

Pitfalls to Avoid When Evaluating Programs Targeting High ED Utilizers

Todd Olmstead, UT-Austin
Kevin Munjal, Mount Sinai
Dave Schoenwetter, Geisinger

Literature

3 studies have estimated the “impact” of Navigation programs

All 3 studies use a **one-group pre/post** research design

Results

- ED visits decreased by 28% (Tadros et al. 2012)
- EMS transports decreased by 32% (Rinke et al. 2012)
- EMS responses decreased by 54% (Tangherlini et al. 2016)

•Limitations: “This “regression to the mean” could introduce bias (in favor of bene- fit) since this study did not employ case controls.”

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Austin/Travis County - Study Design

Classic pre/post with comparison group
 - Also used treatment group as own controls

Enrollment Period: Jan 2013 – Sept 2015

ED visits, some demographic variables (age, gender, etc.)

Unit of Analysis – Patient-months

Pre/Post Dividing Line
 •Program enrollees => start date
 •Comparison group => Sept 26, 2012

Comparison Group (1,386 patients)
 - 2+ chronic conditions
 - Travis County resident
 - Medicaid, MAP (Medical Access Program), or unfunded

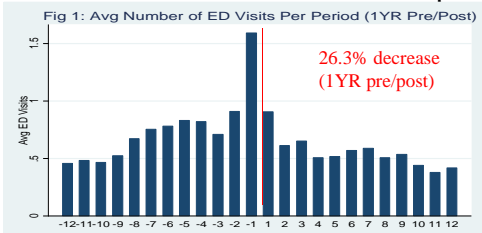
- 2+ ED visits in 30-day period within previous year AND 1+ chronic conditions; OR
 - 1+ ED visit within previous year AND 2+ chronic conditions
 - Travis County resident
 - Medicaid, MAP, or unfunded

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Preliminary Results

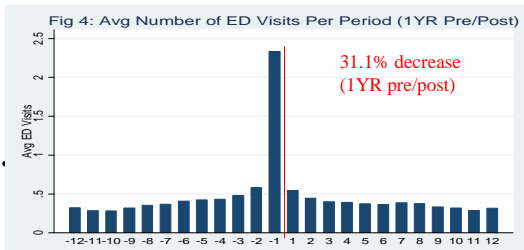
- If simply compare 1yr pre-post:
 - 26.3% reduction in ED visits among 603 patients
- But let's look under the hood ...

Preview of Results – CHP Group



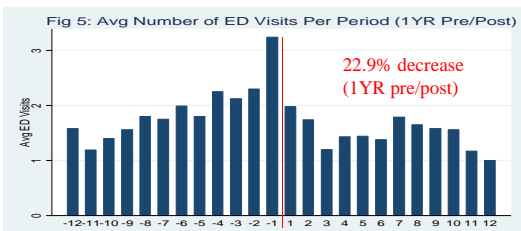
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Results – Comparison Group (n=1,386)



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Results – Comparison Group (100 Sickest)



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Bottom Line

Program enrollees very likely would have improved anyway.

- **Bad luck** => reversion to mean
- **Bad health** => alternative social services

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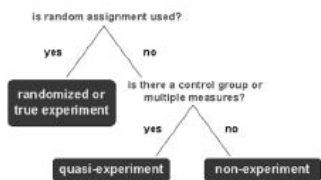
Regression to the Mean

- Things tend to even out over time
- Makes natural variation look like a Positive Result
- KEY POINT: Affects any study in which patient selection is based on the same variable as is being measured as an outcome.

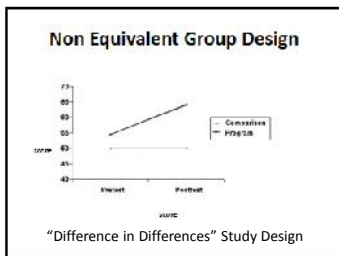
Strategies to Avoid Regression to the Mean Pitfall



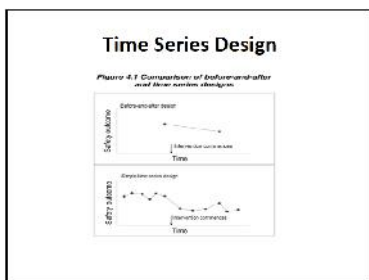
Quasi Experimental vs Experimental Design

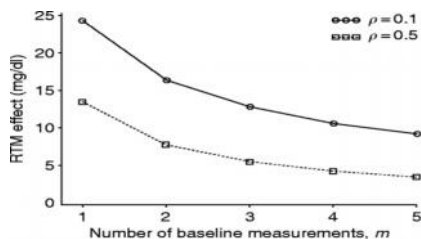


Option 1: Add a Comparison Group



Option 2: Take More Measures





From: Regression to the mean: what it is and how to deal with it
Int J Epidemiol. 2004;34(1):215-220. doi:10.1093/ije/dyh299
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Option 3: Staggered Introduction of Intervention

