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BRIEF COMMUNICATIONS

A retrospective analysis of the impact of an obstetrician on delivery and care outcomes at four district hospitals in Ghana

Evelyn Hall^a, Justice Sevugu^b, Kwabena Danso^c, Joseph Adomako^d, Talya Peltzman^e, Frank J. Anderson^{f,*}^a University of Michigan Medical School, Ann Arbor, MI, USA^b Ghana Health Service, Sekyere Kumawu District Health Directorate, Kumawu, Ghana^c Department of Obstetrics and Gynecology, University of Science and Technology School of Medical Sciences, Kumasi, Ghana^d Ghana Health Service, Bosomtwe District Health Directorate, Bosomtwe, Ghana^e Department of Epidemiology, University of Michigan School of Public Health, Ann Arbor, MI, USA^f Department of Obstetrics and Gynecology, University of Michigan Health System, Ann Arbor, MI, USA

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Improving access to skilled maternal health care is a crucial component of attempts to reduce maternal and early neonatal mortality. In addition to community health workers and midwives, obstetrician/gynecologists (OBGYNs) who are trained to handle the most severe complications of pregnancy are needed to achieve the best possible outcomes.

Ghana has improved obstetric capacity by training and retaining a large number of specialists. Since 1989, two university-based postgraduate programs have trained and certified more than 142 physicians as OBGYNs [1]. These training programs are backed by a national policy which seeks to place an OBGYN in every district hospital.

The present study examines the impact of newly placed OBGYNs on selected health outcomes in four district hospitals in Ghana's Ashanti region. One OBGYN was placed in each of the hospitals at least 6 months before the present study. Routinely collected data from facility registers

were reviewed for the year preceding (2009) and the year following (2010) the placement of these OBGYNs. Aggregate count indicators were compared in SAS 9.4 (SAS Institute, Cary, NC, USA) using a χ^2 analysis. $P < 0.05$ was considered statistically significant. The study was approved by the Ghana Health Service Ethics Review Committee and the University of Michigan Institutional Review Board.

Across all facilities, there were 5725 deliveries in 2009 and 6702 in 2010. The use of malaria prophylaxis and of oxytocin to reduce risk of postpartum hemorrhage increased significantly after OBGYN placement ($P < 0.001$ for both) (Table 1). The proportion of deliveries that were by cesarean decreased significantly ($P = 0.002$) (Table 1). This finding is not in line with previous studies, which have demonstrated an association between the use of surgical procedure and obstetrician-led delivery [2]. The decrease observed in the present study could be explained by the increase in vacuum deliveries ($P = 0.05$) (Table 1), which probably obviated the need for some surgical interventions. Notable but non-significant reductions were observed in crude counts and rates of maternal mortality ($P = 0.25$) and fresh stillbirth ($P = 0.07$) (Table 1).

The number of neonatal deaths increased significantly after OBGYN placement ($P = 0.02$) (Table 1). This finding cannot be explained with

Table 1Health indicators for mothers delivering at four hospitals during the year before and the year after the arrival of obstetrician/gynecologists.^a

Outcome	2009 (n = 5725)	2010 (n = 6702)	P value
Cesarean delivery	862 (15.1)	878 (13.1)	0.002
Vacuum delivery	32 (0.6)	57 (0.9)	0.05
Maternal death	18 (0.3)	14 (0.2)	0.25
Neonatal deaths ^b	26 (0.5)	61 (0.9)	0.02
Fresh stillbirth ^c	71 (1.2)	61 (0.9)	0.07
Oxytocin in third stage of labor	5524 (96.5)	6590 (98.3)	<0.001
Intermittent preventative treatment ^d	2378 (41.5)	3215 (48.0)	<0.001

^a Values are presented as number (percentage) unless indicated otherwise.^b During the delivery hospitalization.^c A fetus born at >28 weeks' gestation and deemed to have died without evidence of prolonged intrauterine mortality.^d Three intermittent preventative treatment courses of malaria prophylaxis.

* Corresponding author at: Department of Obstetrics and Gynecology, University of Michigan Health System, L4001 Women's Hospital, 1500 E Medical Center Drive, Ann Arbor, MI 48109-0276, USA. Tel.: +1 734 904 1852; fax: +1 732 763 5992.

E-mail address: fwja@med.umich.edu (F.J. Anderson).

the facility level counts used in the present analysis. Other studies have reported increased patient acuity following the arrival of trained obstetricians [3]. An influx of acute or referred cases could explain both the increase in neonatal deaths and overall patient attendance. Expanding routine data collection to include referral status and measures of patient acuity would improve understanding of obstetric complication burden at Ghana's district hospitals.

In conclusion, the present study demonstrates an association between the presence of OBGYNs in district hospitals in Ghana and an increase in evidence-based maternal care practices, as well as moderate improvement in maternal mortality and stillbirth rates. High neonatal mortality rates, despite the presence of OBGYNs, indicate a need for further obstetric care measures, such as prenatal and intrapartum surveillance technologies. The best obstetric outcomes can only be realized when full-scope maternal healthcare services are available and supported by robust data collection systems that guide providers and high-impact interventions.

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Conflict of interest

The authors have no conflicts of interest.

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Laparoscopic radical trachelectomy followed by chemotherapy in a pregnant patient with invasive cervical cancer[☆]



Xiaofang Yi^{a,b,c}, Jingxin Ding^a, Ying Zhang^a, Xishi Liu^a, Haidong Cheng^a, Xiaotian Li^a, Xianrong Zhou^a, Keqin Hua^{a,b,c,*}

^a Obstetrics and Gynecology Hospital, Fudan University, Shanghai, China

^b Department of Obstetrics and Gynecology of Shanghai Medical College, Fudan University, Shanghai, China

^c Shanghai Key Laboratory of Female Reproductive Endocrine Related Diseases, Shanghai, China

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Cervical cancer is one of the most common cancers to be diagnosed during pregnancy [1]. A few cases of vaginal and abdominal radical trachelectomy have been reported in pregnant patients with early-stage cervical cancer who wished to retain their pregnancy [2–4]. However, the fairly high rate of spontaneous abortion after the procedure has meant it has not been widely used. In the present report, an alternative approach is described: laparoscopic radical trachelectomy (LRT)

followed by chemotherapy. Because patient anonymity was ensured, no informed consent was needed.

In March, 2013, a woman aged 25 years (G1P0) was diagnosed with a papillary mucinous adenocarcinoma of the cervix uteri (International Federation of Gynecology and Obstetrics stage IB1) at 18 weeks of pregnancy. Magnetic resonance imaging showed a 3.5-cm cervical tumor without evidence of parametrial extension (Fig. 1A). The patient expressed that she wished to continue with her pregnancy. LRT was proposed as a potential treatment; after counseling about the risks and the experimental nature of this approach, the patient and her husband agreed to proceed. The treatment strategy had been approved by the Institutional Review Board committee of Obstetrics and Gynecology Hospital of Fudan University, Shanghai, China.

At 18 weeks and 6 days of pregnancy, a laparoscopic pelvic lymphadenectomy with LRT was performed (Fig. 1B, C). The bilateral uterine blood supply was successfully retained. No intraoperative complications occurred and the total operation time was 6 hours. Total blood loss was 400 mL. The lymph nodes and the resection margins of the excised cervix were free of carcinoma according to frozen section analysis. However, the final histologic examination demonstrated lymphovascular space invasion (Fig. 1D, E), and the clear endocervical margin was less than 0.5 cm.

An adjuvant chemotherapy regimen of 135 mg/m² paclitaxel (day 1) combined with carboplatin (target area under the curve of 5; day 2) was started at 20 weeks and 5 days of pregnancy and repeated every 21 days for three cycles. Mild nausea and fatigue were reported. No grade 3 or 4 toxic effects were observed. No signs of fetal growth restriction were noted.

At 34 weeks and 2 days of pregnancy, the patient developed regular and frequent uterine contractions. A cesarean with subtotal hysterectomy was performed. The neonate was female and weighed 1750 g. The 1-min and 5-min Apgar scores were both 9. No residual tumor was identified.

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* Corresponding author at: Department of Gynecology, Obstetrics and Gynecology Hospital, Fudan University, 419 Fangxie Road, Shanghai 200011, China. Tel.: +86 21 63455050x6364; fax: +86 21 63455090.

E-mail address: huakeqin@126.com (K. Hua).