



LETTERS / CORRESPONDANCE

Please send us your comments and opinions. / Nous serons heureux de recevoir vos commentaires et opinions. Letters to the editor should be addressed to: / Prière de faire parvenir les lettres à la rédaction à l'adresse suivante :a

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INAPPROPRIATE ANTIBIOTIC USE

To the Editor:

Is it really accurate to refer to a score of itinerant doctors and moonlighting residents from the specialties of radiology and psychiatry as "family doctors"?¹ That's like calling a doctor who works in Toronto who does a one-week locum in Canada's North a "rural physician"!

**Paul Bonisteel, MD, CCFP,
FCFP**
New Harbour, Nfld.

REFERENCE

1. Worrall G, Young B, Knight V. Inappropriate use of antibiotics for acute respiratory tract infections in a rural emergency department. *Can J Rural Med* 2005;10(2): 86-8.

[Response:]

Dr. Bonisteel's comments are true; most of the doctors who staff small rural emergency departments are not trained FPs. Unfortunately, that is the situation all over the country at the moment and, as our study showed, they are not serving our patients in an evidence-based way. It is a pity that CFPC-trained doctors are not willing to do this type of work; I don't know why, and I cannot offer any solution.

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DIAGNOSING PULMONARY EMBOLISM IN A RURAL SETTING

To the Editor:

I read with interest the article entitled "Diagnosing pulmonary embolism in a rural setting," by John Bosomworth.¹ I would like to make a clarification and a comment.

With respect to the work-up of suspected pulmonary embolus in pregnancy, Dr. Bosomworth states that a V/Q scan involves a smaller radiation dose than a CT scan. This is only true when speaking of the total dose to the mother and embryo together. The embryonic dose alone is actually smaller in a CT pulmonary angiogram than in a V/Q scan, roughly 0.06–0.14 mGy, versus 0.9–1.8 mGy for V/Q.^{2,5} The risk to the embryo with respect to radiation exposure would thus be lower from a CT pulmonary angiogram of the mother than a V/Q scan (where the risk is already quite low), and the mother's dose would be the same as that for any other young woman undergoing CT pulmonary angiography.

The other risk relating to CT would be that associated with intravenous contrast agent administration. There is the always present but small risk of a contrast agent reaction, as well as the theoretical risk of inducing hypothyroidism in the baby from

iodinated contrast agent given late in pregnancy. These risks would need to be balanced against the risks associated with delayed diagnosis of pulmonary embolism, as well as the benefits of CT in providing alternate diagnoses as compared with V/Q scanning when determining the next appropriate test.

As Dr. Bosomworth alluded to, there have been significant advances in the detection of pulmonary embolism since the original PIOPED data were published 15 years ago.⁴ Advances in multidetector CT have made it possible to detect small pulmonary emboli with a sensitivity and specificity approaching or equal to that of conventional angiography.^{5–8} We are at the point now where incidental findings of pulmonary emboli in asymptomatic patients are a not uncommon occurrence. Increasing numbers of experts are questioning the clinical significance of these findings,^{9,10} and whether or not they warrant the risks of anticoagulation therapy. For an excellent discussion on this topic, I recommend Lawrence Goodman's recent editorial on this very topic.⁵

Ian Silver
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Kingston, Ont.

REFERENCES

1. Bosomworth J. Diagnosing pulmonary embolism in a rural setting. *Can J Rural Med* 2005;10(2):100-6.

2. Huda, W. When a pregnant patient has a suspected pulmonary embolism, what are the typical embryo doses from a chest CT and a ventilation/perfusion study? *Pediatr Radiol* 2005;35(4):452-3.
3. Value of the ventilation/perfusion scan in acute pulmonary embolism. Results of the prospective investigation of pulmonary embolism diagnosis (PIOPED). The PIOPED Investigators. *JAMA* 1990;263(20):2753-9.
4. International Commission on Radiological Protection (ICRP). Publ no 53. Radiation doses to patients from radiopharmaceuticals. *Ann ICRP* 1987;18(1-4).
5. Goodman, LR. Small pulmonary emboli: What do we know? *Radiology* 2005;234:654-8.
6. Stein PD, Kayali F, Olson, RE. Trends in the use of diagnostic imaging in patients hospitalized with acute pulmonary embolism. *Am J Cardiol* 2004;93:1316-7.
7. Trowbridge RL, Araoz PA, Gotway MB, Bailey RA, Auerbach AD. The effect of helical computed tomography on diagnostic and treatment strategies in patients with suspected pulmonary embolism. *Am J Med* 2004;116:84-90.
8. British Thoracic Society Standards of Care Committee Pulmonary Embolism Guideline Development Group. British Thoracic Society guidelines for the management of suspected acute pulmonary embolism. *Thorax* 2003;58:470-83.
9. Ghaye B, Remy J, Remy-Jardin M. Non-traumatic thoracic emergencies: CT diagnosis of acute pulmonary embolism — the first 10 years. *Eur Radiol* 2002;12:1886-905.
10. Dalen JE. Pulmonary embolism: what have we learned since Virchow? *Chest* 2002; 122:1440-56.

[Response:]

Ian Silver has correctly pointed out that in the process of diagnosing pulmonary embolism during pregnancy, clinicians often choose V/Q scanning as the investigation of choice because of a mistaken perception that CT pulmonary angiography imparts a larger radiation dose to the fetus. Dr. Silver also points out that with improving CT technologies, specificity and sensitivity improve to the extent that we have difficulty interpreting the significance of emboli found incidentally. These same improving technologies allow for even more reduced fetal radiation exposure as subsequent studies are published.^{1,2} These articles suggest

that, while fetal doses are low in V/Q scanning, they are very low in CT pulmonary angiography. The decision for investigative modality based on radiation dose alone would therefore favour CT.

Iodinated contrast material used in CT pulmonary angiography readily crosses the placenta and could, as Dr. Silver suggests, transiently suppress neonatal thyroid function if given in late pregnancy. Such an effect is probably rare, clinically, although it has been shown in infants of mothers treated with amiodarone³ and when iodine-containing antiseptics are used in mothers or infants.⁴ This problem and the issue of contrast reaction are small considerations arguing against the use of CT.

Since both investigative modalities impart very little risk to the fetus, there should probably be no difference in the diagnostic work-up between pregnant and non-pregnant patients.⁵ The potential for harm in either over- or under-diagnosis of thromboembolic disease in pregnancy mandates a definitive diagnosis, which is best achieved in following the same diagnostic algorithm as for non-pregnancy.

All that being said, the rural physician must still take into consideration the opinion of colleagues in referral centres, who may continue to favour V/Q scanning in pregnancy. Several measures can be taken to reduce radiation exposure from V/Q scanning:⁶

- A normal perfusion scan (performed first) requires no subsequent ventilation scan.
- Administered radionuclide is excreted in the urine and pools in the bladder adjacent to the fetus. The patient should be well hydrated and encouraged to void frequent-

ly to minimize fetal radiation exposure.

- The dose of the perfusion agent could be reduced up to one-half if the patient is able to tolerate longer imaging times.

**John Bosomworth, MD, CCFP,
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REFERENCES

1. Winer-Muram HT, Boone JM, Brown HL, Jennings SG, Mabie WC, Lombardo GT. Pulmonary embolism in pregnant patients: Fetal radiation dose with helical CT. *Radiology* 2002;224(2):487-92.
2. Huda W. When a pregnant patient has a suspected pulmonary embolism, what are the typical embryo doses from a chest CT and a ventilation/perfusion study? *Pediatr Radiol* 2005;35:452-3.
3. Bartalena L, Bogazzi F, Braverman LE, Martino E. Effects of amiodarone administration during pregnancy on neonatal thyroid function and subsequent neurodevelopment [review]. *J Endocrinol Invest* 2001; 24(2):116-30.
4. Cosman BC, Schullinger JN, Bell JJ, Regan JA. Hypothyroidism caused by topical povidone-iodine in a newborn with omphalocele. *J Pediatr Surg* 1988;23:356-8.
5. Guidelines on diagnosis and management of acute pulmonary embolism. Task Force on Pulmonary Embolism, European Society of Cardiology. *Eur Heart J* 2000;21(16):1301-6.
6. Schwartz DR, et al. Venous thromboembolism in pregnancy. UpToDate® Dec 2004; v. 13.1. Available: www.uptodate.com (restricted access; accessed 2005 May 20).

NURSE PRACTITIONERS

To the Editor:

It recently came to my attention that there is an inaccuracy in the article by Worster and colleagues.¹ The authors state: "Only 3 Canadian provinces (Ontario, Alberta, and Newfoundland and Labrador) have passed legislation supporting the APN role." (p. 91).

Based on our research and information gathering in conjunction with provincial associations we know that 10 provinces/terri-

tories (Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Newfoundland and Labrador, Yukon and the Northwest Territories) have passed legislation supporting the nurse practitioner role.

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REFERENCE

1. Worster A, Sarco A, Thrasher C, Fernandes C, Chemeris E. Understanding the role of nurse practitioners in Canada. *Can J Rural Med* 2005;10(2):89-94.

[Response:]

Since the time of our manuscript preparation other provinces approved NP legislation. They include:

Manitoba

(www.crnmb.mb.ca/extendinfo.php)
Approval is expected in the Spring 2005 for new regulation to support the NP role.

British Columbia

(www.rnabc.bc.ca/pdf/np_regulatory_framework.pdf)
Approval is expected by Fall 2005 for legislation to support

NP practice.

Prince Edward Island

(www.anpei.ca/default.asp?mn=1.10)

The Registered Nurses Act, Bill No. 14, was unanimously approved in December 2004 but has not been proclaimed until all regulations have been developed and approved, including: Registration, Education, Professional Conduct Review and Nurse Practitioner.

Saskatchewan

(www.srna.org/nurse_practitioner/documents/2005_RNNP_scope_of_practice.pdf)

Registered Nurse (Nurse Practitioner) - RN (NP) practice was supported as of Apr. 30, 2004.

Northwest Territories and Nunavut

(www.rnantnu.ca/legislation.htm)
In January 2004, the 'Nurse Practitioner' title and regulatory standards became legislated supporting NP practice.

Quebec

(www.ooiiq.org)
Quebec established legislation supporting practice of NPs in 2003.

New Brunswick

(www.nanb.nb.ca/index.cfm?include=nursePractitioner)

The *Nurses Act* (1984) was amended to enable the practice of NPs in July 2002.

Nova Scotia

(www.crnns.ca/documents/nurse_practitionercompetencies.pdf)

The Registered Nurses Act (2001, s. 19) sets out the criteria for registered nurses who are able to practise as NPs in Nova Scotia.

Yukon

(www.yrna.ca/pdf/standards.pdf)
No legislation supporting NPs at present.

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FOR THE RECORD

In the nurse practitioner article¹ published in the Spring 2005 issue of *CJRM*, coauthor Arlene Sardo's name was misspelled. We apologize for any inconvenience this may have caused. — Ed.

REFERENCE

1. Worster A, Sarco A, Thrasher C, Fernandes C, Chemeris E. Understanding the role of nurse practitioners in Canada. *Can J Rural Med* 2005;10(2):89-94.