Week 3: Popular Articles

All of the articles for this week deal with diagnostic testing in some way and issues of reliability and fallibility.

a) Better Decisions Through Science, John Swets, Robyn Dawes, and John Monahan (*Scientific American*), October, 2000

This article is a "dumbed-down" (i.e., more "talkie-talkie") version of a longer piece in Psychological Science in the Public Interest (on our web site): PSYCHOLOGICAL SCIENCE CAN IMPROVE DIAGNOSTIC DECISIONS, John A. Swets, Robyn M. Dawes, and John Monahan (2000)

Diagnostic decisions are based on diagnostic tests, e.g., presence/absence of cancer, presence/absence of an enemy plane, etc.

The main discussion centers on ROC (Receiver Operating Characteristic) curves that show the trade-off between increasing the probability of true positives and the increase of false positives as some "cut-score" is changed

There is real controversy about screening for things like breast or prostate cancer; and I disagree about the universal HIV testing advocated on page 99:

We would even argue that almost every adult should be screened and that federal agencies should take the lead in encouraging such testing.

For a further discussion on how ROC curves may not be the "be all" and "end all" for predictions of whether someone will be violent or be a future sexual predator, say (and therefore possibly subject to preventive detention or incarceration), see Ehsan Bokhari ...

b) Do Fingerprints Lie? Michael Spector (*New Yorker*), May 27, 2002

Michael Spector is a *New Yorker* staff writer and author of the book *Denialism*

A forensic science mainstay, but not infallible; based ultimately on human judgements for "a match"

Developed by Galton in the late 19th century (he is called "misanthropic" by Specter, i.e., hatred of humankind)

The phrase "probabilistic science"' is used to refer to fingerprints and their use

The "smudged" print problem in the use of "latent prints"; a latent print is hidden and not readily visible; it is made by contact with a surface

Fingerprints can be so similar that even the most sophisticated computer program can't tell them apart; it takes a trained human eye to detect the subtle differences

This is much like the identification systems called CAPTCHAs: Completely Automated Public Turing test to tell Computers and Humans Apart

Turing test: a test for intelligence in a computer, requiring that a human being should be unable to distinguish the machine from another human being by using the replies to questions put to both

c) Under Suspicion, Atul Gawande (*New Yorker*), January 8, 2001

Atul Gawande is a *New Yorker* staff writer and doctor; author of *Checklist Manifesto* and many other books

This piece is about line-ups and how they are done; eyewitness identification in general

Gary Wells at Iowa State is discussed in detail; he does the science as to what works; his web site is a treasure-trove of stuff – Google: Gary Wells Iowa State