



# ASEGURA TU TRANQUILIDAD

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# HEU CONFERENCE

October 4 – 7 2023



## Key features and Indicators of a robust winning Health Financing Plan

# AGENDA

- Initial Thoughts
- Actuarial Science and Risk Management definitions
- How do we measure performance?
  - Private Insurance versus National Health Initiatives
  - Return on Investment (ROI) versus Internal Rate of Return (IRR)
- Illustration – Diabetes
- Importance of IT
- Final Thoughts

## A simple definition of Actuarial Science

Actuarial Science is the combined study of two academic fields

- **Probability**  
The frequency of events or how often things happen
- **Finance**  
The cost of the events in the context of the time value of money
- **Actuarial Science applied to modern managed health care.**

Words of wisdom from Benjamin Franklin ...



“An ounce of prevention is worth a pound of cure.”  
— Benjamin Franklin 1756 Poor Richards’ Almanac

- The cost of a diabetic related ER admission for an uncontrolled diabetic is 20 times the cost of what it would likely have cost to control the diabetes (ADA).

## **Return on Investment (ROI) versus Internal Rate of Return (IRR)**

ROI – a strict formula that allows for the comparison of two or more financial instruments

IRR – an informal formula (outputs and inputs) that can be used to internally evaluate investments in technology, office equipment, etc.

# Risk Management

## Measuring Performance

- Private Insurance
  - Age restrictions
  - Medical underwriting
  - “Financial” renewal underwriting (the dreaded annual rate increase)
- National Health Schemes
  - No age restriction – (cradle to grave coverage)
  - No medical underwriting, only “eligibility underwriting)
  - Rate adjustments must go through government approval process.

## MANAGING RISK

- Aleatory Risk
  - Uncertainty due to randomness of numbers
  - Mitigate aleatory risk through cost sharing = annual renewal rate increases.*
- Epistemic Risk
  - Uncertainty due to gaps of knowledge
  - Mitigate epistemic risk by closing the knowledge gap = multi-channel communication strategies.*



# Risk Management



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- If someone is diagnosed by a doctor with diabetes and a private or national health plan removes the financial barrier to the cost of drugs and testing supplies and facilitates regular doctor visits, why do they not manage condition?
- **Epistemic risk** – Close the knowledge gap through a multi-channel communication strategy

# Risk Management Performance Ratios

- **NON-COMMUNICABLE DISEASES**

Ratio of controlled versus uncontrolled NCD members. Ongoing NCD screening programs to identify unknown members with NCD.

- **CANCERS**

Ratio of cancers detected by Stage

Ongoing cancer screen programs to identify unknown members with cancers at the earliest stage.

- **MATERNITY**

Ratio of Mothers that complete ante natal care program

Ratio of infants that complete well-childcare program

- **EMERGENCY DEPARTMENT ACTIVITY**

Increase or Decrease (including inpatient stays)

# Managing Epistemic Risk – Multi-channel Communications

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## **Multi-Channel Communication - disease specific**

- Including co-morbidity scenarios

## **Multi-Channel Communication - tailored by age group**

- School Age
  - Engage Ministry of Education
- Actively at Work
  - Social Media
- Seniors
  - Engage Clergy

# Managing Epistemic Risk

## **National Health initiatives must be a magnet for innovative ideas**

- Share innovative ideas with all stakeholders especially providers and members

## **Exception Reporting**

- How many claims didn't come in, that should have come in?
- How many ER and Inpatient Care didn't occur because of preventive care strategies – The Critical Success Factor

## **Frequency of ER visits and length of Inpatient stays**

- Are ER visits for NCD, Maternity, etc. going down?
- Is the average inpatient stay getting shorter?

## The methodology at its' simplest

- Identify Members with undiagnosed or uncontrolled NCD and? other similar events (the frequency of events + exception reporting)
- Control the NCD in a cost-effective way (the cost of events within the context of the time value of money)

*Redbridge Predictive Claim Solutions*

## How many diagnosed diabetics are controlled, partially controlled and uncontrolled?

- Identify patients diagnosed e.g. ICD9 250 or ICD10 E11 diagnosed by a medical doctor licensed in the territory/country

## Common treatment protocols (usually defined by the Ministry of Health)

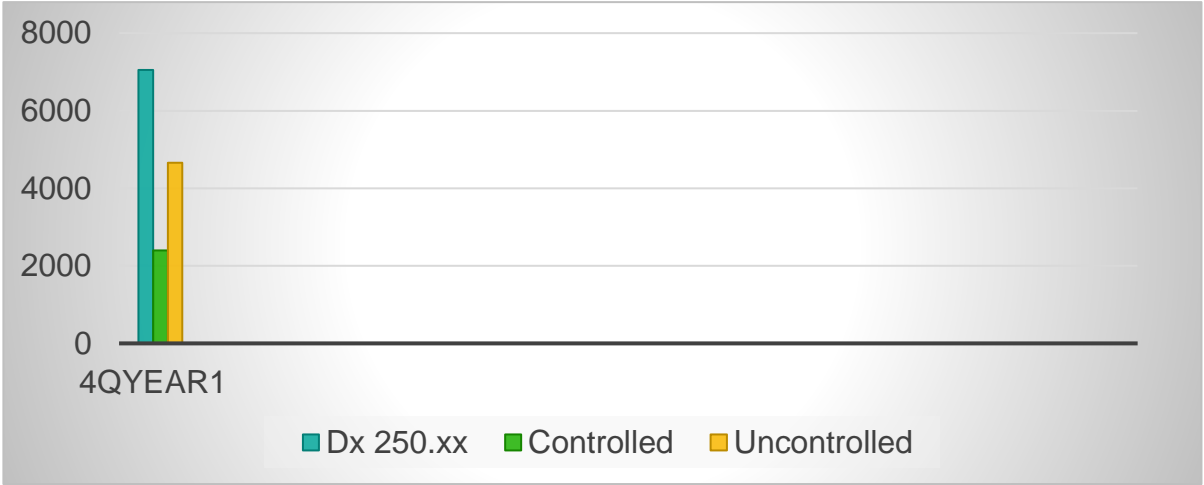
- Diet and Exercise (85.2% of Type 2 are overweight - ADA)
- Metformin/Glyburide or variations
- Testing supplies
- Regular consultations + periodic glaucoma tests, etc.

***Redbridge Predictive Claim Solutions***

# NCD Illustration - Diabetes

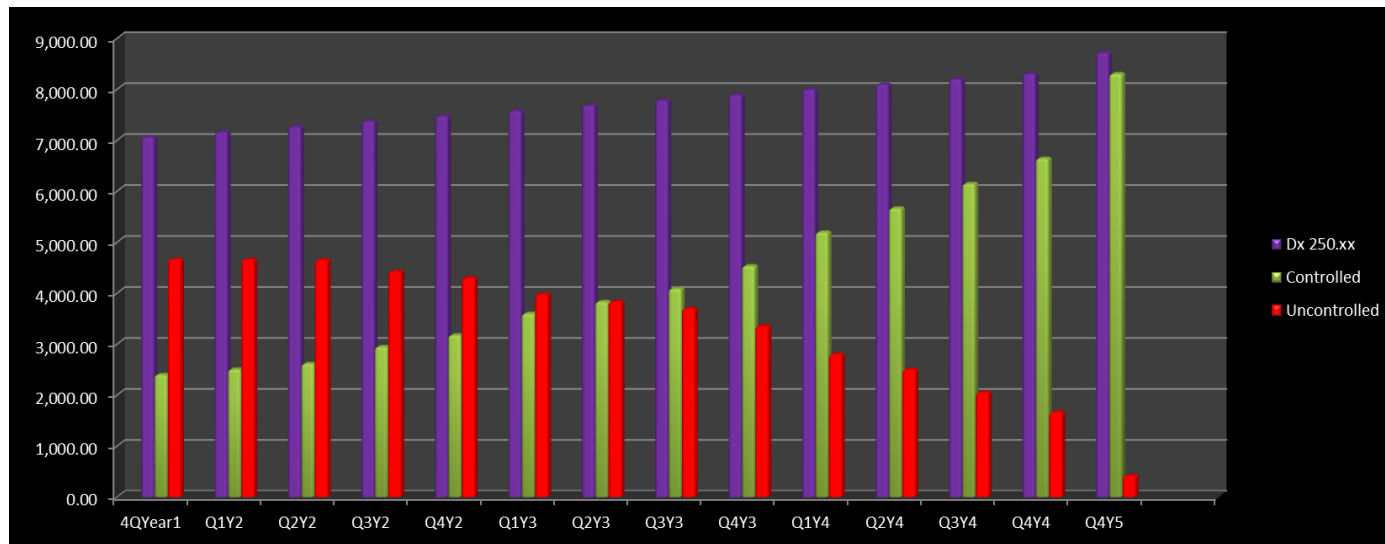
Drug Code	Drug Name	No of Times Prescribed	No Of Patients	Total Amount Charged	Unit Cost	Relative cost Generic vs Brand	Amount charged if Generic	Savings if Generic
<a href="#">VG6820043</a>	JANUMET TABLETS 50/1000MG (Sitagliptin + Metformin)	2,641	539	215,421	81.57	1.445532127	149,025	66,396
<a href="#">VG6820021</a>	SITAGLIPTIN+METFORMIN 50/1000MG TABS	772	183	43,562	56.43	0.691786769		
<a href="#">VG6820036</a>	GLUCOPHAGE 500MG	1,575	485	24,272	15.41	1.296361379	18,723	5,549
<a href="#">VG6820004</a>	METFORMIN Tablet 500mg	2,139	586	25,427	11.89	0.771389843		

# NCD Illustration - Diabetes





# What a Win Might Look Like



# Importance of IT

- Most insurance administration systems and provider practice management systems can capture the data needed to calculate performance ratios
- Insurance administration systems track data for actuarial analysis and have a robust database for storing large volumes of historical claim data

# Importance of IT

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- If a system can either pay claims or submit claims Practice Management Systems, then it likely stores the data that is needed to develop NHI specific performance ratios
- The widely used databases (MS SQL Server, Oracle, Redis, PostgreSQL, Sybase, IBM Db2) have powerful search and reporting functionality

## Data used for claim adjudication & actuarial analysis

(applies to claims and encounters)

- Date of Event
- Provider / Vendor (National Provider Identifier a plus)
- Patient / Member
- Diagnosis codes (ICD9 and ICD10)
- Procedure codes (inpatient, outpatient, Rx, dental, lab, etc.)
- Amount Billed and Paid (excludes encounters)
- Date of Settlement

**The system used as a central depository will likely be a claim administration system**

- Designed to extract data for actuarial reports
- Meet published security standards like HIPAA
- Are designed to interact with other systems

# Final Thoughts

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”If you can’t measure it, you can’t manage it”

”What gets measured, gets managed”

Peter Drucker

“Things that are measured improve”

Karl Pearson



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