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IN THIS ISSUE / DANS CE NUMÉRO

The re-silofication of health care

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Let's get this straight — I like silos. They may be dangerous places to fall into, but they make for pleasing sillouettes behind hayfields and beside the barns and buildings of the family farm. Much of rural Canada has depended on the silo for storage and survival. So it is with some pain that I am perpetuating here the negative connotations some economic wag has brought to this, admittedly very vertical, structure. That is in fact its only fault, to be seen to be standing tall, alone, seemingly disconnected (though we know better) from the world.

Metaphorically speaking horizontal structures have found better favour with health care planners. Horizontal structures are connected one with the other, they can share, they can link, they can multitask, they can distribute the work among many hands.

This was well and good until along came "measurement." At first there was no problem, but soon it became evident that horizontal, integrated and distributed structures were actually quite difficult to manage, let alone measure. With the work distributed among many hands it became necessary to bend those hands to the task of reporting on their portion of the task. Some reported better than others, and overall it was an unsatisfactory process, particularly when the mission was to manage. Remember the slogan: "If you measure you must manage"? This has now been turned around to read: "To manage you must measure."

Hence the silo. How much easier to measure by pulling tasks together around common themes in the hands of dedicated teams. Cancer, diabetes, congestive heart failure, obesity . . . all so much more easily managed in the hands of specialized programs, where patients become their disease. How many CHF patients on β-blockers? A cinch — just consult the database. How long does patient X wait for procedure Y? Not a problem, just ask the program manager.

As they say, " It's all good"!

Ah, but is it? I confess that I am not sure. If we strip away some of the lingo of the moment, if we scratch the surface of this measuring craze, will we in fact find better outcomes, or simply better known outcomes? And what might we sacrifice along the way? The generalist, perhaps, with his or her fingers in many pies? The holistic physician of yore who saw patients as more than the sum of their (failing) parts? The full service rural doc who stands at the centre of rural health care?

In the part of the world I know best, this is happening in spades. It is top-down planning of the most blatant kind. It is centrophilic. It is designed for places where numbers can be logically concentrated for the sake of efficiency. In other words, it is urban. However, it is also motivated by a believable desire to improve care and better meet the needs of individuals, particularly when these needs coalesce around one pathology, which it does often enough to make the approach worth understanding.

The challenge for small places, particularly those that may already be providing high quality comprehensive and very personal (if unexamined) care, is to manage all this measurement.

Good luck!

Le re-silofication des soins de santé

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Précisons une chose — j'aime les silos. Il peut être dangereux d'y tomber, mais ils créent des horizons agréables à l'œil derrière les champs de foin et à côté des granges et des bâtiments de la ferme familiale. Une grande partie du Canada rural dépend du silo pour l'entreposage et pour sa survie. C'est donc avec un pincement au cœur que j'emprunte ici les connotations négatives qu'un économiste blagueur a rattachées à cette structure que je reconnais très verticale. C'est en fait son seul défaut : la haute structure verticale solitaire qui semble n'avoir aucun lien avec le monde (même si nous savons que ce n'est pas le cas).

En matière de métaphores, les planificateurs des soins de santé préfèrent les structures horizontales : elles sont reliées les unes aux autres, elles peuvent partager, avoir des liens, réaliser de multiples tâches simultanément et distribuer le travail entre de nombreux intervenants.

L'image fonctionnait bien jusqu'à ce que l'on introduise la «mesure». Au début, il ne semblait pas y avoir de problème, mais il est devenu assez vite évident que les structures horizontales intégrées et distribuées sont en réalité très difficiles à gérer et encore plus à mesurer. Comme le travail était réparti entre de nombreux intervenants, il a fallu les obliger à produire des rapports sur leur volet de la tâche. Or, certains produisaient de meilleurs rapports que d'autres et dans l'ensemble, le processus était insatisfaisant, surtout lorsque la mission consistait à gérer. Vous vous rappelez le slogan : «Si vous mesurez, vous devez gérer»? On a maintenant fait volte-face et on affirme : «Pour gérer, il faut mesurer».

D'où la structure verticale — qui est plus facile à mesurer si on regroupe les tâches autours de thèmes communs entre les mains d'équipes dévouées. Cancer, diabète, insuffisance cardiaque globale, obésité ... tous ces problèmes sont gérés tellement plus facilement par des programmes spécialisés où les patients deviennent leur maladie. Combien de patients atteints d'ICG prennent des bêta bloquants? Réponse instantanée : il suffit de consulter la base de données. Depuis combien de temps le patient X attend-il de subir l'intervention Y? Pas de problème : il suffit de demander au gestionnaire de programme.

Tout va donc bien, semblerait-il.

J'avoue toutefois ne pas en être certain. Si nous éliminons une partie de la terminologie à la mode pour creuser plus loin que la surface de cette folie de la mesure, trouverons-nous en fait de meilleurs résultats ou simplement des résultats mieux connus? Que risquons-nous de sacrifier en cours de route? Le généraliste, peut-être, qui s'occupe de divers volets des soins? Le médecin holistique d'hier qui considérait que les patients sont plus que la somme de leurs parties (défaillantes)? Le médecin rural tous services qui constitue le point de convergence des soins de santé en milieu rural?

Dans la partie du monde que je connais le mieux, c'est effectivement ce qui se produit, c'est-à-dire une planification descendante du type le plus flagrant. Cette planification centrophile est conçue pour des lieux où il est possible de concentrer logiquement les statistiques pour l'amour de l'efficience. Autrement dit, c'est une planification urbaine. Elle est toutefois motivée aussi par un désir crédible d'améliorer les soins et de mieux répondre aux besoins des personnes, particulièrement lorsque ces besoins se regroupent autour d'une pathologie, ce qui suffit souvent pour qu'il vaille la peine de comprendre l'approche.

Le défi, pour les petites localités, et en particulier pour celles qui fournissent peut-être déjà des soins complets et très personnels (même s'ils ne sont pas scrutés à la loupe) de grande qualité, consiste à gérer toutes ces mesures. Bonne chance!

President's message. SuperDocs!

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Raymond Pong and his colleagues reported this year that in 2004, rural Canada accounted for 21.1% of the population and 9.4% of all doctors.[1] Yet the 2005 Canadian Institute for Health Information report indicates that it is easier to find a family doctor in rural communities than in the cities.[1] What does this mean? Are rural docs superdocs? There is no doubt that as rural doctors, we play an important role in our communities. We are often leaders and stalwart advocates. We have a strong sense of responsibility and we do the best we can to look after the needs of our communities.

Rural Canada has 2.4% of the specialists and 16% of family doctors.[1] As rural physicians we have a broad scope of practice and are true generalists. Many rural family docs are competent in endoscopy, anesthesia, surgery, orthopedics, obstetrics, psychotherapy, ultrasonography and cardiac stress testing. We have developed these skill sets because they are needed by the patients in our isolated communities. Rural specialists also have broad skill sets. General surgeons in rural practice often perform cesarean sections, do burr holes and reduce fractures. We are, however, sensing an increasing reluctance from our urban counterparts and professional organizations to offer generalist and advanced skills training. The Society of Rural Physicians of Canada is forging links and collaborating with other national health organizations, especially the College of Family Physicians of Canada, and Canada's medical schools. Such links are vital in ensuring that the rural health care component of their social mandate is fulfilled by increasing the availability of generalist and advanced skills training.

On another note, the Romanow Report[2] of 2002 identified "Rural Health Access" as one of the 5 immediate issues for targeted funding. It is the only one that has not been addressed by the previous Liberal Government or the current Conservative Government. It is time for the Conservative MPs, who were given the opportunity to form the Government by their rural constituents, to rise to the challenge of helping them gain equitable access to health care. As advocates for our patients and as leaders in our communities, we should take on the task of reminding our rural MPs, before the next election, of their opportunity to respond to the Number One concern of Canadians — health care.

MANY RURAL FAMILY DOCS ARE COMPETENT IN ENDOSCOPY, ANESTHESIA, SURGERY, ORTHOPEDICS, OBSTETRICS, PSYCHOTHERAPY, ULTRASONOGRAPHY AND CARDIAC STRESS TESTING.

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Message du président. Les supermédecins!

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Raymond Pong et ses collaborateurs ont signalé cette année qu'en 2004, le Canada rural comptait 21,1 % de la population et 9,4 % des médecins du pays[1]. L'Institut canadien d'information sur la santé indique toutefois dans son rapport de 2005 qu'il est plus facile de trouver un médecin de famille dans les communautés rurales qu'en milieu urbain[1]. Qu'est-ce que cela signifie? Les médecins ruraux sont-ils des supermédecins? Il est certain que nous jouons un rôle important dans nos communautés. Nous sommes souvent des chefs de file et d'ardents défenseurs de nos patients. Nous avons un solide sentiment de responsabilité et nous faisons notre possible pour répondre aux besoins de nos communautés.

Le Canada rural compte 2,4 % des spécialistes et 16 % des médecins de famille[1]. Comme médecins ruraux, nous avons un vaste champ d'exercice et nous sommes de véritables généralistes. Beaucoup de médecins de famille ruraux sont compétents en endoscopie, anesthésie, chirurgie, orthopédie, obstétrique, psychothérapie, échographie et épreuve d'effort cardiaque. Nous avons acquis ces compétences spécialisées parce que les patients de nos communautés isolées en ont besoin. Les spécialistes ruraux possèdent aussi un vaste éventail de compétences. Souvent, les chirurgiens généraux en milieu rural pratiquent des césariennes et des trépanations et réduisent des fractures. Nous sentons toutefois que nos homologues des milieux urbains et nos organisations professionnelles hésitent de plus en plus à offrir une formation de généraliste et une formation spécialisée avancée. La Société de la médecine rurale du Canada établit des liens et collabore avec d'autres organisations nationales du secteur de la santé, et en particulier le Collège des médecins de famille du Canada, ainsi que les facultés de médecine canadiennes. Ces liens jouent un rôle vital pour garantir que ces organismes s'acquittent du volet soins de santé ruraux de leur mandat social en accroissant la disponibilité de la formation généraliste et de la formation spécialisée avancée.

Dans une autre veine, le rapport Romanow[2] de 2002 considérait «l'accès aux services de santé en milieu rural» comme l'un des cinq enjeux immédiats auxquels il fallait consacrer du financement ciblé. C'est le seul des cinq enjeux dont le gouvernement libéral précédent ou le gouvernement conservateur actuel ne se sont pas occupés. Il est temps pour les députés conservateurs, à qui leurs électeurs ruraux ont donné la chance de former le gouvernement, de relever le défi qui consiste à les aider à obtenir un accès équitable aux soins de santé. En tant que défenseurs de nos patients et chefs de file de nos communautés, nous devons rappeler à nos députés ruraux, avant les prochaines élections, qu'ils ont la chance de répondre à la grande préoccupation des Canadiens — les soins de santé.

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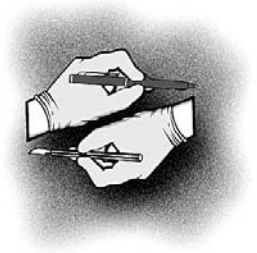

Prevalence of violence against women reported in a rural health region

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Introduction: Violence against women in Canada is an important public health problem. Published research that reports prevalence of violence against women by province or region is limited, and estimates of the rates of violence experienced by rural women are sparse.
Methods: This study reports the results of a secondary analysis of data to examine the prevalence of physical and sexual assault reported by women in a rural health region in Alberta, Canada. The report of assault was then examined to determine its relationship to self-reported health conditions, behaviours and health service use.
Results: In this study, 5% of women reported experiencing physical assault in the last 12 months and 23% reported experiencing sexual assault in their lifetime. Younger women reported more assault than older women. Women who reported sexual assault were more likely to report having used illicit drugs. Women who reported physical assault within the last 12 months were significantly more likely to also report having accessed mental health services and emergency services within the past year. Most women had seen a general practitioner or family doctor within the last 12 months.
Conclusion: We argue that an integrated community-based model of service that includes the health sector is necessary to address violence against women in rural areas.

Introduction : La violence envers les femmes au Canada constitue un important problème de santé publique. Les recherches publiées sur la prévalence de la violence envers les femmes selon la province ou la région sont limitées et les estimations des taux de violence envers les femmes rurales sont rares.
Méthodes : Cette étude présente les résultats d'une analyse secondaire de données portant sur la prévalence de la violence physique et sexuelle signalée par les femmes d'une région rurale de l'Alberta, au Canada. On a ensuite étudié le rapport de l'agression pour déterminer son lien avec des problèmes de santé, des comportements et l'utilisation des services de santé autodéclarés.
Résultats : Dans le cadre de cette étude, 5 % des femmes ont déclaré avoir été victimes d'une agression physique au cours des 12 derniers mois et 23 % ont déclaré avoir déjà subi une agression sexuelle. Les jeunes femmes ont déclaré plus d'agressions que les femmes âgées. Les femmes qui ont déclaré avoir subi une agression sexuelle étaient plus susceptibles de signaler avoir consommé des drogues illicites. Les femmes qui ont déclaré avoir été victimes d'une agression physique au cours des 12 mois précédents étaient beaucoup plus susceptibles de signaler aussi qu'elles avaient eu recours à des services de santé mentale et à des services d'urgence au cours de l'année écoulée. La plupart des femmes avaient consulté un omnipraticien ou un médecin de famille au cours des 12 mois précédents.
Conclusion : Nous soutenons qu'il faut un modèle communautaire intégré de services qui comprenne le secteur de la santé pour lutter contre la violence envers les femmes en milieu rural.

INTRODUCTION

Violence against women is an important problem with substantial public health implications. Half of all women murdered around the world in a given year are killed by partners or by husbands.[1] Recent reports estimate 23% of

Canadian women are abused each year[2] and that gender-based violence in Canada costs health and justice services in excess of $1.5 billion annually.[3] Multiple health conditions in women are associated with a history of having experienced violence,[3] yet published Canadian research that studies the relationship between violence and health is sparse.[2]

Estimates of the prevalence of violence against women vary, in part due to multiple definitions of violence and inconsistent data-collection time frames to describe when the violence took place.[4] The 1993 telephone Canadian Violence Against Women Survey (VAWS) selected 12 300 women by random digit dialling and interviewed them about their experiences with violence.[5] In this nationally representative sample, just over half (51%) of the women interviewed reported having experienced at least one incident of physical or sexual violence since the age of 16.[6] The 1999 General Social Survey (GSS), also a telephone survey, interviewed 9178 women about their experiences of violence over the previous 1-year period.[7] It estimated spousal violence against women at 8%, but that survey limited questions to spousal relationships, with less emphasis on women's other experiences of violence or sexual violence.[6] Published research that reports prevalence of violence against women by province or region is limited and also subject to complexities of multiple definitions and methods. For example, in the 1993 VAWS 58% of women in Alberta reported having experienced violence, with 30% reporting spousal assault.[6] However, a random digit dial survey conducted in Alberta (also in 1993) estimated rates of wife abuse as physical (10.6%) or psychological (13.1%).[8]

Estimates of the rates of violence experienced by rural women in Canada are few,[1] although one study showed reported rates of violence varied little between urban and rural women.[9] Although the rates of violence may be similar, availability of services, including health services, that address domestic violence is not.[1,10] Limited access to services restricts women's options for solutions that aid them in leaving abusive relationships,[9] thus heightening risk and disadvantaging rural women.[1] Studies in other countries also recognize that differences in availability of health services to support women experiencing violence in rural areas may have a detrimental impact on women's health care needs and/or trap women in an abusive relationship.[11–13]

The purpose of this paper is to present evidence that violence against women should be considered a serious public health issue in rural regions. This study reports the results of a secondary analysis of data representative of the population in a rural health region in Alberta, Canada. The purpose of the analysis was to examine the prevalence of physical and sexual assault reported by women living within this rural area, and to examine the relationship to self-reported health conditions, behaviours and health service use.

Methods

Original survey

The primary purpose of the original survey was to describe health status, behaviours and health services utilization by the population living within the health region. The original survey was conducted in 1999 as a random digit dial survey, using the Mitofsky–Waksberg method that was modified to increase the likelihood of obtaining a representative sample for epidemiological research, as described by Potthoff.[14] Eligible telephone prefixes for the health region were selected, with the remaining telephone digits randomly generated among clusters of residential numbers. The person eligible to respond to the survey was the person whose birthday was the most recent and was 16 years old at the time of the interview. The University of Calgary's Conjoint Health Research Ethics Board approved the research.

Administering the survey

After obtaining oral consent, trained research assistants administered the survey using a tightly scripted procedure. Questionnaire items included those used in national and provincial surveys to assess health conditions by self-report and included a validated tool for measuring major depression — the Composite International Diagnostic Interview short-form (CIDI-SF) for major depression.[15] In order to be classified as depressed, subjects were required to endorse 5 or more of the symptoms covered by the interview, and at least 1 of these symptoms needed to be depressed mood or anhedonia. According to the validation data,[15] this scoring procedure should result in a 90% predictive value for major depression. For health conditions, interviewers read a list of health problems (e.g., asthma, diabetes, cancer) and asked respondents whether they had the condition as diagnosed by a medical doctor or had any other diagnosed long-term conditions. Health behaviours examined included tobacco smoking, alcohol consumption and lifetime history of illicit drug use.

The survey also questioned the individual's use of health services, as read from a list by the interviewers, within the past 12 months. Health services examined included whether or not the woman had accessed the services of a general practitioner or family doctor, emergency services or mental health services, and her history of obtaining Pap smears and mammograms. Social support was measured by a series of 4 questions; however, information about women's use of social services was not collected.

Data analysis of original survey

Data were obtained from 801 men and women. Sampling weights were calculated to account for random digit dial survey sampling probabilities,[14] and a post-stratification adjustment was made to the demographic profile of the target population.

Secondary analysis

For this secondary analysis, the data set was modified to include only women (n = 526). All statistical analyses were weighted to account for survey sampling strategies. Thus, reported percentages or proportions and their 95% confidence intervals (95% CI) were weighted accordingly. In the original study, physical assault and sexual assault were collected for different time frames and for different age ranges. Thus, women who reported physical assault were analyzed separately from those who reported sexual assault. Women who reported both sexual and physical assault (n = 9) were not considered as a separate group, and are therefore included in each analysis.

Results

Reported assault

Physical assault

The original survey question addressing physical assault was:

- *During the past 12 months, how many times did someone physically attack or assault you?*

For this secondary analysis, women's responses were collapsed into a binomial variable — reported physical assault Yes/No. About 5% (n = 28/526) of the women in the survey reported having experienced physical assault in the last 12 months (95% CI 3.2%–7.7%). Women who reported physical assault were asked whether the assailant was a stranger, a legal or common-law spouse, or someone known to them other than their spouse. Eighteen women (66.7%) reported the assailant as a person known to them other than their spouse (95% CI 48.7%–84.7%).

Sexual assault

Only women 18 years of age (n = 515) were asked about sexual assault. The original survey question was:

- *Has a male ever forced you or attempted to force you into any sexual activity by threatening you, holding you down or hurting you in some way?*

Of the 515 eligible women 3 women declined response to this question; these 3 are included as not having reported sexual assault. Twenty-four percent of the women (n = 126) reported experiencing sexual assault at some time during their lives (95% CI 18.6%–27.8%). Women who reported sexual assault were asked about the nature of the assailant with the question, "Was the assailant a stranger?" One woman declined response; of the 125 remaining, 84% answered "No" (95% CI 77.8%–91.0%).

Demographic variables

Age

Women in the sample ranged in age from 16–90 years, with a mean age of 44.1 years (95% CI 42.4–45.7). The distribution of reporting assault differs by age group and the nature of the assault. Women who reported physical assault in the last 12 months had a mean age of 31.6 years (95% CI 25.1–38.1). The report of physical assault was positively skewed; that is, younger women reported physical assault more often than older women. Women <30 years of age comprised more than half of the women reporting physical assault (Table 1).

Women who reported having experienced a sexual assault at some time during their lives had a mean age of 41.4 years (95% CI 38.9–43.9). The report of sexual assault is more normally distributed than the report of physical assault. Over half of the women reporting sexual assault were in their 30s and 40s, and the report of having experienced sexual assault at some time during their lives decreased sharply after age 59 (Table 1).

Marital status

The majority (62%) of women in the sample were

married (95% CI 57.8%–66.6%) or single (15%) (95% CI 11.3%–18.7%). About 8% of the women were divorced (95% CI 5.9%–10.8%), 7% common-law (95% CI 4.0%–9.9%), 6% widowed (95% CI 3.9%–7.7%), and 2% of the women reported being separated (95% CI 1.0%–3.2%).

Significant differences in marital status among the women reporting physical assault in the last 12 months were found ($F = 5.96$, $p < 0.001$). Single women comprised 43% of the women reporting physical assault (95% CI 23%–63%). This was followed by married women, who comprised 30% of the women reporting physical assault (95% CI 10%–50%), and 19% of women in common-law relationships (95% CI 2%–35%). Women who were divorced or separated made up the remaining 8%; no widows reported physical assault. Because the nature of the assailant included a spouse as a possible response and the report of physical assault question referred to incidents within the last 12 months, the nature of the assailant was investigated by marital status for women who reported physical assault. Most women reported the assailant was neither a stranger nor a spouse. These results are summarized in Table 2.

There were also significant differences in marital status in women reporting sexual assault ($F = 2.7$, $p = 0.02$). About half (51.6%) of the women who reported having experienced sexual assault over their lifetime were married (95% CI 42%–62%), another 20.4% were single (95% CI 12%–28%) and 13% were divorced (95% CI 7%–19%). Spousal relationships were not distinguished in the question regarding the nature of the assailant if the woman reported sexual assault.

Table 1. Results of secondary analysis of the 526 women who responded to the original survey; no. of women who reported assault, by age group

Age group, yr	No. (and proportion)*	
	Physical assault ($n = 28$)	Sexual assault ($n = 126$)
16/17†	5 (0.22)	Not asked
18/19†	1 (0.03)	–
20–29	9 (0.28)	19 (0.18)
30–39	5 (0.17)	37 (0.32)
40–49	5 (0.18)	33 (0.26)
50–59	2 (0.08)	22 (0.17)
60–69	–	10 (0.05)
70–79	1 (0.04)	5 (0.02)
80–89	–	–
≥90	–	–
Total	28 (1)	126 (1)

*Proportions are weighted to account for survey sampling strategies.
†Age <20 years is divided to account for differences in questioning: women <18 years were not asked about sexual assault; all women were asked about physical assault.

Other demographic characteristics

Other demographic variables that were examined for differences in the report of physical or sexual assault included highest level of education completed, employment status and whether the woman lived in a town or the country. Level of education showed significant differences for the report of physical assault, which were eliminated if women <18 years of age were excluded (i.e., younger women were more likely to report physical assault, but were also more likely not to have completed high school). Women who reported assault were more likely to be employed; 84.5% of the women reporting physical assault (95% CI 70%–99%) and 73.8% of the women reporting sexual assault (95% CI 66%–82%) were employed. Whether a woman lived in a town or the country was not statistically significantly associated with the report of either physical or sexual assault.

Health factors

Health conditions

Women were asked to rate their overall general health status on a 5-point scale ranging from Poor to Excellent. Rating of general health status did vary significantly among women who reported physical assault in the last 12 months, but not among those who reported sexual assault. Women who reported physical assault rated their health as excellent in smaller proportions than women who reported no assault. The number of women report-

Table 2. Nature of assailant, among 28 women who reported physical assault, by woman's marital status

Woman's marital status†	No. (and proportion)* of women who reported each category of assailant			
	Stranger	Spouse	Other	Total
Married	2 (0.09)	2 (0.06)	4 (0.15)	8 (0.30)
Common law	0	2 (0.09)	2 (0.10)	4 (0.19)
Single	1 (0.03)	0	11 (0.40)	12 (0.43)
Separated	0	2 (0.04)	0	2 (0.04)
Divorced	1 (0.03)	0	1 (0.02)	2 (0.05)
Total	4 (0.14)	6 (0.19)	18 (0.67)	28 (1.00)

*Proportions reported are survey weighted. Due to rounding error, total may not equal stated amount; $F = 2.12$, $p = 0.04$.
†No widows reported physical assault.

ing any given chronic condition was small, decreasing the reliability of further statistical investigation; thus an individual's total number of self-reported chronic conditions was used. The number of chronic conditions reported by an individual did not vary significantly with the report of either kind of assault. These results are summarized in Table 3. Major depression was not statistically significantly associated with the report of either type of assault.

Behaviours that affect health

Tobacco smoking was not statistically significantly associated with the report of assault. Alcohol consumption was asked about in the survey, and those who drank alcohol were asked if they regularly consumed more than 12 drinks per week (defined for this study as heavy consumption). Only 13 women answered Yes to this question. Statistically significant differences were evident in the report of physical assault and heavy alcohol consumption; more women who reported heavy alcohol consumption also reported physical assault. However, the significance disappeared when those <18 (legal drinking age in Alberta) were excluded; that is, women <18 years were more likely to report heavy alcohol consumption and more likely to report physical assault.

Lifetime history of illicit drug use was also queried. About 30% of the women in the survey admitted having used illicit drugs at least once in their lifetime (95% CI 24.6%–34.5%). Women reporting sexual assault were significantly more likely than women not reporting sexual assault to also report illicit drug use. These results are summarized in Table 4.

Table 3. General health status and no. of chronic conditions among the 526 female survey respondents

Variable	No. (and proportion)* of women: All respondents (n = 526)	Those who reported physical assault (n = 28)	Those who reported sexual assault (n = 126)
General health status			
Excellent	160 (0.29)	2 (0.06)	30 (0.24)
Very good	193 (0.38)	10 (0.39)	47 (0.42)
Good	114 (0.23)	10 (0.30)	47 (0.42)
Fair	41 (0.08)	5 (0.23)	12 (0.08)
Poor	18 (0.03)	1 (0.02)	6 (0.03)
No. of chronic conditions			
None	90 (0.17)	4 (0.15)	12 (0.12)
1	113 (0.23)	5 (0.13)	26 (0.22)
2	123 (0.25)	6 (0.21)	31 (0.26)
3 or 4	122 (0.23)	8 (0.29)	29 (0.22)
≥5	78 (0.13)	5 (0.22)	28 (0.17)

*Proportions reported are proportions of those who reported the specified assault. Proportions reported are survey weighted; due to rounding error total may not exactly equal 1.
Notes: Those who declined to respond or did not know are not reported ($n \leq 3$ for any category).

Social support

In the survey, social support was measured by a series of 4 questions:

- *Do you have someone you can really confide in or talk to about your private feelings or concerns?*
- *Do you have someone you can really count on to help you out in a crisis situation?*
- *Do you have someone you can really count on to give you advice when you are making important personal decisions?*
- *Do you have someone who makes you feel loved and cared for?*

These questions were overwhelmingly answered affirmatively. In any given question, 94% or more of the women answered Yes, with 2 or fewer women not answering any given question. In order to further investigate the association of social support with the outcomes of assault, a new variable was created such that any woman who did not answer Yes to all 4 questions was defined as having "reduced social support." Reduced social support was not significantly associated with the report of either physical or sexual assault.

Health services use

The use of general practitioner or family doctor services, emergency services and mental health services were all investigated in terms of their association with the report of physical or sexual assault. Women who reported physical assault were significantly more likely than women who did not report physical assault to have used emergency services and mental

Table 4. Illicit drug use and sexual assault for the 526 female survey respondents

Illicit drug use in lifetime?	Sexual assault, no. (and proportion)* of respondents: No	Yes	Total*
No	296 (0.75)	72 (0.57)	368 (0.71)
Yes	93 (0.25)	53 (0.43)	146 (0.29)
Total*	389 (1.00)	125 (1.00)	514† (1.00)

*Proportions reported are survey weighted. Due to rounding error, total may not equal stated amount; F = 9.9, p = 0.002.
†Women 18 years and younger were not asked about sexual assault; therefore there were only 515 eligible respondents. One of the 515 declined to respond.

health services within the past 12 months. Although rates of having seen a general practitioner or family doctor in the last 12 months did not differ significantly between women who did and did not report physical assault, it is important to note that all women who reported physical assault (n = 28) also reported having seen a general practitioner or family doctor within the last 12 months. No significant differences in use of the identified health services were found among women who reported sexual assault. These results are summarized in Table 5. No statistically significant differences in rates or how recently women had obtained Pap smears and mammograms were discovered between groups of women reporting and not reporting assault.

Discussion and implications

The population-based estimate of the prevalence of violence against women in a rural area in Canada adds important information to published research. Our findings that 5% of women had experienced physical assault in the last 12 months and 23% had experienced sexual assault over their lifetimes are lower than the 1993 VAWS.[6] However, the VAWS included broader definitions and lifetime estimates for both types of assault, so prevalences would be expected to be higher. That more women reported sexual assault than physical assault is in part influenced by the longer reporting time frames for sexual assault. However, if the frequency of sexual assault was constant over time, then reported lifetime assault should theoretically increase with age and one would expect older women to report more sexual assault than younger women. In this study, women in their 30s reported the highest proportion of sexual assault, and the proportion of reported assault decreased for women >39.

The drop off in the report of physical and sexual assault as women age is not uncommon.[6,8,16–19] Little empirical research has been found that documents whether the decrease in report of assault as women age is reflective of a cohort effect (younger women are living in a more violent society and more likely to experience assault than older women) or misclassification bias (older women are less likely to report assault even if they have experienced it and are subsequently misclassified as not having experienced assault). One study suggests the most likely explanation is a combination of the two.[20]

Women in rural Canada who are victims of violence may face complications due to geographic isolation, lack of services (e.g., shelters) and, sometimes, employment shared with their partners (e.g., farming[21,22]), but there is sparse published research about rural women's experiences with violence.[1] One study reported that rural women are more likely than urban women to leave abusive partners but are also more likely to return.[9] Because women are at higher risk of spousal assault when attempting to leave the relationship[6] and because previous assault is highly predictive of future victimization,[23] this suggests rural women may be at higher risk for repeated assault.

No published research demonstrating a causal relationship between poor health status and assault (i.e., poor health status as a risk factor for assault) was found, except for women with disabilities, assuming disability reduces health status. Women with disabilities that limit their activities and independence do experience a far higher rate of intimate

Table 5. Use of health services and report of assault for the 526 female survey respondents

Type of service accessed in the last 12 months	No. (and proportion)* of women				
	All respondents (n = 526)	Physical assault (n = 28)		Sexual assault (n = 126)	
		No	Yes	No	Yes
General practitioner					
No	41 (0.07)	41 (0.08)	0	30 (0.07)	9 (0.09)
Yes	485 (0.92)	457 (0.92)	28 (1.00)	359 (0.93)	117 (0.91)
Emergency					
No	428 (0.80)	411 (0.82)	17 (0.57)	316 (0.80)	102 (0.80)
Yes	98 (0.20)	87 (0.18)	11 (0.43)†	73 (0.20)	24 (0.20)
Mental health					
No	490 (0.94)	469 (0.95)	21 (0.76)	369 (0.94)	110 (0.90)
Yes	36 (0.06)	29 (0.05)	7 (0.24)‡	20 (0.06)	16 (0.10)

Note: Those who declined to respond or did not know are not reported (n < 2 for any category).
*Proportions reported are proportions of those who reported the specified assault. Due to rounding error, totals may not exactly equal 1.
†p = 0.002
‡p < 0.001

partner violence and sexual assault and their sequelae than women without disabilities.[24–26] The current Canadian context of reduced services to address violence against women differentially and negatively affects women marginalized by disabilities;[27] whether this effect is compounded for rural women with disabilities is unknown. Longitudinal research that investigates the relationships between violence, health status, disabilities and health services for rural women would provide important information about health service provision of violence interventions in this population.

Physical assault and youth

The prevalence of physical assault in adolescent women is alarming. Further examination of the data presented in Table 1 and Table 2 showed that of the 9 young girls in the study aged 16 or 17 years, 5 reported experiencing physical assault within the last 12 months and all reported the nature of the assailant as being a person known to them. Assault by strangers seems a lesser concern. Recent research highlights rural youth violence as a heretofore under-recognized public health issue in Canada,[28] with increasing violence among adolescent girls a notable concern.[29] Moreover, violence among adolescent girls is known to be different in cause and expression than violence in adolescent boys.[29] Although the age of the assailant was not disclosed in our survey, Statistics Canada data report victims of youth violence are often acquaintances with the assailant and of a similar age range.[30] Qualitative analysis of responses of an Alberta youth survey demonstrated that altercation with siblings or boyfriends was a common cause of serious incidents of violence-related delinquency.[31] Thus, bullying by female or male friends is one plausible explanation for our findings; another is that the young women are being assaulted by family members.

Our data attest that further research in the area of rural youth violence is well warranted. As adolescent girls sometimes cope with unequal power dynamics in their dating relationships by engaging in known health-risking behaviours, including tolerating violence,[32] gender-based research that uncovers the context and dynamics of violence against young rural women and how they do or do not address experiences of violence through health services is vital.

Sexual assault

The lifetime prevalence of sexual assault (23%) reported in this survey is less than that of the 1993 VAWS estimate of sexual assault experienced by women in Alberta (42%).[6] However, the VAWS included a wider range of questions about sexual assault and included women 16 years, and is consequently more comprehensive than the data considered here. In one study of adolescent women in Alberta high schools, 23% reported having experienced at least one incident of sexual assault.[33] In the current study, if women <18 had been questioned about sexual assault, it is likely our estimate of the prevalence of sexual assault would be higher. In the VAWS, 81% of women who had experienced sexual assault reported the assailant was not a stranger, similar to our result of 84%. Thus women are at much higher risk of physical or sexual assault from people known to them rather than strangers.

Health conditions and behaviours

The lack of a relationship between the number of chronic conditions reported by an individual and the report of assault may reflect the inappropriateness of investigating this variable in association with assault. With larger sample sizes, the association of individual chronic conditions may be more appropriate than the total number of chronic conditions reported by an individual. Our finding that women who reported sexual assault were more likely to report having used illicit drugs at least once in their lifetime reflects the findings of other researchers.[23,34,35] The cross-sectional nature of this data limits conclusions as to whether the substance abuse is a factor that increases women's risk of assault or is an effect of the assault. However, other researchers have shown continued substance abuse increases the risk of subsequent assault.[23,34,35] Given that alcohol often plays a role in sexual assault,[36] the association between youth, heavy drinking and report of assault found in this study also warrants further research. The lack of association between depression and the report of assault in this data are unlike that of other researchers,[8,35,37] but may reflect differences in definitions. The current study emphasized diagnosed clinical depression or major depressive episodes; other mental health conditions were not investigated, which might have underestimated mental health effects often found with the report of assault.

Health services use and social support

Despite the lack of statistically significant association between depression and the report of assault, it

is important to note that women who reported physical assault within the last 12 months were significantly more likely to also report having accessed mental health services and emergency services within the last year. In addition, all women who reported physical assault also reported having visited a general practitioner or family doctor within the last 12 months. Although the cross-sectional data limit our conclusions about the timing of physician visits (i.e., before or after the assault), the data suggest that women were regularly accessing health services, and there were likely opportunities for health service providers to screen for and address the assault. Recent data suggest that women welcomed routine physician screening for violence if the intervention matched the woman's level of awareness of the violence and her stage of change.[38]

The lack of an association between social support and assault in this study may reflect the limited nature of the data collected about social support, as women who experience violence have been shown in other research to have lower social support.[39] Women who experience violence tend to seek help from family and friends (especially if the assailant is known to them) and are more likely than men to use mental health services, social services and self-help groups but are less likely to seek police help.[40] Research that compared the rates of help-seeking behaviour among women who experienced abuse in the 1993 VAWS and the 1999 GSS, suggests the rates are changing over time; significantly more women in the GSS disclosed abuse and sought help from available services.[41] Of note, 31.9% of women in the GSS disclosed a violent incident to a doctor or nurse, compared with 23.0% in the VAWS.[41] Although rates of women disclosing abuse to health care professionals may be improving,[41] whether this is true of women in rural areas is not known. Further research, including qualitative research, is needed about social supports, health services and support services that rural women experiencing violence can or cannot access. Such research would give further insight into the nature of help-seeking behaviours among rural women and provide evidence of where best to allocate limited resources.

Because most of the women who reported assault in this survey also reported accessing the services of a general practitioner or family doctor within the last 12 months, there is even more reason for the health sector, with its relatively stable resources compared with the non-profit sector, to get involved in primary, secondary and tertiary prevention of violence against rural women. Radomsky demonstrated that even in long-term clinical relationships with their family doctors, women's experiences of abuse often go unrecognized.[42] An integrated community-based model[43] that takes gender and other determinants of health into account will address the special characteristics of rurality that can prevent (e.g., strong social support, knowing your neighbours) or exacerbate (e.g., lack of confidentiality, self-triage from primary care, travel challenges) violence against women.[44–46] Intersectoral collaboration will be particularly important as the health sector can only work beside the educational, justice, religious and other sectors.

Strengths and limitations

The anonymity of this survey is both a strength and a limitation as women may have responded more or less openly about the experience of assault. However, because the data are a representative sample of a Canadian rural health region and were gathered as part of a general health information survey, it provides population data rather than data specific to a clinical sample (e.g., women living in shelters). The information is limited by its cross-sectional nature and the self-reported health conditions without supported objective medical evidence. However, the questions used were obtained from population surveys well tested in the Canadian population.

Conclusion

Our data suggest that physical and sexual assault are prevalent among rural women and linked to health status and health service use. Although cross-sectional data prevent conclusions about the causal relationship between the experience of assault and health status and health service use, it seems likely that assault leads to poorer health status and increased health services use. The higher prevalence of assault reported by younger rural women in this study and the relationships between assault and substance use suggest that, to aid prevention, identification and treatment of domestic violence, qualitative gender-based research would improve understanding of the context in which assault occurs. As most of the women in the study had accessed the services of a general practitioner or family doctor in the last 12 months, including all women who reported recent assault, the health sector that serves rural women may have opportunities to be involved in addressing and preventing assault. Thus, the health sector is well placed to work with other sectors (e.g., education, justice) and community-based services to develop an integrated, col-

laborative model of service based on the determinants of health, to address the unique needs of rural women facing domestic violence.

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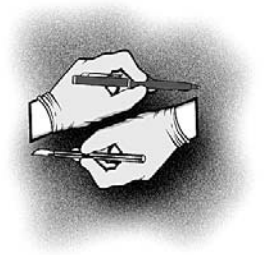

ORIGINAL ARTICLE
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Spousal perspectives on factors influencing recruitment and retention of rural family physicians

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Introduction: Recruiting and retaining medical personnel to rural communities is a human resource challenge. Studies suggest that the spouse's experiences and perceptions of a rural community are among the most influential factors in a physician's decision to remain in or leave a rural practice. This study describes the factors that both directly and indirectly influence spousal contentment and explores how these factors contribute toward recruitment and retention of physicians to rural practice locations.
Methods: In this explorative study, 13 interviews were conducted with spouses of rural physicians to gain a better understanding of spousal concerns and experience regarding rural living. Participants in the present study included the spouses of general practitioners and family physicians practising and living in rural communities (population ≤10 000) on the Burin and Bonavista peninsulas of Newfoundland and Labrador. Specialists, residents and locums were excluded from the study.
Results: The findings indicate that physician workload and community integration most highly influence spousal contentment. Other factors, including licensure, remuneration and physician demand, indirectly influence spousal contentment and, ultimately, practice location decisions. Many of the factors that directly influence spousal contentment are personal, and, as a result, it is difficult to implement policies that will influence them.
Conclusion: The physician's spouse is highly influential in the decision to move to, remain in, or leave a rural practice location. Understanding the factors that contribute to, and detract from, spouses' contentment in rural practice offers useful insights for human resource policies.

Introduction : Le recrutement et la rétention du personnel médical dans des communautés rurales posent un défi sur le plan des ressources humaines. Les études indiquent que les expériences du conjoint et les perceptions à l'égard d'une communauté rurale sont au nombre des facteurs qui exercent le plus d'influence sur la décision d'un médecin de quitter une pratique rurale ou d'y rester. Dans cette étude, on décrit les facteurs qui ont une incidence directe et indirecte sur la satisfaction du conjoint et on analyse comment ces facteurs contribuent au recrutement et à la rétention des médecins dans des milieux de pratique ruraux.
Méthodes : Au cours de cette étude exploratoire, on a réalisé 13 entrevues auprès de conjoints de médecins ruraux afin de mieux comprendre les préoccupations du conjoint et son expérience de la vie rurale. Ont participé à l'étude notamment les conjoints d'omnipraticiens et de médecins de famille pratiquant et vivant dans des communautés rurales (population d'approx. 10 000 habitants) des péninsules de Burin et de Bonavista, à Terre-Neuve-et-Labrador. Les spécialistes, les résidents et les suppléants ont été exclus de l'étude.
Résultats : Les constatations indiquent que la charge de travail des médecins et l'intégration dans la communauté exercent le plus d'influence sur la satisfaction du conjoint. D'autres facteurs, y compris le permis d'exercice, la rémunération et la demande de médecins, ont un effet indirect sur la satisfaction du conjoint et, en bout de ligne, sur les décisions relatives au lieu de pratique. Beaucoup des facteurs qui jouent directe-

ment sur la satisfaction du conjoint sont de nature personnelle et c'est pourquoi il est difficile d'appliquer des politiques qui les influenceront.
Conclusion : Le conjoint du médecin exerce une grande influence sur la décision de déménager dans un lieu de pratique rurale, d'y demeurer ou de le quitter. Il est utile pour les politiques sur les ressources humaines de comprendre les facteurs qui contribuent à la satisfaction des conjoints dans la pratique rurale et ceux qui y font obstacle.

Introduction

Attracting and retaining physicians to rural areas is a challenge in many regions of Canada, resulting in large variations in geographic distribution and availability of medical services. Previous studies have examined recruitment and retention from the physician's perspective and found that a complex mix of personal and professional factors, such as community characteristics,[1] remuneration[2,3] and workload[1,4,5] are known to influence physician recruitment and retention to rural areas. These studies have consistently found that the physician's spouse plays a critical role in the decision to move to, remain in, or leave a rural practice. However, there have been few studies that describe the experience of rural physicians' spouses and the factors that contribute to, or detract from, their satisfaction with rural living.

Using qualitative key informant interviews, this study examines the experiences and perspectives of spouses of rural physicians to gain a better understanding of the spouse's concerns and experiences with rural living. Specifically, this study describes the factors that both directly and indirectly influence spousal contentment with rural living and explores how these factors contribute to recruitment and retention of rural physicians to rural practice locations.

By developing a better understanding of these factors, this study aims to identify potential policy implications and inform physician resource planning. Physician recruitment and retention remain important issues, particularly in rural provinces such as Newfoundland and Labrador. To our knowledge, this is one of the first studies in Canada to use local data to examine this issue. The results of this study will provide more knowledge of the importance of the spouse's experiences on the decision to move to and remain in a rural practice location.

Methods

Participants

We conducted key informant interviews with spouses of rural family physicians (including general practitioners) practising in the region served by the Peninsulas Health Care Corporation (PHCC) in the province of Newfoundland and Labrador. The term "spouse" included husband, wife and partner regardless of whether a couple was in a legally married, common-law or homosexual/heterosexual relationship. Physicians married to other physicians were included in this study. Specialists, residents, locums, spouses of family physicians who practised but did not reside in a rural community, and those living outside the jurisdiction of the PHCC were excluded.

Recruitment of participants

The PHCC sent a letter to all physicians practising on the Burin and Bonavista Pennisulas of Newfoundland. The letter described our study and requested permission to release their contact information. After a 2-week waiting period, the PHCC provided us with a list of family physicians whose spouses met the inclusion criteria. We then telephoned those who were eligible and invited them to participate in an interview at their convenience.

Interview technique

We used a brief pre-interview questionnaire to collect demographic information about both the participant and the physician spouse. Each participant was interviewed using a standardized semi-structured open-ended interview guide that asked questions relating to the factors that influenced their decision to move to their current location, the factors influencing where they planned to move (if applicable), and questions relating to rural living. The interview guide was pre-tested in a pilot interview with a spouse of a rural physician in another region. As the data collection and analysis proceeded, additional questions to test emerging themes and findings were asked. Interviewing continued until no new ideas emerged from the discussions.

Each interview ranged from 45–60 minutes in length and was conducted in either a private room in the local health facility within the community, the

home of the participant or by telephone. Each interview was tape-recorded and transcribed verbatim.

Analysis

The responses obtained from the pre-interview questionnaire were compiled and entered into a Microsoft Excel spreadsheet, where frequencies were tabulated to describe the demographic characteristics of the participants. The interview transcripts were analyzed using a grounded theory approach involving the constant comparative method of analysis.[6] Emerging concepts and themes were identified, and a coding template was developed to organize the data into categories that best reflected the themes presented by the data. The transcripts were entered and coded using NUDI*ST (Non-numerical Unstructured Data – Indexing, Searching and Theorizing). Once all transcripts were coded, reports were generated and used to organize and develop a conceptual framework to understand the factors that contributed to spousal contentment in the study subjects.

The Human Investigations Committee, Memorial University of Newfoundland, and the PHCC approved this study.

Results

Of the 23 physicians in the region, 15 agreed to release their contact information and/or met the inclusion criteria. Of these 15 physicians, 13 spouses, who were contacted by phone, agreed to an interview. Of the 13 participants, all but 2 were females ranging in age from their mid-20s to their mid-60s. At the time of the interviews, 8 participants were not working outside the home. Four participants were unemployed due to limited job opportunities and 4 were not working outside the home, by choice (i.e., homemakers, students and retirees). Of the 5 employed participants, all held positions suited to their educational training. Five participants and their physician spouses were born and raised in Newfoundland and Labrador. Their physician spouses all graduated from Memorial University's medical school. The remaining 8 physicians were international medical graduates (IMGs), and their spouses originated from countries other than Canada. There was 1 couple in which both partners were practising physicians; both were interviewed.

Participants in general described "contentment" as general satisfaction and sense of happiness with the lifestyle associated with the practice location, feeling comfortable with surroundings and not feeling bored or isolated. From the interviews, we identified a number of factors that influence a spouse's contentment and perception of rural living. These individual factors were organized into 2 overriding themes: indirect and direct factors.

Direct factors

Direct factors have a more immediate impact on contentment. They also relate to the participant and/or the physician spouse rather than the community or region. Spouses (and their children) who are content in a rural community are more likely to stay. We identified 2 factors that directly contribute toward spousal contentment with a rural practice location: 1) physician workload and 2) community integration (which relies on employment opportunities, having a rural background or experience in rural communities, proximity to family and friends, maturity, cultural differences, and children).

Physician workload

Physician workload is an important influence on spousal contentment and family life in rural practice locations. Heavy workloads and after-hours on-call shifts were found to place a burden on physicians and their families. As one participant noted:

> The spouse isn't going to be very happy if their partner is working all the time. Even if you attain friends and have an outside network, you'll still need your spouse to be home, and if they're out working all the time you're not going to want to stay.

Community integration

Although a rural community is a busy work environment for physicians, employment opportunities and activities for spouses are limited, leaving them feeling bored and alone. In this study, spouses who were employed were more content with the rural area, regardless of whether employment was related to previous training.

> After we moved here I picked up a job and that was probably an influence or factor [on] why we stayed.

In general, participants agreed that connections through family, friends, children and the workplace are helpful toward promoting community integration and resolving some of the issues of isolation and discontentment. Participants accustomed to rural living

are more receptive toward moving to a rural practice setting and are more likely to be happy and feel connected compared with those raised in urban areas.

> We don't mind rural areas because that is where we grew up, we prefer it.

Furthermore, participants who grew up in a rural community are more likely to have family and friends in the area, which facilitates contentment through connections with the community.

Involvement with members of the community through organized socials and extracurricular activities provides networking opportunities and encourages spousal contentment with rural living. The involvement of physicians' spouses and families with the community may increase social awareness and a sense of belonging and connectedness, as this participant said:

> When he came he planned on staying only for a few years, but then when we met things changed. He became very much a part of my family and I think that had a significant impact on him staying.

We found that children influence contentment with a rural community. Families, particularly with young children, are more prepared to stay in a rural practice location for a longer period of time than physicians without children. Children's educational opportunities, extracurricular activities and safety are important factors in choosing to stay in a rural practice location. Moreover, we found that children facilitate integration into the community; their activities provide opportunities for spouses to meet and connect with others.

We found that those who have difficulty integrating into rural communities are less likely to be content and more likely to leave. For example, many IMGs leave behind family and friends in order to pursue their career and, as a result, often feel personally and professionally isolated. The absence of family and friends is particularly troublesome for spouses. Differences in culture and preferred social and extracurricular activities create discontentment for people who are unable to do the things they enjoy. We found that IMGs are often more reluctant than Newfoundland and Labrador graduates to stay in a rural practice location because of lifestyle and cultural differences.

Indirect factors

Indirect factors describe the physicians practice environment and community environment. They have a greater influence on recruitment, rather than retention. Indirect factors apply to the community or region as a whole, unlike direct factors that describe the individual. They indirectly affect spousal contentment through direct factors (such as workload). We identified 4 indirect factors: 1) licensing requirements, 2) number of physicians in the community, 3) remuneration and 4) community characteristics.

Licensing requirements

Flexible licensing requirements draw many IMGs to rural areas in Newfoundland and Labrador.

> To attain a Newfoundland licence is easier than other provinces, and that is why we came here.

Practising in rural Newfoundland and Labrador is perceived as a stepping-stone for practising in other Canadian provinces, and participants suggested that once IMGs met full-licensing requirements, most left rural practice.

Number of physicians in the community

Rural practice is characterized by heavy workloads and after-hours on-call shifts. The number of physicians practising in a community affects the desirability of a community in terms of workload and coverage. Physicians in communities with few colleagues have higher workloads and less time available for their own families. One participant suggested the following:

> ... there has to be more doctors recruited and that will help keep others in the community because they do not have to work continuously and they have somebody to call on if they need help.

Remuneration

We heard from participants that it is important to balance the need for adequate physician supply with remuneration. In our study, income was not a *primary* consideration in participants' decision to remain in a rural community, as long as they were content. This is not to say that remuneration was not an important consideration; but for those who were content in a rural community, remuneration in itself did not affect their decision to stay.

Community characteristics

The characteristics of rural communities can also

attract or discourage physicians. Positive aspects include a sense of security, the natural environment and family values.

> You have peace of mind when you live here. There is no crime, and working conditions are much better.

Many respondents said that the natural environment motivated them to move to the rural community. They also described the communities as socially connected and supportive of a family-oriented lifestyle.

Other considerations

Our participants noted that characteristics such as distance from urban centres, limited personal and professional opportunities and limited recreational facilities negatively influence contentment, particularly for individuals who are less integrated into their community. The further a community is from a large urban centre the less attractive it is due to limited access to recreational facilities and to educational opportunities. Physician satisfaction with the medical group or practice partners were not identified as contributing to spousal contentment. However this is an area that may need further investigation.

Discussion

Previous studies[3,7–10] suggest that a spouse's experience is an important factor in rural physician retention. Through qualitative interviews, we found that a spouse's feelings of contentment were an important predictor of whether or not physicians remained in a rural community; physicians whose spouses were more content in a rural community were more likely to stay. We developed a conceptual framework to understand the factors that contribute to and detract from spousal contentment.

This framework offers a useful lens through which to examine physician resources strategies. For example, financial incentives have been the primary focus behind past policies regarding physician recruitment and retention. However, research suggests that as a stand-alone policy, financial incentives have limited influence on physician retention.[7] To be most effective, financial incentives must be viewed with respect to a number of factors that relate to both personal and professional characteristics of physicians and their families.[3] Our study suggests that strategies that rely solely on financial incentives may have limited impact on long-term retention of rural physicians.

Like other studies,[1,8,11,12] we found that having a rural background or previous experience in a rural community enhanced contentment. Increasing early exposure of rural medicine to students may provide a higher proportion of graduates with reasonable expectations regarding rural practice locations. Therefore, exposure of medical students to rural medicine during pre-clerkship, clerkship and residency should be evaluated for its effectiveness of recruiting and retaining physicians to these areas.

Our framework specifically examines spousal contentment as the primary motivation in physicians' decisions to move to and remain in a practice location. We recognize other motivations may include licencing requirements (e.g., for IMGs) and debt reduction (e.g., for recent graduates). Moreover, motivation may change over a physician's career. However, by considering the relationship between known predictors of recruitment and retention from the spousal perspective, we hope to further our understanding of physician supply and identify effective physician supply strategies. For example, we found that IMGs move to rural communities in the province because of relaxed licencing requirements. Therefore, programs to improve spousal contentment may have limited impact because many of these families have no intention of staying in the area.

Limitations

The participants of the study included only residents of rural areas. We did not include spouses who lived in urban communities while their physician spouses lived and/or worked in a rural community. A high number of IMGs were included in this study. However, this is characteristic of Newfoundland and Labrador, where 42% of all fee-for-service physicians are IMGs.[13] Furthermore many of the physicians and spouses in the study were recruited as a result of local initiative. However this is typical of many rural communities, where physicians are in short supply and efforts aimed at recruitment are extensive. We included 13 spouses in our qualitative study. Although that may appear small, we had reached saturation (i.e., no new ideas were forthcoming in our interviews with new participants) after the 9th or 10th participant. Our sample does represent roughly half of the family physicians on the Burin and Bonavista Peninsulas. Future studies should include individuals who have left, or those who have decided not to move to, a rural community. These studies may strengthen and validate our

proposed framework and provide a more complete understanding of recruitment and retention of rural physicians.

Conclusion

The physician's spouse is highly influential in the decision to move to, remain in, or leave a rural practice location. Understanding the factors that contribute to and detract from spouses' contentment in rural practice offers useful insights for human resource policies.

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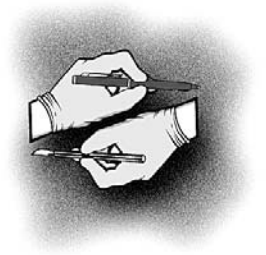

Educational needs of Australian rural and remote doctors for intermediate obstetric ultrasound and emergency medicine ultrasound

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Introduction: The aim of this research was to determine the educational needs of Australian rural and remote doctors for intermediate obstetric ultrasound and emergency medicine ultrasound. The main research questions were: what educational topics would rural and remote doctors prefer to learn about in intermediate obstetric ultrasound and emergency medicine ultrasound, and what were those doctors' preferred methods of delivery for an ultrasound education program.
Method: A self-administered postal questionnaire containing a pre-paid return envelope was mailed to 344 Australian rural and remote doctors in December 2003.
Results: 107 completed questionnaires were returned, giving a response rate of 32.7%. This was after the denominator was adjusted for the 17 doctors whose letters were returned to sender. The respondents included 23 (21.5%) female and 84 (78.5%) male doctors. Eighty doctors (74.8%) stated that they used ultrasound, and 27 (25.2%) said they did not. Seventy-seven (72%) indicated they had previously participated in some ultrasound education and training.

The respondents stated that their main areas of educational need in intermediate obstetric ultrasound were ectopic pregnancy (76.6%), miscarriage (72%), intrauterine growth restriction (65.4%), transvaginal scanning (47.7%), detecting fetal abnormalities (47.7%) and morphology scanning at 18–20 weeks (41.1%).

The main areas of educational need in emergency medicine ultrasound were focused abdominal sonography in trauma (63.5%), detecting foreign bodies (40.2%), gynecological ultrasound (39.2%), gall bladder and biliary tract (37.4%), abdominal aortic aneurysm (32.7%) and trauma bleeding (31.7%).
Conclusion: Australian rural and remote doctors are using ultrasound technology to improve the clinical investigation and diagnosis of a large variety of clinical conditions in their family medical practices. This paper describes the results of research into the educational needs of this target group of doctors.

Introduction : Cette recherche visait à déterminer, chez les médecins des régions rurales et éloignées de l'Australie, les besoins de formation de niveau intermédiaire en échographie obstétrique et échographie médicale d'urgence. Les principales questions de recherche étaient les suivantes : Quels sujets les médecins des régions rurales et éloignées préféreraient-ils apprendre en échographie obstétrique et échographie médicale d'urgence au niveau intermédiaire, et quelles méthodes de présentation d'un programme de formation en échographie ces médecins préfèrent-ils?
Méthode : On a envoyé par la poste un questionnaire postal autoadministré contenant une enveloppe de retour préaffranchie à 344 médecins des régions rurales et éloignées de l'Australie en décembre 2003.
Résultats : Les répondants ont renvoyé 107 questionnaires remplis, ce qui représente un taux de réponse de 32,7 %, une fois le dénominateur rajusté pour tenir compte des 17 médecins dont la lettre a été renvoyée à l'expéditeur. Les répondants incluaient 23 (21,5 %) femmes et 84 (78,5 %) hommes. Parmi les répondants, 80 médecins (74,8 %)

ont déclaré utiliser l'échographie et 27 (25,2 %) ont déclaré ne pas s'en servir; 77 (72 %) ont indiqué qu'ils avaient déjà participé à des séances d'éducation et de formation en échographie.

Les répondants ont déclaré que la formation de niveau intermédiaire en échographie obstétrique devrait porter principalement sur les sujets suivants : grossesse ectopique (76,6 %), fausse couche (72 %), restriction de la croissance intra-utérine (65,4 %), échographie transvaginale (47,7 %), détection des anomalies chez le fœtus (47,7 %) et analyse de la morphologie à 18–20 semaines (41,1 %).

Les principaux sujets de la formation nécessaire en échographie médicale d'urgence étaient les suivants : échographie abdominale en traumatologie (63,5 %), détection de corps étrangers (40,2 %), échographie gynécologique (39,2 %), vésicule biliaire et canal biliaire (37,4 %), anévrisme de l'aorte abdominale (32,7 %) et saignement à la suite d'un traumatisme (31,7 %).

Conclusion : Les médecins des régions rurales et éloignées de l'Australie utilisent l'échographie pour améliorer l'investigation clinique et le diagnostic d'un vaste éventail de problèmes cliniques dans leur pratique de médecine familiale. Ce document décrit les résultats de la recherche sur les besoins en formation de ce groupe cible de médecins.

Introduction

This paper describes the results of a December 2003 survey that investigated the educational needs of rural and remote Australian doctors for intermediate obstetric ultrasound and emergency medicine (EM) ultrasound. Our research builds from research conducted by the Australian College of Rural and Remote Medicine (ACRRM) in 2001 that investigated the educational needs of Australian rural and remote medical practitioners for basic obstetric ultrasound education. The College developed a basic obstetric ultrasound education program based on the results of that research. The results from the previous study and an evaluation of the outcome of 9 basic obstetric ultrasound education workshops has been published elsewhere.[1,2] We felt it was a logical step to combine EM ultrasound education with obstetric ultrasound training. We also felt many rural and remote doctors would find these 2 types of ultrasound useful in their under-serviced rural communities, where they often practise in isolation from sonographers, radiologists, obstetricians, EM physicians and surgeons.

The main research questions were: what educational topics would rural and remote doctors prefer to learn in intermediate obstetric ultrasound and EM ultrasound, and what would be their preferred methods of delivery for an ultrasound education program.

A literature review failed to identify any information on the ultrasound-related educational needs of rural and remote doctors. There were papers on teaching prenatal ultrasound to family physicians[3–7] and EM ultrasound for EM physicians and general practitioners.[8–11] A wide range of health professionals are now using ultrasound because the machines are becoming more portable, are cheaper and produce a higher quality picture than in the past. There has been a large increase in the numbers of EM doctors in the United States using bedside ultrasound: from 8.7% in 1997 to 20.5% in 2001.[12] A recent article stated that there had been little research on how to teach ultrasound to family physicians.[13] ACRRM has begun to address this issue by conducting educational needs assessment research and developing ultrasound education programs and resources to meet identified needs.

Method

A national Ultrasound Reference Group, consisting of 8 rural medical practitioners and the ACRRM Ultrasound Program Manager (R.G.), developed and piloted a self-administered postal questionnaire. This was used to determine the intermediate obstetric ultrasound and EM ultrasound educational needs of rural and remote medical practitioners.

The first draft of the questionnaire was developed by the Ultrasound Program Manager using information obtained from the previous basic obstetric ultrasound program and workshops, and from the literature review. It was then emailed to the ACRRM Ultrasound Reference Group and discussed during teleconferences. The changes suggested by group members were discussed, and final amendments were agreed by consensus.

The topics on intermediate obstetric ultrasound

in the questionnaire were developed by the Reference Group.

A distribution list for mailing the survey was compiled. It included: 1) doctors from a list provided by the Health Insurance Commission containing doctors who billed for ultrasound services over a 3-month period; 2) 141 doctors who attended one of the ACRRM basic obstetric ultrasound workshops; 3) doctors who had previously expressed an interest in ultrasound education; and 4) doctors who had enrolled in the ACRRM Ultrasound Online module on the ACRRM online education platform (i.e., Rural and Remote Medical Education Online). This research aimed to target doctors who were most likely to be interested in using ultrasound in their practices.

On Dec. 3, 2003, the survey, containing a prepaid return envelope, was posted to 344 rural and remote doctors, the number of physicians obtained from the distribution list. Data were analyzed using Excel (Microsoft Office, 2003) and SPSS (SPSS ver. 11.5, 2002).

Ethical approval for the project was obtained through the James Cook University Human Ethics Committee.

Results

One hundred and seven completed questionnaires were returned, giving a response rate of 32.7%. Seventeen questionnaires were returned because the doctors had moved. Twenty-three (21.5%) female doctors and 84 (78.5%) male doctors responded. The national percentage of female doctors in rural Australia is 28.4%.[14]

Table 1. Frequency distribution showing the time the 107 respondents had spent practising medicine and had spent in rural practice

	No. (and %) of doctors	
Range, yr	In practice	In rural practice
1–5	4 (3.8)	25 (23.4)
6–10	18 (16.8)	21 (19.6)
11–15	15 (14.0)	16 (14.9)
16–20	26 (24.3)	27 (25.2)
21–25	20 (18.7)	11 (10.3)
26–30	13 (12.1)	5 (4.7)
31–35	4 (3.7)	2 (1.9)
36–40	4 (3.7)	–
51–55	1 (0.9)	–
Not stated	2 (1.9)	–
Total	107	107

Eighty (74.8%) doctors stated they were currently using ultrasound in their practice, and 27 (25.2%) said they were not. One doctor stated he had done some ultrasound using a manual as a guide, and one said he had done a little bit of ultrasound. Although these doctors indicated they were not using ultrasound, they were categorized as using it. Seventy-seven (72%) doctors had some previous ultrasound education. These 77 doctors were experienced, with a mean length of time in medical practice of 13.5 years and a mean length of time in rural practice of 9 years (Table 1).

Respondents included general practitioners who work alone or in a group practice, hospital doctors, rural flying doctors, and doctors working in remote Aboriginal communities or as rural locums. Group practice general practitioners were the largest group of respondents (n = 48, 44.8%).

Participants were asked to indicate their 6 preferred intermediate obstetric ultrasound topics from a list of 16 (Table 2).

The main areas of educational need were ectopic pregnancy, miscarriage, intrauterine growth restriction (IUGR), transvaginal (TV) scanning, detecting fetal abnormalities and morphology scanning at 18–20 weeks. One doctor each mentioned the following topics not on the list: diagnosis of abruption placenta; measuring amniotic fluid; trans-abdominal scanning; assessing cervical length; assessing pla-

Table 2. Most preferred intermediate obstetric ultrasound topics for education,* as chosen by the 107 respondents

Preferred topics	No. (and %) of doctors
Ectopic pregnancy	82 (76.6)
Miscarriage	77 (72.0)
Intrauterine growth restriction	70 (65.4)
Transvaginal scanning	51 (47.7)
Detecting fetal abnormalities	51 (47.7)
Morphology scan 18–20 wk	44 (41.1)
Nuchal translucency	31 (29.0)
Measure SD ratio	25 (23.4)
Renal, cardiac assessment	19 (17.7)
Colour doppler	18 (16.8)
Documentation	18 (16.8)
Humeral and kidney length	16 (14.9)
Echocardiogram	13 (12.1)
Cardiac outflow tracts identification	10 (9.3)
Trisomy screen order	7 (6.5)
Antenatal screening (sex-linked disorders)	2 (1.9)

*Participants were asked to indicate their 6 most preferred topics for further education.

cental site; assessing uterine scar thickness. One doctor wrote: *"As I will be the only service at [a town without a resident ultrasonographer], I need all the help I can get."*

Participants were asked to indicate their 6 preferred topics for education from a list of general and EM ultrasound. The main areas of educational need are listed in Table 3. One doctor each listed other conditions where they would benefit from education: cardiac trauma; penetrating injuries; shoulders; echocardiography; appendix; duplex; vein scans for varicose veins; valve assessment in rheumatic hearts; renal artery stenosis; doing fine-needle aspiration under ultrasound control; assessing pleural cavity; and knee effusions. Two doctors listed screening for deep vein thrombosis.

Participants were asked to indicate their preferred modes of education from a list of 17 education types. The most preferred modes were practical ultrasound workshops with hands-on experience with patients, followed by CD-ROM, clinical attachment to a hospital or specialist, scan review with a sonographer and scan review with a radiologist and/or obstetrician (Table 4).

They were given sample clinical questions (Davies S, Australian Institute of Ultrasound, Gold Coast, Australia. 2003: unpublished document) that could be answered by using ultrasound: *Is there an intrauterine pregnancy? Is there an abdominal aortic aneurysm present? Are there any gallstones seen? Is there any hydronephrosis present? Is cardiac tamponade present? Is there free fluid in the abdomen? Is there a foreign body present?* and *Is there any flow in the testis?* They were also asked to contribute further questions from their own practice (i.e., *"Can you think of any other clinical questions in your practice where you think ultrasound would be useful?"*). Their responses are listed in Table 5.

Eighty-one percent of the respondents (n = 87) said they would like to be notified about ACRRM's proposed combined pilot intermediate obstetric ultrasound/EM ultrasound workshops, and 61% (n = 65) stated they would be interested in attending one of ACRRM's basic obstetric ultrasound workshops.

Table 3. Most preferred emergency medicine ultrasound topics for education,* as chosen by the 107 respondents

Preferred topics	No. (and %) of doctors
Focused abdominal sonography in trauma	68 (63.5)
Detecting foreign bodies	43 (40.2)
Gynecological ultrasound, including ovarian problems	42 (39.2)
Gall bladder and biliary tract	40 (37.4)
Abdominal aortic aneurysm	35 (32.7)
Trauma (bleeding)	34 (31.7)
Kidneys and ureters (renal masses, calculi)	33 (30.8)
Evaluation of renal and biliary tract disease	29 (27.1)
Appendicitis	28 (26.2)
Abdomen	27 (25.2)
Ultrasound guided needle puncture	22 (20.6)
Scrotum, testis	22 (20.6)
Breast	20 (18.7)
Liver (liver abscess)	14 (13.1)
Urinary bladder	13 (12.1)
Pericardial fluid	12 (11.2)
Soft tissue	12 (11.2)
Muscle and tendon	11 (10.3)
Peritoneal cavity and gastrointestinal tract, including intestinal organs	9 (8.4)
General ultrasound small parts	8 (7.5)
Pancreas	7 (6.5)
Vascular	7 (6.5)
Neonatal scanning	7 (6.5)
Cysts and abscesses	7 (6.5)
Ultrasound in jaundice	6 (5.6)
Spleen	6 (5.6)
Pericardium	4 (3.7)
Neck	4 (3.7)

*Participants were asked to indicate their 6 most preferred topics for further education.

Table 4. Preferred modes of delivery for an intermediate obstetric ultrasound and emergency medicine ultrasound education program aimed at doctors working in rural and remote Australia, as chosen by the 107 respondents

Preferred mode of education	No. (and %) of doctors
Practical workshop with hands-on experience with patients	85 (79.4)
CD-ROM	53 (49.5)
Clinical attachment to hospital or specialist radiologist/sonographer	46 (43.0)
Scan review with a sonographer	35 (32.7)
Scan review with a radiologist and/or obstetrician	32 (29.9)
Case-based presentations and discussion	31 (29.0)
One-on-one teaching in your own surgery, on your own scanner	29 (27.1)
Video	28 (26.2)
Satellite broadcast	23 (21.5)
Scan review with a general practitioner colleague sonographer	19 (17.7)
Use of guidelines	14 (13.1)
Web-based program	13 (12.1)
Written distance educational material on theory aspects of ultrasound	12 (11.2)
Didactic lectures	8 (7.5)
Clinical audit	8 (7.5)
Videoconference	7 (6.5)
Self-directed learning	7 (6.5)

Discussion

This research investigated the educational needs of a targeted group of Australian rural and remote medical practitioners for intermediate obstetric ultrasound and EM ultrasound. The doctors targeted for the survey were those who had identified themselves as being interested in ultrasound. The fact that 72.8% of the respondents were already practising ultrasound shows that the survey largely targeted its preferred audience.

The most preferred topics in intermediate obstetric ultrasound, mentioned by over 65% of the respondents, included ectopic pregnancy, miscarriage and IUGR. Forty-seven percent mentioned TV scanning and detecting fetal abnormalities. In EM, the most preferred topics were FAST (63.5%), detecting foreign bodies (40.2%) and gynecological ultrasound (39.2%). The most preferred mode of education for ultrasound was a practical workshop with hands-on experience with patients.

Limitations

The response rate was low, and therefore the results cannot be generalized to all rural and remote doctors. However, the information obtained did provide enough data for ACRRM to develop a successful Intermediate Obstetric Ultrasound and Emergency Medicine Ultrasound Program for Australian rural and remote non-specialist doctors. The program has a significant hands-on component using real patients and includes many of the top topic choices made by doctors in this survey.

Conclusion

There is a growing group of rural and remote Australian doctors who are using ultrasound because it is non-invasive, painless technology that gives instant results.

This paper describes research that has identified the educational needs of a group of Australian rural and remote doctors who want to learn how to use ultrasound technology to improve the clinical investigation and diagnosis of a large variety of clinical conditions in their practice.

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Competing interests: None declared.

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Table 5. Clinical questions* contributed by the 107 respondents that they believed could be answered by using ultrasound

Is the fetus viable, or could the dates be wrong?	Can I follow the needle to get an appropriate biopsy/aspiration?	Are any foreign bodies near large vessels that may bleed during evacuation?
Is the fetus the correct size for dates?	Is there a pericardial effusion?	Where is the foreign body?
Is there an ectopic?	Is there fluid in the pleural cavity?	Is there deep vein thrombosis in thigh/calf?
Where is the placenta? (I do cesareans)	Is there free abdominal fluid?	Is it a cystic or solid mass?
Is the miscarriage complete?	Are there metastases in the liver?	Are the bile ducts normal?
Is there intrauterine growth restriction? Patient is a smoker - 3rd trimester	Is there a need for insertion of a catheter in the bladder?	Is this abdominal pain a bladder obstruction?
Is the fetus normal?	Is the tendon ruptured or not?	Is there any rupture of the liver/spleen?
What is baby's position in the uterus?	Is there any flow to the periphery?	Is there a hernia?
Are there retained products?	Is there blood supply to testis/ovary?	Is there cardiac valve disease?
Are the ovaries normal? Any cysts?	What is the degree of stenosis in the artery?	How big is that abscess?
Where is that implanon?	Is the appendix swollen?	Is there a muscle/tendon tear?
Is there a thickened endometrium? (post menopausal)	What is the left ventricular function like?	Are there stones in the ureter?
Is there intussusception?	Is the pancreas normal?	Is the prostate enlarged?

*These questions were taken from the respondents' own experiences and were in addition to the sample questions provided by the authors in the survey.

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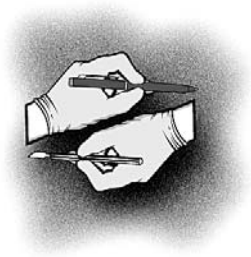

Case Report
Observations de cas

Elevated liver enzymes as a predictor of liver injury in stable blunt abdominal trauma patients: case report and systematic review of the literature

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Liver injury secondary to blunt abdominal trauma is a well-defined entity in emergency medicine. A challenge exists in the diagnosis of liver trauma in the stable, well-appearing patient with a history of blunt abdominal trauma. In centres lacking advanced diagnostic modalities an elevation in hepatic transaminases may provide guidance for the rural emergency physician in seeking further imaging and/or surgical consultation. We present a case report and a discussion of the literature.

The literature provided a broad spectrum of results. There appears to be a direct relationship between blunt liver trauma and elevation in liver transaminases. These results are especially evident in the pediatric population. Our findings may help guide the rural emergency physician in transfer and disposition decisions in patients in this situation.

Les lésions du foie secondaires à un traumatisme fermé de l'abdomen constituent une entité bien définie en médecine d'urgence. Le diagnostic des traumatismes du foie chez le patient stable qui semble bien mais qui a subi un traumatisme abdominal fermé pose toutefois un défi. Dans les centres qui n'ont pas accès sur place à des techniques de diagnostic avancées, une élévation des concentrations de transaminase hépatique peut guider le médecin urgentiste en milieu rural qui doit décider s'il faut demander une consultation en imagerie ou en chirurgie. Nous présentons un rapport de cas et une discussion sur les écrits.

La littérature médicale présente un vaste éventail de résultats. Il semble y avoir un lien direct entre le traumatisme fermé du foie et une élévation des concentrations de transaminase hépatique. Ces résultats sont particulièrement évidents dans la population pédiatrique. Nos constatations peuvent aider le médecin urgentiste rural à prendre des décisions sur le transfert et le traitement des patients dans une telle situation.

Introduction

Blunt abdominal trauma (BAT) is a common reason for presentation to an emergency department (ED). Injury to both solid and hollow organs may occur. The liver is frequently injured in significant BAT, second only in frequency to blunt injury to the spleen.[1,2] Blunt liver injury can vary from minor contusions to major lacerations or avulsions, and has an associated spectrum of morbidity and mortality. Liver injury can be difficult to diagnose in a stable patient after BAT. Diagnostic modalities include FAST (focused abdominal sonography in trauma), CT scanning, serial clinical examinations, diagnostic peritoneal lavage, and laboratory testing (including liver enzymes). The following is a case report in which elevated liver enzymes helped in the diagnosis of significant liver injury in a stable and well-appearing patient. This is followed by a systematic review of the literature on the topic

of using liver enzymes to predict liver injury in stable patients after BAT. Specifically, in the scenario where advanced diagnostic modalities are not available, the use of liver transaminases may assist the rural physician in triage and transportation issues in BAT.

Case report

The trauma

A 25-year-old man attended our emergency department approximately 1.5 hours after falling off his bicycle during his morning commute to work. The speed of the collision was not known. During the fall he landed on the blunt end of a wooden post with impact on his anterior/inferior right chest and abdominal right upper quadrant.

History and physical

The patient was previously well, had no history of liver disease or ethanol abuse, and was on no medications. His chief complaint was epigastric pain, and on questioning he also admitted to slight pleuritic right chest pain without dyspnea. He was ambulatory, appeared well, and had the following vital signs; temperature 35.6°C, heart rate 68 beats/min, blood pressure 140/74 mm Hg, respiratory rate 16, Sa_{O_2} 100% on room air. He had been triaged to the non-urgent portion of the ED; our department is an urban community hospital with a full complement of trauma services and annual patient visits in excess of 40 000. Physical exam revealed no abnormalities anywhere other than the anterior chest and abdomen. There was a faint curvilinear abrasion/contusion over the right chest/abdomen. The lungs were clear with good breath sounds bilaterally, and the thorax was stable and without crepitus. Bowel sounds were slightly diminished and the abdomen was soft with no signs of peritonism. There was slight epigastric tenderness, and no mass or organomegaly was palpable. No right upper quadrant tenderness was ascertained on examination. A digital rectal exam was deferred.

Diagnostics

At this point the first author (A.H.R) felt it was very unlikely that the patient had any significant injury. A chest x-ray was done to rule out intrathoracic injury, and was normal. A FAST exam was not available at the time. Blood was taken for evaluation of liver function tests and amylase in the thought that elevated values may indicate liver and/or pancreatic injury (Table 1). The elevation in the patient's liver transaminases was surprising, and prompted a CT of the abdomen, which revealed a grade III laceration of the liver and a small amount of hemoperitoneum (Fig. 1 and Fig. 2).

Outcome

The patient continued to look and feel well in the ED, and his vital signs remained normal. A general surgeon was consulted, and the patient was observed in hospital for less than 24 hours with no specific treatment. He did well and reported no complications when contacted by telephone 5 weeks later. At that time his hemoglobin and liver enzymes were repeated and had returned to normal.

Discussion and systematic literature review

Patients with BAT causing liver injury may present to the ED with hemodynamic instability and/or obvious signs of hemoperitoneum. These patients usually do not represent a diagnostic challenge, as they generally receive either prompt abdominal imaging (ultrasound or CT scan) or laparotomy or both. Usually the more difficult diagnosis is that of lesser, but still significant, liver injury in the stable patient with minimal physical findings after BAT.

Treatment

It is important to identify significant liver injury because such patients are at risk for short and long-

Table 1. Results of liver function and amylase tests

	Values	
Test	Patient	Normal
Hemoglobin	133 g/L	138–164
White blood cell count	8.1×10^9/L	2.0–8.7
Platelets	141×10^9/L	150–400
Amylase	100 U/L	<200
Alanine aminotransferase	249 U/L	<40
Aspartate aminotransferase	295 U/L	<35
Lactate dehydrogenase	427 U/L	99–250
Gamma-glutamyl-transferase	27 U/L	<50
Alkaline phosphatase	66 U/L	30–105
Bilirubin	6 µmol/L	<21

term sequelae and thus require appropriate observation and follow-up. Although rare (i.e., ≤ 5% of blunt liver injury patients in total), delayed hemorrhage, hepato-vascular fistula, biliary fistula, abscess and hepatic cyst are all recognized complications of blunt liver injury.[1,3,4] It should be emphasized, however, that the majority of patients with blunt liver injury do well: generally, greater than 80% of adults and up to 97% of children receive initial non-operative management and this conservative treatment is successful more than 80% of the time.[1,3–7] In the less common instances when hemorrhage after blunt liver injury requires intervention, surgery may still not be necessary. Radiological transcatheter arterial embolization has been shown to be effective in managing such cases.[8]

Liver transaminases

Elevations of the serum liver enzymes aspartate aminotransferase (AST) and alanine aminotransferase (ALT) are known to be associated with blunt traumatic liver injury.[9–13] Presumably, because these transaminases are present in high concentrations in hepatocytes, they are released into the circulation in large quantities after acute traumatic hepatocellular injury. It has been shown in animal models and human studies that not only does increase in the enzyme occur within a few hours after blunt liver trauma, the amount of the increase in the enzyme also correlates to the severity of liver injury.[12–15] For example, transaminase rise was found to peak at 3 hours in rabbit models with induced hepatic trauma.[1] With this knowledge the question remains: Can elevated liver enzymes predict liver injury in stable patients after BAT?

Literature review

To examine this topic, a systematic English language literature review was conducted. The PubMed/Medline database was searched for all articles with a title and/or abstract containing the words "trauma," and "liver" or "hepatic," and "enzymes" or "transaminase" or "function." The literature review included all articles that matched the search terms as well as others identified from individual papers' reference lists. Table 2 shows data from all articles that either published, or allowed for the calculation of, the sensitivity and specificity of elevated liver enzyme levels as a predictor of blunt liver trauma.[16–20]

Five other articles were of interest, although they did not allow for formal statistical analysis as above. 1) Grisoni and associates[21] documented a group of 9 stable children with liver injury diagnosed by ultrasound after BAT. All 9 had elevated liver enzymes. 2) An article by Coant and colleagues[22] showed that routine testing revealed 5 out of 50 "children without suspected abdominal injury who were being evaluated for possible physical abuse" had elevated liver enzymes and that 4 of the 5 had liver lacerations seen on CT scan. One of the children with a liver laceration "was awaiting discharge pending liver enzyme results." 3) Holmes and coworkers[23] demonstrated CT-scan proven liver injuries in 10 children "who had neither abdominal tenderness, femur fracture, nor low systolic blood pressure, and had a GCS [Glasgow Coma Scale] score of more than 13." Nine of these 10 patients had an AST >200 U/L or ALT >125 U/L. 4) Al-Mulhim and Mohammed[24] published a report of 63 adult blunt trauma patients with multiple

Fig. 1. CT scan without contrast displaying liver laceration in patient with blunt abdominal trauma.

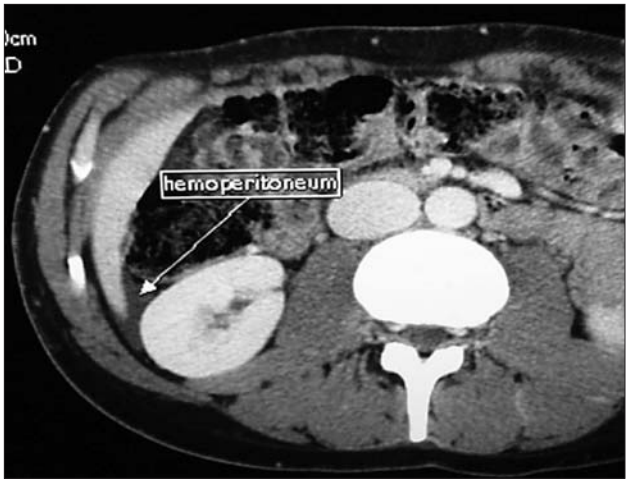

Fig. 2. CT scan without contrast showing hemoperitoneum secondary to above liver laceration.

injuries who were hemodynamically stable, either initially or after limited fluid resuscitation. All 63 patients had CT scan confirmation of liver injuries. Fifty-six (88.9%) had elevated ALT values (average ~272 ± 115), and 7 had normal values. 5) Finally, Karduman and colleagues[25] described a prospective study of 87 consecutive hemodynamically stable pediatric multiple trauma patients. All children had AST and ALT tests done on admission. Forty-nine of these children had a history and/or physical findings of BAT and went on to have abdominal CT investigation. The average AST and ALT levels of children with BAT (AST 145, ALT 84) were significantly higher than the average levels in the 38 children without BAT (AST 35, ALT 25). Twelve of the 49 children with BAT had intra-abdominal injury seen on CT scan: liver (3 children), kidney (3), spleen (1) and hemoperitoneum only (5). The average AST and ALT levels in these 12 children (AST 334, ALT 198) were significantly higher than the levels in the 37 children with negative CT studies (AST 84, ALT 43). In the 3 patients with liver injury seen on CT, the average AST and ALT levels were significantly higher than any other group (AST 721, ALT 472).

Limitations

Some problems do exist in the generalization of the above findings. First, there is not only a semantic but also a logistical dilemma in defining patients with stable versus normal vitals signs. Second, when looking at this literature there is a preponderance of pediatric studies. One could ask, do elevated liver enzymes give the same predictive value in diagnosing pediatric as well as adult blunt liver injury? A third problem is what is the exact cut-off point for AST and/or ALT over which BAT patients need a CT scan to rule out liver injury? Also, should these values be the same for children and adults? Fourth, many blunt trauma patients have recent alcohol consumption at the time of their injuries and one study showed that this was an independent and significant cause of liver enzyme elevation in these patients.[18]

Future prospective studies are warranted to assess the true reliability of using liver enzymes as a predictive test for liver injury in stable BAT patients. In doing so, the above issues would need to be addressed. This may prove helpful in centres where bedside ED ultrasound (FAST) is not yet being used, or even when such exams are negative.[20,26]

If low liver enzyme levels were found to be reliable predictors of the absence of significant liver trauma in stable BAT patients, then a beneficial decrease in the number of abdominal CT scans may be possible in this patient group. In the authors' hospital, testing serum AST and ALT costs approximately $13 and abdominal CT scanning costs approximately $210. One must also consider that the risk of radiation-induced neoplastic disease is also a concern.[27]

Conclusion

The impetus to write this paper came from the case study described, i.e., the lack of clinical findings in a well-appearing patient with normal vital signs possessing a relatively high-grade liver laceration. This patient's injury could easily have gone undiagnosed. It is suggested that liver enzymes may prove to be a

Table 2. Data from the 5 articles in the literature review that either published, or allowed for the calculation of, the sensitivity and specificity of elevated liver enzyme levels as a predictor of blunt liver trauma

Study, year	No. of patients	Diagnostic method	AST	ALT	Sensitivity, %	Specificity, %	Notes
Oldham et al,[16] 1984	95	CT, ultrasound	>200	>100	100	84	Pediatric; prospective; stable patients
Hennes et al,[17] 1990	43	CT	>450	>250	100	92	Pediatric; retrospective; stable (all had AST and ALT >35)
Sahdev et al,[18] 1991	149	CT, ultrasound, DPL, laparoscopy	>130	>130	100	77	Adult; retrospective; stable + unstable
Puranik et al,[19] 2002	44	CT	>450	>250	93	100	Pediatric; retrospective; stable
Stassen et al,[20] 2002	67	CT	>360	–	78	90	Adult; retrospective; stable; one penetrating

AST = Aspartate aminotransferase; ALT = Alanine aminotransferase; DPL = diagnostic peritoneal lavage

useful diagnostic tool in this relatively narrow clinical scenario: the well-appearing BAT patient with normal/stable vital signs and a low clinical probability of liver injury. It is appreciated that the vast majority of such patients who do have a liver injury will do well with conservative management, as in the case described. However, it is still prudent to diagnose these liver injuries during the initial ED visit, to allow for proper follow-up and management of the rare but potentially serious complications. Also, once the diagnosis of liver injury is made it alerts the clinician to search for other occult abdominal injuries that have been shown to be associated more frequently with hepatic rather than splenic trauma.[5] It should be noted that the finding of normal liver enzymes in hemodynamically stable BAT should not prevent the clinician from investigating other potential intra-abdominal injuries (e.g., spleen, kidney), if clinically warranted.

Elevated liver enzymes have been shown to aid in the diagnosis of liver injury in stable patients after BAT. If found to be reliable, using liver enzymes to predict the need for CT scanning could result in time, cost and safety benefits in the work-up of stable patients with potential blunt liver injury. Thus, the rural physician may be able to utilize liver transaminase testing in triage and transportation decisions in patients with BAT who may require additional imaging and surgical care.

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The occasional breast cyst aspiration

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This article has been peer reviewed.

A 42-year-old woman presents to your office, having discovered a lump in her left breast while showering the day before. She is upset, as her mother died of breast cancer at age 50. The lump is cherry sized, symmetric, mobile and feels cystic. The other breast and both auxilla are normal. Can you reassure her that the lump is benign?

Breast cysts are common lesions for women between age 30 and menopause. Determining, on clinical grounds, if a lump is cancerous, is unreliable, and the presence or absence of risk factors should not influence decisions about further work-up.[1] Breast cyst aspiration is an easy, minimally invasive technique that can reliably diagnose benign breast cysts in an office exam. Knowing that a lesion is a cyst will reassure the patient. Knowing that a lesion is not a cyst will help triage care on a more urgent basis.

There is little reason not to try aspirating a breast cyst. Aspirating a cancer does not spread cancer cells or worsen survival.[2] The sensitivity and specificity of mammography performed within 2 weeks of fine-needle biopsy are similar to those of routine screening.[3] Complications of needle aspiration are rare and easily treated.

Equipment list

- proviodine solution
- alcohol swabs
- plastic strip bandage
- sterile drapes
- sterile gloves
- 21-gauge needle
- 5-mL syringe

Procedure

Step 1

Explain the procedure to the patient. The patient should expect mild discomfort during the aspiration. Sometimes patients will have easily treated complications such as bruising, localized infection or small hematoma formation. A remote risk of pneumothorax should be mentioned.

Step 2

Prepare and drape the field using sterile technique. Local freezing is usually not necessary.

Step 3

Attach the needle and work the syringe to ensure that the plunger moves freely.

Step 4

Use your non-dominant hand to fixate the lump between thumb and index fingers (Fig. 1).

Fig. 1. Step 4: Fixate the lump between thumb and index fingers.

Step 5

Move the lump so that it overlies a rib, to limit the risk of pneumothorax.

Step 6

While stabilizing your dominant hand against the patient, grip the syringe like a pencil and advance the needle until it enters the lump (Fig. 2).

Step 7

Transfer your non-dominant hand to apply suction on the plunger.

Step 8

If watery, non-bloody fluid is aspirated (Fig. 3) and the lump disappears completely, you have both diagnosis and treatment. The patient can be reassured, and such fluid can be safely discarded.[4] It is important that the patient be re-examined in 4–6 weeks to confirm that the lump has not returned. This will reduce the false-negative rate to negligible levels.[5]

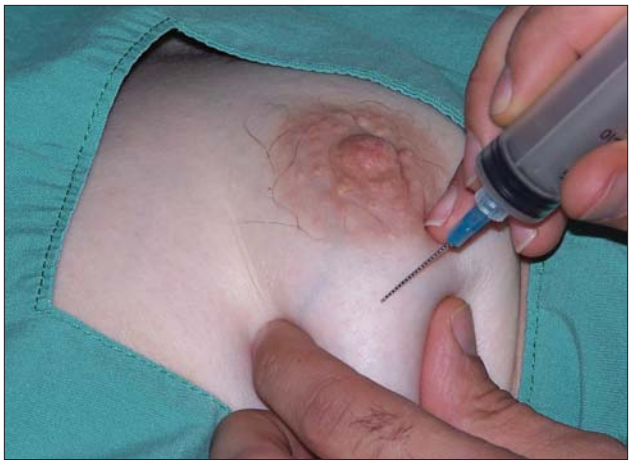

Fig. 2. Step 6: Advance the needle until it enters the lump.

Fig. 3. Step 8: If watery, non-bloody fluid (as illustrated) is aspirated and the lump disappears completely, such fluid can be safely discarded.

Other scenarios

Most, if not all, other cases will require further investigation, which may include ultrasound, mammography, core needle or open biopsy. If the fluid is thick or bloody, cytological analysis is also indicated.

If no fluid is aspirated, reposition the needle in the lump and aspirate again, 2 or 3 times. Do not apply suction outside the lump. At this point, if you still have not collapsed the lump, you are now doing a fine-needle aspiration (FNA). Expel the contents of the needle onto a microscope slide for cytology.

Positive cytology for cancer will speed appropriate management. False-negative cytology can occur frequently among inexperienced samplers and pathologists not specialized in cytology.[6] Do not be reassured by negative cytology or delay surgical referral or investigation, particularly if the sample has little cellularity.

Summary

Patients often present to rural doctors with a new breast lump. Breast cyst aspiration may be safely attempted in most of these women. If clear fluid is aspirated and the mass disappears, a breast cyst is confirmed as the diagnosis. In this situation, if the cyst does not recur in 4 to 6 weeks, the patient is not at increased risk of malignancy and only routine mammographic surveillance is indicated.

Competing interests: None declared.

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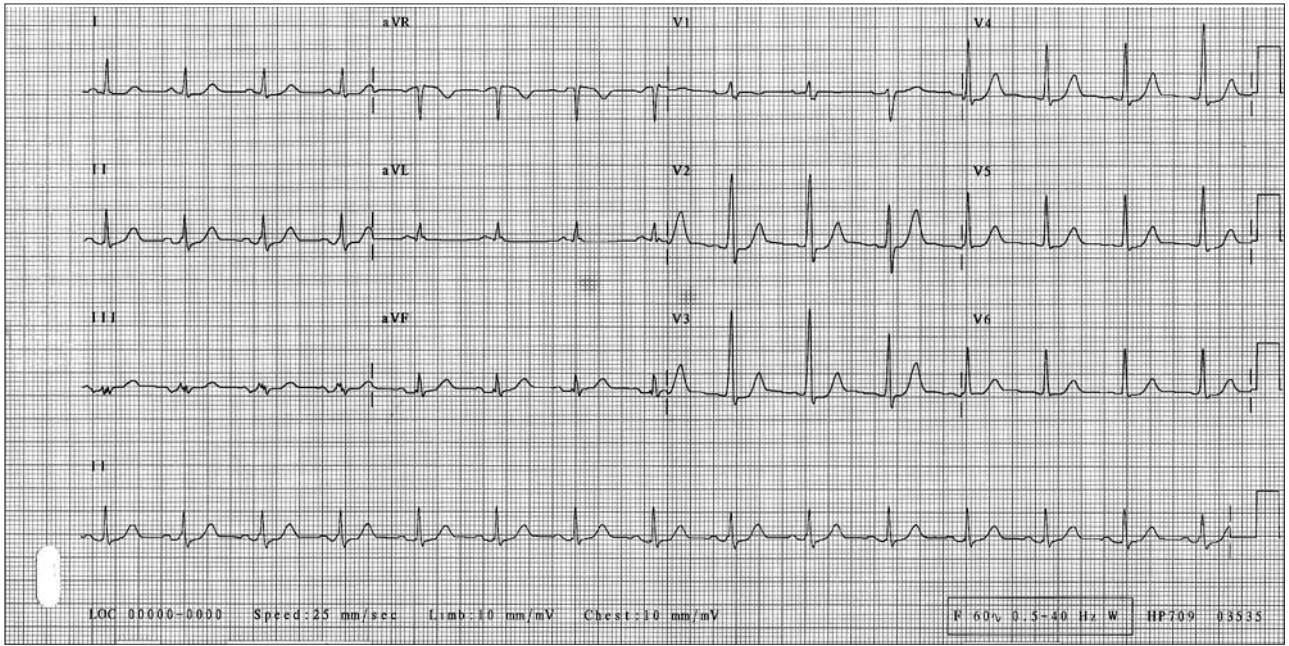

Fig. 1. Results of follow-up ECG, taken after the patient was treated with intravenous adenosine.

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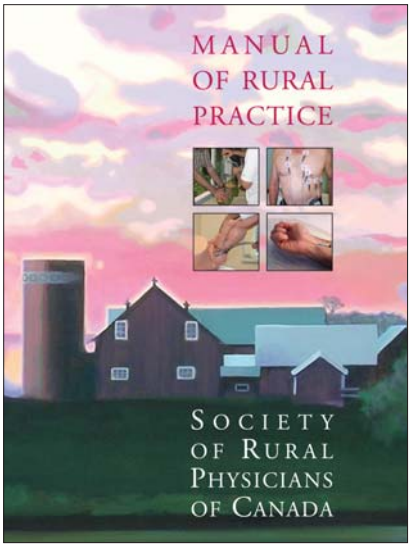
A text for all seasons

As occasionally happens in rural communities, a sunny winter's day turns into a cold and stormy night. The winds blow, and the roads to the city close. As you are awakened, your idyllic dream, with the compelling call of the loon, is now replaced by the reality of the local ambulance siren song. What emergency beckons, to call upon your knowledge, skills and courage? Is it a multiparous patient who has now become breech and is 8 cm dilated? Is it a teen from a multiple motor vehicle collision, who may need a chest tube and advanced airway management to save his or her life?



Especially in situations like this, all rural doctors wish we had a manual of rural practice procedures. Now, the Society of Rural Physicians of Canada has responded and produced just what rural doctors have been looking to find.

The *Manual of Rural Practice* is written for rural doctors, by rural doctors who understand the context of rural practice in which we are called upon to do a wide variety of procedures. These procedures can sometimes be lifesaving, and occasionally are required in stressful, difficult and isolated conditions. The *Manual of Rural Practice* provides clear practical directions for 40 rural practice procedures, ranging from rapid sequence intubation to ingrown toenail removal, with more than 320 illustrations. The articles are adapted in part from the "Occasional" series, published regularly in the *Canadian Journal of Rural Medicine*.

The book is divided into 6 sections:

- Airway (e.g., management, laryngeal mask airway)
- Cardiac/Pulmonary (e.g., arterial lines, chest tube insertion, cardioversion)
- Nervous system (e.g., lumbar puncture, Bier block)
- Integument (e.g., extensor tendon repair, fish hook removal, breast cyst aspiration)
- Musculoskeletal (e.g., Colles' fracture, casting, knee aspiration)
- Genitourinary/Maternity (e.g., shoulder dystocia, suprapubic catheterization)

The format for each procedure is quick and easy to grasp, starting with an equipment list, step-by-step instructions and ending with a procedure summary. The text is clearly written, and the illustrations are helpful.

As with any procedure manual, there are always alternative ways of doing things. For example, many of us now find fibreglass casting has some advantages over the traditional plaster of Paris casting described. The role of air casts is also not described.

At 280 pages the manual is substantial, but there are many more procedures, such as flexible sigmoidoscopy and procedural sedation, that could have been usefully included. Hopefully the editors will begin work on a second volume. Development of an electronic version (for hand-held Palm Pilot/iPac, DVD and Web) with demonstration videos of the procedures would be a wonderful complement to the Manual.

This book is especially recommended for both practising rural doctors and rural doctors in training. Every rural hospital and training program should make a copy easily accessible. Rural doctors will also find the equipment lists (there is even an appendix that details part numbers and suppliers) valuable in ensuring that their hospital and clinic procedure rooms have the required equipment readily available when needed.

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For details on where to buy the *Manual of Rural Practice* see back of carrier card or the inside back cover.

Women and pharmacologic therapy in rural and remote Canada

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Most people who live in rural and remote settings in Canada experience compromised access to health care services and resources.[1] However, women in these settings have unique health care needs and issues.[2,3] Women are often the decision-makers, not only for themselves but for family members, regarding access to health care, including pharmacotherapy resources. In addition, women as a group are prescribed pharmacotherapy agents to a sometimes excessive degree.[4] Women living in rural and remote settings are at risk of being prescribed or using drugs inappropriately and of not being able to obtain the medications and drug-related information they need. They are at risk because of limited access to health care and information, lack of transportation, limited finances, distance to nurses, physicians and pharmacists, the nature of rural physician practice, and local attitudes and beliefs.[3,5–7]

In this commentary we highlight pharmacological issues of women in rural and remote settings. Very little published research is focused on this topic. The scant literature that does exist suggests important directions in research and practice for pharmacists, physicians and nurses in rural and remote Canada.

Health Canada defines rural and remote communities as those with populations of <10 000 and removed from many urban services and resources.[3] Almost 9 million Canadians — 30% of the population and 1 in 5 women — live in rural and remote areas of the country.[3] Overall, the health of rural residents, especially women, is worse than their urban counterparts.[8,9] For example, life expectancy for Ontario women is the lowest in northern and rural areas of the province.[8]

Rural physician populations

In 2001, rural areas in Canada were served by only 17% of family physicians (FPs) and 3% of specialists.[10] The FP:population ratio in rural Canada in 2002 was 1:1201 compared with 1:981 for Canada as a whole.[11] The situation is even worse for the 1 in 5 Canadian women who live in a rural area and who prefer a female physician. In 1998 the rural generalist practitioner was 2.8 times more likely to be male than female.[10]

Gender issues

The shortage of health care professionals extends beyond physicians. Only 18% of registered nurses in Canada work in rural areas.[12] In many rural settings the community health nurse is the only health care professional or the only female health care professional.[13] In the rural areas that lack a community health nurse, women's access to health promotion and illness and injury prevention services, and to care provided by a woman, is thus limited or non-existent. Care may be restricted to that provided by male physicians, an option that may be inappropriate or unacceptable to some women. Rural women who prefer access to female health care

providers for information about or prescriptions for drugs for sensitive issues, such as for mental health and reproductive reasons, are particularly compromised. As a result, these women may avoid, postpone or not use the limited or inappropriate pharmacotherapy resources available in their communities.[7]

Pharmaceutical services and privacy issues

Although the availability of pharmaceutical services in rural areas is less studied, these areas often do have difficulties retaining pharmacists and pharmacies, and many small, independent pharmacies are under financial stress.[14] In addition, rural women may choose to not use the services of the local pharmacy, especially for sensitive issues, because the pharmacist or staff are known to them outside of the workplace. These limits in health care resources restrict rural women's ability to obtain information and take appropriate decisions and actions.

Access to appropriate pharmaceutical resources for these women is also affected by other factors. Many services in rural and remote communities are modelled on the needs of men and overlook the specific needs of women.[6,15] For example, drug therapies are sometimes more accessible for physical care related to hunting, farm and forestry needs rather than for menopause or reproduction issues.[7] In addition, if women do not feel respected by, or have sufficient time with, a care provider, it is likely that they will postpone or avoid access to that care provider, thereby compromising their access to advice about drug therapy.[2]

Travel considerations

The need to travel great distances to obtain care also affects women's health, especially if they are ill or must travel in winter over treacherous terrain, or with children. Elderly women are less physically able to cope with vehicle or weather problems. These issues cause them to postpone or not access care, which results in poorer health outcomes.[2,9]

Occupational and sociocultural factors

Occupational and sociocultural factors also have implications for women's health in geographically isolated environments.[13] Limited employment for women restricts their financial ability to obtain expensive drug therapy that is not covered by provincial drug plans, or that is available only at a distance. Many farm women lack supplementary health insurance, and this, coupled with recent economic downturns in farm economies, severely compromises their access to expensive drug therapies. Attitudes and behaviours that minimize or contradict women's health care needs combined with the familiarity characteristic of rural communities compromise anonymity and contribute to rural women not seeking care.[7] For example, access to birth control and early contraception may be compromised and discouraged in communities where procreation may be preferred and promoted, and where abortion may be viewed negatively. In short, rural women's access to drug-related health care is compromised locally as well as at a distance.

Need for research

Pharmacological research

As previously noted, rural women form a sizeable proportion of the Canadian population; however, the paucity of information regarding the health of these women suggests a great need for further research. Since virtually no research has focused on the pharmacologic needs and issues of rural and remote women in Canada, this research is long overdue.

Teen pregnancy

Research about the drug-related needs of specific age groups is especially urgent. The highest rates of teen pregnancy are often located in rural and northern settings.[8] Some research indicates that in rural areas where women could access female physicians or young physicians or where women had more time with nurses, there were lower rates of pregnancy.[16] More research is needed to explore reasons for the effectiveness of these interactions in helping women make wise reproductive decisions.

Seniors

Elderly people residing in rural areas are at high risk for poor health and hence have an increased need for drug therapies.[14] Because isolated rural communities are increasingly comprised of elderly women who outlive their marriage partners, research that assists understanding of their needs regarding drug therapy is especially urgent.

Research on other health issues

Cardiovascular disease, cancer, mental health issues, obesity, spousal violence, alcohol and other substance abuse are all rural issues that can be affected by pharmacotherapies and illness prevention and health promotion initiatives.[17] More information is needed on how pharmacological therapies are used, and not used, to promote the health of rural women, and on factors that facilitate or hinder health promotion efforts regarding drug use.

Prescribing practices

Prescribing practices of rural physicians may differ from their urban counterparts. Lower rates of new drug utilization were shown among generalists and specialists in rural areas of Quebec.[18] It was postulated that this difference may be related to characteristics of physicians who elect to practise in rural communities, the relative isolation of rural physicians from colleagues, or differential intensity of visits by drug industry representatives related to geographic inaccessibility.[18] As well, new drugs tend to be more costly than older drugs, perhaps providing an indirect disincentive to prescribing new agents. Thus, it is likely that rural women, some of Canada's poorest and most vulnerable citizens,[3] have less access to drugs that are new to the market and that may be most beneficial.

In a study of general practitioners practising in rural and remote settings in Queensland, Australia, most respondents agreed that they prescribe differently in rural practice compared with city practice.[19] The majority agreed that the expectations of rural patients would have an effect on their prescribing practices, although there were differing opinions on whether they were a more or less demanding population.[19] Women's higher rates of medication use for mental health–related issues could be related to physician tendency to over-prescribe these medications for women,[4] which may, in turn, be related to the limited availability of other resources, such as counselling.

Prescription error

The issue of medical prescribing errors is particularly problematic in rural settings.[20] Characteristics of rural practice that contribute to an increased risk of error include broader scope of practice, relative isolation, increased familiarity with patients, and decreased specialist availability.[20] Because of limited education or choices, and other vulnerabilities, rural women may require more confidence, empowerment and encouragement to act as equal partners in their care.[7] As a result, these women are at enhanced risk of receiving no or inappropriate medication, compared with their urban counterparts.

Natural health products

Herbs and teas are often favoured by women as supplements to or substitutions for prescribed pharmaceuticals, especially in underserved areas.[2] A recent study by Health Canada[21] used a national random telephone survey of 2004 adult Canadians to explore awareness and use of natural health products (NHPs). Interesting information on rural and urban populations and female and male populations (but not for each gender within rural and urban populations) was found. See Table 1 for a brief summary.

Table 1 data indicate that rural people favour, and use, NHPs and are likely to continue to do so over the next 10 years. A study conducted with rural and remote women in northern BC revealed similar findings.[2] The women in this study remarked that natural remedies served to replace, as well as supplement, physician-prescribed pharmacologic remedies.

Alternative medicines may be selected because of their purported benefits rather than because of dissatisfaction with traditional medicine. However, in some rural settings, alternative medicines are selected to avoid dissatisfaction with limited or non-existent mainstream health care.[2] Factors in rural settings that limit women's ability to use alternative therapies include limited resources, funds and time; these therapies are often available only in distant urban settings.[2,3] More research is needed to further articulate how and why rural women make decisions regarding the use of NHPs, and to learn which NHPs these women prefer, have access to, and use.

Accessing health information

Lack of access to reliable health information has been identified by rural women as an important issue.[2,3,22] Lack of physicians, nurses and pharmacists in rural Canada limits women's access to drug and other health information, since these health care providers are key sources in rural settings.[3,6] As a result, these women often rely on the advice of

Table 1. Selective summary of findings regarding the use of natural health products (NHPs) by Canadians[21]

Topic	Location, %		Gender, %	
	Rural	Urban	Female	Male
Incidence of NHP use	70	72	78	64
Sense that NHPs are better than conventional drugs and toxin-free	34	27	32	24
Sense that NHPs can be used to maintain or promote health	44	38	44	33
Sense that NHPs can be used to treat illness	37	29	33	29
Canadians most likely to agree that Canadians have the right to use any NHP they wish	54	46	NR	NR
Canadians most likely to agree that if a health product is made of natural substances, there are no risks associated with its use	32	40	41	36
Canadians who agree that NHPs are better than conv entional medicine	23	17	22	14
Canadians with the most interest in potential side effects from NHPs	NR	NR	59	45
Canadians who agree that the use of NHPs will increase over the next 10 years	NR	NR	46	38

NR = Not reported

friends and family when making decisions about health-related matters, including the use of drug therapies.[2,3,6,13] Development of Web sites by health care professionals to facilitate accurate information gathering and utilization by rural residents is one solution.[22] However, rural women's use of the Internet to access health information has not been specifically studied; also, Internet technology is not available in all rural communities. Thus, more research is needed on how the Internet would be useful for rural women seeking pharmaceutical information.

Conclusion

Rural and remote women require better access to quality pharmacological care in their communities. These women have unique health care and pharmacotherapeutic concerns. Accordingly, enhanced practice and research are needed. With enriched research, data regarding diverse rural women's drug-related issues and solutions can be identified. These data, when incorporated into health care practice and policy, will enhance the health of women and their families in rural and remote locations throughout Canada.

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A small hospital's fairy sad tale: an allegory

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Once upon a time there was a little farming village in the valley, not far from a castle on the hill. The people in the village liked to help each other. The local healers were considered a part of their village "family." One day, as medical knowledge and technology developed, they all decided that they could best help their village if they built a healing centre.The healers and villagers got together to raise money to build it. They named it after one of their favourite village volunteers —The Memorial Of Mary Healing Centre or, the MOM-HC for short. It was the pride of the village — small, friendly, efficient and caring. Every year volunteers got together to canvass their neighbours to help with the cost of maintaining the MOM-HC.

The centre was always open to new healers who wanted to join. In other parts of the kingdom new healers had to deposit gold into the Guild of Doctors (GOD as it was known elsewhere) before joining. In this village however, the healers decided that money should not be a prerequisite to join. Indeed, they often helped out a new recruit by using their own gold.

Then one day a courtier from the castle came to town. He told everyone that the King had a good plan that would make life better for everyone. It was called the Village Insurance for Longevity for Everyone — the VILE Plan, for short. No longer would they have to pay their healers with chickens and eggs — the wealth of the whole kingdom would be shared to help all, even the country folk.

As the seasons passed, the quality of life improved for both the villagers and the healing community. Babies were delivered, medical problems treated, operations performed. The local healers were often present, attending every stage of this life cycle, from the birthing room to the funeral home. They were there to guide their neighbours through the curing, caring and coping process.

Then yet another "one day " arrived. This time it was the Prince of Accounting who came. He lived in one of the towers in the castle and came down to tell the villagers that it was costing the kingdom too much to have babies in their village. "Babies are delivered better in the castle," he declared. "Wouldn't you want your babies delivered by those who do only that?" he asked them. The villagers reluctantly agreed, believing what was good for the babies was good for the whole village.

Soon more princes came down to visit. The village was ecstatic. What attention was being poured on them! How special they must be in the eyes of the kingdom. Among the visiting dignitaries was the Prince of Management. He came to explain to the village elders, who were responsible for the healing centre, that he had a plan that would give them more time to work in their fields. This way they would be more productive. In one of the castle towers he was busy training people to organize and run healing centres.

The MOM-HC, he declared, would have a revitalized name change. In order to make everyone feel they were being equally cared for, the name would be changed to the King's Royal All Purpose Healing Centre — or, KRAP-HC, for short. While tending

the fields, however, many of the villagers began to ask what the Prince meant by better, when everyone was satisfied before. They also wondered what the Prince meant by being more productive, since at the end of the day the Prince had his treasurer collect a large portion of the harvest, telling them it was for the villagers' benefit. He said the King's treasure chest had to be refilled so as to pay for the honour and privilege of having those specially trained courtiers leave the castle for the day to run the healing centre so well.

It was not long after this that the trained courtiers were busy expanding the healing centre. The villagers were thrilled. There would be new work for the artisans and more money spent in the local eateries by the courtiers. As for the cabinetmakers, they could not be more satisfied, as they tried to keep up with the requests for more office furniture. The town saw all this, and any doubts about the future of their healing centre disappeared.

Seasons came and went, the villagers were getting older, and so were their healers. They still met and visited in the marketplace, but when they wanted to see their healers in the centre they could not find them. They were in the building, but there were so many offices and so many strangers — all of whom lived their lives in the castle — that no one knew who was a healer or where they could be located.

There were now many banners in the mini-castle that was once their little healing centre. These banners were colourful, extorting the villagers to refrain from festivals, stop sharing food, stop children from playing outdoors, and use only the King's approved tools and equipment; all in the name of a new religion the Prince of Communication called PREVENTION.

This new religion had a creed, which was displayed over their old healing centre in large letters. It read:

LIVE Prevention.

It makes us
Stop
Accidents &
Disease

Indeed, they were encouraged not to visit their healers in the centre, but, instead, to phone 1-800-STAY-HOME. All their questions would be answered by the Lords and Ladies who worked at the far end of the castle. No one had ever seen these Lords and Ladies because they had to stay in the Tower of Algorithms, which, rumour had it, housed all the answers to all the questions the villagers could ever ask.

Back in the castle the King and his council were very busy indeed. They now had a growing population of courtiers busying themselves in all aspects of caring for the needs of the villagers. Included among their activities was an educational and training program. Entering into this program required the most strict set of criteria. Much preparation was required for simply getting accepted. The courtiers and their families invested much time and effort in helping their children, as it soon became apparent that the future welfare of their offspring depended on getting accepted into these schools. Meanwhile, in the village, the children, who continued to ignore the advice that spoke to them from the banners, enjoyed playing, running, fishing and occasionally helping their families tend to the fields. They also went to the local schools, but because the King's treasury was dwindling, the King had to make what he called "difficult choices." And so it came to pass that less money was sent down for the village schools.

It also soon came to pass that most of the healers who were now graduating were coming from the families living in the castle. They worked in a special tower in the castle, painted ivory and with the letters IT on the turret for all to see. This Ivory Tower housed ITs, or Information Technologists, who were organized into teams called the VICE squad (Very Impressive Curing Experts).

Because life was so stimulating and fun in the castle, the courtiers believed that no one should be left out. Education was therefore organized so enough free time could be had for all. The members of the VICE squad were trained to do only a few tasks and to work as a team. This way the brains of the healers would not be cluttered with too much knowledge. It would also allow the healers to be a part of the endless parties going on in the confines of the castle.

Villagers too, it was soon realized, would participate in the titilating experiences that were available in the castle. Their participation, the Prince of Accounting told the King, would bring in more revenue to the King's treasury.

Soon the villagers were more attracted to what was going on in the castle than participating in their local events. Streams of villagers could be seen flowing daily over the drawbridge. To some, it was

surprising, since the castle enclave was getting more crowded, crime more prevalent and the air stale.

Back in the village, despite all the efforts by the Prince of Prevention, the healing centre was still being visited by the sick and dying. Attempts at recruiting new healers from the castle were proving futile.

The VICE squad did not like living outside of the castle walls. They worked best in their own milieu, it was said.

The King summoned the leading princes (now renamed NIGHTS, because they worked more effectively in the dark) to meet at the roundtable of thought. After many hours of reflection, which indeed took them into the wee hours of the night, they decided to do a study on the Cost Ratio Effectiveness and Analysis of Treatment In the Village Entity (a CREATIVE study). The study had to be stopped prematurely when it became obvious to the King that it would be less costly to his treasury to send all the sick people, who obviously didn't adhere to the new religion of prevention, directly to the castle for the special care that only the VICE squad could provide. But the CREATIVE committee realized that the villagers would not be receptive to this argument.

The CREATIVE committee then came up with a novel idea. The Prince of Information Management was called in. He was instructed to re-educate the villagers to help them realize how much better their care could be if it was done in the castle.

A campaign was started to reassure the villagers that as soon as the VICE squad did their thing, they would be sent back to the village. Of course this re-education program required many meetings and hours of preparation. It required more space in the ever shrinking building that housed the healing centre. More sick rooms had to be closed.

Before long the old village healers themselves could no longer work. When the villagers, who were treated in the castle, were supposed to come home, often still unwell despite the manuscripts that accompanied them, beds could not be found. The helpers of the old healers, who were still in the healing centre, soon became unaccustomed to dealing with the sick. As for the others working in the healing centre, the courtiers from the castle, they were too busy preaching and evangelizing the virtues of prevention. They had no idea what to do with the suffering. And so the villagers had to either stay in the castle longer or die far away from home.

It was not long after, that most folks did not even bother stopping at the KRAP-HC for their care. Slowly the courtiers began to return to the castle. The KRAP-HC began to look run down.

And so it came to pass, many years later, that visitors from all over could be seen entering this once proud healing centre, with a tear or two in their eye, as they scanned the pictures and artifacts of another era. It was now a museum: It was called The How Did This Happen Memorial.

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Residents' Page
Page des résidents

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Successful rural rotation: What do learners look for?

There has been more emphasis in recent years on providing rural rotations to residents and medical students as a way to recruit new rural physicians. A review of the literature demonstrates that there is a clear association between rural placements in training and rural practice.[1–3] However, an important question still remains: What do medical students and residents actually want from a rural rotation?

A recent collaboration between medical students/faculty at the University of Toronto and the Rural Ontario Medical Program (ROMP) attempted to answer this question. An online survey was created using Web-based software, and the Web link was emailed by ROMP to past and present medical students and residents who had completed a rural elective through the ROMP. Of the candidates who completed a rural rotation in 2004, 155 (68%) responded to the survey.

One question asked about the importance of various factors in making the rural rotation a positive experience (Table 1).

The results from this survey suggest that medical students and residents highly value opportunities for hands-on training and preceptors who have strong interpersonal and teaching skills. In fact, respondents consistently ranked preceptor characteristics above community factors.

Table 1. Importance of rural rotation characteristics, as defined by 155 respondents to an online survey

Characteristics	Rating (range: 1.0–5.0)
Opportunity for hands-on training	4.84
Preceptor's interpersonal skills	4.81
Preceptor's teaching skills	4.77
Opportunity to train with fewer learners	4.50
Preceptor's medical knowledge	4.39
Preceptor's broad scope of practice	4.39
Diversity of medical cases	4.29
Diversity of patients	4.06
Effort by community to make student feel welcome	3.84
Funding for travel and accommodations	3.81
Accommodations arranged by community	3.57
Participation in community recreational activities	3.14

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A response

From a personal perspective, the results presented above certainly hold true. According to the evidence presented, the most valued criteria of a rural rotation are the opportunity for hands-on training, and a preceptor's interpersonal and teaching skills. A rural rotation can be one of the best experiences during medical training solely because of the preceptor.

What makes a good preceptor then? Learners highly value both a relationship with their preceptor and clinical independence. Whether it is in the emergency department or in the clinic, an excellent rural preceptor will be an effective teacher, but will also give the learner a level of independence based on their skill level.

Some staff members will often suggest that having students follow them around increases their workload. It is true that students can slow things down. However, as a suggestion to both lessen the workload and improve the teaching experience, a preceptor can let the student examine a patient alone, while continuing to see other patients. This way, the student gains confidence and develops the ability to manage patients independently. Patients will often report satisfaction with the experience as well.

An excellent rural rotation is very dependent on a good preceptor, someone with strong interpersonal and teaching skills, who will give an appropriate level of independence and opportunity for hands-on training. Thus the first priority should be to match trainees with exceptional preceptors, because a positive rural rotation dramatically increases the likelihood that a trainee will eventually return to rural practice.

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Letters / Correspondance

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Mini-laparotomy cholecystectomy: same day discharge

To the Editor:

We read the article on same day discharge after mini-laparotomy cholecystectomy (MLC) with great interest.[1] The article has stressed many valid concepts regarding MLC.

We would like to share our experience at Sawai Man Singh Hospital, Jaipur. The authors' unit has been performing MLC for the past 6 years, and the case series includes 78 patients (52 women, 26 men). Mean age of the patients was 51.6 years. Forty-two (53.8%) of the 78 patients were operated on under general anesthesia, and the rest had epidural anesthesia. Thirty-six out of 78 MLCs were performed by the chief resident and the rest by the faculty. The mean operating time was 96.4 minutes. Mean hospital stay was 3.2 days.

The major postoperative complications included biliary leak in 3.8% (3/78) patients, common bile duct injury in 2.5% (2/78) patients and right upper quadrant pain in 94% (72/76) of patients. Incidence of postoperative pain after MLC in comparison to open cholecystectomy has been debated,[2] and the majority of our patients (66.6%; 52/78) had an extended hospital stay due to right upper quadrant pain. The literature fails to explain the excessive pain, which to our knowledge is due to prolonged and excessive retraction during MLC to gain adequate access to Calot's triangle, leading to more tissue trauma.

We feel that MLC, although cosmetically superior to open cholecystectomy, is not an alternative to laparoscopic cholecystectomy as day surgery.

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Country cardiograms case 31: Answer

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At first glance the follow-up ECG, which is illustrated on page 293, may look like a normal ECG with normal sinus rhythm at 89 beats/min, but closer inspection reveals some interesting features. The most obvious clue lies in lead VI, where the first 2 QRS complexes have a tall R wave and the third QRS complex is significantly different, with a normal configuration.

This should prompt scrutiny of the corresponding section of the lead II rhythm strip. It is evident that the complexes that correspond to the tall R waves in VI are wider, and with a shorter P–R interval. Indeed, in the rhythm strip, complexes 1, 5–8, and 11–14 have a P–R interval of 0.16 seconds and QRS duration of 0.09 sec. Complexes 2–4, 9, 10 and 15 have a shorter P–R interval of 0.125 sec and a QRS duration of 0.12 sec, with the presence of Delta waves.

This is conclusive evidence of pre-excitation, and the preceding tachycardia therefore constitutes a "completed" pre-excitation syndrome. In this case the pre-excitation is intermittent; this stresses the importance of looking diligently for evidence of this phenomenon — even one such complex would clinch the diagnosis.

Is this Wolff–Parkinson–White syndrome? Not quite. By definition, WPW requires a P–R interval of less than 0.12 sec (with the A–V node being bypassed). Some cases of pre-excitation have a longer P–R interval, in such case the accessory tract may only begin somewhere in the A–V node or Bundle of His. This is known as Mahaim Fibre pre-excitation, which is what this ECG probably represents.

What is the significance of diagnosing completed pre-excitation? First, depending on the severity of symptoms, surgical ablation techniques can be considered. Second, every patient with pre-excitation should know of this diagnosis, and a medical alert bracelet should indicate this. If atrial fibrillation ever develops, the rapid ventricular rates can be life-threatening. In this situation many of the usual emergency department treatments (calcium-blockers, beta-blockers, digitalis) will make the situation worse.

For the Question, see page 293.