Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

JOGNN

SPECIAL REPORT

Current Resources for Evidence-Based Practice, September 2020

Marit L. Bovbjerg

Correspondence
Marit L. Bovbjerg, PhD, MS, College of Public Health and Human Sciences, Oregon State University, Milam Hall 103, Corvallis, OR 97331.
marit.bovbjerg@oregonstate.edu

ABSTRACT

An extensive review of new resources to support the provision of evidence-based care for women and infants. The current column includes a discussion of "spin" in scientific reporting and its effect on summaries and syntheses of the literature and commentaries on reviews about early versus late amniotomy as part of labor induction protocols and the economic burden associated with maternal morbidity.

JOGNN, 49, 487–499; 2020. https://doi.org/10.1016/j.jogn.2020.08.003

Marit L. Bovbjerg, PhD, MS

Marit L. Bovbjerg, PhD, MS, is an assistant professor of epidemiology in the College of Public Health and Human Sciences, Oregon State University, Corvallis, OR.

The author reports no conflict of interest or relevant financial relationships.

On the Perils of Skimming Articles

This column's literature searches yielded an interesting systematic review by Ghannad et al. (2019). Rather than reporting results of a clinical question per se, the authors analyzed how those results were reported. Specifically, they looked at the literature on biomarkers as screening, diagnostic, and prognostic tests for ovarian cancer. Drawing on a robust existing literature on "spin" in presentation of research findings for their analysis, Ghannad and colleagues (2019) evaluated the most recent 200 studies on biomarkers for ovarian cancer and looked specifically at titles, abstracts, and conclusions compared to the main findings as reported in the results sections.

Spin of research findings comes in two forms: misrepresentation, defined as "misreporting and/or distorted presentation of the study results in the title, abstract, or the main text, in a way that could mislead the reader," and misinterpretation, defined as "an interpretation of the study results in the abstract or main-text conclusion that is not consistent and/or is an extrapolation of the actual study results" (Ghannad et al., 2019, p. 11). In other words, authors conducted their study and found X, but in the title, abstract, and/or article conclusion they reported X+Y.

I assume readers of a column entitled "Current Resources for Evidence-based Practice" are familiar with the concept of publication bias, wherein studies without exciting results (often defined, unfortunately, as results that are not statistically significant) are rejected for publication. This leads to errors when one is attempting to conduct systematic reviews or meta-analyses because the search of published literature only produces papers that were indeed published. Thus, the review can only include *some* of all studies actually conducted because the rest never made it into print. The resulting review is therefore biased because by definition it does not truly encompass what is known about a topic. Publication bias as described here applies to the entire literature on a particular topic, not to any one study specifically.

Spin is likely a direct consequence of the process that leads to publication bias. When faced with research findings not deemed interesting enough to be worthy of publication, an author has a few options. One is to give up completely on publishing the work, which leads, of course, directly to publication bias. This is absolutely not ideal; publication bias aside, who wants to see months, sometimes years of work collecting, analyzing, and reporting data lead to nothing? Unfortunately, this is the simplest option and chosen not infrequently (hence, publication bias).

A second possibility is to reformat the work in some way to try and make it worthy of publication. You could combine results from two studies, for instance, or rework the paper so it makes a methodologic rather than substantive point. This latter approach is one I used for a paper stemming from my dissertation work several years ago. With help from my advising committee, I found maternal physical activity during

pregnancy had little bearing on risk of cesarean. The results were decidedly not statistically significant. Despite this being a worthwhile thing to know—as evidence-based practitioners we want to know what does not work as well as what does—seven journals rejected this so-called negative results paper. Eventually tiring of beating my head against that wall, I rewrote it to focus on our analytic choices instead of our findings, after which it was published immediately. Importantly, I was still able to present the findings that physical activity did not correlate with cesarean birth in our sample. These findings were just now couched within a larger discussion of how to analyze data on physical activity during pregnancy instead of within a discussion on whether physical activity could prevent cesareans (Bovbjerg et al., 2015). Lest I portray myself as some paragon of publishing virtue, I'll admit the other paper that stemmed from my dissertation also did not contain exciting results, and when faced with the huge amount of work to redo it, I availed myself of Option 1.

The final option for a troublesome paper is spin. Here, the authors rework their paper slightly so that the results seem more exciting than they really were, hoping these slights-of-hand are not called out by peer reviewers (assuming they were done consciously, which might not always be the case). This almost certainly happens behind the scenes as well, as authors choose perhaps only to present the more interesting results instead of all results. In the Ghannad et al. (2019) article on the biomarkers for ovarian cancer literature, 70% of studies included one or more forms of spin. Paper or abstract conclusions claimed a biomarker worked when the results were not statistically significant or when *p*-values and confidence intervals were not presented in the results section (and one must assume they were not favorable), numbers in the abstract did not match numbers in the text or tables, the abstract or title mischaracterized the extent of biomarker testing (e.g., claiming it predicts ovarian cancer deaths when the study endpoint was 6-month recurrence), and so on. The end result is that the literature is saturated with claims of biomarkers that can assist with diagnosis or prognosis for ovarian cancer, but few of these have panned out in practice.

It is tempting to place the blame for spin squarely on authors, and indeed they are not blameless. However, much like when we consider how to reduce cesareans, we must look at the system as a whole rather than blaming any one class of person or any one individual person. I think the issue is larger than individual authors. It must be, for 140 out of 200 examined studies to have been written in a misleading way (Ghannad et al., 2019). Ghannad et.al. did not report on funding sources for these studies, but I wonder how commercial interests affect spin.

The system of publish-or-perish in academia has led to an ever-increasing number of global publications, as university administrators and granting agencies demand ever-more research productivity (Kovanis et al., 2016). Not only does this system subtly encourage authors to take shortcuts so another paper can go out the door, but also the burden placed on peer reviewers (who are not paid) has increased to a level that may be unsustainable (Kovanis et al., 2016). Journal editors in turn are evaluated based on the impact factors of their journals—a measure of how many citations, on average, each published paper in that journal receives. The impact factor contributes to publication bias because it incentivizes editors to disproportionately accept only the exciting papers that may be cited. The entire system is flawed.

What does this mean for evidence-based practice if so much of the evidence is potentially questionable? Systematic reviews and meta-analyses help dilute the effect of any one perhaps suboptimal study, whether written with spin or otherwise problematic (bias, uncontrolled confounding, etc.). However, publication bias—being unable to include null results in reviews because null results tend not to get published—might still lead one to the wrong conclusion. In well-done systematic reviews, reviewers formally assess publication bias. While I do not check all reviews included in these bibliographies, I do make sure the authors of the highlighted reviews have assessed publication bias to a satisfactory degree. Clinicians can and should allow more fluidity in their practice; the term "evidence-informed" rather than "evidence-based" implies more room for clinical experience, patient and provider preferences, and unique characteristics (Nevo & Slonim-Nevo, 2011). If they are involved with their universities' governance structures, researchers can work to align promotion and tenure expectations with the realities of doing good science. More importantly, researchers can collectively admit when a research question does not seem answerable. Treatment of women with ovarian cancer would be infinitely easier if we had

reliable diagnostic or prognostic biomarkers; however, an extremely large body of literature suggests such a thing is currently—and perhaps permanently—out of reach.

Acknowledgment

The author acknowledges Sabrina Pillai, MPH, for assistance with the literature searches for this column.

REFERENCES

Bovbjerg, M. L., Siega-Riz, A. M., Evenson, K. R., & Goodnight, W. (2015). Exposure analysis methods impact associations between maternal physical activity and cesarean delivery. *Journal of Physical Activity & Health, 12*(1), 37–47. https://doi.org/10.1123/jpah.2012-0498

Ghannad, M., Olsen, M., Boutron, I., & Bossuyt, P. M. (2019). A systematic review finds that spin or interpretation bias is abundant in evaluations of ovarian cancer biomarkers. *Journal of Clinical Epidemiology, 116*, 9–17. https://doi.org/10.1016/j.jclinepi.2019.07.011

Kovanis, M., Porcher, R., Ravaud, P., & Trinquart, L. (2016). The global burden of journal peer review in the biomedical literature: Strong imbalance in the collective enterprise. *PLOS ONE, 11*(11), Article e0166387. https://doi.org/10.1371/journal.pone.0166387

Nevo, I., & Slonim-Nevo, V. (2011). The myth of evidence-based practice: Towards evidence-informed practice. *British Journal of Social Work, 41*(6), 1176–1197. https://doi.org/10.1093/bjsw/bcq149

From Cochrane Database of Systematic Reviews (CDSR) Issues 05–06 (2020)

Systematic Reviews in CDSR: Women's Health

- Pelvic floor muscle training for preventing and treating urinary and faecal incontinence in antenatal and postnatal women.

Systematic Reviews in CDSR: Fertility, Contraception, and ART

- Aspirin or heparin or both for improving pregnancy outcomes in women with persistent antiphospholipid antibodies and recurrent pregnancy loss.

Systematic Reviews in CDSR: Pregnancy and Birth

- Factors influencing the uptake and use of nicotine replacement therapy and e-cigarettes in pregnant women who smoke: A qualitative evidence synthesis.
- Interventions to prevent women from developing gestational diabetes mellitus: An overview of Cochrane Reviews.
- Probiotic treatment for women with gestational diabetes to improve maternal and infant health and well-being.
- Skin preparation for preventing infection following caesarean section.
- Strategies for optimising antenatal corticosteroid administration for women with anticipated preterm birth.

Systematic Reviews in CDSR: Infant Health and Breastfeeding

- Higher versus lower protein intake in formula-fed low birth weight infants.
- Interventions for congenital talipes equinovarus (clubfoot).
- Newborn screening for galactosaemia.

Systematic Reviews in CDSR: SARS-CoV-2

- Antibody tests for identification of current and past infection with SARS-CoV-2.
- Convalescent plasma or hyperimmune immunoglobulin for people with COVID-19: A rapid review.
- Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff.

Recent Guidelines

U.S. Preventive Services Task Force

U.S. Preventive Services Task Force, Owens, D. K., Davidson, K. W., Krist, A. H., Barry, M. J., Cabana, M., … Wong, J. B. (2020). Screening for bacterial vaginosis in pregnant persons to prevent preterm delivery: US Preventive Services Task Force recommendation statement. *JAMA*, *323*(13), 1286–1292. https://doi.org/10.1001/jama.2020.2684

Evidence-Based Reviews From Other Sources

Recent Evidence-Based Reviews: Women's Health

Abdel-Rahman, O. (2019). Outcomes of metastatic breast cancer patients in relationship to disease-free interval following primary treatment of localized disease; a pooled analysis of two clinical trials. *Breast Journal, 25*(5), 823–828. https://doi.org/10.1111/tbj.13346

Alonso-Ventura, V., Li, Y., Pasupuleti, V., Roman, Y. M., Hernandez, A. V., & Pérez-López, F. R. (2020). Effects of preeclampsia and eclampsia on maternal metabolic and biochemical outcomes in later life: A systematic review and meta-analysis. *Metabolism: Clinical and Experimental, 102*, 154012. https://doi.org/10.1016/j.metabol.2019.154012

Andrade, T. R. M., Fonseca, M. C. M., Segreto, H. R. C., Segreto, R. A., Martella, E., & Nazário, A. C. P. (2019). Meta-analysis of long-term efficacy and safety of hypofractionated radiotherapy in the treatment of early breast cancer. *Breast, 48*, 24–31. https://doi.org/10.1016/j.breast.2019.08.001

Araujo, R. V., Fernandes, A. F. C., Nery, I. S., Andrade, E. M. L. R., Nogueira, L. T., & Azevedo, F. H. C. (2019). Meditation effect on psychological stress level in women with breast cancer: A systematic review. *Revista Da Escola De Enfermagem Da USP, 53*, Article e03529. https://doi.org/10.1590/S1980-220X2018031303529

Balzarro, M., Rubilotta, E., Mancini, V., Trabacchin, N., Oppezzi, L., Li Marzi, V., … Serati, M. (2019). Impact of overactive bladder-wet syndrome on female sexual function: A systematic review and meta-analysis. *Sexual Medicine Reviews, 7*(4), 565–574. https://doi.org/10.1016/j.sxmr.2019.05.002

Bekhet, A. H., Abdallah, A. R., Ismail, H. M., Genena, D. M., Osman, N. A., El Khatib, A., & Abbas, R. L. (2019). Benefits of aerobic exercise for breast cancer survivors: A systematic review of randomized controlled trials. *Asian Pacific Journal of Cancer Prevention, 20*(11), 3197–3209. https://doi.org/10.31557/APJCP.2019.20.11.3197

Boutas, I., Potiris, A., Brenner, W., Lebrecht, A., Hasenburg, A., Kalantaridou, S., & Schmidt, M. (2019). The expression of galectin-3 in breast cancer and its association with chemoresistance: A systematic review of the literature. *Archives of Gynecology and Obstetrics, 300*(5), 1113–1120. https://doi.org/10.1007/s00404-019-05292-9

Chang, Y.-C., Chang, S.-R., & Chiu, S.-C. (2019). Sexual problems of patients with breast cancer after treatment: A systematic review. *Cancer Nursing, 42*(5), 418–425. https://doi.org/10.1097/NCC.0000000000000592

Chen, L.-R., Ko, N.-Y., & Chen, K.-H. (2019). Isoflavone supplements for menopausal women: A systematic review. *Nutrients, 11*(11), 2649. https://doi.org/10.3390/nu11112649

Coleman, R. (2019). Clinical benefits of bone targeted agents in early breast cancer. *Breast, 48*(Suppl 1), S92–S96. https://doi.org/10.1016/S0960-9776(19)31133-6

Csupor, D., Lantos, T., Hegyi, P., Benkő, R., Viola, R., Gyöngyi, Z., … Matuz, M. (2019). Vitex agnus-castus in premenstrual syndrome: A meta-analysis of double-blind randomised controlled trials. *Complementary Therapies in Medicine, 47*, 102190. https://doi.org/10.1016/j.ctim.2019.08.024

Cuthbert, C. A., Farragher, J. F., Hemmelgarn, B. R., Ding, Q., McKinnon, G. P., & Cheung, W. Y. (2019). Self-management interventions for cancer survivors: A systematic review and evaluation of intervention content and theories. *Psycho-Oncology, 28*(11), 2119–2140. https://doi.org/10.1002/pon.5215

Di, Y. M., Yang, L., Shergis, J. L., Zhang, A. L., Li, Y., Guo, X., … Lu, C. (2019). Clinical evidence of Chinese medicine therapies for depression in women during perimenopause and menopause. *Complementary Therapies in Medicine, 47*, 102071. https://doi.org/10.1016/j.ctim.2019.03.019

Di Donato, V., Palaia, I., D'Aniello, D., Musacchio, L., Santangelo, G., Di Mauro, F., … Benedetti Panici, P. (2020). Does hormone replacement therapy impact the prognosis in endometrial cancer survivors? A systematic review. *Oncology, 98*(4), 195–201. https://doi.org/10.1159/000505427

Dobberfuhl, A. D. (2019). Evaluation and treatment of female stress urinary incontinence after pelvic radiotherapy. *Neurourology and Urodynamics, 38*(Suppl 4), S59–S69. https://doi.org/10.1002/nau.23839

Dos Santos, I. K., Ashe, M. C., Cobucci, R. N., Soares, G. M., de Oliveira Maranhão, T. M., & Dantas, P. M. S. (2020). The effect of exercise as an intervention for women with polycystic ovary syndrome: A systematic review and meta-analysis. *Medicine, 99*(16), Article e19644. https://doi.org/10.1097/MD.0000000000019644

Fante, J. F., Silva, T. D., Mateus-Vasconcelos, E. C. L., Ferreira, C. H. J., & Brito, L. G. O. (2019). Do women have adequate knowledge about pelvic floor dysfunctions? A systematic review. *Revista Brasileira De Ginecologia E Obstetricia, 41*(8), 508–519. https://doi.org/10.1055/s-0039-1695002

García-Sánchez, E., Ávila-Gandía, V., López-Román, J., Martínez-Rodríguez, A., & Rubio-Arias, J.Á. (2019). What pelvic floor muscle

training load is optimal in minimizing urine loss in women with stress urinary incontinence? A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health, 16*(22), 4358. https://doi.org/10.3390/ijerph16224358

Ghannad, M., Olsen, M., Boutron, I., & Bossuyt, P. M. (2019). A systematic review finds that spin or interpretation bias is abundant in evaluations of ovarian cancer biomarkers. *Journal of Clinical Epidemiology, 116*, 9–17. https://doi.org/10.1016/j.jclinepi.2019.07.011

Glick, J. L., Russo, R., Jivapong, B., Rosman, L., Pelaez, D., Footer, K. H. A., & Sherman, S. G. (2020). The PrEP care continuum among cisgender women who sell sex and/or use drugs globally: A systematic review. *AIDS and Behavior, 24*(5), 1312–1333. https://doi.org/10.1007/s10461-019-02733-z

Guo, C., Li, Q., Tian, G., Liu, Y., Sun, X., Yin, Z., … Hu, D. (2019). Association of age at menopause and type 2 diabetes: A systematic review and dose-response meta-analysis of cohort studies. *Primary Care Diabetes, 13*(4), 301–309. https://doi.org/10.1016/j.pcd.2019.02.001

Hadizadeh-Talasaz, Z., Sadeghi, R., & Khadivzadeh, T. (2019). Effect of pelvic floor muscle training on postpartum sexual function and quality of life: A systematic review and meta-analysis of clinical trials. *Taiwanese Journal of Obstetrics & Gynecology, 58*(6), 737–747. https://doi.org/10.1016/j.tjog.2019.09.003

Hurtado-Roca, Y., Becerra-Chauca, N., & Malca, M. (2020). Efficacy and safety of cryotherapy, cold cone or thermocoagulation compared to LEEP as a therapy for cervical intraepithelial neoplasia: Systematic review. *Revista De Saude Publica, 54*, 27. https://doi.org/10.11606/s1518-8787.2020054001750

Kaššák, F., Rossier, C., Picardi, C., & Bernier, J. (2019). Postmastectomy radiotherapy in T1-2 patients with one to three positive lymph nodes—Past, present and future. *Breast, 48*, 73–81. https://doi.org/10.1016/j.breast.2019.09.008

Kershaw, V., Khunda, A., McCormick, C., & Ballard, P. (2019). The effect of percutaneous tibial nerve stimulation (PTNS) on sexual function: A systematic review and meta-analysis. *International Urogynecology Journal, 30*(10), 1619–1627. https://doi.org/10.1007/s00192-019-04027-3

Lee, J. (2019). A meta-analysis of the association between physical activity and breast cancer mortality. *Cancer Nursing, 42*(4), 271–285. https://doi.org/10.1097/NCC.0000000000000580

Lian, W.-Q., Li, F.-J., Huang, H.-X., Zheng, Y.-Q., & Chen, L.-H. (2019). Constipation and risk of urinary incontinence in women: A meta-analysis. *International Urogynecology Journal, 30*(10), 1629–1634. https://doi.org/10.1007/s00192-019-03941-w

Luque, J. S., Logan, A., Soulen, G., Armeson, K. E., Garrett, D. M., Davila, C. B., & Ford, M. E. (2019). Systematic review of mammography screening educational interventions for Hispanic women in the United States. *Journal of Cancer Education, 34*(3), 412–422. https://doi.org/10.1007/s13187-018-1321-0

Moslehi, M., Arab, A., Shadnoush, M., & Hajianfar, H. (2019). The association between serum magnesium and premenstrual syndrome: A systematic review and meta-analysis of observational studies. *Biological Trace Element Research, 192*(2), 145–152. https://doi.org/10.1007/s12011-019-01672-z

Nie, W., Xu, P., Hao, C., Chen, Y., Yin, Y., & Wang, L. (2020). Efficacy and safety of over-the-counter analgesics for primary dysmenorrhea: A network meta-analysis. *Medicine, 99*(19), Article e19881. https://doi.org/10.1097/MD.0000000000019881

O'Malley, T. L., Hawk, M. E., Egan, J. E., Krier, S. E., & Burke, J. G. (2020). Intimate partner violence and pre-exposure prophylaxis (PrEP): A rapid review of current evidence for women's HIV prevention. *AIDS and Behavior, 24*(5), 1342–1357. https://doi.org/10.1007/s10461-019-02743-x

Pinheiro da Silva, F., Moreira, G. M., Zomkowski, K., Amaral de Noronha, M., & Flores Sperandio, F. (2019). Manual therapy as treatment for chronic musculoskeletal pain in female breast cancer survivors: A systematic review and meta-analysis. *Journal of Manipulative and Physiological Therapeutics, 42*(7), 503–513. https://doi.org/10.1016/j.jmpt.2018.12.007

Piovezan, J. M., Premaor, M. O., & Comim, F. V. (2019). Negative impact of polycystic ovary syndrome on bone health: A systematic review and meta-analysis. *Human Reproduction Update*, 25(5), 633-645. https://doi.org/10.1093/humupd/dmz020

Prodromidou, A., Iavazzo, C., Fotiou, A., Psomiadou, V., Douligeris, A., Vorgias, G., & Kalinoglou, N. (2019). Short- and long term outcomes after abdominal radical trachelectomy versus radical hysterectomy for early stage cervical cancer: A systematic review of the literature and meta-analysis. *Archives of Gynecology and Obstetrics, 300*(1), 25–31. https://doi.org/10.1007/s00404-019-05176-y

Purwar, B., Cartwright, R., Cavalcanti, G., Digesu, G. A., Fernando, R., & Khullar, V. (2019). The impact of bariatric surgery on urinary incontinence: A systematic review and meta-analysis. *International Urogynecology Journal, 30*(8), 1225–1237. https://doi.org/10.1007/s00192-018-03865-x

Qiu, S., & Jiang, C. (2019). Soy and isoflavones consumption and breast cancer survival and recurrence: A systematic review and meta-analysis. *European Journal of Nutrition, 58*(8), 3079–3090. https://doi.org/10.1007/s00394-018-1853-4

Sánchez-Lastra, M. A., Torres, J., Martínez-Lemos, I., & Ayán, C. (2019). Nordic walking for women with breast cancer: A systematic review. *European Journal of Cancer Care, 28*(6), Article e13130. https://doi.org/10.1111/ecc.13130

Sousa, H., Castro, S., Abreu, J., & Pereira, M. G. (2019). A systematic review of factors affecting quality of life after postmastectomy breast reconstruction in women with breast cancer. *Psycho-Oncology, 28*(11), 2107–2118. https://doi.org/10.1002/pon.5206

Tranoulis, A., Georgiou, D., Founta, C., Mehra, G., Sayasneh, A., & Nath, R. (2020). Use of electrochemotherapy in women with vulvar cancer to improve quality-of-life in the palliative setting: A meta-analysis. *International Journal of Gynecological Cancer, 30*(1), 107–114. https://doi.org/10.1136/ijgc-2019-000868

Villa, A., Patton, L. L., Giuliano, A. R., Estrich, C. G., Pahlke, S. C., O'Brien, K. K., … Araujo, M. W. B. (2020). Summary of the evidence on the safety, efficacy, and effectiveness of human papillomavirus vaccines: Umbrella review of systematic reviews. *Journal of the American Dental Association, 151*(4), 245–254.e24. https://doi.org/10.1016/j.adaj.2019.10.010

Vounzoulaki, E., Khunti, K., Abner, S. C., Tan, B. K., Davies, M. J., & Gillies, C. L. (2020). Progression to type 2 diabetes in women with a known history of gestational diabetes: Systematic review and meta-analysis. *British Medical Journal, 369*, m1361. https://doi.org/10.1136/bmj.m1361

Wang, Q., Liu, X., & Ren, S. (2020). Tofu intake is inversely associated with risk of breast cancer: A meta-analysis of observational studies. *PLOS ONE, 15*(1), Article e0226745. https://doi.org/10.1371/journal.pone.0226745

Webster, S., Lawn, S., Chan, R., & Koczwara, B. (2020). The role of comorbidity assessment in guiding treatment decision-making for women with early breast cancer: A systematic literature review. *Supportive Care in Cancer, 28*(3), 1041–1050. https://doi.org/10.1007/s00520-019-05218-w

Wong, T., Pharr, J. R., Bungum, T., Coughenour, C., & Lough, N. L. (2019). Effects of peer sexual health education on college campuses: A systematic review. *Health Promotion Practice, 20*(5), 652–666. https://doi.org/10.1177/1524839918794632

Zhang, X., Rhoades, J., Caan, B. J., Cohn, D. E., Salani, R., Noria, S., … Felix, A. S. (2019). Intentional weight loss, weight cycling, and endometrial cancer risk: A systematic review and meta-analysis. *International Journal of Gynecological Cancer, 29*(9), 1361–1371. https://doi.org/10.1136/ijgc-2019-000728

Recent Evidence-Based Reviews: Fertility, Contraception, and ART

Abdolmohammadi-Vahid, S., Pashazadeh, F., Pourmoghaddam, Z., Aghebati-Maleki, L., Abdollahi-Fard, S., & Yousefi, M. (2019). The effectiveness of IVIG therapy in pregnancy and live birth rate of women with recurrent implantation failure (RIF): A systematic review and meta-analysis. *Journal of Reproductive Immunology*, 28–33. , 134–135. https://doi.org/10.1016/j.jri.2019.07.006

Albright, B. B., Shorter, J. M., Mastroyannis, S. A., Ko, E. M., Schreiber, C. A., & Sonalkar, S. (2020). Gestational trophoblastic neoplasia after human chorionic gonadotropin normalization following molar pregnancy: A systematic review and meta-analysis. *Obstetrics & Gynecology, 135*(1), 12–23. https://doi.org/10.1097/AOG.0000000000003566

Baram, S., Myers, S. A., Yee, S., & Librach, C. L. (2019). Fertility preservation for transgender adolescents and young adults: A systematic review. *Human Reproduction Update, 25*(6), 694–716. https://doi.org/10.1093/humupd/dmz026

Cozzolino, M., Troiano, G., & Esencan, E. (2019). Bed rest after an embryo transfer: A systematic review and meta-analysis. *Archives of Gynecology and Obstetrics, 300*(5), 1121–1130. https://doi.org/10.1007/s00404-019-05296-5

El Shamy, T., Amer, S. A. K., Mohamed, A. A., James, C., & Jayaprakasan, K. (2020). The impact of uterine artery embolization on ovarian reserve: A systematic review and meta-analysis. *Acta Obstetricia Et Gynecologica Scandinavica, 99*(1), 16–23. https://doi.org/10.1111/aogs.13698

Gilboa, D., Koren, G., Barer, Y., Katz, R., Rotem, R., Lunenfeld, E., & Shalev, V. (2019). Assisted reproductive technology and the risk of pediatric cancer: A population based study and a systematic review and meta analysis. *Cancer Epidemiology, 63*, 101613. https://doi.org/10.1016/j.canep.2019.101613

Kim, K., Sung, H. K., Lee, K., & Park, S. K. (2019). Semiconductor work and the risk of spontaneous abortion: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health, 16*(23), 4626. https://doi.org/10.3390/ijerph16234626

Mena, G. P., Mielke, G. I., & Brown, W. J. (2019). The effect of physical activity on reproductive health outcomes in young women: A systematic review and meta-analysis. *Human Reproduction Update, 25*(5), 541–563. https://doi.org/10.1093/humupd/dmz013

Sermondade, N., Huberlant, S., Bourhis-Lefebvre, V., Arbo, E., Gallot, V., Colombani, M., & Fréour, T. (2019). Female obesity is negatively associated with live birth rate following IVF: A systematic review and meta-analysis. *Human Reproduction Update, 25*(4), 439–451. https://doi.org/10.1093/humupd/dmz011

Song, S. Y., Yang, J. B., Song, M. S., Oh, H. Y., Lee, G. W., Lee, M., … Yoo, H. J. (2019). Effect of pretreatment with combined oral contraceptives on outcomes of assisted reproductive technology for women with polycystic ovary syndrome: A meta-analysis. *Archives of Gynecology and Obstetrics, 300*(3), 737–750. https://doi.org/10.1007/s00404-019-05210-z

Wang, R., Li, W., Bordewijk, E. M., Legro, R. S., Zhang, H., Wu, X., … International Ovulation Induction IPDMA Collaboration. (2019). First-line ovulation induction for polycystic ovary syndrome: An individual participant data meta-analysis. *Human Reproduction Update*, 25(6), 717–732. https://doi.org/10.1093/humupd/dmz029

Zhao, J., Yan, Y., Huang, X., & Li, Y. (2020). Do the children born after assisted reproductive technology have an increased risk of birth defects? A systematic review and meta-analysis. *Journal of Maternal-Fetal & Neonatal Medicine, 33*(2), 322–333. https://doi.org/10.1080/14767058.2018.1488168

Recent Evidence Based Reviews: Pregnancy and Birth

Adane, A. A., Shepherd, C. C. J., Lim, F. J., White, S. W., Farrant, B. M., & Bailey, H. D. (2019). The impact of pre-pregnancy body mass index and gestational weight gain on placental abruption risk: A systematic review and meta-analysis. *Archives of Gynecology and Obstetrics, 300*(5), 1201–1210. https://doi.org/10.1007/s00404-019-05320-8

Alavifard, S., Chase, R., Janoudi, G., Chaumont, A., Lanes, A., Walker, M., & Gaudet, L. (2019). First-line antihypertensive treatment for severe hypertension in pregnancy: A systematic review and network meta-analysis. *Pregnancy Hypertension, 18*, 179–187. https://doi.org/10.1016/j.preghy.2019.09.019

Arafa, A., & Dong, J.-Y. (2019). Gestational diabetes and risk of postpartum depressive symptoms: A meta-analysis of cohort studies. *Journal of Affective Disorders, 253*, 312–316. https://doi.org/10.1016/j.jad.2019.05.001

Areia, A. L., Moura, P., & Mota-Pinto, A. (2019). The role of innate immunity in spontaneous preterm labor: A systematic review. *Journal of Reproductive Immunology, 136*, 102616. https://doi.org/10.1016/j.jri.2019.102616

Bahri Khomami, M., Joham, A. E., Boyle, J. A., Piltonen, T., Arora, C., Silagy, M., … Moran, L. J. (2019). The role of maternal obesity in infant outcomes in polycystic ovary syndrome-A systematic review, meta-analysis, and meta-regression. *Obesity Reviews, 20*(6), 842–858. https://doi.org/10.1111/obr.12832

Bai, X.-F., Wu, Z.-X., Zhao, C.-H., Wu, Y., Fei, C.-S., Zhang, L.-Q., & Chen, Z.-H. (2020). Maternal oral contraceptive pill use and the risk of atopic diseases in the offspring: A systematic review and meta-analysis. *Medicine, 99*(16), Article e19607. https://doi.org/10.1097/MD.0000000000019607

Berry, S. N., & Colorafi, K. (2019). The impact of communication surrounding intrauterine congenital anomaly diagnoses: An integrative

review. *Journal of Perinatal & Neonatal Nursing, 33*(4), 301–311. https://doi.org/10.1097/JPN.0000000000000390

Berta, M., Lindgren, H., Christensson, K., Mekonnen, S., & Adefris, M. (2019). Effect of maternal birth positions on duration of second stage of labor: Systematic review and meta-analysis. *BioMed Central Pregnancy and Childbirth, 19*(1), 466. https://doi.org/10.1186/s12884-019-2620-0

Bilgin, Z., & Kömürcü, N. (2019). Comparison of the effects and side effects of misoprostol and oxytocin in the postpartum period: A systematic review. *Taiwanese Journal of Obstetrics & Gynecology, 58*(6), 748–756. https://doi.org/10.1016/j.tjog.2019.09.004

Carroll, L., Gallagher, L., & Smith, V. (2019). Risk factors for reduced fetal movements in pregnancy: A systematic review and meta-analysis. *European Journal of Obstetrics, Gynecology, and Reproductive Biology, 243*, 72–82. https://doi.org/10.1016/j.ejogrb.2019.09.028

Cheung, K. W., Seto, M. T. Y., Wang, W., Lai, C. W. S., Kilby, M. D., & Ng, E. H. Y. (2020). Effect of delayed interval delivery of remaining fetus(es) in multiple pregnancies on survival: A systematic review and meta-analysis. *American Journal of Obstetrics and Gynecology, 222*(4), 306–319.e18. https://doi.org/10.1016/j.ajog.2019.07.046

Chia, A.-R., Chen, L.-W., Lai, J. S., Wong, C. H., Neelakantan, N., van Dam, R. M., & Chong, M. F.-F. (2019). Maternal dietary patterns and birth outcomes: A systematic review and meta-analysis. *Advances in Nutrition, 10*(4), 685–695. https://doi.org/10.1093/advances/nmy123

Curado, J., D'antonio, F., Papageorghiou, A. T., Bhide, A., Thilaganathan, B., & Khalil, A. (2019). Perinatal mortality and morbidity in triplet pregnancy according to chorionicity: Systematic review and meta-analysis. *Ultrasound in Obstetrics & Gynecology, 54*(5), 589–595. https://doi.org/10.1002/uog.20209

Dadi, A. F., Miller, E. R., Bisetegn, T. A., & Mwanri, L. (2020). Global burden of antenatal depression and its association with adverse birth outcomes: An umbrella review. *BioMed Central Public Health, 20*(1), 173. https://doi.org/10.1186/s12889-020-8293-9

De Vivo, V., Carbone, L., Saccone, G., Magoga, G., De Vivo, G., Locci, M., … Berghella, V. (2020). Early amniotomy after cervical ripening for induction of labor: A systematic review and meta-analysis of randomized controlled trials. *American Journal of Obstetrics and Gynecology, 222*(4), 320–329. https://doi.org/10.1016/j.ajog.2019.07.049

Fawcett, E. J., Fairbrother, N., Cox, M. L., White, I. R., & Fawcett, J. M. (2019). The prevalence of anxiety disorders during pregnancy and the postpartum period: A multivariate Bayesian meta-analysis. *Journal of Clinical Psychiatry, 80*(4). https://doi.org/10.4088/JCP.18r12527

Fornaro, M., Maritan, E., Ferranti, R., Zaninotto, L., Miola, A., Anastasia, A., … Solmi, M. (2020). Lithium exposure during pregnancy and the postpartum period: A systematic review and meta-analysis of safety and efficacy outcomes. *American Journal of Psychiatry, 177*(1), 76–92. https://doi.org/10.1176/appi.ajp.2019.19030228

Gaffar, R., Pineau, C. A., Bernatsky, S., Scott, S., & Vinet, É. (2019). Risk of ocular anomalies in children exposed in utero to antimalarials: A systematic literature review. *Arthritis Care & Research, 71*(12), 1606–1610. https://doi.org/10.1002/acr.23808

Grigoriadis, S., Graves, L., Peer, M., Mamisashvili, L., Dennis, C.-L., Vigod, S. N., … Richter, M. (2019). Benzodiazepine use during pregnancy alone or in combination with an antidepressant and congenital malformations: Systematic review and meta-analysis. *Journal of Clinical Psychiatry, 80*(4). https://doi.org/10.4088/JCP.18r12412

Guo, L., Ma, J., Tang, J., Hu, D., Zhang, W., & Zhao, X. (2019). Comparative efficacy and safety of metformin, glyburide, and insulin in treating gestational diabetes mellitus: A meta-analysis. *Journal of Diabetes Research, 2019*, Article 9804708. https://doi.org/10.1155/2019/9804708.

Hasperhoven, G. F., Al-Nasiry, S., Bekker, V., Villamor, E., & Kramer, B. (2020). Universal screening versus risk-based protocols for antibiotic prophylaxis during childbirth to prevent early-onset group B streptococcal disease: A systematic review and meta-analysis. *British Journal of Obstetrics and Gynaecology, 127*(6), 680–691. https://doi.org/10.1111/1471-0528.16085

He, W. R., & Wei, H. (2020). Maternal and fetal complications associated with systemic lupus erythematosus: An updated meta-analysis of the most recent studies (2017–2019). *Medicine, 99*(16), Article e19797. https://doi.org/10.1097/MD.0000000000019797

Horton, J., Sterrenburg, M., Lane, S., Maheshwari, A., Li, T. C., & Cheong, Y. (2019).

Reproductive, obstetric, and perinatal outcomes of women with adenomyosis and endometriosis: A systematic review and meta-analysis. *Human Reproduction Update, 25*(5), 592–632. https://doi.org/10.1093/humupd/dmz012

Jung, J., Rahman, M. M., Rahman, M. S., Swe, K. T., Islam, M. R., Rahman, M. O., & Akter, S. (2019). Effects of hemoglobin levels during pregnancy on adverse maternal and infant outcomes: A systematic review and meta-analysis. *Annals of the New York Academy of Sciences, 1450*(1), 69–82. https://doi.org/10.1111/nyas.14112

Kilcoyne, K. R., & Mitchell, R. T. (2019). Effect of environmental and pharmaceutical exposures on fetal testis development and function: A systematic review of human experimental data. *Human Reproduction Update, 25*(4), 397–421. https://doi.org/10.1093/humupd/dmz004

Kouroglou, E., Anagnostis, P., Daponte, A., & Bargiota, A. (2019). Vitamin B12 insufficiency is associated with increased risk of gestational diabetes mellitus: A systematic review and meta-analysis. *Endocrine, 66*(2), 149–156. https://doi.org/10.1007/s12020-019-02053-1

Lameijer, H., Burchill, L. J., Baris, L., Ruys, T. P., Roos-Hesselink, J. W., Mulder, B. J. M., … Pieper, P. G. (2019). Pregnancy in women with pre-existent ischaemic heart disease: A systematic review with individualised patient data. *Heart, 105*(11), 873–880. https://doi.org/10.1136/heartjnl-2018-314364

Levine, T. A., Grunau, R. E., McAuliffe, F. M., & Alderdice, F. A. (2019). Early psychosocial development of small for gestational age and intrauterine growth-restricted children: A systematic review. *Journal of Perinatology, 39*(8), 1021–1030. https://doi.org/10.1038/s41372-019-0369-y

Li, M., Xing, X., Yao, L., Wang, X., He, W., Wang, M., … Yang, K. (2019). The effect of bladder catheterization on the incidence of urinary tract infection in laboring women with epidural analgesia: A meta-analysis of randomized controlled trials. *International Urogynecology Journal, 30*(9), 1419–1427. https://doi.org/10.1007/s00192-019-03904-1

Liu, L., Su, G., Wang, S., & Zhu, B. (2019). The prevalence of obstructive sleep apnea and its association with pregnancy-related health outcomes: A systematic review and meta-analysis. *Sleep & Breathing, 23*(2), 399–412. https://doi.org/10.1007/s11325-018-1714-7

Markopoulou, P., Papanikolaou, E., Analytis, A., Zoumakis, E., & Siahanidou, T. (2019). Preterm birth as a risk factor for metabolic syndrome and cardiovascular disease in adult life: A systematic review and meta-analysis. *Journal of Pediatrics, 210*, 69–80.e5. https://doi.org/10.1016/j.jpeds.2019.02.041

Martínez-Hortelano, J. A., Cavero-Redondo, I., Álvarez-Bueno, C., Sanabria-Martínez, G., Poyatos-León, R., & Martínez-Vizcaíno, V. (2020). Interpregnancy weight change and hypertension during pregnancy: A systematic review and meta-analysis. *Obstetrics & Gynecology, 135*(1), 68–79. https://doi.org/10.1097/AOG.0000000000003573

Mazarico, E., Molinet-Coll, C., Martinez-Portilla, R. J., & Figueras, F. (2020). Heparin therapy in placental insufficiency: Systematic review and meta-analysis. *Acta Obstetricia Et Gynecologica Scandinavica, 99*(2), 167–174. https://doi.org/10.1111/aogs.13730

Moran, P. S., Wuytack, F., Turner, M., Normand, C., Brown, S., Begley, C., & Daly, D. (2020). Economic burden of maternal morbidity—A systematic review of cost-of-illness studies. *PLOS ONE, 15*(1), Article e0227377. https://doi.org/10.1371/journal.pone.0227377

Nazarpour, S., Ramezani Tehrani, F., Amiri, M., Bidhendi Yarandi, R., & Azizi, F. (2019). Levothyroxine treatment and pregnancy outcomes in women with subclinical hypothyroidism: A systematic review and meta-analysis. *Archives of Gynecology and Obstetrics, 300*(4), 805–819. https://doi.org/10.1007/s00404-019-05245-2

Nelson, R. L., Go, C., Darwish, R., Gao, J., Parikh, R., Kang, C., … Patnam, M. (2019). Cesarean delivery to prevent anal incontinence: A systematic review and meta-analysis. *Techniques in Coloproctology, 23*(9), 809–820. https://doi.org/10.1007/s10151-019-02029-3

Pastor-Moreno, G., Ruiz-Pérez, I., Henares-Montiel, J., & Petrova, D. (2020). Intimate partner violence during pregnancy and risk of fetal and neonatal death: A meta-analysis with socioeconomic context indicators. *American Journal of Obstetrics and Gynecology, 222*(2), 123–133.e5. https://doi.org/10.1016/j.ajog.2019.07.045

Pels, A., Beune, I. M., van Wassenaer-Leemhuis, A. G., Limpens, J., & Ganzevoort, W. (2020). Early-onset fetal growth restriction: A systematic review on mortality and morbidity. *Acta Obstetricia Et Gynecologica Scandinavica, 99*(2), 153–166. https://doi.org/10.1111/aogs.13702

Pergialiotis, V., Fanaki, M., Bellos, I., Tzortzis, A., Loutradis, D., & Daskalakis, G. (2019). Evaluation of umbilical cord entanglement as a predictive factor of adverse pregnancy outcomes: A meta-analysis. *European Journal of Obstetrics, Gynecology, and Reproductive Biology, 243*, 150–157. https://doi.org/10.1016/j.ejogrb.2019.10.038

Reid, N., Akison, L. K., Hoy, W., & Moritz, K. M. (2019). Adverse health outcomes associated with fetal alcohol exposure: A systematic review focused on cardio-renal outcomes. *Journal of Studies on Alcohol and Drugs, 80*(5), 515–523. https://doi.org/10.15288/jsad.2019.80.515

San Martin Porter, M., Maravilla, J. C., Betts, K. S., & Alati, R. (2019). Low-moderate prenatal alcohol exposure and offspring attention-deficit hyperactivity disorder (ADHD): Systematic review and meta-analysis. *Archives of Gynecology and Obstetrics, 300*(2), 269–277. https://doi.org/10.1007/s00404-019-05204-x

Suarez, S., Conde-Agudelo, A., Borovac-Pinheiro, A., Suarez-Rebling, D., Eckardt, M., Theron, G., & Burke, T. F. (2020). Uterine balloon tamponade for the treatment of postpartum hemorrhage: A systematic review and meta-analysis. *American Journal of Obstetrics and Gynecology, 222*(4), 293.e1–293.e52. https://doi.org/10.1016/j.ajog.2019.11.1287

Tarasoff, L. A., Ravindran, S., Malik, H., Salaeva, D., & Brown, H. K. (2020). Maternal disability and risk for pregnancy, delivery, and postpartum complications: A systematic review and meta-analysis. *American Journal of Obstetrics and Gynecology, 222*(1), 27.e1–27.e32. https://doi.org/10.1016/j.ajog.2019.07.015

Tichelman, E., Westerneng, M., Witteveen, A. B., van Baar, A. L., van der Horst, H. E., de Jonge, A., … Peters, L. L. (2019). Correlates of prenatal and postnatal mother-to-infant bonding quality: A systematic review. *PLOS ONE, 14*(9), Article e0222998. https://doi.org/10.1371/journal.pone.0222998

Turner, E., Jones, M., Vaz, L. R., & Coleman, T. (2019). Systematic review and meta-analysis to assess the safety of bupropion and varenicline in pregnancy. *Nicotine & Tobacco Research, 21*(8), 1001–1010. https://doi.org/10.1093/ntr/nty055

Walker, S. B., Rossi, D. M., & Sander, T. M. (2019). Women's successful transition to motherhood during the early postnatal period: A qualitative systematic review of postnatal and midwifery home care literature. *Midwifery, 79*, 102552. https://doi.org/10.1016/j.midw.2019.102552

Yamamoto, J. M., Benham, J. L., Dewey, D., Sanchez, J. J., Murphy, H. R., Feig, D. S., & Donovan, L. E. (2019). Neurocognitive and behavioural outcomes in offspring exposed to maternal pre-existing diabetes: A systematic review and meta-analysis. *Diabetologia, 62*(9), 1561–1574. https://doi.org/10.1007/s00125-019-4923-0

Young, M. F., Oaks, B. M., Tandon, S., Martorell, R., Dewey, K. G., & Wendt, A. S. (2019). Maternal hemoglobin concentrations across pregnancy and maternal and child health: A systematic review and meta-analysis. *Annals of the New York Academy of Sciences, 1450*(1), 47–68. https://doi.org/10.1111/nyas.14093

Zhang, Qi, Chen, X.-Z., Huang, X., Wang, M., & Wu, J. (2019). The association between prenatal exposure to phthalates and cognition and neurobehavior of children-evidence from birth cohorts. *Neurotoxicology, 73*, 199–212. https://doi.org/10.1016/j.neuro.2019.04.007

Featured Review: De Vivo, V., Carbone, L., Saccone, G., Magoga, G., De Vivo, G., Locci, M., … Berghella, V. (2020). Early amniotomy after cervical ripening for induction of labor: A systematic review and meta-analysis of randomized controlled trials. *American Journal of Obstetrics and Gynecology, 222*(4), 320–329. https://doi.org/10.1016/j.ajog.2019.07.049

In this meta-analysis of four randomized, controlled trials including 1,273 women undergoing mechanical or pharmaceutical cervical ripening followed by synthetic oxytocin (Pitocin) for induction of labor, De Vivo et al. (2020) summarized the literature about early amniotomy vs. late amniotomy or spontaneous rupture of membranes. They found early amniotomy, defined as before active labor begins, does not increase the risk of cesarean (31.1% vs. 30.9%; pooled relative risk 1.05, 95% confidence interval [0.71, 1.56]), but it does shorten the induction to birth interval by just under 5 hours (weighted mean difference, –4.95 hours, 95% confidence interval [–0.812, –1.78]).

Comment: Shortening the interval between induction and birth is a laudable goal, and in this relatively small number of women, early amniotomy appears to do so without a concurrent

increase in risk of cesarean. The meta-analysis does not indicate whether women whose labors ended in cesarean were excluded (or otherwise censored) from the labor duration analysis; this would be a potential source for bias. However, given the similarity in cesarean rates between the groups, it is less of a concern.

Much more concerning is the notion that when faced with a problem (cesareans) possibly arising from an intervention considered over-used (induction; Declercq et al., 2013; Seijmonsbergen-Schermers et al., 2020), we attempt to solve it by intervening further in the normal physiologic process (amniotomy). Used in standard induction protocols, synthetic oxytocin causes intense uterine contractions but does not cross the blood-brain barrier as the endogenous hormone does (Buckley & Moberg, 2019). Thus, women who undergo induction have substantially more painful labors without the concurrent pleasure center activation/pain reduction effects of endogenous oxytocin, which infiltrates the brain (Buckley & Moberg, 2019). Women whose labors are induced are thus more likely to request epidural anesthesia (90% of participants in the De Vivo et al. [2020] meta-analysis used epidurals), which in turn further slows labor, possibly because the numbed pelvic nerves are then unable to transmit cues to release additional oxytocin as the head of the fetus descends (Buckley & Moberg, 2019). Thus begins the cascade of interventions in obstetrics that has so infiltrated our sense of normal we now often see this sort of false dichotomy in the literature: one intervention compared to another without a physiologic comparison group as if birth is not possible without intervention.

What if we instead choose to support physiologic labor processes as much as possible, even under circumstances including genuinely unavoidable interventions such as induction of labor? I'll assume here we have already reduced unnecessary inductions to the extent possible. There exists a large body of literature on continuous labor support, usually via doulas, as a low-cost, highly effective way to improve birth outcomes, including lowering cesarean rates (Bohren et al., 2017; Kozhimannil et al., 2016). It seems very likely that providing doulas for all women who undergo induction would fare even better than early amniotomy in terms of labor duration and cesarean rate. As nurses, midwives, and public health professionals, we must push back against the idea that adding interventions to birth is the only solution or even the best solution.

REFERENCES

Bohren, M. A., Hofmeyr, G. J., Sakala, C., Fukuzawa, R. K., & Cuthbert, A. (2017). Continuous support for women during childbirth. *Cochrane Database of Systematic Reviews, 2017*, (7), CD003766. https://doi.org/10.1002/14651858.CD003766.pub6

Buckley, S., & Moberg, K. U. (2019). Nature and consequences of oxytocin and other neurohormones during the perinatal period. In S. Downe & S. Byrom (Eds.), *Squaring the circle: Normal birth research, theory, and practice in a technological age*. Pinter & Martin Ltd.

Declercq, E. R., Sakala, C., Corry, M. P., Applebaun, S., & Herrlich, A. (2013). Listening to mothers III: Pregnancy and birth. *Childbirth Connection*. http://transform.childbirthconnection.org/reports/listeningtomothers/

Kozhimannil, K. B., Hardeman, R. R., Alarid-Escudero, F., Vogelsang, C. A., Blauer-Peterson, C., & Howell, E. A. (2016). Modeling the cost-effectiveness of doula care associated with reductions in preterm birth and cesarean delivery. *Birth, 43*(1), 20–27. https://doi.org/10.1111/birt.12218

Seijmonsbergen-Schermers, A. E., Peters, L. L., Goodarzi, B., Bekker, M., Prins, M., Stapert, M., … de Jonge, A. (2020). Which level of risk justifies routine induction of labor for healthy women? *Sexual & Reproductive Healthcare, 23*, 100479. https://doi.org/10.1016/j.srhc.2019.100479

Featured Review: Moran, P. S., Wuytack, F., Turner, M., Normand, C., Brown, S., Begley, C., & Daly, D. (2020). Economic burden of maternal morbidity—A systematic review of cost-of-illness studies. *PLOS ONE*, *15*(1), e0227377. https://doi.org/10.1371/journal.pone.0227377

In this systematic review, Moran and colleagues (2020) summarized the cost of illness literature on "the economic burden of common health problems women experience over the course of their pregnancy and postpartum, excluding acute complications of labour and birth, or severe acute adverse maternal outcomes" (Moran et al., 2020, p. 3). All cost results from included studies were converted to 2018 Euros.

The authors found 16 studies on the costs associated with gestational diabetes, 13 for obesity, four for poor maternal mental health, four for hypertensive disorders, two for severe nausea and vomiting, and two for epilepsy. Results for these conditions are summarized in Table 1. The authors identified no studies on costs associated with urinary incontinence, back or pelvic girdle pain, exhaustion, or sexual function.

Comment: It is unsurprising that costs for these conditions are noticeably higher in the United States, which reinforces that the American maternity care system is unsustainable. The mental health results were surprising; I would have

Table 1: Summary of Results Reported by Moran et al. (2020)

Outcome	Range	Average Cost, US vs. non-US	Average Cost, Woman Only	Average Cost, Neonate Only	Average Cost Both
Gestational Diabetes	€263 to E13,680	€4,607 vs. €1,444	€2,048	—	€3,388
Obesity	€191 to €16,046	€6867 vs. €768	€1,612	—	€8,964
Mental Health	€452 to €794	—	—	—	—
Hypertension	€2,860 to €8,595	—	—	—	—
Nausea	€191 to €454	—	—	—	—
Epilepsy	—	—	€6,033	€1,694	—

Note. All costs are in 2018 Euros. — = no data.

predicted much higher costs for these conditions. The low costs may be related to lack of access to mental health services, stigma associated with seeking mental health services, or higher rates of reimbursement for other services (e.g., more billing for obesity than depression in women with comorbidities). Most studies included in this review also included only payer costs not societal costs such as lost work days, which led to underestimates for all conditions but perhaps more so for mental health.

Finally, it is interesting that no studies appear to have been conducted on common pregnancy sequelae such as incontinence. Perhaps these are so common they are not considered "problems" per se, and therefore not worth studying? Any nursing graduate students in need of a thesis or dissertation topic, this would be a good one! Regardless, it is clear that existing, published numbers on costs of childbearing vastly underestimate the true costs, and here in the United States, we pay too much for care.

Recent Evidence-Based Reviews: Infant Health and Breastfeeding

Beta, J., Khan, N., Khalil, A., Fiolna, M., Ramadan, G., & Akolekar, R. (2019). Maternal and neonatal complications of fetal macrosomia: Systematic review and meta-analysis. *Ultrasound in Obstetrics & Gynecology, 54*(3), 308–318. https://doi.org/10.1002/uog.20279

Chetwynd, E. M., Wasser, H. M., & Poole, C. (2019). Breastfeeding support interventions by international board certified lactation consultants: A systemic review and meta-analysis. *Journal of Human Lactation, 35*(3), 424–440. https://doi.org/10.1177/0890334419851482

Gibson, B. L., Coe, K., & Bradshaw, W. (2019). Pharmacologic management of neonatal abstinence syndrome using a protocol. *Advances in Neonatal Care, 19*(6), 482–489. https://doi.org/10.1097/ANC.0000000000000648

Govindaswamy, P., Laing, S., Waters, D., Walker, K., Spence, K., & Badawi, N. (2019). Needs and stressors of parents of term and near-term infants in the NICU: A systematic review with best practice guidelines. *Early Human Development, 139*, 104839. https://doi.org/10.1016/j.earlhumdev.2019.104839

Huang, Y., Ouyang, Y.-Q., & Redding, S. R. (2019). Maternal prepregnancy body mass index, gestational weight gain, and cessation of breastfeeding: A systematic review and meta-analysis. *Breastfeeding Medicine, 14*(6), 366–374. https://doi.org/10.1089/bfm.2018.0138

Kenmoe, S., Kengne-Nde, C., Modiyinji, A. F., La Rosa, G., & Njouom, R. (2020). Comparison of health care resource utilization among preterm and term infants hospitalized with human respiratory syncytial virus infections: A systematic review and meta-analysis of retrospective cohort studies. *PLOS ONE, 15*(2), Article e0229357. https://doi.org/10.1371/journal.pone.0229357

Li, Y., Zhang, C., & Zhang, D. (2019). Cesarean section and the risk of neonatal respiratory distress syndrome: A meta-analysis. *Archives of Gynecology and Obstetrics, 300*(3), 503–517. https://doi.org/10.1007/s00404-019-05208-7

Liu, D., Shao, L., Zhang, Y., & Kang, W. (2020). Safety and efficacy of Lactobacillus for preventing necrotizing enterocolitis in preterm infants. *International Journal of Surgery, 76*, 79–87. https://doi.org/10.1016/j.ijsu.2020.02.031

Loewenstein, K., Barroso, J., & Phillips, S. (2019). The experiences of parents in the neonatal intensive care unit: An integrative review of qualitative studies within the transactional model of stress and coping. *Journal of Perinatal & Neonatal Nursing, 33*(4), 340–349. https://doi.org/10.1097/JPN.0000000000000436

Luo, R., Boeras, D., Broyles, L. N., Fong, Y., Hsiao, N.-Y., Kiyaga, C., … Vojnov, L. (2019). Use of an indeterminate range in HIV early infant diagnosis: A systematic review and meta-analysis. *Journal of Acquired Immune Deficiency Syndromes, 82*(3), 281–286. https://doi.org/10.1097/QAI.0000000000002104

McFadden, A., Siebelt, L., Marshall, J. L., Gavine, A., Girard, L.-C., Symon, A., & MacGillivray, S. (2019). Counselling interventions to enable women to initiate and continue breastfeeding: A systematic review and meta-analysis. *International Breastfeeding Journal, 14*, 42. https://doi.org/10.1186/s13006-019-0235-8

Razak, A., & Faden, M. (2020). Association of small for gestational age with retinopathy of prematurity: A systematic review and meta-analysis. *Archives of Disease in Childhood: Fetal and Neonatal Edition, 105*(3), 270–278. https://doi.org/10.1136/archdischild-2019-316976

Scime, N. V., Gavarkovs, A. G., & Chaput, K. H. (2019). The effect of skin-to-skin care on postpartum depression among mothers of preterm or low birthweight infants: A systematic review and meta-analysis. *Journal of Affective Disorders, 253*, 376–384. https://doi.org/10.1016/j.jad.2019.04.101

Silano, M., Milani, G. P., Fattore, G., & Agostoni, C. (2019). Donor human milk and risk of surgical necrotizing enterocolitis: A meta-analysis. *Clinical Nutrition, 38*(3), 1061–1066. https://doi.org/10.1016/j.clnu.2018.03.004

Taylor, A., Logan, G., Twells, L., & Newhook, L. A. (2019). Human milk expression after domperidone treatment in postpartum women: A systematic review and meta-analysis of randomized controlled trials. *Journal of Human Lactation, 35*(3), 501–509. https://doi.org/10.1177/0890334418812069

Recent Evidence-Based Reviews: Nursing Practice

Alghamdi, A. A., Keers, R. N., Sutherland, A., & Ashcroft, D. M. (2019). Prevalence and nature of medication errors and preventable adverse drug events in paediatric and neonatal intensive care settings: A systematic review. *Drug Safety, 42*(12), 1423–1436. https://doi.org/10.1007/s40264-019-00856-9

Lopes, L. G., Vasconcelos, C. T. M., Neto, J. A. V., Oriá, M. O. B., Saboia, D. M., Gomes, M. L. S., … Moraes Lopes, M. H. B. (2019). A systematic review of the prevalence, risk factors, and impact of pelvic floor dysfunctions in nurses. *Neurourology and Urodynamics, 38*(6), 1492–1503. https://doi.org/10.1002/nau.24042