

Finding Gold in Mountains of Administrative Data

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Justice Modelling @ Griffith

- *“The criminal justice system is an information-intensive public bureaucracy (or, rather, **group of bureaucracies**, that uses reams of paper and generates **mountains** of data”*
- “The system’s **output** is not a tangible product, but **decisions**” (Maltz, 1994)*

How do we turn data into decisions?

- New modelling technologies
 - Simulation modelling
 - Trajectory/longitudinal modelling
 - Data mining
 - Spatial modelling
 - Agent based modelling

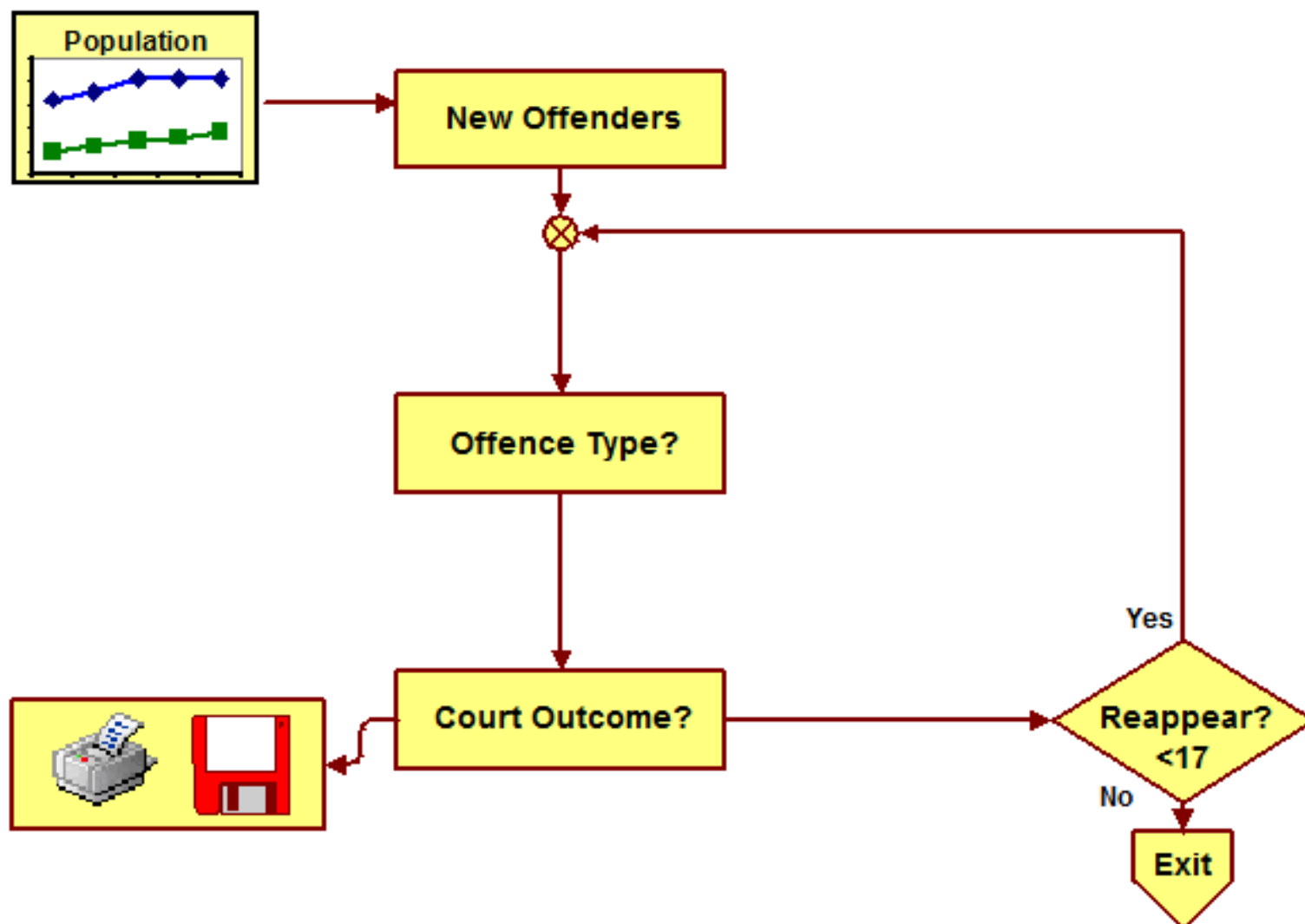
Simulation Modelling

- Widely used decision support in economics, management sciences, physical and biological sciences
- Enables experimentation with the system
 - “What if” scenarios
- Steps in simulation modelling
 - Build a **computer** model of the system
 - Develop scenarios
 - Examine the **relative impact** of different scenarios on the system into the **future**
- Models are not ‘crystal balls’

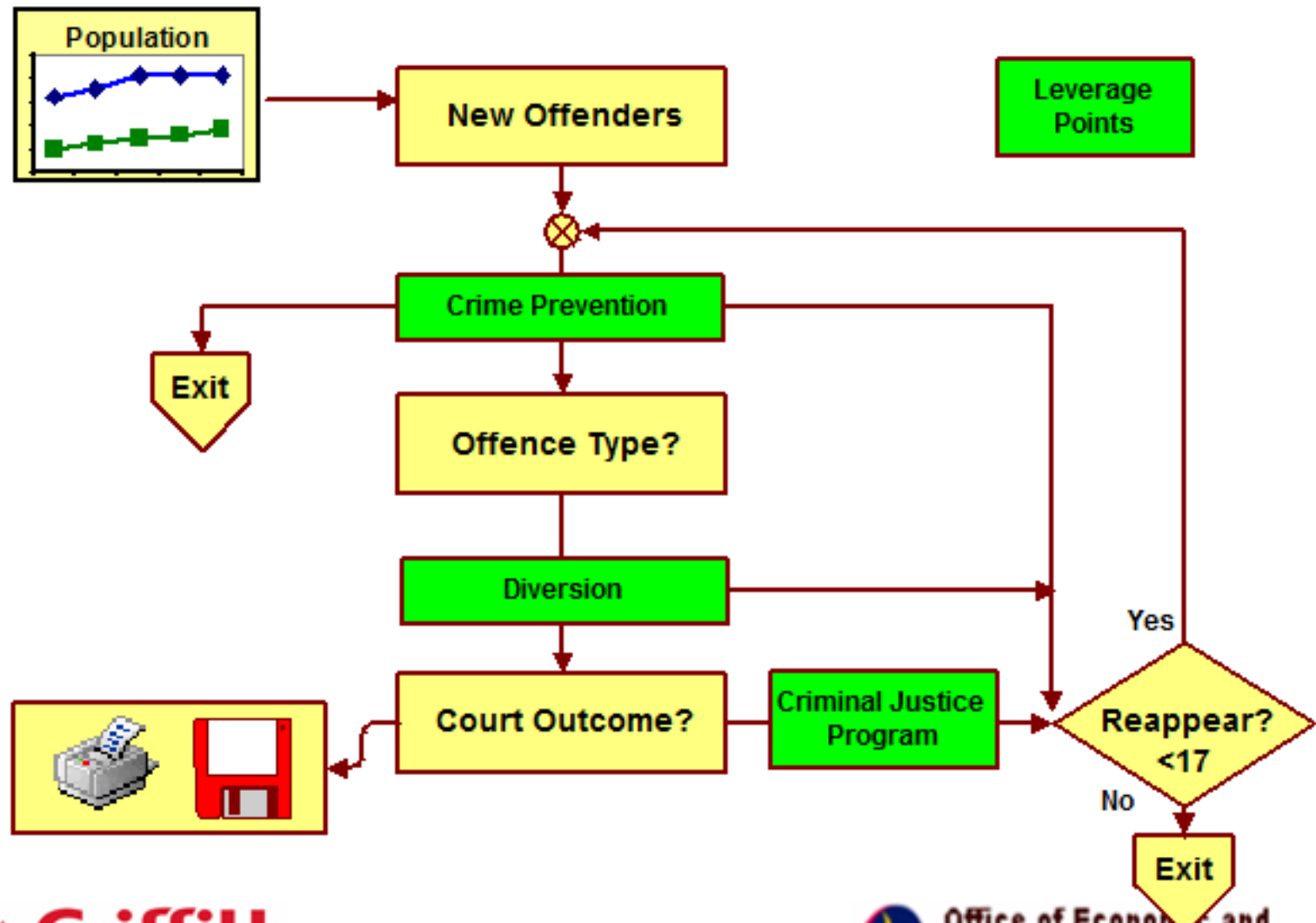
Juvenile Justice System Model

- Micro-simulation model
 - model the behaviour of individuals
 - enables aggregate behaviour to be examined
 - model parameters developed from analyses of administrative data
- Simplified representation of the system

Schematic Diagram of Juvenile Justice Simulation Model



Schematic Diagram of Juvenile Justice Simulation Model



Research Questions

- Can the introduction of YJ conferencing reduce the over-representation of Indigenous young people in the juvenile justice system by 2011?
- What is the impact of early intervention crime prevention programs on the number of young people in the juvenile justice system?
- What would be the impact of the juvenile justice system of increasing the age of juvenile justice responsibility from 17 to 18 years of age?
- What would be the impact of capping court times on the number of young people on remand in detention centres?

Current simulation modelling projects

- Adult court model
- Corrections model
- Policing model

Trajectory/longitudinal modelling

- Used within criminology to identify distinctive clusters of offending patterns over time
- Group together 'similar' trajectories (or patterns) of offending
- Theoretical frameworks
 - Criminal careers
 - Developmental and life course criminology

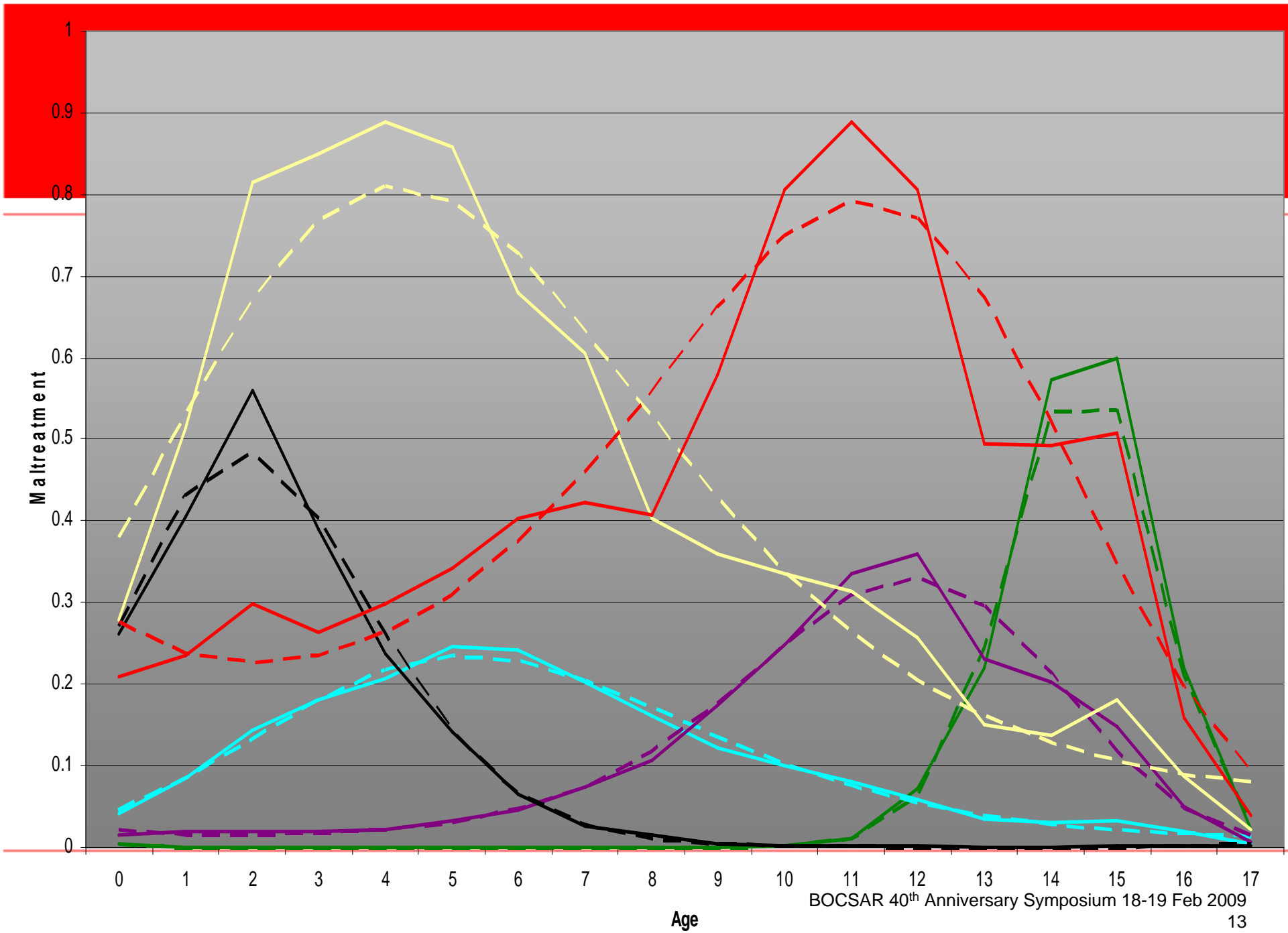
Two longitudinal data sets

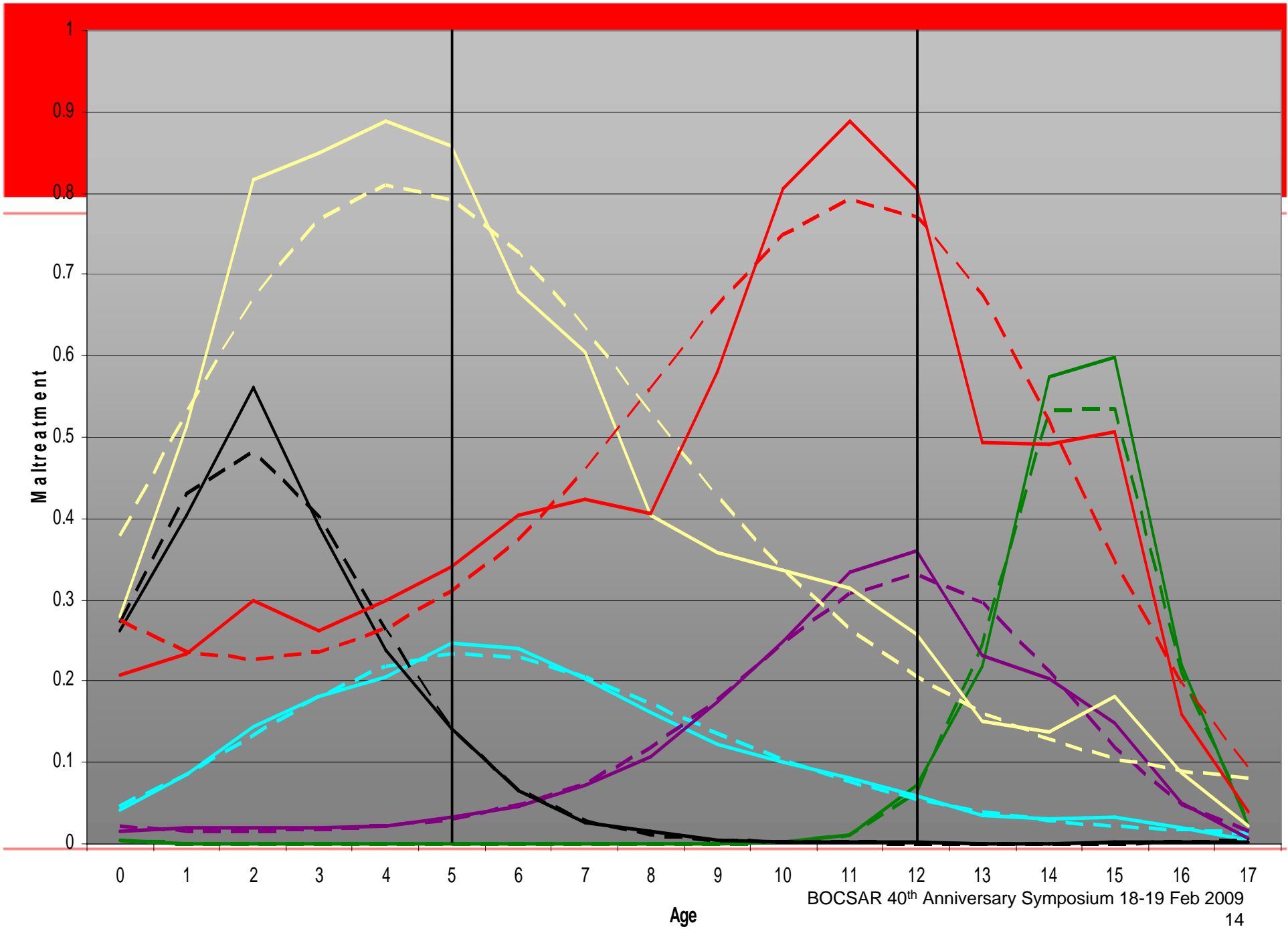
- All individuals born in 1983/1984 and had contact with
 - Juvenile justice system
 - *Child protection*
 - *Juvenile court system*
 - *Police cautioning*
 - Adult justice system
 - *Adult court system*
 - *Adult correctional system*
- All individuals born in 1990 and had contact with the juvenile justice system

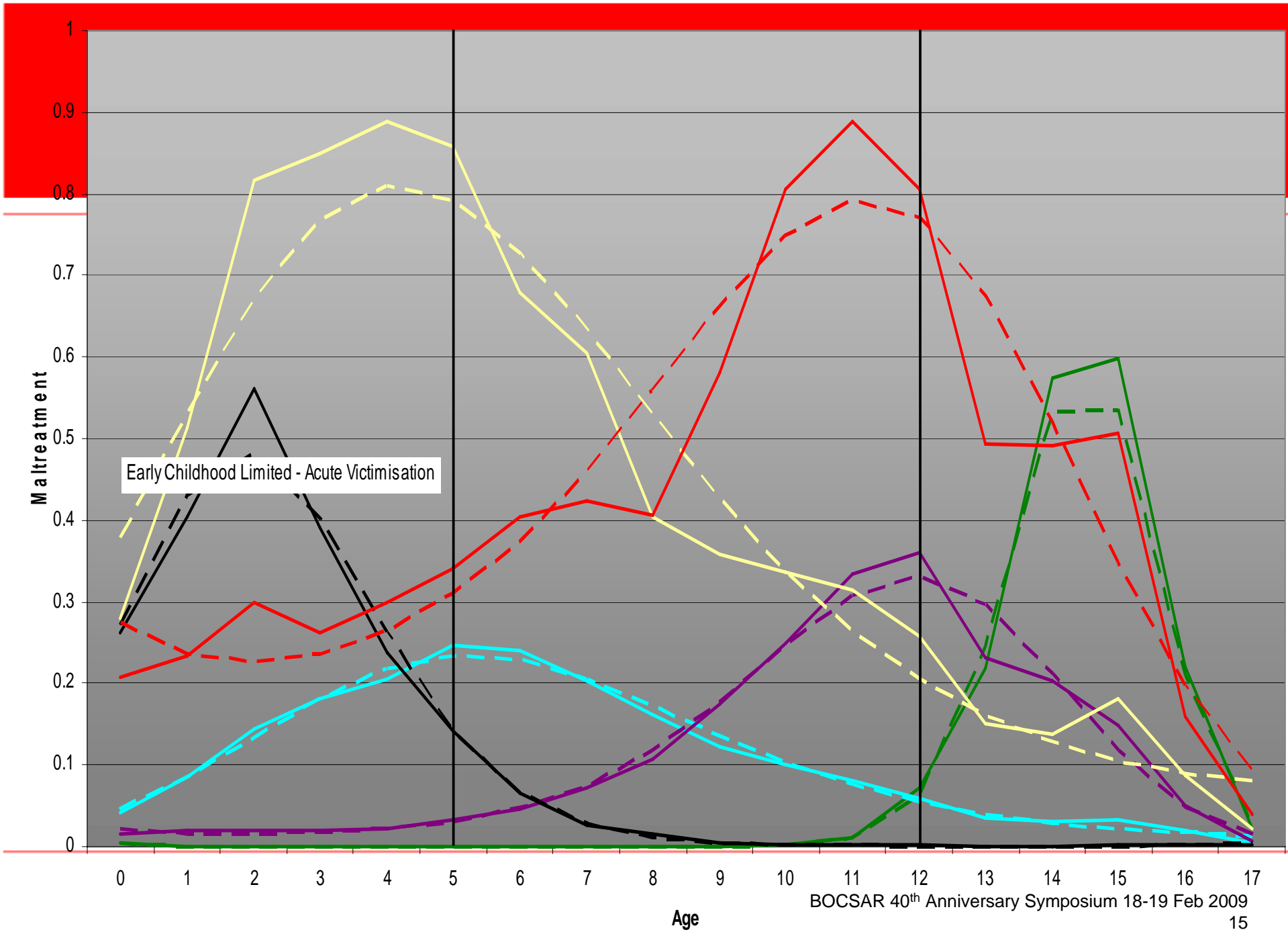
Research Questions

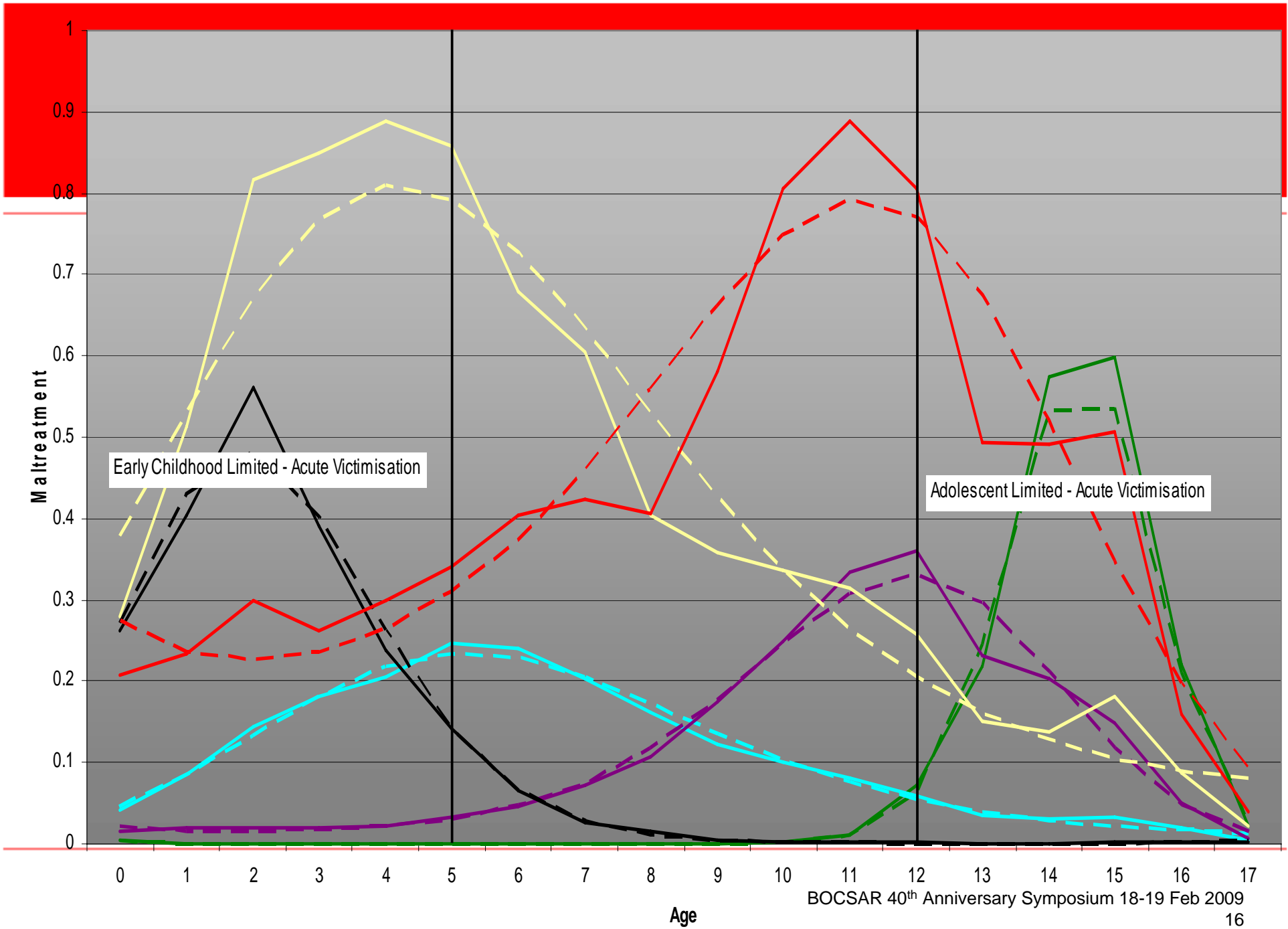
- What are the life course experiences of young people with child protection?
- What are the links between child protection and juvenile offending?

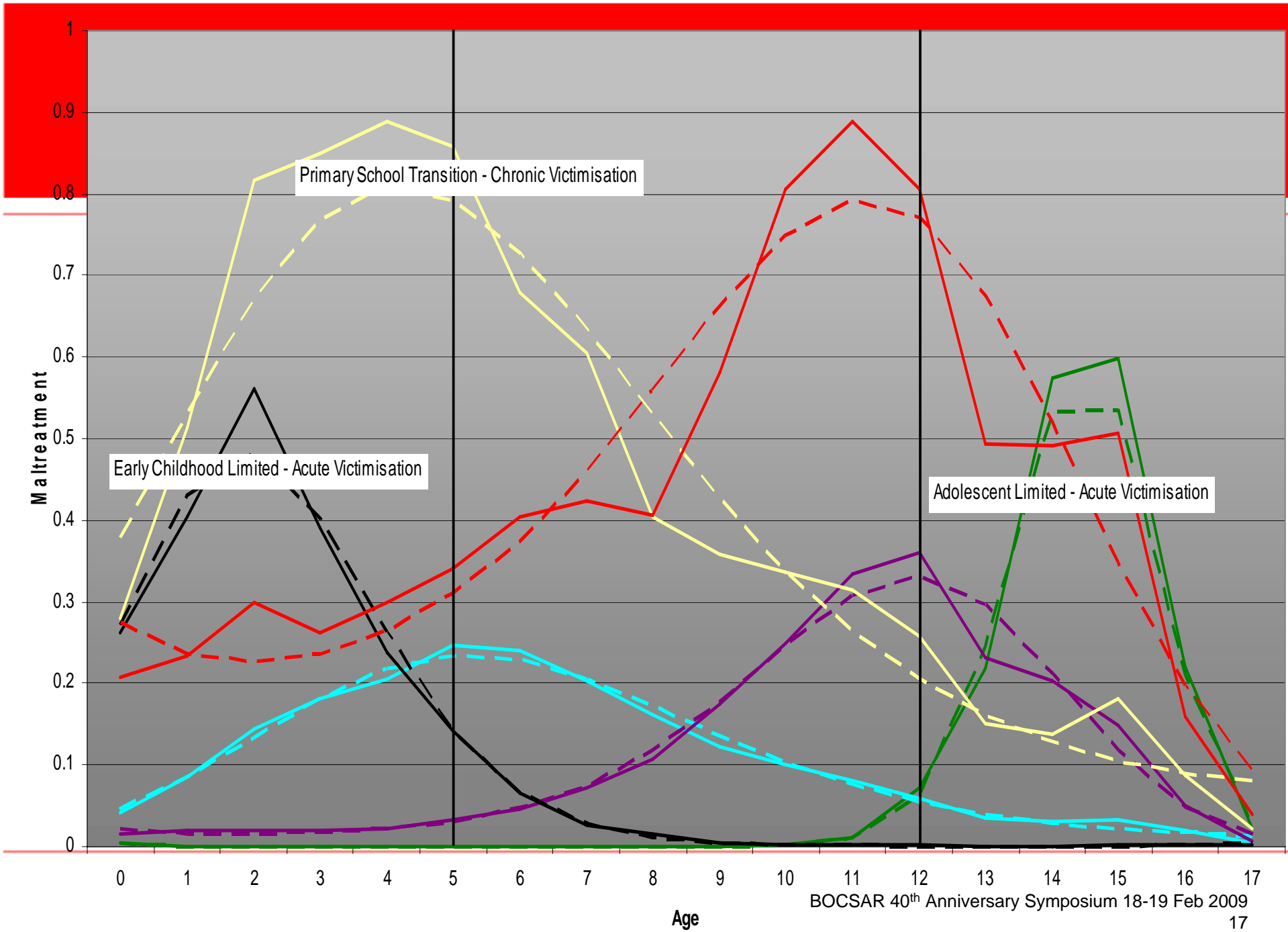
Stewart, A, Livingston, M., Dennison, S. (2008). Transitions and turning points: Examining the links between child maltreatment and juvenile offending. *Child Abuse and Neglect*, 32, 51-66.

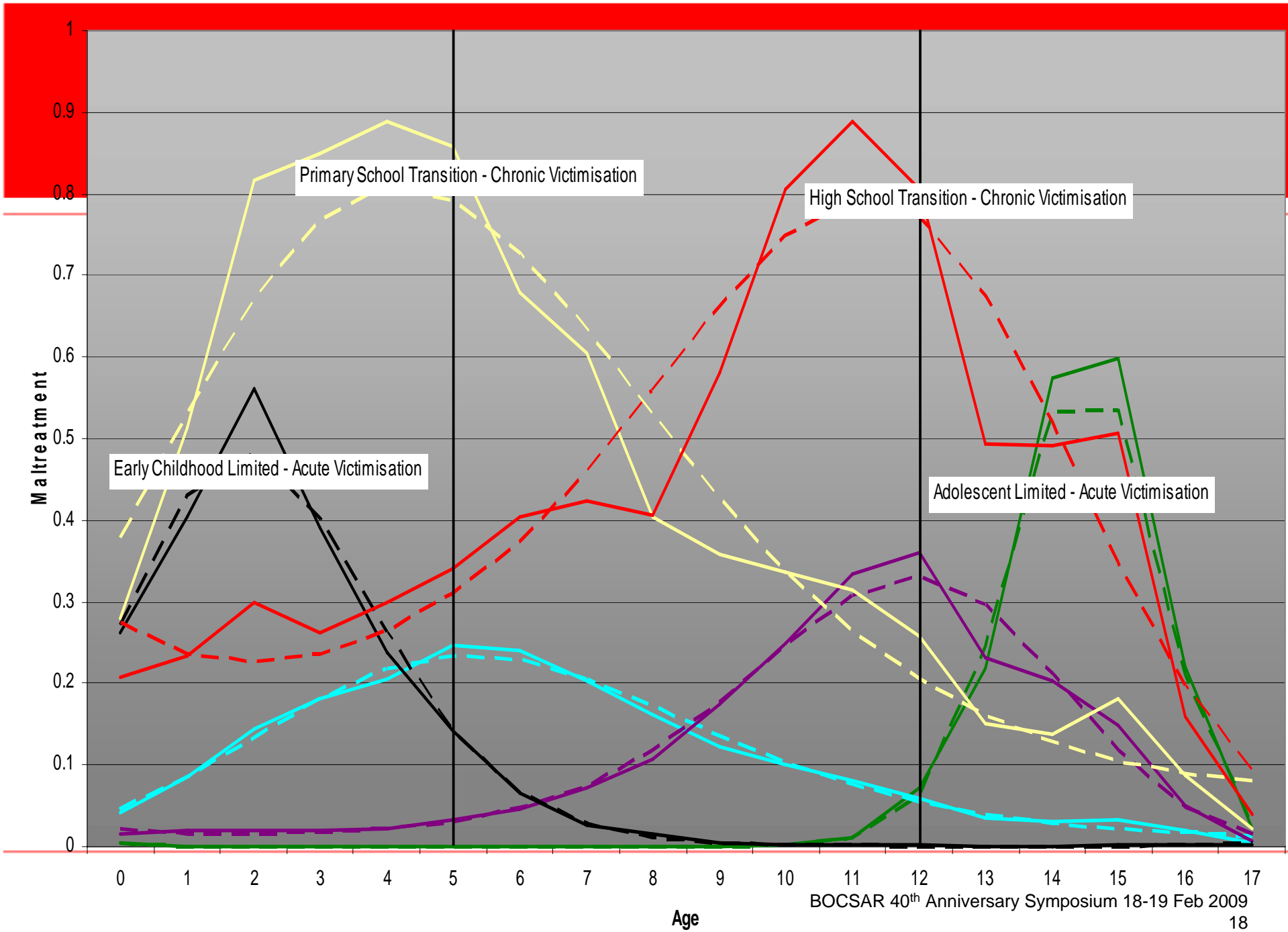


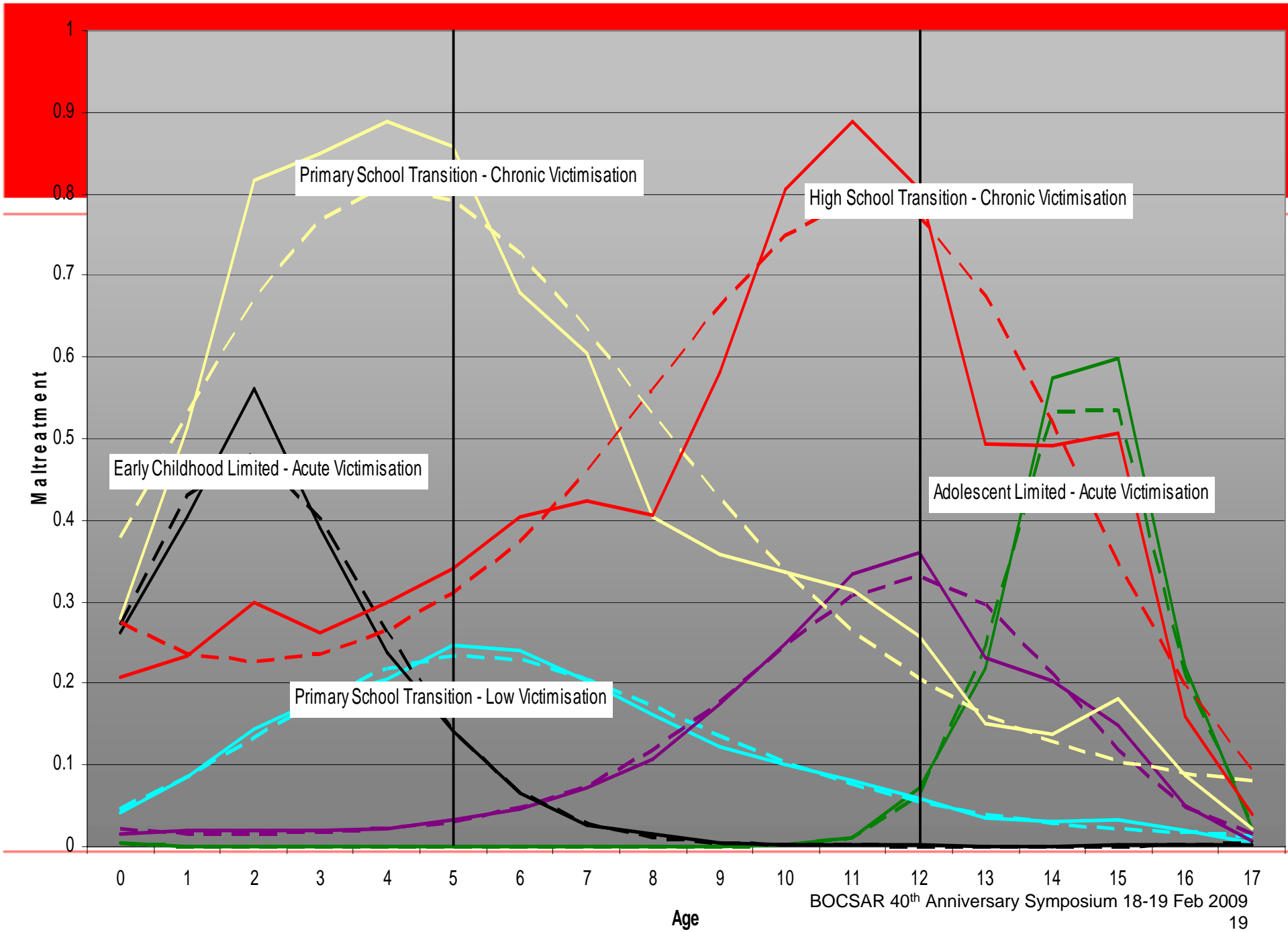


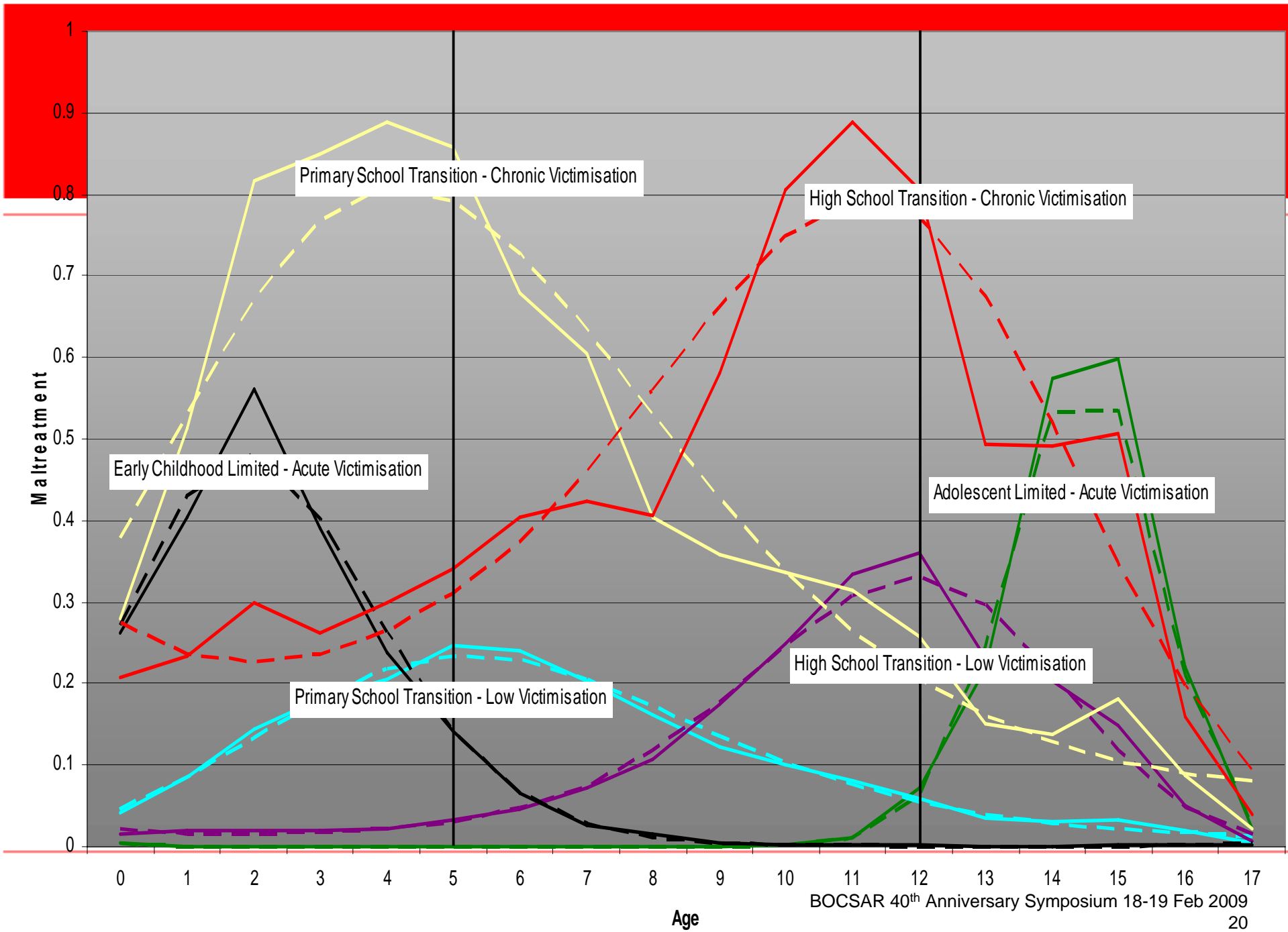


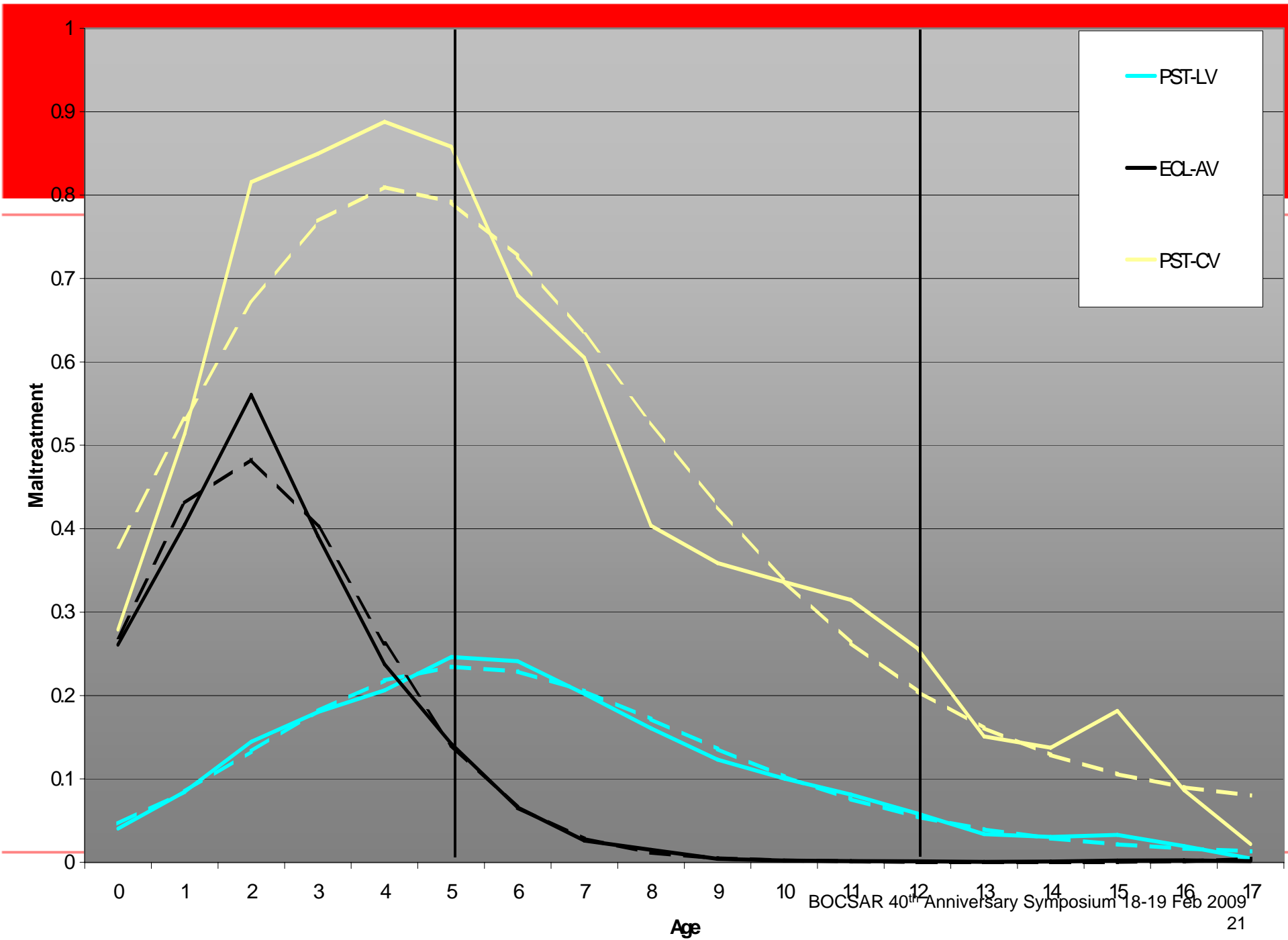


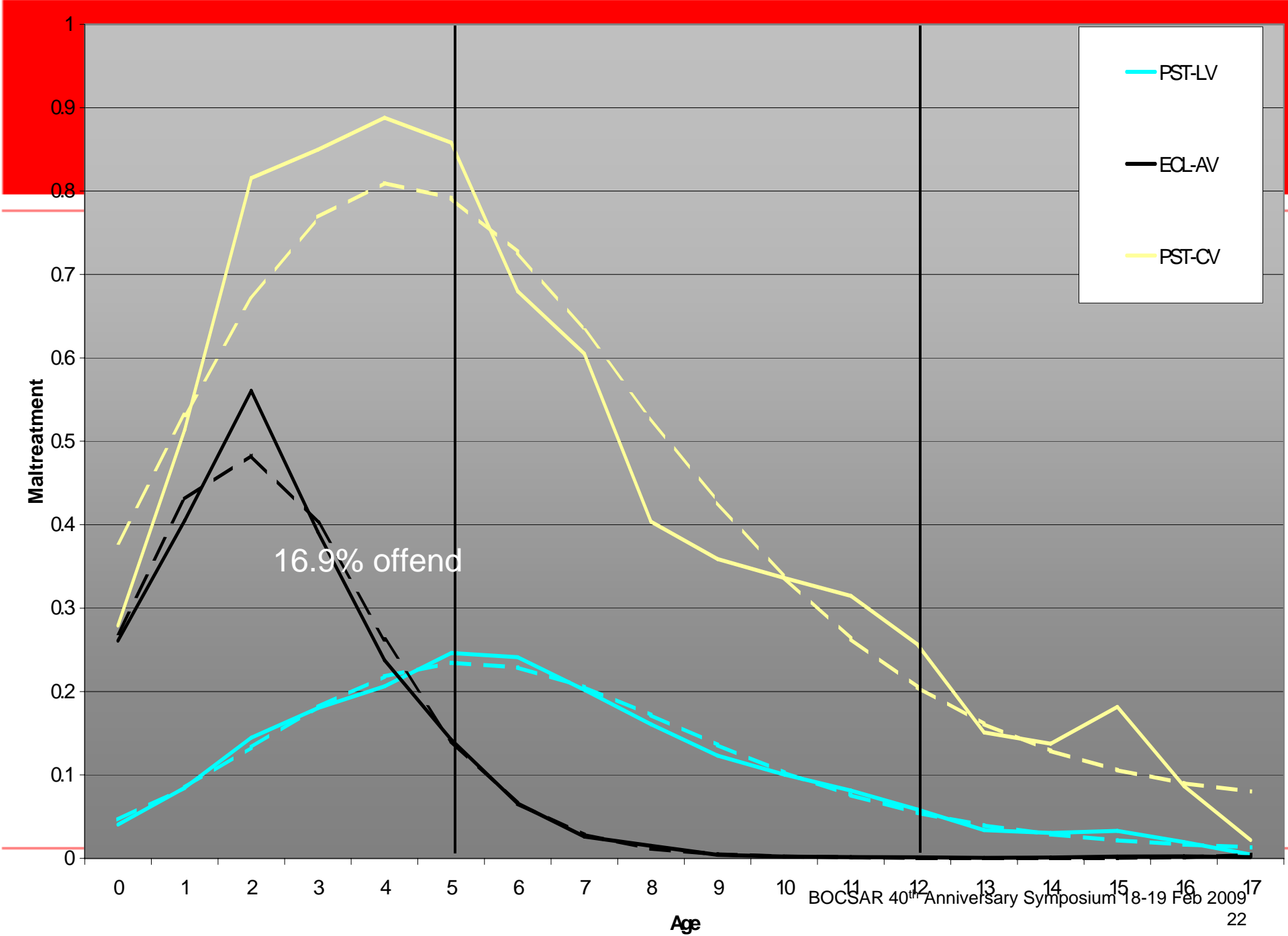


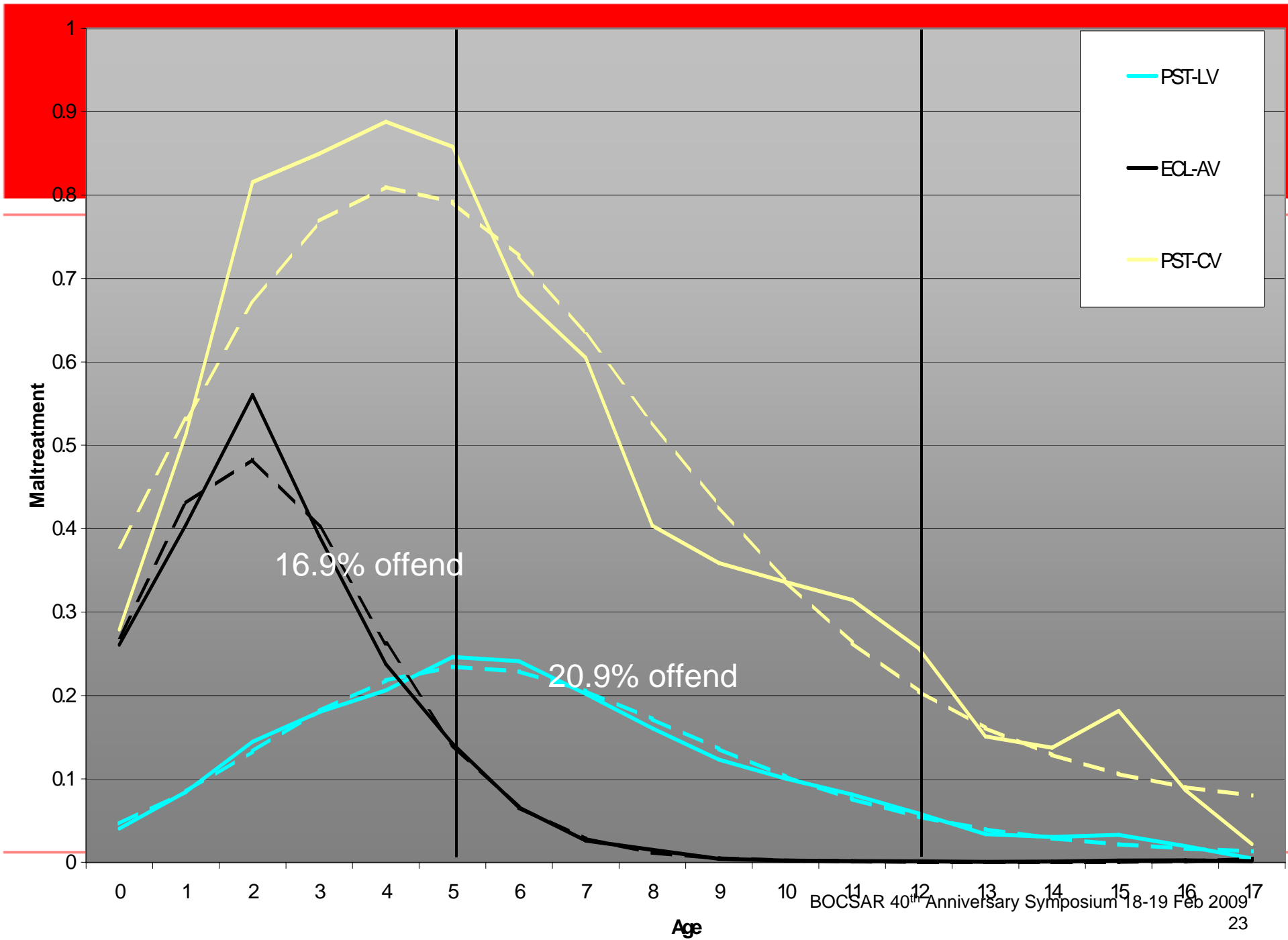


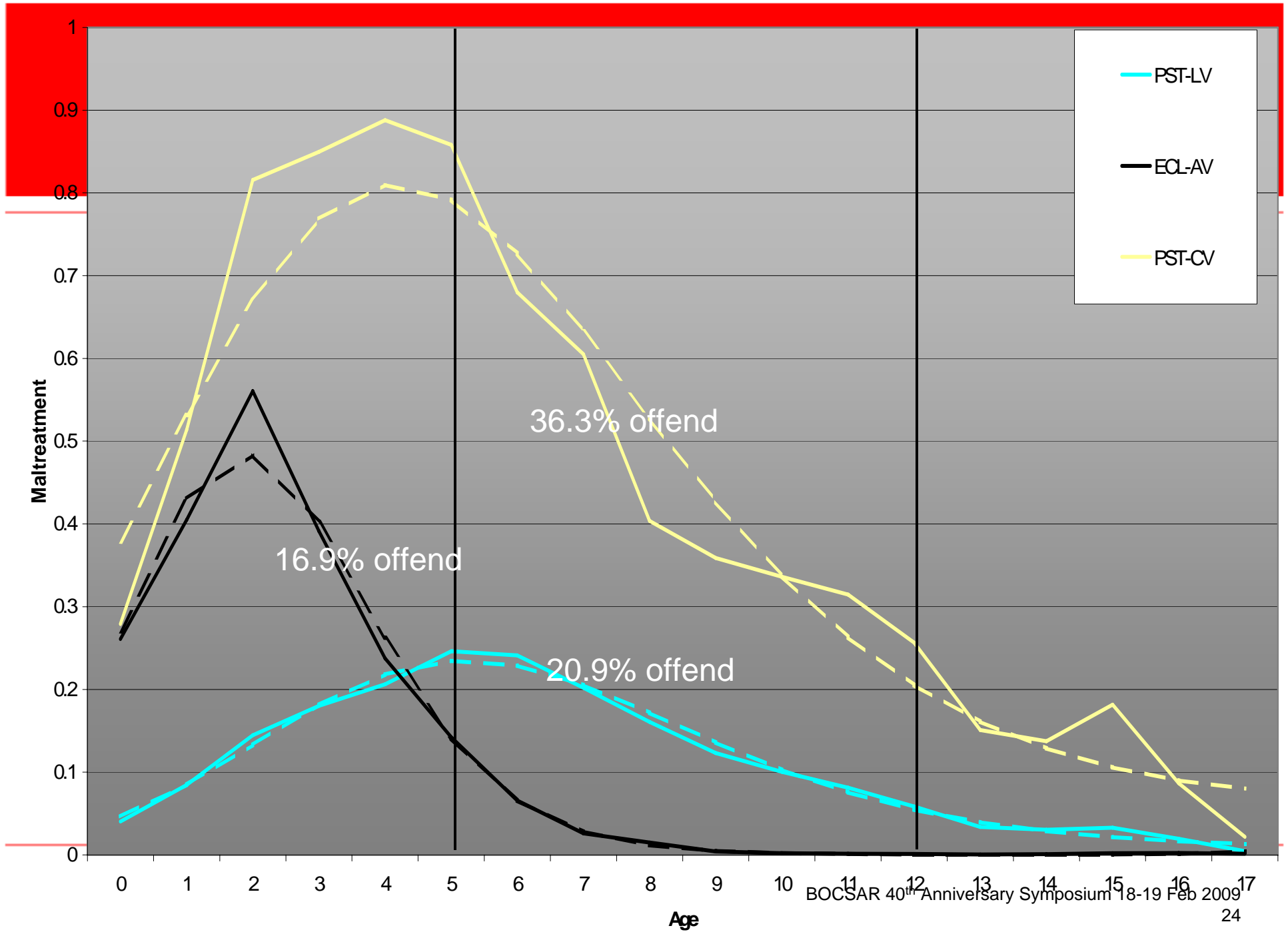


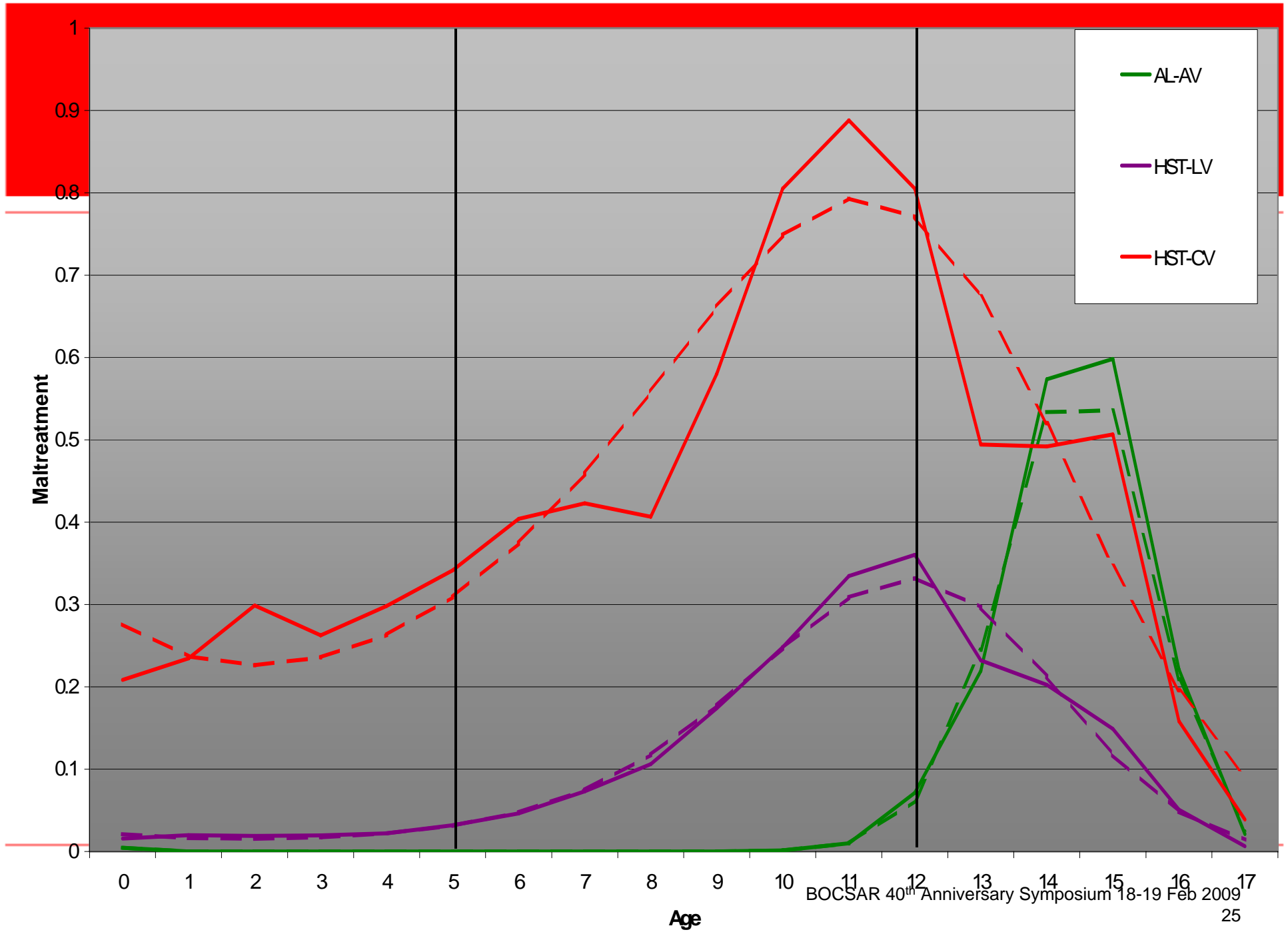


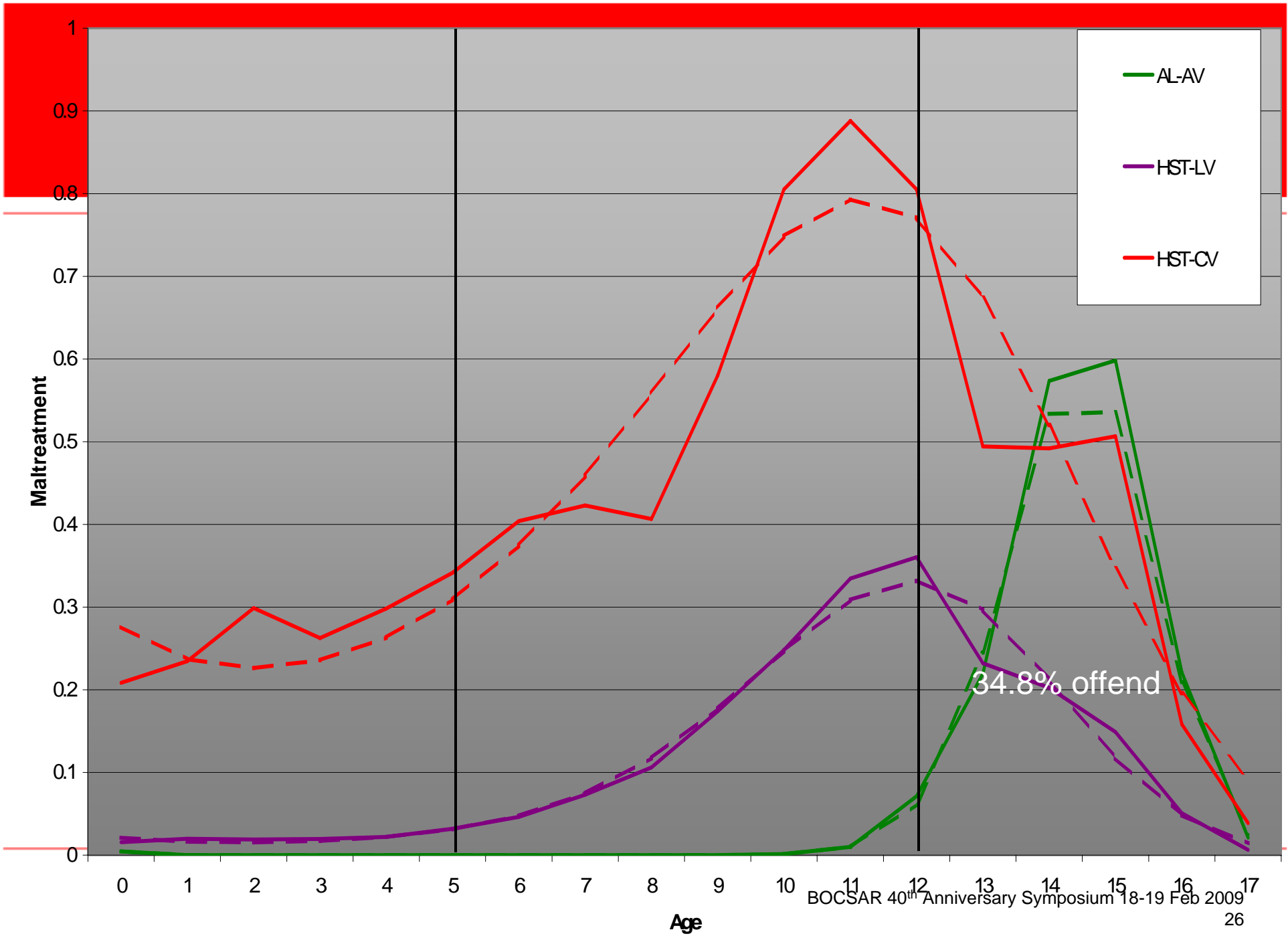


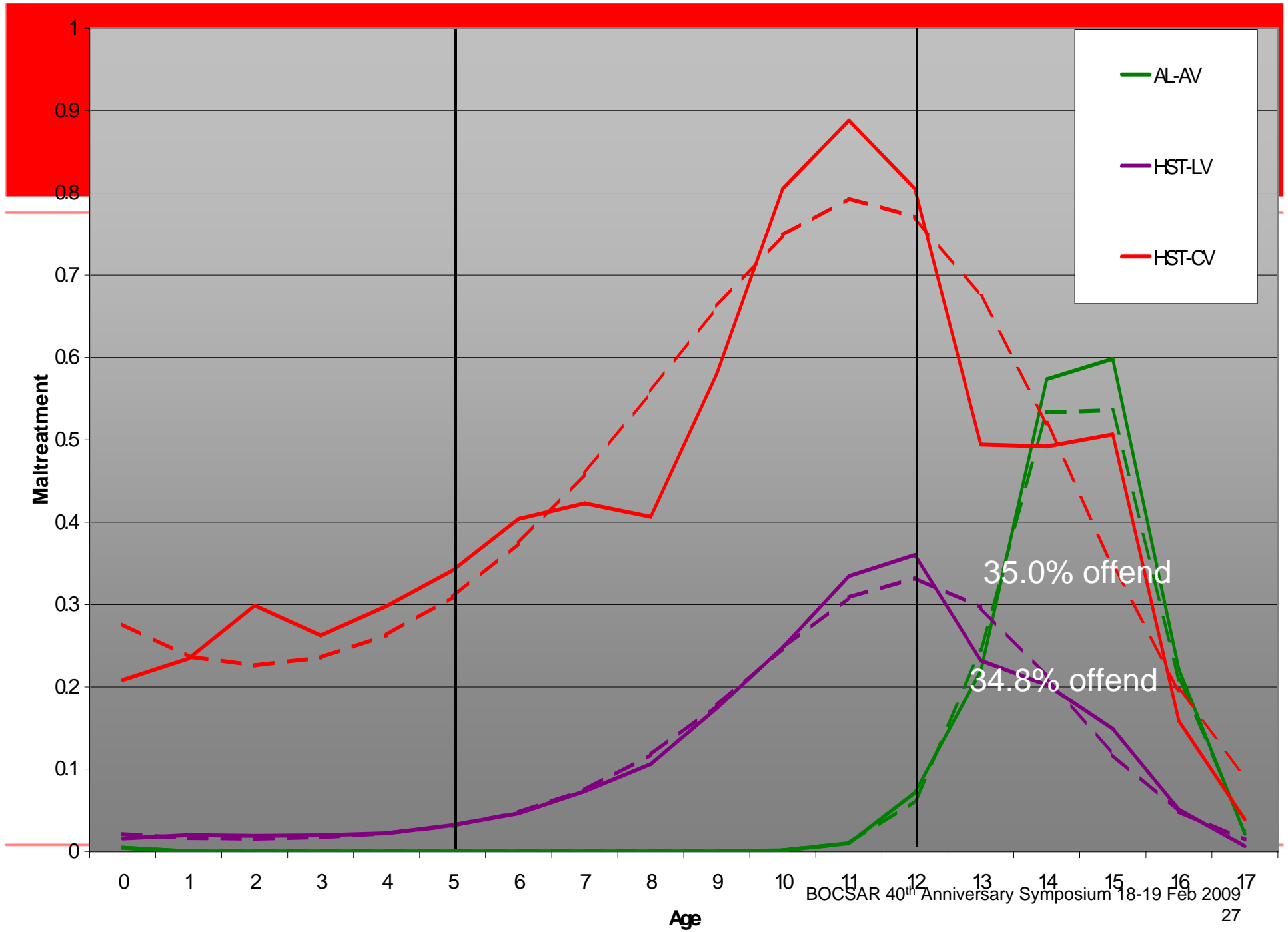


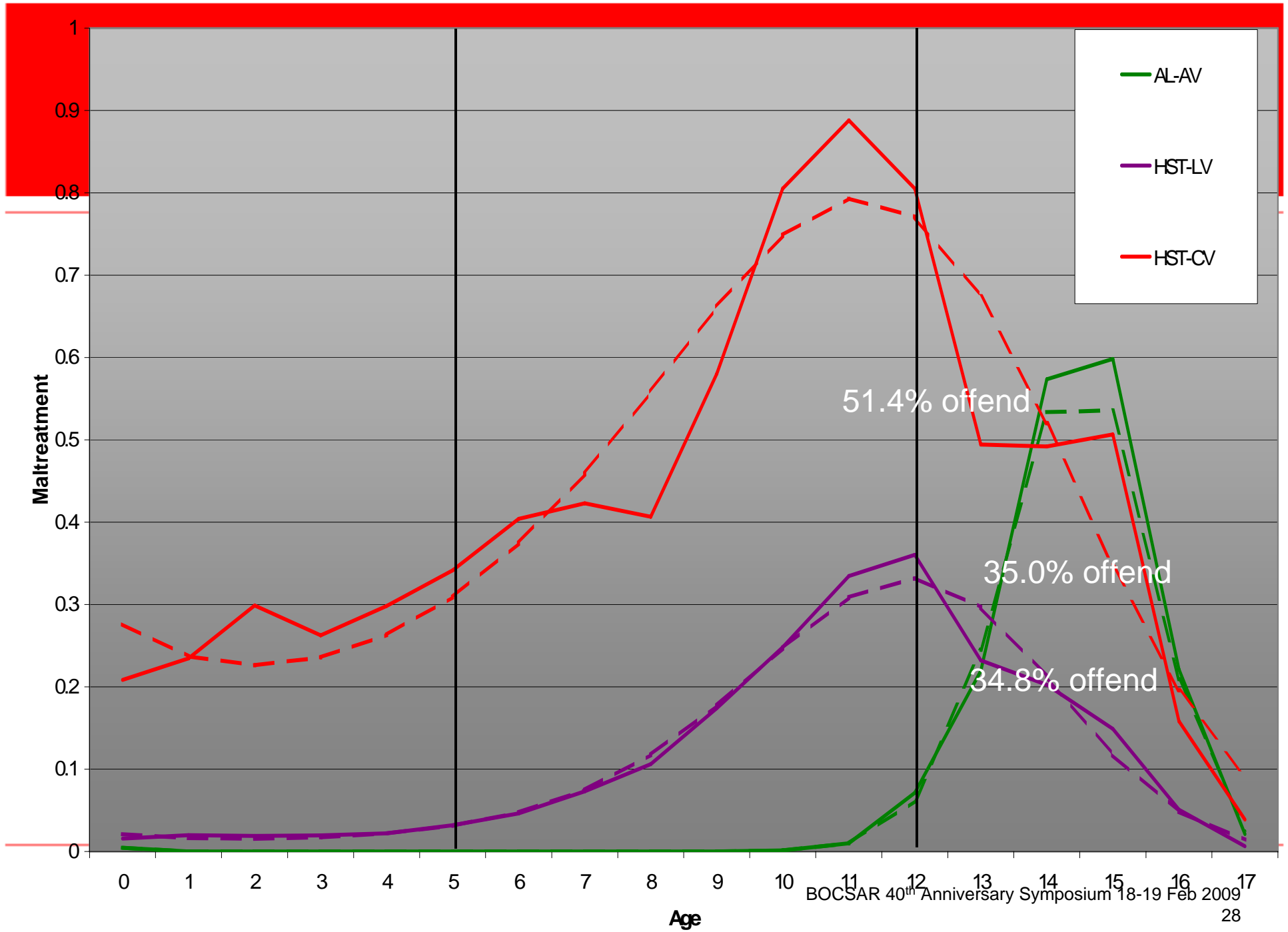












What does it all mean?

- heterogeneity of children's maltreatment experiences
- the transition to school appears to be a 'risk' time
- maltreated adolescents are more likely to offend

- Why does maltreatment peak just before the transitions?
- Why does maltreatment in older children lead to offending?

Current projects

- *What is the lifetime cost of high end offenders to the cj system?*
- *What is the impact of diversion on reappearance in the youth justice system*

Data Mining and Risk Assessment

- Core business of the criminal justice system
- Actuarial risk assessment tools
- Data mining methods
 - Identify patterns in the data
 - ‘learn’ from ‘correct’ and ‘incorrect’ information
- QCIF project
 - Mining methods out performed statistical methods
- Gray, B., Birks, D., Allard, T. Ogilvie, J. Stewart, A. & Lewis, A. (2009) *Exploring the Benefits of Data Mining on Juvenile Justice Data: QCIF Final Report.*
<http://www98.griffith.edu.au/dspace/handle/10072/21293>

Challenges to modelling in the CJS

- Data limitations
- Government silos
- Data linkage and privacy issues
- Multi disciplinary team
- Qualified practitioners
- Industry champions
- Politicised nature of decision making

Where is the gold?

- Simulation modelling
 - Examine long term and downstream impacts
 - Differentially compare different programs
- Trajectory modelling
 - Understand life course of individuals
 - Impact of interventions on reappearance
 - Cost implications of 'high end' users
 - Target interventions
- Data Mining
 - Improve assessment of risk

Justice Modelling @ Griffith

- Applies modelling technologies to crime control and crime prevention issues
 - Transform operational and administrative data into decision making data
 - Advance theoretical understanding of crime and the criminal justice system