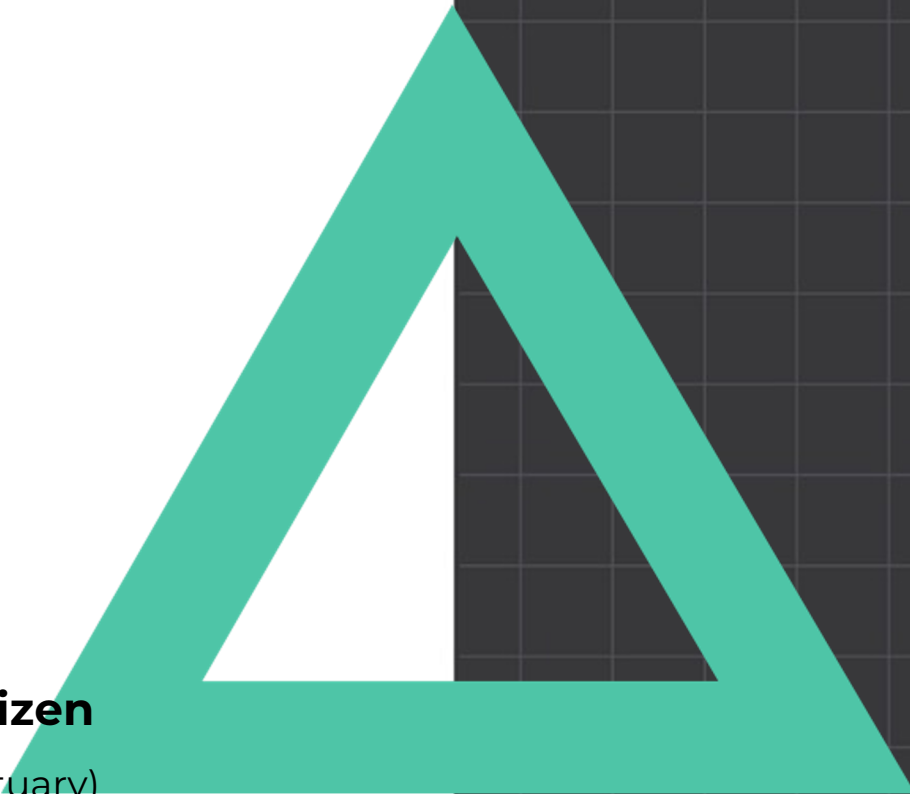


LEVEL UP 2023

Epigenetics: the hidden key to understanding health and insurance risk?

Christelle Oosthuizen

FASSA (Consulting Actuary)



Dutch Hunger Winter



Famine Impacts



LDL Cholesterol



Schizophrenia



Obesity



Diabetes

IT'S TIME TO UP YOUR GAME



Environmental or behavioural test



Agenda



What is epigenetics?



How can it be implemented in life insurance?

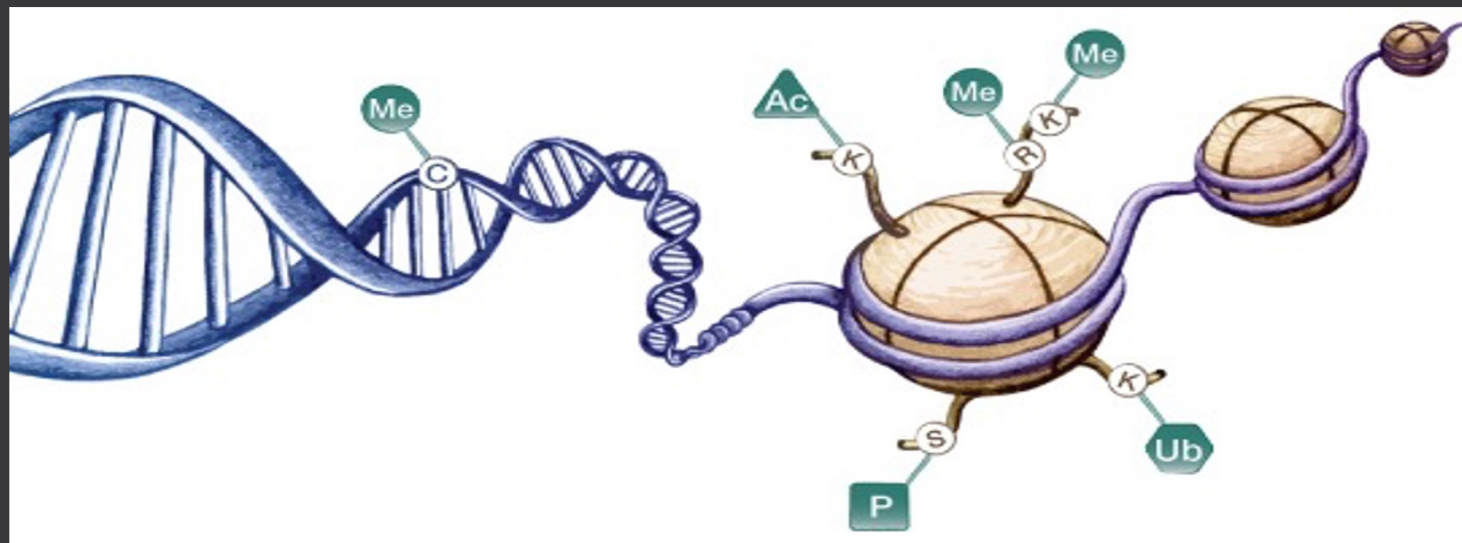


Ethical, legal and social implications



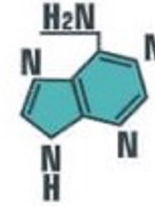
Concerns when implementing it in insurance

What is epigenetics?

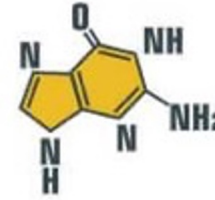


Genetics Explanation

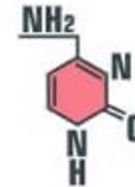
DNA
DEOXYRIBONUCLEIC
ACID



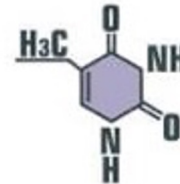
Adenine (A)



Guanine (G)



Cytosine (C)



Thymine (T)

IT'S TIME TO UP YOUR GAME 

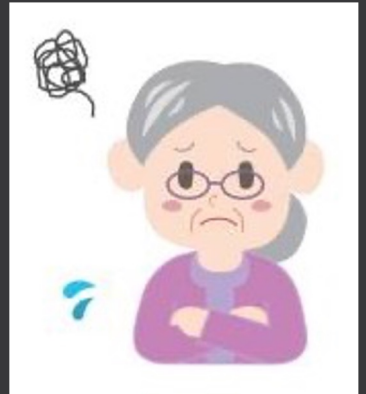
Epigenetics Example



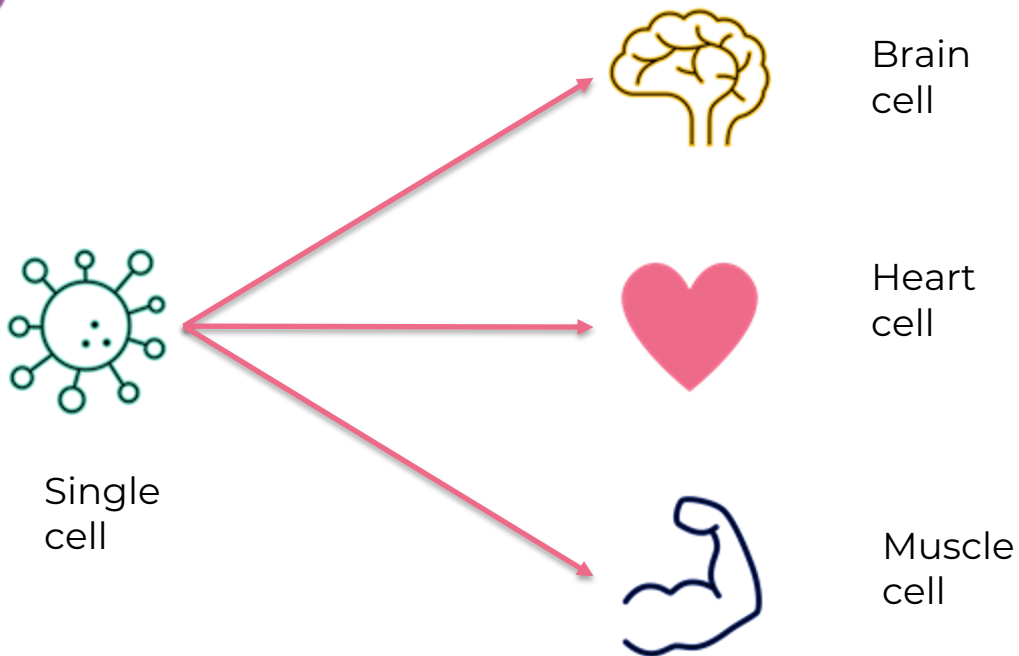
"Hungry? Let's eat, Grandma."

"Hungry . . . let's eat grandma!"

Epigenome = above the genome



Gene Expression

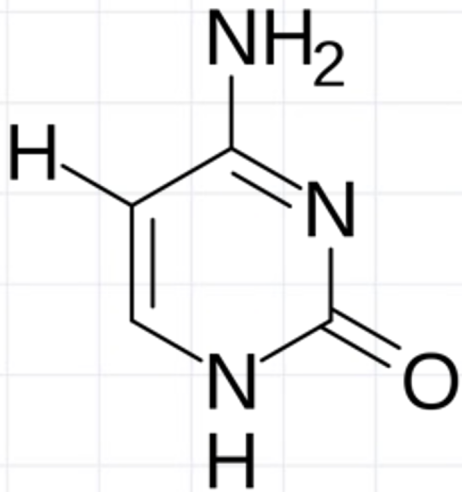


IT'S TIME TO UP YOUR GAME

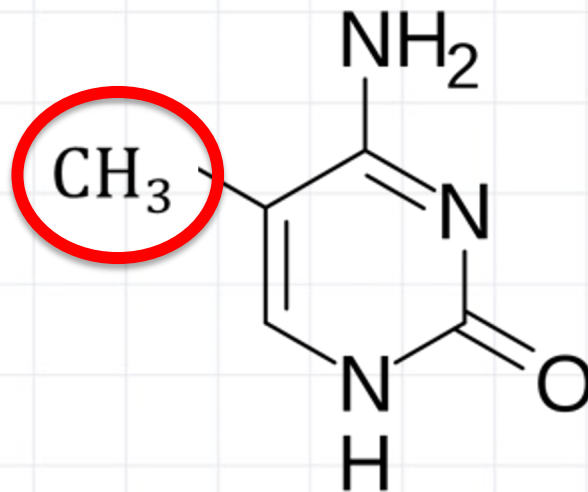




DNA Methylation



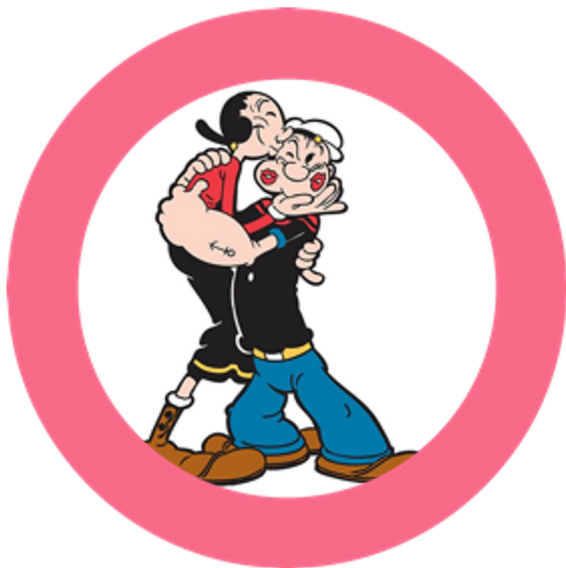
Cytosine



Methylated
Cytosine

Popeye

Taken through life insurance process



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Epigenetic Test



- Non-invasive saliva sample
- Improved Customer Experience

Epigenetic / Biological Age



IT'S TIME TO UP YOUR GAME △ ○ × □

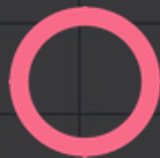
Evaluate Epigenetic Tests



Analytical Validity

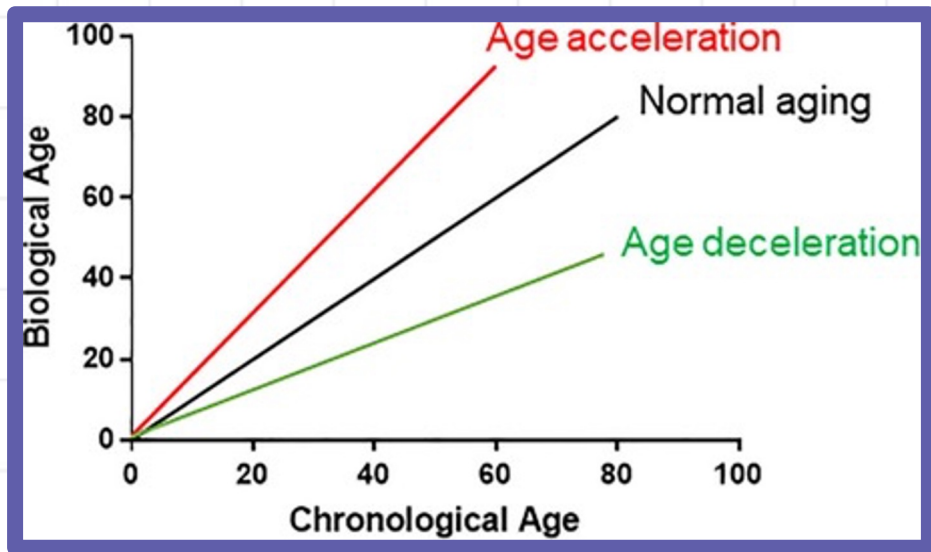


Clinical Validity



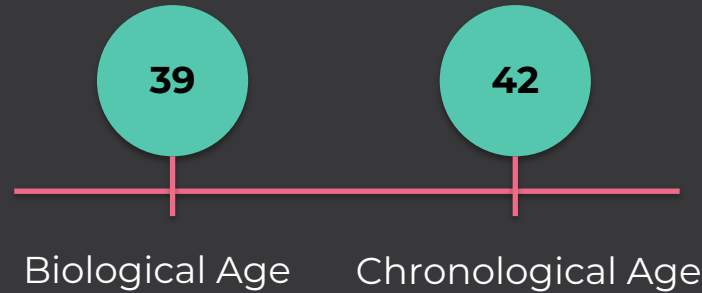
Clinical Utility

Age Acceleration vs Deceleration



- Healthy diet – age deceleration
- Smoking – age acceleration

Sample Epigenetic Report



Based on your biological age and
calendar age, your age rate is:



Improve biological age

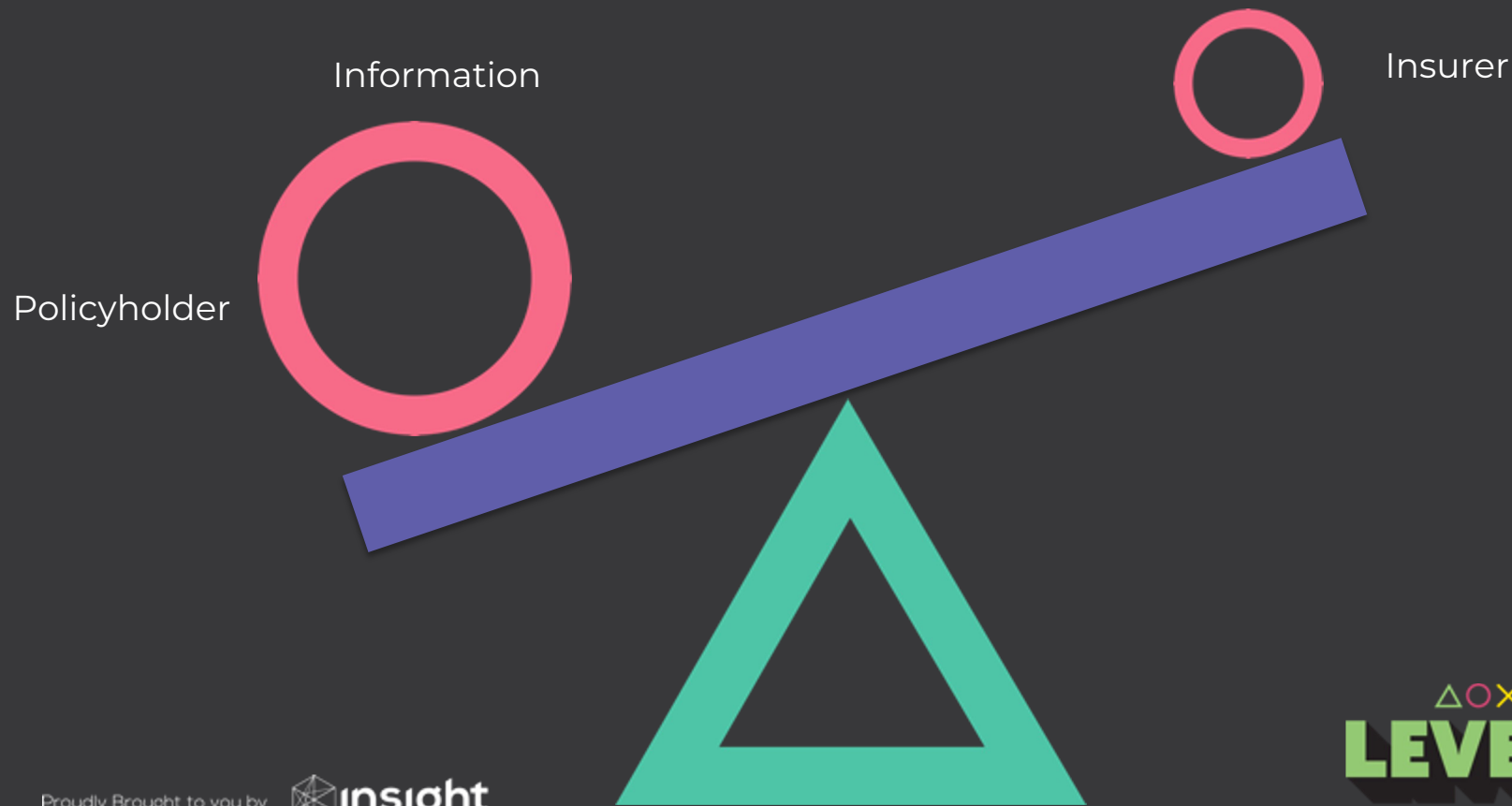
REDUCE

Environmental toxins
Tobacco
Chronic stress

IMPROVE

Exercise
Adequate sleep
Healthy food

Reduce Information Asymmetry

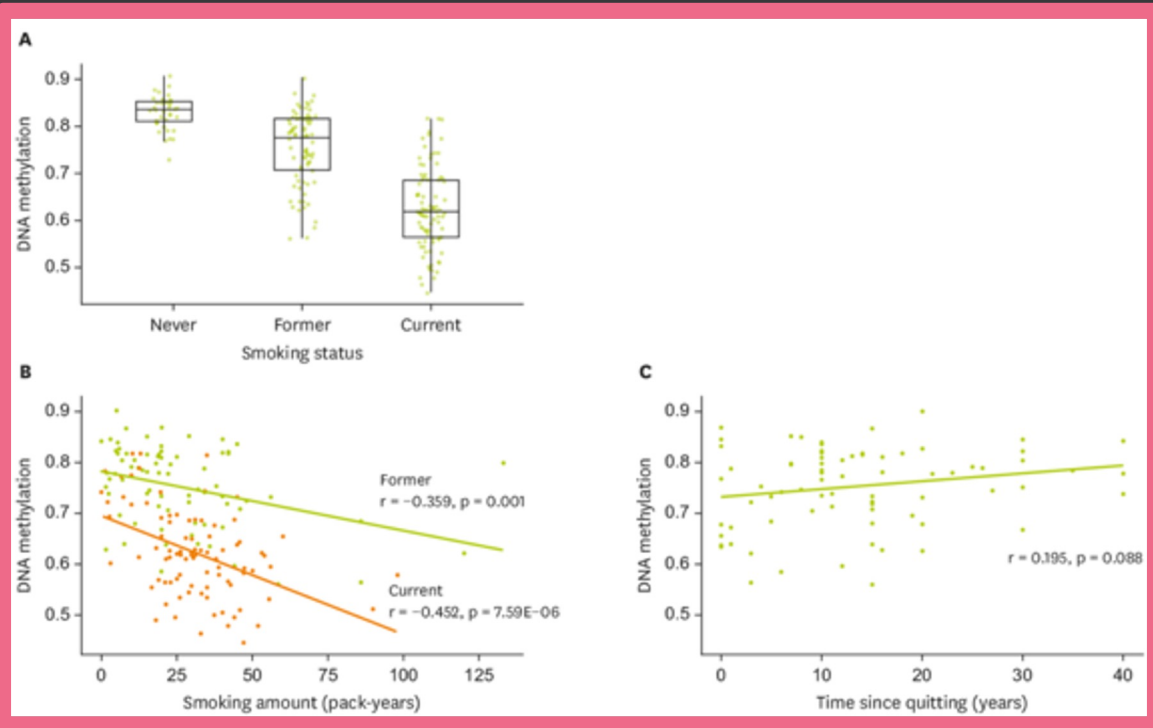


Proudly Brought to you by



 **LEVEL UP**
2023

DNA Methylation for smokers



Life Insurance Cycle

Application Stage

Underwriting

Pricing



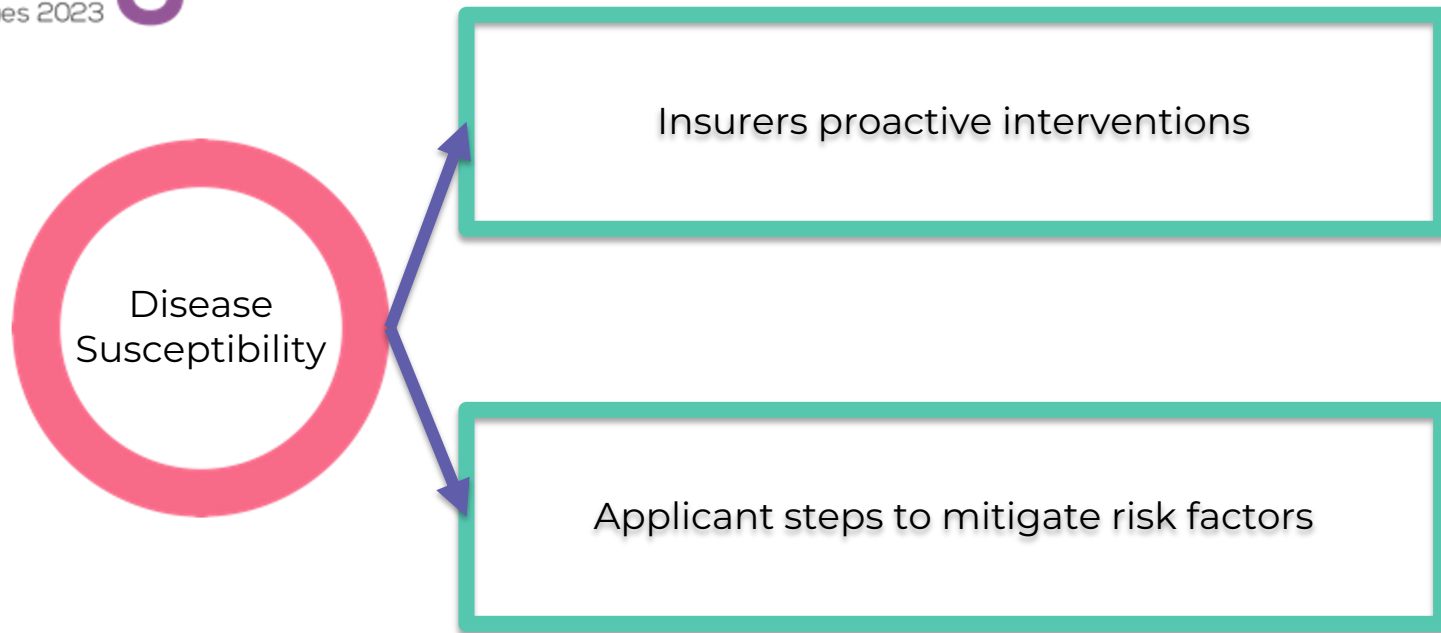
Discounts and
Rebates



Policy
Management

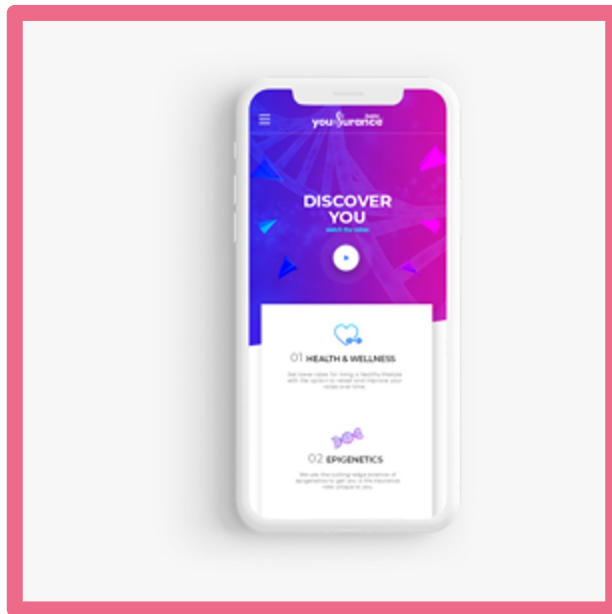


Genetic Predisposition



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Epigenetics in insurance



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**Ethical,
legal and
social
implications**

Discrimination

Privacy



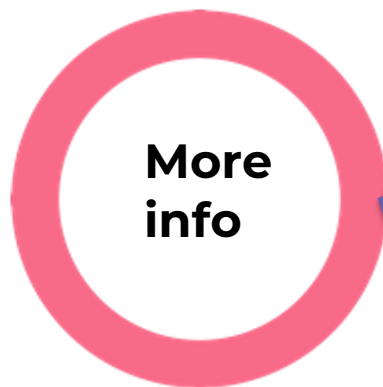


Investment in research, infrastructure and expertise

Constraints



Costs – sample processing & laboratory analysis
+-R6 000



Read Epigenetics: A White Paper on Technology and Innovation, by the Society of Actuaries

Watch “Be Kind to Your Genes: An Insurance Perspective on the Fast-Growing Field of Epigenetics”.

IT'S TIME TO UP YOUR GAME



What Will YOU Do?

