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Pathology Department
North Devon District Hospital
Raleigh Park
Barnstaple
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Northern Devon Healthcare NHS
NHS Trust

Launch of New Gentamicin Protocol

Gentamicin is an aminoglycoside antibiotic that is used in treating a wide range of infections. It works best after attaining high serum concentrations. It also exerts a 'post-antibiotic effect' (PAE) where the antibiotic works for a short period after falling to below a level that would normally be regarded as 'sub-therapeutic'. Toxicity with gentamicin is very rare if short courses are used, and especially if trough concentrations are kept low. In order to maximise efficacy (by having high peak levels) and minimise toxicity (by making most use of the PAE) gentamicin is given as a large dose (5 mg/kg by ideal body weight). The clearance of gentamicin is then estimated by taking a level between six and fourteen hours after the dose. This level is plotted on the Urban-Craig nomogram, and this gives the time to the next dose. Subsequent doses do not change – it is the interval between doses that is modified. Antibiotic assays will only be run in the laboratory between 10am and 5pm. When prescribing gentamicin, the prescriber must consider when gentamicin levels should be taken so that a level is available within 24 hours of the initial dose. Assays taken after 5pm will be run the next day at 10am. **It should always be possible to get a level returned within 24 hours of the initial dose. Generally, assays should be taken six hours after dosing, unless this is going to be in the middle of the night when it can wait until the next morning (if within 14 hours of the initial dose)**

The nomogram cannot be used in patients with ascites, endocarditis, major burns, end stage renal failure, aged less than 16 years, or pregnancy. In these patient groups a level should be taken 24 hours after the initial dose, to determine whether a suitable trough level has been attained. See the full policy on Tarkanet for full details for use of both the nomogram, and dosing in excluded patients.

Dr Tom Lewis, Consultant Medical Microbiologist

Inside this issue:

How to Access Pathology on Tarkanet

Most NDHT PCs have a link to Tarkanet on the desktop. Also, clicking on the internet explorer icon should open Tarkanet. NDHT I.T. Services Dept (01271 322697) tell us that all GP Practices should also have a link to Tarkanet—please contact them if this is not the case.

From the Tarkanet home page:

Click the blue 'Documentation' Tab.

Click on the word 'Manuals' in the list shown.

Click on the word 'Pathology Handbook' from the list of manuals.

Urine Specimens for UMA Testing

Please be aware that as from the 1st August 2010, the laboratory will no longer accept urine specimens for Micro Albumin testing in Universal containers. These specimens will need to be submitted in the white-capped Vacuettes. UMA requests with specimens in Universal containers will be rejected after this date.

Urine specimen containers for all other pathology tests remain unchanged.

Accessing Pathology results from NDHT Locations

NDHT staff requiring access to the pathology computer system (LabCentre), should in the first instance, ask their line manager to complete the electronic staff registration form. The icon is found in the Novel applications window on PC desktops and looks like this:

Completing this e-form will automatically inform the Pathology Computer Manager who will set up access and then email the applicants with information on how to proceed.

Training courses are generally available every week and are scheduled by the NDHT Workforce Development Dept Training sessions on-site in community hospitals may be also be possi-

"That's nearly an armful!"

You might be surprised to know that on average the Biochemistry department receives over 50 unnecessary blood specimens every day. This amounts to almost £3000 worth of tubes per year, plus the cost of disposing of them as clinical waste. The request forms are being updated with better information but as a rule of thumb a **full** yellow-topped tube will be enough for about 5 tests, not 2 as stated. Please contact the lab if in doubt about how many tubes you should take and help us to cut wastage and, of course, costs.

"...there would have been a 60% chance of death—due to a specimen labelling error."

Specimen Acceptance Policy

Request Forms must be labelled with 3 key identifiers

Specimens must be labelled with 2 key patient identifiers (transfusion specimens need 3)

Key patient identifiers are:

Full name (not initials or preferred names), DOB, and unique number (NHS, hospital, , A/E, F. Planning or GUM)

Specimen and request form information must match and be correct. Transfusion forms must be signed.

For more details or a copy of the full policy, contact the Pathology Quality Manager—see back cover for contact number.

Specimen Labelling Error: A Potentially Fatal Case Study

We are all human and as such are liable to make mistakes, particularly when we are under pressure from too much work to do and not enough time to do it in. Some mistakes are inconsequential but other may have more serious consequences and one such scenario relates to the labelling of pathology specimens and request forms.

Most labelling errors can be picked up in the labs by checking request form ID against specimen ID and also against the data held on various computer systems, but there is a situation where labelling errors are not picked up by the laboratory and incorrect result data will be assigned to the wrong patient-with potentially fatal consequences.

The following is an account of an actual event which has occurred recently in the south-west area.

Patient A was admitted to St Elsewhere Hospital and blood samples were collected for routine biochemistry and haematology and group and save (G&S). However the blood was not labelled at the patient's bedside but taken to a different location and labelled with sticky labels (G&S hand labelled) from a set of notes on the desk. All specimens and request forms were labelled with the wrong patient's details, patient B, also on the same ward, whose notes and sticky labels were on the same desk.

In the labs, these specimens passed the specimen acceptance policy, as everything looked correct and matched and results were issued and assigned (unknowingly) to the wrong patient—B. Blood group was AB Rh+.

Meanwhile, patient B's condition deteriorated and he was transferred to a critical care ward and urgently required a blood transfusion. Normally, there is no requirement to confirm the blood group with a second specimen, but by chance, a repeat sample was sent to the lab with the request for blood. When the second sample was processed the blood group result was different—A Rh+.

A third repeat was requested which confirmed the group to be A Rh Positive.

If critical care had not sent a repeat sample and blood had been issued on the strength of the initial sample (from patient A) then patient B would have received blood which was fundamentally ABO incompatible. Such an incompatible blood transfusion carries a 60% chance of death, in this case, due to a specimen labelling error.

It is extremely important to follow best practice when confirming the identify of a patient prior to specimen collection and post collection when labelling samples and forms. Here is some labelling advice:-

Never label specimens/ forms away from the patient.

Only take patient ID from the wristband, or ask patients to tell you their full name & DOB.

(Inpatients) - do not rely on any patient ID which may be on the headboard of the bed.

Patient 'calling' or 'preferred' names cause confusion and can lead to unnecessary rejections.

Biochemistry & Haematology Labs Granted 'Accredited' Status

In May and June the Biochemistry and Haematology Departments at NDDH received their official confirmation of accreditation in recognition of their compliance with the Standards for the Medical Laboratory (incorporating ISO15189:2007). External assessments occur every two years for all pathology departments to ensure they are maintaining compliance with these quality standards. All NDDH Pathology labs are now accredited to these standards.

B12 and Folate: Add-On Tests

Please be aware that B12 and folate analyses can only be added on to a previous request within 24 hours of the blood being taken. This is due to the relative instability of these molecules in storage.

Generally, time limits for additional tests (on specimens already submitted to the laboratory), can be found in the Pathology Handbook on Tarkanet.
http://ndht.ndevon.swest.nhs.uk/pathology/

Pyuria and Urine Culture

Our current approach to urine specimens is to culture if there is any pyuria (>100WBC/ml) or bacteria detected by the automated cell counter. We have recently compared the level of pyuria in specimens from patients with good symptoms of a UTI recorded on the request form, with that found in specimens when no good history of UTI was recorded (eg. "Diabetes. No symptoms. Protein +"). The level of pyuria in the 'UTI unlikely' group was significantly lower than that in the group with good reported UTI symptoms.

These findings are supported by the fact that automated cell counters are considerably more sensitive than microscopy (by a factor of about 2.5). The conclusions from this are that the specificity of urine culture is poor if all specimens with low level pyuria are cultured, but that this might be improved if the white cell cut-off values for culture were to be increased.

The flip-side to urine culture is that there are a substantial number of patients with good symptoms of infection who may benefit from a more detailed microbiological examination of the urine. Options include exploring ways of reporting mixed cultures; looking for antimicrobial substances; looking for low levels of routine pathogens; and looking for more fastidious organisms.

Catheter urine samples are another group of specimens for which it is difficult to determine criteria for culture and reporting. As catheters are quickly colonised with bacteria, the clinical relevance of bacteriuria is limited. In symptomatic catheterised patients, current methods of urine culture may lead to misleading results, as mixtures of resistance mechanisms may not be detected.

In order to improve the service we provide with urine culture, in particular to improve the specificity of the test, and allow concentration of laboratory resources on those specimens from patients with likely infection we are considering a number of changes in our approach to urine specimens. We would hope to institute some of these changes in the next couple of months, and will keep you posted on developments.

In the meantime, it might also be worth reviewing who is sending urine specimens from your practice to microbiology, and on what indication, as it is apparent that a substantial number are sent when there is no clinical suspicion of UTI. Often the driver for this seems to be a 'positive' urine dipstick. Positive urine culture in asymptomatic patients is often the reason for antibiotic prescribing. The SIGN guidelines on UTI give useful guidance on this point (www.sign.ac.uk):

"**Bacteriuria alone is rarely an indication for antibiotic treatment.** In elderly patients, asymptomatic bacteriuria is common, and there is evidence that treatment is more harmful than beneficial."

Please also try to enter clinical details on the request form, as this may alter our approach to processing and reporting. If you have any comments, questions, or suggestions, please contact any of the consultant microbiologists to discuss.

Dr Tom Lewis

Consultant Medical Microbiologist

Revised Protocol: Collection of CSF Specimens for Xanthochromia Testing
(& Meningitis Screening)

Full document: In the Pathology Handbook
http://ndht.ndevon.swest.nhs.uk/pathology/sending_samples.shtml#high

This test is performed to attempt to identify those patients who have had a subarachnoid haemorrhage (SAH) but in whom the CT scan is negative. The spectrophotometric scan detects bilirubin in CSF and this finding is consistent with a bleed into the CSF.

Request forms:-

Blue form–Microbiology samples (Universals 1, 2, and 3).

Green form–Biochemistry samples (Universal 4 and fluoride, plus a blood specimen (gold top).

Samples:-

Label 4 universal samples and one grey-topped fluoride/EDTA tube with the patient's name, NHS number (or hospital number), ward, date of birth, time that CSF was obtained AND the sequence order of sampling.

Collect the first specimen (0.5 mL) into the grey-topped fluoride tube for glucose and protein estimations and send to Clinical Biochemistry. Obvious blood stained samples will not be analysed.

Collect the next universal containers numbered 1- 3 (aim for a total of 2 mL) and send with the blue form to Microbiology, informing them by telephone that the samples will be arriving.

Collect the 4th universal container containing a minimum of 1 ml CSF (approx 20 drops from a Luer connector on a needle).

Protect this sample from the light, and send with the CSF fluoride sample and a gold-top blood sample together with the green form to Clinical Biochemistry.

Cover Photograph

The image under the 'Testing Times' title shows a scanning electron micrograph of a colony of Methicillin-resistant Staphylococcus aureus (MRSA) bacteria.

Stapylococcus aureus is a widespread microorganism that commonly colonises the skin of healthy people. It can also colonise wounds without necessarily causing infection. S. aureus does cause a huge variety of infection, ranging from relatively minor cellulitis, boils and abscesses to life threatening bloodstream infection. While more serious infections nearly always require intravenous antibiotics, other infections are often treated with short courses of oral anibtiotics. Herein lies part of the problem with MRSA - it is resistant to many oral antibiotics. The limitation of antibiotic choices, and proven ways of breaking the chain of transmission with good hand hygiene, makes preventing the spread of MRSA a priority for infection control programmes.

Tea Break Teaser

Which of the following statements are true concerning the Staphylococcus species of bacteria?

1. Some people can carry MRSA for a few hours or days, while others carry it for weeks or months.

2. People who carry MRSA do not look or feel different from anyone else.

3. MRSA is usually spread by coughs & sneezes.

4. People who acquire an MRSA bloodstream infection can be treated with source control and intravenous antibiotics.

5. Staphylococcus aureus can cause food poisoning.

6. Methicillin resistance in Staphylococcus aureus was first reported in 1961.

Answer: page 4

Northern Devon Healthcare Trust
Contact Details

Divisional General Manager, Diagnostics

Mr. Neil Schofield	*Tel: 2761 (322761)*

Biochemistry Department

Dr John O'Connor, Consultant Clinical Biochemist	*Tel: 01392 402944*
Mr Andrew Lansdell, Principal Clinical Biochemist	*Tel: 2419 (322419)*
Mr. Tim Watts, Operational Manager Biochemistry & Haematology Departments	*Tel: 3232 (370232)*
General Biochemistry Laboratory Enquiries	*Tel 2345 (322345)*

Haematology & Blood Transfusion Department

Lead Consultant Haematologist, Dr. Jason Coppell	*Tel: 3198 (349198)*
Mrs. Sally Williams, Haematology Secretary	*Tel: 3198 (349198)*
Mrs. Cathie Peters, Haematology CNS	*Tel: 3198 (349198)*
Mr. Tim Watts, Operational Manager Haematology & Biochemistry Departments	*Tel: 3232 (370232)*
Mrs. Maggi Webb, Blood Transfusion Manager	*Tel: 2327 (322327)*
Kathleen Wedgeworth I.V. Fluids/Transfusion CNS	*Tel: 2440 (322440)*
General Haematology Laboratory Enquiries	*Tel 2329 (322329)*
General Transfusion Laboratory Enquiries	*Tel 2327 (322327)*

Microbiology Department

Dr Gail Speirs, Consultant Microbiologist	*Tel: 2798 (322798)*
Dr David Richards, Consultant Microbiologist	*Tel: 2320 (322320)*
Dr Tom Lewis, Consultant Microbiologist	*Tel: 2384 (322384)*
Angela Mills, Microbiology Secretary	*Tel: 3199 (349199)*
Mr. Colin Parkin, Head Biomedical Scientist	*Tel: 3278 (370278)*
General Microbiology Laboratory Enquiries	*Tel 2347 (322347)*

Cellular Pathology Department

Dr Nicolas Ward, Consultant Histopathologist	*Tel: 3197 (349197)*
Dr Jason Davies, Consultant Histopathologist	*Tel: 3197 (349197)*
Dr Andrew Bull, Consultant Histopathologist	*Tel: 3197 (349197)*
Miss Katie Paul, Histopathology Secretary	*Tel: 3197 (349197)*
Mr. Lee Luscombe, Head Biomedical Scientist	*Tel: 3754 (311754)*
General Cell. Path. Laboratory Enquiries	*Tel 2340 (322340)*
Mr. Michael Elton, Mortuary Manager	*Tel: 2302 (322302)*
Bereavement Support Office	*Tel: 2404 (322404)*

Pathology Computer Manager

Mr. Julian Bishop	*Tel 2324 (322324)*

Pathology Quality Manager

Mr. Bruce Seymour	*Tel 2324 (322324)*

Point of Care Manager

Mr. David O'Neill	*Tel : 3114 (349114)*

Pathology Office Manager

Mrs. Ruth Teague	*Tel: 2796 (322796)*

Pathology Supplies/Consumables

Debbie Martinelli & Marcus Milton	*Tel: 2342 (322342)*

N.D.D.H. Switchboard ***Tel 0 (322577)***

Full contact details are available on the 'Contact Us' page of the Pathology Handbook on Tarkanet.
Internal telephone extensions are shown above. Numbers in brackets are the direct dial numbers from outside the hospital. Barnstaple area code is 01271.

Laboratory Opening Times

The laboratory is fully staffed from 09:00 to 17:30 Monday to Friday and on Saturday between 09:00 and 12:30 for all departments except:-

Cellular Pathology—08:30 to 17:00 Mon-Fri only

Mortuary/Bereavement—08:30 to 16:00 Mon-Fri only

Point of Care Testing—08:30 to 17:30 Mon-Fri only

Outside of these times there is an on-call service in operation for Biochemistry, Haematology, Microbiology and the Mortuary departments. Contact the on-call staff via the N.D.D.H. Switchboard on ext. 0 (or 01271 322577 externally) - see below for more details on how to contact the on-call biomedical team.

There is also a doorbell outside the main Pathology entrance .

Getting Advice Out of Hours

CLINICAL ADVICE:-

Biochemistry & Haematology & Microbiology

Clinical Advice from a Pathology Consultant can be obtained outside of normal hours by contacting the N.D.D.H. switchboard—dial 0 from inside the hospital or 01271 322577 and ask for the consultant you require.

GENERAL ADVICE

There are three on-call biomedical scientists (one each for the biochemistry, haematology and microbiology departments) .

<u>The on-call staff request that you do not directly phone the laboratory during on-call periods</u> as they are frequently unable to take calls due to being in other parts of the laboratory, collecting specimens for example.

However, on-call staff can be contacted as follows:

Biochemistry & Haematology: By bleep—ask switchboard to bleep the biomedical staff required.

Microbiology:

Through Switchboard only.

And finally……

Five doctors went duck hunting one day. Included in the group were a GP, a paediatrician, a psychiatrist, a surgeon and a pathologist. After a time, a bird came winging overhead. The first to react was the GP who raised his shotgun, but then hesitated. "I'm not quite sure it's a duck," he said, "I think that I will have to get a second opinion." And of course by that time, the bird was long gone. Another bird appeared in the sky thereafter. This time, the paediatrician aimed at it. He too, however, was unsure if it was really a duck in his sights and besides, it might have babies. "I'll have to do some more investigations," he muttered, as the creature made good its escape. Next to spy a bird flying was the sharp-eyed psychiatrist. Shotgun shouldered, he was more certain of his intended prey's identity. "Now, I know it's a duck, but does it know it's a duck?" The fortunate bird disappeared while the fellow wrestled with this dilemma. Finally, a fourth fowl sped past and this time the surgeon's weapon pointed skywards. BOOM!! The surgeon lowered his smoking gun and turned nonchalantly to the pathologist beside him. "Go see if that was a duck, will you?"

We hope that you have found this newsletter interesting and helpful. If you would like to see information on a specific topic in the next newsletter, please contact the Pathology Quality Manager, Mr. Bruce Seymour on ext. 2324 (or 01271 322324), email bruce.seymour@ndevon.swest.nhs.uk with any requests.

Answer to MRSA quiz. Only statement 3 is INCORRECT. *MRSA is usually spread by touch. If a person gets MRSA on their hands, they can pass it to people and things that they touch. It may then be picked up and passed on to others. Staphylococcus aureus can live on surfaces for up to several weeks, depending on the atmospheric humidity level. This is why it is so important for everybody involved in patient care to follow advice on hand hygiene and use alcohol scrubs where available.*