



E-Care @ Home

WP1: User Requirements and Specification

D.1.2.3.1: Sleep Tracker

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ABSTRACT
<p>This document describes the functionality to be accessed via the UX-layer according to the architecture described by the wireframes, with the presentation style described in 'graphics' and the UX behavior to be fully specified in the WP-2 – UX templates.</p>

KEYWORDS
UX, sleep tracker,functional requirements

VER.	DATE	STATUS, CHANGES	FROM	REVIEW
1.0	12.11.2013	First draft	The Alloy	WG
2.0	15.01.2014	Post review update		WG

1) **Overview:**

The Sleep Tracker measures the quantity and quality of sleep as a contribution to overall assessments of mental health.

The version 1 UX functional specification had a fairly sophisticated level of manual input designed to coordinate the information gathered from both manual and future automatic sleep detection.

Following review by the DCH clinical team, the Version 2 specification has been simplified extensively. For the purposes of the ECH project the scope of the measure will be limited as follows:

1.1. **Data collected**

This will be limited to manual entry and tracking of 3 variables: 'In bed time', 'out of bed time' and a subjective 'quality of sleep' assessment.

1.2. **Reminders:**

These will be simplified to a 'on – off' repeat setting with associated reminder time.

1.3. **No Alerts**

Although sleep patterns can provide early warnings of acute episodes, the clinical feedback is that 'alerts' to self may prove demotivating. At V2, Alerts have been removed from the specification.

2) Availability and Deployment

2.1. As per Measures - Common Functional specification

This measure shall be available on all portals from the WT master library and importable into 'life charts' as per D1.2.13A – Common – Measures Functional specification.

3) Measure information page

This page shall provide information on the uses of sleep tracking to be authored by ECH clinical partner In-geest.

4) Basic functionality.

4.1. Common behaviour

Unless specified otherwise in this document, the measure will behave as specified in D1.2.13A – Common – Measures Functional specification.

4.2. Sleep Duration

The measure will capture, via manual entry, 'go to bed' and 'wake up' times, calculate corresponding sleep duration (in hours) and display this as a vertical bar on the y axis of a chart with the option of different time values on the X axis (as per D1.2.13A common behaviour).

4.3. Sleep quality

The measure will capture, via manual entry, a qualitative self-assessment of 'sleep quality'. This will be entered as one of 5 levels. Each level will be displayed in distinct 'grey scale tone' from 1 = a very light tone to 5 = very deep/dark

4.3.1. 1 = Mostly awake in bed

4.3.2. 2 = Very Bad

4.3.3. 3 = Just OK

4.3.4. 4 = Good

4.3.5. 5 = Wonderful

Note – check for clinician feedback on choice between ‘continuous slider %’ and 5 options via ‘up down’ arrows.

4.4. Sleep note

The measure shall allow the user the option of capturing a short note linked to each reading. The user shall have the option to view and add a note to any ‘sleep reading’ at any time.

4.5. Detail view

4.5.1. Accessed via ‘wellness’ subsection as per D1.2.13A This shall include

4.5.2. 3 X axis viewing options: Week/ month/ year

‘full width’ = std level 1 page with ‘next’ and ‘previous’ level 1 horizontal scroll control default is ‘current’ time period.

4.5.2.1. Week view

4.5.2.1.1. Hours mode

Actual measured sleep duration in hours on the Y axis with time on the X
Full screen width = 7 days.

show sleep bars 'bridging' the days graphically to communicate ' between mon / Tues etc..

Bar tone indication of sleep quality.

no bar = no reading logged

4.5.2.1.2. Notes mode

Show a 'sleep notes' icon as a level 2 tile in each day for which there is a note

Show an 'add note' control in each day that doesn't have a note.

Show a 'view information about this measure' button

4.5.2.2. Month View

4.5.2.2.1. Hours Mode

Actual measured sleep duration in hours on the Y axis with time on the X

Full screen width = 31 days .

On x axis, Clear graphical indication of weeks as well as days.

stagger bars and dates to show sleep bars 'bridging' the days graphically to communicate ' between mon / Tues etc..

Bar tone indication of sleep quality.

no bar = no reading logged

4.5.2.2.2. Notes mode

Show a 'sleep notes' icon as a level 2 tile in each week for which there is a note

Show an 'add note' control in each week that doesn't have a note.

Show a 'view information about this measure' button

4.5.2.3. Year view

4.5.2.3.1. Hours Mode

Weekly average sleep duration in hours on the Y axis with time on the X

Full screen width = 52 weeks.

On x axis, Clear graphical indication of months as well as weeks
align bars with months..

Bar tone = indication of average sleep quality.

no bar = no reading logged

4.5.2.3.2. Notes mode

Show a 'sleep notes' icon as a level 2 tile in each week for each month in which
there is a note

Show an 'add note' control in each month that doesn't have a note.

Show a 'view information about this measure' button

4.5.3. Viewing scale control options

3 button row : week / month / year

4.5.4. Notes / hours view toggle control

4.5.5. Display current period label

4.5.6. Control bar

4.5.6.1. Reminders

Gives access to a set reminders screen

4.5.6.2. Log a reading

Gives access to a 'log a reading' screen

4.5.6.3. Suspend
Standard behaviour as per D1.2.13A

4.5.6.4. Delete
Standard behaviour as per D1.2.13A

4.5.6.5. Share
Standard behaviour as per D1.2.13A

5) Set a reminder

5.1. Routine reminders

Users will be able to set a reminder (as per D1.2.13A). For simplicity, at the request of clinicians, only 2 daily reminders can be set. As per common behaviour the reminder will appear as a 'smart arrow' actionable notification. Pressing the smart arrow will jump directly to the 'manual reading' view. The two routine reminders are accessed from the set a reminder screen. The default setting at deployment is 'no reminders'

Bedtime Reminders will automatically clear themselves after 5hours

Morning Reminders will automatically clear themselves after 12 hours

5.1.1. Set reminder screen :

5.1.1.1. Bedtime reminder control

This will use stand 'set a time up down arrows + a 'none' control

The default time will be 11pm.

There will also be a 'loudness control' - none - on (default = on = quiet reminder)

Note: audio control applies to this reminder only

5.1.1.2. **Morning reminder:** The default time will be 9am.

This will use stand 'set a time up down arrows + a 'none' control

There will also be a 'loudness control' - none – on (default)

5.1.1.3. **Daily Repeat** - on or off. (default = on)

5.1.1.4. **Control bar**

5.1.1.4.1. Cancel

5.1.1.4.2. Done (= confirmation screen with setting then back)

6) Manual Logging of a reading

6.1. 'log a reading' screen.

6.1.1. Bedtime (1st 'bedtime of day default = now) adjustable with std 'up down' time arrows.

6.1.2. Wake up (default = bedtime + 8) adjustable with std 'up down' time arrows

6.1.3. Set wake up time as an alarm (next to wake up time)

(this will allow users to use the 'wake up time as an alarm.) 'alarm will set a louder than usual tone and offer a large 'good morning' alarm screen with 'wake up now' or 'snooze' options. 'wake up now' will automatically log the time as the 'wake up' time for that sleep

6.1.4. Sleep quality selector

('up down' arrows and a list with **5 word settings or a % To be confirmed by clinicians**)

The preferred layout will allow direct entry of all 3 variables on one screen.

6.1.5. 'add a note' control

6.1.6. Control bar options:

6.1.6.1. cancel

6.1.6.2. 'done' (= confirmation screen with setting then back)

6.2. Anytime 'log a reading' access:

As per D1.2.13A the 'log a reading' view can be accessed at any time via the Wellness Sub-section / detail view/take a reading control.

6.3. Access via Reminders

Touching a reminder jumps to 'log a reading' screen

7) Automatic sleep detection (not required for ECH)

When a paired device is detected the UX will offer the user the option of selecting 'auto' mode to replace manual entries with automatically captured automatic ones. These automatic readings will be viewable on the same graphs as manual readings. Auto mode can be suspended at any time and replaced by manual readings, without losing database continuity. Users will be able to manually, retrospectively, add notes and sleep quality assessments.