Mortality Comparisons of First Nations to All Other Manitobans

A Provincial Population-based Look at Health Inequalities by Region and Gender

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ABSTRACT

Background: To examine inequalities in health status of Registered First Nations Manitobans compared to all other Manitobans.

Methods: Three mortality indicators – premature mortality rate (PMR) defined as an age- and sex-adjusted rate of death before age 75 years; life expectancy from birth; and potential years of life lost (PYLL) – are compared between Registered First Nations (RFN) people and all other Manitobans (AOM) by geographical areas of Manitoba. Data were derived from the Population Health Research Data Repository, linked to the federal Status Verification System (SVS) files for the years 1995 through 1999.

Results: First Nations experienced double the PMR compared to all other Manitobans (6.6 versus 3.3 deaths per thousand, $p < 0.05$), an eight-year gap in life expectancy (males: 68.4 versus 76.1 years; females 73.2 versus 81.4 years), and over twice the PYLL (males 158.3 versus 62.5 years of life lost per thousand; females 103.3 versus 36.5). RFN male life expectancy was geographically-related (better health status in the north), and inversely related to the corresponding regional AOM life expectancy ($r = -0.61$, 9 df, one-tailed, $p < 0.03$). As regional percentage of RFN decreased, male life expectancy decreased ($r = 0.77$, 9 df, one-tailed, $p < 0.003$). In contrast, RFN female indicators showed no such relationship.

Conclusion: The inequality in health status between RFN and all other Manitobans is large, but also shows differential geographical and gender effects.

MeSH terms: Indians, North American; health services research; mortality; health status indicators; medical records; Canada; gender differential

La traduction du résumé se trouve à la fin de l'article.

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The objective of this paper is to examine three measures of mortality as proxies for inequalities in health status of Manitoba's Registered First Nations people compared to all other Manitobans (AOM). "Registered" refers to those First Nations people who, under the federal Indian Act, are entitled to Treaty rights. The three indicators – premature mortality rate (PMR), life expectancy at birth, and potential years of life lost (PYLL) – are general measures of overall population health. PMR is considered the best single measure to reflect the health status of a region's population due to its association with morbidity and self-rated health,¹⁻⁴ as well as socio-economic risk factors.⁵ This leads to the conclusion that populations having a high PMR most likely require the use of more health care services, including preventive services.

The current research was part of a larger study of First Nations health status and health care use patterns commissioned by the provincial Department of Health and completed by the Manitoba Centre for Health Policy (MCHP), a unit of the Department of Community Health Sciences at the University of Manitoba.⁶ This study was done in cooperation with the Assembly of Manitoba Chiefs, Manitoba Health, First Nations and Inuit Health Branch of Health Canada, Indian and Northern Affairs Canada, and MCHP. The working group for this study was the Assembly of Manitoba Chiefs' Health Information Research Committee, comprised of the Health Directors of each Tribal Council and each Independent First Nations community, as well as the Health Advisors of AMC and Manitoba Keewatinowik Okimakanak.

The purpose of this paper is to use a unique linkage of data files to document the differential mortality rates between Registered First Nations and all other Manitobans, and to determine the ecologic relationships of regional mortality rates. The linkage of the Population Health Research Data Repository, held at MCHP and containing Manitoba Health administrative database claims as well as Vital Statistics, with the Status Verification System files (SVS files, described in the Methods) enabled us to examine First Nations mortality rates more accurately. This linked database avoided problems encountered by other researchers attempt-

ing to derive mortality rates for First Nations people.⁷⁻⁹ If mortality comparisons are based upon Vital Statistics death reports alone, problems occur due to omissions of First Nations identification on the death records. If mortality comparisons rely on the existing federal SVS files, there is incomplete notification of death resulting in underestimates of death rates. In contrast, the MCHP linked file overcame these problems by using the Vital Statistics mortality records held within MCHP's administrative database, and Registered First Nations status obtained through the SVS file. Therefore, although other studies have produced mortality statistics as presented in the Discussion section of this paper, few have had access to the unique population-based linkage upon which the results of this paper are based.

METHODS

Geographical regions and population counts

The mortality indicators are compared by geographical divisions of the province of Manitoba, called Regional Health Authorities (RHAs). Registered First Nations people living within an RHA boundary (both "on reserve" and "off reserve") were compared to all other Manitobans (AOM) living within the same RHA.

At the time of this research, the province was divided into 12 RHAs, one being the provincial capital city of Winnipeg. Each RHA provides a governance structure for health services (both acute care and community-based care), with an appointed Board of Directors responsible for the overall planning and integration of services. However, First Nations communities (also known as "reserves") are federally funded, and most provide community-based services for those Registered First Nations people living "on reserve". That being said, many First Nations people use provincial hospitals and physicians, especially in the less remote southern areas of the province. Figure 1 shows the geographical boundaries of Manitoba's RHAs. See Table I for the population counts of Registered First Nations and AOM by RHA for the year 1998. Our database linkage, described below, estimated 7.5% of the Manitoba population to be Registered

Figure 1. Map of the geographical areas (Regional Health Authority regions) of Manitoba

First Nations having a Manitoba Band Affiliation (85,959 Registered First Nations, 1,054,422 "all other Manitobans"). Of the Registered First Nations, 48,036 or 55.9% were classified as living "on reserve", defined in this administrative claims data research as those living in or near their First Nations community of affiliation – a proxy for "on reserve".

Sources of data for the research

Mortality rates were derived using data from the Population Health Research Data Repository, linked to the federal Status Verification System (SVS) files for the years

1995 through 1999. The Population Health Research Data Repository contains physician and hospital billing claims from the provincial universal-coverage health care records, as well as vital statistics files of births and deaths. The linkage of health data with the SVS file used probabilistic and deterministic linkage techniques, after which the files were anonymized prior to use by MCHP. All personal identifiers in the original Manitoba Health records are removed prior to use by MCHP. The federal Indian and Northern Affairs Canada (INAC) maintains the SVS files of all Registered First Nations persons, including their Band affiliation, for purposes of enti-

TABLE 1

Mortality Indicators of Registered First Nations People (RFN) and All Other Manitobans (AOM), 1995 Through 1999, by Manitoba Region

Regional Health Authority	Total Number of People in Each Region (for RFN: number and % living "on reserve")		Premature Mortality (deaths per thousand)		Life Expectancy at Birth (years)*				Potential Years of Life Lost (years of life lost per thousand)			
					RFN males	AOM males	RFN females	AOM females	RFN males	AOM males	RFN females	AOM females
South Eastman	307 (21; 6.8%)	52,386	S	2.65†	61.69	77.25	80.77	82.97	243.26‡	54.49	33.24	28.95
Central	5,919 (3,900; 65.9%)	91,149	7.99‡	3.02†	66.71	76.83	71.06	81.92	177.74‡	58.14	94.33‡	33.35
Brandon	2,143 (0; 0%)	44,547	6.99‡	3.20	62.19	76.63	76.34	81.56	222.74‡	57.11	65.59	34.83
South Westman	478 (261; 54.6%)	34,079	9.91‡	3.32	65.53	75.95	73.71	81.93	204.45‡	71.61	109.36‡	32.25
Winnipeg	21,204 (0; 0%)	622,585	7.17‡	3.32	66.64	76.23	71.15	81.32	164.91‡	60.38	128.97‡§	36.68
Interlake	7,843 (5,387; 68.7%)	66,629	5.44‡	3.39	71.39	75.47	75.66	81.08	108.54‡§	67.55	67.03‡§	37.17
Marquette	2,990 (2,623; 87.7%)	34,737	9.40‡§	3.35	64.54	74.89	71.03	82.69	206.18‡	70.89	132.83‡	33.85
North Eastman	6,369 (5,343; 83.9%)	32,394	7.00‡	3.28	67.38	75.80	71.90	81.17	186.32‡	65.24	145.11‡	39.02
Parkland	4,839 (3,236; 66.9%)	38,518	7.27‡	3.54	68.21	75.38	70.49	81.46	155.70‡	76.22†	113.40‡	37.83
Burntwood	26,473 (21,737; 82.1%)	18,418	5.45‡§	3.99	69.81	72.63	75.30	79.31	148.04‡	94.12†	83.76‡	46.64
Nor-Man	7,139 (5,528; 77.4%)	18,198	7.45‡	4.16†	66.88	73.93	72.32	78.59	162.52†	69.14	105.36‡	53.35†
Churchill	255 (0; 0%)	782	S	5.30	77.84	67.49	71.70	75.86	104.97	156.97	101.04	36.11
Total provincial rate for Manitoba	85,959 (48,036; 55.9%)	1,054,422	6.61‡	3.30	68.35	76.07	73.18	81.40	243.26‡	54.49	33.24‡	28.95

* Note: there is no statistical testing for life expectancy at birth

† statistically significantly different ($p < 0.05$) than the corresponding RFN provincial rate (either higher or lower)‡ RFN rate is statistically significantly different ($p < 0.05$) than the AOM rate for that region (RHA)§ statistically significantly different ($p < 0.05$) than the corresponding AOM provincial rate (either higher or lower)

S = suppressed due to small sample size (rate based on 5 or less events)

lements through the Indian Act. Permission was obtained from the five stakeholders – AMC, INAC, First Nations and Inuit Health Branch of Health Canada, MCHP, and Manitoba Health – to proceed with a linkage of the Manitoba Health administrative data with the SVS file for Manitoba Band members. MCHP obtained ethical approval for the study from the University of Manitoba, Faculty of Medicine's Health Research Ethics Board.

There are many Aboriginal people in Manitoba who are not classified as Registered First Nations. First Nations people who do not have Treaty rights under the federal Indian Act, Inuit populations, and Métis would all be included in the "all other Manitobans" comparison group for purposes of this research. In Manitoba, it is estimated that a majority (63.5%) of the Aboriginal population are Registered First Nations people, with 4.0% non-Registered First Nations, and 31.9% self-identifying as Métis.¹⁰ The most problematic bias would occur in northern regions, where the AOM group could potentially include the greatest proportion of the latter two.

Mortality indicators and statistical considerations

All mortality rates were calculated using data from the years 1995 through 1999. Premature mortality rate (PMR) is a rate of death before the age of 75 years (stated as deaths per thousand). Life expectancy at birth is based upon the mortality experience of the population. Potential years of life lost (PYLL) is the years of life lost per thousand population ages 1 through 74 years. It is similar to PMR but gives greater weight to the death of a younger person, by adding up the number of years "lost" when a person dies before age 75 years. PYLL is large if there is a high death rate among young or middle-aged persons, and small if most of the deaths in a population occur in later life.¹¹

Life expectancy calculations were based on the methodology reported in the "Users Guide to 40 Community Health Indicators", using mortality records from 1995 through 1999 with the population for those years as the denominator.¹² Age and residence were calculated as of date of death. The statistical calculation used in this research did not yield confidence

intervals in the measures for life expectancy.

PMR and PYLL are given as standardized rates, adjusted for age (and sex where not disaggregated) to reflect what the rate would be if each area's population had the same age and sex distribution as Manitoba on December 31, 1996. This is particularly relevant, given the relatively young population of First Nations people compared with the much older AOM population. Rates are suppressed where the counts on which the rates are based represent five persons or less.

For PMR and PYLL, three comparisons were statistically tested: each RHA Registered First Nations rate was compared to the overall Manitoba Registered First Nation rate; each RHA "all other Manitobans" rate was compared to the Manitoba AOM rate; and within each RHA, the Registered First Nations and AOM groups were compared. Statistical comparison tests of age- and sex-standardized rates used Hotelling's T^2 statistic, using 99% confidence limits to maintain an acceptable overall Type I error at approximately 0.05.¹³ All data management, pro-

gramming and analyses were performed using SAS® software. Additional correlation tests were performed on NCSS97®, using non-parametric Spearman's rank correlation (correlating ranked values rather than actual rates), to avoid problems with outliers or non-normal distributions. Churchill RHA was excluded from correlation tests, due to small sample size and resultant unstable rates for ecologic correlations.

RESULTS

Premature mortality rate

Table I compares the PMR of Registered First Nations with all other Manitobans, by RHA of residence. Overall, the PMR of Registered First Nations persons is double the rate of all other Manitobans (6.6 versus 3.3 deaths per thousand, $p < 0.05$). The southern RHAs (South Eastman, South Westman, Central, Brandon) show the greatest disparity between First Nation and all others, with the disparity less in the north (Burntwood and Nor-Man). Graphs of this data are available at MCHP's website.

Life expectancy

Table I includes the life expectancy at birth for males and females. Registered First Nations males and females both show an eight-year gap in life expectancy compared to all other Manitobans (males 68.4 versus 76.1 years; females 73.2 versus 81.4 years).

As shown in Figure 2, regional life expectancy of Registered First Nations males tends to decrease as the "all other males" regional life expectancy increases (Spearman's $r = -.61$, 9 degrees of freedom (df), one-tailed, $p = 0.025$). In contrast, life expectancy for First Nations females shows no consistent relationship compared to all other regional females (Spearman's $r = 0.03$, 9 df, one-tailed, $p = 0.45$, NS).

Potential years of life lost (PYLL)

Table I shows a wide gap between the PYLL of Registered First Nations males (158.3 years of life lost per thousand) and AOM males (62.5), with the greatest discrepancy seen in the southern RHAs. Registered First Nations females have 2.8 times the PYLL of AOM females (103.3 versus 36.5 years of life lost per thousand). The greatest discrepancies are seen in the RHAs of Winnipeg (129.0 vs.

Figure 2. Relationship of life expectancy at birth for Registered First Nations and all other Manitobans, by region

Figure 3. Relationship of the potential years of life lost for Registered First Nations and all other Manitobans, by region

36.7), Marquette (132.8 vs. 33.9) and North Eastman (145.1 vs. 39.0), where rates are at least 3.5 times higher.

Figure 3 illustrates the negative association of male Registered First Nations regional PYLLs with the PYLLs of all other

Figure 4. Relationship of life expectancy of Registered First Nations people by region, and percentage of Registered First Nations people comprising the regional population

males living in the region (Spearman's $r = -0.56$, 9 df, one-tailed, $p = 0.035$). This relationship is not apparent with females (Spearman's $r = 0.25$, 9 df, one-tailed, $p = 0.23$, NS).

Regional percentage of Registered First Nations

For Registered First Nations, overall PMR was not associated with regional percentage of First Nations people ($r = -0.41$, 8 df, one-tailed, $p = 0.12$, NS). However, when disaggregated by gender, male life expectancy at birth ($r = +0.77$, 9 df, one-tailed, $p = 0.0025$) and male PYLL ($r = -0.67$, 9 df, one-tailed, $p = 0.01$) both showed improved health status with increasing regional percentages of First Nations people. In contrast, neither female life expectancy ($r = -0.25$, 9 df, one-tailed, $p = 0.23$, NS) nor female PYLL ($r = 0.25$, 9 df, one-tailed, $p = 0.23$, NS) showed any significant relationship (see Figure 4).

DISCUSSION

Registered First Nations people have double the premature mortality rate, 2.5 times or greater PYLL, and an eight-year gap in life expectancy compared to all other peo-

ple living in the same region. Of special concern is the three-fold PYLL of Registered First Nations females, especially in the capital city of Winnipeg (129.0 versus 36.7 years of life lost per thousand).

As noted previously, one limitation of the data is that many Aboriginal people would be included in the "all other Manitobans" group if they were non-Registered First Nations, Inuit or Métis. This would, if anything, make the differences in mortality between Registered First Nations and all other Manitobans more conservative. Therefore, our results may actually underestimate the mortality gap between First Nations and all other Manitobans, and this may be most problematic in the North where non-Registered First Nations may more likely be included in the AOM comparison group. This being said, one still sees a persistent effect of better health status for First Nations people living in northern areas.

Other studies have also found the health status of Canadian First Nations people to be much poorer than the rest of the population, such as the recent Health Canada report reporting the 1999 crude death rate for First Nations as 3.8 deaths per thou-

sand for males and 2.9 deaths per thousand for females, with the top three causes of death being injury and poisoning, circulatory, and cancer.¹⁴ Earlier studies indicate a gap between First Nations and other Canadians, with elevated First Nations male mortality (5.6 versus 3.4 per thousand) and female mortality (3.4 versus 1.7 per thousand) compared to the rest of the Canadian population.¹⁵ So, too, the PYLL in 1982 to 1985 was 2.8 times higher (157 versus 56.5 per thousand), due mainly to injuries affecting higher proportions of First Nations young people.¹⁶ First Nations people living in Winnipeg showed significantly lower life satisfaction, associated with worse health and worse social circumstances, with almost twice as many perceiving their health as being fair or poor (59% versus 26%).¹⁷ A Statistics Canada study found that Canadian off-reserve Aboriginal people reported "fair" or "poor" health twice as often compared to their non-Aboriginal counterparts (23.1% versus 12.2%, $p < 0.05$), with the inequality persisting even after adjustment for socioeconomic status and health behaviour factors.¹⁸ The Manitoba Centre for Health Policy often uses PMR as an overall framework for global health status of a regional population.⁵ Both of these self-rated health studies underscore its validity, bearing in mind that the PMR of Registered First Nations people was double that of all other Manitobans.

The surprising finding of this project is not the profound differential itself, but the gender differences. The health status of Registered First Nations males is geographically related, with better health status in the north, but inversely related to corresponding regional health status of AOM males. Moreover, as the percentage of First Nations people in a region decreases, the male life expectancy also decreases. In contrast, the health status of Registered First Nations females appears more randomly distributed, with no relationship to geography, health status of AOM females within the region, or regional percentage of First Nations people.

Being a minority group and the related detrimental effect on health status has been explored in other areas of the world. Nickens states that "the designation of a group as a minority suggests that the members of that group are relatively poor and

powerless, and socially marginalized.”¹⁶ Others have also studied the “underclass thesis”, whereby ethnic minorities may be forced into less eligible jobs or into unemployment, resulting in lower socioeconomic attainment.¹⁹ Williams et al. found that this underclass thesis did, indeed, hold true for certain lower socioeconomic labour groups, but not necessarily for owners of small businesses.²⁰ This present research points to a differential effect on males. One hypothesis is that they are even more profoundly affected by a sense of powerlessness and marginalization as they become an increasingly smaller group relative to the rest of the region’s population size. Further research needs to address the patterns whereby males appear to be detrimentally affected in areas of greater enculturation and colonialization (southern Manitoba), whereas females appear more homogeneous throughout the province. Knowing that the rates are all age-adjusted, the theory that possibly younger and more “danger-prone” age groups of males would preferentially move to more southern communities is discounted. Although northern areas have poorer housing and plumbing infrastructures, possibly the access to more traditional occupations, or greater employment opportunities such as mining, are slightly protective for First Nations males. First Nations household income levels are, indeed, slightly higher in the north compared to the south, although all income levels are much lower than other Manitoban counterparts.⁶ One hypothesis may be that female work and household roles are less affected by geography than male work and household roles, but this needs further study.

Whatever the underlying reasons, the outcome measures paint a striking picture of health disparity between the First Nations people and all other Manitobans. As well, there is evidence of geographical and gender patterns within First Nations themselves. Health planners and decision-makers, at federal, provincial and community levels, need to make a concerted effort to examine the underlying determinants of this poorer health status.

REFERENCES

1. Carstairs V, Morris R. *Deprivation and Health in Scotland*. Aberdeen, Scotland: Aberdeen University Press, 1991.
2. Eyles J, Birch S, Chambers S, Hurley J, Hutchinson B. A needs-based methodology for allocating health care resources in Ontario, Canada: Development and an application. *Soc Sci Med* 1991;33(4):489-500.
3. Eyles J, Birch S. A population needs-based approach to health care resource allocation and planning in Ontario: A link between policy goals and practice? *Can J Public Health* 1993;84(2):112-17.
4. Reid RJ, Roos NP, MacWilliam L, Frohlich N, Black C. Assessing population health care need using a claims-based ACG morbidity measure: A validation analysis in the province of Manitoba. *Health Serv Res* 2002;37(5):1345-64.
5. Martens PJ, Frohlich N, Carriere KC, Derksen S, Brownell M. Embedding child health within a framework of regional health: Population health status and sociodemographic indicators. *Can J Public Health* 2002;93(Suppl 2):S15-S20.
6. Martens PJ, Bond R, Jebamani LS, Burchill CA, Roos NP, Derksen SA, et al. *The Health and Health Care Use of Registered First Nations People Living in Manitoba: A Population-Based Study*. Winnipeg: Manitoba Centre for Health Policy, 2002.
7. Martin JD, Uh SH. A vital statistics system for determining births and mortality in the First Nations population of British Columbia, Canada. *Int J Circumpolar Health* 2002;61(2):92-97.
8. Rosenberg HM, Maurer JD, Sorlie PD, Johnson NJ, MacDorman MF, Hoyert DL, et al. Quality of death rates by race and Hispanic origin: A summary of current research, 1999. *Vital Health Stat* 2 1999;128:1-13.
9. Epstein M, Moreno R, Bacchetti P. The under-reporting of deaths of American Indian children in California, 1979 through 1993. *Am J Public Health* 1997;87(8):1363-66.
10. Hallett B, Nemeth M, Stevens H, Steward D. Aboriginal people in Manitoba 2000. Available on-line at: <http://www.gov.mb.ca/ana/apm2000/apm2000.pdf>. (Accessed January 12, 2004)
11. Young TK. *Population Health: Concepts and Methods*. Oxford: Oxford University Press, 1998.
12. Health and Welfare Canada. *Users Guide to 40 Community Health Indicators*. Ottawa, Ontario: Community Health Division, Health Services and Promotion Branch, Health and Welfare Canada, 1992.
13. Carriere K, Roos LL. A method of comparison for standardized rates of low-incidence events. *Med Care* 1997;35(1):57-69.
14. Health Canada. A Statistical Profile on the Health of First Nations in Canada. Ottawa, Ontario: Health Canada, 2003. Available on-line at: <http://www.hc-sc.gc.ca/fnihb/sppa/hia/>
15. MacMillan HL, MacMillan AB, Offord DR, Dingle JL. Aboriginal health. *CMAJ* 1996;155(11):1569-78.
16. Young TK. *The Health of Native Americans: Toward a Biocultural Epidemiology*. New York: Oxford University Press, 1994.
17. Blandford AA, Chappell NL. Subjective well-being among Native and non-Native elderly persons: Do differences exist? *Can J Aging* 1990;9(4):386-99.
18. Tjepkema M. The health of the off-reserve Aboriginal population. *Health Rep* 2002;13(Suppl):73-88.
19. Nickens HW. Race/ethnicity as a factor in health and health care. *Health Serv Res* 1995;30(1):151-62.
20. Williams R, Wright W, Hunt K. Social class and health: The puzzling counter-example of British South Asians. *Soc Sci Med* 1998;47(9):1277-88.

RÉSUMÉ

Contexte : Nous avons étudié les inégalités sur le plan de la santé chez les membres inscrits des Premières nations manitobaines par rapport au reste de la population du Manitoba.

Méthode : Nous avons comparé trois indices de mortalité – le taux de mortalité prématurée (TMP), défini comme étant le taux de décès avant 75 ans ajusté selon l’âge et le sexe; l’espérance de vie à la naissance; et les années potentielles de vie perdues (APVP) – pour les membres inscrits des Premières nations et le reste de la population du Manitoba selon les zones géographiques de la province. Les données ont été dérivées d’un registre, le Population Health Research Data Repository, lié au Système de vérification du statut (SVS) fédéral, pour la période de 1995 à 1999.

Résultats : Chez les membres des Premières nations, le TMP était le double de celui du reste de la population du Manitoba (6,6 c. 3,3 décès p. 1 000, $p<0,05$), l’espérance de vie était inférieure de huit ans (chez les hommes, 68,4 c. 76,1 ans; chez les femmes, 73,2 c. 81,4 ans), et les APVP étaient plus de deux fois supérieures (chez les hommes, 158,3 c. 62,5 années de vie perdues p. 1 000; chez les femmes, 103,3 c. 36,5). Chez les hommes, l’espérance de vie des membres inscrits des Premières nations était liée à la zone géographique (l’état de santé était meilleur dans le Nord) et réciproquement liée à l’espérance de vie du reste de la population du Manitoba dans la zone correspondante ($r = 0,61$, degré de liberté = 9, test unilatéral, $p<0,03$). À mesure que le pourcentage régional des membres inscrits des Premières nations diminue, l’espérance de vie des hommes diminue ($r = 0,77$, degré de liberté = 9, test unilatéral, $p<0,003$). Par contre, les indices concernant les femmes inscrites des Premières nations ne permettent pas d’établir de tels liens.

Conclusion : Les inégalités entre les membres inscrits des Premières nations et le reste de la population du Manitoba sur le plan de l’état de santé sont importantes, mais elles diffèrent selon la zone géographique et le sexe.