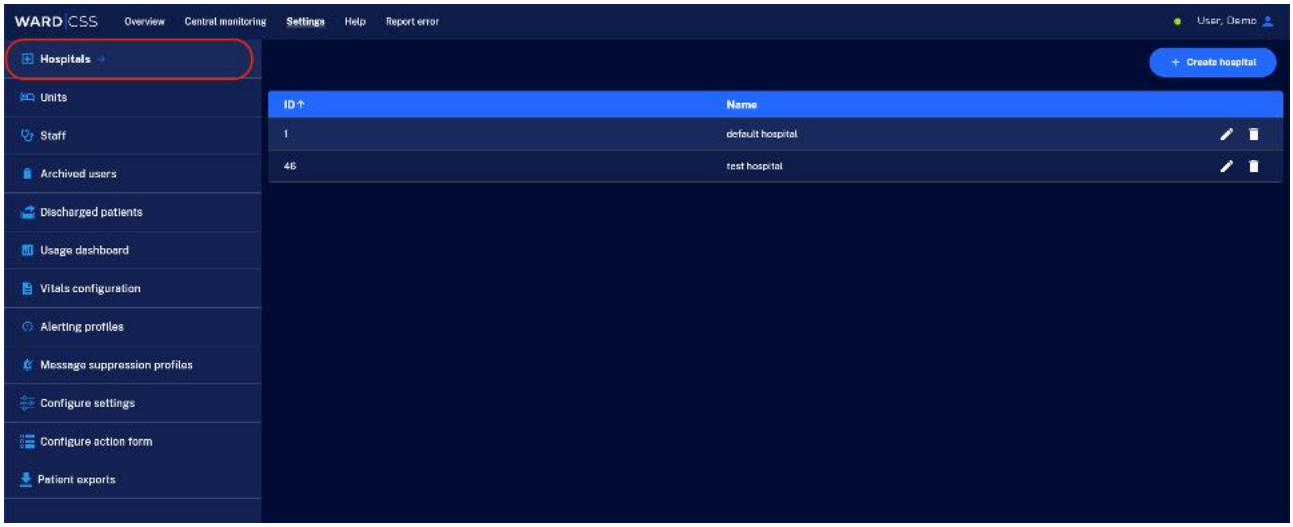


Image 84: Settings: Hospitals (Web App)

8.2.6.2 Unit selection

- Select **Units** on the left-hand side.

You will see an overview of active units at the current hospital you are connected to as a user.

Image 85: Create units

⚠	WARNING: For trained healthcare professionals only

8.2.6.3 Managing users (admin user)

You can access the user management in the settings.

- Select **Settings** at the top of the screen.
- Select **Staff** on the left-hand side.

This will display a list of users.

You can add a user by either:

- Selecting **Create Staff Member** in the upper right corner and filling in information.

or

- Selecting **Upload from Excel Sheet** in the upper right corner and importing users from an excel file with already filled in columns for First name, Last Name, Username, Employee ID, Email and User Role. A template sheet is available in **Download Template Sheet.**

Created users can be edited and deleted. As an admin user, you can create users.

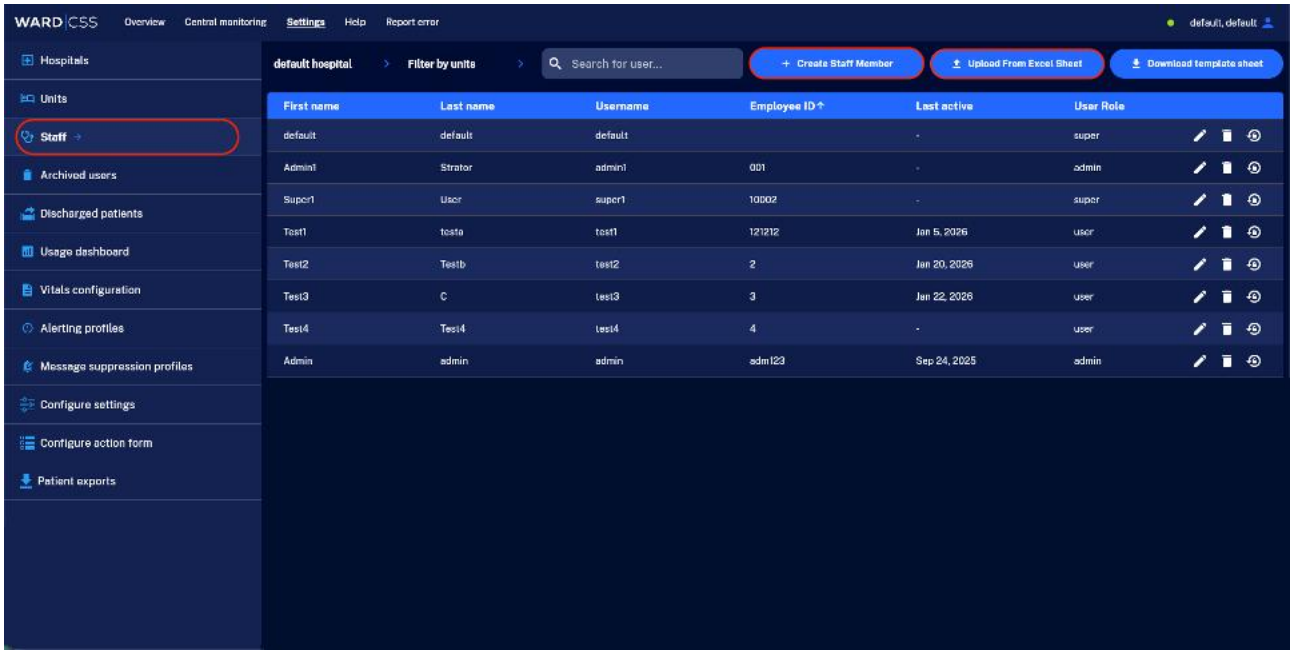


Image 86: Create staff member

Create user

To create a user **fill in**:

- First name and surname
- Employee ID
- User name
- Email
- Unit
- Role: User

Press **Save**

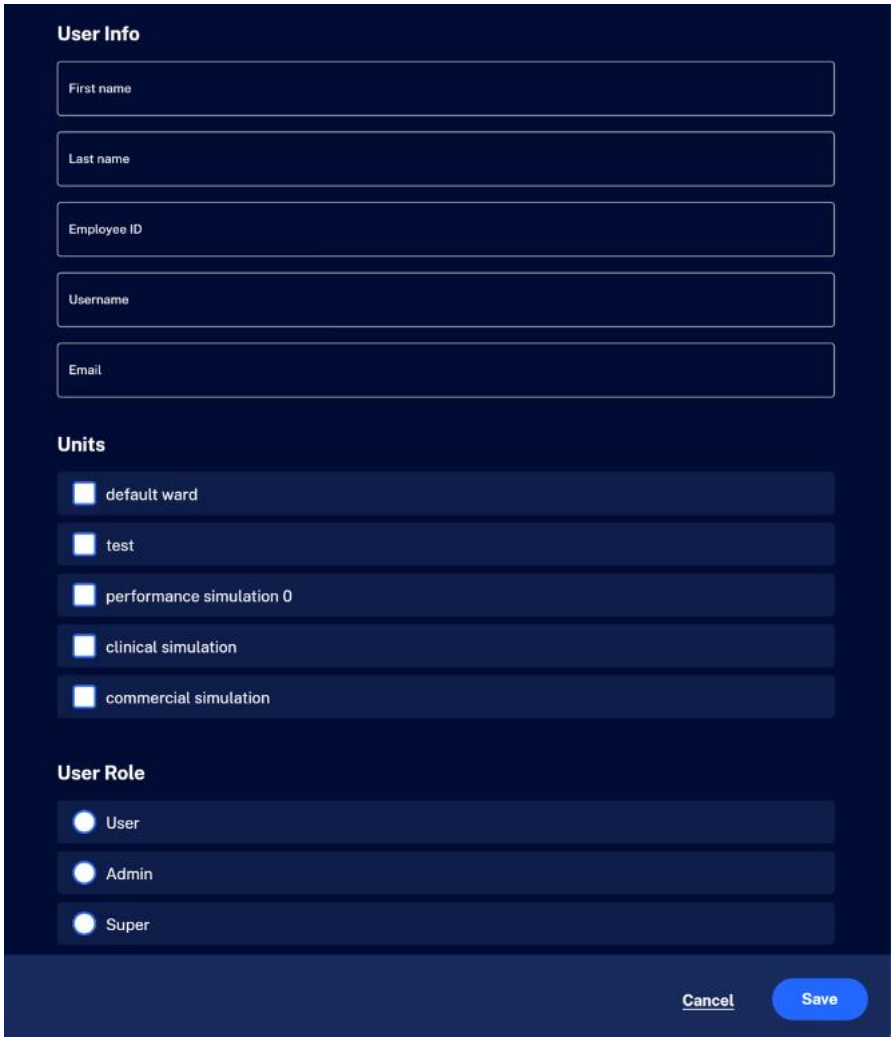


Image 87: Create user

Edit user

- Select **Settings** at the top of the screen.
- Select **Staff** on the left-hand side, where the list of users is displayed.
- On the right-hand side, a pencil icon appears next to each user. Select the **pencil icon** to edit the user.
- Press **Save**.

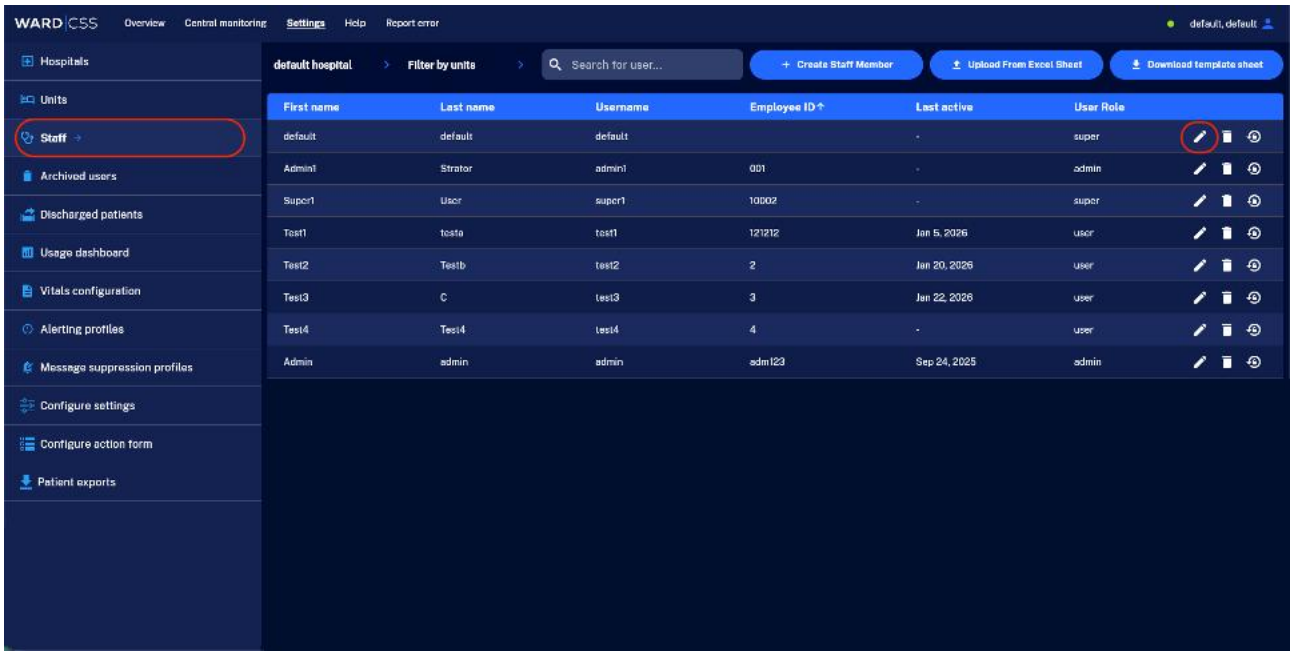


Image 88: Edit user

Delete user

- Select **Settings** at the top of the screen.
- Select **Staff** on the left-hand side, where the list of users is displayed.
- Select **trash can icon** in the right side of the screen and select **Perform** to delete the user.

It is the unit's own responsibility to keep the user list up to date and in accord with the unit's current staffing situation.

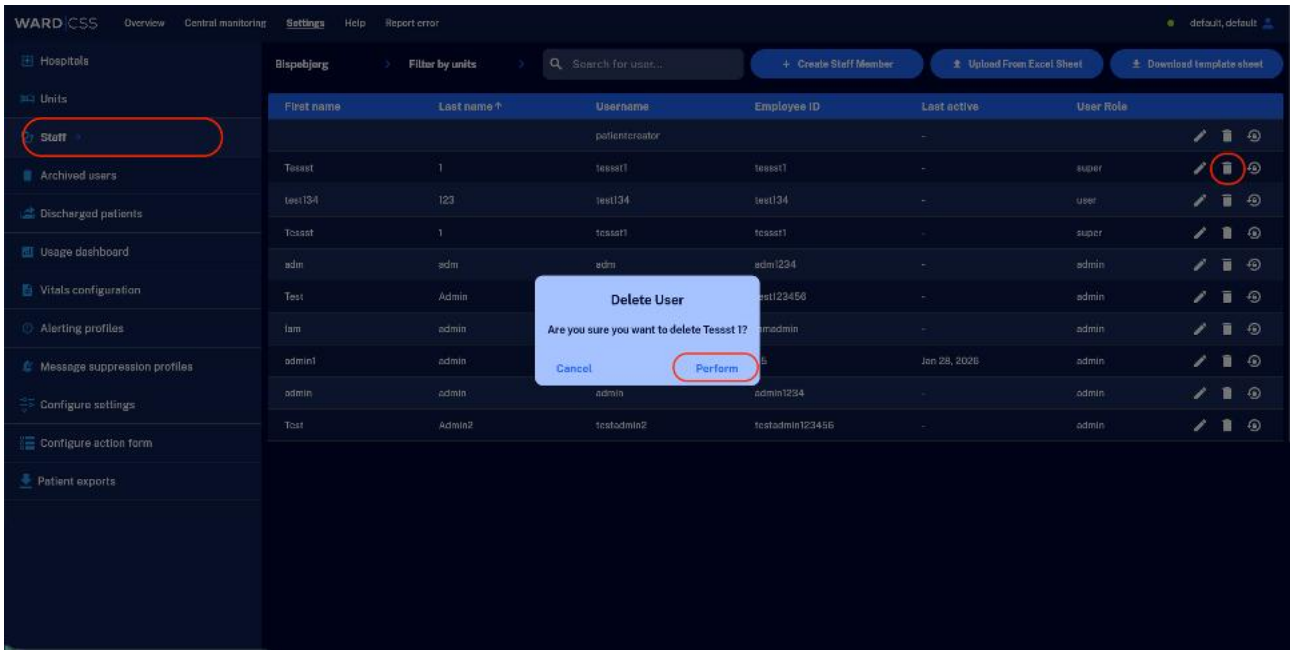


Image 89: Delete user

⚠	CAUTION: Avoid unauthorised access by keeping login information secret

Set new password

- Select **Settings** at the top of the screen.
- Select **Staff** on the left-hand side, where the list of users is displayed.
- On the right-hand side, a **reset password icon** appears next to each user. Select the **reset password icon** to set a new password for the user.
    - Enter the new password in the provided field and select **Perform**.
    - Confirm new password by selecting **Perform**.
- Select "**Send Forgot Password Email**" to send a password reset e-mail to the user.

Note: Password requirements must be met to proceed (min. 8 characters, one capital letter, one lowercase letter, one number, one special character).

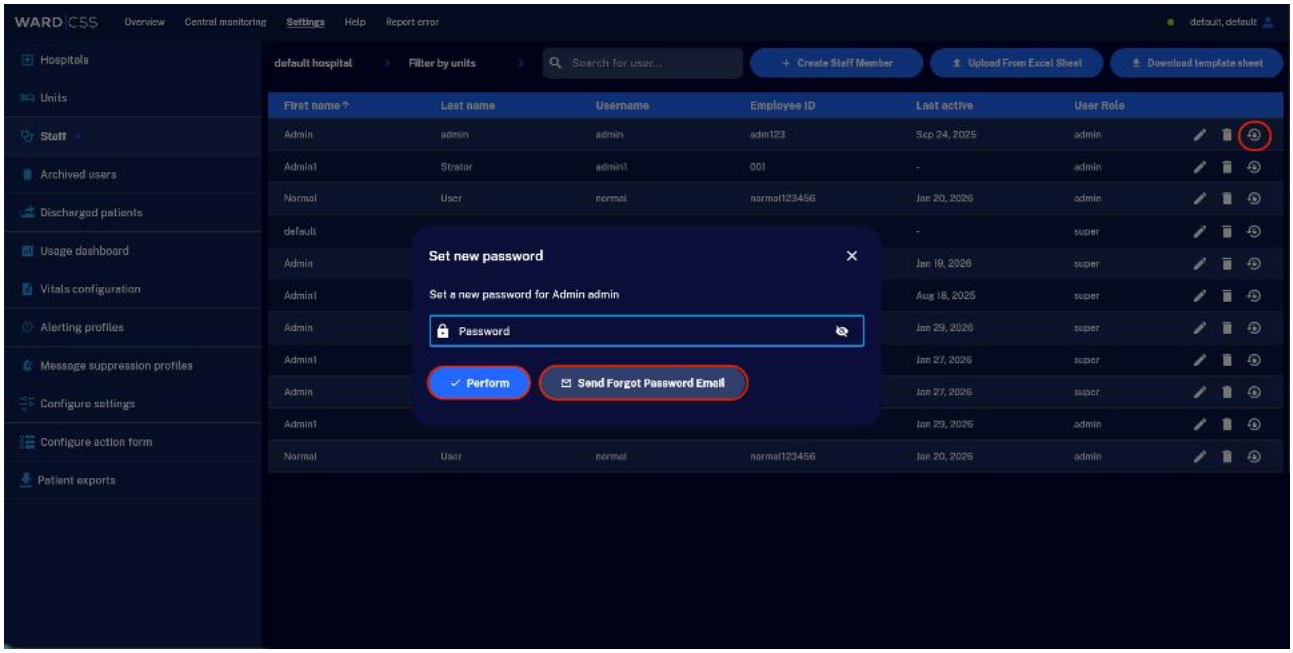


Image 90: Set new password

Reactivate archived users

- Select **Settings** at the top of the screen.
- Select **Archived users** from the menu on the left-hand side.
- A list of all archived users will be displayed.
- Locate the users to be reactivated by scrolling through the list or by entering the name in the search bar at the top of the screen.
- Check the boxes next to one or more users you wish to reactivate.
- Select **Reactivate users** on the top right-hand side to reactivate.
- The selected users will now appear in the **Staff** user list.

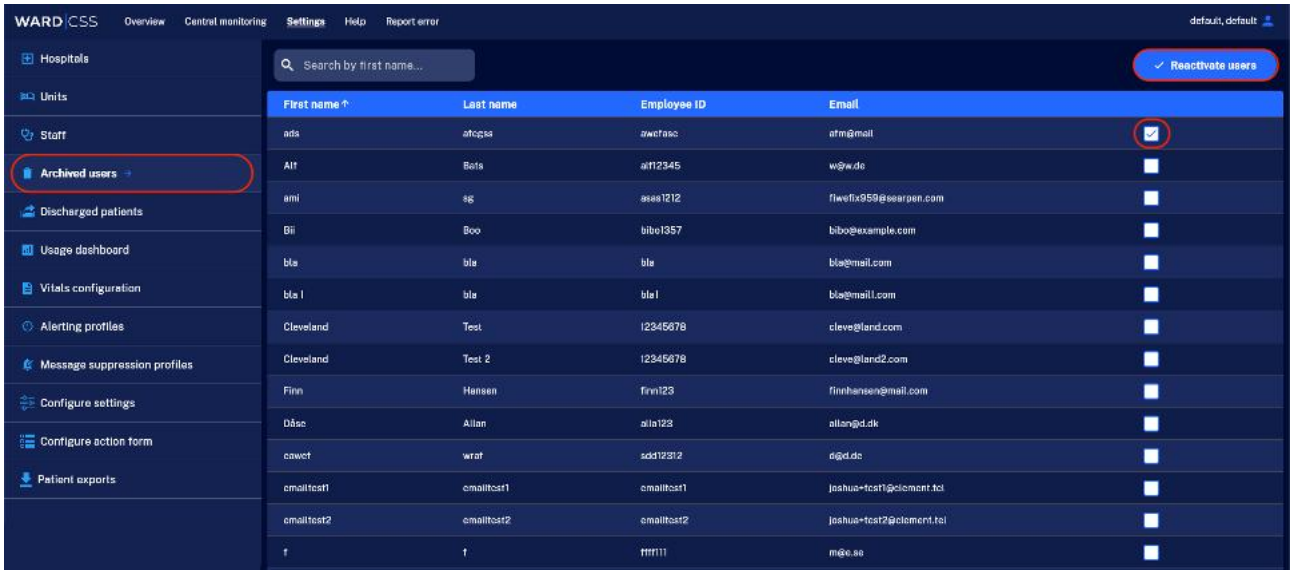


Image 91: Reactivate archived users

8.2.6.4 Discharged patients

In the Discharged patients settings, you can access and manage a list of patients who have been discharged within a selected time range.

- Select **Settings** at the top of the screen.
- Select **Discharged Patients** from the menu on the left-hand side.
- A list of discharged patients will be displayed.
    - Use the **Units** filter to display discharged patients from your selected units.
    - Select time range by pressing one of the preset options (1 day, 2 days, 7 days, 2 weeks, or 1 month), or select **Custom** or the displayed date range to set a custom time range using a start and end date and time, and select **Perform**.

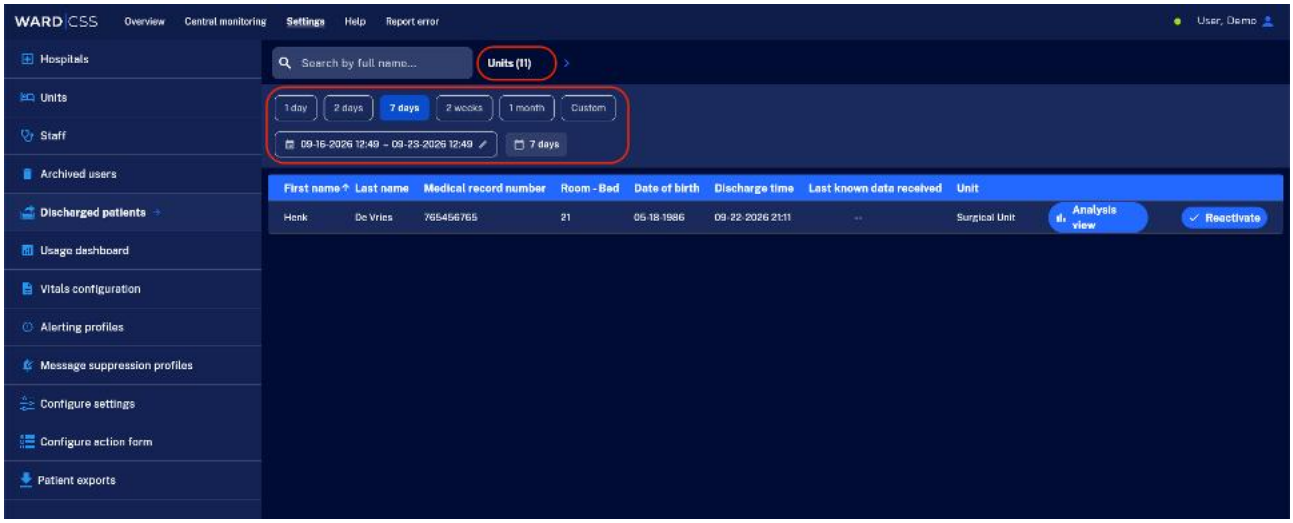


Image 92: Discharged patients

Discharged patient analysis view:

To view historical vital signs and alerts for a discharged patient, select **Analysis view**. This will display the historical *Patient details* screen, including the same filtering options.

Image 93: Discharged patient analysis view

To reactivate a discharged patient:

- Locate the patient by scrolling through the list or by entering the patient's name in the search bar at the top of the screen.
- Select **Reactivate** next to the patient's name.
- Select **Perform** to confirm reactivation.

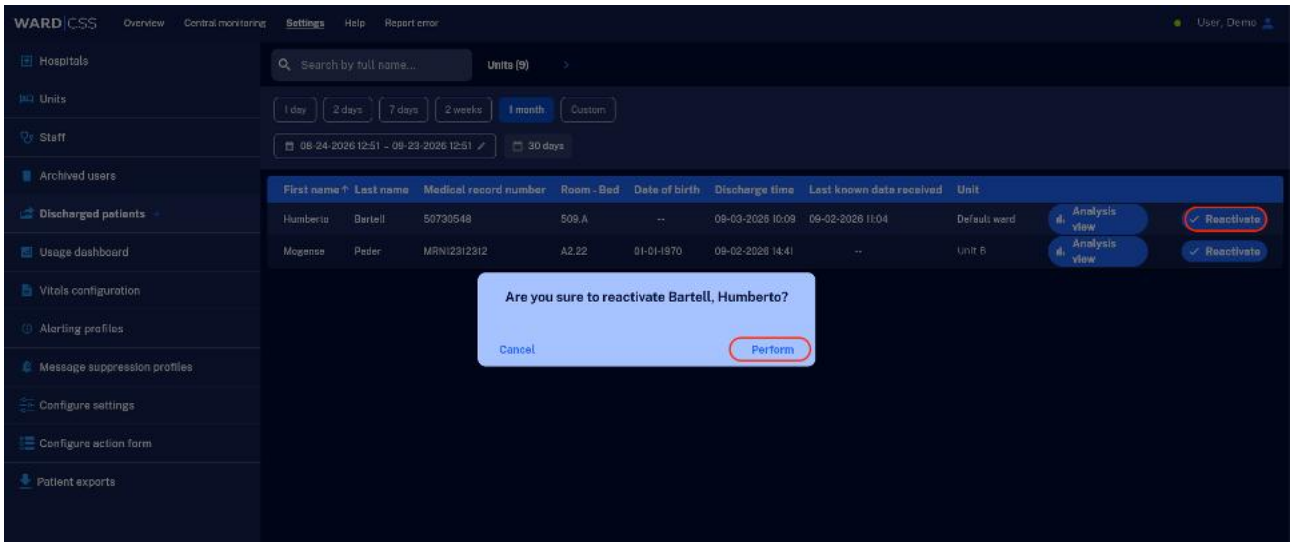


Image 94: Reactivate patients

8.2.6.5 Usage Dashboard

- Select **Usage Dashboard**
- Select your **Hospital**
- Select your **Unit**
- Select time range by pressing one of the preset options (Last 7 Days, Last 30 Days, This Month, or Last Month), or select **Custom** or the displayed date range to set a custom time range using a start and end date and time, and select **Perform**.

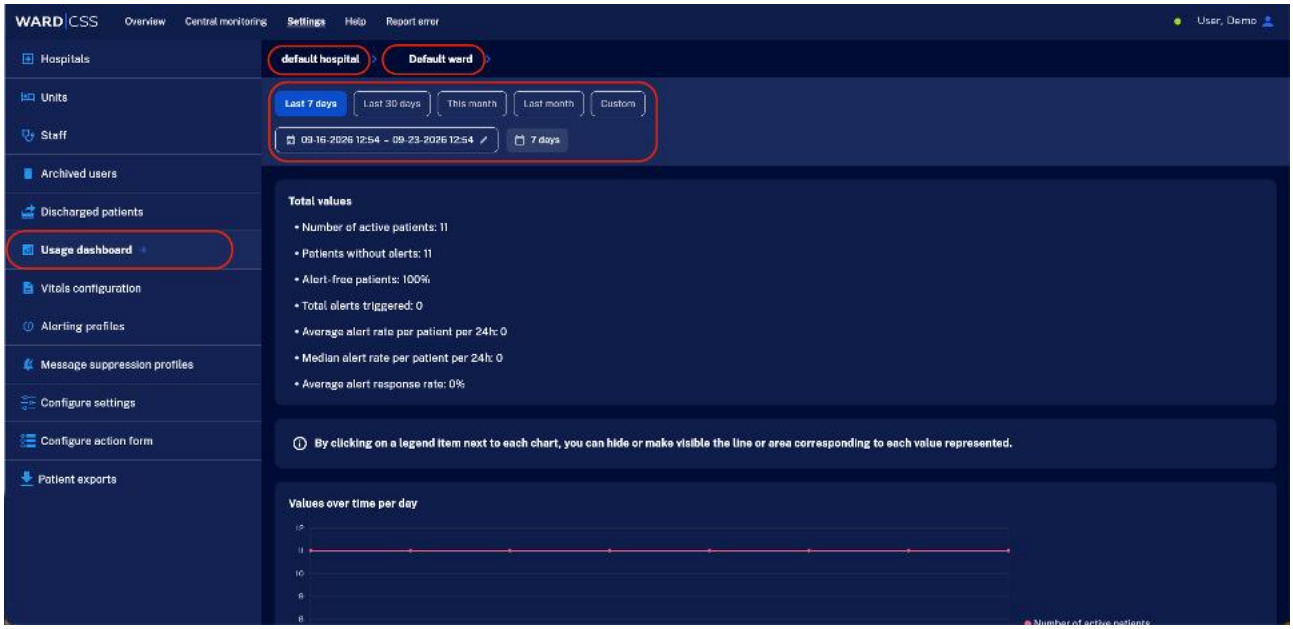


Image 95a: Web app usage dashboard

You will see the use of the system over the selected time.

Image 95b: Usage dashboard values over time

8.2.6.6 Vitals configuration

Super users can enable or disable documentation of vital signs, name the scoring system, and structure vital values and score calculations in the **Vitals Configuration.** Configurations made in the web app will also appear in the mobile app.

- To enable or disable the entire documentation of vital signs, tick the box next to *Disable the Documentation of Vital Signs* at the top of the screen.
- To give the scoring system a name, enter a version name in the box on the left.

At the bottom of the screen, below the vital value fields configuration, you can control individual functions:

- *Disable scoring* – enables or disables score calculations.
- *Disable notes* – enables or disables notes in the mobile app.

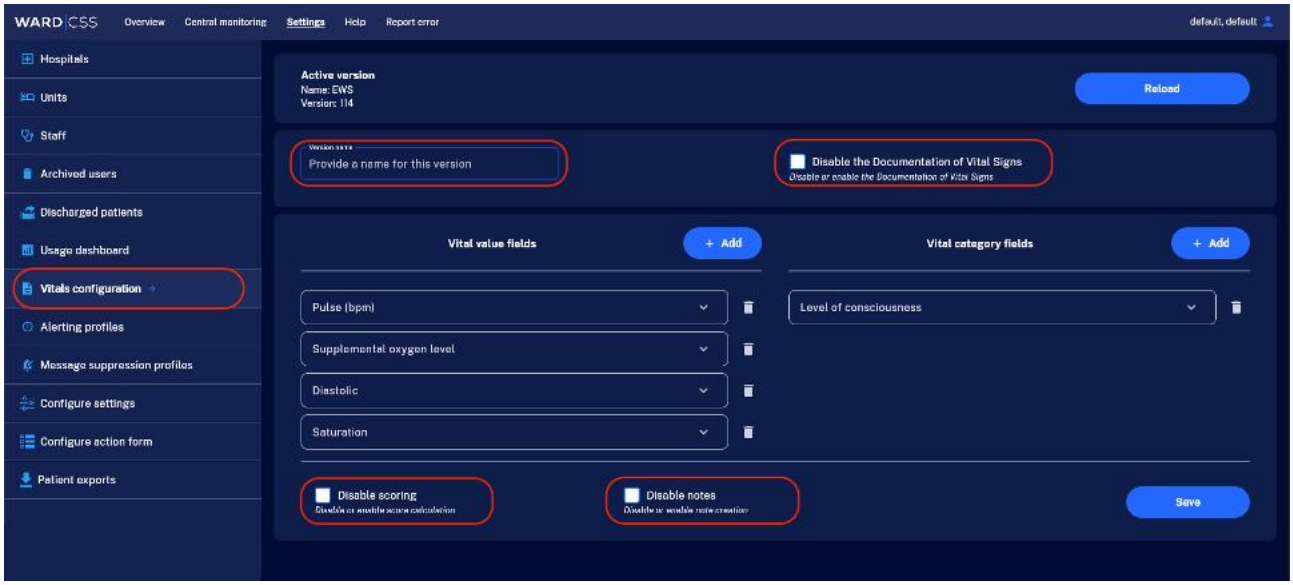


Image 96a: Web app vitals configuration

To configure vital value fields or categories:

- Select **+ Add** and choose the **Vital value fields**.
    - Click on the drop down menu for the vital value to configure the values.
    - Click on the **trash can** icon to delete the vital value.
- Select **+ Add** and choose **Vital category fields**.
    - Click on the drop down menu for the vital category to configure.
    - Click on the **trash can** icon to delete the vital category.

Click **Save** to apply and save any changes made to the configuration.

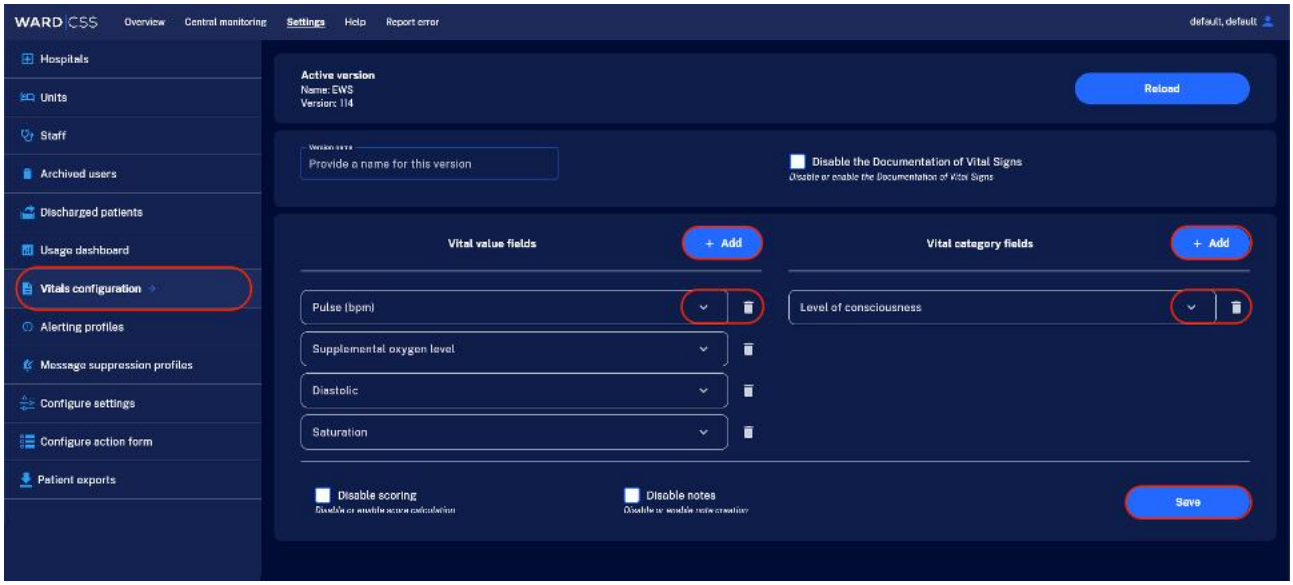


Image 96b: Web app vitals configuration

8.2.6.7 Alerting Profiles

Super users can manage alerting profiles. An alerting profile defines a set of enabled alerts, both standard conditional alerts and custom alerts, as well as whether fixed or intelligent reissue is used for the profile.

- Select **Settings** at the top of the screen.
- Select **Alerting Profiles** from the menu on the left-hand side.
- Select **Add** to create a new alerting profile, or select the pencil icon on an existing profile to edit it.
- All conditional alerts are active by default. Select an alert to deactivate it for the profile, and select which custom alerts to include.
- Use **Intelligent reissue filter for conditional alerts** to switch between fixed and intelligent reissue for the profile.

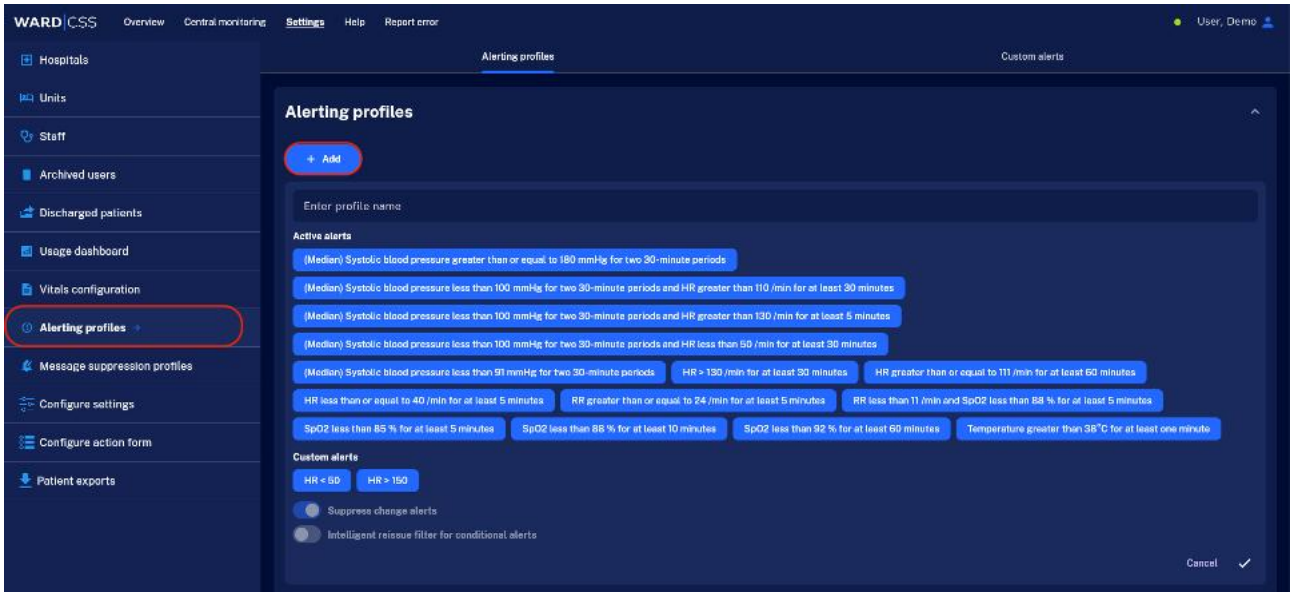


Image 97: Managing Alerting Profiles

Scroll down to see the list of hospitals. Select a profile from the dropdown next to a hospital to assign it at hospital level. Select the fold-out arrow next to the hospital to see its units, and select a profile from the dropdown next to a unit to assign a profile at unit level, overriding the hospital-level profile for that unit. If no profile is assigned at unit or patient level, the profile is inherited from the level above. If no profile is assigned at any level, the default conditional alerts apply (*see section: Alerts*). Assignment at patient level is done from the patient's Edit patient screen.

Image 98: Assign alerting profiles to hospital or units

8.2.6.8 Custom Alerts

Super users can define custom alerts based on one or more vital sign conditions, in addition to the standard conditional alerts in an alerting profile.

- Select Settings at the top of the screen.
- Select **Alerting Profiles** from the menu on the left-hand side, and select the **Custom Alerts** tab.
- Select **Add** to create a new custom alert, or select the pencil icon on an existing custom alert to edit it.

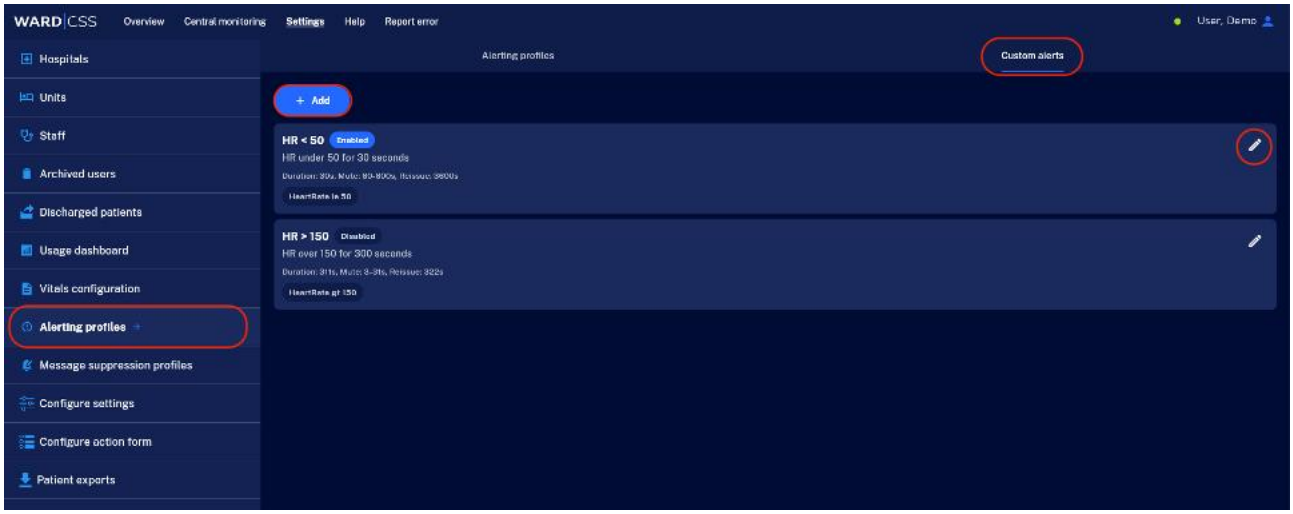


Image 99: Custom Alerts list

- Enter a name and description for the custom alert.
- Enter Duration, Reissue time and silence interval (Mute min and Mute max) in seconds.
- Select **Add condition** to define a condition: choose a vital sign, a comparison operator (greater than, greater than or equal to, less than, or less than or equal to), and a threshold value.
    - Select **Add condition** again to add more conditions, or select the **X** to remove a condition.
- Select **Create custom alert** to save the custom alert.

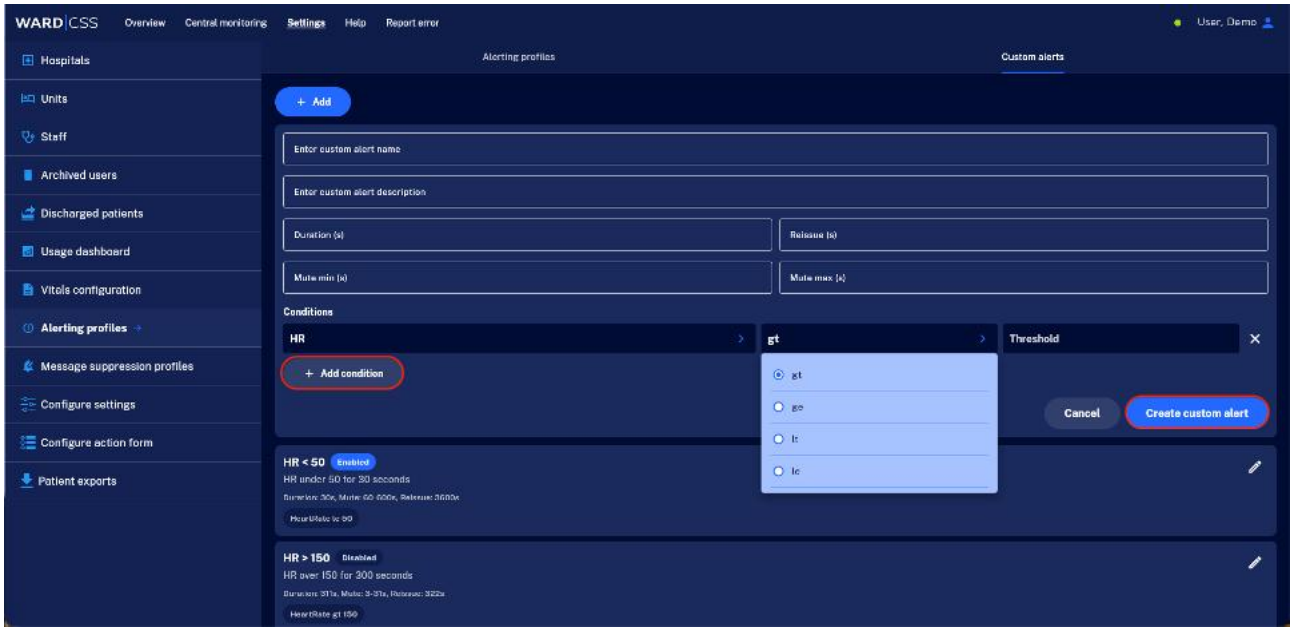


Image 100: Create custom alert form

8.2.6.9 Message Suppression Profiles

Super users can manage message suppression profiles. A message suppression profile controls the suppression of HL7 alarms and mobile push notifications for a hospital, unit, or patient.

- Select **Settings** at the top of the screen.
- Select **Message Suppression Profiles** from the menu on the left-hand side.
- Select **Add** to create a new message suppression profile, choosing whether to suppress notifications, HL7 alerts, or both.

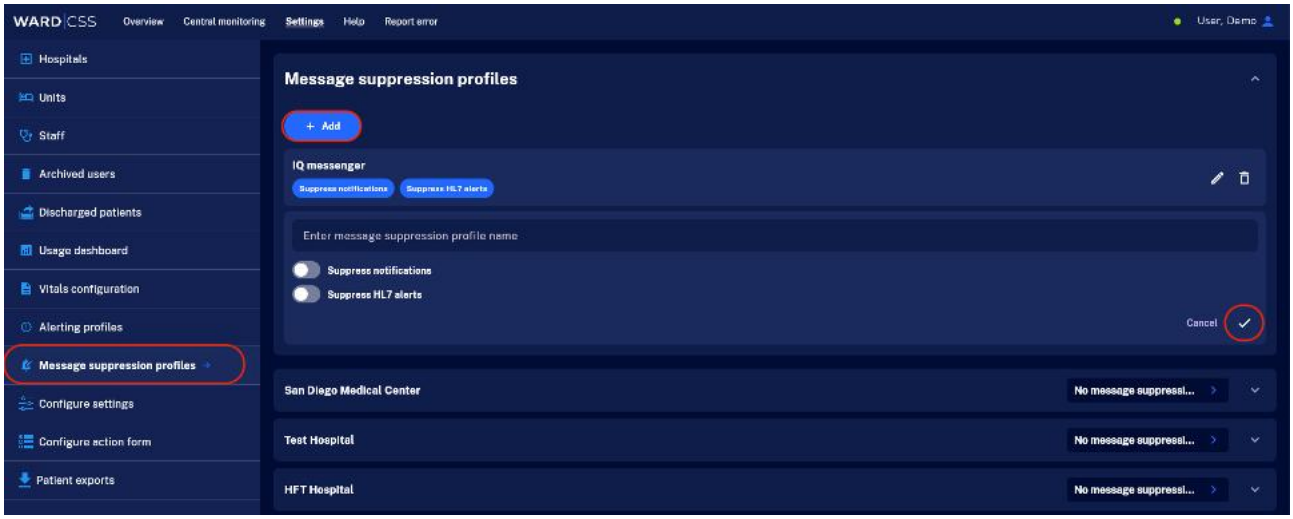


Image 101: Managing Message Suppression Profiles

Scroll down to see the list of hospitals. Select a profile from the dropdown next to a hospital to assign it at hospital level. Select the fold-out arrow next to the hospital to see its units, and select a profile from the dropdown next to a unit to assign a profile at unit level, overriding the hospital-level profile for that unit. If no profile is assigned at unit or patient level, the profile is inherited from the level above. If no profile is assigned at any level, no messages are suppressed. Assignment at patient level is done from the patient's Edit patient screen.

Image 102: Assign message suppression profiles to hospital or units

8.2.6.10 Configure settings

Super users can enable or disable selected system features.

- Select **Settings** at the top of the screen.
- Select **Configure Settings** from the menu on the left-hand side.
- A list of configurable features will be displayed, grouped into categories: Patient management, Clinical context, Safety & security, Notifications & alerts, and Vitals display.
- To enable or disable a feature, use the toggle switch on the right-hand side of the corresponding feature.
- Select **Submit** to apply the changes.

The Vitals display category controls which vital signs (HR, SpO2, pulse, RR, temperature, blood pressure) are shown throughout the app.

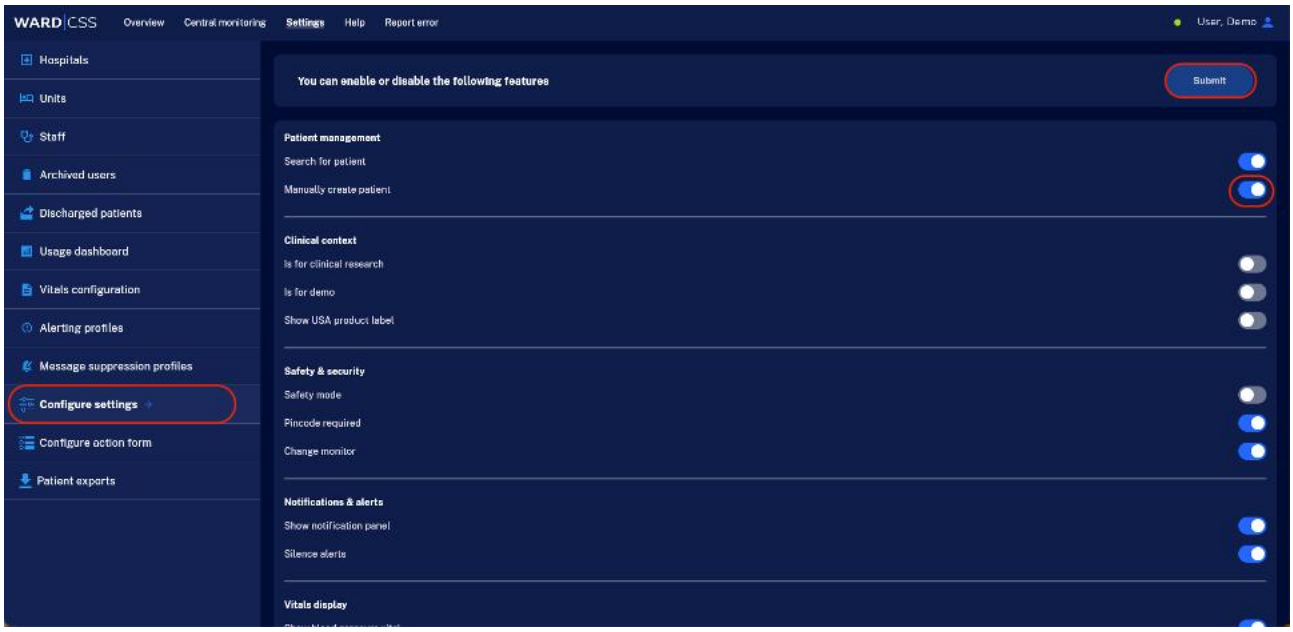


Image 103: Configure settings

8.2.6.11 Patient exports

Super users can export historical vital signs and alert data **for patients**.

- Select **Settings** at the top of the screen.
- Select **Patient exports** from the menu on the left-hand side.
- Select **Create export** to open the export panel.
- Optionally filter the patient list by unit, or search by name, Medical Record Number, hospital, or unit.
- Select the checkbox next to each patient to include, or select **Select all**.
- Select **Create export** to start the export job.
- Once the export job shows as completed, select the download icon in the Actions column to download the file, or the trash can icon to delete it.

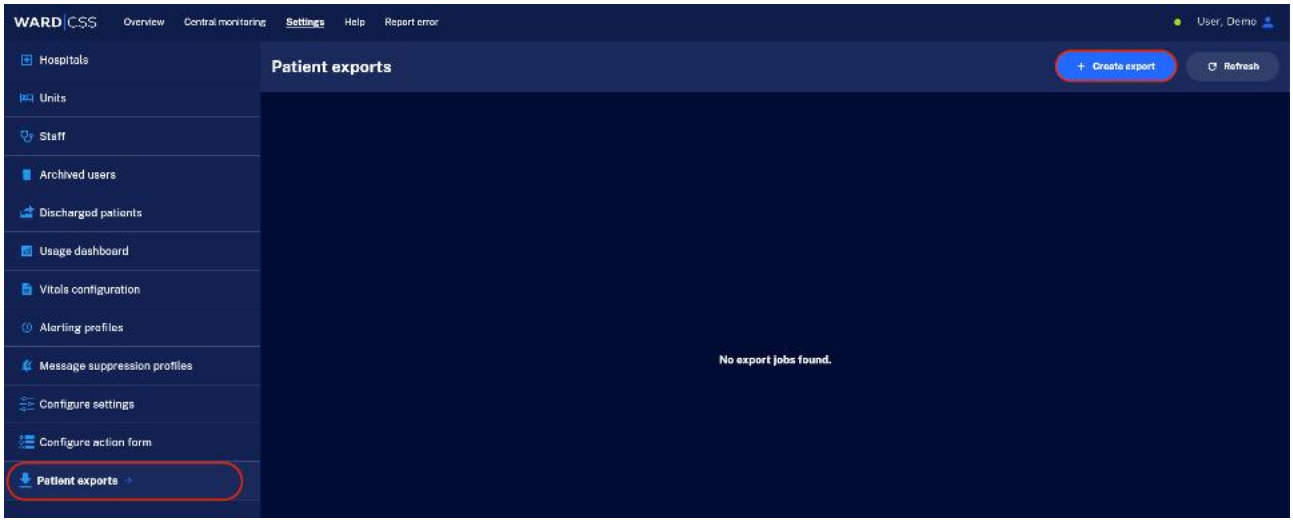


Image 104: Patient exports

8.2.7 Help

- Select **Help** in the menu.
- Select **Instructions for use.**
- Read the information.
- For more information go to http://www.ward247.com.

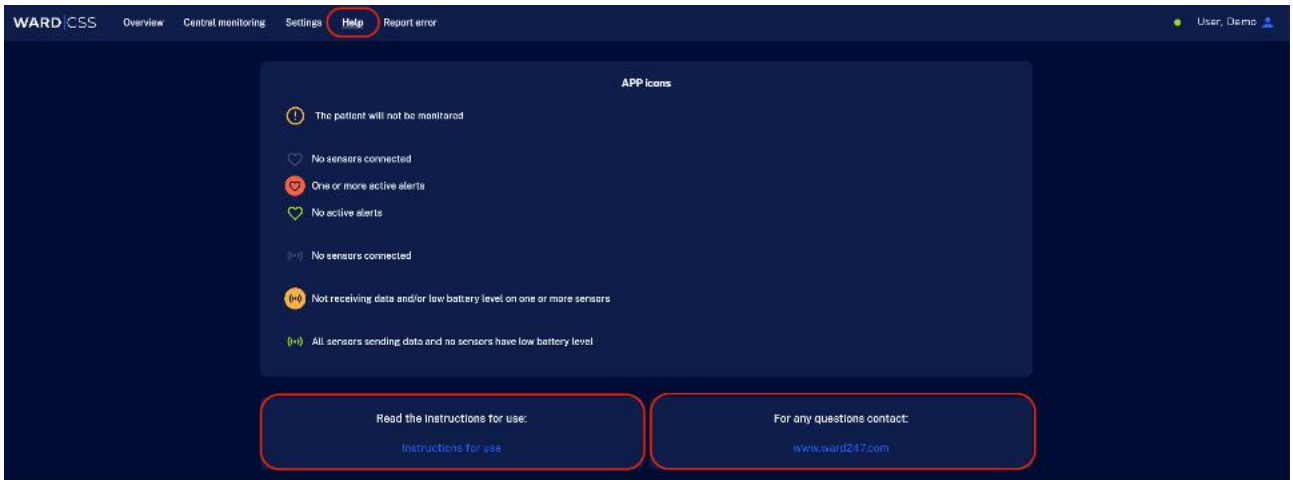


Image 105: Help for use of Web App

8.2.8 Report error

- Select **Report error** in the menu.
- Select one of the reporting options **Report bug, Technical support** or **New feature**.
- Follow the instructions.
- Or contact us via **support@ward247.com.**

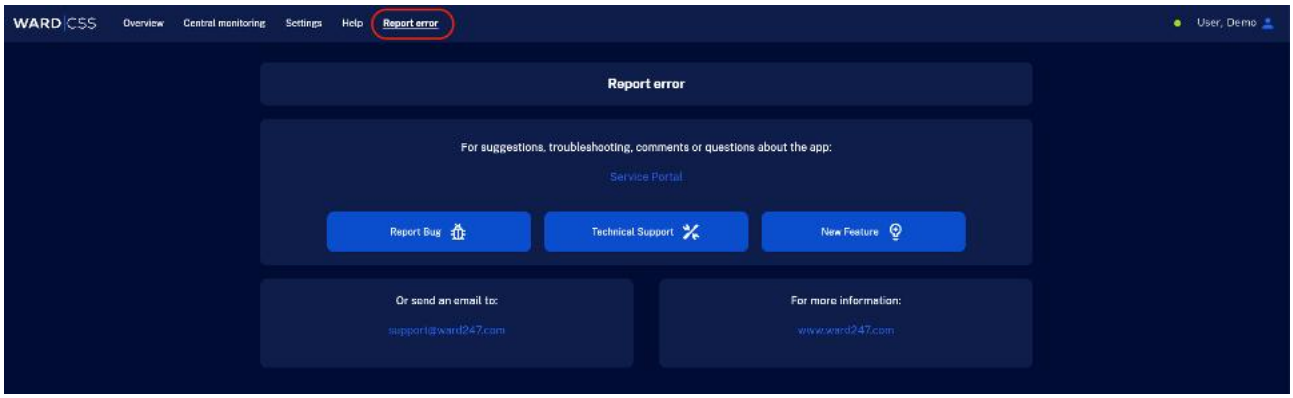


Image 106: Report errors

8.2.9 Logout of the Web app

Select your username in the top right corner followed by **Log out**.

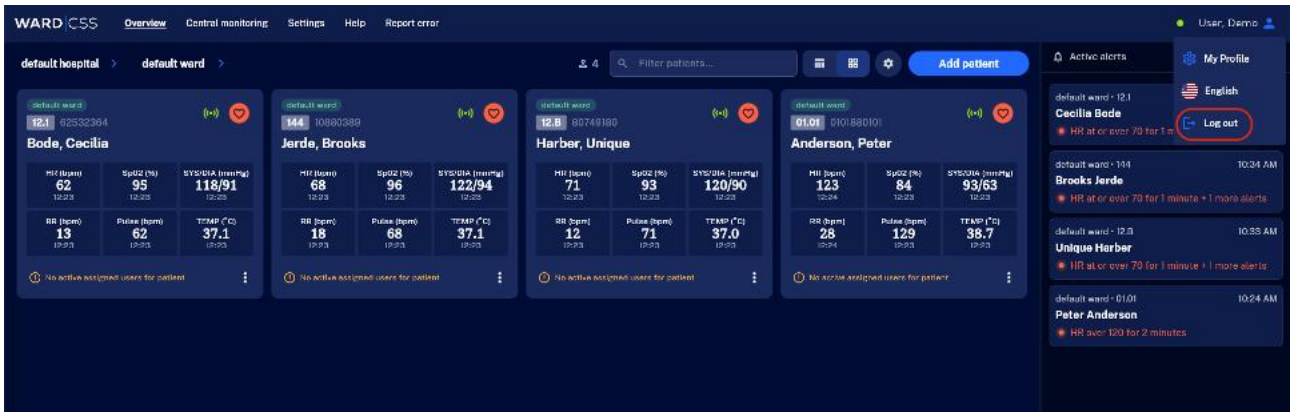


Image 107: Logout of the Web app

9 Troubleshooting and Error Messages

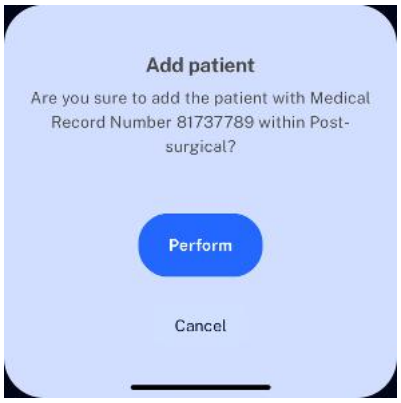
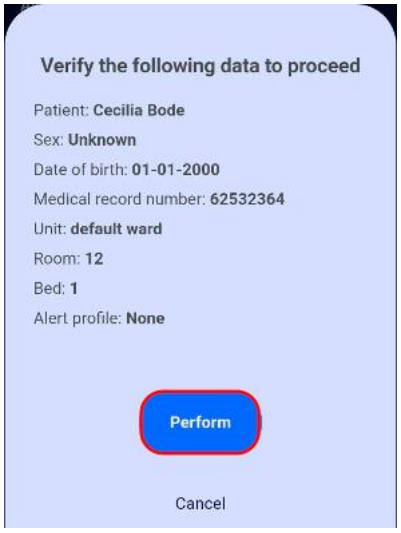
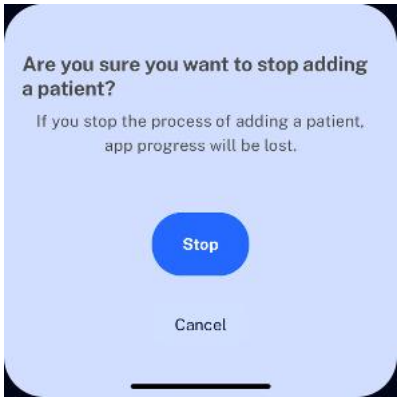
The following section provides troubleshooting related to error messages that may appear on the WARD-CSS app, including their meanings and solutions.

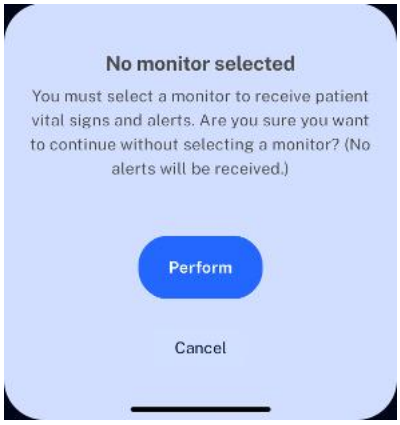
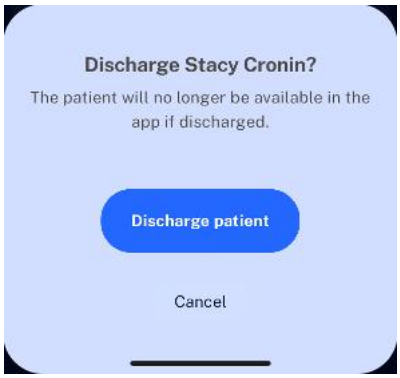
9.1 Warnings

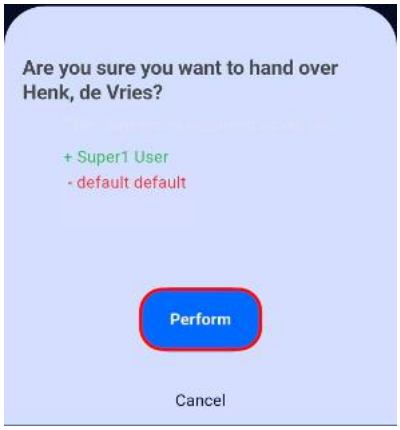
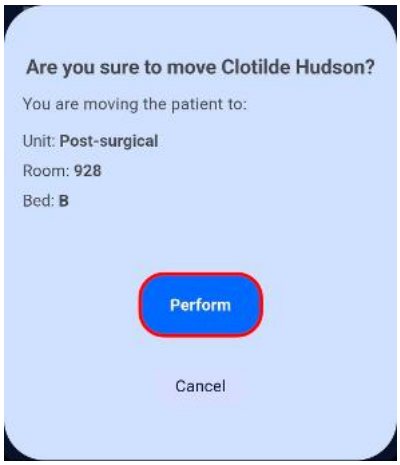
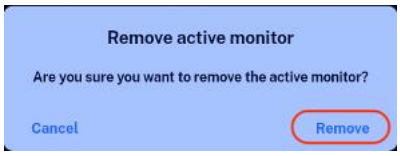
	WARNING: For trained healthcare professionals only
	WARNING: DO NOT modify the WARD-CSS software
	WARNING: Ensure a stable internet connection to avoid delayed alerts and notifications

	WARNING: Assign every patient to an active user to receive alerts and notifications
	WARNING: Ensure sound and notifications are enabled on the phone
	WARNING: Assign the correct monitor to the patient to receive alerts and notifications
	WARNING: Keep the phone with you to receive alerts and notifications
	WARNING: To silence an alert of a patient remains the responsibility of the Health Care Professional
	CAUTION: Avoid unauthorised access by keeping login information secret
	CAUTION: ONLY use WARD-CSS according to intended use
	CAUTION: ONLY use medical devices for vital sign monitoring according to intended use
	CAUTION: Read and understand the instructions for use for the medical devices used in conjunction with WARD-CSS
	CAUTION: Contact sensor company if you experience problems with the sensors - the accuracy of the vital signs data is the responsibility of the sensor company

9.2 Modal confirmations

When adding a patient make sure you have selected the correct Medical Record Number of the patient.	
When adding, creating or editing a patient verify that the following data is correct before confirming.	
When stopping addition or creation of a patient all progress will be lost.	

When no monitor is selected no vital signs or alerts will be shown for the patient.	
When removing a patient from your list make sure that another nurse is assigned to the patient.	
When discharging a patient make sure you are discharging the right patient before confirming. The patient will no longer be available in the app if discharged.	

When handing over a patient to another user please make sure you are handing over the patient to the right user before confirming.	
When moving a patient to another unit please make sure the following data are correct before confirming.	
When removing a monitor make sure you want to remove the monitor before confirming. Removing the monitor will disable the vital signs and alerts.	
To silence an alert of a patient remains the responsibility of the Health Care Professional.	

9.3 General error messages

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
General error messages:	Access denied. Check your user permissions.	The user does not have permission to perform this action due to their current role.	Check user permissions and contact the admin user of your unit to update your permissions if needed. See section *5.1 User levels and permissions.*
	This resource already exists. Try again.	The user or hospital already exists in the system.	Enter a new user or hospital name that has not been previously entered in the system.
	Your session expired. Login again.	The session has expired.	Login again to continue using the app.
	The server encountered an error. Refresh and login again.	An error occurred on the WARD-CSS internal server.	Refresh browser or login again. Contact WARD Customer Service if the issue persists.
	The email is invalid.	The email format entered is not correct.	Enter your email including an `@` symbol and a valid domain.
	URL does not exist.	The webpage you are trying to reach cannot be found.	Refresh the webpage. Ensure the URL is entered correctly. Contact WARD Customer Service if the issue persists.

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	No record found. Try again.	No matching entries were found in the system. This could be that a hospital, unit, user or patient was deleted by another user.	Contact WARD Customer Service if the issue persists.
	A requested resource does not exist.	No matching entries were found in the system. This could be that a hospital, unit, user or patient was deleted by another user.	Contact WARD Customer Service if the issue persists.
	This hospital has active users therefore cannot be deleted.	Hospitals with active users cannot be deleted. Only super users can delete a hospital.	
	This unit has active patients therefore cannot be deleted.	This unit with active patients and users therefore cannot be deleted.	
	This unit has active users.	The unit has active users - it can not be deleted.	
Error messages about password creation:	Password could not be created. It has less than 8 characters. Try again.	Passwords must meet the requirements.	Create password that meets the following requirements: • Minimum of 8 characters • one capital letter • one lowercase letter • one number • one special character (_____).

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	The password could not be set - it contains an unknown character.	The password can not contain an unknown character.	Remove unknown character from your password.
	The password could not be set - it is missing a lowercase letter.	The password is missing a lowercase letter.	Add a lowercase letter to your password.
	The password could not be set - it is missing a number.	The password is missing a number.	Add a number to your password.
	The password could not be set - it is missing a symbol.	The password is missing a symbol.	Add a symbol to your password.
	The password could not be set - it is missing an uppercase letter.	The password is missing an uppercase letter.	Add an uppercase letter to your password.
	Password already used. Try again.	A valid password cannot match previous passwords.	Create a new password that has not been previously used.
Error messages about login:	Password reset email error. Try again.	The system could not send a password reset email.	Select **Forgot your password** to create a new password again and receive a new link. Check that you have typed the correct email.

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	Password expired. Reset password.	The password has expired and needs to be reset.	Reset password by selecting **Forgot your password** on the login screen of either the web or mobile app. The password must meet the following requirements: • Unused new password • Minimum of 8 characters • one capital letter • one lowercase letter • one number • one special character (_____).
	Incorrect password. Try again.	The password entered is incorrect.	Re-enter password. If the issue persists, reset password by selecting **Forgot your password.**
	The password could not be set.	The password could not be set due to an unknown reason.	Contact WARD Customer Service if the issue persists.

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	Password reset link expired. Request a new link.	The password reset link in the email has expired.	• Reset password by selecting **Forgot your password** on the login screen of either the web or mobile app. The password must meet the following requirements: • Unused new password • Minimum of 8 characters • one capital letter • one lowercase letter • one number • one special character (_____).
	Single sign-on error. Unable to log in.	The single sign-on provider denied user access.	Exit the mobile app and login again. • Refresh the webpage and login again. • Contact WARD Customer Service if the issue persists.
	Too many failed login attempts.	An incorrect username or password has been entered too many times.	Reset password by selecting **Forgot your password** on the login screen of either the web or mobile app. • Re-enter password after ___ secs/mins.

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	The user does not have a notification token.	The device failed to register for in-app notifications, so alert notifications cannot be received. OR The app was unable to register for alert notifications on the mobile device.	Enable notifications in phone settings. • Make sure to enable notifications and sound (ask local IT department for support if needed). • Restart the app. • Contact WARD Customer Service if the issue persists.
	Enable notifications and restart the WARD-CSS app.	WARD-CSS notifications are not enabled in your phone settings.	• Make sure to enable notifications and sound (ask local IT department for support if needed). • Restart the app. • Contact WARD Customer Service if the issue persists.
Error messages about user:	Incorrect PIN. Try again.	The PIN used for barcode login is incorrect.	Restart barcode login and re-enter correct PIN.
	PIN must be 4 digits. Try again.	A valid PIN must have four (4) digits.	Enter a four (4) digit PIN.

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	No PIN found.		• Create a PIN for the user by selecting **Barcode login setup** in the mobile app. • Select **Register barcode**. • Scan barcode. • Create a four (4) digit pin. • Repeat four (4) digit pin.
	No password found.	The user does not have a password.	• Reset password by selecting **Forgot your password** on the login screen of either the web or mobile app. • Receive password reset email link • Enter code into the app and create a new password The password must meet the following requirements: • Unused new password • Minimum of 8 characters • one capital letter • one lowercase letter • one number • one special character (_____).

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	You do not have access to this unit(s).	You do not have access to the unit and you need to be assigned to the unit before you can access it.	Contact your administrator to get assigned to the requested unit.
	You do not have permission to modify user roles.	You do not have permission to modify user roles. Only admin or super users can modify user roles.	Contact your administrator to update your role permissions.
	User not found.	The user does not exist in the system.	Create a new user on the WARD-CSS Web app.
Error messages about patient sessions:	No monitor has been assigned to the patient.	No vital signs data/ alerts from the patient are available because no monitor has been assigned to the patient in the WARD-CSS app.	Assign the monitor to the patient in the Mobile app (See Section 8.1.2 *Managing patients: Create patient* or Add monitor in IFU).
	No user assigned to the patient.	No vital signs data/ alerts from the patient will be received by the user because the patient is not assigned to an active user.	Assign an active user to the patient (See Section 8.1.2 *Managing patients: Assign patient* in the IFU).
	No unit assigned to the patient.	The patient is not assigned to a hospital unit. When creating a new patient, they must be assigned to a unit before proceeding.	Assign a unit to the patient (See Section 8.1.2 *Managing patients: Create patient* in the IFU).

	Error Message on UI:	Error Message Meaning (IFU)	Solution/Action (IFU)
	No monitor attached to the patient.	No vital signs data/ alerts from the patient will be received by the user because the patient does not have any sensors attached in the WARD-CSS app.	Attach the correct sensor(s) to the patient.
	The reading session has no patient assigned.	Vital sign data has been received that is not linked to a patient.	This is not allowed to happen so contact WARD Customer Service if the issue persists.

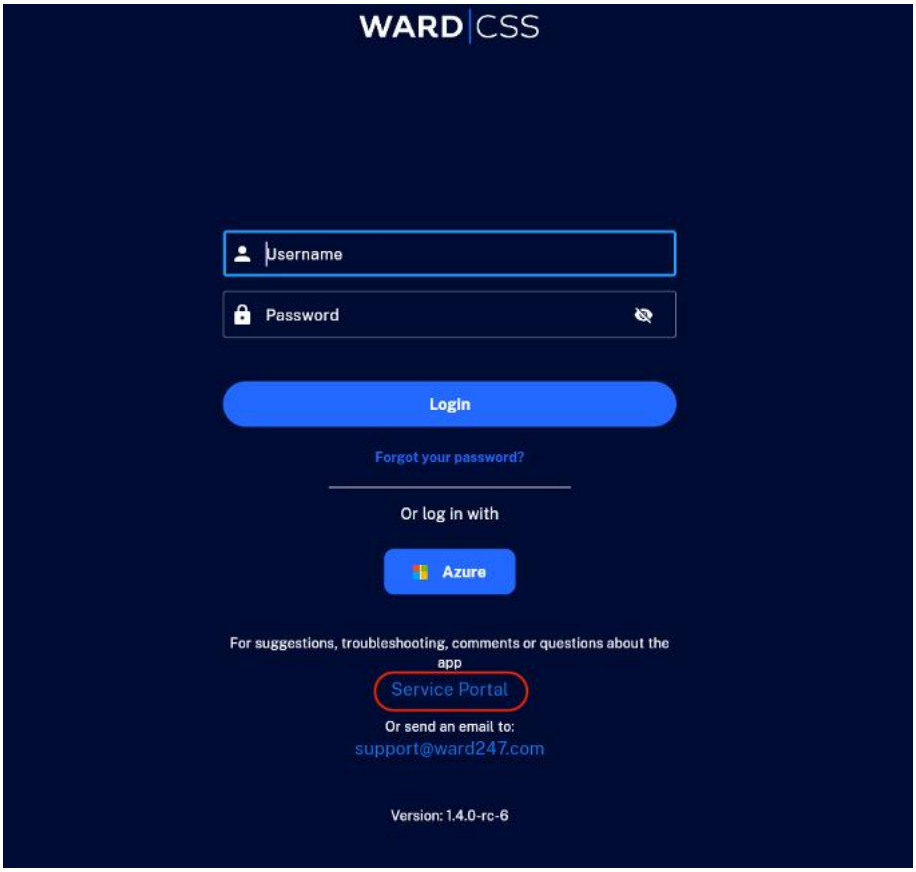
For more rare and specific error messages, a bug report can be created by reporting a bug in the Service Portal. See section: *Support and report an error (Bug)*.

10 Support and report an error (Bug)

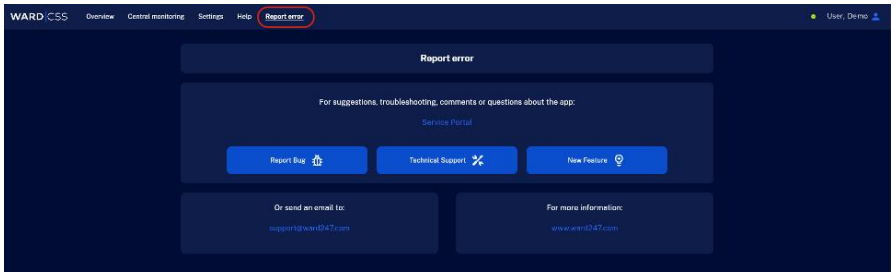
If you need additional assistance or need to report an error, you can access the Service Portal from the Login screen of both the Web app and Mobile app, or within the app itself. It is also possible to send an email to support@ward247.com.

To report an issue, have your login email address and software app version number ready. The app version can be found at the bottom of the Login screen, and under 'Help'.

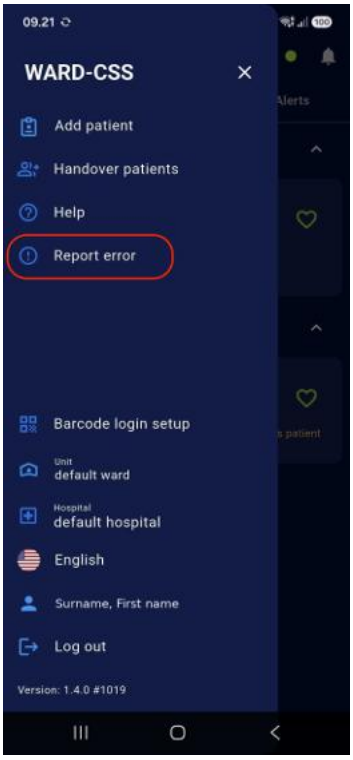
Access the Service Portal on the Web/Mobile App Login Screen



Access the Service Portal in the Web App



Access the Service Portal in the Mobile App



11 Help

11.1 Opening the Web App

The Web App can be loaded by accessing the app's URL (web address) in any internet browser. The IT department of the hospital creates its own unique URL. The Web App can be bookmarked in the internet browser for quick access.

11.2 Forgot password

A new password can be requested by selecting **Forgot your password?** in the login screen.

Enter the email address and a link will be sent to this email address. Select the link to reset the password. Please be aware that the email may end up in your junk email folder.

11.3 Forgot to add monitor to patient

It is possible to add a monitor later. Go to the patient overview and select the **Patient menu** (the three dots) to select **'Add monitor for patient'.**

12 System requirements and supported platforms

For more information, see the IT Implementation document. For the server to run the back-end application, the following server specifications are required:

Minimum server requirements	• 8 CPUs
	• 32 GB RAM
	• Linux based operating system:
	  • Redhat 9.2 or higher
	  • Ubuntu 22.04 or higher

Network requirements	• Port: 443 • DNS address (internal) • Certificate to enable TLS communication

For Mobile App and Web App, the following specifications are defined:

Mobile App	• Android-based mobile devices:
	  • Android API 29 or newer
	• iOS-based mobile devices:
	  • iOS 18 and above
	• The screen must be a minimum of 4.7 inches

Web App	• Google Chrome v. 96 or newer

13 Uninstalling WARD-CSS

The WARD-CSS back-end application on the server can only be uninstalled by the manufacturer. When uninstalling, all apps and services are removed and all data is deleted.

The Mobile App can be uninstalled by the IT department.

14 System updates

System updates for WARD-CSS are distributed as follows:

The server back-end is updated by the manufacturer.

The Mobile App is updated by the manufacturer sending an APK file or making the update available in the Google PlayStore.

15 Legal notices

Serious incidents and adverse events shall be reported to WARD 24/7 ApS without undue delay. Use the WARD 24/7 ApS Service portal to report incidents or one of the other contact methods above in the section *General Contact Information*

Via email: support@ward247.com or service desk portal:
https://ward247.atlassian.net/servicedesk/customer/portal/1

To contact competent authorities:

Medicines and Healthcare products Regulatory Agency
10 South Colonnade, London E14, United Kingdom.

16 Disclaimer

This IFU has been issued in compliance with requirements set out in:

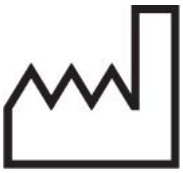
Commission Implementing Regulation (EU) 2021/2226
Commission Regulation 745/2017 concerning Medical Devices.

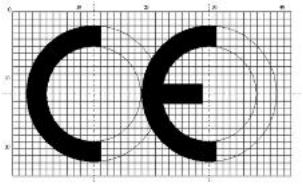
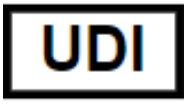
17 Manufacturer’s contact information

WARD 24/7 ApS
Danneskiold-Samsøes Allé 41
1434 Copenhagen K, Denmark

www.ward247.com

18 Definitions and symbols

Symbol	Meaning	Accompanying text to be displayed
	Symbol 5.1.1 - Manufacturer Name and address of the manufacturer The following text should appear next to the icon Can include email address and phone number	
	**Symbol 5.1.3 - Production date** Release date The following text should be shown next to the icon Please note! - If the release date is displayed next to the manufacturer symbol along with name and address, this symbol can be omitted	YYYYY.MM.DD
	Symbol 6.1.5 - Consult instructions for use To signify that the instruction manual/booklet must be read	
	Symbol 5.4.3 - See instructions for use	URL
	When electronic IFU is to be used, this icon must be displayed along with the URL to the manufacturer's website	
	Medical device Indicates that the product is a medical device	

	CE label The CE label The symbol must not be more than 5mm high and must have the same proportions as shown below: 	
	**UDI** UDI - Unique Device Identifier This symbol must be included in the UDI code for the device version/release The UDI code must be displayed together with the symbol Example of a UDI code:	
	Serial number Indicates the manufacturer's serial number so that the specific version can be found	
	Importer company name Importer company address Indicates the entity importing the medical device into the locale.	
	Optional icons	
	Icon 5.4.4 - Caution! Indicates that the user should refer to the Instruction For Use for important information such as warnings or precautions	