The unhealthy mortality in an age ( is the weighted mortality average by duration (, being the % of unhealthy aged x persons with duration d, respect total unhealthy aged x persons.

If we suppose (or we know from other studies that there is) a lineal relation between mortality and duration in age x:

mi(x,d)

mi(x,0)

mh(x)

x

d

Could be another form, like:

Now the weighted average is

If the disease is a chronic where the initial effect in the mortality is insignificant, then in an stationary assumption, . So:

With observed duration distribution and healthy mortality one can estimate

And in that way one can approximate the mortality at age x by duration risk.