Test protocol for receiving a

HospitalNotification message

26-01-23

The test protocol relates to the following standard:

|  |  |  |  |
| --- | --- | --- | --- |
| **Standard’s name ENG** | **Standard’s Name DK** | **Version** | **Type** |
| Standard: HospitalNotification | Advis om sygehusophold | 3.0.0 | HL7 FHIR |

|  |  |  |  |
| --- | --- | --- | --- |
| **Versioning** | | | |
| **Version** | **Initials** | **Date** | **Description** |
| 3.0.0 | MBK/TMS/MBU | 06-01-2023 | The content of the original test protocol has been transferred to the new template for testing MedCom's FHIR standards. In addition to clarifications, minor error corrections and layout adjustments, corrections and clarifications have been made in information and test steps regarding receipts (Acknowledgements), as well as clarifications regarding correct use of time stamps. |
| 3.0.1 | MBK/TMS | 26-01-2023 | Correction of time stamps reference as well as general clarification regarding Loading series of FHIR messages in an admission flow, where receipt of messages does not follow the order in which the messages have been generated. |

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# Introduction

This is a test protocol for receiving a HospitalNotification.

All documentation concerning HospitalNotification and Governance (se [Background](#_Baggrundsmaterialer) material) will be the subject of testing, and the test protocol will be continuously updated to reflect the requirements in the best way possible.

Versioning of the test protocol will follow the major- and minor-version of the standard but may have a patch version that is different from the standard’s patch-version.

The test protocol will be available both in Danish and English. In case of any discrepancies between the two versions, the Danish version applies.

**Regarding sending an Acknowledgement:** Approval requires, that the system under test (SUT) is approved for sending FHIR Acknowledgements (DK: kvittering). This test is handled in a separate test protocol (under preparation). However, when testing the receipt of HospitalNotification, SUT will have to demonstrate that SUT generates and sends a FHIR receipt in response to a received HospitalNotification (see more blow).

**Regarding receipt of HospitalNotification and sending an Acknowledgement though the municipal message distributor (DK: Fælleskommunal Beskedfordeler):** HospitalNotification is received through the municipal message distributor and will be wrapped in a message distributor envelope (DK: beskedfordelerkuvert) for receipt (DK: Kvittering). The receiver system must acknowledge with a FHIR receipt (DK: Kvittering) which is also sent through the municipal message distributor (DK: Fælleskommunal Beskedfordeler) and must be packaged in a message distributor envelope. In connection with testing the reception of HospitalNotification, SUT will have to demonstrate that SUT generates and sends a FHIR receipt in response to a received HospitalNotification, but the actual test of reception and sending HospitalNotification in a message distribution envelope is done within the framework of KOMBIT.

## Purpose

The test protocol forms the basis for the tests, which must ensure that SUT complies with the established rules and requirements for the standard. The test protocol also forms the basis for the self-test that vendor carries out prior to a live test.

## Prerequisites for live test

The following prerequisites must be met prior to the live test:

1. The vendor has read the following standard documentation:
   * [Clinical guidelines for application](bookmark://_Baggrundsmaterialer)
   * [Use cases](bookmark://_Baggrundsmaterialer)
   * [Implementation Guide](bookmark://_Baggrundsmaterialer)
   * Governance
   * And other relevant materials, cf. the [Background material](#_Background_materials).
2. The vendor has performed [self-test](bookmark://Egentest), approved by MedCom.
3. The vendor has created the [relevant test persons](#_Testeksempler_og_testpersoner) in system under test (SUT). Please note that one of these test persons must be a citizen without relevant cases in the SUT’s case complex, i.e. a citizen who does not have an active case within the areas that give legal authority to receive a HospitalNotification (see [clinical guidelines for application](#_Baggrundsmaterialer) ). This could be a citizen who only receives assistive technology.
4. The vendor uses the same version of SUT during self-test and live test.
5. Approval requires that the SUT is approved for sending FHIR-Acknowledgement (DK: kvittering).

## Documentation of self-test

**Self-test**

**Prior to the test, the vendor must have performed self-test, including successfully completed TouchStone self-tests, which are approved by MedCom.**

The self-test is documented by the vendor completing this test protocol.

For self-tests, only the following column must be completed by the vendor:

* [Current result]: is filled in with the results of the self-test and relevant descriptions.

Other columns are reserved for MedCom.

**During the self-test the vendor must document the test results by saving relevant files and screen dumps, and subsequently send these in a combined ZIP file (together with the completed test protocol) to** [**fhir@medcom.dk**](mailto:fhir@medcom.dk)**.**

All files and screen dumps must be named with

* Standard name
* Whether SUT is sender (S) or receiver (R) of the standard
* The number of the relevant test step
* Consecutive letter
* File type

Example: HospitalNotification\_R\_3.4\_A.xml

## Background materials

| **Name** | **Version[[1]](#footnote-2)** | **Link/reference** | **Description** |
| --- | --- | --- | --- |
| HospitalNotification – documentation site | 3.0.X | [https://medcomdk.github.io/dk-medcom-HospitalNotification/](https://medcomdk.github.io/dk-medcom-hospitalnotification/) | Documentation site with references to all relevant documentation, including:   * Clinical guidelines for application * Use cases * Technical specifications |
| Implementation Guide | 3.0.X | [https://medcomfhir.dk/ig/HospitalNotification/](https://medcomfhir.dk/ig/hospitalnotification/) |  |
| Governance for MedCom FHIR | 1.0.0 | <https://medcomdk.github.io/MedCom-FHIR-Communication/> | Governance for MedCom’s FHIR standards, which describes general rules for all MedCom standards and specific rules for this standard, as well as for sending the message |
| SOP for MedCom’s test and certification | 2.7 | <http://svn.medcom.dk/svn/qms/Offentlig/SOPer/SOP-7.2-MedComs%20test%20og%20certificering_godkendelse.docx> | Description of test and certification of MedCom standards and other tests courses. |

## Test examples and test persons

|  |  |  |
| --- | --- | --- |
| **Name** | **Link/reference** | **Description** |
| Test examples /FHIR example files | In preparation | See [Appendix I](#BilagI) for an overview of test examples. |
| Overview of test persons | <https://www.medcom.dk/opslag/koder-tabeller-ydere/tabeller/nationale-test-cpr-numre> | Overview of national test personal identification number (DK:CPR-nummer), that can be used during test.  **Note:** During test and certification, the vendor must be able to use any of the test persons on the list. |

## Test tools

|  |  |  |
| --- | --- | --- |
| **Navn** | **Link/reference** | **Description** |
| FHIR-server with MedCom profiles | <https://fhir.medcom.dk/> | Public server that validates against MedCom's FHIR profiles. It is permitted to use the server for testing the upload/download of FHIR resources. |
| TouchStone | <https://touchstone.aegis.net/touchstone/> | Test tool for testing the FHIR standard.  The vendor can get access to TouchStone as an organisation - either through a license that MedCom supplies (inquiry at [fhir@medcom.dk](mailto:fhir@medcom.dk)), or a license that the supplier has acquired itself.  Find [instructions for TouchStone](https://medcomdk.github.io/MedComLandingPage/assets/documents/TouchStoneGettingStarted.html) here |
| TouchStone test scripts | In preparation | Test scripts relevant for the standard.  Find [instructions for TouchStone here](https://medcomdk.github.io/MedComLandingPage/assets/documents/TouchStoneGettingStarted.html) |

## Test Result

The result for each test step is categorised based on the table below:

| **Marking** | **F1** | **F2** | **F3** | **F4** | **Ok** |
| --- | --- | --- | --- | --- | --- |
| **Evaluation** | **Critical** | **Serious** | **Significant** | **Less significant** | **Approved** |

To get the test and certification approved, the test protocol must consist exclusively of [F4] as well as [OK] results. All [F1], [F2] and [F3] must, therefore, be fixed prior to final approval.

Approval requires that SUT is approved for receiving FHIR Acknowledgement (DK: Kvittering)

For further information, please read: [MedCom’s test and](#TestCertificering) certification.

# Vendor, system under test (SUT) and test result information

## Information about the vendor

This table must be completed by **the vendor** prior to the test.

|  |  |
| --- | --- |
| Company | Completed by vendor |
| Address | Completed by vendor |
| Contact person | Completed by vendor |
| Telephone | Completed by vendor |
| E-mail | Completed by vendor |

## Information about system under test (SUT)

This table must be completed by **the vendor** prior to the test.

|  |  |
| --- | --- |
| System | Completed by vendor |
| Version | Completed by vendor |
| Description | Completed by vendor |
| Test type | Self-test  Final test/certification |

## Information about the test result

Note: This table must be completed by MedCom when the test has been completed.

|  |  |
| --- | --- |
| Test date | 2023-01-01 |
| Test location |  |
| Approved | Yes  No |
| Remarks | Completed by MedCom |
| Carried out by | The name of the MedCom responsible (initials) for this test. |

# The test

This section describes the requirements which SUT must meet before final approval.

The test is divided into three sections:

1. Test of TouchStone testscripts
2. Test of requirements for content and flow/workflows, including received receipts
3. Test of technical requirements

Test participants will be asked to complete tests as described in the tables.

## Documentation of the test

**Documentation of the test**

As valid documentation, the test participant or test manager must document completion by continuous screen dumps (.png/.jpeg) and/or files/log files (.xml/.json). **Before the test, it is agreed who is responsible for this.**

The following applies:

* The files must be viewable in a standard tool and must not require further processing by MedCom
* All files and screen dumps must be named with:
  + The name of the standard
  + Whether SUT is the sender (S) or receiver (R) of the standard
  + The number of the relevant test setup
  + Consecutive letter
  + File type

*Examples: HospitalNotfication\_R\_3.4\_A.xml, HospitalNotification\_R\_3.4\_B.xml*

If the vendor has documented the test themselves, the files must be sent in a ZIP file to [fhir@medcom.dk](mailto:fhir@medcom.dk).

## Test of TouchStone testscripts

The purpose of these tests is to ensure that, SUT generates HospitalNotification technically correct and complies with the rules in the [Implementation Guiden](#_Baggrundsmaterialer).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test step #** | **Action** | **Test data/test person** | **Expected result** | **Actual result** | **MedCom assessment** |
|  | Run all test scripts for use cases and user flows in TouchStone.. |  | All test scripts completed without errors. |  | Choose |

## Test of requirements for content and flow/workflows

The purpose of these tests is to ensure that the standard is implemented with a satisfactory quality, i.e. that implementation meets the business requirements for flow and content as described in the [clinical guidelines for application](#_Baggrundsmaterialer)  and [use case-material](#_Baggrundsmaterialer)s. These test steps are predominantly targeted testing of the user interface.

It is up to the receiver system (and customers) to establish rules for any automatic pause of municipal services upon receipt of HospitalNotification.

It is up to the receiver system (and customer), how the end user is notified/made aware of receipt of HospitalNotification in the user interface.

The raw data file (with its entire content, including an indication of whether an admission report must be sent) must always be accessible by a technical user. Selected data must (as a minimum) be visible to SUT users in the user interface. If the sections appear with a heading in the user interface, it is recommended to use headings as defined in Table 1. The message must always - on the user interface - be named as "HospitalNotification".

|  |  |  |  |
| --- | --- | --- | --- |
| **The section headline** | **Content** | **Example** | |
| Citizen/patient | Citizens personal identification number | Citizen | XX-XX-XXX |
| Status of hospital stay | Status of the citizen’s hospital stay (type of HospitalNotification). See [Background materials](#_Baggrundsmaterialer) . | Status of hospital stay | Start Hospital stay-admission |
| Time of hospital stay | The date and time, when the citizen was admitted/went on leave, ended his leave, was discharged, died, etc. | Timestamp | 22-08-18 kl. 9:30 |
| Hospital | The Name of the Hospital where the citizen is admitted. | Hospital | Odense Universitetshospital |
| Department | The name of the department where the citizen is admitted | Department | Department of Infectious Diseases |
| Unit | The name of the unit where the citizen is admitted | Unit | Q |

Table 1 Minimum requirements for sections to be displayed to the end user, as a recommendation for section names.

The table below reflects the use cases that are tested in relation to content and flow/workflows. The table also shows which example files must be loaded in connection with each test step. An overview of the [example fil](#_Testeksempler_og_testpersoner)es can be found in [Appendix I](#BilagI).

In the individual test steps, a reference is made to a number of HospitalNotifications types: [STIN], [STAA], [STOR], [SLOR], [SLHJ], [MORS], [AN\_XX], [RE\_XX]. The description of the HospitalNotifications types is available on GitHub (HospitalNotification Codes), see [Background materials.](#_Baggrundsmaterialer)

| [**Use case**](#_Baggrundsmaterialer) | **Description** | **Section** | **Example file** |
| --- | --- | --- | --- |
| R1 | The citizen is **admitted** without prior admission | 3.3.1 | [STIN\_A] |
| R1 | The citizen is **admitted** after prior admission to another hospital in another region (transfer between regions) | 3.3.1 | [STIN\_B1]  [STIN\_B2] |
| R1.A1 | The citizen is **admitted** after a prior admission to another hospital in the same region (transfer between hospitals in the same region) | 3.3.2 | [STIN\_C1]  [STIN\_C2] |
| R2 | The citizen is referred to an acute ambulant hospital stay | 3.3.3 | [STAA\_D] |
| R1.A1 | The citizen is **admitted** after a previous stay in the outpatient department at the same hospital | 3.3.4 | [STAA\_E]  [STIN\_E] |
| R3 | The citizen goes on **leave** from his/her hospital stay | 3.3.5 | [STIN\_F]  [STOR\_F] |
| R4 | The citizen returns at the hospital after **leave** | 3.3.6 | [STIN\_G]  [STOR\_G]  [SLOR\_G] |
| R6 | The citizen is **discharged** | 3.3.7 | [STIN\_H]  [SLHJ\_H] |
| R6 | The citizen is **discharged** because the citizen has not returned to the hospital after the end of leave | 3.3.7 | [STIN\_I]  [STOR\_I]  [SLHJ\_I] |
| R7 | The citizen **dies** upon arrival | 3.3.8 | [MORS\_J] |
| R7 | The citizen **dies** during the hospital stay | 3.3.8 | [STIN\_K]  [MORS\_K] |
| R7 | The citizen **dies** during leave | 3.3.8 | [STIN\_L]  [STOR\_L]  [MORS\_L] |
| R8 | **Manual end** of hospital stay in the receiver system | 3.3.9 | [STIN\_M] |
| R.CANC | Receipt of **cancellation** (wrong citizen/ Person identification number or wrong type of hospital stay) | 3.3.10 | [STIN\_N]  [AN\_STIN\_N] |
| R.CORR | Receipt of **correction** (wrong time) | 3.3.11 | [STIN\_O]  [RE\_STIN\_O] |
| R.CORR | Receipt of **correction** (wrong hospital department) | 3.3.11 | [STIN\_P]  [RE\_STIN\_P] |

### Use case R1: Admission/receipt of [STIN] with request for an admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | **Admission of a citizen**  Load test data and show that the SUT user can see that HospitalNotification of the type “Start hospital stay – admitted” has been received.  In the” Actual result” column, note the course ID from the notification received as well as information about where the HospitalNotification should be sent. | [STIN\_A] | The SUT user can see that a HospitalNotification of the type ”Start hospital stay-admitted”  SUT-user can (as minimum) see the following:   * The personal identification number (CPR-nr.) * Status for hospital stay: ”Start hospital stay-admitted” * Date and time of hospital stay (Encounter.period.start) * Name of the hospital department /section and where the citizen is admitted |  | Choose |
|  | Demonstrate that SUT has sent an automatic admission report (XDIS16) on the citizen and that this is visible to the SUT- user |  | An automatic admission report (XDIS16) has been sent in response to [STIN\_A]. This is visible to the SUT user. |  | Choose |
|  | **The citizen is admitted to a new hospital in another region**  Load the test data files.  Demonstrate that the SUT user can see, that a HospitalNotification of type: ”Start hospital stay-admitted” has been received and a HospitalNotification of type: ”Start hospital stay-admitted” form another hospital has been received | [STIN\_B1]  [STIN\_B2] | The SUT user can see that a HospitalNotification of type ”Start hospital stay-admitted” has been received, then a HospitalNotification of type: ”Start hospital stay-admitted” form another hospital form another region has been received |  | Choose |
|  | Demonstrate, that SUT, has automatically sent an admission note (XDIS16), on citizen, and that this is visible to SUT-users. |  | Two automatic admission notes (XDIS16) have been sent in response to both HospitalNotifications. This is visible to the SUT user. |  | Choose |

### Use case R1.A1: Citizen admitted/receipt of [STIN] without request for admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | **The citizen is admitted to a new hospital in the same region.**  Load the test data files  Demonstrate that the SUT user can see that there is first received a HospitalNotification of type ”Start hospital stay-admitted”, then a HospitalNotification of type “Start hospital stay-admitted” from another hospital. | [STIN\_C1]  [STIN\_C2] | The SUT user can see that first a HospitalNotification of type: ”Start hospital stay-admitted” has been received, then a HospitalNotification and ”Start hospital stay-admitted” form another hospital in the same region has been received |  | Choose |
|  | Demonstrate that SUT, has not sent an automatic admission note in response to [STIN\_C2] |  | An automatic admission note (XDIS16) has not been sent in response to [STIN\_C2]. This is visible to the SUT user. |  | Choose |

### 

### Use case R2: Citizen is an acute ambulant patient at the hospital/receipt of [STAA] with request for admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load the test data and demonstrate, that the SUT user can see, that a HospitalNotification of the type: ” Start hospital stay – acute ambulant ” has been received. | [STAA\_D] | The SUT user can see that a HospitalNotification of type ” Start hospital stay – acute ambulant” has been received.  Date and time for hospital stay = Encounter.period.start |  | Choose |
|  | Demonstrate that the SUT has sent an automatic admission note (XDIS16) to the citizen and that this is visible to SUT-user |  | An automatic admission note (XDIS16) has been sent in response to [STAA\_D]. This is visible to the SUT user. |  | Choose |

### Use case R1.A1: A citizen is admitted after a prior acute ambulant hospital stay/receipt of [STIN] without request for admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data files.  Demonstrate that the SUT user can see that there is first received a HospitalNotification of type “Start hospital stay – acute ambulant”, then a Hospital Notification of type “Start hospital stay – admitted”. | [STAA\_E]  [STIN\_E] | The SUT user can see that first a HospitalNotification of type “Start hospital stay – acute ambulant ” has been received, then a HospitalNotification of type “Start hospital stay – admitted”. |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to [STINE\_E]. This is visible to the SUT user. |  | Choose |

### 

### Use case R3: Citizen goes on leave from his hospital stay/receipt of [STOR] without requesting admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom admission** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data files  Demonstrate that the SUT user can see that there is first received a HospitalNotification of type : “Start hospital stay – admitted” , then a HospitalNotification of the type “Start leave” | [STIN\_F]  [STOR\_F] | The SUT user can see that first HospitalNotification of type: “Start hospital stay – admitted” has been received, then a HospitalNotification of the type “Start leave”.  Date and time for hospital stay/ incident = Encounter.extension:leavePeriod.start |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to [STOR\_F]. This is visible to the SUT user. |  | Choose |

### Use case R4: Citizen returns to hospital form leave/receipt of [SLOR] without requesting admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data files  Demonstrate, that SUT user can see that there is first received a HospitalNotification of type: “Start hospital stay – admitted”, then a HospitalNotification of the type “Start leave” and lastly a HospitalNotification of type “ End leave” | [STIN\_G]  [STOR\_G]  [SLOR\_G] | The SUT user can see, that first HospitalNotification of type: “Start hospital stay – admitted” has been received, then a HospitalNotification of the type “Start leave” and lastly a HospitalNotification of type “End leave”.  Date and time for hospital stay/ incident = Encounter.extension:leavePeriod.end |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to either [STOR\_G] or [SLOR\_G]. This is visible to the SUT-user. |  | Choose |

### Use case R6: Citizen discharged / receipt of [SLHJ] without requesting an admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data files  Demonstrate that the SUT user can see that there is first received a HospitalNotification of type “Start hospital stay – admitted”, then a HospitalNotification of type “End hospital stay – patient discharged and sent home/primary sector”. | [STIN\_H]  [SLHJ\_H] | The SUT user can see, that first HospitalNotification of type: “Start hospital stay – admitted” has been received, then a HospitalNotification of the type “End hospital stay-patient discharged and sent home/primary sector”.  Date and time for hospital stay/ incident = Encounter.period.end |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to [SLHJ\_H]. This is visible to the SUT user. |  | Choose |
|  | **Discharge of patient, who is absent after leave**  Load test data-files.  Demonstrate that the SUT-user can see that there is first received a HospitalNotification of type “Start hospital stay – admitted”, then a HospitalNotification of type “Start Leave” and lastly a HospitalNotification of type “End hospital stay – patient discharged and sent home/primary sector”. | [STIN\_I]  [STOR\_I]  [SLHJ\_I] | The SUT user can see, that first HospitalNotification of type: “Start hospital stay – admitted” has been received, then a HospitalNotification of the type “Start leave“ and lastly a HospitalNotification of type “End hospital stay - patient discharged and sent home/primary sector”. |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to either [STOR\_I] or [SLHJ\_H]. This is visible to the SUT user. |  | Choose |

### 

### Use case R6: Citizen dies/ receipt of [MORS] without requesting an admission note (XDIS16)

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data and show that the SUT user can see that a Hospital notification of type „Death“ has been received | [MORS\_J] | The SUT user can see that a HospitalNotification of type ”Death” has been received.  Date and time for hospital stay/ incident = Encounter.period.end |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to [MORS\_J]. This is visible to the SUT user. |  | Choose |
|  | **Citizen dies during hospital stay**  Load test data files.  Demonstrate that the SUT user can see that a Hospital notification of type “Start hospital stay – admitted”, has been received and then a HospitalNotification of type“ Death“ | [STIN\_K]  [MORS\_K] | The SUT user can see that a HospitalNotification of type ” Start hospital stay – admitted ” has been received, then a HospitalNotification of type „Death“ |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to [MORS\_K]. This is visible to the SUT user. |  | Choose |
|  | **Citizen dies during on leave**  Load test data files.    Demonstrate that the SUT user can see that a Hospital notification of type “Start hospital stay – admitted”, has been received, then a HospitalNotification of type “Start leave “ and lastly a HospitalNotification of type“ Death“ | [STIN\_L]  [STOR\_L]  [MORS\_L] | The SUT user can see that a HospitalNotification of type ” Start hospital stay – admitted ” then a HospitalNotification of type“ Start leave“ and lastly a HospitalNotification of type „Death“ has been received. |  | Choose |
|  | Demonstrate that the SUT has not sent an automatic admission note (XDIS16) on the citizen. |  | An automatic admission note (XDIS16) has not been sent in response to either [STOR\_L] or [MORS\_J]. This is visible to the SUT user. |  | Choose |

### Manual end of hospital stay in receiver system

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data fils  Demonstrate that the SUT user can manually end a citizen’s stay at the hospital because of absence of HospitalNotification type [SLHJ] | [STIN\_M] | The SUT user has manually ended the citizen’s stay at the hospital. |  | Vælg |

### Use case R.CANC: Cancellation /receipt of [AN\_XX]

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data files.  Demonstrate how the SUT user is notified that a HospitalNotification of type [AN\_STIN] has been received as a cancellation to an already received HospitalNotification.  Show how the SUT user can subsequently see that the original HospitalNotification has been cancelled. | [STIN\_N]  [AN\_STIN\_N] | The SUT user is notified that a cancellation has been received for HospitalNotification of Type [STIN\_N] .  The SUT user can see that the previously received HospitalNotification has been cancelled (cancellation view) |  | Choose |
|  | Show that the SUT has not sent an automatic admission report (XDIS16) in response to [AN\_STIN\_N] |  | An automatic admission report (XDIS16) has not been sent in response to [AN\_STIN\_N]. This is visible to the SUT-user. |  | Choose |

### Use case R.CORR: Correction/receipt of [RE\_XX]

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | **Correction to time**  Load test data files.  If implemented, demonstrate how user, is notified that a HospitalNotification of type [RE\_STIN] has been received as a correction to an already received HospitalNotification .  Show how the SUT user can subsequently see what has been corrected. | [STIN\_O]  [RE\_STIN\_O] | If relevant, the SUT user is notified that a correction has been received for [STIN\_O].  The SUT user can see the correction (time) that has been made (track changes) and can access and see the corrected time and hour for the start of the hospital stay |  | Choose |
|  | Show that SUT has not sent an automatic admission report (XDIS16) in response to [RE\_STIN\_O] |  | An automatic admission report (XDIS16) has not been sent in response to [RE\_STIN\_O]. This is visible to the SUT user. |  | Choose |
|  | **Correction to hospital department**  Load the test data files.  If implemented, demonstrate how the SUT user, is notified that a HospitalNotification of type [RE\_STIN] has been received as a correction to an already received HospitalNotification, and show how SUT user can subsequently see what has been corrected. | [STIN\_P]  [RE\_STIN\_P] | If relevant, the SUT user is notified that a correction has been received for [STIN\_P].  The SUT user can see the change (hospital department) that has been made (change flag) and can access the corrected information. |  | Choose |
|  | Show that SUT has not sent an automatic admission report (XDIS16) in response to [RE\_STIN\_P] |  | An automatic admission report (XDIS16) has not been sent in response to [RE\_STIN\_P]. This is visible to the SUT user. |  | Choose |

### Naming and presentation of sections in the user interface

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load a random test data file and show how this is presented to the SUT user. |  | The file is loaded and available to the SUT user. |  | Choose |
|  | Demonstrate that the SUT user can see minimum information cf. Table 1 |  | As a minimum, SUT users can see:   * (Citizen’s) personal identification number (CPR no.) * Status of hospital stay * Time of hospital stay * Hospital * Department * Unit |  | Choose |
|  | Demonstrate that the message appears with the correct name=” HospitalNotification”. |  | The message appears with the name ”HospitalNotification” |  | Choose |
|  | If the message appears with section headings, show that headings are used as defined in Table 1 (recommendation) or equivalent headings are used that are indicative of the content and without risk of misunderstanding. |  | The sections appear with headings as defined in Table 1 (recommended) or with headings that are indicative of the content and with no risk of being misunderstood. |  | Choose |

## Test of general technical requirements

The purpose of these test steps is to ensure that the technical receipt of HospitalNotification is implemented with satisfactory quality, i.e. supports governance for message communication at a general level, as well as governance for HospitalNotification as described in 1.4.

### Receipt of HospitalNotification and sending of Acknowledgement

| **Test step #** | **Action** | **Test data** | **Expected results** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Describe how FHIR-messages are loaded into the SUT.  For example: How is data loaded into SUT - via. mapping to internal format or to local FHIR infrastructure? |  | For example: FHIR messages are used directly or processed. |  | Choose |
|  | Load test data and demonstrate that the SUT returns a FHIR Acknowledgement. | [TEK\_STIN\_A] | SUT returns a FHIR Acknowledgement |  | Choose |
|  | Find and open the [XDIS16-message](https://svn.medcom.dk/svn/releases/Standarder/National%20Sygehus-Kommunesamarbejde/1.0.3/XDIS16/Dokumentation/) generated in test step 3.3.1.2  Verify that the XDIS16 sent and is correctly formatted and that the data from the message in test step 3.3.1.1 is correctly transferred to the XDIS16 message. | Test data generated in test step 3.3.3.2 | XDIS16 is correctly parsed in the validation tool “<https://xml.medcom.dk>”  The episodeOfCare-identifier in the admission note (XDIS16) is identical to the ID specified in the FHIR message used in connection with 3.3.3.1. The episodeOfCare- identifier in XDIS16 ’message.letter.EpisodeOfCareIdentifier’ is identical to identifier in the HospitalNotification message.  Bundle.MedComMessagingMessage.MedComEncounter.episodeOfCare XDIS16 has been sent to the correct recipient as indicated in the HospitalStay message, which is used in connection with test step 3.3.3.1.  The time stamps on XDIS16 are later than the HospitalNotification that triggered the action. |  | Choose |
|  | Describe or demonstrate how receiving an [OIOXML Acknowledgement](https://svn.medcom.dk/svn/releases/Standarder/Den%20gode%20CONTRL/XML/Dokumentation/)  of type ’XCTL01’, ’XCTL02’ and ’XCTL03’ is handled in the SUT., i.e. both positive and negative receipts.  Note: This is the Acknowledgement to a sent admission note. |  | Description or screenshot of how OIOXML Acknowledgement of type ’XCTL01’, ’XCTL02’and ’XCTL03’ is received in SUT. |  | Choose |

### Loading series of FHIR messages in an admission flow, where receipt of messages does not follow the order in which the messages have been generated.

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessement** |
| --- | --- | --- | --- | --- | --- |
|  | Load the test data and demonstrate that the citizen appears as absent in the receiving system due to hospitalization.. | FHIR example file [TEK\_STAA\_A] | The SUT user sees that the citizen appears as absent due to hospitalization. SUT sends a FHIR Acknowledgement back to the correct recipient. |  | Choose |
|  | Load test data and demonstrate that the citizen appears as ‘active’/’completed’/’discharged’ from the hospital stay.  Save both the FHIR message recived and the acknowlegement sent. | FHIR example file [TEK\_SLHJ\_A] | The SUT user sees that the citizen appears as ‘active’/’completed’/’discharged’ from the hospital stay  SUT sends a FHIR Acknowledgement back to the correct recipient. |  | Choose |
|  | Load test data and demonstrate that the citizen appears as ‘active’/’completed’/’discharged’ from the hospital stay, but that the message history shows that a HospitalNotification [STIN] was received,  Test step tests, that the receiving system shows correct status for the citizen, even if messages are not received in the order in which the events occurred.  Save both the FHIR message received and the Acknowledgement sent. | FHIR example file [TEK\_SLHJ\_B] | The SUT user sees that the citizen appears as ‘active’/’completed’/’discharged’ from the hospital stay even though a notification of admission has subsequently been received.The SUT sends a FHIR receipt (Acknowledgement) back to the correct recipient, even if the message is only loaded as history. |  | Choose |

### Handling duplicates

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessement** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data and demonstrate that the HospitalNotification is loaded and available to the SUT user | FHIR example file [TEK\_DUB] | The SUT user can see that a HospitalNotifcation of type ” Start hospital stay – admitted” has been received. |  | Choose |
|  | Demonstrate that SUT has sent a positive FHIR Acknowledgement. |  | The SUT has positively acknowledged the HospitalNotification and sent a FHIR Acknowledgement to the correct recipient. |  | Choose |
|  | Load test data again, and demonstrate that the HospitalNotification, which is a duplicate, is ignored and that the SUT user can still only see one received HospitalNotification of type [STIN]. | FHIR example file [TEK\_DUB] | The SUT user can still only see that one HospitalNotification has been received of the type: “Start hospital stay – admitted” |  | Choose |
|  | Demonstrate that the SUT has sent a positive FHIR acknowlegement for the dublicate. |  | SUT has positively acknowledged the HospitalNotiifcation and sent a FHIR Acknowledgement to the correct recipient. |  | Choose |

### Handling of HospitalNotification for a citizen who does not have a relevant cases in the SUT

| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
| --- | --- | --- | --- | --- | --- |
|  | Load test data and demonstrate how the SUT handles receiving a HospitalNotification for a citizen who does not have a relevant case in the SUT. | FHIR example file  [TEK\_LOV] | HospitalNotification is not loaded and is not presented to the SUT user. |  | Choose |
|  | Demonstrate that the SUT has sent a positive FHIR Acknowledgement. |  | SUT has positively acknowledged the HospitalNotiifcation and sent a FHIR Acknowledgement to the correct recipient. |  | Choose |
|  | Demonstrate that the SUT has logged receipt of the HospitalNotification on a citizen who does not have a case in the SUT. |  | The SUT demonstrates - via a log of received HospitalNotification messages for citizens without relevant cases in the SUT – that receipt of the message has been logged. |  | Choose |

### Handling of messages containing errors

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test step #** | **Action** | **Test data** | **Expected result** | **Actual result** | **MedCom assessment** |
|  | Load test data and demonstrate how SUT handles missing valid ”Bundle.entry.resource.ofType(Encounter).class.code” | FHIR example file  [TEK\_FCC] | The SUT returns a MedCom Acknowledgement describing the error. |  | Choose |
|  | The SUT must not display the message containing errors. |  | SUT does not display the message containing errors. |  | Choose |

**Appendix I**

This is an overview of the [test example/FHIR example file](#_Testeksempler_og_testpersoner)s, that are used during the live test

| **Test example** | **Description** |
| --- | --- |
| [STIN\_A] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16) |
| [STIN\_B1]  [STIN\_B2] | Notification with information that a citizen has been admitted to hospital X, region X (including request for XDIS16)  Notification with information that the same citizen has now been admitted to hospital Y, region Y (does not include a request for XDIS16) |
| [STIN\_C1]  [STIN\_C2] | Notification with information that a citizen has been admitted to hospital X, region X (including request for XDIS16)  Notification with information that the same citizen has now been admitted to hospital Y, region X (does not include a request for XDIS16) |
| [STAA\_D] | Notification with information that a citizen is admitted as an acute outpatient at the hospital (Including request for XDIS16) |
| [STAA\_E]  [STIN\_E] | Notification with information that a citizen is admitted to hospital as an acute ambulant patient (including request for XDIS16)  Notification with information that the same citizen has now been admitted to hospital (does not include a request for XDIS16) |
| [STIN\_F]  [STOR\_F] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the same citizen is taking leave from the hospital stay (does not include a request for XDIS16) |
| [STIN\_G]  [STOR\_G]  [SLOR\_G] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the same citizen is taking leave from hospital (does not include a request for XDIS16)  Notification with information that the same citizen has now ended leave from hospital stay (does not include a request for XDIS16) |
| [STIN\_H]  [SLHJ\_H] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the same citizen has been discharged and sent home/to primary sector (does not include a request for XDIS16) |
| [STIN\_I]  [STOR\_I]  [SLHJ\_I] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the same citizen is taking leave from hospital (does not include a request for XDIS16)  Notification with information that the same citizen has been discharged and sent home/to primary sector (does not include a request for XDIS16) |
| [MORS\_J] | Notification with information that a citizen is dead |
| [STIN\_K]  [MORS\_K] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the same citizen has died |
| [STIN\_L]  [STOR\_L]  [MORS\_L] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the same citizen is taking leave from hospital (does not include a request for XDIS16)  Notification with information that the same citizen has died (during leave) |
| [STIN\_M] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16) |
| [STIN\_N]  [AN\_STIN\_N] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with information that the notification just sent is cancelled (does not include a request for XDIS16) |
| [STIN\_O]  [RE\_STIN\_O] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with corrections to the notification just sent (date/time corrected) (does not include a request for XDIS16) |
| [STIN\_P]  [RE\_STIN\_P] | Notification with information that a citizen has been admitted to hospital (including request for XDIS16)  Notification with corrections to the notification just sent (department corrected) (does not include a request for XDIS16) |
| [TEK\_STIN\_A] | Notification with information that a citizen has been admitted to hospital (including request for Acknowledgement) |
| [TEK\_STAA\_A] | Notification with information that the same citizen is admitted as an acute outpatient at the hospital |
| [TEK\_SLHJ\_A] | Notification with information that the same citizen has now been discharged and sent home/to primary sector. |
| [TEK\_STIN\_B] | Notification with information that a citizen has been admitted to hospital. |
| [TEK\_DUB] | Notification with information that a citizen has been admitted to hospital (Used to test correct handling of duplicates) |
| [TEK\_LOV] | Notification with information that a citizen has been admitted to hospital (Used to test the correct handling of citizens who does not have a relevant case in the SUT) |
| [TEK\_FCC] | Notification containing errors |

1. X udtrykker versionering på patch-niveau, hvilket omfatter mindre rettelser, som er bagudkompatible. [↑](#footnote-ref-2)