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Rural Lung Health Nurse Practitioner Assessment: Evidence-Based Practice

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Chronic obstructive pulmonary disease (COPD) is a progressive, disabling disease that can have devastating effects on patients, families, and the healthcare system.¹ Ranked as the fourth leading cause of death in Canada, it currently affects more than 830,000 Canadians.^{1,2} True rates are higher than reported because COPD is underdiagnosed.¹ While smoking is the leading cause of COPD, accounting for 80-90% of cases, occupational exposures is the other leading risk factor, accounting for 10-20 % of cases.³ Unfortunately, the risk associated with occupational exposures is underappreciated.⁴ This has implications for primary healthcare (PHC) nurse practitioners since COPD is preventable and treatable.¹ PHC nurse practitioners, who work in rural areas, can include occupational lung health risk factors within their lung health assessments.

Studies show that farmers are at an increased risk for lung disease, as a result of occupational exposures.^{5,6} However, these exposure are often under-recognized⁴ and difficult to assess since farmers generally do not seek health care until serious symptoms are present. In two research studies conducted in Alberta, Saskatchewan, and Manitoba, poultry producers were found to have lower lung function and more lung symptoms including chronic cough, increased phlegm production, wheeze, chest tightness, and shortness of breath.^{5,6} The findings of this research link these symptoms to indoor air contaminants within poultry houses, such as gases, dust, chemicals, and micro-organisms.^{5,6} Operations where hens are housed in cages are more hazardous to lung health because indoor contaminants are smaller in size, and can penetrate deeper into the lungs.⁶ These health effects can be reduced through environmental controls such as ventilation systems and wearing industry-approved masks.^{5,6} Thus, when evaluating lung

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health risks, PHC nurse practitioners can include questions about farming type, processes, and use of personal protective equipment.

Once occupational risk factors are included in the rural lung health assessment, this evidence-based health information can guide the PHC nurse practitioner toward best practice. Core components of this assessment should include a complete health history, evaluating lung symptoms, and physical examination.⁷ The health history should assess lung risk factors, such as occupational exposures and smoking history including prenatal or childhood exposure to second-hand smoke.⁴ Other risk factors to consider are asthma, allergies, age, gender, and family history of lung disease, since they are all linked to an increased risk of COPD development.⁴ Lung symptoms can be evaluated using the Canadian Lung Health Test, developed by the Canadian Lung Association (Figure 1).⁸ If a person answers yes to even one of the questions, this test helps identify the need for spirometry which a doctor or nurse practitioner can order to confirm a diagnosis of COPD.^{1,4,8}

Figure 1. The Canadian Lung Health Test

Smokers and former smokers are at risk of developing COPD. COPD is short for "Chronic Obstructive Pulmonary Disease", and it's the new name for emphysema and chronic bronchitis. Some non-smokers can also get COPD.

If you are over 40 and smoke or used to smoke, you may already have COPD. Take this quick test to screen for symptoms of COPD:

- Do you cough regularly?
- Do you cough up phlegm regularly?
- Do even simple chores make you short of breath?
- Do you wheeze when you exert yourself (exercise, go upstairs?)
- Do you get many colds and do your colds usually last longer than your friends' colds?

Canadian Lung Health COPD test from the Canadian Lung Association website is for information purposes only. It should not replace a complete medical examination. If you think for you may have COPD or are worried about your health, please see your doctor.

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Figure 1. The Canadian Lung Health Test developed by the Canadian Lung Association.

The physical examination should include an assessment of the chest, noting rate, rhythm, breathing patterns, and lung sounds.⁸ Height and weight should be determined and body mass index calculated, since they can affect chest expansion and effective breathing.⁸ Systemic effects of COPD should also be assessed.⁴ These results, combined with the health history and the Canadian Lung Health Test, can help PHC nurse practitioners determine which individual requires further testing.¹ Specifically, spirometry testing can be used to diagnose COPD.^{1,9} Findings from the rural lung health assessment should be discussed confidentially with each farmer so that interventions can be tailored to meet their needs.⁴

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By recognizing occupational lung health risk factors, and incorporating this information in a rural lung health assessment, PHC nurse practitioners, who work in rural areas, are in a position to detect early changes in lung health and improve lung health outcomes. By integrating evidence-based knowledge into practice, PHC nurse practitioners can work with farmers in reducing exposure to lung risks and promote lung health in high risk populations such as poultry producers.

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