

Evolution of NIAAA and NIDA: Science, Structure, and Function

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Overview

- **Issue at hand**
- **Impetus**
- **Prior organizational frameworks**
- **Science supported by NIAAA and NIDA**
- **Specific charge to the SMRB**

Issue

- **Neuroscience research has revealed that addictive substances, including drugs and alcohol:**
 - Differentially affect brain receptors and can result in unique neuropathologies
 - Similarly activate certain physiological pathways including the brain's reward circuit, which can result in compulsive substance use
- **Considering both biological differences and similarities, does the current organization separating research institutes on drug and alcohol use, abuse, and addiction provide optimal infrastructure for supporting these areas of scientific research?**

Impetus: *Why consider this particular organizational change at this particular time?*

- **Scientific:**

- Research is revealing that diverse addictive substances including alcohol and numerous drugs affect people through both unique and common pathways.

- **Social-Political:**

- The NIH Reform Act of 2006 highlighted the authority of NIH to make organizational changes and established the SMRB to advise NIH on the use of those authorities.
- In 2003, the National Academies recommended considering merging NIAAA and NIDA. The option of a combined institute of addiction was also identified by the Lewin Group in 1988.
- The Drug Abuse Education, Prevention, and Treatment Act of 2001 (S.304) required the DHHS Secretary to request an IOM study to determine whether combining NIDA and NIAAA would strengthen scientific research efforts and increase economic efficiency.

Past as Prologue: Observations on Prior Organizational Structures

- **The precursors to NIAAA and NIDA were established within the National Institute of Mental Health (NIMH), but grew into separate entities with the increasing recognition of biological underpinnings for alcohol addiction and drug abuse.**
- **Tension between research and services components of NIAAA's and NIDA's earlier missions resulted in multiple transfers of these organizations and/or component offices.**
- **Today, substance abuse treatment is within the mission of a separate agency within HHS, the Substance Abuse and Mental Health Services Administration.**
- ***Any lessons learned?***

Organizational History of NIAAA, NIDA, and NIMH

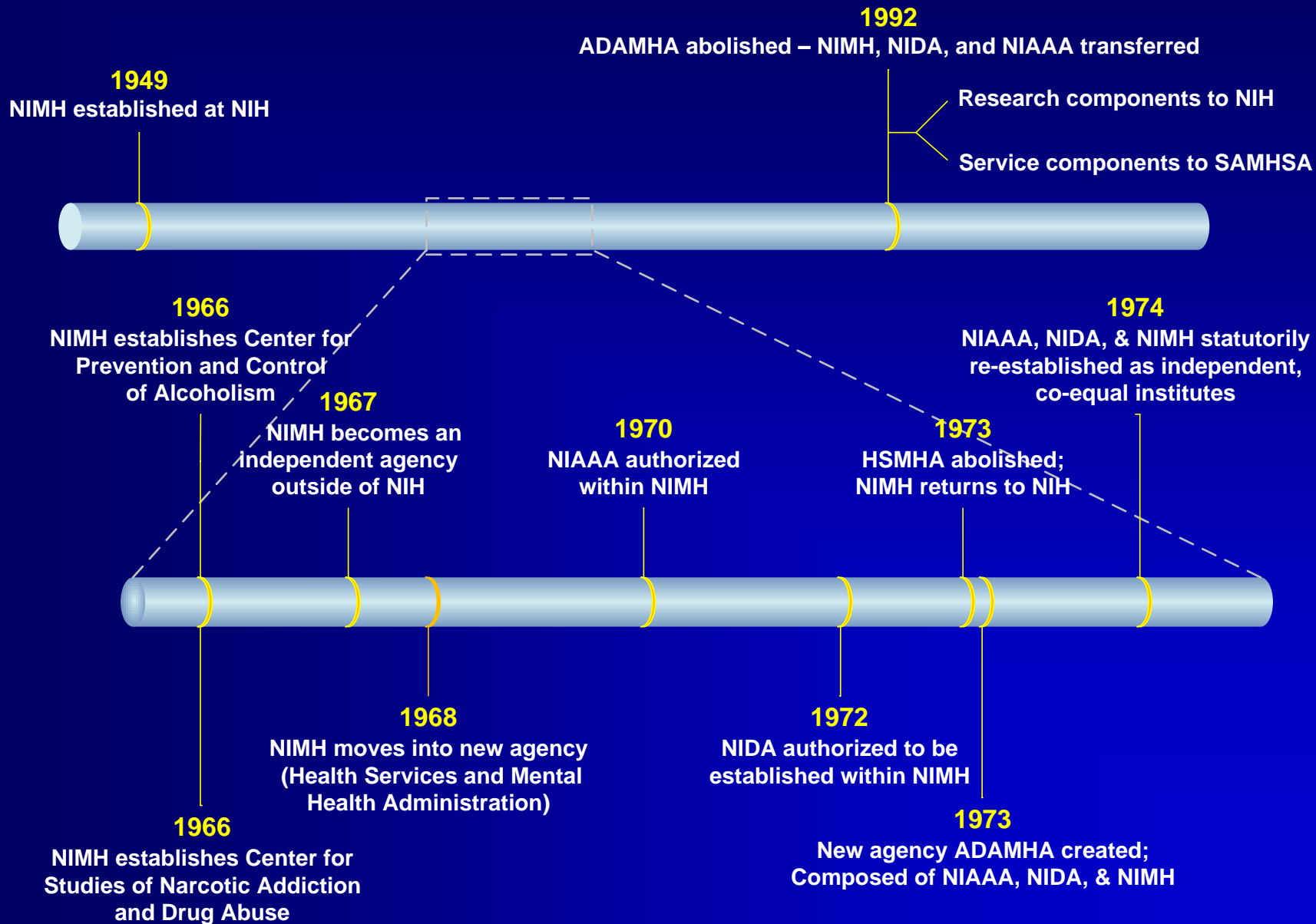
Issue

Impetus

Structure

Science

Charge

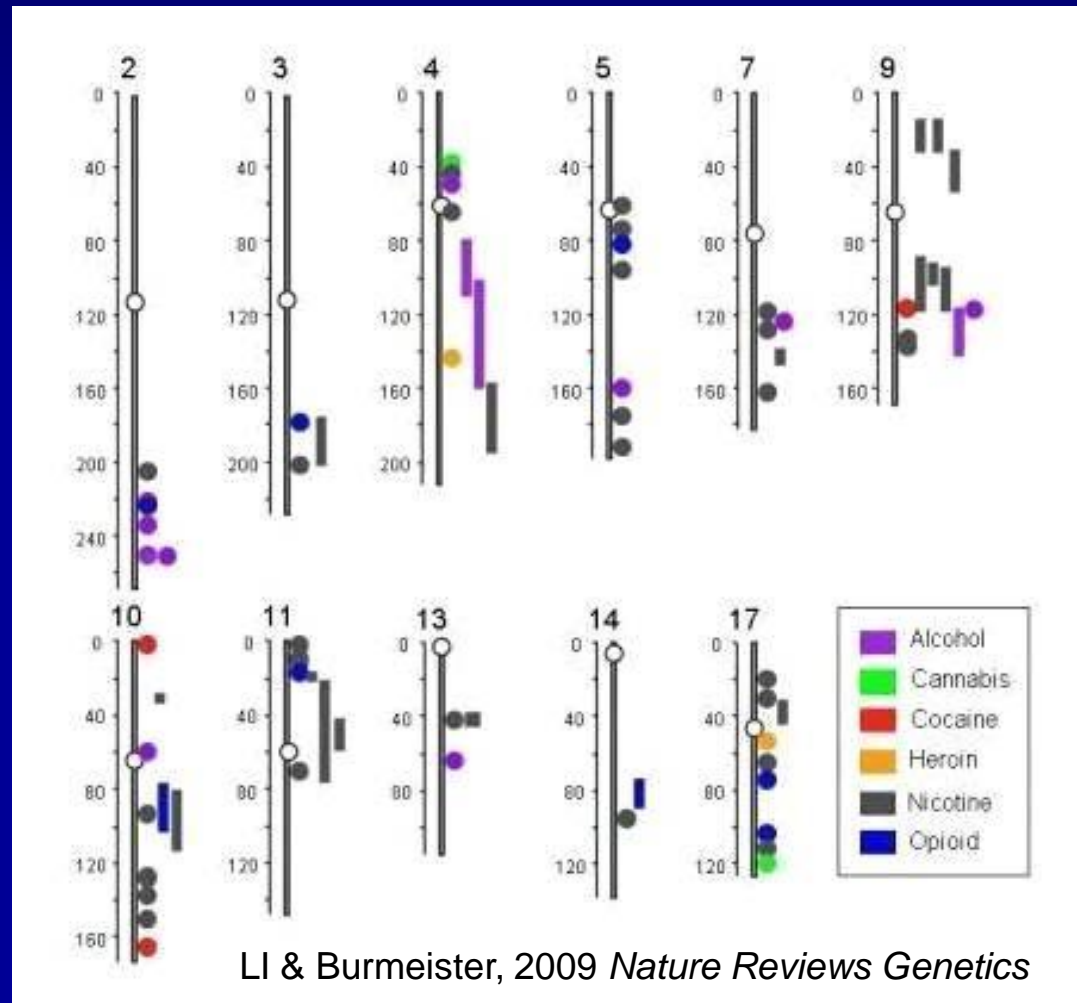


Current Understanding of the Science of Alcohol and Drug Use Disorders

- **Many substance users suffer from multiple drug dependencies, “co-morbid conditions”:**
 - Prevalence of alcohol use disorder among those with a cocaine use disorder is 79%; Prevalence of cocaine use disorder among those with an alcohol use disorder is 2.5%
 - Smoking rate is 3x higher among alcoholics than in the general population
- **Some data suggest that treating one disorder without concurrently treating the other can lead to higher relapse rates for either substance.**
- **While drugs and alcohol have different mechanisms of action, common pathways are involved in addiction. This finding has implications for potential therapeutic strategies.**

Current Understanding of the Science of Alcohol and Drug Use Disorders (cont...)

Unique genetic sites associated with risk for specific disorders related to alcohol and several other drugs



Current Understanding of the Science of Alcohol and Drug Use Disorders (*cont...*)

- While different drugs (alcohol, opiates, cocaine, nicotine, marijuana) activate different receptors in the brain, they all directly or indirectly elevate dopamine levels in the limbic system, the brain's endogenous reward system.
- Stimulation of the brain's reward system produces euphoria:
 - Motivating behaviors necessary for survival, such as eating
 - Resulting in learned association of substance and pleasure, leading to repeated behaviors
- Understanding addiction as usurpation of normal reward-related learning suggests prevention and treatment strategies may be transferable across addictions.

NIAAA and NIDA Support for Science

- **Collaborative funding**

- 2008: 13 grants co-funded by NIAAA and NIDA
- 2009: 8 grants co-funded by NIAAA and NIDA to date

- **Common principal investigators**

- 2008: 112 investigators received awards from both NIAAA and NIDA

- **Comparable success rates**

- 1992 – 2004: Rates were comparable
- 2004 – 2008: NIAAA success rates were 26-31%; NIDA success rates were 20-27% (Could be due to a number of issues, including focus and portfolio balance)

From Science to Structure

What organizational structure within NIH best supports scientific inquiry investigating fundamental pathways underlying substance use, abuse, and addiction, helps develop new treatments for addiction, and helps develop therapeutic applications of these substances?

e.g., the National Academies suggested considering a merger of NIAAA and NIDA

From Science to Structure *(cont.)*

- **Issues to consider:**

- How can NIH increase the synergy among researchers studying different facets of substance use, abuse, and addiction?
- How can NIH best promote development of treatments for multiple addictions/co-morbidities?
- How can NIH ensure that all areas of addiction, including addictive behaviors such as gambling, receive appropriate scientific attention?
- How can organizational structure advance research on fundamental pathways underlying substance use and abuse, help develop new treatments for addiction, and help develop therapeutic applications of these substances?
- What are the pros and cons of various organizational options?

Specific Charge to the SMRB

- **Should the SMRB consider organizational change within NIH to optimize research into alcohol and drug use, abuse, and addiction to better understand fundamental pathways, develop new treatments for addiction, and identify potential therapeutic uses for these substances?**
 - No
 - Yes
 - Process to inform decision
 - Timeline
 - Next steps