

Modum Bad Insights Platform

Solution Description

Author: Deepinsight
Audience: Modum Bad, Deepinsight
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This document

Describes the planned delivery phases in the Modum Bad-Deepinsight collaboration. The description is based on present knowledge and plans, as such scope and details might change.

Phase 1

Objective

Quality improvement, through a tool for Modum Bad's therapists, team- and department-heads. The tool will be able to show relevant patient specific data, as well as aggregated data on team and department levels. The tool will be able to give insights into patient progression, as well as functionality for decision support to end users.

For therapists who wants to

- Have better decision support for planning and patient follow-up
- An easier tool to get overview, also to discuss with patients
- Support in writing journal notes and epicrisis

For therapy teams who wants to

- Plan their work and discuss patients
- Track how their group is doing

For department heads and management who wants to

- Track patient outcomes on department level
- Track high level patient population characteristics on department level

Scope

Patients being treated at Modum Bad:

- All inpatients
- Outclinic patients will be part of a later phase.

For historic comparisons, also previously treated patients are of interest (for aggregated data comparisons). Length of history: Given changes in question methodology at end of 2017, historical data back to Jan 2018 will be the scope, as comparisons further back might not make sense

POC (Proof of Concept)

- Exploration of test environments in order to understand and design integration process
 - CheckWare Test API
 - Dips DB Test
- Anonymized data dump exploration in order to validate hypotheses about data content and possibilities in aggregation and functionality
- Mockups of user interfaces to test on selected end-users

MVP (Minimum Viable Product)

An MVP is a product in production, with continuous data-integrations, being used by a selected group of users first, and later by all relevant users.

- End-to-end solution
 - Modum Bad Dips DB and CheckWare integration
 - Hosted and managed on Deepinsight Norwegian SaaS-platform
 - Frontend web application
- Front end supporting
 - Team view, showing patient data (active patients) and aggregates per team
 - Patient view, showing data on a single patient
 - Department view, showing aggregated data per department
 - Basic config options and user administration

Data sources

NPR ID will be used as the patient identifier across the sources (this is a Modum Bad unique identifier for each patient). This is the only ID that at present exists both in CheckWare and Dips.

Frequency of dataloading: daily or continuously, dependent on capabilities of existing solutions. Daily is considered sufficient for the initial phases.

Full list of data that will be collected from the sources:

- DIPS
 - Patient information
 - Name, birth date, gender, NPR ID
 - Assigned to department and group (post, seksjon, avdeling)
 - Diagnosis code(s) and treatment code(s)
 - Date(s) for entrance and exit
 - Responsible doctor/therapist
- Checkware
 - Weekly questionnaires (Both MPOQ and department specific questionnaires)
 - Evaluations at referral, at start and at end of treatment
 - Metadata (Context, time aspect in treatment, ...)

Storage of data on the platform

The data from the sources will be stored in two distinct datasets with different usage

1. Individual patient data

- a. Data for therapist to search for and identify the right patient
- b. Data on patient's metrics and development for the therapist

These data will only be available to specified end users. Access will be logged. The data will be deleted 30 days after treatment is finished since these are identifiable data.

2. Aggregated patient data

Patient data grouped on levels such as department, diagnosis, type of treatment

These data are de-identified. Will be kept for longer time periods to allow for historical comparisons.

For anonymity, each group can have no less than 5 members.

End user interface

End users log on using a web browser, from a secure zone at Modum Bad. Traffic must go through Norsk Helsenett, NHN.

End user language is Norwegian for the first version, but should be changeable in a user setting (Norwegian/English). Only user interface fixed terms (labels, buttons, menus) will change language if the user changes settings (not terms coming from DIPS or CheckWare).

End user interface must minimum work on Chrome browser with resolution 1366×768 or higher. Mobile phones will not be supported.

Access management

Access to the solution will only be given to authorized users at Modum Bad. End users of the solution authenticate with HelseID using Buypass (Security level 4 / eIDAS level High). End users on a team level will only have access to data belonging to patients in their own team, while department heads will have access to data belonging to patients in the department. Access management will inherit from existing solutions (Dips).

User roles

- Clinical users (team members such as therapists, psychiatrists)
 - Belongs to one or more teams
 - Access to a team's patients (team and patient view)
- Department heads
 - Belongs to a department
 - Access to department view (non-identifiable data)
 - Access to a department's patients (teams and patient view)
 - Access to change department settings
- Management
 - Access to all department views (non-identifiable data)
 - No access to patient data
- Administrators
 - Access to user admin and settings
 - No access to patient data

Each user will have the properties:

- Name
- Login ID (connected to HelseID/Buypass)
- User role(s)
- Department(s)*
- Team(s)*
- User-interface language

* = optional, based on user type

Logging access to sensitive data

Application level logging will record end-user actions related to sensitive data

- Every time a named patient is shown: logging who is accessing data, when, and what type of data, and including network authentication parameters like IP-address

This user logging is in itself treated as sensitive data and will not be made available through any user interface. Only available upon audits.

Logging basic user info

In addition to logging sensitive accesses, basic user-stats will be recorded per user:

- Login history (date/time for logging in)
- Logging any changes in authorizations (by whom, to whom and what changed), i.e. roles and permissions or any user account change

This information can be made available in the user admin view.

Config options

- Per metric
 - Cut-off value (import directly from CheckWare?)
 - Additional note (optional)
- Per department
 - Key outcome measures
 - Key other measures

Out-of-scope for phase 1

- Per therapist (per employee) performance
- Anything requiring Medical Device Regulation (MDR) approval. Specifically:
 - Recommendations / predictions
 - Automated alerts
- Comparing/benchmarking with other hospitals
- An open-ended “business intelligence” or statistical tool. Researchers or others with very specific analytical needs will still use other tools.
- Data from other sources than DIPS and CheckWare
- Front-end specifically for patients
- Research on the data, or based on the solution
- Integration back to Dips (For purposes of making it easy to report/document insights from the solution in later phases). Archival functions will for phase 1 be satisfied by Dips and Checkware.