

Multi-State Clinical Prediction Models in Renal Replacement Therapy

A Thesis

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PhD Medicine

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Abstract

The preface pretty much says it all.

Second paragraph of abstract starts here.

Chapter 1

Literature Review

This is the first chapter of my thesis and will include a brief summary of what the current literature looks like. It will be split into sections and subsections as specified in my ToDo List

1.1 Introduction

lorem ipsum blah blah blah

1.2 Clinical Prediction Models

The idea of prognosis dates back to ancient Greece with the work of Hippocrates [**Cite: Hippocrates**] and is derived from the Greek for “know before” meaning to forecast the future. Within the sphere of healthcare...

Prognosis research can be broken down into four main categories (with three subcategories [**Cite: Riley_Book**]):

- Type I: Fundamental prognosis research [**Cite: LR:1**]
- Type II: Prognostic factor research[**Cite: LR:2**]
- Type III: Prognostic model research[**Cite: LR:3**]
 - Model development[**Cite: LR:34**]
 - Model validation[**Cite: LR:35**]
 - Model impact evaluation[**Cite: LR:36**]
- Type IV: Stratified Medicine [**Cite: LR:4**]

1.2.1 Fundamental Prognosis Research

What is it?

1.2.2 Prognostic Factor Research

The aim of prognostic factor research (Type II) is to discover which factors are associated with disease progression. This allows for the general attribution of relationships between predictors and clinical outcomes.

Predictive factor research can give researchers and clinicians an idea of which patient factors are important when assessing a disease. It is vital to the development of clinical predictive models as without an idea of what covariates *can* affect an outcome, we cannot figure out which variables *will* affect the outcome. For example, [xxxx] demonstrated that [xxxx] is correlated with [xxxx], which subsequently used as a covariate in the development of the [xxxx] model.

1.2.3 Prognostic Model Research

Model Development

Model Validation

Impact Evaluation

1.2.4 Stratified Medicine

1.2.5 Examples

1.3 Competing Risks & Multi-State Models

Chapter 2

Mathematics and Science

2.1 Math

T_EX is the best way to typeset mathematics. Donald Knuth designed T_EX when he got frustrated at how long it was taking the typesetters to finish his book, which contained a lot of mathematics. One nice feature of *R Markdown* is its ability to read LaTeX code directly.

If you are doing a thesis that will involve lots of math, you will want to read the following section which has been commented out. If you're not going to use math, skip over or delete this next commented section.

2.2 Chemistry 101: Symbols

Chemical formulas will look best if they are not italicized. Get around math mode's automatic italicizing in LaTeX by using the argument `$\mathrm{formula here}$` , with your formula inside the curly brackets. (Notice the use of the backticks here which enclose text that acts as code.)

So, Fe₂²⁺Cr₂O₄ is written `$\mathrm{Fe_2^{2+}Cr_2O_4}$` .

Exponent or Superscript: O⁻

Subscript: CH₄

To stack numbers or letters as in Fe₂²⁺, the subscript is defined first, and then the superscript is defined.

Bullet: CuCl • 7H₂O

Delta: Δ

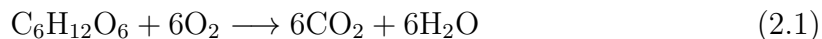
Reaction Arrows: \longrightarrow or $\xrightarrow{\text{solution}}$

Resonance Arrows: \longleftrightarrow

Reversible Reaction Arrows: \rightleftharpoons

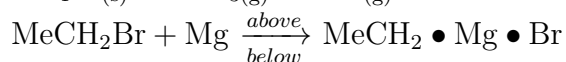
2.2.1 Typesetting reactions

You may wish to put your reaction in an equation environment, which means that LaTeX will place the reaction where it fits and will number the equations for you.



We can reference this combustion of glucose reaction via Equation (2.1).

2.2.2 Other examples of reactions



2.3 Physics

Many of the symbols you will need can be found on the math page <http://web.reed.edu/cis/help/latex/math.html> and the Comprehensive LaTeX Symbol Guide (<http://mirror.utexas.edu/ctan/info/symbols/comprehensive/symbols-letter.pdf>).

2.4 Biology

You will probably find the resources at <http://www.lecb.ncifcrf.gov/~toms/latex.html> helpful, particularly the links to bst's for various journals. You may also be interested in TeXShade for nucleotide typesetting (<http://homepages.uni-tuebingen.de/beitz/txe.html>). Be sure to read the proceeding chapter on graphics and tables.

References

- Angel, E. (2000). *Interactive computer graphics : A top-down approach with opengl*. Boston, MA: Addison Wesley Longman.
- Angel, E. (2001a). *Batch-file computer graphics : A bottom-up approach with quicktime*. Boston, MA: Wesley Addison Longman.
- Angel, E. (2001b). *Test second book by angel*. Boston, MA: Wesley Addison Longman.