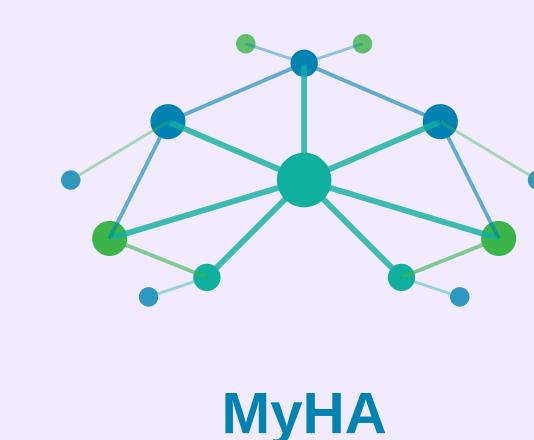


# WHICH GENERATIVE AI METHOD USED FOR HIGH SPECIFICITY: A METHODOLOGICAL COMPARISON FROM THE SYSTEMATIC LITERATURE REVIEW OF THE BURDEN OF INFLUENZA IN FRANCE

MSR224



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## INTRODUCTION

1- **Systematic literature reviews (SLRs)** are essential for evidence synthesis in health economics and outcomes research, but face increasing challenges due to exponential growth in published literature. Manual screening of thousands of abstracts is time-consuming, resource-intensive, and subject to reviewer fatigue and inconsistency.

2- **Generative artificial intelligence (AI)** offers promising solutions to enhance SLR efficiency while maintaining rigorous selection standards. However, optimal AI implementation strategies remain unclear: single vs. multiple models, batch vs. individual processing, human vs. algorithmic arbitration.

## OBJECTIVES

To evaluate the efficiency and accuracy of **two artificial intelligence (AI)** methodologies for conducting systematic literature reviews (SLR) on **influenza burden among elderly populations** in France, comparing performance metrics, resource utilization, and consistency of findings.

## METHODS - AI Method comparison for Literature review

**Systematic literature review - Pubmed**  
From january 2010 to march 2025 influenza-related terms, France-specific terms, yielded 2,060 abstracts

### Inclusion criteria

Elderly population (aged 60+), sample size over 10,000, conducted in France, and addressing at least one component of influenza burden : epidemiological, clinical, economic, or humanistic

Characteristic	Method 1: GPT-4o & Mistral Large	Method 2: Claude-3.7-Sonnet & GPT-4o
Processing type	Batch processing, 72 cycles (batches of 25)	Sequential processus, individual evaluation : Claude 3.7 Sonnet then GPT-4o
Number of abstracts analyzed	1,810 ( 250 empty)	1,817 (243 empty)
Time to completion & selection	One hour, GPT-4o: 31, Mistral : 36	Two hours, agreement in 99.2% (disagreement for 15 abstracts)
Arbitration / Final selection	Human, 30 articles retained (37 false positive)	Mistral arbitration: 13 articles retained (2 false positive)

## RESULTS

### Superior precision (method 2)

Model consensus approach showed 56% better specificity with 94.6% reduction in false positives (37→2) and 99.2% inter-model agreement.

### A disproportionate influenza burden for elderly populations

155-350 M€  
per season

20 %  
rehospitalizations

25,000 - 55,000  
hospitalizations

### Efficiency trade-off

Method 1: Faster (2 sec/abstract) but lower precision.  
Method 2: Double time (4 sec/abstract) but 10-fold reduction in validation burden.

## CONCLUSION

### High-volume validation

Both methods successfully processed ~1,800 abstracts, demonstrating scalability for comprehensive SLRs across 15 years of literature.

### Recommendation

Use Method 2 for SLRs requiring high specificity and rigorous selection criteria. Processing time investment (2x) yields substantial reduction in false positives (18.5x).

**Hospital Deaths: Elderly 80%**

**Excess hospitalizations: Elderly 70%**

**Associated Costs: Elderly 77%**

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