

## **PLENARY SESSIONS**



# Risky Driving From A Decision Making Perspective

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Personalized concreteness helps me think through hard problems. So picture Joe, who has had too much to drink but chooses to drive his car home anyway. We can ask several important questions about this scenario: How did Joe arrive at his decision? Why did he decide that way? In other words, what earlier events shaped the mechanisms and conditions that resulted in Joe's choice? And, finally, on the practical side, how could we reduce the odds of Joe (and others) making similar choices in the future?

When pondering these questions about Joe, it proves useful to have a contrasting scenario in mind as well. So now imagine Jill, who has also consumed too much alcohol. Unlike Joe, however, when Jill realizes that she is a bit tipsy, she refuses to get behind the wheel. The questions we asked about Joe's decision making have direct parallels concerning how Jill decides: First, what exactly are the key distinctions between Jill's and Joe's decision processes? Second, how did those differences come about? And, third, suppose we wanted to make Joe's decision processes more like Jill's. How could we do that?

The charge I was given for today can be framed in terms of these scenarios: "What does scholarship in the 'judgment and decision making research community,' including your own, have to say about questions like the previous ones concerning Joe and Jill?" More formally, the request was for my take on what key ideas from current scholarship might mean for issues concerning how people come to engage in risky driving, including impaired driving. The expectation was that, in due course, such an understanding might point toward actions that could reduce the incidence of such hazardous behavior. Because Hannah Chua and I have been collaborating on formally related problems in risk judgment for some time, I asked Hannah to join me in this effort, too.

## **Plan**

The plan of the discussion is simple and straightforward. Over several years, I have developed a point of view on human decision making I call the "cardinal issue perspective" (e.g., Yates, in press). This perspective is a most useful way of organizing thinking and work on problems with significant decision making elements to them. This encompasses basic scientific questions as well as practical ones, including the driving problems that occupy the attention of participants in this conference. So I will first briefly introduce key elements of the cardinal issue perspective. Then, in the main part of the discussion, I will share my thinking on several key aspects of decision making in risky driving, using the categories of the cardinal issue perspective as points of departure.

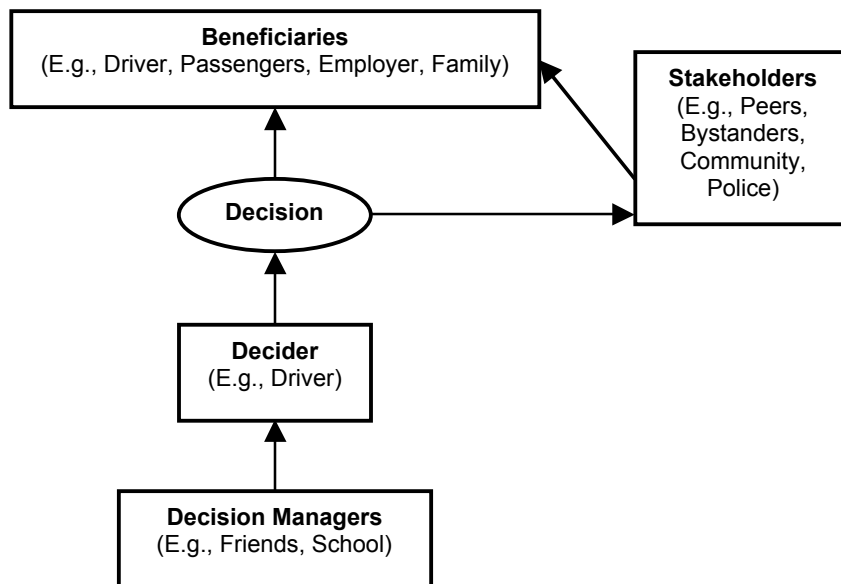
## Elements of the Cardinal Issue Perspective

This is the definition of the term "decision" that is assumed in the cardinal issue perspective:

*A decision is a commitment to an action that is intended to yield satisfying states of affairs for particular parties—the "beneficiaries" of that action.*

Having some sort of decision definition is essential because the participants in any discussion of decision making—including the one we are having here—must have a common understanding of what the subject matter is and is not; otherwise, confusion reigns. The present definition is attractive for several reasons. But perhaps the most important is that it is a synthesis of how the word "decision" is used in many different scholarly and practical arenas. I invite you to test the definition against your own use of the term. If you are like most people I have known, in any given conversation, you have only some of the key features of the definition in mind. Yet you are unlikely to disagree with any of those elements. So, when we say that Joe decides to drive home in an impaired state, we understand that he has committed himself to attempting that action even if something prevents him from actually doing so. We also assume that Joe purposefully makes his commitment because he seeks to please somebody, almost certainly himself, but probably others too, such as his friends. The notion of pleasing someone—"satisfying states of affairs for particular parties"—is arguably the hallmark of decision making, what makes it special and distinct from more general problem solving. It is also what makes decision making acutely challenging to perform and to understand. That is because people's values—their tastes—tend to differ radically from one person to the next. A good solution to a calculus problem is seen as a good solution for everybody. Not so for many decision problems, though. For instance, Joe's ideal solution for the problem of what movie to see on Saturday night easily could be a horrendous solution for Jill.

Figure 1. Common parties to practical decisions



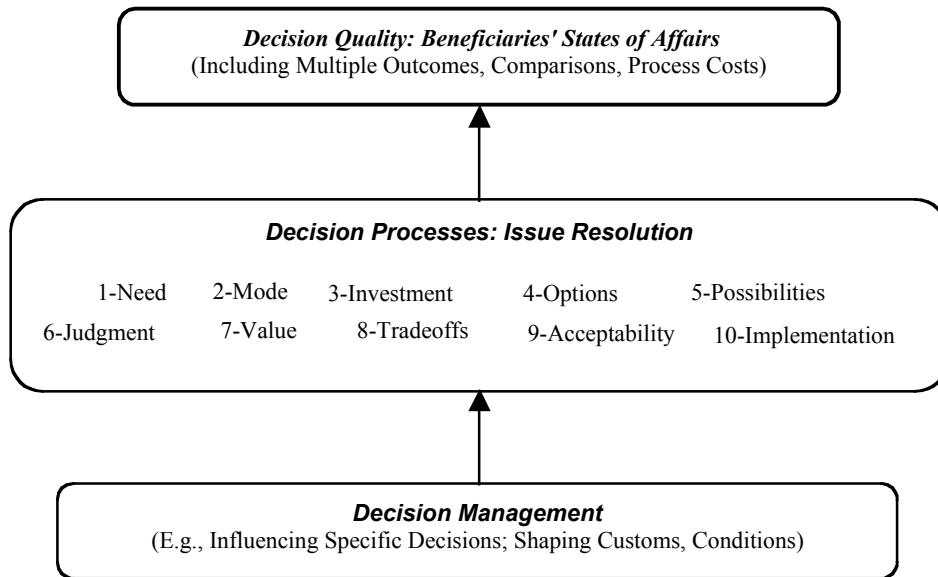
Although this fact is often neglected, the typical practical decision problem has roles for several parties, as sketched in Figure 1. Beyond the decider, there are, first of all, the people whose interests the decider hopes to serve, the "beneficiaries." These invariably include the decider, but they often include others, too. For example, Joe might hope that by driving despite his impairment, he will satisfy his family waiting impatiently at home or, if he is due at work, he seeks to please his employer. Nearly every significant practical decision also has "stakeholders." Stakeholders have two qualifications:

- First, there is a good chance that stakeholders' interests will be affected by the pertinent decision even though the decider does not set out to influence those interests one way or the other. Thus, when Joe decides to drive while intoxicated, he might give no thought whatsoever to people he might injure because of his impairment. Regardless, the injuries—even deaths—could still occur.
- Second, stakeholders have power and are likely to exercise that power to benefit or harm the beneficiaries if they are pleased or displeased by the decision in question. A police officer who pulls Joe over after observing his erratic driving wields such stakeholder power in a most obvious way.

The final parties acknowledged in Figure 1 are "decision managers." These are individuals whose actions—by design and otherwise—affect how the decider decides. Good examples include Joe's parents and his schools, which have, over many years, helped shape his tastes and patterns of thinking which, in turn, shape his decision customs. Other examples include Joe's friends and his community's public officials, who present him with the incentives and opportunities that constrain his choices at any given moment, including the moment when he must choose: "Do I drive, or don't I?"

Virtually every practical decision problem presents several fundamental issues. The very first such issue, the "need issue," concerns how a person comes to recognize that there is a decision problem to solve in the first place. For instance, how does it even cross Jill's mind that there is a decision to make about whether she drives herself home after drinking at her favorite bar? It is entirely possible that after her gathering of friends breaks up, Jill would simply initiate her normal "going home routine" and carry it out, including hopping into her car and driving off. Key questions like the need issue are so critical that it makes sense to regard them as "cardinal" decision issues. That is also why I have found it useful to define "decision processes" as the activities by which deciders address each of the cardinal issues as it arises in any given decision problem.

Figure 2. The Big Picture



There are 10 cardinal decision issues. We do not have the opportunity to discuss them all here although I will, in fact, talk about a few in some depth. More complete treatments of all the issues are available elsewhere (e.g., Yates, in press). Despite these constraints, it is useful to keep in mind a mental image of the entire decision making enterprise that centers on the cardinal issues. An image I find especially compelling and useful is the one shown in Figure 2, "The Big Picture." The middle of the display lists the 10 cardinal issues and highlights their role in decision processes. The top of the flow diagram reminds us that the "point" of any decision is serving the interests of the intended beneficiaries of the decision—as reflected in their personal tastes, what *they* consider to be satisfactory states of affairs. Decision quality is actually a complicated idea, a completely adequate discussion of which would take us too far afield. But it is useful for me to acknowledge, as suggested in the figure, that people's—including drivers'—notions of decision quality require the consideration of the multiple outcomes that result from almost all decisions, people's comparisons between what they achieve and do not achieve, and also the burdens of making the decision itself, so-called decision process costs. The bottom or starting point of the flow diagram reminds us that decision making does not occur in a vacuum. In particular, many decisions are influenced directly by the actions of what I broadly speak of as decision managers, for example, Joe's friends if they were trying to persuade him to drive despite his inebriation.

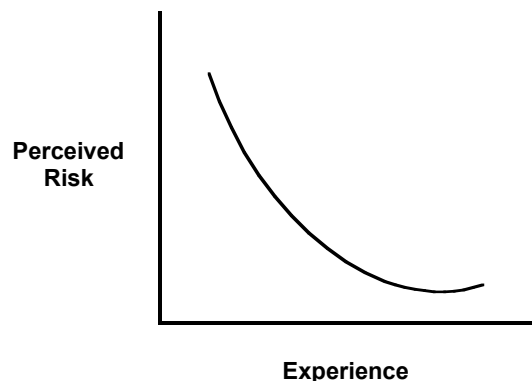
### The Judgment Issue

Many discussions about risk taking in driving focus on risk perception. These discussions presume that, at some point, people like Joe and Jill would ask themselves a question like this when pondering whether to drive while intoxicated: "What are my chances of having an accident?" An assessment consistent with Joe's decision to drive despite his impairment would be that his accident chances were "negligible." In contrast, Jill plausibly might have shied away from such a choice because she feared that her odds of having an accident were "significant." In the language of decision research, these appraisals are "judgments"—opinions about what was,

is, or will be the state of some decision-relevant aspect of the world, in this case, the future occurrence of an accident. Opinions like these are the province of Cardinal Decision Issue 6, the judgment issue, which can be articulated this way in the words of a decider: "*Which of the things that they (the beneficiaries) care about actually would happen if I (the decider) took that action?*"

Over the past 30 years or so, researchers have learned a great deal about how people make judgments naturally, that is, about how they resolve the judgment issue when left to their own devices. Here, however, I will discuss just one particular judgment phenomenon that, in our view, has especially great significance for many of the decisions involved in risky driving. Figure 3 schematically illustrates the phenomenon, which we could call the "experience/perception effect." In a nutshell, the figure suggests that the more experience people have with a certain hazard, the less risky they judge that hazard to be. A study by DiLillo, Potts, and Himes (1998) is illustrative. The participants in the study were elementary school children. They were asked to rate the riskiness of a variety of activities from the worlds of children like themselves, adults, and television. Examples from each domain, respectively, were "Chasing a ball into the street," "Sharpening an ax on a grindstone," and "Being in a cage under water with sharks swimming nearby." DiLillo et al. built regression models to predict their participants' risk appraisals, using a variety of variables, including items such as injury history, sensation seeking, age, and direct experience with the activities of concern. Remarkably, the only predictor that entered the regression significantly for the judged riskiness of the childhood activities—the ones most relevant to the participants themselves—was direct experience. And most notably, the relationship was *negative*. That is, the more experience children had with an activity, the less risky they considered it to be.

Figure 3. The experience/perception effect.



Suppose that the experience/perception effect operates in situations like those of Joe and Jill. Then it suggests that, at a certain level of analysis, Joe might have chosen to drive impaired because he has done so often in the past and thus sees little risk in doing so. In contrast, Jill's refusing to drive impaired could have been the result of the fact she has never driven impaired before, a lack of experience that somehow led her to expect that the accident risks associated with doing that were high—too high.

The DiLillo et al. finding is not an isolated anomaly. There have been numerous other demonstrations of the experience/perception effect, including ones in domains more closely related to impaired driving (e.g., Finn & Bragg, 1986; Horvath & Zuckerman, 1993). We are thus left with the questions of why the effect occurs and what its prescriptions might be for reducing the incidence of hazardous driving.

We should not expect the experience/perception effect to hold generally. Countless studies, including many in our own laboratory, have demonstrated that likelihood judgment is far from perfect. Yet, under most conditions, there is usually a strong correspondence between how often people have observed an event and their judgments of how likely it is that that event will occur in the future. And, as simple-minded as it might seem, therein lies the most plausible basis for the experience/perception effect. In the risk judgment studies we have reviewed where the effect has been observed, the adverse events in question have been unusual, even “rare.” Fortunately, chasing a ball into the street very seldom results in a child being injured. Similarly, we suspect that, in absolute terms, the relative frequency of trips on which impaired drivers have accidents is tiny. Nevertheless, when parents first tell their children about the hazards of the playground or when instructors tell new drivers about the dangers of impaired driving, they understandably convey the impression that the risks are high. But then, once the targets of these “official” risk messages are in the pertinent situations themselves, they seldom see first-hand evidence that the dangers are common. And so their risk appraisals decline. It would not be surprising if their trust in official risk messages diminished, too.

This situation therefore poses a dilemma for those who communicate facts about risk. The dilemma is illustrated well by a study performed by several colleagues and me (Stone, Sieck, Bull, Yates, Parks, & Rush, in press). We asked participants to picture themselves faced with a consumer decision problem. A toothpaste manufacturer had just developed an “Improved Toothpaste” that was identical to its “Standard Toothpaste” except for one thing: the new product promised a lower risk of gum disease with regular use. Two of the tasks posed to the participants have interest here. In Task 1, after being told the price of Standard Toothpaste, the participant was asked: “How much more would you pay for Improved Toothpaste?” In Task 2, they were asked to “Rate the significance of the reduction in gum disease risk,” where the scale was such that 1 indicated “insignificant” and 7 denoted “highly significant.” The manipulation in the experiment concerned how the risk of gum disease associated with each product was displayed. Figure 4a illustrates the bar graph risk display format. Observe that the risk of serious gum disease with Standard Toothpaste was 30 out of 5,000 users, whereas the corresponding risk with Improved Toothpaste was only half that, 15 out of 5,000 users. Note that these rates are comparable to the risks of many everyday hazards. Figure 4b shows the stacked bar graphs used to display the risks in the second condition.

Figure 4a. Bar graph display format.

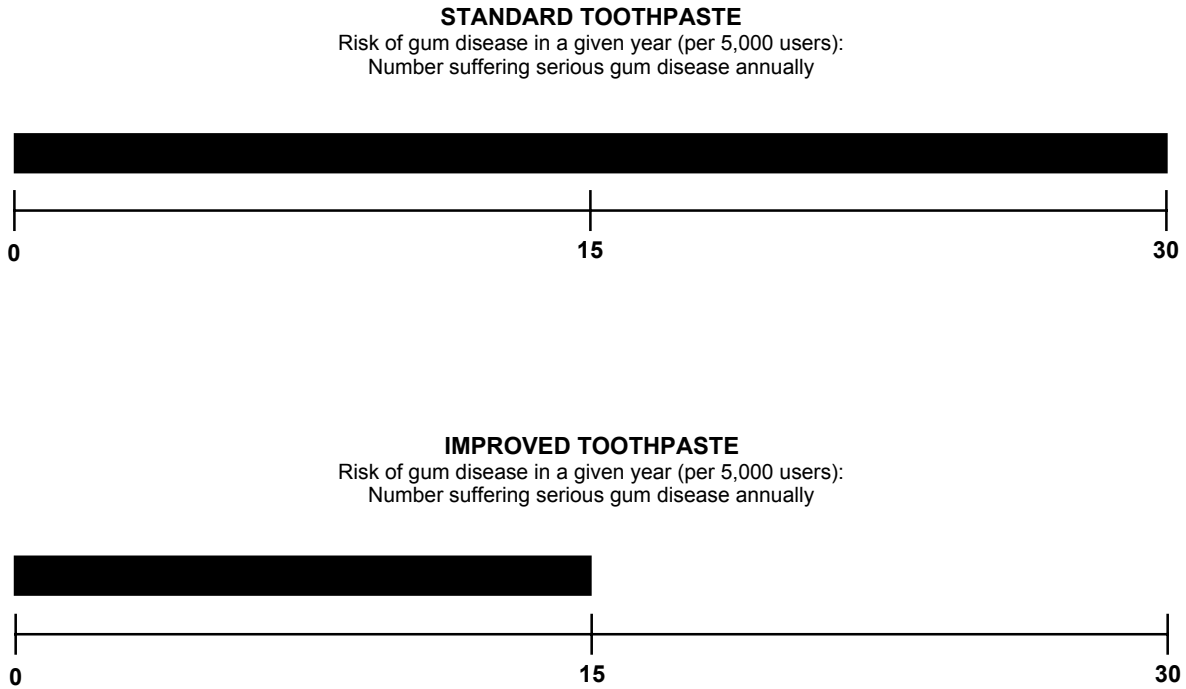
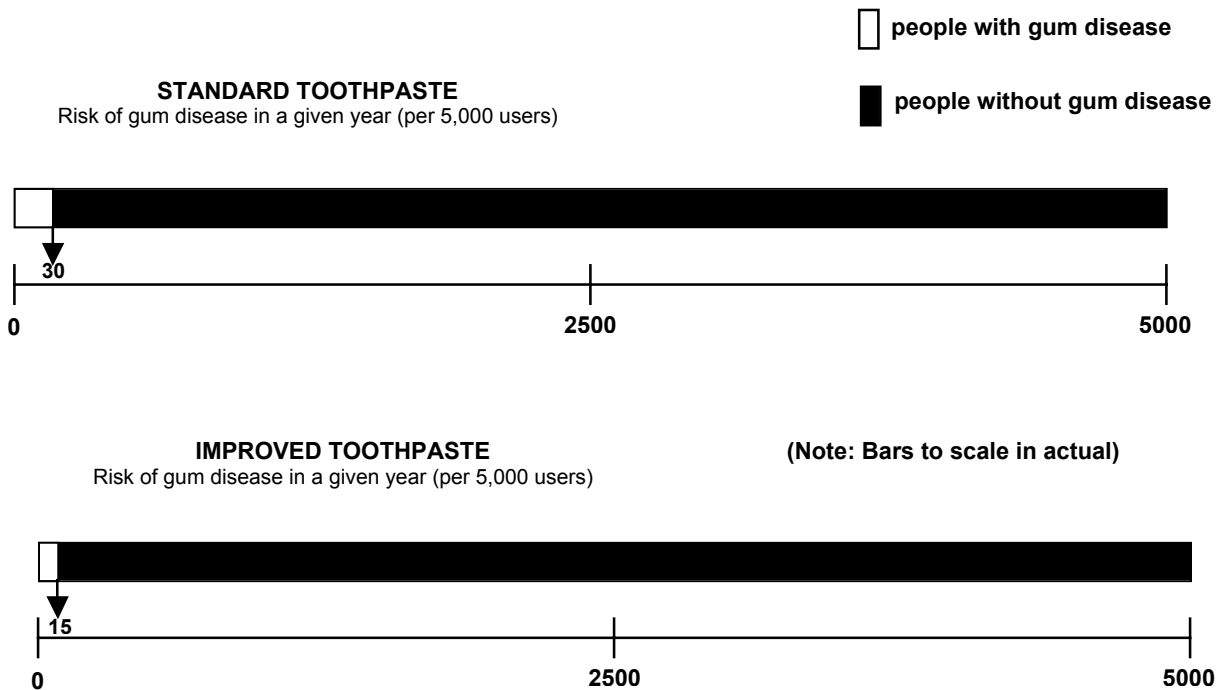


Figure 4B. Stacked bar graph display format.



Now consider Figure 5a. There we see the mean increases in prices participants professed that they would pay for Improved Toothpaste, expressed as percentages relative to the price of Standard Toothpaste. Having seen the stacked bar graph risk displays, on average, participants said they were willing to pay 36% more to reduce the risk of gum disease. In contrast, participants who had seen the simple bar graph displays reported, on average, that they would pay much more extra—72%. Figure 5b suggests a contributing reason for this difference in risk avoidant behavior. We see that participants felt that the reduction in gum disease risk afforded by Improved Toothpaste as compared to Standard Toothpaste was far more significant when the risks had been conveyed via stacked bar graphs than by simple bar graphs.

Figure 5a. Mean percentage increased payments for reduced risk.

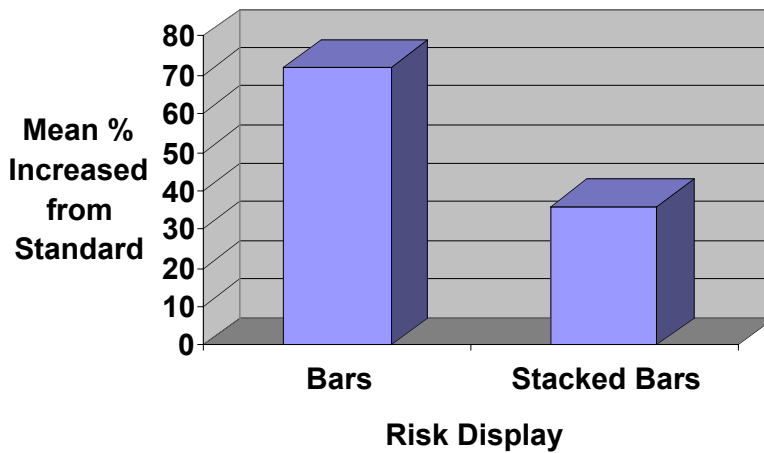
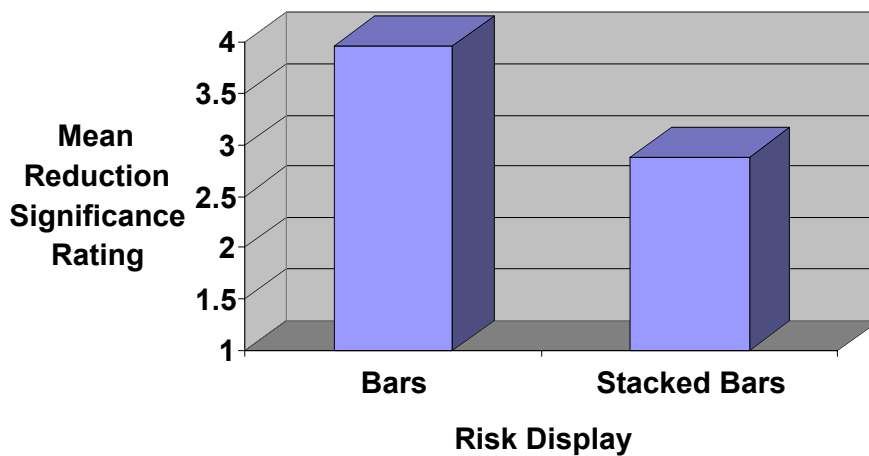


Figure 5b. Mean risk reduction significance rating (1=Insignificant, 7=Highly Significant).



The factual risk information about gum disease was truthful and identical in both display formats. Yet people apparently “felt” that the risks were not, in fact, the same in those formats, and they acted accordingly. A re-examination of the displays themselves suggests why the observed effects occurred. Because of their physical salience, people's attention is immediately drawn to the bars in the graphs more than to the text. Thus, in the bar graph display, it is immediately apparent that the number of people at risk using Standard Toothpaste is twice as high as the number using the improved product. Moreover, it is plausible that, because the risk bar for Standard Toothpaste extends for the entire numerical scale, there is an impression that the risk associated with that product is serious, something that warrants concern. Now, the stacked bar graph display conveys in an immediately compelling way both the number of people who will be affected by gum disease as well as those who will *not*. And, because there are far more of the latter, there is an impression that the vast majority of people have nothing to worry about; the risks of gum disease are trivial. So although, as before, the stacked bars again make it obvious that the new product cuts the risk of the old product in half, a person viewing the display is likely to reason something like this: "But half of nothing is still nothing." Accordingly, that person feels little compulsion to pursue the risk reduction that has been offered.

What does all this have to do with the experience/perception effect? Like gum disease, the absolute incidence rates for most of the mishaps that occur on the road, even those involving impaired drivers, are very small. For deterrence purposes, official communications about such rates seek to encourage the impression that the dangers are serious nevertheless. The challenge is how to maintain that impression without being dishonest. As they become more experienced with a low-incidence hazard, people seem to eventually create in their heads a quite accurate representation of the situation that is comparable to the stacked bars in our study. According to that representation, there is little reason for concern and hence for taking precautions. Our simple bar graph displays contain the same information as stacked bars. Yet they are far more effective in promoting protective actions. There is thus perhaps something to be said for crafting comparable risk communications about driving hazards and repeating them often enough such that corresponding mental representations are the natural way that drivers think of such risks. In the spirit of relative risk communications common in public health as well as our study, such messages might take a form like this: "Are you aware that refusing to drive when you have drunk too much cuts your accident risk in half (or whatever the ratio happens to be)?"

### **The Possibilities Issue**

This is a true story: Company X bought Company Y. Later, so many former employees of Company Y successfully sued Company X that the company virtually collapsed. The grounds for the employees' lawsuits were illnesses caused by the asbestos to which they had been exposed while working for Company Y. Company X's decision to acquire Company Y was therefore clearly a horrible mistake. But *why* did Company X make that fateful decision? It is not because Company X misjudged the chances that the asbestos lawsuits would be filed and successful (although other companies have indeed made such misjudgments). Instead, the very possibility that Company Y might be exposed to such lawsuits never even occurred to Company X when the decision to buy Company Y was being considered. Company X ran afoul of the possibilities issue, Cardinal Decision Issue 5, which in the voice of a decider, can be expressed

like so: *"What are the various things that could potentially happen if I took that action—things they (the decision's beneficiaries) care about?"*

From the perspective of a decider, the practical importance of the possibilities issue is the kind of blindsiding suffered by Company X. Deciders should do all they can to avoid overlooking significant outcomes that could even conceivably result from the options they might select. As implied by the judgment issue, they should then try to judge whether the acknowledged possibilities would actually materialize. But it is also useful to view the possibilities issue from the perspective of an observer who seeks to understand or influence how other people decide. People tend to resolve the possibilities issue radically differently even when faced with the same decision problems. In everyday terms, this simply means that they take radically different things into account when they make their decisions. Therefore, a large part of what constitutes a good explanation for how any given person decides is simply an accurate description of the various personally significant consequences that individual believes could result from the alternatives at hand.

So it is almost certainly the case that when Joe ponders the prospect of driving while impaired, he envisions and is concerned about different potential outcomes than is Jill. To be truly successful in crafting strategies that would help us influence both Joe's and Jill's driving choices, we would need to speak to the idiosyncrasies of their respective visions—their personal mental representations of the possibilities. Our efforts will fall short when we neglect things that really are contained in those representations or even when we assume that Joe and Jill take particular considerations into account when they are in fact oblivious to them. Such misassumptions occur all the time, especially when our own lives are markedly different from the lives of the people whose decisions we are trying to understand and affect. Suppose that you are in mid-life yourself and have never had occasion to even consider driving while intoxicated. You are trying to mentally play the role of a 22-year-old and envision the considerations that actually run through the mind when the prospect of impaired driving comes up after a raucous gathering. Research on psychological projection (see, for example, Fagerlin, Ditto, Danks, & Houts, 2001) suggests that it will be far harder than we imagine for you to play the role successfully.

Fortunately, research offers good guidance about the kinds of considerations that are likely to strongly influence many people's decisions in situations like those confronting Joe and Jill. The "cognitive option balance sheet" shown in Figure 6 is a useful metaphor for thinking about what that research has taught us. Every decider envisions that each of the available options has both advantages and disadvantages, which in a balance sheet metaphor are assets and liabilities. If the decider sees the given alternative as "risky," this means that one of the recognized liabilities is risk. And what, exactly, is risk? As argued by Yates and Stone (1992), on the basis of a comprehensive review of how the word has been used in the broad range of major literatures where risk is a key topic, this is the consensus meaning of the term: *Risk is the possibility of (various) significant losses.*

Figure 6. The cognitive option balance sheet.

**Illustrative Options: Driving home now, impaired; waiting**

Option Assets	Option Liabilities
?	Risk = "possibility of (various) significant losses"
...	...
?	?

Several comments on this characterization of risk are in order. To start with, note that there are three essential elements in the definition. First, risk is about bad things, potential losses of any number of varieties—financial setbacks, embarrassment, arrest, injury, even death—you name it. Second, those losses can have varying degrees of importance to the persons concerned. Thus, if a loss of \$5,000 means much more to Bill than to John, then the prospect of losing that amount entails more risk for Bill. The third feature turns on the word "possibility." The losses in question cannot be guaranteed; there must be uncertainty attached to them.

In some risk discussions, including ones about public hazards such as nuclear power or handguns, people occasionally speak of "acceptable" and "unacceptable" risks in the abstract. In other conversations, especially within the traffic safety community, people also speak of "target" risks. The basic idea is that each of us has a certain target level of risk we seek to maintain in a given area of activity, such as driving, or even in our lives more generally (e.g., Wilde, 1982). The intuitions behind the notions of acceptable and target risk are powerfully compelling. Yet they are hard to reconcile with the present balance sheet metaphor for decision making involving risk. With risk conceptualized as a liability, with loss at its core, in and of itself, risk is never acceptable, and any target risk would have to be nil. Risk can only be tolerated when it is balanced by compensating assets. That then raises the core question for us: In a given situation, what does the *decider* see as the assets that might make a risky prospect so attractive that it is worth undertaking despite the risk that it entails? For instance, what does Joe see in impaired driving that offsets its obvious hazards? Of course, another question, which is entailed in the

tradeoffs issue, is how the decider comes to determine whether the balance of assets vs. liabilities favors (or should favor) one side or the other.

One important source for the possibilities that deciders envision consists of their beliefs about dependencies between risks and assets. That is, we all have assumptions in our heads about how the risks of the alternatives that present themselves to us are related to their assets. Some of those beliefs say to us: "If you take this risk and the pertinent loss does not occur, you'll be rewarded, perhaps handsomely." But occasionally, other beliefs say the opposite: "If you take this risk, not only might you suffer from the loss that that risk entails itself, you're going to suffer other setbacks, too." In Joe's situation, for example, an obvious asset of driving himself home instead of, say, waiting for his brother to pick him up, is speed. He could be home in bed more quickly and getting the sleep he needs for work the next day. This asset might not be such a big deal for Jill because, perhaps, she has no particular place to be the next day.

Social rewards or penalties of risk taking are envisioned, too, sometimes. Research has shown that, if Joe is in his late teens or early 20s, there is a good chance that his friends will reinforce his risk taking, extolling his virtues as a courageous fellow. In contrast, one reason that Jill might avoid risks such as driving while impaired is that, if she is older, her friends would actually look down on her for doing such an immature, reckless, and irresponsible thing (Begg & Langley, 2001; Jessor, Turbin, & Costa, 1997).

Why might Joe's friends reward him for taking risks? Part of the answer implicates very real feelings that Joe himself might well experience when he takes risks and succeeds: a sense of mastery. The logic is straightforward. Suppose that you undertake a task that you consider important and is such that, for most people, there is a low probability of success. And let us suppose that you succeed at that task. This sends a message, to you as well as to others who consider that task important: "I'm special! I've mastered a really hard task, and that sets me apart from the crowd." Now, suppose that Joe is a person who considers driving skill important, a part of his "persona," if you will. So if he is able to demonstrate a high degree of such skill—such as being able to drive well even when intoxicated—this makes him feel great. It is possible that Jill's view of the world is quite different. In particular, she might view driving in a purely functional way, as a means of getting from point A to point B; her ego investment is instead in some other domain, such as school. Thus, taking risks on the road offers no particular compensatory mastery rewards. Taubman - Ben-Ari (2000) has discussed an intriguing illustration of the idea here. In some procedures, for instance, participants were shown graphic videotapes of the horrible consequences of a car accident. Our everyday intuitions suggest that such exercises should frighten drivers so badly that they would drive more cautiously. Yet the opposite happened for individuals who saw driving as especially important to their self-esteem. Those individuals sometimes reliably drove *more* riskily after being reminded of the possibility of death from such behavior. In the present terms, what Taubman – Ben-Ari proposed is that these reminders heightened the specialness promised by the mastery of risky driving, making it an even more attractive option.

The idea of a connection between risk and the rewarding sense of mastery has been discussed in psychology for a long time. One of the best known risk-mastery theories is Jack Atkinson's (1964) theory of achievement motivation. At the core of the theory are two fundamental

personality dispositions or motives: the need for achievement and the need to avoid failure. The need to avoid failure motivates people to shy away from hard tasks, ones for which the chances of success are slim. Yet, these are the very tasks that provide a sense of accomplishment, of achievement. After all, people reason, "If I succeed at something that few people can pull off, I've really done something." For people whose motive for achievement is stronger than the motive to avoid failure, the resolution of the conflict is such that tasks of intermediate difficulty—that is, chances of success—are most attractive. People with the opposite pattern of motives will gravitate toward either extremely difficult or extremely easy tasks.

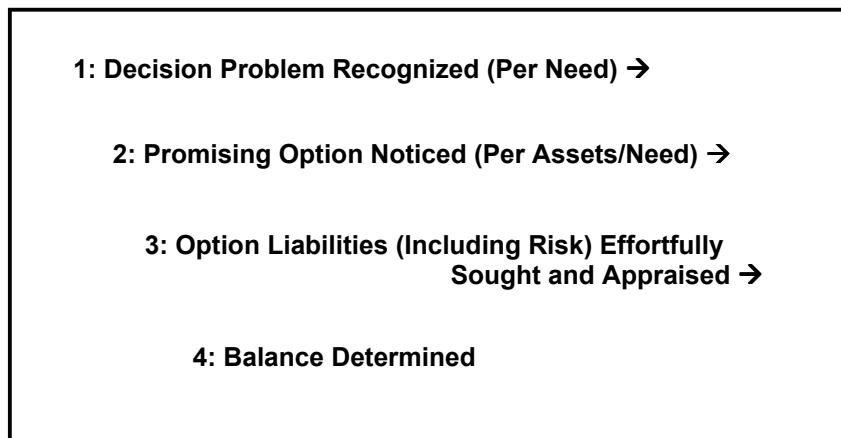
For more than two decades, Marvin Zuckerman and his colleagues have built an exceptionally insightful program of research on sensation seeking that has rightly received a great deal of attention in many arenas, including that of driving behavior. Zuckerman (1991, p. 144) has defined the sensation-seeking trait as "a trait defined by the need for varied, novel, and complex sensations and experiences and *willingness to take physical and social risks for the sake of such experiences*" (emphasis added here). This formulation clearly presumes the logic underneath the balance sheet metaphor. On the liability side, there is risk. And there is an assertion that a particular kind of person sees certain compensating assets: sensations and experiences induced by variation, novelty, and complexity. These assets are so rewarding that, even if the risks that accompany them are significant, the balance is still tipped in their favor. As stated, Zuckerman's characterization of the sensation-seeking trait does not explicitly propose that sensation seekers derive any satisfaction from taking risks per se. Yet, numerous studies have shown that individuals who score high on sensation seeking scales are indeed more strongly inclined to take a variety of risks than are those who score low on those scales (Zuckerman, 1994). Why should such an association exist, given the formulation just described? Such a correlation would have to rest on nature being such that activities that are varied, novel, and complex also tend to entail high risks; the formulation implies that sensation seekers derive no gratification from risk per se. There are defensible arguments as to why, for instance, novel situations might be weakly associated with heightened risks. But the case for connections between, for instance, complexity and risk is harder to rationalize. On the other hand, it is not at all difficult to imagine that mastery might also contribute to the correlation between sensation seeking and risk taking. In particular, it is quite plausible that the "high" that sensation seekers experience when they take risks is the promise of an exhilarating escape from a harrowing, risk-laden experience from which many people do *not* escape unscathed.

The role of emotion in decision making has received enormous attention of late. One pair of effects that have been observed is especially interesting and relevant to the present discussion (see, for example, Lerner & Keltner, 2001). The first effect is that anger tends to increase risk taking. The other is that fear leads to the opposite, risk aversion. Thus, it is possible that one reason Joe chose to drive while impaired is that he made the decision to do so while he was angry. In contrast, Jill chose to avoid driving in part because she was in a calm state when making up her mind. One of the interesting things about these anger and fear effects is that the emotions involved do not have to have anything to do with the risk taking task per se; the states could be pre-existing or incidental. For instance, in order for Joe's anger to affect his decision to drive, it is unnecessary for that anger to have any connection to driving, such as Joe's having been upset by another driver's behavior. One proposed explanation for the emotion-risk taking connection rests on the notion of carryover (Loewenstein & Lerner, in press). The idea is that

each emotion has its characteristic or customary associated behavior, and whenever that emotion is experienced, the person is predisposed to exhibit that behavior, perhaps with minimal reflection. When people are angry, they tend to behavior aggressively, whereas when they are fearful, they typically withdraw. Since many risk taking actions entail aggression while risk aversion involves hesitation, the predictions follow; people are predisposed to behave in fashions consistent with the associated customs.

An alternative, information processing explanation has received supporting evidence as well, an explanation that is readily appreciated with the balance sheet metaphor. Leith and Baumeister (1996) have reported a series of studies suggesting that when people are angry, their deliberations tend to neglect the risky aspects of the decision alternatives they are pondering. The sketch of a rudimentary process model shown in Figure 7 is consistent with their data.

Figure 7. A rudimentary process model of risky decision making



According to this model, the decider first recognizes that there is a decision problem to solve. Recall that this is the province of the need issue within the cardinal issue perspective. How do decision episodes generally begin? The decider realizes that there is some sort of requirement that must be served. For instance, both Joe and Jill find themselves at the end of an evening of drinking and must then figure out how to get home. The acknowledged need then forms the aim for the required decision, "getting home" in the case of Joe and Jill. The decider then looks for options, naturally starting with the alternatives that most obviously promise to meet the aim of the decision problem. For Joe and Jill, the immediately obvious option is driving. After all, they drove themselves to the gatherings where they imbibed too much. And it is only then that the decider attempts to bring to mind and analyze the harder-to-see features of the options, such as their liabilities, including their risks. The key point here is that most typically, when people make decisions, they are trying to bring about positive outcomes—the assets—not avoid the negative ones—the liabilities, including risks. Put another way, the risks of their alternatives are not immediately apparent to them. Instead, they must effortfully seek them out. And only after all considerations are on the table does the decider seek to determine whether the balance favors pursuing each option or rejecting it.

The arguments and data of Leith and Baumeister suggest that the process depicted in Figure 7 becomes truncated or abbreviated by anger. Specifically, anger and, in fact, any negatively toned state of arousal, causes Stage 3 being given short shrift. Interestingly, Hockey, Maule, Clough, and Bdzola (2000) have reported data consistent a similar effect of fatigue. That is, fatigue results in similar neglect of the risky aspects of alternatives. This finding is especially noteworthy because it agrees with the notion that taking into account liabilities such as risk is not simple. In fact, it is quite demanding and thus is likely to be done badly or not at all. The result is what appears to be risk taking but is more properly characterized as risk obliviousness; the risk is not actually recognized at all.

## **The Options Issue**

It is, of course, a truism that we cannot choose alternatives that do not exist or that we do not *recognize* exist even when they do. Thus, a very simple reason that Joe might have chosen to drive while impaired is that, at the time, he was forced to say to himself: "I have no choice but to drive." That is, he saw no way out of his fix other than driving. In contrast, Jill might have seen a host of alternatives, including hitching a ride with her tee-totaling friend Sue. These explanations implicate Cardinal Decision Issue 4, the options issue: *"What are the different actions I could potentially take to deal with this problem I have?"*

It is important to realize that the options issue is not about the alternatives available to the decider per se. Instead, it really concerns what the decider does to identify or create the options that are then given serious consideration. Think about a concrete example from the domain of affairs of the heart. Tom and Tim are both open to the idea of marrying and settling down. Tom takes the very common passive approach to the problem. He says, "I'll just sit back and wait for the right woman to come along. It's bound to happen at some time or another." And he then just goes about his life exactly the way he always has. Tim addresses the problem entirely differently, in a much more pro-active fashion. Among other things, he asks his friends to set him up on dates with women they think might be good matches for him. Tim also makes it his business to participate in all sorts of social and recreational activities where the odds are good that he will meet lots of single women who are likely to share his interests and values. Tim and Tom have attacked and resolved the options issue for the same problem in radically different ways. Who is more likely to end up with a pool of suitable mates? Tim, of course.

Research has shown that there are myriad ways that deciders seek to deal with the options issue, and for various reasons and to varying degrees of success. That research has suggested two factors that are likely to have special importance in the kinds of situations where Joe and Jill found themselves. The first concerns the notion of a social network, the collection of individuals who are associated with a given person, along with the links that tie those people to one another. Studies have indicated that the network for one person is likely to differ in several ways from that of another (Haines & Hurlbert, 1992). It might easily be the case that, whereas Jill is strongly connected with lots of different people through work, social, and recreational activities, Joe might lead a relatively isolated existence, having relatively weak affiliations with only a few people, for example, the guys he hung out with in high school. Studies have also demonstrated that social networks can have great impact on individuals' welfare, including their health and their economic well-being (see, for example, Baker, 2000). Basically, people with stronger

social networks tend to be better off. I am unaware of anyone examining the proposition specifically and in detail, but it is entirely plausible that these effects are at least partly mediated by the effects of networks on people's resolution of the options issue in their decision making. Thus, a person with a more extensive network is likely to have larger and richer pools of alternatives for virtually any decision problem. And that includes the kinds of problems facing people like Joe and Jill. If Joe happens to have a minimal social network, when he finds himself too drunk to drive safely in the middle of the night, he has no one to call on to help him out. If Jill has a more extensive network, she has a multitude of alternative solutions to the same problem.

Time orientation is another concept that has a bearing on how deciders confront the options issue. Researchers have distinguished several varieties of time orientation. But one kind of "future time orientation" has particular relevance here—what we might call "planfulness." The idea is that, whereas some people chronically find themselves looking ahead and planning for the contingencies that might arise, others almost never do that. Interestingly, this kind of time orientation has been associated with self-reported rates of engagement in unprotected sex (Rothspan & Read, 1996) and risky driving (Zimbardo, Keough, & Boyd, 1997). Once again, the role in addressing the options issue seems apparent. Indeed, the notion of planfulness seems almost synonymous with a disposition to take the options issue seriously in just about any decision making situation—far in advance, where it can make a difference. So if Joe happens to be low on the planfulness dimension, it should not be surprising to often see him in situations where he has had too much to drink and having prepared no alternatives in the event that those situations actually arose. If she were high on planfulness, Jill would feel most uncomfortable in such situations and would therefore go out of her way to preclude them.

### **The Mode Issue**

The final cardinal issue I will discuss today is the mode issue, Cardinal Decision Issue 2. It would be voiced something like this by a decider: *"Who (or what) will make this decision, and how will they approach that task?"* Another way a decider might express this issue is also helpful in understanding what it involves: *"If I attacked this problem differently, would the decision turn out better? Or should I be the one making this decision at all?"* As suggested by both of these characterizations, the mode issue is subtle and sometimes hard to recognize. For instance, it is implicated in the following perhaps mystifying utterances we might hear from Joe and Jill:

Joe: *"All the guys I hang out with drive themselves home."*

Jill: *"I don't trust my judgment after 4 beers, so at that point, . . ."*

Despite its subtlety, the mode issue is exceptionally important. That is because the different ways it might be resolved lead to decision processes that are qualitatively and often radically different from each other. And, as I will try to convince you, this has considerable practical significance.

The best way for me to help you appreciate the mode issue is to cut right to the chase and explain the basis for one of the key categorizations of modes: who actually thinks through the details of a decision problem. At the start of any decision episode, there is a person (or group of persons)

recognized as having the authority to make that decision—the "owner" of the decision problem. For instance, there is usually general acceptance that a driver himself is the owner of the decision about whether he will drive his car in an impaired state. Now, if the owner thinks a decision problem through personally, then we are dealing with "primary" decision modes. But if the owner turns over to others (including perhaps machines) at least some of the work of thinking the problem through, then "secondary" modes are operative. As I will elaborate in a moment, there are three primary decision modes—analytic, rule-based, and automatic. There are also three varieties of secondary modes: modeling, consultation, and agency. As deciders, we all use every one of these modes, sometimes even when dealing with a single decision problem. I should also point out that, despite the significance of the distinctions among various decision modes, important mode questions, such as how and why people shift from one mode to another, have been studied surprisingly little. But that does not deter us from my present purposes, which are to clarify and illustrate the various primary and secondary decision modes and to draw your attention to why they deserve our attention.

First, primary modes:

- *Analytic decision making* is captured in the expression, "Whatever makes sense." It is the variety of decision making that we typically have in mind when we hear the expression "decision making." It is well illustrated by the conscious deliberation of questions such as whether the benefits of some alternative outweigh its risks. It is also the subject matter of almost all textbooks and scholarly treatments of what is called "decision making," encompassing topics such as utility theory, Bayesian analysis, and game theory. Among its most salient features are that it is slow, intellectually demanding, and chaotic, but also highly flexible. Thus, in real life, as when business people ponder changing a company's strategy or when physicians wrestle with a difficult treatment decision, they draw on any and every argument they can muster, no holds barred.

- *Rule-based decision making* rests on rules of the form, "If Condition C holds, then take action A." Suppose Jill has established a convention such that, if she has at least four drinks, there is no discussion; she simply calls her friend Sue to drive her home. That would be rule-based decision making. This mode is extremely common, although perhaps recognized as such much more often in organizational than in personal contexts. For instance, every company has scores of such rules, and it would be impossible to practice medicine without them. Rule-based decision making is most distinctive in its speed, ease, and reliability. But its Achilles heel is its rigidity.

- *Automatic decision making* is least like what most people are willing to call "decision making." It entails action sequences of the form, "If State S exists, then action A simply pops out," without reflection. A good example is the kind of experience we have all had when the green traffic signal comes on for the lane next to ours on the road and, mindlessly it seems, we simply press on the accelerator. It is the lack of deliberation that makes many people hesitate about attaching the decision making label to the behavior involved in action sequences like that. But one of the reasons for applying that label is that often these behaviors were at one time clearly the product of analytic decisions. Over time and repetitions, they "morphed" into something quite different. In sharp contrast to analytic or even rule-based decision making, automatic decision making is extremely fast, effortless, and, most importantly, uncontrollable.

Now, secondary modes:

- *Modeling* is the frugal person's means for deciding. The owner of the decision problem essentially does none of the work of thinking through the details of the decision problem at hand. Instead, the owner simply mimics the decision of someone else—a model. Thus, when Joe maintains that "Everybody in my crowd *always* drives home after drinking," he is telling us that he has pursued the modeling route. It is the same sort of thing that every business does when it, for instance, chooses the same supply chain software as the leader in its industry, simply because the leader is just that—the leader. Besides being easy, modeling feels natural, like the right thing to do. Moreover, it is rewarded socially. After all, as the cliché goes, imitation is the most sincere form of flattery, and those who are flattered often look kindly upon their flatterers.

- *Consultation* is the mode in which we seek advice—which we may or may not accept and follow. Thus, when we ask a friend whether he thinks we are too intoxicated to drive, we have used that friend as a consultant in this specialized sense of the term.

- *Agency* is consultation taken to the next level. A distinguishing characteristic of the consultation mode is that the owner of the decision problem retains the role of making the ultimate decision. For instance, even though you might ask your friend for an opinion about whether you should drive, you might well reserve the right to make the final call yourself. But suppose that you reach a binding agreement that your friend makes the final decision about whether you are allowed to drive your own car home after a night on the town. How would you manage this? Perhaps you give your friend your car key before the revelry begins and urge that, no matter how insistent you might become on the scene, your friend's word is law.

Why are decision modes so important from a practical point of view? There are several reasons. But perhaps the most important in the present discussion concerns mode misattribution. Suppose that we assume that a person makes risk taking decisions via Mode X when those decisions are actually the product of Mode Y. How could that be a problem? It means that our attempts to influence those decisions will almost certainly fail.

Research on how people actually make decisions involving risk suggests how this undoubtedly happens in many real-life influence attempts. Numerous recent studies that have yielded results that have puzzled researchers. Suppose that Alternative A involves, say, a 30% chance that some negative outcome will occur whereas Alternative B is identical except that the chances of that outcome are 35%. Then the decider ought to respond differently to those alternatives, for instance, appraising Alternative A more favorably. Loewenstein, Weber, Hsee, and Welch (2001) have reviewed several studies in which deciders have been largely insensitive to such probability differences. It is hard to make sense of such insensitivity when people are deciding in the analytic mode, following the principles of classic models such as expected utility theory. But insensitivity like that is easy to understand if we allow for decision making via other modes, for instance, automatized action sequences that start and end with emotion-laden reactions to how *much* could be lost by a decision, irrespective of the chances associated with that loss. Or consider the host of studies (e.g., Caffray & Schneider, 2000; Horvath & Zuckerman, 1993) that have found that little of the risk-taking behavior observed in various practical situations is mediated by people's risk perceptions but is nevertheless strongly correlated with the behavior of their peers. Results like these almost certainly implicate decision making via the modeling mode. We seem naturally inclined to try to persuade people to take fewer risks by appeals that emphasize the true seriousness of the risks they face. Such appeals are predicated on the targets

of our efforts deciding analytically. But, as these newly interpreted findings suggest, such appeals would fall on deaf ears since they are irrelevant to how our targets are actually making their choices.

At minimum, the present observations imply that, if we wish to improve the effectiveness of our efforts to influence risk taking behavior in any particular context, it is in our interests to first understand the modes by which the people in question are deciding. The tactics that would be effective in achieving such influence would need to be crafted according to the peculiarities of those modes. I invite any and all to exercise their creativity in designing such new approaches. But I suggest that a good place to start such alternative approaches would be promoting "personal policy decisions." Consider the concrete example of the scenarios that began this discussion, Joe and Jill deciding in an intoxicated state whether they should drive home in that state. In at least some instances, these decisions will be made analytically, and more than likely badly, given the deciders' impairment. It would be better for all involved if these drivers had previously established the kind of rule I attributed to Jill earlier, one that has the form that, "After four drinks, . . ." The implication is that after that mark has been reached, a guaranteed safe action ensues, such as deferring to the judgment of another, more clear-headed party. We have implicitly discussed a variety of reasons why such rules are so promising. For instance, we saw that one reason arguments about behaving safely in a single risk episode are so unconvincing is that the risks involved are objectively tiny and hence dismissed. But when we speak of the relative effectiveness of decision rules—personal policies—the differences in the cumulative risks of consistently behaving safely and not so safely are much larger and cannot be easily ignored. Also, rather than being deliberated under the urgency of the moment as well as possible anger and impairment, rules can be developed and adopted after cool and calm reflection. And, finally, once such rules have been enacted over and over, they become second nature and eventually even begin to acquire near automaticity.

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# Canada's Road Safety Vision 2010: Focus on Impaired Driving

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## Introduction

Before addressing Road Safety Vision 2010 and the companion Strategy to Reduce Impaired Driving 2010, it is important to understand that in Canada, road safety is a shared responsibility. The Federal Government, through Transport Canada, provides national leadership in terms of national data collection and analysis, research, program development and evaluation and knowledge transfer. Transport Canada also promulgates motor vehicle safety regulations under the authority of the Motor Vehicle Safety Act and extra-provincial truck and bus regulations under the Motor Vehicle Transport Act. The Federal Department of Justice, is responsible for the Criminal Code of Canada which includes sections dealing with impaired driving and dangerous driving.

The ten provincial and three territorial governments on the other hand, license vehicles and drivers, and hence suspend drinking drivers, enforce and prosecute criminal and highway traffic act offences, conduct their own data and research activities such as night time roadside surveys of drinking and driving, as well as develop, implement and evaluate road safety interventions such as administrative licence suspension and assessment and rehabilitation programs for impaired drivers. Of course, to properly address an issue as broad as road safety, there are many other partners involved who must and do play significant roles including police services, researchers in universities and institutes, the health care community, particularly those in public health and injury prevention, the vehicle manufacturing and motor carrier industries and the many non-governmental organizations. All these partners have been working closely together with government to improve road safety in Canada.

This partnership has been quite successful given that the number of road fatalities have declined by over 50 percent during the past 25 years even though the number of vehicle registrations and drivers' licences have more than doubled during this time. Similarly, serious injuries, where the victim has been hospitalized, have declined by 35% since 1984. Nevertheless, in 2000, 2,917 Canadians died and 17,226 were seriously injured on our roads. This is still an unacceptable toll since motor vehicle collisions continue to be the major cause of lost years of life. Those people dying as a result of motor vehicle collisions lose an average of about 40 years of life compared to roughly 9 years lost from respiratory diseases, 10 years from circulatory diseases and 15 years from cancer. This loss is mainly because it is the young people who are over-represented in fatal collisions on the road. For those aged 15-24, vehicle collisions result in twice as many deaths as the other leading causes combined. For those 25 to 29, these collisions claim about the same number of lives as the other leading causes. When you look at all transportation fatalities in 2000, 94% of them occurred on our roads. Every day on Canada's roadways, there are 1,600

collisions involving 3,000 vehicles, eight people die and more than 600 are injured, many seriously. It is estimated that the societal cost of road crashes is at least \$27 million per day, \$9 million of which is related to impaired driving.

### **Road Safety Vision 2001**

Although there have been cooperative road safety programs in Canada since the 1980's, these earlier efforts had neither a vision nor specific targets. In 1996, the Council of Ministers Responsible for Transportation and Highway Safety approved the five-year Road Safety Vision 2001, the overall objective of which was for Canada to have the safest roads in the world. The Vision had the following strategic objectives: to raise public awareness of road safety issues in Canada, to improve communication, cooperation, and collaboration among various road safety agencies, to toughen traffic enforcement measures by moving toward a more risk based approach, and to improve national road safety data collection and quality. This initiative was managed by the Canadian Council of Motor Transport Administrators (CCMTA), a federal/provincial/territorial cooperative body that reports to the Council of Ministers.

Vision 2001 had two main programs. The National Occupant Restraint Program (NORP) 2001 was to achieve 95% seat belt use by all drivers and passengers through a combination of police enforcement and public education. It was an extension of an earlier effort to attain 95% usage by 1995. Over the past seven years, seat belt use has reached a plateau in Canada at about 90%.

The Strategy to Reduce Impaired Driving (STRID) 2001 was also an extension of an earlier program aimed at reducing alcohol related fatalities by 20%. STRID 2001 targeted a 20% decrease in fatalities and serious injuries involving drinking drivers through enforcement, awareness and public education. For example, the STRID Task Force advocated longer licence suspensions of 1, 3, and 5 years for first, second and third or more convictions respectively, more police enforcement (not just Christmas) and raising public awareness of the risks associated with impaired driving.

At this juncture, it is worth noting that there are several impaired driving offences under the Criminal Code of Canada, including Sections 253(a) impaired driving, 253(b) blood alcohol concentration (BAC) over 80mg%, 254(5) refusing to provide a breath sample, 255(2) impaired driving causing bodily harm and 255(3) impaired driving causing death. These offences apply regardless where the person lives in Canada. There are also a variety of provisions under the thirteen provincial/territorial highway traffic acts including administrative licence suspension, adopted by nine jurisdictions; short term licence suspensions of from 12-24 hours if the driver's BAC is in the range of 40-80mg%, adopted by all jurisdictions but two; vehicle impoundment for suspended drivers who continue to drive, used by eight jurisdictions; a zero BAC for young/novice drivers as part of graduated driver licensing, adopted by all jurisdictions but one; alcohol ignition interlocks used in five provinces; and medical assessment and rehabilitation, in place in all but three jurisdictions.

Over the period 1990-1999, the percentage of fatally injured drivers who had been drinking prior to the collision, generally declined from a peak of 48% in 1991-92 to a low of about 33 % in 1999 but has bounced back up to about 36% in 2000, the most recent year available. About 40%

of fatally injured pedestrians had been drinking. With respect to collisions resulting in serious injuries, it is estimated that 19% of drivers involved in serious injury collisions had been drinking in 1999, a decline of about 9%. These statistics are collected by the Traffic Injury Research Foundation on an annual basis on behalf of Transport Canada and CCMTA.

Overall, during the first five years of Road Safety Vision 2001 (i.e., 1996-2000), fatalities have declined by 6% and serious injuries have dropped by 15%. In 2000, Canada ranked fifth among member countries of the Organization for Economic Cooperation and Development based on fatalities per billion kilometres traveled, an improvement from sixth place the year before. The United Kingdom led the way followed by Sweden, Finland and the Netherlands.

### **Road Safety Vision 2010**

Although Canada has made significant progress toward its vision of the safest roads in the world, it is clear that we must redouble our efforts if we are going to realize it. Therefore, the Road Safety Vision 2010 has been developed by CCMTA as a successor to the Vision 2001. This strategic plan is ten years in duration this time but it has retained the same vision and strategic priorities of Vision 2001 noted earlier. The targets for NORP 2001 and STRID 2010 have been enhanced and several new targets have been established for the first time, making this strategy much more comprehensive than Vision 2001. Road Safety Vision 2010 was approved by the Council of Ministers in October, 2000.

The overall target of Vision 2010 is a 30% decrease in the average number of road users killed or serious injured during the 2008-2010 period compared to the 1996-2001 baseline figures. This will mean that annual fatalities will have to be reduced by about 800 to below 2,100 and serious injuries requiring hospitalization for at least 24 hours, will have to drop by about 5,500 to 13,000. There are a number of sub-targets which will be pursued as part of Vision 2010 including:

- 95% seat belt use and correct use of appropriate child restraints;
- 40% decrease in unbelted fatalities and serious injuries;
- 40% decrease in fatalities and serious injuries involving drinking drivers;
- 20% decrease in fatalities and serious injuries involving high risk drivers;
- 40% decrease in fatalities and serious injuries on rural roads;
- 20% decrease in fatalities and serious injuries involving young drivers;
- 20% decrease in fatalities and serious injuries involving speed and intersections;
- 30% decrease in fatalities and serious injuries involving vulnerable road users;
- 20% decrease in fatalities and serious injuries involving commercial vehicles.

It is clear that there is considerable overlap amongst these sub-targets and that drinking and driving is implicated in at least the high risk driver, rural roads and young drivers sub-targets.

The achievement of these national targets and sub-targets by 2010 will require the efforts of a dedicated group of road safety professionals from a broad range of disciplines including mechanical and civil engineering, statistics, epidemiology, psychology, human factors, law, police services, medicine, public health, and education. Each jurisdiction is creating

coordinating committees, such as the Nova Scotia Road Safety Advisory Council, to bring these disciplines together to map out a strategy that works best for their road safety situation. At the national level, the CCMTA's Road Safety Research and Policies Standing Committee is coordinating the activities of a number of task forces and working groups that are developing specific strategies to meet the sub-targets and developing indicators with which to monitor progress toward them.

Of greatest interest to this audience is the STRID 2010 sub-target to decrease by 40% the percent of road users fatally or seriously injured in crashes involving drinking drivers. In 1999, it is estimated based on coroner and police report data, that 34% of road users were killed in alcohol-related crashes. In order to achieve its sub-target, the STRID 2010 Task Force, which is comprised of federal and provincial government representatives, as well as those from the police community, is focusing on four target groups: the hard core drinking drivers, young drivers, first time offenders, and social drinkers. The hard-core drinking drivers continue to be a major target group since they generally are at greatest risk of collision involvement with very high levels of BAC (i.e., often greater than 160mg%) and they are often repeat offenders. Impaired driving among young drivers has improved considerably over the past 20 years, particularly those in the 16-20 age range. However, with each new generation of drivers, it is important to make sure that this cohort understands the risks associated with impaired driving and the consequences of accepting those risks. If appropriate measures can be put into place to deal with first time offenders, such as assessment and rehabilitation, drivers with alcohol dependency can be treated and fewer of them will repeat their offence. We have to ensure that social drinkers who comprise most of the driving population, know their responsibilities regarding the drinking and driving laws and that they understand that they also have a role to play in counselling others not to drive after drinking. As indicated earlier, considerable progress has been achieved in the implementation of enforcement and public education campaigns and other measures such as administrative licence suspensions and medical assessment and treatment but the Task Force is working to have these measures adopted by all jurisdictions across the country as best practices.

It is also noteworthy that the STRID 2010 has been broadened to address other forms of driver impairment including impairment by drugs other than alcohol, both illicit (e.g., marijuana and cocaine) and licit (i.e., prescription and over-the-counter). It will also examine driver impairment from fatigue and distractions resulting from in-vehicle telemetric systems such as cell phone use and route guidance. The STRID Task Force has created working groups to develop indicators for these forms of impairment as well as measures to deal with them.

With respect to the National Occupant Restraint Program (NORP), there are two sub-targets. The first is to achieve 95% seat belt use by all occupants in all vehicle types by 2010, including 95% correct use of child restraints that are appropriate for the child's weight and height. Since exemptions are still common in many provincial/territorial laws, the NORP Task Force has recommended their elimination over time. The Task Force also recommends the continuation of selective traffic enforcement programs to maintain and increase seat belt and child restraint use. Given that seat belt use has reached a plateau at 90% in Canada, Transport Canada is looking at other possible approaches to promoting belt use. Currently, we are examining interlock systems where unbelted drivers will have to wait several seconds before they can put their vehicle into gear. Despite the high national belt use, a 2001 seat belt use survey conducted in Southern

Alberta indicated that belt use in rural areas is lower than 70%. In order to determine if this lower belt use in rural areas is pervasive across the country, a survey of seat belt use specifically at rural sites is being planned for this fall. Programs targeted specifically at rural communities may be needed to increase the belt use rate.

The last child restraint use survey in 1997 indicated that only about 70% of children were correctly using appropriate child restraints. This usage rate needs to be updated and a new methodology for measuring child restraint use is being developed for implementation in 2003. There is clearly a need to better inform caregivers about the importance of correct child restraint use as well as an approach for showing them how to do it. The Canadian Coalition for Child Passenger Safety has been working in Canada over the past several years to develop such a training program for caregivers. Recently, St. John Ambulance has agreed to train and certify instructors for the delivery of this program. A major Canadian car manufacturer has agreed to sponsor this certification program, as well as run their own child restraint use clinics within their dealerships. This program will be rolled out over the next few months. We are hopeful that this certification program will be expanded to other deliverers of child restraint use clinics across the country.

The second restraint use sub-target is to reduce by 40% the number of unbelted fatalities and serious injuries. Our statistics show that about 40% of occupant fatalities and 20% of those seriously injured were unbelted at the time of the crash. Many of these occupants were ejected from the vehicle. We need to better understand the reasons underlying the non-use of seat belts, particularly in rural areas where the problem appears to be more prevalent.

Speed and intersection related collisions are also the focus of Vision 2010 with a sub-target of a 20% reduction in the number of road users killed or seriously injured in speed or intersection related crashes. 17% of fatalities involve excessive speed (i.e., over limit) or inappropriate speed (i.e., too fast for conditions). There is a need to address the issue of speed with modern enforcement techniques such as photo radar and intelligent speed management programs which remotely adjust vehicle speeds. Approximately 25% of road users who are killed annually die in crashes at intersections. Police services need to address the running of red lights at intersections which is a growing problem. A well publicized red light camera program which includes the rotation of the cameras among a number of sites, has been found to significantly reduce such driver behaviour by as much as 40%. Intersection collisions are particularly of concern in rural areas where the speeds are higher and the likelihood of serious injuries, given a collision, is greater. There is a clear need for partnerships with police and civil engineers to better design these rural intersections and control speeds.

Almost half of road user fatalities occur on undivided rural roads where the speed limits are typically 80-90 kms/hr. Many of these fatalities involve alcohol and speed, and the occupants were unbelted. We are working towards a 40% reduction in the number of road users who are fatally or seriously injured on rural roads by 2010 through the development of a national rural road safety strategy similar to that of Australia which would focus on appropriate road safety strategies for rural Canada. Residents in rural communities should be surveyed to determine what motivates their road safety-related behaviour and what it would take to improve this behaviour. For example, is belt use lower in rural areas because people think that are not going

very far or that there is little traffic on back roads? Would more information regarding the actual level of risk be helpful in changing these perceptions? Is there a need for a different type of enforcement campaign perhaps where flying squads would blitz a rural area for a short period of time and then move on? This might address the problem that police officers are often well known in rural communities and hence find it difficult to hand out tickets. Also, Is there a need for improved emergency medical services to increase the chances of injured victims' survival during the golden hour? Over the past 25 years, much of the road safety programming has been urban or suburban oriented. There has been less focus on those approaches which would be most effective in rural areas. However, recent efforts have been made by the Royal Canadian Mounted Police and other police services to better train the police officers working in these rural communities to focus traffic enforcement and education at high risk locations and drivers.

About 20% of all fatalities and 10% of serious injuries involve heavy commercial vehicles. Typically, the driver of the other vehicle is more often at fault in fatal crashes than the commercial vehicle driver but in serious injury crashes, the fault lies equally with commercial and non-commercial drivers. Vision 2010 includes a sub-target for a 20% decrease in the number of road users killed or seriously injured in crashes involving commercial vehicles. Some of the current initiatives intended to achieve this target include developing a consistent motor carrier safety rating regime across the country, developing new hours of service regulations to reduce driver fatigue and developing a "No Zone" campaign for the drivers of passenger vehicles to make them aware of the risks of driving in areas around heavy vehicles where drivers of these vehicles have difficulty in seeing them.

We would like to affect a 30% decrease in the number of fatalities and serious injuries involving vulnerable road users (i.e., pedestrians, motorcyclists and cyclists). The elderly (65+) and the young (15 and under) are clearly over-represented in these types of outcomes. We know that almost 40% of fatally injured pedestrians who were tested had been drinking prior to their death. Motorcyclist fatalities have increased by 40% over the past 5 years. Currently, 20% of fatalities and serious injuries involve these road users, yet there is no specific national program aimed at improving their safety. We need to better understand the causes of these fatalities and injuries so that appropriate educational, enforcement and engineering countermeasures can be implemented.

Much of the work that I have described will involve cooperative efforts between Transport Canada and the various provincial/territorial jurisdictions working through the CCMTA working in concert with our other partners. One example of this collaboration is a survey of lawyers, both Crown prosecutors and defence counsels, regarding the impaired driving cases in the courts. Given its regulatory mandate, Transport Canada will also be advancing vehicle safety with new motor vehicle regulations such as those for frontal impact occupant protection and side impact protection in the next few years. These regulations will improve the crashworthiness of vehicles and reduce casualties in general, regardless of the impairment of the driver. Work will also proceed with the various jurisdictions through the Transportation Association of Canada to improve the safety of the design of the road infrastructure including measures like Jersey barriers, rumble strips, and passing lanes on two lane highways.

Over the next year, we will establish our target benchmarks based on 1996-2001 data against which we will measure our progress and we will continue to develop more detailed strategies for

some sub-targets such as rural road safety, commercial vehicle safety, and vulnerable road users. There are regular meetings of the various task forces which report to the RSRP Standing Committee of CCMTA and a Vision 2010 Task Force has been established to monitor our progress toward the targets and to prepare annual reports to the Council of Deputy Ministers. Around 2006, we will take stock of where we are at in terms of our targets and our strategies and determine if we need to adjust them.

In closing, we are confident that with our targets set, our task forces created, our partners engaged, and many of our strategies already developed that we will achieve our vision of having the safest roads in the world.



# Treatment of DWI Offenders: from Self Change to Integrated Treatment<sup>1</sup>

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Seventy-five percent of the DWI offenders who have lost their driving permit still drive (Vézina, 2001, p. 71). They do not comply with the restrictive measures that are imposed upon them and a large proportion of these delinquents probably still use their car under the influence of alcohol. As for repeated offenders, the evaluation studies on Ignition Interlock Programs (Marques et al, 1999) show that the improved accident record is not maintained once the device has been removed. Persistent behavioural change does not take place among those recidivists: DWI was interrupted for a significant period, but not maintained. This population is very resistant to change (Simpson, Mayhew & Beirness, 1996), as has been shown by a corpus of studies on the subject that have been presented in previous ICADTS meetings, and this weak prognostic is a main cause of concern public safety on the roads. Our present failure to intervene effectively with this population commands that we investigate in other fields of knowledge if there are new ideas that could improve outcomes.

## MENTAL DISORDERS AMONG DWI OFFENDERS

In a recent paper, Sandra Lapham and others (Lapham et al, 2001) reported on the prevalence of psychiatric disorders among persons convicted of DWI. The large sample comprised 612 women and 493 men. Eighty-five percent of the women and 91% of the men reported lifetime alcohol-use disorder (abuse and dependence). More than 30% of the women and 35% of the men had a 12-month diagnosis of alcohol dependence. About a third of these DWI offenders met the criteria for lifetime drug-use disorders, most of them having drug dependence. Ten percent of the women and 12% of the men reported a 12-month drug dependence disorder. Only 13% of the women and 8% of the men reported neither alcohol nor drug diagnoses. The other mental disorders that were found were major depressive disorder, dysthymic disorder, generalized anxiety disorder, PTSD, and antisocial personality disorder. About 50% of this sample reported a concurrent disorder in addition to the alcohol-use disorders. In their comment, the authors write:

*These data suggest that as a group the population of DWI offenders is closer to a clinical than a non-clinical population. Furthermore, 12-month diagnoses indicate a high degree of symptoms*

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<sup>1</sup> This presentation relies heavily on the work of several of my colleagues: Jacques Bergeron, who has been in this field much before me; Pierre Thiffault, who has reviewed much of the literature; Lyne Vézina, from la SAAQ who wrote an excellent review on the subject, and Tom Brown, with whom I am currently collaborating. I take the entire responsibility for the contents, but their work has served as a basis for the preparation of this paper.

*in the ensuing years following the DWI referral, which underscores the need for effective therapies in this population.*

*Lapham et al, 2001, 948.*

In short, treatment is indicated for this population. Thus, what is known about the effective treatment of substance related disorders could possibly contribute to improving outcomes among DWI first and repeat offenders. This presentation on treatment will address four issues that seem key in thinking about the treatment of DWI offenders.

1. Self-change;
2. The treatment regimens that are most promising;
3. The phenomena of concurrent disorders;
4. The unique characteristics of DWI recidivists.

## SELF CHANGE

Contrary to what many of us may think, most people with an addiction problem change without treatment. There is a considerable body of literature that shows that many substance abusers and problems drinkers overcome their problems without calling upon the help of health professional or without the attendance of self-help groups (see Klingemann et al, 2001 for a review). There are clearly multiple pathways to change; treatment is only one of them.

Several studies give an indication of the proportion of drinkers with various levels of problem severity that improve without resorting to formal help (Cunningham et al, 1995, Cunningham, 1999; Finney et al, 1999; Klingeman, 1991, 1992; Sobell et al, 2000). A survey conducted in Canada in 1996 (Klingemann et al, 2001, p. 66) showed that three out of four drinkers resolved their alcohol problems without using any formal treatment. In this study, problem-drinkers were defined as those who usually drank more than seven drinks per occasion. Conversely, the National Longitudinal Epidemiological Survey of 1996 (Dawson, 1996, in Klingemann et al, p. 21), which evaluated shifting drinking patterns on both treated and untreated groups, indicated that the majority of alcohol dependent drinkers changed on their own. In the first large-scale survey on natural recovery, Haskin and Grant (1995) observed that 19% of the total population was constituted of former drinkers. Of these former drinkers 21% had been alcohol dependent and 42% had been alcohol abusers, according to the DSM IV criteria. Along these 19% of the total population, only 33% of those with a diagnosis of alcohol dependence and 17% of those with a diagnostic of alcohol abuse reported using treatment services or AA. The majority of these drinkers had solved their problems without help. Social pressure was described as the main reason to stop drinking. Finally, in a study of 1961 (Newman, 1961, see Klingemann et al, 2002, p. 68) in which the subjects were identified by police records, treatment, and social agencies, 29% of the problem drinkers, 14% of the alcohol addicts, and only 10% of the chronic alcoholics recovered without treatment. In summary, most surveys indicate that a large majority of people with alcohol problems can and do resolve them without formal treatment or self-help groups. These results show a gradient in self-change with the highest rates among those who drink large quantities per occasion, followed by those with a diagnosis of alcohol abuse, then by those with a diagnosis of alcohol dependence, with the lowest prognosis among the chronic alcoholics.

Problem drinkers self-change for many and varied reasons. Health and cognitive appraisal of the pros and cons of continuing to use versus stopping are two of the most salient reasons for changing. Health reasons are also a determining factor in engaging in a process of change as well as positive events, such as marriage or job changes. However, the most common pathway to self-change is a process of cognitive appraisal by which people evaluate the pros and cons of their behaviour and decide that the disadvantages outweigh the advantages. This cognitive evaluation, which is an on-going process, gets people engaged in a process of change.

In a review of the first studies on the subject, Klingemann and colleagues summarised as follows the results, a conclusion that appears still true for more recent work:

*They [the authors of these first studies] showed such [alcohol-related] problems to be multifaceted and heterogeneous, and more strongly associated with ethnic, socio-cultural, and contextual factors than with, for example, heredity or childhood experiences. As regards the long-term course of problem drinking or drug use they, contrary to what has been generally believed, demonstrated a great deal of variability and flux over often rather short periods, and a general decline of most types of problem with age. It needs to be emphasized, however, that this general picture does not refute the existence of a continuum of individual, 'problem careers' ranging from temporary and relatively mild to long-lasting and increasing severe problems, showing great resistance to any change effort, with or without treatment (Klingemann et al, 2001, p. 59-60).*

Since DWI first and repeated offender fit along this continuum of prognosis, our policy need to take into account this heterogeneity.

## SELF-CHANGE AND DWI DRIVERS

The work of Hasin and Paykin (1999) has shown that, in a community sample, most cases qualified for a diagnosis of DSM-IV alcohol abuse with the only one positive diagnostic criterion, hazardous use. DWI was reported in 47% of all cases meeting the condition for DSM-IV alcohol abuse and these subjects reported DWI approximately four times during the last 12 months. From 3 to 5% of the population receive a diagnosis of alcohol abuse, according to various population surveys. Thus, one can infer that  $\pm$  50% of those heavy drinkers are DWI drivers and most of them have probably never been arrested. In fact, this is a fairly large segment of the population.

Since self-change occurs both because of fear of negative consequences and because of positive incentives, a few conclusions can be drawn from these results. First, programs that promote sensible drinking, such as Éduc'alcool, can help create a social norm in which getting drunk is not socially acceptable. Second, at all levels of the system, the environmental contingencies need to be organised in such a way that a greater number of DWI drivers are lead to believe that there are sufficient deleterious consequences to modify their behaviour. To state it within the framework of self-change literature, the cons associated to DWI need to out-weight the pros as the on-going cognitive appraisal that takes place in the drinker's mind concerning their DWI behaviour. This of course has already been happening in the general population because of the existing prevention programs and explains some of the reductions in DWI incidents that have

been taking place in the last two decades. Nevertheless, the self-change literature reinforces the need to make sure that information about DWI legislation reaches a high percentage of drivers that are heavy drinkers. It also stresses the importance of making sure that Impaired Driving Road Check Enforcement Campaigns are sufficiently present to constitute an eminent threat<sup>2</sup> and that media campaigns announce widely that police barrage and other surveillance strategies will take place. In addition, there are numerous problems in the detection and apprehension of drinking drivers that limit the actions of the police force, of the prosecutors, and of the magistrate as recent reports by Simpson and Robertson (2001) and Robertson and Simpson (2002) demonstrate. The application of these recommendations is needed for enforcement effectiveness but, if they were to be implemented, they could also trigger a process of change among some of those who drive under the influence.

In fact, we know very little those DWI un-arrested drivers who may have engaged in a process of self-changed. What has triggered this modification of their behaviour? A better integration of quantitative and qualitative approaches is needed in this field of research to understand phenomena such as the subjective experience of DWI drivers, of those who have not been arrested and those who have. The management of environmental contingencies could be improved if there was a better understanding of this process of change or, a contrario, of resistance to change.

### **ARE ALL TREATMENTS EQUALLY EFFECTIVE?**

Treatment is compulsory for many DWI offenders. This is not a new phenomenon in the field of addiction (Simpson et Sells, 1982; Simpson et al, 1997). Drug offenders have had the possibility of going into treatment since the 60's. For instance, in therapeutic communities, the success rate is comparable for those who are court ordered as for those who come on their own. Compulsory treatment can work if the motivation of the client changes from being extrinsic to being intrinsic. To state it differently, if clients decide that they want to change because change is considered as a substantial advantage, then they will engage in a process of change. Some individuals do not make that cognitive shift and refuse to change but, as a group, the clients in residential therapeutic communities that are referred by the court engage in a process of change that is comparable to the group that has not been court ordered. With this population of drug abusers, the key factor is not being or not being coerced into treatment, but engaging or not in a process of change.

If the process of change is key, then one may ask if there is a treatment approach better than another? Are there reasons to believe that DWI offenders would fare better in one system than another?<sup>3</sup> In 1990, the Institute of Medicine reported that 600 alcohol studies had been published, but not one treatment had been found to be uniformly effective. Various social, behavioural, and pharmacological treatments were described as somewhat effective, but that no one treatment was more effective than another. To state it differently, no single approach has emerged significantly

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<sup>2</sup> Fleming and Mercer (1998, see Vézina, 2001, p.42) estimate that 20% of the population needs to be reached by police barrages to reach some effectiveness. In addition, the program should take place for a long period duration being a characteristic of all effective strategies.

<sup>3</sup> In attempting to answer this question, I am indebted to my colleague and research partner Tom Brown (Brown and Wood, 2001) who prepared a synthesis of treatment issues for substance abuse.

more effective than another for all clients – the key word being here all clients. In addition, successful treatment might occur only a little more frequently than natural remission in the absence of any treatment. Nevertheless, certain clients' characteristics have been identified as having a positive impact on all treatment outcomes, regardless of the intervention employed. These more successful people are married, employed, intelligent, and higher socio-economical status.

At this point in time, one cannot speak of treatment effectiveness without referring to the Project MATCH (Project MATCH Research Group, 1997, 1998). It is the most impressive study of psychotherapeutic outcomes ever conducted. The project was unparalleled by its cost – ± 30M\$US -, its rigorous methodology and instrumentation, its complex statistical analysis employed. Three conceptually disparate structured treatment regimens were compared: Cognitive Behavioural Therapy, Brief Motivational Enhancement Therapy, and Twelve-Step Facilitation. The 1,726 patients were randomised into treatment and an impressively rigorous methodology was employed to thoroughly assess the clients and their outcomes, insure the integrity of treatments provided, reduce both the loss of participants and the impact of other sources of confound over the course of the three year follow-up. The follow-up rate was 90%, which is impressive and much higher than other evaluation studies. Outcome evaluations were done at 3, 6, 9, 12, and 15 months. Additional data were collected for the outpatient group at 39 months.

What will be remembered of the MATCH project is that after all the money and effort, no clear-cut results were found. The most astounding finding was that the three different interventions yielded equivalent results despite their marked differences in conceptual underpinnings and intensity. The results were completely unexpected and intensely controversial. One should add however that some of the 10 primary matching hypotheses were partially verified. Some of these results can be considered relevant to DWI first and repeated offenders. Three of these positive results can increase our knowledge for the treatment of first and repeated offenders.

1. Some positive results of MATCH concern clients reporting a high level of anger. MATCH predicted that clients with a high level of anger would fare better in the Motivational Enhancement Therapy. This matching effect for the client anger is the most consistent interaction effect that the project MATCH confirmed: clients who evidenced more anger had greater improvement in the Motivational Enhancement Therapy group than in the two other groups at both the one-year and the three-year follow-up. One interpretation of this finding is that Motivational Enhancement Therapy emphasises avoidance of telling clients what to do, both elements present in the two other approaches, which are likely to be counterproductive with angry clients. In contrast, it places emphasis on a firm therapeutic alliance. This approach may be preferable for those recidivists who, like those our team has evaluated, reported significant difficulty in repressing their violence and committed several other criminal offences (Bergeron et al., 1999).
2. Concerning those DWI offenders who have high levels of alcohol dependence, MATCH found that a higher severity of alcohol dependence did better in Twelve-Step Facilitation, whereas those with less dependence did better in the Cognitive Behavioural Therapy.

This may be a good treatment regimen for those DWI offenders who do not have a concurrent disorders but a high score on an alcohol dependence scale.

3. Finally what was particularly astounding was the finding that four Motivational Enhancement Therapy sessions provided equivalent outcomes compared to both Twelve-Step Facilitation and Cognitive Behavioural Therapy, in spite of the fact the latter involved three times more sessions. I am not too sure what this means for the DWI offenders or even of the results can generalize to that population. Be that as future research will show, it may be that this result is linked to the data with self-change. What is key for a DWI offender is engaging in a process of change, and some therapists are better than others at accelerating the process of resolving the ambivalence about the advantages and the disadvantages of modifying ones drinking patterns.

In summary, in reference to the treatment of DWI offenders, MATCH has pointed out that the treatment approach is probably not a key factor in the outcome. Nevertheless, since anger is a prominent factor in many DWI offenders, the data suggests that Motivational Enhancement Therapy should be the preferred choice for those DWI offenders that are angry. The work of Elizabeth Wells- Parker and colleagues (2000) points in that direction. Short-term approaches were shown to be effective, as effective as longer ones, and this should be examined in future research as well as understanding the underlying process of change.

## CONCURRENT DISORDERS

At the beginning of this presentation, I quoted a recent research by Lapham and colleagues (2001) in which they reported that about 50% of the large sample of DWI offenders reported a concurrent disorder in addition to alcohol-use disorders. There are reasons to believe that repeated offenders not only have high prevalence rates of substance-related disorders but also a high percentage of concurrent disorders. The treatment of concurrent disorders is an unavoidable issue that concerns primarily those involved in the treatment of DWI offenders, and a fortiori for those treating DWI repeated offenders.

Concurrent disorders are not rare phenomena among patients using mental health or addiction services. In fact, they are the rule, not the exception. Concurrent disorders are not the summing up of mental and substance-related disorders, but an integration of several mental pathologies. For instance, patients with depression and alcohol disorder frequently experience suicidal ideation and their risk of suicide attempts under acute intoxication is much higher than those with either one of these diagnostics (Murphy, 1992). The intensity of most symptoms is increased and the odds of the deleterious consequences associated to each of the disorders are also augmented. Those with a mental disorder are more at risk of developing a substance disorder and the same is true for those qualifying for substance disorder. In addition, those with concurrent disorders seek treatment more frequently than those who qualify for only one disorder (Kessler et al, 1996; Ross et al, 1999). Specific treatment indications are needed to respond to the unique needs of these patients (see Health Canada, 2001).

The treatment trajectory of those with DWI resembles those with a substance-related disorder and another disorder. Clients with concurrent disorders: experience problems in engaging in a

process of change and in establishing a therapeutic alliance (Brown et al, 1999; Gill et al, 1992; Luborsky et al, 1985; Mercer et al, 1997; Verheul et al, 1998 et 2000). They leave treatment prematurely (Clopton et al, 1993; Kosten et al, 1989; Landry, Cournoyer et al, 2000; McLellan et al, 1993; Racine & Nadeau, 1995; Stark, 1992; Verheul et al, 1998). They also have less positive treatment outcomes than those with only substance-related disorder (Hasin et al, 1988; McLellan et al, 1983; Rounsaville et al, 1987; Stark, 1992). In short, treatment is less beneficial for them. This mitigated effect of treatment is not only because their clinical features are more severe and that the clinical targets are too narrow but because these disorders, as in any other synergetic relationship, permeates the entire mental state. In recent years there has been a significant concern for concurrent disorders (Health Canada, 2001) and, given its deleterious consequences for treatment effectiveness, this phenomenon is seen by many as the emerging issue for the treatment of clients in addiction and mental health services (see Santé mentale au Québec, 2001). The same concerns should apply to the treatment of DWI offenders.

Health Canada (2001) has developed guidelines for best practices for concurrent mental health and substance use disorders and put forth the importance of developing integrated treatment for those with concurrent disorders. It is beyond the scope of this presentation to describe these guidelines. Essentially, the group based its recommendations of the positive outcomes of available research studying the effectiveness of integrated treatment treatments (Drake et al, 1998, 1993; Drake et al., 1997; Mueser et al, 2001) and on expert's opinion. Integrated treatment does not mean that treatment needs to be done under one roof or by only one person, but that there exists case management in which all dimensions are being addressed in the treatment plan. For DWI first and repeated offenders, there is evidence that multiple factors are at play, and resistance to change would seem to be better understood by taking into account the entire clinical features, not only the substance disorder. More research on the integrated treatment of DWI offenders is clearly needed to better understand how well the treatment outcome studies on the concurrent disorders (substance disorders and antisocial personality, for instance) can be generalized to DWI offenders and if such treatment regimen can improve their treatment outcomes.

## DWI RECIDIVISTS

This review of the treatment literature can be helpful to provide guidelines for the treatment of first and repeated DWI offenders. However, there may be unique features to these cases that such studies may overlook. Case studies, and their in-depth observations, may illustrate with more nuances the uniqueness of certain clinical features present in DWI offenders. In the latter part of this presentation, I will refer to my experience as a clinical consultant in the Canadian Correctional Services. In this setting, all my caseload had substance-related disorders; most of them being recidivists having committed serious offences such as armed robberies or homicides. I also saw several DWI cases. One case had been involved in an accident – a frontal collision – in which one person was killed. Before the accident leading to his conviction this man had drunk nearly to the point of inanition in a bar. His story illustrates the uniqueness of DWI offenders.

It should first be said that this man showed guilt, remorse, and regret because there had been a victim in the crash and he did relate to the pain he had inflicted on the family. This was not a psychopath: he did not lack positive and generous human emotions, and was capable of

sympathetic affect. This being said, he presented striking differences with my other clients. First and foremost, he did not consider that he had committed an involuntary homicide. On the contrary, an “accident” had happened, not a crime. Thus, his place was not in a federal penitentiary with “real criminals” as he vehemently stated. He was not one of them and he considered his fellow inmates with contempt. In addition, he felt, or was told by his lawyer, that he was the victim of an exemplary sentence and that he was doing more time than others with similar DWI fatalities. He felt strongly that he had been treated unfairly by the Canadian justice system. He thus considered himself as a victim, not as perpetrator. He was the victim of an injustice, and that was upfront in his mind. He also recognised that he had a serious problems with alcohol, but, again, that was not the main object of this preoccupations. He left treatment because he could not overcome his anger at being treated “unfairly” by the criminal justice system. I do not know what has happened of him.

Such cases have taught me several lessons<sup>4</sup>. First, there are structural failures in our society that need to change. This man got heavily drunk in a bar and the servers then let him go with his car. The horrifying story of him ordering double drink after double drink before leaving with his car is a narrative that one cannot forget. If the staff had refused to serve him when he was intoxicated and if they had refused to let him drive his car, the accident could have been prevented. I am not informed whether the owner of the bar was the object of a prosecution. If such is not the case, a significant part of preventative measures provided by law in this province has not been put into place. Second, his attitude about his crime contrasted with that of other inmates. When I arrived behind walls, much to my surprise, my non-DWI clients saw themselves as criminals and did not put their sentence into question. When comparing this DWI case with other offenders, his intelligence, temperament, life history of parental neglect and abuse, and the severity of substance dependence appeared comparable. His different outlook on his crime was not associated to some cognitive and/or an emotional incapacity of seeing himself as having committed a crime. Other criminals see themselves as criminals. My sense is that his views concerning DWI reflected the prevalent views in the general population, among lawyers and the magistrates. Thus, the perceptions of this man concerning his crime were not deviant but a reflection of the prevailing views about DWI in society. If bank robbers see themselves as criminals and DWI offenders don't, the problem is not in the genes or in the neurocognitive dysfunctions of these individuals but in the environmental contingencies they live in. Third, the two tier Canadian justice system increases the denial. A more experienced – thus more expensive - lawyer devoting more time to him and bringing various experts to testify in court could possibly have lead to a less severe sentence. The best lawyers will put in evidence the smallest irregularities in the legal procedures in a DWI case and decrease the chances of a DWI arrest of being convicted (Robertson and Simpson 2002, p. xxii). From a Skinnerian analysis of environmental contingencies, this man was right to see himself as a victim. He had been terribly unlucky: 1) he had driven innumerable times with high BALs without having an accident. 2) his sentence was abnormally high in comparison to the average sentence for comparable offences. From his own phenomenological perspective, he was a victim. Clinical work takes root in the subjective perspective of the person. With this man's cognitive set, which was embedded in his subjective experience, it was impossible to engage him in a process of change.

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<sup>4</sup> Several authors have put forth (see Vezina, 2001, p. 75) that imprisonment has no positive impact on recidivism, but I do not intend to discuss this example through that angle.

## CONCLUSION

In conclusion, I would suggest that all the dissuasive measures for DWI are key to induce self-change even among those drivers with a diagnosis of alcohol-related disorder. In addition, we should keep in mind that the deficiencies of the criminal justice system not only have deleterious consequences on the democratic functioning of our society but also impact on the beliefs of recidivists, and increase their resistance to change.

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