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**Literature search results**

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**Search details**

High dependency units and obstetrics

**Resources searched**

NICE Evidence; TRIP Database; Cochrane Library; CINAHL; EMBASE; MEDLINE; Google Scholar

*Database search terms:* “high dependency”, “critical care”, (obstetric* OR pregnan* OR maternal)

*Evidence / Google Scholar search string(s):* ("high dependency" OR HDU) AND (obstetrics OR pregnancy OR pregnant OR maternal)

**Guidelines and Policy**

**Royal College of Obstetricians and Gynaecologists**

*Providing equity of critical and maternity care for the critically ill pregnant or recently pregnant woman, 2011*

**Health Talk (website which records patients experiences)**

*Conditions that threaten women’s lives in childbirth & pregnancy, 2014*
Title: Maternal critical care: 'one small step for woman, one giant leap for womankind'.

Citation: Current opinion in anaesthesiology, Jun 2015, vol. 28, no. 3, p. 290-299 (June 2015)

Author(s): Patil, Vinod, Jigajinni, Suyogi, Wijayatilake, Dhuleep S

Abstract: The purpose of this study is to outline the challenges of looking after women who either become or are at a risk of becoming critically ill during pregnancy. In recent years, there has been an increased demand in the need for maternal critical care. This is partly due to women with complex medical conditions surviving to child-bearing age, coupled with improvements in foetal medicine resulting in more high-risk pregnancies reaching term. In this review, we identify the need for maternal critical care, explore different models of its provision and outline possible benefits and barriers to its future implementation.

Source: Medline

Title: Critical care in pregnancy--is it different?

Citation: Seminars in perinatology, Oct 2014, vol. 38, no. 6, p. 329-340 (October 2014)

Author(s): Gaffney, Alan

Abstract: In the first part of this review, the epidemiology of obstetric critical care is discussed. This includes the incidence of severe morbidity in pregnancy, identification of critically ill and potentially critically ill patients, the incidence of obstetric ICU admissions, the type of critical illness by stage of pregnancy, ICU admission diagnoses, the severity of illness in obstetric ICU patients compared to non-obstetric patients, ICU mortality of obstetric patients, the ICU proportion of total maternal mortality, and the causes of death for obstetric patients in ICU. In the second part, the management of obstetric patients who happen to be admitted to a general ICU is discussed. Rather than focusing on the management of particular obstetric conditions, general principles of ICU management will be discussed as applied to obstetric ICU patients. These include drug safety, monitoring the fetus, management of the airway, sedation, muscle relaxation, ventilation, cardiovascular support, thromboprophylaxis, and radiology and ethical issues. Copyright © 2014 Elsevier Inc. All rights reserved.

Source: Medline

Title: Provision of critical care services for the obstetric population.

Citation: Best practice & research. Clinical obstetrics & gynaecology, Dec 2013, vol. 27, no. 6, p. 803-809 (December 2013)

Author(s): Sultan, P, Arulkumaran, N, Rhodes, A

Abstract: Management of the peripartum patient is a challenging aspect of critical care that requires consideration of both the physiological changes associated with pregnancy as well as the well-being of the foetus. In the UK, for every maternal death, approximately 118 near-miss events or severe acute maternal morbidities (SAMMs) occur. While a dedicated anaesthetic cover is usually provided on larger labour wards in the UK and US, a close communication with intensive care and other medical specialties must still be maintained. Medical outreach teams and early warning scores may help facilitate the early identification of clinical deterioration and prompt treatment. Ultimately level of care is allocated according to the clinical need, not the location, which may be a designated room, a normal labour room or a recovery area. Specialist obstetric units that provide high-
dependency care facilities show lower rates of maternal transfer to critical care units and improved continuity of care before and after labour. The benefits of obstetric high-dependency units (HDUs) are likely to be determined by a number of logistic aspects of the hospital organisation, including hospital size and available resources. There remains a striking contrast in the burden of maternal mortality and morbidity and intensive care unit (ICU) resources between high- and low-income countries. The countries with the highest maternal mortality rates have the lowest number of ICU beds per capita. In under-resourced countries, patients admitted to ICUs tend to have higher illness severity scores, suggesting delayed admission to the ICU. The appropriate training of midwives is essential for successful HDUs located within labour wards. Copyright © 2013 Elsevier Ltd. All rights reserved.

**Source:** Medline

**Title:** The management of the critically ill obstetric patient.
**Citation:** Journal of intensive care medicine, Mar 2013, vol. 28, no. 2, p. 93-106 (2013 Mar-Apr)
**Author(s):** Honiden, Shyoko, Abdel-Razeq, Sonya S, Siegel, Mark D
**Abstract:** Hypertensive disorders, postpartum hemorrhage, and sepsis are the most common indications for intensive care unit admission among obstetric patients. In general, ICU mortality is low, and better than would be predicted using available mortality prediction tools. Provision of care to this special population requires an intimate understanding of physiologic changes that occur during pregnancy. Clinicians must be aware of the way various diagnostic and treatment choices can affect the mother and fetus. Most clinically necessary radiographic tests can be safely performed and fall under the maternal radiation exposure limit of less than 0.05 Gray (Gy). Careful attention must be paid to acid-base status, oxygenation, and ventilation when faced with respiratory failure necessitating intubation. Cesarean delivery can be justified after 4 minutes of cardiac arrest and may improve fetal and maternal outcomes. The treatment of obstetric patients in the ICU introduces complexities and challenges that may be unfamiliar to many critical care physicians; teamwork and communication with obstetricians is crucial.

**Source:** Medline

**Title:** Maternal critical care: who cares?
**Citation:** British journal of hospital medicine (London, England : 2005), Feb 2013, vol. 74, no. 2, p. 77-80, 1750-8460 (February 2013)
**Author(s):** Sloan, Brendan, Quinn, Audrey
**Abstract:** With rising birth rates, and greater numbers of increasingly challenging mothers, the need for maternal critical care is rising. In the light of several major reports, this article looks at current provision, as well as areas for future development.

**Source:** Medline
**Full text:** Available EBSCOhost at British Journal of Hospital Medicine (17508460)

**Title:** Maternal critical care in the United Kingdom: developing the service.
**Citation:** International journal of obstetric anesthesia, Oct 2012, vol. 21, no. 4, p. 291-293 (October 2012)
**Author(s):** Scrutton, M, Gardner, I
**Source:** Medline

**Title:** Identifying women requiring maternity high dependency care.
**Citation:** Midwifery, Feb 2011, vol. 27, no. 1, p. 60-66 (February 2011)
**Author(s):** James, Alison, Endacott, Ruth, Stenhouse, Elizabeth
**Abstract:** The prompt identification of clinical deterioration and referral for appropriate care are key issues in the management of women who become critically ill during pregnancy, labour and the postpartum period. The Intensive Care
Society has developed designated levels of care in relation to adult patient care, which may not be appropriate for use in midwifery. Therefore, exploring the midwifery, nursing and medical literature related to levels of care and detection of clinical deterioration may highlight the need for these to be modified and adapted for the development of midwifery-specific levels of care that are appropriate for this cohort. Copyright © 2009 Elsevier Ltd. All rights reserved.

Source: Medline
Full text: Available Midwifery at Pilgrim Hospital Staff Library

Title: Obstetric high-dependency care: a 2005-06 UK survey of practice and facilities.
Citation: International journal of obstetric anesthesia, Jan 2011, vol. 20, no. 1, p. 100-101 (January 2011)
Author(s): Hussain, S, Srinivas, K, Yadthore, S, Collis, R

Source: Medline
Title: Maternal critical care in obstetrics.
Citation: Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstétrique et gynécologie du Canada : JOGC, Mar 2009, vol. 31, no. 3, p. 218-221, 1701-2163 (March 2009)
Author(s): Baskett, Thomas F, O'Connell, Colleen M

Abstract: To determine the factors leading to maternal critical care in a tertiary obstetric hospital and the associated trends. We conducted a review of the medical records of all women who required transfer for critical care from a free-standing obstetric unit to a general hospital over a 24-year period (1982-2005). During the 24-year period there were five maternal deaths directly associated with 122,001 deliveries (4.1/100,000) and, in addition, 117 women were transferred to the general hospital for critical care (1.0/1000). The death-to-transfer ratio was 1 in 23. Of the women transferred, 93/117 (79.5%) required intensive care and 24/117 (20.5%) needed specialized medical or surgical services not available in the obstetric unit. Of the women transferred, 16/117 (13.7%) were antepartum, and 101/117 (86.3%) were postpartum. Hemorrhage and hypertensive disorders combined to make up 56.4% of all maternal transfers. Women with a multiple pregnancy were more likely to require transfer than those with a singleton pregnancy (RR 3.34; 95% CI 1.4-7.59, P=0.01). The majority of maternal transfers for critical care occur postpartum, and in more than half of the cases the reason for transfer is hemorrhage or hypertensive disease. Women with a multiple pregnancy had a significantly greater rate of transfer than those with a singleton, and women with a triplet pregnancy had a greater rate than those with twins. There was a non-significant increase in the number of maternal transfers over the study period.

Source: Medline
Title: Ethical challenges of treating the critically ill pregnant patient.
Author(s): van Bogaert, Louis-Jacques, Dhai, A

Abstract: Most ethical issues in obstetrics, both in the critical care and non-emergency situations, hinge around the maternal-fetal relationship. With access to the necessary information and support, most women strive to improve their chance of having healthy babies. However, there could be situations where their interests do not correspond with fetal interests, thereby giving rise to conflict situations. At the centre of the debate about a possible conflict is the notion of the fetus as a patient. A pregnant woman's autonomy and informed refusal should be respected. Where she is not competent to make an informed decision, proxy consent should be obtained or the doctrine of substituted judgement be applied. A decision to withhold or withdraw treatment in the intensive care unit (ICU) should only occur once a definitive diagnosis of terminal illness is made. Standards for the
management of the human-immunodeficiency-virus-positive woman in the obstetric ICU situation should be no different from standards employed to manage a critically ill pregnant patient in ICU with a chronic medical disease.

**Source:** Medline

**Title:** High dependency care in an obstetric setting in the UK.

**Citation:** Anaesthesia, Oct 2008, vol. 63, no. 10, p. 1081-1086 (October 2008)

**Author(s):** Saravanakumar, K, Davies, L, Lewis, M, Cooper, G M

**Abstract:** Our objective was to establish the utilisation and pattern of high dependency care in a tertiary referral obstetric unit. Data of pregnant or recently pregnant women admitted to the obstetric high dependency unit from 1984 to 2007 were included to evaluate the admission rate. Four years' information of an ongoing prospective audit was collated to identify the indications for admission, maternal monitoring, transfers to intensive care unit, and location of the baby. The overall high dependency unit admission rate is 2.67%, but increased to 5.01% in the most recent 4 years. Massive obstetric haemorrhage is now the most common reason for admission. Invasive monitoring was undertaken in 30% of women. Two-thirds of neonates (66.3%) stayed with their critically ill mothers in the high dependency unit. Transfer to the intensive care unit was needed in 1.4 per 1000 deliveries conducted. We conclude that obstetric high dependency care provides holistic care from midwives, obstetricians and anaesthetists while retaining the opportunity of early bonding with babies for critically ill mothers.

**Source:** Medline

**Full text:** Available Wiley at [Anaesthesia](http://www.anaesthesia.org.uk)

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**Title:** Critical care of the obstetric patient.

**Citation:** Journal of intensive care medicine, Sep 2006, vol. 21, no. 5, p. 278-286, 0885-0666 (2006 Sep-Oct)

**Author(s):** Shapiro, Janet M

**Abstract:** The obstetric patient poses exceptional challenges in the intensive care unit. Knowledge of the physiologic changes of pregnancy and specific pregnancy-related disorders is necessary for optimal management. Intensive care unit diagnoses may include preeclampsia, including the HELLP syndrome, pulmonary embolic disease, amniotic fluid embolism, status asthmaticus, respiratory infection, the acute respiratory distress syndrome, and sepsis. The management of mechanical ventilation is based on principles of avoiding lung injury, and hypercapnia may be tolerated even during the pregnancy. When the clinician is faced with the extraordinary instance of cardiopulmonary arrest, perimortem cesarean delivery must be considered to improve the potential for maternal and fetal survival.

**Source:** Medline

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**Title:** Critical care obstetrics and gynecology.

**Citation:** Critical care clinics, Jan 2003, vol. 19, no. 1, p. 127-149, 0749-0704 (January 2003)

**Author(s):** Naylor, Douglas F, Olson, Michelle M

**Abstract:** The critical care aspects of obstetrics and pregnancy are varied and demand that critical care practitioners have a thorough knowledge of fetal and maternal changes in physiology as pregnancy progresses. Pregnancy can affect every organ system; and organ-specific conditions as well as syndromes that span multiple organ systems were described. Care of the critically ill, pregnant patient requires a true multidisciplinary approach for optimal outcomes. A review of the current concepts and suggestions for therapy were presented.

**Source:** Medline
Google Scholar

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