



Journal Review

KPJ journal watch: Innovations in neonatology

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Source: McCullough LB, Coverdale JH, Chervenak FA. Professional integrity in maternal-fetal innovation and research: an essential component of perinatal medicine. Journal of Perinatal Medicine. 2021 May 19.

Clinical innovation and research on maternal-fetal interventions have become an essential subject for the development of perinatal medicine. In this paper, the authors present an ethical argument that the professional virtue of integrity should guide perinatal investigators. Leaders in perinatal medicine should create and sustain an organizational culture of professional integrity in fetal centers, where perinatal innovation and research should be conducted. The authors identify the implications of both intellectual and moral integrity for innovation, research, prospective oversight, the role of equipoise in randomized clinical trials, and organizational leadership to ensure that perinatal innovation and research are conducted with professional integrity.

Source: Palmer KR, Tanner M, Davies-Tuck M, Rindt A, Papacostas K, Giles ML, Brown K, Diamandis H, Fradkin R, Stewart AE, Rolnik DL. Widespread implementation of a low-cost telehealth service in the delivery of antenatal care during the COVID-19 pandemic: an interrupted time-series analysis. The Lancet. 2021 Jul 3;398(10294):41-52.

Little evidence is available on the use of telehealth for antenatal care. In response to the COVID-19 pandemic, the authors developed and implemented a new antenatal care schedule integrating telehealth across all models of pregnancy care. Telehealth integrated antenatal care enabled the reduction of in-person consultations by 50% without compromising pregnancy outcomes. This innovative care model can help to minimize in-person interactions during the COVID-19 pandemic, but should also be considered in post-pandemic health-care models. This innovation can be expected to increase the quality of antenatal care by leading to the detection of more maternal and fetal problems.

Source: Jagarapu J, Savani RC. Development and Implementation of a Teleneonatology Program: Opportunities and Challenges. In Seminars in Perinatology 2021 Apr 7 (p. 151428). WB Saunders.

Teleneonatology, encompassing all telemedicine applications in neonatal medicine, is evolving with innovative applications for use in all aspects of neonatal care. In this review, the authors discuss the key components of and a framework for the development, implementation, and evaluation of a program based on existing literature and their own program. They also review some important barriers to implementation and potential solutions. Let's hope that this review will serve as a guide for those seeking to develop and implement other new teleneonatology programs.

Source: Pangratz-Fuehrer S, Genzel-Boroviczeny O, Bodensohn WE, Eisenburger R, Scharpenack J, Geyer PE, Müller-Reif JB, van Hagen N, Müller AM, Jensen MK, Klein C.

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Cohort profile: the MUNICH Preterm and Term Clinical study (MUNICH-PreTCl), a neonatal birth cohort with focus on prenatal and postnatal determinants of infant and childhood morbidity. *BMJ open*. 2021 Jun 1;11(6):e050652.

To uncover pathological processes contributing to infant/childhood morbidity and mortality, establishment of the MUNICH-PreTCl birth cohort was done. Comprehensive medical information of healthy and sick newborns and their families were obtained, along with infant blood samples for proteomic analysis. Via MUNICH-PreTCl, researchers seek mechanism-based biomarkers in infant health and disease to deliver more accurate diagnostic and predictive information for disease prevention. Particularly, they focused on risk factors for pregnancy complications, family history of genetically influenced health conditions such as diabetes and pediatric long-term health. From the Perinatal Center at the LMU University Hospital, Munich, recruitment of a total of 662 infants was done, 44% of these were female (36% in preterm and 46% in term). Participation was accepted by 90% of the approached families. Over 450 data points were collected per child–parent set, (family history, demographics, pregnancy, birth, and daily follow-ups throughout hospitalization) and 841 blood samples were obtained longitudinally. For the questionnaire, the completion rates for medical examinations and blood samples were 100% and 95%. Along with the use of medical registries, the correlation of large clinical datasets with proteomic phenotypes, will allow future evaluation aiming to determine mechanisms of disorders in a systems biology perspective.

Source: Glass HC, Soul JS, Chang T, Wusthoff CJ, Chu CJ, Massey SL, Abend NS, Lemmon M, Thomas C, Numis AL, Guillet R. Safety of Early Discontinuation of Antiseizure Medication After Acute Symptomatic Neonatal Seizures. *JAMA neurology*. 2021 May 24.

In the field of epilepsy treatment, we are often caught between the proverbial rock and hard place: our seizure medications can cause harm but so can seizures. The authors provide important and robust evidence to address this contentious issue. Their data from 9 American Neonatal Seizure Registry centers suggest that prolonged antiseizure medication (ASM) treatment is unnecessary for most neonates and support routine discontinuation of ASMs after resolution of acute symptomatic neonatal seizures before hospital discharge. This is a welcome finding and probably will become a practice changing recommendation.

Source: Rosenstein MG, Chang SC, Sakowski C, Markow C, Teleki S, Lang L, Logan J, Cape V, Main EK. Hospital quality improvement interventions, statewide policy initiatives, and rates of cesarean delivery for nulliparous, term, singleton, vertex births in California. *JAMA*. 2021 Apr 27;325(16):1631-9.

An estimated 4 million births occur each year in the US, and almost 1 in 3 births involve cesarean delivery. The national rate of cesarean delivery steadily increased from 20.7% in 1996 to 32.8% in 2010, and for the past decade, this rate has remained largely unchanged. Although cesarean delivery can be lifesaving for both the mother and neonate, the increase in cesarean delivery rates has not been associated with any demonstrable improvements in maternal or neonatal morbidity or mortality. Because of these procedure rates, obstetric leaders and organizations have highlighted the importance of addressing cesarean delivery, especially among low-risk births. The rates of cesarean delivery decreased over time in the setting of the implementation of an innovative, coordinated hospital-level collaborative, and statewide initiatives designed to support vaginal birth. This is the need of the hour initiative that needs to be replicated across the LMICs in general and India in particular.

Source: Baker H, Pilarski N, Hodgetts VA, Morris RK. Comparison of visual and computerized antenatal cardiocography in the prevention of perinatal morbidity and mortality. A systematic review and meta-analysis. *European Journal of Obstetrics and Gynecology and Reproductive Biology*. 2021 Jun 4.

Two methods — visual (vCTG) or computerized (cCTG) Antenatal cardiocography (CTG) — are used to monitor fetal well-being. Researchers conducted this systematic review with the aim to update an earlier Cochrane review comparing the effects of both approaches on maternal and fetal outcomes. In addition, they sought for studies not included in the Cochrane review. Searching MEDLINE, EMBASE, CINAHL, and MIDIRS databases up to February 2021, they identified three RCTs and three NRS for inclusion. Outcomes revealed a non-significant reduction in perinatal mortality with cCTG. Although cCTG was not linked with clear reduction in perinatal mortality and morbidity, it is objective and may decrease time spent in hospital and further investigations for women.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflict of interest

There are no conflict of interest.

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