

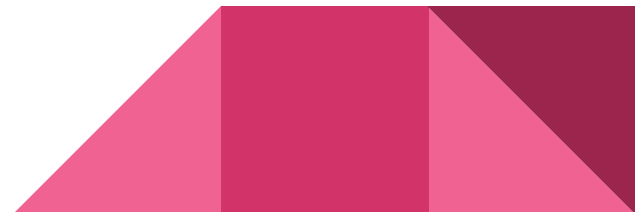
RESEARCH AS ADVOCACY

Advocacy in Medicine Workgroup @ NYAM

Hana Flaxman, Ann Palladino, & Lori Zomback

Workshop Agenda

1. Hello & Welcome
2. Intro to Health Disparities
3. The Role of Research
4. Activity: Designing a Study
5. Disseminating Your Results



The background is a solid pink color. In the top right corner, there is a decorative arrangement of geometric shapes: a light pink triangle pointing down-right, a dark pink square, and another light pink triangle pointing up-right, all partially overlapping.

Hello & Welcome

Who we are



Lori Zomback, BS, MD (c)

- Education: BS from Cornell University, MS3 at SUNY Downstate Medical Center
- Intended Specialty: ObGyn or Peds?
- Advocacy areas: Maternal health, LGBTQ+ health, educational equity

Who we are



Ann Palladino, BS, MS4

- Education: BS from NYU, MS4 at Weill Cornell
- Intended Specialty: Emergency Medicine
- Advocacy areas: DEI in STEM & Medicine



Who we are



Hana Flaxman, BA, M2

- Education: BA from University of Pennsylvania, M2 at Weill Cornell Medical College
- Intended Specialty: Primary Care
- Advocacy areas: LGBTQ+ health, healthcare equity



Let's Hear From You!

- Name, institution, pronouns
- Advocacy areas of interest
- Favorite tradition for upcoming holidays





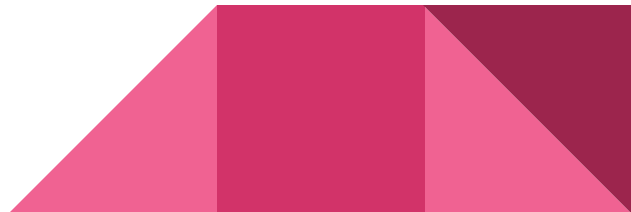
Intro to Health Disparities

Health Disparities Research Example

- **The influence of structural racism, pandemic stress, and SARS-CoV-2 infection during pregnancy with adverse birth outcomes (Janevic et al, 2022)**
- Objective
 - Examine associations between neighborhood measures of structural racism and pandemic stress with SARS-CoV-2 infection, preterm birth, and delivering small-for-gestational-age newborns.
- Methods
 - Evaluated structural racism (social/built structural disadvantage, racial-economic segregation) and pandemic-related stress (community COVID-19 mortality, community unemployment rate increase), and adverse birth outcomes by ZIP.

How Did They Get the Data?

- Measures of Structural Racism:
 - 2018 US census data
 - Index of Concentration at the Extremes (ICE): a measure of racial and economic segregation
- Measures of COVID-19 Impact:
 - NYC SARS-CoV-2 test data
 - COVID-19 mortality rate by neighborhood
 - SARS-CoV-2 serologic test done on participants
- Measures of Birth Outcomes:
 - Data on preterm birth and small-for-gestational-age newborns from EMR



Health Disparities Research Example

Findings: In adjusted analyses, structural racism measures and community unemployment were associated with both SARS-CoV-2 infection and preterm birth, but not small-for-gestational-age infants

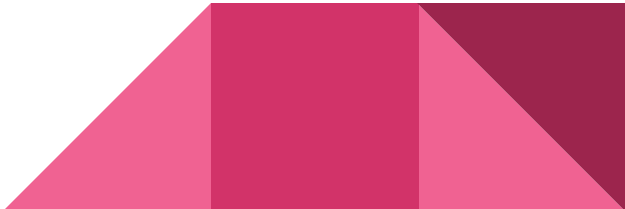
Among birthing persons in neighborhoods in the highest quartile of structural disadvantage

- 94% were non-White
- 32% were seropositive for COVID
- 11% delivered preterm
- 12% delivered a small-for-gestational-age infant.

Among birthing persons in neighborhoods in the lowest quartile of structural disadvantage

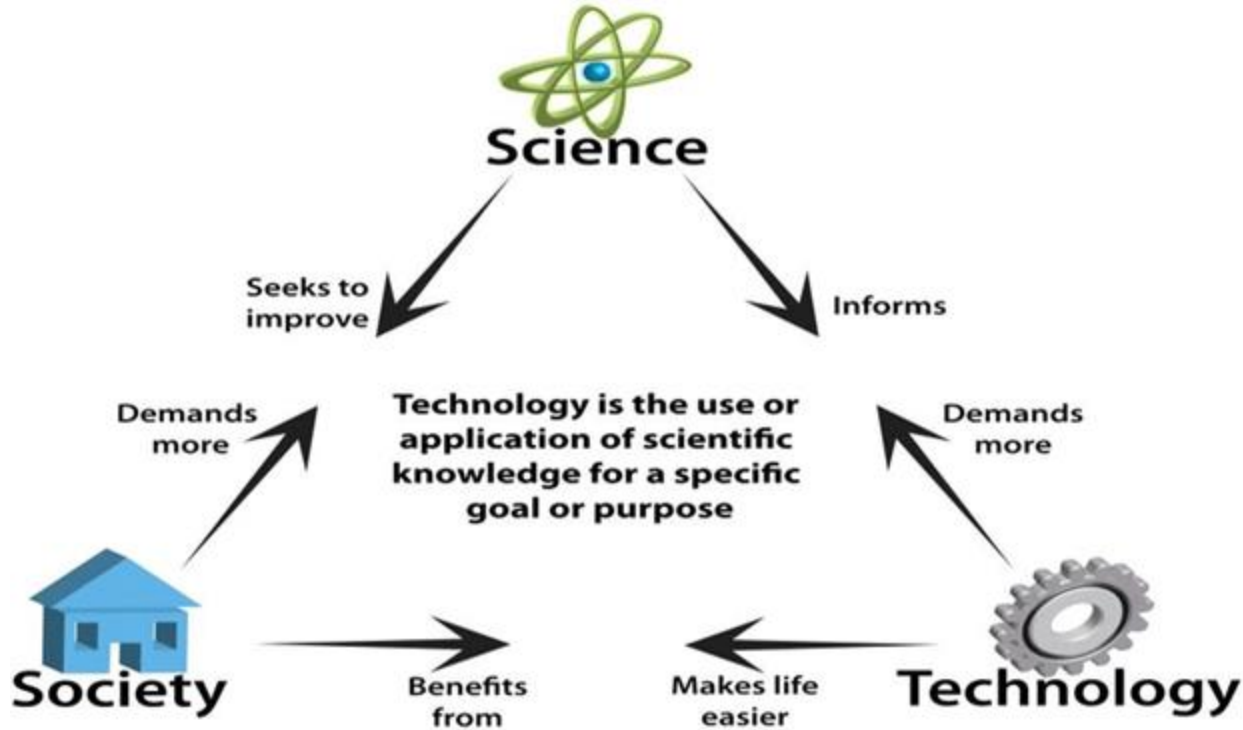
- 39% were non-White
- 9% were seropositive for COVID
- 6% delivered preterm
- 10% delivered a small-for-gestational-age infant.

Mentioned 42 times in the news!



Role of Research

Science and Society



The New York Times

- 2018 NYT articles on disparities in maternal health
 - The US has the highest rates of maternal mortality of any developed country
 - 14 / 100,000 births
 - Black women over 3x more likely to die during childbirth
- Clinicians and researchers taking closer look at maternal mortality
 - Ex: root cause analysis
 - Found 60% of deaths were preventable
 - Ex: checklists
 - Ex: effort to decrease c-section rate



Safe Motherhood Initiative

Obstetric Hemorrhage

Programs and Resources

[Let's Connect Podcast](#)

[Medical Education](#)

[Safe Motherhood Initiative](#)

Subscribe to the
District II Newsletter



Obstetric Hemorrhage Bundle

Slide set [↗](#)

Risk Assessment
Table: Prenatal &
Antepartum [↗](#)

Risk Assessment
Table: Labor &
Delivery Admission
and Intrapartum [↗](#)

Checklist:
Hemorrhage Stages
1-4 (Revised
September 2020) [↗](#)

Checklist:
Recommended
Instruments
(Revised March
2019) [↗](#)

Poster: Managing
Maternal
Hemorrhage [↗](#)

Poster: Massive
Transfusion
Protocol (Blood
Bank) [↗](#)

Poster: Surgical
Management [↗](#)

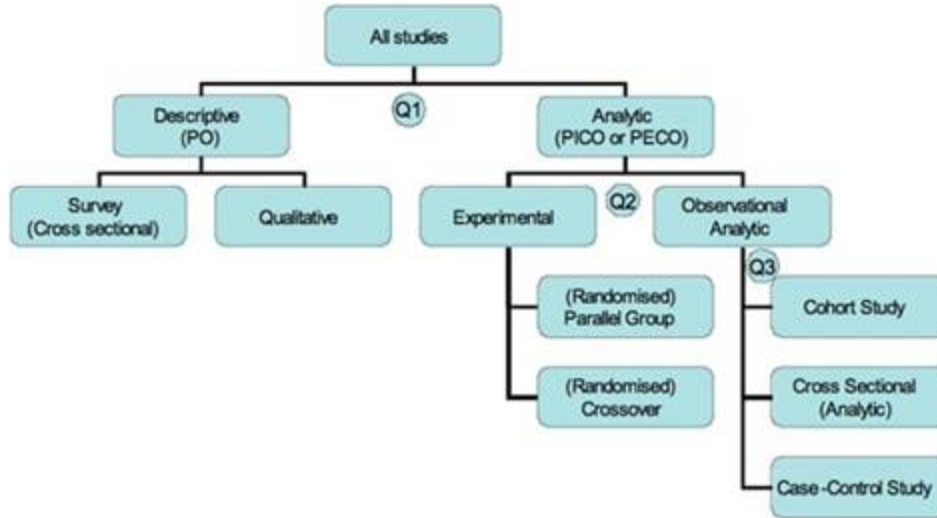
Activity: Designing a Study

Project Design Workshop

- What is our research question, or topic?
 - What problems have we noticed in the medical world?
 - Considering literature and community in question generation
 - Narrowing the focus (who, what, where, when)
- What is our PICO?
 - Population
 - Intervention
 - Control
 - Outcome
- What is our hypothesis?



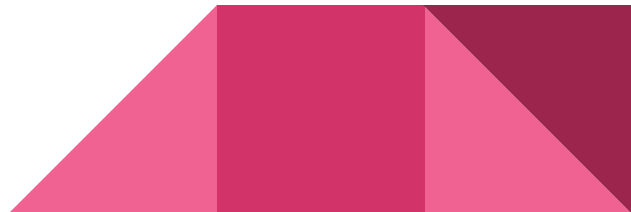
Method - Which is Best?



Method	When Appropriate
Cross Sectional	Limited resources No cause and effect Very safe and simple
Case Control	Rare disease Small population Predisposing factors
Cohort	Correlation not causation Focusing on outcomes Large groups
Experimental	Cause and effect Targeted results More complex, can be risky

Method Considerations

- Recruitment strategy
 - Where? When? Who?
- Data collection
 - Qualitative vs. quantitative
 - Validated surveys and measures
- Ethical considerations
 - People who are incarcerated or homeless
 - Pregnant women, children
- Avoiding bias
 - Randomization, blinding
 - Accounting for confounders
 - Deidentifying data
- Community collaboration
 - Focus groups
 - Consultation
 - Community based participatory research

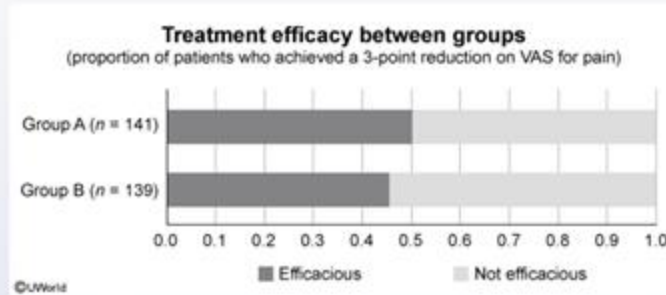


Data Analysis



Data Analysis: Statisticians can help you but . . .

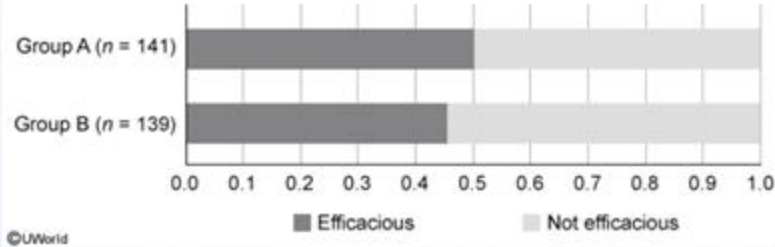
A group of endocrinologists conducted a randomized controlled trial to compare the efficacy of capsaicin versus turpentine oil for topical treatment of painful diabetic neuropathy. Patients were randomly assigned to topical application of either capsaicin (Group A) or commercially available turpentine oil (Group B) over a painful site on their feet. The primary outcome was significant reduction in pain on visual analogue scale (VAS), and treatment efficacy defined as ≥ 3 -point reduction on VAS. An excerpt of the study results is shown below.



Which of the following tests would be most appropriate to determine whether there is a statistically significant difference in treatment efficacy between the 2 groups?

- ☐ A. Chi-square test
- ☐ B. Correlation analysis
- ☐ C. Meta-analysis
- ☐ D. Two-sample *t*-test for means
- ☐ E. Survival analysis

Treatment efficacy between groups
(proportion of patients who achieved a 3-point reduction on VAS for pain)



Which of the following tests would be most appropriate to determine whether there is a statistically significant difference in treatment efficacy between the 2 groups?

		Dependent variable	
		Qualitative (categorical)	Quantitative
Independent variable	Qualitative (categorical)	Chi-square, logistic regression*	t test, ANOVA, linear regression
	Quantitative	Logistic regression*	Correlation, linear regression

*Dependent variable must be dichotomous.
ANOVA = analysis of variance.

Regression (linear and logistic) is **predicting a relationship** between variables; ie given pt is in Group A, what is probability of treatment being efficacious

Practice Case - What test should we run?

- # of Tests Ordered for English vs Non-English Speakers
 - Independent Variable?
 - Dependent Variable?

		Dependent variable	
		Qualitative (categorical)	Quantitative
Independent variable	Qualitative (categorical)	Chi-square, logistic regression*	t test, ANOVA, linear regression
	Quantitative	Logistic regression*	Correlation, linear regression
*Dependent variable must be dichotomous.			
ANOVA = analysis of variance.			

Practice Case - What test should we run?

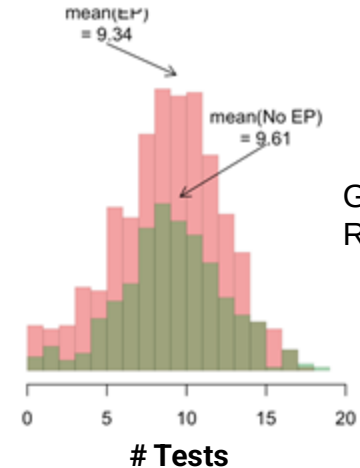
- # of Tests Ordered for English vs Non-English Speakers
 - Independent Variable? **Categorical (Eng vs Non-Eng)**
 - Dependent Variable? **Quantitative (# Tests)**

		Dependent variable	
		Qualitative (categorical)	Quantitative
Independent variable	Qualitative (categorical)	Chi-square, logistic regression*	t test, ANOVA, linear regression
	Quantitative	Logistic regression*	Correlation, linear regression

*Dependent variable must be dichotomous.
ANOVA = analysis of variance.

Answer: T-test

T-test = 2 Independent Variables (i.e. Eng vs Non-Eng)
ANOVA = 3+ Independent Variables (i.e. Eng, Span, French, etc)



Green = Non-eng
Red = Eng



Disseminating Your Results

Why It Matters

- All research builds upon itself
 - Spark future studies
 - Communicate with other scientists near and far
- Can have societal impact
 - Public interest
 - Policy change
- Make connections to build your career



Where To Publish - Scientific Journals

- Getting your research out to the scientific community
- Choose a journal before you start writing
 - Tailor things like target audience, word count, tables and graphs
 - Think about scope - there are journals that are broad and journals that are very specific
 - Some are more competitive, so don't be dissuaded
- How to choose a journal
 - Do some online research
 - <https://authorservices.taylorandfrancis.com/resources/choosing-journal-ebook/>
 - Ask your professors or colleagues
 - Ask the librarian at your institution



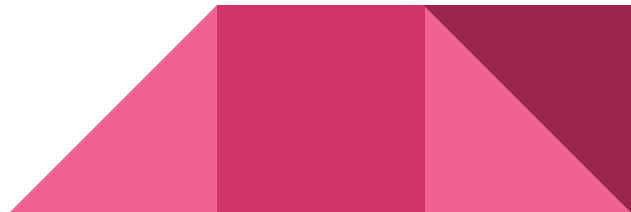
Some Options for Publishing in a Scientific Journal

- Types of articles
 - Major article
 - Brief report
 - Case report
 - Letter to the editor
- Making your data set accessible
- Open access



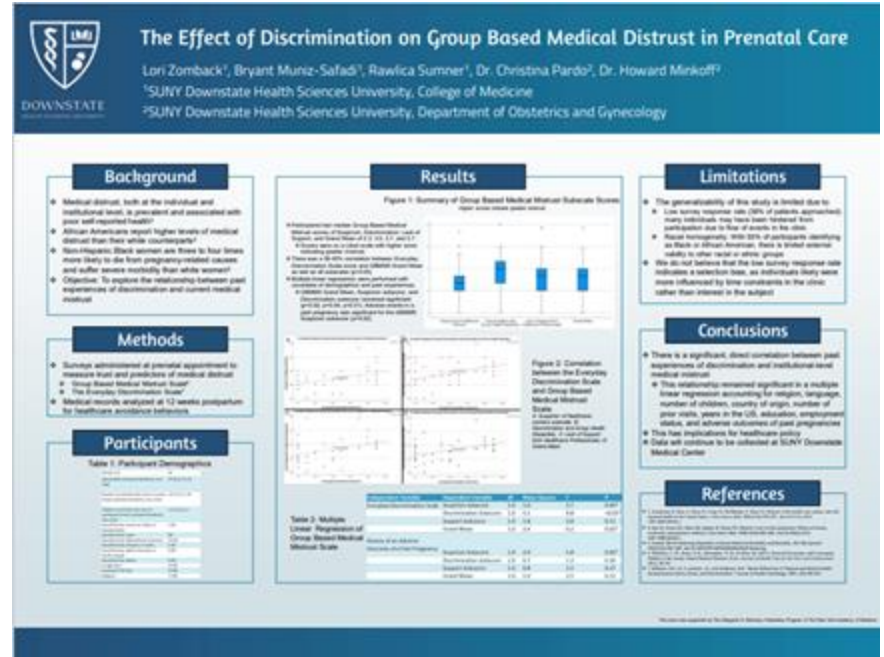
Scientific Journal Process

- Write and submit initial manuscript
 - Edit a million times
 - Make sure to format correctly
 - Citations in proper style
- May get an acceptance or rejection but commonly conditional
 - Will need to address peer-reviewers' comments and re-submit
- Hopefully get accepted
- Approve their proof
- Hang it on your fridge



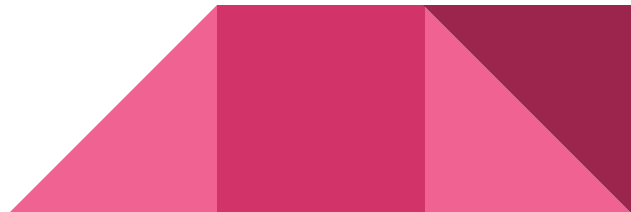
Conferences

- Great way to meet and network with people in your field
- Can go to a conference with preliminary results
- More accessible (but less social) with virtual conferences
- Can do a poster or oral presentation



Where to Publish - Lay Media

- Getting your research out to the community impacted by the research
- Local, regional, or national newspaper
 - Opinion or letter to the editor
- News channels, radio, or podcasts
- Letters to politicians calling for change
 - Could be as local as school policy or as far-reaching as national policy



The Politics of Advocacy: Strategies in Private & Public Sector are *NOT* the same

Evidence-based policymaking is not like evidence-based medicine, so how far should you go to bridge the divide between evidence and policy?

[Paul Cairney](#)  & [Kathryn Oliver](#)

[Health Research Policy and Systems](#) 15, Article number: 35 (2017) | [Cite this article](#)

The “evidence-policy gap” is the gap between “the production of evidence by scientists and its use by policymakers”

from 126 health policy studies published from 2000–2012. The most frequently-reported barriers relate to problems with disseminating high quality information effectively, namely the lack of time, support, resources and incentives for scientists to engage in dissemination. These studies suggest that scientific evidence is often not presented at the correct time and scientists are unable to anticipate a demand for information to solve a very specific problem quickly.

from 126 health policy studies published from 2000–2012. The most frequently-reported barriers relate to problems with disseminating high quality information effectively, namely the lack of time, support, resources and incentives for scientists to engage in dissemination. These studies suggest that scientific evidence is often not presented at the correct time and scientists are unable to anticipate a demand for information to solve a very specific problem quickly.

Poor understanding of
research (by policy makers)

Poor understanding of policy
making (by researchers)

Bounded
rationality

MANY
stakeholders

Rapid shifts in
attention

Government
“Niches”

The role of
pathos in policy

The shortcomings of
research (incomplete,
conflicting, etc)

These are just the
tip of the iceberg!



from 126 health policy studies published from 2000–2012. The most frequently-reported barriers relate to problems with disseminating high quality information effectively, namely the lack of time, support, resources and incentives for scientists to engage in dissemination. These studies suggest that scientific evidence is often not presented at the correct time and scientists are unable to anticipate a demand for information to solve a very specific problem quickly.

Come back for Workshop #3 on Policy Making

Understand policy-making theory
Ex: The policy cycle is an old model, now we use the policy environment (i.e. policy on health equity)

Bounded
rationality

MANY
stakeholders

The role of
pathos in policy

The shortcomings of
research (incomplete,
conflicting, etc)

Play the long game!:
Become a *trusted* stakeholder in a
specific niche

References

1. Teresa Janevic et al. The influence of structural racism, pandemic stress, and SARS-CoV-2 infection during pregnancy with adverse birth outcomes, *American Journal of Obstetrics & Gynecology MFM*, Volume 4, Issue 4, 2022, 100649, ISSN 2589-9333, <https://doi.org/10.1016/j.ajogmf.2022.100649>.
2. "Black Women over Three Times More Likely to Die in Pregnancy, Postpartum than White Women, New Research Finds." *PRB*, <https://www.prb.org/resources/black-women-over-three-times-more-likely-to-die-in-pregnancy-postpartum-than-white-women-new-research-finds/>.
3. Kaplan, Emily Kumler. "Reducing Maternal Mortality." *The New York Times*, The New York Times, 5 Mar. 2019, <https://www.nytimes.com/2019/03/05/well/family/reducing-maternal-mortality.html>.
Report from Maternal Mortality Review Committees: A View into Their ...
<https://www.cdcfoundation.org/sites/default/files/files/MMRIAREport.pdf>.
4. "Summing up Science and Society - Understanding Science." *Understanding Science - How Science REALLY Works...*, 13 Sept. 2022, <https://undsci.berkeley.edu/understanding-science-101/science-and-society/summing-up-science-and-society/#:~:text=Society%20helps%20determine%20how%20its,topics%20that%20will%20serve%20society>.
5. "The Shameful Facts about Maternal Deaths in America." *The New York Times*, The New York Times, 25 Nov. 2018, <https://www.nytimes.com/2018/11/25/opinion/letters/maternal-deaths.html>.
6. Cairney, P., Oliver, K. Evidence-based policymaking is not like evidence-based medicine, so how far should you go to bridge the divide between evidence and policy?. *Health Res Policy Sys* 15, 35 (2017). <https://doi.org/10.1186/s12961-017-0192-x>

Thanks!

Questions, Comments, Feedback?

HF: hrf4002@med.cornell.edu

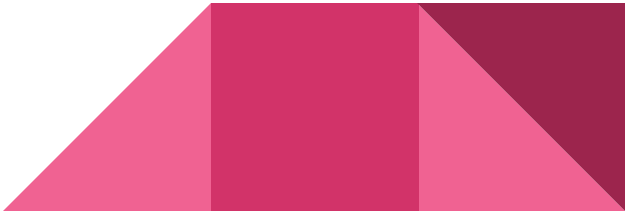
AP: acp4001@med.cornell.edu

LZ: lori.zomback@downstate.edu

AIM: aimgraduatehealthprofessional@gmail.com

Extra Slides

Common Questions (Answers in comments)

- What is the difference between Sensitivity and PPV? When is each beneficial? What affects PPV/NPV?
 - When do you calculate OR vs RR?
 - What is the difference between AR and ARR?
 - What is the +LR and -LR and when do you use them?
- 

Truth
Outcome

a	b
c	d

Test outcome

PPV = $a/(a+b) \rightarrow$ given a + test, what is likelihood you have dz?

NPV = $d/(c+d) \rightarrow$ given a - test, " " " "

OR = $\frac{ad}{bc}$; case-control,
rare risk

RR = $\frac{a/b}{c/d} = \frac{ad}{cb}$; cohort, Rct, ratio of:
 $\frac{\text{risk of event in exposure group}}{\text{risk of event in non-exposure group}}$
main rat
if 95% CI crosses 1 $\Rightarrow$ not significant (ie 1.5 [0.90-2.13])

R.R. relative risk reduction
 $= 1 - RR$, relative reduction in event rate RR in exposed vs not exposed

AR = $\frac{a}{a+b} - \frac{c}{c+d}$; the risk of dz if exposure minus the risk ~~that~~ that exists w/o exposure
ie. dz incidence in exposed - dz incidence in unexposed

R.R. = $\frac{\frac{a}{a+b} - \frac{c}{c+d}}{\frac{c}{c+d}}$; actual difference in event rate in exposed vs not exposed (similar to ARR)

NNT = $1/ARR$
number needed to treat

LR = $\frac{\frac{a}{a+b}}{\frac{c}{c+d}}$; probability of pt w/ dz being +
probability of pt w/o dz being +

-LR = $\frac{1-cd}{cd}$; probability of pt w/ dz being +
probability of pt w/o dz being +

2+ categorical $\rightarrow \chi^2$
3+ continuous $\rightarrow$ ANOVA