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Best Practices for PhD Training

Best Practices for PhD Training

ORganisation for PhD Education in Biomedicine and Health Science in the EUropean System

Based on the ORPHEUS – AMSE – WFME standards for PhD Education in Biomedicine and Health Sciences in Europe

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BACKGROUND TO THIS DOCUMENT

This document is based on the publication: *Standards for PhD education in Biomedicine and Health Sciences in Europe*, developed by a joint ORPHEUS[1], AMSE[2], WFME[3] Task Force (see page 16), and published by Aarhus University Press, 2012. That document was the result of extensive discussions at ORPHEUS annual conferences between 2004-2011. Additional discussions took place at annual meetings of the Association of Medical Schools in Europe, Association for Medical Education in Europe, Federation of European Biochemical Societies, and International Union of Basic and Clinical Pharmacology. Further input was received from over 20 workshops and meetings held at universities and specialized organisations and individual members of ORPHEUS. The document was thus a synthesis of what biomedical and health science institutions believed were the goals of PhD programmes as regards outcome and content.

The present document is the result of further discussions at ORPHEUS conferences and meetings, and importantly of the ORPHEUS labelling initiative. This initiative has involved institutions from all parts of Europe where members of the ORPHEUS Labelling Board have made site visits to review with institutions the extent to which their programmes complied with the ORPHEUS/AMSE/WFME standards. This has offered a unique opportunity for detailed discussion of all aspects of their PhD programmes. Programmes that have complied, following adjustment as required, have received an ORPHEUS label.

One of the results of these further experiences is that while there is general agreement across Europe about the aims for outcomes and contents of PhD programmes, national regulations sometimes prevent full compliance. Another result is the perception by some that the wording of the standards document was too prescriptive and incompatible with academic tradition. Thirdly, it was recognized that the document could have global applicability.

The present document follows closely the original ORPHEUS/AMSE/WFME document, but has made certain adjustments to provide more flexibility while still maintaining the agreed aims of PhD training. The document also includes a number of new provisions which are in particular the result of intensive discussion at the ORPHEUS 2014 conference. In particular, the document uses "recommendations" rather than "standards". The document is in general agreement with the 2010 Salzburg II document of the EUA-CDE (ref. 1) and the European Commission's Principles for Innovative Doctoral Training, 2011 (ref. 2).

Further amendments have been made primo 2020, in particular as regards the content of the PhD thesis (section 6) and the need for supervisors to have training (section 5).

[1] Organisation for PhD Education in Biomedicine and Health Sciences in the European System, www.orpheus-med.org

[2] Association of Medical Schools in Europe, www.amse-med.eu.

[3] World Federation of Medical Education, www.wfme.org.

PREFACE

Quality assurance is becoming of increasing importance in the internationalisation of research and higher education. The need for and the value of internationally accepted recommendations as a tool for reforms and quality improvement are generally recognised. This also applies to PhD programmes.[4]

While the PhD is an international degree, the content of PhD programmes and the level of the PhD thesis are variable. This is of significance in an international context with increasing mobility between countries. Thus there is a need to specify what is meant by a PhD regarding the outcome and content of PhD programmes, and that is the purpose of the present document.

The recommendations in this document are formulated as a tool that institutions responsible for PhD programmes can use as a basis for their own institutional and programme development. It is therefore suggested that the document could be of use for internal evaluation and benchmarking between institutions. It is thus intended that the document could be used as a reference for use in European institutions to enhance the quality of PhD programmes in biomedicine and health sciences. The recommendations may also be relevant for other fields, and may furthermore have global utility.

[4] In this document the term *programme* refers to all the activities undertaken by the PhD candidate, including the research project, courses, teaching assignments, time in other laboratories, writing and submission of the thesis, etc.

INTRODUCTION

The modern concept of the PhD degree, research training under supervision, was developed in the nineteenth century and has since spread to most of the World (ref. 3). In Europe[5], PhD training constitutes the main link between the European Higher Education and Research Areas (ref. 4), and high quality PhD programmes are crucial in achieving Europe's research goals.

According to the *Bologna Process* (ref. 5), PhD programmes form the 'third cycle' of higher education, following the bachelor and master's cycles[6]. However, the core component of the third cycle is the advancement of learning through original research, which makes the third cycle unique and different from the first and second cycles. In particular, PhD programmes are based primarily upon the PhD candidate doing original, hands-on research. PhD candidates have therefore in many countries become a mainstay of current scientific research, as well as being the source of future scientists, and a basis for providing persons with the skills needed to build knowledge societies.

Although extensive consultations by ORPHEUS have found that the recommendations proposed in this document have wide support as aims, it should be recognised that the recommendations are not currently fulfilled in a number of European countries. Thus in some countries there is no tradition for a PhD in clinical medicine or for PhD programmes parallel with medical studies. In some countries the research aspect of the PhD at international level has not been emphasized. In lesser developed parts of Europe, internationalisation is seen as incentive to brain drain, and thus not to be encouraged under present conditions. Conversely, specific recommendations for the PhD is in most cases seen as a means of achieving the desired goal of being able to provide quality PhD training that has international acceptance.

ORGANISATION OF PhD PROGRAMMES

With the increase in number of PhD candidates[7] and corresponding investment, the need has arisen for PhD programmes to be structured within defined time limits. Thus PhD training ought to now take place within a framework that ensures effective admission procedures, competent supervision and qualified assessment. PhD programmes should also now take account of the fact that a large proportion of PhD graduates develop their careers not only within academic institutions, but also in non-academic positions, and that the programmes ought to provide them with the skills necessary to do this.

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[5] Europe is here currently defined by the World Health Organization as:. Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Tajikistan, The former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine, United Kingdom of Great Britain and Northern Ireland, Uzbekistan.

[6] European Union Ministers meeting in Berlin in September 2003 added an Action Line to the Bologna process entitled "*European Higher Education Area and European Research Area – two pillars of the knowledge based society*" that underlines the key role of doctoral programmes and research training in this context as a third cycle.

[7] *PhD candidate* is used in this document synonymously with *doctoral candidate* (a title often used in Europe, in particular by the European Universities Association - Council for Doctoral Education (EUA-CDE) and European Council of Doctoral Candidates and Junior Researchers (EURODOC)), *PhD student*, etc.

The organisation for PhD programmes is normally provided by the institution that awards the PhD degrees.[8] Typically, this would take the form of a graduate school (or equivalent) with its own leader, administration and budget, but other forms of organisation can be equally effective. In all cases the organisation ought to provide support for candidates and supervisors to allow the candidate successfully to complete the PhD programme within the allotted time. In some cases PhD programmes are based on more than one institution.

THE PRESENT DOCUMENT

The present document proposes a set of benchmarks for PhD programmes in biomedicine and health sciences, and has two types of recommendations:

- **Basic Recommendations**. This describes recommendations that are thought to be particularly important.
- **Quality Development**. Further recommendations that are in accordance with international consensus about good practice. Some of these are points that are strongly recommended (denoted "ought to") while others are points for consideration (denoted "could").
- In addition there are **Annotations** that are used to clarify, amplify or exemplify expressions in the recommendations, and also to indicate flexibility.

Each item has a reference number: BR#.#, QD#.#, An#.#.

[8] The *PhD degree* described in this document differs from 'professional doctorates' awarded in some countries, and which may be based on advanced educational programmes in extension of a bachelor+master's programme to give professional competence. The PhD degree ought to also be distinguished from higher research degrees awarded in some countries for scientific achievements beyond the PhD.

1. RESEARCH ENVIRONMENT

Basic recommendation

- The success of individual PhD programmes should be ensured by being performed in a suitable research environment. (BR1.1)
- The facilities available to the PhD candidates should be compatible with the requirements of completing their PhD. (BR1.2)
- Research should be consistent with international ethical standards and approved by appropriate and competent ethics committees. (BR1.3)
- There should be arrangements to allow PhD candidates, if relevant, to perform part of their PhD programme at another institution, including those in other countries. (BR1.4)

Quality development:

- Institutions lacking facilities or expertise in particular fields could collaborate with stronger institutions to ensure that the graduate school can offer these. (QD1.1)
- The possibility for collaborative degrees[9] could be explored to promote co-operation between graduate schools. (QD1.2)

Annotations:

- Suitability of the *research environment* would reflect the research strength of the supervisor's research group, of the department, and of the graduate school, as well as possibilities for national and international networking with strong research institutions. (An1.1)
  - Measurements of the suitability of the research environment could be made using e.g. publication record (number of publications, impact factor, etc.), level of external funding, numbers of qualified researchers in the group, record of department and graduate school (An1.1a)
  - The strength of a research environment could be assessed by comparison with other graduate schools. (An1.1b)
- *International ethical standards* are e.g. Helsinki Declaration II (clinical), EU Directive 2010/63/EU (animal), and Oviedo Convention (bioethics). (An 1.2)
- In this document, *institutions* are the bodies responsible for awarding the PhD degree, e.g. university, faculty, research institute. Institutions will normally designate the responsibility for conducting PhD programmes to *graduate schools* or similar organisations. (An1.3)

[9] Collaborative degrees range from joint degrees (by which candidates receive a single joint PhD degree conferred by two institutions on the basis of a joint PhD study programme), to dual degrees (by which candidates receive two degrees from collaborating institutions on the background of a joint PhD study programme), to more loose so-called cotutelle agreements (typically with joint supervision).

2. OUTCOMES

Basic recommendation:

- The PhD programme leading to the PhD degree should provide candidates with competences that enable them to become a qualified researcher; that is a scientist able to conduct responsible, independent research, according to principles of good research practice. (BR2.1)
- Completion of a PhD programme should also be of potential benefit for those who pursue careers outside of academic or clinical research, by use of competences achieved during the PhD programme, including solution of complex problems by critical analysis and evaluation, appropriate transfer of new technology and synthesis of new ideas. (BR2.2)
- The outcomes expected from PhD candidates with a background in medicine or other professional training are the same as for any other PhD. (BR2.3)

Annotations

- Other *competences* relevant for PhD programmes would include that PhD candidates:
  - have demonstrated a systematic understanding of a field of study and mastery of the skills and methods of research associated with that field; (An2.1a)
  - have demonstrated the ability to conceive, design, implement and adapt a substantial process of original research with scholarly integrity at a level that merits international refereed publication;
  - can communicate with their peers, the wider scholarly community and with society in general about their areas of expertise both orally and in writing; (An2.2b)
  - can be expected to be able to promote, within academic and professional contexts, technological, social or cultural advancement in a knowledge-based society. (An2.1c)
- Further competencies include leadership, ability to supervise work of others, project management and ability to teach. (An2.2)
- The PhD qualification corresponds to level 8 in the European Qualifications Framework[10]. (An2.3)

[10] Bologna Process: framework of qualifications of the European Higher Education Area. www.bologna-bergen-2005.no/EN/BASIC/050520_Framework_qualifications.pdf.

3. ADMISSION POLICY AND CRITERIA

Basic recommendation

- To ensure quality of PhD programmes, PhD candidates should be selected on the basis of a competitive and transparent process. (BR3.1)
- Applicants for a PhD programme should have an educational level corresponding to a master's degree, or to a medical[11] degree. PhD programmes may be combined with master's or medical programmes (e.g. MD-PhD programme) provided that the conditions do not reduce the quality of the individual programmes. (BR3.2, revised)
- Before enrolling a PhD candidate, or at a clearly defined timepoint in the programme, the institution should evaluate and approve the following:
  - the scientific quality and feasibility of the research project to be performed by the PhD candidate, (BR3.3a)
  - whether the project is suitable and may reasonably be expected to result in a thesis within the allotted time, (BR3.3b, revised)
  - the degree to which the project encourages innovation and creativity, (BR3.3c)
  - the qualifications of the nominated supervisors (see section 5). (BR3.3d)
- A PhD programme should not be initiated unless the resources for completion of the PhD project are available or predicted not to be a risk. (BR3.4)

Quality development

- In choosing PhD candidates, the potential of the applicant for research ought to be considered, and not just past academic performance. (QD3.1)
- Projects ought to be assessed either by an external assessment of the written project description or else by presentation of the project to a panel of independent scientists. (QD3.2)
- Where the candidate is obliged to obtain extra income, it ought to be ensured that the candidate has the necessary time to complete the programme. (QD3.3)

Annotations

- According to the Bologna process, a PhD programme follows a 1-2 year master's programme and a 3-4 year bachelor programme. Countries with only 4-year master's + bachelor programmes ought to supplement these with additional qualifications. (An3.1)
- Some countries do not follow the Bologna process, and here other studies or work experience that brings the candidate to a master's level can be used in the admission criteria. (An3.2)
- The possibility for approving the project and supervisors after enrolment may include a model whereby candidates spend a limited time on project selection and project development, often combined with some course work, before starting the research project. This ought not to reduce the 3-4 years allocated to the project following registration. (An3.3)
- Criteria for admission might include documentation of proven research competence through, for example, predoctoral research programmes and published papers, achievements in previous studies, and – for medical candidates - clinical experience. (An3.4)
- The wish for *transparency* in the admission process notwithstanding, for many institutions a PhD programme is seen as the continuation of a master's or medical programme. The admission of the institution's own candidates ought not to prevent the admission of candidates from other institutions. (An3.5)
- The *resources* (internal or external) include
  - infrastructure for the project, the running costs, costs of courses, costs for participation in relevant international scientific meetings, and enrolment fees where applicable. (An3.6a)
  - laboratory, informatics and office facilities for the PhD candidate. (An3.6b)
  - stipend/salary for the PhD candidate (although the manner in which candidates are remunerated will vary). (An3.6c)

[11] The term *medical* in this document includes all health related specialities such as medicine, dentistry, nursing science, pharmacy, veterinary medicine, etc.

4. PhD TRAINING PROGRAMME

Basic recommendation:

- PhD training programmes should be based on original research, courses and other activities which include analytical and critical thinking. (BR4.1)
- PhD programmes should be performed under structured supervision. (BR4.2)
- PhD programmes should ensure that candidates have appropriate training in the rules concerning ethics and responsible conduct in research. (BR4.3)
- PhD programmes should be structured with a clear time limit, a length equivalent to 3-4 years full time. Extension of the time frame ought to be possible, but be limited and exceptional rather than typical. The time frame should be extended in connection with parental leave or sick leave. (BR4.4)
- The training programme should include documented activities not directly related to the project (e.g. courses, journal clubs, participation in conferences, seminars and workshops, including preparation time) totalling about 15% of the programme parallel with conduct of the PhD project. A substantial part of these training activities should be concerned with transferable skills. (BR4.5)
- PhD programmes that are performed in parallel with clinical or other professional training should have the same time for research and course work as any other PhD. (BR4.6)
- There should be continuous, structured assessment of the progress of PhD candidates throughout their PhD programme. (BR4.7)

Quality development

- For PhDs performed by clinicians, leave-of-absence from clinical duties could be provided for the PhD part of such programmes unless these are coincident. (QD4.1)
- PhD programmes could where relevant have an element of interdisciplinarity. (QD4.2)

Annotations:

- A *3-4 year full time* limit has several purposes:
  - it guarantees that there is an upper limit to the amount of scientific work, which can be expected to be included in a PhD thesis, and is an effective way to avoid the requirements for a PhD degree escalating over time; (An4.1a)
  - it encourages the PhD candidate to devote concentrated time to the scientific problem, and to ensure that the programme is based on original research; (AN4.1b)
  - it allows graduate schools to develop structures for handling a steady stream of PhD candidates. (An4.1c)
- The *courses* would include courses in ethics, safety, animal experimentation (if applicable), research methodology and statistics and elective discipline-specific components to support candidates in their scientific research. (An4.2)
- Courses in *transferable skills* could include training of PhD candidates in presentation of their research (oral/poster/papers) to academic and non-academic audiences, in university teaching, in linguistic skills, in project management, in grant application, in critical evaluation of scientific literature, in supervision of technicians and research candidates, and in career development and networking. (An4.3)
- Courses in transferable skills are important both for those who may be expected to continue in research, in either public or private institutions, and for those who continue towards careers in other fields. (AN4.4)
- Studies for a medical qualification may be combined with a PhD programme, to form a structured MB/PhD or MD/PhD programme. (AN4.5)

5. SUPERVISION

Basic recommendation:

- Each PhD candidate should have a principal supervisor and normally at least one co-supervisor to cover all aspects of the defined programme. (BR5.1)
- The number of PhD candidates per supervisor should be compatible with the supervisor's cumulative workload. Many institutions limit the number of candidates per supervisor to about three. (BR5.2, revised)
- Supervisors should be scientifically qualified and active scholars in the field concerned. (BR5.3)
- Supervisors should have regular consultations with their candidates. (BR5.4)
- The institution should ensure that training in supervision is available for all supervisors and potential supervisors. (BR5.5)
- The supervisor-candidate relationship is the key to a successful PhD programme. The institution should encourage mutual respect, planned and agreed shared responsibility, and a contribution from both parties. (BR5.6, revised)
- Institutional assistance should be provided for career development. This should be continuous, starting from the time of enrolment. (BR5.7)

Quality development:

- The responsibility of each supervisor ought to be explicit and documented. (QD5.1)
- Supervisors ought to have broad local and international scientific networks to be able to introduce the PhD candidate into the scientific community. (QD5.2)
- Supervisors ought to in co-operation with the institution assist with career development. (QD5.3)
- Institutions could consider having documented agreements describing the supervision process that are signed by supervisor, PhD candidate and head of graduate school. (QD5.4)
- The principle supervisor and all new supervisors ought to have some formal training as a supervisor. (QD5.5, revised)
- Supervisors could where possible also act as co-supervisors for PhD candidates at other graduate schools within the country but also internationally. (QD5.6)
- Graduate schools ought to consider appointing a mentor or equivalent for each PhD candidate, in addition to the supervisor team, to discuss programmes from another aspect than the science topic alone. (QD5.7)

Annotations

- For the supervisor to be *scientifically qualified in the field* implies that he or she will normally have a PhD or equivalent degree, and is an *active scholar* with a steady scientific production that contributes to the peer-reviewed literature. (An5.1)
- The term '*regular consultations*' will normally mean at minimum several times per month, but frequency will vary during the course of the programme according to the requirements of the individual PhD candidate. (An5.2)
- The consultations ought to discuss progress of the PhD project and PhD programme, provide general scientific advice, help on project management, help to identify and initiate follow-up projects, thesis writing, and assistance during publication. (An5.3)
- Web-based supervisor courses could be arranged for all supervisors to ensure that they know the local regulations of the PhD programmes as well as their basic duties as supervisors. (An5.4)

6. PhD THESIS

Basic recommendation:

- The PhD thesis should be the basis for evaluating if the PhD candidate has acquired over 3-4 years the skills to carry out independent, original and scientifically significant research at international level and to evaluate critically work done by others. (BR6.1, revised)
- The thesis would normally be based on the equivalent of about three papers or manuscripts, although fewer may be accepted if published in highly rated journals. The thesis may also be based on a monograph approximating the same research content. The PhD candidate should be able to take full intellectual responsibility for all parts of the thesis. In considering these requirements, the assessment committee should take account of the provisos listed in the Annotations at the end of this section. (BR6.2, revised)
- The papers should be published (or ready for publication) in internationally recognized, peer-reviewed journals. Open access journals are preferred and so-called predatory journals should be avoided. (BR6.3, revised)
- In addition to the papers presented, the PhD thesis should include a full review of the literature relevant to the themes in the papers, a full account of the research aims, methodological considerations, results, discussion, conclusions, and further perspectives of the PhD project. (BR6.4)
- Where the PhD thesis is presented in other formats, such as a single monograph, the assessment committee should ensure that the contribution is at least equivalent to the above benchmark. (BR6.5)
- A PhD thesis in clinical medicine should meet the same standards as other PhD theses. (BR6.6)

Quality development:

- To encourage international recognition the thesis ought to be written, and optimally also examined in English, unless local regulations stipulate otherwise, or where this is not possible or desirable. An abstract of the PhD thesis ought to be published in English. (QD6.1,)
- Where the articles or manuscripts are joint publications, co-author statements ought to document that the PhD candidate has made a significant contribution to these. Ownership of results from PhD studies ought to be clearly stated. (QD6.2)
- PhD theses ought to be published on the graduate school's homepage, preferably *in extenso*. If patent or copyright legislation or other reasons prevent this, at least abstracts of the theses ought to be publicly accessible. (QD6.3)
- There could be a lay summary of the thesis in the local language. (QD6.4)

Annotations:

- By *internationally recognized journals* is meant good quality journals in the field concerned that are included in PubMed, Science Citation Index, or similar biomedical and health science literature databases. (An6.1)
- It is generally understood that the PhD candidate has made a major contribution to each of the individual studies in the thesis and is the first author of at least some of the papers in the thesis. (An6.2)
- By "manuscripts" is meant documents having the same content as a published paper. (An6.3, revised)
- Some institutions require that at least one paper is published (sometimes with the additional requirement of impact factors above a certain level). (An6.4)
- Some institutions allow that a patent be accepted instead of a paper. In such cases the scientific content should be similar to that of a published paper. (An6.5, revised)
- The recommendation of *English* as best practice relates to this language being the language most widely used in the biomedical and health sciences literature, and thus the language best suited to encouraging internationalisation. (An6.6)

7. ASSESSMENT

Basic recommendation:

- Acceptance of a PhD thesis should include acceptance of both the written thesis and a subsequent oral defence. (BR7.1)
- PhD degrees should be awarded by the institution on the basis of a recommendation from an assessment committee that has evaluated the thesis and the oral defence with respect to the recommendations described in section 6. (BR7.2)
- The assessment committee should consist of established and active scientists who are without direct connection to the milieu where the PhD was performed, and without any conflict of interest, and including individuals from another institution. (BR7.3)
- To avoid conflict of interest the supervisor should not be a member of the assessment committee. However, local regulations might include the supervisor as a member of the assessment committee. In these cases it is suggested that the supervisor can take part in the discussions but not have a formal role in making the final decision. (BR7.4)
- In the case of a negative assessment of the written PhD thesis, the PhD candidate should normally be given the opportunity to rewrite the thesis. Where there is a negative assessment of the oral defence, the candidate should normally be allowed an additional possibility for defence. In exceptional cases the assessment committee can reject a thesis without offer to reconsider. (BR7.5)
- The oral examination should include a presentation by the candidate of the research that has been performed. The examination itself should be detailed enough to ensure that the thesis is the candidate's own work, that the intended training goals have been achieved, and that the candidate is able to put the results into scientific context. (BR7.6, revised)

Quality development:

- The oral defence ought to be open to the public, or at least to the faculty. (QD7.1)
- To promote internationalisation, the institution could where economically and practically possible ensure that the assessment committee includes at least one member from another country. (QD7.2)
- Apart from the thesis, the institution ought to ensure that sufficient transferable skills have been acquired during the PhD programme. (QD7.3)
- The competences developed during the PhD programme could be documented in a portfolio. This documentation could be evaluated by the assessment committee and form part of their decision concerning the award of the PhD degree. (QD7.4)

Annotations:

- The form of *assessment committee* varies between institutions. It is here used to describe the independent persons who advise concerning the acceptability of the PhD thesis and oral defence. (An7.1)
- The assessment committee is not to be confused with a committee that may be set up by the institution as part of the award process. (An7.2)
- To allow PhD candidates to find employment as soon as possible after submitting the thesis, it is important that the time between submission and defence is as short as possible consistent with critical assessment. (An7.3)
- Institutions ought to explore the use of information technologies to allow some members of the assessment committee to participate in the thesis evaluation and defence at a distance, in order to achieve an independent, competent, but also a more affordable international examination. (An7.4)

8. GRADUATE SCHOOL STRUCTURE

The manner in which PhD programmes are organised will depend on the structure of the institution which offers these programmes, and will also depend on national regulations and relevant stakeholders. Relevant stakeholders would include graduate school heads, graduate school administrations, research directors, supervisors, PhD candidates, faculties, universities, governments and appropriate international organisations.

This section points to features considered important regarding the organisation responsible for PhD education. The organisation is here referred to as a graduate school, but it is recognised that other forms of organisation are also used.

Basic recommendation:

- The graduate school should have sufficient resources for proper conduct of PhD programmes. This includes the resources appropriate to support the admission of PhD candidates, implementation of the PhD programmes of the PhD candidates enrolled, assessment of PhD theses, and awarding of PhD degrees. (BR8.1)
- The graduate school should have a website, in the national language and in English (BR8.2),

  …. including transparent information about policies concerning:
  - the responsibilities of the head of graduate school and the administration, (BR8.2a)
  - quality assurance and regular review to achieve quality improvement, (BR8.2b)
  - admission policy including a clear statement on the process of selection of candidates, (BR8.2c)
  - the structure, duration and content of the PhD programme, (BR8.2d)
  - the methods used for assessment of PhD candidates, (BR8.2e)
  - the formal framework for following the progress of the individual candidate, (BR8.2f)
  - supervisor appointment policy outlining the type, responsibilities and qualifications of supervisors, (BR8.2g)
  - effective use of information and communication technology. (BR8.2h)
- Merit should be given for relevant courses taken elsewhere or other relevant experience. (BR8.3)

Quality development:

- There ought to be procedures for regular review and updating of the structure, function and quality of PhD programmes. This will normally include both supervisor and candidate feedback. (QD8.1)
- Representatives of the PhD candidates ought to interact with the leadership of the graduate school regarding the design, management and evaluation of PhD programmes. Candidate involvement and candidate organisations working to enhance PhD programmes at the institution ought to be encouraged and facilitated. (QD8.2)
- PhD candidates ought to have rights and duties commensurate with the value to the institution of the research work performed by the PhD candidate. (QD8.3)
- There ought to be an appeal mechanism allowing candidates to dispute decisions concerning their programmes and assessment of their theses. (QD8.4,)
- Confidential candidate counselling concerning e.g. the PhD programme, supervision, as well as personal matters ought to be offered by the graduate school (by some referred to as an 'ombudsman'). (QD8.5,)
- Graduate schools could consider having a thesis committee for each PhD candidate that monitors the progress of the PhD candidate through meetings with the PhD candidate and the supervisors. (QD8.6,).

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As indicated above, this document is based on the ORPHEUS/AMSE/WFME publication: Standards for PhD education in Biomedicine and Health Sciences in Europe, published by Aarhus University Press, 2012. It was the product of a Task Force set up by the three organizations that consisted of the following:

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