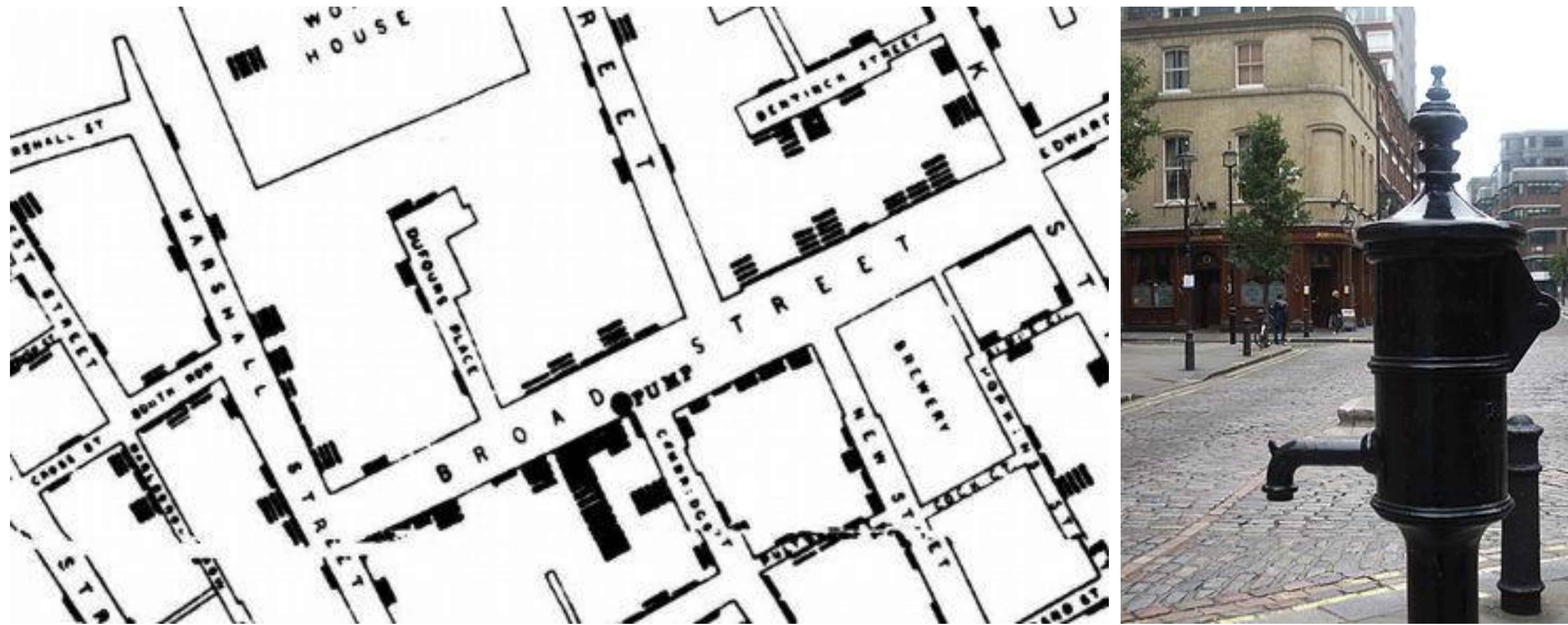




2022 LEAD Capstone Poster Session

Catching up on big health data:
Geo-enabling electronic health records for UTSW population health research



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Abstract

Background: In 2022, NIH will fund ~\$3.6B of research on the social determinants of health (SDOH), categorized by measures of access, exposures, and communities. In US-based research, measuring these items in large cohorts likely requires locational information for patients. A recent systematic review shows that using the EHR to link patient addresses to place (*geocoding*) to conduct population health and epidemiological research increased 370% between 2012-16 from the previous 5-year period.

Problem: UTSW aspires to be a leader in clinical informatics and launched a School of Public Health with degree plans in data sciences. Demand for use of the EHR as an SDOH research tool across campus will increase; however, we lack a campus-wide method for geocoding patient addresses. UTSW researchers duplicate materials cost for each grant requiring this simple yet time-consuming work and could be geocoding the same addresses in different projects. Without campus-wide enterprise geocoding, UTSW cannot easily ensure geocoding conforms to HIPAA or gold-standard methods are followed.

Solution: Available options to close this gap in research-readiness vary in usability, cost, and level: site-license required software and data (project-level), contract with a geocoding service (warehouse-level), or use EPIC or Azure geocoding services (all records). Stakeholders from clinical informatics, the O'Donnell School of Public Health, and faculty researchers need to meet formally to select an option, and then design and implement a campus-wide geocoding process.

Expected results: Campus-wide geocoding protocols will improve the research-readiness of the campus, enrich the clinical informatics and School of Public Health training programs, and offer UTSW researchers the opportunity to more easily generate high-quality inference about SDOH.



Objectives

To investigate the acceptability of various geocoding solutions, make recommendations to campus leadership, and help implement the right solution for UTSW



Background Information

- Social determinants of health (SDOH):
 - Def: conditions in people's environments that affect a wide range of health outcomes and risks
 - Can be categorized by measures of access, exposures, and communities
- How to study SDOH in EHR-based population health research?
 - Describe environments through validated measures
 - Link patients to place-based measures by **geocoding** their addresses
- Why should a medical center conduct place-based research?
 - NIH 2022 budget for SDOH research: **~\$3.6 billion**
 - Volume of studies using geocoded EHR addresses to conduct population and epidemiological research **increased 370% between 2012-16** compared to the previous 5-year period
- Importance of **enterprise geocoding** to UTSW
 - The use of the EHR as an SDOH research tool will soon increase with clinical informatics and Peter O'Donnell Jr School of Public health trainees & faculty recruits
 - We are currently duplicating significant labor and materials cost across grants, without assurance that investigators follow HIPAA or gold-standard guidelines



Project Plan

- Convene a representative group of stakeholders:
 - Clinical informatics leaders
 - Medical school faculty conducting SDOH research
 - Peter O'Donnell School of Public Health faculty
- Evaluate options for campus-wide enterprise geocoding:
 - Enhance project-based ad-hoc structure to eliminate duplicated costs for software and data licensing
 - Contract with a service to geocode address data inside the data lake
 - Augment EHR records with place-based IDs using Epic or Azure
- Recommend a solution to campus leadership



Application of What You Learned at LEAD

- **Communication**
 - Present the problem in clear, concise terms
 - State why it matters to the broader campus
- **Negotiation and conflict management**
 - Leading stakeholder sessions to solicit opinions from key stakeholders will air opposing viewpoints
 - Authoring recommendations will require consensus from a diverse group
- **Institutional priorities (demystifying UTSW)**
 - Link the problem and its solution to strategic priorities



Proposed Budget

- **Planning stages: 1 year**
 - Service commitment of 1.5 hrs/month from stakeholders
 - 5% FTE for lead faculty (~2 hrs/week)
 - 20% FTE for administrative & purchasing assistance
- **Implementation – TBD**
 - Annual licensing fees
 - Per-record geocoding costs
 - Data processing and storage



Innovation and Significance

Benefits of implementing enterprise geocoding extend beyond me:

- Bring UTSW up to speed compared to other large health systems conducting peer-reviewed research
- Prepare UTSW investigators, QA/QI teams, and business units to engage in real-time data analytics to inform care interventions and strategic decisions
- Position UTSW OSPH, Infectious Disease, and Bioinformatics faculty to assist local health departments with epidemic response
- Enhance student training in clinical informatics and school of public health
- Strengthen the facilities and environment section on all grant applications through the inclusion of this invaluable resource
- Increase collaboration resources on multi-institutional grants
- Decrease barriers to SDOH research at UTSW



References

- NIH Reporter Website: <https://report.nih.gov/funding/categorical-spending#/>
- Healthy People 2030: <https://health.gov/healthypeople/priority-areas/social-determinants-health>
- Schinasi LH, Auchincloss AH, Forrest CB, Roux AV. Using electronic health record data for environmental and place based population health research: a systematic review. *Annals of epidemiology*. 2018 Jul 1;28(7):493-502.
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