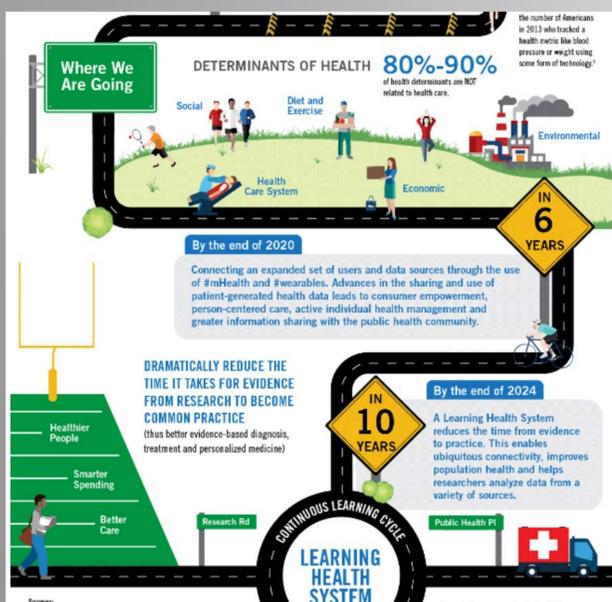


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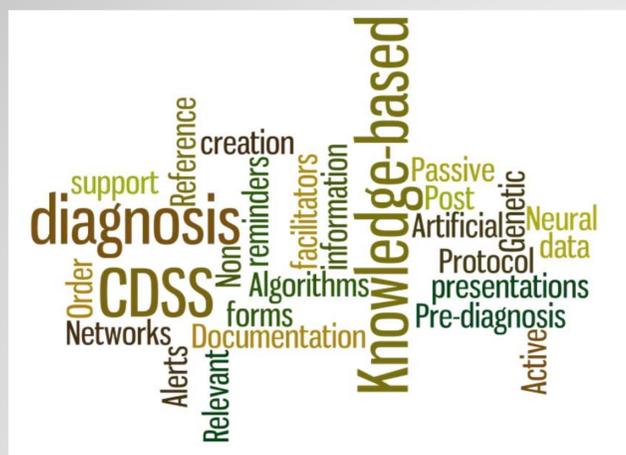
BACKGROUND AND SIGNIFICANCE

- ❖ Clinical Decision Support (CDS) is a process of providing healthcare team filtered, useful, organized information, at the right time, to optimize the decision-making process for improved outcomes (Timbie, Damberg, Schnieder, and Bell, 2012).
- ❖ Use of CDS and Clinical Decision Support Systems (CDSS) allow clinicians to access information which may save time, optimize workflow, and assist in decisions. Below are examples of successful CDS implementations.
- ❖ A level one study conducted by O'Connor et al. found improvements in hemoglobin A1c, better control of systolic and diastolic pressures, improved LDL, and provider satisfaction (2011).
- ❖ Chen et al. Stride Project used naïve Bayes aggregation approach resulted in improved mortality, decrease ICU and hospital length of stay, and lower readmission (2011).
- ❖ Six studies produced frameworks of design, implementation, and maintenance (Ash, et al., 2012; Clinical Decision Support Consortium, 2009; Wright, et al., 2014; Timbie, et al., 2012; Miller, et al., 2014; & Evans, et al., 2015).



RESEARCH QUESTION

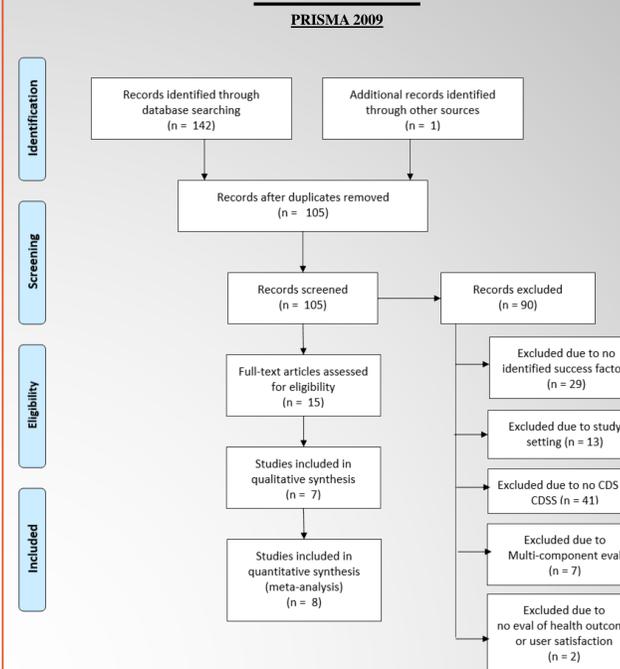
“Is there a criterion for success of Clinical Decision Support (CDS) Tools and Systems in Electronic Health Records that improve health outcomes and end-user satisfaction?”



METHODOLOGY

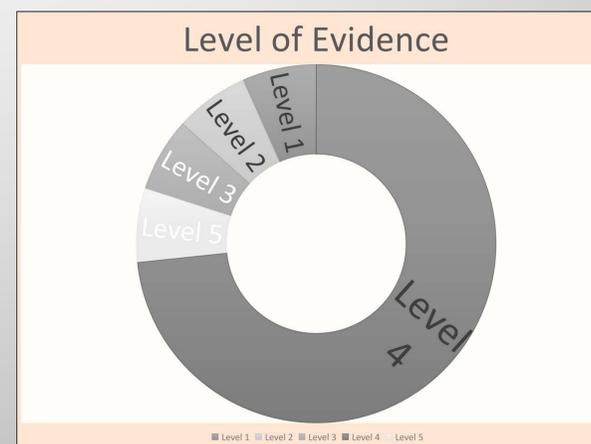
- ❖ An integrated review of the literature was conducted using the methodology described by Whittemore, Knafl (2005), and Brown (2018).
- ❖ A systematic search of the peer-reviewed literature was completed using the following databases: Cochrane, CINAHL, MEDLINE Complete, Information Science & Technology, Science & Technology Collection, Academic Search Ultimate, and bibliography mining.
- ❖ Key words used in searching were: “clinical decision support,” and “electronic health record,” and “goal”.
- ❖ Search criteria was limited to “full text articles” between the years 2008-2018. Due to a gap in recent literature, the time frame was expanded.
- ❖ A review of literature was conducted evaluating 143 articles which generated thirty-eight duplicates.
- ❖ Exclusions from EHR implementations in commercial setting, multi-variable, and those that lacked, outcome, performance, or user satisfaction evaluation eliminated 90 articles.

LITERATURE SEARCH FLOW DIAGRAM



RESULTS

- ❖ One hundred and five articles were initially identified; Fifteen included in final sample.
- ❖ Fifteen articles including one level one, one level two, one level three, eleven level fours, and one level five, met the inclusion criteria and considered appropriate to use in this review.
- ❖ Level of evidence rated using evidence pyramid published by Long & Gannaway and Appraisal Guides by Brown (2015; 2018).



LITERATURE SYNTHESIS

- ❖ Results from several studies which produced clinically significant findings recommended the use of CDS and CDSS (Sittig, et al., 2012; Miller, et al., 2014; Zhou, et al., 2012, Richardson, et al., 2011; Wright, et al., 2014; Grant, et al., 2016; & Fowler, et al., 2014).
- ❖ Wright et al. (2014), Timbie et al. (2012), Miller et al. (2014), Evans et al. (2015), Ash et al. (2012), incorporate evaluation of **clinical workflow** as a component of their frameworks.
- ❖ **Local configuration** refer to the system design that adapt to fit the environment where Wright et al. (2014), Richardson et al. (2011), Evans et al. (2015), Ash et al. (2012), Zhou et al. (2012), and Rinott et al. (2011), emphasize the importance of integration.
- ❖ Fowler et al. (2014), and O'Connor et al. (2011) found that **usability** is a factor for success.
- ❖ Richardson et al. (2011), Zhou et al. (2012), and Miller et al. (2014), believe in designing systems that are **user centric**; Grant et al. found that **patient centric** effective (2016).
- ❖ Effective **governance** allows organizations to garner feedback from users, ensure it aligns with system strategies, and complies with regulatory constraints.

CLINICAL IMPLICATIONS

- ❖ Effective CDS and CDSS implementation and maintenance is a multifactorial approach. Improvements in this area saves time, cost, and optimizes data used in care thereby improving health outcomes.

CONCLUSION

- ❖ Emerging themes were prevalent in the frameworks for success. However, continued higher levels of research need to be conducted to support identified factors.

REFERENCES

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