

# GENDER MEDICINE AND RESEARCH

## EQUAL OPPORTUNITY AS QUALITY CHARACTERISTIC OF EXCELLENT RESEARCH

### Gender Mainstreaming in Grant Applications and Research

REFERAT FÜR GESCHLECHTERFORSCHUNG UND LEHRE

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MEDIZINISCHE  
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GESCHLECHTERFORSCHUNG



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FRAUEN-EMPOWERMENT

Koordinationsstelle für Gleichstellung,  
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Gemeinsame Einrichtung Gender Medizin  
an den Universitätskliniken Innsbruck

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## FOREWORD

In the Fall Semester 2011/2012 the Medical University of Innsbruck launched its PhD program in Clinical Medicine; it integrates Gender Medicine in the basic courses. The goal was and remains to focus on Gender Medicine again, because it is already a compulsory part of the curriculum for all degree programs. But it additionally especially to practice integrating Gender Medicine questions and aspects in the specific research fields. All European research programs must now with increasing importance include Gender Medicine in the research questions, as well as demonstrate gender aspects, equality and equal opportunity in the research team. Meanwhile, all research grant organizations are increasingly making the same demands. Precisely the participants in the Clinical PhD Programme are more and more showing in a very positive way that Gender aspects can be successfully integrated into the research projects. This is documented in numerous lectures and poster presentations at congresses and scientific publications.

This Guideline briefly and concisely presents the method and checklist used by research grant organizations to evaluate grant applications and also shows how and in what way gender-specific aspects can be professionally incorporated into grant applications and scientific work.

Margarethe Hochleitner

## 1. INTRODUCTION

Integration of gender-specific questions into medical research is not only a must in order to be competitive in the European research and grant landscape.<sup>1</sup> It is also the basis for any form of medicine that puts the person, whether female or male, at its center and attempts to provide medical answers that are specific to that person. It is also the prerequisite for good scientific practice. This Guideline helps show how to successfully pursue Gender Medicine as a central research theme from the first idea for a research subject to publication of the final results, how to also give consideration to biological and sociocultural influences and how to integrate equal opportunity for research personnel. While the gender-specific aspects will not be equally relevant for every scientific project, the same questions must indeed be a basic component of each and every research project. Even knock-out mice and cell cultures have a sex. At the end of the various research phases are always the patients. While the biological category (*sex*) is in the foreground of basic research, in clinical studies the sociocultural category (*gender*) gains in importance. Minor relevance must be proved scientifically and made explicit; the fact that there is only little literature on a subject may simply mean that the particular research questions have not yet been asked and the gender-specific aspects of the discipline have not yet been elaborated. Conscious differentiation in viewing both genders brings new knowledge not only for the female half of our patients, who indeed make up 50.82% of the population.<sup>2</sup> The new perspective, asking questions new or differently, unearths new dimensions that are valuable for women and men.

Giving regard to *sex* and *gender* as medically relevant categories in medical research projects means breaking new ground, depending on the particular discipline, with the spectrum ranging from a very good scientific elaboration in, for example, cardiology or neuroscience, all the way to navigating the still very large gaps in our knowledge of almost all other disciplines. Gender Medicine thus offers the opportunity for innovation as well as new insights and findings within your own medical discipline.<sup>3</sup>

In addition to *sex*, many of the other diversity categories such as age, ethnicity, religious confession, sexual orientation, chronic illnesses, education or financial resources also exert an influence on health and illness. Usually, they cannot be viewed separately, but mostly occur interwoven with each other. Not all these categories have legally anchored rights and case numbers large enough for studies. This Guideline therefore puts the category *sex* at the forefront of considerations, because it is anchored in law, is represented by a large body of already collected data and offers large case numbers for studies. The category chronic illnesses is covered by already long established public health policy, while the category age, which second to *sex* is the most important medical category, is the subject of the medical disciplines geriatrics and palliative medicine.

<sup>1</sup> European Commission, (2015), Strategic Engagement for Gender Equality 2016 – 2019. Doi: 10.2838/722771 Council of Europe (2018), Gender Equality Strategy 2018–2023. European Institute for Gender Equality (2016), Gender Equality in Academia and Research. GEAR tool. Doi: 10.2839/309020

European Institute for Gender Equality (2016), Integrating gender equality into academia and research organizations. Analytical Paper. Doi: 10.2839/396494

European Institute for Gender Equality (2016), Positive impact of gender mainstreaming in academia and research institutions. Opinion paper. Doi: 102839/08364

<sup>2</sup> Statistik Austria, reference date: 01.01.2018

<sup>3</sup> A good overview of the subject “*Gender and Innovations in Science, Health & Medicine and Engineering*” and Gender Medicine can be found on the Internet pages <http://genderedinnovations.stanford.edu> (Stanford University) and the pages of the Canadian Institute of Health Research <http://www.cihr-irsc.gc.ca/e/8673.html>, (Institute of Gender and Health, Canada)

## 2. GENDER MAINSTREAMING AS A PREREQUISITE FOR RESEARCH GRANTS

### 2.1. DEFINITION

The goal of the Gender Mainstreaming strategy of the European Union is the equality of women and men in society. Gender Mainstreaming provides for a gender-sensitive perspective in all undertakings and activities – for a university these are research and teaching. This means that the different starting situations and needs of women and men must be given consideration and that all plans must be reviewed for their gender-specific consequences.

Gender Mainstreaming is effective in organizations at the levels of the organization's structure, personnel policy and personnel development as well as in content and duties. For a university this third level, namely content and duties, means:

- research
- teaching<sup>4</sup>
- students

Consequently, differences and commonalities between women and men are to be implemented in medical research, the design of teaching offerings and in the interaction with students and, when needed, steps are to be taken to promote equality.

With regard to the health system, the World Health Organization states the following concerning Gender Mainstreaming:

“Gender equality in health means that women and men, across their life-course and in their diversity, have the same conditions and opportunities to realize their full rights and potential to be healthy, contribute to health development and benefit from the results. Achieving gender equality in health often requires specific measures to mitigate barriers.”<sup>5</sup>

<sup>4</sup> See the guideline *Gender Medizin und Lehre: Gender Medizin und Diversity – eine Querschnittsmaterie. Leitfaden für eine gender- und diversitybewusste Methodik und Didaktik*, <http://www.gendermed.at/de/geschlechterforschung/leitfaeden.html>

<sup>5</sup> <http://www.who.int/en/news-room/fact-sheets/detail/gender>, July 12, 2018

## 2.2. GENDER MAINSTREAMING IN RESEARCH CONTENT

**To improve health, competitiveness and innovation** are the key words encountered in strategic policy papers drawn up by the European Union on gender and health.<sup>6</sup> In addition to differentiating the perspective toward men and women as target groups or as study populations, the intended purpose is to establish the resources and competences of research teams on a broad basis. Gender Mainstreaming, i.e. the equality of women and men in the research team as well as in the research subject itself, is established by law in all European research programs and is to be demonstrated in all research grant applications. When evaluating research grant applications equality indicators and comparisons with Best Practice examples are increasingly being implemented.<sup>7</sup>

“Gender equality in science is **not simply a question of fairness. To strengthen research [...] total human capital must be utilised.** A better gender balance will mean that the universities, colleges and research institutes will secure the best talents among both sexes, as well as reflecting population diversity[...]. Improved gender balance in the academic staff will have positive effects on recruitment of female students and research fellows.”<sup>8</sup>

“The pursuit of scientific knowledge and its technical application towards society **requires the talent, perspectives and insight that may only be assured by increasing diversity in the research workforce.** Therefore, all projects are encouraged to have a **balanced participation of women and men** in their research activities and **to raise awareness on combating gender prejudices and stereotypes.** When human beings are involved as users, gender differences may exist. These will be addressed as **an integral part of research to ensure the highest level of scientific quality.**”<sup>9</sup>

The sex- and gender-medicine perspective might not be at the forefront of the particular research project. However, as a cross-cutting theme it is to be taken into account throughout the project and to be demonstrated in the grant application. Innovative ideas and models are also needed when promoting and recruiting women and when setting up mixed-sex research teams in order to ensure the next generation of scientists and to ourselves remain competitive. Neglecting these aspects in the grant application means reducing your chances of having your project approved.

<sup>6</sup> See, for example: European Commission (2014), *Horizon 2020, Vademecum on Gender Equality in Horizon 2020*; European Commission (2013), *Fact sheet: Gender Equality in Horizon 2020*.

<sup>7</sup> See, for example: European Commission (2008), *Mapping the maze: Getting more women to the top in research*. EU 23311 EN, or Puy, A., Pérez, M.P., Forson, A. (2016), Gender-Net Report. Manuals with guidelines on the integration of sex and gender analysis into research content, recommendations for curricula development and indicators.

<sup>8</sup> *Norwegian Committee for Mainstreaming – Women in Science, 2004*

<sup>9</sup> European Commission: *Cooperation Work Programme 2013*, C(2012) 4536 of 09 July 2012

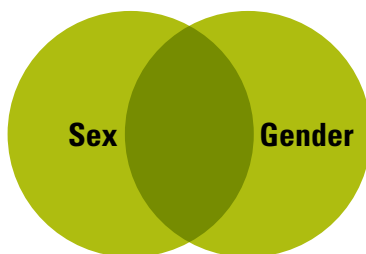
### 3. DEFINITION OF GENDER MEDIZIN

Although Gender Medicine is still often equated with women's health, it concerns women and men alike. While women benefit, for example, from heightened awareness for cardiovascular illnesses, Gender Medicine also shows that men have long been given too little consideration when it comes to osteoporosis and depression. In the Introduction to her textbook *Principles of Gender-Specific Medicine* (2009) Marianne Legato defines Gender Medicine as "the study of how the normal function and the experience of disease differ between men and women. It is as dedicated to the study of the unique aspects of men's biology as it is to that of women." She further states: "it is the comparison between the two sexes that has prompted some of the most interesting and novel questions in medicine."

#### **Gender Medicine = gender-specific medicine**

The purpose of Gender Medicine is to examine all the "truths" of medical research for their correctness for both genders and to present their effects on given differences between women and men. In so doing the biological differences (*sex*) as well as the psychological, social and cultural differences (*gender*) are to be considered.

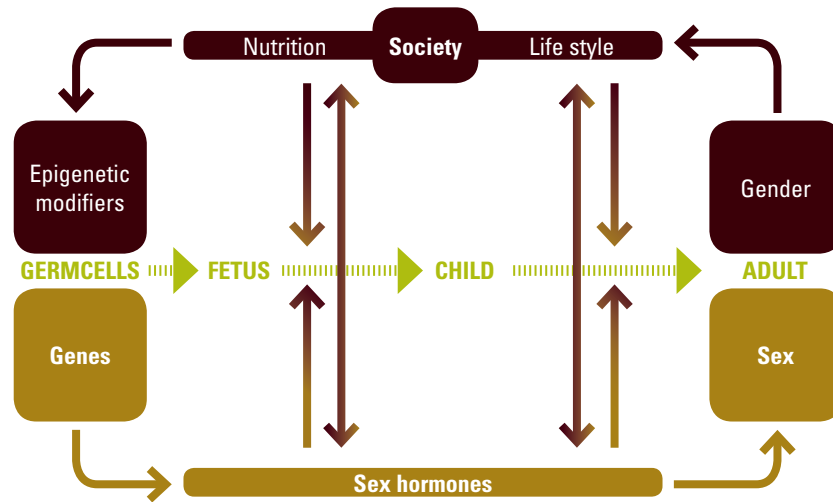
#### **BIOLOGICAL DIFFERENCES between the sexes**



#### **PSYCHOLOGICAL, SOCIAL AND CULTURAL DIFFERENCES between the sexes**

Differentiating between *sex* and *gender* aims to show that biological as well as sociocultural factors exert an influence on health and illness. However, the material is much more complex: to mention only a few aspects, the biological differentiation between the female and the male sex is not to be understood as a sharp line, but instead as a continuum. In addition, on the biological as well as the sociocultural level there is an additional differentiation (genetic, gonadal, endocrinal, gonoductal, cerebral sex, sex of rearing, social gender, sexual identity, etc.). The following illustration<sup>10</sup> shows the complexity of biological and cultural factors acting together and influencing each other.

<sup>10</sup>Regitz-Zagrosek, V. (2012). *Sex and gender differences in health*. EMBO Reports 13,596-603



Complex interdependency of sex and gender in the human  
(Reproduced with the kind permission of EMBO Reports; Regitz-Zagrosek, 2012)

The difficulty encountered in drawing clear-cut delineations and the dynamics of this research field are also seen in the non-uniform use of the terms *sex* and *gender* in scientific publications. While the United States uses the term “sex-specific medicine”, subsumed as *sex* and *gender*, in the European countries the term “Gender Medicine” has established itself. It, too, includes sex and gender.<sup>11</sup> These differences in terminology are to be given consideration in literature searches.

Gender Medicine can also be viewed as an aspect of the Gender Mainstreaming<sup>12</sup> strategy introduced by the European Union as a compulsory component of Medicine.

<sup>11</sup> The American society for Gender Medicine is the *OSSD, Organization for the Study of Sex Differences*, while the European society goes under the name *International Society for Gender Medicine*.

<sup>12</sup> Treaty of Amsterdam, 1999



## 4. GENDER MAINSTREAMING IN GRANT APPLICATIONS

Implementing Gender Mainstreaming in research grant applications means integrating the equality of women and men on two different levels.<sup>13</sup>



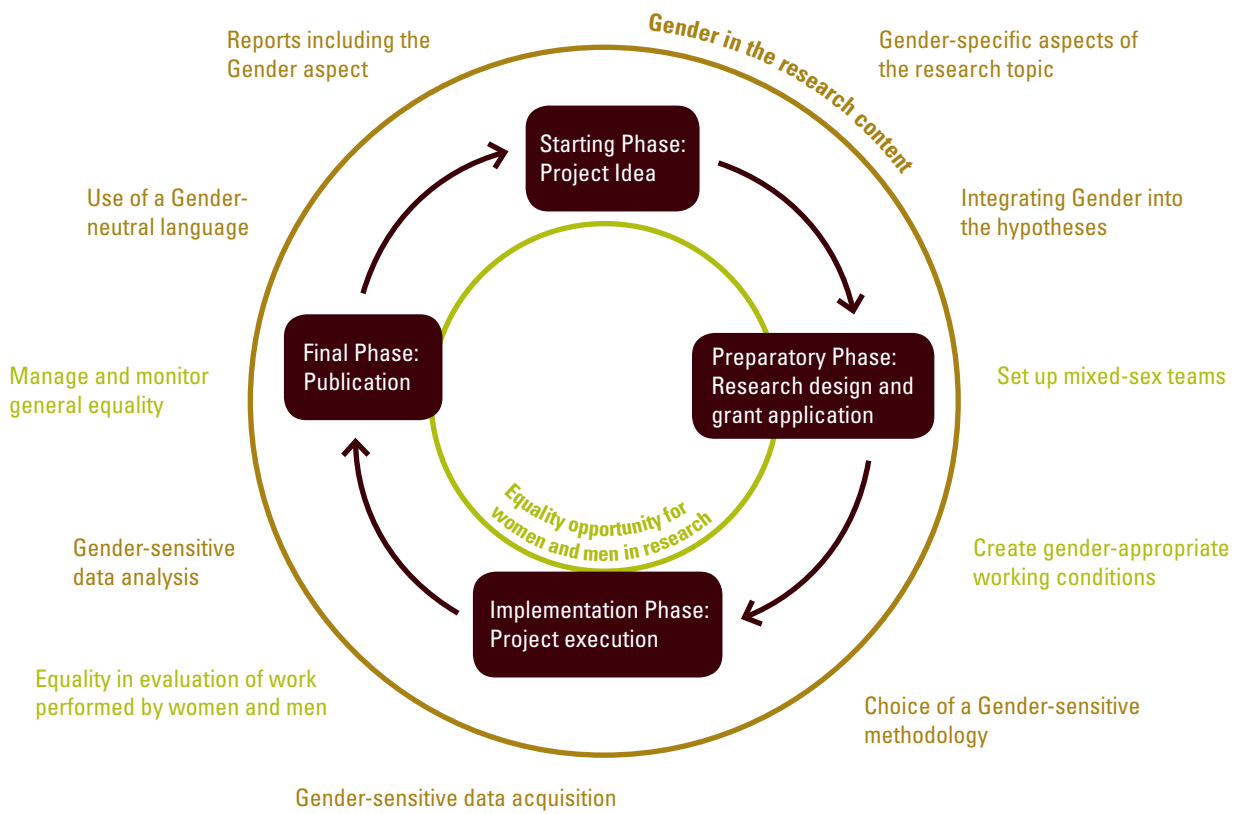
Source: European Commission (2009), *Toolkit, Gender in EU-funded research*. Yellow Window Management Consultants

Integrating the categories *sex* and *gender* into the research cycle means these perspectives are already included at the beginning of the research project when conceiving the idea for the project and formulating the research question and are maintained all the way up to publication of the research findings. The method of the *Gender-sensitive research cycle*<sup>14</sup> illustrated in the following also serves the European as well as the Austrian research grant organizations as the basis for evaluating the extent to which research content, team models and personnel composition correspond with the guidelines for Gender Mainstreaming.

<sup>13</sup> European Commission (2009), *Toolkit, Gender in EU-funded research*. Yellow Window Management Consultants, ISBN 978-92-79-11290-4

<sup>14</sup> The *Gender-sensitive research cycle* and the *Checklist for gender in research* were taken from the following publication, translated into German and slightly adapted: European Commission (2009), *Toolkit, Gender in EU-funded research*. Yellow Window Management Consultants, ISBN 978-92-79-11290-4

### 4.1. GENDER SENSITIVE RESEARCH CYCLE



Adapted from: European Commission (2009), *Toolkit, Gender in EU-funded research*. Yellow Window Management Consultants

## 4.2. THE GENDER PERSPECTIVE IN RESEARCH CONTENT

### Research ideas and hypotheses

The relevance of the categories *sex* and *gender* must be analyzed in relation to the research topic and the status quo of research in the field must be examined. Building on the research to date and the pertinent publications, the research hypotheses are formulated. The number of scientific publications on the sex- and gender aspects of the various disciplines has grown steadily in recent years and the ensuing results can be taken as interesting starting points for the formulation of new hypotheses and future research ideas.

### Project Design and Research Methodology

While research methodologies can vary depending on the research topic, all methodologies attempt to explain (aspects of) reality. If the research project deals with human beings, every scientific method must differentiate between the sexes, the different situations of women and men and, depending on the topic, must also differentiate for age, social or cultural background (the biological and sociocultural level). In basic research the differentiation pertains to male/female mice, rats and cell cultures and thus the biological level.

### Research Execution

**Data collection instruments** (such as questionnaires or interview guidelines) must be gender-sensitive, use gender-neutral language<sup>15</sup> and must bring to light different realities of women and men. In this way an often unconscious and implicit gender discrimination can be prevented. For example, census responses that are given by the “head of the household” are not always valid for all members of a household.

### Data Analysis

A large number of the research projects that deal with human beings collect data according to sex. The resulting logical assumption that data are also analyzed according to sex is only partly true or, as in the case of drug testing, was only accomplished in a long-fought battle. Gender as a core variable set in relation to other variables such as, for example, sex and age, sex and income, sex and mobility, sex and work, produces significant and important findings. Ensuring that even basic research employs study groups (in medical studies this always means patients) that are balanced with respect to gender is a long-term guarantee for better and more precise results.

### Publication

Collecting and analyzing data differentiated according to sex is not enough if these data are not published.

Inclusion of gender as a variable belongs in the “mainstream” of publications, because it is an important part of our daily reality, just as other study variables. Presenting your analysis and publishing the gender-specific results in scientific journals and at meetings is possible and should be included in your consideration of the potential target groups for publication and dissemination of the results. Gender-neutral language is important for scientific publications and oral presentations.

<sup>15</sup> Gender-neutral language means a language that makes men, women and intersexual persons equally visible in a written text. Tips and information on this subject can be found in the guideline published by the Austrian Federal Ministry of Science and Research “Geschlechtergerechte Sprache” (2011) for the German language and in the UNESCO Guidelines (1999) for the English and French languages. Both can be found on the home page of Koordinationsstelle für Gleichstellung, Frauenförderung und Geschlechterforschung: <http://www.gendermed.at/index.php/geschlechterforschung/leitfaeden.html>

### 4.3. PARTICIPATION OF WOMEN AND MEN IN RESEARCH PROJECTS

Academic research on career paths in science shows that in human resource allocation and career opportunities numerous differences and inequalities exist in the treatment of women and men. In addition to inequalities in treatment that are implied, unconscious and nevertheless have serious consequences and also in addition to different values, priorities and practices, there are still cases of open discrimination of women.

#### Personnel Choice and Selection Procedures

Studies show that in recruiting procedures women and men are evaluated and ranked differently and that women encounter more difficult starting conditions.<sup>16</sup> Thus, in order to avoid disadvantages and ensure equal opportunity a recruiting process must include the following:

- A transparent, non-partisan selection procedure must be ensured: mixed-sex selection committees, training in sex-neutral selection procedures and equality, broad calls for applicants, women should be explicitly encouraged and asked to apply, allowance should be made for atypical career paths;
- The selection criteria used should be clear, transparent and open to scrutiny: relevant knowledge and competence standards should be defined, suitable indicators that account for the life cycle productivity of men and women should be used.

#### Working Conditions and Organizational Culture

A good organizational or team culture is the prerequisite for female scientists, and increasingly for male scientists, to feel they are integrated in a team and thus bring the required motivation and dedication. Organizational culture includes the following aspects: salary, length and type of employment contract, access to grants, on-going training and resources, how mobility is dealt with, meeting and decision-making culture and efforts to ensure work-life balance.

#### Monitoring, Management and Indicators

In order to improve the equality of women and men it is necessary to deal with (often unintentional and unconscious) unequal treatment and discrimination and to study their causes. Steps to reduce unequal treatment can include: active participation of women and men in the process, definition of indicators, installation of a monitoring system, installation of feedback loops for Gender Mainstreaming quality assurance, naming and training a person responsible for gender in the project (research content and personnel).

<sup>16</sup> See, among others: Moss-Racusin C.A., Dovidio J.F., Brescoll V.L., Graham, M.J., Handelsman J. (2012), Science faculty's subtle biases favor male students. PNAS Early Edition, August 21, [www.pnas.org/cgi/doi/10.1073/pnas.1211286109](http://www.pnas.org/cgi/doi/10.1073/pnas.1211286109); Statistical data concerning scientific staff, students at Austrian universities see: uni:data warehouse (Bundesministerium für Bildung, Wissenschaft und Forschung)

## 5. CHECKLIST FOR A SEX- AND GENDER-SENSITIVE RESEARCH APPROACH

### Equal Opportunities for Women and Men in Research

- Is there a good gender balance in the decision-making bodies of the project and in the team, at all hierarchical levels and in management positions?
- Do working conditions permit all team members to balance work and family life in a satisfactory manner?
- Were a monitoring system and methods installed to safeguard the steps taken to ensure equality and equal opportunity and to evaluate, for example, targets, statistics, special steps for personnel development and indicators as requested by research grant organizations?

### Gender in Research Content

#### Starting Phase: Project Idea

- Does the research question in the scientific project directly concern human beings or are human beings involved in the study? Was the sex- and gender-specific relevance of the topic analyzed?
- If the research question does not directly relate to human beings (for example, in basic research), it should be remembered that sex-specific differences naturally also play a role in animal experiments, cell cultures and biochemical studies and are thus to be given consideration. Are these sex-specific differences included in the research question?
- Did you examine the literature and other sources for gender-specific differences with regard to the research topic?

#### Preparatory Phase: Research Design and Grant Application

- Does the chosen methodology ensure that (possible) sex differences can be demonstrated, that the data differentiated according to sex/gender during the entire research process are recorded and analyzed and will be part of the final written thesis?
- In your research concept do you explicitly state how the gender-specific questions will be treated (for example, continuously or as a separate part of the study)?
- Was a possibly different research outcome and its consequences for women and men already considered in the research design?

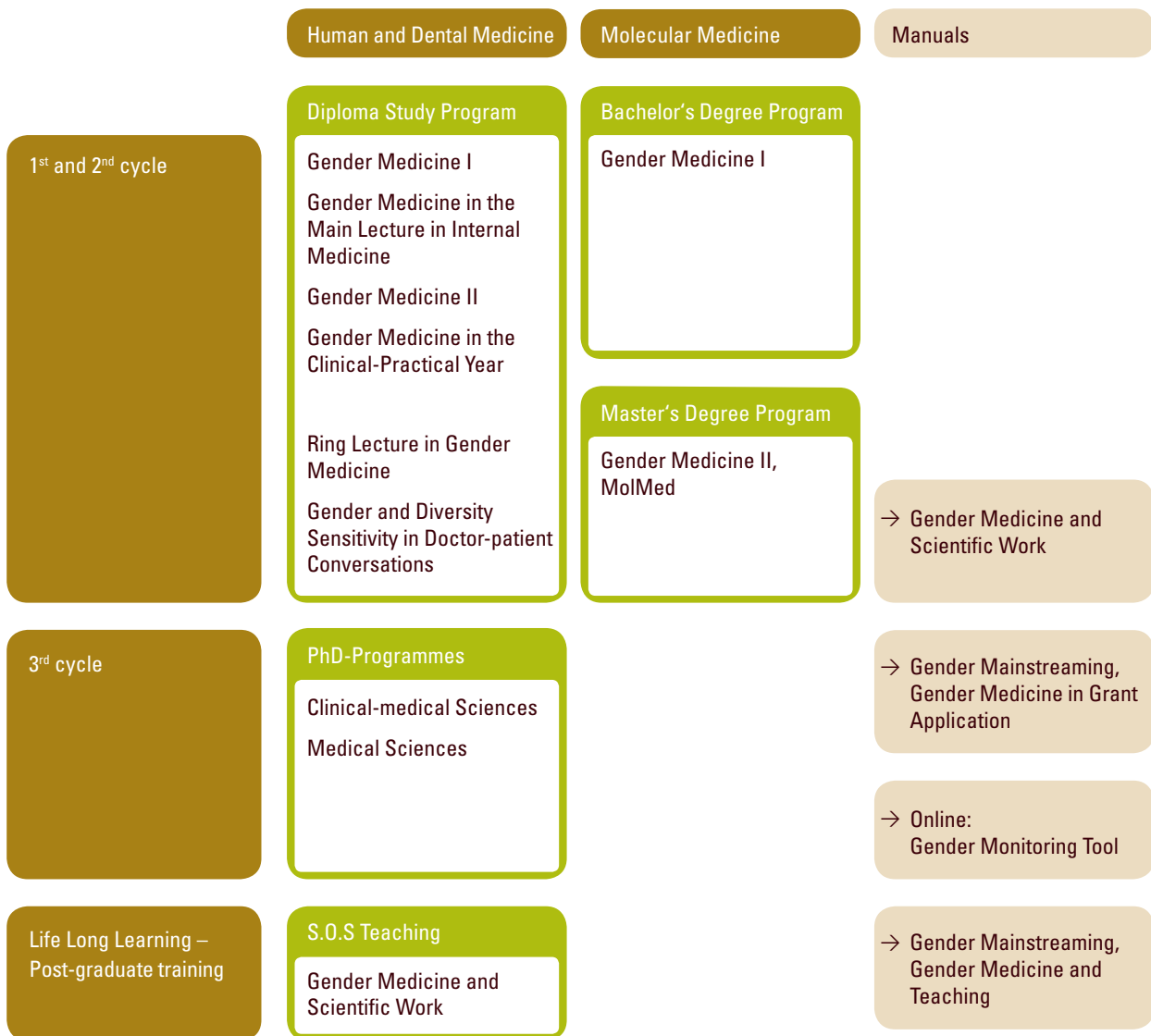
#### Implementation Phase: Project Execution

- Are the questionnaires, surveys, interview guidelines, focus groups etc. designed in such a way that the data obtained demonstrate possible gender-specific differences?
- Are the groups that your project deals with balanced with regard to gender (for example, random samples, study groups)?
- Were data analyzed for the gender variable? Were other relevant variables analyzed with regard to gender-specific differences?

#### Final Phase: Publication, Dissemination

- Do your statistics, illustrations, overviews and descriptions include a gender-specific analysis of the data collected for your study?
- Are institutions, organizations, scientific journals that concentrate on sex- and gender-specific topics included among the target groups for publication and dissemination of your findings?
- Have you considered additional publication of the sex- and gender-specific findings of your project?

## 6. OVERVIEW OF GENDER MEDICINE COURSES AT THE MEDICAL UNIVERSITY OF INNSBRUCK



## 7. SUPPLEMENTARY LITERATURE

European Commission (2005), *The European Charter of Researchers – The Code of Conduct for the Recruitment of Researchers*.

genSET – gender in science (2011), *Public Consultation on the Future of Gender and Innovation in Europe, Summary Report*.

Ranga M., Gupta N., Etzkowitz H. (2012), *Gender Effects in Research Funding. A review of the scientific discussion on the gender-specific aspects of the evaluation of funding proposals and the awarding of funding*. Deutsche Forschungsgemeinschaft (DF G)

European Commission (2014), Horizon 2020. *Excellent Science, Competitive Industries, Better Society*. Vademecum on Gender Equality in Horizon 2020. RTD-B7 „Science with and for Society“, 26.02.2014

National Institutes of Health (2014), *Methods and Techniques for Integrating the biological Variable Sex into Preclinical Research*. Office of Research on Women's Health, Workshop held on October 20, 2014, [https://orwh.od.nih.gov/resources/pdf/ORWH\\_Methods\\_Workshop\\_Mtg\\_Smry\\_3-3-15.pdf](https://orwh.od.nih.gov/resources/pdf/ORWH_Methods_Workshop_Mtg_Smry_3-3-15.pdf), October 19, 2016

Schiebinger, L.; Stefanick, Marcia L. (2016), *Gender Matters in Biological Research and Medical Practice*. J. Am Coll Cardiol. 67 (2): 136-138. doi: 10.1016/j.jacc.2015.11.029

Clayton, Janine A. (2016), *Studying both sexes: a guiding principle for biomedicine*. FASEB J 2016 30: 519-524. doi: 10.1096/fj.15-279554

### Links

National Institutes of Health, Office of Research of Women's Health: <https://orwh.od.nih.gov/research/strategic-plan/>, June 11, 2018

Nature: <http://www.nature.com/news/specials/women/index.html>, June 11, 2018

Science: <http://www.sciencemag.org/careers/2014/03/adding-sex-and-gender-dimensions-your-research>, June 11, 2018

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