

Caution: Even Completely Accurate Decision Support Systems Can (Sometimes) Be Ignored

Yefim Roth and Ravit Alfandari

Background and purpose:

The process of identifying needs and delivering effective help to children living in abusive family circumstances relies on the accuracy and soundness of practitioners' decision making. In the uncertain and unpredictable field of child protection, practitioners must make difficult judgments and emotionally charged decisions quickly and with insufficient information. Contemporary efforts to improve practitioners' diagnostic capacity of child maltreatment and timely effective care tend to focus on technology-driven tools and artifacts. One such recent approach is the development of automatic clinical decision support systems (CDS), that use individual service user's electronic data to automatically generate assessments and provide actionable recommendations at appropriate decision-making points. The aim of the current study is to empirically investigate the impact of CDS designed to improve healthcare professionals' identification of child maltreatment using lab experiments.

Method:

We implement repeated choice computerized lab experiments. In each trial, the participants see an ambiguous description of the child diagnosis (e.g., "injury described as an outcome of the child rolling off the diaper changing table and falling to the floor"). The task of the participants is to decide in each trial based on the provided ambiguous diagnose whether there is a high risk of child abuse which requires further investigation or not. In addition, participants observe the advice of CDS, another care giver, both or none.

Findings:

Initially, participants tend to follow the given advice whether human or CDS. When there is a discrepancy between human and CDS advice, the participants tend to follow the human advice, exhibiting algorithm aversion. Within time, the participants learn to follow the more accurate CDS advice. Importantly, when there is personal cost for the participants (e.g., longer waiting after reporting further investigation), they tend to under report cases for further investigation and ignore some of the CDS advice, even if the CDS is completely accurate.

Conclusion:

Technology-driven solutions necessitate constant monitoring and deliberate, transparent evaluation of the trade-offs and challenges of their implementation in everyday practice. To design effective CDS, policy makers should take into account not only the CDS accuracy, but also the cost-benefit considerations of those who have to decide whether to follow the CDS suggestion or ignore it.

Keywords:

Technology, risk assessment, clinical decision support systems, child maltreatment