

# The Duration and Correlates of Substance Use and Treatment Careers Among People Entering Publicly Funded Treatment in Chicago

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# Abstract

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While substance use disorders are increasingly recognized as chronic conditions, little information is available on the actual duration of substance use and related treatment careers of people with substance use disorders. The purpose of this study was to estimate the duration and correlates of years between first and last use based on data from 1326 people recruited from a stratified sequential sample of admissions to publicly funded treatment programs on Chicago's west-side.

Participants were interviewed at 6, 18, 24, 36, 48, and 60 months post-intake (with over 94% completed). With an average age at the referent intake of 35 (SD=8) years, the sample is 59% female, 87% African American, 7% Hispanic, and 5% white. The most common dependence diagnoses were for cocaine (64%), alcohol (44%), opioids (41%) and/or marijuana (14%).

Using lifetime substance use and treatment histories collected at intake and subsequent treatment utilization recorded during follow-up interviews, we conducted survival analysis to estimate the time from first use and first treatment until people reported 12 months of abstinence or died (with people still using or in treatment at the last follow-up treated as right censored). The median time from first to last use was 27 years. The median time from first treatment episode to last use was 8 years. Years to recovery were significantly longer for males, people starting use under the age of 21 (particularly those starting under the age of 15), people who had participated in treatment 3 or more times, and assigned (presumably due to severity) to methadone, intensive outpatient, or longer lengths of stay. The results suggest the need to conduct long-term research on treatment over multiple years and episodes of care.

# *Objectives*

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- To estimate the number of years between first use and last use (defined as completing 12 months of abstinence or death);
- To examine the correlates of the above that may lengthen the time period; and
- To discuss the implications of the above for treatment and the evaluation of single episodes of care.

# *Background*

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- Substance use dependence with multiple co-occurring problems is increasingly recognized as a chronic, relapsing condition that may last for decades and require multiple episodes of care over many years before reaching a sustained state of remission.
- Few studies have examined the duration and correlates of treatment over multiple years and episodes - referred to here as treatment careers.
- Those that have suggest that while research often focuses on 6 to 12 month outcomes, most substance abuse and treatment histories last for years and even decades.

# *Chicago Target Cities (CTC) Design*

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- The baseline sample of 1,326 participants was recruited from sequential admissions to a stratified sample of 22 treatment units in 12 facility locations, administered by 10 agencies on Chicago's west side:
  - 258 (19%) from 11 Outpatient Treatment Units
  - 240 (18%) from 5 Intensive Outpatient Treatment Units
  - 252 (19%) from 3 Methadone Maintenance Treatment Units
  - 268 (20%) Females from 2 short-term inpatient programs
  - 175 (13%) Females from 1 long-term inpatient unit
  - 133 (10%) males from 1 halfway house
- All participants were interviewed at intake using the Augment Addiction Severity Index (A-ASI) which demonstrated good internal consistency and validated using urine tests.
- Data was also collected from treatment and death records.

## *Design (continued)*

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- Between intake and 36 months, 2.6% (35/1326) of the people died;
- Of those alive and due, follow-up interviews were completed with
  - 98% (1292/1324) at 6 months after intake
  - 95% (705/742) at 18 months after intake  
*(follow-up only planned on sub-sample for the 18 month wave)*
  - 94% (1223/1300) at 24 months after intake
  - 94% (1216/1291) 36-month after intake
- Retrospective data collected at baseline was combined with 3 years of prospective data to create a 30-year window of observation for time from first to last use and a 25-year window from first treatment to last use.

## *Design (continued)*

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- Age of use, treatment, and death were estimated across all sources and waves of information (taking the earliest first use, treatment episode, and 12 month period of abstinence or death).
- Age at last use was defined as the age in which a person first completed a period of 12 month abstinence or had died.
- Durations were estimated with Cox Proportional Hazards Regression
  - censoring people who were in treatment or still using, and
  - censoring years past which we had less than 100 people to make the estimate.

## *Intake Characteristics*

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- Participants were mostly African-American (88%), female (59%), and in their 30s (48%).
- Most were unemployed (86%), did not complete high school (71%), and had never been married (65%).
- About 25% were on probation or parole at baseline; 76% reported prior arrests and 66% prior incarcerations.
- About 32% considered themselves homeless with 12% living on the street at intake.

## *Clinical Characteristics*

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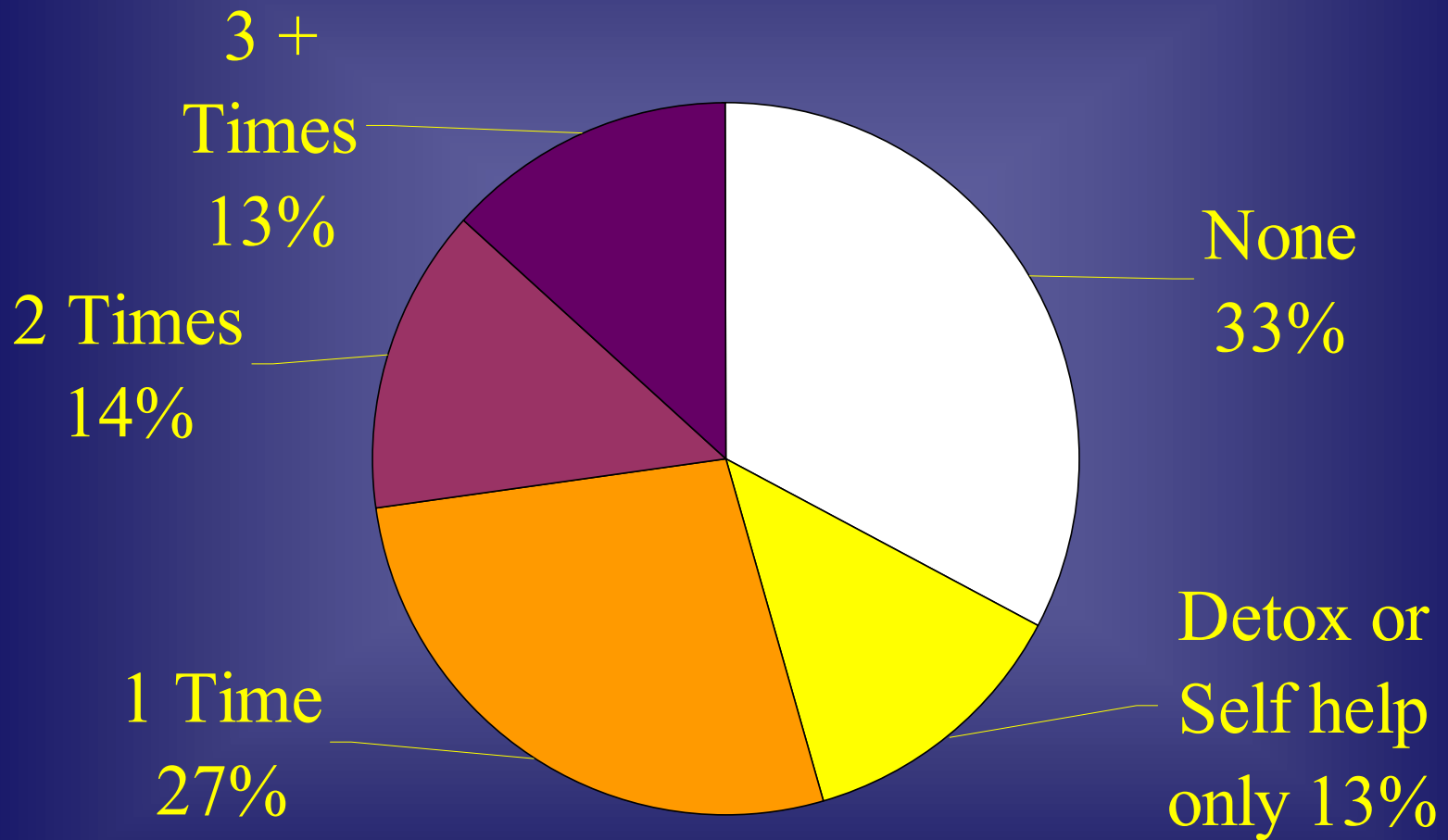
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- The average age of first use was 16.8, with most (68%) reporting 10 or more years of regular alcohol use to intoxication or regularly using a drug.
- In the month prior to intake, the most common substances used weekly were: cocaine (33%), heroin (31%), alcohol (27%), and marijuana (7%).
- About half (54%) had been in formal treatment before and another 13% had been to self help or detox (only).
- Many also met criteria for Major Depression (36%) or Generalized Anxiety Disorder (36%).
- Most also had a history of physical (50%), emotional (36%), and/or sexual (22%) victimization.

*Figure 1. Previous Substance Abuse Treatment*

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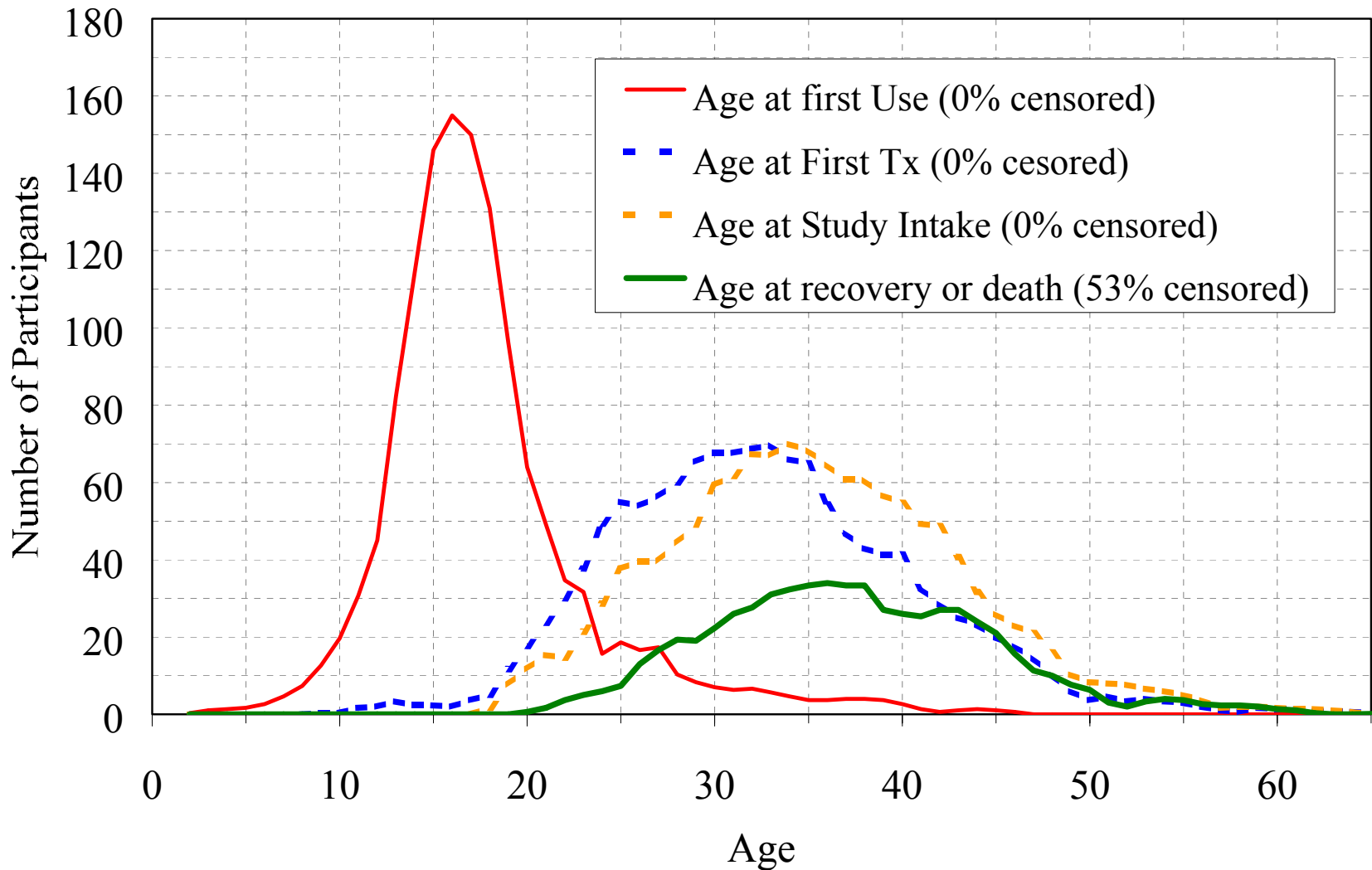
# Age Distributions

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- Figure 2 shows the distributions for the variables used in the analyses and the percent for which the event was considered “censored” because it had not happened yet.
- The unweighted median and inter-quartile ranges were:
  - 16 (14-18) median age of first use;
  - 31 (26-37) median age of first treatment;
  - 34 (29-39) median age at recruitment into this study; and
  - 35 (31-40) median age at last use (of the 47% observed).
- Over 100 people had data between first and last use going out to 30 years.
- Cox regression is used here to take into account current age and censoring to estimate this value as though we had observed everyone over 30 years after their first use.

# Figure 2. Age Distributions



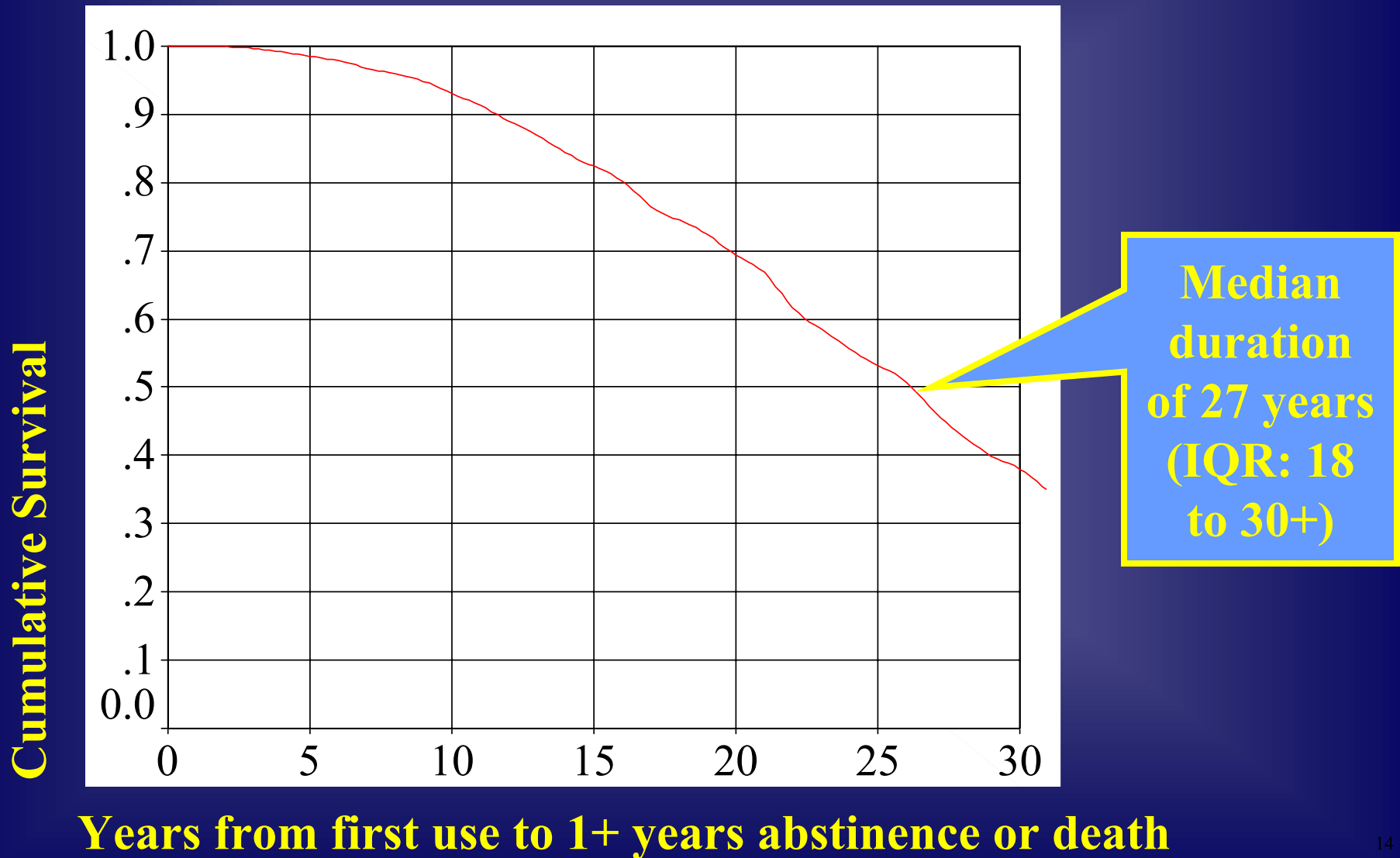
# *Duration and Correlates of Substance Use*

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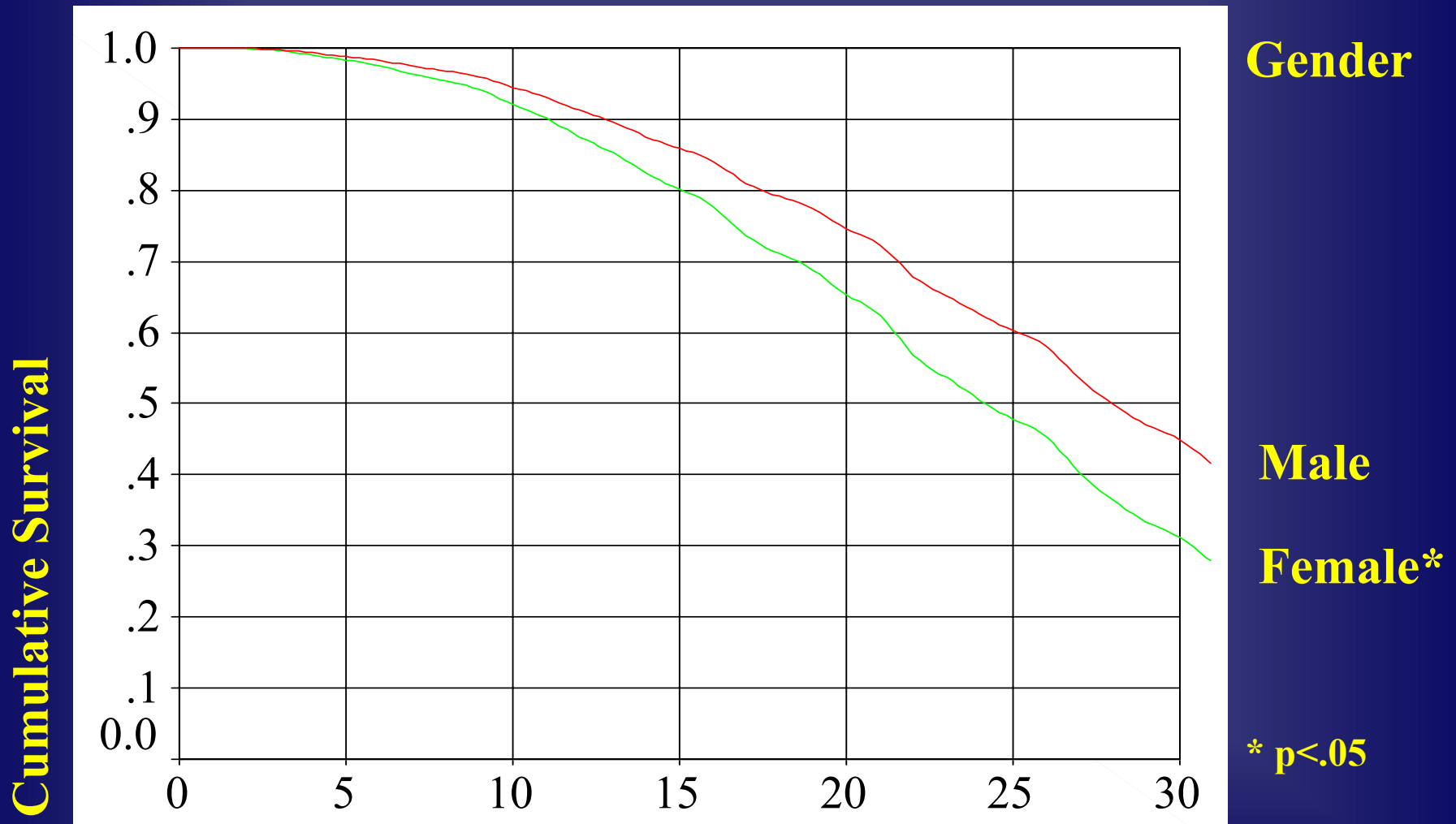
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- Figure 3 shows the results of Cox Regression to estimate the years from first use to 1+ years of abstinence or death, the median was 27 years (inter-quartile range (IQR) of 18 to more than 30 years).
- Subsequent figures show that duration of substance use careers are significantly
  - shorter for females (Figure 4);
  - longer for those starting under the age of 20 (particularly those under the age of 15) (Figure 5);
  - shorter for people 1<sup>st</sup> treated under the age of 35 (particularly those under 35) (Figure 6); and
  - Shorter for people treated less than 20 years after they start using (particularly those who start treatment less than 10 years after starting) (Figure 7)

*Figure 3. Duration of Substance Use Career*

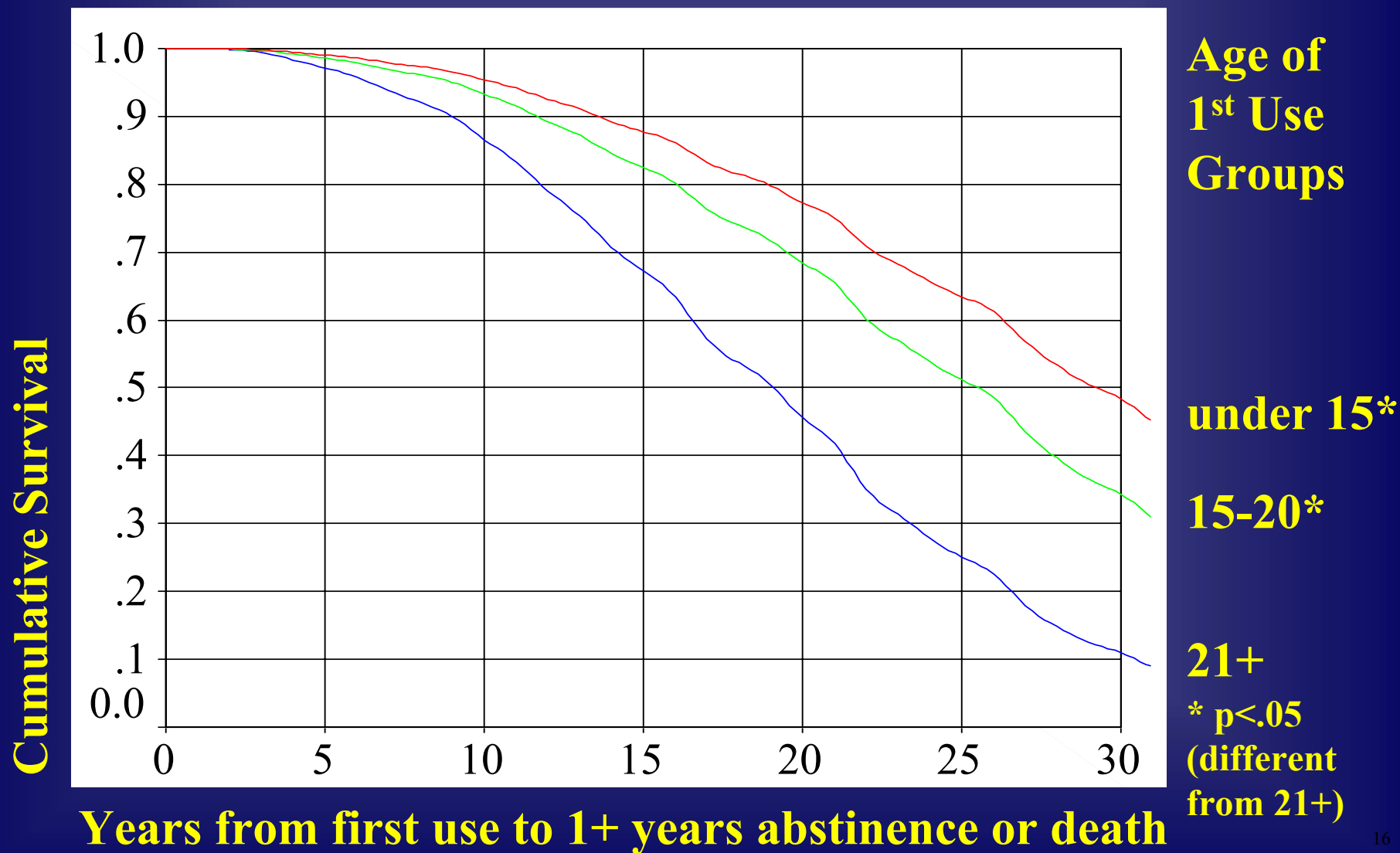


*Figure 4. Duration of Substance Use Career by Gender*

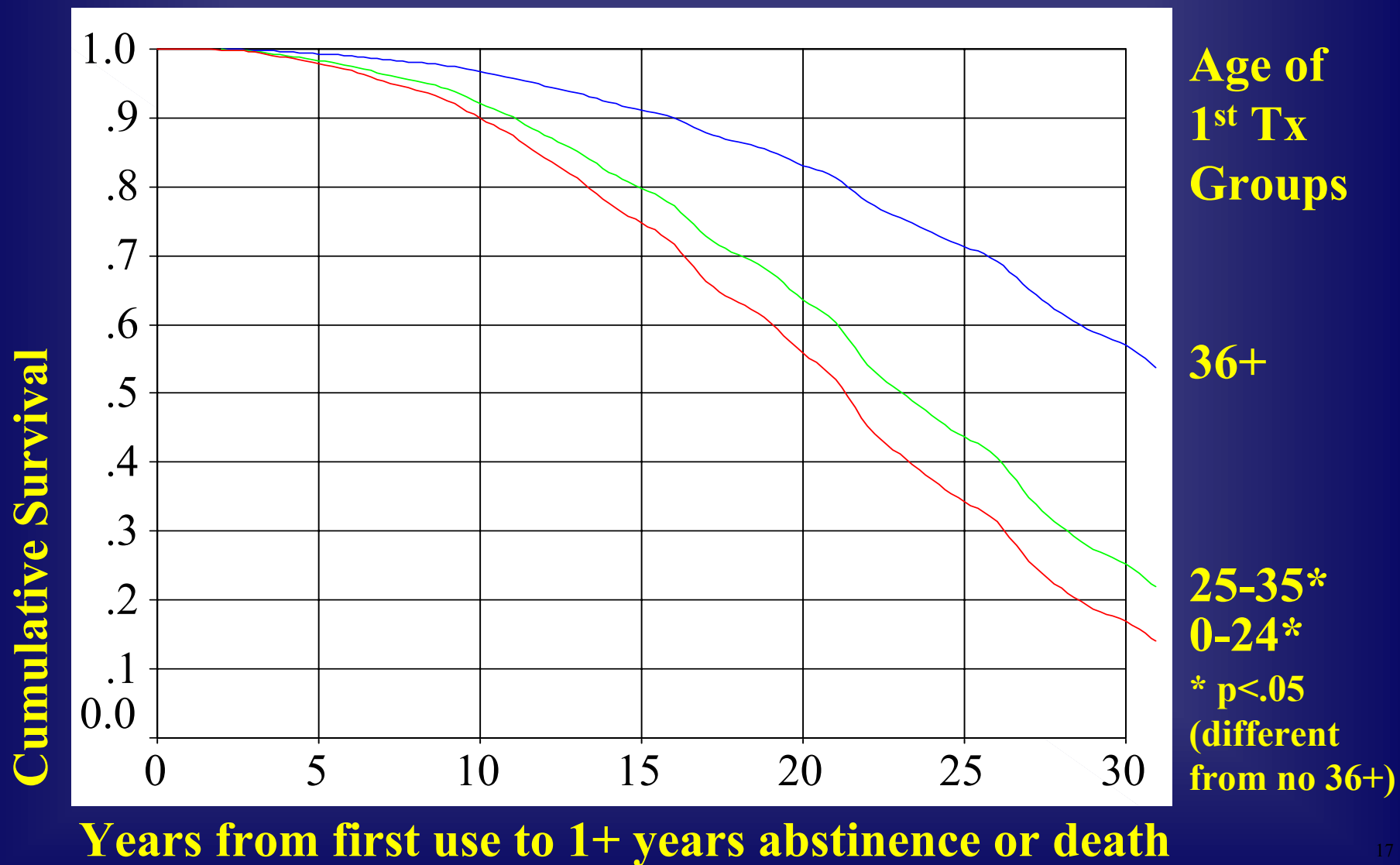


**Years from first use to 1+ years abstinence or death**

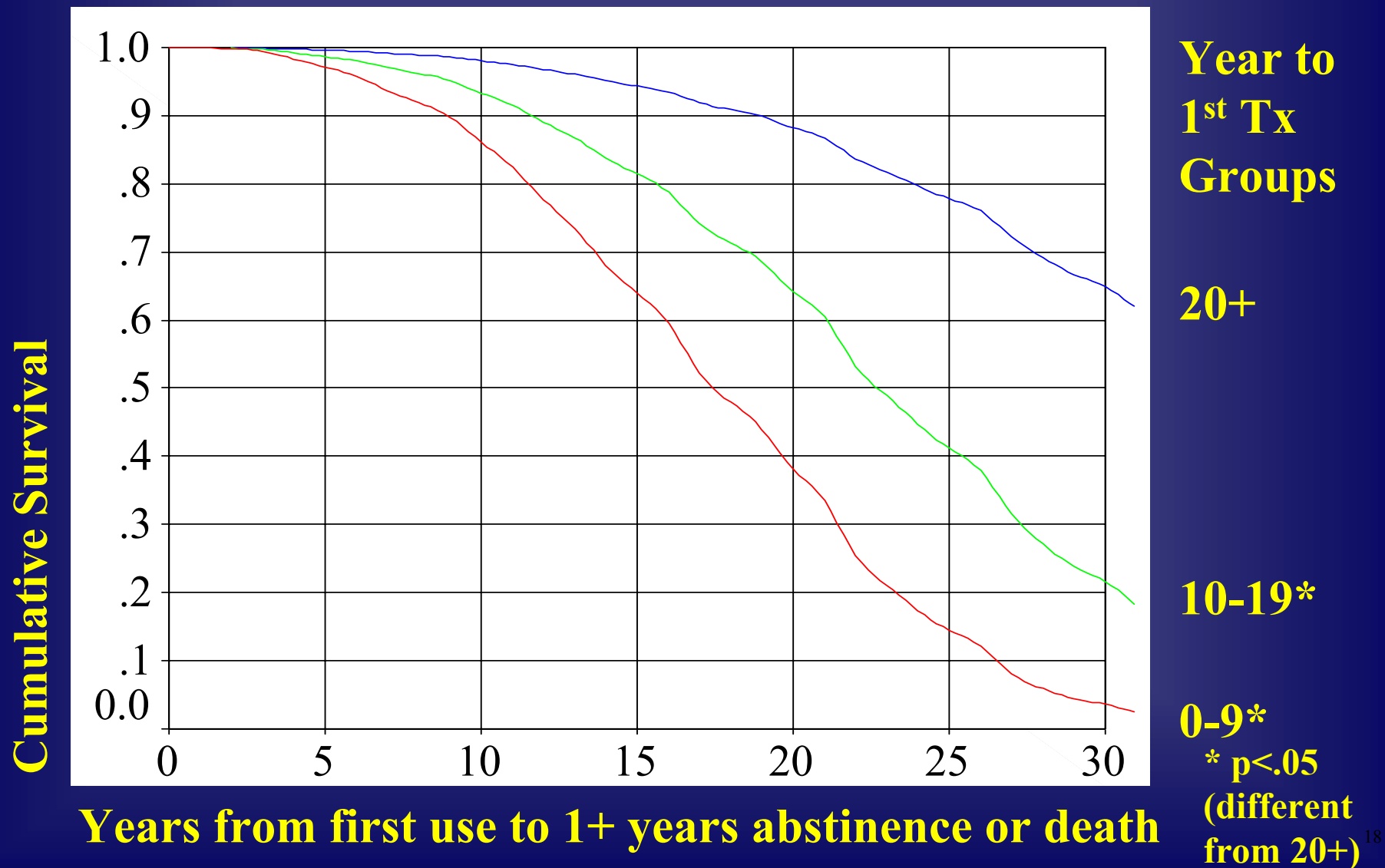
*Figure 5. Duration of Substance Use Career by Age of First Use*



*Figure 6. Duration of Substance Use Career by Age of First Treatment*



*Figure 7. Duration of Substance Use Career by Years to First Treatment*



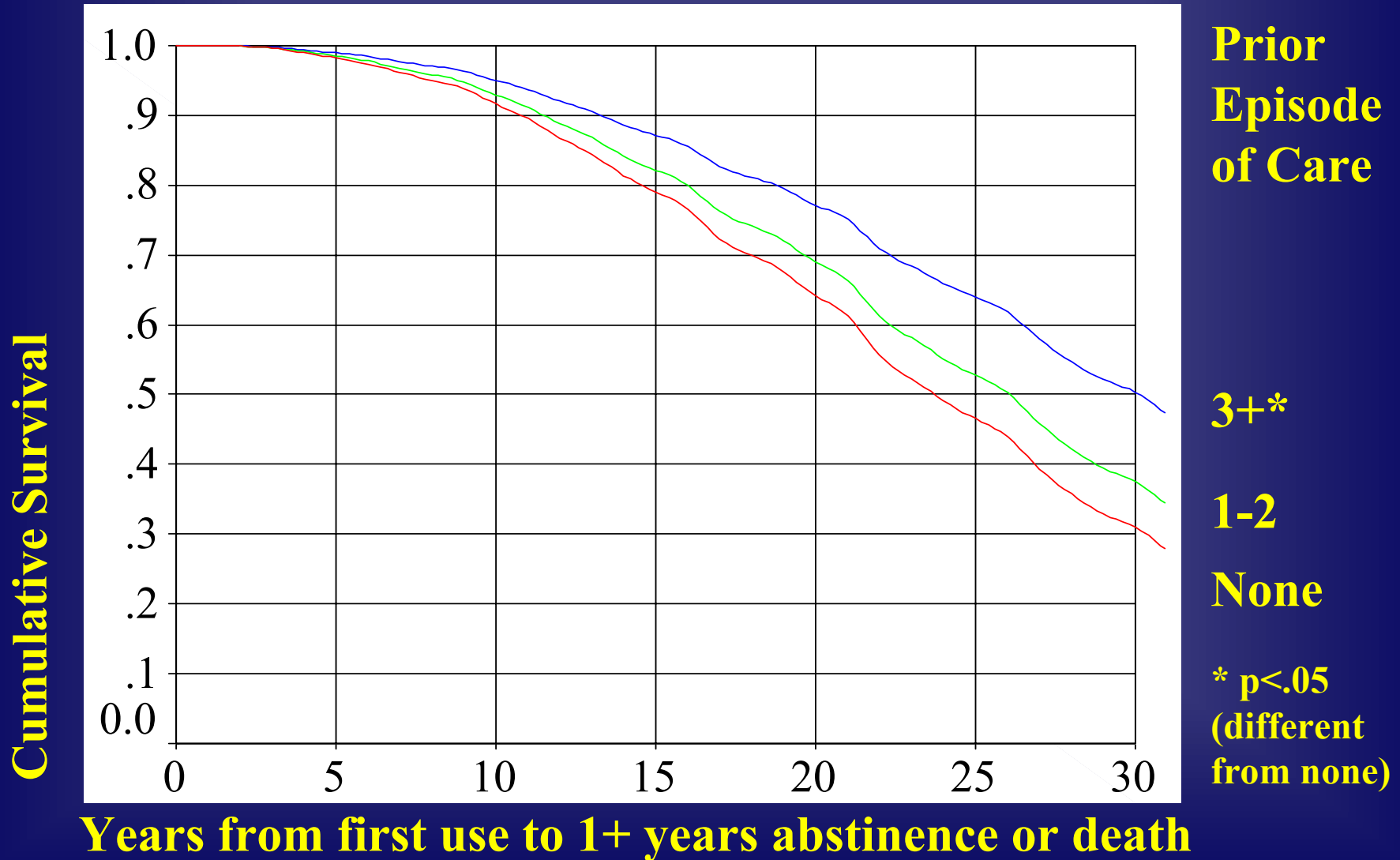
# Correlates Continued

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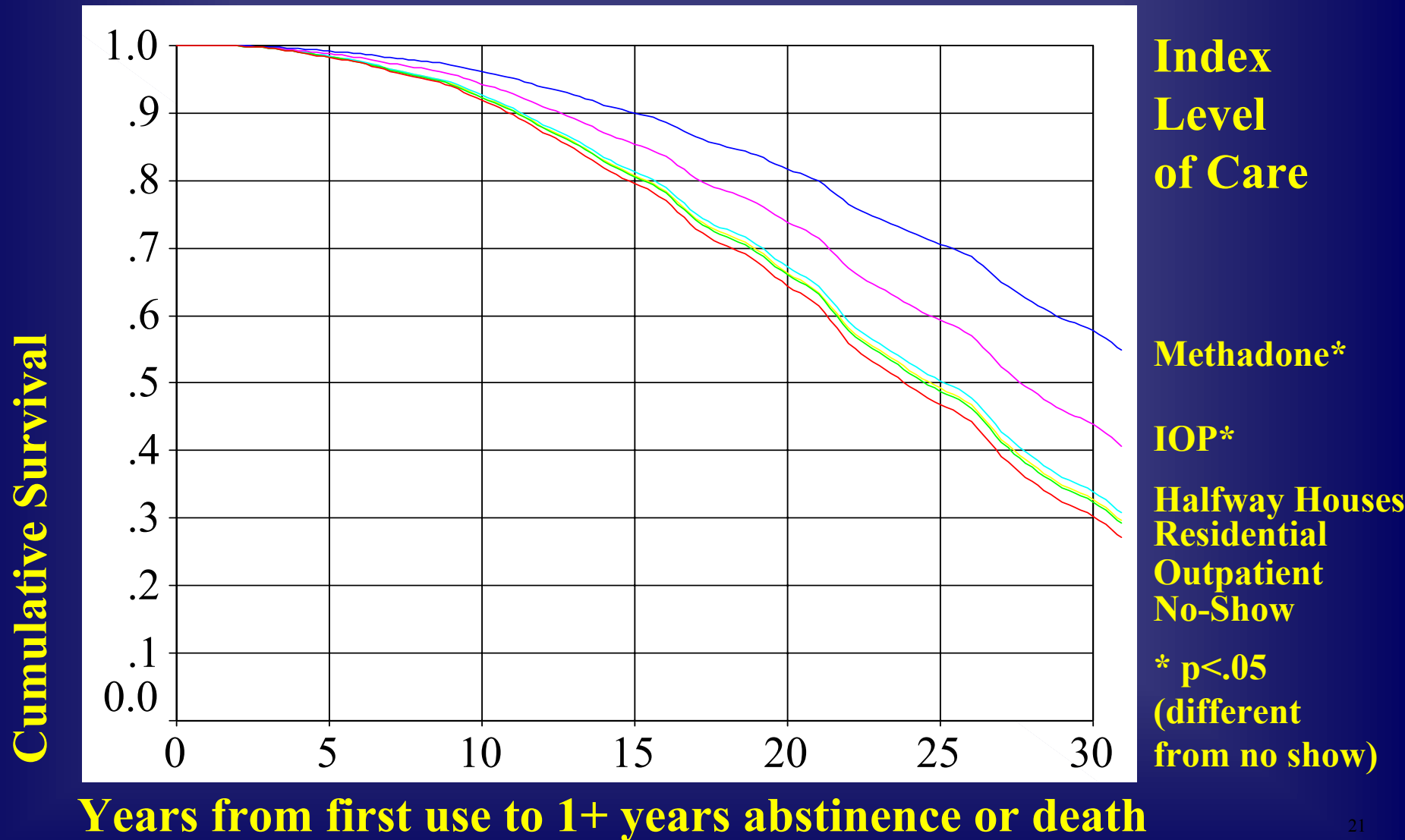
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- The next set of figures use information from the index treatment admission (when people were recruited and well into their substance use and treatment careers) and show that duration of substance use careers are significantly
  - Longer for people with 3 or more prior treatment admissions (Figure 8)
  - Longer for people assigned to methadone maintenance or intensive outpatient treatment (IOP) (Figure 9)
  - Longer for people who stayed in treatment 90 or more days (Figure 10).
- These measures are significantly and inversely correlated with the preceding measures in Figures 3-7, as well as alcohol, drug and psychiatric severity at intake (i.e. people who did not respond return to treatment more often, are more severe, and assigned to higher levels of care).
- Figure 11 shows the time from 1<sup>st</sup> treatment to 1+ years of abstinence or death, the median was 8 years with wide inter-quartile range (3 to 20 years).

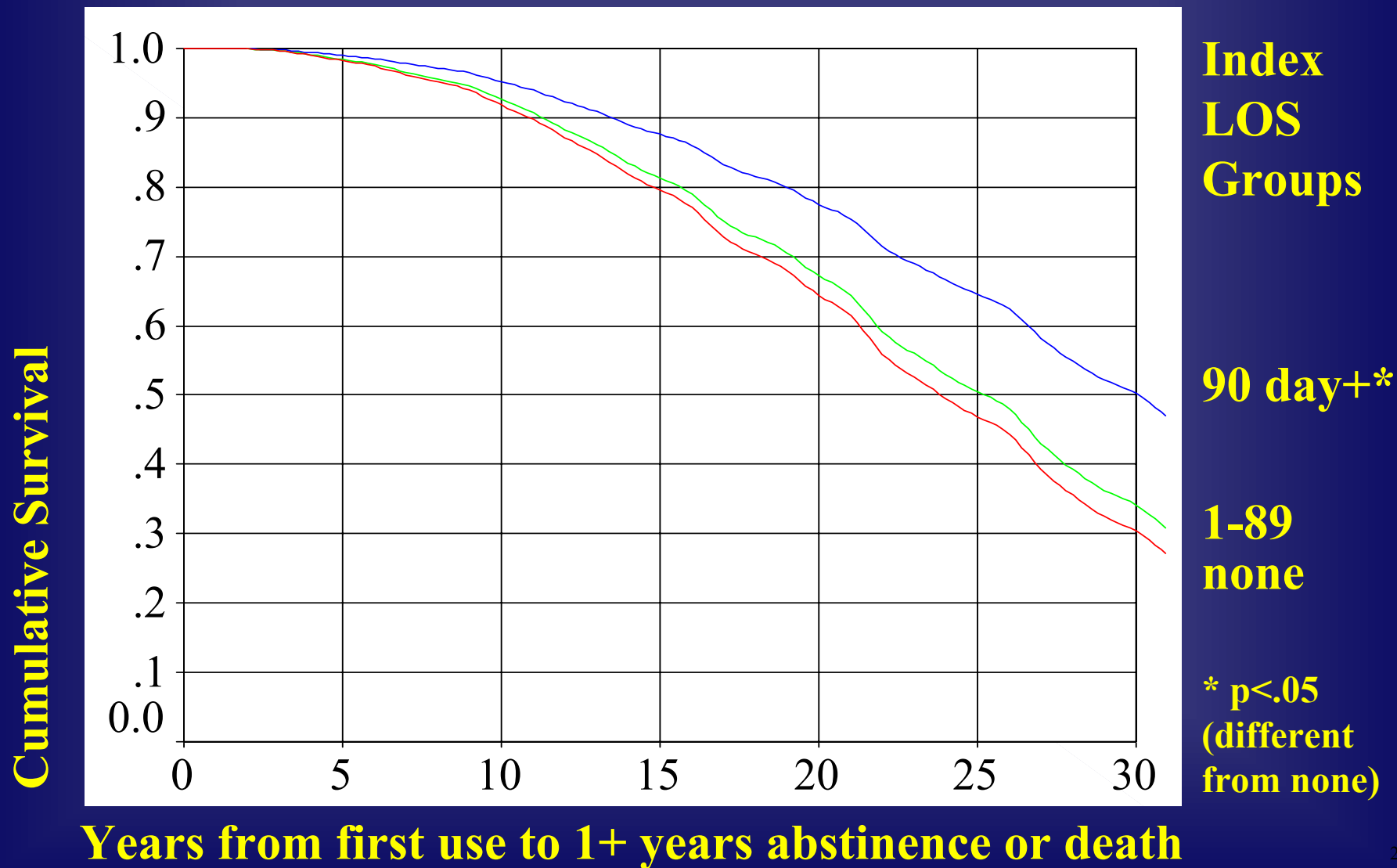
*Figure 8. Duration of Substance Use Career by Prior Episodes at Index Admission*



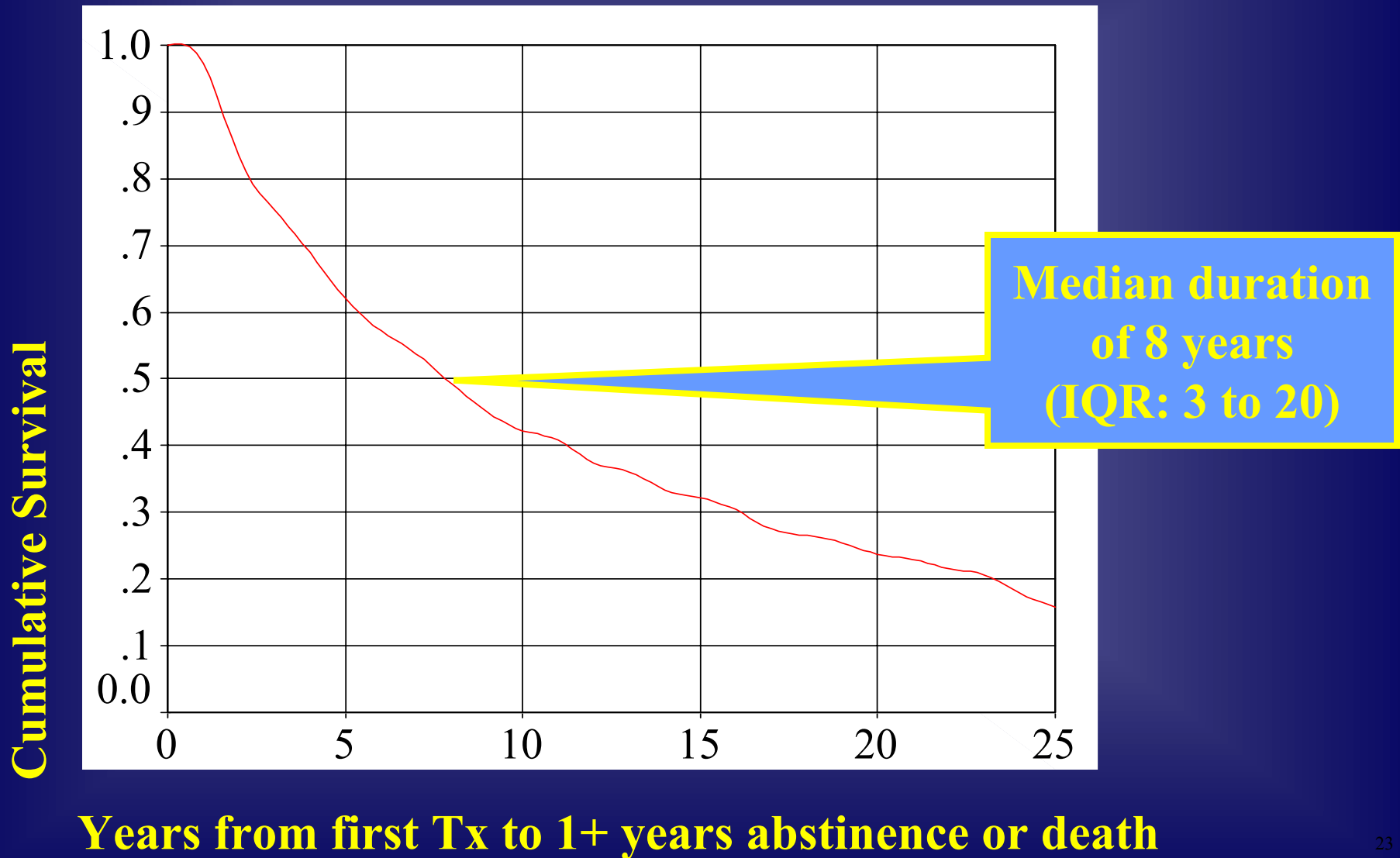
*Figure 9. Duration of Substance Use Career by Level of Care at Index Admission*



*Figure 10. Duration of Substance Use Career  
by Length of Stay in Index Treatment*



*Figure 11. Duration of Treatment Career -  
update*



# *Reprise and Implications*

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- While most treatment and research have focused on short term outcomes (6-12 months) and single episodes of care, substance use careers often extend over decades and involve multiple episodes of care.
- Clinically, this implies the need for
  - earlier detection and intervention,
  - better models of continuing care and re-intervention, and
  - changing the clinical models and financial support from an acute care approach to chronic disease management model.
- For research, this implies the need to
  - control for intake severity,
  - look across episodes of care, and
  - examine longer term outcomes.

## *Limitation*

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- It is often difficult for people to reliably reconstruct their substance use and treatment history and there is always a small group that lies about their substance use. We are currently conducting validity studies across longitudinal self report responses, urine tests and records and exploring methods for making response more efficient and valid.
- By rescaling data by age, we have de-facto assumed no “cohort” effects. This will need to be evaluated further as we have more prospective data and/or with other studies.
- The outcome here focuses on substance use, in the future we hope to add analysis of remission according to DSM-IV and address small percent (2-7%) whose abstinence was forced through incarceration.

## *Next Steps*

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- We are continuing to follow-up these people out to five years and hoping to follow them out to 10 years.
- Validating urine and self reported data,
- Looking at the predictors of who will be able to sustain their recovery, and
- Conducting an experiment (on another sample) to try to reduce the time to readmission following a relapse in order to improve long- term outcomes.

## Contact Information

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