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Corrections in Canada and “Sunny Days”



For those following our national developments of late in the field, the expansion of our jails and their perception as their being our largest mental institutions, I thought that our CJA/JCA should welcome articles reporting on the practices of

Addiction Medicine in our Correctional System. As new more liberal policies are set to sweep the country, shining some light on our current system becomes even more timely.

Three recent international publications provide a perspective into systems which are traditionally scant on research. The first is a booklet from the US collating principles and guidelines for the delivery of psychiatric services in their corrections facilities.¹ In 1989, this nation's jails and prisons held an estimated 1.2 million men and women. By 2012, that number had almost doubled to 2.2 million. Major contributors were the harsher sanctions created by the “war on drugs” and an attitude promoting “getting tough on crime”. Does it sound familiar? Upward of 700 000 of these men and women had active serious mental disorders with 3 out of 4 of these incarcerated persons having a co-occurring substance use disorder. Physicians including Psychiatrists who practice in jails and prisons function almost exclusively as diagnosticians and prescribers, with little room for the complementary skills they possess.

The second notable reference is a special issue of the Canadian Journal of Psychiatry focussing on a National Trajectory Project studying the 1800 individuals found not criminally responsible on account of mental disorder (NCRMD) in Canada.² The issue highlights a lack of consideration for scientific evidence compared to the prominence of political ideology underpinning the new Bill C-54, in effect since July 2014. References in the issue

to substance use disorder were few nonetheless here are some examples: alcohol and drug abuse were mentioned in 25% of cases at the time of the offense and a substance use disorder in 30% of cases at the time of the verdict. By comparison, mental status was mentioned in 70% of cases with delusions noted in about 50% of these cases. Suicidal or homicidal ideations were rare, less than 10% of cases.

The third reference is a needed reminder from Sweden that substance abuse continues to contribute to excess mortality in people released from prison. In a sample of 47326 individuals released from prison and follow up for a median 5 years, 6% died. Substance use disorders contributed significantly to the rate of all cause mortality (adjusted HR 1.6) and this rate was independent of sociodemographic, criminological and familial factor.³

The above references should provide context to the papers by Dr. Lanoie and Dr. Craig.

There are of course other major contributions in this issue. We welcome the first paper from the Canadian Centre on Substance Abuse with Dr. Young et al monitoring the current fentanyl epidemic through CCENDU. Another first is a contribution from Ireland with Dr. Truszkowska et al investigating mortality risk factors of patients on MMT. We also publish an interesting observation on the “creative” use of gift cards for research participation by Dr. Finch et al. Lastly, Dr. Vincent from Edgewood, one of our major residential programs, has published a handbook on diagnosing and treating addictions. The Journal is pleased to provide a review of this laudable effort.

Back to “Sunny Days”, our Journal will of course be pleased to report on the impact of the anticipated new policies.

Nady el-Guebaly, MD
Editor-in-Chief, CJA-JCA

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Opioid Substitution Therapy In Canada's Prisons

Leo O. Lanoie, MD

ABSTRACT

This paper presents a synopsis of the Canadian penal system. It then describes the introduction and evolution of opioid substitution therapy (OST) across the system's levels. Measures of success are reported.

Cet article présente un sommaire du système de justice pénale canadien suivi d'une description de l'introduction et l'évolution du traitement de substitution aux opiacés (TSO). Des mesures de succès sont rapportées.

INTRODUCTION

In 2010 a parliamentary committee reported that:

Every year, Correctional Service of Canada (CSC) is responsible for slightly more than 22,000 offenders, approximately 13,000 of whom are inmates at a correctional facility and 8,800 others who have been released under community supervision¹

The same report goes on to state:

In Canada, some 80% of offenders serving prison sentences of two years or more have problems with drugs and/or alcohol.

Data from the provincial and territorial prisons is not readily available.

THE CANADIAN PENAL SYSTEM

The Canadian penal system has three levels. The first is the local lock up – the police station. This is relevant to addiction medicine because patients on opioid substitution therapy (OST methadone/suboxone[®]) are picked up for various reasons. Response to patients' need for medication is variable, but many police services make an effort to see that the detainee receives his or her methadone/suboxone[®] while in lock up. Some clinics include the police in the "circle of care" listed on the consent form.

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That allows the physician to tell a police officer that, "yes, patient x is on so many mg of methadone per day and gets his daily dose at pharmacy Y." Some police officers will simply inform the prescriber that patient x is in cells and to please inform the pharmacy that a constable will be by to pick up today's dose. Since patients may spend several days in lock up it is important for prescribers to keep their local police service well informed of their program, not by naming individual patients but by educating them about the importance of receiving daily medication, even when locked up.

The next level is provincial or territorial corrections services. In Canada Criminal Law is Federal Law. Anyone convicted of an offence meriting two year or more will be sent to a federal penitentiary. Those are sentenced to no more than "two years less a day" end up in a provincial correctional centre. Many such centres are overcrowded. Convicted persons will often opt for a sentence of two years in order to be sent to a federal institution, where programs are better.

The term "programs" refer to everything from structured educational courses to CBT based group sessions.

OPIOID SUBSTITUTION THERAPY

Most if not all provincial correctional services allow inmates who enter the system on methadone to continue on methadone. Suboxone[®] is more problematic and depends largely on whether or not the provincial drug plan funds Suboxone. ^{*} Because of the relatively short stay in provincial facilities, of the difficulty in organizing continuity of care once released, and of the uncertainty as to exactly when the inmate may be released, starting a patient on methadone in provincial corrections is problematic and policies vary from province to province. (Strange as it may seem release dates are not always known. Inmates get time off for good behaviour, time served for prior to sentencing, etc. Also, if the release date falls on the Monday of a long weekend, the inmate may be released the Friday before, usually at five o'clock.) Most provincial correctional systems do allow medically at risk inmates to be started on methadone if a case can be made that methadone is essential to the management

of their medical condition. This is easy to do for an opioid dependent inmate whose treatment success depends on strict adherence to a medication regimen.

The Correctional Service of Canada (CSC) has a long tradition of providing and perfecting non pharmacological care for inmates with severe substance abuse disorder. CSC introduced methadone maintenance in phases. In December 1997 CSC started maintaining offenders on methadone who were admitted to CSC already on Methadone (Phase 1). By February 1999 offenders could be initiated on Methadone under exceptional circumstances. In May, 2002 access to methadone maintenance became accessible to all inmates that met the criteria for opioid dependence (Phase 2). The National Specific Guidelines for Opioid Dependence were promulgated to insure consistency in application in all CSC institutions. In 2008 the Guidelines were amended to include Suboxone®. By 2010 opioid substitution therapy was available in fifty one of CSCs 57 institutions.² Six institutions were deemed unsuitable for OST due to perennial staffing difficulties. In institutions that have sufficient nursing staff but no access to a methadone prescribing physician, (isolated healing lodges), clinics with a methadone prescriber are done via videoconferencing.

Initially, MMT was not well received in many institutions. CSCs response was education and supervision. A National Coordinator (RN) was appointed to manage the program as a whole. A Regional Coordinator (RN) was appointed in each of the five correctional regions. The Regional Coordinators' mandate was to ensure that the provisions of the Guidelines were applied at the institutional level. This was done by site visits to observe clinical and dispensing practices, to review charts and to help the staff problem solve. Each of the five regions had a Regional Medical Consultant, whose job it was to assess, advise and support institutional physicians in the care of opioid dependent inmates and to be a resource for the Regional Coordinator. A National Medical Consultant was contracted to advise the National Coordinator and to help educate CSC staff at all levels about addiction and its treatment. Training Days were held in 11 different centres across Canada every two years over a six year period. These were attended by medical, nursing, programing, parole and correctional (security) officers. In addition, attendance at CSAM conferences was facilitating for nursing and program staff. Institutional physicals were also encouraged to attend.

The Medical Consultants and Regional Coordinator positions were phased out in 2014. This was probably due to budget cuts. By that time, however, (OST) was well established and accepted in CSC and those positions were less acutely needed.

Any offender with opioid dependence can apply for OST. The application is reviewed by a committee consisting of the OST nurse, the offender's parole officer and program officer. The physician makes the final decision as to whether or not the inmate is a suitable candidate for OST. The other personnel continues to play a vital part in the inmate's substance abuse care. The only requirement for OST is a diagnosis of Severe Opioid Use Disorder and a desire on the part of the offender to participate in the program. Only inmates who will be released in the foreseeable future and who insists on returning to an area where OST is not available are refused OST. In Institutions where there are waiting lists (at present there aren't many) inmates who are due to be released within six months are given priority. The OST team has a responsibility to assure continuity of care once the offender is released into the community.

The program is highly structured. Every effort is made to avoid diversion. The administration of methadone is directly observed and the 20 minute rule (observation by a Correctional Officer for 20 minute) is enforced. Some institutions even use a 30 minute rule. Urine Drug Testing (UDT) is once a week initially. Once the patient is stable (no major dose changes and negative toxicology) the tests are done randomly more or less every 2 weeks. Only health care staff has access to urine toxicology results. Correctional officers can demand a UDT from an offender at any time and these results can be used punitively; OST toxicology results cannot. OST patients are expected to participate in programs (addiction related educational and counselling sessions). Involuntary tapers are rare and are almost always due to persistent attempts to divert methadone to other inmates.

Suboxone® is available only for patients who cannot tolerate methadone. It is rarely used.

PREVALENCE OF COMORBIDITIES

As with victims of substance use disorder everywhere, incarcerated patient have a high prevalence of medical and psychiatric co-morbidity. HIV and Hep C are common and are treated by physicians expert in the management of those conditions. Psychiatric co-morbidity is very common. In 2008 MMT participant reported lifetime prevalence of:³

- Treatment for anxiety: 48%
- Treatment for depression: 46%
- Treatment for panic disorders: 23%
- Treatment for psychosis: 10%
- Treatment for any other emotional problem: 18%
- Previous psychiatric admission: 29%

- 33% lifetime history of suicide attempts
- 13% currently suicidal/depressed

The report did not mention Attention Deficit/Hyperactivity Disorders (ADHD) or Alcohol Related Neurodevelopmental Disorders (ARND), two conditions that are more prevalent in inmate populations than in the general population. It is obvious from these statistics that OST inmates are high risk and need to be cared for by a team. CSC does provide the team. The OST team consists of the nurse, the parole officer, the program officer and the physician. CSC provides access to psychologists, psychiatrists, various specialists and even residential care in a Regional Psychiatric Centre if indicated.

AVAILABLE RESULTS

OST in CSC has met with a considerable measure of success. Institutional adjustment is much better in OST

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patients. They have fewer positive urine toxicology tests, participate better in program, complete more programs, and receive significantly fewer disciplinary charges than they did prior to starting OST.⁴ Both men and women participating in OST are more likely to be paroled than offenders with identified opioid use offenders not on OST. After release OST participants who continue treatment under supervision in the community were less likely to be returned to custody or to reoffend than offenders who terminated the OST involvement upon release or who were untreated.⁵

CONCLUSION

The introduction of OST in the correctional system has provided the best set of treatment data available from the system. It is hoped that the management of other substances will receive similar attention.



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“Swimming against the Tide” Restricting Prescribing Practices in a Prison: A Personal Journey

David Francis Craig MD MSc

ABSTRACT

Objectives: I sought to reduce the unnecessary prescribing of psychotropic medications with abuse potential, chiefly benzodiazepines (Valium-like drugs), HS sedatives (“sleeping pills”) and psychostimulants (e.g. methylphenidate [Ritalin]) in prison settings.

Method: After each patient/inmate was assessed, benzodiazepines and HS sedatives were tapered and stopped. Patients/inmates were restricted to no more than one antidepressant and no more than one antipsychotic agent; prescriptions for psychostimulants were also restricted.

Results: Other health care staff consistently reported that the overall mental health of inmates improved soon after these changes were implemented. Prison staff reported that incidents of “strong-arming” of inmates for medications decreased as did levels of prison violence. Prescription drug costs dropped substantially and psychiatrist visits dropped by approximately 75%.

Drug-seeking behaviors included complaints to the media, which was sympathetic, and to the College of Physicians and Surgeons of Newfoundland and Labrador, and eventually to a widely publicized peer review which, fortunately, endorsed my practices.

Conclusions: Reducing unnecessary prescribing rates of psychotropic drugs with abuse potential to prison inmates has beneficial effects on both health care costs and inmate well-being. However, dealing with public criticism for doing so is difficult.

Key words: drug-seeking; penitentiary; inmates

Objectifs : J’ai cherché à réduire la prescription inutile de médicaments psychotropes avec un potentiel d’abus, principalement les benzodiazépines (médicaments comme le Valium), les sédatifs HS (“sleeping pills”), et les psychostimulants (ex. : méthylphénidate [Ritalin]) en milieu carcéral.

Méthodologie : Suivant l’évaluation de chaque patient/détenu, les doses de benzodiazépines et sédatifs HS

étaient progressivement diminuées jusqu’à l’arrêt. Les patients/détenus étaient limités à un antidépresseur et une substance antipsychotique; les prescriptions de psychostimulants étaient aussi limitées.

Résultats : Le personnel médical signalait régulièrement que la santé mentale globale des détenus s’améliorait peu après que les changements soient mis en place. Le personnel carcéral a signalé une diminution des incidents impliquant la force avec d’autres détenus pour obtenir des médicaments et de la violence en prison. Les coûts liés à la prescription de médicaments ont diminué substantiellement et les visites en psychiatrie ont diminué d’environ 75%.

Les comportements toxicomaniaques incluaient des plaintes aux médias, qui étaient favorables, et au Collège des médecins et chirurgiens de Terre-Neuve et Labrador, puis à un examen par les pairs largement publicisé, qui ont approuvé ma pratique.

Conclusions : La diminution de prescription inutile de médicaments psychotropes avec un potentiel d’abus parmi les détenus a des effets positifs à la fois sur les coûts de soins de santé et le bien-être des détenus. Toutefois, faire face à la critique du public pour avoir agi ainsi est difficile.

Mots- clés : toxicomanie, pénitencier, détenus

INTRODUCTION

I am a psychiatrist and my residency program included a three-month rotation in forensic psychiatry, during which I attended four half-day clinics per week at Her Majesty’s Penitentiary in St. John’s, Newfoundland during the summer of 1986. Most patients/inmates there were seen weekly and were prescribed benzodiazepines and HS sedatives (i.e. “sleeping pills”) for extended periods despite their recognized abuse potential¹ and their indication for short-term use². This practice concerned me because it seemed to reinforce the very substance-use disorders which had led to the crimes for which many of these inmates had been incarcerated.

About three years later, in April 1989, the local Canadian Broadcasting Corporation televised a documentary which was critical of prescribing practices at the penitentiary³.

“The prison is visited by both a doctor and a psychiatrist.... Many inmates say the medical services are used a lot. Some... Say they regard

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the doctors as pill pushers...’The amount of prescription drugs in this prison is unreal’... ‘The doctors here give it away’.

Several years later, in 1999 I was asked to take over the psychiatric practice at Her Majesty’s Penitentiary. Before agreeing to do so, I reminded the Director of Adult Corrections that my approach to prescribing psychotropic medications was conservative, that the Director should expect to receive complaints and that his options would be either to put up with me or to fire me. I later assumed responsibility for psychiatric services at three of the four other adult prisons across Newfoundland and Labrador. I assess approximately 50% of all inmates in these institutions, usually shortly after they are incarcerated.

According to Bland et al.⁴, who published their findings in 1990, the prevalence of any DSM IIR mental disorder in adult male prisoners in provincial prisons in Edmonton, Alberta was 91.7%. The prevalence of substance use disorders was 87.2%, that of alcohol abuse or dependence 78.9%, and that of drug abuse or dependence 50.6%. Bland et al.⁴ found prevalences of 56.7% for antisocial personality disorder, 22.8% for mood disorders, 16.7% for major depression, 4.4% for bipolar disorder, 15.6% for anxiety disorders, 2.2% for schizophrenia and 1.1% for cognitive impairment.

Bland’s figures for the prevalence of substance-use disorders appear similar to those for the prison populations in Newfoundland and Labrador. The overwhelming majority of inmates suffer from substance-use disorders, of whom approximately two thirds report alcohol misuse, approximately half report drug misuse, and approximately one quarter report misuse of both alcohol and of at least one other substance of abuse, excluding tobacco. The substances reportedly misused and the reported routes of misuse appear to have changed in parallel with similar changes across the Province over the past 16 years. Until the early 2000’s patients reported misuse of cocaine, of opiates other than codeine and of any substance misuse via the intravenous route only a few times per year; they now do so several times per clinic day. These changes seem to have followed substantial improvements in the economic lot of Newfoundland and Labrador. Abuse of certain prescription drugs including oxycodone, hydromorphone and morphine, most benzodiazepines and HS sedatives, and methylphenidate has become particularly problematic in the prison settings where I work. Misuse of bupropion and of quetiapine has also been observed frequently. Similar

misuse of these substances, particularly in prison facilities, has been reported in the literature^{5,6}.

The prevalence of mood and anxiety disorders in prison is not straight-forward. About 50% of the inmates assessed, or about 25% of the total prison population, have pre-existing prescriptions for antidepressants, usually in combination of benzodiazepines and/or HS sedatives, at the time of incarceration. They were presumably given diagnoses of depression sometime prior to their incarceration. However their reported histories reveal that their complaints of depression are readily attributable to external stressors such as legal difficulties, disrupted relationships or lost jobs, usually in the context of ongoing misuse of alcohol and/or drugs. They usually report transient, not persistent, depressed mood, nor do they exhibit “markedly diminished interest or pleasure in all or almost all activities most of the day, nearly every day”⁷. They lack the inappropriate feelings of guilt, worthlessness or hopelessness which are characteristic of a depressive disorder. Their mental examinations are usually unremarkable. These patients/inmates appear to suffer from grief and/or adjustment disorders (i.e. overreactions to normal stressors), not true depressive illnesses.

Similarly, about 30% of the inmates assessed, or about 15% of the total prison population, have pre-existing prescriptions for benzodiazepines and/or HS sedatives but not for antidepressants at the time of incarceration. They have presumably been diagnosed with an anxiety disorder at some point. However, the substantial majority of these patients/inmates attribute their anxiety to external stressors similar to those reported by patients/inmates complaining of depressed mood. Those patients/inmates who report diagnoses of either social anxiety disorder or panic disorder almost invariably present with symptom(s) which are “attributable to the physiological effects of a substance/medication”, namely their substances of abuse⁸.

While somewhere between 5% and 10% of patients/inmates assessed report diagnoses of bipolar disorder, the substantial majority of these patients/inmates deny histories suggestive of either hypomania or mania, which are prerequisites for the diagnosis⁹. Many of these incorrect diagnoses may represent attempts to attribute anti-social acts to episodes of mania or hypomania, and/or attempts to obtain prescriptions for quetiapine which has abuse potential, particularly in prison settings⁶.

This is not to say that prison inmates do not suffer from

mood or anxiety disorders or bipolar disorder. The prevalence of true depressive and/or anxiety disorders within the prison population appears to approximate that in the community at large, namely approximately 5% for each disorder among male inmates and 10% for each disorder among female inmates, and that the prevalence of bipolar disorder also approximates that in the community at large, namely somewhere between 1% and 2% among inmates of either gender.

The prevalence of diagnoses of attention deficit disorder and of prescriptions for methylphenidate among inmates prior to incarceration appear to have risen several-fold over the past few years. This apparent rise seems to be in parallel with the rise in the frequency of reports of cocaine misuse within the local community. Most of these patients/inmates report histories of misuse of either cocaine or methylphenidate. Most of them do not show objective evidence of inattentiveness, distractibility or hyperactivity following withdrawal of methylphenidate. The majority of patients/inmates with prescriptions for methylphenidate are soon caught either hoarding methylphenidate or diverting it to other inmates. Reports of both methylphenidate-seeking behaviors and general aggressiveness among prison inmates have consistently risen or fallen in parallel with the numbers of prescriptions for methylphenidate within the prisons.

The prison inmates assessed tend not to be psychologically minded and to seek pharmacological solutions to non-pharmacological problems. They are also reluctant to talk to any non-inmate for any longer than absolutely necessary for fear of being labeled as informants or “rats” and subjected to brutality at the hands of their fellow inmates.

THE PROCESS OF CHANGE

Her Majesty’s Penitentiary, housing approximately 160 adult males, the substantial majority of whom were between ages 18 and 40, was generating approximately 80 psychiatric visits per week. Most of these patients/inmates were being seen weekly and were prescribed a benzodiazepine two or three times per day, an HS sedative, usually ethchlorvinyl (Placidyl) 100 mg and, in some cases an antidepressant, an antipsychotic agent, a mood stabilizer or some combination thereof.

Prescribing practices for psychotropic agents were changed by applying the following guidelines.

1. Restriction of new prescriptions for HS sedatives to the occasional brief (3-5 day) prescription for acute situational insomnia; Existing prescriptions for HS sedatives are normally tapered and stopped, usually

at a rate of approximately 0.5-1 standard dose (e.g. temazepam [Restoril] 15 mg or zopiclone [Imovane] 3.75 mg) per day approximately once per week.

2. Restriction of new prescriptions for benzodiazepine anxiolytics to the occasional brief (3-5 day) prescription for acute situational anxiety or to acute withdrawal from alcohol, other sedatives or possibly stimulants and/or opiates, in which case the maximum duration of these prescriptions did not usually exceed three weeks. Existing prescriptions for benzodiazepines, other than for the purpose of treating epilepsy, are normally tapered and stopped in a fashion similar to that for existing prescriptions for HS sedatives.
3. Restriction of the simultaneous prescription of more than one antidepressant or of more than one antipsychotic agent to “overlap” periods, during which one antidepressant or antipsychotic agent is introduced while the other is withdrawn, or to when a tricyclic antidepressant was prescribed as an analgesic, in which case attempts are normally made to treat both disorders with the tricyclic antidepressant. Existing prescriptions for more than one antidepressant or more than one antipsychotic agent are normally tapered at a rate of approximately 0.5 standard antidepressant or antipsychotic agent dose (e.g. paroxetine [Paxil] 10 mg, risperidone (Risperdal) 1-2 mg) per day approximately once per week.
4. Caution in prescribing quetiapine for indications other than the treatment of psychosis or bipolar disorder⁶. Existing prescriptions of quetiapine for either anxiety or insomnia are normally tapered at a rate of approximately 50 mg daily once per week, exercise similar caution in prescribing bupropion because of its abuse potential⁷. New prescriptions for bupropion are normally restricted to patients/inmates suffering from depressive and/or anxiety disorders who either fail to respond to or are intolerant of SSRI and SNRI antidepressants (e.g. paroxetine [Paxil] or venlafaxine [Effexor] respectively). Patients/inmates who are caught hoarding or diverting either quetiapine or bupropion normally have these medications tapered and stopped and are then observed off all psychotropic medications for several weeks in order to assess their need for any psychotropic medication.
5. The principles governing prescriptions for psychostimulants evolved over time. Existing prescriptions for psychostimulants for the treatment of reported attention deficit disorder in patients/inmates without histories of stimulant abuse/dependence were initially continued. However, it was soon observed that levels of “strong-arming” of inmates for methylphenidate

and of prisoner aggressiveness/violence consistently rose and the overall mental health of prison inmates consistently fell whenever rates of prescribing methylphenidate rose and vice versa whenever these rates fell. I then learned of and began following the approach advocated by Applebaum⁹, namely that: *a) to qualify for treatment, the inmate must have clinically significant impairment in areas such as ability to function in the general prison population...; data on functioning... must be corroborated by collateral sources...; b) "initial pharmacologic treatment is with non-stimulant medications... unless the inmate has clear contraindications or well-documented lack of response to adequate pass trials of non-stimulants"; c) "treatment with stimulants can occur only after failure of a complete trial of one or more non-stimulant agents, or when such trials are contraindicated..."; and d) "ongoing treatment requires documentation of objective improvement in functioning... Stimulant use must also be discontinued if the inmate diverts or otherwise misuses the medication."*

6. Methadone Maintenance Treatment patients/inmates are normally continued on their pre-existing doses of methadone throughout their term of incarceration in keeping with the guidelines of the College of Physicians and Surgeons of Newfoundland and Labrador. Regular communication regularly with the community methadone-prescribing physician is maintained throughout the terms of incarceration, particularly at the time of release.
7. All patients/inmates whose medication(s) are tapered and stopped are followed for as long as is needed to ensure that they remain well off these medications. All patients/inmates who are prescribed psychotropic medications are followed throughout the course of their incarcerations, usually by monthly assessment or more often if indicated.

RESULTS

The benefits of these changes became readily apparent almost immediately. Feedback from staff was highly positive namely to the effect that inmates were now alert and able to attend to their programs; that rates of drug diversion, possession of contraband, "strong-arming" of inmates for their medications and of violence in general were decreasing substantially and that the overall mental well-being of inmates were improving. Unfortunately, data to confirm and measure the extent of these reported improvements

were not gathered. The overall cost of psychotropic medications dropped considerably and the number of psychiatric visits dropped by approximately 75%.

The patients/inmates whose psychotropic medications were tapered and stopped were dismayed but reluctantly accepted the changes as inevitable. Some later informed the penitentiary nurse that "that b***** was right", and that they felt more "clear-headed" after their psychotropic medications were discontinued.

Patients/inmates soon complained to the media, which published stories which were inevitably sympathetic to the patient/inmate. The demands of confidentiality effectively preclude the media from obtaining corroborative or contradictory information, resulting in a publication of very one-sided stories, leaving me without recourse. Other protests took the form of approximately 35 complaints to the College of Physicians and Surgeons of Newfoundland and Labrador which conducted formal investigations of each complaint.

The Citizens' Representative, an appointee of the Provincial legislature, took it upon himself to conduct an investigation¹⁰. His report concluded that:

"Inmates should have the reasonable expectation that they will receive the same type and level of medical care which is available to all citizens.... It is important that the psychiatric services provided at our correctional institutions be... at least similar and equivalent to that available to all citizens.... We conclude that the reasonable expectations of inmates with respect to the prescription of psychiatric drugs are not being met by the Department for the following reasons: the Department is fully aware of conservative prescription practices of the psychiatrist.... Patients in the community who are unhappy with his conservative prescription practices are free to seek authorized prescription drugs elsewhere.... Thus the control made possible by incarceration is a distinguishing feature in how inmates versus patients (in the community) are treated.... We conclude that to continue to retain him (the author) to provide psychiatric services for the Provincial correctional facilities is unreasonable, unjust and oppressive to inmates..." The government rejected the Citizens' Representative's report on the basis that it was not a peer review. The Minister of Justice then ordered a peer review, to which I consented in advance. This peer review took approximately 18 months to complete. Meanwhile public criticisms continued^{12, 13, 14}.

The peer review concluded that *“Dr. Craig is clearly practicing to an acceptable standard.... His understanding of diagnosis, and medication management, is good, and he is familiar with unique aspects of prescribing in correctional settings.... A number of commonly used psychotropic medications have potential for abuse, in correctional settings, with possible health and security consequences for inmates, and the institution.... The controlled setting of corrections can provide an opportunity for reevaluation of the need for certain medications, and the opportunity to discontinue unnecessary treatment...”* The subsequent silence from all critics was immediate and persistent.

DISCUSSION

While mental illnesses are highly prevalent in correctional facilities, the predominant mental illnesses by far are substance-use disorders. While diagnoses of other mental disorders, particularly of mood and anxiety disorders, bipolar disorder and attention deficit disorder are very common, the majority of these diagnoses appear to me to be incorrect, the appropriate diagnoses appearing to be adjustment disorders, substance use disorders or some combination thereof. The true prevalence of mood and anxiety disorders and bipolar disorder in prisons probably approximates that in the community at large. The recent apparent dramatic rise in the local prevalence of diagnoses of adult attention deficit hyperactivity disorder among prison inmates appears largely attributable to an equally dramatic rise in reports of cocaine misuse in local communities.

Common drug-seeking behaviors among prison inmates include choosing family physicians and/or psychiatrists who appear predisposed to prescribing psychotropic medications with abuse potential and complaining to the media and to authority figures when these medications are discontinued. The constraints imposed by the duty of confidentiality preclude healthcare professionals and organizations from saying anything in response to these complaints, as a result of which the public is exposed to a very one-sided version of events. The ensuing public and

harsh criticism is difficult to deal with and is likely to deter other prescribers from similar attempts to cut down on the prescription of psychotropic drugs with abuse potential.

CONCLUSION

In hindsight, it is regrettable that before and after measures of patient/inmate well-being, Disciplinary Court convictions for drug-diversion, possession of (drug) contraband, “strong-arming” and other forms of inmate-on-inmate and inmate-on-staff violence and recidivism rates were not taken and compared to contemporaneous rates in similar prisons where prescribing habits were not changed. Another prison contemplating the adoption of a structured medication use policy such as that described above would be wise to take these before-and-after measures, both to (hopefully) confirm and measure the favorable impact of these changes.

If society is to curtail prescription drug abuse, we must both discourage physicians from inappropriately prescribing drugs with abuse potential and encourage physicians to taper and stop prescriptions for these medications when they are no longer required. Where appropriate, education of health care providers about addiction issues and/or enforcement measures should then be taken. This should be a responsibility of the Provincial Colleges of Physicians and Surgeons which should also streamline the process of investigating minor complaints in order to reduce the extent to which threats of such complaints deter physicians from refusing inappropriate requests for prescriptions for drugs with abuse potential. Finally, education about addiction-related issues should become part of the curriculum of all medical and other health care-related schools.

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The Rise of Overdose Deaths Involving Fentanyl and the Value of Early Warning

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ABSTRACT

Information collected, collated, and disseminated by the Canadian Community Epidemiology Network on Drug Use (CCENDU) on the emergence of fentanyl or fentanyl analogues for sale in the illicit marketplace is presented as an example of how CCENDU has functioned as a Canadian early warning system to detect and disseminate reliable, timely information on alcohol and other drug related harms. In July 2013, the network issued its first alert on the sale of fentanyl or fentanyl analogues in the illicit drug marketplace. In February 2014, the network

issued a second alert on the appearance of fentanyl powder that had been pressed into tablets in order to resemble oxycodone tablets. A year later (February 2015), the network issued a third alert indicating that partners were reporting increased incidences of fatal and non-fatal overdoses suspected or confirmed to involve illicit fentanyl. In August 2015, more than two years following the first alert, the network issued a bulletin on the marked increase in the number of deaths involving fentanyl in Canada between 2009 and 2014. This paper discusses the value and importance of a Canadian early warning monitoring and surveillance system to detect and disseminate reliable timely information on alcohol and other drug related harms.

L'information recueillie, synthétisée et diffusée par le Réseau communautaire canadien d'épidémiologie des toxicomanies (RCCET) concernant l'apparition du fentanyl ou d'analogues du fentanyl sur le marché illicite est présenté comme un exemple du fonctionnement du RCCET en tant que système d'alerte rapide canadien permettant de relever et de diffuser en temps opportun de l'information fiable sur les méfaits de l'alcool et d'autres drogues. En juillet 2013, le réseau a émis sa première alerte concernant la vente de fentanyl ou d'analogues du fentanyl sur le marché des drogues illicites. En février 2014, le réseau a émis une deuxième alerte, sur l'apparition de fentanyl en poudre transformé en comprimés de façon à ressembler à des comprimés d'oxycodone. Un an plus tard, en février 2015, le réseau a émis une troisième alerte s'appuyant sur la hausse du nombre de cas soupçonnés ou confirmés de surdoses mortelles ou non mortelles impliquant du fentanyl illicite signalées par des partenaires. La présente étude porte sur la valeur et l'importance d'un système canadien de surveillance et d'alerte rapide permettant de relever et de diffuser en temps opportun de l'information fiable sur les méfaits liés à l'alcool et aux autres drogues.

THE RISE OF OVERDOSE DEATHS INVOLVING FENTANYL AND THE VALUE OF EARLY WARNING

Harms arising from alcohol and other drug use are an issue of public health concern in Canada. Between 2009 and 2014 there were over 1,000 deaths involving fentanyl in Canada¹. Further the number of deaths per year in Canada's largest provinces increased markedly during this time – in some provinces increasing more than 20 times. Some of the fentanyl that has appeared on the market since 2013 has been in pill or powder form, and often mistaken for other drugs such as oxycodone or heroin. Many anecdotal reports suggest that fentanyl overdoses

occurred among individuals who thought they were using heroin, oxycodone, cocaine or another substance, but mistakenly took fentanyl; thus increasing the risk of overdose. It is possible that many of these overdoses could have been prevented if the emergence of fentanyl into the illicit drug marketplace had been detected and acted upon early, by warning drug using populations and or increasing availability and access to drugs such as naloxone. In order to effectively develop and implement interventions to prevent and reduce harms, systematic collection, analysis, interpretation, and dissemination of timely and accurate information on the availability, use, and harms associated with new drugs and new drug use trends is essential.

THE CANADIAN COMMUNITY EPIDEMIOLOGY NETWORK ON DRUG USE

CCENDU (www.CCENDU.ca) is a national, sentinel surveillance network coordinated by the Canadian Centre on Substance Abuse (CCSA) that is made up of representatives from Newfoundland and Labrador, Nova Scotia, Québec, Montréal, Toronto, Winnipeg, Saskatchewan, Alberta, and British Columbia. Each representative collects quantitative information on drug harms from local data sources (e.g., poison control centres, coroners) and anecdotal reports from those directly working with drug-using populations (e.g., law enforcement, harm reduction programs), and people who use drugs. This information is then collated and the risk assessed at the national level. If warranted, CCENDU issues alerts to advise first responders, healthcare practitioners, treatment providers, people who use drugs, law enforcement, and others about drug-related health threats and what can be done to prevent and reduce harms.

EARLY DETECTION OF THE EMERGENCE OF ILLICIT FENTANYL

Fentanyl is an opioid analgesic that is prescribed medically to treat pain. Until 2013, fentanyl in the illicit drug marketplace was primarily diverted prescription-grade fentanyl in the form of transdermal patches. However, in May 2013, members of CCENDU and related partner organizations began sharing anecdotal reports regarding the availability of fentanyl in powder and tablet form (i.e., illicit fentanyl).

Although misuse of pharmaceutical grade fentanyl can result in overdose or other health complications, illicit fentanyl poses an even greater health threat for a number of reasons. First, illicit fentanyl is not regulated and there is no quality control. This means that the amount and type of fentanyl analogue in an illicitly produced pill or

powder is unknown and can be highly variable. Second, the range between the effective and lethal dose can be much narrower in fentanyl analogues such as α -methyl fentanyl than prescription-grade fentanyl². Third and most importantly, individuals may mistakenly take fentanyl products thinking they are heroin, oxycodone, or another non-opioid substance placing them at greater risk of an accidental overdose or other adverse health effects.

EARLY INFORMATION SHARING ON ILLICIT FENTANYL BY CCENDU

In late May 2013, the British Columbia Office of the Provincial Health Officer issued an information bulletin indicating there had been 23 suspected fentanyl-related deaths during the first four months of 2013³. In June 2013, CCENDU released a national alert on the issue⁴. By early 2014, CCENDU members reported that counterfeit oxycodone pills containing fentanyl were becoming increasingly available. Pills were frequently green, stamped with “CDN” on one side and “80” on the other and were colloquially referred to as “green jellies” or “street oxy” in western Canada and “green monsters” or “green beans” in eastern Canada. In addition there were also reports of white pills that were stamped with the number 10 in place of the 80 - emerging on the street. These products were reported by partners (from November 2013 to February 2014) first in British Columbia, then in Alberta, followed by Newfoundland and Labrador. Laboratory analyses conducted in February 2014 of seized green and white tablets by Health Canada’s Drug Analysis Service (DAS) indicated that the pills contained fentanyl 89% of the time. In response to these findings, CCENDU issued a second alert to advise Canadians of this public health threat⁵.

By the end of 2014, reports began to emerge of increasing fatal and non-fatal overdoses that may be related to inadvertent use of illicit fentanyl among those thinking they were taking other drugs. Increases in deaths involving fentanyl were reported in both British Columbia⁶ and Alberta. In response, CCENDU issued a third alert warning that illicit fentanyl appeared to be responsible for an increase in both fatal and non-fatal overdoses⁷. In March 2015, alerts were issued in Alberta by the RCMP⁸, in the United States by the Drug Enforcement Administration (DEA)⁹, and a large social media campaign was launched in British Columbia to warn people about the risks associated with illicit fentanyl (see www.knowyoursource.ca).

In August 2015 the CCENDU network released a bulletin on deaths involving fentanyl¹⁰ indicating that between 2009 and 2014 there were more than 650 deaths in Canada where fentanyl was either a cause or contributing cause. The release of the bulletin in conjunction with media outreach by partners in British Columbia, Québec, and elsewhere brought a great deal of attention to the issue. Between August 11 and August 18 there were almost 700 media stories released that referred to the bulletin including several high-profile editorials and commentaries from the *Globe and Mail*^{11,12}, statements from the Canadian Pharmacists Association¹³, and news conferences held by Toronto Police Services as well as Winnipeg Police Services. The attention also included a joint statement from Health Canada and the Public Health Agency of Canada warning the public about the dangers of illicit fentanyl indicating that they were reviewing the prescription-only status of the opioid overdose treatment Naloxone on an urgent basis¹⁴.

THE VALUE OF EARLY WARNING

In order to effectively develop and implement interventions to prevent and reduce harms associated with new drugs and new drug use trends, systematic collection, analysis, interpretation, and dissemination of timely and accurate information is essential. Unfortunately, most surveillance information describing the harms associated with drug misuse^{15,16} relies on lagging indicators of drug use available from population surveys (e.g., Canadian Community Health Survey, student drug use surveys) or administrative databases (e.g., coroners data, hospital discharge data). The time lag between when these sources of data are available, analysed, and published can be a year or more. By this time any new drug or new drug use trend could have either established itself and caused significant harm or caused significant harms and disappeared.

While other jurisdictions have early warning systems designed to detect and disseminate information on drug-related harms, there is currently no such formal, established Canadian early warning system. In the United States the National Institute on Drug Abuse (NIDA) funds the National Drug Early Warning System (NDEWS; <http://www.ndews.org/>) and in Europe the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) operates the European Union Early Warning System (<http://www.emcdda.europa.eu/themes/new-drugs/early-warning>). In Canada, CCENDU has served

as an informal community monitoring and surveillance network since 1995. However, it has only been since 2012 that a new revitalized CCENDU began to focus on the dissemination of reliable, timely information on alcohol and other drug related harms and possible responses to those harms. Since this change in focus it has become more known to law enforcement, first responders, healthcare practitioners, treatment providers, people who use drugs, and others with an interest in timely information on drug use trends or other related topics of immediate concern.

In addition to detecting and disseminating information on illicit fentanyl as early as May 2013, CCENDU notifications have also been issued on a number of other important drug-related issues such as “bath-salts”¹⁷, the misuse of opioids in Canadian communities¹⁸; unconfirmed reports of desomorphine (“Krokodil”)¹⁹; synthetic cannabinoids²⁰, and drug-related harms at Canadian music festivals²¹. Between September, 2014 and September, 2015 the number of professionals who have voluntarily subscribed to receive these notifications increased over 400% to over 700 indicating a strong interest in accessing this type of information. During this same time period there have been over 800 media stories referring to CCENDU Alerts, mainly those regarding illicit fentanyl. Further the three alerts on fentanyl issued by the network have been accessed from the CCSA website over 30,000 times. There have also been anecdotal reports that, owing to the alerts, first responders arriving at the scene of an overdose and seeing green pills knew exactly what they were dealing with and were able to respond accordingly.

However, CCENDU operates largely as a volunteer organization nationally coordinated and supported by the CCSA and the capacity of the various CCENDU site coordinators varies considerably. Increasing the capacity of CCENDU to operate as a formal early warning system would improve Canada’s ability to detect and rapidly disseminate emerging drug use trends and further protect the health of at-risk Canadians.

The need for an effective early warning system is unlikely to diminish. Relatively recent large-scale changes in

the recreational illicit drug market owing to the rise in the abuse and misuse of prescription drugs²² as well as the introduction of a large number of new synthetic drugs (some controlled and some not), has blurred the line between what is illicit and non-illicit drug use and increased the importance of early warning surveillance intelligence. There are several data sources in Canada that could be more widely and more regularly used to monitor new and emerging drug use trends. Such data sources include data from poison control centres²³, hospital emergency departments²⁴, first responders (ambulance data), or media²⁵ etc.

CONCLUSION

Harms arising from alcohol and other drug use are an issue of public health concern in Canada. The fentanyl crisis has raised many questions regarding health policies concerning access to substance abuse treatment, availability of community naloxone programs, and the unintended consequences of diversion controls on psychoactive prescription pharmaceuticals. It has also highlighted the value and importance of early detection and dissemination of information on new drugs and new drug use trends. Increasing the capacity of CCENDU to become a more fully developed Canadian early warning system that detects and rapidly disseminates information on drug-related health threats to people who use drugs, first responders, healthcare practitioners, treatment providers, and law enforcement is essential in order to protect the health of Canadians. Health professionals in the field of addiction medicine are a key group since they can both report observed front line drug use and also (report) harms from drugs as reported by users. They can also benefit from the information provided in CCENDU publications. Engagement or collaboration with these health providers would ideally occur with the local CCENDU site coordinator, strengthening local surveillance, health protection and promotion. This would in turn would contribute to the national system. If you are interested in becoming involved or learning more about CCENDU please visit www.ccendu.ca or send an email to ccendu@ccsa.ca.

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Case-Control Study of Risks and Causes of Death Amongst Opioid Dependent Patients on Methadone Maintenance Treatment

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ABSTRACT

Objectives: International studies indicate that methadone maintenance treatment (MMT) reduces mortality in patients with opioid use disorder, but mortality remains elevated compared to that of the general population. This study investigated risk factors impacting upon mortality among patients on MMT.

Methods: The study was conducted at an addiction treatment clinic. We utilised a case-control design matching all deaths occurring between February 2005 and February 2012 inclusive with another attendee in terms of age and gender.

Results: There were 80 deaths with median age 35 years (inter quartile range (IQR) 30-41 years). The causes of death were categorised as poisoning (48%), medical (36%) and trauma (16%). The median methadone dose of cases was 70mg (IQR 55-90) and was not significantly different from the control group (median 80mg, IQR 60-90, $p=0.58$). There was no significant difference between

the fatalities and the controls in terms of recent misuse of cocaine. Cases were more likely to have a history of imprisonment (71% versus 35%, $p<0.001$), HIV infection (29% versus 12%, $p=0.01$) and non-HIV related medical problems (47% versus 16%, $p<0.001$). They were also more likely to have missed attendance at the clinic for at least one week (23% versus 1%, $p<0.001$).

Conclusions: Methadone dose was not associated with increased mortality. A life history of imprisonment (not only recent release) was a marker for increased risk of death while on MMT. Treatment non-attendance was associated with increased mortality and services should seek to actively follow-up on patients who drop out of treatment.

Key words: opioid use disorder, methadone maintenance, mortality, poisoning

Objectifs: Des études internationales montrent que le traitement de maintien à la méthadone (TMM) réduit la mortalité chez les patients avec des troubles de consommation d'opioïdes mais que la mortalité demeure élevée en comparaison avec la population générale. Cette étude a examiné les facteurs de risque ayant un impact sur la mortalité parmi des patients sous TMM.

Méthodologie: L'étude s'est déroulée dans une clinique de traitement des dépendances. Nous avons utilisé un devis d'étude cas-témoin et apparié avec un patient de la clinique, sur la base de l'âge et du genre, tous les décès survenus entre

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ISAM CERTIFICATION EXAMINATION

WE ARE EXCITED TO ANNOUNCE THAT THE ISAM CERTIFICATION EXAMINATION IS BEING UPDATED!

Our international Editorial Board will be reviewing and revising the exam questions and creating new ones in the fall of 2016. The questions will be using the recently released Textbook of Addiction Treatment: International Perspectives (Springer).

The existing ten sections will be revisited and we are aiming the first sitting of the exam with the new questions on October 19th, 2016 at the joint ISAM and CSAM-SMCA meeting in Montreal, Quebec.

Please check on the ISAM webpages (www.isamweb.org) for updates and the application form.

les mois de février 2005 et février 2012 inclusivement.

Résultats: Il y a eu 80 décès dont l'âge médian était de 35 ans (écart interquartile (EI) 30-41 ans). Les causes de décès ont été catégorisées comme suit : empoisonnement (48%), médical (36%) et trauma (16%). La dose médiane de méthadone des cas était de 70 mg (EI 55-90) et n'était pas significativement différente du groupe témoin (médiane 80 mg, EI 60-90, $p=0,58$). Il n'y avait aucune différence significative entre les cas et les témoins quant à l'abus récent de cocaïne. Les cas étaient plus susceptibles d'avoir un historique d'emprisonnement (71% versus 35%, $p<0,001$), d'être infectés par le VIH (29% versus 12%, $p=0,01$) et d'avoir des problèmes médicaux non reliés au VIH (47% versus 16%, $p<0,001$). Ils étaient aussi plus susceptibles d'avoir manqué leurs rendez-vous à la clinique pendant une période d'au moins une semaine (23% versus 1%, $p<0,001$).

Conclusions: La dose de méthadone n'était pas associée à une augmentation de la mortalité. Avoir été emprisonné à vie (pas seulement une libération récente) était un indicateur d'un plus grand risque de décès pendant un TMM. Manquer des traitements était associé avec une augmentation de la mortalité et les services devraient envisager suivre activement les patients qui abandonnent leur traitement.

Mots clés : troubles de consommation d'opioïdes, maintien à la méthadone, mortalité, empoisonnement

OBJECTIVES

Evidence indicates that mortality is higher amongst individuals with problem alcohol or drug use¹. Mortality rates are particularly elevated amongst those with severe opioid use disorder, especially injecting drug users (IDU)²⁻⁴ and around 50% of IDU die within 30 years follow-up^{5,6}. Methadone maintenance treatment (MMT) produces a 29 to 85% reduction in mortality among IDU who adhere to MMT for at least one year⁷⁻⁹. Nevertheless, mortality remains elevated in MMT groups in comparison to the general population^{3,4}.

Common causes of death among drug users include accidental overdose, blood-borne viral infections such as HIV, HCV, HBV^{10,11}, other health complications, suicide and deaths due to trauma^{3,4} and sudden unexplained death⁴. Factors identified as increasing all-cause mortality among those on MMT include a methadone dose below 60 mgs¹², medical co-morbidity¹³, HIV infection¹⁴, alcohol misuse¹⁵ and a history of psychiatric admissions^{3,13,15}. Previous

psychiatric admissions together with co-prescription of benzodiazepines were associated with drug-dependent deaths in Scotland¹³. Characteristics such as younger age on commencing treatment, living with a partner/spouse, not abusing benzodiazepines on treatment commencement⁸ and remaining in treatment^{8,15,16} are predictors of survival.

Many of these deaths due to accidental overdose occur subsequent to a reduction in opioid tolerance following a period of abstinence, such as after detoxification¹⁷ or after release from prison¹⁸. People, who exit MMT, for whatever reason, experience a substantially increased short-term risk of accidental overdose. In a UK multi-site study the risk of a fatal overdose was 2.3% in the first month out of treatment, falling to under 1% thereafter¹⁷.

Poly-substance use, heavy drinking and use of benzodiazepines are contributors to drug toxicity and fatal overdose³. Among individuals on MMT who also have problem cocaine use, there is increased prevalence of risk behaviours including more frequent injecting, injecting unsafely, having more sex partners, using more heroin, greater criminal activity and more frequent incarceration¹⁹. In addition, illicit drug use, especially of opiates, benzodiazepines and cocaine, was noted to negatively impact adherence to MMT⁸. In Ireland, the Health Research Board reported an increased number of poisoning deaths between 2005 and 2011²⁰ and in 2011 59% of those deaths involved polysubstance poisoning.

The existing evidence suggests that higher doses (above 60 mg daily) of methadone reduce the risk of death when compared with lower doses¹². An increase in average methadone dose above 75 mg/day was associated with a 24% reduction in mortality²¹. Conversely, dose-related QTc prolongation (especially in doses over 100mg/day) may be responsible for a number of sudden deaths²². Besides methadone dose, impaired liver function (common among drug users), presence of cytochrome P-450 3A4 inhibitors (antipsychotics, antidepressant and other), and additional depressive agents (benzodiazepines, alcohol) may contribute to poisoning deaths involving methadone²³.

A recent study confirmed the high mortality among IDUs in Ireland⁶. Over a 25-year follow-up of IDUs, 63% had died, with more than half of these deaths due to HIV-related diseases⁶. Other studies of MMT patients have confirmed elevated mortality in individuals with HIV infection^{14,16,21}. The development of anti-retroviral therapy (ART) has reduced mortality among HIV-infected

IDU, but adherence to ART is frequently poor²¹.

This study sought to explore risk factors related to mortality amongst individuals on MMT. We hypothesised that lower methadone dose and problem use of cocaine and/or benzodiazepines is associated with increased mortality. We specifically sought to examine factors associated with poisoning deaths.

METHOD

SETTINGS

There was an increase in the incidence of heroin use in Dublin, Ireland in the mid-1990s²⁴. In response, treatment services were expanded and MMT became the mainstay of treatment. The Central Treatment List (CTL) was established to record data on every individual in receipt of MMT and patients can only be treated in one setting at a time²⁵. Between 2005 and 2011, the number of people on MMT in Dublin increased from 6906 to 7594. The proportion of patients aged over 34 years increased from 27% in 2005 to 54% in 2011.

In Ireland, the most stable patients are treated by their primary care physician in the community. Less stable patients, and people earlier in their treatment, are treated in multidisciplinary clinics. There is transfer of patients between these treatment settings as their needs change. The National Drug Treatment Centre (NDTC) is the longest established addiction treatment centre in Dublin. It caters for the least stable patients, the homeless and those with greatest co-existing needs²⁶. Consequently, patients attending the NDTC frequently have increased medical, mental health and social needs compared to the wider patient group on MMT²⁷.

The NDTC is a psychiatry-led outpatient service with input from other professionals including nurses, counsellors, social workers, outreach staff and a psychologist. The approach to treatment and patient outcome at this centre has previously been described²⁷. Patients typically provide one supervised urine sample each week for drug toxicology. As patients stabilise, they receive more take-away doses of their medication. Viral screening is actively encouraged but only occurs with patient consent. Where patients are found to have HCV or HIV infection, these conditions are managed in collaboration with other specialist services. This often involves dispensing of medication such as ART in the NDTC. Directly observed therapy is available for these medications.

STUDY PROCEDURE

All patients who exit treatment in the NDTC have their route of departure recorded. Over the seven year period

from February 2005 to February 2012 we identified all patients who had a route of exit recorded as 'death'.

We used a case-control design. Both cases and controls were opiate-dependant individuals maintained on Methadone. We sought controls by matching with cases on gender, age and treating team. We sought to identify a matching patient who was attending NDTC at the same time as the patient who died. Where there was no matching patient with an age within 2 years of the index patient we extended the age range to 3 years, then to 4 years, and further if required. If more than one patient met the matching criteria, we randomly selected one.

For cases and controls we examined the patients' clinical notes to obtain information on their treatment, ongoing drug use, viral status, co-morbid illnesses, personal history and the cause of death. For controls, we assigned an index date to them which was the date of death of their matched case. We included the results of the urine drug screens in the month prior to death or prior to the index date, as appropriate. To confirm the cause of death, we used information (where available) on each death from the National Drug-Related Deaths Index (NDRDI). The NDRDI is a census of all drug-related deaths in Ireland and is maintained by the Health Research Board. It records data from: the Coroner Service, the Hospital In-Patient Enquiry scheme, the Central Treatment List and the General Mortality Register via the Central Statistics Office²⁰.

STATISTICAL ANALYSIS

Two levels of statistical analysis were conducted. First we examined the uni-variable association between risk of death and the following factors: age (yrs), gender, methadone dose (ml), drug use in the month preceding death determined by urine drug screen (abstinent - all negative urine drug screens, occasional use - drug present in 1 to 3 urine drug samples, regular use - was determined by all 4 positive urine screens), history of imprisonment (yes, no), HIV status (positive, negative) and medical complications (yes, no). When examining the association with quantitative variables which were normally distributed, we utilised the Student's t test. Where quantitative variables were non-normally distributed, we utilised the Mann Whitney U Test. When examining categorical variables we used the chi square test, unless a predicted cell count was less than 5 in which case we used Fisher's Exact test.

Secondly we also conducted a logistic regression analysis with dead/alive as the binary outcome variable. All covariates were considered for entry into the final regression model. Covariates were removed when they were non-significant and did not impact upon the predictive ability of the regression model. We calculated the Nagelkerke R

Square statistic to evaluate the goodness of fit of the model.

Previously it was demonstrated that 40% of patients at the NDTC were using cocaine²⁸. An earlier study of methadone treatment at the NDTC found that the mean methadone dose was 74 mg (SD 25)²⁶. Assuming the above we calculated that with 80 cases and controls we had 80% power to detect difference in methadone of 11 mg, with p value set at 0.05. We also had 65% power to detect a 20% difference in rate of cocaine use.

RESULTS

There were 80 deaths over the seven years period. The mean number of patients on MMT in the NDTC during this period was 500. The mortality rate was 23 deaths per 1000 person-years of treatment (95% CI = 18-28 deaths per 1000 years of treatment).

Among both cases and controls, the median age was 35 years (Inter-quartile Range [IQR] 30-41, range 21-55). Females accounted for 31% of deaths. In cases, the median methadone dose was 70 mg (IQR 55-90), while in controls it was 80 mg (IQR 60-90), but this difference was not statistically significant (Mann Whitney U Test, $p=0.6$). Additional characteristics of those who died and the control group are provided in Table 1.

There was no evidence that cases differed from controls in terms of recent use of heroin, cocaine or benzodiazepines. There was no significant difference between groups regarding co-morbid psychiatric illness or treatment with psychotropic medication.

Cases underwent more frequent medical/psychiatric reviews than controls (Mann Whitney U Test, $p=0.03$).

Cases were more likely to have a history of imprisonment, HIV infection and other non-HIV related medical problems. They were also more likely to have not been attending the clinic for treatment for at least one week immediately prior to death. Of the 18 patients who died and who were not attending the clinic for at least one week prior to death, eight were known to have been in hospital.

Multivariable logistic regression indicated that the factors independently associated with increased risk of death were: history of imprisonment, non-attendance at the clinic for at least one week and presence of a co-morbid (non-HIV and non-HCV) medical condition (Table 2). HIV status was not associated with risk of death. The Nagelkerke R Square statistic for the regression model

was 0.44, indicating that 44% of the variability can be explained by the model.

CAUSE OF DEATH

Three broad categories of deaths were identified: poisoning, trauma and medical (Table 3). Poisoning deaths included all drug overdoses (accidental and intentional); Examples of death by trauma included homicide, and those due to road traffic accidents, while examples of deaths from a medical cause are those due to infections, emboli, and organ failure. For 67 (84%) deaths there was a record of the category of death in the clinical notes and also from the NDRDI. The category of death recorded in the clinical notes matched that in the NDRDI in almost all cases (63 [94%] of the 67 cases). In the four discrepant cases, we used the NDRDI category when determining the final consensus-based category. In view of the demonstrated accuracy of the clinical notes, we used the category of death identified in those notes to attribute a category of death to those individuals who had no information recorded in the NDRDI. This process allowed us to assign a category of death in 77 of the 80 cases.

None of the poisoning deaths were determined to be a suicide, with a verdict of death by misadventure being recorded in 32 of 33 cases.

The most common cause of medical death was infection, occurring in 10 of the 23 cases.

POISONING DEATHS VERSUS OTHER DEATHS

Those who died by poisoning were younger than those who died from a medical illness (mean 34.2 [sd 6.6] years versus 41.3 [sd 7.5] years, $p<0.001$, independent sample t test), but were of a similar age to those who died of trauma. They had been on a slightly higher methadone dose (median 80mg [IQR 60-90] versus Median 65 mg [IQR 45-90], $p=0.38$) and demonstrated slightly increased heroin use but these differences were not statistically significant. They did not differ in terms of gender, medical or psychiatric history or prescription of psychotropic medication. There was no difference in terms of homelessness or history of imprisonment.

POISONING DEATHS VERSUS CONTROL GROUP

Compared to their age and gender-matched control group, cases who died by poisoning were more likely to be HIV

positive (29% versus 8%, $p=0.02$), more likely to have missed at least one week of treatment (17% versus 3%, $p=0.05$ [Fisher test]), to have a history of imprisonment (76% versus 41%, $p=0.002$), to have a history of homelessness (51% versus 27%, $p=0.03$), and to have a history of current medical problems other than HIV/HCV (43% versus 11%, $p=0.002$).

Cases who died by poisoning did not differ by HCV status, psychotropic medication, co-morbid psychiatric diagnosis, alcohol abuse or use of heroin, cocaine or benzodiazepines. They did not differ in terms of methadone dose (median 80mg [IQR60-90] versus 75mg [IQR65-90], Mann Whitney U Test, $p=0.7$), or in terms of 'take-away' doses per week.

DISCUSSION

We found that the mortality rate among drug users on MMT in NDTC was 23 per 1000 person-years. In other recent studies of those on MMT, the mortality rate varied from 11.8²¹ to 34.2¹⁵ per 1000 person-years.

Half of the deaths were due to poisoning, one third were due to medical causes and one sixth due to trauma. The profile of deaths was similar to that observed in other MMT groups, with overdose being recognised as the major cause of death^{7,16}. It is also the main cause of death among those who leave MMT⁸. Opiate dependence is a risk factor for suicide, suicide attempts, and fatal and non-fatal accidental overdose²⁹. The number of suicides in this study may be under-recorded, particularly for deaths involving poisoning, where coroners record a verdict of "accident/misadventure"³⁰ or other narrative cause.

Despite the previous reports of increased mortality among those on low or very high methadone doses, this study did not find a relationship between methadone dose and mortality. The vast majority of patients in the NDTC was on methadone doses within the advised therapeutic range of 60-120 mg daily³¹.

We found no relationship between death and ongoing problem drug use in this study. Previous research in Ireland and elsewhere has indicated poorer outcomes amongst those with problem cocaine use^{19,28}.

The prevalence of co-morbid psychiatric disorder was high and similar in cases and controls. Rates of prescribing of psychotropic medication were similar in both groups also. Although other studies have found that psychiatric co-morbidity is associated with increased mortality^{3,13}, prescription of antidepressants and antipsychotics have been found to be associated with decreased risk of death¹³.

There is a substantial literature stating that recent release from prison is a risk factor for premature death. The greatest risk of death is reported to be within the first two

weeks after release due to reduced tolerance and subsequent accidental overdose^{18,32}. Our study looked at impact of criminality from a different perspective. We found that cases were more likely to have a lifetime history of imprisonment compared to controls. This observation cannot be attributed to a short-term reduction in opioid tolerance. It may be that past imprisonment is a marker for a more chaotic lifestyle, higher impulsivity, greater involvement in crime and more exposure to dangerous situations. The standardized mortality ratios (SMRs) among ex-prisoners were reported to be elevated up to a decade after release from custody. The high rates of diseases³³, problem drug use and blood-borne viruses³⁴ may reflect the fact that people who have been in prison are among the most disadvantaged groups within society^{33,35}.

We observed that recent non-attendance for MMT was significantly higher among cases. Exit from treatment, especially if unplanned, is likely to bring with it a reduction in opioid tolerance and an escalation in heroin use^{8,36}. Other studies have shown that disengagement from treatment and loss of continuity of care is significant in increasing risk of death especially during the first weeks out of treatment^{7,37,38}, with one study reporting that physicians had lost contact with only 8.3% of surviving patients but 30.4% of the deceased³⁷.

We found that HIV infection was more prevalent amongst those who died, which is consistent with other studies of mortality¹⁶. While previous research in Dublin has reported a high prevalence of HCV and a relatively low prevalence of HIV among drug users³⁹, in a recent study in England and Wales mortality rates due to HIV infection were observed to be 20 times higher among IDU compared with that in the general population⁴⁰. While HCV infection was equally common in both the cases and controls, we found that the prevalence of current medical problems other than HIV/HCV was more common among cases. A similar observation of morbidity being associated with an increased risk of dying was made in other studies^{4,13}. Given the fact that one third of deaths were due to medical illness, it is not surprising that there was an excess of medical illness among those who died. However, we also found that co-morbid medical illness was more common in those who died by poisoning compared to controls. This finding was unexpected; it may reflect an increased susceptibility to the respiratory depressant effect of opioids among the medically unwell.

LIMITATIONS

The sample was recruited from a single specialist clinic in a single city and this may limit the generalizability of our findings. We are aware of existing differences between regions, with Western Europe demonstrating

high mortality rates³⁸. The current study also has modest power to examine the study hypotheses. We did not correct for multiple statistical tests and found factors significantly associated with mortality in the exploratory analysis, raising the possibility that some of these associations may constitute type I statistical errors. However, Rothman has argued that conservative adjustments to the p value for multiple testing can result in a higher type II error rate, reduced power, and that it increases the likelihood of missing important findings⁴¹.

CONCLUSIONS

Our study has a number of practical implications. Treatment drop-out appears to be associated with increased risk of death, including a specific link with poisoning deaths. Patients on MMT should be warned that they face an increased risk of death, and in particular

of accidental poisoning if they drop out of treatment. Patients who miss even a small number of days at a clinic should be followed up early and pro-actively by treatment providers. Former prisoners should also be recognised as a group with increased risk of premature death and may need closer monitoring. Prevention and early treatment of the medical complications of drug use may reduce mortality among MMT users. Therefore, when patients do have a current medical illness, clinicians should give appropriate harm reduction messages as such individuals may be more vulnerable to accidental overdose.

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TABLE 1. Characteristics of 80 people who died while on MMT, compared to 80 controls

		Cases		Controls		P Value
		n	(%)	n	(%)	
Gender						
	Male	55	(69)	55	(69)	1.0
	Female	25	(31)	25	(31)	
Age						
	Under 30yo	16	(27)	13	(16)	0.44
	30-39	37	(46)	43	(54)	
	40-49	18	(22)	16	(20)	
	50 and over	9	(11)	8	(10)	
Daily Methadone Dose						
	Under 60mgs	20	(26)	15	(19)	0.43
	60 to 120 mgs	55	(71)	64	(80)	
	Over 120mgs	2	(3)	1	(1)	
Past Month Drug Use - based on urine drug screens						
Opiates						
	abstinent	26	(32)	28	(35)	0.93
	Occasional^ opiate misuse	32	(40)	30	(37)	
	Regular^ opiate misuse	22	(27)	22	(27)	
Cocaine						
	abstinent	61	(76)	65	(81)	0.72
	Occasional^ cocaine misuse	12	(15)	10	(12)	
	Regular^ cocaine misuse	7	(9)	5	(6)	
Benzodiazepines						
	abstinent	8	(10)	8	(10)	0.35
	Occasional^ benzo misuse	7	(9)	13	(16)	
	Regular^ benzo misuse	65	(81)	59	(74)	

TABLE 1. Characteristics of 80 people who died while on MMT, compared to 80 controls (continued)

Prison Ever	57	(71)	28	(35)	<0.001
Homelessness Ever	33	(41)	24	(30)	0.14
Not attending for at least one week prior to death	18	(23)	1	(1)	<0.001
Comorbid Psychiatric Disorder	50	(62)	45	(56)	0.42
Alcohol Abuse or Dependence	21	(27)	14	(17)	0.18
Prescribed Psychotropic medication					
None	26	(32)	26	(32)	1.0
Non-Benzo Hypnotic only	8	(10)	6	(7)	0.58
Other psychotropic medication apart from Non-Benzo Hypnotic only	46	(57)	48	(60)	0.75
Prescribed Benzodiazepine	22	(27)	20	(25)	0.72
Prescribed any antidepressant	29	(36)	24	(30)	0.40
Prescribed Olanzapine	19	(24)	20	(25)	0.84
Medical problems					
HIV positive	23	(29)	10	(12)	0.01
HCV antibody positive	50	(62)	53	(66)	0.62
Other medical problems noted	38	(47)	13	(16)	<0.001
Epilepsy/Seizures	8	(10)	2	(2)	0.05
DVT	6	(7)	4	(5)	0.51
Cirrhosis or Liver Failure	9	(12)	2	(2)	0.03
On Anti-retroviral medication in NDTC	10	(12)	9	(11)	0.80
Clinic Attendance					
Daily attendee	43	(54)	44	(56)	
Has some take-away medication days each week	37	(46)	35	(44)	0.81

^“Occasional use” indicates that some but not all of the four urine screens tested positive. “Regular use” indicates that all of the four urine screens tested positive.

TABLE 2. Logistic Regression analysis of factors associated with increased risk of death among patients on MMT.

	Adjusted Odds Ratio (AOR)	95% CI AOR	P value
History on Imprisonment	4.6	(2.0-10.1)	<0.001
Current non-HIV & non-HCV related medical illness	5.3	(2.2-12.6)	<0.001
Not attending for at least one week prior to death	19.2	(2.3-160)	0.006
HIV Status			
Negative	1.0		
Positive	2.2	(0.8-5.7)	0.11
Not known	8.8	(0.9-90)	0.06

TABLE 3. Causes of death of 80 Patients who died while on MMT 2005-2011.

	n	(%)
Cause of death indicated by the medical notes^		
Poisoning	34	(46)
Medical	26	(35)
Trauma	14	(19)
Medical notes suggest suicide^	8	(11)

TABLE 3. Causes of death of 80 Patients who died while on MMT 2005-2011 (continued).

NDRDI Information (n=71)			
Company at time of death (n=68)			
	Alone	26	(38)
	Medical personnel	23	(29)
	Partner/Family/Friends	18	(26)
Place of major incident (n=68)			
	Private Dwelling	23	(34)
	Hospital	23	(34)
	Accommodation for the homeless	12	(18)
	Public place	9	(13)
	Other	1	(1)
Type of death according to NDRDI			
	Poisoning	34	(49)
	Medical	23	(33)
	Trauma	13	(19)
Coroner's Verdict (n=60)			
	Misadventure	38	(63)
	Narrative	8	(13)
	Undetermined	3	(5)
	Natural	5	(8)
	Homicide, Accident, Suicide	6	(10)
Consensus cause of death based upon NDRDI & Clinical notes (n=77)			
	Poisoning	37	(48)
	Medical	27	(35)
	Trauma	13	(17)

^It was impossible to ascertain a potential cause of death from the medical notes in 6 cases

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Creation of a Miniature Black Market with Use of Gift Cards For Research Participation in an Addicted Population

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TO THE EDITOR:

Clinical wisdom suggests that patients with Substance Use Disorders (SUD) are at higher risk for increased substance use or relapse when money is readily available. Patients with SUD often describe using substances until money runs out and some have a history of spending large cash payments on drugs over a short period of time. Ethical concerns have been raised regarding use of cash incentives, particularly sizeable amounts, for research participation in SUD populations^{1,2}. Monetary incentives may increase substance use, increase risk of relapse and increase perceived coercion^{1,2}. However, the contingency management literature suggests that incentives are effective in promoting a variety of target behaviours in SUD populations^{3,4,5}. Studies by Higgins et al.³ and Petry et al.^{4,5} show incentives of low monetary value, vouchers, and even a chance of reward can be effective.

When designing our research study, we felt that an incentive for participation was very important to promote recruitment. Our research project was an exploration of the relationship between the severity of trauma, Posttraumatic Stress Disorder (PTSD) symptoms and SUD in patients seeking outpatient treatment for SUD. Participants were recruited from several clinics and completed a variety of self-report questionnaires and study questions which took no longer than 60 minutes. Upon completion of the questionnaires, each participant received a \$10 gift card to a well known, popular and widely distributed coffee shop that we suspect the study population frequented. Gift cards were used to avoid cash payments due to the concern that cash incentive would lead to the procurement and the use of substances. A small dollar amount was chosen to avoid coercion. In spite of these precautions, at one site we indirectly

observed an interesting phenomenon.

One of the recruitment sites was a street based store front agency and methadone clinic with a mandate to serve intravenous drug users, people recently released from incarceration, homeless people, and sex trade workers. At this site, it was reported back to the research team by the clinic staff that clients who had participated in the study were selling their \$10 gift cards to another 2 clients for \$8 cash. A brisk business occurred, and gift cards sold at a loss were able to fund food expenses for the 2 clients on a road trip to the East Coast.

This 'miniature black market' was unexpected and only discovered indirectly so we were not set up to measure it. However, it is an interesting observation that suggests that cash incentives are preferred, even if the amount is low or at a loss, for street involved substance abusing populations. Additionally, it suggests that participants may alter methodology, particularly the form of incentive, unbeknownst to investigators and despite careful study design. Thankfully, Festinger et al.^{1,2} have shown in 2 studies that neither the amount nor the mode of incentive (cash vs. gift card) was associated with increased substance use or perceived coercion, and that cash incentives and higher dollar amounts were associated with increased participation in research studies.

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BOOK REVIEW: Diagnosing and Treating Addictions An Integrated Approach to Substance Use Disorders and Concurrent Disorders

Dr Merville Vincent • Edgewood Publishing 2014 • Review By: Adam Quastel MDCM, FRCPC

Books on professional subjects aimed at the non-expert audience are always a bit tricky: leaning to technical and professional parlance might appease colleagues but you lose any intended general audience; veering too far to accessible generalities, on the other hand, may render the project unsatisfying as a vehicle of knowledge translation.

Diagnosing and Treating Addictions attempts this balancing act in offering a general overview of the field of addiction. This brief soft cover text is a readable and approachable introduction to Addiction Disorders presented by Merville Vincent, a psychiatrist at Edgewood treatment Centre in British Columbia which also acts as the books publisher. Beginning with accessible introductory chapters on causation, pharmacology of addiction and diagnoses, Dr. Vincent takes the reader through some very readable discussions of treatments, and concurrent disorders offering case histories along the way for emphasis.

In opening with a thoughtful personnel account of his own journey as a professional into this field, Dr. Vincent sets the tone from the outset as an approachable account of the field aimed at the non-expert reader. That the text is published by Edgewood itself suggests that the project may have been born of an internal need to provide an informative text for patient and families.

Inevitably, this is the most attractive aspect of this text: its natural structure and approachable voice allowing the non-expert access to this difficult and confusing field. That said, it appears to have been written with a fairly educated audience in mind, as reasonably complex and referenced explanations abound. In fact, Vincent seems at his best when he provides a brief, yet professional summary of trauma and its treatment as part of his journey through the various psychiatric diagnoses and their importance in addictions.

But like every text, there is a perspective here. Perhaps the biggest issue worthy of comment are the references to the more medicalised aspects of addiction care. When describing the role of the Edgewood facility in tapering methadone, for instance, Vincent bypasses the extant data indicating the high relapse rates associated with

quick methadone taper. Regardless of the individual clinical need addressed in the text, discussion of the larger issues involved with methadone and opiate care could help understand the context of the role of a residential treatment facility in opiate agonist treatment.

Similarly, in reviewing benzodiazepine treatment of alcohol withdrawal, Vincent describes fixed dosing and symptom triggered dosing options, and later indicates that his own treatment facility's protocols severely limit benzodiazepine use; this seems to me, at least as described in this text, to limit the CIWA and it was disappointing that there was not further discussion of how this would be managed in the facility. Again, he indicates clinicians have been skeptical of anti-craving medication, naltrexone and acamprosate, but without an overview of the issues involved (or the extensive positive research in this area that I personally think is very helpful to patients and families suffering from alcoholism) it may be difficult to situate and understand the slow uptake of these interventions.

Mainstream Addiction Medicine practice in Canada has supported these biomedical interventions so divergent opinion could make for interesting debate. In turn, non-experts who are positioned outside these discussions could benefit from an overview of perspectives. In this sense, it's a pity that these issues are not given more space: after all, we have all been set back in this field by the uncomfortable standoff between conventional psychiatric, medical and community addiction treatments even as we are moving towards increasingly integrated models of care. Balanced comprehensive discussions of what have sometimes been presented as opposing models of care are very much needed. Dr. Vincent does much to provide an integrated overview in many respects and for this deserves credit: it's these missing elements, however, that just may be the way forward.

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Abstracts from CSAM-SMCA 2015

BRAIN PLASTICITY AND ADDICTION

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Brain plasticity refers to the brain's ability to change in response to experiences to provide a mechanism for adaptive change. But such adaptations are not always beneficial. Addictions are chronic relapsing disorders caused by genetic, epigenetic, and environmental factors that interact to lead to long-lasting experience-induced changes in certain brain regions in vulnerable individuals. I will review the types of plastic changes, including molecular, cellular, and behavioral changes, that occur in specific brain regions, including the prefrontal cortex, striatum, and brainstem, to mediate behavioral changes in addiction. But addiction is not about one brain system but rather involves multiple brain systems that support different types of behavioral changes and lead to more than one type of addiction. The plastic changes in addiction are not novel but are seen in many other types of behavioral change including learning and memory, which helps to provide a key to understanding how they occur. A significant challenge is in understanding why some people are more vulnerable than others. A promising direction is in the study of epigenetic differences underlying susceptibility that may span generations. Finally, there are metaplastic changes (interactions among plastic changes) that provide explanations for why addiction-related plasticity can influence other behaviors such as learning and memory.

OPIOID AND METHADONE

FACTORS IMPACTING TREATMENT RETENTION FOR PATIENTS WITH OPIOID-DEPENDENCE IN NORTHERN AND RURAL REGIONS OF ONTARIO

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Background: For patients with opioid dependence in Northern Ontario, the interplay between access to mental health services and methadone maintenance therapy is complex. Psychiatric comorbidity including mood, anxiety, personality and post-traumatic stress disorders, are

common with opioid dependence. Research indicates a greater compliance with treatment if it is provided by the same physician or at the same facility in an integrated service. A second line option includes working with psychiatric services to establish a referral process and frameworks for shared care. While an integrated approach is optimal, patients living in Northern, rural, and remote regions of Ontario have limited access to psychiatric care and methadone programming; as a result, mental health and opioid-dependence are treated separately. Objective: Identify factors which contribute to positive treatment outcomes for patients with opioid dependence and comorbid mental health disorders. Methods: Using health data from Ontario, we conduct a retrospective cohort analysis on patients with diagnosed mental health disorders who are also enrolled in methadone maintenance therapy. One year of continuous methadone therapy is the primary treatment outcome. Results: Preliminary analysis indicates that a patient's geographic status (e.g., northern, urban, rural) and treatment modality (in person vs. telehealth) have an impact on treatment outcomes. Further study into the contribution of methadone (or Suboxone) will also be discussed. Conclusions: Factors which contribute to positive treatment outcomes can be integrated into treatment strategies for patients with opioid dependence and comorbid mental health disorders in small urban, rural, remote and underserved regions such as Northern Ontario.

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METHADONE-ANTIPSYCHOTIC DRUG INTERACTIONS: A SYSTEMATIC REVIEW OF THE LITERATURE

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Opioid use is a common clinical problem in the field of substance use disorders. Over the past decade, the use of methadone has been shown to be an effective treatment in managing opioid dependence. Often however, psychiatric patients on methadone treatment are concomitantly taking

antipsychotics to manage a variety of issues. Methadone-antipsychotic interactions (MAI) have been shown to cause several adverse effects and can impact quality of life.

Two psychiatric investigators and a clinical librarian conducted a systematic review of published literature in MEDLINE, EMBASE, PsycINFO, PubMed, CINAHL, and Web of Science.

Upon entering in all the search criteria, 67 articles were generated. Of the 67 articles, a total of 7 articles were yielded.

Two consistent themes were found amongst the selected literature: 1) Atypical antipsychotic use, specifically quetiapine, in conjunction with methadone management, has been shown to increase methadone levels in opioid-dependent users. This increase has been shown to increase the risk of opioid withdrawal symptoms, as well as cardiac effects. Risperidone was shown to accelerate methadone metabolism, thus precipitating opioid withdrawal symptoms. 2) Typical antipsychotic use, specifically chlorpromazine with methadone, has been shown to cause central nervous system (CNS) and respiratory depression. The literature also revealed an increased risk of QTc prolongation in haloperidol-methadone users.

These findings highlight the importance of ongoing clinical monitoring for those managed concomitantly on methadone and antipsychotics, particularly quetiapine, risperidone, chlorpromazine, and haloperidol. Monitoring may include obtaining an electrocardiogram at baseline, as well as thorough monitoring of respiratory depression or withdrawal symptoms.

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FOSTERING RESILIENCY AND PSYCHOSOCIAL STRATEGIES TO SUPPORT OPIOID ELIMINATION

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Objective: To demonstrate the value of fostering resiliency and psychosocial coping in opioid elimination and abstinence.

Methods: Individuals who have chronic pain may take opioid medications as part of their treatment regime. There is a certain group of clients who do not experience a significant increase in functioning or reduction in pain to warrant continuing opioid therapy. They may also experience side effects, display high risk for misuse, or are prohibited from taking such medications at their work.

The goals of our interdisciplinary medication management programs are to:

- Execute an opioid taper protocol for each client
- Improve mood
- Educate on medications, their uses and side effects and, in so doing, change client attitudes and beliefs about pain and medication use
- Integrate psychosocial skills for functional goal attainment and fostering of resiliency

The program is typically 4 to 8 weeks. Key interventions in our program include goal setting, behavioural activation, empowerment, active participation, reduction of fear avoidance behaviours through exposure and increased self-efficacy. In daily programming, they practice pain self-management and recognize, through didactic experiences, that they are able to manage without opioids.

Results: A number of outcome measures are used to evaluate the medication management program including a measure of depressive symptoms (BDI - II) and sustainability of that taper after the program. 93% of participants eliminate opioids, 78% sustain elimination at 3 months, 86% of participants have same or better mood after elimination.

Conclusion: An opioid reduction program, emphasizing psychosocial skills and resiliency, continues to demonstrate positive outcomes for clients.

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DEVELOPING A METHADONE INFORMATION HANDBOOK: THE PATIENT'S PERSPECTIVE

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Methods/Methodology: Three focus groups (n = 18) were guided in discussion through semi-structured interviews to explore the objectives of the study. Audio recordings were transcribed verbatim and analyzed for themes.

Demographic data including age, gender, education, work, ethnicity, and time spent on MMT was collected. Findings were discussed with methadone-prescribing physicians, addiction counselors, and pharmacists for further input into the design of the handbook.

Results/Findings: Four themes were identified. Theme one, Understanding Methadone, included defining methadone, and identifying benefits and harms of methadone. Theme two, Lack of Information, discussed initial sources of information, current sources of information, and a desire for more resources. Theme three, Handbook Desirability, centered on assessing the content and artwork of a sample handbook provided. All groups reached consensus that they desired a handbook. Theme four, Stigma and Prejudice, included spontaneous conversation about difficulties in dealing with the stigma of using methadone treatment, particularly in the context of pharmacy interactions.

Conclusion and Recommendations: As a result of the findings that participants felt they lacked adequate resources and desired more information, including an information handbook, the development of a patient-centered handbook was initiated using the recommendations provided by participants.

CARE DELIVERY

PATIENT AND PRISON-SETTING FACTORS AFFECTING MEDICATION ADHERENCE IN CORRECTIONAL FACILITIES: A SHINE MIXED METHODS STUDY

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Objective: To explore patient and prison-setting factors affecting medication adherence from the perspective of inmates at the Calgary Remand Centre (CRC) to develop recommendations for medication administration in correctional facilities and increase student-physician sensitivity to the needs of marginalized and vulnerable populations.

Methods: A mixed methods study using clinical records, structured questionnaires and qualitative interviews was used. The study gathered information on participant demographics, general health information and substance

use history, medication information, prison-setting barriers/facilitators, and individual barriers/facilitators to medication adherence. All inmates at CRC are over 18; the majority are male and many report substance use disorders. The inclusion criteria for the study included inmates that had 1 or more incidents of medication non-adherence since their admission to the CRC.

Results: At the individual level, medication adherence is influenced by personal insight into disease and medication management, inmate social support, and perceived frequency of side effects. At the institutional level, rigid schedules for inmate activity and attitudes of health-care providers towards inmates affected medication adherence. This combination of factors perpetuates the knowledge gap between physicians/student-physicians and their vulnerable patients in the prison-setting ultimately affecting medication adherence.

Conclusion: Effective medication administration within prisons is important to manage inmates' symptoms, stop relapse, slow disease, and help recovery. Both individual and institutional barriers to medication adherence in correctional facilities hinder effective disease management. Findings of this study inform recommendations to improve disease management in correctional facilities, and may have relevance for medication management of other vulnerable populations outside of the prison-setting.

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THE ADDICTION RECOVERY AND COMMUNITY HEALTH (ARCH) TEAM: MEETING THE NEEDS OF SOCIALLY COMPLEX PATIENTS WITH SUBSTANCE USE DISORDERS IN AN ACUTE CARE SETTING

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An acute care hospital serves an important role as a societal safety net; for some complex inner city patients the hospital is often the only 24/7 safe place to access

medical care and services. As a critical point of access, acute care settings must be prepared to offer, in addition to acute medical interventions, evidence-based addictions treatment and social stabilization. The feasibility of traditional addiction treatment approaches for inner city patients, however, is complicated by complex social circumstances; evidence-based treatments and resources must be considered in the overall context of the challenges and strengths faced by each individual patient. Addiction Recovery and Community Health (ARCH) is a multidisciplinary consult team embedded within an inner city acute care hospital. With relationship-building as a core principle, addiction stabilization activities are complemented by social stabilization, health promotion, community linkage, and harm reduction activities. Launched in July 2014, ARCH sees approximately 20 new consults weekly. A process evaluation is underway to understand patient and other stakeholder experiences with the team. Consenting patients are also being tracked longitudinally in a controlled study to determine ARCH's impact on substance use, health services use, health promotion outcomes, and social outcomes. ARCH's clinical and research successes hinge on strong academic, health sector, social sector, and data custodian partnerships, however, the most critical partnership remains that between team members and the inner city community it serves. We will discuss our experience with these partnerships and present preliminary patient outcomes.

DIGGING A DEEPER HOLE

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Objective: Incidence and Deaths from Infectious Complications in Patients Suffering from Injection Prescription Opioids Addiction have increased since discontinuing OxyContin.

Study: Oxycodone was an effective analgesic but exposure to it, even as a legal prescription, has been found to lead to a high incidence of abuse, addiction and death from overdose. Largely for this reason, OxyContin and its generic counterpart have been removed from the Ontario Drug Formulary.

Physician prescribing habits have largely turned to other opioid, particularly HydromorphContin. This has created unexpected collateral damage.

Result: We have found that since the discontinuation of OxyContin the incidence of infectious complications of injection drug abuse, including endocarditis, sepsis and

death have increased dramatically.

We found that this is related to the physical properties of HydromorphContin as well as harm reduction kit use habits.

Conclusion: We need to learn from this when making future policies and practice changes.

Harm reduction kits and education, need to evolve with changing abuse patterns.

Physicians prescribing opioids need to keep informed about abuse patterns and their consequences.

Otherwise we could continue to dig a deeper hole.

THE DEVELOPMENT OF A CONCURRENT DISORDERS SERVICE

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Patients with co-occurring addictions and mental illness are often unable to achieve recovery in standard addiction services. St. Joseph's Healthcare Hamilton determined that patients with concurrent disorders (CD) comprised 50% of their acute inpatient population and had high rates of repeat admissions and emergency room visits. A Concurrent Disorders Service was developed to address the care needs of this high-morbidity group. Developed in stages, the initial phase began with converting one of Hamilton's 4 acute inpatient psychiatry units to serve patients with concurrent disorders. The unit is still for patients requiring an acute psychiatric admission, but now provides comprehensive assessments for addictions, as well as individual and group counselling using a harm reduction framework. Next, we created a Concurrent Disorders Outpatient Clinic with one team providing both psychiatric care and addictions counselling. A service review found that 13 patients admitted to the CD inpatient unit who then received CD outpatient care averaged 3.46 ER visits each in the year before admission, and 0.38 visits in the year after. We are now developing the Capacity Building Team, which works with mental health outpatient clinics and inpatient units to improve the staff's knowledge and skills in assessing and treating addictions in their patients. The presentation will focus on the development of the Service, implementation, outcome measures, successes and challenges, as well as plans for the future.

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BLENDING ABORIGINAL AND WESTERN HEALING METHODS TO TREAT INTERGENERATIONAL TRAUMA WITH SUBSTANCE USE DISORDER IN ABORIGINAL PEOPLES WHO LIVE IN NORTHEASTERN ONTARIO CANADA

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Background: As with many Indigenous groups around the world, Aboriginal communities in Canada face significant challenges with trauma and substance use. The complexity of symptoms that accompany intergenerational trauma and substance use disorders represents major challenges in the treatment of both disorders. There appears to be strong evidence that strengthening cultural identity, incorporating traditional healing practices, community integration, and political empowerment can enhance and improve mental health and substance use disorders in Aboriginal populations.

Methods: This study explored the feasibility of utilizing an empirically studied treatment model, Seeking Safety (2002a), and incorporating Indigenous traditional healing practices for the treatment of intergenerational trauma and substance use disorders. This mixed-method inquiry incorporated a 13-week Seeking Safety Sharing Circles program with 24 Aboriginal peoples in Northern Ontario. Data was collected from Sharing Circle sessions, semi-structured interviews, the Trauma Symptom Checklist-40, Addiction Severity Index (Lite), and the Historical Loss Scale & Historical Losses Associated Symptom Scale.

Results: Results revealed decreased substance use and trauma symptoms, supporting the benefits of the combined model to enhance healing. Furthermore, Sharing Circles and the presence of Elders and Aboriginal helpers increased the benefits of the blended model.

Conclusion: This study provided mental health and substance use interventions for institutions, Aboriginal communities, community leaders, stakeholders, and policy makers to help enhance Aboriginal wellness and bring healing for intergenerational trauma and substance use disorders.

Literature references:

1. Marsh TN, Coholic D, Cote-Meek S, Najavits LM, Blending Aboriginal and Western healing methods to treat

intergenerational trauma with substance use disorder in Aboriginal peoples who live in northeastern Ontario Canada. *Harm Reduction Journal* 2015; 12 :14 (20 May)

EDUCATION

PROVINCIAL ADDICTION CURRICULA & EXPERIENTIAL SKILL (PACES) TRAINING INITIATIVE

Laura Calhoun, MD, FRCPC, MAL(H)
Question Support: Jill Mitchell/Tuxephoni Winsor RN.BN.MHS

Despite the prevalence and undeniable impacts of addiction and mental health disorders, professional development activities addressing primary addiction and concurrent disorders remain elective, sporadic and undersubscribed when compared with other topics of academic instruction.

In response, Provincial Addiction & Mental Health, Alberta health Services is committed to the implementation of a provincially accessible curriculum that adheres to academic standards for accreditation, and provides for experiential skill training opportunities that meet the learning needs of intermediate and advanced practitioners responding to adult populations experiencing concurrent disorders.

The Provincial Addiction Curricula and Experiential Skills (PACES) Training Initiative will utilize learning technology in the development of a self-navigated, academic curriculum and simulated learning event. PACES seeks to enhance current service delivery by addressing a well-documented gap in addiction education for medical and psychosocial practitioners. The PACES training initiative will evaluate success of its delivery in support of improving quality service and public assurance.

Literature references:

1. Crockford & el-Guebaly, 2015; el-Guebaly & Violato, 2015; Wild, Wolfe, Wang & Ohinmaa, 2014; Wood, Samet, Volkow, 2013; el-Guebaly & Violato, 2011; Crockford & el-Guebaly, 2009; Urbanoski, Cairney, Bassani & Rush, 2008; Ewashen & Zaganelli, 2007.

DIVERSITY OF TRAINING HEALTHCARE PROVIDERS IN ADDICTION MEDICINE

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Objectives: this rapid rise of new structured educational programmes for addiction medicine specialists isn't without problems. We describe a programme of research that

tries to understand mechanisms for scaling up and standardising the addiction medicine education internationally.

Methods: The project has three phases:

1. Scoping review of literature and interviews with alumni of the Canadian addiction medicine fellowship.
2. Expert consultation and educational needs assessment at both systems.
3. Development and implementation of a Novel Addiction Medicine Education (NAME) curriculum for medical students and family physicians in Ireland.

Results: Early findings from the interviews with faculty and alumni of the St. Paul's Hospital Goldcorp Addiction medicine fellowship (n=12) highlighted the key role of evidence-informed curricula and expansion of the current programmes to include other, non-physician health professionals. Participants experienced changes in the areas of knowledge, skills, attitudes, provider behavior and patient outcomes. Organisational, structural, provider, patient and community factors hindered or fostered learning. Our scoping review of literature identified a high diversity in physician education on addiction that prevents comparative research and hinders advancement of physician training.

Conclusions: Recognising that diversity of the programmes reflects the critical role of responding to the regional needs and context in the development and implementation of these programmes, we call for standardised training programmes in addiction medicine internationally.

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1. Klimas J, Cullen W. Addressing a Training Gap through Addiction Research Education for Medical Students: Letter to editor. *Substance Abuse*. 2015; 36(1):3-5
2. Ayu A P, et al. "Effectiveness and Organization of Addiction Medicine Training Across the Globe." *European Addiction Research* 2015;21(5): 223-239.
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4. el-Guebaly N, et al. "Medical education in substance-related disorders: components and outcome." *Addiction* 2000;95(6): 949-957.
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ADDICTION PSYCHIATRY: THE CANADIAN JOURNEY

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Objectives: The search for educational validation must follow national guidelines and be informed by an

international yearning for standardization. An update on the ongoing Canadian journey is presented.

Method: Recent developments in training in addiction psychiatry is presented derived from:

- a) Approaches to post graduate education in Canada (Levrette et al)
- b) The PGY₁ experience, 2014 update (Husarewycz et al)
- c) Overview of clinical practices and general recommendations (Fleury et al)
- d) Updated curriculum guidelines (Crockford et al)

Results: The above developments and the recent acceptance in principle by the Royal College of a Diploma in Addiction Medicine starting with Specialists resulting in increased awareness for the need of specialty training at all levels of medical education. Sharing our international experience as well as available products like the ISAM Certification exam and new Textbook are major boosters to national curricula.

A model for potential differentiation of levels of proficiency between Generalists and Specialists with Addiction Medicine will also be presented.

Conclusion: National educational initiatives require seizing opportunities presented by evolving guidelines as well as utilizing international experiences and products.

Literature references:

1. Levrette JS, Hnatko GS, Persad E. Postgraduate education in psychiatry in Canada. *Canadian Psychiatric Association*, 2009, pp 167-182.
2. El-Guebaly N, Carra G, Galanter M. *Textbook of Addiction Treatment: International Perspectives*, Springer, 2015, pp 2397-2440.

QUALITATIVE ASSESSMENT OF COMMUNITY PHARMACISTS' EDUCATIONAL AND SKILLS NEEDS CONCERNING ADDICTION

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Objectives: Community Pharmacists are the most accessible health care providers. However, pharmacists are poorly utilized when addressing the issue of substance abuse and addiction. It can be hypothesized that the lack of educational/training are the driving factor for such deficiency. Therefore, we aimed at 1) Evaluating the current educational curricula in pharmacy schools in Canada in relation to addiction; 2) Assessing pharmacists' current skill set and the extent of the problem in the city of Saskatoon from their perspectives; 3) Identifying skills and educational needs for community pharmacists

concerning providing optimum services to drug addicts.

Methodology: Firstly, an inquiry was sent to pharmacy schools in Canada to apprehend the nature of the educational material taught about addiction. Secondly, semi-structured interviews were deemed most appropriate method. In order to recruit participants for the interviews and generate general understanding about pharmacists' perspectives regarding addiction a survey was sent to all community pharmacists in Saskatoon. During interviews, pharmacists were asked to express their needs to provide optimum health care services for drug addicts. **Results:** School surveys revealed that addiction is rarely discussed as a social matter but primarily from pharmacological endpoint, leaving new graduates ill-equipped to provide the right services to addicts. Respondents acknowledged that addiction is a major concern in the city of Saskatoon and that they are not trained to deal with drug addicts. Finally, two major issues emerged, namely "lack of knowledge" as well as the need for immediate and long-term educational/training initiatives. **Implications:** This work will influence future educational plans as well as provide suggestions to improve the contemporary educational plans based on a view from the fields of practice

Literature references:

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GAMBLING

LOW RISK GUIDELINES FOR GAMBLING DERIVED FROM LONGITUDINAL RESEARCH

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Responsible gambling is promoted to prevent the development of problem gambling but there is no quantitative definition of what responsible or "low-risk" gambling is in terms of gambling behaviour. In the field of alcohol research, low-risk drinking guidelines have been

developed and widely disseminated to the public (e.g., maximum 2 drinks a day, 14 drinks per week). In light of the rapidly expanding gaming industry and significant rates of problem gambling in North America, the development of comparable low-risk gambling guidelines has been recommended. To this end, a set of low-risk gambling limits were produced using Canadian epidemiological data on the intensity of gambling behaviour and related consequences. The empirically derived limits (gambling no more than two to three times per month, spending no more than \$501-\$1000CAN per year or no more than 1% percent income on gambling) accurately predicted risk of gambling-related harm after controlling for other risk factors. A significant limitation of this research is the cross-sectional nature of the data used to establish the low-risk limits. The Quinte Longitudinal Study (QLS) followed a cohort of over 4,000 Ontarians over 5 years. The randomly selected sample (mean age = 46 years; 55% female) was composed of individuals with a range of gambling habits and problem gambling characteristics. In preliminary analysis of the predictors of future gambling problems, measures of gambling intensity at baseline were found to be highly associated with the onset of problem gambling at subsequent time periods. We extend this work by adapting the risk-curve approach used in the development of the low-risk gambling limits to the QLS longitudinal data. Using a combination of ROC analysis, risk-curves and regression analyses we identified the optional cut-offs for predicting future harm from gambling based on measures of gambling intensity (frequency, total expenditure, and percent of household income spent on gambling). The limits will be cross-validated with another longitudinal data set the Leisure, Lifestyle, Lifecycle Project, an Alberta based study of over 1800 for five years. The findings of this work and their implications for problem gambling prevention activities will be presented.

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