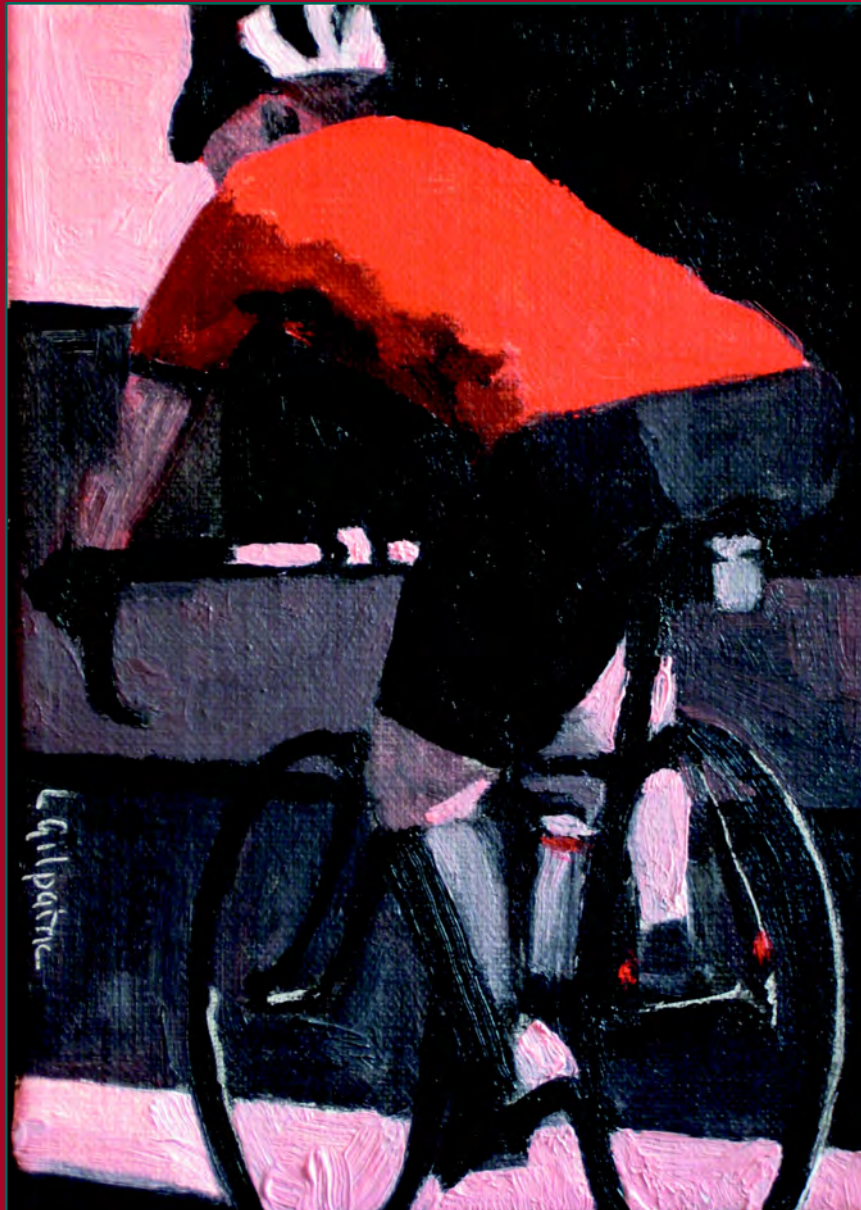


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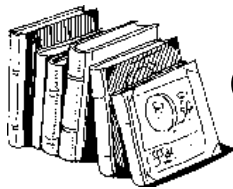
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Commentaries

Gold Standards

It is generally expected that any new treatment, test battery or approach to a problem should be compared to a “gold standard.” Gold standards die hard, which may or may not be a good thing, depending on how the standard became “gold” to begin with. I have two examples from my own areas of professional interest. One is the standardized assessment of motor function in **Parkinson’s disease (PD)**. The other is the clinical research paradigm of “intention to treat.”

There have been a few batteries of testing used to rate PD severity. At a meeting of experts in the 1980s, a consensus was achieved which rated behavior, activities of daily life, and observed motor function. Later, sections were added to rate treatment complications, and an overall staging. This became our gold standard, and has been used in almost every clinical trial over the last 10-15 years. It has been revised due to some obvious shortfalls, which is, I think, a highly meritorious track record. Periodic reviews of “gold standards” are a good thing.

One of the interesting and troubling aspects of our **Unified Parkinson’s Disease Rating Scale (UPDRS)**, however, was a teaching videotape that was made using the panel of experts who developed the test battery, and published in our specialty journal that provided videotape examples of the actual scoring for the motor tasks the patients perform. As a colleague remarked, “When I reviewed this article and videotape for the journal, I recommended that it be published, but that the videotape examples should not be considered the gold standard for evaluating PD patients.” Unfortunately, it has become that gold standard. At multiple initiation meetings for drug trials of new medications for PD the UPDRS is reviewed and the investigators are instructed to study the teaching videotape and use it as the gold standard although, it is acknowledged, the tests are

not all performed correctly, and are not even performed in a uniform manner. Thus we are told that our gold standard has feet of clay. It is a problem for our field, not rectified after 20 years of discussion.

In a related field, movement disorder side-effects of psychiatric drugs, there are three standard test batteries: the Abnormal Involuntary Movement Scale, to measure tardive dyskinesia; the Barnes Akathisia Rating Scale to measure akathisia (restlessness); and the **Simpson Angus Scale (SAS)** to measure parkinsonism. The SAS, unfortunately is a seriously flawed test that has never, and will never, be used by experts in parkinsonism because it excessively scores some abnormalities, underscores others and gives instructions on measurement that are often impossible to employ. Nevertheless, I doubt that any psychiatric journal would accept a paper on antipsychotic medication that did not include this scale of measurements of parkinsonism. It is, after all, the gold standard.

My final gripe is the Intention to Treat approach in analyzing treatment trials. The ITT approach was designed to obtain complete data on all randomized subjects to reduce bias induced by early terminations. The analytic plan assesses outcome based on treatment assignment, whether or not the subject actually gets treated. For example, a protocol to assess shunting to treat normal pressure hydrocephalus randomly assigns a treatment plan to each subject. Once that assignment is made, the outcome is analyzed based on that assignment, *whether or not the subject is shunted*. Thus, if half the subjects assigned to shunting change their mind, and their gait fails to improve, the analysis may show a failure of shunting, even if the majority of those *actually shunted* improved. Of course, a secondary subgroup analysis can be built into the analytic plan, to reveal that those actually shunted improved, but the “bot-

tom line” of the study, the newspaper headline, will be a failure of treatment.

An article published in this journal (*MHRI*) last year looking at quality assessment of medical care, focused on the treatment of atrial fibrillation as one condition to be used for analysis. I learned from that article that warfarin was ineffective at preventing stroke when the data were analyzed by correlating prescriptions for the drug and outcome. This occurred, of course, because of the high non-compliance rate. When measures of prothrombin time and outcome were measured, the benefit was clear. Thus a study with a significant non-compliance rate may confound the beneficial effect of a drug. Yet, unless reviewers for grant proposals, or journals are statistically savvy (and many are not), or willing to consider non-standard approaches, a perfectly good study may be criticized precisely because it was innovative, recognizing pitfalls of the “gold standard” approach.

Rosalyn Yalow, PhD, at her Nobel Prize acceptance speech, included slides of the letters of rejection she had received from journals for her innovative approach to studying insulin release. Using contemporary “gold standard” paradigms, her work was not acceptable because it challenged those beliefs.

I believe in “gold standards.” Unlike real gold, however, they should not be considered noble or immutable, but templates that may require modifications over time.

The Diagnostic and Statistical Manual, defining every psychiatric disorder, is a good example, whether or not you agree with its methodology or choices. It is the gold standard for its field, but it is reassessed and altered every few years.

— JOSEPH H. FRIEDMAN, MD

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Even the Gods Are Sometimes Forgetful

For those of advanced age, we are told, the great enemy is worrisome, embarrassing and corrosive forgetfulness: great hiatuses that yawn in our reserves of remembrance, great lapses that arise in our capacity to retain new happenings or recall precious events of the past. At a slightly younger age, one might easily remember the name of one's second grade teacher; now, sadly, one has difficulty remembering even the name of the school.

If remembrances are the currency, the components of our personality, then clearly the act of forgetting represents the adversary, the unforgiving force that deprives us of our identity, our role in society and effectively separates us from daily reality. If we forget a part of our personal history, it is a sadness; if others forget it, we become both lessened and saddened; but if the world forgets our history, it then becomes an insoluble calamity. Our identity remains intact to the extent to which we are remembered by others and by ourselves.

Sometimes, however, remembering becomes an issue of pride; and at 3 AM many an elderly person will patter down to the book shelves to recall the misplaced name of this nation's fifth President or the name of the capitol of Nebraska. But more often it is a loss of those cherished intimacies of childhood that cannot be retrieved from a textbook: the name of the little girl living down the street, the title of your first Technicolor movie, the name of the aunt who combed your hair on Sundays, or the first poem that you had memorized in the third grade. We acknowledge, sometimes wistfully, sometimes gracefully, those inevitable milestones of aging such as graying of one's hair or the depletion in one's memory archives.

Many elderly recognize that their missing memories are not lost but rather misplaced, misfiled perhaps in some inadequately used cerebral enclave or gone astray amidst accumulated cobwebs. To remember the name of that quaint hotel where you and your spouse enjoyed a honeymoon, for example, may require hours of deliberate cognitive review, going through the alphabet or perhaps trying to picture the hotel's marquis; but sooner or later the tattered name emerges from some Stygian gloom and a small victory over senility is proclaimed. What we had disparagingly called senescent forgetfulness may merely be a misplacement of a recollection, a filing under the wrong rubric.

On the other hand, how much of sadly irretrievable information is truly needed? In the interests of naked survivorship, do we really need to know the NY Yankee baseball lineup for 1938? Or the seven wonders of the world [or was it eight?] Will the world cease to function if we can't remember Fred Astaire's dancing partners other than Ginger? And is it therefore possible that the basis for our dismay is injured self-esteem rather than, or in addition to, deficient memory?

Are there items which, by their nature, we tend not to forget? Is there an insulated corner of our cerebrum where we selectively store, for all eternity, our bitter defeats, our unresolved antagonisms, the insults we weathered in childhood ["Hey, fatty!"], thus keeping them unnecessarily protected from amnesic erosion? And do we ever forget where we have buried the hatchet?

Alternatively, are there items of memory that can never be retrieved, that are truly lost forever? And even when the answer is finally supplied by a smug, younger family member, we can offer no sign or hint of recognition except a resigned, "Maybe." Only then can we assume that the lost memory, like a mindless, homeless barnacle, must now dwell in some uncertain location without a zip code, perhaps a fishing village in Patagonia with neither libraries, archives or telephones, a hamlet called oblivion.

Has any social scientist, or geriatrician, ever recorded the characteristics of the things selectively forgotten by the elderly? Are happy memories more vulnerable to loss than unhappy ones? Do our emotional traumas linger longer than our remembrances of pleasant, post-adolescent interludes from the past? Are the doleful memories selectively covered with some kind of Velcro so that they cling resolutely to the top shelves of our memory and cannot therefore be displaced, suborned or made to perish? The loss of a child, for example, a happening decades ago, remains as though carved from the densest granite, never to be obscured or hidden from consciousness. Resurrecting those bitter remembrances becomes a curse; and forgetting them, alternatively, becomes a blessing, one of the few benedictions bestowed upon the elderly.

Forgetting is therefore not always a misfortune, just as perfect recollection is not consistently a blessing. And remembrance, also, can either be a dismal wasteland or a wondrous rapture. Maybe, just maybe, forgetting is nature's way of making room for newly experienced adventures to be recalled around some recently lighted campfire.

— STANLEY M. ARONSON, MD

Disclosure of Financial Interests

Stanley M. Aronson, MD, has no financial interests to disclose.

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Beyond Our Doors: Emergency Physicians and Public Health

Megan L. Ranney, MD, and Michael J. Mello, MD, MPH

As emergency medicine physicians, we specialize in the treatment of the acutely ill and injured. But we also serve as a safety net for the most disadvantaged members of our society. It often seems that what our patients need most of all is a listening ear, a safe place to be, or some sage advice.

Emergency physicians could become frustrated by the multitude of preventable injuries and other illnesses we see. Instead, we choose to investigate ways to address the underlying reasons for these visits.

In this issue, we highlight three of our department's public health initiatives. These programs are only the tip of our work. We are actively engaged in a myriad of research and community outreach efforts. These range from partnering with motorcycle safety instructors to improve helmet education, to investigating whether motivational interviewing can decrease substance abuse among emergency department patients, to providing child passenger safety education to families, to examining how to best decrease risky driving behaviors in young adults.

We are proud of our work to treat Rhode Islanders' acute health problems. We are even more pleased to share with you our efforts to help them stay healthy.

Megan L. Ranney, MD, is an Injury Prevention Research Fellow, Injury Prevention Center, Department of Emergency Medicine, and Clinical Instructor, Warren Alpert School of Medicine at Brown University.

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Disclosure of Financial Interests

The authors have no financial interests to disclose.

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Evaluating the Effectiveness of Motivational Counseling and Hospital Emergency Department Observation for Court Mandated Young Drivers

Ted D. Nirenberg, PhD, Janette Baird, PhD, Michael J. Mello, MD, MPH, Richard Longabaugh, EdD

This project was funded by grants during 2001 to 2005 from the National Highway Traffic Safety Administration and the Rhode Island Office of Highway Safety, Department of Transportation through the RI Judicial Office to Ted Nirenberg, PhD (Principal Investigator). We would like to acknowledge the support and assistance of the RI Judicial System and in particular Chief Judge Jeremiah and Chief Judge DeRobbio.

Motor Vehicle Crash (MVC) is the leading single cause of death and injury for 15 to 20 year olds: 40% of all deaths of 16-17 years olds occur as the result of an MVC, and most teenage passenger deaths happened when the vehicle was driven by another teenager (Insurance Institute for Highway Safety, 2006). In 2002, 16% (1,825,000) of all police-reported crashes involved a young driver.¹ High-risk driv-

ing behaviors (e.g., driving after alcohol and marijuana use, not using seat belts, high speed driving, and driving distractions) often result in moving traffic offenses, and those offenses are predictive of MVCs.

The established association between prior driving offenses, particularly alcohol-related offenses, and increased risk for an MVC^{2,3} points to the potential benefit of an intervention to reduce high-risk driving behaviors.

The **Reducing Youthful Dangerous Driving Program (RYDD)** was implemented in 2001 as a demonstration project for young drivers receiving high-risk driving offenses. This program was established with the cooperation and support of the National Highway Traffic Safety Administration and the Rhode Island Office of Highway Safety, Department of Transportation and Judicial Office. Judges were en-

couraged to sentence young drivers with high-risk driving offenses to RYDD as a community service component of the court's disposition. This 16-hour program had two integrated components: four intervention groups based on **motivational interviewing (MI)** and two sessions observing in the emergency and trauma services at a level 1 trauma center.

MI targets several critical factors addressed in theories of behavioral change⁴ and is well suited for use with teens. Adolescence is a time when teens need to develop autonomy and individuation, yet tend to question and resist authority figures. It is also a time characterized by ambivalence, in terms of risk behaviors. Adolescents may be most likely to respond to a style that respects their autonomy, provides choices and not only acknowledges ambivalence, but capital-

izes upon it to decrease resistance and develop motivation for change. The suitability of MI for individuals who are more angry and oppositional at the start of treatment⁵ also suggests that this approach is particularly suited to adolescents who may have had negative experiences with the police or court officials. MI has been adapted for use in a wide array of settings and populations.^{6,7}

There were a total of four group MI sessions, each lasting approximately two hours, comprised of 6 to 10 drivers, ages 16 to 20. In the first session, the counselor helped youth to share their experiences of high risk driving and examine the pros and cons of those behaviors. During the second session, a paramedic discussed MVC-related injuries. The counselor provided feedback to the youths regarding norms of peer alcohol and drug use, risk factors such as speeding and distractions, and used reflective listening and summarizing techniques to establish the pros and cons of alcohol use and high-risk driving behaviors.

In the third and fourth MI group sessions, participants reflected on their experience in the **emergency department (ED)** and trauma service. The counselor facilitated a discussion about changing high risk behaviors, and helped the youth develop a plan for changing these behaviors.

The ED and trauma service experience let the participants vicariously experience the negative consequences of high risk driving behaviors. RYDD participants were assigned to two 4-hour sessions in the ED which occurred at 6pm to 10pm and 10pm to 2am on Friday or Saturday nights. The RYDD trauma center mentors escorted participants in small groups of 2-3 around the adult ED, the trauma intensive care unit, and the pediatric ED. The interaction with and observation of the doctors, nurses, EMTs, and police working together, as well as the sights, sounds and smells, added a dimension to the consequences of high risk behaviors that the educational session could not convey.

EVALUATION OF RYDD PROGRAM

We assessed the change in the numbers of traffic offenses during the 12 months before and after completion of RYDD. As a secondary analysis, to verify our pre-post RYDD traffic offense comparison, we re-analyzed the data by comparing an age-appropriate group who

during the same developmental period had not received RYDD to similar participants who had received RYDD. The RI Hospital research review committee deemed our analysis protocol exempt.

METHODS

Study Groups

The RI Judicial System's District and Traffic Tribunal Courts referred participants (N=407) for high-risk driving behaviors including alcohol-related traffic offenses. Participants were eligible if they were between 16 and 20 years old. We compared the mean number of traffic offenses that occurred during the 12 months before and after completing RYDD. We also gathered and analyzed baseline data on participants' self-report of substance use and risky driving behaviors.

All participants received RYDD. However, because participants were enrolled into RYDD at different ages we created age-appropriate comparison groups. For example, since the one year pre-RYDD data of the 18-19 year olds (which refers to their behavior when they were 17-18 years old) reflects the same time period as the post-RYDD for those who received RYDD when they were 17-18 year olds we have an appropriate comparison group. Therefore, using a quasi experimental design we compared the offense data for the following groups: a) those who were 16-17 years old at the start of RYDD participation (n = 50) using their 12 month post RYDD data as the treated group data compared to those who were 17-18 years old at the start of RYDD participation (n = 196) using their 12 month pre-RYDD data (when they were 16-17 years old) as the control group data; b) those who were 17-18 years old at the start of RYDD participation using their 12 month post-RYDD data as the treated group data compared to those who were 18-19 years old at the start of RYDD participation (n = 97) using their 12 month pre-RYDD data (when they were 17-18 years old) as the control group data; c) those who were 18-19 years old at the start of RYDD participation using their 12 month post-RYDD data as the treated group data compared to those who were 19-20 years old at the start of RYDD participation (n = 28) using their 12 month pre-RYDD data (when they were 18-19 years old) as the control group data; and

d) those who were 19-20 years old at the start of RYDD participation using their 12 month post-RYDD data as the treated group data compared to those who were 20-21 years old at the start of RYDD participation (n = 36) using their 12 month pre-RYDD data (when they were 19-20 years old) as the control group data.

Baseline Measures

Traffic Offenses: Data (type, date and number of traffic offenses) for the 12 month period before and after RYDD were collected from RI courts. While the offense that resulted in court referral to RYDD was not included in the baseline and the year follow-up, it was recorded to test for a possible moderator effect, in particular, to ascertain any differential response to the program between participants who were referred or not referred for an alcohol related offense.

Alcohol Problem: The AUDIT, collected at baseline, is a 10-item self-report instrument used to determine whether the subject is drinking in a hazardous manner.^{8,10} The total AUDIT score is the weighted sum of the 10 items. A cutoff score of eight or more for males and six or more for females is indicative of hazardous drinking for adults. Among adolescents who drink, it has been suggested that the cut-off point for hazardous alcohol use be set at six.⁹

Risky Driving: The High Risk Driving Scale, collected at baseline, is a 12-item self-report scale that assesses the frequency of risky driving behaviors, including drinking and driving, being a passenger with a driver who had been drinking and/or using drugs, and use of seatbelts.

Follow-up Procedures

We have traffic offense court data on all 407 participants, 12 months before and after RYDD completion. At baseline 90% completed the AUDIT and Risky Driving Scale.

Data Analyses

Prior to statistical analyses the distribution of the data was analyzed and appropriate transformations were conducted. When appropriate, means, **standard deviations (SD)** and/or **confidence intervals (CI)** at the 95% significance level are reported.

Table 1: Baseline characteristics of RYDD participants

Pre-RYDD Traffic Offenses	Alcohol Severity AUDIT	Risky Driving in Past Three-Months
Alcohol related = 28%	Mean AUDIT = 9.3 (SD = 7.1; 95% CI = 8.6 to 10.02)	Reported driving after drinking alcohol = 51%
Speeding = 34%		Reported being a passenger with a driver using alcohol and/or drugs = 56%
Possession of marijuana = 8%	AUDIT \geq 8 = 55%	Reported always using a seatbelt as a driver = 48%
Seatbelt violation = 2%	AUDIT \geq 6 = 66%	Reported always using a seatbelt as a passenger = 47%
Traffic device/sign violation = 17%	Reported bingeing on alcohol = 71%	
Offense arising from MVC = 11%		

RESULTS

Baseline Data

Participants' mean age was 17.5 years (SD = 1.10), 76% were male, and had an average of 2.25 traffic offenses in the 12 months prior to attending RYDD. Alcohol-related offenses (e.g., DUI, possession of open container of alcohol) and speeding offenses were the most common reason for referral to RYDD. (Table 1)

At baseline the mean AUDIT score of the entire sample was 9.3 (SD=7.1), with over 55% of participants attaining an AUDIT score \geq 8. When we set the cut-off score to the adolescent level of 6, 66% of participants screened positive for hazardous drinking. Many participants (71%) reported bingeing on alcohol (at least 4 drinks for females or 5 drinks for males on any one occasion) in the last three months.

Risky driving behaviors were frequently reported including driving after drinking (51%) or riding in a car with a driver who had been drinking (56%). Also, their report of always wearing a seatbelt (47%) was well below the national average for this age group (76%).¹¹

12 Month Outcome Data

The number of traffic offenses fell from a mean of 2.25 in the 12 months before attending RYDD to a mean of 0.64 (SD= 1.23) in the 12 months post RYDD completion ($t(406) = -17.17$; $p < .001$). This reduction was found for participants who were referred to RYDD as a result of an alcohol-related traffic offense (N = 173, baseline offenses M = 2.27 (SD=1.52), 12-month offenses M = 0.56 (SD= 1.0), mean reduction = 1.71, $t(171) = -13.8$, $p < .001$) and for those referred as a result of a non-alcohol related driving offense (N= 234, baseline offenses M = 2.24 (SD=1.70), 12-month offenses M = 0.70 (SD= 1.36), mean reduction = 1.50, $t(233) = -11.43$, $p < .001$). In total, fewer than 33% of participants received a traffic offense in the 12 months following RYDD. The most common re-offense involved speeding (25% of participants); the least common was an alcohol-related offense (10% of participants).

Across the age groups there was also a significant decrease in the mean number of traffic offenses from baseline to fol-

low-up. (Table 2) Using the binomial test for comparison of the probability of having 0 or more than 0 traffic offenses for groups at the same age comparing one year after receiving RYDD versus one year before receiving RYDD, all age groups showed a significant reduction in traffic offenses at one year follow-up: 16-17 yrs treated versus 17-18 yrs control; $Z = 2.33$, $p < .01$; 17-18 yrs treated versus 18-19 yrs control; $Z = 3.97$, $p < .001$; 18-19 yrs treated versus 19-20 yrs control, $Z = 2.92$, $p < .01$; and 19-20 yrs treated versus 20-21 yrs control, $Z = 2.27$, $p = .01$.

DISCUSSION

Most notably, a significant reduction in court-recorded driving offenses over the 12-month period following RYDD was observed. The RYDD recidivism rate for any traffic offenses is less than that expected from receiving no intervention, and the rates for recidivism for an alcohol-related offense are less than those expected from receiving an educational intervention.¹² These results suggest that attendance of court-referred youth to a

Table 2: 12 month mean pre and post RYDD traffic offenses by age group

Age Group	Pre-RYDD Offenses	Post-RYDD Offenses	Statistic
16 < 17 years (n=50)	Mean = 1.42 SD= 0.73 95% CI = 1.22 to 1.62	Mean = 0.28 SD= 0.54 95% CI = 0.13 to 0.43	$t(49) = -9.4$, $p < .001$
17 < 18 years (n=196)	Mean = 2.10 SD= 1.43 95% CI = 1.90 to 2.30	Mean = 0.70 SD= 1.26 95% CI = 0.52 to 0.88	$t(195) = -11.8$, $p < .001$
18 < 19 years (n=97)	Mean = 2.60 SD= 1.70 95% CI = 2.26 to 2.86	Mean = 0.63 SD= 1.24 95% CI = 0.38 to 0.88	$t(96) = -10.5$, $p < .001$
19 < 20 years (n=28)	Mean = 2.21 SD= 1.40 95% CI = 1.69 to 2.73	Mean = 0.79 SD= 1.42 95% CI = 0.26 to 1.32	$t(27) = -4.1$, $p < .01$
20 < 21 years (n=36)	Mean = 3.33 SD= 2.48 95% CI = 2.52 to 3.84	Mean = 0.75 SD= 1.52 95% CI = 0.25 to 1.25	$t(35) = -5.1$, $p < .01$

program tailored to address high risk behaviors may be a factor in reducing the probability of having a future driving offense.

RYDD participants had three sources of information: 1) the participants' own experiences (e.g., being charged with a traffic offense and receiving court and possibly familial and social sanctions), 2) the experiences associated with the ED experience (e.g., seeing the physical and emotional effects of high risk driving and alcohol behaviors), and 3) information from other RYDD group members. We theorized that all these thoughts and emotions combined to facilitate change in the high risk behaviors.

Specifically, we hypothesized that the combination of the highly arousing community service experience in the ED coupled with the techniques of MI directed at enabling the participant to make direct and relevant connections between the vicarious trauma experience and risky driving provides the optimal pathway for maintaining changes in high risk behaviors. Young participants may not have experienced negative consequences from their high risk behaviors; therefore any intervention targeted solely at educating participants about those consequences without personalizing the consequences would have less of an impact on changing behavior.

At the group sessions participants frequently reported the ED and trauma services experience as pivotal in shaping their decision to change their driving behaviors. Often participants reported an intention to use seatbelts, or use a designated driver if they had been drinking.

It is hoped that this change in behavior and a decrease in traffic offenses ultimately will result in a decrease in MVCs for this population.

Limitations

Because this was a demonstration program and not a clinical efficacy trial, we could not randomly assign participants to RYDD or to a more typical community service experience. By dividing the sample into control and treatment groups of approximate age equivalence, we controlled for the effects of maturation effects or regression towards the mean. However, some of the observed changes could have

occurred in the absence of an intervention, simply as a function of the driving offense, or further driving or life experience. Given the size of these effects, it is improbable that all of the change could be attributed to these other factors over such a short period of time.

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Analysis of Intentional and Unintentional Injuries Caused by Firearms and Cutting/Piercing Instruments Among Providence Youth, Nov 2004–Dec 2007

Megan L. Ranney, MD, Wendy Verboek-Ofiedahl, PhD, John Rommel, and Michael J. Mello, MD, MPH

Despite declining rates of violent deaths

over the last decade, homicide remains among the top 4 causes of death for Americans younger than 34 years old.¹ Morbidity from youth violence is also significant. In 2004, injuries from youth violence resulted in over 750,000 visits to emergency departments (EDs) nationwide.² In Rhode Island, 28% of RI high-school students reported at least one physical fight in the last year,³ and according to hospital discharge data over 100 RI adolescents are hospitalized each year due to injury from assault.⁴

Risk factors for commission of youth violence are well-established; e.g., male gender, low socioeconomic status, availability of weapons, use of alcohol or drugs, and age between 12 and 20.^{2, 5-7}

Demographic and behavioral correlates of injury from youth violence are not as clearly determined. Studies establish only that the best predictor of youth injury from violence is a previous violent injury.⁸⁻¹² Alcohol use and other known adult risk factors for violent injury¹³⁻¹⁵ do not necessarily apply to youth.^{9, 16} Moreover, studies of youth injury predictors rely on inpatient samples, and may be subject to bias from selection of a more severely injured population. Studies which rely on hospital discharge data may be subject to coding inaccuracies; some research suggests that erroneous external cause of injury codes are often given to youth injuries.^{17, 18} EDs, in contrast, represent a wider spectrum of injury severity and type.¹⁹⁻²¹

This study was designed to address the lack of published data on trends of youth violent injury in Providence, as well as the need for additional data about risk factors and correlates of violent injury. We examined the distribution of intentional and unintentional injury from weapons (cutting/piercing and firearm) among Providence youth, the correlates and predictors of these violent injuries, and the accuracy of our ED coding of violent injury.

METHODS

In this retrospective cross-sectional chart review of cutting/piercing and firearm injuries among Providence youth (younger than 21 years old), we examined all appropriate youth injuries presenting to Hasbro and Rhode Island Hospital EDs between November 1, 2004, and December 31, 2007. These hospitals provide the only adult and pediatric Level I trauma services in the state; they also have the highest ED volumes in the City of Providence. The Rhode Island Hospital/Lifespan Institutional Review Board approved the protocol.

Within the study time period, cases were selected from the ED billing databases using ICD-9-CM external cause of injury codes (E-codes): all cases corresponding to injuries from sharp (cutting/piercing) objects (E920.0-.9, E956, E966, E986, E974) or from firearms (E922.0-.9, E922.8, E922.9, E955.0-.4, E965.0-.5, E968.3, E979.4, E985.0-.6, E970) were retained. E-codes corresponding to assault with unknown object (E968.9) were also included, in case these assaults had occurred with a weapon but were miscoded. These codes encompass both unintentional and intentional injury. The first valid, relevant E-code was selected as per national guidelines for injury surveillance.²² Records were further selected by age (< 21) and zip-code (02903, 02904, 02905, 02906, 02907, 02908, 02909, 02912, and 02940). Through this process, 446 charts were identified.

Two researchers, using a standardized chart review form and protocol, reviewed each chart.²³ In the case of discrepancies or questions, the reviewers consulted with each other and, when necessary, with a third member of the research team to reach a consensus about coding. All data were entered into a password-protected Excel database.

TABLE 1: Demographic Characteristics and Injury Type for Providence Youth treated in Hasbro/RIH ED, Nov 2004-Dec 2007 (n=446)

Age, yrs	mean 12.6 (SD 5.9) range 0-20
Sex	
M	295 (66%)
F	151 (34%)
Race/Ethnicity	
White	85 (19%)
Black	81 (18%)
Hispanic	117 (26%)
Asian	11 (2.5%)
Other	31 (7%)
Refused/not recorded	121 (27%)
Health Insurance	
Private	72 (16%)
Public	248 (56%)
Workers Comp	12 (3%)
Self-Pay	52 (12%)
Other	1 (0.25%)
Not recorded	61 (14%)
Type of injury (based on E-codes)	
Firearm	41 (9.2%)
Intentional-self (Ecodes 955.0-.4, 955.6)	0 (0%)
Intentional-other (Ecodes 965.0-.4, 968.6, 970)	29 (6.5%)
Unintentional (Ecodes 922.0-922.9)	11 (2.5%)
Not specified (Ecodes 985.0-.4, 985.6)	1 (0.22%)
Cutting/Piercing	284 (64%)
Intentional-self (Ecode 956)	6 (1.4%)
Intentional-other (Ecodes 966, 968.7, 974)	14 (3%)
Unintentional (Ecodes 920.0-.9, 928.3)	264 (59%)
Not specified (Ecode 986)	0 (0%)

During review, information regarding cases' age, sex, zip-code, type of insurance, and time and date of presentation was confirmed. Race/ethnicity was coded in patients' demographic information

attached to the charts. Hispanic ethnicity was not specifically designated in demographic information; patients were identified as "Hispanic ethnicity" for the purpose of chart review if they Spanish

as their primary language.

Use of alcohol or drugs was endorsed based on chart documentation of providers' clinical suspicion and/or actual measurement of alcohol/drug levels. The location at which the injury occurred and the patient's discharge status were recorded. In the case of intentional injuries, the patient's relationship to the perpetrator and the number of perpetrators were noted. The reviewers assessed each injury's intentionality (intentionally injured by self, unintentionally injured by self, intentionally injured by other, unintentionally injured by other) based on criteria in accordance with ICD-9 E-coding guidelines.²⁴ This chart review-based assessment of intentionality was compared with the E-code-determined intentionality recorded in the billing database.

Data were analyzed using Stata SE 10.0 (Stata Corp LP, College Park, TX). Simple descriptive statistics for demographics and assault characteristics were calculated. Demographics of injured youth were compared to statistics on Providence zip-codes' median incomes, percentage of children younger than 18 years old, and race/ethnicity as reported by The Providence Plan.²⁵ The relationship between intentionality and demographic/assault characteristics was assessed using Student's unpaired t, chi-square, and Fischer's exact tests of association.

RESULTS

The results of the descriptive analysis are presented in Table 1. When comparing the characteristics of intentional and unintentional injuries using the categorization assigned during chart review, a number of significant differences between the two injury groups were found. (Table 2)

Injuries in general were more likely to occur in 02907 and 02909, the zip-codes with the lowest median incomes and the highest percentage of children under 18 in 2000.^{25, 26} Forty-one percent (17/41) of firearm injuries occurred in the 02907 zip-code ($p < 0.005$). Intentional injuries were significantly more likely to occur between 8pm and 6am: 71% of intentional firearm injuries, 45% of intentional cutting/piercing injuries, and 36% of unintentional injuries occurring during this time ($p = 0.005$).

TABLE 2: Comparison of Selected Demographic Characteristics of 446 Injured Providence Youth, by Intentionality of Injury (based on chart review)

Age		Intentional Injury 16 (15.5-16.5)	Unintentional Injury 10 (9.7-11.2)	p-value <.005
Sex	M	55 (76%)	155 (64%)	0.05
	F	17 (24%)	87 (35%)	
Incident Location				
	Home	15 (25%)	128 (61%)	<.005
	Public Outdoors (e.g. Street)	32 (54%)	29 (14%)	
	Public Indoors (e.g., school)	4 (7%)	17 (8%)	
	Other's home (e.g., friend's house)	5 (8%)	8 (4%)	
	Commercial estab. (e.g., work)	2 (3%)	22 (11%)	
	Other	1 (2%)	5 (2%)	
Zipcode				
	02903	10 (14%)	14 (6%)	0.06
	02904	3 (4%)	20 (8%)	
	02905	14 (20%)	42 (17%)	
	02906	6 (8%)	10 (4%)	
	02907	22 (31%)	54 (22%)	
	02908	6 (8%)	40 (17%)	
	02909	11 (15%)	60 (25%)	
	02912	0 (0%)	1 (0.5%)	
	02940	0 (0%)	1 (0.5%)	
Race/Ethnicity				
	Black	12 (17%)	54 (22%)	0.02
	White	23 (32%)	35 (14%)	
	Hispanic	17 (24%)	61 (25%)	
	Asian	3 (4%)	6 (2%)	
	Other	5 (7%)	20 (8%)	
	Refused/not specified	12 (17%)	66 (27%)	
Perpetrator				
	Self	14 (19%)	230 (95%)	<.005
	Intimate partner	0 (0%)	0 (0%)	
	Other relative	2 (3%)	5 (2%)	
	Friend	3 (3%)	2 (0.8%)	
	Acquaintance	4 (6%)	2 (0.8%)	
	Stranger	6 (8%)	0 (0%)	
	Other/not specified*	44 (61%)	3 (1%)	
Health Insurance				
	Private	9 (16%)	39 (18%)	0.055
	Public	32 (59%)	149 (69%)	
	Workmans			
	Compensation	5 (9%)	4 (2%)	
	Self-Pay	8 (15%)	22 (10%)	

* There were 4 incidences of "other" perpetrator, 3 of which were for intentional injuries

TABLE 3: Disparities between Intentionality, as determined by chart review, and Intentionality, as indicated by billing E-codes

Injury Type (as determined by billing E-code)	Intent of injury (as determined by chart review)		
	Intentional-self	Intentional-other	Unintentional
Firearms:			
<i>Intentional – self</i>	0	0	0
<i>Intentional – other</i>	0	26	1*
<i>Unintentional</i>	0	7*	2
<i>Other/not specified</i>	0	1*	0
Cutting/Piercing:			
<i>Intentional – self</i>	6	0	0
<i>Intentional – other</i>	0	14	0
<i>Unintentional</i>	8*	10*	239
<i>Other/not specified</i>	0	0	0

* = charts where chart review-determined intentionality and E-code-determined intentionality differed

Very few of the characteristics that we hypothesized would be associated with intentional injury were regularly recorded in the charts. Documentation of alcohol and substance abuse was missing for 75% and 90% of charts, respectively. Of those with recorded alcohol levels (n=116), mean BAC was 122 (range 25-295); only 42 had recorded drug screens, of which 11 were positive, mainly marijuana (n=9). Similarly, 22% of all charts, and 74% of cases with intentional injuries, omitted the patient's relationship with the perpetrator. This lack of data limited our ability to examine associations between these characteristics and injury.

Finally, our comparison of intent according to hospital-provided E-codes versus chart-review found discrepancies for 27 charts (8.3% of all injuries). Nine disparities were firearm injuries (24% of firearm injuries). (Table 3)

DISCUSSION

Several facts about injury from youth violence in Providence emerge.

First, unintentional cutting/piercing injuries were much more common than intentional injuries, occurred among a younger age group, and occurred primarily among children receiving public insurance. These findings suggest that efforts to prevent unintentional injuries in Providence should focus on prevention efforts with low-income families. (It is possible, however, that higher-income or privately insured

children were seen elsewhere, therefore overestimating the burden of these injuries on low-income children.)

Second, demographic findings in this study differ from national data. Although males were more likely to suffer intentional violent injuries, the margin was smaller than nationally reported.² Moreover, unlike national data, in this study white/Caucasian patients were more likely to be intentionally injured than African-Americans or Hispanics.² More than three-quarters of Providence youth are Hispanic or non-white.²⁵ Some Hispanics may have been misclassified as "white/Caucasian."

Third, a significant percentage of charts lacked information regarding the characteristics of the injury and the patient's alcohol/substance abuse history. Other researchers have noted this absence—particularly intent, cause, and number of/relationship to perpetrators.²⁷ It may be because health care providers view the details of violent injury as too uncertain to document, outside of their purview, or not worth their time.²⁸ To draw accurate conclusions about predictors and correlates of youth violent injury, a much expanded research methodology is needed. One option would be to create a dedicated registry of violent injuries, possibly with standardized charting forms for ED physicians. For instance, because Rhode Island is already part of the National Violent Death Reporting System, this structure could be expanded to cover non-fatal violent injuries. Another option would be to have research assistants query

violently injured youth during or soon after their ED stay.

Fourth, intentionality was misclassified by E-code (as compared to the chart review) for a number of injuries. The frequency of miscoding was higher for intentional than unintentional injuries. The difficulty in determining intentionality by E-code has been suggested previously;^{17, 18, 29} our results substantiate this claim. Again, hospital billing records may be poor sources of data for injury prevention planning efforts.

LIMITATIONS

This study is subject to a few important limitations. First, data were obtained from only two of four 24-hour EDs in Providence. Although these EDs have almost three times the annual patient volume of the other Providence hospitals and comprise the state's only Level I trauma centers, it is possible that this study missed some youth injuries. Second, injured youth who sought care in private physicians' offices or from free-standing urgent care facilities are excluded from the study. As a result, the uninsured and those with public health insurance as well as youth with more serious injuries may be over-represented. Third, we depended on hospital-assigned E-codes for initial selection of charts. It is possible that we missed injuries miscoded as not due to injury. Fourth, the small number of intentional injuries limits our ability to analyze characteristics of these injuries in detail. Fifth, we probably undercounted or misclassified Hispanics.

CONCLUSION

Demographic characteristics of intentional and unintentional cutting, piercing, and firearm injuries among Providence youth differ from national statistics. The high percentage of injuries among youth with public health insurance suggests the need for prevention interventions targeting this population. Although billing data are frequently utilized to describe injury patterns, these data sometimes conflict with the chart-documented intentionality of the injury, especially for firearm-related injuries. A standardized violent-injury registry may be the most accurate way to collect accurate, comprehensive data on the characteristics of injured youth and the circumstances of these injuries.

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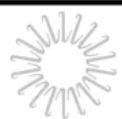
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Community Based Programs For Chronic Inebriates As an Alternative To the Emergency Department

Cameron J. McClure, MD, Michael J. Mello MD, MPH, Brian Zink, MD

Chronic inebriates repeatedly present to the emergency department (ED).¹⁻⁷ Frequent use by these individuals, who are often homeless, unemployed and who have not been helped by numerous attempts at alcoholism treatment, further strains this already strained emergency system.⁸ Repeated visits prolong ED bed utilization, require ED staff to monitor these patients, and contribute to existing ED crowding. Unfortunately, time in the ED is frequently not optimally utilized. The ED visit does not usually address their underlying dependency or social problems.

A few EDs have developed ED-based programs for referral of patients with substance abuse problems.⁹⁻¹⁰ Though successful, these programs consume ED resources. Several communities have developed programs external to the ED that would prevent the ED visit from recurring. The objective would be for the chronic inebriate population to use these programs instead of the ED.

We performed a comprehensive literature review to identify non-ED based programs managing the ED use by chronic inebriates. These programs could serve as templates for others.

METHODS

A literature review was performed in August and September of 2006. Search terms used, with syntactic variations used for different databases, included: chronic inebriate (alcohol*, drunk*, inebriat*, intoxicat*) and emergency department (emergency medical services, emergency department, emergency room).: MEDLINE (PubMed), Cochrane Libraries, Web of Science, CINAHL, LexisNexis Academic, CRISP, and Health Services Research Projects in Progress were queried.

All abstracts/papers identified were screened for population of interest, program (unique set of services provided to population) and goal of program (reduction in ED usage). All articles were searched for relevant citations of other programs. Additionally, the Web of Sci-

ence database was searched using the ISI citation reference search for each program specific article identified. Program websites, if available, were also reviewed. Authors of program-specific articles and/or programs themselves were contacted via phone and/or email to confirm and review the description of services, goal, achievements and funding source. They were also asked if they were aware of any new or unique programs with a similar focus that had not been identified through the literature review. Lastly, programs were contacted in February 2009 to confirm continued operations.

RESULTS

Eight programs were identified. All were contacted and provided with a copy of their program description; six of the eight responded, verifying their program description.

1. Glenwood Residence Program; Minneapolis, MN⁸⁻¹¹

Goal: Hennepin County initiative to reduce ED overcrowding, admissions and emergency resource utilization while providing safe, acceptable living environment for men who would not accept or had failed traditional attempts at alcohol dependency treatment.

Program: Housing for men only; each resident has a private room; facility has congregate dining and bathrooms. Program does not require sobriety, but does not allow alcohol on site. Health care is provided by physician visits at residence, men receive ongoing education to reduce ED visits, and the program provides transportation to medical appointments including urgent care and ED.

Impact: Glenwood, Anishinabe and Street Case Management were assessed together and reported a reduction in health care utilization for most patients. Median health care expenditures declined, as did the median number of injury and alcohol-related visits, while median number of illness-related visits remained the same.

Funding: State/County funded through Group Residential Housing monies at a cost of \$1,087 a month; residents contribute \$136 a month from their General Assistance Medical Care or \$441 from their Social Security Disability Insurance check (1999 dollars). Catholic Charities of St. Paul and Minneapolis contributes toward the cost.

2. "Street Case Management Project"; Minneapolis, MN⁸⁻¹¹

Goal: Reducing inappropriate ED and detoxification services.

Program: Intensive street-based management for highest users of EMS related to intoxication (most were homeless and remained homeless while involved with the program). Clients were told goals of program (i.e. use ED less frequently) and were free to decide how to accomplish the goals with incentives directed by clients (i.e. carton of cigarettes if goals met for the week). Full-time nurse manager coordinates the program, working on the streets with clients. Street Case Management Project recently lost funding and is now part of a detox center program.

Impact: Glenwood, Anishinabe and Street Case Management were assessed together with a reduction in health care use for most patients. Median health care expenditures declined, as did the median number of injury and alcohol-related visits, while median number of illness-related visits remained the same.

Funding: \$250 per client per month, paid by Hennepin County.

3. Anishinabe Wakiagun Residence; Minneapolis, MN⁸⁻¹¹

Goal: Hennepin County initiative to reduce ED overcrowding, admissions and emergency resource utilization while providing safe, acceptable living environment for Native Americans who would not accept/had already failed traditional attempts at chemical dependency treatment.

Program: Provides single occupancy rooms. Residence is located next to the American Indian Center in south Min-

neapolis and across the street from a health clinic. Program allows alcohol within residence.

Impact: Glenwood, Anishinabe and Street Case Management were assessed together with a reduction in health care use for most patients. Median health care expenditures declined, as did the median number of injury and alcohol-related visits, while median number of illness-related visits remained the same.

Funding: State/County funded through Group Residential Housing monies at a cost of \$1,087 a month; residents contributed \$136 a month from their General Assistance Medical Care or \$441 from their Social Security Disability Insurance check (1999 dollars) in association with the American Indian Housing and Community Development Corporation.

4. San Diego Serial Inebriate Program (SIP); San Diego, CA ^{12,13}

Goal: To provide patients who have exhausted traditional therapeutic options with a sober living alternative while reducing their adverse community impact.

Program: Aligns the judicial system with treatment to create incentive for individuals' participation in outpatient recovery program. San Diego Police Department in partnership with a treatment provider, the City Attorney, the Superior Court, the Public Defender, the regional Detox Center and City Emergency Medical Services, tailored the program to the predominantly homeless individuals who consistently failed traditional therapy. In association with new booking and sentencing procedures, individuals are offered 6 month outpatient treatment program instead of progressive sentences of up to 180 days in jail. Clients who accept treatment are driven from jail directly to St. Vincent de Paul Village Medical Clinic for initial medical evaluation by Combined Family Med-Psychiatry residents. Clients receive supportive housing, case management and introduction to a new "medical home" and are instructed to not return to ED for routine care. The program provides medications and health care.

Impact: There was a 50% decline in the use of ED, inpatient and EMS resources noted in individuals who chose the 6-month outpatient treatment program in lieu of custody, compared to no

change in consumption by those who did not enter treatment.

Funding: The City and County of San Diego fund this program.

5. Seaton House Annex Harm Reduction Program; Toronto, Canada ¹⁴

Goal: Seaton House shelters and supports men with diverse social needs through client-centered service, grounded in the principles of acceptance, respect and understanding, partnerships among staff, clients and community, and advocacy for community living alternatives.

Program: Provides housing to clients with alcohol or mental health diagnoses. A client's alcohol use is managed with a harm reduction approach that focuses on modifying harmful conditions and behaviors, restoring health and providing holistic options for up to 140 men at a time. Palliative care is available.

Impact: No published data

Funding: City of Toronto through emergency services, shelter and housing.

6. Shelter-based Managed Alcohol Project (MAP); Ottawa, Canada ¹⁵

Goal: Following harm reduction policy, managed alcohol program was developed for people with long-term homelessness and refractory alcoholism within the shelter system; looking specifically at reduction of crisis services and consumption of alcohol while improving health care.

Program: Participants were housed at a shelter designated by MAP and provided with meals; a worker supervised the participants, assisted with ADLs, helped fill out applications for social benefits, accompanied clients to appointments and dispensed medications. Participants were given up to a max of 5 ounces of wine or 3 ounces of sherry hourly, on demand from 0700-2200, 7 days a week; medical care was provided 24hrs a day by nursing staff; a physician visited weekly.

Impact: Participants consumed less alcohol, visited EDs less often and had fewer police encounters. Staff and clients reported improved hygiene, general health and compliance with medical care.

Funding: Supported by a grant from Human Resources Development Corporation, Government of Canada, for the Inner City Health Project.

7. McMillan Stabilization Project; San Francisco, CA ^{16,17}

Goal: To reduce ED visits and improve health outcomes for chronic public inebriates.

Program: Includes a sobering unit as opposed to ED. A Mobile Assistance Patrol van can provide transportation to clients. The client has access to medical, behavioral health, nursing, housing and case management services.

Impact: Since implementation of the project in 2003, several hospitals have reported a significant reduction in the number of inebriates seen and their length of stay in the ED. In addition, a number of high-profile homeless inebriates have been housed.

Funding: The support of multiple stakeholders (i.e., the Hospital Council of Northern and Central California, the San Francisco Fire Department, Emergency Communications Department, citywide emergency departments and Baker Places). The project is operated through a partnership between the department's Tom Waddell Health Center and Community Awareness and Treatment Services (CATS), a nonprofit agency that manages the McMillan Drop-In Center (MDIC).

8. 1811 Eastlake Project; Seattle, WA ^{18,19}

Goal: To improve the lives of residents through reduced alcohol consumption, better health care, and increased stability. It will also reduce residents' use of the community's crisis response system, reduce public nuisances and encourage residents to undertake and follow through with treatment.

Program: Project provides supportive housing for 75 formerly homeless men and women with chronic alcohol addiction. Residents receive 24-hour, seven day a week supportive services including: state-licensed mental health and chemical dependency treatment; on-site health care services; daily meals and weekly outings to food banks; Case management and payee services; medication monitoring; weekly community building activities

Impact: Preliminary findings from an evaluation of the program demonstrated an estimated decrease in costs of \$2.5 million for that emergency health services and crisis services.

Funding: Various government agencies; the largest amount comes from the federal McKinney homeless assistance program.

DISCUSSION

Some individuals who have not benefited from traditional substance abuse treatment frequently enter EDs, or are brought there by police and Emergency Medical Technicians. Many community have ordinances that publicly intoxicated people be taken to the ED.

Through our literature review and personal communications with program staff, we identified eight programs in five US and Canadian cities that address chronic inebriates who frequent the ED. All the programs appear to serve their designated populations. All established case management, which has shown promise with reduction of health care utilization for this population previously.²⁰ Many of the programs accept that this group has failed sobriety and do not require it for participation. Others allow alcohol on the premises; a minority even provides alcohol to clients. Although all offer assistance with addictions and mental health services, it is a newer and more controversial approach to accept failure of treatment and focus on harm reduction.

Chronic inebriates frequently have a low priority in the busy ED. However, their long length of stay can have the same impact as four to five non-urgent patients in terms of provider time and bed utilization. The programs identified appear to offer health care services more efficiently than traditional ED treatment for this population. For example, the SIP showed a 50% decline in the use of ED, inpatient and EMS resources for those who were a part of the 6-month outpatient treatment program.¹² The three Minnesota programs showed a reduction in median health care expenditures and median number of injury and alcohol related visits but no change in illness related visits.⁸

Although all programs identified cater to the chronic inebriate population who frequent the ED, each operates within a unique framework of state and local ordinances and laws. The SIP relies upon the fact that public inebriation is a crime and that punishment becomes additive for repeated offenses which is not true in many of the other programs.

Funding is crucial. The cost of each program has been underwritten by differing mechanisms; however, the ED treatment of the chronic inebriate population has considerable costs as well. This cost can be measured by the community resources needed for assessment and transport to the ED, the human resources to attend to this group while in the ED, and the institutional resources needed to accommodate them. The financial capital to acquire and utilize such resources could be redirected toward a program that would provide more comprehensive service for the chronic inebriate population external to the ED. The programs cited here have demonstrated that it is possible to reduce EMS and police utilization and ED visits.

LIMITATIONS

Our protocol for finding programs relied on the medical and popular press. Although we asked programs their knowledge of similar programs, they too may have been limited by publication bias. Similar programs could exist without having any published references.

CONCLUSIONS

Communities which seek to address the excessive emergency department utilization by chronic inebriates have models to learn from in designing a program that has sustainable funding and serves the needs of this population.

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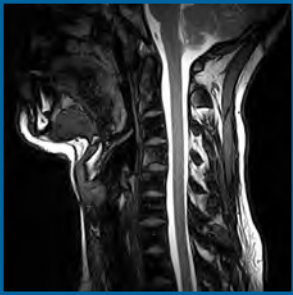
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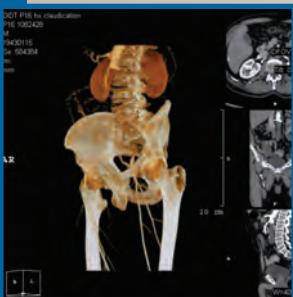


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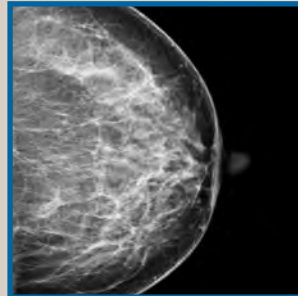
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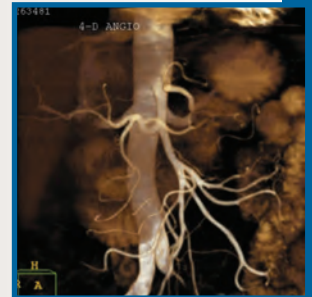
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Images In Medicine

Serious Mechanical Complication After Subclavian Vein Catheterization

Gustavo Gabino Miranda, MD

A 75-year-old diabetic woman underwent exploratory laparotomy because of an intrauterine abscess complicated by septic shock. Prior to surgery, several unsuccessful attempts to insert a right subclavian central line were performed. Once in the Intensive Care Unit, the patient became hypotensive, tachycardic and her hematocrit level decreased from 36 to 29%. There was no evidence of external bleeding at the time of evaluation. A chest X-ray performed 8 hours after central line placement showed a large opacity in the right upper and middle lung segments highly suggestive of an extrathoracic expanding hematoma. (Panel A arrow)

A CT scan of the chest revealed collapse of the right pulmonary upper lobe, partial occlusion of the right upper bronchi, and total occlusion of the right middle bronchi. (Panel B arrow)

There are three main types of complications related to central line insertions, namely infectious, mechanical and thrombotic. Among mechanical complications, arterial puncture and hematoma are the most common and are more likely to develop if using the femoral rather than the subclavian approach; however, the rate of serious mechanical complication is similar between them. Serious mechanical complication (tensional pneumothorax or hemorrhage requiring blood transfusion) is a life-threatening condition related to both subclavian and internal jugular vein catheterizations. The hematoma did not further increase in size, and the patient required 3 packed red blood cells units to stabilize her hematocrit level.

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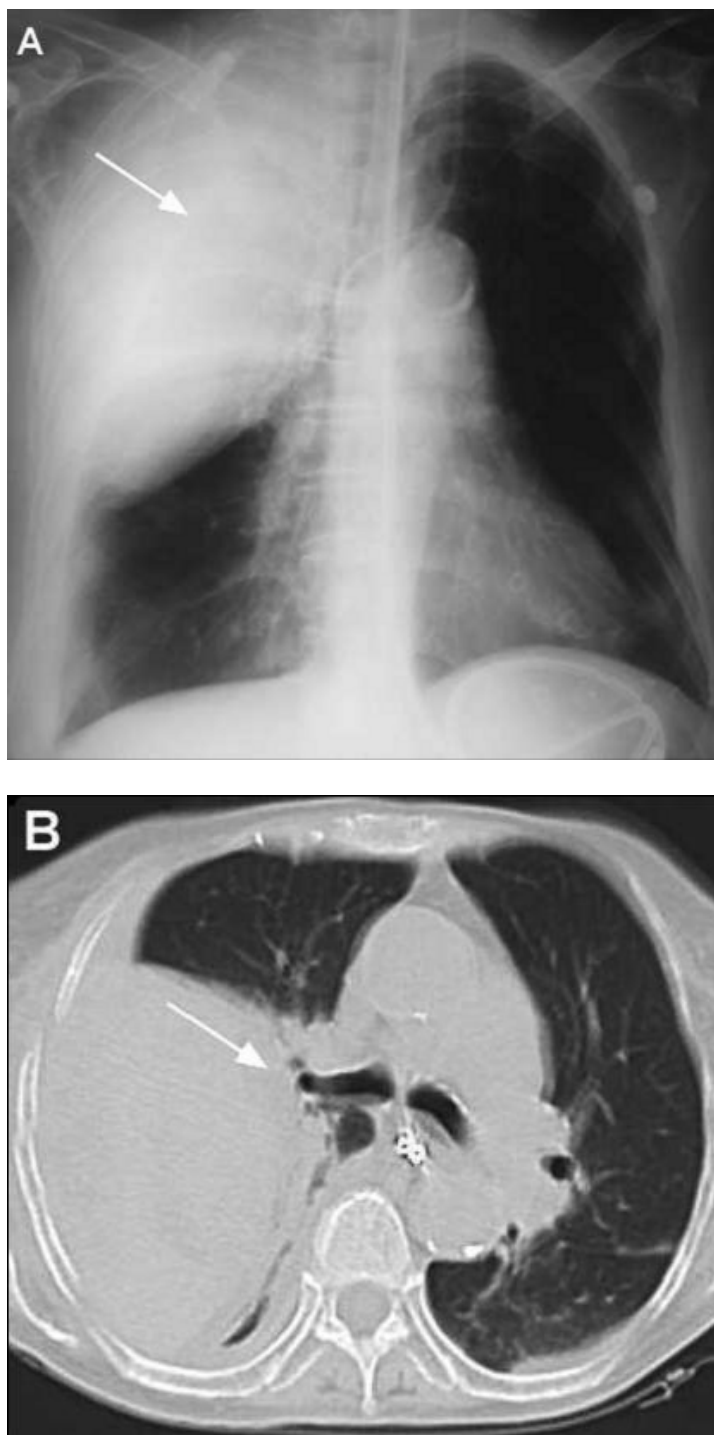
Gustavo Gabino Miranda, MD, is a first-year resident, Department of Internal Medicine, Boston University School of Medicine – Roger Williams Medical Center.

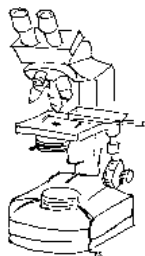
Disclosure of Financial Interests

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The Creative Clinician

Multifocal Tumors of the Testis

Joseph C Cambio, MD, Usama Hasan, Altaf Hussain, MD

A 31 year-old man presented to the office complaining of left testicular discomfort and intermittent pain for the last month. There was no past medical or surgical history. The patient was unmarried and a smoker. His grandfather had a history of gastric cancer.

PHYSICAL FINDINGS

No testicular mass or abnormality was noted, but there was mild tenderness to palpation of the left testis.

After examination a provisional diagnosis of epididymo-orchitis was made. However, one would expect more pain as well as more swelling of the epididymis (the structure directly behind the testis which extends from the upper pole of testis to the lower pole).

Although the patient's signs and symptoms were not impressive, it was felt that he probably had an early epididymal orchitis. At times this can progress in severity to the point that requires hospitalization for intravenous antibiotics. Furthermore, in rare cases it can progress to abscess formation, requiring removal of the testis. In view of this, it was felt that conservative treatment with antibiotics, analgesics, and use of warm soaks tid was indicated, and therefore initiated.

Other studies ordered included: chest x-ray, urine analysis, and scrotal sonography.

The chest x-ray and urine analysis were normal.

Scrotal sonography showed the following unexpected findings:

Left testis:

- Small sonolucent area at upper pole, 0.5 cm
- 1.1 cm non homogeneous area (with a calcific focus) in the midpole region
- Multiple scattered calcific foci

R testis normal

The sonographic appearance of the larger lesion suggested the possibility of Leydig cell tumor. The smaller lesion could not be characterized.

The patient was called, was asked to come into the office as soon as possible.

Pre operative tumor markers were drawn

- Alpha fetoprotein : 14.7
- Beta hCG : 2.0
- LDH: 179

The patient underwent inguinal exploration of the testicular mass and radical orchiectomy was performed.

The initial post-operative diagnosis on gross examination was suggestive of embryonal carcinoma.

No lymph nodes were found.



Larger lesion with calcific focus.



Larger lesion.



Smaller lesion.

There was no extension of the mass through tunica albuginea. Further studies ordered included CT abdomen and pelvis PET.

Pathology Findings:

- Main tumor:
 - embryonal carcinoma
 - Invasion of tunica albuginea, limited to testis
 - No invasion to tunica vaginalis
 - lymphatic/ vascular invasion was noted
 - Intratubular foci of tumor were also seen
- Small tumor mass:
 - Seminoma, limited to testis

Other findings within the left testis:

- Intratubular foci of Seminoma
- Extensive Intratubular germ cell neoplasia, with foci of extratubular extension
- Leydig cell hyperplasia
- Atrophy

CT findings:

Left paraortic lymph node 1.4 x 0.8 cm at the level of left renal hilum.

No other retroperitoneal adenopathy.

Two non specific lymph nodes anterior to left external iliac vasculature measuring 1.2 x 0.9 cm, and 1.3 x 1.0 cm were seen.

A lymph node measuring 1.1 x 1.8 cm seen anterior to right external iliac vasculature.

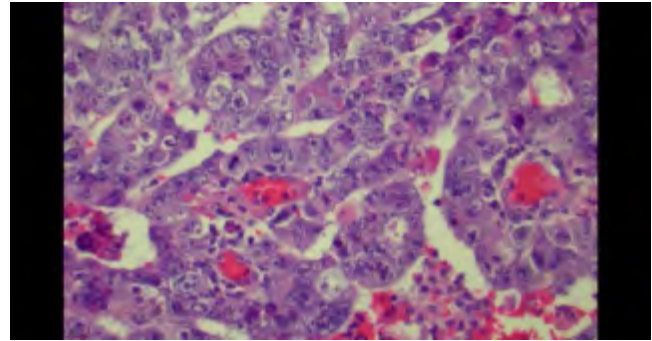
Bilateral non specific inguinal nodes also noted, largest was 1.5 x 0.8 cm.

PET findings:

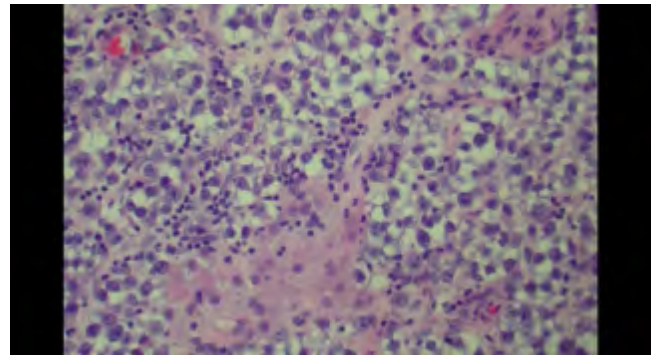
- Normal FDG uptake is seen at the scanned lower brain tissue, head and neck muscles and myocardium.
- Both lung fields, mediastinum and chest wall are normal.
- Normal concentration of physiologic tracer was found below the diaphragm, liver, spleen, pancreas, adrenals.
- Normal excretion of the tracer was also seen in both kidneys, small & large bowel.
- No definite FDG avid lymph nodes can be identified in the retroperitoneal, paraortic, or pelvic region.
- No definite evidence of bony lesions.
- No definite evidence of FDG avid residual or recurrent malignant disease was found.
- Post operative changes were found in the left inguinal region.

DISCUSSION

The patient was provided symptomatic treatment after his first visit; however, he was operated immediately when ultrasound was strongly suspicious for testicular tumor. Although the sonographic appearance suggested Leydig cell tumor initially, the ill defined margins of main tumor and presence of a smaller lesion raised the possibility of other malignancies; therefore we proceeded with inguinal testicular exploration followed by a left radical orchiectomy.



Embryonal carcinoma 20x.



Seminoma 20x.

Later a detailed pathology report revealed that the main testicular tumor was embryonal carcinoma and the smaller tumor was seminoma. The remainder of the testis showed extensive Intratubular germ cell neoplasia, with foci of extratubular extension. Leydig cell hyperplasia was also noted.

Computed tomography shows a few non specific nodes in the paraortic area, as well as lymph nodes seen anterior to external iliac vasculature, and inguinal areas bilaterally. However, Positron Emission Tomography shows no abnormal activity.

CONCLUSION

Sonography as a basic imaging modality is very helpful and reliable. In this case. Sonography provided very important information which led to the early decision of exploration and radical orchiectomy. Early diagnosis and intervention will prove vital in finding and treating malignant disease before it had the opportunity to metastasize.

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Disclosure of Financial Interests

The authors have no financial interests to disclose.

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Treating Depression in the Older Adult

Ana Tuya Fulton, MD

Seventy-six year-old Mrs. M comes to your office for a routine visit for hypertension and arthritis. She appears much younger than her age. She is an avid golfer, volunteers at her church and cares for her two grandchildren during the week. She is on atenolol, calcium with vitamin D and occasional acetaminophen for pain. Her husband of 46 years died a year ago. When you ask her how she is doing, she says "fine." However, she admits she's lost about 10 lbs, hasn't golfed in a year, and no longer volunteers. She still enjoys watching her grandchildren and talks about them with pride, but seems to have lost the spark that made her so vibrant.

BACKGROUND

The prevalence of major depression in older adults is 1-2%. When including minor depression, the prevalence is higher. As expected, it is lower in community settings (8-15%), but doubles in long term care settings (30%).¹

Most cases are treated in the primary care physician's office. Although depression in older adults is as responsive to treatment as in younger patients, depression can present atypically, as with many other illnesses, and is more difficult to treat due to co-morbid illnesses, drug-drug interactions and adverse drug reactions.

The etiology of depression in late life is usually multifactorial. Medical disorders can contribute to the development of depression (e.g., diabetes, dementia, cerebrovascular disease). Social factors play into the development as well, seemingly more so in men.¹ Lack of social support, loss of spouse, isolation, and loss of independence are common factors. Common precipitating factors include medical illness, financial stress, anniversary of a sad event, and death or major illness of a loved one.¹

Older adults are less apt to present with symptoms meeting criteria for major depression. They are more likely to present with sub-syndromal or minor depressive symptoms.² However, whether major or minor, the same treatment options can help patients. Recognition and treatment are important, since depression is often under recognized in the elderly population. It can often coexist with medical illness and affect functional status. Most importantly, suicide rates in the elderly population are higher than in any other age group. Untreated patients are at high risk for suicide, especially older men. Suicide attempts in older adults are more often successful than those in younger adults. It is absolutely critical to assess every patient in whom depression is suspected for suicidal ideation, organized plan, means, and prior attempts. An estimated 70% of patients who commit-

ted suicide visited primary care physicians within four weeks of the attempt.¹

Diagnosis is more difficult. Patients are less likely to report depressed mood than their younger counterparts, and are more likely to present with somatic complaints. Loss of interest and discontinuation of previously enjoyable activities are almost always present. Other common presenting complaints include cognitive difficulties, impaired concentration, anxiety, social withdrawal, and at times, paranoia and psychotic symptoms.

Medical illness masquerading as psychiatric illness must always be ruled out. Common conditions include thyroid disorders, Parkinson's disease, and dementia. However, these illnesses also predispose to depression, so they often co-exist. Assessment involves a thorough history and physical exam, laboratory evaluation, cognitive assessment and assessment of symptoms. A commonly used tool to screen for depression in the older adult is the Geriatric Depression Scale (see Resources). If this screening test is positive, then further testing and evaluation using the DSM-IV criteria are pursued.

Is Mrs. M depressed?

You discuss your suspicion that Mrs. M might be depressed. She is rather surprised, but admits to being less interested in her previously loved hobbies, and she does think about her husband a great deal, often with tearful spells. In addition, the anniversary of his death just passed a few weeks ago, and she has felt much worse since then. She describes poor appetite and difficulty falling asleep at night due to memories of him. In addition, she reports feeling much more troubled by her arthritis pain and a general feeling of malaise. She denies a prior history of similar symptoms, or of treatment for depression. You administer the Geriatric Depression Scale; out of 15 questions, she scores 9 positive, indicating likelihood of depression. A complete physical and laboratory evaluation reveals no evidence of medical illness. She asks you what you would recommend to help her.

TREATMENT

Treatment in the older adult begins with non-pharmacologic measures, mainly psychotherapy. It is effective in older adults, and provides a useful adjunct to medications and seems to have a lower relapse rate than pharmacotherapy alone. Referral to a therapist or counselor is appropriate, and can help while pharmacotherapy is being instituted. However, other interventions like increasing social activity, exercise, pet therapy, and art therapy also have been found to be helpful.

The course of depression in older adults is more likely to be prolonged and relapsing. Older adults are much less likely to be successfully weaned off medications after short periods of six months or a year.² Most experts recommend continuing therapy for up to two years before attempting a weaning trial, and some propose lifelong therapy. Asking about prior episodes of depression and successful treatment can be helpful. Older adults with a history of prior episodes of depression are less likely to be helped by non-pharmacologic measures alone.

When choosing an agent, the **selective serotonin reuptake inhibitors (SSRIs)** are first line. Citalopram and sertraline have the largest evidence base of effectiveness in older adults.² They are proven to be well tolerated and have the lowest frequency of drug-drug interactions among the SSRIs. However, other SSRIs, such as escitalopram, are also considered safe. The only SSRIs to be cautious about are paroxetine and fluoxetine. These have higher rates of drug-drug interactions, primarily by their inhibition of hepatic metabolism and thus accumulation of other medications. Additionally, paroxetine can have anticholinergic effects in some patients and can cause confusion. Fluoxetine can worsen insomnia in older adults; its longer half life is troublesome if adverse reactions or drug-drug interactions occur. In the older adult, slow titration of dose over several weeks is recommended to avoid adverse drug reactions. Dose increases should be made no more often than weekly for the first three to four weeks.² The most common side effect is gastrointestinal distress with nausea, vomiting and diarrhea. Other side effects include hyponatremia (from SIADH), sexual dysfunction and extrapyramidal effects. Response to medications can be slower in older adults; most experts advise continuing to monitor on an agent for up to 12 weeks before changing medication.

Other options include mirtazepine, a norepinephrine antagonist. This is a popular choice as adjunctive therapy for older adults with depression and weight/appetite loss.² In lower doses (7.5 mg daily or 15 mg daily), mirtazepine has side effects of increased appetite and somnolence. It can be helpful in older adults with dementia (either with or without depression) who have trouble sleeping and weight loss. As a single agent for depression, it must be used in higher doses to be effective, and at those doses the appetite and sleep effects diminish.

Tricyclic antidepressants may cause QT prolongation, and are therefore contraindicated in the presence of ischemic heart disease. These agents, however, have the largest body of evidence for efficacy in older patients, and the least sedating and least anticholinergic agents (nortriptyline and desipramine) are effective in older patients. Orthostatic hypotension can usually be avoided by starting with low doses and increasing slowly, but toxicity in the setting of overdose is a major concern. Venlafaxine is a dual agent, acting on both the serotonin and norepinephrine systems. In lower doses, it acts primarily as an SSRI, but in higher doses, it also inhibits norepinephrine reuptake. It is usually well tolerated, and is useful in patients with concomitant anxiety disorders. Hypertension can develop at the higher doses, and blood pressure should be monitored carefully with dose titration. This agent requires tapering when discontinuing to prevent a flu-like syndrome.

Other dual agents include bupropion (dopamine and norepinephrine) and duloxetine (serotonin and norepinephrine). Bupropion is the least likely to cause sexual side effects and is well tolerated. The major caution is its lowering of the seizure threshold, making it contraindicated in patients with a history of seizures or in patients with other risk factors for a lower seizure threshold. Duloxetine is considered useful in patients with chronic pain, especially of a neuropathic etiology.

Electroconvulsive therapy (ECT) is a consideration in older adults who fail to respond to medication therapy, who cannot tolerate or risk side effects of drugs, or who have very severe depression. It is the most effective treatment in older adults and is safe, although gains must be maintained with follow-up medication. The main contraindications include recent stroke, intracranial mass or elevated pressure, or active, severe cardiac disease. Response rates for ECT are as high as 70 to 90%. ECT should be considered in the older adult with a high risk for drug-drug interactions, failed medical therapy, or catatonic or psychotic features.

What should we recommend to Mrs. M?

You prescribe sertraline 25 mg daily for one week, followed by 50 mg daily, and ask her to return to the office in 3 weeks. You also spend time discussing other treatment options. In addition, as spring has arrived, you recommend she gradually increase her outdoor activities and physical activity. You ask her direct questions about suicidal thoughts or intent, which she very adamantly denies. She feels safe and hopeful after identifying the problem and having accepted a clearly defined treatment plan. You give her the office's social worker as a contact, and ask her to call at any time should she feel worse.

Mrs. M returns for her 3-week follow up visit; she feels better, and reports adherence to medication and behavioral recommendations. She still thinks about her husband often, and has tearful moments, but is more positive about her overall outlook. The daily exercise has helped her sleep better at night and eased her arthritis pain, and the increased physical activity has increased her appetite. She has gained back 4 pounds. She tolerated the sertraline with only mild nausea that stopped after the first few days. She plans on getting back to her golf games once the weather is warmer, is going to continue the sertraline and has started seeing a psychotherapist every few weeks. She thanks you for recognizing her symptoms and helping her regain her positive outlook and enjoyment of life.

Indications for Referral

If Mrs. M had not improved, or showed increased functional loss, worsened weight loss, or suicidal ideation, then escalation in care would be necessary. Potential resources include psychiatry, geriatric psychiatry, and inpatient psychiatric care. Referral to psychiatry or geriatric psychiatry should be implemented for patients who are high risk at presentation, have failed treatment trials, or are candidates for ECT.

RESOURCES

Geriatric Depression Scale available on-line at: <http://www.stanford.edu/~yesavage/GDS.english.short.score.html>

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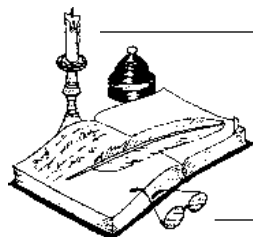
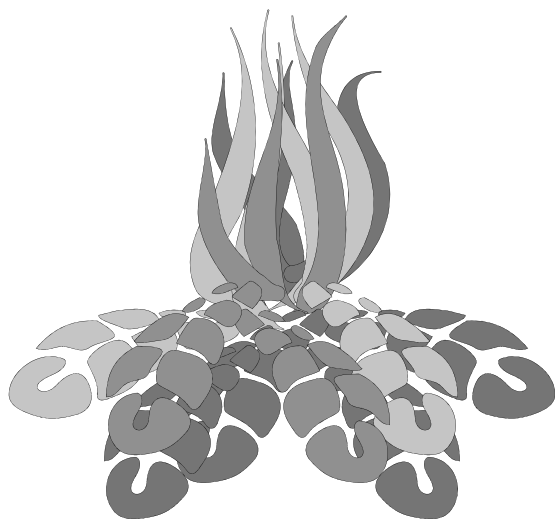
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Physician's Lexicon

Those Viable Words

Verdi's opera, *La Traviata*, was first performed at La Fenice in Venice on March 6, 1853. The title, *La Traviata*, literally translated as 'The Woman Led Astray', contains the Latin root, *via*, meaning 'the way'. An astonishing number of English words incorporate this root.

Consider the word, trivial, first meaning 'that which belongs at the junction of three roads'; but colloquially, something that is commonplace, vulgar – or, in a word, trivial. The word appears in its original form, *trivium*, meaning the three paths or ways, and is the name given to the entering curriculum in medieval universities. The three courses, or scholarly paths, were grammar, logic [or dialectic] and rhetoric. This was followed by the *quadrivium*, the four ways, embracing arithmetic, geometry, music and astronomy. Only then was the university

student prepared to engage in the study of medicine. The pathway to the contemporary study of medicine in the West is equally formidable, but in different ways.

The word, *via*, appears in words such as deviate [to depart from the path]; obviate [to make unnecessary, literally to keep from the path]; obvious [clear, manifest, literally, lying in the way]; and previous [literally, coming before, leading the way.]

The root, *via*, is clearly apparent in words such as viaduct [a bridge carrying a path], viatic [pertaining to a road], viameter [an instrument for measuring distances on roads] and viaticum [monies set aside for travel.] The word, voyage is derived from the Latin, *viaticus* [pertaining to the road] but has been altered in spelling in its passage through Vulgate Latin and later, French. The English

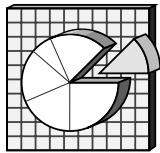
words, envoy and convey, are also derived from the Latin, *via*.

English words such as violet, viola and violin are similarly descended from the Latin, *vitulare*, meaning an aliveness, an exultation. Violate, on the other hand, stems from the Latin, *violare*, meaning related to strength or force.

Medically oriented words such as viable or viability, capable of living or growing and a looser, more current meaning of feasibility, are based rather, on the Latin word, *vita*, meaning life. The word, vial, a small container usually of glass to hold some liquid, and sometimes spelled phial, is from an Old English word, *firole*.

Finally, the word, viand, an article of food and by inference a culinary delicacy, comes from the Latin, *vivere*, meaning to live.

– STANLEY M. ARONSON, MD



The 'Value' Equation: Costs and Quality of Rhode Island's Health Plans (2007)

Bruce Cryan, MBA, MS

Among Rhode Island's 338,000 commercially insured individuals in 2007, over 255,000 (75%) received their health coverage through two domestic plans: Blue Cross and Blue Shield of Rhode Island (Blue Cross), and United Healthcare of New England (United). Information about these plans is essential to determining if purchasers receive "value" from their premium dollars expended.

In response, the Rhode Island General Assembly passed the Health Care Accessibility and Quality Assurance Act in 1996 (Rhode Island General Laws 23-17.13).¹ The Act instituted health plan performance reporting in the state, which is summarized annually, and most recently in the *Rhode Island Health Plans' Performance Report (2007)*.² The information presented here is derived from that report.

METHODS

The Rhode Island Department of Health's Center for Health Data and Analysis conducts an annual data survey from three audited sources: 1) Statutory Filings to the state's Department of Business Regulation, 2) **Health Plan Employer Data and Information Set (HEDIS)** reports, and 3) **Consumer Assessment of Healthcare Providers and Systems (CAHPS)** surveys.

From these data, 34 measures are evaluated, comprising eight separate dimensions of performance (enrollment, costs, utilization, prevention, screening, treatment, access, and satisfaction). The measures are trended over time, compared to the average of health plans in New England, and benchmarked to the best-performing 10% of health plans nationally.

RESULTS

Rhode Island's commercial health insurance market remains concentrated in two carriers, Blue Cross, with a 2007 market share of 63.0%, and United, with a share of 12.5%. The remainder of the market (24.5%) consists of a number of smaller plans, none of which are domiciled in Rhode Island.

To assess whether the purchasers of these plans' products are receiving 'value,' one must examine its two components, cost and quality. For Rhode Islanders to receive good 'value' from their investment in health insurance, that coverage should be equivalent or less expensive and deliver the same or better quality services than elsewhere.

On average in 2007, commercial health insurance cost significantly less in Rhode Island than in New England. (Figure 1) Blue Cross's monthly premiums were 12% lower than regional premiums (\$333 vs. \$379), and United's premiums were 14% lower (\$325 vs. \$379). In addition, both Rhode Island plans spent considerably less on medical services for their members (13% less for Blue Cross and 21% less for United).

With few exceptions, both Blue Cross and United generally performed above average when their clinical quality measures were compared to the New England values. (Table 1) For Blue Cross, 11 of its 19 quality measures were equivalent to the regional averages, five measures were better, and the remaining three were worse than these comparables. For United, 12 of its 19 quality measures were equivalent to the regional averages, four measures were better, and the remaining three were worse than these comparables. Given that New England health plans consistently post some of the highest quality (and satisfaction) scores in the country, this regional comparison provides a fairly rigorous benchmark for Rhode Island plans.

No matter how acceptable an individual plan's relative performance may have been on any particular measure, the low absolute values on some clinical measures are concerning. For example, the weak *Chlamydia Screening* values of 42%, and *Antidepressant Medication Management* values under 28% highlight the need for further improvement in these areas.

The nexus between low cost and high quality is 'value,' and both Blue Cross and United provided good 'value' to their

Dimension/Measure	N.E. Averages	Relative to N.E. Averages ¹	
		Blue Cross	United
PREVENTION			
1 Childhood Immunization	73.5%	16%	13%
2 Adult Flu Shots	49.0%	=	-17%
3 Smokers Advised to Quit	79.6%	7%	=
4 Smokers Advised on Meds.	59.1%	-13%	20%
5 Smokers Advised on Methods	56.2%	=	7%
SCREENING			
6 Colorectal Cancer Screening	63.3%	5%	-9%
7 Breast Cancer Screening	77.0%	=	=
8 Cervical Cancer Screening	83.5%	=	=
9 Chlamydia Screening	45.9%	-9%	-8%
10 Diabetic Eye Exams	62.7%	=	=
11 Diabetic HbA1c Testing	89.0%	=	=
TREATMENT			
12 Persistent Beta Blocker Tx.	77.6%	-9%	=
13 Cholesterol Controlled	58.2%	6%	=
14 Appropriate Asthma Meds.	92.1%	=	=
15 Antidepressant Med. Mgmt.	25.8%	8%	=
ACCESS			
16 Follow-up for Mental Illness	81.0%	=	=
17 Well Child Visits (1st 15 mos.)	81.9%	=	11%
18 Well Child Visits (3rd 6th yrs.)	82.8%	=	=
19 Adolescent Well-Care Visits	58.7%	=	=

¹ '=' indicates that the relative difference from the N.E. average was less than +/-5%

Table 1: Health Plan Quality Performance (2007)

	Blue Cross	United	New England
Medical Expenses	\$282.21	\$257.36	\$323.91
Administrative Exp.	\$44.44	\$62.15	\$45.53
Profits	\$6.59	\$5.80	\$9.09

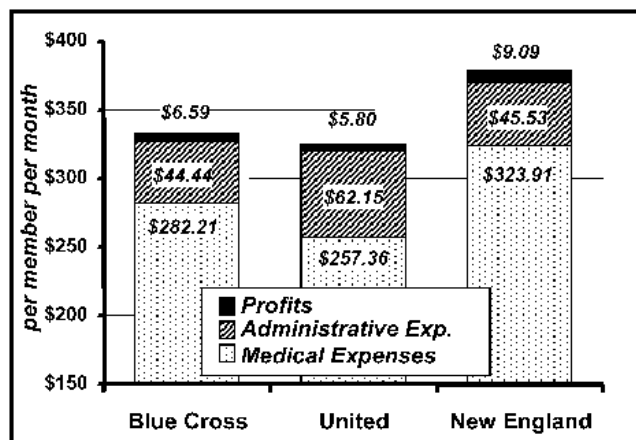


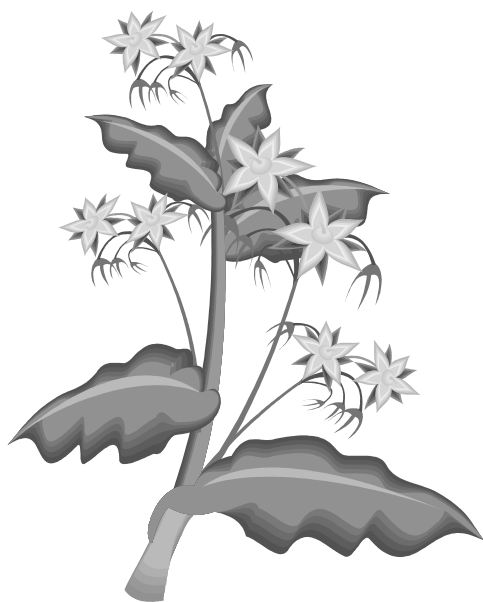
Figure 1: Average 2007 Health Plan Premiums by Component

commercial customers in 2007. Premium costs were lower than the New England rate, and quality performance was generally favorable, when compared to this cohort.

Whether or not the members perceive 'value' in their plans may be approximated by satisfaction surveys. (Figure 2) Even though most members are removed from the actual costs of their healthcare coverage, satisfaction rates may serve as a proxy for gauging the success of the insurer (perception-wise).

Member satisfaction with Blue Cross was 4 percentage points higher than the regional rate in 2007 (66% versus 62%), while member satisfaction with United was 18 percentage points below that comparable (44% versus 62%).

Members' satisfaction with their healthcare services followed a similar pattern. Blue Cross' member satisfaction was 1 percentage point higher than the regional rate in 2007 (77% versus 76%), while United's member satisfaction was 8 percentage points below that comparable (68% versus 76%). This



	New England	United	Blue Cross
Healthcare	76.2%	67.7%	77.5%
Health Plan	62.2%	44.0%	66.3%

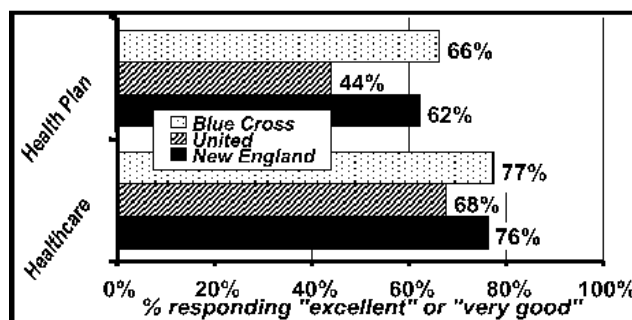


Figure 2: 2007 Health Plan Members' Satisfaction Rates

is significant in that members must believe they are receiving quality services for them to be effectively provided. Interestingly, regardless of geographic area or health insurer, more members were satisfied with their healthcare services than with their health plans.

DISCUSSION

Increasingly, the public, purchasers, providers, and policymakers are requiring meaningful information about health plans. Since 1998, the Department of Health has tracked the performance of this industry and produced annual reports on the subject.

With the small number of health plans in the state and the market dominance of Blue Cross, most Rhode Islanders have limited choice of carrier. The lack of widespread selective contracting also means that most plans deliver services through a similar network of physicians, hospitals, and other providers. Therefore, the real value in publishing this information is less in aiding consumer choice and more in fostering accountability of the industry. Purchasers deserve to know how well the plans are performing and policymakers need empirical evidence to inform their efforts. An added benefit is that health plan performance will likely improve if for no other reason than the results are made public.

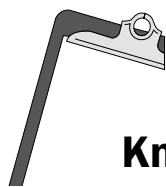
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Disclosure of Financial Interests

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Knowledge and Behaviors Related To Colorectal Cancer Prevention Among Non-Hispanic Black Women in Rhode Island

Kathleen M. Cullinen, PhD, RD, LDN, and Marjorie J. Caldwell, PhD

Colorectal cancer (CRC) is the fourth most commonly diagnosed cancer and the second leading cause of cancer death in both the US and Rhode Island (RI). Despite higher than national CRC screening rates, RI's age-adjusted CRC incidence and mortality rates remain significantly higher than the national average.¹ The reason for this discrepancy is not known.

Overweight and obesity are established risk factors for CRC.² An energy-dense, high fat diet and physical inactivity are independent risk factors of weight gain and obesity,³ as is lower **socioeconomic status (SES)**.⁴ Low SES populations have worse survival from CRC than those of higher SES.⁵

African American or **non-Hispanic Black (NHB)** adults are disproportionately affected by both obesity and CRC, and body weight is negatively associated with CRC screening among NHB women but not NHB men.⁶ In addition, obesity in adulthood may increase the risk of colorectal adenomas, precursor lesions to CRC, and is a leading cause of CRC incidence and mortality in NHB women.⁷

The purpose of this study is to evaluate the knowledge and behaviors of NHB women in RI, a population at high risk for both obesity and CRC.

METHODS

This study evaluated knowledge and behaviors related to obesity and CRC among NHB women, 40 years of age and older, as this population has the greatest prevalence of obesity in the US,⁸ and a greater CRC mortality rate than both Black males and White females in RI.¹ An anonymous, self-administered survey based on questions from the BRFSS and the National Institutes of Health-funded *Sisters Together* Program was presented to State and community cancer control partners, staff from the Minority Health Promotion Centers funded by the RI Department of Health's Office of Minority Health, and a focus group of six women in the target population for feedback. The revised survey was distributed to subjects through four Minority Health Promotion Centers, the American Cancer Society, and the RI Cancer Council, Inc. The survey includes 20 questions on demographics, access to health care; knowledge of risk factors for obesity; knowledge of CRC; health practices related to CRC screening, exercise and diet; and perception of **Body Mass Index (BMI)** and body weight. Survey data were analyzed using a Scanatron database created in Microsoft Access 2003 by Pfizer, Inc.

The Institutional Review Boards at the University of RI and the RI Department of Health approved the study. Informed consent was obtained prior to participation. Upon completion of the survey, subjects received educational materials on nutrition, physical activity and CRC prevention provided by the Centers for Disease Control and Prevention (CDC).

RESULTS

A total of 167 participants completed the survey; 160 were usable. (Tables 1 and 2)

Seventy seven percent of the participants were 50 years of age and older. Sixty one percent reported having less than or equal to a high school diploma or GED; 75% reported an annual household income of less than \$35,000.

More than half of the participants had health care coverage including *private* plans, Medicare, Medicaid, or *Rite Care*, RI's Medical Assistance managed care program. While 63% of the participants obtained health care information from their doctor, 76% also obtained information from other health care providers, family and friends, and community-based organizations.

Table 1. Knowledge of risk factors: results of a 2005 Rhode Island survey on colorectal cancer prevention among non-Hispanic Black women (n = 160)

In your opinion, which things listed below INCREASE someone's risk of getting colorectal cancer?

(Check all that apply)

Response	Frequency	%
Being overweight	56	35.0
Eating a high fat diet	46	28.8
Eating a high fiber diet	7	4.4
Eating a lot of fruits and vegetables	5	3.1
Taking a vitamin every day	7	4.4
Not being physically active	36	22.5
Smoking cigarettes	42	26.3
Drinking alcohol	53	33.1
Having a blood relative with colorectal cancer	98	61.3
Having polyps in the large intestine or colon	106	66.3
Being over the age of 50	57	35.6
Taking an aspirin every day	7	4.4
Taking estrogen or female hormones after menopause	17	10.6

In your opinion, which things listed below DECREASE someone's risk of getting colorectal cancer?

(Check all that apply)

Response	Frequency	%
Being overweight	13	8.1
Eating a high fat diet	20	12.5
Eating a high fiber diet	77	48.1
Eating a lot of fruits and vegetables	101	63.1
Taking a vitamin every day	86	53.8
Not being physically active	15	9.4
Smoking cigarettes	8	5.0
Drinking alcohol	7	4.4
Having a blood relative with colorectal cancer	6	3.8
Having polyps in the large intestine or colon	10	6.3
Being over the age of 50	11	6.9
Taking an aspirin every day	46	28.8
Taking estrogen or female hormones after menopause	13	8.1

Table 2. Nutrition and physical activity behaviors and body weight perception: results of a 2005 Rhode Island survey on colorectal cancer prevention among non-Hispanic Black women (n = 160)

How often do you walk or exercise?

Response	Frequency	% ¹
Not at all right now	59	37.3
Once or twice a week	38	24.1
Three or four times a week	35	22.2
Every day	26	16.5

How often do you eat fruits and vegetables?

Response	Frequency	% ²
Some about once or twice a week	66	42.3
A serving every day	46	29.5
Two or three servings every day	33	21.2
Five servings a day	11	7.1

How do you consider your current weight?

Response	Frequency	% ³
Underweight	7	4.5
About right	59	37.6
Overweight	77	49.0
Don't know / Not sure	14	8.9

1 n = based on 158 responses

2 n = based on 156 responses

3 n = based on 157 responses

Although most participants had heard of CRC, 38% did not believe, did not know/were not sure if CRC could be prevented. Forty two percent of participants reported never being screened or did not know/were not sure if they were ever screened for CRC. The most commonly reported screenings were **fecal occult blood testing (FOBT)** and colonoscopy. The most commonly to least commonly reported barriers to screening were lack of health insurance, lack of physician referral for screening, cost of screening, and fear of testing.

From a list of 13 risk factors for CRC, participants were asked to identify those which increase and decrease risk. Twenty three to 66% of respondents correctly identified the following as increasing risk: having polyps in the large intestine, having a blood relative with CRC, being over age 50, being overweight, drinking alcohol, eating a high fat diet, smoking cigarettes, and not being physically active. For example, 66% of the respondents knew that having polyps in the large intestine would increase risk; 23% of the respondents knew that not being physically active would increase risk. Likewise, 8 to 63% of respondents identified factors that would decrease risk: eating a lot of fruits and vegetables, taking a vitamin every day, eating a high fiber diet, taking an aspirin every day, and taking estrogen after menopause.

A total of 141 of 160 participants reported their height and weight. Their average BMI (mean \pm S.D.) was 28.4 ± 6.8 kg/m². Ninety two of the 141 respondents were overweight or obese (BMI of 25 kg/m² or greater). Of these 92, the average BMI was 31.6 ± 6.2 kg/m². Of the 65% percent of overweight or obese respondents, only 49% perceived themselves to be overweight. One-third of the respondents were obese, but did not perceive themselves as overweight. Participants were relatively inactive and had a low intake of fruits and vegetables.

DISCUSSION

Compared with Whites, Blacks are diagnosed with CRC at a younger mean age, and have a lower CRC survival rate than Whites.⁹ To date, no established biological explanations account for these differences.¹⁰

This survey was designed to gather qualitative information on the knowledge and behaviors of NHB women in RI. Seventy six percent of the participants obtained health care information from sources other than their doctor. Other studies show that nurse practitioners, as well as faith-based organizations, provide health care information to the NHB or African American population.¹¹ Social support may be among the most critical factors affecting weight management behaviors among NHB women,¹² and trust and strong patient-provider relationships are associated with use of preventive services in this population.¹³

The early removal of polyps can prevent CRC. The US Preventive Services Task Force recommends initiating screening at 50 years of age for men and women at average risk for CRC. Due to the high incidence and younger age at presentation of CRC in African Americans, new recommendations by the American College of Gastroenterology call for CRC screening at the age of 45 years rather than 50 years.¹⁰ Findings confirming the predominance of proximal or right-sided adenomas in asymptomatic average-risk NHBs suggest the use of colonoscopy for CRC screening in this population.¹⁴ In this study, only 38% of the participants reported having a colonoscopy.

Although physician recommendations are strongly associated with CRC screening,¹⁵ 40% of the participants reported that no physician referred them. The participants cited other barriers: lack of health insurance, cost of screening, and fear of testing. Coverage for screening colonoscopy is incomplete even among the insured, and access to colonoscopy is even less for uninsured persons.¹⁶ Safety net clinics do not typically provide colonoscopies for people without symptoms and without insurance. Uninsured people with symptoms (e.g., positive FOBT results and/or GI bleeding) may be placed on waiting lists at hospital-based endoscopy suites for as long as 6 months to a year or more. In RI, NHB adults are twice as likely to be uninsured as non-Hispanic White (NHW) adults.¹⁷

Participants were asked to identify factors that would increase, as well as decrease, the risk of getting CRC. Findings identified discrepancies between knowledge and behavior. Although 63% of respondents knew that eating a lot of fruits and vegetables would decrease the risk of CRC, only 7% reported eating five servings of fruits and vegetables a day. Many NHB communities suffer from inadequate nutrition.¹⁸ Twenty three percent of respondents knew that not being physically active increased the risk of CRC, yet only 17% reported walking or exercising daily.

Sixty five percent of the respondents were overweight or obese by reported height and weight, but only 49% perceived themselves to be overweight. Although 35% of the respondents knew that being overweight is a risk factor for CRC, 33% of overweight or obese participants did not perceive themselves as overweight. In a study of perceived and physiological measures of health in 190 NHB and NHW sedentary women, the

Black women were heavier, more obese, less fit, and consumed a greater percent fat than the White women. However, the Black women perceived their weight, physical shape and appearance, physical fitness, and eating habits to be no worse than those of their White counterparts.¹⁹

Disparities in obesity prevalence and CRC incidence and mortality rates among NHB women may be accounted for by differences in, and interactions between, lifestyle behaviors, cultural or social norms, socioeconomic factors, access to health care and safety-net primary care services, environmental factors, as well as genetic and molecular factors.²⁰ The survey participants were low income women; 61% had less than or equal to a high school diploma or GED. SES accounts for approximately one third of the excess risk of death from CRC among NHBs.²¹

There is limited evidence-based literature on effective, comprehensive, and culturally appropriate interventions among NHB women. Key findings from this study of NHB women in RI include 1) physician recommendations for CRC screening among this population need to be increased; 2) other health care providers (*e.g.*, nurse practitioners), family, friends, and community- and faith-based organizations are important channels for health care information; 3) the cost of CRC screening among the un/underinsured, and access to colonoscopy are system barriers; 4) discrepancies exist between knowledge and behavior related to CRC; and 5) discrepancies exist between actual weight and self perception of body weight. These findings must be considered in the design of obesity and CRC prevention interventions among the NHB female population in RI.

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My Reality and Yours

Robert Pearlman, PA-C

I was having coffee with a friend in a Greenwich Village café when he announced suddenly that we had to leave. “*Why?*” I asked. Because, he said, acid was dripping from the ceiling. I thought for a moment and took a chance. I asked whether he wanted me to take him to the VA hospital in Northport, about an hour’s drive from Manhattan. His answer, “*yes,*” was a surprise—and a relief. The dripping acid seemed real enough for him to act urgently, but he had enough grasp on reality to know he was ill and needed treatment.

Many years later, I had an artificial lens implanted in one eye. The acuity in that eye improved, but I was delightfully surprised—because I had not thought of it—that colors became bright and crisp as they must have been when I was a child. My other eye now saw things with a sepia tint that I had not been aware of. I joked that I could choose between two realities—an amusement made possible because I could account for it. But what if I couldn’t – what if somehow I had been born *like that*? Which perception of the world would be “real”? Or, since I could not rely on my eyes, could “real” be something entirely different? If thought derives in part from experience, this is no idle question. It has engaged philosophers for 2,500 years with significant implications for medicine.

But it is science, not philosophy, on which modern medicine is grounded. Science has given us understanding of vitamins, hormones, microbes, neurotransmitters, nucleotides, the cellular substance and functions of our bodies and the disorders that attend them. Science now promises a new personal medicine customized to our individual genetic particularity. Who could fault us for believing that for all queries science will provide? And so, it is to science that medicine looks for understanding of mental illness

Neuroanatomy began, so far as we know, in biblical times¹ and began to advance 500 years ago when Vesalius reviewed and corrected Galen’s anatomical descriptions. With keen observation, experiment and, later, with the power of electronics, neuroscientists have been mapping the brain and localizing function with finer and finer precision. Neurochemistry, on the other hand, is only about 50 years old.² In this time, we have gained enormous insight into complex neuronal physiology and discovered about 60 neurotransmitters including acetylcholine, monoamines, amino acids and peptides. Some excite. Some inhibit. Some arouse. Some sedate. New drugs are introduced every year to modulate these actions; the result has been a transformation of psychiatric treatment, virtually emptying the wards of mental institutions and changing the way we think about mental disease.

Neuroscientists are now primed to seek biological explanations for human thought and behavior. There is already a complete map of gene expression of the mouse brain (Google: “allen brain atlas”) and there is underway at the Howard

Hughes Medical Institute a huge project to build a complete working model of the fruit fly brain. The lead researcher, who expects to accomplish this in ten to twenty years, says, “In a hundred years, I’d like to know how human consciousness works.”³

Two eminent scientists, both honored in Stockholm, the late Francis Crick (who needs no introduction) and Eric Kandel for his work on short term memory have expressed confidence that science one day will explain how a material brain gives rise to a spiritual consciousness. After Crick solved the problem of inheritance, he spent the rest of his life trying to establish a neuronal correlate to consciousness. On his deathbed, he was polishing a paper written with Christof Koch that proposed an obscure tiny cortical area called the claustrum, which itself means hidden away, as a possible seat of consciousness.⁴ They compared it to a conductor of a symphony orchestra. It was published posthumously in *Philosophical Transactions of the Royal Society of London* (doi: 10.1098/rstb.2005.1661).

Kandel, a psychiatrist, was awarded the Nobel Prize in Physiology or Medicine nine years ago with Arvid Carlsson and Paul Greengard for signal transduction in the nervous system. In his autobiography,⁵ Kandel describes the joy of working in research. He also describes the dissatisfaction with psychoanalysis he and many psychiatrists had in the 1960s because it was not scientific and had, in his view, lost its way—transformed “from an experimental medical discipline closely related to neurology into a nonempirical specialty focused on the art of psychotherapy.” During his residency, he perceived in his mentors “an indifference, if not disdain for, biology.” Even worse was “a lack of concern among psychoanalysts for conducting objective studies, or even for controlling investigator bias.” Initially used to treat neuroses, “psychoanalytic therapy gradually extended its reach to almost all mental illnesses, including schizophrenia and depression” and thought asthma and peptic ulcers among other disorders were psychosomatic—induced by unconscious conflicts. What was needed, he concluded, was to put psychoanalysis on a “firmer scientific foundation.” This has been his life’s work, and he believes it even more strongly now.⁶

Unconscious conflicts aside, we have long known the effects emotions have on the body. More than 150 years ago a retired Army surgeon, William Beaumont, studied the chronic gastric fistula of his patient, St. Martin. When the latter was angry, fearful or depressed, “the villous coat (became) sometimes red and dry, at other times, pale and moist and (lost) its smooth and healthy appearance; the secretions (became) vitiated, greatly diminished, or entirely suppressed; the mucous coat scarcely perceptible; the follicles flat and flaccid with secretions insufficient to protect the vascular and nervous papillae from irritation.”⁷

Strong emotion can even be lethal. In 1942, Walter B. Cannon wrote "Voodoo Death,"⁸ in which he reported stories from around the world about persons frightened to death by "medicine men" believed to have supernatural power. Once a spell was cast, like an Australian witch doctor pointing a bone at a tribal transgressor, his victim became terrified, convinced he was doomed. Very shortly afterward the victim died. But this does not happen only to primitive tribesmen. Martin Samuels, professor of neurology at Harvard, has had an abiding interest in sudden unexpected death without apparent cause of otherwise healthy persons. During the past 25 years, he has collected hundreds of cases, and it is now recognized as a significant epidemiologic problem,⁹ caused by autonomic dysfunction in which the heart is flooded by catecholamines released not from the blood but by direct neural connections. The lesion is described as coagulation myocytolysis by which cells die in a hypercontracted state with myofibrillar damage. It is also called contraction band necrosis or "stone heart." Samuels wonders whether this, and not infarction, was the fatal lesion of Ken Lay and Slobodan Milošević, both of whom were about to serve many years, perhaps the rest of their lives, in prison. (The lesion of infarction, coagulation necrosis, is much different—the cell dies in atony without myofibrillar damage.)

If emotion can change the gastric mucosa and terrifying thoughts can seize-up the heart, what are we to conclude when science finds a correlation between pathophysiology and mental illness: which is the chicken and which the egg? Does excess dopamine in some parts of the brain induce schizophrenia, or is it the other way around?



After I dropped my friend off at the hospital, I never saw him again. I sometimes wonder about that dripping acid. Was it an illusion like different hues transmitted by my natural and artificial lenses? Maybe it was a dissociative hallucination produced by neurochemically altered synaptic connections. Or perhaps it was a symbolic expression of his sense of danger and had profound meaning for him—like voices of a Beautiful Mind or Lady Macbeth's obsessive compulsion to wash her regicidal hands again and again, never in her mind to be cleansed of Duncan's blood. If it were a warning about impending danger, why dripping acid and not something else? Does it matter?

We owe a great debt to science: it has transformed our world and our understanding of it, but it has its limits. Neurochemistry can take the edge off Lady Macbeth's remorse but it cannot help her come to terms with it. Assuming we could plot every one of my friend's firing cerebral neurons, map the complexity of their connections, analyze and measure the synaptic flow of his neurotransmitters, we could not have known what significance, if any, his experience and thoughts might have had. They were his and his alone—personal, private and inaccessible to science in any meaningful way.

Like Moses who led his people to the Promised Land but was not himself able to enter, science has led us to the edge of the mysterious chasm that exists between the brain and its soul. To fathom the mind, it takes a poet who uses words, an artist who uses images or a psychoanalyst who uses both.

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FIFTY YEARS AGO, JUNE 1959

An Editorial, "The Luckless Legion," deplored the rising number of traffic fatalities: 10,680 from January through April, up 4% from the same period last year. "Since the advent of the auto, more than 600,000 people died or were crippled." The editor suggested caution as a remedy: "When you are tempted to indulge in insensate speed, do not step on the gas; when you have the right of way, do not insist on taking it, for many dead men had the right of way..."

John R. Paul, MD, Professor of Preventive Medicine, Yale University School of Medicine, delivered the Eighteenth Charles Value Chapin Oration: "Chapin and Modern Epidemiology" at the 148th annual meeting of the Rhode Island Medical Society. The Journal reprinted his oration. Dr. Paul described Dr. Chapin's focus on the variation in disease. "They [men of Dr. Chapin's ilk] will seek to find some means of grappling with the problem of illness in a world where living things, be they viruses or men, are both struggling to survive."

Francis B. Sargent, MD, gave the Presidential Address at the same 148th annual meeting. In "Our Allies – The Hospitals and Blue Plans: Assets or Liabilities?" Dr. Sargent urged the American Hospital Association and Blue Cross to resolve their disagreements. "We will all hang together or separately. Our cause must be presented competently to the public by every means of communication. It must be made clear that only when an individual directly or indirectly pays his own way can he have free choice of physician and hospital."

"The Rheumatic Fever Program as Administered through the Division of Maternal and Child Health of the RI Department of Health" described Rhode Island's state-financed free clinics.

TWENTY-FIVE YEARS AGO, JUNE 1984

An Editorial, "Is the Autopsy Gaining Respectability?" commented on the declining numbers of autopsies.

Thomas D. Gidley, LLB, partner, Hinckley & Allen," contributed "Maybe You Can Strike Back." Discussing the "proliferation of seemingly groundless malpractice suits in recent years," Mr. Gidley noted that a recent Rhode Island Supreme Court ruling (*Salvadore v Major Electric & Supply*) may have opened the door for physicians to counter-sue. In the case, the plaintiff had alleged "malicious prosecution and civil conspiracy" from 4 civil suits filed against him. The Superior Court decided for the defendants; the Supreme Court reversed the decision.

Barry M. Manuel, MD, Associate Dean, Boston University School of Medicine, discussed "Professional Liability: The Crisis of the 1980s." He called for "Tort reform and consumer-purchased 'maloccurrence' insurance."

Mark S. Mandell, JD, partner, Mandell, Goodman & Schwartz, LTD, Providence, in "Professional Liability," commented: "The majority of patients will not sue physicians who show compassion, sensitivity and courtesy."



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