Under publication, already out of date: need for living systematic reviews (SR) and meta-analyses:

illustration from the metaPreg project, an innovative mode of dissemination of evidence

Cyndie Picot
Audrey Peron
Michel Cucherat
Judith Cottin

Service Hospitalo-Universitaire
PHARMACO-TOXICOLOGIE
LYON

ansm
Agence nationale de sécurité du médicament et des produits de santé

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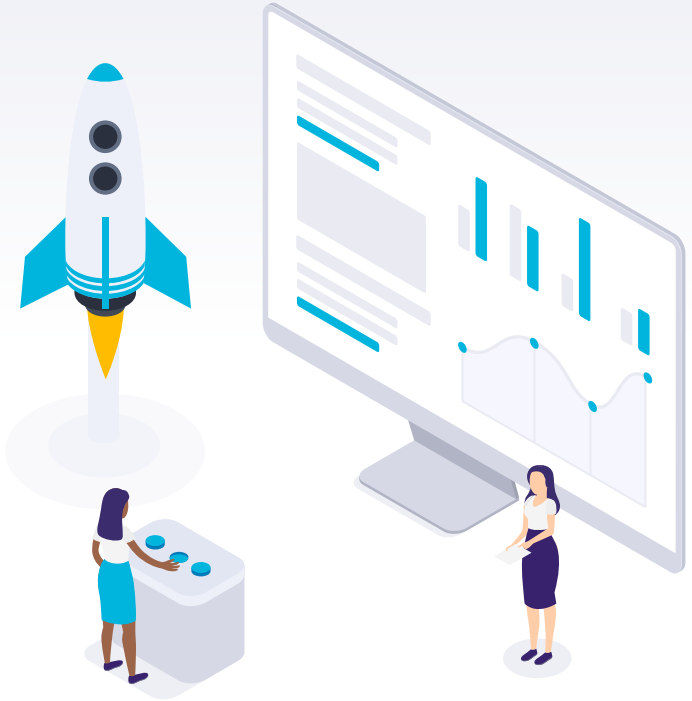
1 Background



Need for systematic review (SR) & meta-analysis

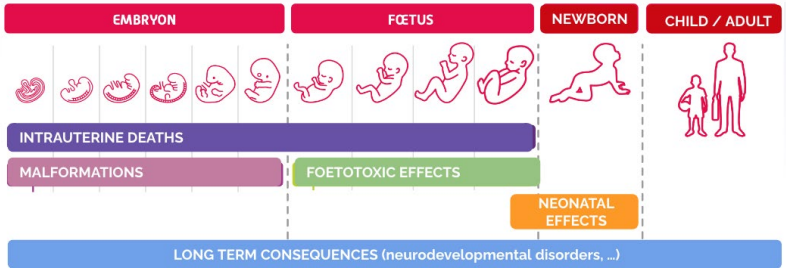
Increase number of epidemiological studies

Different methodologies, quality and **results**

Meta-analysis: manage profusion of regularly contradictory results

Need for living SR & metaanalysis

Classic meta-analysis: “static” with publication as mode of dissemination

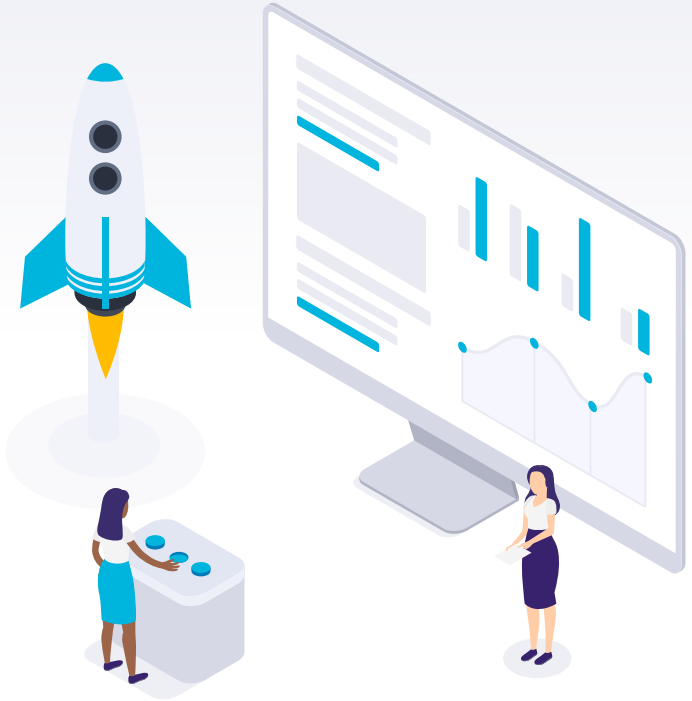


Different methodologies, quality and **results**

No investigation of **all clinical consequences** and **all substances**

Static publication and **delay** in publication

2 Running example



Need for living SR & metaanalysis: illustration

Aim: to illustrate the inadequacy between the acceleration of research and the current system of production and dissemination of synthetic data.

Two SR & meta-analytic approaches (ex: Proton pump inhibitors use during pregnancy)

1/ Classical approach

- Classic SR & metaanalysis (until September 2022)
- Publication in a peer-reviewed journal

2/ Innovative approach

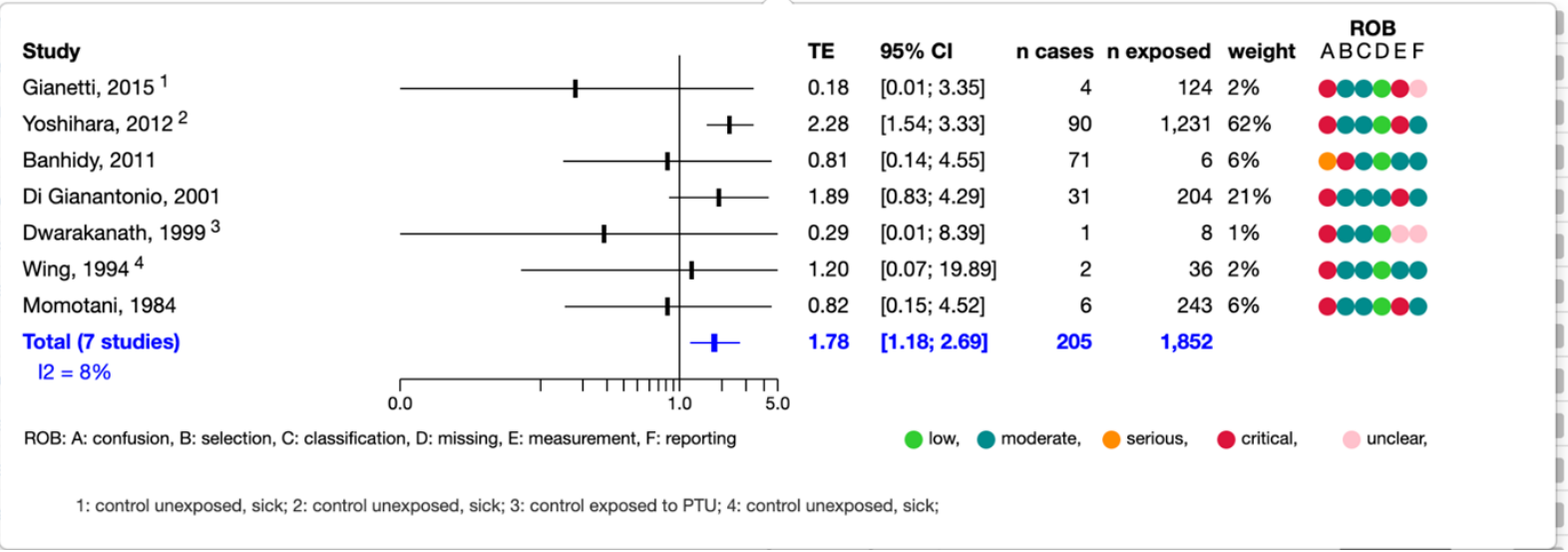
- Living SR & metaanalysis
- Free online platform

http://metapreg.org

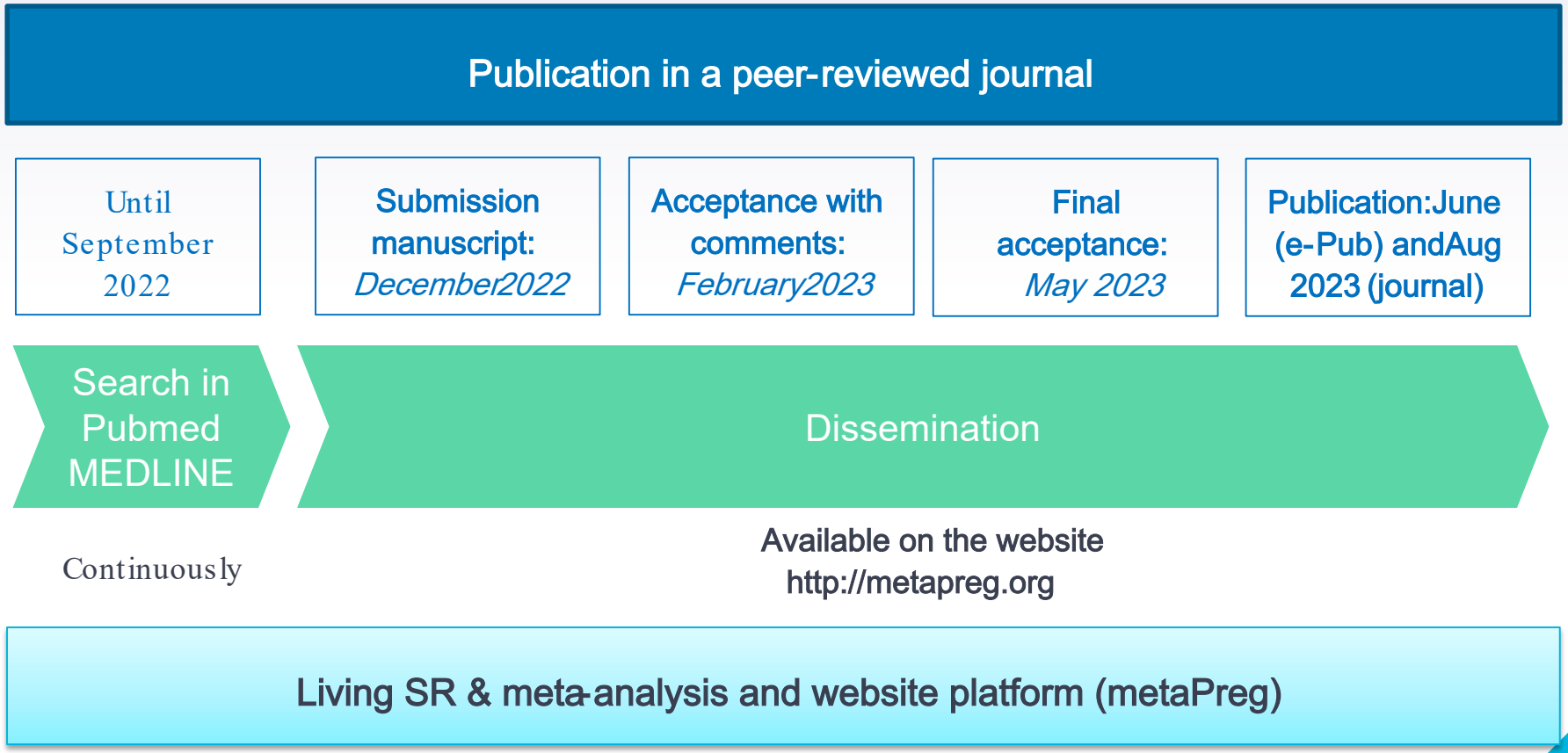
Need for SR & living metaanalysis: metaPreg

Congenital malformations

Adverse outcome	OR 95%CI	I2	k	No. cases	No. exposed	publication bias	ROB
All congenital malformations (majors, minors, majors and minors, or unspecified)	1.40 [1.14, 1.72]	26%	13 studies	249,132	4,773	low	ROB
Major congenital malformations	1.78 [1.18, 2.69]	8%	7 studies	205	1,852	serious	ROB
Genital ar							
Limb defe							
Respirato							
Urinary m							
Carbimaz							
Eye defec							
Congenita							
Digestive							
Severe co							
Abdomina							
Ear, face a							
Nervous s							



Interests of living approach and web dissemination



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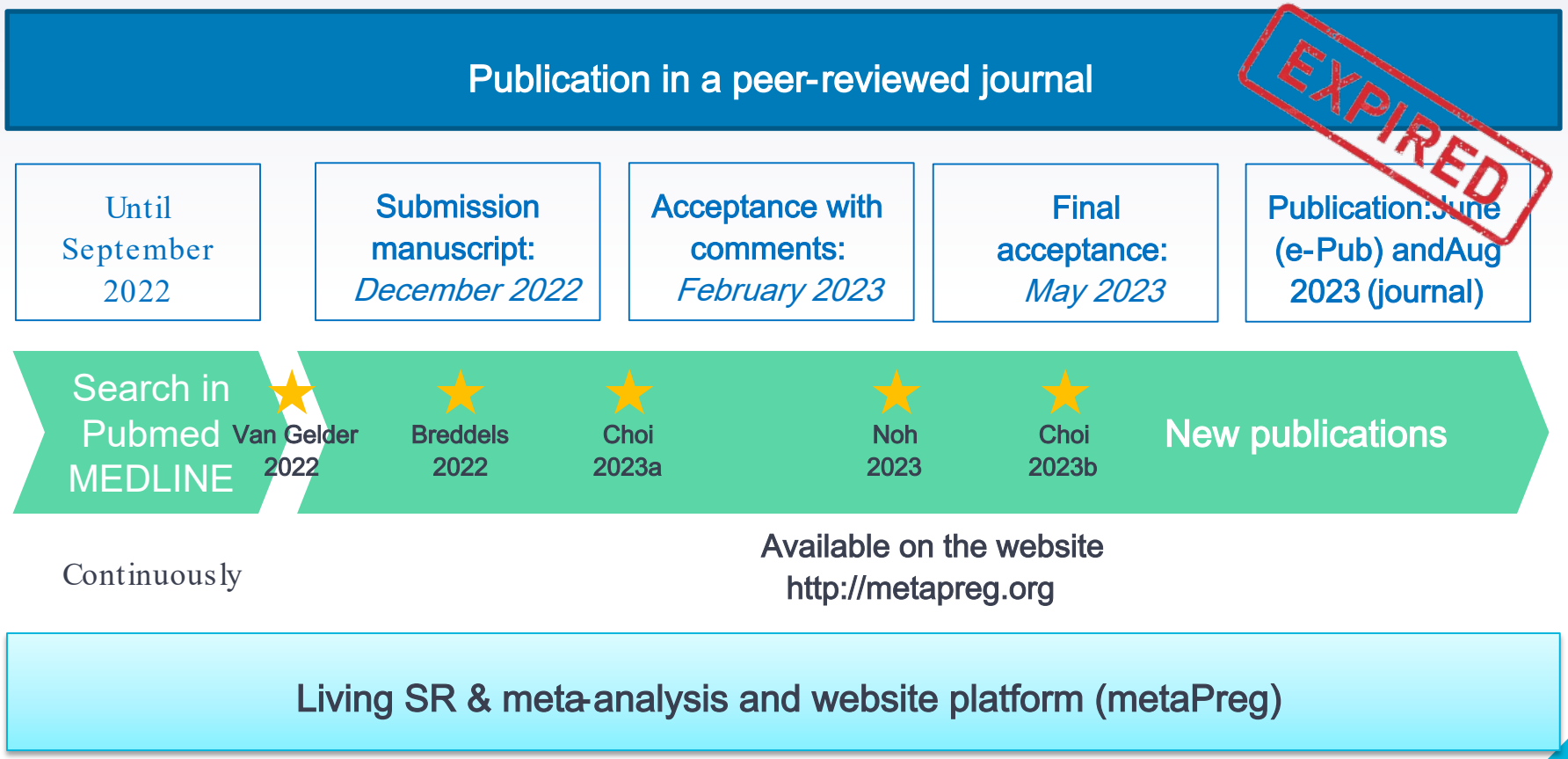

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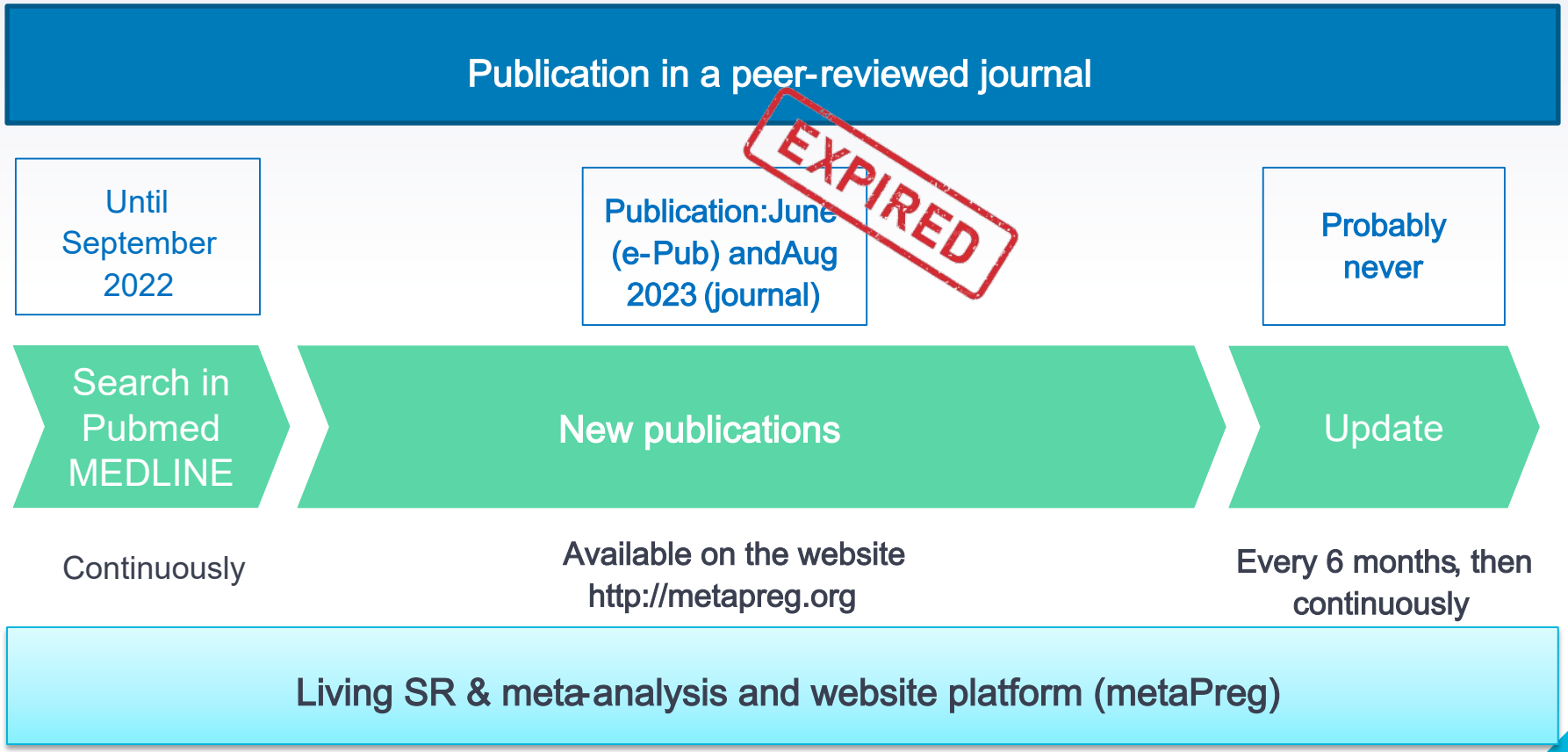


Interests of living approach and web dissemination

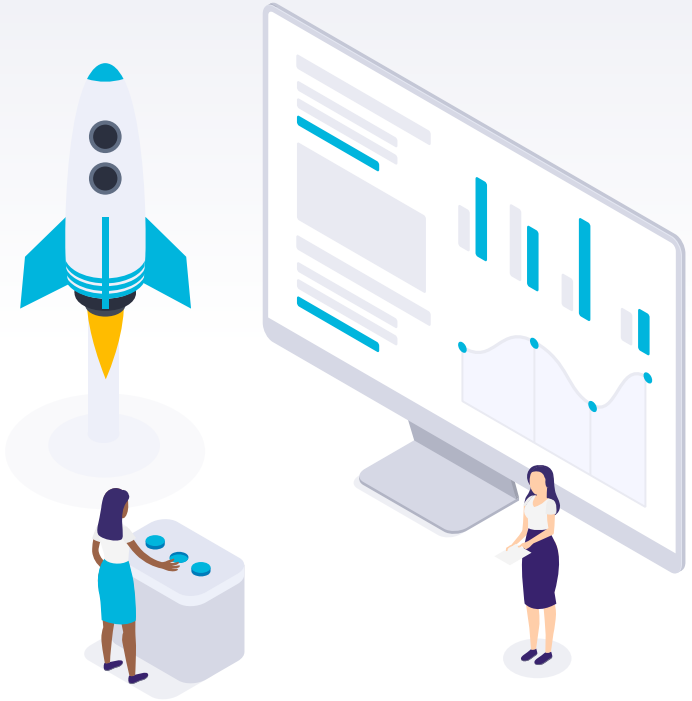
		Published meta-analysis (search Sept 2022 - published in Aug 2023)	Living SR & meta-analysis (metaPreg - August 2023)
Quantitative and qualitative change	Major congenital malformations	pooled OR 1.10 [0.95 1.26] n=6 studies; I2=0% 5618 exposed pregnancies	pooled OR 1.07 [1.02 - 1.13] n=7 studies; I2=0% 46158 exposed pregnancies
	Congenital heart defects	pooled OR 1.04 [0.77 1.40] n=3 studies; I2=6%; 3161 exposed pregnancies	pooled OR 1.09 [1.01 1.17] n=4 studies; I2=0% 43701 exposed pregnancies
Quantitative change only	Cleft palate	pooled OR 1.77 [0.77 4.06]	pooled OR 1.17 [0.75, 1.83]
	Hypospadias	pooled OR 1.92 [0.88 4.18]	pooled OR 1.37 [0.67, 2.79]
No change	Clubfoot Hydronephrosis Ventricular septal defect Atrial septal defect		

Interests of living approach and web dissemination

	Publication in a peer-reviewed journal	Living SR & meta-analysis (metaPreg)
Restriction	Editorial limitations	None
Outcomes	Some malformative outcomes (with at least three studies): 8 malformations	Overview of all consequences (33 outcomes: malformations as a whole, individual malformations, neurodevelopmental disorders, preeclampsia…)
Other details	- Few details on included and excluded studies - Supplemental analyses for one outcome only (sensitivity analysis, umbrella review, risk of bias, …)	- Description of included and excluded studies - Supplemental analyses for all outcomes (sensitivity analysis, umbrella review, risk of bias, …)

3

Conclusions / Discussion



Drugs & Pregnancy: living SR & meta-analysis interests

- **Interest of synthetic data**
- **Living systematic review and meta-analysis** were developed and are particularly of interest when:
  - Research evidence is emerging rapidly
  - Current evidence is uncertain
  - New research may change policy or practice decisions

- **Living SR & meta-analysis combined with website dissemination:**
  - An overview on all clinical consequences for foetus/child/mother
  - Free online access (in particular for health care providers and decision-makers)
  - Up-to-date evidence synthesis with integration of all available evidence

metaPreg: living SR & metaanalysis dedicated to Drugs & Pregnancy

Further details?

Youtube demonstration:

(EN): https://youtu.be/dilXhMjQYEA

(FR): https://youtu.be/wTJ7Qmcc6O0

Master Protocol

Picot *et al. Systematic Reviews* (2023) 12:101
https://doi.org/10.1186/s13643-023-02256-8

Systematic Reviews

PROTOCOL Open Access

Risk of drug use during pregnancy: master protocol for living systematic reviews and meta-analyses performed in the metaPreg project

Cyndie Picot[1], Priscilla Ajiji[2,3], Lucie Jurek[4,5], Mikail Nourredine[1,6,7], Jérôme Massardier[8], Audrey Peron[1], Michel Cucherat[9] and Judith Cottin[1*]

Abstract

Background Knowledge about the risks of drugs during pregnancy is continuously evolving due to the frequent publication of a large number of epidemiological studies. Systematic reviews and meta-analyses therefore need to be regularly updated to reflect these advances. To improve dissemination of this updated information, we developed an initiative of real-time full-scale living meta-analyses relying on an open online dissemination platform (www.metapreg.org).

Method All living meta-analyses performed in this project will be conducted in accordance with this master protocol after adaptation of the search strategy. A systematic literature search of PubMed and Embase will be performed. All

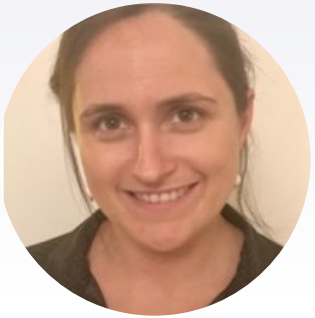
THANKS!

Any questions?

You can find us at:

- Judith.cottin@chu-lyon.fr

Team Presentation



Cyndie Picot
PhD, Scientific Curation Lead

Audrey Peron
PharmD, Scientific biocurator

Priscilla Ajiji
PhD student

Michel Cucherat
MD, PhD, Consultant

Judith Cottin
PharmD, scientific director