



## LETTERS / CORRESPONDANCE

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### THE VALIDITY OF THE GPRI

*To the Editor:*

The Leduc General Practice Rural Index (GPRI)<sup>1</sup> was outlined for us a decade ago. Curiously, despite the fact that it had not been applied or validated, it was widely cited by many authors when discussing the problematic and continuing issue of defining "rural." Without an illustration of its application, it was difficult to assess its utility. Therefore, the demonstration in the Spring 2007 issue<sup>2</sup> of how the GPRI was used to characterize the practice patterns of rural and urban general practitioners in British Columbia was most welcome.

Unfortunately, it is very difficult to agree with the authors' conclusions that their analyses provide "a very strong case for the validity of the GPRI as a measurement of rurality"<sup>2</sup> or that they have demonstrated the "excellent correlation between the BC billing data and the GPRI."<sup>2</sup> Of the 18 fee categories that were correlated with the GPRI and a simplified version of the index (GPRI-S), only 2 produced coefficients greater than 0.7, at best explaining barely 60% of the statistical variation. The majority of the correlation coefficients had absolute values less than 0.3. Given the number of parameters that are necessary to calculate the GPRI and GPRI-S scores, some of which are not that easily obtained, these results seem to me to be very disappointing.

A number of my colleagues and I have used the Statistics Canada Rural and Small Town (RST) Classification System to examine physician distribution<sup>3</sup> and rural health status<sup>4</sup> in all of Canada. I wondered whether there was an association between GPRI scores and RST categories, so I matched the GPRI and GPRI-S values in Table 4 of the Olatunde, Leduc and Berkowitz article<sup>2</sup> with the 2001 Urban and Metropolitan Influenced Zones (MIZs) that are included in the RST system. The mean values for the GPRI scores were 2.1 large urban centres, 8.5 medium-sized urban centres, 17.8 small urban centres, 39.0 strong or moderate MIZs and 46.5 weak or no MIZs. The mean GPRI-S scores were 5.9 large urban centres, 10.3 medium-sized urban centres, 35.4 small urban centres, 43.4 strong or moderate MIZs and 54.6 weak or no MIZs. Statistically significant ( $p < 0.01$ ) correlations between the GPRI/GPRI-S scores and a numerical ranking of the urban-RST categories ranged from Kendall's tau values of 0.73 to Spearman's rho values of 0.85. The urban-RST approach performs just as well, or just as poorly, as the GPRI approach but with no need for the additional time or expense in acquiring data to generate GPRI scores.

To conclude that there are "significant differences in the fee-for-service practice patterns between rural and urban general practitioners"<sup>2</sup> does not require

the complexity of a GPRI or GPRI-S. A simplified RST classification will do the same<sup>5</sup> with a lot less effort and just as much validity.

We all recognize that defining rural is difficult; and generating complex numerical indices is especially hazardous. In my view, the GPRI needs a great deal of fine-tuning before it can be used as a meaningful index of rurality.

**Roger Pitblado, PhD**  
Sudbury, Ont.

### REFERENCES

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2. Olatunde S, Leduc ER, Berkowitz J. Different practice patterns of rural and urban general practitioners are predicted by the general practice rurality index. *Can J Rural Med* 2007;12:73-80.
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**[Dr. Leduc replies:]**

*To the Editor:*

Our data demonstrate an excellent correlation between the GPRI and the billing data of BC general practitioners and make a very strong case for the validity of the GPRI as a measure of rurality. To our knowledge, these findings are unprecedented in the

relevant literature. Dr. Pitblado has misunderstood our results, but perhaps I can explain them a little better:

The 18 fee categories were logical groups of fee codes billed by general practitioners. In a fee-for-service environment, these groups represented the services general practitioners performed for their patients. Some of the fee categories demonstrated a strong positive correlation to degree of rurality. In other words, these services made up a larger percentage of the general practitioners' total volume of services to their community the smaller and more remote the practice was from basic and advanced medical referral centres. Some of the fee categories demonstrated a strong negative correlation to degree of rurality. In other words, these services made up a smaller percentage of the general practitioners' total volume of services to their community the smaller and more remote the practice was from basic and advanced medical referral centres. Other fee categories showed no significant difference. This likely means that the numbers of these services were too small, or the relation between these particular services and rurality was not linear. It does not mean that the GPRI is any less valid.

For their research, Dr. Pitblado and his colleagues used the Statistics Canada Rural and Small

Town (RST) method of defining rurality. He asks why we did not choose this method ourselves. We agree with many others who have concluded that there is no single measurement of rurality that is adequate for all situations; a definition of rural should be adapted to the purpose for which it is being applied.<sup>1,2</sup>

The idea for the GPRI came in response to the Northern and Isolation Allowance (NIA) program in British Columbia in the early 1990s. The intent was to develop a definition that could be used in the same way (for rural retention payments) and in rural research, that was simpler, health care oriented and could be applied in other provinces. The intent was also to address shortcomings in the many different Statistics Canada rural definitions,<sup>2</sup> including the RST method.

We believe that the GPRI has at least 3 advantages over the Statistics Canada methods:

1. It is a continuous rather than a categorical scale so it avoids creating markedly different scores for 2 very similar communities on either side of a threshold.
2. It recognizes that in rural areas patients routinely travel much farther or in different directions for medical care than they do for employment.
3. It indirectly measures travel time to designated basic and

advanced medical referral centres, which are defined according to a minimum basket of services, while allowing for changes in designation if minimum services are not maintained.

We find the GPRI (simplified) quite easy to measure. The only requirements are the local population, the identity of the basic and advanced referral centres, and a road map.

As we said in our article, the billing data are very comprehensive but lack the necessary detail to determine if the GPRI (or any other rural definition) is truly valid. This data makes a very strong case, but, as we stated, further testing is necessary.

Meanwhile, there is a pressing need for more rural research. We don't have time to wait for the perfect definition of rural (if one can ever exist). Valued contributors such as Dr. Pitblado should continue to use the best tools available.

**Eugene Leduc, MD**  
Victoria, BC

#### REFERENCES

1. Olatunde S, Leduc ER, Berkowitz J. Different practice patterns of rural and urban general practitioners are predicted by the General Practice Rurality Index. *Can J Rural Med* 2007;12:73-80.
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