The National Council on Alcoholism and Drug Dependence (NCADD), in cooperation with the Research Society on Alcoholism (RSA), is proud to provide Research in Alcoholism: Models and Science as the first article in the new NCADD Research Update. The Five Part series provides background information on the different ways of thinking about alcoholism that contribute to our understanding today. Following the Introduction, Parts 2, 3, and 4 will review different models of alcoholism, and the final part will respond to reader questions and comments.

While Research in Alcoholism: Models and Science provides a frame of reference, future NCADD Research Updates will maintain a clear focus on how scientific knowledge can impact and improve everyday practice in prevention, treatment or recovery. The NCADD Research Update will discuss topics that have practical application in the community, training program, clinic or treatment center, rather than on theoretical issues best left in the research laboratory. Where testable but unproven scientific hypotheses come in to play—as they often do in other media—the NCADD Research Update will hold them up to the standard of current usefulness.

Questions/Comments:

Because science, like prevention, treatment, and recovery, depends on the health of the community, we invite questions and comments from readers.

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Dr. Beresford is an internationally known physician and medical scientist in alcohol and drug use disorders. He is best known for his research work in alcoholism and liver transplant, aging and alcoholism, and the brain disorders of alcoholism. He conducts clinical studies in cocaine and other forms of drug abuse, with a special emphasis on persons with drug or alcohol use who have other major psychiatric illness at the same time. His Hepatology colleagues have cited his transplant work as opening that treatment to people with alcoholism. Dr. Beresford holds appointments as Physician with the Department of Veterans Affairs and as Professor of Psychiatry at the School of Medicine of the University of Colorado. Dr. Beresford is an ex-officio member of the NCADD Board of Directors representing the Research Society on Alcoholism (RSA).

Part One: Introduction

The method of science and the processes of prevention, treatment, and recovery (PTR) often differ. Science is always and everywhere a series of hypotheses that must be proven by carefully gathered evidence. By contrast, PTR activities apply what is known to gain a pre-planned result, in this case either preventing alcoholism—or alcohol addiction, treating it

where it already exists, or supporting alcohol abstinence in the course of recovery. Although not mutually exclusive, PTR always assert underlying beliefs and science always questions them.

Because of this, it may sometimes be easy for PTR professionals to regard scientists as rarely, if ever, providing any useful answers to troubling questions—such as how to treat alcohol addiction effectively--and for scientists to see PTR practitioners as "having all the answers" based on insufficient evidence. More importantly, however, both have a common goal: to lessen or eliminate the suffering and deaths due to alcoholism. Both share the common need to understand how best to accomplish this goal most effectively. To do so, each approach requires consideration of the underlying models—or thought systems—used to understand alcoholism and the PTR efforts directed towards it. A consideration of some of the models[1] used in different eras, listed in the Table, can illustrate why a common understanding is important.

The Use of Models:

A discussion of the various models that have been applied to alcoholism will highlight the differences among each and, at the same time, find their similarities.[2] The reader will notice that each of the models contains elements that describe the different aspects of alcoholism, that most complex condition. Recognizing the importance of considering different models—even those that hard evidence causes us to discard in favor of those that offer better explanations—is one of the fundamental contributions of science in understanding the nature of alcoholism and what to do about it.[3] This flexibility of understanding allows science to construct hypotheses: "What if it works this way?" Scientific method then tries to answer the question with evidence, carefully gathered, and analyzed in respect to the laws of probability. Moving from this discussion of models—How it might work—to the discussions of specific questions and the evidence answering each, makes up the purpose and content of this series of Science Updates. This first step invites the reader to join in the consideration of different models as the work of research continues to seek—and find—the most effective ways of assisting those who suffer from this deadly condition.

[1]Beresford, T., Psychological Adaptive Mechanisms, Oxford University Press, 2012; see Chapter 2 on using models in human behavior medicine
[2]Vaillant, G.E., The Natural History of Alcoholism, Revisited, Harvard University Press, 1995; see Chapter 1
[3]For examples of models related to alcoholism treatment, see Babor TF, et al. Unitary versus multidimensional models of alcoholism treatment outcome: an empirical study. Journal of Studies in Alcohol, 49:167-77, 1988; Miller WR, and Kurtz E. Models of alcoholism used in treatment: contrasting AA and other perspectives with which it is often confused. Journal of Studies in Alcohol, 55:159-66, 1994

Models of Alcoholism

Etiology of Alcohol Abuse or Dependence	Approach	Clinical Intervention	Response/Effect	Clinical Outcome(s)

Belief Structure / Individual Choice	Individual Moral Failing[i]	Exercise a personal moral choice	"A 'bad' person trying to become good"	Subjective definitions of "good" and "bad;" lessening hope for improvement
	Religious Beliefs[ii]	Proclaim a moral doctrine	Personal alcohol use ban	Dependent on adherence to specific belief system(s)
	Character Pathology[iii]	Provide psychotherapy	Innate character pathology versus alcohol induced personality changes	Hope may assist abstinence; psychotherapy at underlying causes may provide hope (placebo) or may worsen drinking
Sociocultural Influences / Learned Behaviors	Habit[iv]	Provide aversive negative conditioning	Generally short term effect only	Disulfiram ("Antabuse") as a disincentive/reminder not to drink that day
	Learned Behavior[v]	Learning new behavioral patterns	Breaking drinking cue patterns	Techniques useful for individuals; specific programs find short term gains
	Self-Inflicted[vi]	None	No treatment	Social Stigma-Based: Does not account for physiological dependence on alcohol
	Political/ Governmental Problem[vii]	1) British Pub System; 2) 18th and 21st Amendments, United States Constitution	1) Social sanctions against drunkenness, controlled availability; 2) Ban drinking	1) Improved public health, decreased medical burden; 2) Decreased cirrhosis rates; increased prominence of organized crime
Medical / Physiological Causes	Medical Illness[viii]	Symptoms, signs, course, treatment	"A sick person trying to become well"	Disease Model: 1) Hope, 2) Application of clinical science from many disciplines, 3) Self-help programs such as Alcoholics Anonymous, 4) Systematic studies of diagnosis, treatment and prevention
	Genetic Condit	Choice vs. No choice (i.e., congenital	"Choice" continues	Unclear: Possible early identification/preventi

	ion[ix]	predisposition to disease/disorders)		on; some genetic influence in some patient groups, not a genetic death sentence
	Adaptive Behavior Mechanisms[x]	Abstinence to improve brain function	Restore the brain's neuroadaptive abilities	Development of/return to Mature level adaptation; 12 Steps

[i]Church of Jesus Christ of Latter-Day Saints, Doctrine and Covenants 89:1-21; The Book of Discipline of the United Methodist Church, United Methodist Publishing House, 2004

[ii]Clinebell, H.J., Understanding and Counseling the Alcoholic, Abingdon Press, 1956; Burns, K., (2009) Prohibition [DVD], United States: Florentine Films

[iii]Chafetz, M.E., Blaine, H.T., Hill, M.J., Frontiers of Alcoholism, Science House, 1970

[iv]Fox, R., Antabuse as an Adjunct to Psychotherapy in Alcoholism, New York State Journal of Medicine, 1958; "Treatment Programs Overview," Retrieved September 28, 2013 from http://schickshadel.com/treatment-programs-overview/

[v]Miller, W., Munoz, R.F., Controlling Your Drinking, Second Edition, Guilford Press, 2013; Armor, D.J., Polich, M., Braiker, H.B., Alcoholism and Treatment, RAND Corporation, 1976

[vi]Traynor v. Turnage - 485 U.S. 535, 1988; Fingarette, H., Heavy Drinking: The Myth of Alcoholism as a Disease, University of California Press, 1989

[vii]Beerhouse Act of 1830 (11 Geo. 4 and 1 Will 4 c. 64), Parliament of Great Britain

[viii]Jellinek, E.M., Disease Concept of Alcoholism, College and University Press, 1960; Valliant, G.E., The Natural History of Alcoholism Revisited, Harvard University Press, 1983

[ix]Shuckit, M.A., Drug and Alcohol Abuse: A Clinical Guide to Diagnosis and Treatment, Springer, 2006

[x]Beresford, T., Psychological Adaptive Mechanisms, Oxford University Press, 2012, Chapter 22.

Acknowledgements:

Benjamin Temple, Francisco Maravilla, Chelsea Dize, Ph.D., and Chad Emrick, Ph. D., deserve credit and many thanks for their assistance in developing this Table.

Dr. Beresford would like to thank Ben Temple, Francisco Maravilla and Dr. Chad Emrick for their invaluable review and comment on this series, along with Robert Lindsey, Leah Brock and Greg Muth of NCADD as well as David Lewis, MD and Sara Jo Nixon, PhD, my most esteemed colleagues.

Acknowledgements: Benjamin Temple, Francisco Maravilla, Chelsea Dize, Ph.D., and Chad Emrick, Ph. D., deserve credit and many thanks for their assistance in developing this Table.