

# Understanding Complex Medical Decision Models: Equivalence Classes (PRELIM)

## Abstract

*A deeper understanding of how models predict complex phenomenon provides a structure to understand their inner working and to communicate that inner rationale to stakeholders not directly involved in model building. Here we demonstrate how identifying equivalence classes provides a useful signal . . .*

Medical decision making, Model interpretation.

**Keywords:**

## 1. Introduction

### 1.1. Clinical Decision Support Algorithms Are Intrinsically Complex

### 1.2. They Must Also Be Interpretable

### 1.3. Equivalence Classes Identify Mathematically Equivalent Phenotypes

### 1.4. Alternative Approaches

### 1.5. Case Study—INTOXICATE: An Algorithm to Reduce Unnecessary Admissions to the Intensive Care Unit

- Partial Dependency Plot
- Unit Tests

## 2. Methods

### 2.1. Implementation of INTOXICATE

### 2.2. Calculation of Equivalence Classes

- determining of radius

### 2.3. Measuring Clinical Heterogeneity

### 2.4. Communication of Results to Medical Practitioners

## 3. Results

## 4. Conclusions

## 5. Type-style and fonts

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**Figure 1. Sample figure with caption.**

## 5.1. Second-order headings

As in this heading, they should be Times 11-point boldface, initially capitalized, flush left, with one blank line before, and one after.

## 6. References

References and in-text citation should be in line with the format recommended by the Publication Manual of the American Psychological Association (7th edition). The style and grammar guidelines are freely available and can be found at: <https://apastyle.apa.org/style-grammar-guidelines>.

List and number all bibliographical references in 9-point Times, single-spaced, and in an alphabetical order at the end of your paper. For example, Allen and Santomero (1997) and Castells (2010) and Bloomberg (2018) and Allen and Santomero (1997).

sample

### References

- Allen, F., & Santomero, A. (1997). The theory of financial intermediation. *Journal of Banking & Finance*, (21(11-12)), 1461–1485.
- Bloomberg. (2018). “*wolf of wall street*” *jordan belfort isn’t paying his debts, u.s. says*. <https://www.bloomberg.com/news/articles/2018-05-16/-wolf-of-wall-street-belfort-isn-t-paying-his-debts-u-s-says> (accessed: 04.01.2022).
- Castells, M. (2010). *The rise of the network society* (2nd ed.) Wiley-Blackwell.