

Original Article

# Improving Adherence to Hysterosalpingography After Hysteroscopic Sterilization Using an Electronic Reminder

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**ABSTRACT** **Study Objective:** The US package labeling of the Essure system (Bayer Healthcare, Whippany, NJ) requires hysterosalpingography (HSG) as a confirmatory test after hysteroscopic sterilization to ensure proper placement and tubal occlusion. Previous studies have shown that implementation of a protocol to track patients after Essure procedures can improve HSG adherence. The primary objective of this study was to investigate whether implementation of an electronic reminder for the office staff increases post-Essure HSG adherence.

**Design:** Retrospective cohort study of patients who underwent the Essure procedure between January 2005 and January 2012 (Canadian Task Force classification II-3).

**Setting:** University-affiliated hospital.

**Patients:** Two hundred eleven patients underwent the Essure procedure during the study period.

**Interventions:** Implementation of an electronic reminder for the office staff.

**Measurements and Main Results:** One hundred thirty-seven (64.9%) patients underwent the procedure before implementation of the electronic reminder, and 74 (35.1%) patients underwent the procedure after implementation. Although the odds of post-Essure HSG adherence increased in the overall (odds ratio [OR] = 1.7; 95% confidence interval [CI], .9–3.2) and faculty practice (OR = 2.1; 95% CI, .2–18.6) patient population, these results were not statistically significant. In contrast, the odds of post-Essure HSG adherence increased by almost 3-fold (OR = 2.9; 95% CI, 1.4–6.3) in the resident clinic patient population ( $p = .003$ ).

**Conclusion:** Implementation of an electronic reminder increases post-Essure HSG adherence in the resident clinic patient population. Journal of Minimally Invasive Gynecology (2015) 22, 250–254 © 2015 AAGL. All rights reserved.

**Keywords:** Adherence; Clinical decision support; Essure; Hysterosalpingogram; Information technology; Sterilization

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Female sterilization is the most common contraceptive method worldwide; it is used by 19% of women aged 15 to 49 years who are currently married or in a union [1]. Permanent sterilization methods prevent pregnancy by disrupting fallopian tube patency and include techniques that involve surgical cutting, mechanical blockage, electrical

coagulation, or blocking fallopian tubes with microinserts that induce fibrosis [2]. The Essure system (Bayer Healthcare, Whippany, NJ) uses microinserts that are hysteroscopically placed into the proximal portions of each fallopian tube where they induce fibrotic tubal occlusion [3,4]. According to US package labeling, a patient cannot rely on the Essure system for contraception until the confirmatory hysterosalpingogram (HSG) shows proper microinsert placement and bilateral tubal occlusion [5,6].

Post-Essure HSG adherence has been suboptimal, particularly among resident clinic and publicly insured patients [7–9]. In their 10-year retrospective analysis of 508 evaluable pregnancies after Essure hysteroscopic sterilization, Munro et al [10] found that 178 (35%) pregnancies occurred

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in patients who failed to return for the 3-month post-Essure HSG. The adoption of institutional protocols involving dedicated nurses or gynecology residents to track patients after Essure procedures has been shown to improve adherence rates [6,8]. Electronic institutional protocols, specifically electronic reminders, can provide clinicians, office staff, and patients with computerized alerts at appropriate times to enhance health care [11]. However, the role of electronic reminders to the office staff as an institutional protocol to increase post-Essure HSG adherence is currently unknown. The primary objective of this study was to investigate whether post-Essure HSG adherence increases after implementation of an electronic reminder to the office staff.

**Materials and Methods**

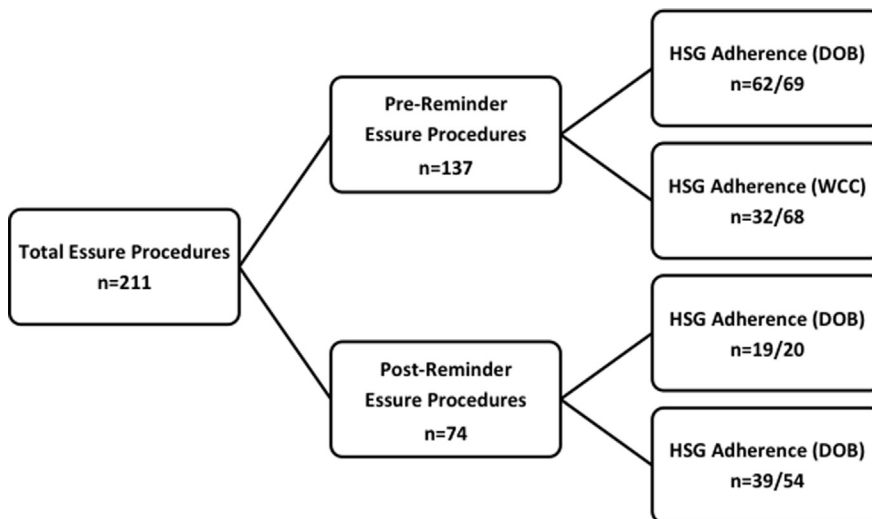
Institutional review board approval was obtained from Drexel University College of Medicine and Hahnemann University Hospital, Philadelphia, PA. This urban, innercity hospital serves as the primary teaching site for 24 obstetrics and gynecology resident physicians. The residency program serves a diverse patient population, a majority of who possess public or no form of insurance. In our department, most patient office visits occur at 1 of 2 sites: the Drexel Obstetrics and Gynecology (DOB) faculty practice or the Women’s Care Center (WCC). The DOB faculty practice consists of attending physicians and certified nurse midwives. The WCC is the resident clinic, which consists of 4 resident physicians, 1 from each postgraduate year level, and is supervised by an attending physician. At any given time, there are also 2 certified nurse midwives and 1 certified nurse practitioner, whose work is overseen by the director of the WCC.

In mid-2008, our institution adopted the Allscripts (Allscripts Healthcare Solutions, Inc., Chicago, IL) software package as an electronic medical record (EMR) system for the outpatient setting. As part of this EMR, an electronic reminder can be generated in the patient’s chart immediately after the procedure, which reminds the physician and office manager about the patient’s post-Essure HSG at a later date. This electronic reminder was implemented in July 2009 at the WCC and DOB faculty practice sites. Before implementation, all patients who underwent the Essure procedure were required to call the radiology department themselves to schedule the post-Essure HSG between the 7th and 10th day of their menstrual cycle. If the patient forgot to schedule or did not undergo the HSG, there was no department protocol to remind the patient, and no further action was taken. After implementation of the electronic reminder, the physician and office manager would be alerted 2 weeks before the HSG was due. The office manager would schedule the HSG and call the patients to remind them about this appointment. If the patient missed the HSG, the office manager would be alerted by electronic reminder, after which the office manager would call the patient at least twice to reschedule the appointment. If the patient could not be reached, 1 regular letter and 1 certified letter were sent in succession instructing the patient to reschedule or follow up in the office. At this point, the patient was considered lost to follow-up.

We performed a retrospective chart review of all patients who underwent uncomplicated Essure hysteroscopic sterilization between January 2005 and January 2012. Patients who underwent the procedure before July 2009 were the “prereminder” group and those after July 2009 were the

**Fig. 1**

A flow diagram of the study protocol. CDS = clinical decision support; HSG = hysterosalpingography; DOB = Drexel Obstetrics and Gynecology faculty practice; WCC = Women’s Care Center.



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