

# Community-wide measures of wellness in a remote First Nations community experiencing opioid dependence

*Evaluating outpatient buprenorphine-naloxone substitution therapy in the context of a First Nations healing program*

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## Abstract

**Objective** To document the development of unique opioid-dependence treatment in remote communities that combines First Nations healing strategies and substitution therapy with buprenorphine-naloxone.

**Design** Quantitative measurements of community wellness and response to community-based opioid-dependence treatment.

**Setting** Remote First Nations community in northwestern Ontario.

**Participants** A total of 140 self-referred opioid-dependent community members.

**Intervention** Community-developed program of First Nations healing, addiction treatment, and substitution therapy.

**Main outcome measures** Community-wide measures of wellness: number of criminal charges, addiction-related medical evacuations, child protection agency cases, school attendance, and attendance at community events.

**Results** The age-adjusted adult rate of opioid-dependence treatment was 41%. One year after the development of the in-community healing and substitution therapy program for opioid dependence, police criminal charges had fallen by 61.1%, child protection cases had fallen by 58.3%, school attendance had increased by 33.3%, and seasonal influenza immunizations had dramatically gone up by 350.0%. Attendance at community events is now robust, and sales at the local general store have gone up almost 20%.

**Conclusion** Community-wide wellness measures have undergone dramatic public health changes since the development of a First Nations healing program involving opioid substitution therapy with buprenorphine-naloxone. Funding for such programs is ad hoc and temporary, and this threatens the survival of the described program and other such programs developing in this region, which has been strongly affected by an opioid-dependence epidemic.

### EDITOR'S KEY POINTS

- Opioid dependence has become a widespread issue in northwestern Ontario, particularly in remote First Nations communities, with some communities reporting prevalences of prescription opioid abuse between 35% and 50%.
- North Caribou Lake First Nation had an age-adjusted adult rate of treated opioid dependence of 41%. Opioid addiction affects the whole fabric of a community, so North Caribou Lake First Nation developed a community-based treatment program that combined substitution therapy and intensive, culturally appropriate counseling.
- The program has received strong community support, and considerable improvements in community-wide measures of wellness have been documented, including decreases in child protection cases, criminal charges, and drug-related medical evacuations, and increases in school attendance, participation in community events and vaccination programs, and spending at the local store.

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# Évaluation des indices de mieux-être pour la communauté d'un village éloigné des Premières Nations aux prises avec la dépendance aux opiacés

## Évaluation d'un traitement de substitution à la buprénorphine-naxolone dans le contexte d'un programme de guérison des Premières Nations

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### Résumé

**Objectif** Documenter le développement d'un traitement unique de la dépendance aux opiacés au sein de communautés éloignées à l'aide de stratégies de traitement propres aux Premières Nations, combinées à un traitement de substitution à la buprénorphine-naxolone.

**Type d'étude** On a fait une mesure quantitative du niveau de mieux-être dans la communauté et de la réponse au traitement propre à la communauté pour la dépendance aux opiacés.

**Contexte** Une communauté éloignée des Premières Nations, dans le nord-ouest de l'Ontario.

#### POINTS DE REPÈRE DU RÉDACTEUR

- La dépendance aux opiacés est devenue un problème dans l'ensemble du nord-ouest de l'Ontario, particulièrement dans les communautés éloignées des Premières Nations, certaines de ces communautés rapportant une prévalence de prescription d'opiacés atteignant 35 % et 50 %.
- La Première Nation de North Caribou Lake avait un taux ajusté en fonction de l'âge, pour les cas adultes de dépendance aux opiacés traités, de 41 %. La dépendance aux opiacés ébranle l'ensemble de la structure de la communauté, et c'est pourquoi ce village a développé un programme de traitement propre à la communauté qui combine un traitement de substitution et un counseling intensif culturellement approprié.
- Le programme a reçu un très bon appui de la communauté et on a observé des améliorations considérables dans les indices de mieux-être, tels qu'une diminution des cas liés à la protection de l'enfance, des accusations criminelles et des évacuations médicales liées à la drogue, mais aussi une diminution des absences à l'école, une meilleure participation aux activités communautaires et aux programmes de vaccination, et une augmentation des achats au magasin local.

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**Participants** Un total de 140 membres de la communauté souffrant de dépendance aux opiacés ont choisi de participer.

**Intervention** Un programme de guérison des Premières Nations développé au sein de la communauté, un traitement de la dépendance et un traitement de substitution.

**Principaux paramètres à l'étude** Des indices de mesure du bien-être pour l'ensemble de la communauté, soient le nombre d'accusations criminelles, les évacuations médicales liées à la dépendance, les cas de protection de l'enfance, l'assiduité à l'école et la présence aux activités communautaires.

**Résultats** Le taux ajusté pour l'âge du traitement de la dépendance aux opiacés chez les adultes était de 41 %. Un an après la création du programme de guérison intra-communautaire et du programme de traitement de substitution pour la dépendance aux opiacés, les accusations criminelles des policiers avaient diminué de 61,1 % et les cas de protection de l'enfance de 58,3 %, l'assiduité à l'école avait augmenté de 33,3 % alors que la vaccination saisonnière contre la grippe avait connu une augmentation dramatique de 350,0 %. La présence aux activités communautaires est maintenant considérable et les ventes au magasin général local ont augmenté de près de 20 %.

**Conclusion** Les indices de mesure du bien-être de la communauté ont connu des changements dramatiques sur le plan de la santé publique depuis l'instauration d'un programme de guérison des Premières Nations comprenant un traitement de substitution à la buprénorphine-naloxone pour la dépendance aux opiacés. Comme ce programme jouissait d'un financement ad hoc temporaire, il risque de ne pas survivre, à l'instar d'autres programmes semblables qui se développent dans une région aux prises avec une grave épidémie de dépendance aux opiacés.

Opioid dependence has become a widespread issue in northwestern Ontario, particularly in remote First Nations communities. In 2009, the northwestern Ontario First Nations chiefs declared a state of emergency regarding “prescription drug abuse” related to the epidemic of abuse of long-acting oxycodone preparations.<sup>1</sup> This was in response to mounting concerns about the social, health, and economic consequences of opioid abuse among many remote First Nations communities: increasing crime, family dysfunction, unemployment, and increasing rates of hepatitis C and neonatal abstinence syndrome.<sup>1</sup>

In Ontario between 1991 and 2007, the number of prescriptions for oxycodone increased by 850%.<sup>2</sup> While the proportion of First Nations people in Ontario receiving opioids through Non-Insured Health Benefits, the responsible federal medical insurance agency, remained steady between 1999 and 2009, the quantity and proportion of oxycodone dispensed increased substantially.<sup>3</sup>

Concurrent with opioid prescribing among First Nations patients,<sup>3</sup> diversion of prescription opioids and trafficking of oxycodone products from larger centres appears to have played an important role in their availability in First Nations communities.<sup>4</sup> The 2008 to 2010 First Nations Regional Health Survey reported that 6.8% of Ontario on-reserve respondents used opioids without a prescription.<sup>5</sup> However, community-led surveys in several Nishnawbe Aski Nation communities reported prevalences of prescription opioid abuse between 35% and 50%.<sup>6,7</sup> In addition, a 3-fold increase in the number of aboriginal people (mostly First Nations) seeking treatment for addiction to prescription opioids in Ontario occurred from 2004 to 2009.<sup>8</sup>

Remote communities need and have developed unique solutions to address the crisis of opioid drug abuse. In northwestern Ontario, the relatively inaccessible geography of remote First Nations communities limits travel for most of the population. Thirty-one remote First Nations communities, which vary in size from a few hundred to several thousand in population, are situated across a vast area accessible primarily only by small planes. Primary care clinics are staffed by nurses and supported by regular fly-in or in-community family physicians. North Caribou Lake First Nation (estimated population 1100) is one such community, as its regional health care centre and the closest hospital are located in Sioux Lookout, Ont, which is a 1-hour flight away. In 2012, in response to the urgent need for a workable opioid-dependence program, the community leadership in conjunction with health care providers developed a unique buprenorphine-naloxone opioid substitution and maintenance program, including in-community after-care counseling by First Nations healers. A pilot project in a neighbouring community in 2012 had demonstrated the effectiveness and safety of buprenorphine-naloxone

for substitution therapy in this setting.<sup>9</sup> This medication combines an opioid agonist (buprenorphine) with an opioid antagonist (naloxone) and resists diversion from its intended sublingual route. The naloxone component, which is inactivated by first-pass effect when taken mucosally, precipitates withdrawal if used intravenously.

### Primary care settings

The safety and efficacy of buprenorphine-naloxone induction in primary care settings (including “home” or unobserved inductions) is well established.<sup>10-14</sup> In fact, primary care delivery of buprenorphine-naloxone programs have success rates similar (50%) to those of more resource-intensive clinical settings.<sup>10-14</sup> Treating addicted patients in a primary care setting allows for more cost-effective delivery of medical services for concurrent illnesses, development of therapeutic relationships, and surveillance for addiction-related complications and infections.

The program in North Caribou Lake First Nation is unique in the scope of community participation in treatment and its remote setting, far from hospital services.

## METHODS

### Setting and participants

A written request for program evaluation was provided by the Chief and Band Council of North Caribou Lake First Nation. Ethics approval was granted by the Sioux Lookout Meno Ya Win Health Centre Research and Review and Ethics Committee. All program participants signed a narcotic treatment contract, and no individual patient information was used in this study.

### Program description

As of May 2014, 140 self-referred community members of North Caribou Lake First Nation in northwestern Ontario had participated in the outpatient healing and buprenorphine-naloxone substitution program since the first intake in July 2012; 8 groups of up to 20 participants went through the induction and maintenance program. All patients met the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition, criteria for substance dependence. Medication inductions (and sublingual administration) are undertaken in the community clinic by the visiting family physicians or addiction specialists. Initially the program runs daily for each patient for 28 days and is managed by the community nurses and mental health workers. Following that initial month, buprenorphine-naloxone dispensing and daily follow-up is managed by community-trained health aides. First Nations counselors and healers deliver group and individual daily sessions several weeks per month during and after the month-long initiation of the program. They

focus on addiction recovery, relapse prevention, understanding early-life trauma, grief counseling, and traditional healing teachings. Land-based activities were used, along with individual and group education and counseling sessions.

### Study design

Statistics from community programs and health-related data were collected and compared for time periods 1 year before and 1 year after the initiation of the buprenorphine-naloxone program. Community-wide measures that are routinely monitored by their respective agencies were collected, as they could be easily followed for changes in incidence.

### Main outcomes

Data on community-wellness measures were collected to assess the effectiveness of the program on the community as a whole. The community-wellness measures included the number of emergency air ambulance medical evacuations out of the community, seasonal influenza immunization rate, number of child protection apprehensions, local community policing calls, number of needles given out by the needle distribution program, school attendance rates, and sales at local stores. Personal observations of manifestations of community spirit were contributed by community and visiting health care professionals and local community mental health workers.

## RESULTS

The 140 patients enrolled in the opioid-dependence treatment program were all between 20 and 50 years of age. Using local medical record population statistics, this accounts for a 41% age-adjusted rate of adult community members in that age group receiving opioid-substitution therapy, including a rate of 48% for patients in their 20s.

*Medical evacuations* are emergency evacuations to hospital by paramedics in a fixed-wing aircraft (supplied by the provincial air ambulance service). *Drug-related medical evacuations* were grouped as the total of drug-related assaults, suicide attempts, overdoses, and sexual assaults believed to be directly related to drugs or addiction. This subset of medical evacuations fell by 30.0%, while the total number of medical evacuations rose by 15.7% (Table 1).<sup>4</sup>

In the year following program initiation, police criminal charges fell by 61.1%, including a 94.1% drop in robbery and arson charges (from 17 in 2011 to 1 related charge in 2013). Young offender criminal or drug charges fell by 66.3%. The needle distribution program dispensed less than half its previous volume, and in

2013, 700 used needles were returned, a rare occurrence in earlier years. The nursing station noted that children and elderly patients were being brought in for medical care at earlier stages of illness. They also noticed that the community clinic became more of a primary care centre than a trauma centre, as they were now caring for less drug-related violence and its medical sequelae. School attendance had increased and most children now arrived having had breakfast at home.

Public support of the program is integrated into the community. The community leadership is strongly supportive and donated a building to house the program called New Horizons. Clients proudly wear T-shirts attesting to their participation both in the substitution program and in the ongoing aftercare counseling. The chief and band councilors take a keen interest in the success of the program and maintain supportive relationships with clients and the medical, nursing, clerical, and counseling program staff. Accepted community health indicators, such as increased planning of and participation in community events and activities for youth and elders, were also evident but not systematically measured. Both the pervasiveness of the issue and the positive, holistic community response have served to lessen the stigma typically associated with substance abuse, perhaps rendering it more amenable to treatment.

Community members strongly endorsed the program: "It has brought life back to our community, [which] is being restored to the way it used to be before everyone got stuck in addiction." Practical benefits include more disposable income:

When I am on Facebook, I see a lot of people writing that they are so happy they joined the program because now that they are not using, their cupboards always have food in [them] and they have money in their pockets and they can buy what they need for them or their children.

## DISCUSSION

We have documented, for the first time, an accurate measure of the scope of the problem in one of our regional communities. The age-adjusted rate of 41% of the adult population participating in the treatment program gives credence to the regional chief's 2009 description of an "epidemic" of opioid dependence.<sup>1</sup> This figure informs the community-wide scope of the problem occurring in northwestern Ontario.

Given the depth of the issue, the successful community-based development of this opioid-dependence program is even more remarkable. North Caribou Lake First Nation is effectively dealing with the community-wide opioid abuse it has experienced. The novel

**Table 1. Annual community-wide wellness measures 1 year before and 1 year after initiation of the program combining buprenorphine-naloxone substitution therapy and First Nations healing strategies**

WELLNESS MEASURE	2011	2013	CHANGE
Total medical evacuations	183	217	15.7%
Drug-related medical evacuations	86	66	-30.0%
Child protection cases	120	50	-58.3%
School attendance	60 of 130	90 of 130	33.3%
School breakfast program attendees	48 of 60	Rare of 90	>90% decrease
Police criminal charges	226*	88	-61.1%
Prenatal program	12 of 18 using illicit narcotics (66%)	10 of 22 taking buprenorphine substitution	Reduction of illicit narcotic use in pregnancy
Needle distribution, no. of needles	10 093	4830	-52.2%
Seasonal flu immunizations	200	700	350.0%
Local store purchases <sup>†</sup>	NA	NA	18%

NA—not available.

\*Statistics for 2012 are presented, as 2011 statistics were not available.<sup>‡</sup>

<sup>†</sup>Sales increase given by store; sales figures were not released.

combination of intensive addictions counseling, First Nations healing strategies, and substitution therapy with buprenorphine-naloxone are all key components. That effective integration has occurred speaks to the effort and creativity brought to bear on a desperate situation by community members, leaders, and health care providers.

In North Caribou Lake First Nation, not only are more community events being planned and well attended, but there is also a sense of community purpose being expressed to health care providers. Total medical evacuations out of the community rose by 15.7% in the study period. Clinicians believed this increase was due to community members bringing serious medical conditions to the attention of the nursing staff that might have previously remained unreported. The dramatic fall in crime and increase in wellness behaviour such as flu vaccinations speak to the dramatic public health effects the healing and substitution therapy program has achieved. Few public health interventions can effect a 350% increase in seasonal flu immunizations or a dramatic drop in child protection cases of almost 60%. The spinoff from the whole community addressing the opioid dependence from a community-based perspective was dramatic public health benefits.

Integrating regular visiting cultural healers into the follow-up care within the remote community allows for powerful role modeling and story sharing. Personal transformation stories are becoming commonplace in the intense cultural healing and counseling sessions that accompany the medical substitution therapy in this community.

Of the 31 regional fly-in First Nations communities, 16 others have similar treatment program experiences. Despite their success, existing programs continually deal

with issues of losing their present level of funding and some have recently had to stop accepting new patients pending available resources. Another dozen communities struggle with attracting the necessary funding to initiate their own treatment and healing programs, which are federally funded annually on an ad hoc basis.

The larger question is, how does a First Nations community come to have a 41% age-adjusted adult rate of treated opioid dependence? The 2014 United Nations' special rapporteur report on indigenous peoples in Canada concluded that we face a "continuing crisis" regarding the situation of our indigenous peoples and that government initiatives have to this point been "insufficient."<sup>15</sup> Its recommendations include "strengthening and expanding services that have already demonstrated success," and this would certainly seem to apply to the community-based buprenorphine-naloxone programs in First Nations communities in north-western Ontario.

Once communities have been able to stabilize their current addiction treatment management, what is next? Given limited economic resources, how do they move forward with community development initiatives including housing, employment, education, self-administration, and community planning to alter the social conditions that are such a fertile field for addiction? Long-term federal and provincial commitments, accompanied by sustained financial support, are required to assist First Nations communities in addressing the roots of opioid addiction.

### Limitations

Population estimates of remote communities such as North Caribou Lake First Nation can vary widely. Our overall population estimate is based on


community-generated numbers used in recent fire evacuation planning in 2011, as well as age ranges derived from community medical records.

Data were gathered as available and markers were chosen by community members and health care providers that highlighted the most important changes experienced by community members and health care providers, as the community moved from crisis to stability of addiction treatment. Future measures of community wellness will need to proceed systematically and involve community-based indicators of wellness using more subtle indicators of health.<sup>16</sup> Our study was not intentionally limited to 20- to 50-year-olds, that was the actual age range of present participants. Program retention rates and urine drug screening values are also being collected and will be available in the future.

Before-and-after studies are limited in their ability to infer causality; however, in the small isolated community of North Caribou Lake First Nation, there were no other such programs or economic or social changes in the community during the observed time frame.

## Conclusion

Opioid addiction affects the whole fabric of a community. The combination of substitution therapy and intensive, culturally appropriate counseling appears to be immensely effective.

Long-term funding is required to sustain these community-based health and social initiatives around addiction management. They are hallmarks of success in treating opioid dependence within communities. 

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## Contributors

All authors contributed to concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

## Competing interests

None declared

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