



GLOBAL HEALTH
RESEARCH

**DESIGNS &
METHODS**

OPEN SOURCE BOOK DEVELOPMENT

OBJECTIVES

1. write a course text
2. embed videos
3. integrate quizzes
4. make it available online

REQUIREMENTS

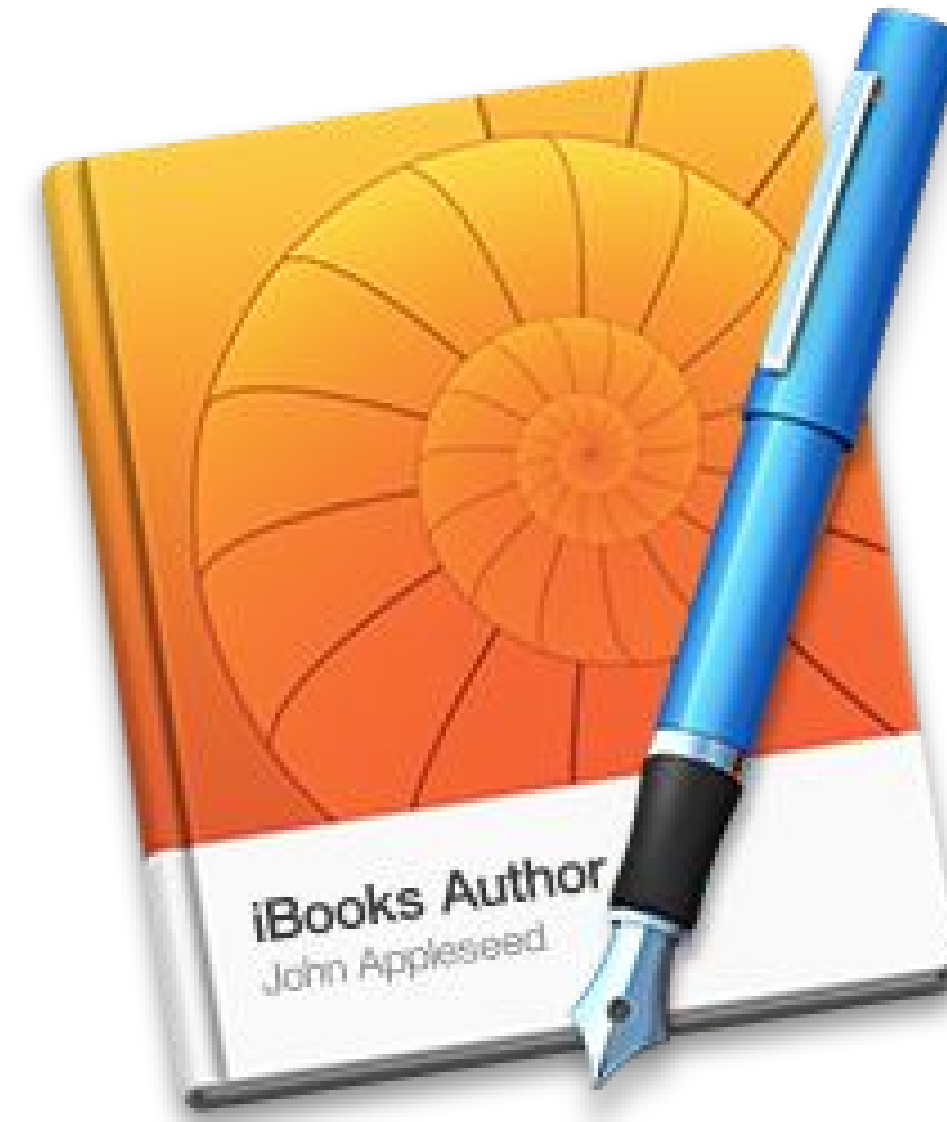
open source

one-stop-shop

easy to use

integrate code examples

kindle | direct
publishing



Leanpub



GitBook

Pros

easy to upload content as pdf

easy to access on any device

great distribution platform

Cons (for me)

currently limited support for interactive content (not iOS)

no integrated website content

clunky updating process when pushing frequent changes to book



Pros

great for interactive content

good distribution platform

Cons (for me)

layout is time consuming so
better for finished product

requires Apple device to access

no integrated website content



Leanpub

Pros

easy markdown format

connect to Dropbox and push
button publishing

publish to web, Kindle, iBooks

Cons (for me)

no interactive content

not a great experience on
mobile devices

limited styling

limited distribution network



GitBook

Pros

easy to embed video and other content through plugins

publish to web, Kindle, iBooks

easy to update, version control

Cons (for me)

limited distribution network

not smooth process for reader using mobile devices

R Markdown

from  Studio

[Get Started](#)

[Gallery](#)

[Formats](#)

[Articles](#)



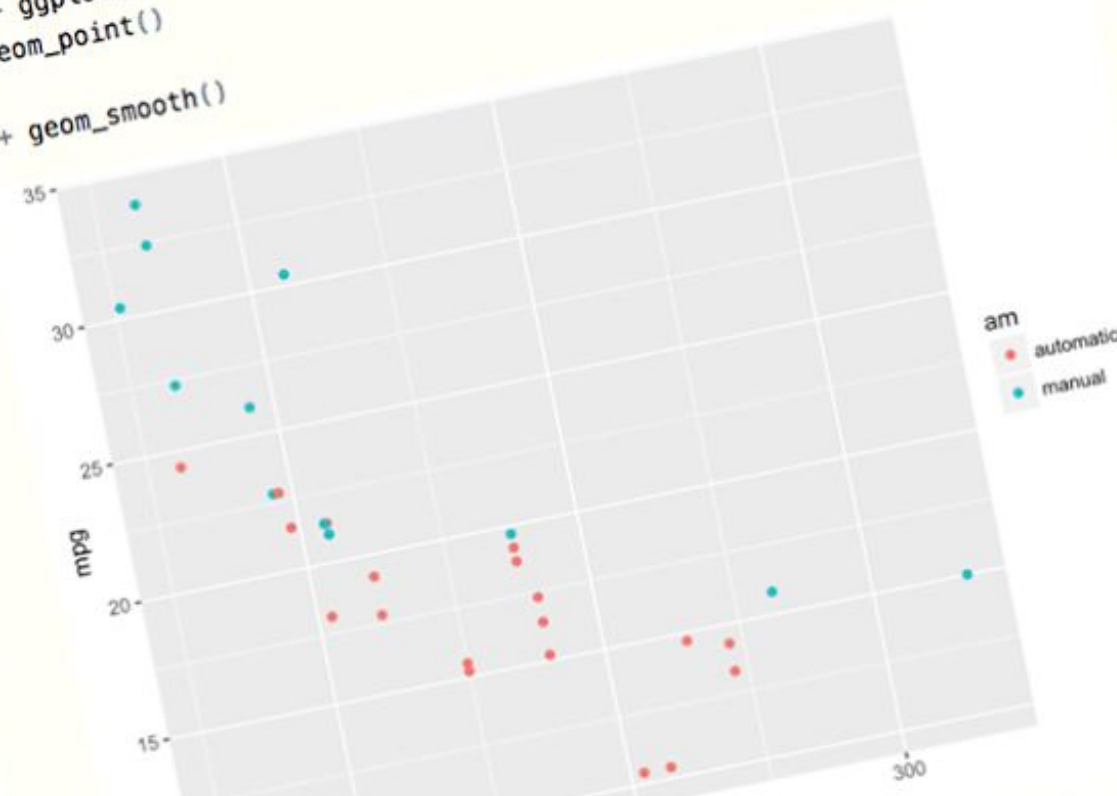
Analyze. Share. Reproduce.

Your data tells a story. Tell it with R Markdown.
Turn your analyses into high quality documents,
reports, presentations and dashboards.

More Examples

The rest of this document consists of a few test cases to make sure everything still works well in slightly more complicated scenarios. First we generate two plots in one figure environment with the chunk option `fig.show = 'hold'`:

```
p <- ggplot(mtcars2, aes(hp, mpg, color = am)) +  
  geom_point()  
p  
p + geom_smooth()
```



**all the pros of Gitbook
but a better fit with my R/Studio workflow**

Creating a seamless experience

Course Site

Github Pages with Jekyll to create static site

Modified Jekyll template

Write content in easy-to-use markdown language

Push to Github with custom domain

eBook

RStudio IDE and markdown language

Default template

Embed Qualtrics quizzes and videos

Push to Github to publish on course site

A person wearing a blue protective suit, a blue helmet with a clear face shield, and red gloves is spraying a wooden wall with a long-handled nozzle. The wall is made of woven wooden strips. The person is carrying a silver cylindrical tank on their back.

Global Health Research

Designs and Methods

This is the course website for Global Health Research Designs and Methods (GLHLTH 371 and 702) at [Duke University](#) taught by [Eric Green](#). Students enrolled in either course can



Syllabus

GLHLTH 702, Fall 2016

Course Description

This course will introduce you to research designs and methods in global health. Global health is a multi-disciplinary field, so we will consider approaches common to the behavioral and social sciences, public health, and medicine.

Our primary interest will be the study of causal inference. In global health, we are often interested in knowing what programs and interventions “work” and why. To answer questions of impact, we often turn to randomized controlled trials, a mainstay of medical research. As such, we will spend a good amount of time understanding the rationale, process, and limitations of field experiments.

Randomization is not always possible or advisable, however, and researchers must build a causal argument using non-experimental methods. We will review several approaches, consider relevant threats to causal inference, and discuss how to improve non-



Schedule

Fall 2016

Jump:	Mod 1	Mod 2	Mod 3	Mod 4	Mod 5	Mod 6	Mod 7
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Welcome

First class on August 30. Please review the syllabus prior to class.

Module 1 - The Big Picture

Class Sessions

Date	Session	Required	In-class
Sept 1	1.1 Module Overview		RA
Sept 6	1.2 Research 101	GHR, CH1	AA

Homework



Research 101

Session 1.2

About this Session

In this session we'll review the fundamentals of scientific research from a global health perspective. You'll begin to identify your particular research interests (if unknown) and discover where these interests fit in the larger landscape of global health.

Session Learning Objectives

Learning Objectives-CH01 : Share

Global Health Resesearch: Designs and Methods by Eric Green | Chapter 1 Learning Objectives

Module	Chapter	LO	Objective
1	1	1.1	Define scientific research
1	1	1.2	Describe the main characteristics of scientific research and its primary
1	1	1.3	Define deductive and inductive reasoning and distinguish between

Share

[Download as PDF](#)

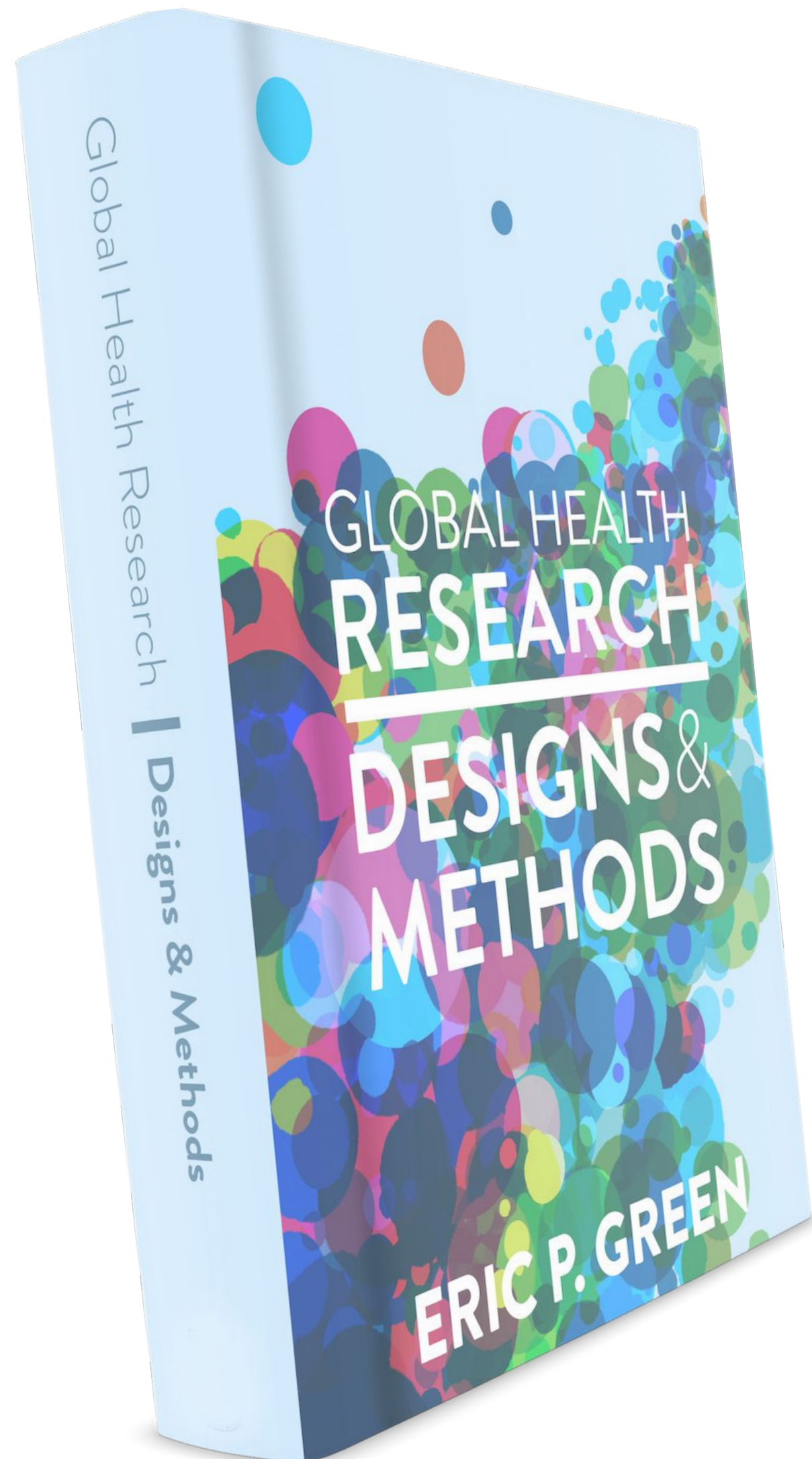
In-Class Activities

Pre-class prep	None
Template	Google Doc
Submission	Share with designsandmethods@

Automatic from Google sheet

ONLINE BOOK

can cross-publish to Kindle and iBooks, but just serving to website during development



Research 101	Qualitative and mixed
Searching the literature	Observational designs
Critical appraisal	Quasi-experimental
Cause and effect	Experimental designs
Theory of change	Planning a study
Measurement	Dissemination
Sampling and power	Policy impact
Quantitative methods	

Preface

About this Book

Organization

Icons

Acknowledgements

Colophon

1 Research 101**1.1** Scientific Research**1.2** The Fundamentals

Test Yourself

2 Searching the Literature**2.1** Start with Systematic Reviews a...**2.2** Devising a Search Strategy**2.3** For the Love of Everything Holy ...**3 Critical Appraisal****3.1** Be Skeptical of News Reports a...

Global Health Research: Design and Methods

*Eric P. Green***2016-08-26**

Preface

Does the world really need another book about research methods? I think so. But I spent a fair amount of time writing down the ideas in this book, so I'm biased. But here's my rationale.

I went to graduate school for clinical psychology, and my classmates and I read all of the classic psychology texts on research design and methods. Books like “Experimental and Quasi-Experimental Designs for Generalized Causal Inference” by Shadish, Cook, and Campbell (2003). I still remember staying up late trying to memorize all of the different threats to internal validity outlined by Donald Campbell and colleagues. Meanwhile, across campus, my econ colleagues were reading the ideas of another Donald—Donald Rubin and what is now known as Rubin's causal model. But I didn't know

1.1 Scientific Research

1.2 The Fundamentals

Share Feedback

Test Yourself

Part II: How to be a Better Consumer...

2 Searching the Literature

2.1 Start with Systematic Reviews a...

2.2 Devising a Search Strategy

2.3 For the Love of Everything Holy ...

Share Feedback

Test Yourself

3 Critical Appraisal

3.1 Be Skeptical of News Reports a...

3.2 Peer-Reviewed Does Not Mean ...

3.3 How to be a Good Consumer of ...

Additional Resources

Share Feedback

Test Yourself

Part III: Causal Impact and Theories ...

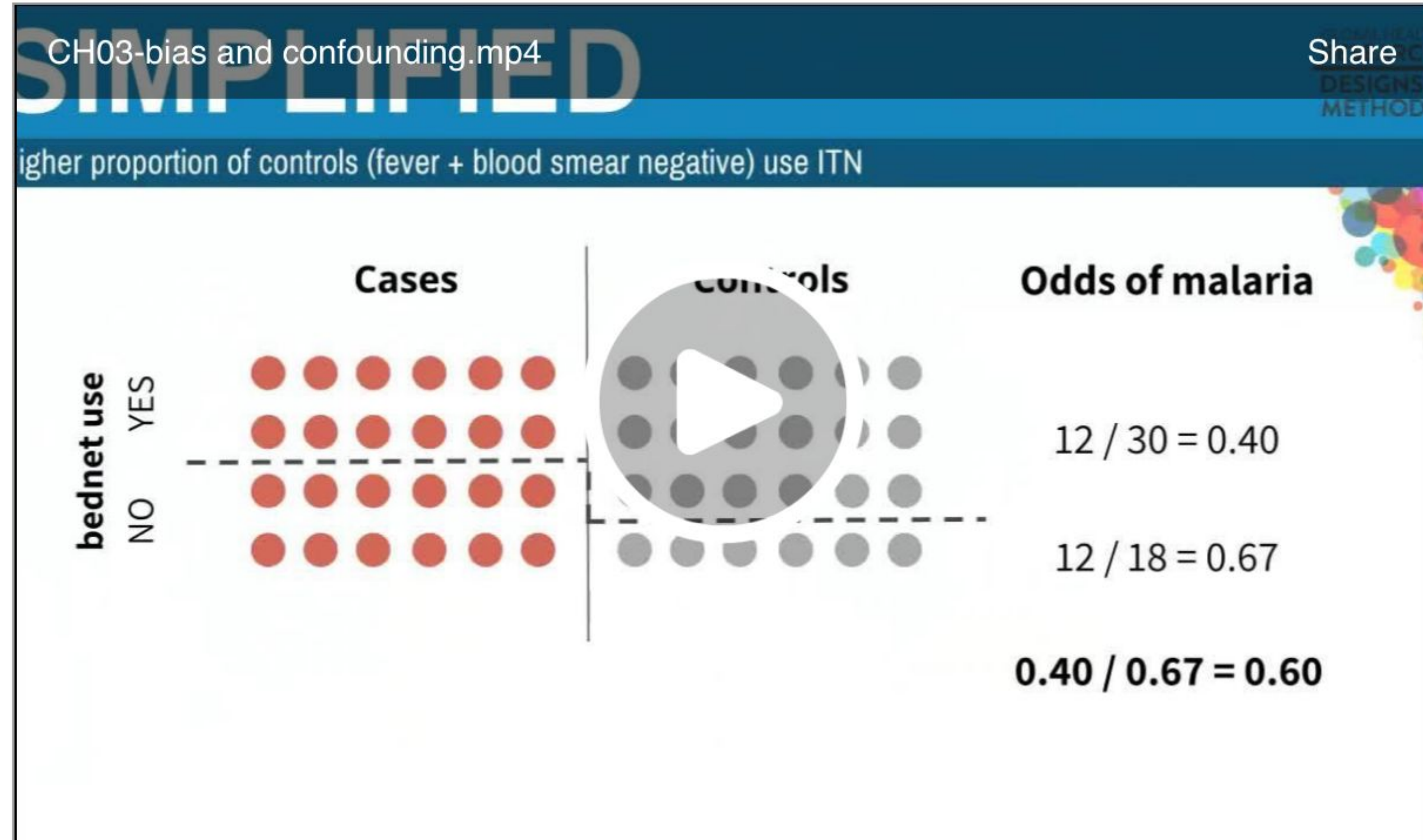


Embed videos and links

Is there a risk of bias and confounding?



Risk of bias and confounding ([PDF slide deck](#))



Some study designs are better than others *in theory* because of their ability to address potential bias when conducted properly. As we discussed in [Chapter 1](#), the goal of scientific research is inference and we must live with some error and uncertainty. As a consumer of research, you have to accept this as fact and assess the extent to which a study's design and methods might lead us away from the "truth".

1.1 Scientific Research

1.2 The Fundamentals

Share Feedback

Test Yourself

Part II: How to be a Better Consumer...

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3.1 Be Skeptical of News Reports a...

3.2 Peer-Reviewed Does Not Mean ...

3.3 How to be a Good Consumer of ...

Additional Resources

Share Feedback

Test Yourself

Part III: Causal Impact and Theories ...



Embed Qualtrics quizzes

Test Yourself

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100%

Duke UNIVERSITY



What's the main difference between EBM and EBP?

You can only do EBM in a hospital; you can do EBP anywhere.

In EBM you have to diagnose a patient before anything else; in EBP you talk to the patient first before anything else.

11:25 AM designsandmethods.com

Share Feedback

Test Yourself

3 Critical Appraisal

3.1 Be Skeptical of News Reports and Pres...

3.2 Peer-Reviewed Does Not Mean Correct

3.3 How to be a Good Consumer of Research

Additional Resources

Share Feedback

Test Yourself

Part III: Causal Impact and Theories of Chan...

4 Cause and Effect

4.1 Fundamental Challenge of Causal Infer...

4.2 Threats to Internal Validity

4.3 Research Designs to Estimate Causal I...

Share Feedback

5 Theory of Change

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2. A
3. A
4. A

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3 Critical Appraisal

Scholars in every discipline have their own ways of reading and evaluating the literature. In medicine, this process is called **critical appraisal** and it's part of a larger approach called **evidence-based medicine (EBM)** or, more generally, **evidence-based practice (EBP)**.

In EBM, the goal is to integrate the best available evidence with clinical judgment and context, such as a patient's preferences and values. Sackett (1996) offers a more formal definition:

The conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research.

1. A
2. A
3. A
4. A

11:26 AM designsandmethods.com

Easy to read on mobile web

0%

Duke UNIVERSITY

GLOBAL HEALTH RESEARCH DESIGNS METHODS

READING QUESTION

What's the main difference between EBM and EBP?

You can only do EBM in a hospital; you can do EBP a

In EBM you have to diagnose a patient before anything patient first before anything else.