JBI Item	Judgment	Justification for Emont et al. 2019
1. Clear inclusion criteria	**Unclear**	It is evident that both are pregnant women with PCR-confirmed HMPV and severe respiratory illness, but explicit a priori inclusion criteria (e.g. all consecutive HMPV-positive pregnant patients over a fixed period) are not stated.
2. Condition measured in a standard, reliable way for all	**Yes**	Both cases had HMPV diagnosed using the same multiplex nucleic acid amplification test (GenMark ePlex respiratory pathogen panel).
3. Valid methods used to identify the condition	**Yes**	PCR-based respiratory pathogen panel with high reported agreement for HMPV; discussion also notes low background carriage rates, supporting validity.
4. Consecutive inclusion of participants	**Unclear**	The authors do not state whether these were all consecutive HMPV cases in pregnancy or selected illustrative cases.
5. Complete inclusion of participants	**Unclear**	No information on whether any additional eligible HMPV-positive pregnant women were not reported.
6. Demographics clearly reported	**Yes**	Age, obstetric history, gestational age, and key comorbidities are presented both in the text and summarized in Table 1.
7. Clinical information clearly reported	**Yes**	Symptoms, physical findings, respiratory support, ICU course, cultures, and radiologic findings are described in detail for each patient.
8. Outcomes / follow-up clearly reported	**Yes**	Maternal course to recovery and discharge, and obstetric outcomes (gestational age at delivery, mode of delivery, birth weight) are reported.

JBI Item	Judgment	Justification for Emont et al. 2019
9. Presenting site/setting clearly reported	**Yes**	The hospital and its location (Women and Infants Hospital of Rhode Island, Brown University) are explicitly given in the affiliations and narrative.
10. Statistical analysis appropriate	**Not applicable**	With only two descriptive cases, no formal statistical analysis is expected or required; pure descriptive reporting is appropriate.

Overall JBI appraisal: Good methodological quality / low risk of bias in reporting and measurement, with unclear risk of selection bias typical for case reports.

JBI Item	Judgment	Justification for Fuchs et al. 2017
1. Were the patient's demographic characteristics clearly described?	**Yes**	The report clearly states that the patient is an 18-year-old primigravida at 36+2 weeks' gestation, with mild intermittent asthma and severe obesity (BMI 50 kg/m²).
2. Was the patient's history clearly described and presented as a timeline?	**Yes**	The clinical course is described chronologically from initial symptoms and presentation (fever, nausea, vomiting, sick contact), through ward admission, respiratory deterioration, ICU transfer, intubation, cesarean delivery, ECMO initiation, improvement, and discharge, with hospital/post-operative days specified.
3. Was the current clinical condition of the patient on presentation clearly described?	**Yes**	Initial vital signs (tachycardia, tachypnea, fever, borderline hypoxia), physical examination, and fetal status (fetal tachycardia, contractions) are clearly documented, along with obstetric findings.

4. Were diagnostic tests or assessment methods and the results clearly described?	**Yes**	Chest X-ray, CT angiography, fetal ultrasound/biophysical profile, respiratory viral panel (positive for HMPV), blood and urine cultures, and laboratory results (e.g. leukocytosis with neutrophilia) are all described together with their findings and evolution.
5. Was the intervention(s)/treatment procedure(s) clearly described?	**Yes**	Oxygen supplementation (nasal cannula, then BiPAP, then intubation), empirical antibiotics, oseltamivir, systemic steroids and bronchodilators, decision-making for timing/mode of delivery, cesarean section under general anesthesia, magnesium for preeclampsia, diuretics, antihypertensives, and VV-ECMO management are presented in detail.
6. Was the post-intervention clinical condition clearly described?	**Yes**	The report describes the course on mechanical ventilation and ECMO, progressive respiratory improvement, timing of extubation and ECMO discontinuation, stabilization of blood pressure, and maternal discharge, as well as the neonate's immediate condition and NICU course.
7. Were adverse events (harms) or unanticipated events identified and described?	**Yes**	The patient's progression to severe ARDS requiring ECMO, development of pulmonary edema, diagnosis of preeclampsia with severe features, and intraoperative uterine atony treated with uterotonics are explicitly described as complications.
8. Does the case report provide takeaway lessons?	**Yes**	The discussion highlights HMPV as an important cause of severe respiratory failure in pregnancy, the overlap with other viral pneumonias, the usefulness of multiplex PCR panels, and the

		need to consider HMPV in pregnant women with acute respiratory compromise, thus providing clear clinical lessons.

Overall JBI appraisal: high-quality case report with low risk of bias in reporting and measurement, with the usual limitations inherent to a single illustrative case (selection/publication bias, no long-term follow-up).

JBI Item	Judgment	Justification for Gowda et al. 2023
1. Were the patient's demographic characteristics clearly described?	**Yes**	First case: 34-year-old woman, G3P2, at term, history of gestational diabetes in previous pregnancy. Second case: 37-year-old woman at 7 months' gestation.
2. Was the patient's history clearly described and presented as a timeline?	**Yes**	For both women, the report describes prior ER visits, onset and progression of symptoms, hospital/ICU admission, investigations, escalation of treatment, imaging findings on specific hospital days, and timing of discharge.
3. Was the current clinical condition of the patient on presentation clearly described?	**Yes**	Initial symptoms (fever, productive cough, sore throat, dyspnea, body aches) and vital signs (temperature, blood pressure, pulse, respiratory rate, oxygen saturation) are given for each case, along with lung auscultation findings and fetal monitoring results.
4. Were diagnostic tests or assessment methods and the results clearly described?	**Yes**	Both cases include baseline and follow-up chest X-ray, CT thorax, pneumonia panel PCR (positive for hMPV), rapid flu and COVID tests, blood counts, CRP, D-dimer, procalcitonin, sputum culture, MRSA screening, and in case 1 a 2D echo with ejection fraction and valvular findings.
5. Was the intervention(s)/treatment procedure(s) clearly described?	**Yes**	The report details initial and escalated antibiotics (amoxicillin–clavulanate; ceftriaxone; vancomycin; oseltamivir; azithromycin), oxygen support,

		nebulized bronchodilators/budesonide, "anti-failure" therapy, ICU monitoring, and in case 1 the timing and mode of delivery (C-section) with peri- and post-partum management.
6. Was the post-intervention clinical condition clearly described?	**Yes**	Day-by-day evolution is described: persistence and then resolution of tachypnea and fever, improvement in cough and respiratory distress, radiologic evolution (development then regression of consolidation and effusions), transfer out of ICU on day 4, and discharge home on day 6 with stable oxygen saturation and oral antibiotics.
7. Were adverse events (harms) or unanticipated events identified and described?	**Yes**	Both women developed clinical and radiological features of pulmonary edema and superimposed bacterial pneumonia after hMPV infection; one had bilateral pleural effusion and basal consolidation. The need for ICU admission, respiratory distress, and progression to acute lung injury risk are clearly described as complications.
8. Does the case report provide takeaway lessons?	**Yes**	The discussion and conclusions emphasise that hMPV can cause severe respiratory illness in pregnant women, highlight the risk of secondary bacterial pneumonia, stress the importance of considering viral etiologies in third-trimester respiratory illness, and call for further research on antiviral therapy and vaccination in pregnancy.

Overall JBI appraisal: high-quality double case report with low risk of bias in reporting and measurement, acknowledging the usual limitations of very small case reports/series (selection/publication bias, limited generalisability).

JBI Item	Judgment	Justification for Haas et al. 2012 (three ICU cases, incl. pregnant woman)
1. Were the patient's demographic characteristics clearly described?	**Yes**	Each case includes age and sex (38-year-old man; 73-year-old man; 24-year-old pregnant woman at 30 weeks, G1P0). Relevant comorbidities are reported: COPD, diabetes, schizophrenia in case 1; GOLD IV COPD on maintenance steroids in case 2; uncomplicated first pregnancy in case 3.
2. Was the patient's history clearly described and presented as a timeline?	**Yes**	For all three patients, the sequence from symptom onset (fever, cough, flank pain, etc.) through ward admission, investigations, changes in antibiotics, ICU transfer, respiratory deterioration or improvement, and final outcome is described in chronological narrative form.
3. Was the current clinical condition of the patient on presentation clearly described?	**Yes**	Initial presentation is detailed for each: vital signs (blood pressure, heart rate, temperature, oxygen saturation, respiratory rate), general appearance (dyspneic, anxious, cachectic), lung auscultation, and in the pregnant patient, repeated cardiotocography showing no fetal abnormalities.
4. Were diagnostic tests or assessment methods and the results clearly described?	**Yes**	Extensive diagnostics are reported: blood tests (CRP, ESR, blood counts, renal/liver function, blood gases), chest X-rays, CT angiography in the pregnant woman, kidney ultrasound, multiple microbiologic tests (blood/sputum/urine cultures; antigens for *Legionella* and *S. pneumoniae*; serology for *Mycoplasma*, *Chlamydia*, *Coxiella*), and RT-PCR on respiratory

		samples confirming hMPV (with Ct values for nose/throat).
5. Was the intervention(s)/treatment procedure(s) clearly described?	**Yes**	The report specifies empiric and adjusted antibiotics (ceftriaxone, penicillin + erythromycin, amoxicillin/clavulanate, gentamicin, third-generation cephalosporin, meropenem), steroids and bronchodilators, selective digestive decontamination, oxygen therapy, non-invasive and invasive mechanical ventilation where used, high-dose oxygen, renal drainage for suspected pyelonephritis, and other ICU support.
6. Was the post-intervention clinical condition clearly described?	**Yes**	Case 1: progression to respiratory failure, need for mechanical ventilation, successful weaning after 5 days, and discharge in good condition are described. Case 2: further deterioration despite therapy and death are reported. Case 3: increasing oxygen demands, then clinical improvement without intubation, transfer back to obstetrics after 3 days, and later delivery of a healthy infant 6 weeks after ICU stay.
7. Were adverse events (harms) or unanticipated events identified and described?	**Yes**	The progression to respiratory failure needing mechanical ventilation in cases 1 and 2 and death in case 2 are described as serious outcomes. In case 3, misinterpretation of hydronephrosis led to unnecessary kidney drainage, and the authors reflect on potential alternative explanations (pneumonia vs. urosepsis), highlighting diagnostic pitfalls and complications.
8. Does the case report provide takeaway lessons?	**Yes**	The discussion emphasises that hMPV can cause severe RTI and

		respiratory failure in vulnerable adults (including a pregnant woman), may be under-recognised compared with RSV/influenza, and should be considered in ICU patients with respiratory failure. They also discuss epidemiology, diagnostic methods (RT-PCR), and the need to include hMPV in the differential diagnosis for ICU respiratory failure.

Overall JBI appraisal: High-quality multi-case report with low risk of bias in reporting and measurement, with the usual limitations of case reports (small number of patients, selection/publication bias, limited generalisability).

JBI Item	**Judgment**	**Justification for Manyam et al. 2025 (two second-trimester cases)**
1. Were the patient's demographic characteristics clearly described?	**Yes**	Case 1: 49-year-old G9P2234 at 19+1 weeks. Case 2: 22-year-old G2P0101 at 24+5 weeks with type 1 diabetes, chronic kidney disease and chronic hypertension. Gravidity/parity, gestational age and comorbidities are clearly stated.
2. Was the patient's history clearly described and presented as a timeline?	**Yes**	For each case, the report traces symptom onset, first ED visit, re-presentation or transfer, inpatient course, escalation of care (ICU, intubation, prone positioning, cesarean section), and timing of discharge, in chronological order.
3. Was the current clinical condition of the patient on presentation clearly described?	**Yes**	Case 1: severe shortness of breath, wheezing, normal vital signs and oxygen saturation at 19 weeks. Case 2: cough and mild URTI evolving to shortness of breath, chest pain, edema and acute hypoxic respiratory failure, with description of respiratory findings and fetal monitoring.

4. Were diagnostic tests or assessment methods and the results clearly described?	**Yes**	Both cases had respiratory panel testing (BioFire) positive for hMPV. Case 1: normal chest X-ray, EKG and routine labs. Case 2: chest X-ray with right lower and middle lobe pneumonia, ABGs concerning for ARDS, cultures (blood, urine, BAL) negative, fetal monitoring changes, and echocardiogram showing EF 36–40%. Results and their interpretation are clearly reported.
5. Was the intervention(s)/treatment procedure(s) clearly described?	**Yes**	Case 1: bronchodilator nebulizations, IV methylprednisolone, IV ampicillin, then steroid taper and symptomatic therapy under ID guidance, plus contact precautions. Case 2: antibiotics (ceftriaxone, azithromycin, then meropenem), diuretics, intubation, mechanical ventilation, prone positioning, IV dexamethasone, dialysis, vasopressor support, emergency cesarean section at 25+0 weeks, antihypertensives and heart-failure regimen are all described in detail.
6. Was the post-intervention clinical condition clearly described?	**Yes**	Case 1: gradual resolution of symptoms with steroids and supportive care; discharged 8 days later, then term delivery at an outside hospital (infant status unknown). Case 2: radiologic and ABG improvement by POD2, successful extubation to HFNC, recovery of urine output and weaning of oxygen and sedation; discharged home on hospital day 12 with home oxygen and follow-up.
7. Were adverse events (harms) or unanticipated	**Yes**	Significant complications are clearly reported: in case 2, progression to acute hypoxic

events identified and described?		respiratory failure, ARDS, reduced EF requiring heart-failure management, need for dialysis, and emergency preterm cesarean section for non-reassuring fetal status and maternal desaturation. The potential for severe respiratory compromise even without prior lung disease is emphasized.
8. Does the case report provide takeaway lessons?	**Yes**	The discussion and "Learning points" highlight hMPV as an often-overlooked cause of severe respiratory illness in pregnancy (including second trimester), the value of extended respiratory panels (BioFire), the importance of early diagnosis, inpatient monitoring, and the need for more data and future vaccine/management guidelines.

Overall JBI appraisal: High-quality double case report with low risk of bias in reporting and measurement, acknowledging inherent limitations of very small case reports/series (selection/publication bias, incomplete neonatal outcome information for one case, and limited generalizability).

Domain / Item	**Star**	**Justification for Lenahan et al. 2017**
SELECTION		
1. Representativeness of the exposed cohort	★	Exposed women are part of a **community-based cohort** of all pregnant women (15–40 years, 17–34 weeks' gestation) identified by door-to-door census and followed prospectively in rural Sarlahi, Nepal – broadly representative of pregnant women in that setting.
2. Selection of the non-exposed cohort	★	Non-exposed women (no HMPV during pregnancy) come from **the same underlying cohort** and time period, identified and followed with identical procedures (weekly surveillance and swabbing).
3. Ascertainment of exposure	★	HMPV infection is ascertained by **real-time RT-PCR** on mid-nasal swabs collected during influenza-like illness

		episodes, using validated assays – an objective, secure method.
4. Outcome not present at start of study	★	Outcomes (birthweight, SGA, PTB) by definition occur **after enrollment mid-pregnancy**; women are recruited while still pregnant and outcomes are assessed at/after delivery.
COMPARABILITY		
5. Comparability of cohorts on the basis of design or analysis (control for confounders)	☆	Birth-outcome comparisons (Table 4) are based on **crude regression models**; there is no explicit adjustment for key confounders (e.g. maternal age, parity, nutrition, SES) in the association between HMPV and SGA/LBW/PTB. Authors describe some baseline similarities (BMI, hypertension, etc.) but do not formally control for them in multivariable models.
OUTCOME		
6. Assessment of outcome	★	Birthweight and gestational age are collected within the framework of a large RCT with standardized procedures; SGA is defined using **INTERGROWTH-21st standards**, PTB as <37 weeks – indicating objective and validated outcome assessment.
7. Was follow-up long enough for outcomes to occur?	★	Women are followed from vaccination **through 180 days postpartum**, more than sufficient for all pregnancy and birth outcomes to occur and be recorded.
8. Adequacy of follow-up of cohorts	★	Of 3,693 enrolled women, birth outcomes are reported for virtually all (3,000 without fever; 668 with non-HMPV fever; 25 with HMPV), implying **minimal loss to follow-up** for the outcomes of interest. No major differential attrition is described.

Summary NOS score and interpretation: Total stars: 7 / 9

Overall NOS judgement: Strengths: very strong selection and outcome domains (large, prospective, community-based cohort; objective RT-PCR exposure ascertainment; standardized outcome definitions; long and complete follow-up). **Main limitation: lack of multivariable adjustment**, so the association between HMPV and SGA may be confounded by unmeasured or uncontrolled maternal factors.

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