

# From Reactive to Proactive

Using Risk Stratification and Predictive Analytics to Design Affordable Universal Healthcare

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29 SEPT - 2 OCT 2026 · SAROVA WHITESANDS, MOMBASA

#TASKConvention2026

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# Time to Flex Your Brain—It's Quiz Time!



The First People to Answer Get a Gift!

# Quiz – Question 1

## Predict the High-Cost Patient

You have to predict which patient is most likely to become a high-cost healthcare user next year. You can only choose **ONE** patient. Who do you pick?

- **A. Sarah, 62:** No chronic conditions. Has had 3 GP visits this year.
- **B. David, 48:** Has diabetes and hypertension. Has been admitted once in the past year.
- **C. Amina, 35:** No diagnosed chronic conditions. Has had several emergency department visits and increasing prescription costs.
- **D. John, 71:** Has multiple chronic conditions but has had very few claims this year.

**Answer:** The point isn't actually who you picked. The point is that the answer isn't obvious from a single variable

# Quiz – Question 2

## Real-time adjudication

You have 30 seconds to decide what to do with this claim: A claim worth KES 1.2 million lands on your desk. Something about it doesn't look quite right. What do you do?

- **A. Pay & Pray:** Pay it now. Investigate later if something comes up.
- **B. Sherlock Holmes:** Send it to the investigation team for manual review.
- **C. Better Safe Than Sorry:** Reject the claim immediately.
- **D. Let the Algorithm Decide:** Run it through a predictive risk model before payment.

**Answer: D. You are the actuary of the future! You chose to predict — not just react.**

# Quiz – Question 3

## The Big Question

**Which healthcare system is more sustainable?**

- A. Treat people when they become sick
- B. Identify risk early and intervene before they become sick.

**Answer: B**

## Agenda

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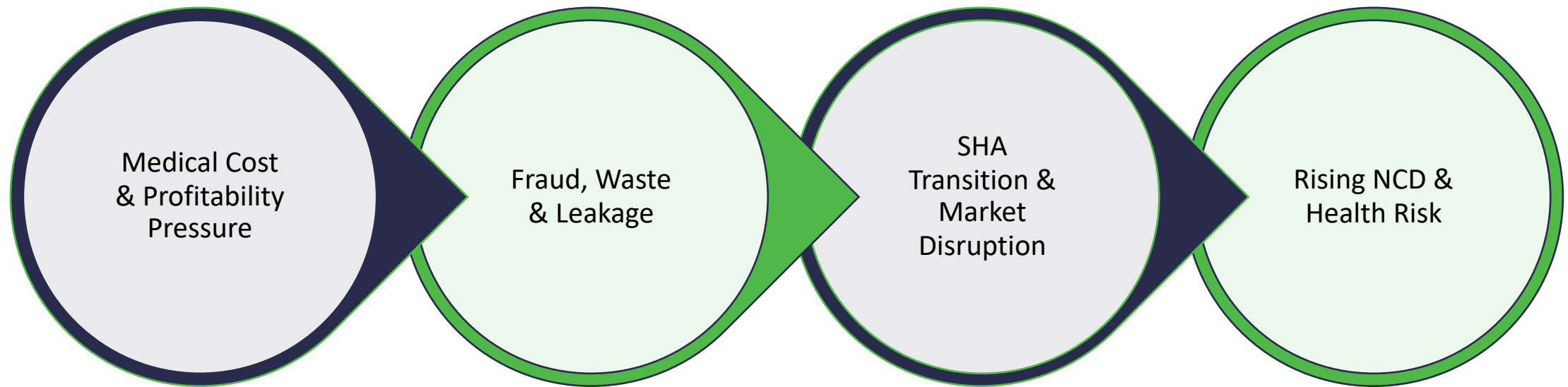
- ❖ Why Care?
- ❖ What is UHC?
- ❖ Predictive Analytics and Risk Stratification
- ❖ Case Studies
- ❖ Challenges and Ethical Considerations
- ❖ The Next Frontier for Actuaries

# Why Care?

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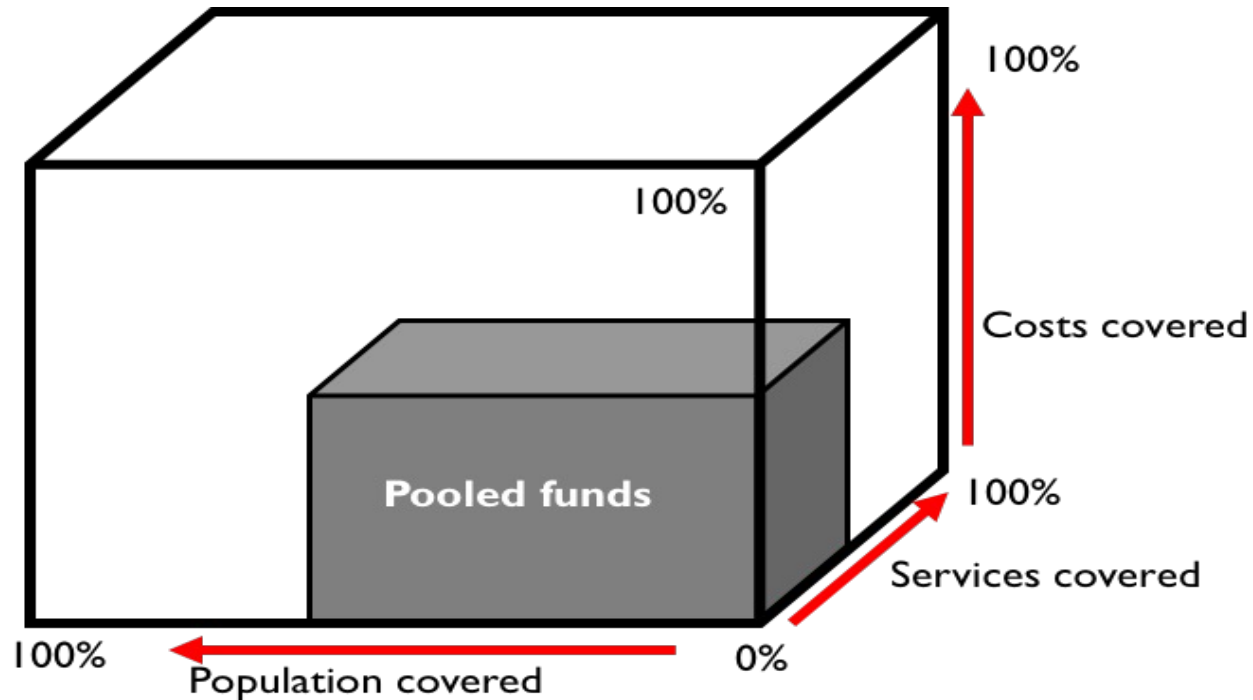
# Why Care?

- Predictive analytics can help Kenya's healthcare and insurance systems move from reacting to risks to anticipating them.



# What is UHC?

# What is UHC?



World Health Organisation (“WHO”):

Universal Health Coverage - a scenario where **all people** have access to the health **services they need**, when and where they need them, **without financial hardship**.

Seeks to achieve **equity, efficiency and quality**

“Global health 2035: a world converging within a generation,” vol. 382, 2013

# The UHC Paradox

- Demographic shifts and ageing populations across many regions
- Chronic disease as a dominant driver of healthcare expenditure
- Healthcare cost growth consistently exceeding general economic growth

## The Sustainability Crisis



- Care delivery triggered after illness occurs
- Actuarial and financial models often backward-looking
- High-cost interventions concentrated at crisis points

## The “Reactive” Legacy



- Traditional: Risk adjustment focused on fair payment for past utilisation
- Emerging: Risk stratification focused on targeted intervention for future health needs

## The Missing Design Layer



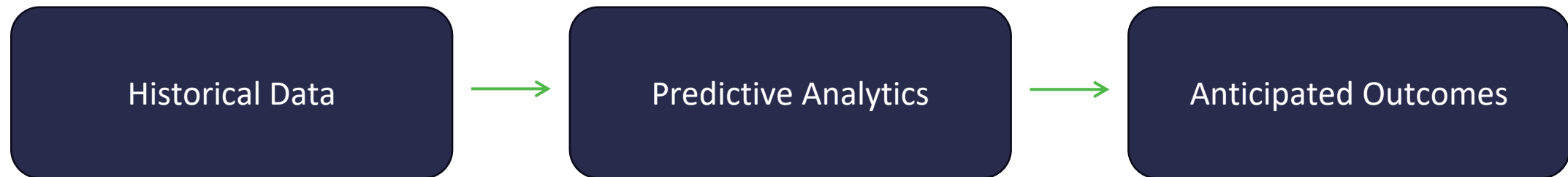
**A proactive UHC system requires an intelligence layer between the patient and the provider**

# Predictive Analytics and Risk Stratification

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# Predictive Analytics

**Predictive analytics** is a data-driven approach that leverages historical data, statistical algorithms, and machine learning techniques to predict future events or outcomes.



# Risk Stratification

**Risk stratification** is the systematic grouping of individuals based on their likelihood of experiencing future health events, using clinical, utilisation, and demographic data to guide proactive care and resource allocation.



Low Risk

Rising Risk

High Risk

# The Population Health Pyramid

**Top  
5%**

High complexity - intensive management

**Middle  
20%**

Rising risk - prevention and progression control

**Base 75%**

Low risk - efficient population  
prevention

# Case Studies

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# South Africa GEMS VCT Model

- Rising hospital and chronic disease costs
- Reactive management of complex patients
- Avoidable hospitalisation

The Challenge

Proactive Approach

- Dynamic Disease Burden Index
- Stratifies members by future care need
- Identifies rising-risk patients

Predictive Layer

Impact

- Value Care Team model
- Risk-adjusted capitation at primary care
- Multidisciplinary care teams & quality-linked provider incentives

- Medical admissions ~30% below expected
- Hospital bed days ~7% below expected
- More efficient use of healthcare resources

# MENA Predictive Claims Adjudication

- High volumes of healthcare transactions
- Retrospective fraud detection was costly and reactive
- Claims leakage contributed to medical cost inflation

The Challenge

Proactive Approach

- Centralised digital claims infrastructure
- Real-time electronic claim submission
- Suspicious claims flagged before payment

- Risk score generated at claim submission
- Used claim, provider, utilisation and peer patterns
- High-risk claims/providers prioritised for review

Predictive Layer

Impact

- Reduced avoidable claims leakage before payment
- Shift from “Pay & Chase” to “Predict & Prevent”

# Challenges and Ethical Considerations

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# Key Challenges

- Problem: Siloed systems and weak interoperability
- Potential solution: Common standards and interoperable HIMS

Fragmented Data  
Infrastructure



- Problem: Incomplete, inconsistent and uneven data
- Potential solution: Better capture, coding and validation

Data Quality &  
Completeness



Progress requires both strong **governance** and industry-wide **collaboration**.

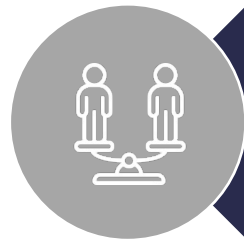
# Ethical Considerations



Data Privacy and Security



Patient Autonomy and Informed Consent

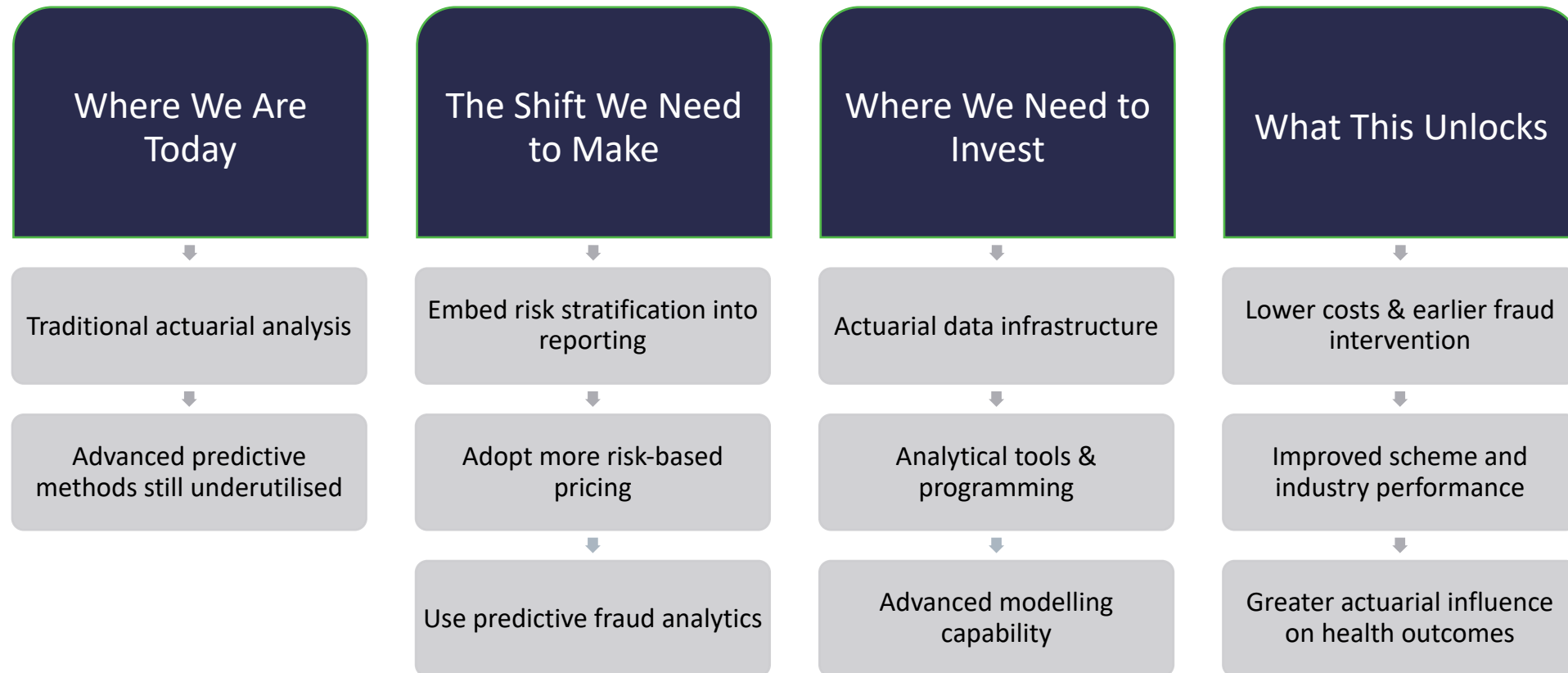


Equitable Access

# The Next Frontier for Actuaries

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# The Next Frontier for Actuaries



# Zamara's Initiative

At Zamara, our aim is to help companies and healthcare schemes **unlock the power of their data**.



GLM Pricing



Predictive Modelling



Risk Analysis



Scheme Analytics &  
Performance Monitoring

For further inquiries, kindly contact us on:

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# Key Takeaways

We should leverage risk stratification and predictive analytics more deliberately

We should continue to strengthen governance and industry collaboration

We should act on risk before it escalates

*Thank You.*

11th Annual TASK Actuarial Convention · The Next Frontier: Actuaries Beyond Boundaries

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