



Misinformation:  
Why is it a  
problem?(and what  
to do about it)


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Repetition does  
not transform a lie  
into a truth

**WRONG**

A night sky filled with stars, with a white text box in the center. The sky is dark blue and black, with many small white stars. The text box is white with black text. The bottom of the image shows the dark silhouettes of trees.

A microscope can help  
you get a good look at  
the stars.

It's hard for  
people to  
judge truth  
on their  
own

Often use unreliable  
shortcuts like repetition

Rely on quick gut-level  
reactions "does this feel true"

Vulnerable to things we want  
to believe





**Cognitive drivers**

**Intuitive thinking**

- Lack of analytical thinking and/or deliberation

**Cognitive failures**

- Neglect source cues and/or knowledge
- Forget source and/or counter-evidence

**Illusory truth**

- Familiarity
- Fluency
- Cohesion

**False beliefs**

**Socio-affective drivers**

**Source cues**

- Elites
- In-group
- Attractive

**Emotion**

- Emotive information
- Emotional state

**Worldview**

- Personal views
- Partisanship

NATIONAL  
ACADEMIES

Sciences  
Engineering  
Medicine

# Understanding and Addressing Misinformation About Science

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Consensus Study Report



# Defining misinformation

Misinformation about science is information that asserts or implies claims that are inconsistent with the weight of accepted scientific evidence at the time (reflecting both quality and quantity of evidence). Which claims are determined to be misinformation about science can evolve over time as new evidence accumulates and scientific knowledge regarding those claims advances.

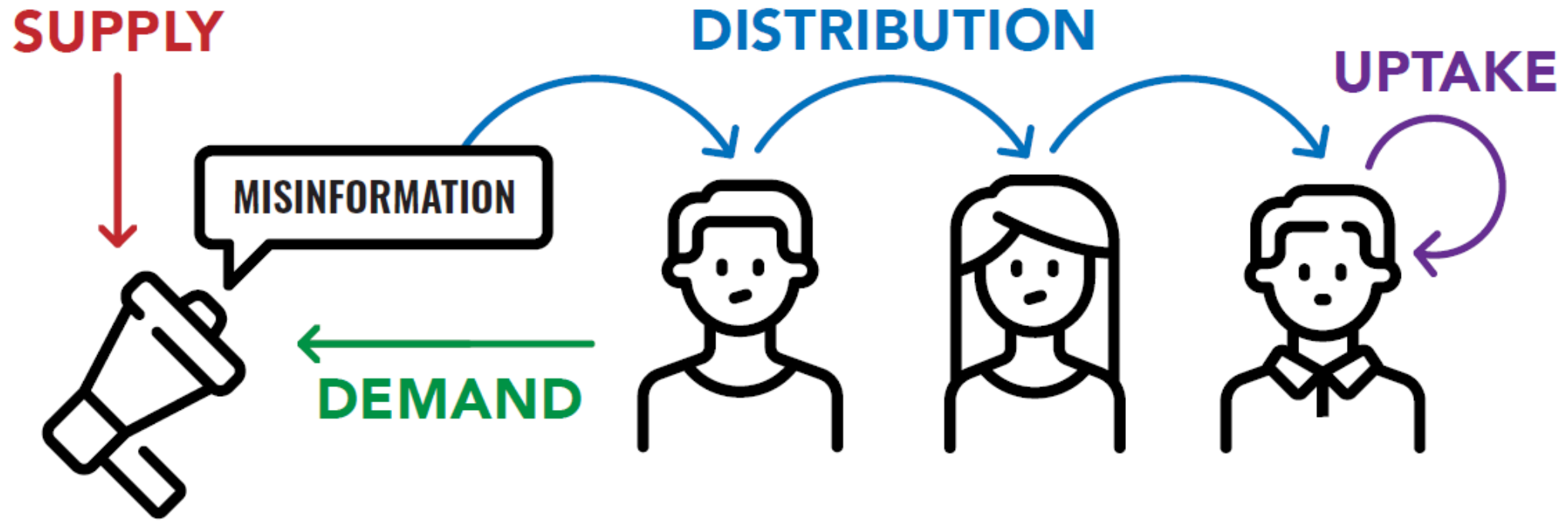


What can be done





# Four Intervention Points





It's difficult  
to correct  
false beliefs

Continued influence effect

Effects fade over time

Sometimes correction effects belief  
but not action

BUT no backfire

# Debunking handbook

[sks.to/db2020](https://sks.to/db2020)

## FACT

Lead with the fact if it's clear, pithy, and sticky—make it simple, concrete, and plausible. It must “fit” with the story.

## WARN ABOUT THE MYTH

Warn beforehand that a myth is coming... mention it once only.

## EXPLAIN FALLACY

Explain how the myth misleads.

## FACT

Finish by reinforcing the fact—multiple times if possible. Make sure it provides an alternative causal explanation.



*The*  
**Debunking  
Handbook**

2020 ...



# Inoculation

Exposure to a weakened form of misinformation...

- Neutralized misinformation
- Immunity across topics
- Post-inoculation talk

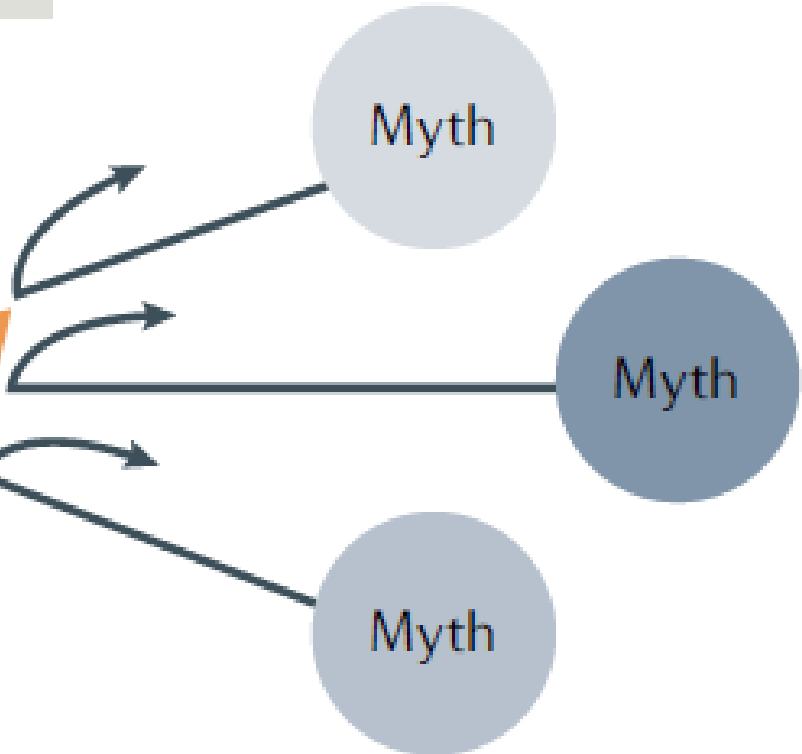
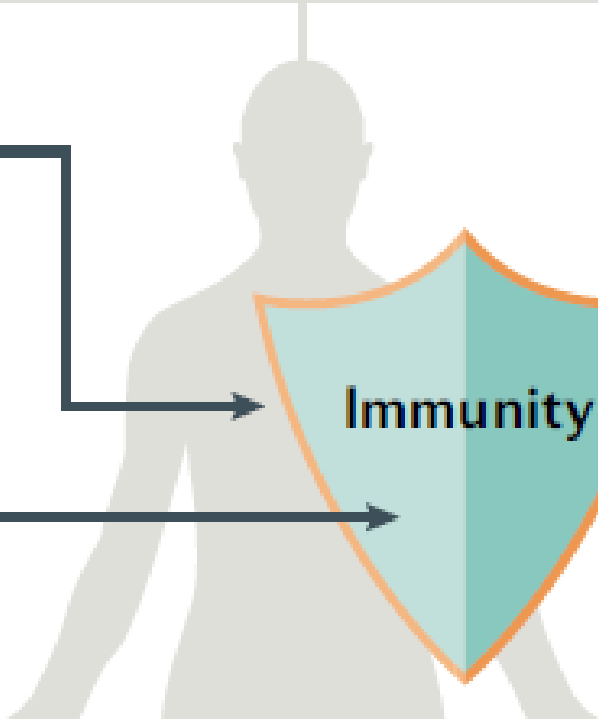
...builds immunity against later misinformation

Warning of risk of being misled



Pre-emptive refutations

- Fact-based
- Logic-based
- Source-based



# Prebunking





# There is no one solution or perfect intervention

