

# “Therapeutic” Bed Rest in Pregnancy

## *Unethical and Unsupported by Data*

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“Therapeutic” bed rest continues to be used widely, despite evidence of no benefit and known harms. In this commentary, we summarize the Cochrane reviews of bed rest and propose an ethical argument for discontinuing this practice. Cochrane systematic reviews do not support “therapeutic” bed rest for threatened abortion, hypertension, preeclampsia, preterm birth, multiple gestations, or impaired fetal growth. This assessment has been echoed in other comprehensive reviews. Prescribing bed rest is inconsistent with the ethical principles of autonomy, beneficence, and justice. Hence, if bed rest is to be used, it should be only within a formal clinical trial.

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Despite no evidence of benefit and known harms, bed rest continues to have wide use in obstetrics. Recent comprehensive reviews showing no supporting evidence have done little to deter the practice. Approximately 18% of pregnant women each year in the United States will be placed on bed rest at some point during their pregnancies.<sup>1</sup> In 2009, a survey of maternal–fetal medicine specialists found that 71% would recommend bed rest for preterm labor and almost 87% would recommend bed rest for premature rupture of membranes. Ironically, most specialists reported that they expected little to no benefit from the intervention.<sup>2</sup> Because of this continuing paradox,

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we will summarize the relevant literature, consider the explanations for the persistence of bed rest, and describe the ethical implications of its continued use.

### COCHRANE REVIEWS: LESSONS LEARNED

The Cochrane Library was searched using key words “bed rest” and “pregnancy.” Six Cochrane systematic reviews of bed rest in pregnancy do not support this practice (Table 1). Randomized controlled trials represent the highest level of evidence (level I) on which to base clinical decision making. Although bed rest is prescribed with varying levels of activity restriction, the focus of this commentary is on strict bed rest. Simply defined, strict bed rest refers to confinement to one’s dwelling except for health care visits and rest in the sitting or supine position for the entire day with no chores or lifting.<sup>3</sup>

Evidence is insufficient to support bed rest in the setting of threatened abortion. The Cochrane reviews included two trials that compared different groups. One study compared bed rest at home, human chorionic gonadotropin administration until 16 weeks of gestation, and placebo without bed rest. The other compared bed rest at home, bed rest in the hospital, and normal activity. In the comparison of bed rest and no bed rest, no substantial difference in the risk of miscarriage was evident.<sup>4</sup>

Recommending bed rest for women with chronic hypertension is not supported by evidence. In women with proteinuric hypertension, strict bed rest was compared with “some rest,” and no significant differences were apparent for the primary outcomes of severe hypertension, perinatal death, and preterm birth. In women with nonproteinuric hypertension, one small trial (218 patients) showed a reduced risk of severe hypertension (42% reduction). These results must be interpreted with caution, however, owing to small sample size and wide confidence intervals. Of note, strict bed rest was not studied. The authors conclude that, “Although one small trial suggests that some bed rest may be associated with reduced risk



**Table 1. Summary of Cochrane Systematic Reviews of Bed Rest in Pregnancy**

Indication	No. of Trials	No. of Patients	Primary Outcome: Results (RR, 95% CI)
Prevention of miscarriage <sup>4</sup>	2	64	Miscarriage: (1.54, 0.92–2.58)
Hypertension during pregnancy <sup>5</sup>	4	449	Severe hypertension: strict bed rest vs some rest: (1.18, 0.93–1.49) Some rest vs no rest: (0.58, 0.38–0.89)
Prevention of preeclampsia <sup>6</sup>	2	106	Preeclampsia: 4–6 h of rest: (0.05, 0.00–0.83) 30 min of rest plus nutrition supplement: (0.13, 0.03–0.51)
Prevention of preterm birth (singleton) <sup>7</sup>	1	1,266	Preterm birth: (0.92, 0.62–1.37)
Multiple gestation <sup>8</sup>	7	1,448	Perinatal death: (1.06, 0.42–2.64)
		713	Preterm birth: (0.99, 0.86–1.13)
Impaired fetal growth <sup>11</sup>	1	107	Fetal growth: (0.43, 0.15–1.27)

RR, relative risk; CI, confidence interval.

of severe hypertension and preterm birth, the findings need to be confirmed in larger trials. Evidence currently available from randomized trials does not support the routine recommendation of bed rest for hypertension in pregnancy.<sup>5</sup>

In women with normal blood pressure, evidence is insufficient to support the use of bed rest for the prevention of pregnancy-induced hypertension. Two small trials were included in the analysis, both of “uncertain quality,” including women at “moderate risk” from 28 to 32 weeks of gestation. One small trial (32 women) showed a statistically significant difference in the reduction of preeclampsia with 4–6 hours of bed rest per day but no effect on gestational hypertension. The other trial (74 women) compared 30 minutes of rest per day combined with nutritional supplementation with no rest and placebo pills and found a reduction in the risk of both preeclampsia and gestational hypertension. Importantly, strict bed rest was not studied in either trial. Again, the results of these trials must be interpreted cautiously owing to such small numbers. The authors conclude, “Current evidence is insufficient to support recommending rest or reduced activity to women for preventing preeclampsia and its complications. Whether women rest during pregnancy should therefore be a matter of personal choice.”<sup>6</sup>

For the prevention of preterm birth, current evidence does not support or refute the use of bed rest. The Cochrane analysis included one trial comparing bed rest with no intervention and found no important difference in the risk of preterm birth (less than 37 weeks of gestation.) The authors conclude that, “Due to the potential adverse effects that bed rest could have on women and their families, and the increased costs for the healthcare system, clinicians should not routinely advise women to rest in bed to prevent preterm birth.”<sup>7</sup>

Routine bed rest in multiple gestation pregnancies lacks scientific support. Seven trials evaluated bed rest

among women with multiple gestation pregnancies. Bed rest did not reduce the risk of preterm birth or perinatal death. One trial suggested a decrease in the number of low-birth-weight neonates (less than 2,500 g) in the hospitalized group but no effect on the frequency of very low-birth-weight neonates (less than 1,500 g). The review concludes that evidence is insufficient to support routine bed rest in multiple gestation pregnancies.<sup>8</sup>

For women with singleton pregnancies and suspected impaired fetal growth, evidence does not support bed rest for improving growth. A small study (107 women) recruited women with ultrasound-estimated fetal growth impairment and compared bed rest with ambulant management. Birth weight was not significantly different between the two groups.

### OTHER REVIEWS: HIGHLIGHTING THE HARMS

Recent comprehensive reviews have found no credible data to support “therapeutic” bed rest in pregnancy.<sup>2,9</sup> In addition to the lack of demonstrable benefit, they highlight the potential harms, including venous thrombosis, bone demineralization, muscle atrophy, maternal weight loss, and maternal psychological problems.

One of the most dangerous adverse effects of bed rest is the risk of venous thromboembolism. Bed rest promotes thrombosis through immobilization and venous stasis. One study found a significantly higher incidence of thrombosis in pregnant women placed on bed rest compared with no bed rest, with a relative risk of 19 (95% confidence interval [CI] 5–80).<sup>3</sup> Additionally, other physiologic effects are also apparent, including bone demineralization, muscle deconditioning, and pulmonary atelectasis. In a study examining trabecular bone loss (through dual X-ray absorptiometry) in women on bed rest compared with ambulatory women in pregnancy, women on bed rest had an adjusted



mean loss of 4.6% compared with 1.5% in the ambulatory women.<sup>9</sup>

Psychological suffering associated with bed rest can be profound. Women experience separation from their families and worry about fetal well-being.<sup>2</sup> Common psychosocial effects are depressive symptoms, including anxiety, hostility, and dysphoria. A longitudinal study of pregnant women hospitalized on bed rest found that antepartum depressive symptoms decreased gradually as gestational age increased.<sup>9</sup> Unfortunately, self-blame may arise if a woman falsely believes her adherence to bed rest can affect the outcome.

Bed rest may have deleterious effects on the entire family. Children at home endure frequent shifts in child care and may demonstrate acting-out behaviors.<sup>2</sup> Partners often assume the additional responsibilities in addition to their normal family roles, leading to anxiety and fatigue.<sup>2</sup> The financial burden from lost wages also may contribute to family distress. For the patient, loss of family income and threatened unemployment cause anxiety.

Given these considerations, the American College of Obstetricians and Gynecologists has stated that, "Although bed rest and hydration have been recommended to women with symptoms of preterm labor to prevent preterm delivery, these measures have not been shown to be effective for the prevention of preterm birth and should not be routinely recommended. Furthermore, the potential harm, including venous thromboembolism, bone demineralization, and deconditioning, and the negative effects, such as loss of employment, should not be underestimated."<sup>10</sup> Other authors have gone further, arguing that bed rest should not be prescribed because effectiveness has not been demonstrated and adverse effects exist.<sup>9</sup>

### INERTIA IN OBSTETRIC PRACTICE

Several explanations have been proposed for the persistence of prescribed bed rest in obstetric practice. Fear of litigation may motivate continued use of bed rest. When no treatment exists, a common response of clinicians is to "do something"—the "therapeutic imperative." Unnecessary interventions such as bed rest may make the patient (and sometimes the health care provider) feel that all attempts are being made to "save" the pregnancy. However, bed rest may paradoxically increase the risk of litigation should a complication such as pulmonary embolism occur. This reflects the illogic of continued use of an ineffective and harmful practice.

Some health care providers may believe that the absence of evidence proving an intervention's benefit is not sufficient to change longstanding practice. Moreover, an intervention that appears to pose little

to no risk to the fetus may be deemed acceptable. However, three problems are evident with this view. First, it reflects a "risk distortion" common to reasoning regarding pregnancy. Namely, it attends to fetal risk and works toward its elimination without due regard for risks or burden to pregnant women. Indeed, women are often expected (and willing) to accept such burden if it has the potential to benefit the fetus. Secondly, this view conceptualizes the woman and fetus as distinct entities, as two separate patients. Yet the serious risks of bed rest, such as venous thrombosis, maternal depression, and deconditioning are not, in fact, just "maternal" risks any more than fetal growth restriction is a "fetal" risk. All risks have implications for both the woman and her fetus. And third, this view reflects an impulse toward control of birth, the tendency toward intervention, and a fear of stepping aside regardless of the harms an intervention may bring.

### ETHICAL CONSIDERATIONS

In bioethics, three types of moral considerations (often called "principles") typically are employed to guide practice. All make bed rest ethically problematic. The first is autonomy, which requires respecting the values, preferences, and decisions of patients. In the case of bed rest, respect for autonomy would require that practitioners respect the informed decisions of women to accept or decline "therapeutic" bed rest. As such, it would require that pregnant women receive appropriate information, including the lack of evidence of benefit and potential risks, and that they provide consent for the intervention.

Challenges exist in providing informed consent for bed rest. Health care provider recommendations may weigh heavily in a patient's decision-making process. The act of simply offering an intervention may be understood to imply recommendation, especially if such an offer does not include a review of risks and benefits. Alternatively, practitioners may recommend bed rest without a discussion at all.

A second consideration is beneficence, which requires that clinicians promote the well-being of patients and take actions that serve their best interests. The inverse of beneficence, non-maleficence, refers to the obligation to "do no harm." In other words, clinicians should refrain from intervening in ways that harm their patients.

Continued use of bed rest is inconsistent with beneficence, given the adverse physiologic and psychological effects. The presumption that bed rest is innocuous is incorrect; the burden to women has been established. Bed rest also may provide women with



a false sense of agency. If an adverse event occurs, a woman may surmise that, if she had been more compliant with bed rest, the outcome would have been different. For example, a woman with a threatened abortion who was not fully compliant with prescribed bed rest may blame herself (and not abnormal fetal chromosomes) for an inevitable miscarriage.

Finally, bed rest conflicts with the ethical principle of justice. Justice requires that clinicians treat individuals fairly and that the provision of care not be discriminatory. Numerous Cochrane reviews regarding pregnancy and childbirth are available, yet the evidence frequently is ignored or interpreted selectively in a way that disregards maternal interests. For example, findings of fetal harm often lead to immediate prohibitions (such as caffeine or various medications), whereas findings of maternal harm or relative fetal safety are overlooked or slowly integrated into practice.

Bed rest also raises challenges for justice at the societal level, which requires fair and responsible distribution of resources for health care. In 1993, the societal cost of antepartum bed rest was estimated to be \$1.03 billion per year.<sup>1</sup> Adjusting for consumer price index, this equates to about \$1.6 billion per year today ([http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm)). Every dollar spent on unfounded and harmful practices is a dollar not spent on beneficial interventions, such as smoking cessation, contraception, and immunization. Hence, given finite resources, these ineffective practices have a net-negative effect on public health.

### MOVING FORWARD AND OUT OF BED

Because “therapeutic” bed rest has no known benefit yet established harms, its continued use is inconsistent with the ethical principles that govern medical practice. Viewing bed rest as a risky and unproven intervention illustrates the need to limit its use to formal clinical trials. This would require, for the prescription of bed rest, a written protocol, approval by an institutional review board, and appropriate informed consent. Such an approach would help to redress the ethical challenges

that bed rest poses. Research participants must provide informed consent and demonstrate understanding of an intervention’s experimental nature. Women who chose not to participate would not be burdened by the potential harms of bed rest. Additionally, the investment needed for a definitive trial would be a more responsible and just use of health care resources. Our patients deserve no less from us.

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