SHORT REPORT

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An emergency clinical pathway for eclampsia and pre-eclampsia patients in the Lazio region (Italy)

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The Public Health Agency (PHA) of the Lazio region is the research branch of the local health authority where the capital city, Rome, is located. It is responsible for informing decision makers in the entire region of about six million people, including Rome and several smaller cities and towns.

The PHA has played a significant role in the development of evidence-based guidelines which have been instrumental in the formation of pathways for several critical health conditions requiring emergency care. Additionally, these pathways have been used to implement a multidimensional education program which serves to improve emergency health care through the provision of resources and outreach visits to health professionals and other clients of the PHA. Critical health conditions covered in the program include: acute stroke, acute myocardial infarction, severe trauma, acute respiratory failure, paediatric emergencies and pregnancy complications.

Pre-eclampsia and eclampsia are serious complications of pregnancy. Pre-eclampsia occurs in about 3-5% of pregnancies and is an important cause of fetal and maternal morbidity and mortality worldwide.¹ As the Lazio region of Italy treats more cases of pre-eclampsia and eclampsia in rural, than urban areas where the closest hospital can be up to several kilometres away, prompt intervention by emergency personnel is particularly important.

In 2006, data sourced from hospital recordsⁱ in the Latium region showed:

- The incidence of eclampsia and other pregnancy complications equalled 9.2 in 1000 births

ⁱ (Data sources: Health Information System of Emergency Department and Hospital Information System).

and still-births

- 507 pre-eclampsia or eclampsia patients were hospitalised, and of those, 412 were admitted through the emergency department (ED)
- The 412 patients admitted through the ED were diagnosed as follows:
 - 240 (58.4%) - “mild or unspecified pre-eclampsia” (ICD-9-CM 642.4);
 - 89 (21.6%) - “severe pre-eclampsia” (ICD-9-CM 642.5);
 - 69 (16.8%) - “pre-eclampsia or eclampsia with pre-existing hypertension” (ICD-9-CM 642.7);
 - 14 (3.2%) - “eclampsia”(ICD-9-CM 642.6)
- 60% of the 507 cases occurred between 26-35 years; 35.6% had completed primary or secondary school; 7% had no educational qualification and 40% of patients lived in the province of Lazio region, defined as a rural area.

Although rare, there are convincing reasons for considering pre-eclampsia and eclampsia complications as a priority in emergency health care programs. Firstly, they are potentially life-threatening for both mother and infant, and require early diagnosis for effective treatment, and secondly, they occur more frequently in moderate to poorly educated people. It is known that less educated people are not aware of the need for prenatal care to reduce the risks of pregnancy complications and therefore are more likely to be at risk of requiring emergency treatment.²⁻⁴ Given this evidence, health care providers can also play an important role in improving the health of communities through awareness and education.

A multidisciplinary group was created to research and summarise relevant scientific literature, such as evidence-based guidelines and Cochrane Systematic Reviews⁵⁻¹⁰ and a brief emergency clinical pathway (ECP) was drafted for critique by field professionals. The group composed of: two anaesthetists, one hospital Health Director, two gynaecologists and obstetricians, three Emergency Medical System (EMS) and Emergency Room (ER) doctors, two EMS and ER nurses, two epidemiologists, two evidence based medicine experts and one health information systems specialist. The ECP was also externally refereed by two epidemiologists specialising in maternal and child birth health, two gynaecologists and two obstetricians.

The literature review involved the following searches:

- The Cochrane Collaboration *Pregnancy and Childbirth Group* and *Effective Practice and Organisation of Care Group* Registers
- The Cochrane Central Register of Controlled Trials (CENTRAL 2005, Issue 3)
- MEDLINE 1996-2005
- EMBASE 1988-2005
- CINAHL 1982-2005 (via OVID WEB Gateway) using the following keywords:
exp pregnancy complications/; preeclamp; pre next eclamp*; eclamp* AND practice guideline.*

The outcome of our research has resulted in new protocols for emergency call operators to recognise possible signs and symptoms of pre-eclampsia and eclampsia, which will assist with the provision of appropriate transportation, referral and early treatment. (Figure 1).

The ECP has been disseminated to all emergency service facilities and is available in Italian

on the PHA website (www.asplazio.it).

Unlike other clinical pathways (such as those for Acute Stroke and Myocardial Infarction) we did not plan an experimental study to assess the impact. We prospectively collected the records to monitor data which we intend to follow up by interviewing experts (such as doctors and nurses or health professionals of emergency system, gynaecologists, obstetrician) to collect ideas and criticisms.

Data collected one year after dissemination of the ECP have shown an increase in hospitalisations and admissions through the emergency department for eclampsia and pre-eclampsia, (446 cases in the 2005 vs 507 cases in the 2006) which may indicate improved recognition of eclampsia symptoms following dissemination of the ECP.

In summary, we believe the management and number of cases of eclampsia and other pregnancy complications presenting in the ED can be lessened by prevention and improved prenatal care. On the other hand, we are also aware of the additional efforts that are required to educate those people in our society who are living in socially difficult or culturally disadvantaged conditions which may inhibit their access to health services^{11,12} Emergency health professionals can play a significant role in this area by learning to recognise, communicate and provide early and appropriate care for these conditions in the primary health care setting.

Within this context, we believe that the development of a program devoted to improving and disseminating awareness of this health condition to emergency health professionals, is a strategic and positive step in reducing maternal and perinatal mortality.

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Figure 1.

Emergency clinical pathway for pre-eclampsia and eclampsia management in Lazio region

*Red code = Eclampsia (seizures in woman of 20 weeks gestation or above) or severe pre-eclampsia (Hypertension, diffused or localised edema and other specific signs/symptoms abnormalities – ie headache, blurred vision, restlessness)

^Yellow stroke code = pre eclampsia (Systolic Blood Pressure $\geq$ 140 mmHg and Diastolic Blood Pressure $\geq$ 90 mmHg; proteinuria $\geq$ 0.3 g per h24in woman of 20 weeks gestation or above) .

Advanced Life Support (ALS) ambulance including physicians on board; Basic Life Support (BLS) ambulance not including physicians on board.