

Modelling the consequences of adult HIV for dependent children

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HSRC

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Modelling the consequences of adult HIV for dependent children

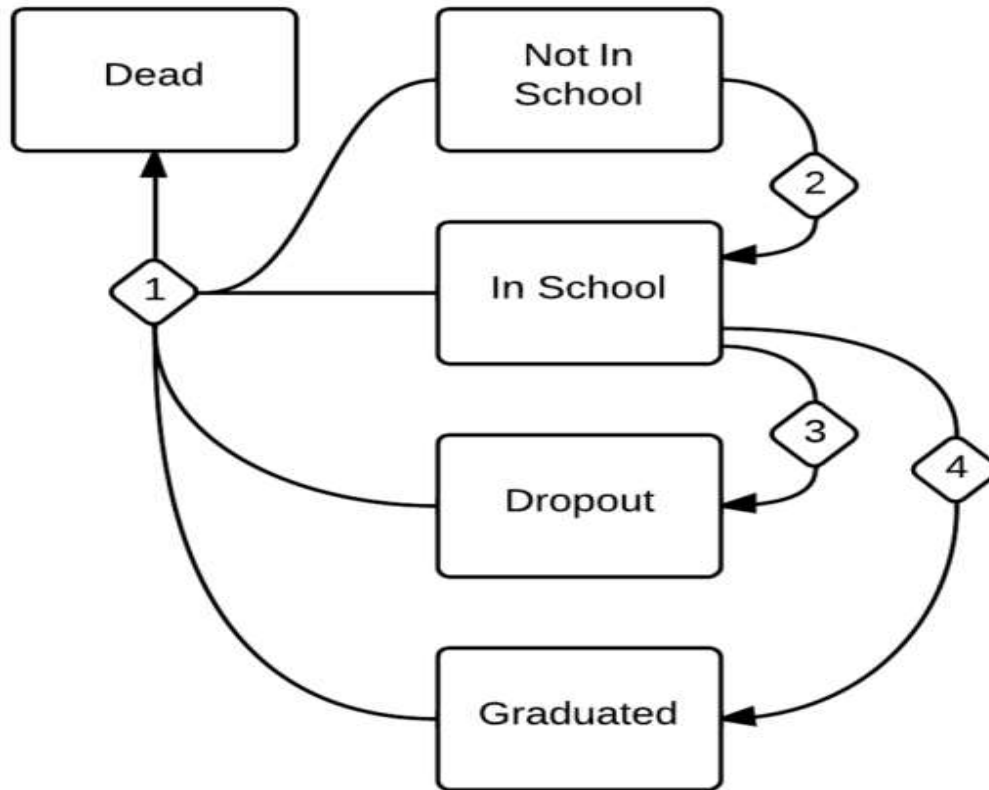
- Building on the data amassed and insights gained during phases 1 and 2, phase 3 seeks to build a model of the consequences of adult HIV for dependent children (not all children)
- The model will seek to estimate the frequency of a number of outcomes:
 - Abuse, depression, years of schooling, early sexual debut and consistent condom use
 - These outcomes can be used to predict the impact on HIV incidence
- Results are due in September 2014, but lessons are already being learned during model construction

$$(x + a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k}$$

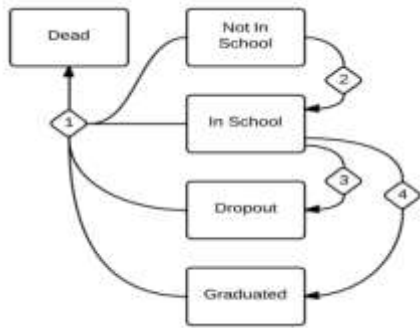
What can we learn by building models?

- Forces a detailed interrogation of the data:
 - Concentration, clustering and compounding
 - Implications for preventing harm and mitigating negative consequences
 - Individuals and a future of 1's and 0's
- Highlights the importance of context:
 - There is no impact of adult HIV on children – only impact in a context.
 - Change the context – change the consequence

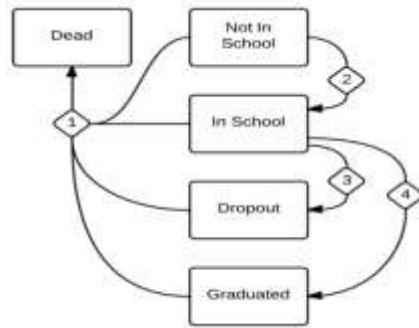
Simple school model



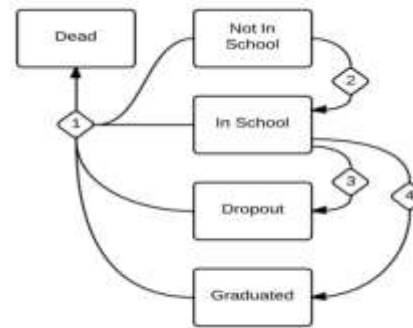
Asymptomatic



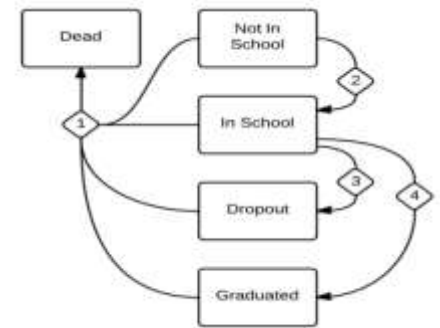
On treatment



Seriously ill

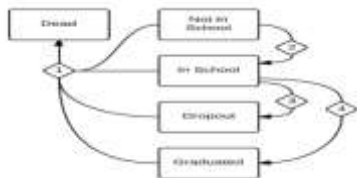


Dead

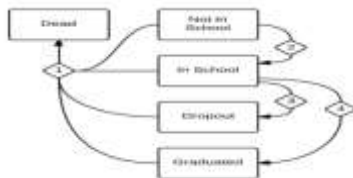


High
income

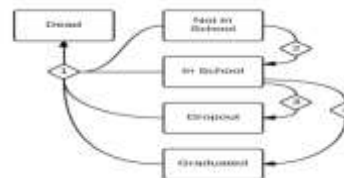
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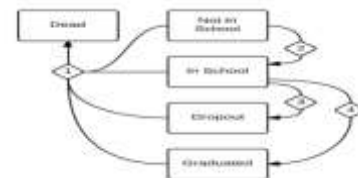
On treatment



Seriously ill

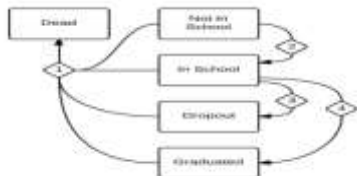


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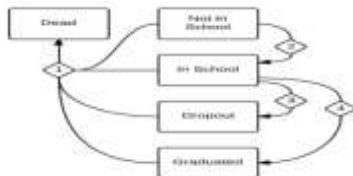


Low
income

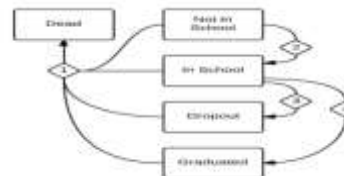
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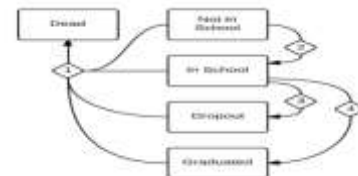
On treatment



Seriously ill

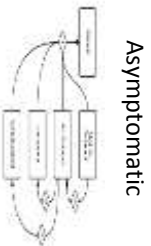


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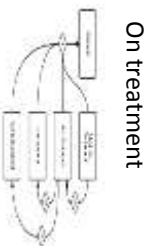


Girls

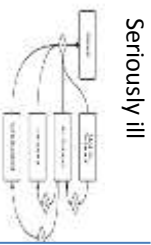
High income



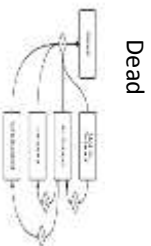
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On treatment

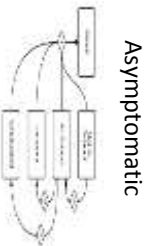


Seriously ill

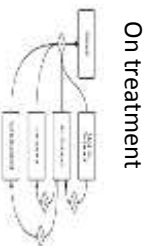


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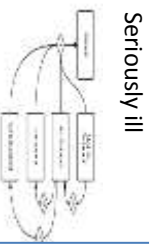
Low income



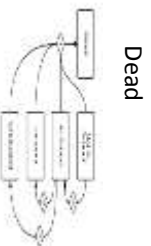
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On treatment



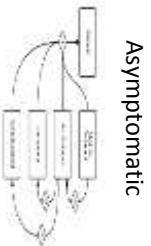
Seriously ill



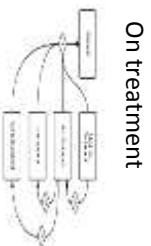
Dead

Boys

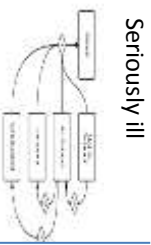
High income



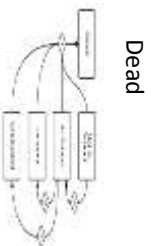
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On treatment

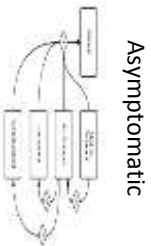


Seriously ill

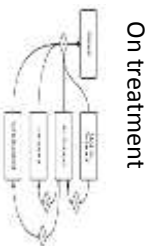


Dead

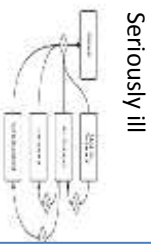
Low income



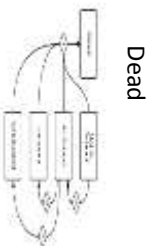
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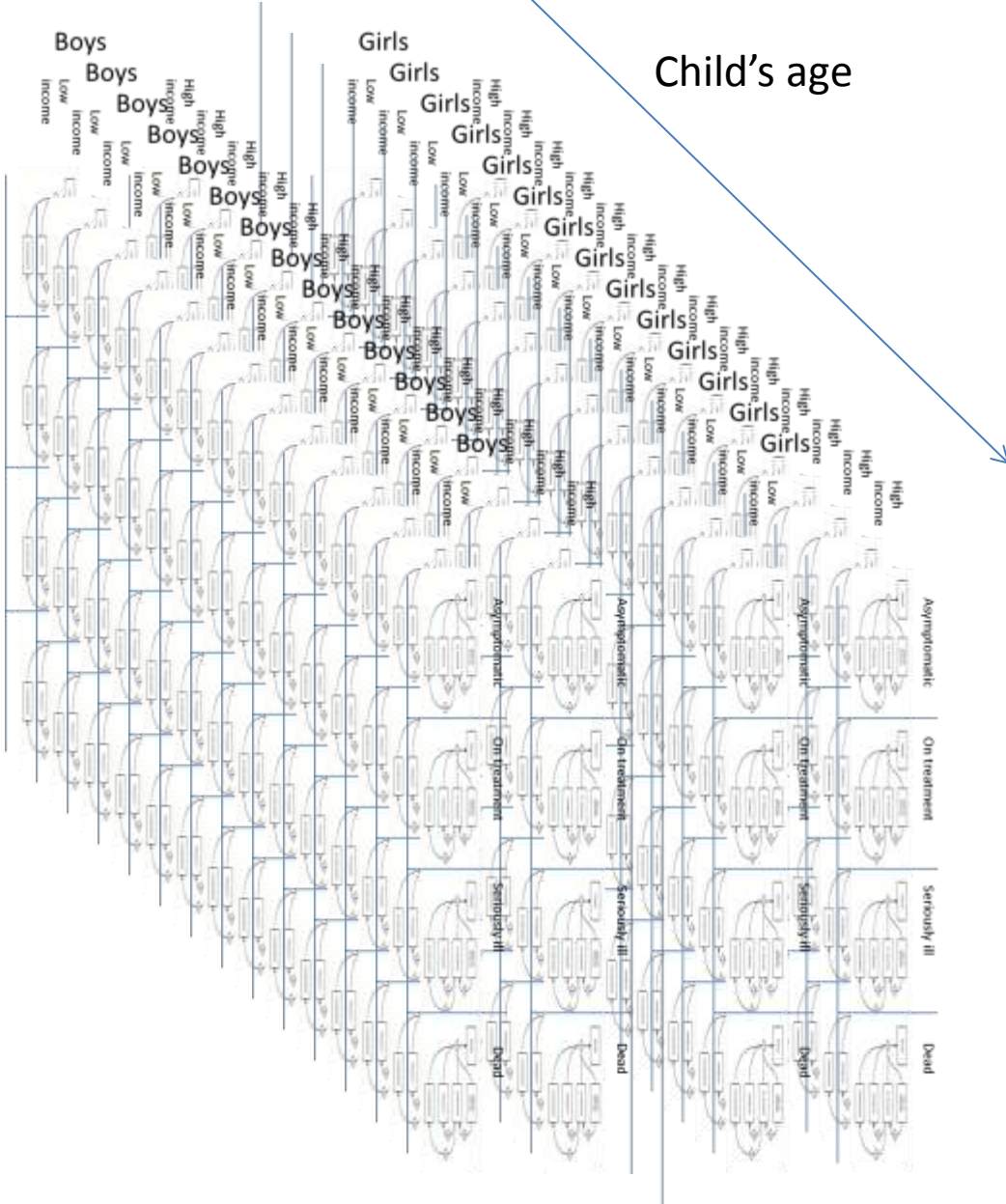


Seriously ill

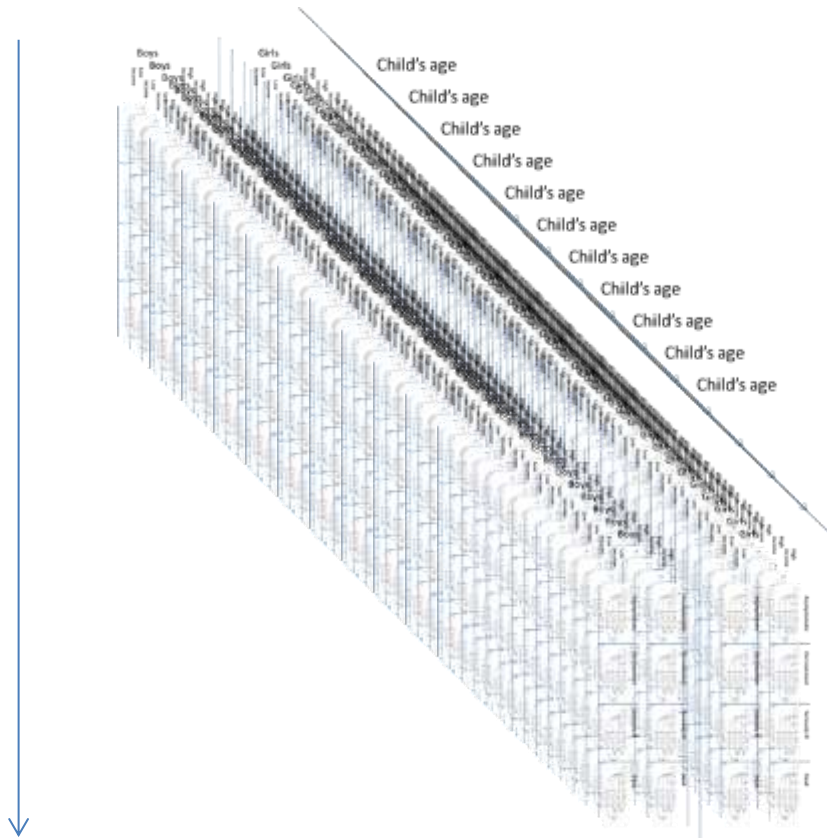


Dead

Child's age



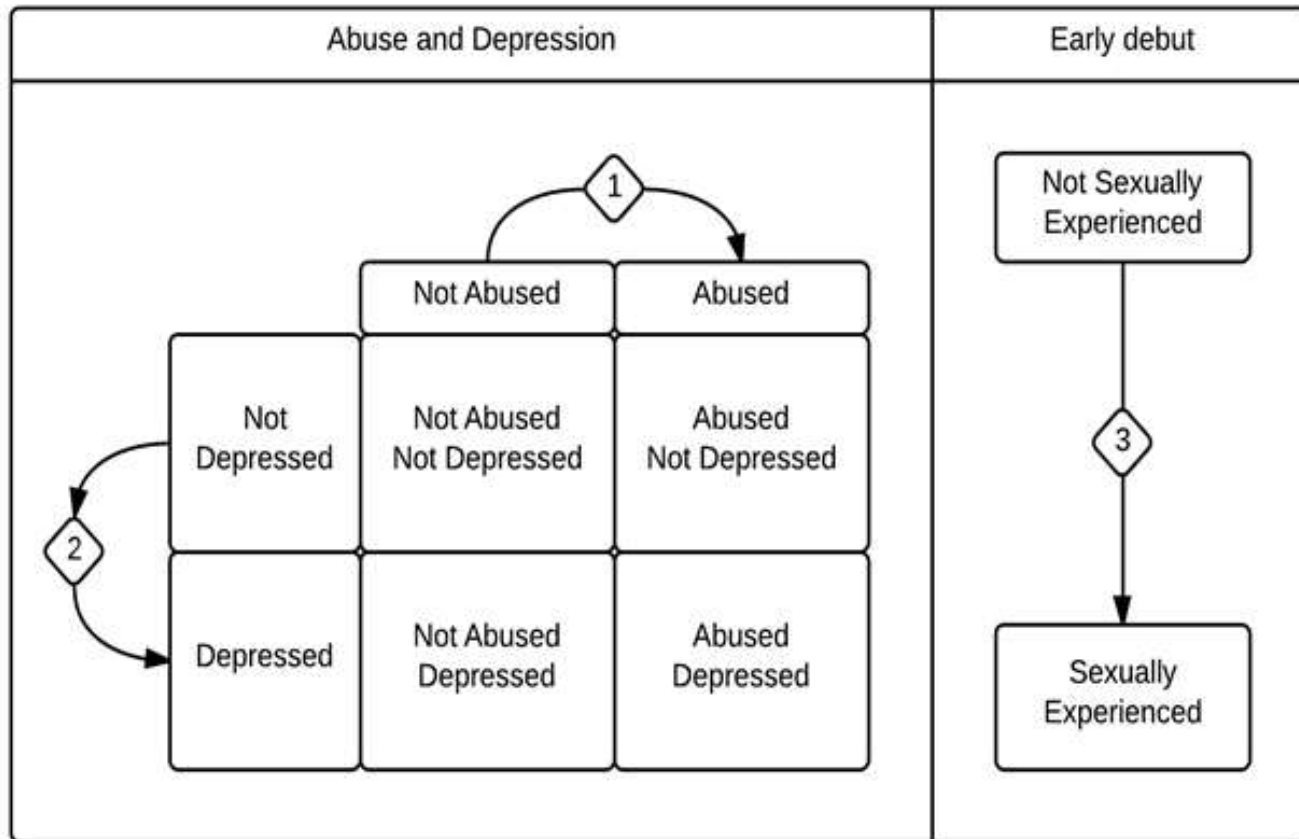
Time



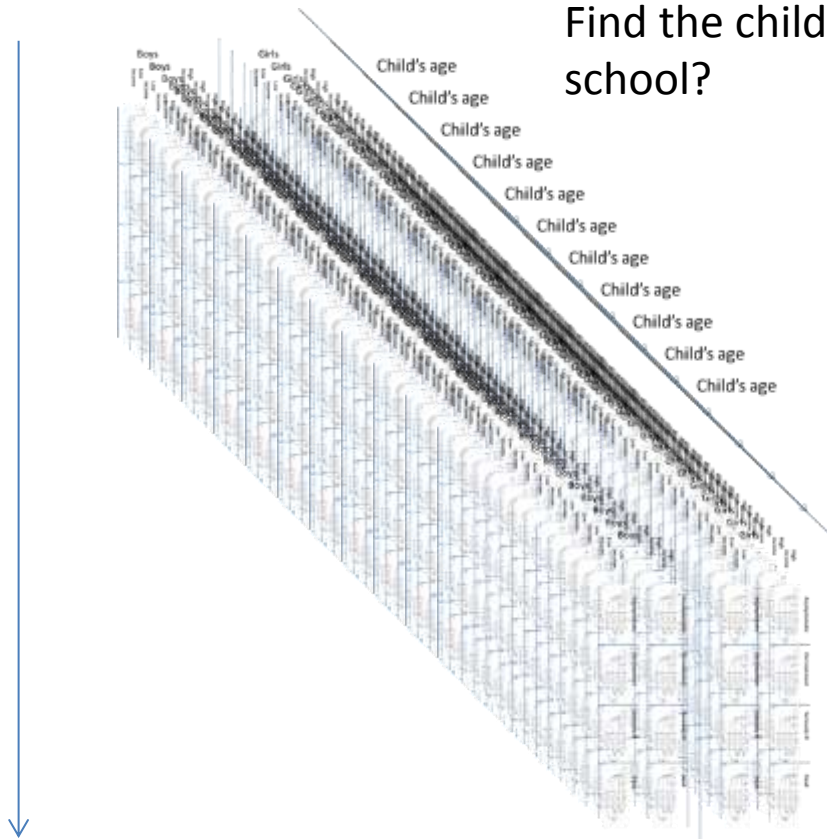
Child's age



Consequences as context

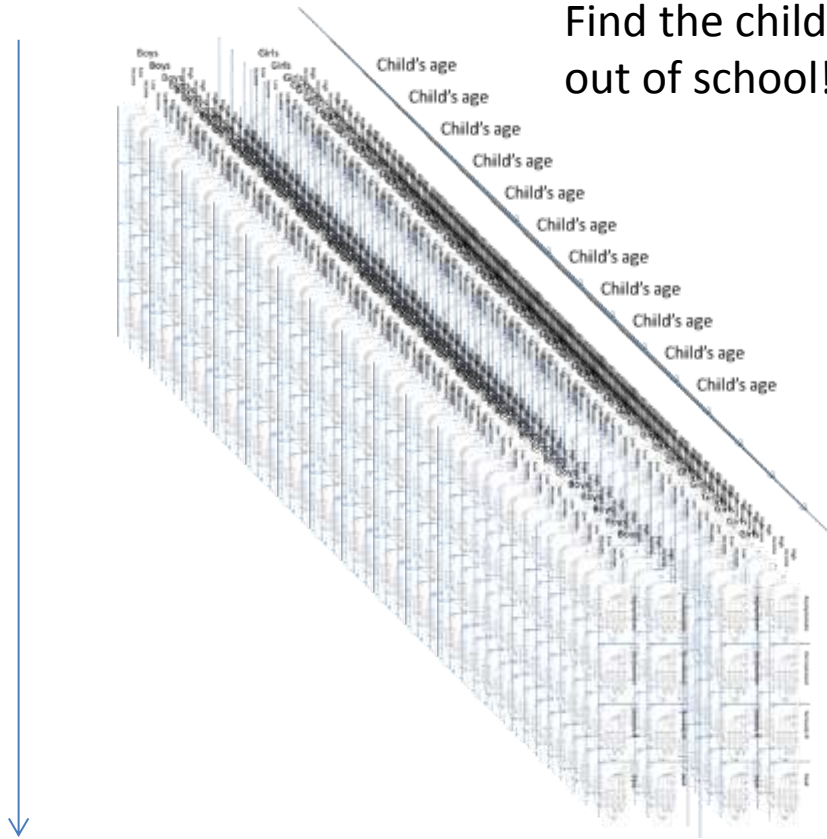


Time



Find the children who have dropped out of school!

Time



Implications for intervention

- Prevention and treatment will reduce the frequency of consequences of adult HIV for children. But the clustering of risk factors will likely limit the extent of the reduction.
 - Those who do not take advantage of prevention interventions or access treatment are more likely to be facing other risk factors. Protecting children who least at risk?
- Pre-impact: The complexity requires simple solutions
 - Broad intervention to reduce the risk of the context
- Post-impact: The severity requires intensity
 - Serious consequences require highly targeted intensive interventions