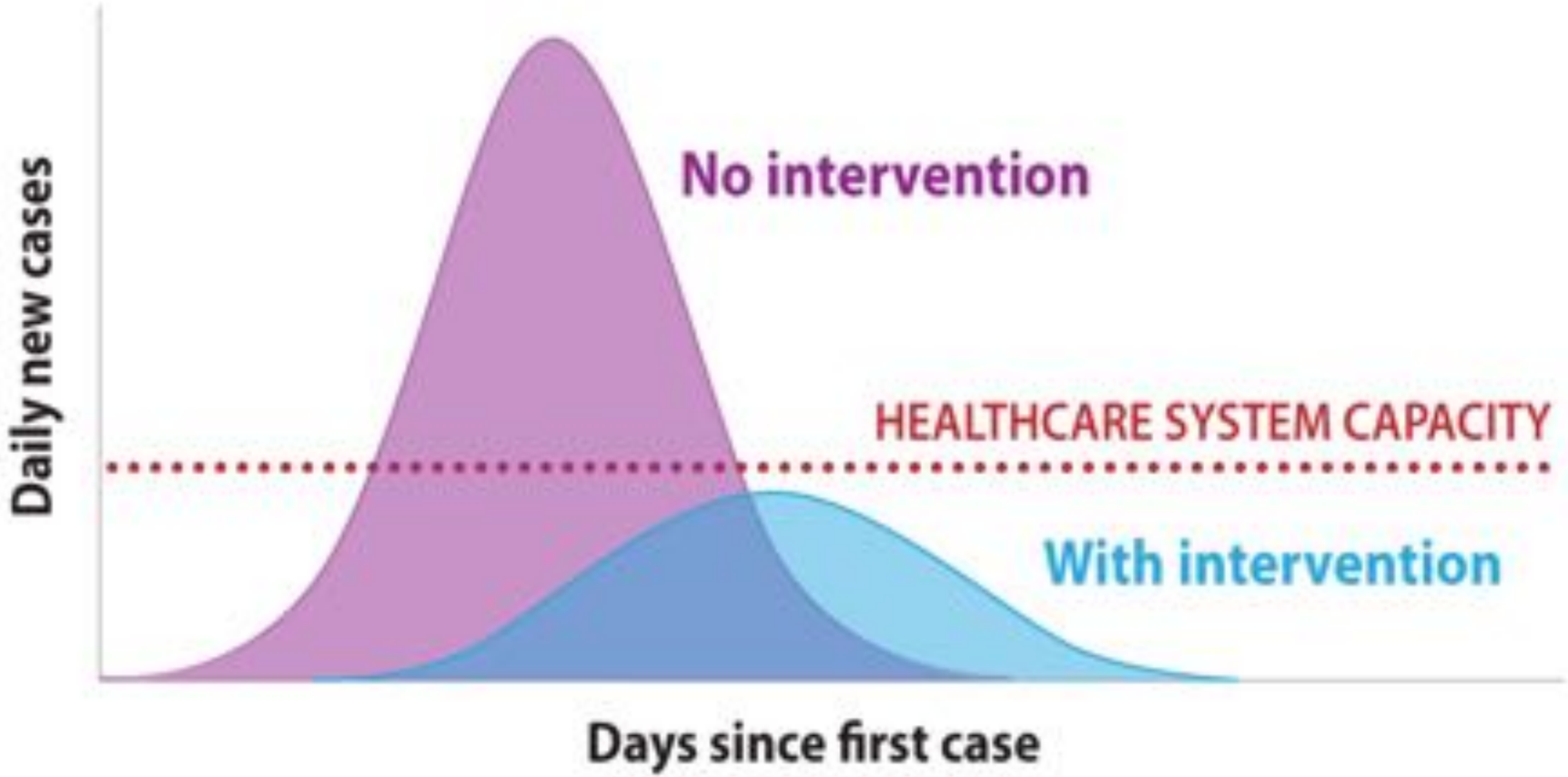
Data & Storytelling

Bonus Slides for Nov 2024 Cohort

Nov. 19, 2024

FLATTENING THE CURVE

A look at the importance of slowing the spread of a virus, so that the rate of infection doesn't outpace the resources to fight against it.



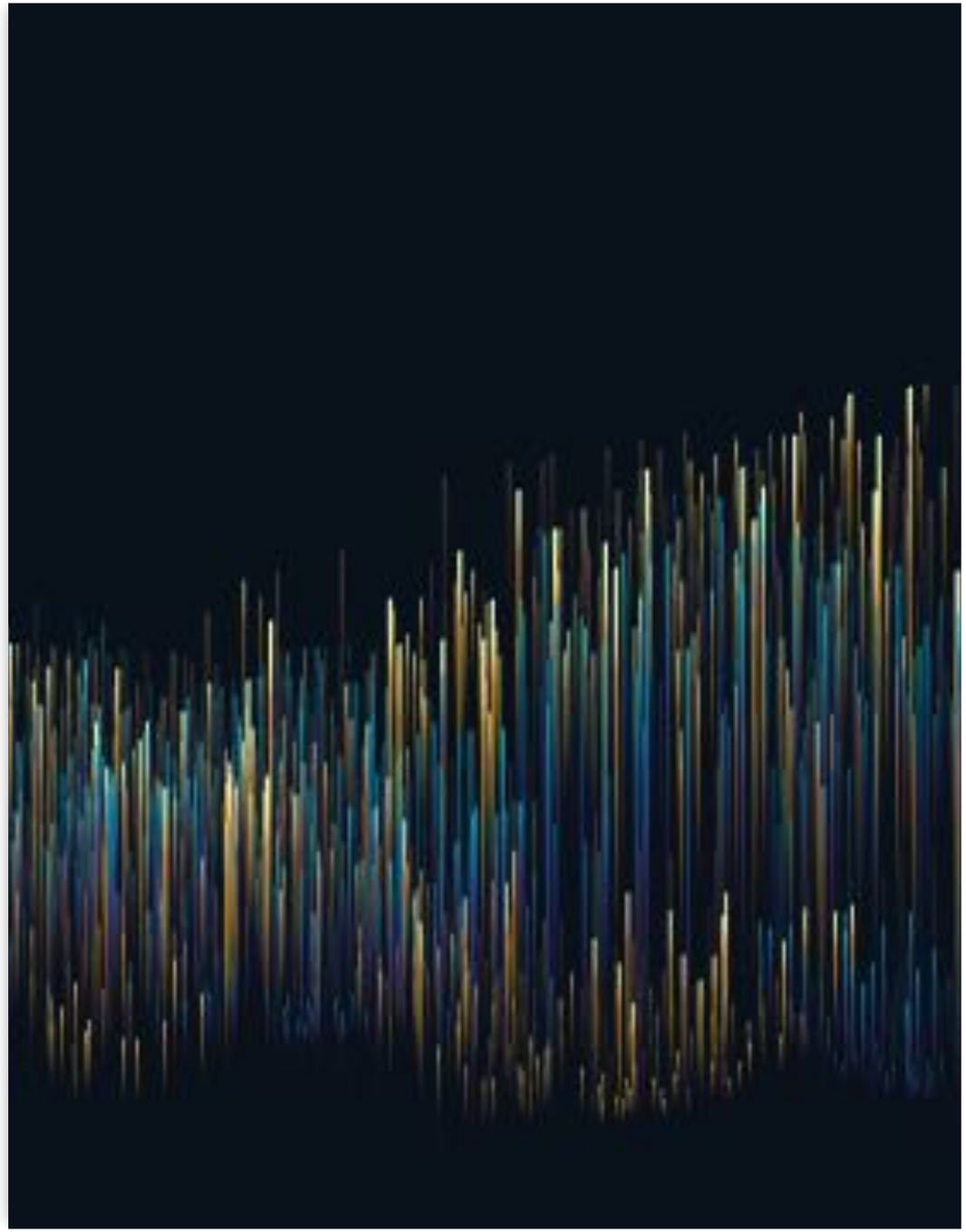
SOURCE: CDC

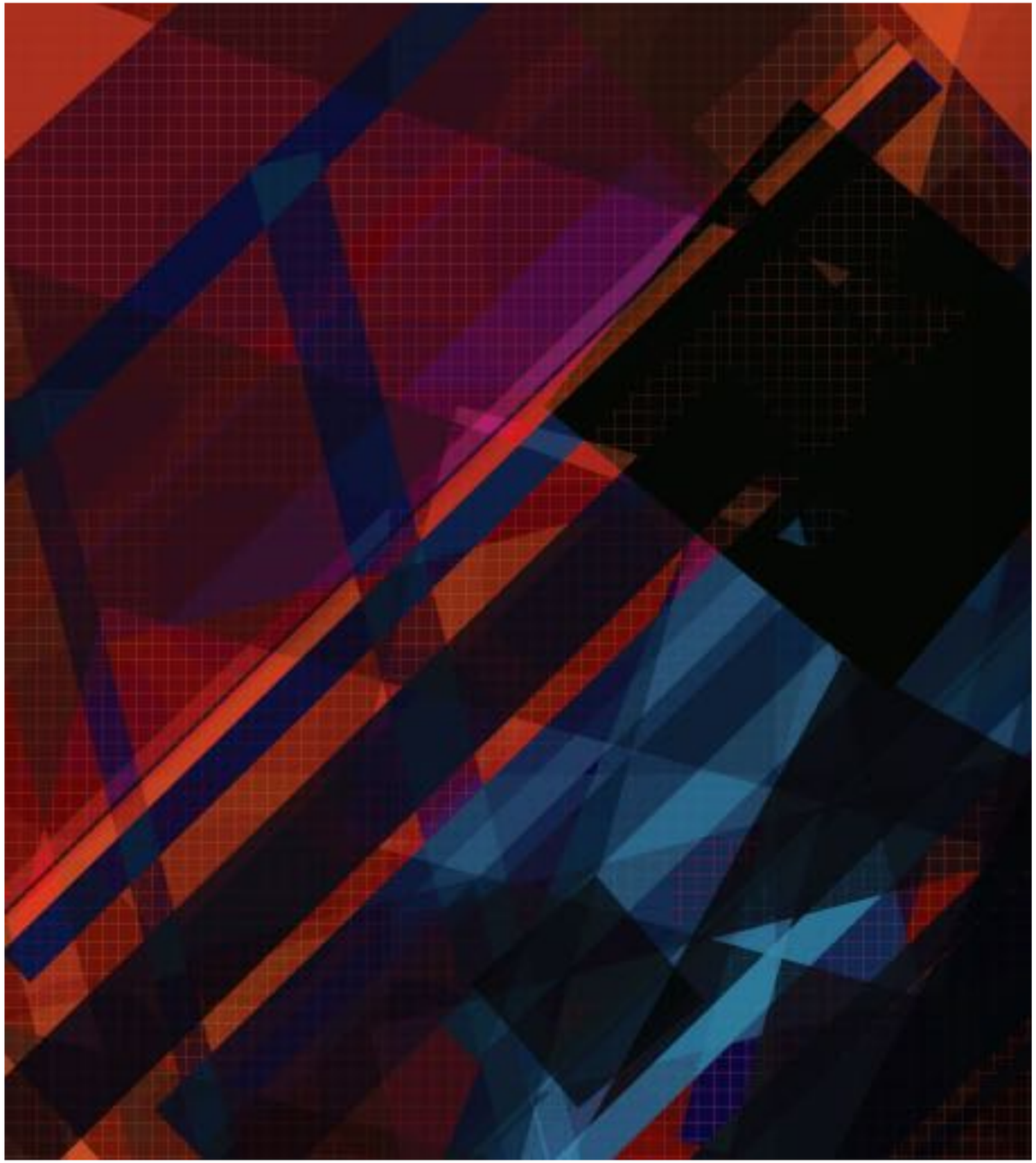
THE CANADIAN PRESS


Why Do You Want to
Tell Stories?

Some reasons to tell stories

- Explain
- Persuade
- Build trust





What is hard about briefing up?

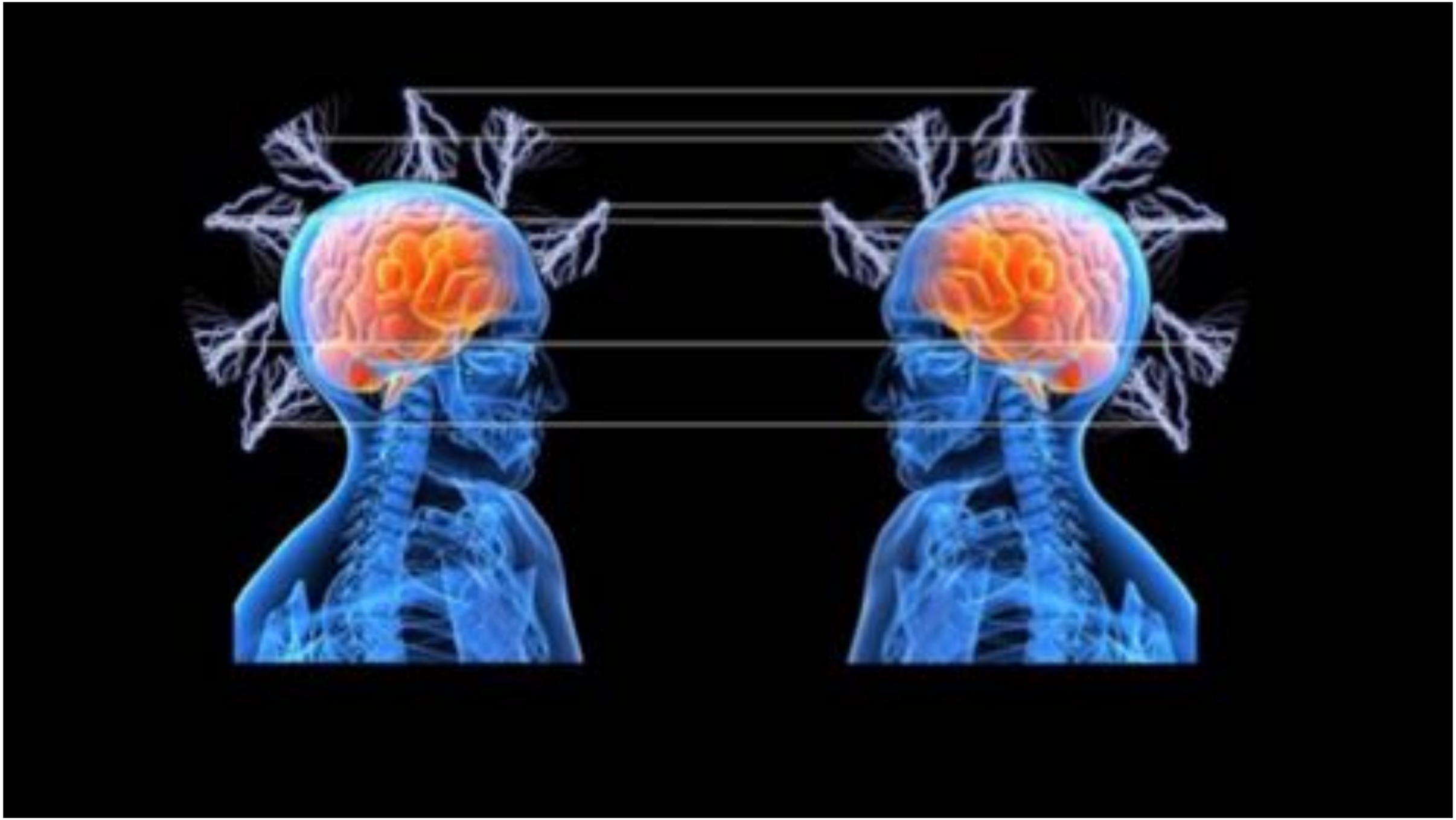
Being succinct without omitting key details?

What do you wish Senior Management Knew

- How are things going?
- Something new or interesting ?
- Something problematic or unfair?


Why Does
Storytelling Work?

Humans think in stories




Start with your
Audience

What are they buying?

Confidence

- Peace of mind that they are making the right decision.

Opportunity

- Chance to be the "hero" in their own story.

Foresight

- Early warning of risks.

Understanding Your Storytelling Context

- Who are your audiences?
- What are their needs?
- What are they seeking?
- Why are they seeking this?
- What decisions do they need to make?

Understanding Your Storytelling Content

- What data and analysis can you provide?
- (Why is data visualization and data storytelling important to you?)


Data Storytelling

[online.hbs.edu/blog/post/data-storytelling, C. Cote]

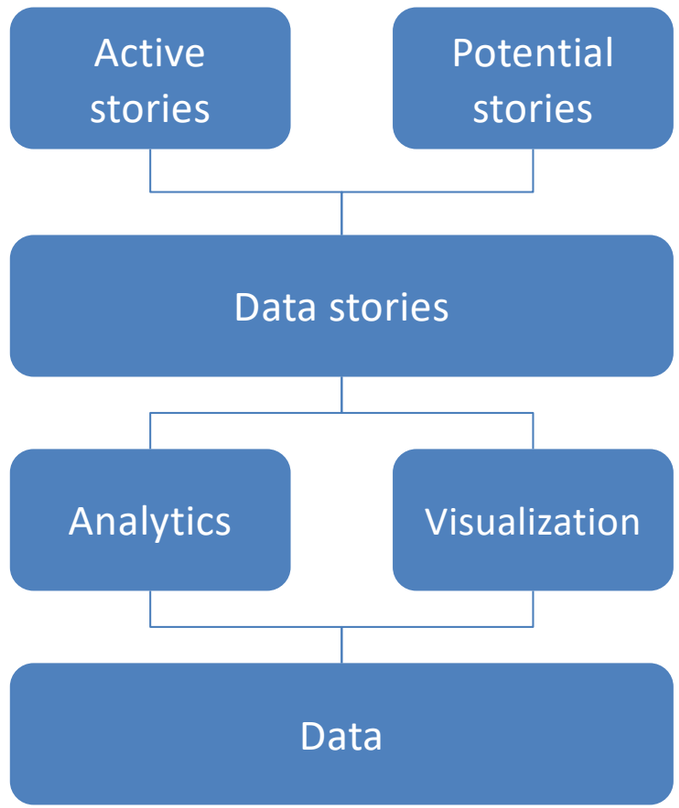
What is Data Storytelling?

- **Data storytelling** is the ability to effectively communicate insights from a dataset using narratives and visualizations. It can be used to put data insights into context for and inspire action from your audience (Catherine Cote).

- There are 3 key components:
  1. **data:** foundation of data story (descriptive, diagnostic, predictive, prescriptive analysis)
  2. **narrative:** storyline used to communicate the insights gleaned from data and context, and recommended actions
  3. **visuals:** representations of data, analysis results, and narratives, which are used to communicate stories clearly and memorably (charts, graphs, diagrams, pictures, or videos)

What is a Data Story?

- **Data stories** help us successfully explain the actual stories that exist, or to articulate stories we want to tell.
- (Note that we might not have all the data required to do this.)

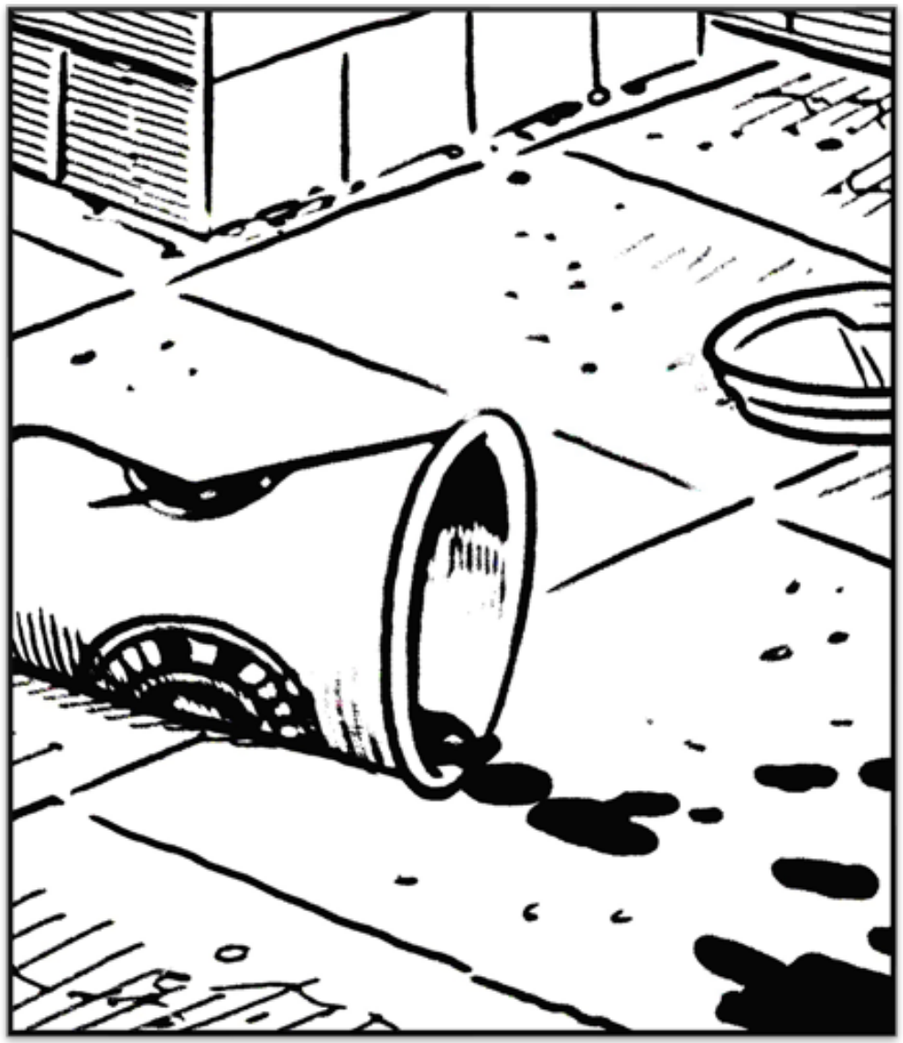


Scoping - Exploration - Explanation - Persuasion

- When working with data, we do analysis and create visualizations at **multiple stages** in the process.

- This is reminiscent of the process behind **investigative journalism**:
  1. initially, we **scope out** the area of investigation (data collection, story);
  2. then we **explore** the situation and then **explore** the data we have collected about it
  3. we may use the outcome of this exploration to **explain** the situation to our satisfaction;
  4. and/or to **persuade** others about some course of action that should be taken with respect to the situation.

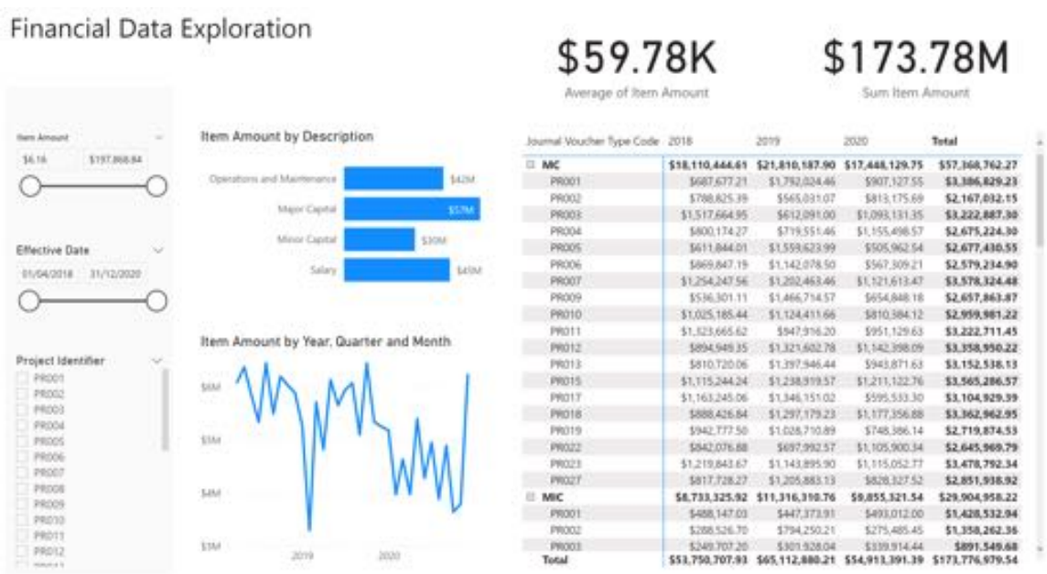
[S. McCloud, *Making Comics*]



When it comes to communication, visualizations are the illustrations to your story, not the story itself.

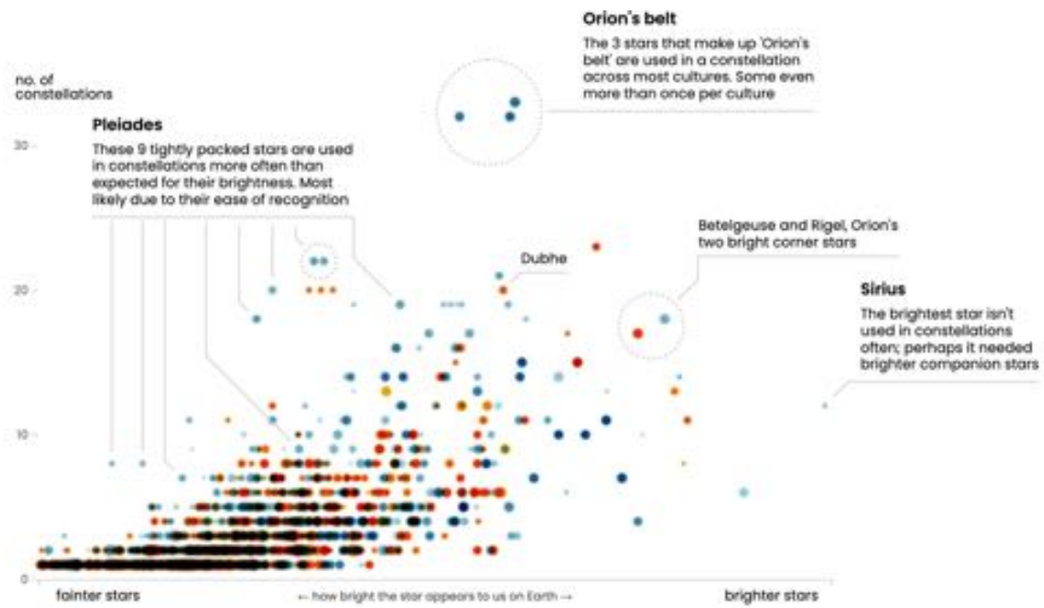
Exploration - Situational Awareness - Storybook

- **Exploration:** using visualizations as a tool to explore data
  - high level of interactivity
  - high level of detail
  - **all** aspects of data should be represented (tables, columns, calculations etc.)
  - no annotations or explanations required



Exploration - Situational Awareness - Storybook

- **Storybook:** using visualizations as a tool to explain data
  - low level of interactivity
  - low level of detail
  - key aspects of data should be represented
  - annotations and explanations drive the “story”



Impact of Choices When Storytelling with Data

- Data analysts have **agency.** They select:
  - the question to answer;
  - what data to collect;
  - how to clean that data;
  - which analytical method(s) to use;
  - on what part(s) of the data to focus, etc.
- This impacts the stories that **can be told** with data, relative to the stories that **could be told** about the situations and events represented by the data.

Crafting a Storyline in Your Presentation

Our Assumptions

- You've done your analysis.
- Looking to influence decision-makers.
- Facing decisions about what to include, and what to omit.

McKinsey & Company

BCG BOSTON CONSULTING GROUP

Structuring the Storyline

Situation

Why is this important?

What you need to know to understand the problem.

Complication

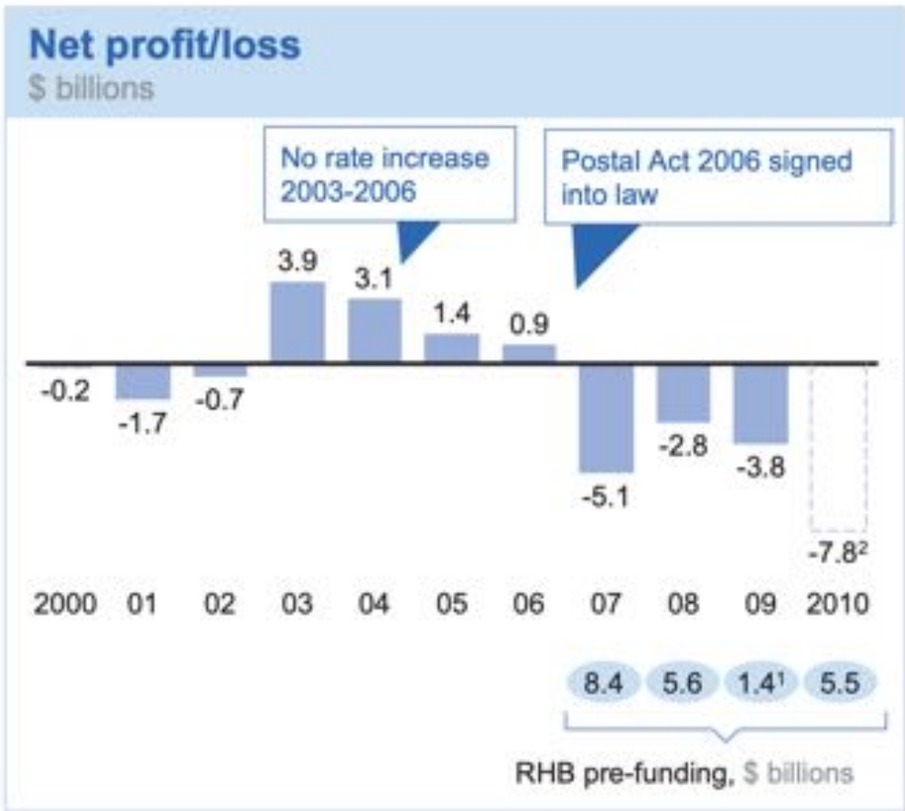
What went wrong?

Why the problem is a terrible thing

Resolution

What is the solution?

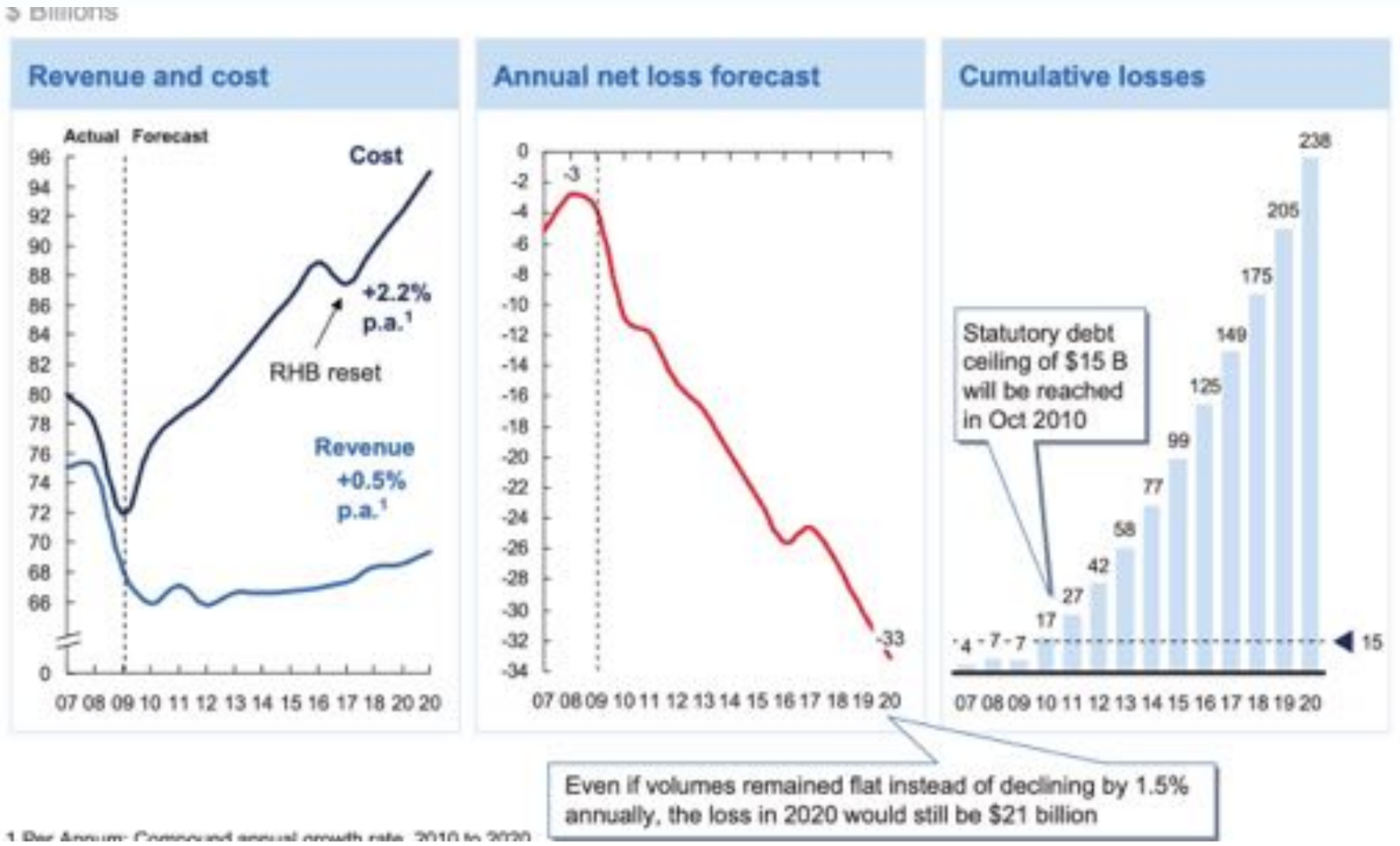
Situation: the USPS is experiencing unprecedented losses



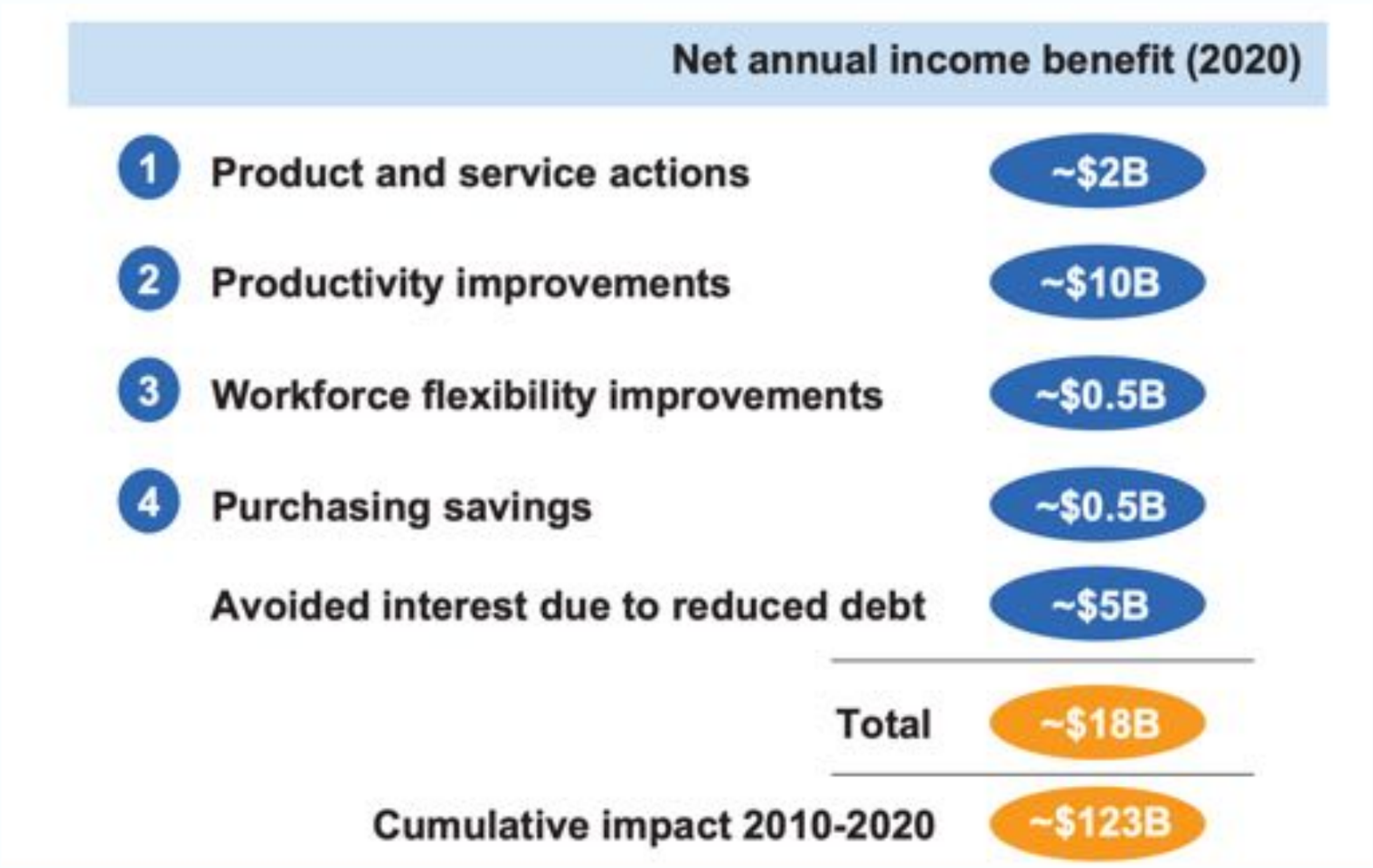
Key drivers

- Revenue declines due to:
  - E-diversion of First-Class Mail
  - Down-trading from First-Class to Standard Mail
  - Losses of advertising mail due to the recession
- RHB pre-funding requirement introduced by the PAEA
- Cost savings, while substantial, have been less than revenue declines due to high fixed costs of the network

Complication: Unless we do something, things will worsen



Resolution: There are 4 things the USPS can do



Sample Generic Structure

Situation

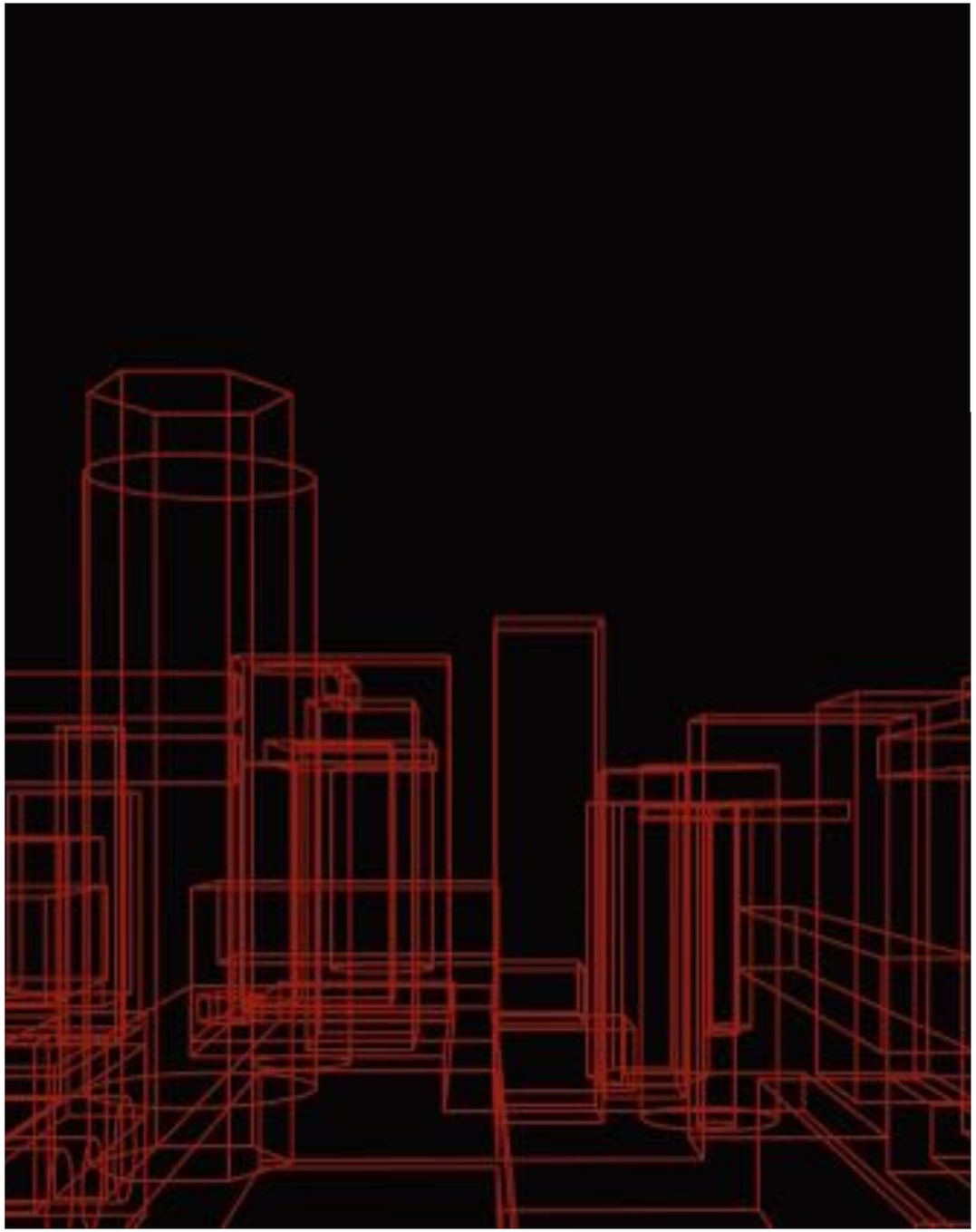
- The stable era.

Complication

- Discovery of a problem.
- Identification of root causes.
- Projected impact if root causes not addressed.

Resolution

- **Plan to solve the problem by addressing root causes.**



How to Write the Presentation

- Start in Word, not PowerPoint
- It is easier to see the storyline, and see logical connections, on a single page, instead of flipping through slides.
- Drafting is an iterative process, and Word is easier to modify.

Use the Dot/Dash Method

Dots

- Slide title
- The key statement

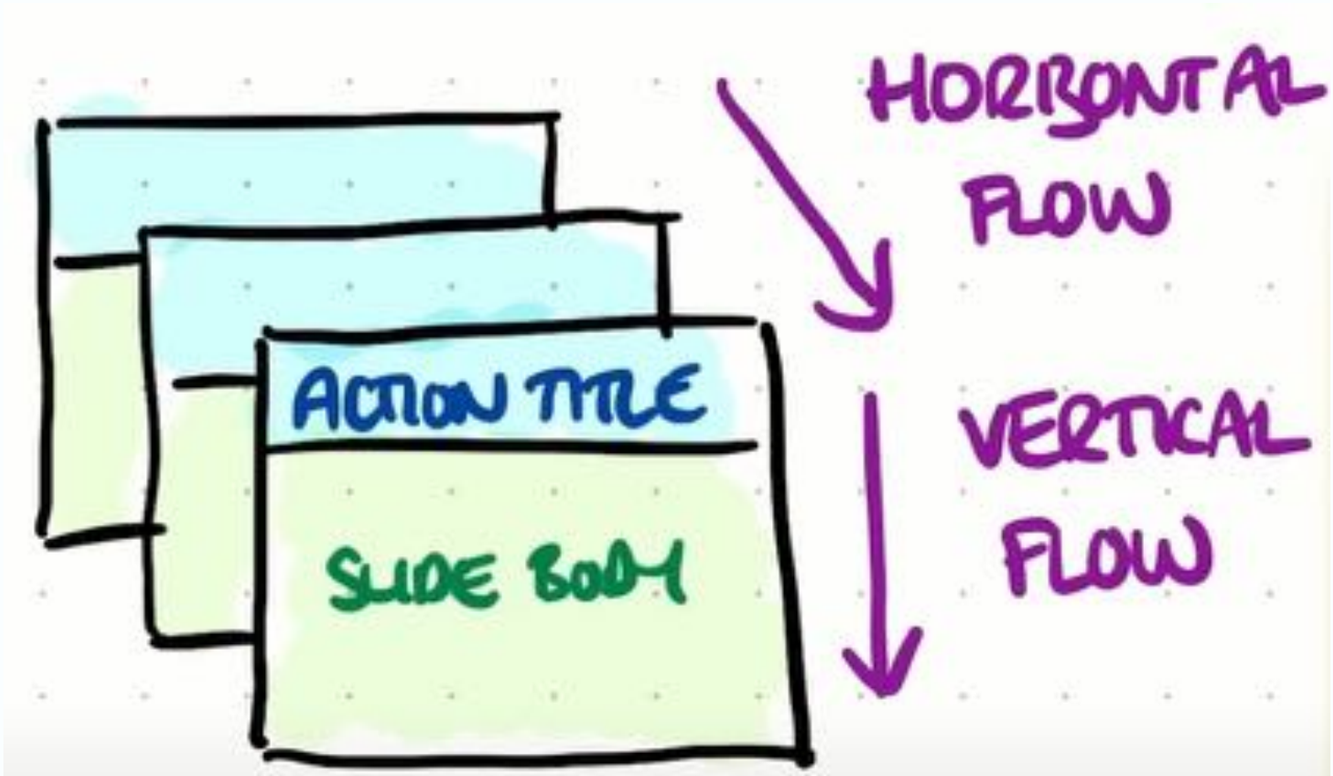
Dashes

- The supporting data

PowerPoint Skeleton

Horizontal: Can understand the argument by just reading the Title (Dots).

Vertical: Data & Visualizations (Dashes) supports the Title



How Does This Apply?

- In groups, think about your files. Can you distill one of your recent presentations into this framework?
- We want at least one dot (a title) and one dash (piece of evidence).


Storytelling
Risks

Storytelling Risks

- A good story can help shed insights on a situation, but storytelling requires **choices**, and the outcome is affected by what is **included** and what is **omitted** in the telling.
- It is easy to mislead by **accident**; it is also easy to mislead by **design**.
- With data stories, there is an additional complication: we usually only have access to the **available data**. The data that was not collected is, by definition, not available. Some of the data that was collected may also be unavailable for a variety of reasons.
- This implicit bias can lead to compelling yet **fundamentally flawed** data stories.

During WWII, mathematician **A. Wald** undertook a study to help protect British bombers flying over enemy territory.

Data included: the **number** and **location** of **bullet holes** on returning aircraft, and the goal was to use this information to determine where to add armor to best protect the plane's structure.

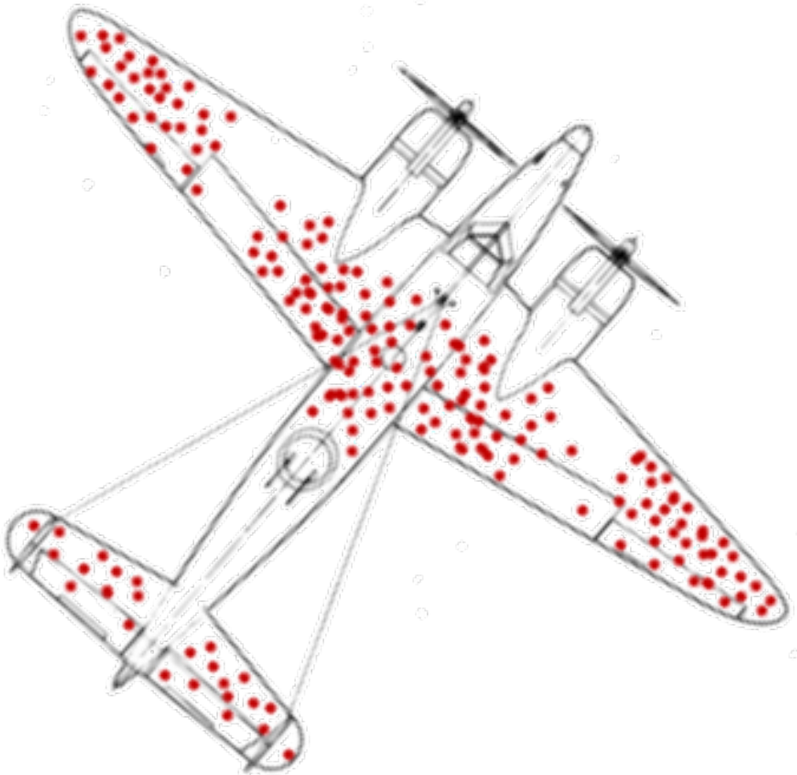
A chart was created to show where the maximum number of bullet holes were located on **returning aircraft**. This chart showed greatest damage on the **aircraft extremities**, not on the main wing and tail spars, engines, and core fuselage areas.

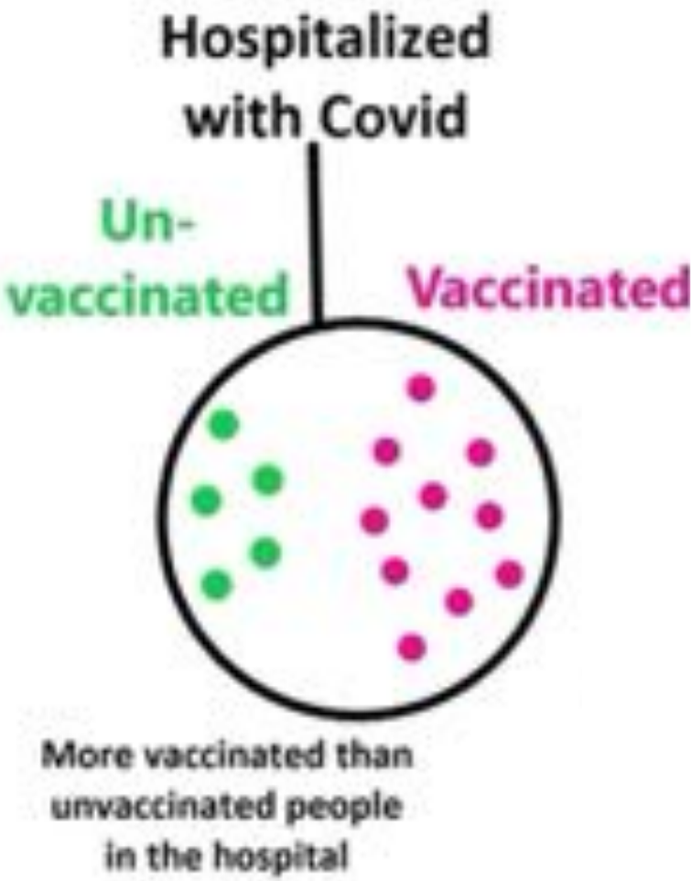
Storytelling Risks

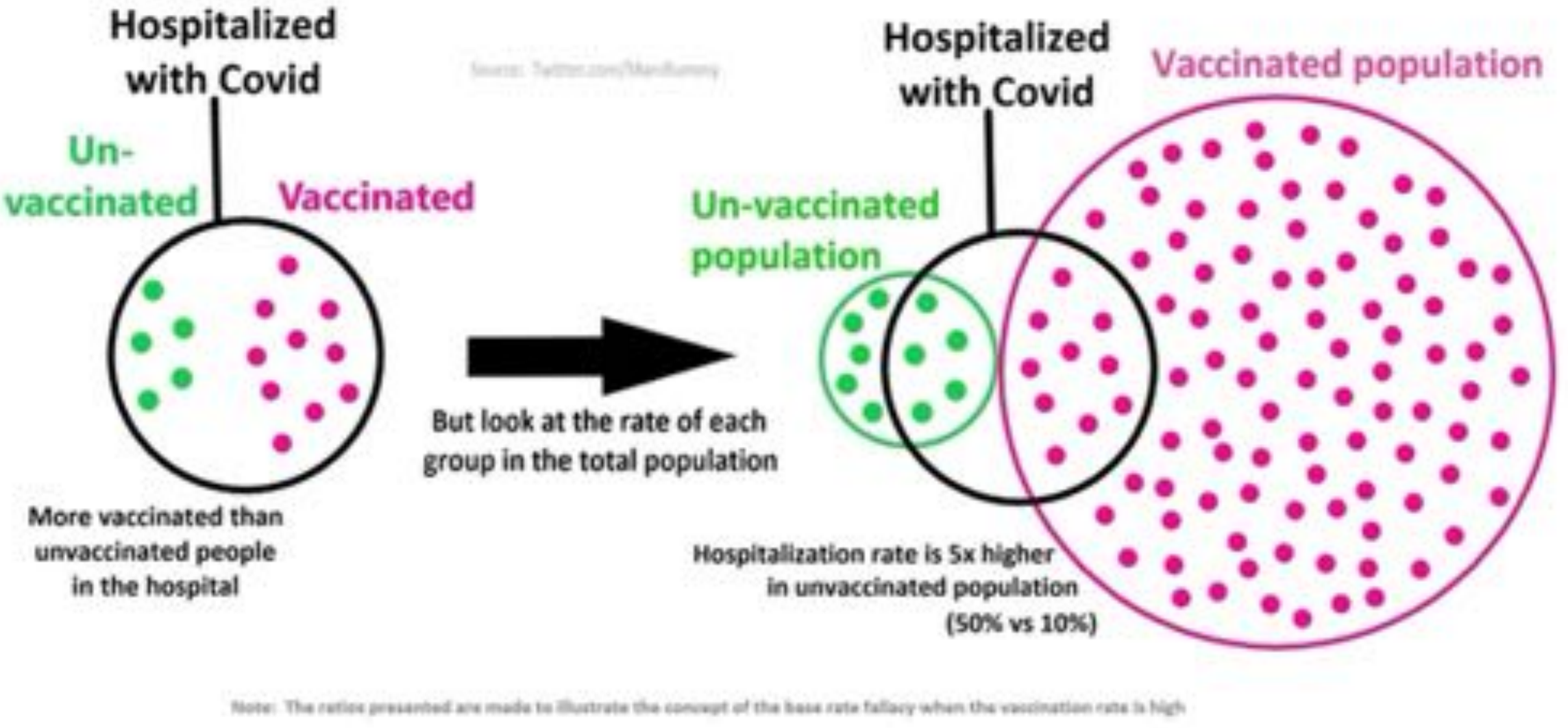
As such, the Air Ministry wanted to add armor to the **extremities**. Wald suggested they were **dead wrong**.

To avoid **“survivorship bias”,** armor should be added to the areas with the **fewest holes**: if no returning planes had holes in their wing spars and engines, then even a few holes in those locations were **deadly**.

Take-Away: the data that is missing may be as important to story than the data that is there. Storytelling is not always an obvious endeavour.




Hospitalized
with Covid
Un-
vaccinated
Vaccinated
More vaccinated than
unvaccinated people
in the hospital



Note: The ratios presented are made to illustrate the concept of the base rate fallacy when the vaccination rate is high