# Why do we need fair tests of treatments?

Modern medicine has been hugely successful at reducing the impact of disease and increasing life expectancy. In spite of this, too much medical decision making is based on insufficient [evidence](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#pop-evidence). As a result, doctors and other health professionals have sometimes harmed patients instead of helping them. It is essential that our decisions about what [treatment](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#pop-treatment)s to use are based on [fair tests](#pop-fair_comparisons_of_treatments) of their [effects](#pop-treatment_effect).

Why it’s important to do fair tests of treatments:

* [Sometimes we get better anyway](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#1)
* [Just because a treatment is new, don’t assume it’s better](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#2)
* [Acting on untested theories or flawed evidence can be harmful](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#3)
* [More treatment is not always better](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#4)
* [Earlier diagnosis is not always better](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#5)
* [Sometimes we just don’t know which treatment is best](http://www.testingtreatments.org/book/about/need-fair-tests-treatments/#6)



## Sometimes we get better anyway



Jamie the Saxt: sorting out myth from reality in the tobacco debate since 1616

But this can lead us to mistakenly attribute our natural recovery to whatever treatment we happened to be on at the time.

[James VI of Scotland](http://en.wikipedia.org/wiki/James_VI_and_I) understood this. In his “[Counterblaste to tobacco](http://www.jameslindlibrary.org/stuart-james-king-of-great-britaine-france-and-ireland-1616/" \o "Get the whole article on the James Lind Library" \t "_blank)” [1], he delivered a far-sighted rebuke to those who claimed that tobacco smoking could cure all manner of ailments, including the common cold.

In this argument, there is first a great mistaking, and next a monstrous absurdity…  Because peradventure when a sick man hath his disease at its height, he hath at that instant taken *Tobacco*, and afterwards his disease having taken the natural course of decline and consequently the Patient recovering his health, O then the Tobacco forsooth, was the worker of that miracle!

It’s therefore essential that all treatments are subject to fair tests that compare them to alternatives.

## Just because a treatment is new doesn’t mean it’s better

Recent medical history is littered with examples of “exciting” new treatments that caused substantial harm to patients because they hadn’t been properly tested.

[Thalidomide for nausea in pregnancy](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/new-but-is-it-better/thalidomide/), [Vioxx for arthritis pain](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/new-but-is-it-better/vioxx/), [Avandia for type 2 diabetes](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/new-but-is-it-better/avandia/) and certain types of [mechanical heart valve](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/new-but-is-it-better/mechanical-heart-valves/) are all examples of treatments that harmed patients due to inadequate testing.

## Untested theory or flawed evidence can be harmful

Often, the benefits we hope to see in treatments fail to materialize.  This can happen if we follow advice from untested theories, anecdotal evidence or evidence from flawed tests.

Examples cited in Testing Treatments include:  [Dr Spock’s advice on babies sleeping position](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/hoped-for-effects-that-dont-materialize/advice-on-babies-sleeping-position/) and [Hormone Replacement Therapy](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/hoped-for-effects-that-dont-materialize/hormone-replacement-therapy-hrt/).

## More is not always better

Just because a treatment works doesn’t mean that more of it is always better. Often, benefits can reach a plateau whilst adverse effects mount up.

We look at [history of intensive treatment for breast cancer](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/more-is-not-necessarily-better/intensive-treatments-for-breast-cancer/), and [bone marrow transplantation](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/more-is-not-necessarily-better/intensive-treatments-for-breast-cancer/bone-marrow-transplantation/).

[Read more in “More is not necessarily better”](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/more-is-not-necessarily-better/).

## Earlier is not always better

Earlier diagnosis doesn’t always lead to better outcomes. Sometimes it makes matters worse by leading to unnecessary treatment or simply extends disease labelling.

We explore the issues in [neuroblastoma](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/earlier-is-not-necessarily-better/lessons-from-neuroblastoma-screening/), [prostate cancer](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/earlier-is-not-necessarily-better/weighing-benefits-and-harms/prostate-cancer-screening-clear-harms-with-uncertain-benefits/), [breast cancer](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/earlier-is-not-necessarily-better/weighing-benefits-and-harms/breast-cancer-screening-well-established-but-remains-contentious/), and [genetic testing](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/earlier-is-not-necessarily-better/weighing-benefits-and-harms/genetic-tests-sometimes-useful-often-dodgy/).

[Read more in “Earlier is not necessarily better”.](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/earlier-is-not-necessarily-better/)

## Sometimes we just don’t know

Often, we need fair tests because we simply don’t know which treatment is best.  There may not be a [dramatic difference](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/dealing-with-uncertainty-about-the-effects-of-treatments/dramatic-treatment-effects-rare-and-readily-recognizable/) between one treatment and another. [Practitioners may disagree](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/dealing-with-uncertainty-about-the-effects-of-treatments/when-practitioners-disagree/) about how to help people with health problems.

In these circumstances, it is very important to have fair tests because a [moderate benefit](http://en.testingtreatments.org/book/what-are-fair-tests-of-treatments/fair-tests-of-treatments/comparing-like-with-like/treatments-with-moderate-but-important-effects/) or harm can have a huge impact when scaled up to whole populations.

Explore the examples of [antibiotics in pre-term labour](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/dealing-with-uncertainty-about-the-effects-of-treatments/when-practitioners-disagree/antibiotics-in-pre-term-labour/)and [some treatments for breast cancer.](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/dealing-with-uncertainty-about-the-effects-of-treatments/when-practitioners-disagree/breast-cancer/)

Read more about [dealing with uncertainty about the effects of treatments](http://en.testingtreatments.org/book/why-are-fair-tests-of-treatments-needed/dealing-with-uncertainty-about-the-effects-of-treatments/).

## References

Stuart, James, King of Great Britaine, France and Ireland (1616). A counterblaste to tobacco. In: The workes of the most high and mightie prince, James Published by James, Bishop of Winton, and Deane of his Majesties Chappel Royall. London: printed by Robert Barker and John Bill, printers to the Kings most excellent Majestie, pp 214-222.