

EMERSE Community Meeting



2024-Oct-01

<https://project-emerse.org>

Plan for today

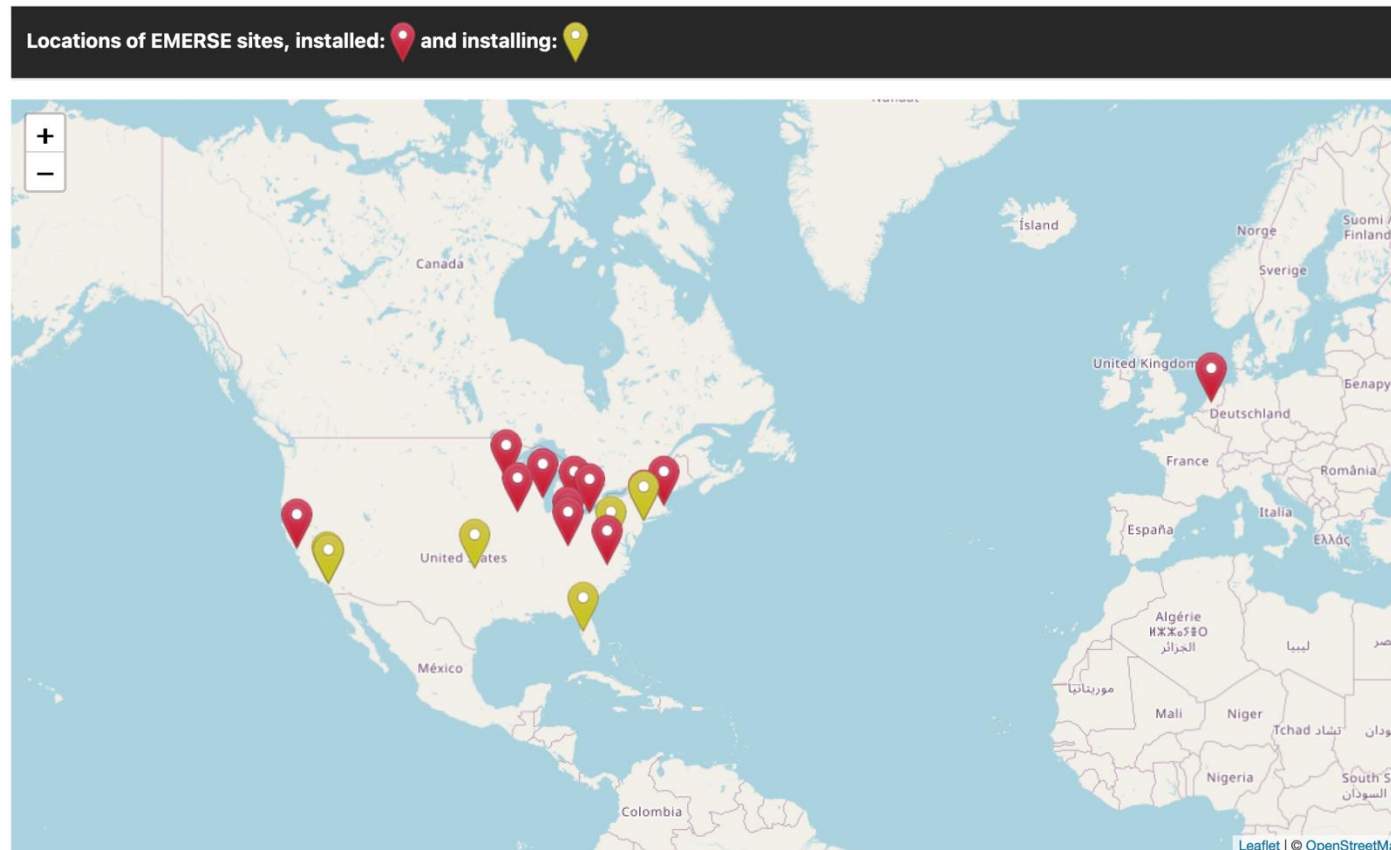
- Welcome and Housekeeping
- Announcements and Updates
- Brief System Demo
- Open Forum
- Adjourn

Housekeeping

- *Zoom Meeting*
 - More opportunities for interaction
- Please stay muted, unless you would like to ask a question or make a comment
- Feel free to use the chat function to type questions or provide comments
- We will answer questions throughout
- We will record this meeting; it will be available where prior recordings are located:
 - <https://project-emerse.org/presentations.html>
 - <https://project-emerse.org/community.html>

Community

- <https://project-emerse.org/community.html>



Acknowledgements

- EMERSE has been supported by:
 - NCI ITCR program
 - NCATS via MICHR CTSA
 - Michigan Medicine
 - Department of Learning Health Sciences
 - Office of Research
 - Health Information Technology & Services

Research Collaborative

- Initial research focus: pronoun usage in the EHR over time
 - Contributions from U Michigan, UCSF, U Virginia, U Cincinnati, U Iowa

Terms:	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
preferred pronouns	0	0	0	2	198	389	581	992	1,438	2,017	2,204	2,046
pronouns are	0	0	2	6	218	435	616	918	1,184	1,361	1,523	1,798
she her hers	0	0	0	19	23	22	95	532	1,390	3,687	3,837	5,429
she her they	0	0	2	2	0	2	2	5	13	28	38	68
they them their	0	0	2	4	5	21	36	63	125	265	223	202

- Abstract will be presented at November 2024 AMIA Symposium in SF
- Next steps: poster, paper, and new projects
- If interested in participating, please contact EMERSE-team@umich.edu

Publications

573

Papers

92

Abstracts

19

Other

<https://project-emerse.org/publications.html>

Publications (new since last meeting)

- Derstine BA, Holcombe SA, Wang NC, Ross BE, Sullivan JA, Wang SC, Su GL. Relative muscle indices and healthy reference values for sarcopenia assessment using T10 through L5 computed tomography skeletal muscle area. *Sci Rep*. 2024 Sep 18;14(1):21799. doi: 10.1038/s41598-024-71613-x. PMID: 39294201
- Stabellini N, Cullen J, Bittencourt MS, Moore JX, Sutton A, Nain P, Hamerschlak N, Weintraub NL, Dent S, Tsai MH, Banerjee A, Ghosh AK, Sadler D, Coughlin SS, Barac A, Shanahan J, Montero AJ, Guha A. Allostatic Load/Chronic Stress and Cardiovascular Outcomes in Patients Diagnosed With Breast, Lung, or Colorectal Cancer. *J Am Heart Assoc*. 2024 Jul 16;13(14):e033295. doi: 10.1161/JAHA.123.033295. Epub 2024 Jul 9. PMID: 38979791
- Mohan A, Quingalahua E, Gunchick V, Paul S, Kumar-Sinha C, Crysler O, Zalupski MM, Sahai V. PARP inhibitor therapy in patients with IDH1 mutated cholangiocarcinoma. *Oncologist*. 2024 Aug 5;29(8):725-730. doi: 10.1093/oncolo/oyae163. PMID: 39036962
- Ahmed M, Pu A, Jencks K, Bishu S, Higgins P, Chey WD, Rao K, Lee A. Predictors of irritable bowel syndrome-like symptoms in quiescent inflammatory bowel disease. *Neurogastroenterol Motil*. 2024 Jun;36(6):e14809. doi: 10.1111/nmo.14809. Epub 2024 Apr 23. PMID: 38651743
- Owlett LD, Zapanta B, Sandkuhler SE, Ames EG, Hickey SE, Mackenzie SJ, Meisner JK. Multicenter appraisal of comorbid TANGO2 deficiency disorder in patients with 22q11.2 deletion syndrome. *Am J Med Genet A*. 2024 Jun 3:e63778. doi: 10.1002/ajmg.a.63778. Epub ahead of print. PMID: 38829177
- Huppert LA, Fisch S, Tsopurashvili E, Somepalle SS, Salans M, Vasudevan HN, Jo Chien A, Majure M, Rugo HS, Balassanian R, Boreta L, Melisko ME. Demographic and clinical characteristics of patients with metastatic breast cancer and leptomeningeal disease: a single center retrospective cohort study. *Breast Cancer Res Treat*. 2024 Jun 18. doi: 10.1007/s10549-024-07339-1. Epub ahead of print. PMID: 38888796
- Shabet C, Kattapuram M, Burton A, Thoeny R, Nielsen H, Accardo ML, Smith EH, Koeppe E, Else T, Cha KB. A retrospective cohort study of genetic referral and diagnosis of Birt-Hogg-Dubé Syndrome in patients with Trichodiscoma and Fibrofolliculoma skin lesions. *Fam Cancer*. 2024 Jun 1. doi: 10.1007/s10689-024-00402-2. Epub ahead of print. PMID: 38822938
- Sabharwal B, Lawal NO, Smith MA. Rotating Palliative Care Patients From Full Agonist Opioids to Low Dose Milligram Buprenorphine. *J Pain Symptom Manage*. 2024 May 21:S0885-3924(24)00786-3. doi: 10.1016/j.jpainsymman.2024.05.018. Epub ahead of print. PMID: 38777074
- Carrasco M, Estiphan T, McCaffery H, McNamara N. "Is it a seizure?" Prediction tool for seizure likelihood in children aged 1-24 months admitted for electroencephalographic monitoring of paroxysmal, rhythmic, and repetitive events. *Epilepsia*. 2024 May 29. doi: 10.1111/epi.18018. Epub ahead of print. PMID: 38808646
- Ahn AB, Kulhari S, Rhee J, Cooper G. Inappropriate Ordering of Multitarget Stool DNA Tests for Colon Cancer Screening. *J Am Board Fam Med*. 2024 Mar-Apr;37(2):328-331. doi: 10.3122/jabfm.2023.230164R2. PMID: 38740492

Publications - quotation

- “A retrospective cohort was obtained through use of...EMERSE...Cohort 1 contained one previously diagnosed patient with comorbid 22q11.2DS and TDD, and this patient was identified as high risk using this screening system and **demonstrated the efficacy of the screening methodology.**” [PMID 38829177]

Imminent software release

- Version 7
- Has been in production at U of Michigan ~1 month
- External Release date: We're getting really, really close!
- Mostly documentation updates and minor bug fixes
 - Some documentation components have been re-written and re-organized to make them more clear

Updating to version 7

- Moderate complexity
 - But less than install, since not dealing with DB compatibility, etc.
- We will work with sites individually on the upgrade
 - Must upgrade from version-to-version, don't skip steps
 - contact us when you are ready or want to discuss logistics
- Reindexing is necessary – index is restructured to handle NLP
- Multiple new components, new DB tables, etc

Updating to version 7

- Someone at your site will need an active UMLS license
 - <https://www.nlm.nih.gov/databases/umls.html>
 - Not required or expected of standard users
- We will provide a UMLS extract
- We will provide a new synonyms file to map terms to UMLS CUIs
- Need to update user search terms
 - Prior systems lacked robust validation
 - We will provide scripts – looks for things that cannot be automatically fixed

Updating to version 7

- NLP is built-in
 - Named entity recognition (NER) – diagnoses, procedures, drugs, etc.
 - Attributes – negation, uncertainty, subject, history of
- Negation, Uncertainty, etc, based on sets of regular expressions/patterns
 - Everything possible is tagged with attributes, not just UMLS concepts
 - “possible rain showers for the Michigan game”
 - Sentence/phrase detection is challenging in notes
- If you don't like the built-in NLP you can use your own system and add annotations at the time of indexing
 - We have documentation on how to do this
 - We can meet to discuss/plan

Example custom NLP header

```
RU1FUINFX0g=2|5|XHRcdEVNRVJTRSoqKioqKioqRVNSRU1FXHRcdA==
800      810      CUI_0015392R
800      810      SMG_ANATOMY      R
1169     1173     CUI_0023317R
1169     1173     SMG_ANATOMY      R
1580     1590     CUI_0015392R
1580     1590     SMG_ANATOMY      R
1672     1675     CUI_0015392R
```

...

```
1971     1983     POL_NEG      T
1971     1983     CUI_0025952R
1971     1983     SMG_TITLE    R
5528     5535     POL_NEG      T
5528     5535     CUI_0020405R
5528     5535     SMG_TITLE    R
XHRcdEVNRVJTRSoqKioqKioqRVNSRU1FXHRcdA==
Case Report from the Journal of Medical Case Reports
```

Title: Reactive arthritis developing after pneumococcal conjunctivitis: a case report | Journal of Medical Case Reports | Full Text

DOI: 10.1186/1752-1947-1-2

Abstract

Background

S. pneumoniae is a known cause of bacterial conjunctivitis and can be transmitted through contact with infected carriers.

Case presentation

A 38-year-old ophthalmologist developing reactive arthritis following clinic-acquired pneumococcal conjunctivitis.

For Users

- No changes required if you don't want to use new features
 - User interface is updated, so will take some learning
 - We think it should be easier to use
- Many more features previously “hidden” are now exposed
 - No more using ^ to denote case sensitive searches
 - Proximity searches
 - Exclude phrase is now better integrated
 - Exclude notes is now easily available
- Better checking of terms for potential problems
- Search terms shown in original form, making it easier to interpret (although some characters are ignored)
 - “s p and” is now “s/p AND”
- Additional interface enhancements for more clarity (moving some buttons to more logical locations)

For Users

- Can now search by terms (words) or concept unique identifiers (CUIs), or a mix of both
- NLP enables searching with additional annotations such as negation
 - Our most requested feature over the years
 - Example, search for headache, but exclude “denies headache”
- When reviewing notes:
 - highlight based on some NLP “semantic groups” – drugs, anatomy, disorders, procedures, etc.
 - Underline based on annotations – negation, uncertainty, history of, etc.
- With filters, can search based on document date and/or age of patient at the time the document was created
- Query Details show logical AND/OR relationship which previously was not obvious to users

For Users

- One Implication of the change: Standard term entry is now more powerful/capable than “Advanced Terms”.
 - Only exception (for now) is better control over Boolean searching when using Advanced Terms

Brief Demo

- Demo system is online and available for anyone to test
- Contact us for an account

Open Forum

- Questions/Comments/Discussion
- Next Meeting: TBD (Jan/Feb 2025)
- Please complete meeting survey:



Wrap up

- THANK YOU
- Next Meeting: TBD (Jan/Feb 2025)
- Please complete meeting survey:

