Understanding Addiction and Recovery from a Process Perspective

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Division 50 SOAP Webinar

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Acknowledgements and COI

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- I am indebted to all the graduate and undergraduate students in my HABITS laboratory at UMBC for their assistance and support in more recent projects

*Three Challenges

*1. Shifting from an End State and diagnostic perspective to a dynamic process of change orientation

*2. Understanding Use Disorder Initiation and Recovery from Addiction as a Journey

*3. Integrating treatment into a Multidimensional view of Addiction and a personal process of change

First Challenge

- Understanding and defining Use Disorders and Addiction that is
  - Beyond DSM-5
  - Multidimensional
  - Relevant for Recovery

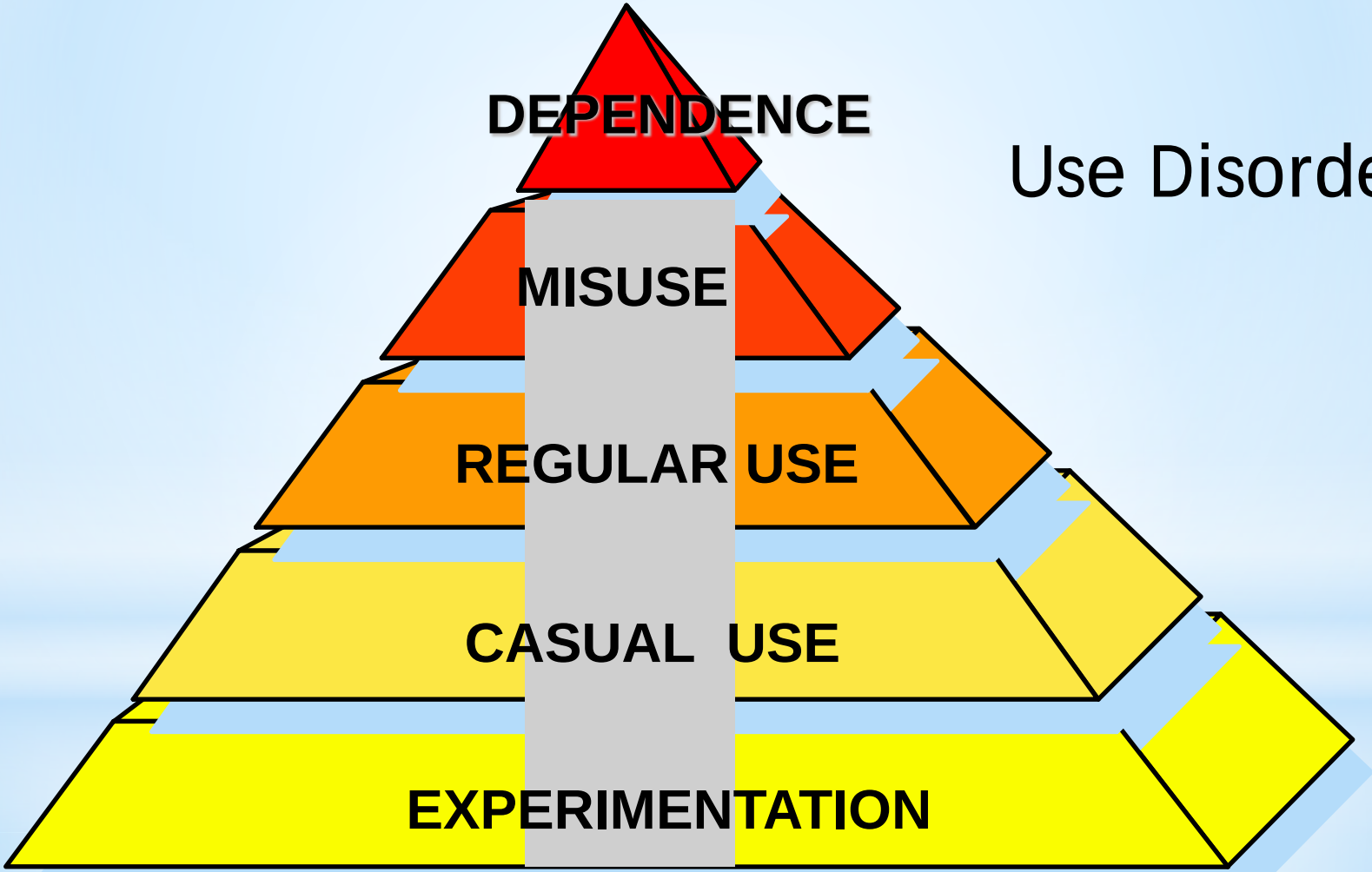
*What are Addictions?

- *Habitual patterns of intentional, appetitive behaviors
- *Become excessive, problematic and produce serious consequences
- *Stability of these problematic behavior patterns over time
- *Interrelated physiological, psychological and social components
- *Addicted individuals have difficulty modifying and stopping these patterns of behavior (smoking, alcohol, marijuana, heroin or process addictions like gambling, sex, etc.)

*Addiction and Change

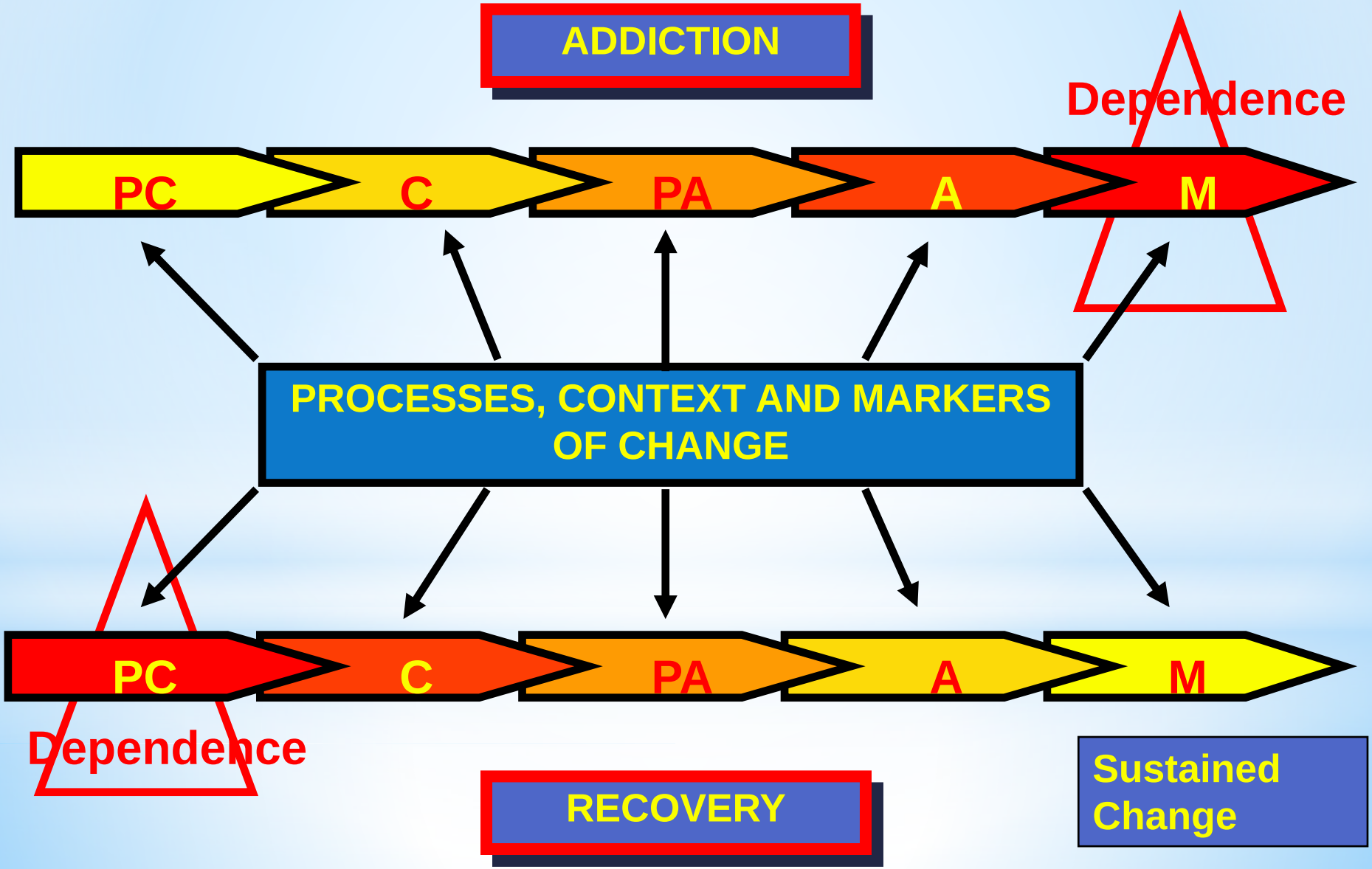
- Both acquisition of and recovery from an addiction require a personal journey
- Through an intentional change process marked by personal decisions and choices
- Each journey is influenced at various points by many biological, psychological, and social factors
- Defining Addiction Severity should describe the problematic addictive behavior pattern of involvement that marks the end state of initiation and beginning of recovery

* THE COURSE OF ADDICTION: A Behavioral Perspective



Use Disorders

* THE STAGES OF CHANGE FOR ADDICTION AND RECOVERY



* Stage of Change Labels and Tasks

* STAGE	* TASK
* Precontemplation	* Interested, concerned and willing to consider
* Not interested	* Risk-reward analysis and decision making
* Contemplation	* Commitment and creating a plan that is effective/acceptable
* Considering	* Implementing plan and revising as needed
* Preparation	* Consolidating change into lifestyle
* Preparing	
* Action	
* Initial change	
* Maintenance	
* Sustained change	

DiClemente. *Addiction and Change: How Addictions Develop and Addicted People Recover.* NY: Guilford Press; 2018.
DiClemente. *J Addictions Nursing*. 2005;16:5.

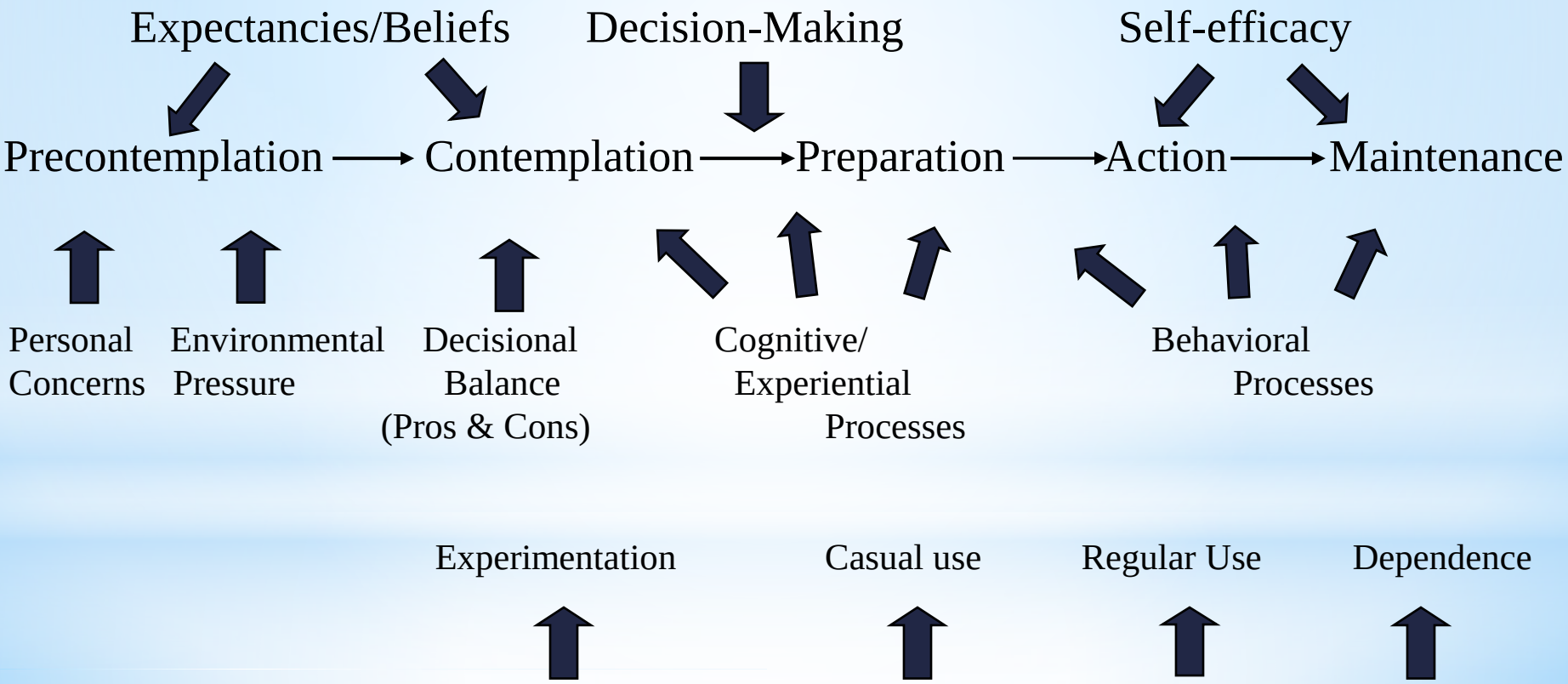
Addiction and Stages

- As individuals move through **stages of initiation** they move from **thinking** about doing it, to **experimenting**, to **developing a pattern** of behavior (social drinker, binge drinker, daily drinker, non drinker) that becomes **habitual** or consistent over time.
- Many patterns are normative and socially acceptable, do not create problems or get judged excessive
- Addiction, however, is best represented as a well maintained, problematic pattern of engagement best equated with a severe use disorder or dependence
- Once an individual has created such a maintained, rather stable pattern of this nature, interventions move from prevention of initiation to recovery from addiction

Stages of Change are Pattern Neutral

- Many of us have moved through stages of initiation to achieve a regular pattern of consuming alcohol, smoking, gambling
- So it is critical to be able to distinguish among engagement patterns:
  - Use, Misuse, Abuse, Dependence, or
  - DSM Mild, Moderate, Severe Use Disorders
- Trajectories of engagement can change over time (social use to misuse to dependence) and depend on developmental and contextual factors and influences (e.g., time limited heavy binge drinking pattern in college; money spent gambling)
- Motivation focuses on how individuals move into and out of these different patterns of behavior;
- Addiction focuses on the end state

Theoretical and practical considerations related to Prevention and Stages of Initiation



Stages of Smoking Initiation

Precontemplation: Youth who are not currently smoking and expressed a firm commitment to not start in the next year

Contemplation: Youth who are not currently smoking and did not express a firm commitment to not smoke in the next year

Preparation: Youth who have minimally tried cigarettes (< 100 in their lifetime) who may be currently smoking (less than 6 days in past 30) and definitely plan on smoking within the next year

Action: Youth who have smoked on 6 or more days during the past 30 day and for < 6 months

Maintenance: Youth who have smoked on 6+ days during the past 30 days and for at least 6 months

DiClemente, 2018

*Maryland Youth Tobacco Survey (MYTS): A Decade of Maryland Data

2000 to 2010

Changes in Use of Selected Tobacco Products Maryland: 2000-2010

Cigarette Smoking:

- ***51.4% decrease among underage middle school youth (from 7.2% in 2000 to 3.5% in 2010)***
- ***38.7% decrease among underage high school youth (from 23.0% in 2000 to 14.1% in 2010)***
- ***25.9% decrease among adults (from 20.5% in 2000 to 15.2% in 2010)***
- ***33.7% decrease among pregnant women (from 9.2% in 2000 to 6.1% in 2010)***

Cigar Smoking:

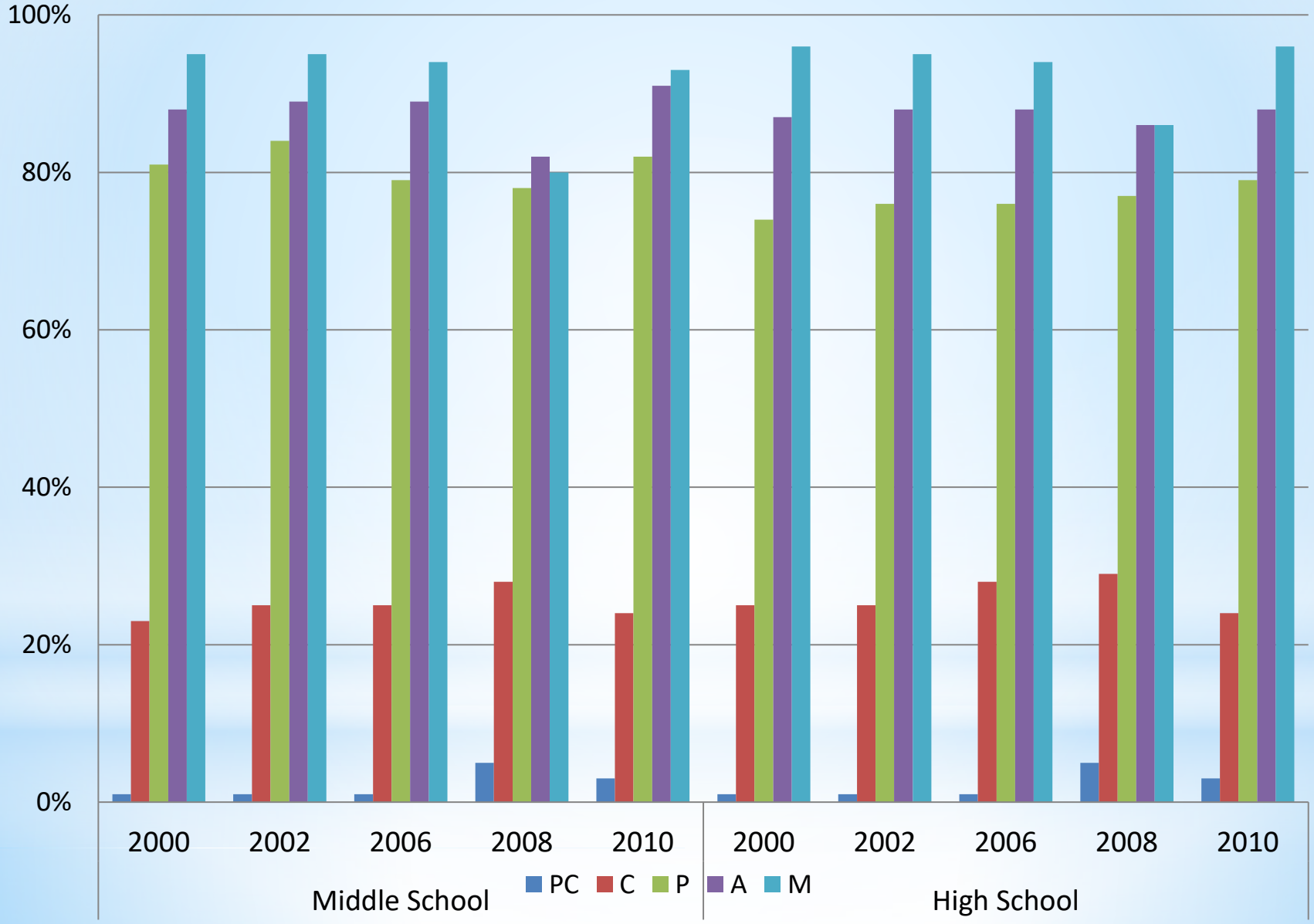
- ***23.9% decrease among underage middle school youth (from 4.6% in 2000 to 3.5% in 2010)***
- ***11.2% increase among underage high school youth (from 12.5% in 2000 to 13.9% in 2010)***

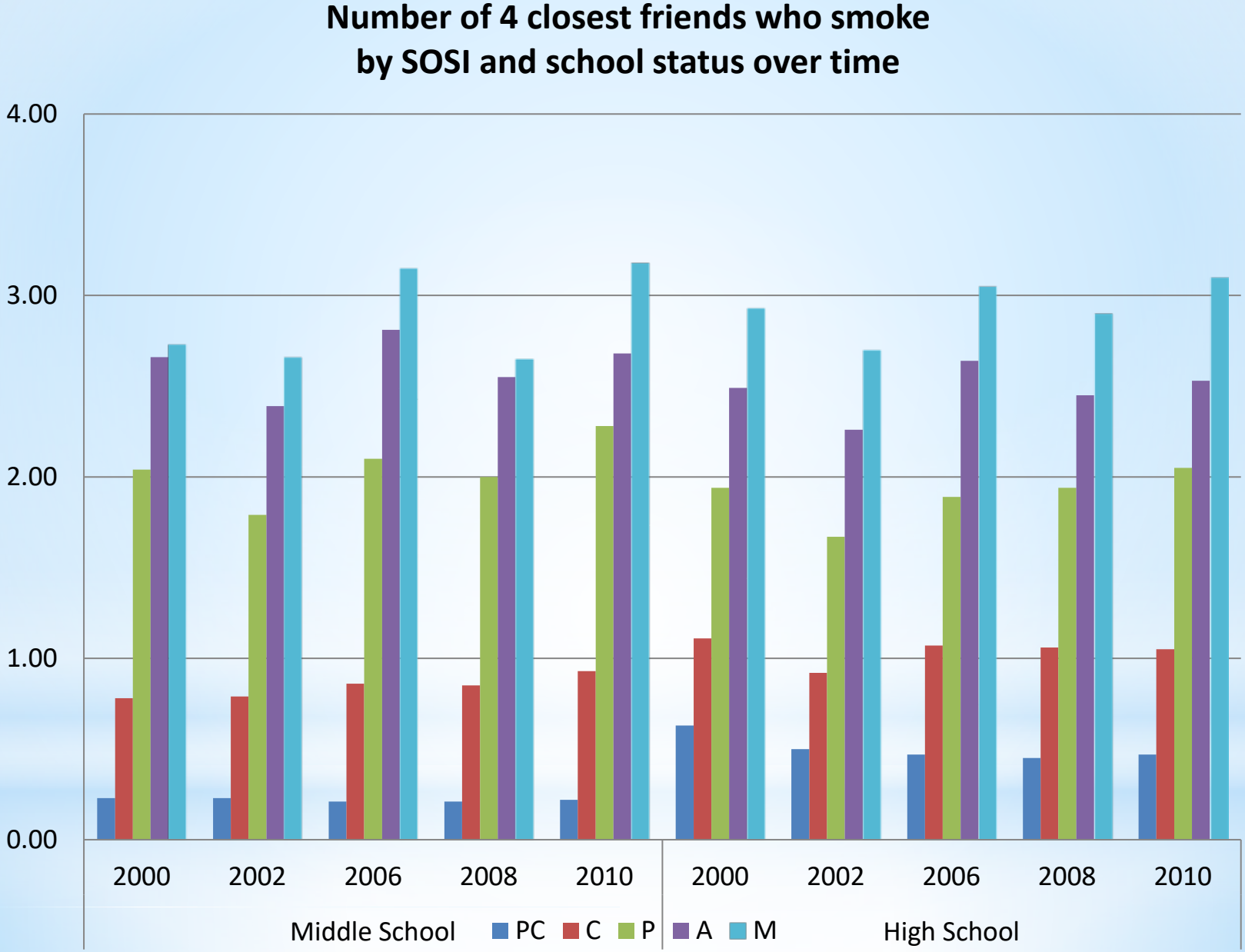
Data from DHMH Legislative Report (2011):
http://fha.maryland.gov/pdf/ohpetup/HG13-1004d-FHA-BiennialTobaccoReport.pdf

*SOSI over time by School

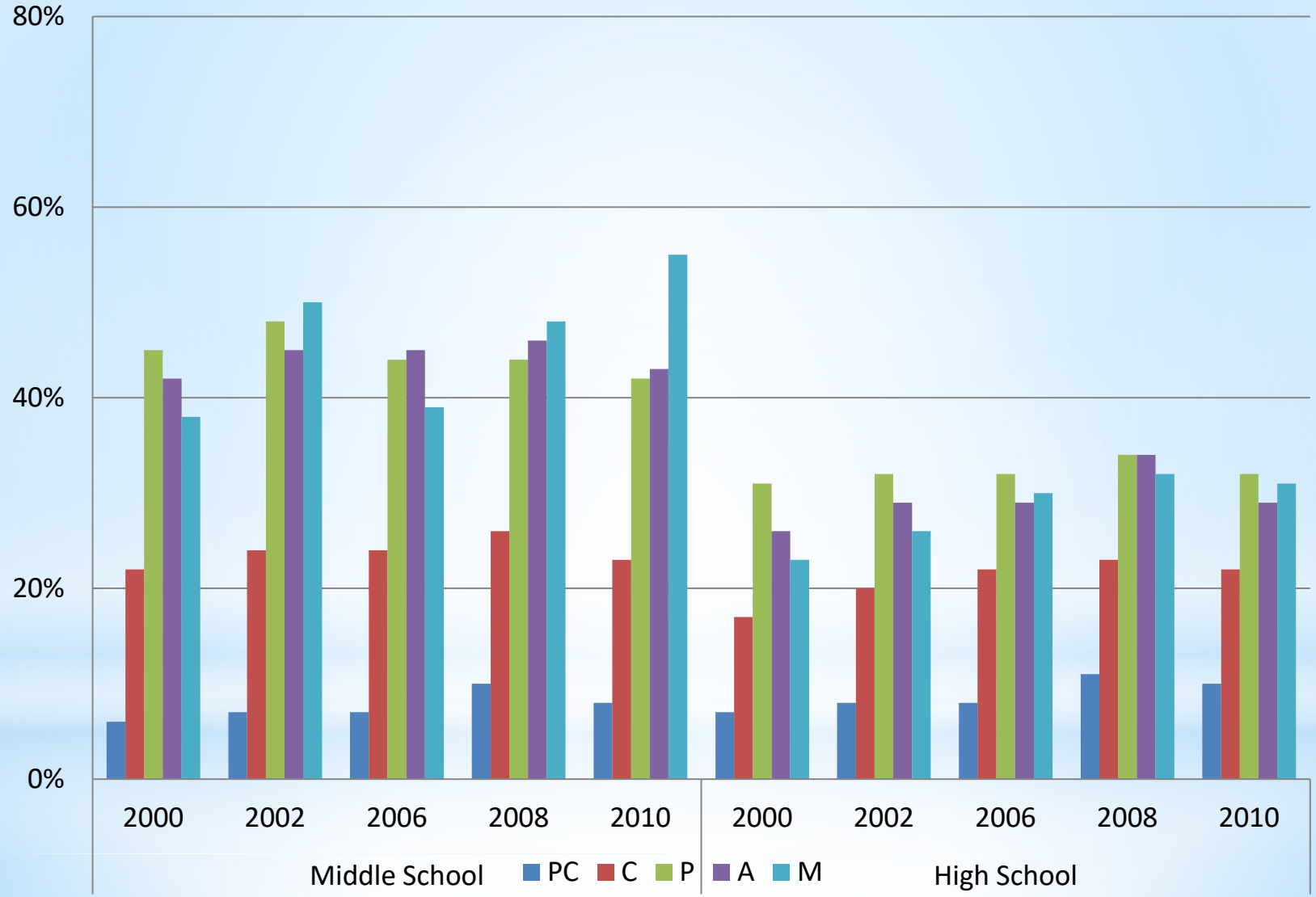
	PC	C	P	A	M
Middle School					
2000	73.7%	20.4%	2.7%	1.9%	1.3%
2002	75.9%	19.0%	2.3%	1.6%	1.2%
2006	81.1%	15.6%	1.6%	.9%	.9%
2008	82.5%	14.3%	1.4%	.8%	1.0%
2010	84.1%	13.3%	1.2%	.8%	.6%
High School					
2000	51.3%	24.1%	6.3%	6.1%	12.2%
2002	57.0%	24.4%	5.3%	5.0%	8.3%
2006	64.1%	20.7%	4.7%	4.0%	6.5%
2008	66.2%	20.4%	4.1%	3.4%	5.9%
2010	67.3%	20.5%	4.0%	3.6%	4.7%

Percent who would smoke cigarette if best friend offered by SOSI & school status over time



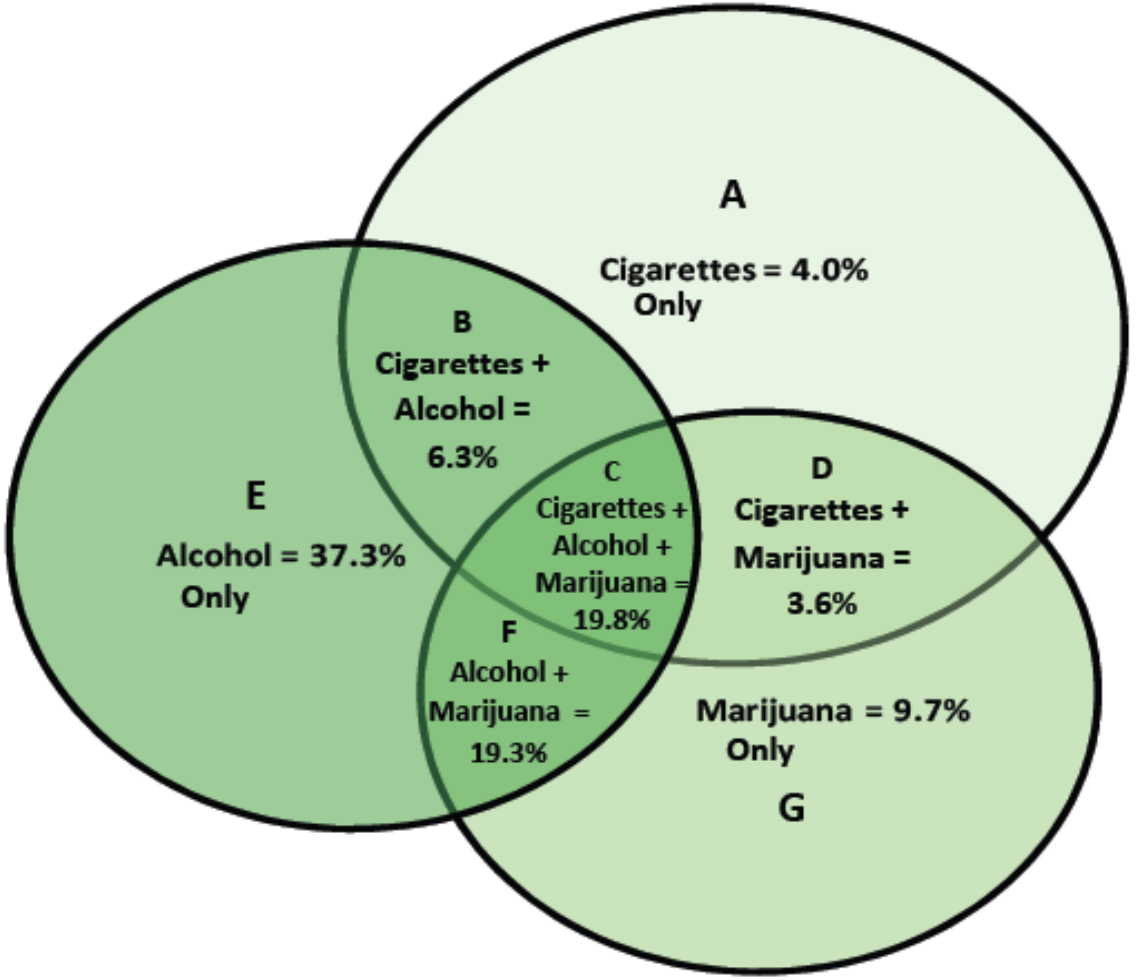

Number of 4 closest friends who smoke
by SOSI and school status over time
4.00
3.00
2.00
1.00
0.00
2000
2002
2006
2008
2010
2000
2002
2006
2008
2010
Middle School
PC
C
P
A
M
High School

Percent who believe smoking makes young people look cool by SOSI & school status over time



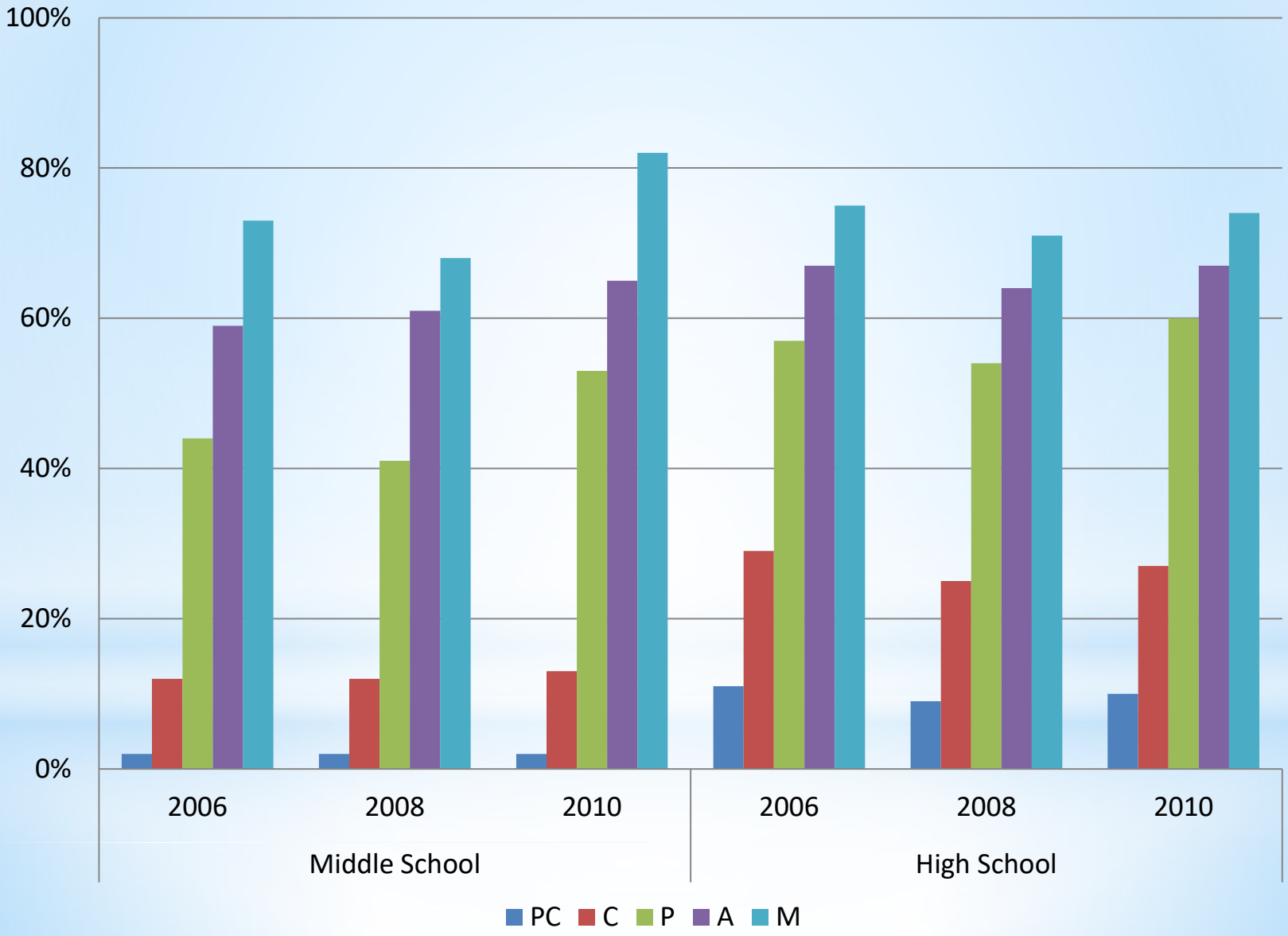
Current Underage MD High School Substance Users:

Use of Cigarettes, Alcohol, and/or Marijuana in 2010



Source: Maryland Youth Tobacco Survey, 2010.

Percent who binge drank (5+ drinks on one occasion) in the past month by SOSI & school status over time



*Stages of Initiation for Cigarettes, Alcohol & Marijuana by School Level in 2010

Stages of Substance Initiation by School Level						
	Substance	Precontemplation	Contemplation	Preparation	Action	Maintenance
Middle School	Cigarettes	84.1	13.6	1.1	.8	0.5
	Alcohol	78.7	3.9	5.8	7.4	4.3
	Marijuana	84.7	4.7	3.0	4.8	2.9
High School	Cigarettes	66.9	20.6	4.2	3.6	4.7
	Alcohol	32.0	21.7	13.7	17.3	15.4
	Marijuana	57.1	12.9	8.0	12.4	9.6

Percentages of Stages of Smoking Initiation by Stages of Alcohol Initiation

	Stages of Alcohol Initiation					
Stage of Smoking Initiation	Precontemplation	Contemplation	Preparation	Action	Maintenance	Total
Precontemplation	**73.2**	**14.6**	7.9	4.2	0.2	73.1
Contemplation	**29.1**	**30.7**	22.4	17.2	0.6	17.8
Preparation	7.9	21.9	27.1	39.9	3.2	3.1
Action	6.1	16.6	23.2	**48.6**	**5.5**	2.7
Maintenance	4.0	14.0	15.4	**52.2**	**14.3**	3.3
Total	59.3	17.7	11.7	10.4	0.9	100

Percentages of Stages of Smoking Initiation by Stages of Marijuana Initiation

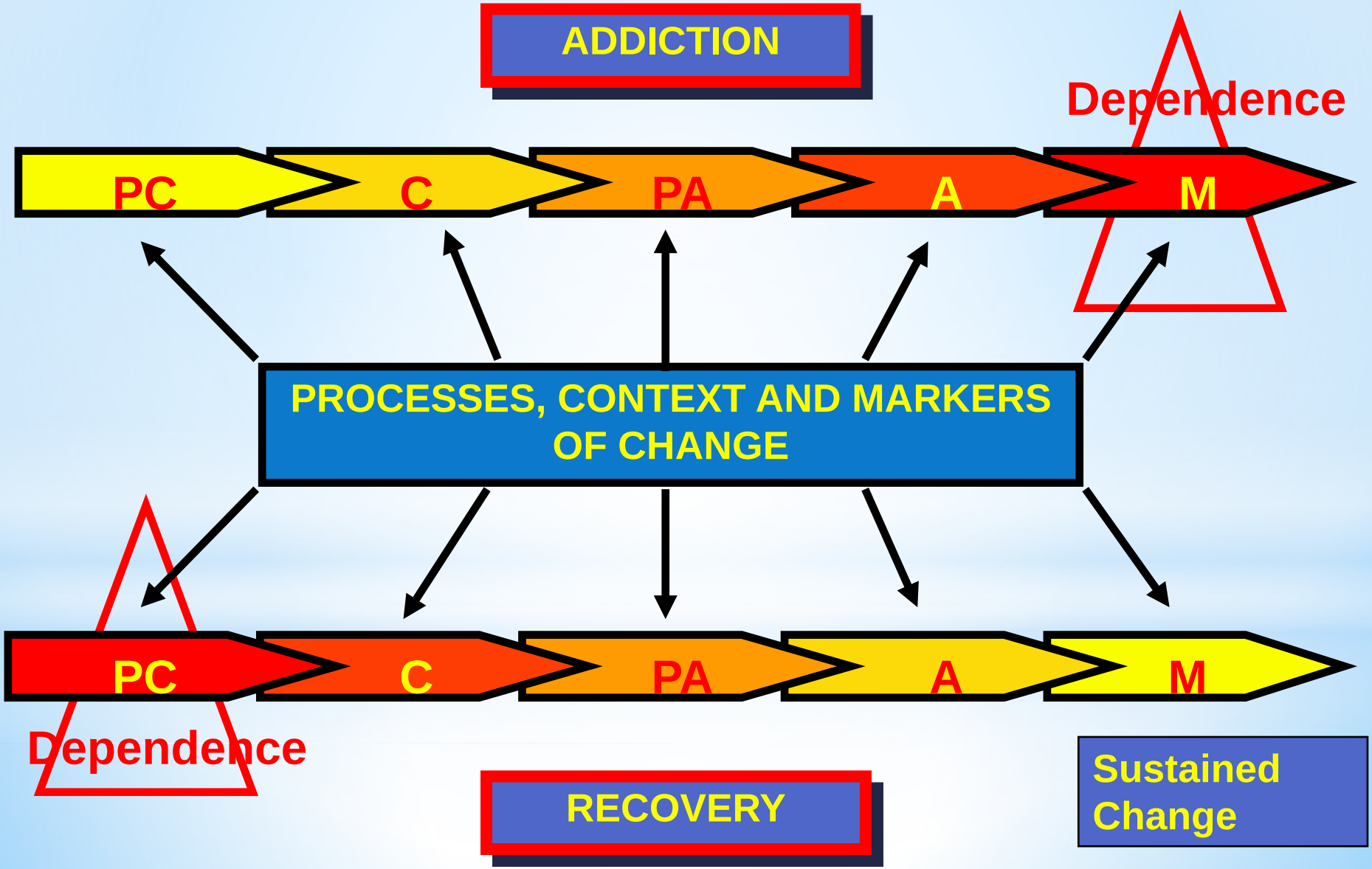
	Stages of Marijuana Initiation					
Stage of Smoking Initiation	Precontemplation	Contemplation	Preparation	Action	Maintenance	Total
Precontemplation	**89.7**	**5.7**	2.2	2.2	0.2	73.5
Contemplation	**62.8**	**19.9**	8.6	7.9	0.8	17.9
Preparation	23.4	22.7	20.7	28.7	4.5	3.0
Action	17.2	16.8	18.4	**40.7**	**7.0**	2.6
Maintenance	12.3	11.2	10.6	**42.4**	**23.5**	3.1
Total	78.6	9.2	4.6	6.3	1.4	100

*The end state of initiation

*It is clear that end state of initiation of a moderate to severe use disorder represents a stable, sustained pattern of behavior that is difficult to modify

*What are the critical mechanisms and dimensions that then keep people doing these behavior and in the precontemplation stage for recovery?

* THE STAGES OF CHANGE FOR ADDICTION AND RECOVERY



A New View of Addiction Severity

- The challenge is to create a new view of this end state that acknowledges the multidimensionality of addictive behavior patterns that can
  - Aid us with diagnosis
  - Understand better how severity influences motivation in the movement through the recovery process
  - Offer specifics for guiding treatment planning and matching

Creating a New View of Addiction Severity

* Critical Assumptions
  * **Quantity and Frequency** must be part of how we define severity
  * **Dimensions and not categories** are needed to understand severity (a continuum)
  * **Highlight critical mechanisms** based on how the addictive behavior is operating in life of the individual
  * Include **biological, psychological and behavioral** factors
  * Include **Context** of Individual's life so view of severity can be comprehensive

Use Patterns are critical to Understanding the Behavior

- Although open to interpretation and difficult to clearly distinguish at times **quantity and frequency** of use are importantly related to relative risk and very helpful as part of a severity definition
- Quantity and Frequency are clearly related to motivational goals (cutting down) and as indicators of change (creating a different pattern of use)
- Amazingly quantity and frequency are only indirectly included in DSM V and in many other views of severity

*Use Patterns

*No Risk

*Low Risk (within guidelines; very sporadic)

*Infrequent High Risk (infrequent binge drinking or marijuana use)

*Frequent High Risk (frequent binge drinking)

*Extensive High Risk (daily excessive drinking, marijuana use, heroin use)

Mechanisms of Addiction Severity

* There seem to be a small set of mechanisms that characterize the end state of addiction that could be used to indicate severity and help understand recovery
  * **Neurobiological Adaptation** – brain and biological adaptations to frequent exposure to addictive behavior/substance (a brain disease)
  * **Reduced/Impaired Self-Regulation** – The sense of loss of control and compromised self-regulation despite consequences that are the hallmark of addictions (a behavioral control disease)
  * **Salience of addictive behavior and Narrowing of Behavioral Repertoire** – The addictive behavior becoming so valued a reinforcer that the behavior becomes more ubiquitous and potent in the life of the individual

* CONTEXT: How Extensive the Influence and Consequences in Critical Domains of Functioning

* The more the addictive behavior pattern has impacted different domains of functioning the greater the severity of the addiction.
* greater the impact on these life domains the more problematic and severe
* Consequences and not simply salience.
* Key Domains:
  * **Biological** – Needing the substance to feel normal or manage withdrawal, craving, serious consequences (COPD, HPC, Neuropsychological consequences)
  * **Psychological** – the addictive behavior becomes a valued psychological coping mechanism, a way to manage negative emotions
  * **Social** – How integrated the addictive behavior into the social context and network, into meeting social and interpersonal needs (sex, fun, social events)

Defining Severity of Addiction

Use Patterns

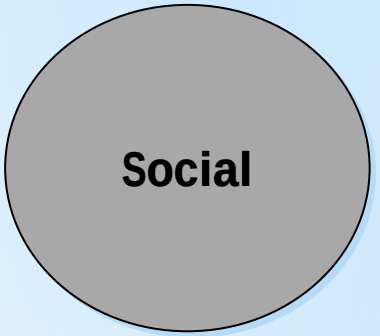
- Low-Risk
- Infrequent High Risk
- Frequent High-Risk
- Extensive High-Risk

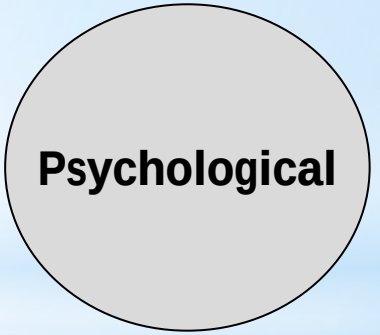
Mechanisms

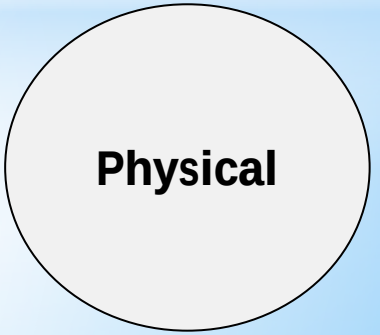
- Neurobiological Adaptation
- Reduced Self Regulation
- Salience/ Narrowing

Mild — Severe

Domains







Defining Severity of Addiction

Use Patterns

- Low-Risk
- Infrequent High Risk
- Frequent High-Risk
- Extensive High-Risk

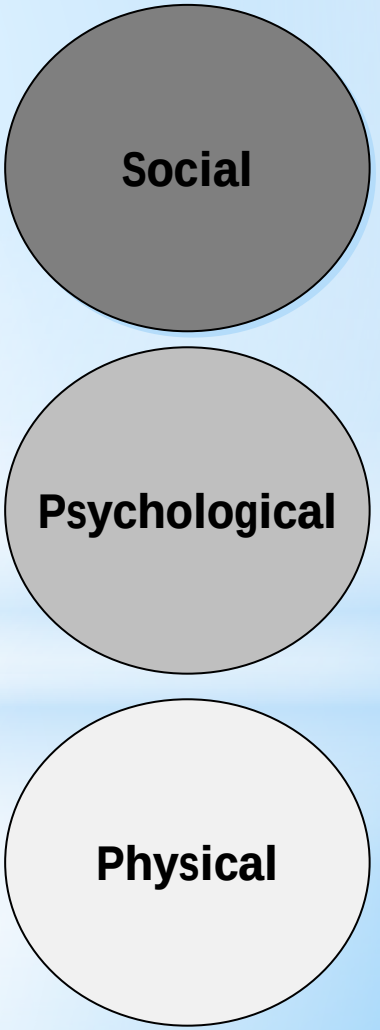
Indicators

- Neurobiological Adaptation
- Reduced Self Regulation
- Salience/ Narrowing

Mild — Severe

X

Domains



Defining Severity of Addiction

Use Patterns

- Low-Risk
- Infrequent High Risk
- Frequent High-Risk
- Extensive High-Risk

Indicators

- Neurobiological Adaptation
- Reduced Self Regulation
- Salience/ Narrowing

Mild — Severe

Domains

- Social
- Psychological
- Physical

Implications

- **Better connection** of neuroscience and biological perspectives with social and behavioral science views on addictive behaviors
- Offers a **better way to measure use disorders** with a more dimensional approach
- May help to **distinguish and define** use, misuse, abuse, dependence and use disorders
- Offers a way to **bring together literatures** on stress reactivity, brain mechanisms, self-regulation, loss of control, internal and environmental perspectives

How do these dimensions interact with Motivation

- Recovery represents a **series of tasks** that are critical to moving through the stages to sustained change
- Motivation is **behavior and goal specific** so pattern of **use** and severity of addiction mechanisms are critical for goal setting
- **Impaired self-regulation and self-control mechanisms influence** coping needed to manage addictive behavior and reduce use
- **Neuroadaptation and Salience interact** with ambivalence, decision making, commitment, support, planning, and action as well as relapse and recycling
- **Context** offers resources or creates chaos for recovery

MECHANISMS OF CHANGE: A CLIENT PERSPECTIVE

- What is the client's work in making change happen?
- What is the provider's tasks?
- What is the difference?
- Client Processes and Activities
- Provider Strategies and Services

*Processes of Change

* **Experiential Processes**
  * Concern the person's thought processes
  * Generally seen in the early Stages of Change

* **Behavioral Processes**
  * Action oriented
  * Usually seen in the later Stages of Change

*Transtheoretical Model: Experiential Processes of Change

Consciousness Raising: Gaining information increasing *awareness* about the current habitual behavior pattern or the potential new behavior

Emotional Arousal: Experiencing *emotional reactions* about the status quo and/or the new behavior

Self –Revaluation: Changing how one sees when and how the status quo or the new behavior fit in with or conflict with personal values and lifestyle

Environmental Reevaluation: Recognizing the effects the status quo or new behavior have upon others and the environment

Social Liberation: Noticing and increasing social alternatives and norms that help support change in the status quo and/or initiation of the new behavior

*Transtheoretical Model: Behavioral Processes of Change

Self Liberation: Accepting responsibility for and committing to make a behavior change

Stimulus Control: Creating, altering or avoiding cues/stimuli that trigger or encourage a particular behavior

Counter-Conditioning: Substituting new, competing behaviors and activities for the "old" behaviors

Reinforcement Management: Rewarding sought after new behaviors while extinguishing (eliminating reinforcements) from the status quo behavior

Helping Relationships: Seeking and Receiving support from others (family, friends, peers)

PROCESSES OF CHANGE by STAGE

STAGES

PC	C	PA	A	M

PROCESSES

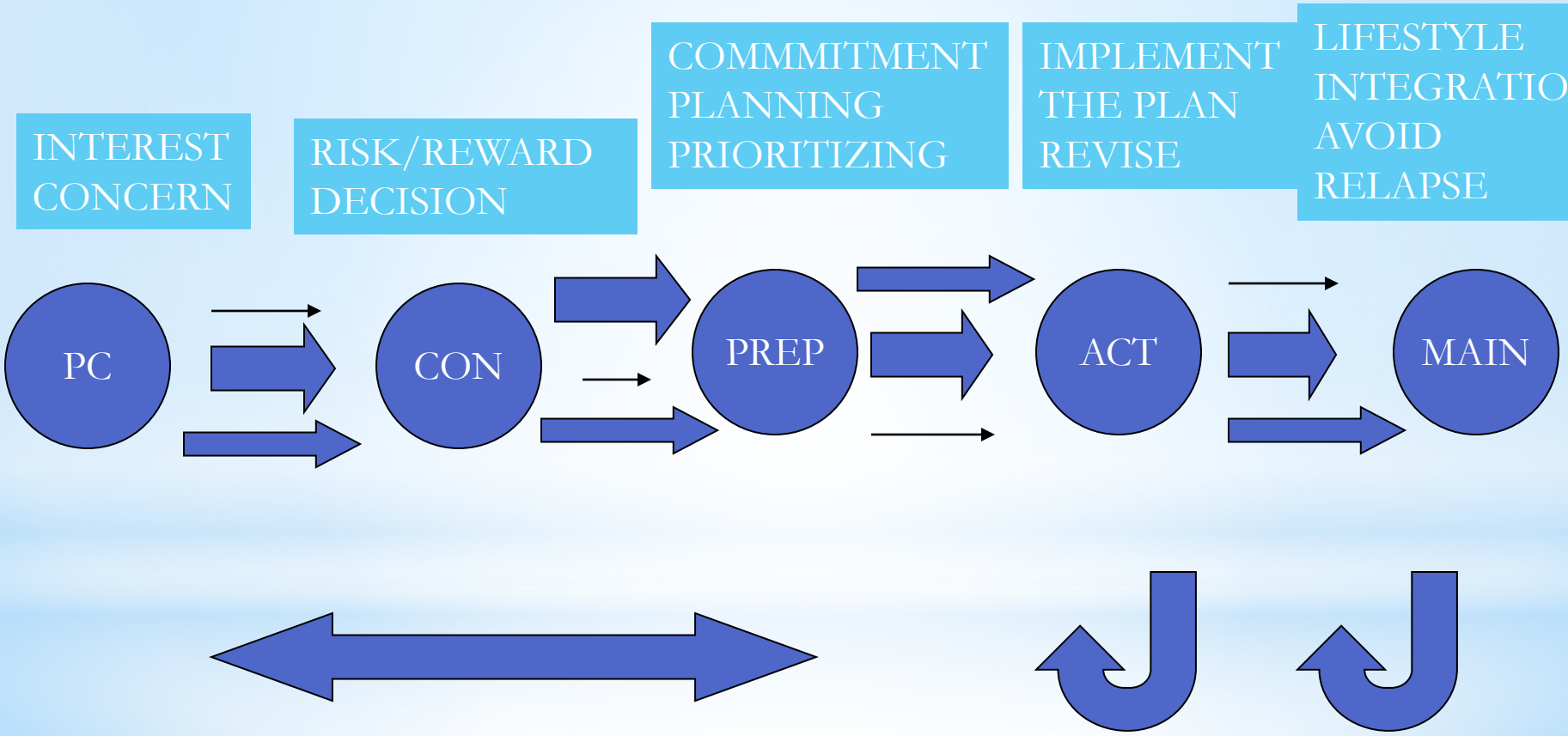
Consciousness raising
Self-reevaluation
Emotional Arousal
Helping relationship
Self- liberation
Contingency management
Counter-conditioning
Stimulus control

This pattern seems to hold for initiation and recovery but processes May operate somewhat differently.
(e.g. conditioning vs counterconditioning; creating vs controlling cues)

*Getting into and Staying in Recovery

* Requires completion of the stage tasks in a manner that is sufficient to support long term recovery
* Using Processes of Change that can promote and deepen completion of these tasks
* Building confidence, avoiding overconfidence, and being realistic about risks

*TASK COMPLETION AND MOVEMENT BETWEEN STAGES



Success Profiles From Project MATCH

- TSF, CBT, and MET treatments produced similar drinking outcomes
- **No important differences** on Stage Subscales, Working Alliance, Temptation to Drink, Abstinence Self Efficacy, Experiential and Behavioral Processes of Change by TX at End of Treatment.
- However, process dimensions of change **discriminated** between the drinking outcomes in Project MATCH
- What happens to process dimensions during treatment and how do they relate to long-term drinking outcomes?

Carbonari & DiClemente. *J Consult Clin Psychol.* 2000

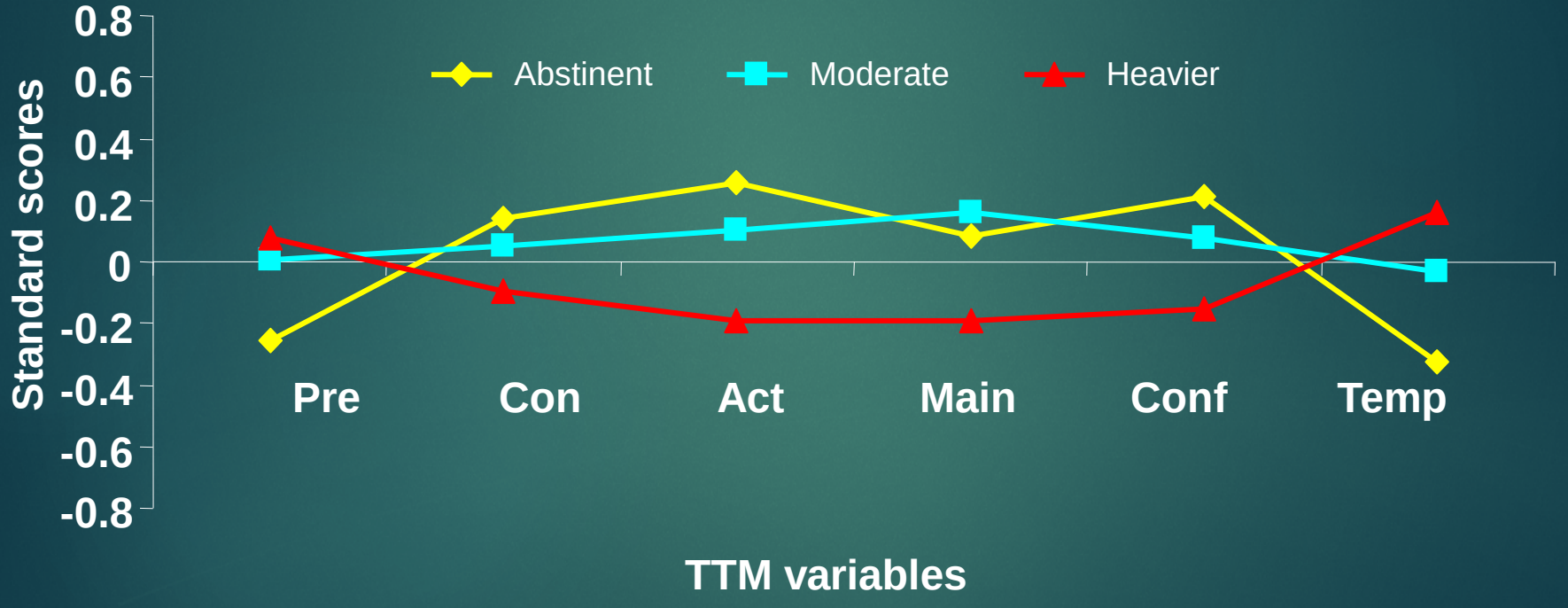
End-of-Treatment-Process Profiles Predict Outcomes

- Client status during one year follow-up period:
  - Abstinent
  - Moderate drinking
  - Heavier drinking

- Baseline and End of Treatment Client profile on Stage of Change subscales, temptation to drink, abstinence self-efficacy, experiential and behavioral processes of change

Carbonari & DiClemente. *J Consult Clin Psychol.* 2000;68:810.

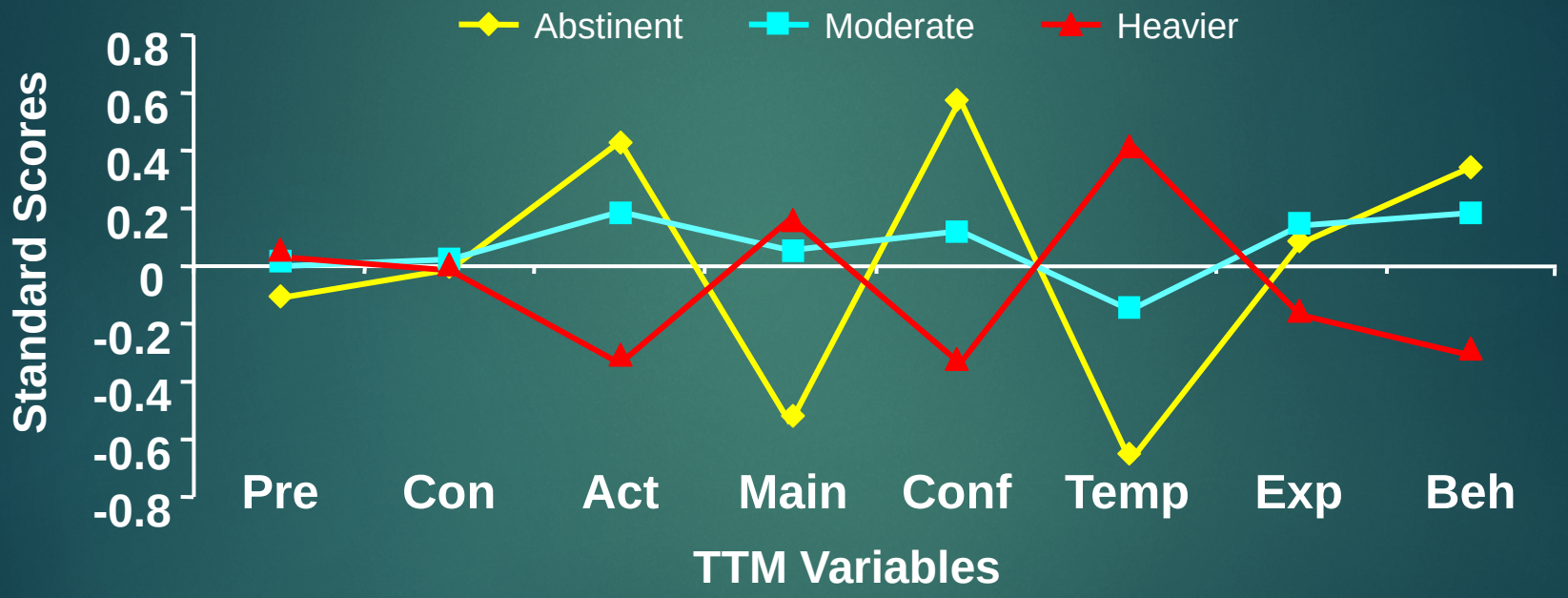
TTM Profile: Outpatient PDA Baseline



TTM = Transtheoretical model

Carbonari & DiClemente. *J Consult Clin Psychol.* 2000;68:810.

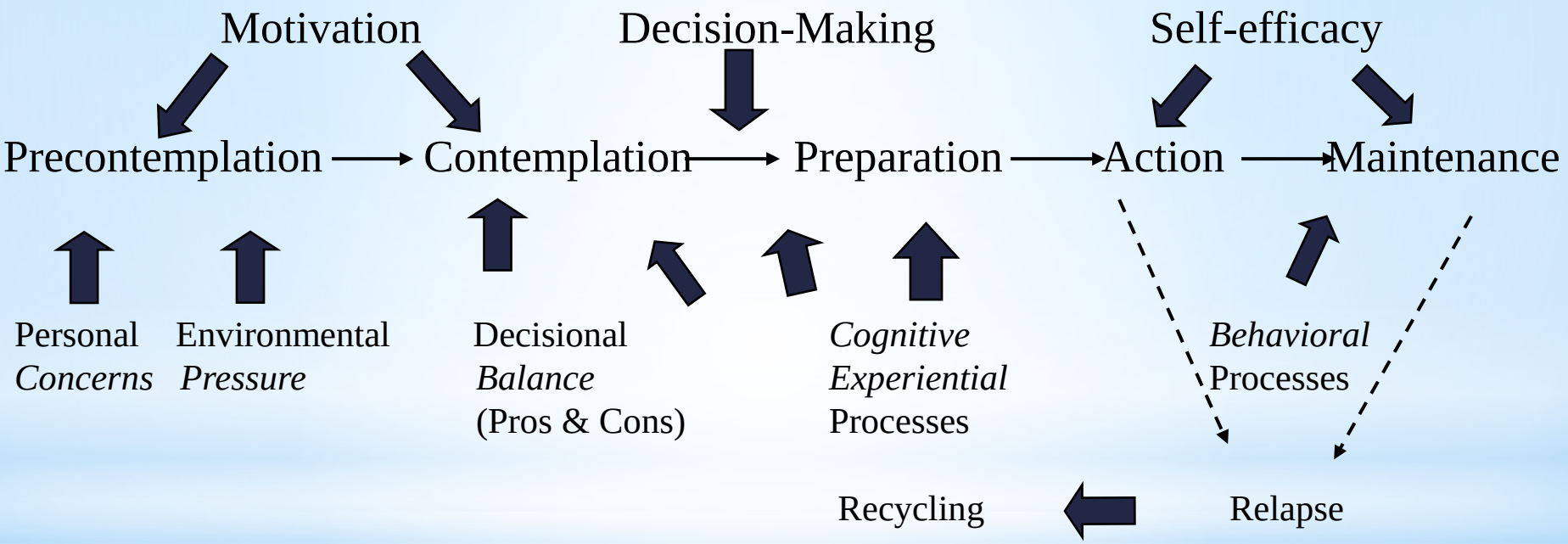
TTM Profile: Outpatient PDA Post-treatment



PDA = percent days abstinent

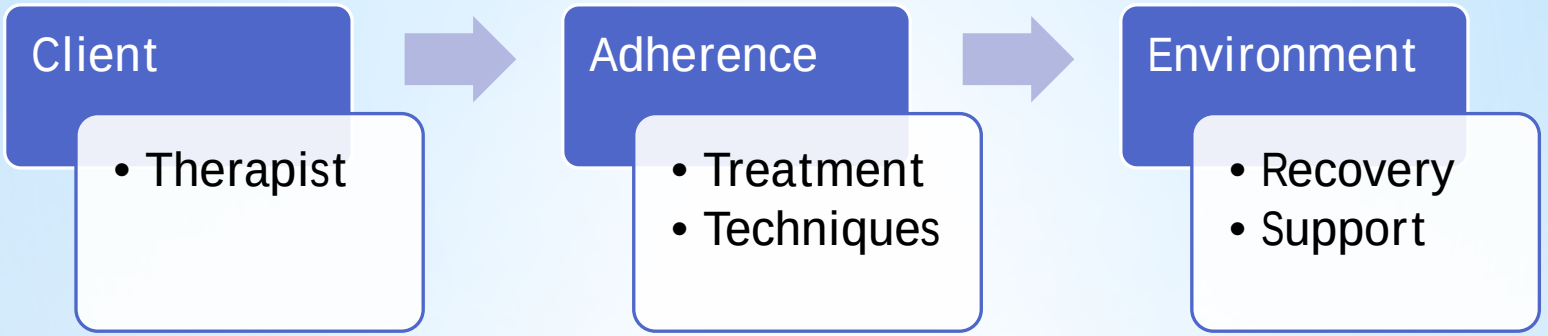
Carbonari, JP & DiClemente, CC. *J Consult and Clin Psych.* 2000; 68:810.

Theoretical and practical considerations related to movement through the Stages of Change



Competing demands, ***contextual problems***, and ***poor self regulation skills*** lead to incomplete or problematic completion of change tasks which in turn leads to failed attempts to change and undermines recycling and the readiness, willingness, and perceived ability to change. Treatment supports movement through the process

Focus on What provider does



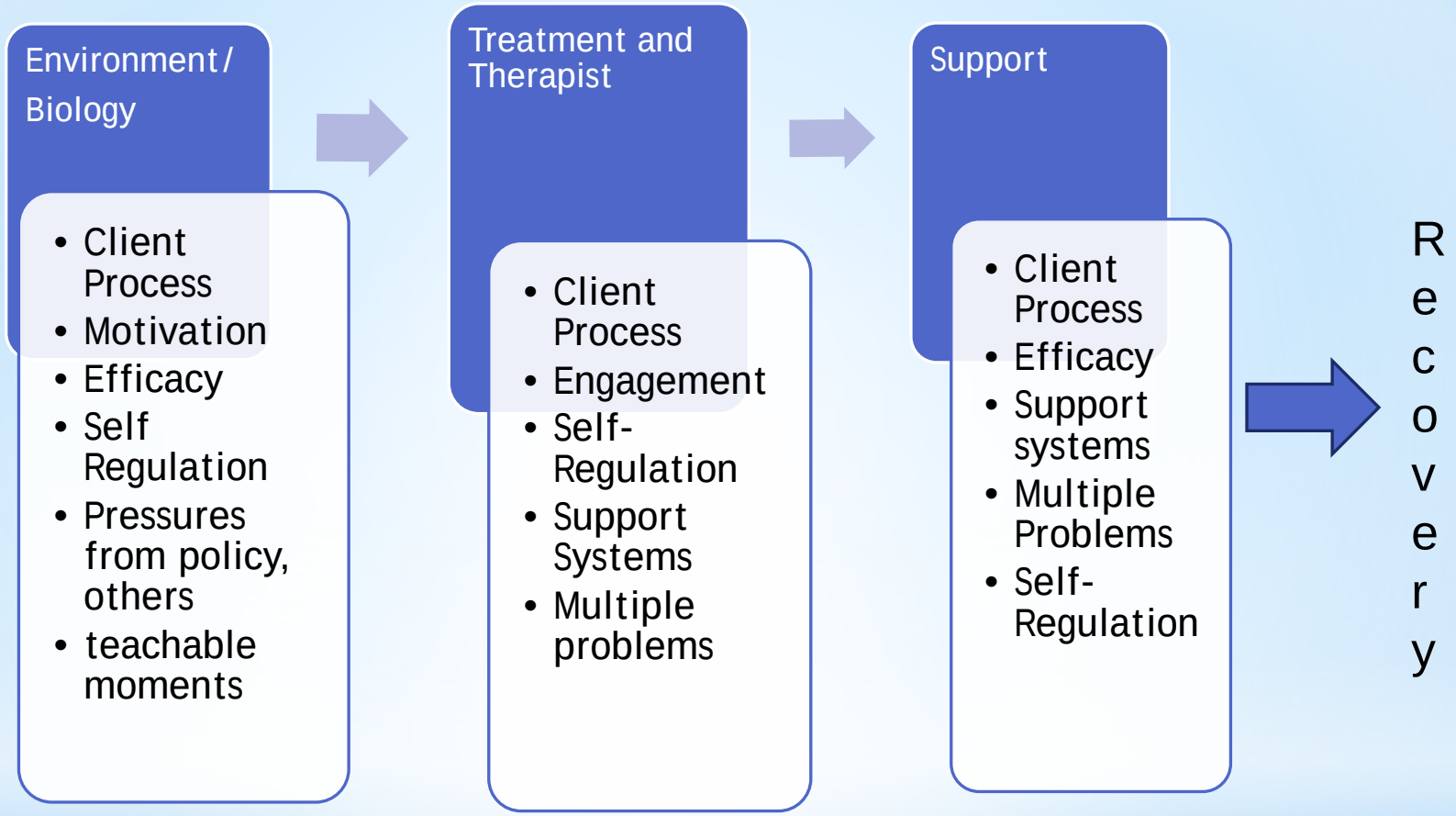
Relationship
Empathy
Working Alliance

Active Ingredients
Types of treatments

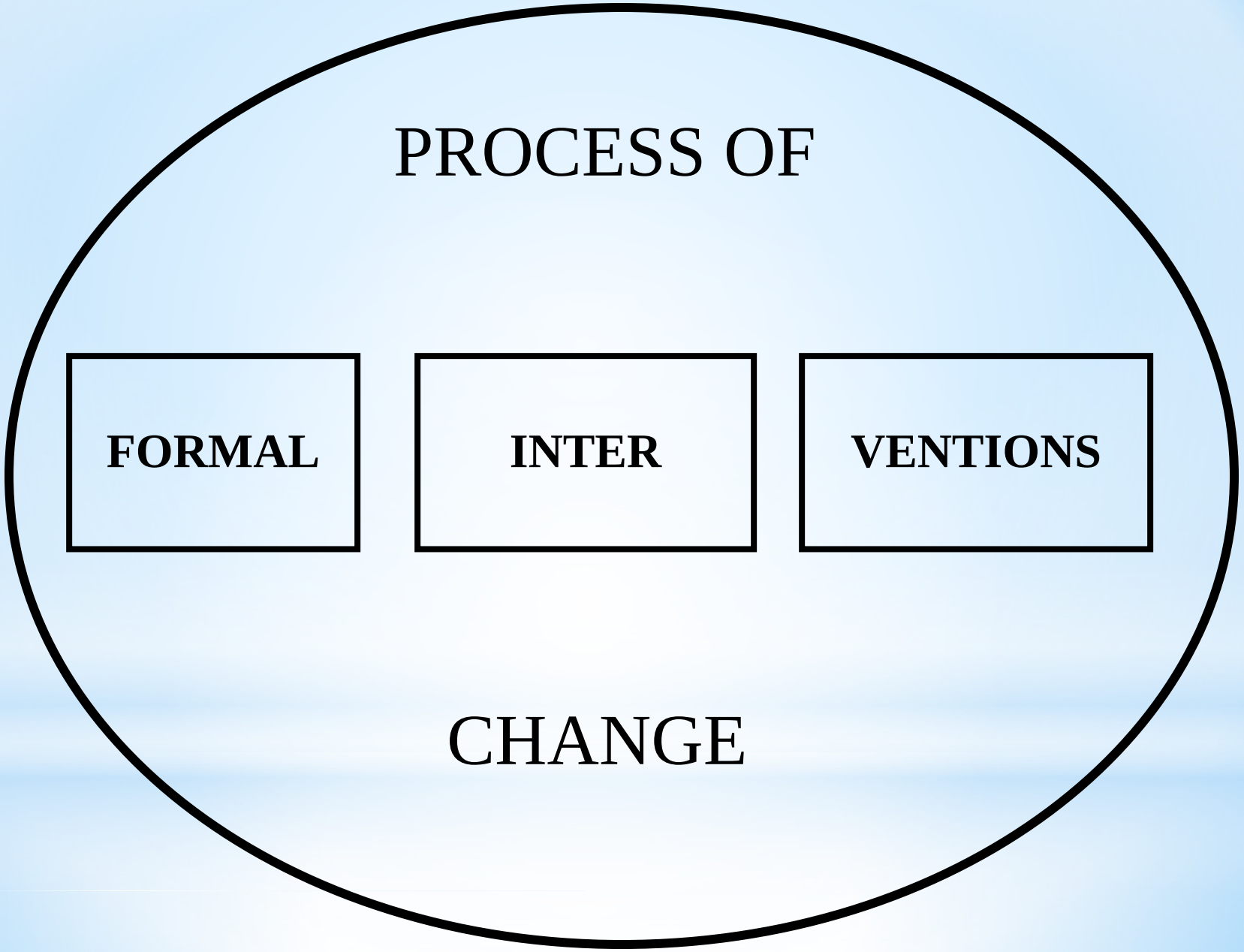
Relapse Prevention
AA, Smart Recovery

*How Does Treatment Work? Treatment Research Perspective

Treatment: A Mediator or Moderator of Client Processes



*What about looking at it another way? Focus on Process of Change and What Client Does


PROCESS OF
FORMAL
INTER
VENTIONS
CHANGE

SECOND EDITION

ADDICTION and Change

How Addictions Develop and Addicted People Recover

CARLO C. DICLEMENTE

References

* Connors, G., Donovan, D., & DiClemente, CC. (2012) *Substance Abuse Treatment and the Stages of Change* (Second Edition). New York: Guilford Press.
* DiClemente, C. C., (In Press) Addiction and Change: How Addictions Develop and Addicted People Recover (Second Edition) New York: Guilford Press.
* DiClemente, C. C., Holmgren, M. A., & Rounsaville, D. (2011). Relapse prevention and recycling in addiction. In B. Johnson (Ed.), *Addiction Medicine: Science and Practice*, New York: Springer.
* DiClemente, C.C. (2005) Conceptual Models and Applied Research: The Ongoing Contribution of the Transtheoretical Model. *Journal of Addictions Nursing*, 16, 5-12.
* DiClemente, C.C., Schlundt, D., & Gemell, L. (2004) Readiness and Stages of Change in Addiction Treatment. The *American Journal on Addictions*, 13, 103-119.
* DiClemente, C.C. (2003). *Addiction & Change: How Addictions Develop and Addicted People Recover*. New York, NY: The Guilford Press.
* DiClemente, C.C. (2006) Natural Change and the Troublesome Use of Substances. IN W.R. Miller & K.M. Carroll (Eds.) *Rethinking Substance Abuse: What the science shows and what we should do about i*t. New York: Guilford Press.
* DiClemente, C.C., & Velasquez, M. (2002). Motivational interviewing and the stages of change. In W.R. Miller & S. Rollnick (Eds.), *Motivational interviewing* (2nd ed., pp. 201-216). New York, NY: Guilford Publications, Inc.
* Gregory, H. Jr., Van Orden, O., Jordan, L., Portnoy, G. A., Welsh, E., Betkowski, J., Charles, J. W., & DiClemente, C. C. (2012). New directions in capacity building: Incorporating cultural competence into the interactive systems framework. American Journal of Community Psychology, 50(3-4), 323-333.
* Miller, W. R., Zweben, A., DiClemente, C. C., & Rychtarik, R. G. (1992). *Motivational Enhancement Therapy manual: A clinical research guide for therapists and individuals with alcohol abuse and dependence*. Rockville, MD: NI AAA.
* Prochaska, J.O., Norcross, J.C. & DiClemente, C.C. (1994) *Changing for Good*. New York: Avon books.
* Velasquez, M.M., Maurer, G.G., Crouch, C. & DiClemente, C.C. (2016). *Group Treatment for Substance Abuse: A Stages of Change Therapy Manual*. (Second Edition) New York: Guilford Press.