Published in final edited form as:

Addict Behav. 2011 June ; 36(6): 597–600. doi:10.1016/j.addbeh.2011.01.026.

From *Cat's Cradle* to *Beat the Reaper*: Getting Evidence-Based Treatments into Practice In Spite of Ourselves

James L. Sorensen, PhD

University of California, San Francisco and San Francisco General Hospital, San Francisco, CA

Abstract

Kurt Vonnegut was one of the most influential novelists of the late 20th Century. His wry views of people and organizations are applicable to the today's efforts to use science to improve the effectiveness of substance use treatment programs. His 1963 book, *Cat's Cradle* pointed to the potentially disastrous consequences of the development of science for science's sake. Moving to more current viewpoints, in 2009 the young writer and medical doctor Josh Bazell published *Beat the Reaper*, a novel that discusses modern medical care and pharmaceutical treatments with sarcasm and wit. Currently we are witnessing many developments to incorporate evidence-based practices into addiction treatment, ranging from Institute of Medicine overviews to the organization the Substance Abuse and Mental Health Services Administration, fielding the National Registry of National Registry of Evidence-based Programs and Practices for preventing and treating substance abuse and mental health disorders, legislative initiatives, efforts to upgrade the treatment workforce and, most recently, health care reform. There are signs that these and other efforts are upgrading the effectiveness of treatments for addiction. Yet the checks and balances of every effort to create change make for a field that shows halting and peripatetic development. "Top-down" reforms are watered down by "bottom-up" approaches, and vice-versa. Several concrete steps can be taken to improve the magnitude and speed of change in the field. We cannot change human nature, but we can improve addiction treatment.

1.Introduction

The more things change the more they stay the same All we need's a miracle to take us all away (Thomas Carl Keifer, 1997)

When Peter Miller prepared for the Addictions 2010 conference he asked members of the Organizing Committee to make presentations that reflected "thinking outside the box." I realized that my observations of the field were influenced by my personal history. Deni Carise (2010) pointed out at the conference that the confluence of parity, health care reform,

Corresponding author contact information: James L. Sorensen, PhD, Department of Psychiatry, Bldg 20, Ste 2100, Rm 2117, UCSF at San Francisco General Hospital, 1001 Potrero Ave., San Francisco, CA 94110 USA. Phone: 415-206-3969. Fax: 415-206-5233. james.sorensen@ucsf.edu.

Disclosure Statement for Author

James L. Sorensen (sole author) in last 3 years:

I am employed by the University of California, San Francisco.

I have grants or contracts from NIH, Robert Wood Johnson Foundation, and UCLA.

I am on the NIH National Advisory Council on Drug Abuse.

I have consulted with University of Florida and NDRI.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

and changing national policies makes this the most transformative time that addiction treatment has ever seen. My impression is that the field is moving toward implementing evidence-based treatments to cope with these coming changes, but the change efforts are halting and inconsistent. There is progress, but there is also retrenchment. To me this is a natural progression, as people attempt to improve on the old, while at the same time they are not ready to give up on it. This process of change seems second-nature to me, having been raised on the books of Kurt Vonnegut, and recently influenced by the writing of current novelist Josh Bazell.

1.1 Kurt Vonnegut

Kurt Vonnegut held a dark and ironic view. Born in 1922, he served in Germany in World War II and survived the terrifying carpet bombing of Dresden, viewing it from the bottom where he other prisoners of war lived in the basement of a slaughterhouse. After the war he returned to a United States culture that embraced technology as capable of bringing a bright future. He worked for the General Electric company writing ads. The GE slogan reflected the optimism of the times: "Progress is our most important product."

Vonnegut was disillusioned with the idea that technology could be helpful, in part related to his experience in the war. He left GE, moving to a full-time writing career. His first book *Player Piano* (1952), was a lampoon of GE that chronicled the dangers of trusting in technology. Through the process of automation, the machines that man invented to be helpful were taking all the good jobs, pushing people out of work. This idea was that there could be disastrous consequences of the development of science for science's sake.

His book *Cat's Cradle* (1963), takes its name from a string game; in the book, the inventor of the atom bomb is said to have been playing cat's cradle when the first nuclear explosion occurred. The novel tells the story of a man who invented a chemical, dubbed "ice nine" that turned water into ice at room temperature. A marine officer was interested in its potential for defense...a strategy to "get the marines out of the mud." In the book the inventor, to escape from the plans of the military, moved to the Caribbean. Eventually his home was destroyed by a storm, which uncovered the ice-nine, which promptly turned the rain to ice, along with everything it touched. The oceans crystallized, and humanity was wiped out. The consequences were dire when technology was unleashed.

Vonnegut's writings reveal ambivalence about addiction¹. On the positive side, he commented that "Alcohol and marijuana, if used in moderation, plus loud, usually low-class music, make stress and boredom infinitely more bearable" (p. 27). In an essay on the dangers of sponsoring wars he commented on people who are "addicted to substances that give them brief spasms of pleasure but in the long term transmute their lives and the lives of those around them into ultimate ghastliness" (Vonnegut, 1983, para. 3). In another commentary he revealed his own substance abuse: "I am of course notoriously hooked on cigarettes. I keep hoping the things will kill me. A fire at one end and a fool at the other" (Vonnegut, 2005, p.41). Thus Vonnegut recognized positive, stress-reducing aspects of substance use, but he also acknowledged its dangers for addicts, their families, and himself

Vonnegut's attitudes toward the application of science also present a range of views. On the positive side, in *Cat's Cradle* he comments "New knowledge is the most valuable commodity on earth. The more truth we have to work with, the richer we become" (Vonnegut, 1963, p.41). His skepticism about science was evident the comment "Just

¹I caution that quoting the writings of an author of fiction does not necessarily reveal the writer's real feelings. Vonnegut's books are filled with loony characters, whom Vonnegut may have used either to state his opinions or to present the views of slightly deranged zealots.

because some one can read and write and do a little math, that doesn't mean he deserves to conquer the Universe" (Vonnegut, 1990, p.324). When we attempt to incorporate evidence-based practices into ongoing addiction treatment programs, I imagine that Vonnegut would praise our intentions but would be skeptical about much good coming from our efforts. The danger may be that, as Harold Perl (2010) has commented, our society may be "addicted to discovery" with insufficient regard for the consequences.

1.2. Josh Bazell

Recently I read a novel by current writer Josh Bazell, who carries on the rebellious, slightly zany views of Vonnegut. His debut novel, *Beat the Reaper*, (2009) discusses modern medical care and pharmaceutical treatments with sarcasm, gore, and wit. He received his MD from Columbia, and *Beat the Reaper* tells of a young man who is a medical resident at a major medical school in New York. The resident also has a history as a mafia hit man. The book is filled with humorous observation about bureaucracies and cynicism about medicine. For example, the doctor wants information about a patient, and one of the burnt-out hospital nurses says "it's in the chart." He thinks "I've already been through this. 'It's in the chart.' It probably is. In the *paper* chart anyway. But since the paper chart is the one the patient can request, and that a judge can subpoena, there's not much incentive to make it legible. (This patient's chart) looks like a child's drawing of some waves" (Bazell, 2009, p.13).

Bazell's most entertaining and contemptuous passages are directed at medical bureaucrats: When a greedy surgeon, Dr. Friendly, tells a patient with an incurable disease that an operation will give him 'a chance,' the cynical resident replies sarcastically "That's surgeon talk for 'I need a slightly longer Chris-Craft'" (Bazell, 2009, p. 63). One would think that Bazell would be highly suspicious of attempts to implement evidence-based addiction treatments in medical settings.

2. Today's New Frontier in Addiction Treatment: Evidence-Based Policy and Practice

2.1. Broad Scope of Efforts*

The field is witnessing significant changes in the practice of addiction treatment. National organizations that set standards and provide funding have been developing their own ways of evaluating the effectiveness of treatments. At the regional level, the state of Oregon has implemented a policy requiring that 75% of state funds for substance abuse treatment go to support evidence-based practices (Oregon Department of Human Services, 2008). Across the country there is increasing pressure for programs to justify their results against approaches in competition with them, so that they can collect insurance reimbursement. Increasingly, treatment programs need hard scientific evidence to maintain their services. At the same time there are doubts about whether the number of programs, their funding, and the quality of the workforce are adequate to provide high-quality addiction treatment (McLellan, Carise, & Kleber, 2003). This has led to serious efforts to improve the level of education, experience, skills, and career paths for staff working in addiction treatment programs.

Although evidence-based practices have been developed for patients with addiction problems, they are not widely used in community treatment programs. Treatment effectiveness is not sufficient to produce adoption. At the systems level, funding may not be available to allow programs to innovate. At the organizational level, some treatment programs are more ready than others to adopt new practices. At the individual level, clinicians must deliver the interventions with fidelity. While the prospects for change are good there is a continual back and forth that slows progress.

2.2. An Illustration: Listing Evidence-Based Addiction Treatments

The attempts to list and endorse evidence-based practices provide an excellent example of this action-reaction dynamic. The national Substance Abuse and Mental Health Service Administration has created its own lists, in the areas of prevention and treatment of drug abuse and mental illness--the National Registry of Evidence-Based Programs and Practices ([NREPP], SAMHSA, 2010). To assist addiction treatment professionals and program planners in selecting effective treatments, in the late 1990s SAMHSA created a searchable website that identifies interventions thought to prevent substance abuse. This system was successful and expanded to include treatment as well as prevention, and mental illness as well as substance abuse. The NREPP system contains results of a periodic, systematic review of these interventions. The system has employed gradations of evidence, and now it categorizes approaches into three levels: Promising, effective, or model programs. Promising programs might be effective but lack enough research. Effective programs are promising and have enough research to show that they accomplish their objectives. Model programs are both effective and have training materials available so that they are ready for dissemination. At the Addictions 2010 conference Amina Chaudry (2010) emphasized the latest development, that since December 2009 NREPP also indicates what practices have been evaluated through comparative efficacy studies. The system is web-accessible at <http://www.nreppsamhsa.gov/index.asp>.

Development of the NREPP system as it emerged over the last decade has been a part of the back and forth of implementing evidence-based practices. Early in its development there was criticism that the listing was too exclusive and dependent on results of randomized clinical trials. SAMHSA took further steps to develop a system that would be fair to all stakeholders, balancing public feedback with the need to adhere to scientifically accurate standards. The system has received praise for not restricting submissions to those that have been experimentally evaluated and not necessarily rating programs highest that have the most experimental evidence (see Biglan & Ogden, 2008). Now it is viewed as a “decision-support tool” (Hennessy & Finkbiner, 2006) that provides information rather than making strong recommendations to practitioners. A part of this change was to value programs that were sufficiently manualized and had training materials available. In a survey of State school prevention officers Hallfors, Pankratz, & Hartman (2007) found that they relied heavily on federal lists of programs, especially using NREPP. On the other hand, I have attended several conferences and meetings where the reaction from treatment programs was not “let's adopt an evidence-based practice” but instead “let's see how we can get what we do on that list!” There will continue to be iterative developments featuring those championing new evidence-based practices versus those promoting greater recognition for established treatments.

The same processes go on throughout the changing system. In Oregon the law required funding of evidence-based practices, and this was followed by years of discussion about how to define “evidence-based” and how much evidence is required to have a practice qualify. There are differences of opinion between those in favor of “evidence-based practices” and those who value “practice-based evidence” (Fox, 1993) that leans more heavily on clinical experience and less on experimental designs. In another area, efforts to upgrade the quality of the workforce can bring in counseling staff with the background and academic skills to read the manuals that provide guidance to conducting evidence-based treatments. On the other hand, those upgrading efforts run into opposition that employees in the present workforce will be laid off or a professional workforce will emerge that does not have sufficient empathy for people experiencing problems related to substance abuse.

3. Conclusions and Future Directions

Several issues face the field as we consider addiction treatment in the second decade of the twenty-first century. First, there is *not sufficient research to guide the addictions area in our attempts to implement evidence-based practices*. There are few studies contrasting evidence-based practices against each other, and studies contrasting evidence-based practices against usual care often set up “straw man” comparisons that deemphasize the more global aims of usual care. The field will move more quickly if we undertake a series of comparative effectiveness studies that include real-world treatments with authentic treatment goals.

A second issue is the *top-down versus bottom-up approach* to creating innovation. A respected colleague of mine contends that the top-down approach is the only one viable for implementing evidence-based treatments, because resistance to change is endemic in substance abuse treatment programs. On the other hand, I am involved with the NIDA Clinical Trials Network (Hanson, Leshner, & Tai, 2002), which has equal representation of researchers and clinicians in its decision-making bodies, and this approach seems to be effectively promoting evidence-based practices. I believe the use of research-practice partnerships reflecting a collaborative culture will prove to be the most effective approach (see Sorensen, Rawson, Guydish, & Zweben 2003).

Adopt versus adapt is another vital issue. In any attempt to implement evidence-based practices there are struggles about “adopting” a practice that has been proven effective, versus recognizing the importance of the culture in which the practice was tested and “adapting” it to fit the differing geographic or cultural needs of the local clientele. Clearly adoption stays true to the way an evidence-based practice was created, but it is limited as a dissemination strategy. Adaptation to the clinic may engage clients more effectively, but does the adaptation have the same efficacy as the originally-studied practice? One suggested strategy was used in the NIDA Blending Initiative (see Condon, Miner, Balmer, & Pintello, 2008), which developed technology transfer approaches for evidence-based interventions studied in the Clinical Trials Network: A general principle was that an intervention could be adapted for a target audience, but only after the intervention staff were able to conduct the research-tested intervention as it was originally developed.

A corollary to this issue is *fidelity versus reinvention*: That is, how important is it to implement the evidence-based practice as it was manualized, versus focusing on the aspects most relevant to the unique patients being treated? This dynamic is a part of any implementation of evidence-based practices, and the field would benefit from concrete procedural suggestions about when to do which. Larios (2010) has pointed out the lack of trust between minority-oriented treatment programs and researchers developing evidence-based practices. Fortunately there is some guidance available for how to adapt evidence-based interventions for different cultural groups (see Venner, Feldstein, & Tafoya 2008).

What learning experiences are needed is another vital issue. How much and what kind of training is necessary to conduct the intervention, and how much to achieve have the same client improvements as in the original study? This issue raises questions about the importance of having high-quality training materials available for those who want to learn the interventions, as well having a workforce with sufficient skills and education to learn from those training materials. Perl (2010) has summarized information indicating that the vast amount of scientific resources go toward developing new knowledge rather than toward teaching practitioners how to use this knowledge to improve the treatment system.

Similarly we know very little about *what are the essential elements of an evidence-based approach* (versus accepting the whole package). One drawback is that we must teach the whole of an effective intervention, when it would be extremely useful to teach just the

essential ingredients. This points to the imperative that research which “disassembles” effective interventions will be a necessary part of eventual progress in the field.

A closing issue for consideration is *What prevents “relapse,”* in this context meaning a, returning to old ways of providing treatment). Vonnegut (1990), lamented that a “flaw in the human character is that everybody wants to build and nobody wants to do maintenance” (p. 238). There is ample evidence that programs that use an evidence-based intervention in a research investigation are not very likely to continue using the intervention after the research discontinues (Guydish, Jessup, Tajima, & Manser, 2010; Hettema et al, under review). We need greater understanding of what can be done to promote lasting change in agencies and their approaches. In the coming years there will continue to be hop-steps forward and backward, as people embrace new ideas, then retreat back into the familiar. To improve addiction treatment using evidence-based approaches we need develop a new cadre of forward-looking collaborating researchers and practitioners who address the issues of how to build an infrastructure that will maintain evidence-based approaches to care in the coming decades.

Acknowledgments

Supported in part by NIH/NIDA Grants P50DA09253 (PI=Sharon Hall; sharon.hall@ucsf.edu) U10DA015815 (PI=James Sorensen), R01DA020781 (PI=Carmen Masson; carmen.masson@ucsf.edu), R21DA020369 (PI=James Sorensen), T32DA07250 (PI=James Sorensen), and the Robert Wood Johnson Foundation (Dr. Sorensen). While I have benefitted from the support of the funders mentioned here, these represent my views not theirs. Likewise the views expressed are those of the author and do not represent those of the University of California.

References

- Biglan A, Ogden T. The evolution of evidence-based practices. *European Journal of Behavior Analysis*. 2008; 9(1):81–95. [PubMed: 21461128]
- Bazell, J. *Beat the reaper: A novel*. New York: Little, Brown, and Company; 2009.
- Carise, D. The future of our field, improving treatment and accountability. Invited address to the Addictions 2010 conference; Arlington, VA. 2010 October.
- Chaudry, A. The future of behavioral health care and substance abuse treatment. Invited address to the Addictions 2010 conference; Arlington, VA. 2010 October.
- Condon TP, Miner LL, Balmer CW, Pintello D. Blending addiction research and practice: Strategies for technology transfer. *Journal of Substance Abuse Treatment*. 2008; 35:156–160. [PubMed: 18337054]
- Fox NJ. Practice-based evidence: Towards collaborative and transgressive research. *Sociology*. 1993; 37:81–192.
- Guydish J, Jessup M, Tajima B, Manser ST. Adoption of motivational interviewing and motivational enhancement therapy following clinical trials. *Journal of Psychoactive drugs*. 2010 6:215–226. [PubMed: 21138198]
- Hallfors DD, Pankratz M, Hartman S. Does federal policy support the use of scientific evidence in school-based prevention programs? *Prevention Science*. 2007; 8(1):75–81. [PubMed: 17165146]
- Hanson GR, Leshner AI, Tai B. Putting drug abuse research to use in real-life settings. *Journal of Substance Abuse Treatment*. 2002; 23:69–70. [PubMed: 12220602]
- Hennessy KD, Finkbiner R. The National Registry of Evidence-Based Programs and Practices: A decision-support tool to advance the use of evidence-based services. *International Journal of Mental Health*. 2006; 35(2):21–34.
- Hettema, JE.; Sorensen, JL.; Wente, AO.; Larios, SE. Factors that may influence post-trial adoption in clinical research. Under review
- Keifer, Thomas Carl. *On Once Upon a...[CD]*. Sweden: Phonogram; 1997. The more things change [Recorded by Cinderella].

- Larios, S. Adoption of evidence-based practices in diverse settings: Qualitative investigation. Oral presentation at the meeting of the American Psychological Association; San Diego, CA. 2010 August.
- McLellan AT, Carise D, Kleber HD. Can the national addiction treatment system support the public's demand for quality care? *Journal of Substance Abuse Treatment*. 2003; 25:117–121. [PubMed: 14680015]
- National Registry of Evidence-based Programs and Practices, (2010). Downloaded from <http://www.nrepp.samhsa.gov/listofprograms.asp?textsearch=Search+specific+word+or+phrase&ShowHide=1&Sort=1&N5=5> on December 7, 2010.
- Oregon Department of Human Services. Evidence-based practices (EBP. 2010 November. Retrieved December, 2010, from <http://www.oregon.gov/DHS/mentalhealth/ebp//main.shtml>
- Perl, H. Addicted to discovery: Does our quest for new knowledge hinder practice improvement?. Invited address to the Addictions 2010 conference; Arlington, VA.
- Sorensen, JL.; Rawson, R.; Guydish, J.; Zweben, JE., editors. Drug abuse treatment through collaboration: Practice and research partnerships that work. Washington, DC: American Psychological Association;
- Venner KL, Feldstein SW, Tafoya N. Helping clients feel welcome: Principles of adapting treatment cross-culturally. *Alcohol Treatment Quarterly*. 2008; 25:11–30.
- Vonnegut, K. *A Man Without A Country*. New York: Seven Stories Press; 2005.
- Vonnegut, K. *Cat's cradle*. New York: Dell Publishing; 1963.
- Vonnegut, K. *Hocus pocus*. New York: G.B. Putnam's Sons; 1990.
- Vonnegut, K. *Player piano*. New York: Avon Books; 1952.
- Vonnegut, K. The worst addiction of them all. *The Nation*. 1983 December 31 [12-7-10]. On-line version, <http://www.thenation.com/article/worst-addiction-them-all>