

## Immediate response team, another IMSS strategy to reduce maternal death. The surgeon participation is important, experience in UMAE HGO CMNO IMSS

*Equipo de respuesta inmediata (ERI): otra estrategia en la prevención de la muerte materna; experiencia en la UMAE HGO CMNO IMSS*

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### Key words:

Rapid response team, obstetric emergency, patient safety, morbidity, mortality.

### Palabras clave:

Equipos de respuesta rápida, seguridad del paciente, emergencia obstétrica, morbilidad, mortalidad.

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### ABSTRACT

**Objective:** To describe a good strategy implemented in the Mexican Social Security Institute (IMSS) to prevent maternal deaths. The IMSS has created a strategy to prevent maternal death called "Immediate Response Team" (ERI), which is a multidisciplinary emergency system that is activated when there is an obstetric emergency in any of its care units at any of the three levels of care, where there is an immediate and effective communication between the doctor who refers the patient and the one who will receive it, as well as the medical authorities, who favor immediate support to the unit that requires it to achieve timely and efficient patient care. **Conclusion:** The implementation of the ERI system is a good strategy to reduce maternal morbidity and mortality, but requires continuous training of the multidisciplinary health team to respond to obstetric emergencies.

### RESUMEN

**Objetivo:** Describir una buena estrategia implementada en el Instituto Mexicano del Seguro Social (IMSS) para prevenir la muerte materna. El IMSS ha creado una estrategia para prevenir la muerte materna denominada "Equipo de respuesta Inmediata" (ERI), que es un sistema de emergencia multidisciplinario que se activa cuando existe una emergencia obstétrica en cualquiera de sus unidades de atención en los tres niveles de atención, donde existe una comunicación inmediata y efectiva entre el médico que refiere a la paciente y el que la va a recibir, así como con las autoridades médicas directivas, quienes favorecen el apoyo inmediato a la unidad que lo requiera para lograr una atención oportuna y eficiente de la paciente. Se presenta como muestra un cuadro con casos de emergencia obstétrica que fueron regulados en el periodo enero-junio de 2015 en uno de los hospitales de ginecoobstetricia del país. **Conclusión:** La implementación del sistema ERI es una buena estrategia para disminuir la morbilidad y mortalidad materna, pero requiere de capacitación continua del equipo multidisciplinario de salud para responder a las emergencias obstétricas.

Rapid response systems are programs designed to improve the safety of inpatients whose condition deteriorates rapidly. Other names for these systems are: rapid response team, medical response team, medical emergency team. Rapid response teams are usually managed by nurses.<sup>1,2</sup>

According to Morse, rapid response teams are groups of health professionals who can be quickly assembled to respond to a patient

whose condition is clinically deteriorating.<sup>2</sup> These teams are multidisciplinary.

Failure to recognize early a deterioration in the patients' clinical condition that worsens their status and places them at the risk of death is called "failure to rescue". It is worth noting that this concept does not imply negligence or lack of professionalism, but little experience on the part of the hospital staff or work overload that prevent them from

recognizing early signs of deterioration and therefore responding quickly to solve them in a comprehensive manner.<sup>3</sup>

In 2004, the Institute for Health Care Improvement, in its campaign called "Campaign to save 100,000 lives", urged hospitals in the United States to implement "rapid response teams", in order to prevent or decrease the incidence of unwarranted deaths with an action protocol that includes the comprehensive assessment of five warning signs that are well established based on scientific evidence and have been proven to precede patient deterioration in a high percentage of patients. These warning signs are: tachycardia, tachypnea, hypotension, desaturation and altered sensorium.<sup>1,3</sup>

Due to its relevance, the American Heart Association and the Society of Critical Care Medicine have joined this program. Its impact has led 2,300 American medical care institutions to adopt rapid response teams as part of their daily hospital activities, based on the regulations issued by the first consensus conference on medical emergency teams that was held in Pittsburgh, USA, in June 2005. According to the Institute for Health Care Improvement, as of June 2006, 122,300 lives had been saved thanks to the intervention of rapid response teams, which corroborates the effectiveness and efficiency of these work groups.<sup>3</sup>

The issue of maternal mortality remains in the global agenda because it is an unsolved problem. Some hospital preventive strategies used are risk classification based on obstetric triage, the activation of rapid response teams, and assistance by qualified personnel in obstetric intensive care units and maternal-fetal medicine departments.<sup>4</sup>

The concept of creating emergency codes as a strategy intended to reduce mortality due to adverse effects secondary to health care services has resurfaced. The red code is an example of a rapid response system that originated in Colombia under the same principles, as a way to quickly respond in the hospital setting, to prevent and control complications resulting from obstetric hemorrhage, a cause of maternal death.<sup>5</sup>

Both the obstetric triage, which is a classification system that makes it possible

to quickly identify the presence of any complication, determine its severity and take immediate actions, and the Mater Code are feasible options.<sup>6</sup>

On June 6, 2009, the Mexican Institute of Social Security (IMSS) launched the immediate response team (IRT, or ERI in Spanish), a multidisciplinary emergency system that is activated whenever there is an obstetric emergency in any of its health care facilities throughout all its local entities countrywide. The IRT was officially implemented in 2010,<sup>7</sup> operating in all hospital shifts and wherever pregnant women were cared for, in order to improve the quality of medical care provided to pregnant patients with an obstetric emergency, or with progressive health deterioration. This system is always led by physicians.

In 2010, Briones-Garduño proposed a rapid response system, conceived as a hospital strategy for the multidisciplinary care of obstetric emergencies (hypertension, bleeding and sepsis). It was designed to prevent and/or decrease maternal and perinatal mortality with three actions: A, Identify; B, Treat; and C, Transfer. Therefore, among hospital strategies, implementation of the obstetric rapid response team known as MATER was considered.<sup>8</sup>

As of July 11, 2012, the IMSS implemented IRT simulations or drills, with the purpose of training its members, managing available resources and creating telephone communication networks throughout the country for immediate communication when faced with cases requiring quick attention.

The factors that hinder the proper functioning of IRT and that have been reported in the medical literature are: delayed decision-making by the medical team to treat the obstetric emergency and the lack of adequate configuration of medical teams, as a result of different factors, but mainly due to the lack of human resources in hospitals. The first factor may be improved by training medical teams in the diagnosis and treatment of the most common obstetric emergencies in each setting. The second factor requires an efficient and effective administrative process.<sup>7</sup>

IRT activation may take place in various places such as the emergency room, operating

room, delivery room, recovery room or in the hospitalization area.<sup>9</sup>

In Jalisco, at the IMSS obstetrics and gynecology hospital *Unidad Médica de Alta Especialidad, Hospital de Ginecoobstetricia Centro Médico de Occidente (UMAE HGO CMNO)*, emergency cases were managed through direct communication between shifts and by providing a census of patients requiring strict operational supervision, and as of 2009, the IRT began working.

Instructions for the correct functioning of the IRT are communicated to the staff through ongoing and frequent review of the Clinical Practice Guidelines (CPG) for the initial detection and treatment of obstetric emergencies in all shifts, through clinical or department sessions and in person to all employees, but particularly to new workers, who receive an information brochure is provided clearly describing the IRT's procedures.

The IRT activation criterion is the condition of the patient, which is considered an obstetric emergency when it is among the conditions in the CPG for the initial detection and treatment of obstetric emergencies, or else patients with serious, progressive deterioration of their health status.

Surgeon participation is essential in IRTs, particularly in cases of obstetric hemorrhage

in which timely damage control surgery is necessary in order to stabilize the patient and refer her to a tertiary care center, to further stabilize her and then perform definitive repair surgery.

At the UMAE HGO CMNO, there have already been many successful cases in which timely involvement of the surgeon was essential to save the lives of many patients, such as cases of massive obstetric hemorrhage, hepatic rupture, acute abdomen, abdominal surgery for multiple intestinal adhesions, as well as cases of idiopathic thrombocytopenic purpura where splenectomy was a priority, among others.

Chen Jack reported that, as the number of calls to the emergency team increases, the death rate due to unexpected cardiac arrests decreases.<sup>10</sup>

*Table I* presents cases of obstetric emergency that were regulated during the period from January through June 2015 at the UMAE HGO CMNO IMSS.

## CONCLUSION

IRT has been an excellent strategy implemented by the IMSS to prevent maternal death. Many successful cases have been reported due to the timely multidisciplinary care by the health care team in each one. The surgeon's timely and effective participation in this strategy is essential. We believe that this strategy should be applied in all medical institutions, both public and private, caring for pregnant women, thus achieving a decrease in maternal deaths.

## REFERENCES

1. Howell MA, Stevens JP. Rapid response systems. UpTo Date. 2015.
2. Malavé RJ. ¿La implementación de los Equipos de Respuesta Rápida en los hospitales baja la incidencia de arrestos cardiorrespiratorios y la mortalidad de los pacientes fuera de las unidades de intensivos? Tesis de Maestría en Enfermería. Puerto Rico: Universidad Metropolitana, Escuela de Ciencias de la Salud; 2012.
3. Carrillo ER, Ramírez RF, Carrillo CJ, Carrillo CL. Equipo de respuesta rápida. *Rev Asoc Mex Med Crit Ter Int.* 2009; 23: 38-46.
4. Briones CJ, Díaz de León PM. Propuesta urgente. *Rev Asoc Mex Med Crit Ter Int.* 2009; 23: 62-63.
5. Navarro JR, Castillo VP. Código rojo, un ejemplo de sistema de respuesta rápida. *Rev Col Anest.* 2010; 38: 86-99.
6. Alvarado BR, Arroyo VM, Hernández PC, et al. Manejo del triage obstétrico y código mater en el Estado de

**Table I. Obstetric emergency cases regulated from January through June 2015 at the UMAE HGO CMNO IMSS.**

Obstetric emergency	Number
Severe preeclampsia/eclampsia/ HELLP syndrome	102
Obstetric hemorrhage	13
Placenta previa/placenta accreta	38
Sepsis	4
Septic abortion	2
Heart disease	10
Hyperthyroidism	2
Pulmonary embolism	4
Fatty liver	2
Ectopic pregnancy	7
Others	22
Total	206

- México. Enfermería Universitaria ENEO-UNAM. 2012; 9: 61-76.
7. Dávila-Torres J, González-Izquierdo JJ, AguilRuíz-Rosas R, Cruz-Cruz PR, Hernández-Valencia M. Equipo de Respuesta Inmediata obstétrico en el Instituto Mexicano del Seguro Social, factores facilitadores. *Cirugía y Cirujanos*. 2015; 83: 492-495.
  8. Briones CJ, Díaz de León PM. Equipo de respuesta rápida en obstetricia crítica. *Rev Asoc Mex Med Crit Ter Int*. 2010; 24: 108-109.
  9. Martínez RO, Portillo DJ, Tamés RJ, et al. Equipo de respuesta inmediata, análisis de 59 casos con hemorragia obstétrica. *Rev Med Inst Mex Seguro Soc*. 2015; 53: 132-135.
  10. Chen J, Bellomo R, Flabouris A, Hillman K, Finfer S; MERIT Study Investigators for the Simpson Centre; ANZICS Clinical Trials Group. The relationship between emergency team calls an serious adverse events. *Crit Care Med*. 2009; 37: 148-153.

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