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# WEBSITE DESIGN



#### Feature 4: Oximeter

On the **Track My Health home page**, the user can select the **Oximeter feature icon**.

This will direct them to the Oximeter page.

On the Oximeter page, the system will display a

Graph button and a Table button, below the Oximeter sub-header.

# GRAPH REPORT

If the user selects the Graph button, then they will be able to see an oximeter graph with an x-axis and a y-axis.

**TRỤC X:**

The x-axis will reflect **the date/time** parameters of the data recordings,

Under the graph, the user can **select** the Date/Time section to display a **pop-up calendar**.

This will allow the user to **select** a desired start and end date/time.

**TRỤC Y:**

while the y-axis will show the **blood oxygen saturation percentage** (i.e. %SpO2).

*Xem mục 4. Please refer to the formula document for further details on any parameters, or measures, listed in this section.*

**THÀNH PHẦN BÊN TRONG GRAPH:**

If there is no data to display, then there will be a

notification that states

***"You have no data to graph."***

|  |  |
| --- | --- |
| **black line** | represents the user's blood oxygen saturation percentage over time |
| **blue hashed line** | Below the black line  represents a low threshold for the user's blood oxygen saturation percentage |

# TABLE REPORT

Aside from a graph, the user can select the Table format.

With the table format, the system will display several columns to represent

COLUMN HEADERS

|  |  |
| --- | --- |
| **Date/Time** | For the Date/Time field, the user can select Date/Time and a pop-up calendar will display for the user to select the desired start and end date/time. |
| **blood oxygen saturation percentage (%SpO2)** |  |
| **Threshold** |  |
| **Mode** |  |
| **Diagnosis (Diag.)** |  |

**PHẦN DIAGNOSIS**

Below the graph/table section, the system will display a Diagnosis and Recommendations field.

Initially, the Diagnosis and Recommendations section will have a

notification that reads

"This page displays your current medical issues and the date that they were noted in your medical record. Click on the issue name for more in-depth information on that particular issue."

By following the notification directions, the user will be able to retrieve details about their current diagnosis and previous diagnoses.

It will also detail recommendations based on the diagnoses provided.

**BUTTONS**

Beneath Diagnosis and Recommendations, there will be a Settings button and a Back to Track My Health button. If the user selects the Settings button, they will be directed to the OximeterSettings page. However, if the user selects the Back to Track My Health button, then they will be transferred to the Track My Health home page.

# Settings

On the Oximeter Settings page, the system will display a

**notification**, under the Oximeter Settings sub-header, that states

***"This page displays the current settings of this feature."***

Below the notification, the user will see **settings categories** that the user can change; such as

|  |  |
| --- | --- |
| **Sample rate,** | For example, the user can select a five minute interval for Sample rate |
| **Tracking mode** |  |
| **Warning threshold** |  |
| **Measurement duration** |  |

***Xem mục 4.***

***Please refer to the formula document for further details on any parameters, or measures, listed in this section.***

For each category, the user can choose the desired settings. The user can also select the appropriate Tracking mode, Warning threshold, and Measurement duration. Each category will have different settings that the user can select from to effectively track their Oximeter data.

**BUTTONS**

Below the Oximeter settings, the user will see

**Edit, Cancel, Save, and Back buttons.**

If the user chooses to edit their settings, they will need to select the Edit button and make the desired changes.

Once the changes are made, the user will select the Save button so that the desired settings are saved.

However, if the user wants to cancel any changes, then they will select the Cancel button and no changes will be saved.

The user can also select the Back button. This will take them back to the Oximeter page.

# Pulse oximeter SpO2

### Tracking mode

* Normal monitoring
* Sleep apnea syndrome monitoring
* COPD patients monitoring
* Patients on long-term oxygen therapy monitoring
* Asthma patients monitoring
* Acute respiratory infections monitoring

### Thresholds

* Normal monitoring: check SpO2 level<90%, if yes
  + recommendation: See your doctor
* Sleep apnea syndrome monitoring: check series of SpO2 level<90%, or check SpO2 values changes <=4%, if yesrequesting clinical score, if there is any of clinical score, see your doctor.

\* Clinical Score

\_ Loud and habitual snoring

\_ Interrupted breathing

\_ Excessive daytime sleepiness: Epworth Sleepiness Scale

\_ Body mass index greater than 25

\_ Use of hypotensive medications or blood pressure greater or equal to 140/90

\* Epworth Sleepiness Scale Situations Score

\_ Sitting and reading

\_ Watching TV

\_ Sitting inactive in a public place (e.g a theater or a meeting)

\_ As a passenger in a car for an hour without a break

\_ Lying down to rest in the afternoon when circumstances permit

\_ Sitting and talking to someone

\_ Sitting quietly after a lunch without alcohol

\_ In a car, while stopped for a few minutes in traffic

\* Epworth Sleepiness Scale

\_ 0: no chance of dozing

\_ 1: slight chance of dozing

\_ 2: moderate chance of dozing

\_ 3: high chance of dozing

If your total Epworth Sleepiness Scale Situations Score is 6 or under, you are doing well and deserve a pat on the back; if your score is 7 or 8, you are average; if your score is 9 and above, you have a problem and should seek help.

* COPD patients monitoring: check SpO2 level<92%, if yes
  + Recommendation: see your doctor immediately
* Patients on long-term oxygen therapy monitoring: check SpO2 level<90%, if yes
  + Recommendation: see your doctor immediately
* Asthma patients monitoring: check SpO2 level<92% (before treatment with bronchodilators), if yes
  + Recommendation: see your doctor immediately if
* Acute respiratory infections monitoring[Homes09]: check SpO2 level<92% (in a previous healthy individual who is not receiving oxygen therapy)
  + checking clinical features CRB65
    - Confusion (new onset)
    - Respiratory rate >30 / minute
    - Blood pressure

systolic<90mmHg,

diastolic<60mmHg

* + - 65 years of age or older
  + Recommendation: Score one point for each of the CRB65 components. Patients with a score of 1 or 2 may need hospital admission and those with scores of 3 or 4 need urgent hospital admission, especially if Sp02<92%

### Help/Info

* Display tracking mode: refers above
* Limitations

|  |  |  |
| --- | --- | --- |
| Limitations [Anzueto10] | SpO2 values < 80% | Pulse oximeters can overestimate oxygen saturation, particularly in those with darkly pigmented skin. [Feiner07] |
| Poor perfusion (cold digits) due to hypotension, hypovolemic shock, cold environment, or cardiac failure | May result in the machine not providing a reading. [Holmes09] |
| Anemia | Oxygen delivery to tissues is inadequate but SpO2 is normal. |
| Carbon monoxide poisoning | Carbon monoxide binds to hemoglobin, resulting in inadequate oxygen transport despite normal pulse oximeter readings. [Holmes09] |
| Certain antiretroviral medications | Affect oxygen’s affinity for hemoglobin. [Jubran04] |
| Movement, shivering patient, heart arrhythmias | Oximeter may not be able to identify an adequate pulse signal. [Holmes09] |
| Nail polish, dirt, artificial nails | Can cause false low readings or no readings. [Holmes09] |
| Bright artificial light (as in an operating room) | Can cause false low readings. [Holmes09] |
| Older patients | Normal oxygen saturation levels may be slightly lower than in younger people. [Holmes09] |
| Sickle cell disease | Does not confound SpO2 results in adults [Ortiz99], but may in children. [Blaisdell00] |

* Warning signs [Anzueto10]
  + A sudden drop in your oxygen level—for example during a severe cold or the flu—can be a sign of trouble. Call your doctor if your normal oxygen setting is no longer maintaining your saturation and you feel sick. Also, call your supplier if you feel your oxygen system is not working.
  + A high resting pulse rate of greater than 100 or a low pulse of less than 40 (check with your doctor to determine your individual pulse ranges) are also reasons to call your doctor.
  + During a severe breathing attack, it is possible to have a normal oxygen level. Seek medical help if you have severe shortness of breath, wheezing, or increased pulse rate, even if your oxygen saturation is normal.
* Troubleshooting [Anzueto10]
  + Nail polish (especially dark shades) and/or artificial nails may affect the oximeter’s performance.
  + Accurate oxygen measurements by oximetry require a good blood flow through the tissues. When your fingers are cold, the blood flow is reduced and poor or abnormal readings are possible. Warming the hands by rubbing them together or with warm water helps improve blood flow.
  + Do not smoke! Smoking reduces the amount of oxygen reaching your tissues—while the oximeter willfalsely suggest that oxygen level is satisfactory.
  + You may be more short of breath when your oxygen is low, but oxygen alone may not fully relieve shortness of breath. Exercise training and pulmonary rehabilitation are usually helpful in this situation.
* Diseases related to the decrease in SpO2%: TBD