Clinical guideline

- from evidence to outcomes

Hotus
Nursing Research Foundation

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Patient guidance for laboratory tests

Clinical guidelines are based on best available evidence concerning effective, feasible, appropriate and/or meaningful interventions in patient's or client's care

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Hoitotyön tutkimussäätiö

Patient guidance for laboratory tests

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Recommendations

Introduction

In Finland, about 70 million laboratory tests are conducted each year. Based on statistics, it is thought that the biggest potential for error in the laboratory process is before the analysis of a specimen is performed. This pre-analytical phase is therefore the riskiest point in the patient's laboratory process, and it has been estimated that each year up to 1.3 million laboratory tests (1.8%) contain a pre-analytical error. These errors account for 50-70% of all laboratory test errors, and entail significant costs in terms of money and delayed or inappropriate treatment.

The cost to Finnish health care for re-sampling these errors is estimated to be about EUR 10 million per year. In addition, much higher indirect costs are incurred when patients have to make repeated visits to the laboratory or doctor's surgery. As a result of incorrect results or where results are misattributed, patients may undergo unnecessary further investigation or be subject to incorrect treatment. Patient guidance for laboratory sampling is therefore an important part of the pre-analytical phase of laboratory testing. In helping to ensure that correct procedures are followed, patient guidance can be used to improve patient safety in the laboratory process.

Aim of the guideline

This work serves as a guideline, and is based on published studies and the consensus of experts, in regard to patient guidance for laboratory sampling. The primary goal is that the professionals who order laboratory investigations and the patient him/herself understand the importance of the instructions they are given and agree to abide by them. The guideline should be used to review the standard operating practices of organizations to guide patients for sampling,and to revise them as needed. The intended outcome of this is to ensure correct processes are followed, to avoid any unnecessary delay in treatment, as well as to improve the quality and efficiency of care.

Guideline structure

The Patient Guidance to Laboratory Tests guideline covers the following laboratory process areas: choice of laboratory investigations, laboratory request checklist, the preparation of the patient for sampling (including laboratory sampling and samples provided by the patient themselves). The technical and analytical aspects of sampling have been purposefully omitted from the guideline, as these can be found in various related international recommendations and standards. This guideline is aimed at inform healthcare professionals and students, as well as patients and their families.

The full version of the Guidelines can be found at:
http://hotus.fi/hotus-fi/suositukset

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Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Choice of laboratory investigations

Choosing the appropriate laboratory investigation must be based on medical judgment. Choosing a suitable test will also avoid incorrect and unnecessary examinations, and ensure patient treatment proceeds without delay. C

The selection of the test must be based on the individual patient's condition and prognosis assessment, treatments which are appropriate the clinical unit or on the basis of an existing general clinical guideline. C

- **Up to 25% of requested laboratory tests may be inappropriate for the intended purpose, or completely useless in treating the patient concerned. Using a clinical guideline or following an appropriate practice which supports the interventions undertaken in the unit can reduce unnecessary tests and make significant savings in regard to laboratory costs.**

Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Choice of laboratory investigations

The patient's participation in their care or related scientific research laboratory studies should be undertaken in agreement with the patient or his/her legal representative, and ensure the patient's informed consent is obtained. C

For critical clinical screening tests, the patient or his/her legal representative needs to have clear verbal and written information, as well as time for decision-making to be able to give their informed consent. C

- **Finnish health care legislation (1992/785) gives special attention to the patient's legal right to be informed about their treatment, and to participate voluntarily in research planning and decision-making.**
- **Patients participating in scientific research will be told what percentage of their tests are related to scientific research and the extent to which measures undertaken serve towards research or treatment.**

Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Laboratory request

It is important to choose appropriate tests for patient care from those provided by the laboratory analysis selection. The request should always be made using the nomenclature adopted by the Finnish Local and Regional authorities when this is available. C

- **The range of laboratory tests is extensive and several tests with almost identical names can be found. The decision support system which is integral to electronic patient records can help in determining the appropriate test and reduce the uncertainty which is related to its selection.**

Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Laboratory Requests

The laboratory request should contain all essential medical history which is relevant to the performance of the laboratory analysis, or to the interpretation of the results (SFS-EN ISO 15189: 2013). Providing good prerequisite information and details will help to direct the investigation correctly and to improve the evaluation findings. C

The laboratory request must ensure that the request is made for the correct patient in accordance with good medical practice. Electronic laboratory requests are prone to user error such as misalignment when treating a number of patients at the same time and more than one patient's information is open on the system. B

- **Patient information systems that are accompanied by software that requires the user to confirm or re-enter the identity of the patient, reduce "near miss" situations where a laboratory request may almost be made for the wrong patient.**

Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Patient preparation for sampling

When preparing the patient, you should become familiar with the specific requirements of each analysis and guide the patient to follow any instructions specific to the test. You should ensure that the patient understands the importance of complying with the instructions and is motivated to follow them. Following the instructions specific to tests ensures the reliability and comparability of the results with reference values and the patient's previous results. C

- **Variations in laboratory test results are caused, among other things, by errors in sampling time, the ingestion of food, physical activity, and by certain drugs (see recommendation Annex 5: Table 6).**
- **When giving instructions, ensure that they are clearly understood by the patient or his/her representative. Specific groups such as the elderly and foreign-language patients should be given particular attention.**

Degree of evidence
A Strong evidence
B Moderate evidence
C Weak evidence
D No evidence

Taking patient samples

Correct patient identification is the foundation of patient safety in every examination and treatment situation. The patient is always identified by at least two different identifiers (e.g. the patient's name and their identification number (ID)). C

- **An outpatient patient may be identified by requesting his/her ID card. You should ensure that the ID card is the patient's own by asking them to tell their personal identification number.**
- **All patients in hospital wards or treatment units must have an identification wristband. If the patient is unable to communicate, their identification can be confirmed using the personal information given on their wristband.**
- **The patient's room or bed number should not be used as an identifier. Also, identification should not be based on the assumption that someone else has already identified the patient.**

Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Taking patient samples

A wristband containing a barcode reduces patient identification errors. A

Using the barcode reduces sample recognition errors in the analysis process. A

Reliable sample labeling is just as important as the identification of the patient. The sample taken from the patient forms the patient's biological identity after the sampling has taken place. C

- **Sample containers containing specimens (such as tubes or pots) must be labeled immediately after sampling, with the patient's name and ID number, sampling time, the test abbreviation, as well as any other necessary details for the test.**
- **Samples are labeled using standardized labels and in accordance with the instructions provided by your own laboratory. The patient information recorded on the sample container is checked in the presence of the patient to confirm it is the same as that reported by the patient.**

Degree of evidence
A Strong evidence
B Moderate evidence
C Weak evidence
D No evidence

Taking patient samples

Systematic cooperation between laboratory and other health care personnel reduces the potential for identification errors and improves patient safety. B

Patients must be checked carefully before sampling to ensure they have complied with the requested instructions for their test, D and any nonconformity must be recorded in accordance with the agreed procedure (SFS-EN ISO 15189: 2013). These measures will ensure the reliability of laboratory test results and the correct interpretation of the results. They also reduce the number of laboratory samples which are rejected and the amount of re-requested samples. C

- **If a sample is taken which does not conform with the instructions provided, the nonconformity must be recorded using the procedure agreed with the laboratory and treatment units. Information about any nonconformity should be made available to the treatment unit so it is able to be considered when interpreting the results, regardless of whether the answer is presented electronically or in paper format (SFS-EN ISO15189: 2013).**
- **Laboratories should also provide the criteria for the rejection of samples (SF-EN ISO15189: 2013).**

Degree of evidence
- A Strong evidence
- B Moderate evidence
- C Weak evidence
- D No evidence

Patient provided samples

A sample that the patient provides by herself (himself) is more prone to error than a sample taken by the healthcare professional. The proportion of invalid samples provided by patients can be reduced by offering oral and written guidance. C

In spite of instructions however, up to half of timed urine samples submitted to the laboratory by patients may be wrongly collected. C

To make test results meaningful for patient treatment, samples must strictly comply with the technical specifications laid down for each test. B

- **Healthcare professionals should guide patients in advance to provide their samples. Also, when receiving the sample, check the patient preparation, collection process, the containers used, and any transport issues which may have occurred.**
- **Due to the diverse range of laboratory tests, healthcare professional should check details of the test-specific preparation and sampling instructions from the laboratory's website when needed. Samples should only be provided in a container supplied or recommended by the laboratory. A microbiology sample generally looks for pathogens. Thus, use of the correct sampling technique will help to avoid inadvertent contamination of the specimen by normal microbes.**