Leading Population Health Improvement

Reflections and tips from public health practice

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Preface

Since January 2021, I have served as the state public health officer and director of the California Department of Public Health. From January 2011 to December 2020, I was the health officer of the City and County of San Francisco and director of the Population Health Division at the San Francisco Department of Public Health.

The lean DNA codes for the following:

1. Respect for people (staff, community, client, patient)
2. Continuous improvement (incremental and breakthrough)
3. Scientific thinking, problem solving, and innovation
4. Elimination of waste and variability
5. Being agile, adaptive, and responsive to meet challenges

Outline

- 1 Leadership foundations
  - ☐ Defining leadership
  - – Theory of change
  - – Leadership philosophy
  - – True north compass
- 2 Respect for people
  - – Respect for people
  - – Shingo principles
  - – Transforming self and interpersonal relationships
    - ∗ humility
    - ∗ reflective listening
    - ∗ reflection
    - ∗ trust
    - ∗ courage
  - – Transforming teams and organizations
    - ∗ psychological safety
    - ∗ accountability

        - conflict
    - Transforming communities
- 3 Continuous improvement
    - Continuous improvement
    - True north metrics
    - Results-based accountability
    - Lean management
    - Lean production
- 4 Scientific problem solving
    - PDSA cycle
    - Double-loop learning
    - Lean thinking
    - A3 reporting
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- 5 Elimination of waste and variability
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- 6 Being agile, adaptive, and responsive
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    - Adaptiveness
    - Responsiveness
- 7 Decision intelligence
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    - Decision quality overview
        - Frame
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        - Alternatives
        - Reasoning
        - Commitment to action
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    - Structured decision making
    - Decisions under uncertainty
    - Decisions under deep uncertainty

- 8 Science and technology
  - Causal inference
  - Probabilistic reasoning
  - Implementation science
  - Population health data science
  - Artificial intelligenece

Testing

citations

Here are some citations [1–3].

tikz

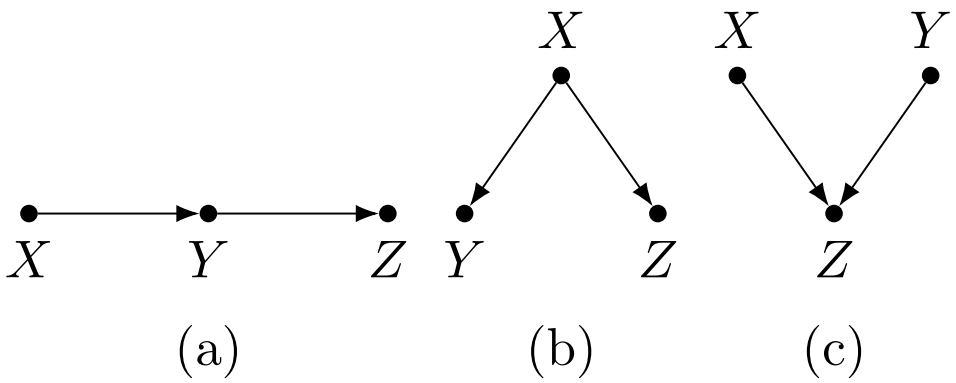


Figure 1: Some caption

r code

Figure 2 further explores the impact of temperature on ozone level.

```
library(ggplot2)

ggplot(airquality, aes(Temp, Ozone)) +
  geom_point() +
  geom_smooth(method = "loess"
)
```

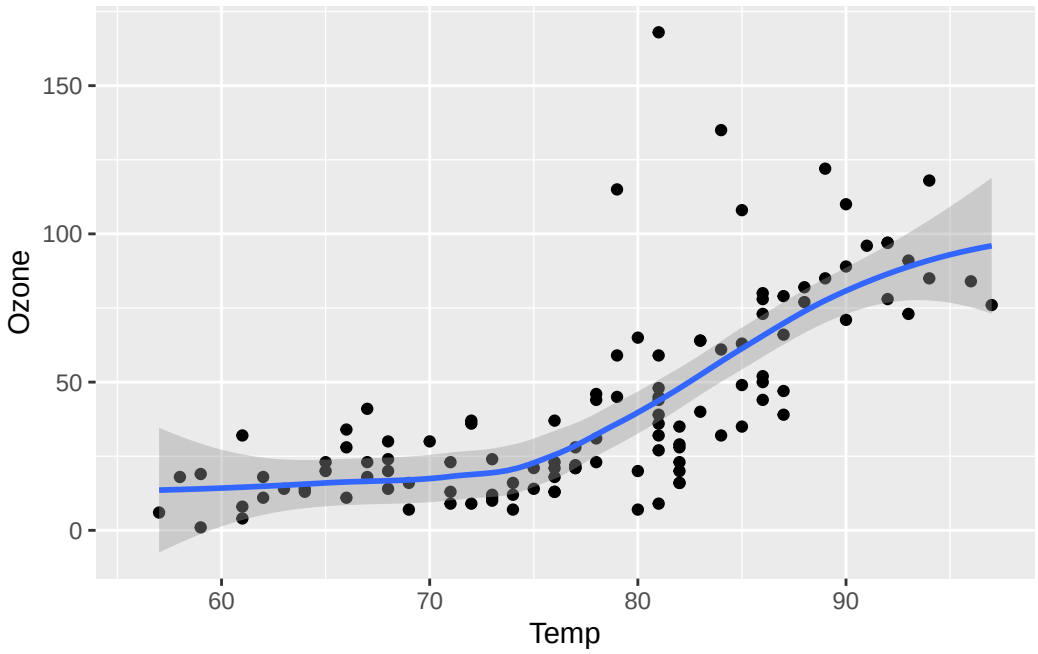


Figure 2: Temperature and ozone level.

julia code

```
Julia version 1.8.0 at location /Applications/Julia-1.8.app/Contents/Resources/julia/bin wil
```

```
Loading setup script for JuliaCall...
```

```
Finish loading setup script for JuliaCall.
```

Plot function pair (x(u), y(u)). See Figure 3 for an example.

```julia
using Plots

plot(sin,
     x->sin(2x),
     0,
     2 ,
     leg=false,
     fill=(0,:lavender))
```

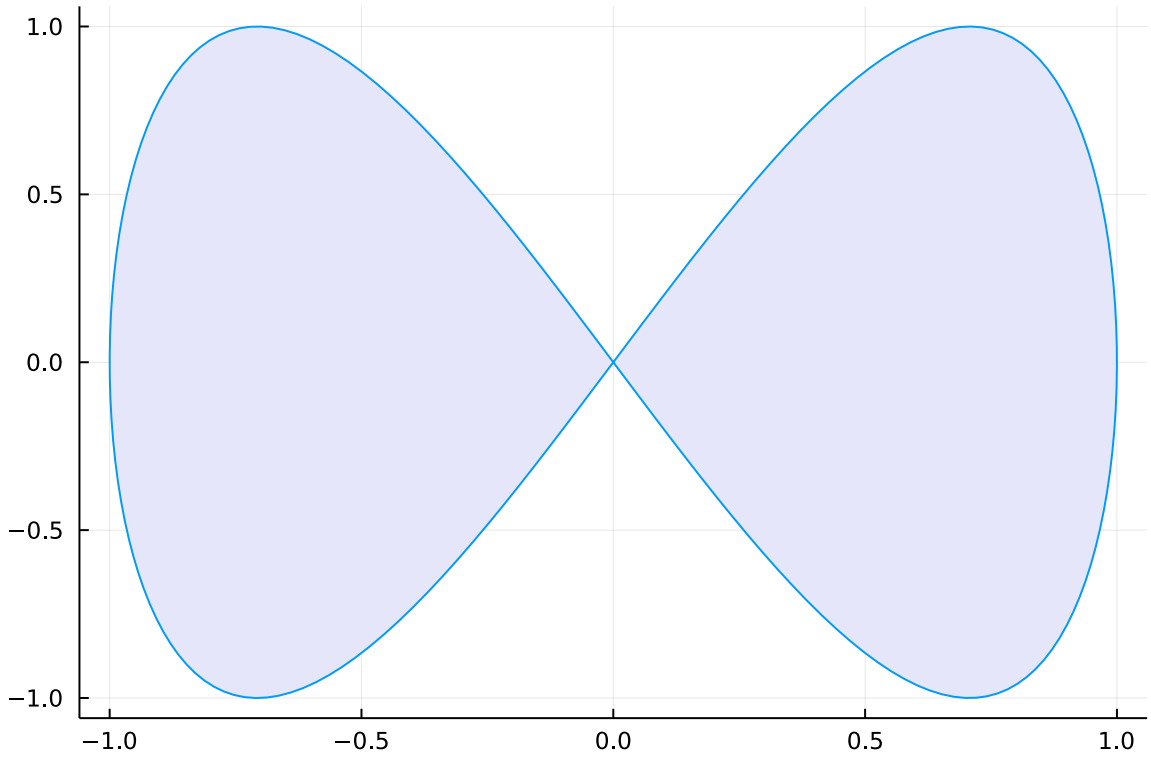
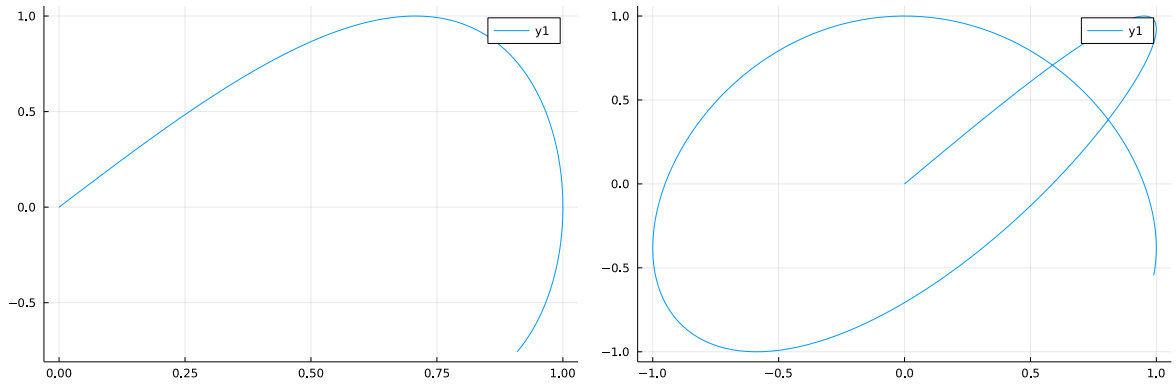


Figure 3: Parametric Plots

By default Julia cells will automatically print the value of their last statement (as with the example above where the call to `plot()` resulted in plot output). If you want to display multiple plots (or other types of output) from a single cell you should call the `display()` function explicitly. For example, here we output two plots side-by-side with sub-captions:

```
using Plots

display(plot(sin, x -> sin(2x), 0, 2))
display(plot(x -> sin(4x), y -> sin(5y), 0, 2))
```



(a) Plot 2 (b) Plot 1

Figure 4: Multiple Plots

1 Introduction

This is a book created from markdown and executable code.

See [**knuth84?**] for additional discussion of literate programming.

Part I

Leadership foundations

2 Defining leadership

3 Theory of change

In summary, this book has no content whatsoever.

4 Leadership philosophy

5 True north compass

Part II

Respect for people

Part III

Continuous improvement

Part IV

Scientific problem solving

Part V

Elimination of waste and variability

Part VI

Being agile, adaptive, and responsive

Part VII

Decision intelligence

Part VIII

Science and technology

1. Aragón T, Reiter R, Katcher B. San francisco burden of disease & injury study: Mortality analysis 1990-1995 [Internet]. San Francisco Department of Public Health; 1998. Available from: http://bit.ly/SFDPH1998-BODI-Report

2. Aragón TJ, Ulrich S, Fernyak S, Rutherford GW. Risks of serious complications and death from smallpox vaccination: A systematic review of the united states experience, 1963-1968. BMC public health. 2003 Aug;3:26.

3. Aragón TJ, Fernyak SE. The risks and benefits of pre-event smallpox vaccination: Where you stand depends on where you sit. Annals of emergency medicine. 2003 Nov;42:681–4.