DAG1: Basic Causal DAG - Marginally randomized experiment

 $A \longrightarrow Y$

DAG2: Complete Causal DAG with confounding - Conditionally randomized experiment

 $L \longrightarrow A \longrightarrow Y$

DAG3: Incomplete Causal DAG, no confounding - Conditionally randomized experiment

 $L \longrightarrow A \longrightarrow Y$

DAG4: Basic Causal DAG - with mediation

 $\mathsf{A} \longrightarrow \mathsf{M} \longrightarrow \mathsf{Y}$

DAG5: Common Causes

 $L \longrightarrow A \longrightarrow Y$

DAG6: Common Effects

 $A \longrightarrow Y \longrightarrow L$

DAG7: Conditional independence - Mediation

 $A \longrightarrow \boxed{B} \longrightarrow Y$

DAG8: Conditional independence - Confounding

 $L \longrightarrow A \longrightarrow Y$

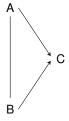
DAG9: Conditioning on Common Effects - Collider

 $A \longrightarrow L$

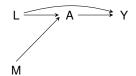
DAG10: Conditioning on Common Effects - Descendent of Collider

 $A \xrightarrow{Y} L \longrightarrow \boxed{S}$

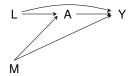
DAG11: Moralization



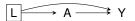
DAG12: Effect Modification: M not a Confounder



DAG13: Effect Modification: M is also a Confounder



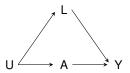
DAG14: Basic Confounding DAG, conditioning on the confounder



DAG15: Unmeasured Confounding, 1

$$U \xrightarrow{A} A \xrightarrow{} Y$$

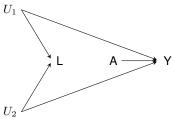
DAG16: Unmeasured Confounding, 2



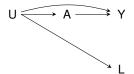
DAG17: Unmeasured Confounding, 3



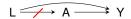
DAG18: M-Bias



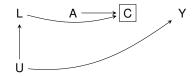
DAG19: Surrogate confounders



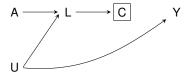
DAG20: Controlling Confounding with IPW



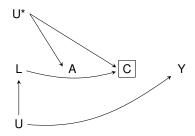
DAG21: Selection Bias, 1



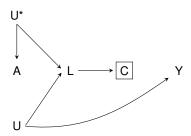
DAG22: Selection Bias, 2



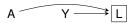
DAG23: Selection Bias, 3



DAG24: Selection Bias, 4



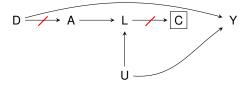
DAG25: Selection Bias, 5



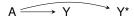
DAG26: Selection Bias, 6



DAG27: Selection Bias with confounding, 7 - IPTW and IPCW



DAG28: Information Bias - measurement error



DAG29: Information Bias - reverse causation, 1

$$A \xrightarrow{Y} A^*$$

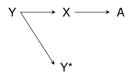
DAG30: Information Bias - reverse causation, 1b -¿ no reverse causation

$$A \xrightarrow{Y} A^*$$

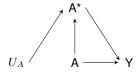
DAG31: Information Bias - reverse causation, 2

$$Y \longrightarrow A$$

DAG32: Information Bias - reverse causation, 3



DAG33: Information Bias - reverse causation, 4



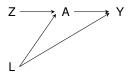
DAG34: RCT, with blinding

$$Z \longrightarrow A \longrightarrow Y$$

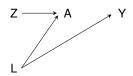
DAG35: RCT, with unblinding

$$Z \longrightarrow A \longrightarrow Y$$

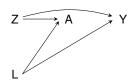
DAG36: RCT, non-compliance, 1



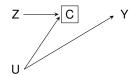
DAG37: RCT, non-compliance, 2



DAG38: RCT, non-compliance, 3



DAG39: RCT, loss to follow-up



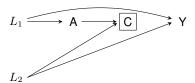
DAG40: Matching / Stratification, 1

$$L=0 \xrightarrow{} A \xrightarrow{} Y$$

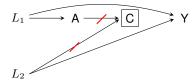
DAG41: Matching / Stratification, 2

$$L=1 \longrightarrow A \longrightarrow Y$$

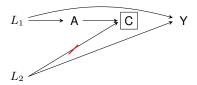
DAG42: Selection Bias and Confounding



DAG43: Controlling Selection Bias with IPW - unstabilized weights

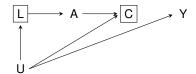


DAG44: Controlling Selection Bias with IPW - stabilized weights

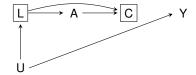


DAGs from meeting with Miguel - April 3, 2013

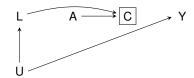
DAG1: Stratification, for confounding and selection bias, 1



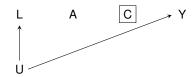
DAG2: Stratification, for confounding and selection bias, 2



DAG3: IPW, for confounding and selection bias, with treatment weights only



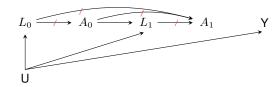
DAG4: IPW, for confounding and selection bias, with treatment and selection weights



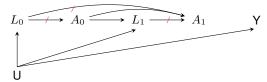
DAG5: IPW - time-invariant case: stabilized and unstabilized weights

$$L_0 \xrightarrow{\hspace*{1cm}} A_0 \xrightarrow{\hspace*{1cm}} \mathbf{Y}$$

DAG6: IPW - time-variant case: unstabilized weights

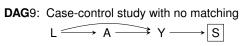


DAG7: IPW - time-variant case: stabilized weights

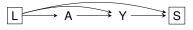


DAG8: Cohort study with matching



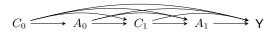


DAG10: Case-control study with matching

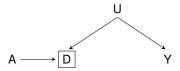


DAGs from meeting with Tyler - April 11, 2013

DAG1: Time-varying treatments



DAG2: Competing risks and selection bias

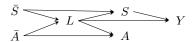


DAGs from past quals

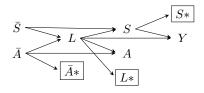
DAG1: 2011 - Question 1a, under the null

$$\bar{A} \xrightarrow{L} \xrightarrow{A} Y$$

DAG2: 2011 - Question 2a, under the null

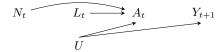


DAG3: 2011 - Question 2c, under the null

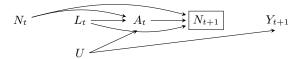


Meeting with Miguel, 5/2/2013

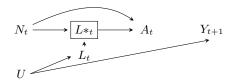
DAG1: Question 1, DAG 1, under the null



DAG2: Question 1, DAG 2, under the null



DAG3: Question 1, DAG 3, under the null



DAG4: Question 4, under the null

