Abstract

Context

The legislation in the province of Québec stipulates that a driver’s license is a privilege that drivers can be deprived if they are determined to represent a road safety risk. Until June 2012, only convicted DWI offenders were assessed to evaluate such risk. This delayed procedure was deemed insufficient. Accordingly, the Société d’assurance automobile du Québec, Québec’s licensing authority, introduced a change in their procedures. They introduced an assessment procedure to identify elevated risk for DWI recidivism upon arrest for drivers who had: 1) a blood alcohol concentration equal or superior to 160mg%; 2) a previous conviction for DWI within the last 10 years; 3) a refusal to provide a breath sample.

This strategy did not eliminate a more fundamental shortcoming. The validity of prediction of DWI risk in first-time arrested drivers is inconclusive in the current state of knowledge. To palliate these limitations, the SAAQ assembled a Working Group composed of: 1) the coordinator of the current assessment program and her assistant; 2) three scientists experienced in prediction of DWI recidivism; 3) two clinicians experienced in the assessment of convicted DWI offenders; 4) a highly qualified research professional; 5) professionals of the research unit of the SAAQ.

Objectives

This presentation will describe the iterative and interactive processes that took place within the Working Group to pragmatically address a complex multidimensional public health challenge. The process was an exemplary case of transdisciplinary co-construction: different stakeholders contributed to the final protocol by sharing their diverse but complementary knowledge base.

Discussion and conclusions

In retrospect, given the limitations of current knowledge and the urgency to increase road safety, the decision to combine tacit and empirical knowledge is innovative and may warrant replication. An objective analysis of the effectiveness of the resulting assessment protocol is currently underway.
**Integrated knowledge transfer**

This paper describes the iterative and interactive processes that took place between regulators, clinical evaluators and scientists to pragmatically address a road safety issue: the development of an assessment to test a driver’s ability to dissociate drinking from driving a road vehicle. We report on what we consider a success story of integrated knowledge transfer by which a group of concerned actors were dynamically engaged in the task put before them. The result was considered sufficiently comprehensive, clinically valid, and legally defensible to be integrated in the legislation on road safety of the Province of Québec, Canada, put in force in July 2012.

**A collaborative approach**

Increasing road safety is a challenge. A web of factors including law, policy, alcohol and drug use availability and marketing, and individual socio-economic, physical and mental health, and cognitive factors are at play. Scientific evidence can help face some of the challenges if bridges are built between regulators, clinicians, and researchers. The translation of scientific findings to policy can be accelerated when several winning conditions are put in place in the early development of a transdisciplinary research program. Among these conditions are: the involvement from the start of regulators and other key actors who all express their key concerns; a shared decision by all partners to choose evidence-based solutions to manage the road safety problems under study; a research program oriented towards solutions (CIHR, 2013). In such a collaborative setting, a back-and-forth or reciprocal long-term relationship between the actors needs to be put in place so that scientists are receptive to the priorities expressed by the regulators who, in return, take into account the stringent requirements and the limitations that the scientific method imposes on their queries and their solutions. All the actors need to take into account that building mutual trust is a process that takes time: patience is needed since both the research process and the policy changes are lengthy. In short, integrated knowledge transfer in road safety is a long term project, a partnership with frustrations that, if successful, brings great satisfaction to all: the scientists see their work having measurable positive impact on people’s lives, while licensing authorities can orchestrate legislation and sanctions imposed on intoxicated drivers that are evidence based and effective in fulfilling their mandate for maximizing traffic safety.

The *CIHR Team in transdisciplinary studies in DWI onset, persistence, prevention and treatment* addresses detection and intervention in individuals who misuse alcohol and drugs and engage in risky driving behaviour, such as driving while impaired. Its objectives are to better understand the multiple pathways to why some individuals repeatedly drive while impaired (DWI) by alcohol, drugs and other conditions (e.g., fatigue). In addition to the licensing authorities and the program responsible for the assessment of convicted drivers (i.e., knowledge users), membership now includes traffic safety experts, psychologists, neuroscientists, biologists, physicians, psychiatrists, and epidemiologists (quotation of latest interview).

From the start, when the first two authors of this paper started a research collaboration, the licensing authorities - the Société de l'assurance automobile du Québec (SAAQ) - contributed to the success of the first studies by helping to set up a large representative sample of DWI offenders (Brown et al, 2005; Ouimet et al, 2007; Brown et al, 2008). The SAAQ is a public corporation that comes under the authority of Québec's Minister for Transport. It offers an integrated management model that applies to three areas: prevention, enforcement and...
compensation. The CIHR Team collaborates with the research team in road safety responsible for the behaviors related to alcohol and drugs. In addition, the reader should know that drivers found guilty of impaired driving in Québec must provide the SAAQ with an assessment report demonstrating that there is no incompatibility between their behavior with respect to alcohol and drug use and the safe operation of a motor vehicle. This assessment report must be provided by a certified evaluator of the Association des centres de réadaptation en dépendance du Québec, referred to herein as the assessment program (ACRDQ, 2013). During the first decade of the CIHR team, at the request of our partners, our team tackled specific problems linked to the assessment of a convicted driver's alcohol or drug use as these consumption patterns related to the safe operation of a motor vehicle. It was through these successive research projects that: 1) trust was fostered between our team and the licensing authorities and the coordinator of the assessment program resulting in our team having access to more meaningful, but confidential, administrative data; 2) positive results generated from our published studies found concrete applications; and 3) existing problems found evidence based solutions in making informed process changes.

The evaluation of the risk of DWI recidivism: the problematic area

DWI behaviour is relatively rare, but a core group of repeat offenders disproportionately contributes to the overall rates of crashes and injuries. At the turn of the current decade, DWI statistics indicated that after two decades of gradual reductions, current rates had stabilised. In an attempt to reduce morbidity and injury linked to impaired driving, the licensing authorities – SAAQ - were examining effective strategies within their jurisdiction. A provision in the Highway Safety Code stipulates that a driver’s license is a privilege of which one may be deprived if a driving risk is established. Such a provision in the law presented an opportunity to intervene occur prior to criminal prosecution, circumventing the inevitable and often purposeful delays associated with legal procedures. A decision was made to increase the control over drivers who had: 1) a blood alcohol level equal or superior to 160 mg/100 mL; 2) a blood-alcohol level above 80 mg/100 mL and a previous conviction for DWI within the last 10 years; and 3) refused to obey a peace officer by providing a breath sample. The licensing authorities turned to our research team to develop an evidence-informed assessment protocol to evaluate for the risk of DWI recidivism. Our team, now enlarged with a road safety epidemiologist and public health scientist (Dr Junaid Bhatti), responded positively to our partner’s request.

The validity of prediction of DWI risk is inconclusive in the current state of knowledge. Several methodological, analytic and conceptual concerns vex the DWI prediction research. There are methodological challenges, particularly the bias to individual data gathered in an authoritarian evaluation context that evokes fear in drivers of the potential legal, social and economic consequences that frank admission to excessive drinking or other DWI-associated behaviours may engender. In addition, documented arrests, convictions and crashes related to DWI neither reflect all the drink-driving episodes that occur nor are they free from the influence of enforcement practices, geography and other external factors. Our partnership with the provincial licensing authorities had allowed our team to address some of these latter shortcomings in preliminary work with administrative databases. It is important to underscore that though we were in full agreement with the objectives of the licensing authorities, we as scientists remained cognisant of the other complex challenges left unresolved in the task put before us.
The creation of a working group

There is a growing consensus that resolving complex public health problems necessitates research that is cross disciplinary. The research into the high-risk driver problem has been trapped in a conceptual silo where certain behavioural theories and methodologies have dominated. For example, the focus on substance misuse and static personality traits in research that relies on subjective paper-and-pencil questionnaires has yielded consistent associations with high-risk driving. In contrast, our team found that many DWI recidivists show neuropsychological signs of difficulties in changing well-established behaviours, devising plans and following through, resisting the temptation of immediate gains despite the risk of greater losses later on, and learning from past experience (Brown et al, 2008; Maldonado et al, 2012; Ouimet et al, 2007). With these facts in mind, the working group was formed. It was composed of: 1) the coordinator of program responsible for the assessment of convicted drivers (C. Beaumont) and her assistant who had the task of coordinating the work; 2) the three first authors of this paper who had been examining risk prediction for a decade and were responsible for insuring the integrity of the scientific process; 3) two clinicians experienced in the assessment of convicted DWI offenders who brought to the discussion how their clients behaved during the assessment, i.e., real-world clinical situations, and put forth the limitations they had experienced in their practice in the assessment of convicted drivers; 4) a highly qualified research professional mandated to review the necessary evidence, with particular attention to the psychometric qualities of tests, who exposed to the group the strengths and limitations of the assessment measures; 5) two professionals of the research unit of the licensing authority (J. Courtemanche and S. Mercier) who were aware of the legal constraints in which the new assessment had to be framed. The Timelines of the working group are described in Table 1.

Table 1. Timelines

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
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<tbody>
<tr>
<td>Working group created</td>
<td>The Research Officer of the SAAQ</td>
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<tr>
<td>Formal communication</td>
<td>The members are appointed</td>
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<td>First meeting</td>
<td>The challenges are identified</td>
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<td>Second meeting</td>
<td>The review of the literature is discussed</td>
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<tr>
<td>Final meeting</td>
<td>Decisions are made</td>
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<tr>
<td>Draft of changes sent</td>
<td>Group members respond to draft</td>
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<tr>
<td>Approved by SAAQ</td>
<td>Sent to the Minister of Transport</td>
</tr>
<tr>
<td>Protocol put in place</td>
<td>Data collected to be analysed</td>
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The working process

This report on the working process of the group expresses the views of the authors. As we experienced it, the group effort was directed at achieving its goal within a time limit: the work had to be terminated by June 2012. There was a shared understanding that, first, all group members bring to the task a unique perspective that was indispensable to reach its goal, and second, successful group processes involve taking into account the contribution of each member. In general, group members were receptive to the task information from others and, in return, incorporated the given information into the reflection and exchanges that followed.
The reason for this equalitarian group-oriented behaviour, with opinion seeking and general discussions, may be attributed to the power structure in the group. The group was lead by the coordinator of the current assessment program for convicted DWI offenders. She was the interface between all the group members and was not in a position of authority inside or outside the group: she was a broker in both situations. She acted as a group facilitator, for which she had experience (she is a licensed clinician), and remained task oriented. She wanted the group to reach its goal within the time framework. The representatives of the licensing authority understood more than the rest of the group members the legal constraints of the task put before the group: they had been on the forefront of the inevitable legal challenges directed towards the SAAQ. Their contribution kept the group’s deliberations within a pragmatic framework, specifically the need to meet current legal standards. The research professional was a young Ph.D. who not only had a passion the subject under study, but also was well trained in psychometrics. He was thus able to communicate clearly to the group the limits of the scientific evidence. The two clinicians had been chosen for the quality of their work and the depth of their tacit knowledge accumulated over a decade of assessing convicted DWI offenders. Their real-world perspective grounded the discussions, particularly when the group had to make difficult choices that were not readily informed by science. The three scientists brought to the group their expertise and fund of empirical knowledge. They had had access to confidential databanks, had analysed them, and knew the strengths and weaknesses of the assessment developed for the convicted DWI offenders. They also had comprehensive knowledge of the literature, as well as the results of the various research projects conducted by the research team. Their expertise and knowledge advanced the objective appraisal of current protocols, and provided direction as to what adaptations were likely to be advantageous. Most and foremost, the common attribute shared by all group members was a trusting attitude that had been built during the preceding decade.

In the end, there was a sense that the group had reached a consensus in arriving at the decisions that were ultimately made. There were moments when differences in opinion between group members were substantive, which inevitably reflected the distinctiveness between members in background, training, and experience. Nevertheless, on the whole there was a general receptiveness to the input of all group members and a democratic approach to problem solving.

**Limitations**

There was neither an outside observer nor any valid qualitative analysis of the group processes described above. As a result, this report lacks objectivity to some degree. There may have been a stronger implicit hierarchical structure than perceived and described by the authors. As a result, the group status structure may have influenced the decision-making process more than reported in this paper. One cannot also exclude the possibility that there was an increased reliance on certain group members to make final decisions.
**Conclusion**

In retrospect, given the limitations of current knowledge and the urgency to increase road safety, the decision to combine tacit and empirical knowledge is innovative and may warrant replication. It is our opinion that long term collaboration between the regulators, clinical evaluators and scientists made a significant difference in decision regarding this road safety issue. Working groups without a history of successful joint ventures may not report such a positive experience. As far as the working group processes are concerned, the cooperative exchanges among group members were probably facilitated because: i) a definite deadline had to be respected, ii) all group members were aware that the current state of knowledge in the prediction of DWI risk was inconclusive – no one had the universal answer to the task under study; and iii) all adhered to the overarching objective of serving the public good. All members of the group actively participated throughout the process, increasing the sentiment that there was a joint equalitarian effort to reach the common goal.

An objective analysis of the effectiveness of the resulting assessment protocol is currently underway. The result will provide objective feedback on the choices that were made by the working group.

**References**