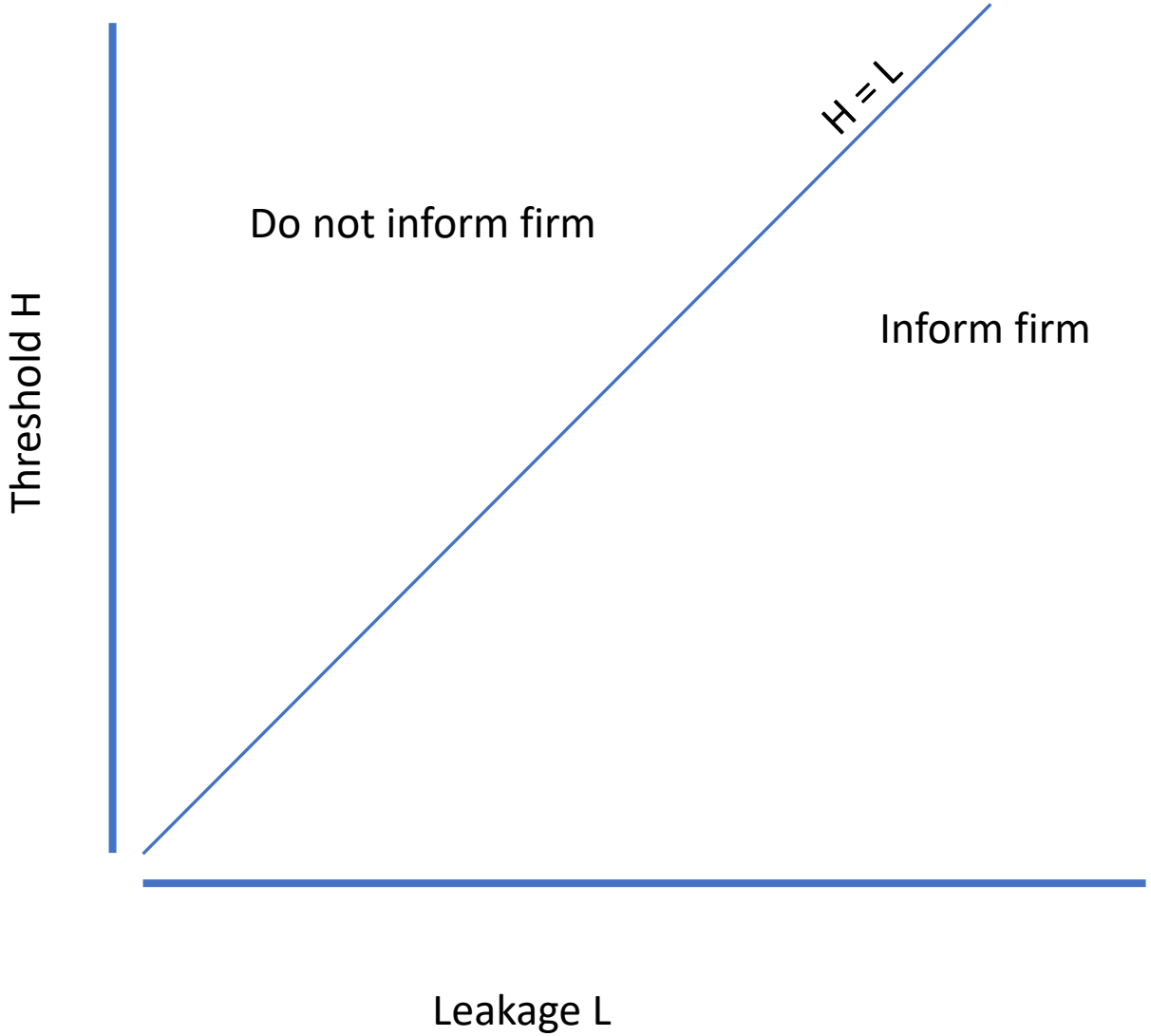
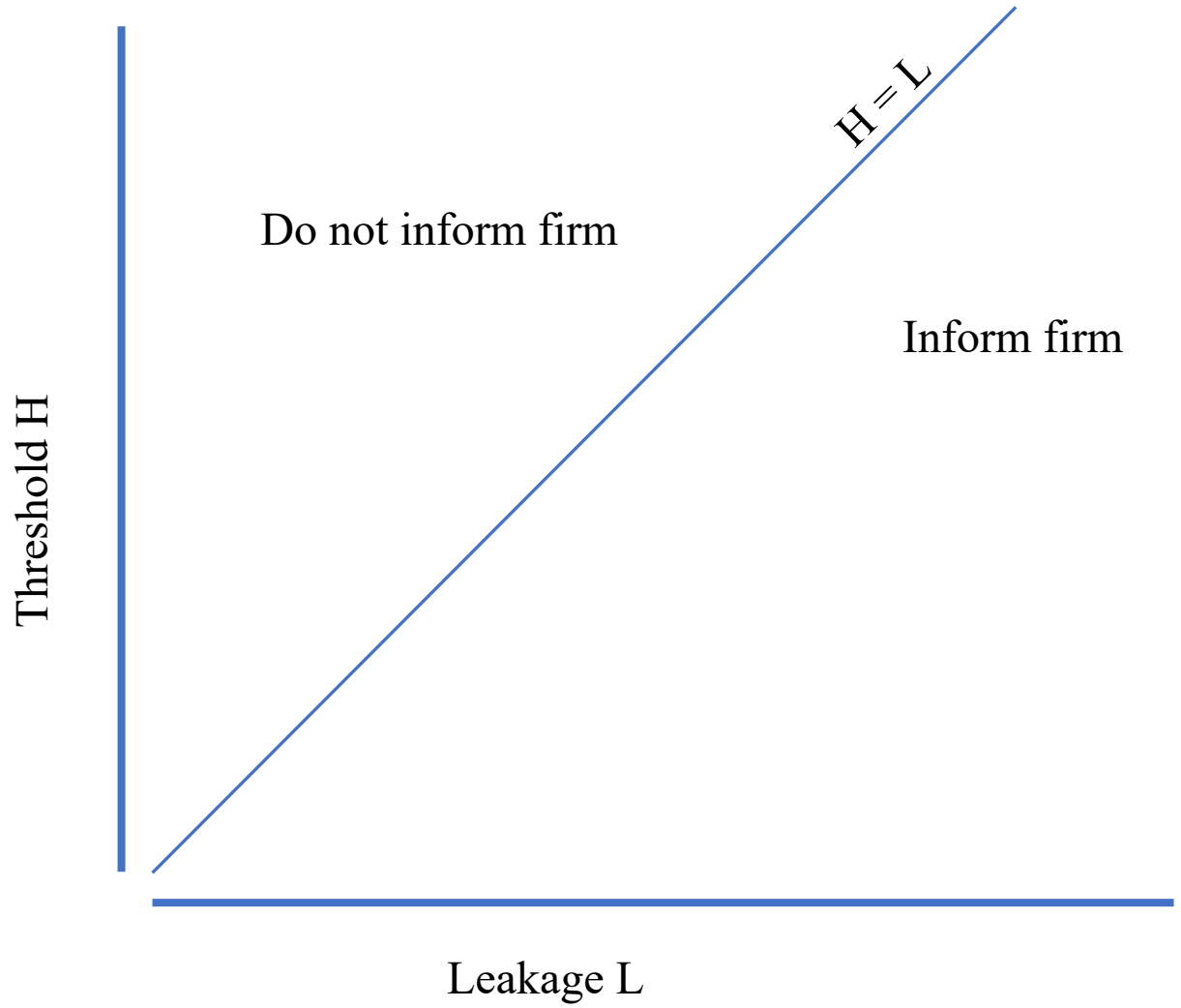
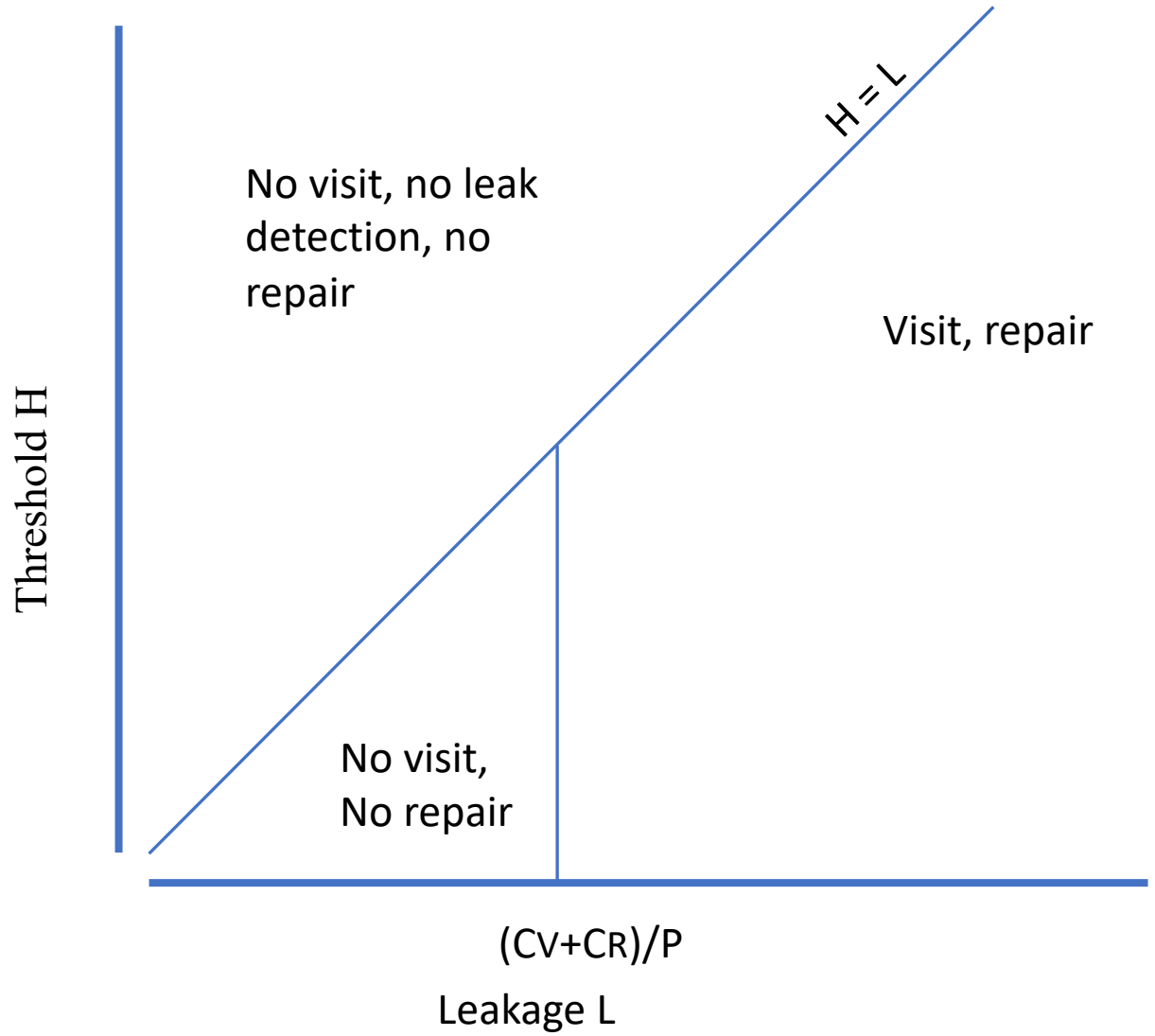
Firm is only informed about leakage amount if L >= H.
H is large is the control group (no information for any sites)
H is small is the treatment group (all sites receive information)

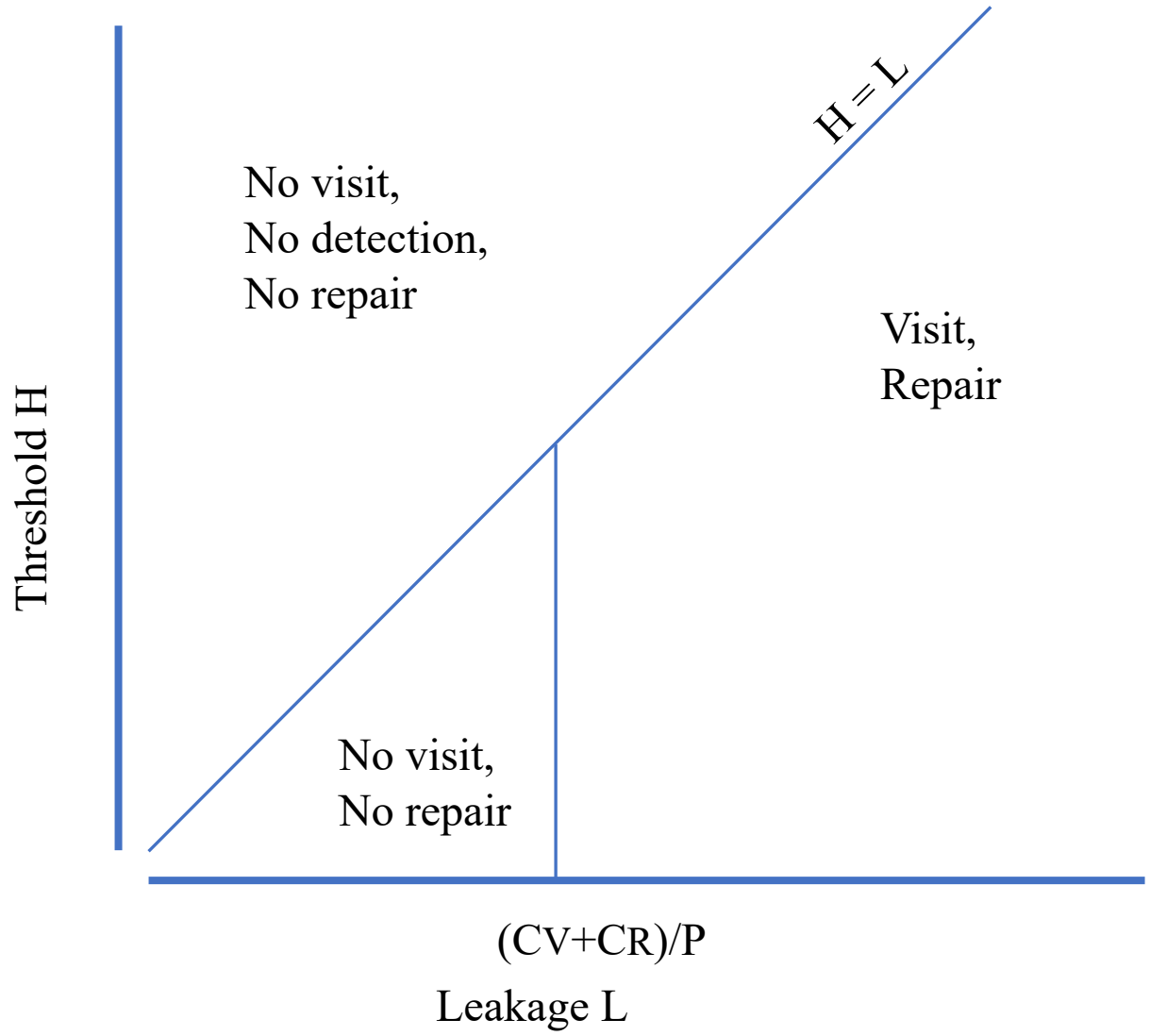


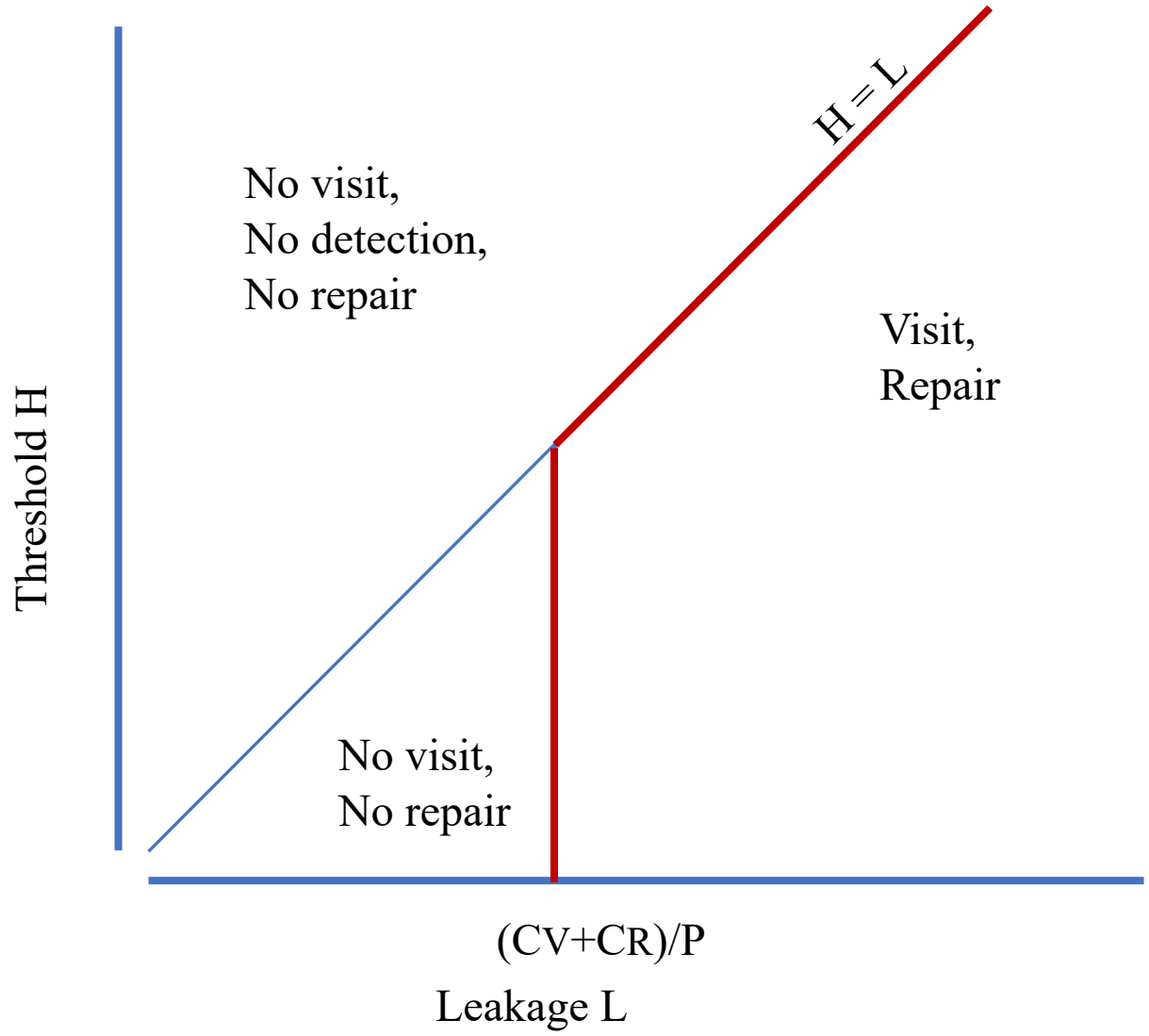

H = L
Do not inform firm
Inform firm
Threshold H
Leakage L

Case where when H is large (control group), the firm chooses not to visit.

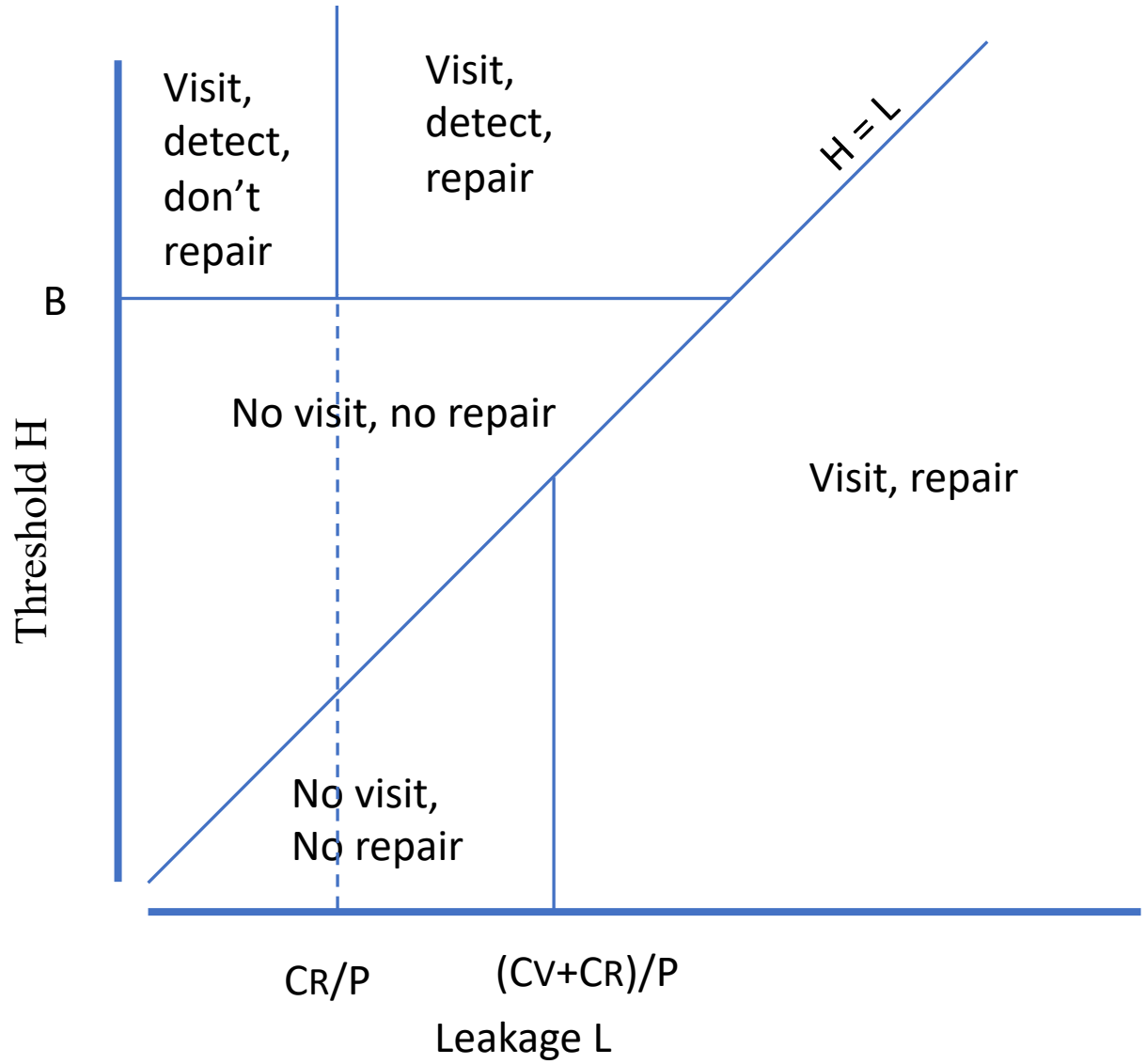



The lower we make H, the probability of repair weakly increases.


H = L
No visit,
No detection,
No repair
Visit,
Repair
No visit,
No repair
Threshold H
(CV+CR)/P
Leakage L


H = L
No visit,
No detection,
No repair
Visit,
Repair
No visit,
No repair
Threshold H
(CV+CR)/P
Leakage L

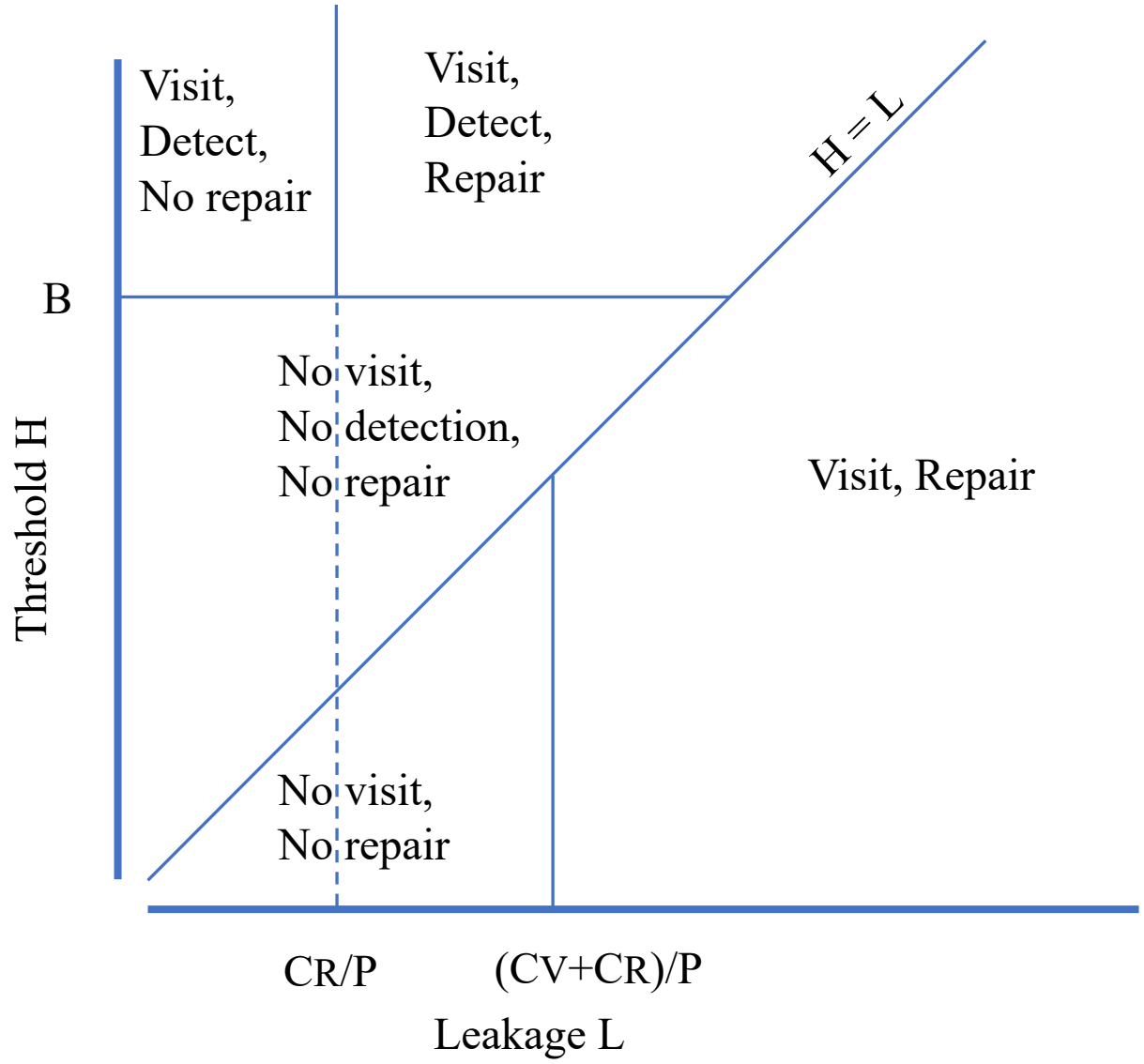
Case where when H is large (control group), the firm chooses to visit and detect leaks

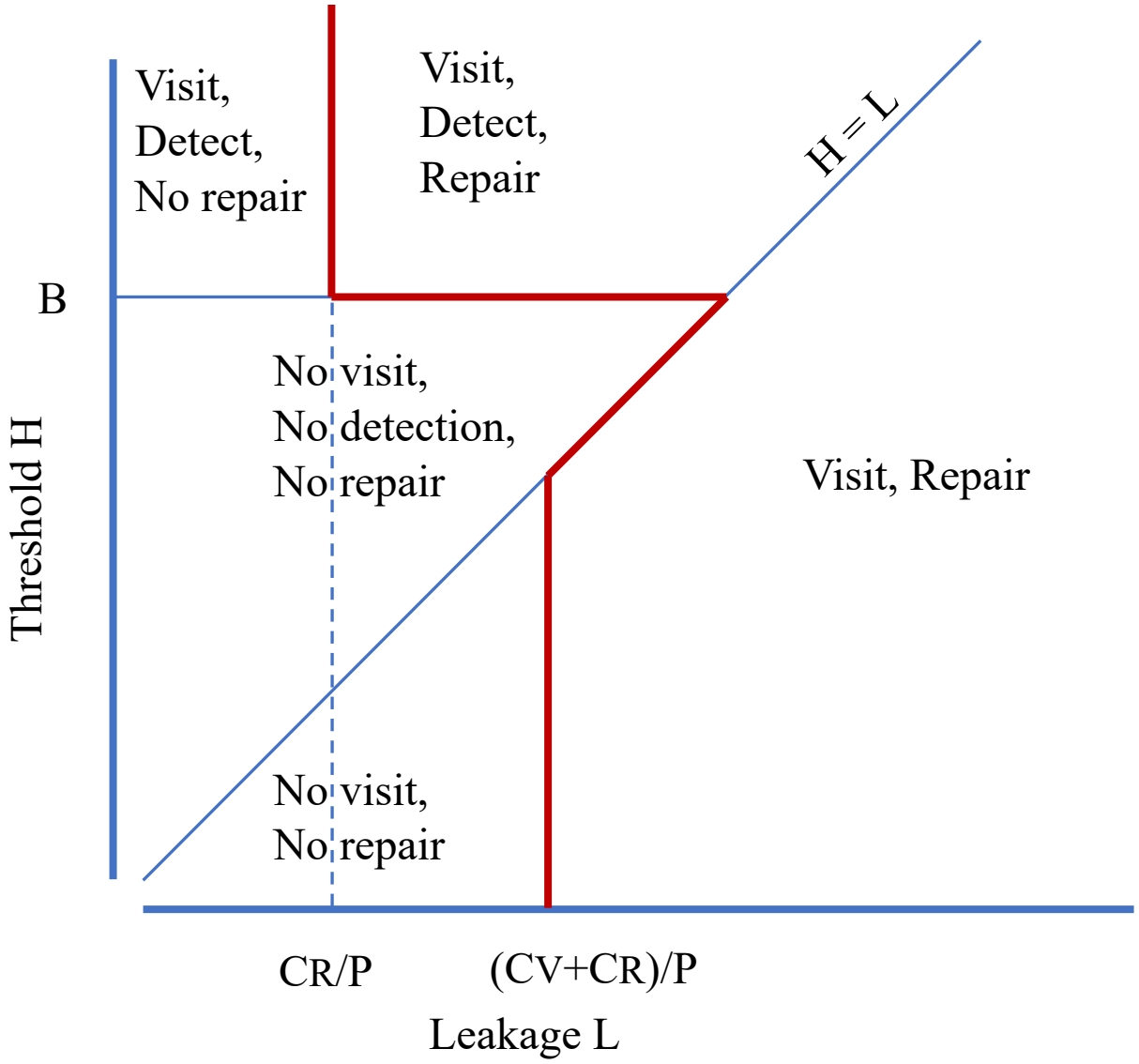



B is the value of H where, conditional on the firm not receiving information on leakage, the firm is indifferent between doing site visit and leak detection and not doing site visit and leak detection. In other words, it it is the value of H such that:
$E[\max\{PL - C_R, 0\} \mid L <= H] - C_V - C_D = 0$

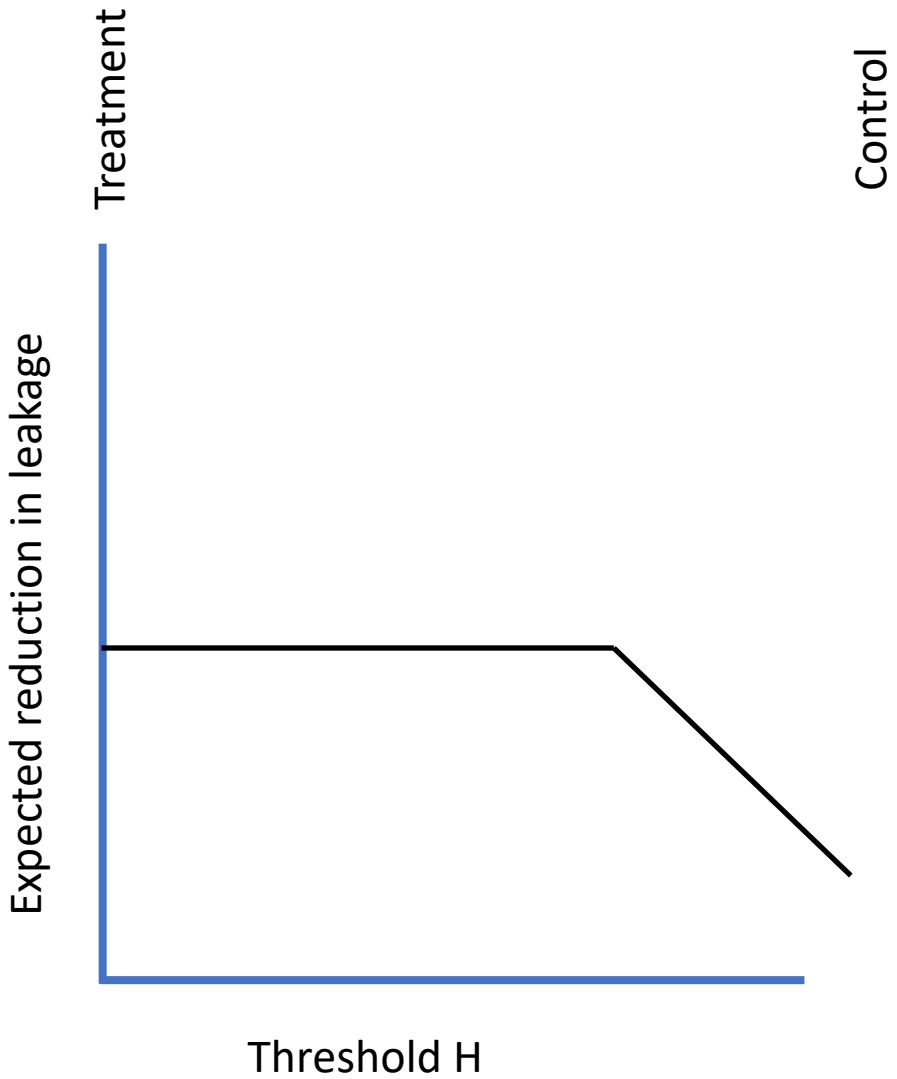
Therefore, if we took a similar expectation to the above but conditional on L = H = B (rather than L <= H = B), we should get something that is greater than zero. This implies that:
$PB - C_R - C_V - C_D > 0$
Which implies:
$B > (C_V+C_R)/P$

As a result, we get the result that an intermediate level of H can actually decrease probability of repair relative to both highest and lowest H


Visit,
Detect,
No repair
Visit,
Detect,
Repair
H = L
B
No visit,
No detection,
No repair
Visit, Repair
No visit,
No repair
Threshold H
CR/P
(CV+CR)/P
Leakage L

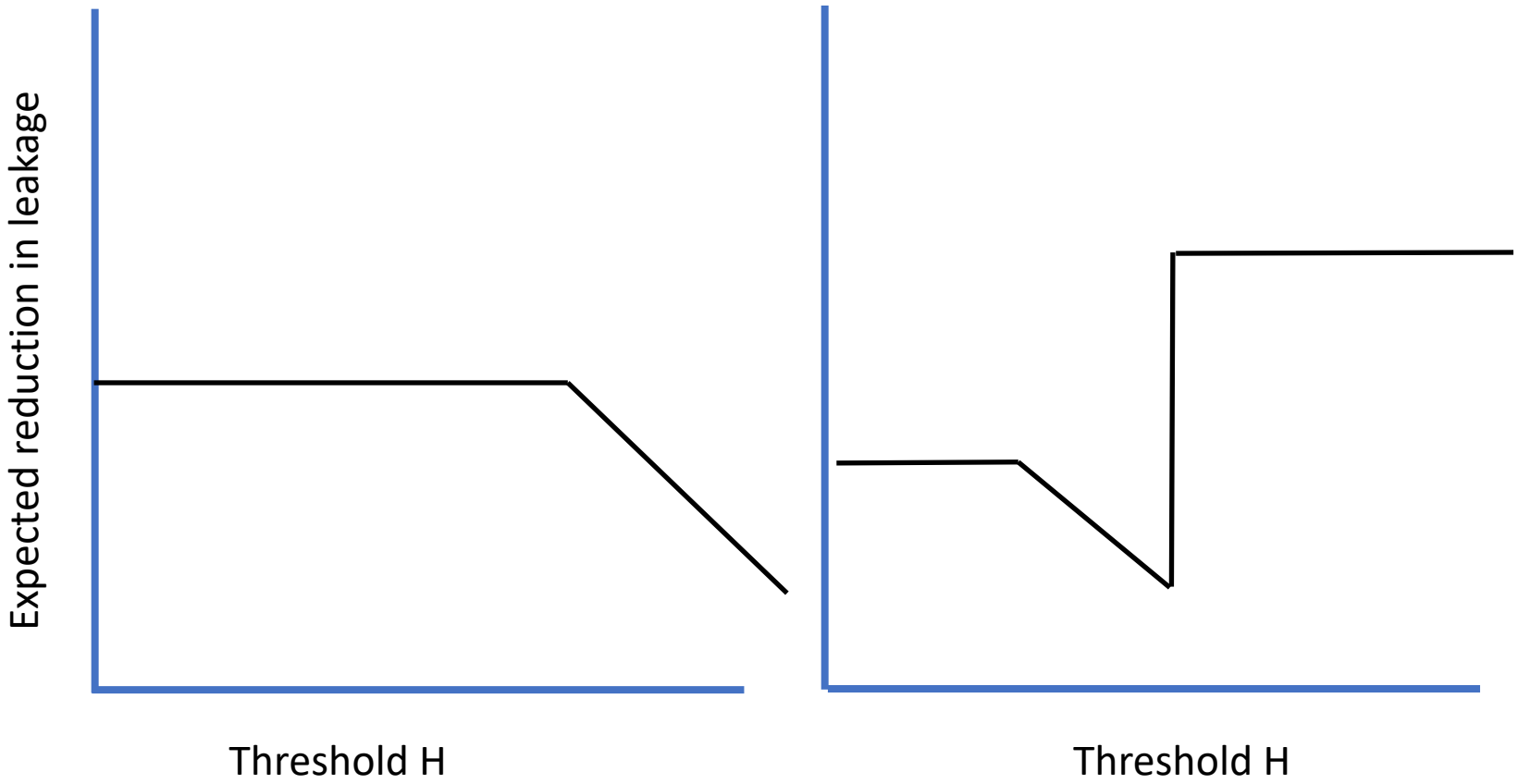

Visit,
Detect,
No repair
Visit,
Detect,
Repair
H = L
B
No visit,
No detection,
No repair
Visit, Repair
No visit,
No repair
Threshold H
CR/P
(CV+CR)/P
Leakage L

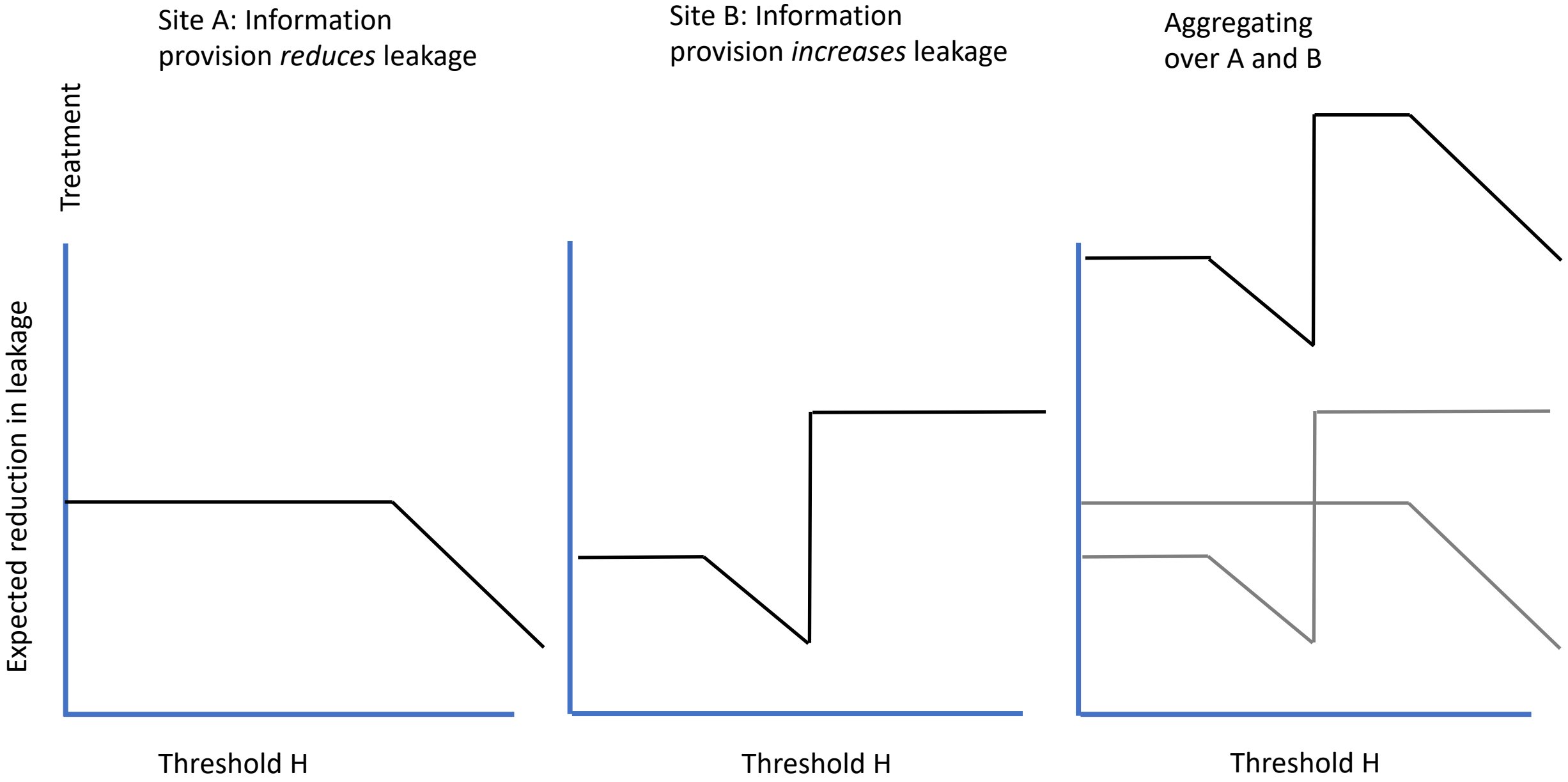
Site A: Information provision *reduces* leakage

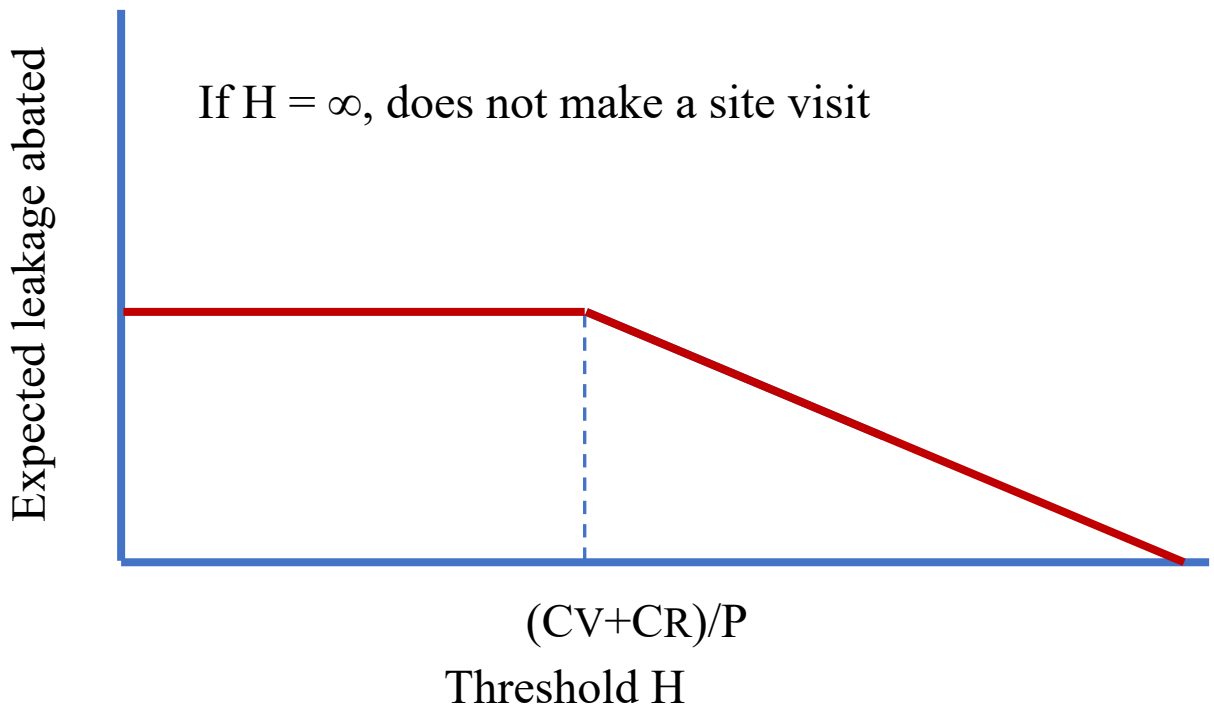


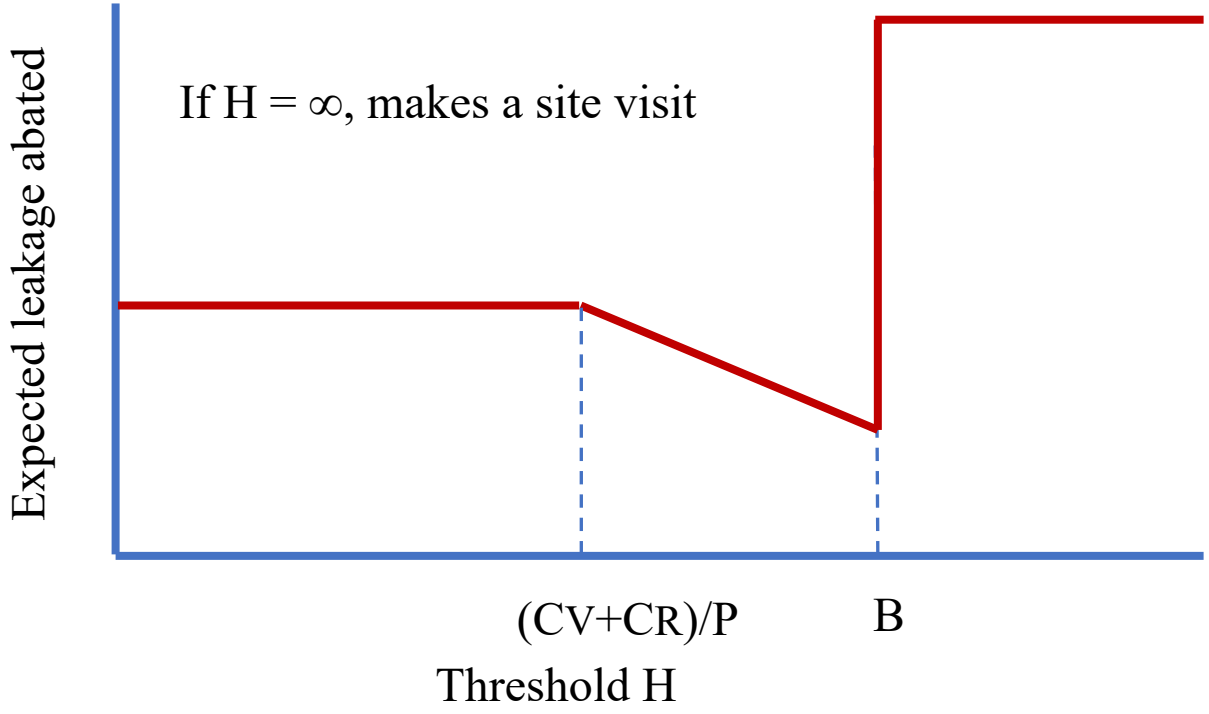
Site A: Information provision *reduces* leakage

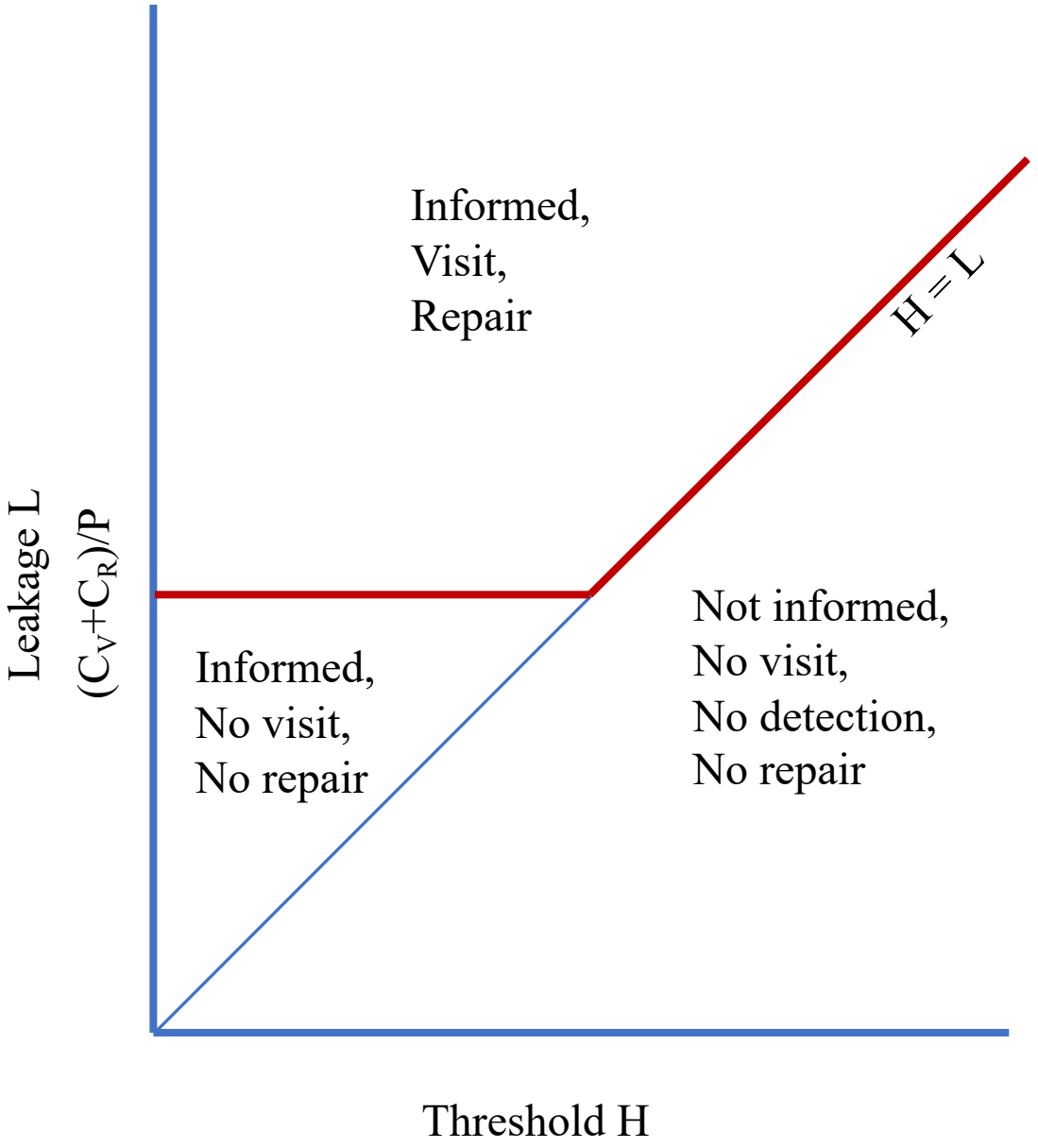
Site B: Information provision *increases* leakage

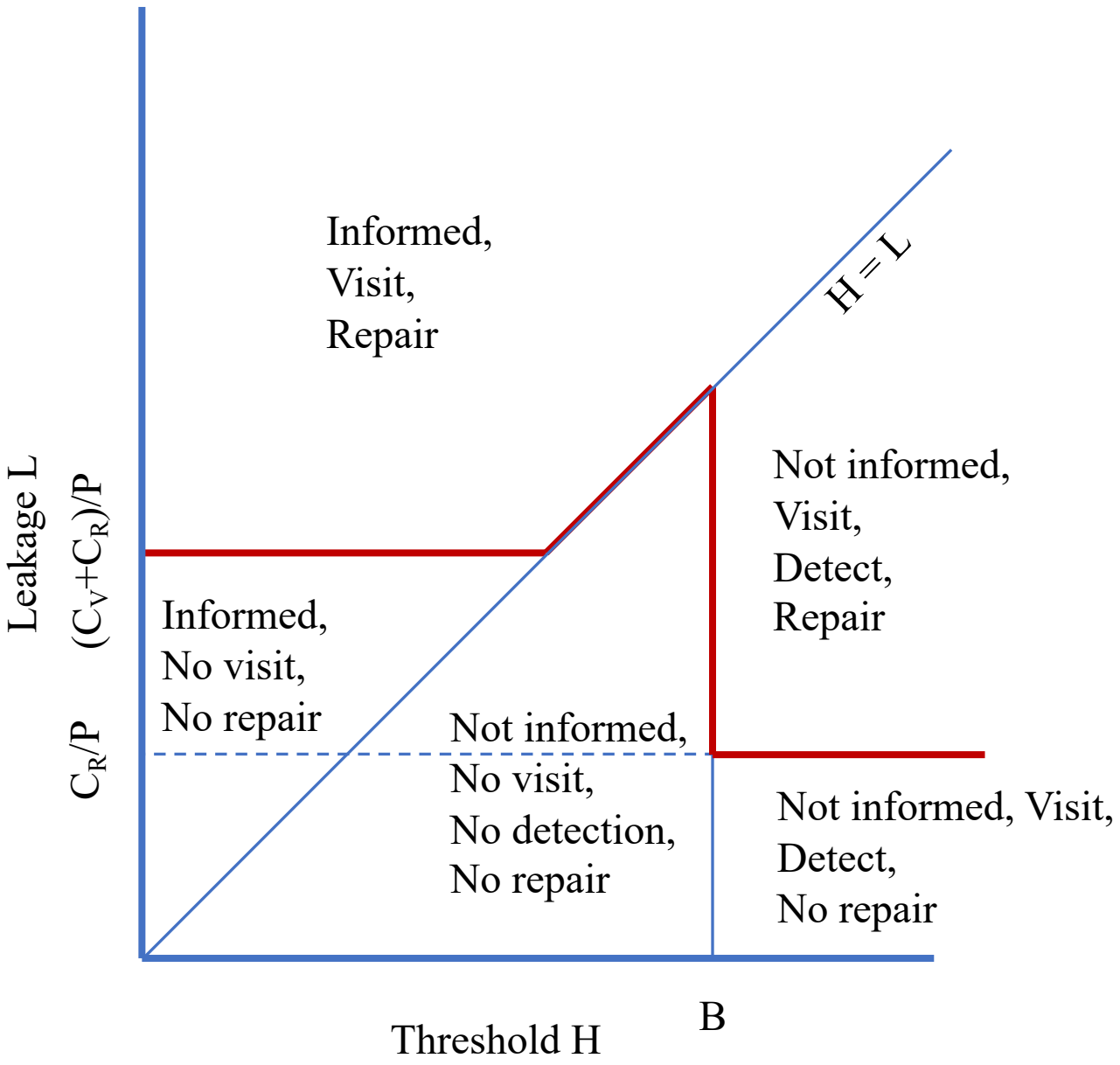


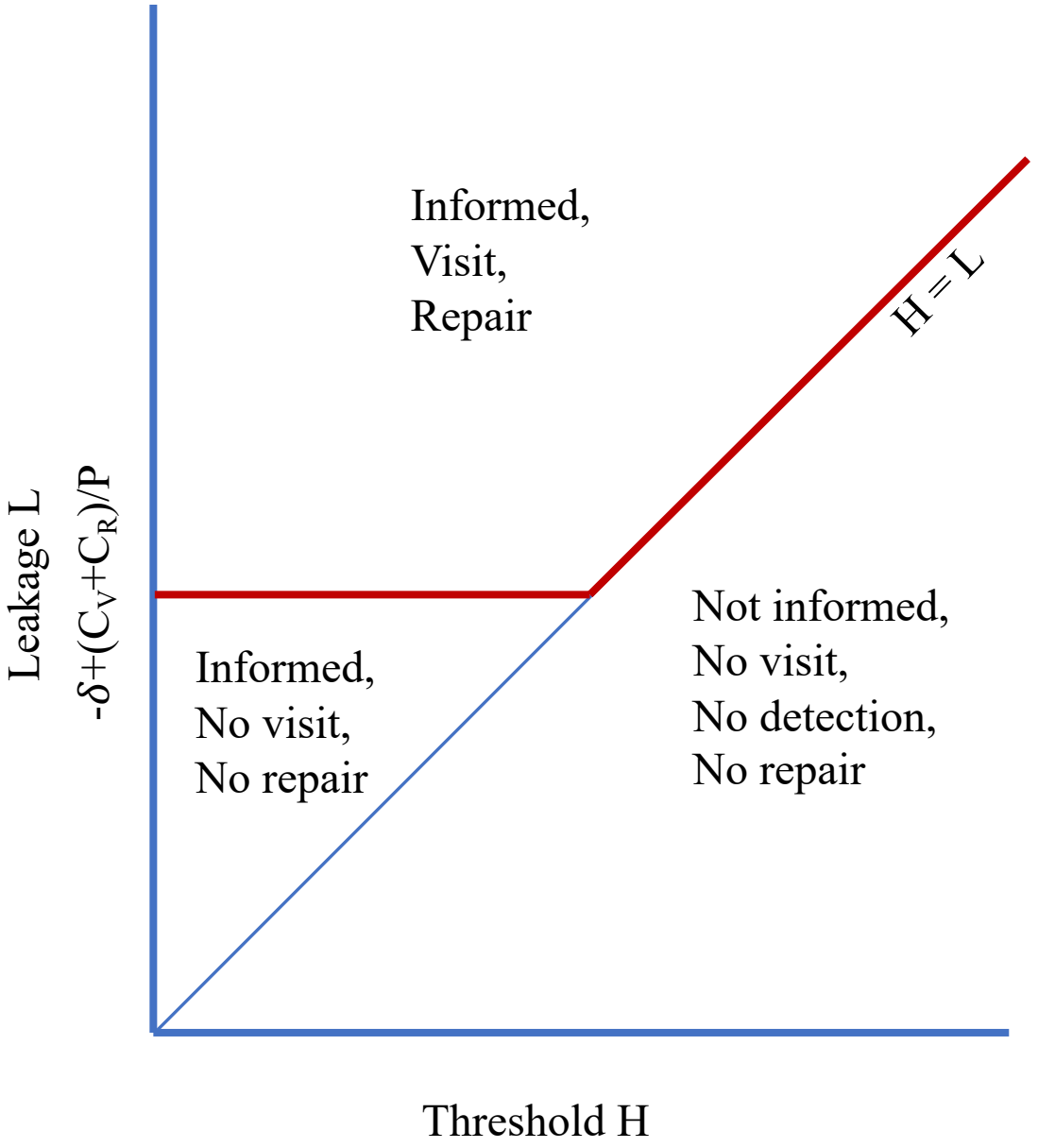

Site A: Information provision *reduces* leakage
Site B: Information provision *increases* leakage
Aggregating over A and B
Treatment
Expected reduction in leakage
Threshold H
Threshold H
Threshold H

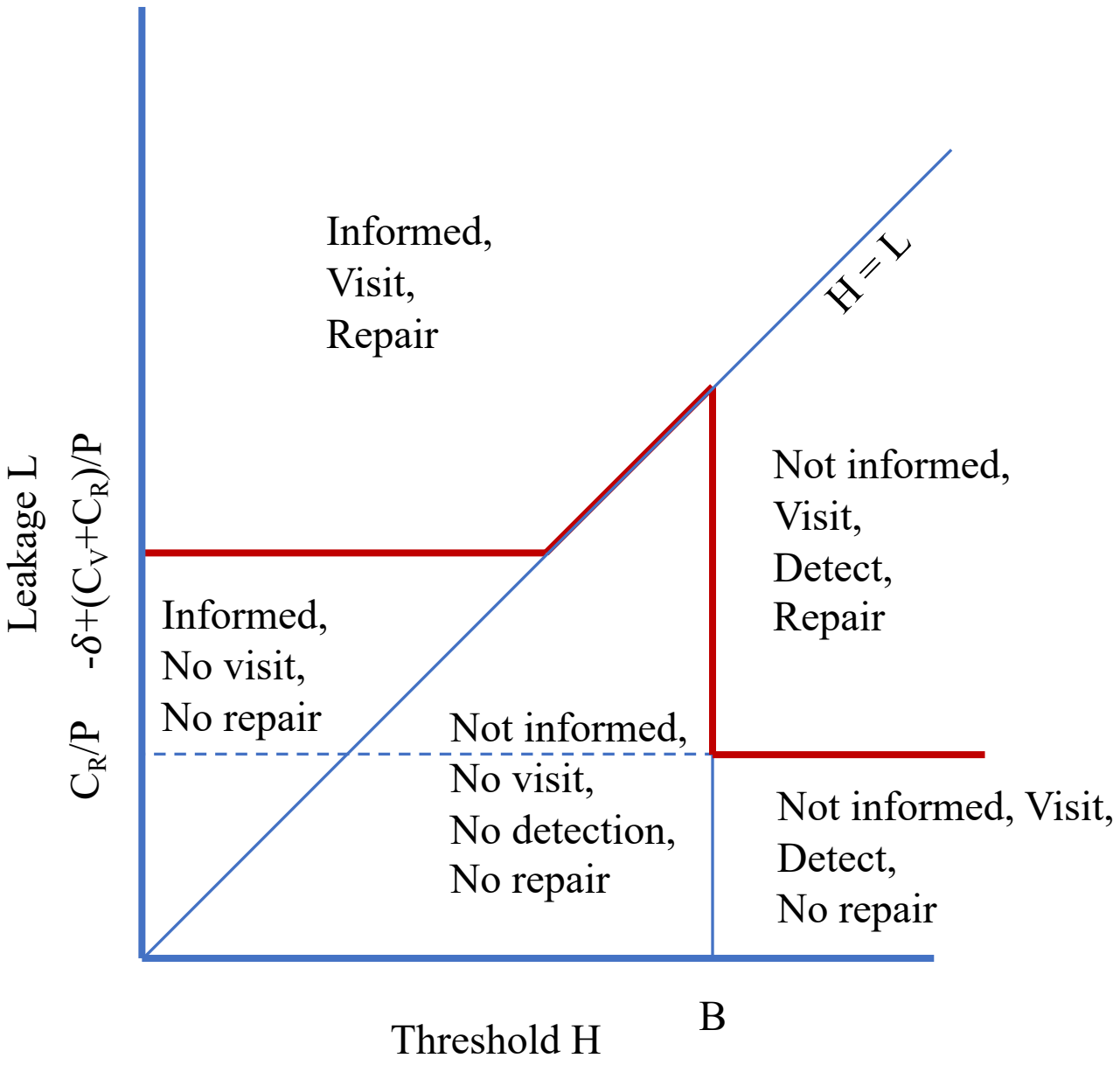

Expected leakage abated
If H = ∞, does not make a site visit
(CV+CR)/P
Threshold H


Expected leakage abated
If H = ∞, makes a site visit
(CV+CR)/P
B
Threshold H


Informed,
Visit,
Repair
H=L
Not informed,
No visit,
No detection,
No repair
Informed,
No visit,
No repair
Leakage L
(C_V+C_R)/P
Threshold H


Leakage L
$(C_V+C_R)/P$
$C_R/P$
Informed,
Visit,
Repair
H=L
Not informed,
Visit,
Detect,
Repair
Informed,
No visit,
No repair
Not informed,
No visit,
No detection,
No repair
Not informed, Visit,
Detect,
No repair
Threshold H
B


Informed,
Visit,
Repair
H=L
Informed,
No visit,
No repair
Not informed,
No visit,
No detection,
No repair
Leakage L
-δ+(C_V+C_R)/P
Threshold H


Leakage L
$-\delta+(C_V+C_R)/P$
$C_R/P$
Informed,
Visit,
Repair
H=L
Not informed,
Visit,
Detect,
Repair
Informed,
No visit,
No repair
Not informed,
No visit,
No detection,
No repair
Not informed, Visit,
Detect,
No repair
Threshold H
B