



The Royal College of Pathologists
Pathology: the science behind the cure

Out-of-hours reporting of markedly abnormal laboratory test results to primary care: Advice to pathologists and those that work in laboratory medicine

In partnership with The Royal College of General Practitioners

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1 INTRODUCTION

This document is the result of work initiated by the College's Specialty Advisory Committees and Regional Councils in 2005, under the leadership of Dr Graham Beastall. It was then taken over by Dr Danielle Freedman, in her capacity as a member of the College Executive, who involved The Royal College of General Practitioners.

The Specialty Advisory Committees and Lay Advisory Committee were again consulted in 2007.

The document does not have the authority of a 'guideline' and we are therefore publishing it as 'Advice to pathologists'. It is offered as a basis on which pathologists can construct local guidelines.

'Out of hours' refers to the period of the working week when general practitioners' (GP) surgeries are unstaffed (18:30 hours to 08:00 hours every weekday and all day at weekends and Bank Holidays) and/or responsibility for patient care has been passed from the normal GP to an out-of-hours provider.

It will be the responsibility of pathology services to ensure that adequate local arrangements are in place to deal with the reporting of abnormal test results out of hours.

We realise this is not a perfect document, but it is a starting point that will be reviewed in 12 months. Please send any constructive comments to publications@rcpath.org, which will be forwarded to Dr Danielle Freedman.

2 STAKEHOLDERS

The following are stakeholders in facilitating the effective communication of markedly abnormal laboratory test results out of hours:

- laboratory staff
- pathologists (medical staff and clinical scientists)
- general practitioners (GPs)
- Primary Care Trusts (PCTs)
- GP cooperatives
- out-of-hours providers of primary care
- patient representatives.

3 BACKGROUND

The Royal College of Pathologists became aware of several serious untoward incidents relating to the inability of laboratory staff to find an appropriate primary care physician to act on a life-threatening or markedly abnormal test result. The College's Regional Councils have provided examples of such incidents or 'near misses' and these have been collated to identify important themes.

The problems in reporting and acting on markedly abnormal laboratory test results fall into three main areas:

- laboratory staff knowing whom to contact when a GP surgery is closed and knowing how to make that contact

- staff at the out-of-hours provider appreciating the importance of the abnormal result and being willing to accept responsibility for the result
- staff at the out-of-hours provider being unable to contact the patient and/or unable to access patient records as part of the corrective action.

Examples

"The telephone receptionist who answered the phone and took the results had no idea how abnormal the results were and was relying on my judgement to call a doctor, which she seemed reluctant to do."

"Some years ago, we established that it is the responsibility of the General Practitioner Deputising Service (GPDS) to follow up abnormal results out of hours. The problem that we now face is that the request form often does not include the patient's address (the return address is given as the GP's surgery, which is closed out of hours). Therefore when we contact the GPDS with grossly abnormal results, they cannot act on them in a high proportion of cases. The GPDS then returns to the laboratory asking for further contact information, which may not be available."

4 GENERAL PRINCIPLE

The responsibility of the laboratory staff is to communicate the markedly abnormal test result to the clinical team – either to the GP who made the request or to the out-of-hours provider. It is the responsibility of the clinical team to act upon that abnormal result in the interests of the patient.

5 IDENTIFYING A MARKEDLY ABNORMAL LABORATORY TEST RESULT

A markedly abnormal laboratory test result is a result that may signify a pathophysiological state, that may be life threatening or of immediate clinical significance and that requires urgent action. A list of such markedly abnormal laboratory test results needs to be agreed between stakeholders at a local level.

The College Specialty Advisory Committees have drafted lists of suggested triggers for contacting primary care out of hours (see Appendix 1) and pathologists should use these lists as a guide.

A failsafe method is required within the laboratory to help biomedical scientist staff (BMS) to identify results that fall within the agreed abnormal category. Junior BMS staff must be able to contact senior members of the department (medical staff or clinical scientists) out of hours and pass to them the responsibility for communicating a markedly abnormal result to the relevant primary care physician.

6 COMMUNICATING AN ABNORMAL LABORATORY TEST RESULT

Primary Care Trusts should be asked to inform the laboratory of specific arrangements for making telephone contact with a GP out of hours. Laboratories should collate this information into a formal document and display it in a prominent place. Senior members of the laboratory department should be able to access this information at all times.

When reporting a markedly abnormal result out of hours, laboratory staff are required to give the following information:

- the name and date of birth of the patient, together with any unique patient identifier
- the abnormal test result (and reference range if requested)
- the date and time of the request
- the name of the requesting physician and/or the practice number. There should be a unique identifier for the GP surgery, common to both the laboratory and GPDS
- as much clinical history as is available
- contact address for the patient, and telephone number if known.

Laboratories should maintain records of all abnormal results communicated out of hours.

The record should include the information specified above, together with the name of the person to whom the result was communicated and the date and time of the communication.

7 PROVIDING ADEQUATE PATIENT INFORMATION WITH THE REQUEST

GPs using the laboratory service should, when completing request forms, be encouraged to consider the possibility that the request may generate an abnormal result that may have to be communicated out of hours to another doctor.

GP request forms should be designed to accommodate the information specified above, including a section for the patient's telephone number, and GPs should be requested to provide all the necessary details in a legible fashion or accurately for electronic pathology requests where this is available.

Laboratory services need to liaise with the GP Local Medical Committee (LMC) in their area to promote accurate, explicit and consistent information on pathology request forms.

It is the responsibility of the requesting GP to complete the request form with sufficient patient details and clinical information to permit effective out-of-hours communication between the laboratory and any out-of-hours provider. Consideration needs to be given to confidentiality and data protection issues relating to the inclusion of the patient's telephone number on the request form.

Wherever possible, the laboratory service should aim to identify abnormal results and communicate them directly to the patient's own GP between 08:00 hours and 18.30 hours on weekdays. At all other times, including Bank Holidays, an out-of-hours provider who will neither know the patient nor have access to their records will need to be contacted with the abnormal results.

8 TAKING ACTION ON AN ABNORMAL LABORATORY RESULT

The doctor receiving the markedly abnormal laboratory test result must decide how to act in the best interests of the patient. Each case should be treated on its individual circumstances.

9 DEVELOPING ACTIVE LOCAL RELATIONSHIPS

Out-of-hours providers may cover patient populations across a number of different laboratories. Laboratory services will benefit from developing and nurturing local relationships. Invariably there will be an out-of-hours or urgent-care lead at the PCTs covered and a medical director for out-of-hours providers. There are also local urgent and emergency care networks, which involve a number of different providers, e.g. walk-in centre, minor injuries units and local hospitals. The consistent message of completing all the relevant details, including a patient's telephone number, needs to be universal as many professionals **other** than GPs request investigations with the details of the patient's own GP put on the request form, so that the results are sent to the GP.

Proactive engagement of local stakeholders for a consistent message across the whole local urgent care network should also be promoted.

There needs to be a designated protocol for the laboratory to report lack of response from out-of-hours providers back to PCTs. There needs to be a relationship and dialogue between laboratories and out-of-hours providers to ensure quality assurance of the abnormal results reported, as some out-of-hours providers have noted that there is considerable variability in the number of abnormal results they receive from different laboratories across the areas they cover. Laboratories also need to be aware of the potential consequences of reporting abnormal results apart from the purely clinical issues.

Example from an out-of-hours provider:

“Unless the patient has called the out-of-hours service before, we do not have any patient details. When we receive an abnormal result from the lab and do not have a telephone number, even if the risk factor is low it means that a home visit must be carried out. Not uncommonly, the patient is not in when visited at home by the service. This is clearly not the best use of duty doctor and driver resources during the busy out-of-hours period.”

10 CONCLUSION

Both Royal Colleges strongly advise members affected by these issues to enter into local negotiation with relevant stakeholders to address any problems and promote the development of good relationships.

The Royal College of Pathologists

November 2007

APPENDIX 1 TRIGGERS FOR CONTACTING OUT-OF-HOURS PROVIDERS OF PRIMARY CARE

The following are guidelines for triggers and not definitive. Consultant grade pathology staff may, at their discretion, communicate results outside this list.

1 Microbiology and virology

Some microbiology and virology results may need to be reported urgently, particularly over a weekend or Bank Holiday, but also when GP surgeries are closed during the working week.

Microbiology or virology results may have additional implications for the public health of a community, as well as the individual patient, and would then need to be communicated to the local Health Protection Team, as well as the Primary Care Team. Results may be of particular significance if they relate to an outbreak of infection, a possible deliberate release or have been obtained from the investigation of patients from an institutional setting, such as a school, prison or care home, where there is a significant infection risk.

Increasing diversity of healthcare provision and patterns of care will require inclusion of clear arrangements within service specifications.

It is the responsibility of the biomedical scientist who becomes aware of new results for primary care patients out of hours in the following categories to inform the senior virologist or microbiologist on call.

Acute infections with outbreak potential (see point 1.1) and acute hepatitis A or B (point 1.3) would also necessitate notification to the local Health Protection Team out of hours, depending on local arrangements with Health Protection Units. This would be a responsibility of the senior virologist or microbiologist on call.

The following list is not exhaustive, but includes the most frequent or important infections requiring urgent contact with the primary care teams.

1.1 Acute infections with outbreak potential in close community or residential setting, e.g. boarding school, nursing home, etc:

- influenza
- measles
- mumps
- transmissible enteric pathogens, e.g. norovirus, salmonella, Ecoli 0157, and including those requiring notification to the Proper Officer
- transmissible respiratory pathogens with serious implications for the patient's immediate care and/or contacts, e.g. RSV, Legionnaire's, TB
- other serious infections such as diphtheria, SARS.

1.2 Acute infections in pregnancy that pose risk to pregnant/neonatal contacts:

- parvovirus B 19
- rubella
- varicella-zoster virus
- acute bacterial infections in pregnancy and the post-partum period, e.g. Group A streptococcus in a high vaginal swab.

- 1.3 Acute viral hepatitis (A or B) and any newly diagnosed hepatitis B for prophylaxis (HNIGI vaccine or HBIG) in some contacts.
- 1.4 Susceptibility to varicella in pregnant or immunocompromised contact for prophylaxis with VZIG for significant exposure.
- 1.5 Significant positive blood culture results from patients who have been sent home, e.g. from A&E or the medical assessment unit.
- 1.6 Antibiotic assay results from patients who are self-administering in the community.

2 Haematology

The focus of these guidelines is those few tests where urgent contact with GPs is required. Action required may include:

- i) immediate medical intervention, including admission to hospital or change in the patient's treatment
- or
- ii) urgent referral for assessment during the next working day.

While the decision to contact the primary care team will be based solely on the numerical values obtained, the assessment and clinical decision will depend on the clinical context. This is dependant on the input and knowledge of the attending clinician.

Contact outside normal working hours often involves an out-of-hours provider when access to the patient can be difficult. However, this should not influence the decision to contact the out-of-hours provider, which should be based on the need for urgent (i.e. immediate) or next-day medical intervention.

The clinical context is crucial in making the ultimate decision and will not always be known to the laboratory. In these circumstances, it is best to err on the side of caution.

If the patient is known to the department and has had a similar result within the previous seven days, urgent contact is not necessary and the report can be processed as normal, whereas a *de novo* finding should always be responded to.

If there is no electronic link to the requesting clinician, there should be a set of triggers for contact with the practice during the next working day.

2.1 Haemoglobin:

Lower limit would depend on the type of anaemia. < 5.0 microcytic and hypochromic.

< 5.0 macrocytic

< 7.0 normochromic and normocytic (suggestive of bleeding)

There will need to be separate criteria for renal patients

Upper limit: only require urgent referral if there are compounding medical problems > 19.0 (or Hct > 54)

2.2 White blood cell count:

Lower limit: neutropenia < 0.5 any presence of blast cells

Upper limit: require urgent but not immediate referral. Neutrophilia > 50
Lymphocytosis > 50

2.3 Platelets:

Lower limit: < 30

Upper limit: only requires urgent referral if there are compounding medical problems > 1000

2.4 Clotting studies

INR > 6.5 (on Warfarin)

2.5 Positive malaria screen

3 Clinical biochemistry

Below are illustrative action limits for contacting GPs out of hours. These limits are based on the first abnormal set of results or repeat results that have shown a markedly significant change for an individual patient. Each laboratory is advised to agree its own repertoire of analytes and specific action limits and reporting procedures with local primary care services.

		Action limits	
Analyte (serum/plasma)	Unit	Below	Above
Sodium	mmol/L	120	150
Potassium	mmol/L	2.5	6.5
Urea	mmol/L		30
Creatinine	umol/L		500
Glucose	mmol/L	2.5	20
Calcium adj	mmol/L	1.8	3.5
Magnesium	mmol/L	0.4	
Phosphate	mmol/L	0.3	
AST	U/L		20 x ULN
ALT	U/L		15 x ULN
Total CK	U/L		5 x ULN
Amylase	U/L		5 x ULN
Carbamazepine	mg/L		25 mg/L
Digoxin	ug/L		2.5 ug/L
Theophylline	mg/L		45 mg/L
Phenytoin	mg/L		40 mg/L
Phenobarbitone	mg/L		70 mg/L
Lithium	mmol/L		1.5
Triglycerides	mmol/L		12.0
CRP	mg/L		300

ULN = Upper limit of normal

APPENDIX 2 OUT-OF-HOURS PROTOCOL FOR THE REPORTING OF MARKEDLY ABNORMAL LABORATORY TEST RESULTS

ADVICE FOR OUT-OF-HOURS SERVICE

A markedly abnormal laboratory result may indicate that the patient needs urgent treatment. The communication of such important results should be a priority, and in certain circumstances, this could be life-saving. To enable the doctor to assess the urgency of the situation, full and accurate information is crucial. This approach will save time and help with the decisions to be made. In the interest of the patient's wellbeing, it is the responsibility of an out-of-hours clinician to act upon abnormal results.

When contacted by the laboratory with an abnormal result in the out-of-hours period, the call handler will obtain all the patient's demographics and enter the information on the computer in the normal way, making sure the telephone number of the pathology laboratory is always inserted in the remarks box. The call handler will also take details of the pathologist, together with their bleep or contact details.

All the results are to be listed carefully in the symptoms box. Accuracy is crucial and each recorded result should be read back to the pathology laboratory caller for verification. The call handler should always ask for unfamiliar words to be spelt, and should not be afraid to ask this more than once. When the results are to be faxed to the out-of-hours service, the call handler makes a note of this in the remarks box.

If the patient's details are incomplete, i.e. the patient has no contact number and no trace of telephone number via Directory Enquiries, the outcome of the triage would be a home visit, with a note on the patient's details that the patient has not been contacted.

The outcome of the triage/home visit may require the results to be passed via fax through to the patient's own GP, along with the triage/face-to-face consultation.

Often, the out-of-hours provider has insufficient patient contact details to even carry out a visit. Under these circumstances, it is up to the out-of-hours provider to ensure the GP practices are aware of this the next working morning.

It is the responsibility of the PCT to have mechanisms in place to communicate results to the relevant GP's practice or out-of-hours service. Also, for governance purposes, there must be an audit process for adverse incident reporting.

Adapted from 'Croydon Doctors On-Call Out-of-Hours Service'

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