



Specification of work and costs required for a GGD wishing to deploy the SHdirectLabLink Version 2



Author	Version	Date
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1. Executive Summary

This document outlines the specification of work and associated costs required to deploy SHdirectLabLink Version 2 for a GGD who wishes to have this facility. The document includes instructions to test the sending of research orders electronically to a GGD's laboratory from SHdirect via Enovation's message broker, Eesbee. The instructions are intended for advanced users of SHdirect.

Important instructions and notes include:

1. Research can be configured to hide or show in the recommended research and other research task lists.
2. All tests that are not supported by the lab should be hidden. Testing should only take place after this has been configured to prevent the rejection of unsupported test.
3. The supported tests should be indicated in the Snomed en Loinc Code (version 4) spreadsheet in the **In Order** and **In Result** columns for your GGD. **Please do not amend any other information contained within the spreadsheet.**
4. Please indicate which tests the lab will accept from the GGD in the In Order column and indicate which tests and results can be returned by the lab to the GGD in the In Result column.

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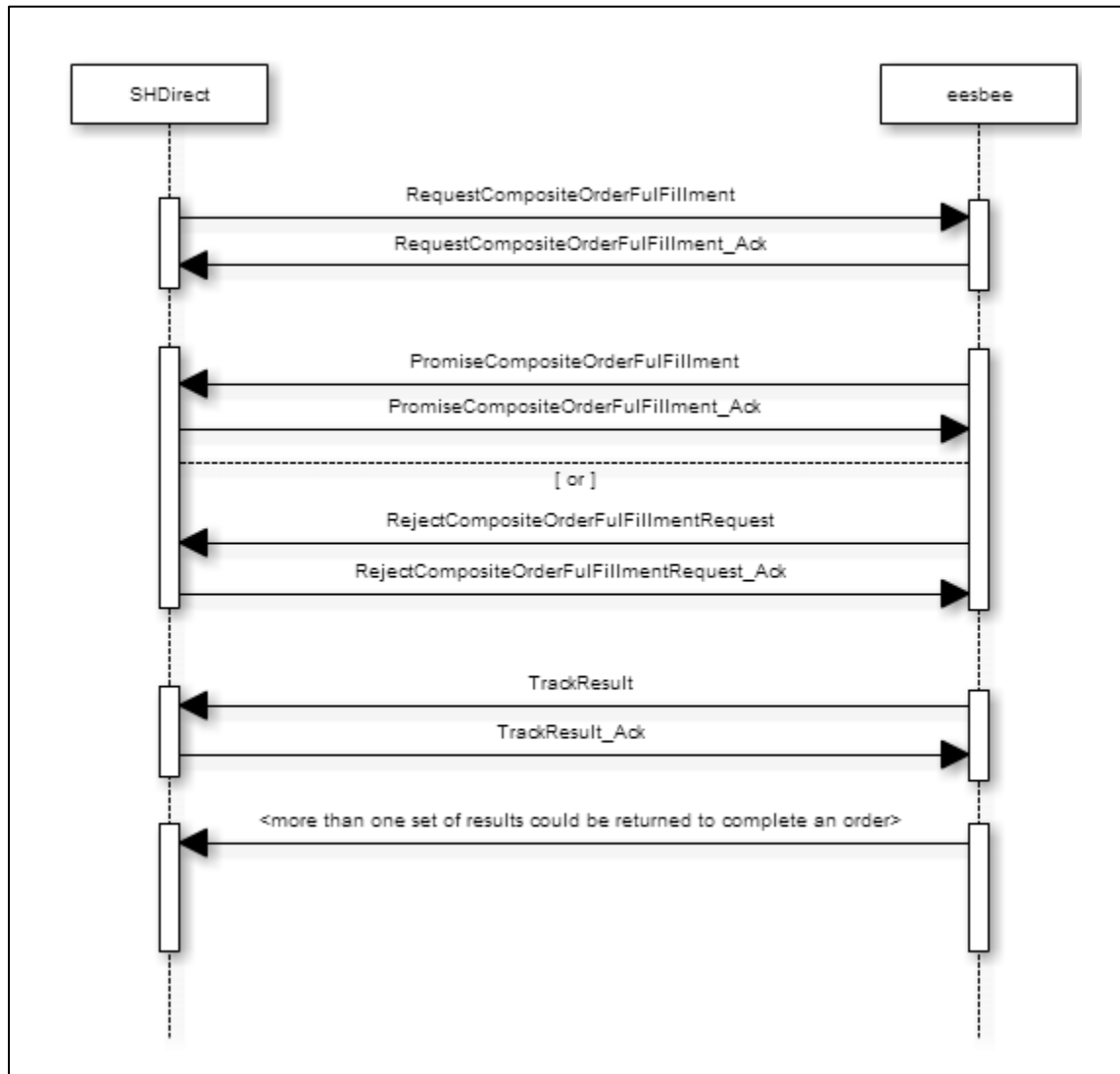
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2. Background

The SHdirectLabLink works in conjunction with the Eesbee message broker as developed by Enovation.

SHdirect laboratory test orders will be sent electronically to Eesbee which will in-turn forward these order messages to the appropriate Laboratory. Upon receipt, the Laboratories will process the orders.

Acceptance, Rejection or Cancellation of the orders can be sent back to SHdirect via Eesbee. If accepted, at a later stage, results will also be sent back to SHdirect via Eesbee. The communication between SHdirect and Eesbee is shown below:



The messaging between Eesbee and the Laboratories is dealt with entirely by Enovation. **SHdirect communicates with Eesbee only; there is no direct electronic messaging between SHdirect and the laboratories.**

The message content exchanged between SHdirect and Eesbee conforms to the standards HL7 FHIR v0.11 and OASIS ebXML V3.0. The latter is a standard used in defining Business-to-Business information

exchange whilst the former (FHIR) being used to define the 'pay load' i.e. the Laboratory Order and Result details.

Finally, SOAP Web Services are used to provide the means by which this structured information is exchanged between SHdirect and Eesbee. All these standards are XML based.

Specific implementations of these standards have been carried out in collaboration with Enovation to define the precise interface between SHdirect and Eesbee to meet with the SHdirect Lab Link requirements. Should any change to this interface be required further development work would be required for both inFact and Enovation.

2.1. SNOMED CT and LOINC Codes

The Lab Order and Result message content utilises both SNOMED CT and LOINC coding systems to ensure accurate communication between the GGD and the Laboratory. These coding systems are used to define:

- What Infection/Antibody/Culture is being tested for
- Specimen/Substance and Collection Procedure
- Test Type

So that each GGD/Laboratory combination does not have their own version of these codes, work was undertaken to implement a National Set agreed by the GGDs. This National set of codes is incorporated into Version 2 of the SHdirectLabLink.

The agreed national set simplifies the process of establishing a Laboratory connection as there is no need to consider different SNOMED CT and LOINC codes specific to a joining GGD.

Appendix A shows the national SNOMED CT / LOINC codes that will be used by SHdirectLabLink Version 2.

2.2. OID Values

Within the HL7 FHIR message, OID values are used to identify different coding systems, for instance 2.16.840.1.113883.6.96 is the OID that identifies the SNOMED CT Coding System. Again, a National Set has been incorporated into SHdirect Version 2 and so there will be no requirements to accommodate specific values for joining GGDs.

2.3. Message Routing Parameters

The End-To-End flow of message from SHdirect to a Laboratory and then from a Laboratory back to SHdirect requires Routing Parameters. These ensure that messages arrive at the correct Laboratory and are returned to the correct GGD.

To accommodate numerous GGDs and Laboratories, Enovation added additional Routing Parameters. These additional Parameters have been incorporated into SHdirectLabLink.Version.

2.4. Practitioner Change

A requirement of the implementation of the HL7 FHIR message standard, as carried out between inFact and Enovation, is that a Practitioner be assigned to the outgoing Laboratory Order. This Practitioner must have an AGB code.

SHdirectLabLink Version 2 allows for the Practitioner to be one of 3 components:

1. A single individual that has an AGB code.
2. A single institution that has an AGB code.
3. The SHdirect Topic Manager (NOTE: each possible Manager must have an AGB code).

2.5. Result Interpretation

The HL7 FHIR message Standard used by SHdirectLabLink Version 2 has considerable scope in how information can be held within the message. With the addition of new GGDs and their associated Laboratory(s), it became apparent that variations in how results were transported within the FHIR message were occurring. Changes were made to Version 2 of the SHdirectLabLink to accommodate these variations.

3. Requirements for a GGD wishing to establish an SHdirectLabLink

The requirements for a GGD wishing to establish a SHdirectLabLink are described in more detail below.

3.1. Test and Laboratory Configuration

From the national SNOMED CT and LOINC Codes, there will be a set of Tests that can be handled by SHdirectLabLink. From this list, each GGD needs to decide which tests are to be made available for the SHdirectLabLink. This is done in conjunction with configuring the Laboratories.

Each GGD needs to provide details of the Laboratory (including its AGB code) that they will be using. This Laboratory needs to be associated to each of the tests that have been made available for the SHdirectLabLink.

In addition to the above, there is a requirement within the exchanged message for a default Practitioner at the Laboratory. A name and AGB code is required.

3.2. GGD Configuration

To establish a connection between a given GGD and Eesbee a number of configurable items need to be associated to the GGD. Apart from the GGD's AGB code, these are all provided by Enovation as they are specific settings required by the message broker to route message to and from the appropriate GGD and Laboratory.

As with the Laboratory, there is a requirement for a GGD Practitioner, again a name and AGB code is required. This Practitioner can be the assigned Topic Manager within SHdirect or a single default Practitioner representing the entire GGD (either an individual or an organisation). If the Topic Manager, then it is a requirement that each Manager has an AGB code as this must be provided with the message.

3.3. Laboratory Requirements

Please note that given a National set of agreed SNOMED CT and LOINC Codes and OIDs, there should be no additional Laboratory requirements.

In the event that a Laboratory has requirements, which fall outside the agreed national set, inFact would need a full specification of these new requirements and all work associated with developing these will be chargeable. To incorporate code changes, full and thorough regression testing would be required to ensure no errors are introduced into the existing Services.

4. Testing

When a new GGD establishes an electronic connection to a laboratory, one of the most time-consuming parts is testing. A separate test environment needs to be set up for both SHdirect and Eesbee to perform this task.

Thorough End to End testing needs to be completed before deployment to production can go ahead. This testing has to be done with collaboration between inFact, the GGD, the Laboratory and Enovation. **The GGD and Laboratory are responsible for Acceptance Testing prior to deployment.**

Testing should incorporate both 'Happy' flow and 'Unhappy' flow as follows:

- Happy flow is for test cases where orders are received and processed without any issues.
- Unhappy flow is for test cases that cover failure conditions, which are:
 - an entire order is cancelled, or
 - a specimen within an order is cancelled, or
 - results are returned out of sequence, or
 - a failure in transmission occurs, or
 - a test is sent that the lab cannot deal with.

The URL you will be using to test the SHdirectLabLink Version 2 is: <http://SHdirect-testing.in-fact.com>

4.1. Test Plan

This testing phase needs to be thorough and carried out in a structured manner to ensure a stable and accurate Laboratory Connection. This is especially important when testing systems that are automated to ensure no errors or failures go unnoticed.

To keep track of the many orders you will be sending, we advise using a testing plan - something along the line of:

- Send any single test until the connection between SHdirect and the laboratory (and back again) has been established.
- Send one of each test.
- Send tests that when positive the laboratory will carry out further tests:
 - For example send a Syphilis IgG-EIA/TPPA and ask the lab to send a positive result for the IgG-EIA/TPPA along with results for a RPR/VDRL, IgG Blot etc.
- Send T2 & T4 test sets.
- Send complex test sets.

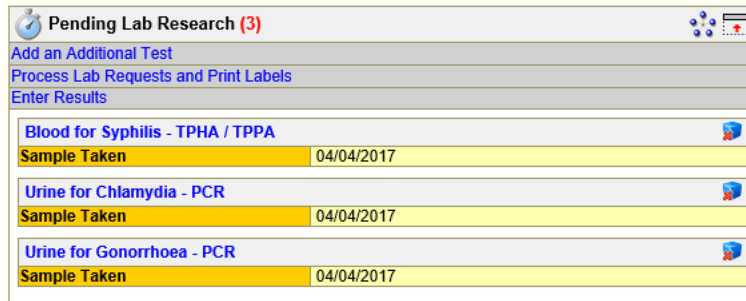
Please note: it is important that only supported tests are sent. If one test is not supported by the lab the whole order will be rejected.

4.2. Sending Orders / Tests

You will need some new clients to test with, so first book a number of new appointments with both male and female clients.

Start the appointment. Although you should test using Recommended Research, at some point it will be easier to test using Add Other Research so you don't need to enter all the mandatory questions of the sexual anamnesis and STI topic.

Once you have added your research go to **View Research** and click on **Process Lab Requests and Print Labels**.



Pending Lab Research (3)	
Add an Additional Test	
Process Lab Requests and Print Labels	
Enter Results	
Blood for Syphilis - TPHA / TPPA	
Sample Taken	04/04/2017
Urine for Chlamydia - PCR	
Sample Taken	04/04/2017
Urine for Gonorrhoea - PCR	
Sample Taken	04/04/2017

Click **Prepare Labels** (this will generate the order number), **Print Labels** (not necessary every time you test) and then **Send to Lab**. The tests/orders have a number of statuses which is visible from the **Process Lab Requests and Print Labels** table:



Process Lab Requests and Print Labels (2)					
Show Export Options ▾ Print ▾ ▾ Prepare Labels ▾ Send to Lab ▾ Print Labels					
Person	Test	Status	Laboratory	Sample Date	S
Matrix, John	Urine for Gonorrhoea - PCR	Ready for Lab	Geire Ziekenhuizen, Laboratorium Medische Microbiologie en Infectiepreventie	04/04/2017	3
Matrix, John	Urine for Chlamydia - PCR	Ready for Lab	Geire Ziekenhuizen, Laboratorium Medische Microbiologie en Infectiepreventie	04/04/2017	3

4.3. Electronic Message Statuses

The statuses are defined as follows:

Status	Notes
<i>Ready for Labelling</i>	Status before clicking Prepare Labels
<i>Ready for Lab</i>	Status after labels are prepared and before sending to lab*
<i>Awaiting Acknowledgement/Results</i>	Status before order is received by the lab
<i>Sending Order to Lab Failed</i>	Status if unable to establish a connection with the Enovation service
<i>Order Acknowledged by the Lab</i>	Status if order is successful received by the lab
<i>Order Rejected by the Lab</i>	Status if the order reaches the lab but is rejected
<i>Order Cancelled by the Lab</i>	Status if the order reaches the lab but is cancelled
<i>Registered Awaiting Results</i>	Status once the lab have registered the order in their system
<i>Result Received</i>	Status once a result received
<i>Final Result Received</i>	Status once the final result is received
<i>Result Update (Final) Received</i>	Status if the result is updated

*An order can only be sent when *Ready for Lab* is the status. If an order is sent but doesn't reach the lab for whatever reason the status can be set back to *Ready for Lab* (and therefore sent again) if you click **Mark for Resend** against each test in the **Process Lab Requests and Print Labels** table.

Order Number	Mark for Resend
R0017974	Mark for Resend
R0017976	Mark for Resend

4.4. Order Comments

A comment can be sent to the lab if you click on the order number and save a comment:

Details 	
Person	Matrix, John
Topic	Sexually Transmitted Infection (04/04/2017)
Specimen Type	Urine
Test	Chlamydia - PCR
Laboratory	Gelre Ziekenhuizen, Laboratorium Medische Microbiologie en Infectiepreventie
Order Number	R0017980
Sample Number	3232000911612636
Sample Taken	04/04/2017, 2.38 PM
Notes	

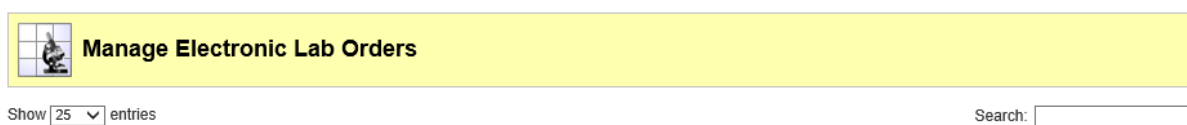
Up to 2 lines of characters of this comment will be displayed on the lab label:

OrderID/ConsultID: R0017980/TNO0007040
Client: Matrix, 01/01/1951, M
Materiaal: Urine
Monsternummer: 3232000911612636
Test: Chlamydia - PCR, Gonorrroe - PCR
LET OP!: comment for CT test



4.5. Managing Orders

The orders and results can be managed on the Control Page. You will already be familiar with the Research Management Links which track the results but an extra table can be accessed via the **Manage Electronic Lab Orders** link to search and manage your GGD's active orders.



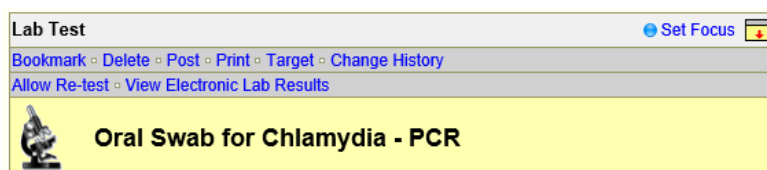
You have the option to select the number of orders displayed in the table and search upon the Topic Number, Order Number, Date Sent and Status.

The lab orders can have one of five statuses.

Status	Notes
Waiting to be sent	The order has been created but not yet sent.
Requiring Review	The order has been rejected, cancelled or failed to reach the lab and requires review. A Mark as Reviewed link in the action column will appear so that you remove the order from the table.
Waiting for Results	The order has been sent and acknowledged by the lab.
Notify Client	All of the order's requested test results have been returned and the client can be notified. Once notified the order is removed from the table automatically.
Rectification Received	The order has been updated and requires review. This might be a rectification to a result or a new result that was not in the original order. A Mark as Reviewed link in the action column will appear so that you remove the order from the table.

4.6. Test Results

The results should be populated in the test automatically provided the result message received from the laboratory is in the correct format. In addition to the results being populated in the test object itself you can see the electronic lab result message that was sent from the lab by **clicking View Electronic Lab Results** from the item menu of the test:



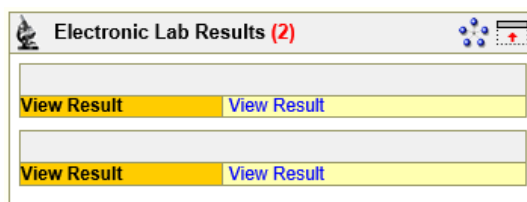
Order: R0017668	
Version	23130522
Status	

Patient	
ID	TZH0006820 (2.16.840.1.113883.2.4.6.1.32320030.1.1.3)
Gender	M

Report	
Issued	January 23, 2017, 13:05:22
Status	final

MICROBIOLOGY STUDIES	
Specimen	Urine specimen (N/A)
ID	12887 (2.16.840.1.113883.2.4.6.1.32320030.1.1.6)
Chlamydia trachomatis PCR (21613-5) (final)	Interpretation: Positive
Neisseria gonorrhoeae PCR (24111-7) (final)	Interpretation: Negative

Or you can see all associated electronic lab result messages from the topic under the Electronic Lab Results pane:



Electronic Lab Results (2)

View Result	View Result
View Result	View Result

Please note: some of the more complex tests such as the HIV blott & HCV blott have not been fully coded for and the results will need to be read from the electronic lab result message and entered manually.

5. Deployment of SHdirectLabLink Version 2

To make the final deployment to the Production environment, all configuration elements and Eesbee and SHdirect Web Services need to be moved / changed from Test/Acceptance to Production.

6. Costs for deploying SHdirectLabLink Version 2

As agreed with the participating GGDs and in respect of SHdirectLabLink, there will be zero costs for the license and 2,500 Euros (from 2014 and additional 3% increase year on year) as annual support and maintenance costs.

For each GGD wishing to deploy SHdirectLabLink Version 2, there will be a charge of 3000 Euros for the customised set-up, configuration, end-to-end testing and deployment.

Any additional work required for accommodating any further requirement outside the nationally agreed set will be need to be fully specified and will be chargeable.

7. Appendix A

Request	SNOMED	Specimen	SNOMED	Procedure	SNOMED	Test	LOINC	Result	SNOMED
Chlamydia trachomatis infectie?	240589008	Urine specimen	122575003	Collection of first stream urine specimen	450874000	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from vagina	119394009	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from rectum	447955000	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from uterine cervix	119395005	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from urethra	119393003	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from conjunctiva	119401005	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from ulcer	119369008	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis infectie?	240589008	Specimen from throat	119389009	Taking of swab	285570007	Chlamydia trachomatis PCR	21613-5	Pos/Neg/Inc/Fail	117363000
Chlamydia trachomatis antistoffen?	120652008	Specimen from serum	119364003	Venipuncture	22778000	Chlamydia trachomatis Ab IgM	40710-6	pos/neg/dub en/of titer	103392008
Chlamydia trachomatis antistoffen?	120652008	Specimen from serum	119364003	Venipuncture	22778000	Chlamydia trachomatis Ab IgA	45006-4	pos/neg/dub en/of titer	103392008
Chlamydia trachomatis antistoffen?	120652008	Specimen from serum	119364003	Venipuncture	22778000	Chlamydia trachomatis Ab IgG	26715-3	pos/neg/dub en/of titer	103392008
Chlamydia trachomatis antistoffen?	120652008	Specimen from serum	119364003	Venipuncture	22778000	Chlamydia trachomatis Ab serology	30204-2	-	
Lymphogranuloma venereum?	186946009	Urine specimen	122575003	Collection of first stream urine specimen	450874000	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from conjunctiva	119401005	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from rectum	447955000	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from throat	119389009	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from urethra	119393003	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from ulcer	119369008	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from vagina	119394009	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Lymphogranuloma venereum?	186946009	Specimen from uterine cervix	119395005	Taking of swab	285570007	LGV DNA PCR	47211-8	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Urine specimen	122575003	Collection of first stream urine specimen	450874000	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from uterine cervix	119395005	Taking of swab	285570007	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from urethra	119393003	Taking of swab	285570007	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from vagina	119394009	Taking of swab	285570007	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from rectum	447955000	Taking of swab	285570007	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from throat	119389009	Taking of swab	285570007	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from conjunctiva	119401005	Taking of swab	285570007	Neisseria gonorrhoeae PCR	24111-7	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from throat	119389009	Gonococcal swab	400994000	Neisseria gonorrhoeae kweek	698-1	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from urethra	119393003	Gonococcal swab	400994000	Neisseria gonorrhoeae kweek	698-1	Pos/Neg/Inc/Fail	117363000

Gonorrhoe infectie?	15628003	Specimen from vagina	119394009	Gonococcal swab	400994000	Neisseria gonorrhoeae kweek	698-1	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from uterine cervix	119395005	Gonococcal swab	400994000	Neisseria gonorrhoeae kweek	698-1	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from rectum	447955000	Gonococcal swab	400994000	Neisseria gonorrhoeae kweek	698-1	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from urethra	119393003	Taking of swab	285570007	Gram kleuring	664-3	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from vagina	119394009	Taking of swab	285570007	Gram kleuring	664-3	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003	Specimen from rectum	447955000	Taking of swab	285570007	Gram kleuring	664-3	Pos/Neg/Inc/Fail	117363000
Gonorrhoe infectie?	15628003					cefotaxime gevoeligheidstest (MIC)	6989-8	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					ciproflaxacin gevoeligheidstest (MIC)	7002-9	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					azithromycin gevoeligheidstest (MIC)	6981-5	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					ceftriaxon gevoeligheidstest (MIC)	6998-9	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					spectinomycin gevoeligheidstest (MIC)	35840-8	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					penicillin gevoeligheidstest (MIC)	23925-1	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					tetracycline gevoeligheidstest (MIC)	7052-4	MIC en/of S/I/R	103392008
Gonorrhoe infectie?	15628003					beta-lactamase	20423-0	Pos/Neg/Inc/Fail	117363000
Trichomonas vaginalis infectie?	56335008	Urine specimen	122575003	Collection of first stream urine specimen	450874000	Trichomonas vaginalis PCR	46154-1	Pos/Neg/Inc/Fail	117363000
Trichomonas vaginalis infectie?	56335008	Specimen from uterine cervix	119395005	Taking of swab	285570007	Trichomonas vaginalis PCR	46154-1	Pos/Neg/Inc/Fail	117363000
Trichomonas vaginalis infectie?	56335008	Specimen from vagina	119394009	Taking of swab	285570007	Trichomonas vaginalis PCR	46154-1	Pos/Neg/Inc/Fail	117363000
Trichomonas vaginalis infectie?	56335008	Specimen from urethra	119393003	Taking of swab	285570007	Trichomonas vaginalis PCR	46154-1	Pos/Neg/Inc/Fail	117363000
Trichomonas vaginalis infectie?	56335008	Specimen from uterine cervix	119395005	Taking of swab	285570007	Trichomonas vaginalis kweek	68458-9	Pos/Neg/Inc/Fail	117363000
Mycoplasma genitalium?	240594008	Urine specimen	122575003	Collection of first stream urine specimen	450874000	Mycoplasma genitalium PCR	69935-5	Pos/Neg/Inc/Fail	117363000
Mycoplasma genitalium?	240594008	Specimen from uterine cervix	119395005	Taking of swab	285570007	Mycoplasma genitalium PCR	69935-5	Pos/Neg/Inc/Fail	117363000
Mycoplasma genitalium?	240594008	Specimen from vagina	119394009	Taking of swab	285570007	Mycoplasma genitalium PCR	69935-5	Pos/Neg/Inc/Fail	117363000
Mycoplasma genitalium?	240594008	Specimen from urethra	119393003	Taking of swab	285570007	Mycoplasma genitalium PCR	69935-5	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Serum specimen	119364003	Venipuncture	22778000	Treponema pallidum EIA	11597-2	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Serum specimen	119364004	Venipuncture	22778001	Treponema pallidum IF (FTA)	5393-4	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Serum specimen	119364003	Venipuncture	22778000	Treponema pallidum IgG blot	40679-3	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Serum specimen	119364003	Venipuncture	22778000	Treponema pallidum IgM blot	40680-1	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Specimen from ulcer	119369008	Taking of swab	285570007	Treponema pallidum DNA PCR	41163-7	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Specimen from vagina	119394009	Taking of swab	285570007	Treponema pallidum DNA PCR	41163-7	Pos/Neg/Inc/Fail	117363000
Syphilis infectie?	76272004	Serum specimen	119364003	Venipuncture	22778000	TPPA	22590-4	Pos/Neg/Inc/Fail/titer	103392008
Syphilis infectie?	76272004	Serum specimen	119364003	Venipuncture	22778000	VDRL	47235-7	Pos/Neg/Inc/Fail/titer	103392008
Syphilis infectie?	76272004	Serum specimen	119364003	Venipuncture	22778000	RPR	20507-0	Pos/Neg/Inc/Fail/titer	103392008
Bacteriologische kweek	104178000	Specimen from genital system	119344008	Taking of swab	285570007	Banale kweek	6463-4	written report	87999009
Bacteriologische kweek	104178000	Specimen other	70347009	Taking of swab	285570007	Banale kweek	6463-4	written report	87999009

HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	HIV 1+2 Ab+HIV1 P24 Ag (HIV Combo)	56888-1	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	HIV 1 p24 Ag	18396-2	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Plasma specimen	119361006	Venipuncture	22778000	HIV1 PCR	25836-8	Titer	443686007
HIV?	86406008	Plasma specimen	119361006	Venipuncture	22778000	HIV2 PCR	69353-1	Titer	443686007
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	HIV 1 & 2 Western blot HIV 1 & 2 Ab band pattern	77685-6	variabel	26716007
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	HIV2	5225-8	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV2 gp105	21334-8	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV2 gp36	10902-5	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 p17	9663-6	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 p24	9821-0	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 p31	9666-9	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV gp41	9662-8	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 p51	9667-7	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 p55	9668-5	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 p66	9669-3	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV gp120	9661-0	Pos/Neg/Inc/Fail	117363000
HIV?	86406008	Serum specimen	119364003	Venipuncture	22778000	anti HIV1 gp160	9660-2	Pos/Neg/Inc/Fail	117363000
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus core Ab	13952-7	Pos/Neg/Inc/Fail	117363000
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus surface Ag	5196-1	Pos/Neg/Inc/Fail	117363000
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus surface Ab	10900-9	Pos/Neg/Inc/Fail/titer	103392008
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus core IgM Ab	24113-3	Pos/Neg/Inc/Fail	117363000
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus e Ag	13954-3	Pos/Neg/Inc/Fail	117363000
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus e Ab	13953-5	Pos/Neg/Inc/Fail	117363000
Hepatitis B?	66071002	Serum specimen	119364003	Venipuncture	22778000	Hepatitis B virus DNA viral load	42595-9	Titer	443686007
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	Hepatitis C virus Ab	13955-0	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	Hepatitis C virus Ab band pattern	24011-9	variabel	26716007
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	Hepatitis C virus blot	75887-0	variabel	26716007
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	C1	56926-9	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	C2	56927-7	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	Helicase			
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	NS3	56929-3	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	NS4	56930-1	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	NS5	23871-7	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Serum specimen	119364003	Venipuncture	22778000	E2	56928-5	Pos/Neg/Inc/Fail	117363000
Hepatitis C?	50711007	Plasma specimen	119361006	Venipuncture	22778000	Hepatitis C virus RNA Viral load	49376-7	Titer	443686007
Herpes simplex?	33839006	Specimen from penis	119397002	Taking of swab	285570007	Herpes simplex virus 1 DNA PCR	16130-7	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Specimen from penis	119397002	Taking of swab	285570007	Herpes simplex virus 2 DNA PCR	16131-5	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Specimen from vagina	119394009	Taking of swab	285570007	Herpes simplex virus 1 DNA PCR	16130-7	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Specimen from vagina	119394009	Taking of swab	285570007	Herpes simplex virus 2 DNA PCR	16131-5	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Specimen from rectum	447955000	taking of swab	285570007	Herpes simplex virus 1 DNA PCR	16130-7	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Specimen from rectum	447955000	taking of swab	285570007	Herpes simplex virus 2 DNA PCR	16131-5	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Skin lesion sample	309068002	Taking of swab	285570007	Herpes simplex virus 1 DNA PCR	16130-7	Pos/Neg/Inc/Fail	117363000
Herpes simplex?	33839006	Skin lesion sample	309068002	Taking of swab	285570007	Herpes simplex virus 2 DNA PCR	16131-5	Pos/Neg/Inc/Fail	117363000