# PROCEDURE FOR PERFORMING URINE TESTING

To ensure urinalysis for patients in the community setting is undertaken safely and in a timely manner.

<table>
<thead>
<tr>
<th>First Issued</th>
<th>Issue Version</th>
<th>Purpose of Issue/Description of Change</th>
<th>Planned Review Date</th>
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<tbody>
<tr>
<td>One</td>
<td></td>
<td>To ensure urinalysis for patients in the community setting is undertaken safely and in a timely manner</td>
<td>2013</td>
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<tr>
<th>Named Responsible Officer:-</th>
<th>Approved by:-</th>
<th>Date</th>
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<tbody>
<tr>
<td>Continence Nurse Specialist</td>
<td>Nursing Policy Group</td>
<td>March 2010</td>
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</tbody>
</table>

Section: Diagnostics

D No 10

Impact Assessment Screening Complete
Date: March 2010

Full Impact Assessment Required Y/N

UNLESS THIS VERSION HAS BEEN TAKEN DIRECTLY FROM NHS WIRRAL WEB SITE THERE IS NO ASSURANCE THIS IS THE CORRECT VERSION
PROCEDURE FOR PERFORMING URINALYSIS

INTRODUCTION

Urinalysis is a simple cost effective tool that can be undertaken as a screening test during a holistic patient assessment; to monitor changes in urinary constituents following treatment/medications or to provide a baseline for comparison for future assessments (Dougherty & Lister 2008 and Wells 2007).

Urinalysis reagent tests (dipsticks) are strips of paper or plastic impregnated with chemicals. When dipped in urine the chemicals react causing a change in colour, these are then compared against a reference grid indicating the possible presence of a variety of diseases or disorders (Higgins 2008 and Dougherty & Lister 2008).

There are a number of reagent test strips available, used to test a variety of parameters, before performing urinalysis it is important that you read the manufacturer's instructions to ensure the reagent strips in your area test the parameters you require and to ensure that the test is performed according to manufacturer's recommendations (Higgins 2008).

If results of urinalysis indicate possible infection, urine samples for culture and sensitivity should be collected using a Mid Stream Sample of Urine (MSSU); this reduces contamination from debris present in the urethra (Higgins 2008 & Steggall 2007). It is obtained to confirm a diagnosis of Urinary Tract Infection and to ensure the appropriate treatment has been prescribed (Mahaffey 2006).

Urinalysis should not be performed in catheterised patients as virtually all patients with a long term catheter will have bacteria present (Elvy & Colville 2009). If infection is suspected, a Catheter Specimen of Urine (CSU) should be obtained.

PROCEDURE AIM

NHS Wirral is committed to providing high quality nursing services to all patients. This procedure aims to ensure those patients in the community setting who require urinalysis, do so in a safe and timely manner

PROCEDURE OUTCOME

All nurses employed by NHS Wirral will comply with this procedure. All staff performing urinalysis will do so in a safe and timely manner and the potential of obtaining inaccurate data or results will be reduced.

TARGET GROUP

All clinical staff directly employed by NHS Wirral who are required to perform urinalysis as part of their role
RELATED POLICIES

- NHS Wirral Health Records Policy
- Record Keeping Procedure for Community Nursing
- Nursing and Midwifery Council [NMC] (2007) Record Keeping
- Clinical Waste Policy
- Health and Safety Policies
- Infection Control Policies
- Incident Reporting Policy
- Medical Devices Policy
- Consent Policy
- Chaperone Policy
- Transport of Microbiological and Blood Specimens

NB Always use most current versions of NHS Wirral and NMC policies as may be superseded at any time.

PROCEDURE FOR PERFORMING URINALYSIS

EQUIPMENT

- Reagent testing strips
- Single use disposable non sterile gloves
- Single use disposable apron or Single use sterile dressing pack
- Specimen container
- Vernagel (if required in your clinical area)

<table>
<thead>
<tr>
<th>ACTION</th>
<th>RATIONALE</th>
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<tbody>
<tr>
<td>Confirm patients identity by asking for full name and date of birth, clarify with family/carer if patient unable to do so</td>
<td>To ensure correct patient and avoid error in patient identification</td>
</tr>
<tr>
<td>Staff members to introduce themselves, explain and discuss the procedure with the patient and relevant family members/carers</td>
<td>To ensure understanding of the procedure and allow time for patient to ask questions</td>
</tr>
<tr>
<td>Discuss the procedure with the patient and any further actions that may be required following the results of the test</td>
<td>To ensure the patient understands the procedure and reasons for performing it, and is actively involved in health care decisions</td>
</tr>
<tr>
<td>Obtain valid and informed consent and document in nursing record</td>
<td>To gain patient consent for the procedure and reduce anxiety To comply with trust policies</td>
</tr>
<tr>
<td>Identify the time the reagent strip is to be immersed in urine and the timeframe the results should be read within. Check the expiry date of the test strips</td>
<td>To obtain accurate results. The time the test strip is to be immersed and the results read within may vary between manufacturers.</td>
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<tr>
<td>Task</td>
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<tr>
<td>Decontaminate hands prior to procedure</td>
<td>To reduce risk of transfer of transient micro-organisms on the healthcare workers hands</td>
</tr>
<tr>
<td>Ensuring adequate privacy and time are made available - ask the patient to provide a fresh specimen of urine in a suitable clean container.</td>
<td>To maintain privacy and dignity samples should be tested as soon as possible after collection as bacteria in urine may continue to multiply. This may affect the results of the urine test, cause changes in pH or alter other constituents within the sample. (Higgins 2008 &amp; Rigby &amp; Gray 2005).</td>
</tr>
<tr>
<td>Apply single use disposable gloves and apron OR Open sterile dressing pack and apply gloves &amp; apron</td>
<td>To protect hands from contamination with organic matter and transfer of micro-organisms. To protect clothing or uniform from contamination and potential transfer of micro-organisms. Urinalysis is not an aseptic procedure, if there is a designated area for testing this should be used. Using a dressing pack may be more practical where a suitable work area or equipment is not readily available e.g. in the patients home.</td>
</tr>
<tr>
<td>Remove a test strip from the container and replace cap securely</td>
<td>For ease of testing &amp; to minimise exposure of strips to air</td>
</tr>
<tr>
<td>Put some tissue or roll on the designated work area and place the sample pot in the centre. If using a dressing pack place the sample pot centrally on the sterile field</td>
<td>To absorb spillage of urine. If spillages occur, decontaminate area in line with the Cleaning &amp; Disinfection policy to prevent environmental contamination. If no suitable work area available using the sterile field provides a clean surface to perform the test and protection against any drips or spillages</td>
</tr>
<tr>
<td>Dip the test strip into the urine (ensuring all of the squares are immersed) for the time specified by the manufacturer and gently run the edge of strip along the container as you remove it</td>
<td>To remove any excess urine</td>
</tr>
<tr>
<td>Place the test strip flat on some gauze or tissue and wait the allotted time as specified by the manufacturers before reading the strip against the colour chart. Whilst waiting replace the cap on the sample pot</td>
<td>The strips must be read at exactly the time interval specified, or the reagents will not have time to react, or may be inaccurate to prevent any spills</td>
</tr>
<tr>
<td>Holding the strip at an angle read the test strip against the reference grid, ensuring they do not touch.</td>
<td>If held upright the urine may run down the test strip, mixing the chemicals, which may affect results (Dougherty &amp; Lister 2005)</td>
</tr>
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</table>
Dispose of urine in toilet or designated sluice, dispose of container and waste
To reduce the risk of spillage and possible contamination. Where there are no available facilities a Vernagel sachet should be used

On completion of procedure, remove and dispose of Personal Protective Equipment (PPE) to comply with waste management policy
To prevent cross infection and environmental contamination.

Decontaminate hands following removal of PPE
To remove any accumulation of transient and resident skin flora that may have built up under gloves and possible contamination following removal of PPE

Record the results in patient health records, inform the patient of the results and discuss any further action that may be required
To obtain consent for any further action that may be required

Inform General Practitioner and Line Manager of any abnormal results, inform other health professionals as required
For any further investigations/actions required to be arranged

INTERPRETING THE RESULTS

It is important to remember that any results are indicative but not diagnostic; therefore they should not be viewed in isolation but in the context of the patient’s clinical condition and medical history, as part of a holistic assessment (Wells 2007).

**Blood:** The presence blood may indicate infection or bleeding within the kidneys, vagina or urinary tract (Wells 2007). A Mid Stream Specimen of urine should be obtained to exclude infection as a cause.

Stale urine or traces or household cleaners within the specimen container may lead to a false positive result for blood (BHR Pharmaceuticals n.d.).

**Protein:** may indicate Heart failure or infection. If accompanied by raised blood pressure may indicate possible renal disease (Higgins 2008)

**Glucose:** is indicative but not diagnostic of Diabetes, may also indicate poor diabetic control in a person known to have diabetes (Wells 2007)

**Nitrates:** indicates possible urinary tract infection (particularly in combination with Leucocytes), the intensity of colour change does not reflect the extent of the infection but the concentration of nitrates within the sample (Moore et al 2001 & BHR Pharmaceuticals n.d.). Some bacteria do not produce the enzyme; therefore a negative result does not exclude infection, the patient’s clinical symptoms should also be taken into account and an MSSU obtained if symptoms are suggestive of infection (Nazarko 2008, Wells 2007 & Mahaffey 2006).

A false negative may be obtained in patients taking vitamin C (Rigby & Gray 2005)

**Leucocytes:** indicates possible infection, particularly in combination with nitrites, an MSSU should be obtained (Moore et al 2001).

**pH:** A high pH can lead to a false positive test for protein (Wells 2007).
**pH Testing in Catheterised Patients:** The pH of urine can vary from time of day, type of diet or fluids taken therefore pH testing to predict encrustation and blockages in catheterised patients is not a reliable method (Rigby 2004). However, if encrustation is suspected, the catheter should be cut along its length when it is removed and visually inspected for signs of encrustation (Mather & Fraczyk 2006).

**Bilirubin:** May indicate possible hepatic disease (Peate 2008)

**Ketones:** May indicate Keto – acidosis or starvation (Higgins 2008)

**STORAGE OF REAGENT TEST STRIPS**

Test strips should be stored in their air tight container away from direct sunlight

**PROCEDURE FOR OBTAINING MID STREAM SPECIMEN OF URINE**

If urinalysis indicates possible infection or if the patient’s clinical symptoms are suggestive of infection a Mid Stream Sample of Urine (MSSU) for culture and sensitivity should be obtained to confirm diagnosis and to ensure the appropriate treatment is prescribed (Mahaffey 2006).

To reduce contamination general genital hygiene should be performed: instruction should be given to the patient on how to provide a mid stream sample of urine.

The patient should pass the first part of the urine sample into the toilet to flush the urethra, collect the middle part in the sterile sample pot and then pass the remaining urine into the toilet.

Uncircumcised men should be encouraged to retract the foreskin and women to part the labia when providing a mid stream sample of urine (Leaver 2007, Steggall 2007 & Higgins 2008).

**EQUIPMENT**

- Single use disposable non sterile gloves
- Single use disposable apron
- Sterile Specimen container
- Specimen bag and correct microbiology form
- Re-usable transport container

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<td>To ensure the patient understands the procedure and reasons for performing it, and is actively involved in health care decisions</td>
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PROCEDURE FOR PERFORMING URINALYSIS

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<tr>
<td>Obtain valid and informed consent and document in nursing record</td>
<td>To gain patient consent for the procedure and reduce anxiety</td>
</tr>
<tr>
<td></td>
<td>To comply with trust policies</td>
</tr>
<tr>
<td>Assess what level of assistance the patient may need</td>
<td>To assist patient to obtain MSSU sample of urine</td>
</tr>
<tr>
<td>Confirm that adequate hand washing facilities, privacy and time are available</td>
<td>To maintain privacy and dignity</td>
</tr>
<tr>
<td>Decontaminate hands prior to the procedure</td>
<td>To reduce risk of transfer of transient micro-organisms on the healthcare workers hands</td>
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<tr>
<td>Apply single use disposable gloves and apron</td>
<td>To protect hands from contamination with organic matter and transfer of micro-organisms. To protect clothing or uniform from contamination and potential transfer of micro-organisms</td>
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<td>Ensuring the patient has a full bladder, give instruction on how to obtain a mid stream sample of urine and genital hygiene and ask the patient to provide a fresh specimen of urine in a sterile specimen pot.</td>
<td>A strong urine flow is more effective at flushing debris from the bladder and will reduce contamination of the sample (Higgins 2008). If the patient has difficulties providing a MSSU a Whizz attachment may be available from the Continence Service.</td>
</tr>
<tr>
<td>Once the sample obtained, label container with patients full name, date of birth and date of collection, ensuring details are correct</td>
<td>To prevent errors in sampling and ensure results are received in a timely manner</td>
</tr>
<tr>
<td>Place sample the in the specimen bag with appropriate microbiology form</td>
<td>For transportation</td>
</tr>
<tr>
<td>Remove gloves and apron and dispose of Personal Protective Equipment (PPE) to comply with waste management policy</td>
<td>To prevent cross infection and environmental contamination</td>
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<tr>
<td>Decontaminate hands following removal of PPE</td>
<td>to remove any accumulation of transient and resident skin flora that may have built up under gloves and possible contamination following removal</td>
</tr>
<tr>
<td>Record collection of the specimen in patient health records</td>
<td>to ensure effective communication</td>
</tr>
<tr>
<td>Instruct patient on how to obtain results</td>
<td></td>
</tr>
<tr>
<td>Transport to collection point using re-usable transport container</td>
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**PROCEDURE FOR OBTAINING CATHETER SPECIMEN OF URINE EQUIPMENT**

Urinary drainage bags contain a sampling port: this is usually a self sealing plastic sheath located on the upper aspect of the inlet tubing (Getcliffe & Dolman, 2003).
Urine samples for microscopy must always be obtained from this sampling port using an aseptic technique (D.O.H, 2006 and NICE, 2003).

Samples should not be taken using the outlet tap, as colonisation of micro-organisms occurs within the stagnant urine or around the outlet tap, and may lead to false results (Getcliffe & Dolman, 2003).

**EQUIPMENT**
- Sterile Dressing pack
- 10ml syringe
- Green needle
- Alcohol swab
- Sharps box
- Urine specimen pot
- Specimen bag and correct microbiology form
- Re-usable transport container

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<td></td>
</tr>
<tr>
<td>Allow sufficient urine to drain into the outlet tube of the catheter bag</td>
<td>To ensure adequate amount of urine available to sample</td>
</tr>
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<td>To reduce risk of transfer of transient micro-organisms on the healthcare workers hands</td>
</tr>
<tr>
<td>Open sterile dressing pack onto a clean field and place all sterile single use equipment required within sterile field</td>
<td>To maintain asepsis and prevent contamination of sterile equipment</td>
</tr>
<tr>
<td>Apply single use disposable sterile apron and gloves</td>
<td>To protect clothing or uniform from contamination and potential transfer of micro-organisms</td>
</tr>
<tr>
<td>Attach needle to syringe</td>
<td>To ensure aspiration of urine</td>
</tr>
<tr>
<td>For ease of testing</td>
<td></td>
</tr>
<tr>
<td>Clean the sampling port using the alcohol</td>
<td>To reduce the risk of cross infection and allowing</td>
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</table>
swab and allow to dry  
any cleaning solution to dry is vital for disinfection to be complete (Pratt et al 2007).

Hold the catheter bag tubing below sampling port to stabilise  
To reduce risk of needle stick injury

Insert needle into sampling port at a 45° angle and slowly draw back on the syringe to aspirate sample  
If the catheter bag or tubing is punctured it causes leakage carrying organisms with it.  
(To maintain patency of the sampling port  
To ensure sufficient sample available for testing

(When using a needle free system – insert the syringe into the port according to manufacturers instructions and aspirate 10mls)

Withdraw needle and syringe from sampling port

Immediately dispose of needle in sharps box  
To reduce risk of needle stick injury

Empty urine from syringe into urine specimen pot  
To reduce contamination

Re clean sampling port with an alcohol swab  
To reduce contamination of access point and reduce the risk of cross infection

Label container with patients full name, date of birth and date of collection, ensuring details are correct  
To prevent errors in sampling and ensure results are received in a timely manner

Place the sample in the specimen bag with appropriate microbiology form  
For transportation

On completion of procedure, remove and dispose of PPE to comply with waste management policy  
To prevent cross infection and environmental contamination.

Decontaminate hands following removal of PPE  
To remove any accumulation of transient and resident skin flora that may have built up under gloves and possible contamination following removal of PPE

Record collection of the specimen in patient health records  
to ensure effective communication

Instruct patient on how to obtain results

Transport to collection point using re-usable transport container  
To transport safely

CLINICAL INCIDENTS

Any related incidents arising from carrying out these procedures which may involve clinical error or near miss must be reported following the NHS Wirral incident reporting policy.
REFERENCES / BIBLIOGRAPHY


CONSULTATION

- Nursing Policy Group
- Continence Service
- Infection Control Team