



APPROVED BY THE BOARD ON 17/07/2018

TEMPLATE FOR FIELD SPECIFIC BEST PRACTICE MANUAL			
DOCUMENT TYPE:	REF. CODE:	ISSUE NO:	ISSUE DATE:
TEMPLATE	QCC-BPM-003	002	18 07 2018

### GENERAL REMARKS

#### Definition of a Best Practice Manual (BPM)<sup>1</sup>

A BPM is a field-specific document which describes a forensic activity (or part of it) like an examination, methodology, analysis and/or investigation in a laboratory or at a crime scene. It covers all relevant aspects of the examination like the principles of the method(s) used, instrumentation, quality assurance principles, requirements of the expert, training processes and approaches to forensic examinations.

A BPM should be written in general terms and is aimed at practitioners in the field and assumes prior knowledge in the discipline. The BPM is not meant as a standard operating procedure (SOP) in an individual laboratory.

A BPM is based on consensus amongst the relevant forensic experts and reflects the accepted practices at the time of writing. The requirements of the judicial systems are addressed in general terms only.

#### Document code

The BPM should have a unique ENFSI code. The allotment of the code is the responsibility of the QCC.

#### Structure and lay-out

The BPMs need a uniform structure in sections, sub-sections, etc. The titles at the various levels should have a lay-out (letter type, capitals, size / points, bold, underlined, Italic, etc.) indicating the (sub-)level. The format of the bullet type used in the document is the authorised choice but should be consistent throughout.

Letter type: Arial

Text: 11 points, regular

Spacing: use single line in (sub-)sections

Titles at each sub-level are mandatory

1<sup>st</sup> level section title: **CAPITALS, 12 points, bold**

2<sup>nd</sup> level section sub-title: 11 points, regular, underlined

3<sup>rd</sup> level section sub-title: 11 points, regular

4<sup>th</sup> level section sub-title: *11 points, Italic*

<sup>1</sup> The term BPM does not imply that the practices laid out in this manual are the only good practices used in the forensic field. The term BPM has been chosen for reasons of recognition.

Example:

4. **RESOURCES**

4.1 Personnel

4.1.2 Competence requirements

4.1.2.1 *Qualifications*

Note: sub-sections without title should not be numbered!

Example of the selected bullets:

- practical tests
- written and/or oral examinations
- role exercises, e.g. "mock" courts
- casework conducted under the close supervision
- a portfolio of previous work

Appendix  
 The use of appendices is encouraged if it enhances the usability of the BPM.

Check on correct English  
 The BPMs must be written in correct English and the text should be checked and corrected by a native speaker.

Terminology  
 Synonyms can make a text more lively and attractive to read. However, care should be taken as this might be confusing, especially for non-native speakers.  
 Some observed examples:

1. Hypothesis and proposition
2. Examiner, practitioner and scientist

Please be careful in using synonyms and avoid potential misunderstandings.

Deviations from default texts  
 Deviations from the default texts in field-specific BPMs should be limited to a minimum. Concrete proposals supported by convincing arguments are to be discussed with the QCC in order to find an acceptable solution.

'Empty' sections  
 Titles of 1<sup>st</sup> level sections should be remained in the BPM for reasons of uniformity. If actual content is not in place, 'not applicable' should be stated.

**REMARKS PER SECTION**  
**TITLE**

The title is a heading identifying the specific BPM.  
 Structure: Best Practice Manual for [... to be completed by the AUTHOR...] (accurate and precise)

## CONTENT

It is advisable that an index of the main headings is listed.

If a section is not applicable for the particular BPM, the (sub-)title should not be deleted. The title should be kept to remain the same section numbers in all BPMs. In these situations 'not applicable' should be stated in that section.

The titles of the sections as well as the (sub-)sections should be listed in the Contents page.

### 1. AIMS

The objectives of the document must be clearly defined.

Aims clarify why a process has been described by writing this BPM, whilst Scope defines the beginning, the end and the contents of this process.

#### Default text:

This BPM aims to provide a framework for procedures, quality principles, training processes and approaches to the forensic examination. This BPM can be used by Member laboratories of ENFSI and other forensic science laboratories to establish and maintain working practices in the field of forensic [...] examination that will deliver reliable results, maximize the quality of the information obtained and produce robust evidence. The use of consistent methodology and the production of more comparable results will facilitate interchange of data between laboratories.

The term BPM is used to reflect the scientifically accepted practices at the time of creating. The term BPM does not imply that the practices laid out in this manual are the only good practices used in the forensic field. In this series of ENFSI Practice Manuals the term BPM has been maintained for reasons of continuity and recognition.

### 2. SCOPE

This section should define the sphere of activity of the document including any limitations or assumptions. The BPM is an overarching document which should guide the format and structure of the detailed standard operating procedures. The BPM should address the entire forensic process for evidence; from the scene of crime to the presentation of evidence in court and encompass the specific aspect related to resources, validation, methodology, quality assurance, case assessment, etc. for the whole spectrum of the forensic process. The purpose of a BPM is not, however, intended to instruct crime scene officers or prosecutors and should be limited to field specific guidance. It is self-evident that the content of this BPM reflects the scientifically accepted practices at the time of printing.

This BPM is aimed at experts in the field and assumes prior knowledge in the discipline. It is not a standard operating procedure and addresses the requirements of the judicial systems in general terms only.

An overarching document describes the process / work field and sits above detailed standard operating procedures, which describe a single concrete method of the process.

### 3. DEFINITIONS AND TERMS

List specific terms which assist in the interpretation of this manual.

For the purposes of this BPM, the relevant terms and definitions given in ENFSI documents, the ILAC G19 "Modules in Forensic science Process", as in standards like ISO 9000, ISO 17020 and 17025 apply.

List only field specific terms and definitions which assist in the interpretation of this BPM.

Note: General definitions related to quality are given in ISO 9000, whereas ISO 17000 gives definitions specifically related to certification and laboratory accreditation.

#### 4. RESOURCES

Only field specific quality advice relating to the BPM should be outlined.

##### 4.1 Personnel

Specific competencies of personnel should be defined.

Structure:

Experts should be able to do:

... summing up of the needed competences ...

So, stay away from qualifications and diplomas, unless legally required.

If the work at the laboratory is split up in various levels e.g. expert and analyst, the abovementioned applies for each level.

##### 4.2 Equipment

The basic equipment and any specific technical specifications for the field to carry out the tests/examinations (at scene and at laboratory) and specific advice regarding calibration, verification or maintenance procedures should be outlined, as appropriate.

Also, software is part of this sub-section.

##### 4.3 Reference materials

If applicable, detail the technical specification for reference materials (for calibration, assessment of a measurement method, or for assigning values to materials).

##### 4.4 Accommodation and environmental conditions

Any specific requirements regarding accommodation and environmental conditions should be defined in this section.

##### 4.5 Materials and Reagents

Quality or technical specification for materials and reagents.

#### 5. METHODS

This section should provide guidance on the systematic approaches to be followed in the field specific examinations. Existing and agreed methodologies can be referenced, however, any links used must be widely accessible.

Sum up the potential methods (+ references) that are in place, but do not include parts of the mentioned SOP's. The selection of a specific method will depend on parameters relevant in the field (e.g. the nature of the surface in case of fingerprint visualisation). Describe the selection process based on these parameters.

##### 5.1 Peer Review

This section should include the requirements for reviews in the specific forensic field - for example, review of critical findings (a list of critical findings requiring cross-checking by a

second competent expert may be useful) and review of technical finding (checks of analytical findings, raw data used in the interpretation of findings, etc.)

The management review should not be included in the BPM.

## 6. VALIDATION AND ESTIMATION OF UNCERTAINTY OF MEASUREMENT

### 6.1 Validation

The minimum requirements for considering method validation (and where appropriate, software validation) should be outlined. Some factors to be considered include, as appropriate, sampling, precision (repeatability, reproducibility), bias (matrix/substrate effects, specificity), working range (limit of detection/sensitivity, linearity), robustness (environmental susceptibility) and competency of personnel.

Everything that will be stated on Validation must be field specific. The general aspects of validation should be done according to the ENFSI document about validation (on request this document is available at the ENFSI Secretariat).

### 6.2 Estimation of uncertainty of measurement

Where relevant, guidance should be provided on identifying and quantifying the main sources of uncertainty and reporting the uncertainty.

A similar problem arises here as under Validation i.e. Chemical Analyses (as a typical example) versus human-based methods.

For the latter type, the recommended approach is to sum up the potential sources that may influence the uncertainty of measurement. A quantitative estimation of these sources is not required, but not forbidden.

## 7. QUALITY ASSURANCE

This section builds on the areas outlined in section 4.

### 7.1 Proficiency Testing/Collaborative Exercises

Relevant proficiency tests and collaborative exercises schemes and the frequency of participation should be listed. As the availability of PT/CE schemes is dynamic, it may be prudent to refer to a link (for example, an ENFSI website) with the up-to-date information.

Proficiency tests should be used to test and assure the quality of [ ... BPM specific processes]. A list of currently available PT/CE schemes as put together by the QCC is available at the ENFSI Secretariat and via the ENFSI website. "Guidance on the conduct of proficiency tests and collaborative exercises within ENFSI" [1] provides information for the ENFSI Expert Working Groups (EWGs) on how to organise effective proficiency tests (PTs) and collaborative exercises (CEs) for their members.

Refer to existing PTs on websites of providers, the list published by the QCC, etc.

If there are no PTs available for a specific field, describe alternative ways to fill the gap.

More information is available in QCC-PT-001 "Guidance on the conduct of proficiency tests and collaborative exercises within ENFSI", version 001, 27/06/2014

### 7.2 Quality Controls

Quality Controls used in the method and/or process should be listed here and detail any relevant criteria that should be recorded.

7.3 Data Collection for control, monitoring and trend analysis

Reference all data collection that should be undertaken for the purposes of assuring the method/process and outline how this could be presented i.e. control charts etc.

The responsibilities of the QA-manager in the institute should not be included in the BPM.

**8. HANDLING ITEMS**

This section should address specific considerations of handling items at scenes and in the laboratory as appropriate. Factors for consideration may include:

8.1 At the scene

- Examination of the Scene, Victims and Suspects
- Avoidance of contamination
- Search and recovery
- Sampling
- Preservation and packaging
- Labelling and documentation
- Transport

8.2 In the laboratory

- Anti-contamination precautions
- Search and recovery
- Sampling
- Storing conditions

**9. INITIAL ASSESSMENT**

Any specific advice to help with the requested examination should be included in this section. Information for consideration are references to the direction of investigation, status of the scene, suspects and victims, changes in the urgency for information, contamination issues and impact of results already reported. This is not an exhaustive list.

- Assessment at the scene
- Assessment at the laboratory

Interpretation of results should not be given in this section, but in section 12.

**10. PRIORITISATION AND SEQUENCE OF EXAMINATIONS**

Document any guidance in establishing priorities and sequences for the examinations at the scene and at the laboratory if there is more than one item and/or evidence type involved, taking into account:

- client's requirements,
- availability of items and amount of material,
- number, nature and sequence of examination technique
- potential value of the information from each technique.

## 11. RECONSTRUCTION

Consider aspects including but not exclusive to events, settings, constructions, etc. It is important to describe the techniques available and their limitations.

This section refers to this specific activity after the examinations while taking into account results and given information. Keywords are retrospective, holistic and objective.

## 12. EVALUATION AND INTERPRETATION

Guidance should be provided on the evaluation and interpretation of results. Areas for consideration are

- the discriminating power of the proposed analytical methods
- the degree of certainty that can be attached to a result or identity or the way to estimate it (measurement uncertainty)
- the background case information needed to achieve a solid evaluation and interpretation
- available relevant databases
- accepted verbal scale to interpret the comparative or qualitative results if it exists.

## 13. PRESENTATION OF EVIDENCE

The overriding duty of those providing expert testimony is to the court and to the administration of justice. As such, evidence should be provided with honesty, integrity, objectivity and impartiality.

Evidence can be presented to the court either orally or in writing. Presentation of evidence should clearly state the results of any evaluation and interpretation of the examination.

Written reports should include all the relevant information in a clear, concise, structured and unambiguous manner as required by the relevant legal process. Written reports must be peer reviewed.

Expert- witnesses should resist responding to questions that take them outside their field of expertise unless specifically directed by the court, and even then a declaration as to the limitations of their expertise should be made.

This section should include field specific elements as well as ISO17025 relevant parts.

## 14. HEALTH AND SAFETY

This section should address health and safety issues specific to the field.

## 15. REFERENCES

Every reference must be recorded providing sufficient information for the reader to facilitate its location. References can include ASTM standards, ISO documents, textbooks and scientific journals.

The reference section must be arranged in order of appearance of the references in the BPM. Each reference in the BPM should be identified with a number in brackets after the relevant section e.g. [1]. All references should be uniform, complete and accurate. References in the BPM should be structured similar to these typical examples:

**Organization as Author (example):**

- EN ISO/IEC 17020:2005, General requirements for the competence of testing and calibration laboratories, section 4.4.2
- ILAC-G19:08/2014, Modules in a Forensic Process, section 4.2.3
- QCC-BT-001, Guidance on the conduct of proficiency tests and collaborative exercises within ENFSI, version 001, 27/06/2014

**Journal:** Seki, H. and A. Suzuki. 1997. A new method for the removal of toxic metal ions from acid-sensitive biomaterial. J. Coll. Interf. Sci. 190: 206–211.

**Book:** Martens, H. and T. Naes. 1991. Multivariate Calibration. Chichester, UK: J. Wiley & Sons.

**Contribution to a Book:** Chianelli R. R., M. Daage, and M. J. Ledoux. 1994. Fundamental studies of transition-metal sulfide catalytic materials. In Advances in Catalysis, Vol. 40, eds. D. D. Eley, H. Pines, and W. O. Haag. Burlington, MA.: Academic Press.

**Website:** Evanston Public Library Board of Trustees. “Evanston Public Library Strategic Plan, 2000–2010: A Decade of Outreach.” Evanston Public Library. <http://www.epl.org/library/strategic-plan-00.html> (accessed June 1, 2005).

**16. AMENDMENTS AGAINST PREVIOUS VERSION**

List the amendments in a transparent way.

If the BPM is not an update of an existing BPM, but the first version, ‘Not applicable (first version)’ is to be written here.

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