

# JOURNAL OF PERINATAL MEDICINE

OFFICIAL JOURNAL OF THE WORLD ASSOCIATION OF  
PERINATAL MEDICINE, THE INTERNATIONAL ACADEMY OF  
PERINATAL MEDICINE, THE NEW YORK PERINATAL SOCIETY  
AND THE SOCIETY THE FETUS AS A PATIENT

**EDITOR-IN-CHIEF**

*Joachim W. Dudenhausen, Berlin, Germany*

**FOUNDING EDITOR**

*Erich Z. Saling, Berlin, Germany*

**COORDINATING EDITOR  
FOR THE WAPM**

*Frank A. Chervenak, New York, US*

**COORDINATING EDITOR  
FOR THE IAPM**

*Asim Kurjak, Zagreb, Croatia*

**ASSOCIATE EDITORS OBSTETRICS**

*Thorsten Braun, Berlin, Germany*  
*Joseph Chappelle, New York, US*  
*Vincenzo D'Addario, Bari, Italy*  
*Mehmet Genc, Gainesville, US*  
*Amos Grunebaum, New York, US*  
*Robert Romero, Detroit, US*

**ASSOCIATE EDITOR OBSTETRICS &  
REVIEWS EDITOR**

*Ivica Zalud, Honolulu, US*

**ASSOCIATE EDITORS NEONATOLOGY**

*Eduardo Bancalari, Miami, US*  
*Anne Greenough, London, UK*

**EDITORIAL BOARD**

*João F. Bernardes, Porto, Portugal*  
*Eran Bornstein, New York, US*  
*Luis Cabero, Barcelona, Spain*  
*Xavier Carbonell-Estrany, Barcelona, Spain*  
*Erich Cosmi, Padua, Italy*  
*Mary E. D'Alton, New York, US*  
*Dan Farine, Toronto, Canada*  
*Sonia S. Hassan, Detroit, US*  
*Roland Hentschel, Freiburg, Germany*  
*Wolfgang Holzgreve, Bonn, Germany*  
*Ben Lee, Doha, Qatar*  
*Karel Maršál, Lund, Sweden*  
*Jorge C. Martinez, Buenos Aires, Argentina*  
*Zoltan Papp, Budapest, Hungary*  
*Ranjan K. Pejaver, Bangalore, India*  
*Ritsuko K. Pooh, Osaka, Japan*  
*Giuseppe Rizzo, Rome, Italy*  
*Ola D. Saugstad, Oslo, Norway*  
*Joseph Schenker, Jerusalem, Israel*

*Cihat Sen, Istanbul, Turkey*  
*Daniel W. Skupski, New York, US*  
*Klaus Vetter, Berlin, Germany*  
*Alexander Weichert, Berlin, Germany*  
*Hung N. Winn, Columbia, US*  
*Bruce K. Young, New York, US*  
*Roland Zimmermann, Zurich, Switzerland*

**SOCIAL MEDIA EDITOR**

*Nicola Volpe, Parma, Italy*

**STATISTICAL ADVICE**

*Wolfgang Köpcke, Münster, Germany*

**ETHICAL ADVICE**

*Frank A. Chervenak, New York, US*

**MANAGING EDITOR**

*Heike Jahnke, clo De Gruyter*



**CROWN**  
CORE OUTCOMES IN  
WOMEN'S AND NEWBORN HEALTH

DE GRUYTER

**ABSTRACTED/INDEXED IN** Baidu Scholar; Cabells Journalytics; CABI (over 50 subsections); Case; Chemical Abstracts Service (CAS) - Cplus; Chemical Abstracts Service (CAS) - SciFinder; CINAHL; CNKI Scholar (China National Knowledge Infrastructure); CNPIEC - cnpLINKer; Dimensions; EBSCO (relevant databases); EBSCO Discovery Service; EMBASE; Genamics JournalSeek; Google Scholar; ICAP Alcohol Information Databases; Japan Science and Technology Agency (JST); J-Gate; Journal Citation Reports/Science Edition; JournalGuide; JournalTOCs; KESLI-NDSL (Korean National Discovery for Science Leaders); Medline; Meta; Microsoft Academic; MyScienceWork; Naver Academic; Naviga (Softweco); Norwegian Register for Scientific Journals, Series and Publishers; Pathway Studio; Primo Central (ExLibris); ProQuest (relevant databases); Publons; PubMed; PubsHub; QOAM (Quality Open Access Market); ReadCube; Reaxys; SCImago (SJR); SCOPUS; Semantic Scholar; Sherpa/RoMEO; SIIC Data Bases; Summon (ProQuest); TDNet; Text Mining; Ulrich's Periodicals Directory/ulrichsweb; WanFang Data; Web of Science - Biological Abstracts; Web of Science - BIOSIS Previews; Web of Science - Current Contents/Clinical Medicine; Web of Science - Prous Science Integrity; Web of Science - Science Citation Index; Web of Science - Science Citation Index Expanded; WorldCat (OCLC); Yewno Discover.

The Journal is associated with the World Association of Perinatal Medicine. 

The Journal is associated with the International Academy of Perinatal Medicine. 

The Journal is associated with the New York Perinatal Society. 

The Journal is associated with the The Fetus as a Patient Society. 

The Journal is associated with Core Outcomes in Women's Health. 

The publisher, together with the authors and editors, has taken great pains to ensure that all information presented in this work (programs, applications, amounts, dosages, etc.) reflects the standard of knowledge at the time of publication. Despite careful manuscript preparation and proof correction, errors can nevertheless occur. Authors, editors and publisher disclaim all responsibility for any errors or omissions or liability for the results obtained from use of the information, or parts thereof, contained in this work.

The citation of registered names, trade names, trademarks, etc. in this work does not imply, even in the absence of a specific statement, that such names are exempt from laws and regulations protecting trademarks etc. and therefore free for general use.

ISSN 0300-5577 · e-ISSN1619-3997 · CODEN JPMAO

All information regarding notes for contributors, subscriptions, Open access, back volumes and orders is available online at [www.degruyter.com/jpm](http://www.degruyter.com/jpm).

**RESPONSIBLE EDITOR** Dr. Joachim W. Dudenhausen, Clinical Professor of Obstetrics and Gynecology, Professor and Chairman Emeritus - Department of Obstetrics, Charite University Medicine Berlin, Berlin, Germany

**JOURNAL MANAGER** Heike Jahnke, De Gruyter, Genthiner Straße 13, 10785 Berlin, Germany, Tel.: +49 (0)30 260 05 – 220, Fax: +49 (0)30 260 05 – 184, e-mail: [jpm.editorial@degruyter.com](mailto:jpm.editorial@degruyter.com)

**RESPONSIBLE FOR ADVERTISEMENTS** Markus Kügel, De Gruyter, Rosenheimer Str. 143, 81671 München, Germany, Tel.: +49 89 76 902-424, e-mail: [anzeigen@degruyter.com](mailto:anzeigen@degruyter.com)

© 2021 Walter de Gruyter GmbH, Berlin/Boston, Germany

**TYPESETTING** TNQ Technologies, Chennai, India

**PRINTING** Franz X. Stückle Druck und Verlag e.K., Ettenheim



## Contents

### Special Section: Coronavirus Disease 2019 (COVID-19) in Obstetrics

#### Editorial

Nicola Volpe, Giovanni Battista Luca Schera, Andrea Dall'Asta, Elvira Di Pasquo and Tullio Ghi  
**COVID-19 in pregnancy: where are we now? — 637**

#### Review

Malika D. Shah and Ola Didrik Saugstad  
**Newborns at risk of Covid-19 — lessons from the last year — 643**

#### Opinion Paper

Moti Gulersen, Burton Rochelson, Eran Bornstein, Laurence B. McCullough and Frank A. Chervenak  
**Ethical challenges in management of critically ill pregnant patients with coronavirus disease 2019 (COVID-19) — 650**

#### Corner of Academy

Ioannis Tsakiridis, Themistoklis Dagklis, Apostolos Mamopoulos, Apostolos Athanasiadis, Rebecca Pearson and Georgios Papazisis  
**Antenatal depression and anxiety during the COVID-19 pandemic: a cross-sectional study in pregnant women from routine health care contact in Greece — 656**

#### Original Articles – Obstetrics

Yuming Cao, Juan Liu, Yuanzhen Zhang, Yating Li, Zhenlie Chen and Jing Lu  
**Pregnant women's psychological state and influence factors: anxiety, and depression during COVID-19 outbreak — 664**

Rasha E. Khamees, Omima T. Taha and Tamer Yehia M. Ali  
**Anxiety and depression during pregnancy in the era of COVID-19 — 674**

Suruchi Mohan, Shuja Reagu, Stephen Lindow and Majid Alabdulla  
**COVID-19 vaccine hesitancy in perinatal women: a cross sectional survey — 678**

Panagiotis Antsaklis, Konstantinos Tasiias, Alexandros Psarris, Marianna Theodora, George Daskalakis and Alexandros Rodolakis  
**Covid-19 and pregnancy: the experience of a tertiary maternity hospital — 686**

Kinga Zgutka, Kaninghat Prasanth, Shirley Pinero-Bernardo, Lily Q. Lew, Kelly Cervellione, Rhythm Rhythm, Lubna Rahman, Gigliola Dolmaian and Lourdes Cohen  
**Infant outcomes and maternal COVID-19 status at delivery — 691**

Sule Goncu Ayhan, Atakan Tanacan, Aysegul Atalay, Selcan Sinaci, Eda Ozden Tokalioglu, Dilek Sahin and Ozlem Moraloglu Tekin  
**Assessment of fetal Doppler parameters in pregnant women with COVID-19 infection: a prospective case-control study — 697**

Katharina Rathberger, Sebastian Häusler, Sven Wellmann, Marco Weigl, Florian Langhammer, Maria Victoria Bazzano, Andreas Ambrosch and Sara Fill Malfertheiner  
**SARS-CoV-2 in pregnancy and possible transfer of immunity: assessment of peripartal maternal and neonatal antibody levels and a longitudinal follow-up — 702**

Sebastian Häusler, Marco Weigl, Andreas Ambrosch, Rudolf Gruber, Birgit Seelbach-Göbel and Sara Fill Malfertheiner  
**Peripartal anti-SARS-CoV-2-IgA/IgG in asymptomatic pregnant women during regional SARS-CoV-2-outbreak — 709**

Jullie Anne Chiste, Isabella Naomi Furuie, Meri Bordignon Nogueira, Jessica da Silva Longo, Cyllian Arias Fugaça, Barbara Maria Cavalli, Carolina Tanaka Dino, Sonia Mara Raboni, Narcizo Leopoldo Eduardo da Cunha Sobieray and Newton Sérgio de Carvalho  
**SARS-CoV-2 in asymptomatic pregnant women in South Brazil: RT-PCR and serological detection — 717**

## Letter to the Editor

Valentina Corda, Federica Murgia and Giovanni Monni  
**COVID-19 vaccine: the gender disparity — 723**

## Regular Papers

### Original Articles – Obstetrics

Karen Weisshaupt, Wolfgang Henrich, Jörg Neymeyer and Alexander Weichert  
**Mode of delivery of women with Swyer syndrome in a German case series — 725**

Hitoshi Matsui, Kohei Ogawa, Aikou Okamoto and Haruhiko Sago  
**Risk factors and outcomes of abnormal bleeding after external cephalic version — 733**

Mónica Aguinaga, Yolotzin Valdespino, Daniela Medina, Salvador Espino y Sosa, Rosalba Sevilla, Osvaldo Miranda, Sandra Acevedo, Irma E. Monroy, Addy C. Helguera, Javier Pérez, Luisa F. Mariscal, Mauricio R. Murillo, Rosa M. Lara, Jessica C. Armijos, Gabriela Rogel and Jorge A. Cardona  
**Causal analysis of fetal death in high-risk pregnancies — 740**

### Original Article – Neonates

Srinivasa Murthy Doreswamy and Amulya Ramakrishnegowda  
**Prediction of encephalopathy in perinatal asphyxia score: reaching the unreached — 748**

### Short Communication

Barbora Vlková, Ľubica Janovičová, Petra Pšenková, Lívia Melníková, Barbora Balažovjechová, Jozef Záhumentský and Peter Celec  
**Deoxyribonuclease activity negative correlates with extracellular DNA in uncomplicated singleton pregnancies in the third trimester — 755**

### Online Only: Congress Abstracts

[doi.org/10.1515/jpm-2021-0310](https://doi.org/10.1515/jpm-2021-0310)

**World Congress of Perinatal Medicine**  
Online Congress, June 24–16, 2021 — eA1