# Editorial review of the Binax test

My editorial impression of the Binax test is of a highly selective use of data that undermines confidence in the objectivity of those creating and advocating these tests and even in the underlying theory that mass screening is necessary and effective for controlling Covid. This difference between the publicized claims for the test and the much less optimistic and nuanced studies leaves the impression of deceptive practice.

Above in *The Utility Of The Screening Tests Is Dubious* and "*Manufacture's claimed accuracy is implausible*" I list some of the more obvious distorting or erroneous assumptions or misleading choices made in the researching and documenting the Binax test. It is remarkable that all of those interventions *exaggerate* the accuracy of the test. This distribution of shortcomings is not conclusive proof of experimenter bias but, if accurate, it is clearly is not consistent with random and genuine errors. (See "*Bias In estimating the test's efficacy "often" cannot be ruled out*." above).

The following remarks are beyond the scope of the project but are related to it.

The entire theory of medical screening testing as a countermeasure to Covid has been widely accepted as necessary and effective. However the theory itself is suspect, not just the tests. I am not alone in the opinion that mass screening at schools is not effective or needed. Mass screening for Covid-19 may be an expensive waste of resources. The financial and political desire for widespread community testing may sell well financially and politically but it is quite possible that the deployment of mass screening has gotten ahead of science based medicine.

The following links are just a few raising some common sense questions about mass screening.

*In the absence of evidence that mass-testing of asymptomatic people for COVID-19 has been beneficial, we cannot know whether the resources poured into such measures will return the public health value being pursued.* [*ASM*](https://asm.org/Articles/2021/December/Real-World-Performance-of-COVID-19-Rapid-Antigen-T)

*The coupling of rapid, cheap and simplicity may not be the best option for widespread community testing.* [Nature](https://www.nature.com/articles/s41598-021-94055-1).

*The US Department of Health and Human Services purchased 150 million BinaxNOW™ tests to expand testing capacity and started distributing these tests to states on September 28, 2020. A major objective of the deployment of these tests was to safely reopen schools. However, little data was available on the performance of these tests among asymptomatic school age children..* [PLOS](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0249710#sec008)

*Information detailing population-wide* [mass screening] *testing strategies for SARS-COV-2 is largely missing from the peer reviewed literature, meaning that the evidence available to guide countries in their decision-making is limited. ….* [European meta study of screening Covid 19](https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-population-wide-testing-country-experiences.pdf)

[School Screening Counterproductive ?](https://www.usnews.com/news/health-news/articles/2021-07-14/why-covid-19-screening-should-be-used-sparingly-in-schools)

Finally we cannot avoid considering the self-interest of those responsible for policy especially if we see evidence of panic, poor or faked science and a public more fearful of an alleged danger than losing their basic rights. It is unfortunate that nobody gets paid for saying "I don't know". The desire to "do something" or to *appear* to "do something" often explains dramatic but ineffective actions by authorities. Implementing unnecessary or ineffective measures would be especially easy in a period of mass panic and hypochondria. It is not an ad hominin argument to point out that test manufacturers, politicians and public health institutions have an incestuous relationship and some perverse incentives. Science is objective. Scientists are not.

# Video plan

*Once you get my approval, submit your final project’s PowerPoint slides as a PDF file at the end of the semester (see the class web page for due dates.)*

*If you’re taking this class as STAT 476, then please turn in a presentation that’s 10 to 15 slides long. If you’re signed up for STAT 576, then please make your PDF 18 to 25 slides long.*

*Make sure your file names are of the form “Final Project YourLastName.” For example, I would call my slides “Final Project Bilisoly.pdf” and my code “Final Project Bilisoly.txt.”*

- Welcome to this presentation of the screening test project.

- The technical goal of this project is to explore the options for getting our python and data science work online and accessible.

- A problem with data science and python is that the work is trapped on local computers. Output is cut and pasted into static documents for publication.

- Much better would be placing the program online with fully interactive plots and data.

- There is only one sensible way to do this. A GUI based in an html webpage.

- So I have used a web page as the GUI for the screening test project.

- Here it is.

- Before getting into the screening test, let's look at the housekeeping features built into this web page.

- Here's the typical web page options menu.

- Settings: Narrow and wide presentation.

- The "about" menu is programmed to document everything about the program.

- There's all the usual description, contact and version information.

- Then we have links to all the documentation you could need to understand or maintain the program.

- In this case the entire project is stored at Github but of course it could be stored anywhere online.

- Let's look at the links:

Program documentation: Here's' a pdf.

It could be read online, but if we download it we get all the benefits of

an active pdf document. Index, active links etc.

Program source code:

All program documentation:

Report a bug. This is very valuable. Feedback from you users is indispensable.

- Record a screencast:

This is a great tool for both the developer and the user.

The developer can easily present his or her work.

The user can create real time videos of the program in action.

Interactive graphs. Recording bugs or other behaviour the user wants changed and so on.

- Moving on to the screening test program itself.

- Menu.

- Over here on the left we have a menu for specifying the users inputs.

- We fill in the details of the medical test we want to model and click "plot now"

- Go through the input fields.

- Pop up help icons. Demonstrate.

- Input Verification.

- The input has to be verified by the program but the web page widgets do some pre-submission verification. I'll enter an invalid number 2 into the sensitivity field. See how the value is rejected.

- Program based verification.

I'll enter an invalid value into the population field (99) and the program rejects it.

Error messages are returned to help the user correct the input.

- OK let's just display the default settings for the test.

- The output appears on the right of the screen.

- Basically we have:

- A report on the calculated screening test statistics.

- An pair of full interactive graphs simulating the screening test.

- A data grid showing the table of values for all the prevalences in the specified range of prevalences.

- A reminder of how to access all documentation.

- A video describing the program.

- Buttons to download all the outputs. Reports, graphs etc.

- The report.

- Content is self-explanatory.

- It can be downloaded as text for inclusion in reports etc.

- The Graphs.

- Show full screen.

- Fully interactive. Show hover text over the displayed prevalence range.

- Zoom in or out.

- Graph content can be altered by the user dynamically using the legend.

- Static download using the plot menu.

- DOWNLOAD Button IS INTERACTIVE.

- Data Table:

- Show full screen.

- Scrollable in both dimensions.

- Can be colored and formatted to make it easier to read.

- This table is configured as output only. But it could also be configured to accept input.

- User can download the data in almost any format. The demonstration offers csv and excel.

- Excel DOWNLOAD Button preserves fields and formatting.

- Video and all media.

- Adding media to web pages is easy and can improve the value of information.

- Now let's look at really using the Screening Test program on real data.