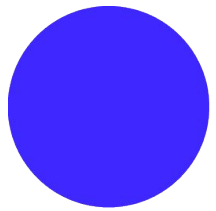
OCL Mapper and the CIEL Bridge

Open-source, AI-assisted mapping of clinical concepts to standard vocabularies and OMOP

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LOINC Mapping Challenge!

1 Input Row

Order Mnemonic	Order Description	Tube Type	Specimen	Test Mnemonic	Test Description	Result Type	Units of Measure
CBC	Complete Blood Count	EDTA	Blood	PLT	Platelets	N	10*3/uL

2 Candidates

#	Code	Name	Score
1	**5379-3**	Platelet Ab [Units/volume] in Serum	91.4
2	**71692-8**	Platelets reticulated [#/volume] in Blood by Automated count	87.6
3	**24359-2**	Hemogram without Platelets and with Manual Differential panel - Blood	86.9
4	**54430-4**	Pooled platelets given [Volume]	85.6
5	**24358-4**	Hemogram without Platelets panel - Blood	85.5
6	**22759-5**	Platelet Ab [Titer] in Serum	85.3
7	**11126-0**	Platelets [Morphology] in Bone marrow	84.9
8	**26515-7**	Platelets [#/volume] in Blood	84.3
9	**26516-5**	Platelets [#/volume] in Plasma	82.3

3 AI Assistant

AI Assistant Analysis

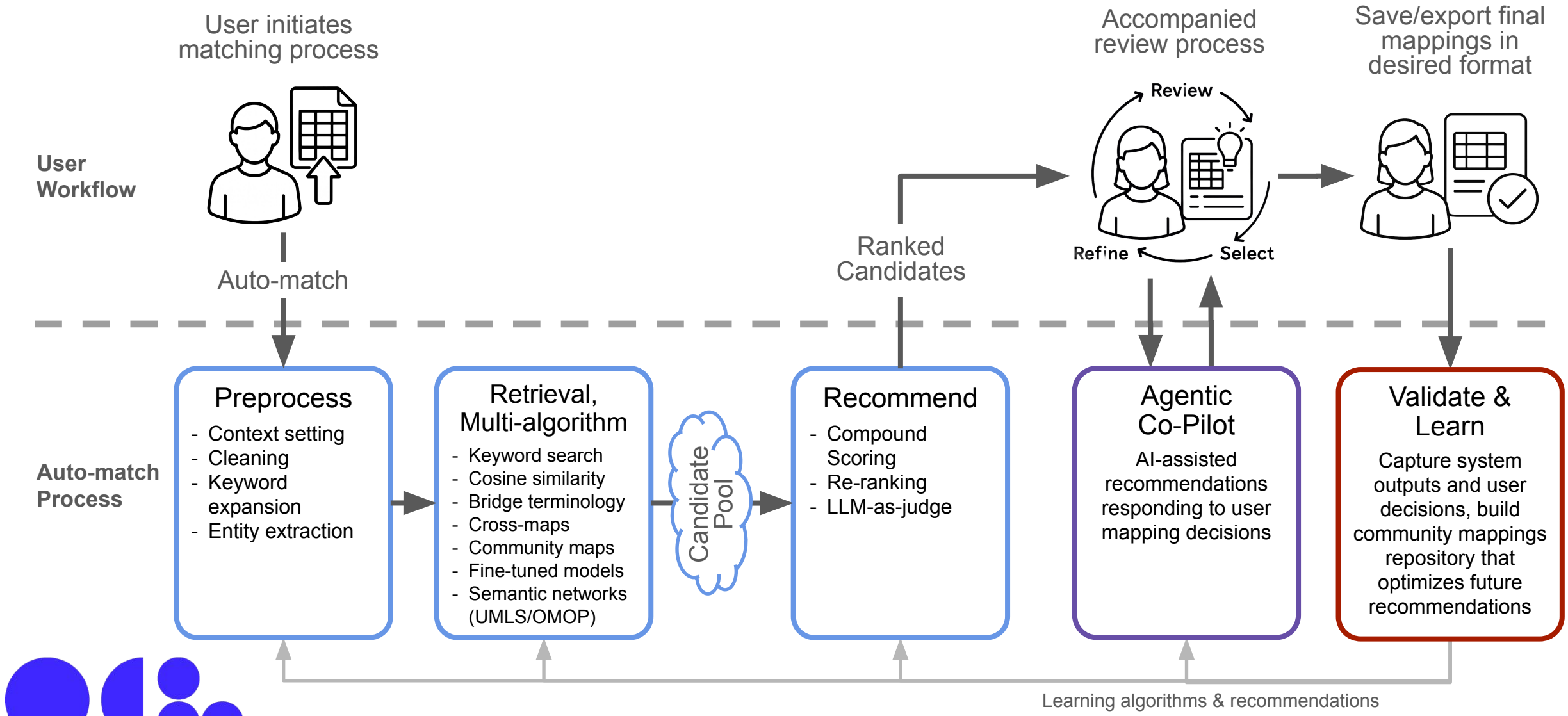
26515-7 'Platelets [#/volume] in Blood' provides excellent semantic alignment: exact component match (Platelets), correct system (Blood matches input 'Blood'), appropriate property (NCnc for count), and matching units (10*3/uL). This concept has high algorithm consensus (99.88% ocl-semantic, 99.88% ciel-bridge via CIEL:729 mapping, 81.7% scispacy-loinc) and strong …

4 Map

CODE	COMPONENT	PROPERTY	TIME_ASPCT	SYSTEM	SCALE_TYP
26515-7	Platelets	NCnc	Pt	Bld	Qn

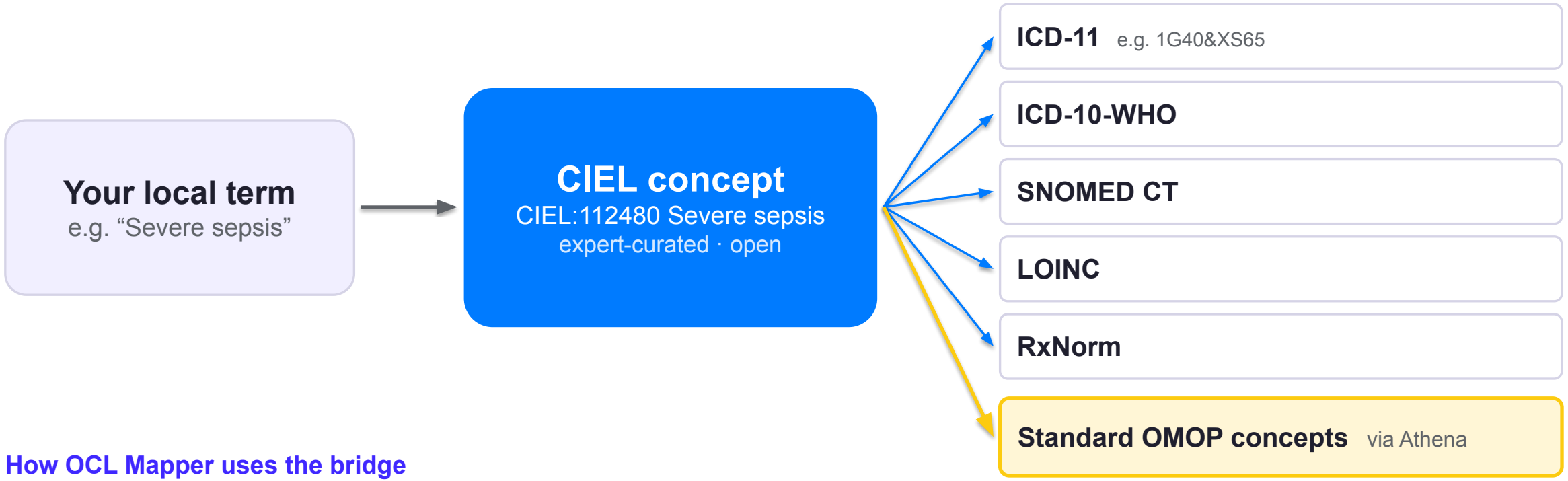
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What does an AI-enabled Terminology Mapping Workflow look like?

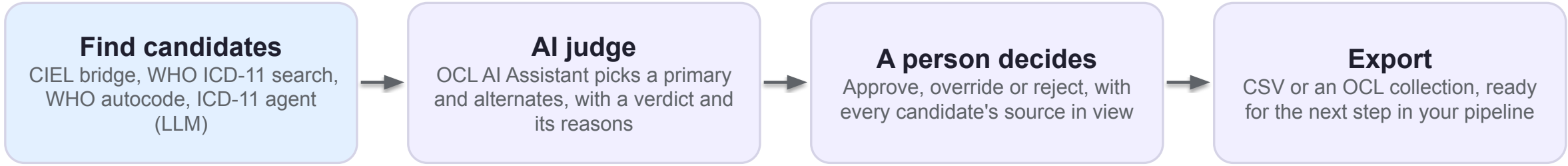


Map once to CIEL, reach many standards

CIEL is open and expert-curated. Its concepts already map to the major standards, and CIEL is in Athena.



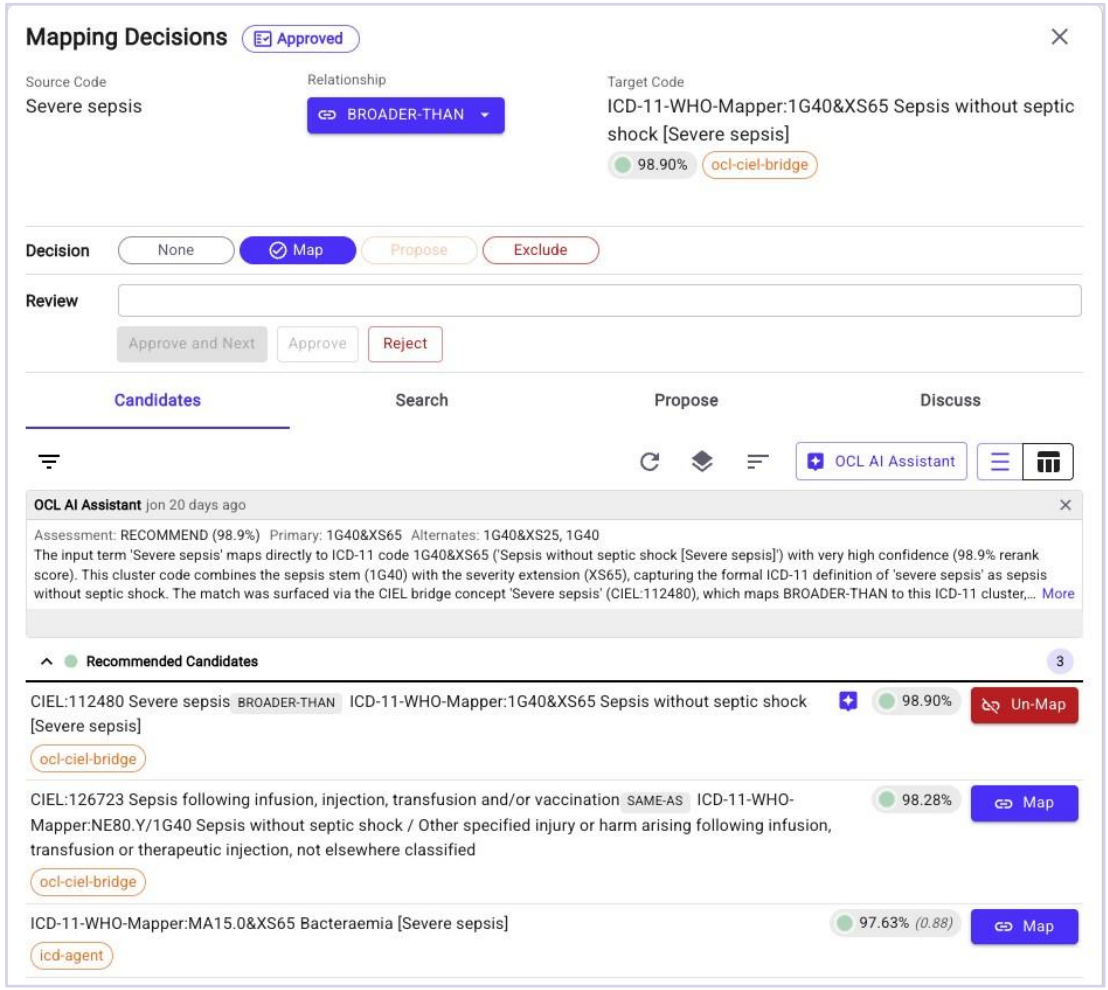
How OCL Mapper uses the bridge



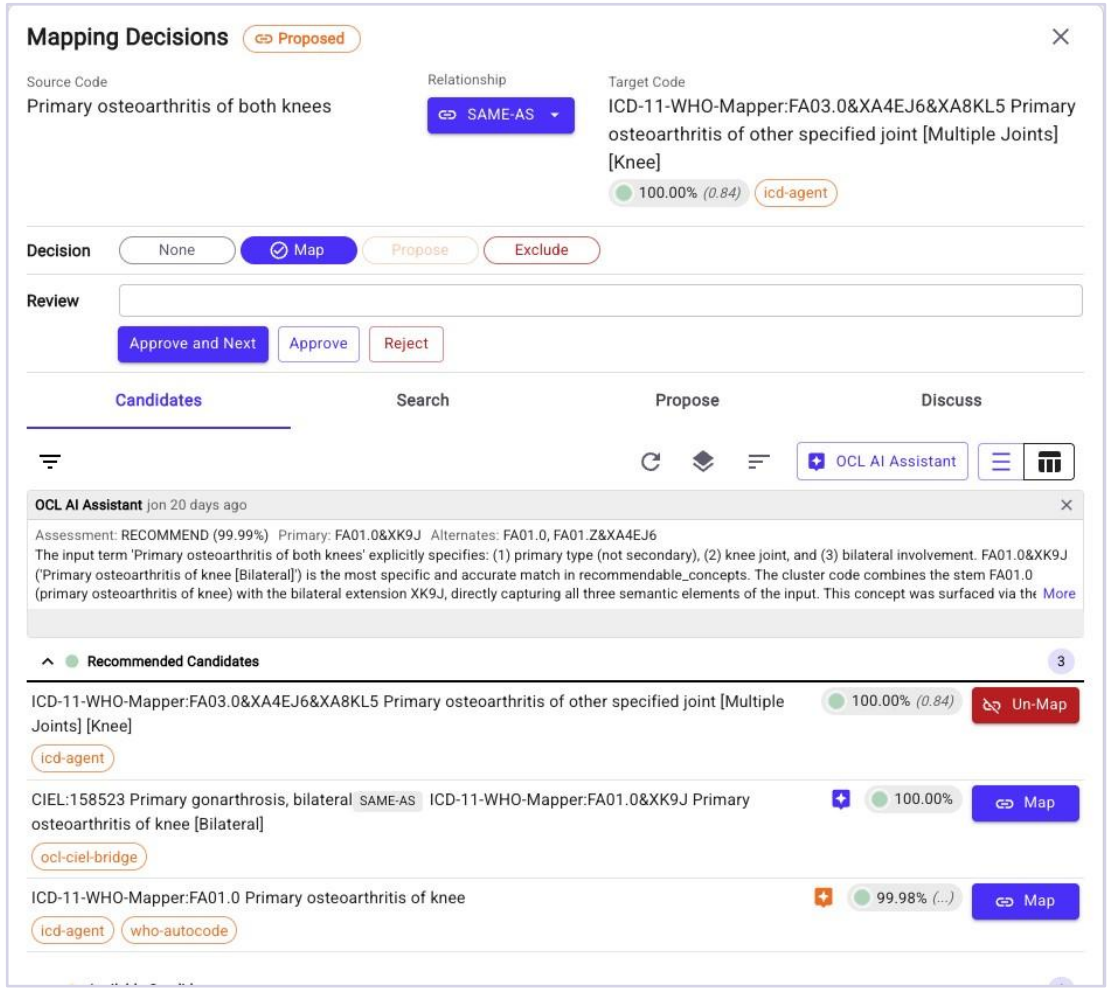
Live demo: 20 clinical terms to ICD-11

Twenty of the evaluation's 100 terms; the expert answers stayed out of the file.

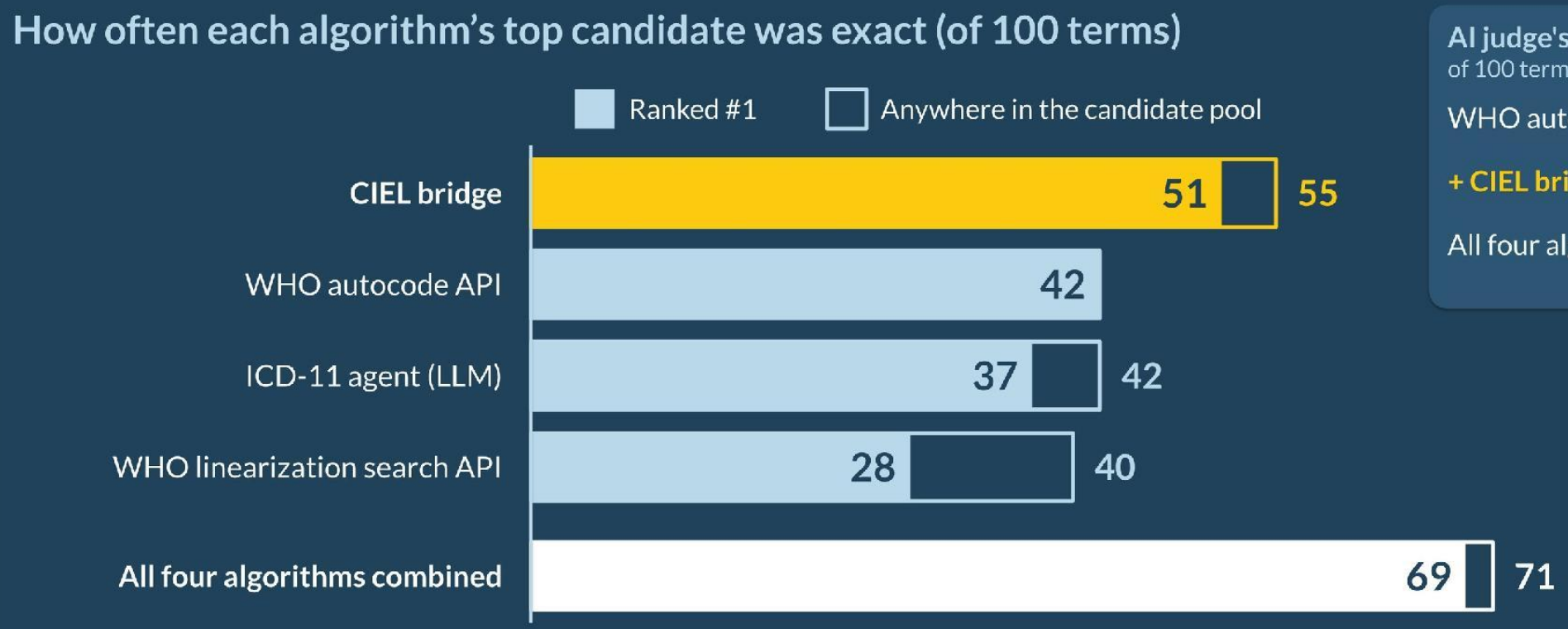
Severe sepsis: found through CIEL; the AI agrees



Osteoarthritis, both knees: the AI overrules the top score



With the AI as judge, adding the CIEL bridge raised exact ICD-11 matches from 42 to 60 of 100



AI judge's exact first choice
of 100 terms, by candidate pool

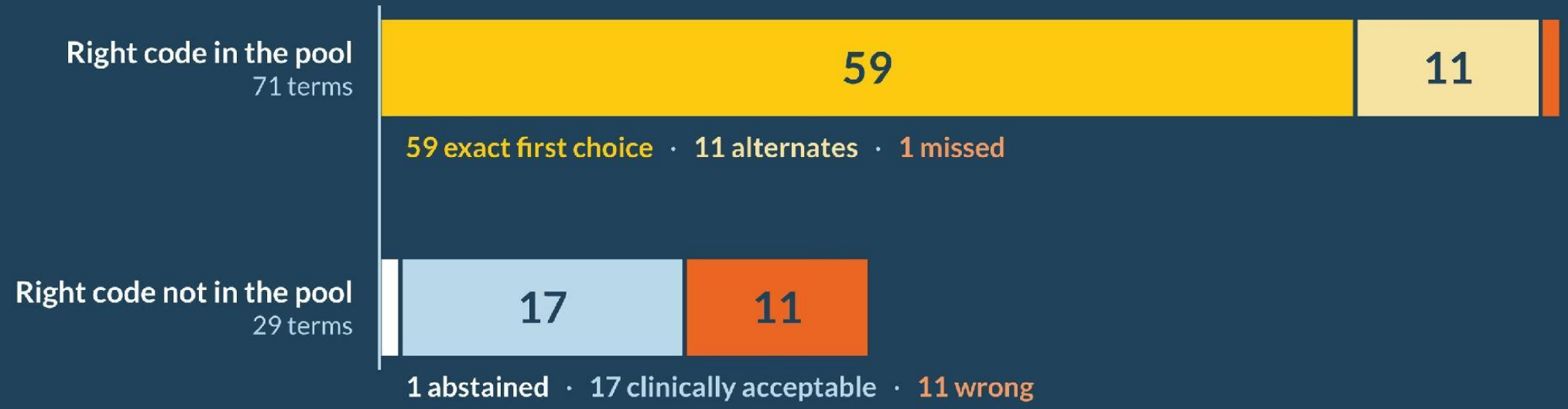
WHO autocode alone	42
+ CIEL bridge	60
All four algorithms	59

CIEL alone found 14 correct codes that no other algorithm found.

Kanter AS, Payne J, Lopes F, Bronnert J, Rihanek T. "Mind Meets Machines?: AI Assisted Semantic Mapping of Clinical Concepts." OHDSI Global Symposium 2026, poster #105. 100 high-frequency terms from IMO Health's concept library; strict scoring against two expert coders and a tie-breaker.

When the right code was in the pool, the AI picked it 70 times out of 71

What the AI Assistant chose, with and without the right code in its pool



The limit is retrieval more than judgment.
That's why curated terminology matters.

Post-coordination is the frontier.
35 of 68 post-coordinated codes were exactly right.

A person makes the final call.
Without the right code, the AI still recommended one 28 of 29 times.

Kanter AS, Payne J, Lopes F, Bronnert J, Rihanek T. "Mind Meets Machines?: AI Assisted Semantic Mapping of Clinical Concepts." OHDSI Global Symposium 2026, poster #105. 100 high-frequency terms from IMO Health's concept library; strict scoring against two expert coders and a tie-breaker.

Introducing the OCL Mapper Squad

Overview	Formed in Jan-2025 with 8 organizations
Objective	Launch the open-source OCL Mapper with AI-supported matching algorithms to streamline mapping of content to any target terminology, starting with LOINC and the CIEL Interface Terminology



Michael Bontyes
Madiro



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Parvati Menon
Indiana University



Jack Schultz
stepwise.ai



Burke Mamlin
Regenstrief / OpenMRS

Open, and it fits upstream of your OMOP tools

CIEL first, Usagi second. Map to CIEL, follow its Athena maps to standard concepts, and resolve the rest with Usagi, as the OHDSI Africa working group does.

Open source. OCL Mapper: github.com/OpenConceptLab/oclmap. CIEL is open and published on OCL.

In use. MSF across 15 programs in Mosul, with about 80% less clinical-form development time. A rural NGO in Burundi, with no terminologist, mapped 1,500+ concepts in under two months. National EHR dictionaries in Uganda and Malawi.

Try it with your terms. Send a handful of source terms and we'll map them with you.

Try the OCL Mapper
openconceptlab.org/tools/mapper

Explore CIEL
app.v3.openconceptlab.org/orgs/CIEL

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Thank you to the OCL Mapper Squad, and to June Bronnert and Theresa Rihanek (IMO Health), co-authors of the evaluation.

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CIEL