Excerpt from "Specialist Training Regulations ("*Weiterbildungsordnung – WBO*") for physicians in the State of Bremen" (version of 1 April 2005)
(published in Bremen Official Journal No 26 of 31 March 2005)

10. Human genetics

Definition:
The field of human genetics covers the detection, diagnosis and treatment of genetic disorders, including the provision of counselling and advice on genetics for patients and their families and doctors working in health care.

Doctor specialising in human genetics

Objective of specialist training:
The objective of specialist training in the field of human genetics is to obtain the qualification of specialist doctor on completion of the prescribed specialist training period and courses.

Specialist training period:
Sixty months under a person authorised to give specialist training at a specialist training establishment in accordance with the first sentence of § 5(1), of which:

- 24 months in human genetic patient care;
- 12 months in a cytogenetic laboratory;
- 12 months in a molecular genetics laboratory, and
- 12 months in the various fields of direct patient care.

Content of specialist training courses:
Acquisition of knowledge, experience and skills in:
- the prevention, diagnosis and treatment of monogenetic, polygenetic, multifactorial and mitochondrial disorders by means of clinical, cytogenetic, molecular genetic and biochemical/protein chemical methods;
- counselling and advising patients and their families, including the psychological aspects;
- providing advice and support for doctors working in preventive medicine and patient treatment as part of interdisciplinary cooperation;
- the calculation and estimation of genetic risks;
- pre-symptomatic and predictive diagnostics;
- the principles of the causes and effects of mutations, genetic action, molecular genetics, formal genetics and genetic epidemiology;
- the effects of exogenic noxious factors as regards mutagenesis, tumour genesis and teratogenesis;
- pre-natal diagnostics;
- medicinal therapy, taking account of individual genetic predisposition;
- the principles of the treatment of genetic disorders, including preventive measures;
- the principles of cytogenetics with cell cultures from various tissues, chromosome preparation, staining and analysis, and molecular cytogenetics;
- the principles of molecular genetics and its methods, such as obtaining and analysing human DNA from various tissues and the basic methods of sequencing;
- the principles of molecular genetic diagnostics, with direct detection of genetic mutations, also for maternity/paternity tests, and the methods of indirect genotyping.

Defined testing and treatment procedures:
- clinical genetic diagnostics of inherited disorders, congenital deformities and deformity syndromes;

- recording findings and risk assessment for:
  - monogenetic and complex types of heredity;
  - numerical and structural chromosome aberrations;
  - molecular genetic findings;
- genetic counselling, including establishing the family medical history over three generations and drawing up an epicritical assessment of various disorders;
- pre-natal and post-natal chromosome analyses;
- the methods of molecular cytogenetics including chromosomal in-situ hybridisation, and cultivation and preparation steps for:
  - interphase nuclei and
  - metaphase chromosomes.
- pre-natal and post-natal molecular genetic analyses.

Excerpt from the "Guidelines on the content of specialist training"
in accordance with the "Specialist Training Regulations for physicians in the State of Bremen" dated 1 April 2005
- in accordance with the decision of the management board of the Bremen medical council of 9 June 2004
on the basis of the recommendation by the Federal medical council as adopted by its management board on 30 April 2004 -

10. Human genetics

Specialist training course content Knowledge, experience and skills in	**Comments by person authorised to give specialist training***	**Knowledge, experience and skills acquired** Date/signature of person authorised to give specialist training
the content of specialist training courses under the General Provisions of the Specialist Training Regulations (see p. 6)		
the prevention, diagnosis and treatment of monogenetic, polygenetic, multifactorial and mitochondrial disorders by means of clinical, cytogenetic, molecular genetic and biochemical/protein chemical methods		
counselling and advising patients and their families, including the psychological aspects		
providing advice and support for doctors working in preventive medicine and patient treatment as part of interdisciplinary cooperation		
the calculation and estimation of genetic		

risks		
pre-symptomatic and predictive diagnostics		
the principles of the causes and effects of mutations, genetic action, molecular genetics, formal genetics and genetic epidemiology		
the effects of exogenic noxious factors as regards mutagenesis, tumour genesis and teratogenesis		
pre-natal diagnostics		
medicinal therapy, taking account of individual genetic predisposition		
the principles of the treatment of genetic disorders, including preventive measures		
the principles of cytogenetics with cell cultures from various tissues, chromosome preparation, staining and analysis, and molecular cytogenetics		
the principles of molecular genetics and its methods, such as obtaining and analysing human DNA from various tissues and the basic methods of		

sequencing		
the principles of molecular genetic diagnostics, with direct detection of genetic mutations, also for maternity/paternity tests, and the methods of indirect genotyping		

Testing and treatment methods	**Target number**	**Annual documentation in accordance with § 8 WBO***						**Knowledge, experience and skills acquired**
		Date:	Date:	Date:	Date:	Date:	Date:	Date/signature of person authorised to give specialist training
clinical genetic diagnostics of inherited disorders, congenital deformities and deformity syndromes	200							
recording findings and risk assessment for:								
- monogenetic and complex types of heredity	100							
- numerical and structural chromosome aberrations	50							
- molecular genetic findings	50							

genetic counselling, including establishing the family medical history over three generations and drawing up an epicritical assessment of 50 different disorders	400							
chromosome analyses,								
- pre-natal, of which incl. all cultivation and preparation steps	200 25							
- post-natal, of which incl. all cultivation and preparation steps	200 25							
the methods of molecular cytogenetics including chromosomal in-situ hybridisation, of which:	100							
- on interphase nuclei and cultivation, incl. all preparation steps	25							
- on metaphase chromosomes, incl. all preparation steps	25							
pre-natal and post-natal molecular genetic analyses, of which:								
- pre-natal, incl. all necessary laboratory steps	10							
- post-natal, of which - incl. all necessary laboratory steps	400 100							

* *Where applicable, additional comments by the person authorised to give specialist training:*