

Evidence and Gap Maps

An introduction

Howard White
CEO, Campbell Collaboration
With Dr. Ashrita Saran

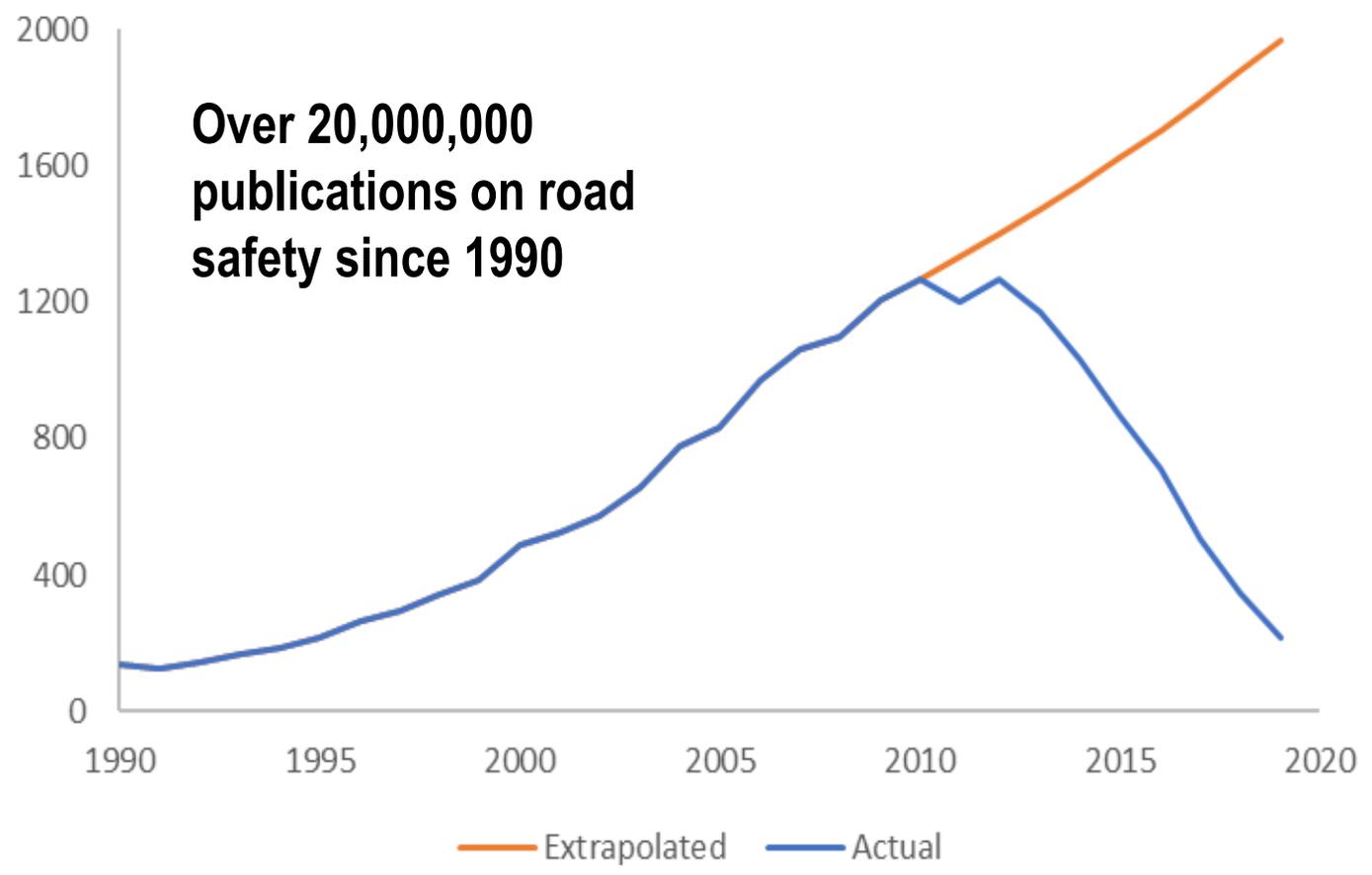
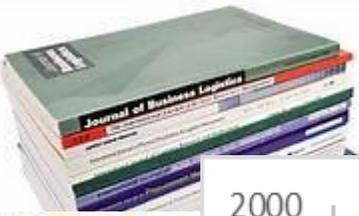
Globalising Vision Zero: Generating Scientific Evidence for the Road Ahead
Karolinska Institutet, Stockholm
18 February 2020



@campbellreviews @HowardNWhite

- In December 2018 US Congress passed the Evidence-Based Policy Making Act
- The US development NGO, International Rescue Committee (IRC), has committed to making all its programmes evidence-based or evidence-generating (by this year)
- Nearly two-thirds of schools in England use evidence from systematic reviews to decide how to spend school resources and plan classroom activities

Challenge of using evidence is information overload



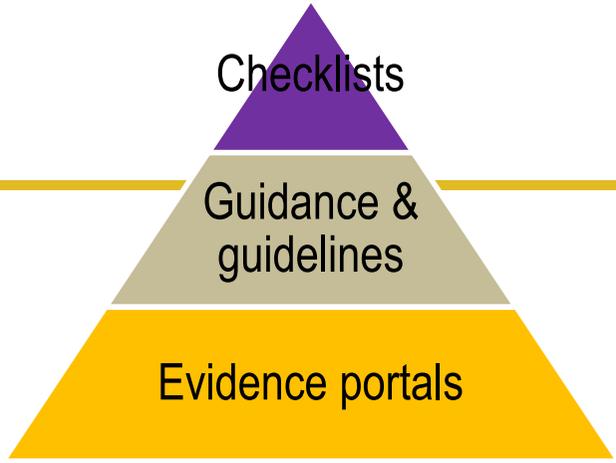


Evidence synthesis
(The systematic summary of research findings)

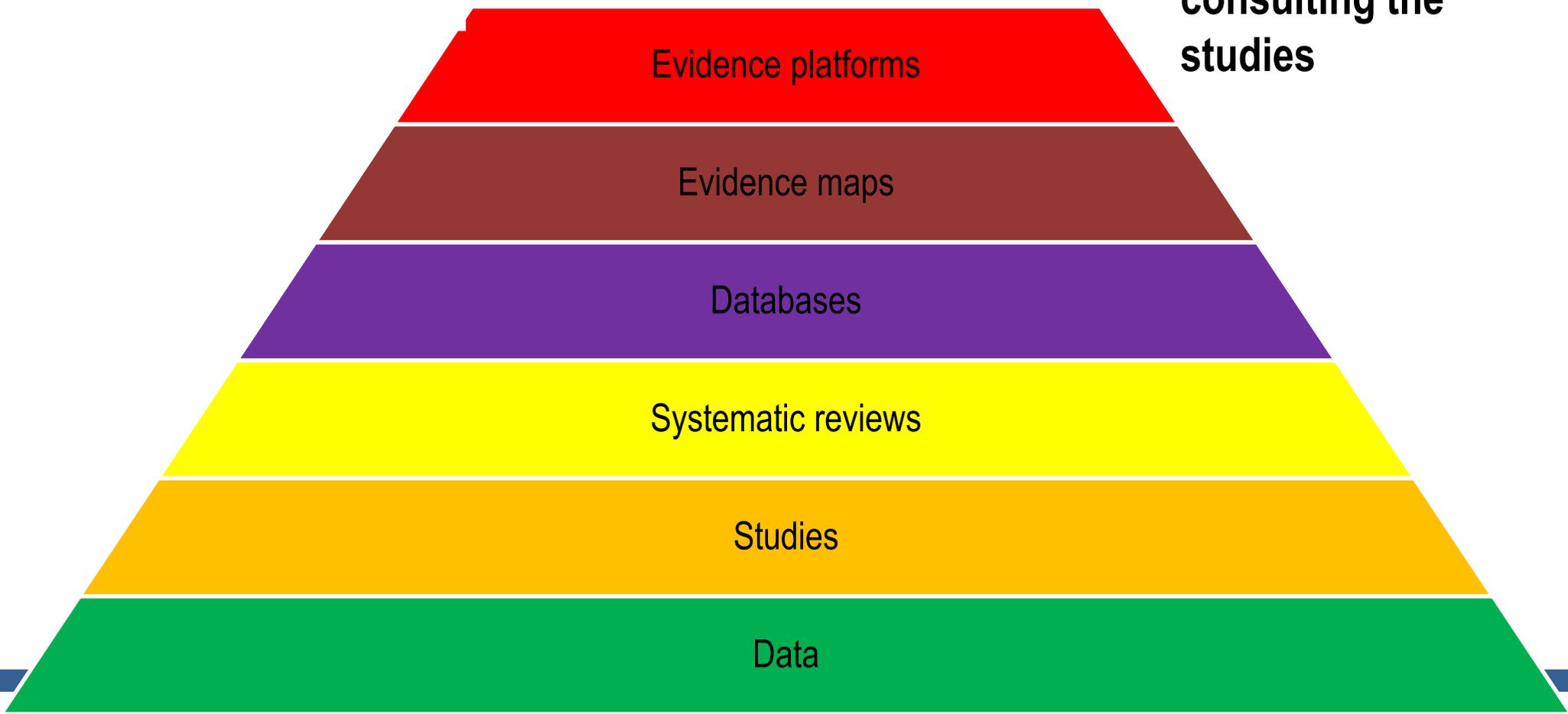
**Evidence
maps**

**Systematic
reviews**

**Evidence revolution
based on evidence-
based decision-
making tools**



**These
evidence
products
inform
decision-
making
without
consulting the
studies**

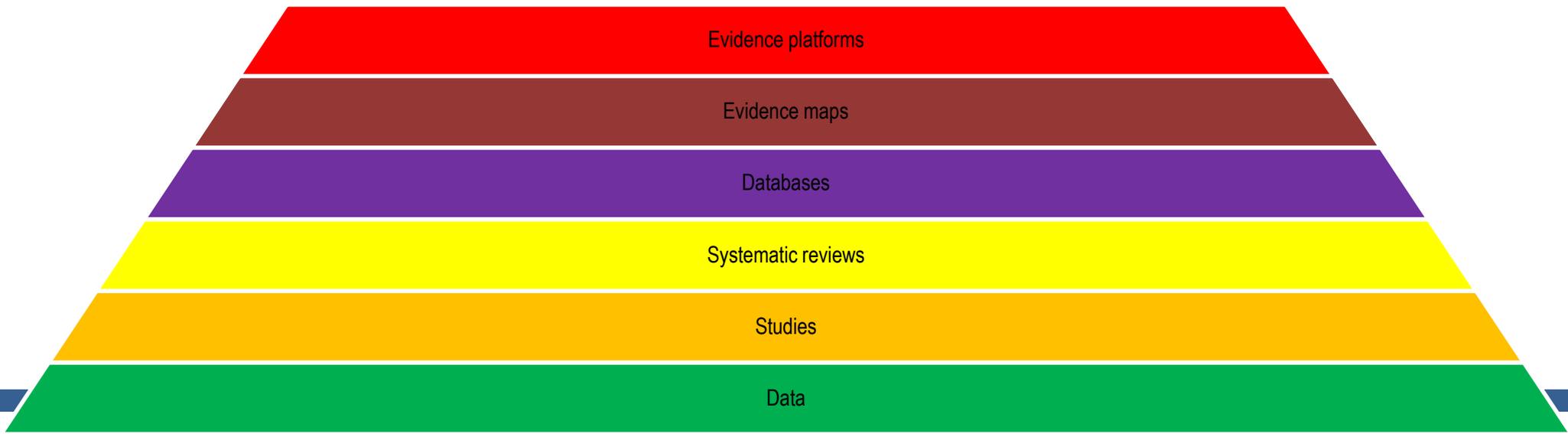
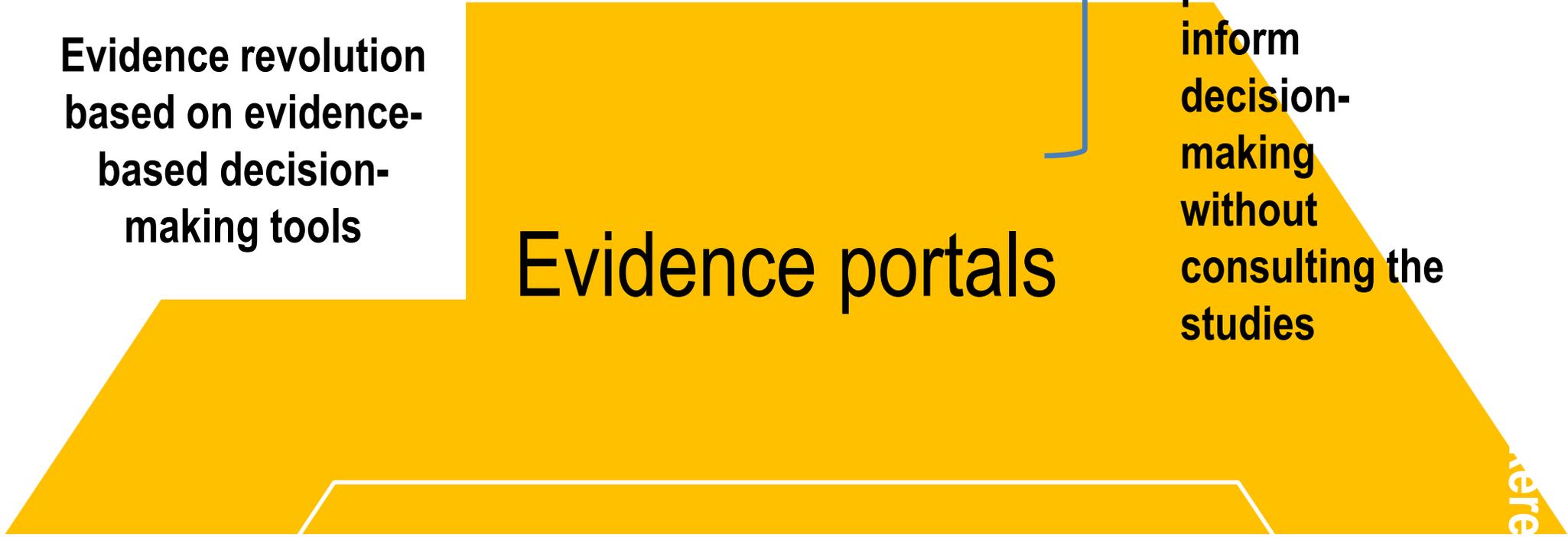




These
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Evidence revolution
based on evidence-
based decision-
making tools

Evidence portals



Teaching and Learning Toolkit

An accessible summary of the international evidence on teaching 5-16 year-olds

An
evidence
portal

Filter Toolkit

Toolkit Strand ▾

Cost ▾

Evidence Strength ▾

Impact (months) ▾

Filter results by keywords



Cost



Evidence



Months Impact

Arts participation

Low impact for low cost, based on moderate evidence.



+2

Aspiration interventions

Very low or no impact for moderate cost, based on very limited evidence.



0

Behaviour interventions

Teaching and Learning Toolkit

An accessible summary of the international evidence on teaching 5-16 year-olds

Filter Toolkit	Toolkit Strand ^	Cost v	Evidence Strength ^	Impact (months) v
<p>Filter results by keywords</p> <hr/> <p>£ </p> <p>Cost</p> <p></p> <p>Evidence</p> <p> +1</p> <p>Months Impact</p> <p>Reset </p>	<h2>Feedback</h2> <p>High impact for very low cost, based on moderate evidence.</p>			
	<h2>Metacognition and self-regulation</h2> <p>High impact for very low cost, based on extensive evidence.</p>			
	<h2>Reading comprehension strategies</h2> <p>High impact for very low cost, based on extensive evidence.</p>			

Teaching and Learning Toolkit

An accessible summary of the international evidence on teaching 5-16 year-olds

Filter Toolkit

Toolkit Strand ^

Cost ▾

Evidence Strength ^

Impact (months) ^

Filter results by keywords



Cost



Evidence



Months Impact

Reset ↻

Repeating a year

Negative impact for very high cost, based on moderate evidence.



-4

Setting or streaming

Negative impact for very low cost, based on moderate evidence.



-1

Block scheduling

Very low or no impact for very low cost, based on limited evidence.



0

Checklists

Guidance &
guidelines

**But to build the top
of the pyramid we
need the base of the
pyramid**

Evidence portals

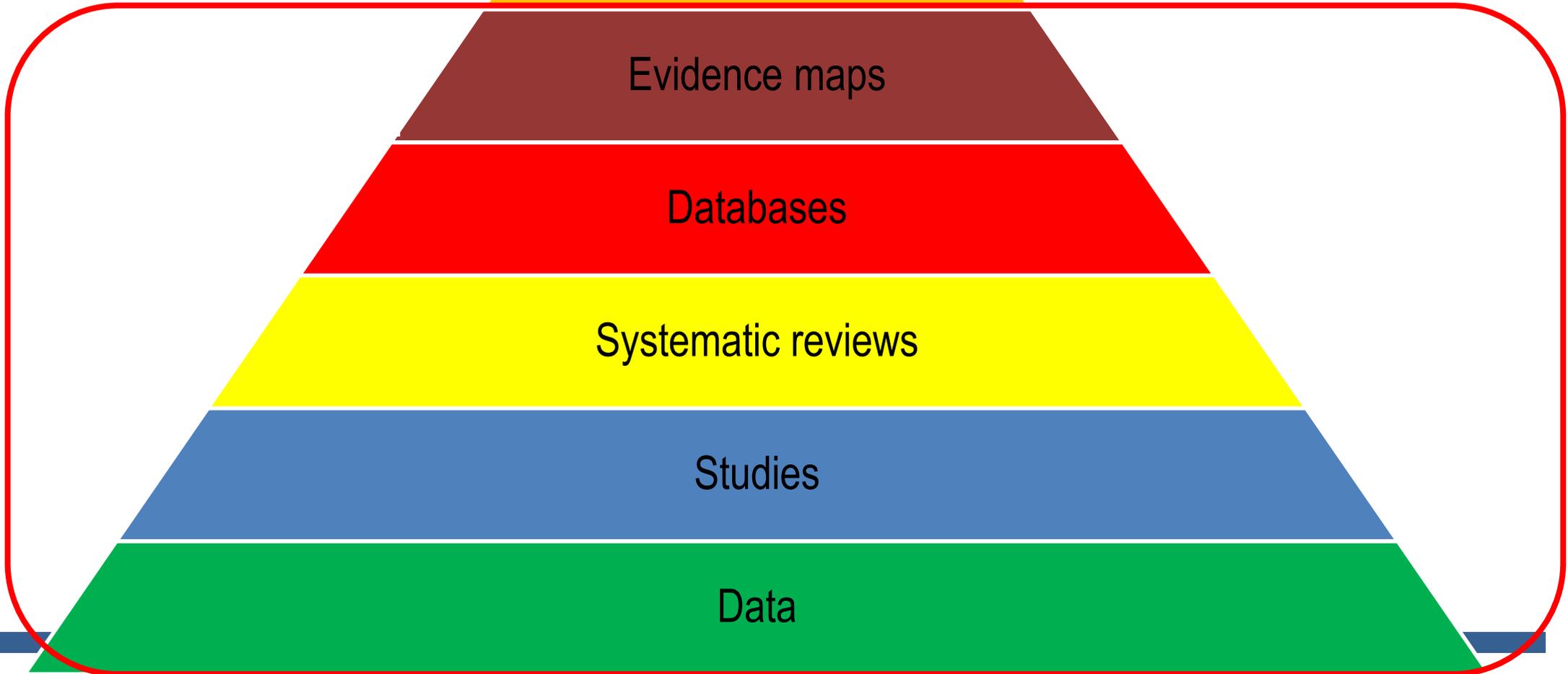
Evidence maps

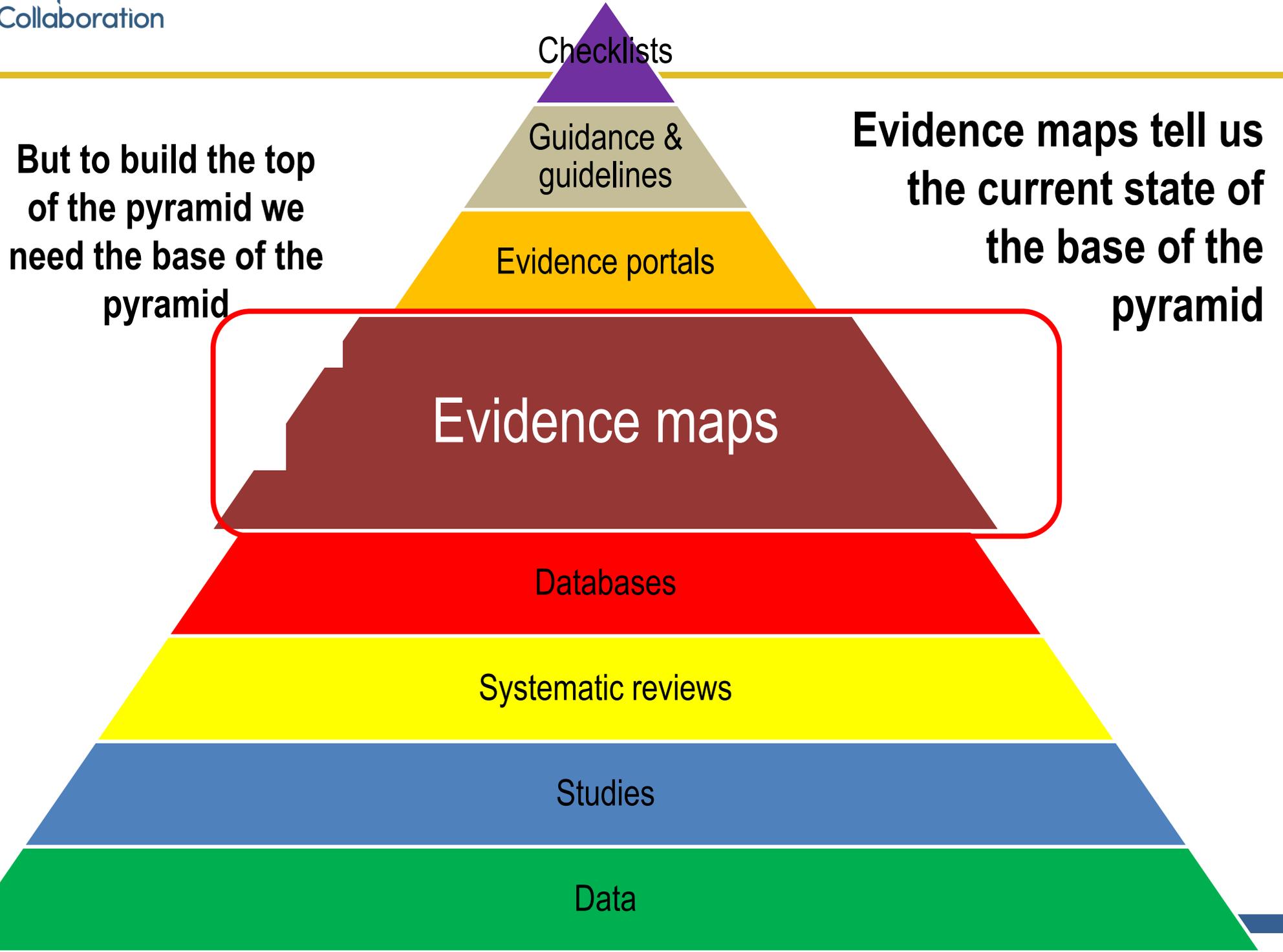
Databases

Systematic reviews

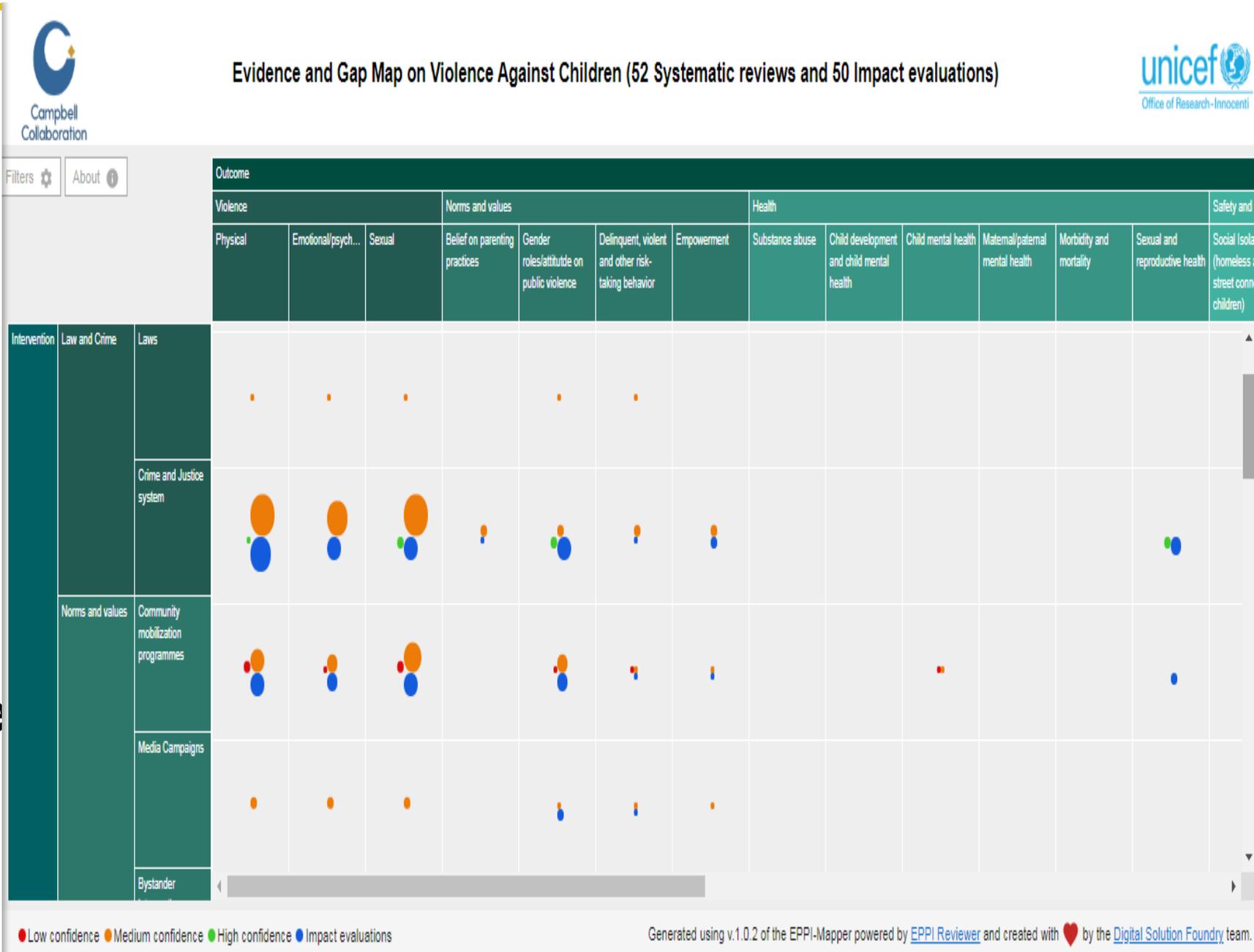
Studies

Data





A typical map is a matrix of intervention categories (rows) and outcome domain (columns) with bubbles showing type and number of studies.



What does the road safety map include?

An EGM is a systematic presentation of all available, relevant evidence for a particular sector or sub-sector

Relevant papers for the road safety map are effectiveness or intervention studies, i.e. papers with a valid counterfactual (such as randomized controlled trials, though there aren't many of them)



Warning!
Evidence maps tell us what
evidence is there
NOT what the evidence says

Road safety map: overview



Independent Council for
Road Safety International

Effectiveness of road safety interventions: An Evidence and Gap Map (This map includes 96 systematic reviews and 839 impact evaluations)



Can draw the map in different ways: e.g. interventions and regions

Effectiveness of road safety interventions: An Evidence and Gap Map (This map includes 96 systematic reviews and 839 impact evaluations)



		World Bank Regions						
		South Asia	Sub Saharan Africa	East Asia and Pacific	Europe and Central Asia	Latin America and Caribbean	Middle East and North Africa	North America
Interventions	Human factors							
	Enforcement		•	••	••	••	••	••••
	Sanctions and penalties			••	••	•	••	•••
	Driver training and licensing			••	••	•	••	••••

Navigating the map: hovering over a cell



Navigating the map: listing cell contents

Filters | Hide Headers | Full

CORSI
Effectiveness
map incl

pendent Council for
ad Safety International

ventions | Human factors | Enforcement

Sanctions and
penalties

Driver training and
licensing

X 155 References

Filter

- Outcomes
 - Fatal crashes
 - Non-fatal injury cra...
 - Change in use of h...
 - Change in use of S...
 - Change in speed
 - Change in alcohol/...
- Interventions
 - Enforcement
 - Sanctions and pen...
 - Driver training and ...
 - Road user educati...
 - Pedestrian

A before-after study of the effects ...
Elvik Rune ;
2013

A community initiative to increase...
Wilson R Jean; Wiggins Sandi ; Fan...
2010

A national evaluation of the nightt...
Fell James C; Todd Michael ; Voas ...
2011

A national examination of random...
Ferris Jason A; Devaney Madonna ; ...
2015

A reexamination of resource alloc...
Greenstone Michael ;
2002

A time series evaluation of Califor...

A before-after study of the effects on safety of environmental speed limits in the city of Oslo, Norway

1. [https://www.safetylit.org/citations/index.php?fuseaction=citations.viewdetails&citationIds\[\]=citjournalarticle_398197_37](https://www.safetylit.org/citations/index.php?fuseaction=citations.viewdetails&citationIds[]=citjournalarticle_398197_37)
2. [10.1016/j.ssci.2012.12.007](https://doi.org/10.1016/j.ssci.2012.12.007)

X 155 References

Filter

[-] Outcomes

- Fatal crashes
- Non-fatal injury cra...
- Change in use of h...
- Change in use of S...
- Change in speed
- Change in alcohol/...

[-] Interventions

- Enforcement
- Sanctions and pen...
- Driver training and ...
- Road user educati...
- Pedestrian
- Bicycle

A before-after study of the effects ...

Elvik Rune ;
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A time series evaluation of Califor...

Rogers P N; Schoenig S E;
1994

A time series evaluation of California's 1982 driving-under-the-influence legislative reforms

1. [https://www.safetylit.org/citations/index.php?fuseaction=citations.viewdetails&citationIds\[\]=citjournalarticle_3667_1](https://www.safetylit.org/citations/index.php?fuseaction=citations.viewdetails&citationIds[]=citjournalarticle_3667_1)



Accident Analysis & Prevention

Volume 26, Issue 1, February 1994, Pages 63-78



A time series evaluation of California's 1982 driving-under-the-influence legislative reforms

Patrice N. Rogers, Steve E. Shoenig

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[https://doi.org/10.1016/0001-4575\(94\)90069-8](https://doi.org/10.1016/0001-4575(94)90069-8)

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Abstract

This study evaluated the impact of 1982 legislative reforms, including enhanced penalties, greater sentencing uniformity, and the introduction of an illegal per se standard, on California's driving-under-the-influence

- Increase discoverability of relevant research
- Promote effectiveness as area of research
- Identify groups of studies which could be reviewed
- Identify gaps needing primary studies
- Identify systematic reviews to inform evidence-based decision-making tools

Though reviews may be inconclusive if not much evidence, or available evidence is of low quality

Study Design	Count
RCT	17
Regression Discontinuity	3
Difference-in-difference	13
Propensity Score Matching	8
IV/Heckman two-step	5
Controlled Before-After	392
Time Series with control group	134
Case-control	146
Systematic Review	96

Effectiveness of road safety interventions: An Evidence and Gap Map (This map includes 96 systematic reviews and 839 impact evaluations)

		Outcomes					
		Primary Outcome (crashes)		Intermediate Outcome			
		Fatal crashes	Non-fatal injury crashes	Change in use of helmets	Change in use of Seat-belts	Change in speed	Change in alcohol/drug use
	Driver training and licensing						
	Road user education, awareness building & public campaigns						
	Pedestrian						

Motorcycle rider training for the prevention of road traffic crashes

Cochrane Systematic Review - Intervention | Version published: 06 October 2010

<https://doi.org/10.1002/14651858.CD005240.pub2>



[View article information](#)

[Katina Kardamanidis](#) | [Alexandra Martiniuk](#) | [✉ Rebecca Q Ivers](#) | [Mark R Stevenson](#) | [Katrina Thistlethwaite](#)

This review included 23 research studies... mandatory pre-licence training may present a barrier to completing a motorcycle licensing process, thus possibly indirectly reducing crash, injury, death and offence rates through a reduction in exposure to riding a motorcycle.... it is not clear if (or what type of) training reduces the risk of crashes, injuries, deaths or offences in motorcyclists and the selection of the best rider training practice can therefore not be recommended.

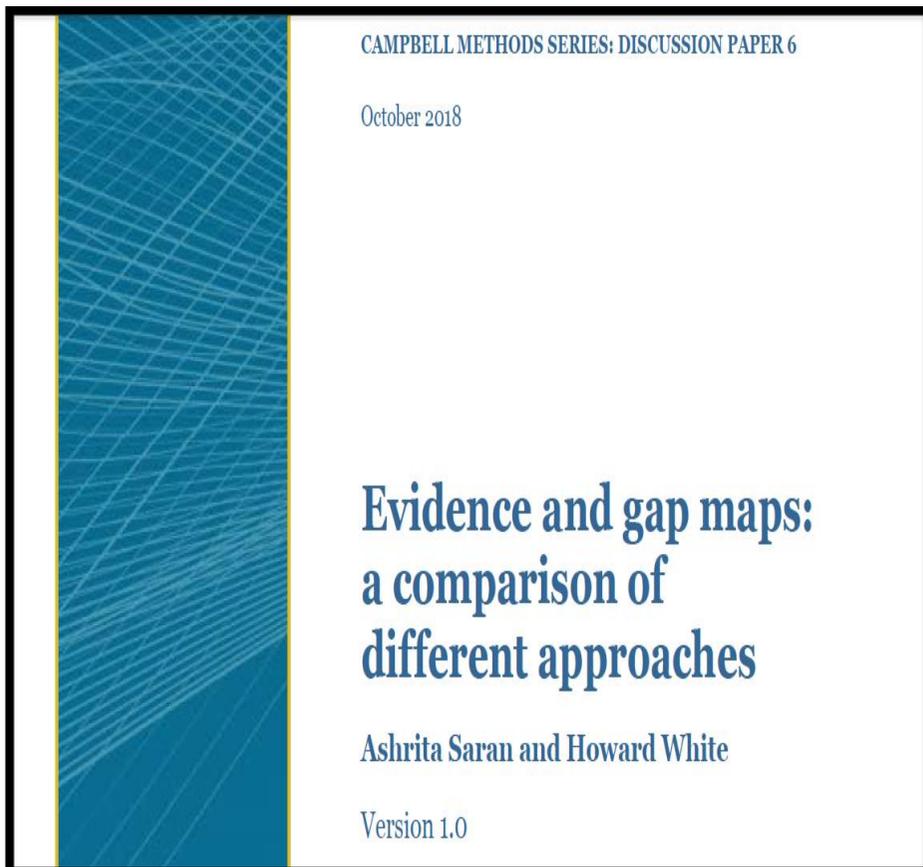
During the day you will hear analysis drawing on different parts of the map

So plenty of opportunity to discuss how it is constructed with those involved in the process

And guide us on future directions

Which includes reviews where reviews are lacking

Read more on maps



<https://www.campbellcollaboration.org/library/evidence-and-gap-maps-comparison-of-different-approaches.html>

Visit

www.campbellcollaboration.org