

# CV

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PURE: [http://pure.au.dk/portal/da/persons/olav-bjoern-petersen\(b9f12bfe-d3f4-446a-b40b-37ac968b84c4\).html](http://pure.au.dk/portal/da/persons/olav-bjoern-petersen(b9f12bfe-d3f4-446a-b40b-37ac968b84c4).html),



## Experience

May 2019-

Clinical Professor in Fetal Medicine

Centre for Fetal Medicine and Pregnancy

Copenhagen University Hospital, Rigshospitalet

With this new post, and the following annual budget of 3.8 Mio DKK in research grant from Novo Nordisk Foundation, I will have excellent opportunities to initiate and lead research and development within a range of Fetal Medicine disciplines, primarily intrauterine therapy and prenatal diagnostics - including molecular genetic testing, ultrasound and MRI as well as development of a new multimarker risk algorithm

2012-2019

Ass. Professor in Obstetrics and Gynaecology

At Aarhus University Hospital

As associate professor, from 2014 with a post and funding for 50% research and 50% clinical work, I have the opportunity to focus more on research and development within fetal medicine, prenatal diagnostics/genetics, ethics, as well as accelerating development, test and implementation of obstetric home-monitoring and telemedicine

Achievements:

Co-founder, together with Clinical geneticist Ida Vogel and anthropologist Stina Lou, of Centre for Fetal Diagnostics at Aarhus University/Aarhus University Hospital

([www.cffd.dk](http://www.cffd.dk)). The Centre provides information, counselling and front-line research within the translational field of Fetal Medicine, Clinical Genetics and Anthropology, with special focus on clinical utility, implementation and consequences of advanced prenatal genetic tests, clinically, ethically and for the child, family and society.

Initiation, development and implementation of telemedicine home-monitoring of women with pregnancy complications, including development of open-source based IT-platform, and implementation of patient management – saving so far >1.400 bed days and >3.500 outpatient visits at AUH. With a high degree of patient and staff satisfaction, a rare example of realized triple aim in healthcare. I have contributed to initiation of a similar project, using the same platform: home monitoring of patients with home IV-antibiotic treatment in Dept. of Infectious Diseases, Aarhus University Hospital

2004-2019:

Head of Fetal Medicine Unit

Dept. of Obstetrics and Gynaecology, Aarhus University Hospital

Achievements:

As the head of the Fetal Medicine Unit I took over and developed the department simultaneously with the Introduction of the first national guideline on prenatal diagnostics, released in 2004. Denmark was globally the first country to offer comprehensive 1<sup>st</sup> and 2<sup>nd</sup> trimester prenatal ultrasound scans and tests to all pregnant women and being a part of the – locally and nationally - very successful implementation of this program has been a fantastic journey. Implementation included acquisition of new ultrasound equipment, employment and training of new staff, making and implementation of guidelines and quality assessment systems- and a continuous change of clinical practice according to new scientific evidence, and developments in ultrasound equipment and genetic testing possibilities.

Annually 21.000 ultrasound scans and 600 invasive procedures on 7.000 women are performed at the department.

Together with staff from my department I initiated and completed a project in 2010-2011 in the Central Region regarding implementation of extended 2<sup>nd</sup> trimester fetal cardiac screening to all women, which was achieved by monthly supervision visits at local hospitals and organizing regional (as well as national) hands-on courses in fetal echocardiography. We reached the goal – as the first region in Denmark - of >90% of all women offered extended cardiac screening. I also implemented biweekly teleconferences with Professor Jon Hyett, Royal Prince Alfred Hospital I Sydney, NSW, Australia for discussion of difficult cases.

I have also implemented phantom-based training of invasive procedures as a standard for all fetal medicine subspecialty trainees.

- 2002-2019: Consultant  
Dept. of Obstetrics and Gynaecology, Aarhus University Hospital  
My first post as consultant, associated to the obstetric and fetal medicine team, with responsibility for antenatal and perinatal obstetric management for all types of obstetric high-risk patients.
- 2002: Research fellow (3 months)  
Fetal Medicine Unit, Elisabeth Garret Anderson Hospital, University College London, London, UK  
As a part of my expert education in Fetal Medicine, I was 3 months at the Fetal Medicine Unit at UCL, chaired by Professor Charles Rodeck, one of the founders of the Fetal Medicine subspecialty. Here I had the opportunity to experience the frontiers in clinical and academic fetal medicine, and application of the newest knowledge and technology, as well as foundation of my international network.
- 2001-2015 Member of perinatal audit (PNA) group, central region Denmark  
Through 5-6 annual meetings the PNA group reviewed all cases of adverse fetal outcome in the eastern part of region, which was a unique opportunity to gain insight in the many risk factors for adverse pregnancy outcome. I also developed a database for the PNA cases, still in use.
- 2000-2002: Senior Registrar/Consultant  
Dept. of Obstetrics and Gynaecology, Aarhus University Hospital.  
With this appointment I completed the third (and final) year of my Fetal Medicine training, including diagnostic and therapeutic ultrasound procedures and responsibility for control and delivery of high-risk obstetric patients. I was involved in training and teaching, and responsible for weekly interdisciplinary meetings with neonatologists, geneticists, pathologists and neonatal surgeons, as well as weekly sessions in Fetal Medicine for younger colleagues and sonographers.

### **Project leadership**

- 2017- Member of Central Region IT steering committee:  
Development project of microservice- and open-source based telemedicine infrastructure for obstetric home monitoring, using mobile devices (budget: 1 Mio. €).
- 2017 Clinical project leader  
Merging of the Central Region Denmark Milou-database/installation  
With this project we managed to consolidate the Central Regions Milou (CTG) installations, facilitating operation and maintenance
- 2016- Clinical project leader  
Project with The Danish Clinical Registries (RKKP) and FØTO National database regarding collection of PRO (Patient-Reported Outcome) data from women participating in 1<sup>st</sup> – and 2<sup>nd</sup> trimester prenatal screening. A major part of the project is development of a web- and open-source based system for collection of the PRO-data.
- 2016-2018 Clinical project leader  
Merging of the Central Region Denmark Astraia-database/installation

With this project we managed to consolidate the central regions Astraia (fetal medicine database and video/image storage) which has improved patient workflow, education and collaboration between regional hospitals, as well as improved operation and maintenance.  
It was a major project necessitating development of a range of analytic and datachange tools.

- 2012-2014 Clinical project leader  
Clinically Integrated home-monitoring project (KIH-projektet)  
Telemedicine home-monitoring of women with pregnancy complications (budget: 500.000 €) was one of five projects in the hitherto largest telemedicine project in Denmark (budget 9 Mio €), our project was the only one documenting a triple aim business case. During the project, the tablet-based Open Source platform was further developed. Our results were recognized by the National Digitization Agency and the Ministry of Health and was the background for the decision of national implementation before 2021.  
Report accessible here: <https://digst.dk/media/12420/kih-slutrapport.pdf>  
Additional material here: <https://digst.dk/media/12419/kih-bilagsrapport.pdf>  
A short description: <https://digst.dk/media/12418/kih-brochure.pdf>
- 2010-2012: Initiator and Clinical project leader  
Telemedicine home-monitoring of women with pregnancy complications (ABT/ TeleSkejby projektet)  
This was the first feasibility-project of obstetric home-monitoring in complicated pregnancies (budget: 500.000 €). During the project we realized that the commercial available platforms were expensive and not flexible enough, not supporting the need for agile, innovative development. In less than 6 months we managed to develop, test and implement a tablet and Open Source-based platform, with better functionality. This platform was later chosen as the platform for the national KIH-project. Link to report:  
[https://www.dropbox.com/s/1wnhxr9a6wsrgj/Evalueringsrapport\\_TeleSkejby\\_projektet\\_versio.pdf?dl=0](https://www.dropbox.com/s/1wnhxr9a6wsrgj/Evalueringsrapport_TeleSkejby_projektet_versio.pdf?dl=0)
- Other posts:**
- 2018-: Member of the Danish Ministry of Health steering committee for digital obstetric healthcare  
The goal for this project is to analyse solutions for the development, implementation and dissemination of a digital solution for national pregnancy care, making direct electronic communication between the pregnant women, GP's, hospitals and midwives possible
- 2018-: Member of The National Board of Health screening advisory board  
The board reviews and assess applications for all types of national screening programs, and prepare the basis for decisions by the National Board of Health
- 2018-2019: Member of IT Council, Aarhus University Hospital
- 2015-: Member of steering committee, Nordic Network for Fetal Medicine (NNFM)  
I have been a member of the NNFM steering committee since foundation in 2015, initiating and facilitating research-, clinical- and teaching collaboration in the Nordic countries, and organizing an annual meeting.
- 2015-16: Board member, 4S: Governance Council for Open Source Ecosystems for Telemedicine  
Joined this first Danish governance organization for public open source software for telemedicine.
- 2014-: Chairman, National Fetal Medicine Database  
Professor Ann Tabor (initiator), Ph.D. Charlotte Ekelund and I developed and implemented a national, clinical fetal medicine database – now a RKKP database (FØTO database), for research and quality assessment. I'm responsible for the current, major upgrade the FØTO database, including a completely new database architecture.
- 2014-2016: Member of The National Board of Health working group: Revision of national guideline for prenatal diagnostics

We revised the national guideline from 2004, including Non-Invasive Prenatal Tests (NIPT) in the national program and extending indications for invasive testing.

- 2012-2015: Member of Clinical Ethical Committee, Aarhus University Hospital  
Being a member form establishment of the clinical ethical committee, I have participated in numerous case-based discussions of ethical issues from the clinical and research situation in our tertiary, university teaching hospital.
- 2009-2016 Board member, Danish Fetal Medicine Society (DFMS)  
I participated in the foundation of DFMS in 2009 and joined the board in a time where fetal medicine developed from something about ultrasound to a full scientific and interdisciplinary scientific society. I was vice-chairman from 2010-2012 and chairman 2012-2014
- 2012-1204: Chairman, Danish Fetal Medicine Society
- 2012: Vice President, ISUOG World Congress, Copenhagen  
Together with Congress president, professor Ann Tabor I co-chaired the 3-day congress with 2.000 delegates.
- 2009- Co-chairman (with Karin Sundberg, RH) of DFMS permanent working group for first trimester prenatal screening. This includes organization of an annual meeting with representatives from all departments, for discussions and evaluation of the clinical practice, quality measures and decisions about the next years strategy, as well as teaching in new practice in prenatal screening.

## Education

- 2005: Diploma in Fetal Medicine, Fetal Medicine Foundation, London
- 2004: Expert education in Fetal Medicine, Danish Society for Obstetrics and Gynaecology
- 1999 Ph.D. in Medicine, Aarhus University
- 1998: Specialist certification in Obstetrics and Gynaecology
- 1988: Medical Doctors degree, Aarhus University

## International training

- 2002 (3 mo): Fetal Medicine Unit, Elisabeth Garret Anderson Hospital, UCL London
- 1993 (1 mo): Professor Leslie Myatt, Dept of Obstetrics and Gynaecology / Perinatal Medicine; University of Cincinnati, Ohio USA: Training in-vitro perfusion of human placenta

## Research profile

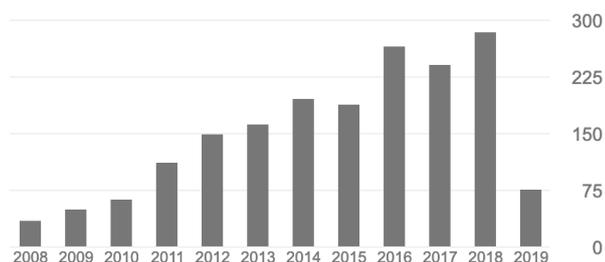
Clinical and research interest in prenatal screening, diagnostics and intrauterine therapy, including ultrasound-based and other imaging techniques, biomarkers and genetics, as well as ethical aspects of prenatal screening and diagnostic.

Together with clinical geneticist Ida Vogel and anthropologist Stina Lou founder of Centre for Prenatal Diagnostics at Aarhus University/Aarhus University Hospital ([www.cffd.dk](http://www.cffd.dk))

Development, test and implementation of digital solutions and workflow in clinical practice, including telemedicine-based remote home monitoring

Author or co-author of 95 peer-reviewed scientific papers, 65 abstracts / posters and 8 book chapters, and co-author of 21 national clinical guidelines (11 as coordinator).

H-index: 22 and 2016 citations, (Google Scholar, April 2019)



### **Ongoing PhD supervisor assignments (2):**

2016: Ida Lund: *Prenatal genetic diagnostics: expanding Non-Invasive Prenatal Testing beyond Down syndrome testing and exploring stakeholder's preferences*. Ph.D.-project, Aarhus University

2016: Line Kolding: *Exposure to psychotropic medications during pregnancy: Cardiotoxic and teratological effects*. Ph.D.-project, Aarhus University

### **Completed PhD supervisor assignments (7):**

2018: Mette H Lauridsen: *Brain Matters in Heart Matters – from early fetal development*. Ph.D.-project, Aarhus University

2017 Camilla Bernt Wulff: *First trimester risk assessment follow-up; Risk of fetal loss associated with invasive testing and cervical length screening for preterm delivery*. Ph.D. dissertation, University of Copenhagen

2017 Maria Rasmussen: *Fetal Kidney Anomalies: Genetics, prevalence, and outcome*. Ph.D. dissertation, Aarhus University

2015: Stina Lou: *Managing high risk at first trimester prenatal screening: Exploring how clinicians, pregnant women, and their partners manage and negotiate a high-risk screening result for chromosomal abnormality in the fetus*. Ph.D. dissertation, Aarhus University

2014: Jacob Mørup Schlütter: *Variation in the amount of fetal cells and cell-free fetal DNA in maternal blood*. Ph.D. dissertation, Aarhus University

2012: Charlotte K. Ekelund: *Screening for trisomy 21 in Denmark; Evaluation of the current and possible future strategies*. Ph.D. dissertation, University of Copenhagen

2008 Lene Unmack Larsen: *Quantitative assessment of fetal cardiac function by Color Doppler myocardial imaging (CDMI) and spatiotemporal image correlation (STIC)*. Ph.D. dissertation, Aarhus University

### **PhD assessments (5):**

2018: Sarah McDonald: *Quantification of forces exerted through labour*. Ph.D. dissertation, University of Sydney, Australia.

2017: Susannah Jane Maxwell: *Diagnosing Fetal Aneuploidy in Australia: The Impact of Prenatal Screening and the Integration of New Technology*. Ph.D. dissertation, Curtin University, Australia

2017: Merel Bakker, MD: *Challenges in Prenatal Screening and Diagnosis in the Netherlands*. Ph.D. Dissertation, University of Groningen, Groningen, Holland

2008: Anne Cathrine Gjerris: *Prenatal screening and diagnosis among women pregnant after assisted reproductive technology*. Ph.D. dissertation, University of Copenhagen

2006 Lene Søndergaard Sperling: *Pregnancy complications to twin pregnancy; A prospective multicenter study*. Ph.D. dissertation, University of Copenhagen

### **Research year/Master's degree supervisions (4):**

2017: Charlotte Bodin: *Incidence, prenatal detection rate and pregnancy outcome of spina bifida in Denmark compared to Sweden*. Research year thesis, Aarhus University

2012 Eva Mikkelsen: *Analysis og contraction pattern as a risk factor for preterm delivery*. Research year thesis, Aarhus University

2009 Helen Nordal Nielsen: *Double test in risk assessment for Down syndrome in twin pregnancies*. Cand. Scient. San., Aarhus University

2006: Line Riis Jølving: *Prenatal diagnostic in Aarhus and Viborg councils – after implementation of first trimester screening in 2004*. Cand. Scient. San., Aarhus University

### **Research methodology supervisions (8):**

2015: Mette Scane Bech: *Characteristics of 1032 terminations of pregnancy for fetal anomaly: - A population-based cohort study 2007-2014*. Aarhus University

2015: Sara Vester Hald: *Pregnancy outcomes in women with uterus didelphys, with emphasis on the role of cervical cerclage*. Aarhus University

2012: Birgitte Siem Christensen: *Pregnancy outcome of monochorionic twin pregnancies*. Aarhus University

2012: Mona Kjærboel Kristiansen: *Pregnancy outcome of monochorionic twin pregnancies*. Aarhus University

2011: Caroline Madsen: *Monoamniotic twin pregnancy: Management, counseling and pregnancy outcome*. Aarhus University

2008: Karl-Erik Tilly: *Prenatal detection rate of congenital heart defects in children born at Skejby Hospital 1999-2006.*, Aarhus University

2008: Søren Lorentzen: *Prenatal detection rate of congenital heart defects in children born at Skejby Hospital 1999-2006.*, Aarhus University

**Reviewer for (7):**

Prenatal Diagnosis, Ultrasound in Obstetrics and Gynaecology, Fetal Diagnose and Therapy, Acta Obstetrica et Gynecologica Scandinavia, European Journal of Obstetrics & Gynaecology and Reproductive Biology, Reproductive Biology and Endocrinology, PLOSOne.

**Conference/coordinator activity**

2008-: Invited as speaker at >25 international and national conferences & meetings  
2007-: Co-organizer, Danish National Fetal Medicine annual conference (FøtoSandbjerg)  
2002-2015: Course organizer and presenter, national specialist course in Fetal Medicine

**Language skills:**

Danish (Native or bilingual proficiency)  
English (Professional working/academic proficiency)  
Norwegian (Professional working proficiency)  
Swedish (Limited working proficiency)  
German (Limited working proficiency)

**IT Skills**

Superuser of:  
Astraia Fetal medicine database (organizer/presenter on numerous national courses)  
Milou  
MS Office  
Experienced user of Columna EHR system  
Extensive knowledge about database systems and architecture  
Clinical project leader on several IT development projects

**Family**

Married to: Hanne Rønning, Chief surgeon (endocrine/breast cancer surgery) at Aarhus University Hospital (from June 2019: Copenhagen University Hospital, Rigshospitalet)  
Son: Christoffer Bennike Rønning lawyer at CIP, Copenhagen