Variation in Opioid Prescribing and Relation to Population Density-Rural vs Urban

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Introduction

Opioid medications are often prescribed as part of the management of pain, both acute and chronic. (1). The same medications used to treat pain are often implicated in drug abuse (2). Studies of geographic variation in opioid prescribing have focused on misuse and adverse events associated with the use of these medications (3). Variation in the prescribing of opioid medications has been described in the context of third party insurance (4). The Nova Scotia Prescription Monitoring Program (NSPMP) collects information from all prescriptions for controlled substances written in Nova Scotia independent of third party drug coverage. The comprehensive nature of the data may provide insight into the provision of pain and addiction care in Nova Scotia. This retrospective database study will describe the effect of population density and especially rural/urban discrepancies on the prescribing of opioid medications.

References -
1) JAMA 2000; 284:428-9.
2) Med Care 2006; 44:1005-10.
3) J Pain 2005; 6:662-72.
4) J Rural Health 2006; 22: 276

Methods

The Nova Scotia Prescription Monitoring Program collects information electronically from all prescriptions for controlled substances (Opioids, Stimulants, etc.) written in Nova Scotia.

All prescriptions for opiates written in Nova Scotia from 2004-2008 were collected by the NSPMP.

Data were converted to morphine equivalents. This data was then arranged by Forward Sorting Area (FSA).

Rural areas are designated by the number 0 in the FSA. All Urban ares are designated 1-9 and must have a minimum population concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count (2006). The population per FSA was derived from the 2006 Census.

Results

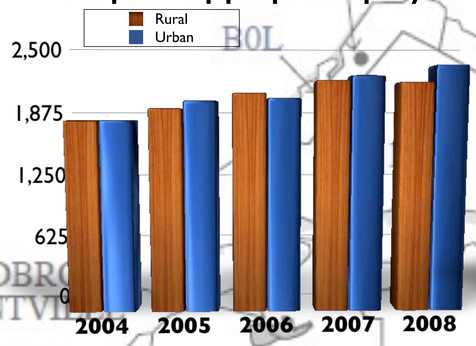
Nova Scotia has a stable population that is 33.3% rural according to Statistics Canada and Canada Post (Total pop. 913,000).

There appears to be no significant difference between rural and urban populations prescribed opioids. There is also very little variation over time.

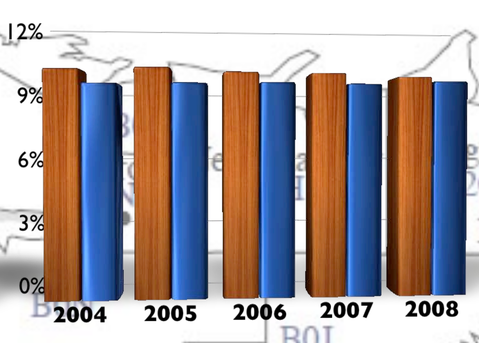
The amount of opioid prescribed per patient has steadily risen over the past 5 years. Again, no difference was noted between rural and urban populations across Nova Scotia.

When the two largest urban centers are examined separately, Halifax and not Cape Breton's Sydney shows higher prescribing per patient.

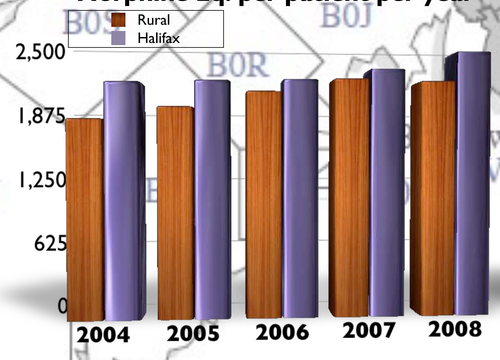
Rural versus Nova Scotia Urban Morphine Eq. per patient per year



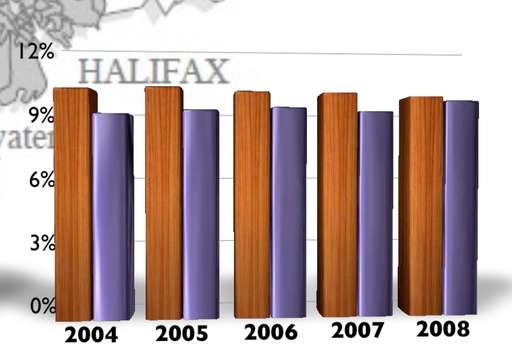
Percent pop. prescribed opioids per year



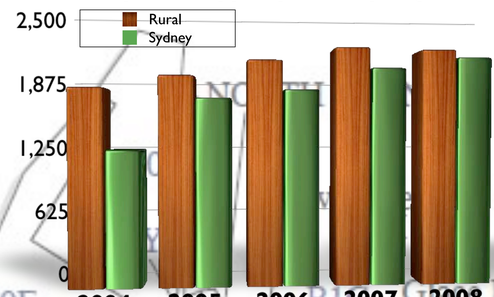
Rural versus Halifax Urban Morphine Eq. per patient per year



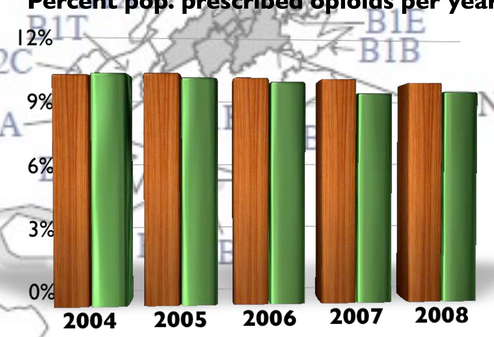
Percent pop. prescribed opioids per year



Rural versus Sydney Urban Morphine Eq per patient per year



Percent pop. prescribed opioids per year



Discussion

In the US there are several large data collections (RADARS, Medicare, etc.) but these encompass specific groups such as those who do not have their own healthcare insurance or are targeted for misuse. Our database is free from such bias and is a truer reflection of prescribing practice in the population as a whole.

The lack of variation in prescribing practices between rural and urban populations is encouraging. It likely reflects many factors including education and universal access to healthcare.

The other trend observed was increased amount of opioid prescribed per patient which may reflect better pain control and addiction treatment in both rural and urban environments. Contrary to various media reports in Canada, Cape Breton had lower prescribing amounts but has now caught up with the rest of the province.

This work can provide insight into prescribing of opioids for chronic pain and addiction management and establishes a foundation for further studies.