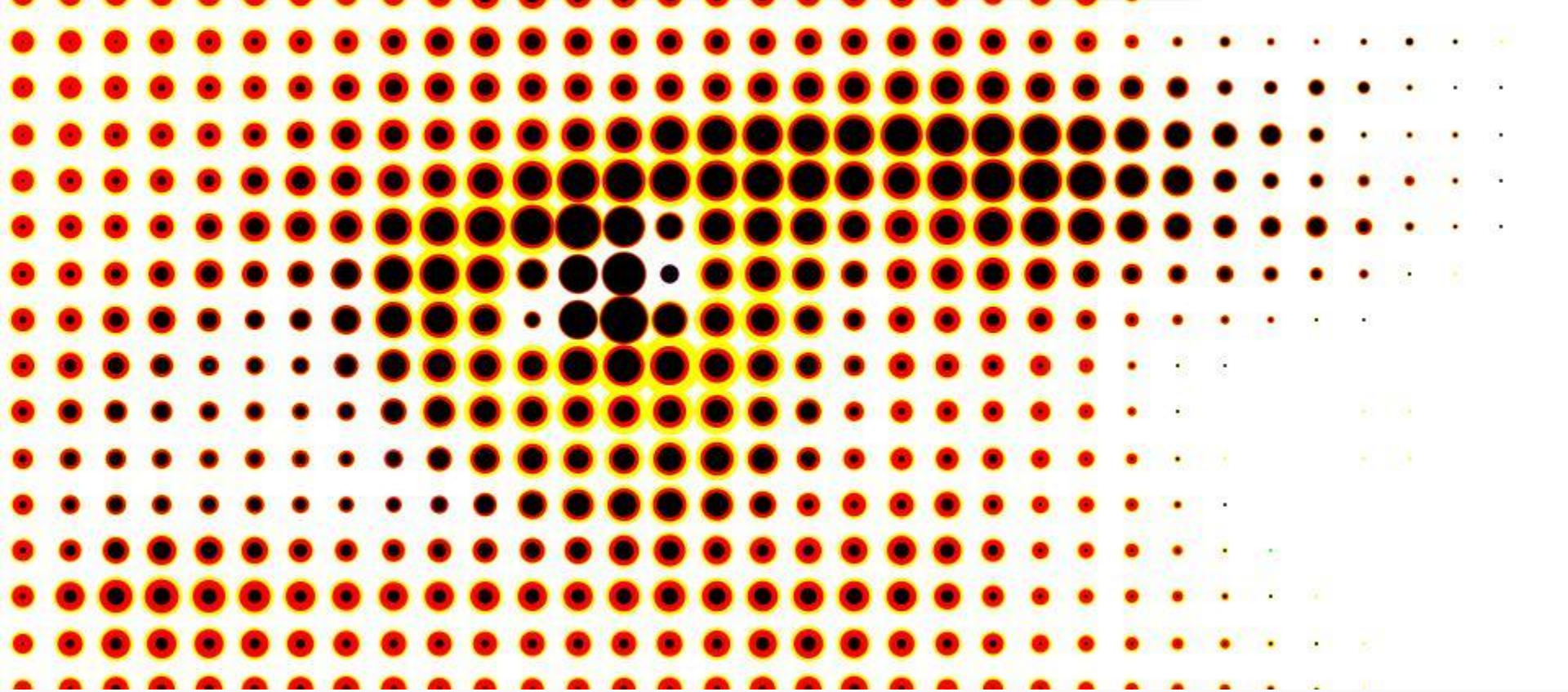


Repricing of Health via Portfolio Monitoring

22nd Feb 2011

Samuel Tan

-
- Purpose of Portfolio monitoring
 - Sources & Type of Data
 - Tools & knowledge
 - Output and Analysis
 - What to look for!
 - Specific analysis...
 - Re-design, re-pricing, re-wording, re-structuring (sales, underwriting, claim adjudication)



Purpose of Portfolio Monitoring

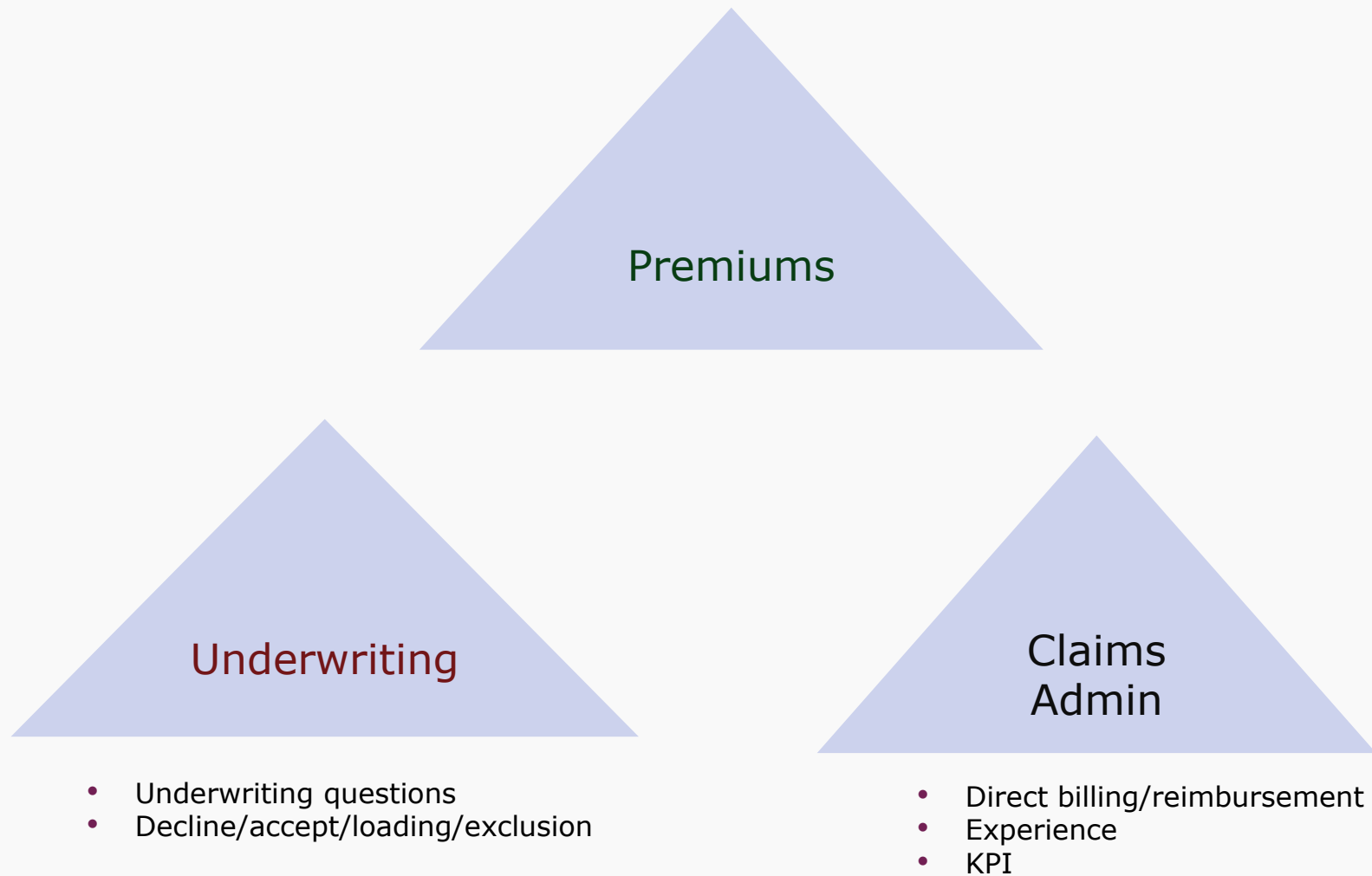
Possible approaches to pricing health insurance

- Actuarially methodology from first principles
- Burning cost approach
- Follow the competitor!

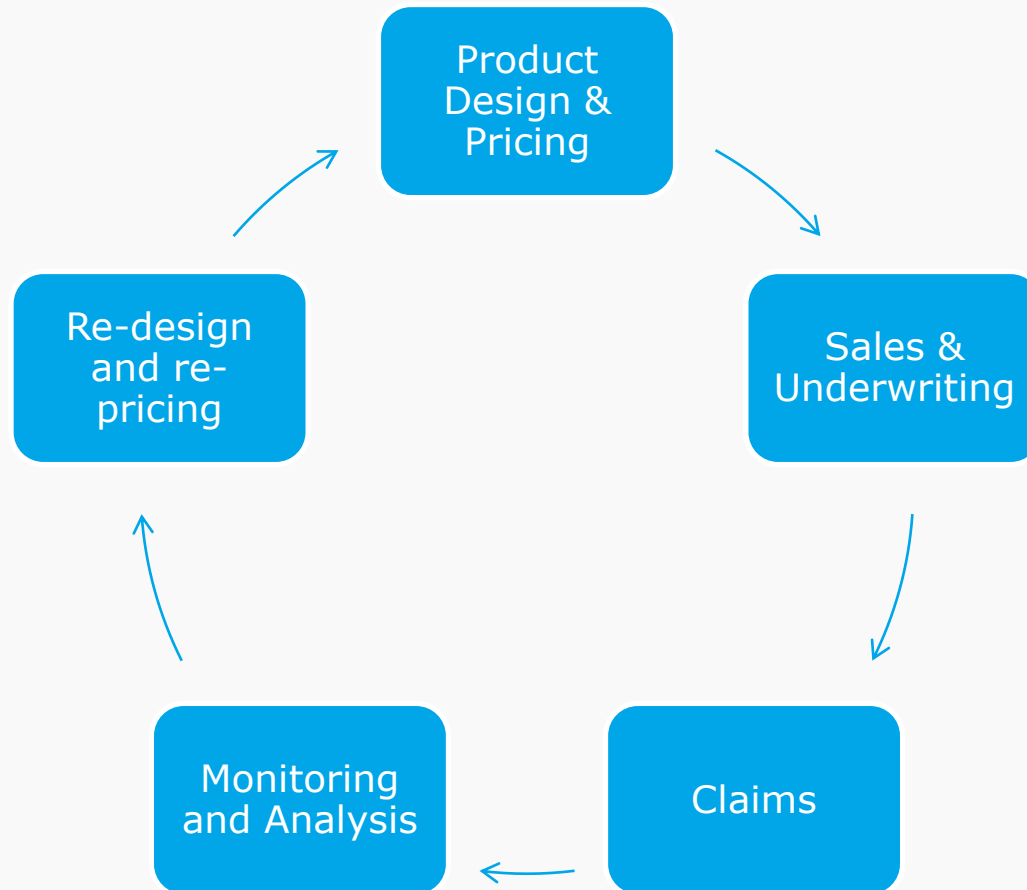
Key to successful and most credible part of pricing is DATA

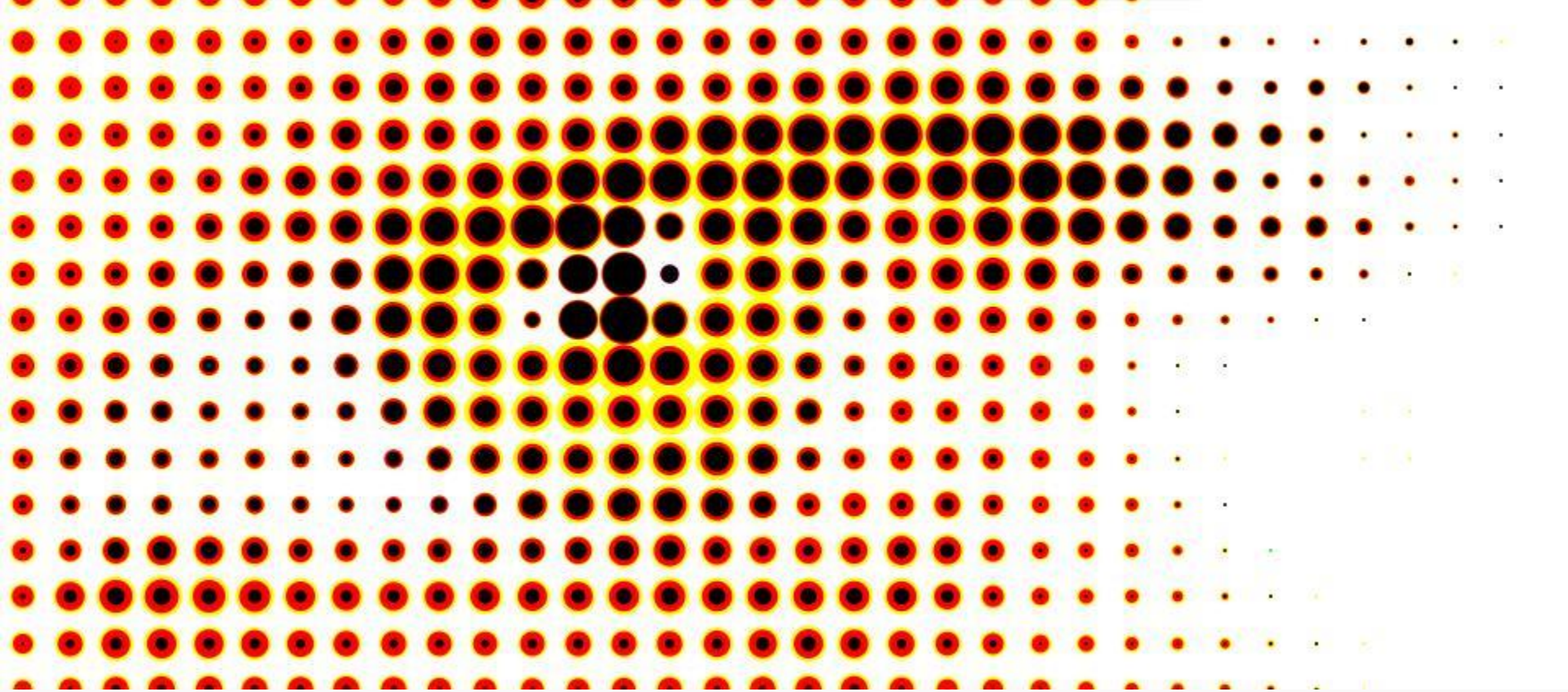
Information Required (in order of preferences)

1. Client's Data
2. Similar industry data
3. Industry data
4. Country's statistics



Portfolio Analysis – Actuarial Control Cycle





Sources & Type of Data

-
- Policy/Premium & claims bordereaux
 - Detailed policy/claim information
 - Credibility
 - Minimal number of years' data
 - select vs ultimate
 - Waiting period
 - Specified illness exclusion
 - Number of policies and claims

-
- Policy Number
 - Gender
 - Date of Birth
 - Date of Issue
 - Date of renewal
 - Sum Assured/Plan Type
 - Written Premium – earned premiums
 - Premium mode
 - Exclusion or Extra risk premiums

Need to include rejected claims

- Policy Number
- Gender*
- Date of Birth*
- Plan Type*

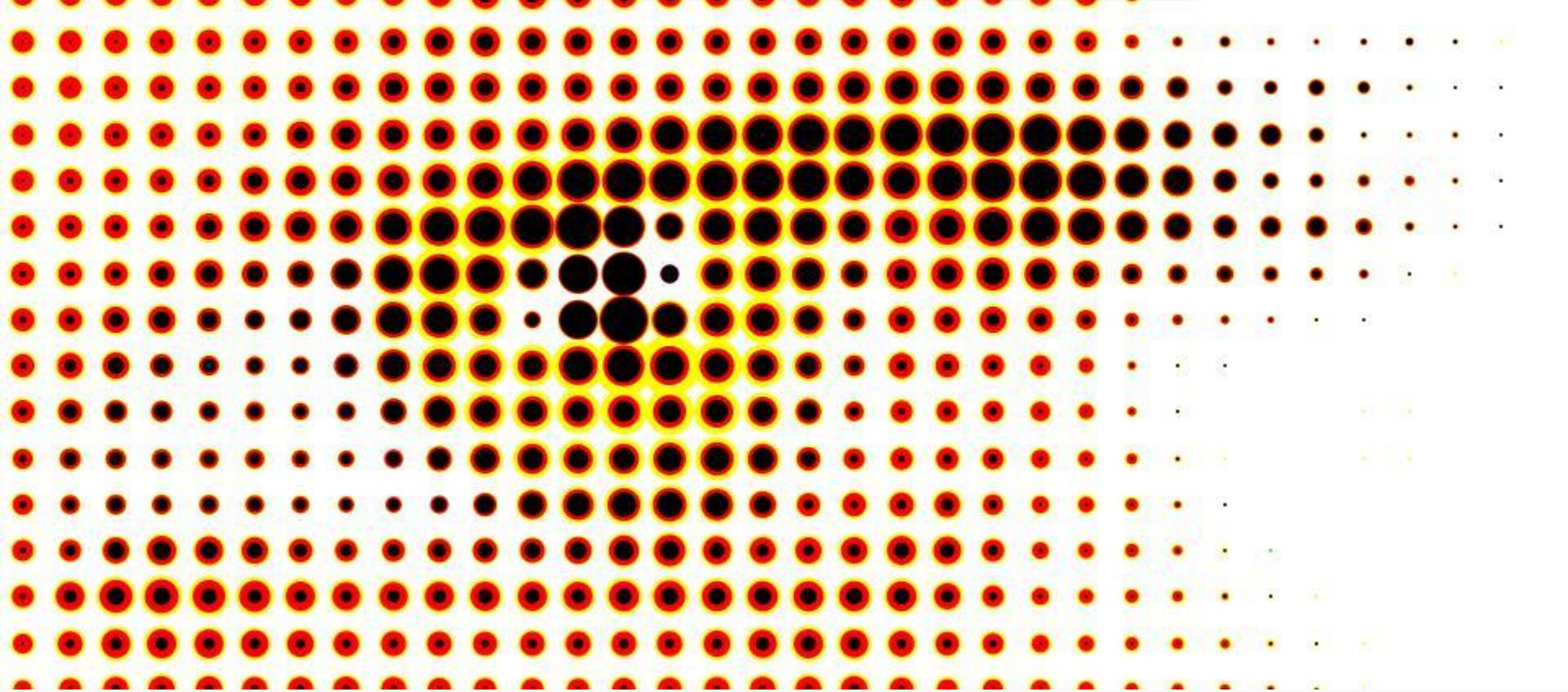
- Date of Admission/Hospitalisation
- Date of Discharge
- Date of Notification
- Date of Payment

- Type of Illness (ICD code)
- Surgical Procedure (CPT-4)
- Name of Hospital
- Name of Surgeon (if surgery was done)
- Type of ward

Type of Claim category/benefit (split into Incurred/Submitted and Paid)

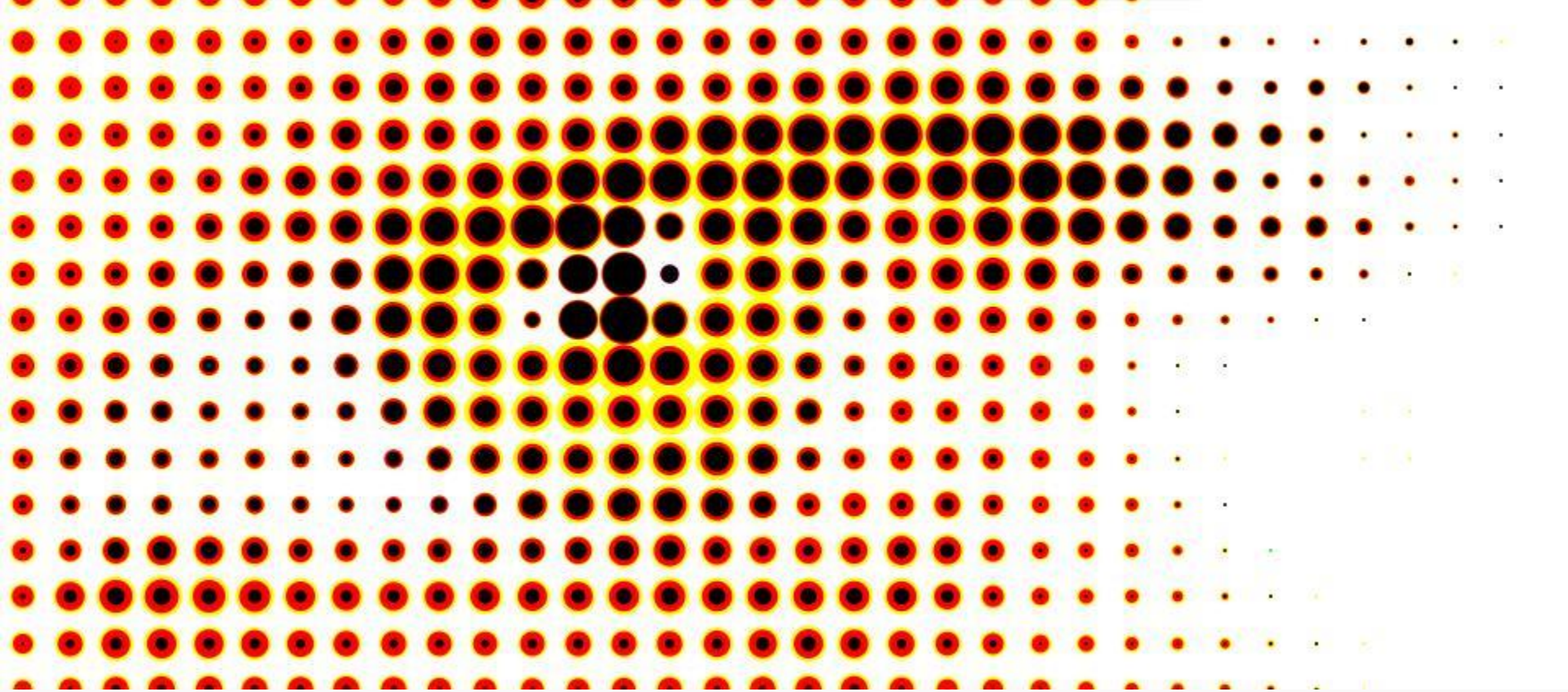
- Depending on product design (HCB, HS, MM)
- Administration system
- Room & Board – including length of stay
- ICU – including length of stay
- Surgical Cost
 - Operating theatre fees
 - Anesthesia fees
- Inpatient/Specialist consultation cost

-
- General Expenses/Miscellaneous cost
 - Medication drugs
 - Drips/blood
 - Tests in hospitals
 - All non-defined charges
 - Outpatient treatment
 - Pre Hospitalisation charges
 - Post Hospitalisation charges
 - Chemotherapy treatment
 - Kidney dialysis



Tools & knowledge

- Data cleansing
 - Dates (American vs UK)
 - Handling of implausible values (age>100)
- Type of tools to use
 - SPSS
 - Microsoft Excel – pivot table
 - Business Intelligence Solution (Cognos)
- Underwriting year concept

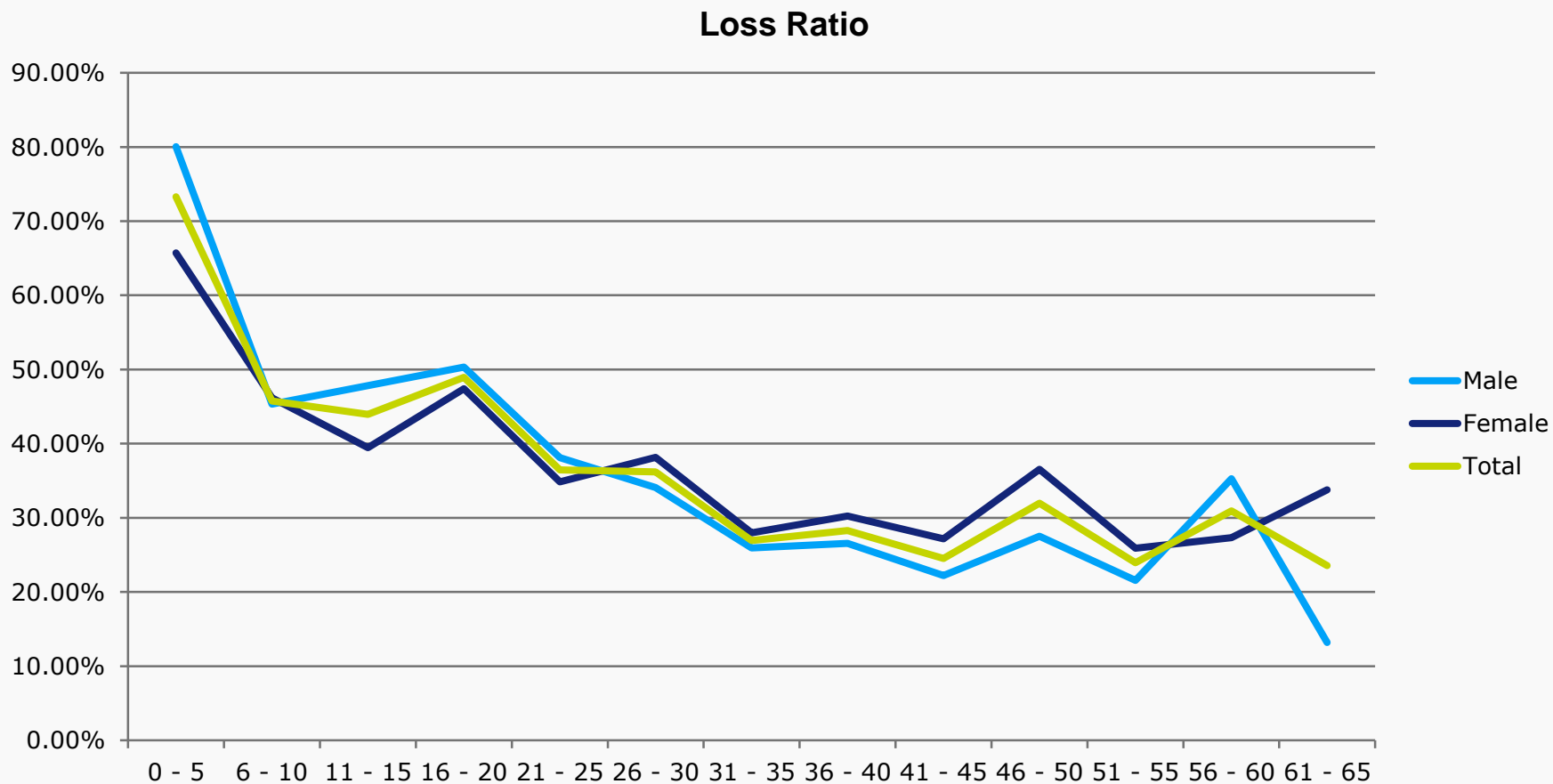


Sample Portfolio Analysis

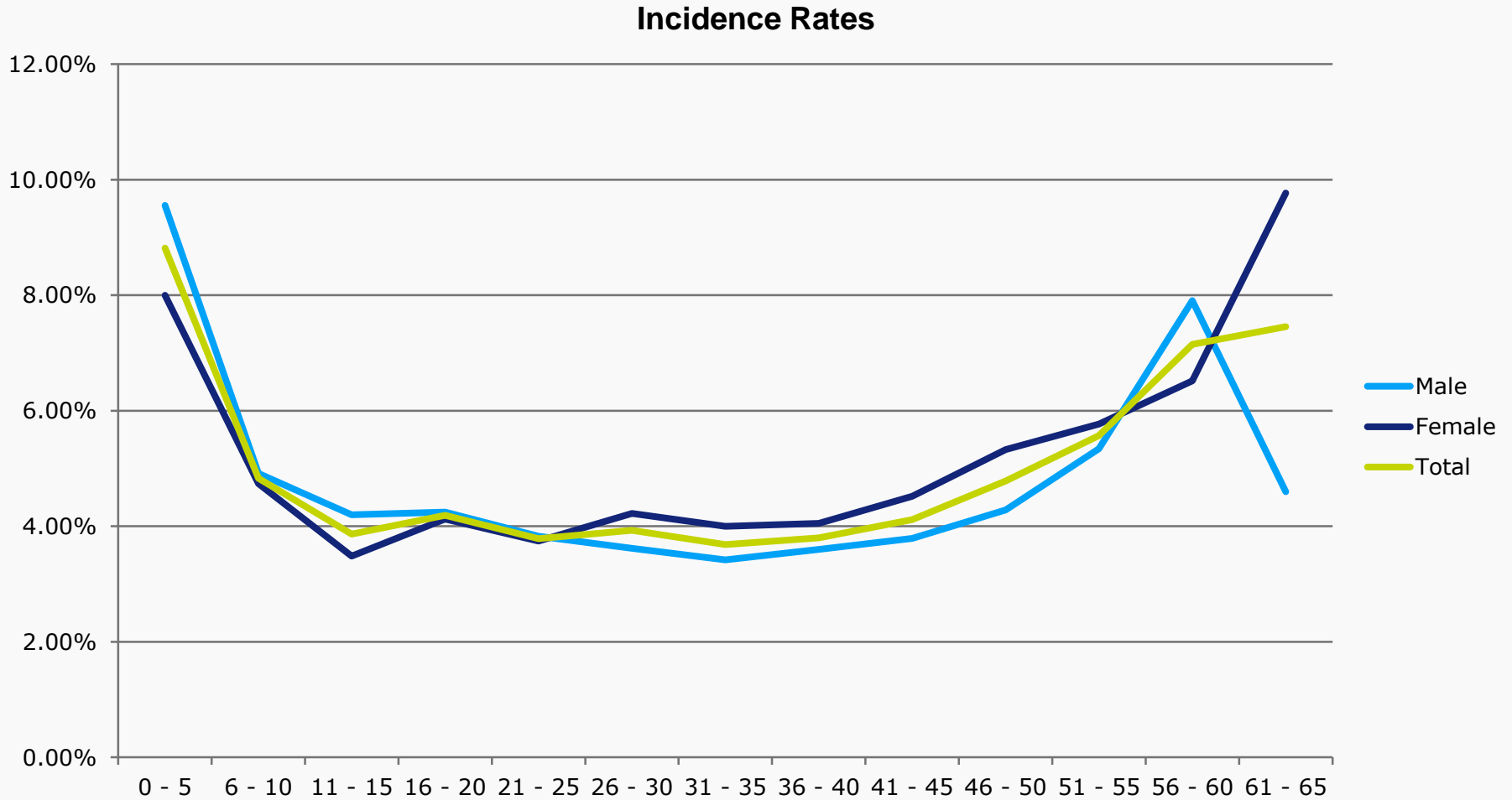
Disclaimer – information produces here are gathered from various sources; therefore the figures are different from one slide to another slide and are not comparable



Loss ratio by age bands/gender

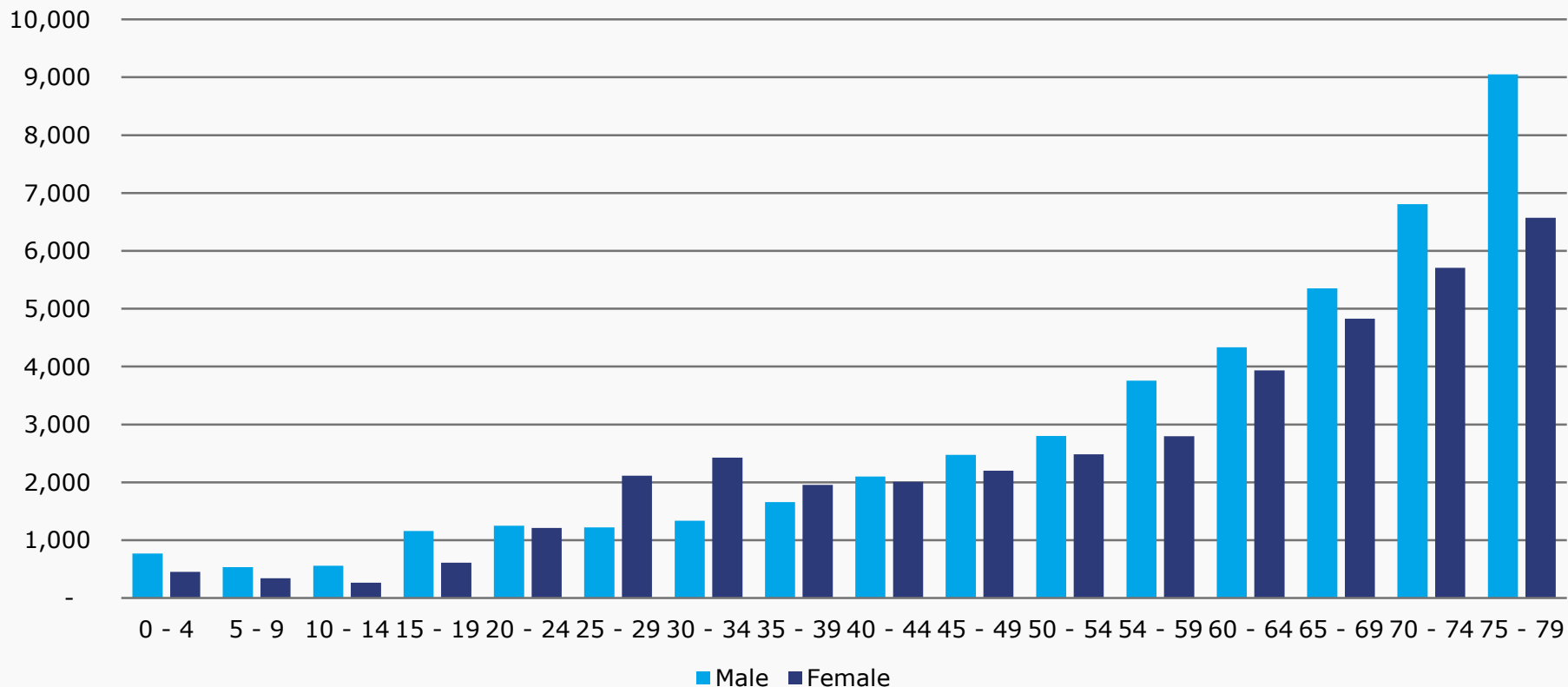


Incidence rate by age bands/gender

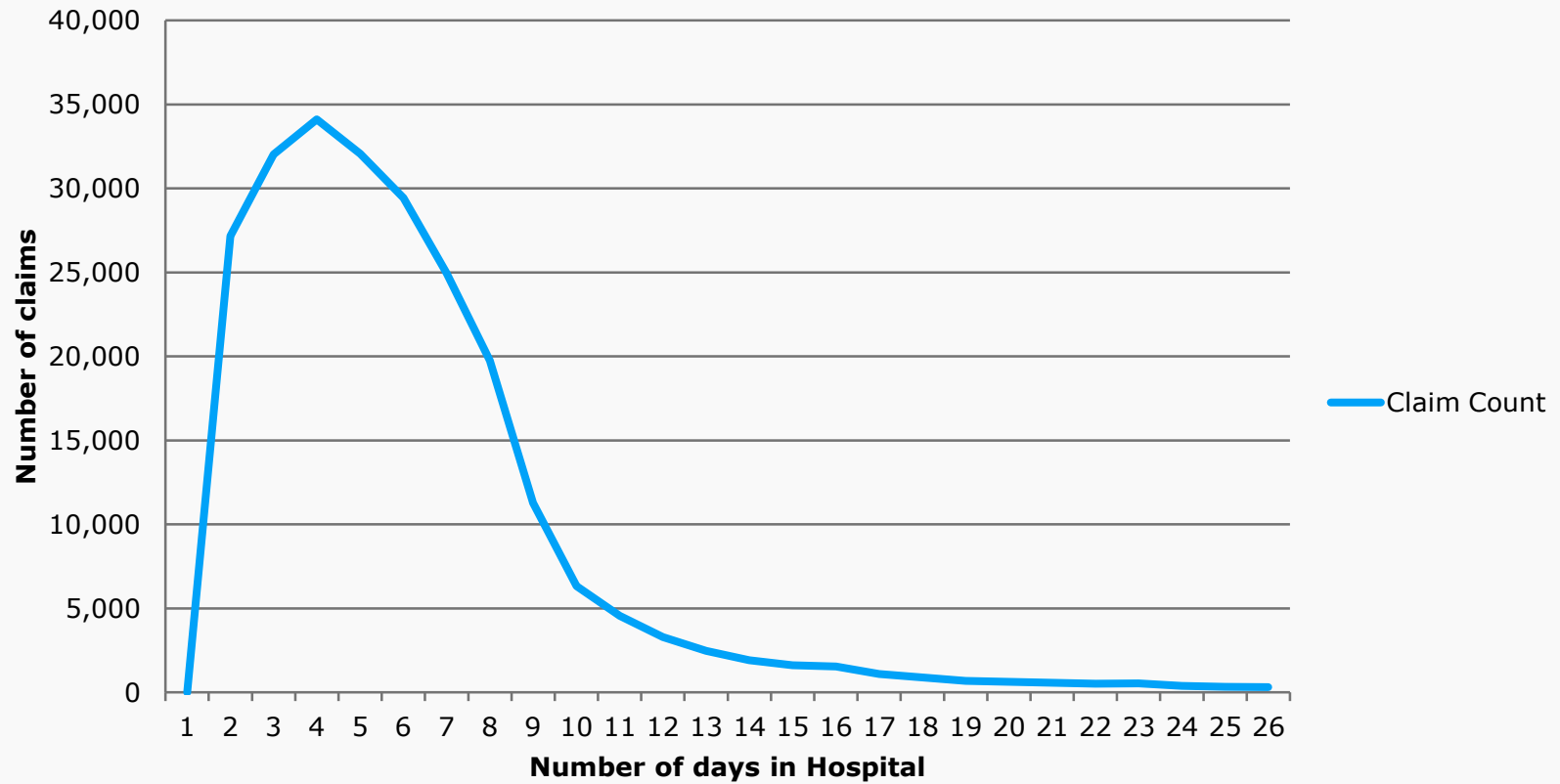


Burning cost approach – expected net claims per policy by age bands/gender

Burning Cost = Expected claim

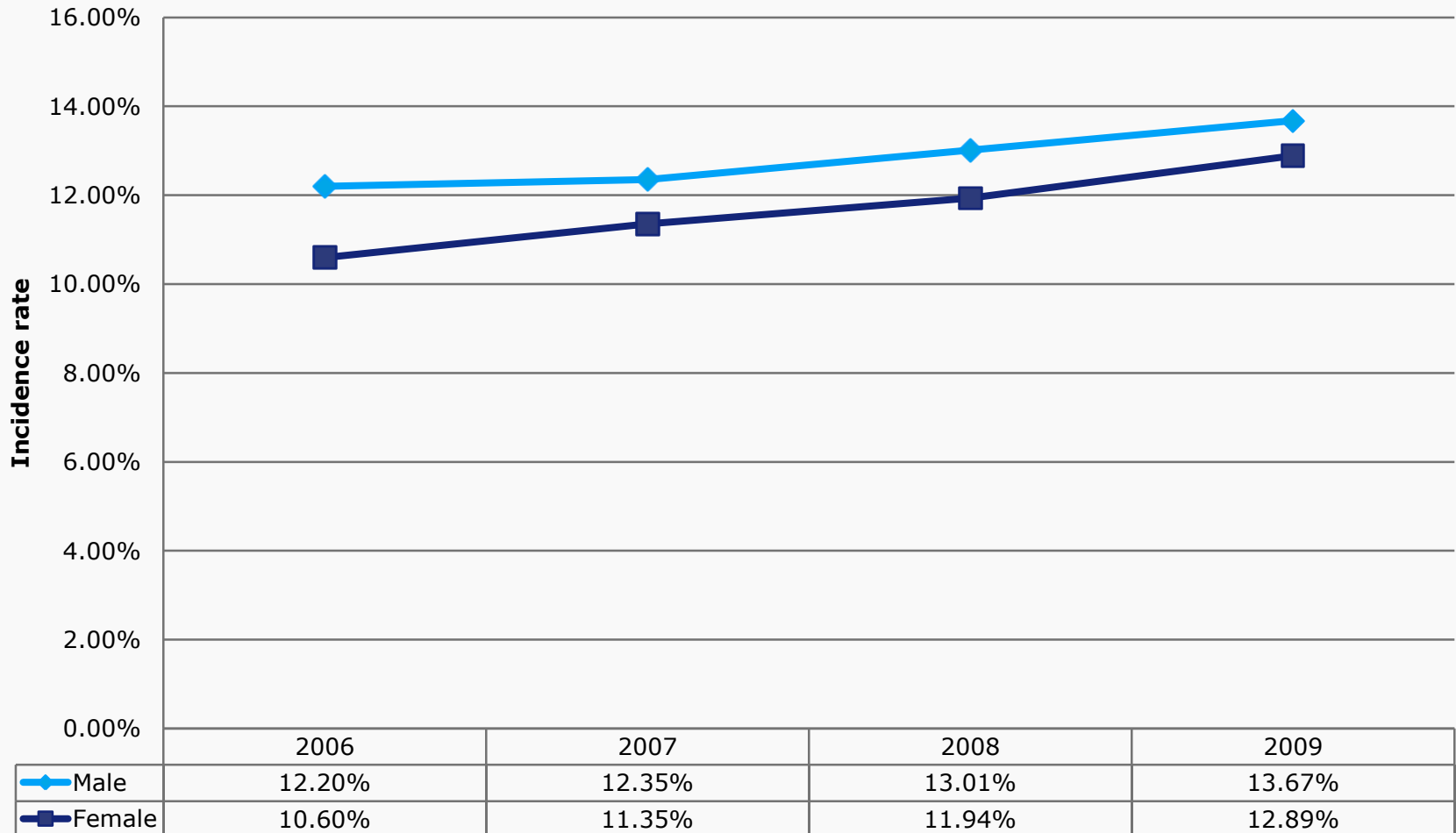


Distribution of claim by Length of Stay



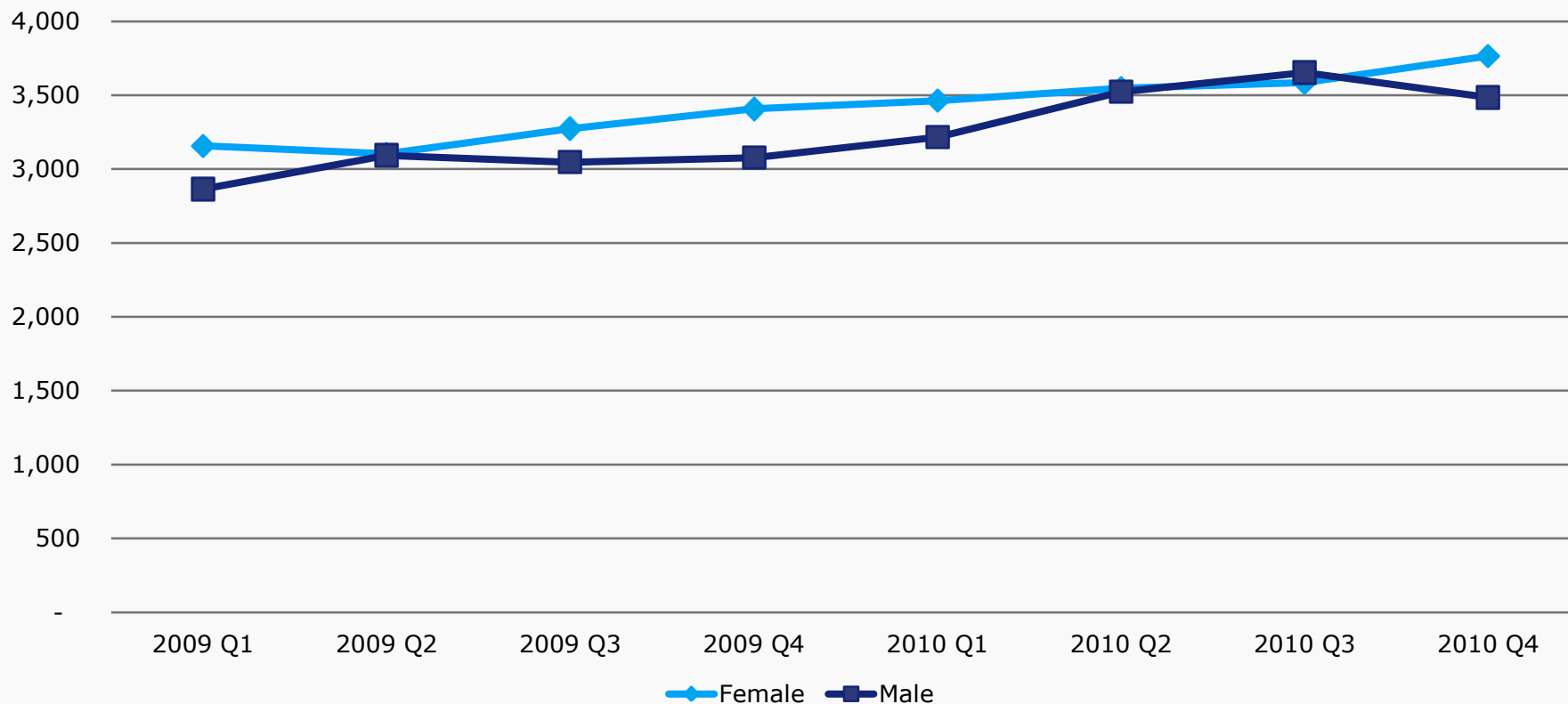
Year on year trend/experience by Incidence rate

Year on year incidence rate



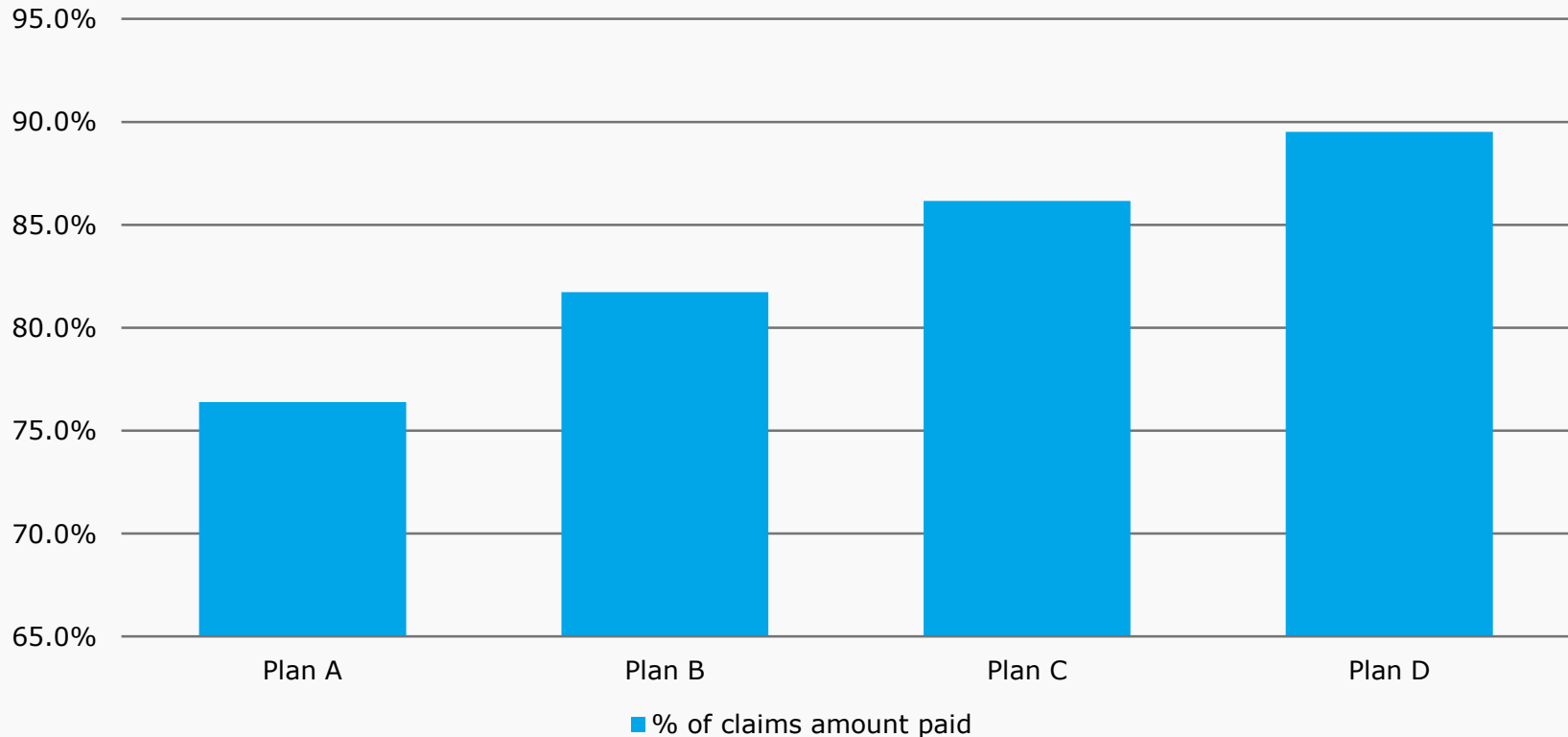
Year on year for average claim cost – medical inflation

Trend of average claim cost by quarters



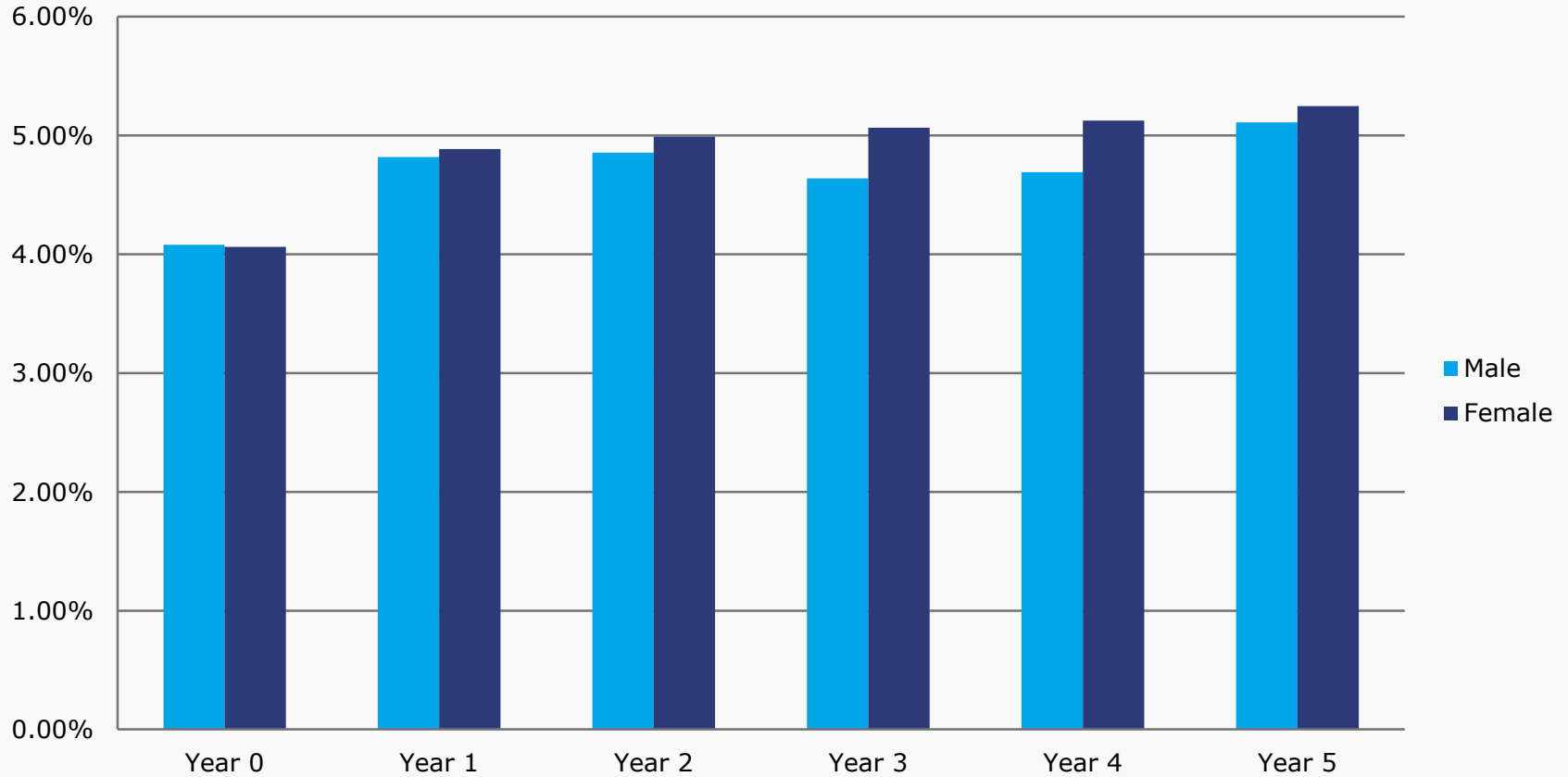
Actual paid claims to Incurred claim submitted by plan benefits

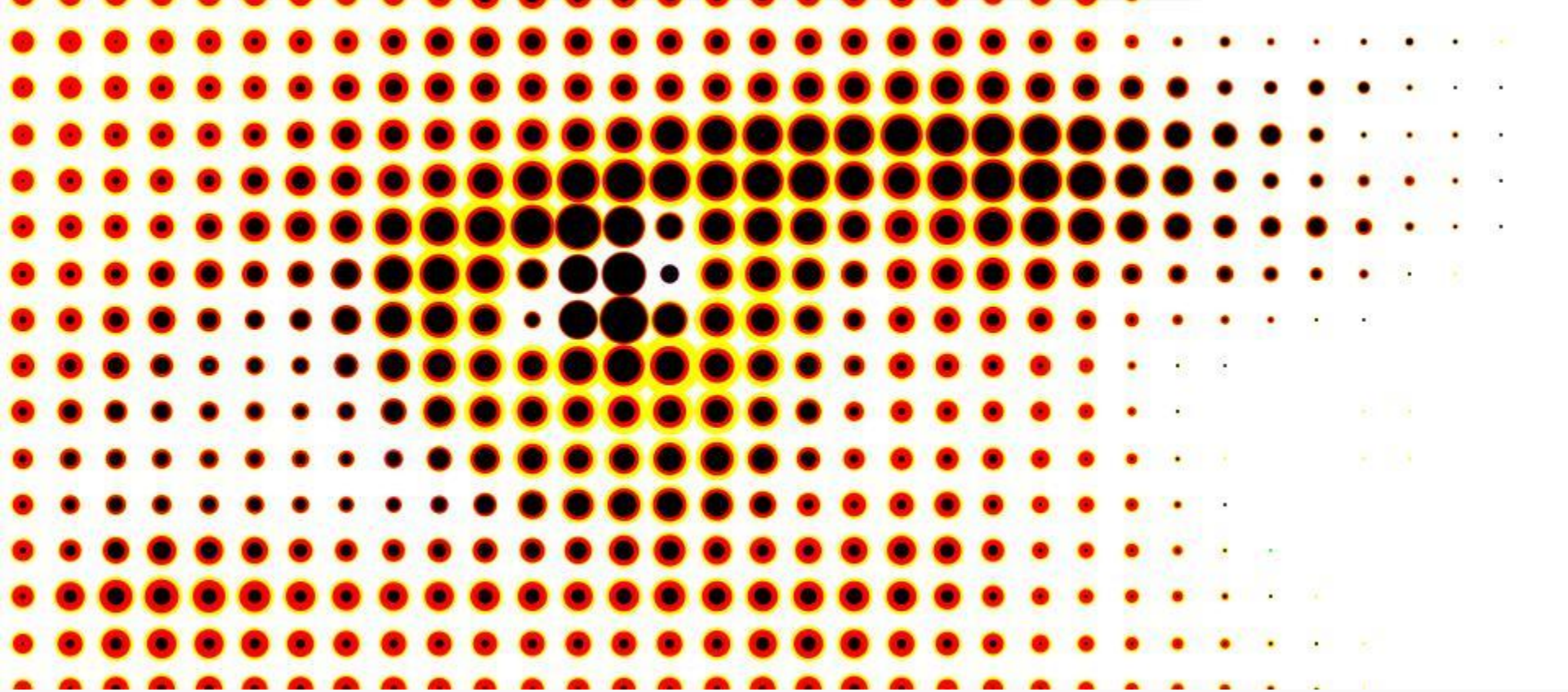
% of claims amount paid



Incidence rate by policy duration – select vs ultimate

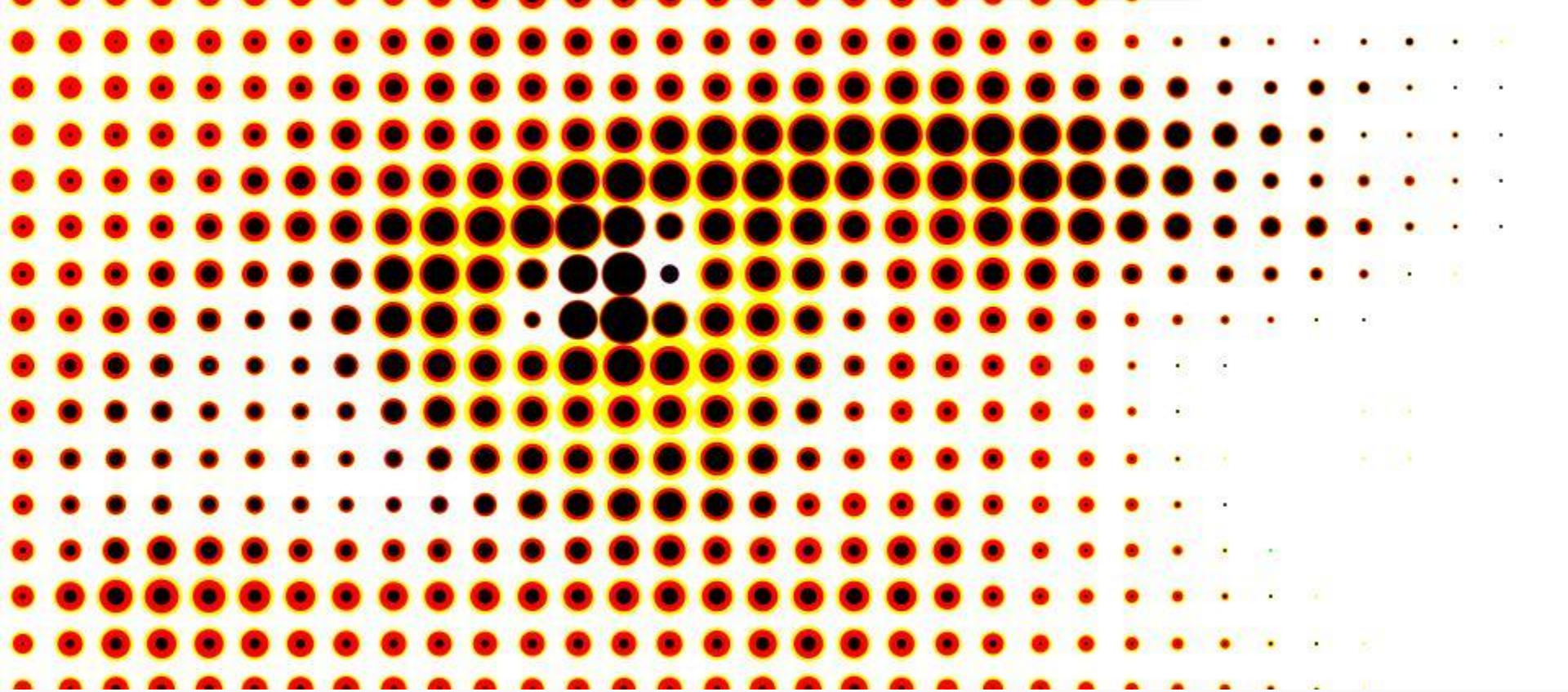
Incidence rate by Policy Duration





Other type of analysis

-
- Analysis by
 - Geographic location
 - Providers - Hospital, surgeon
 - Distributors
 - Specific Claimants
 - Specific diagnosis & surgery
 - Benchmarking against industry standard



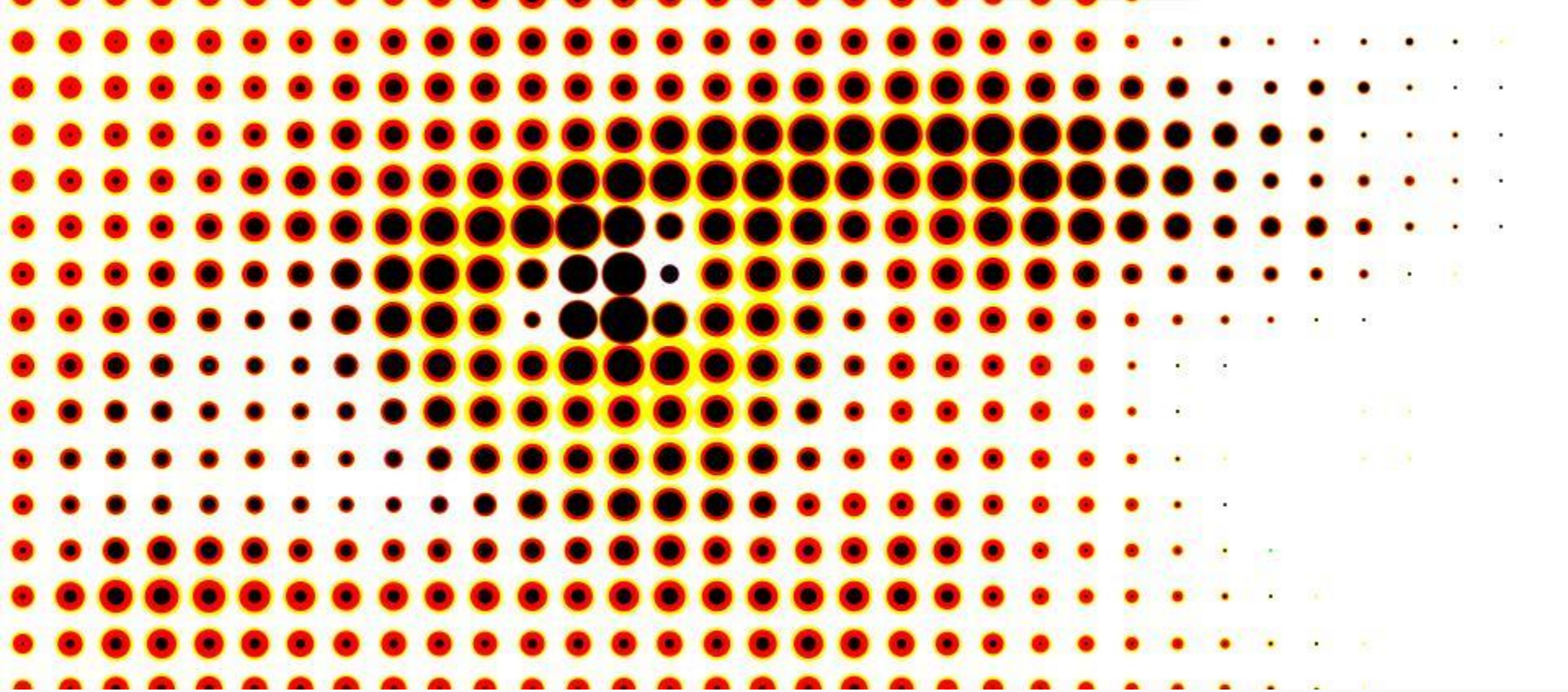
Re-design, Re-wording, Re-pricing, Re-underwrite guideline, Re-claim adjudication



Consideration for Product revamp or re-design

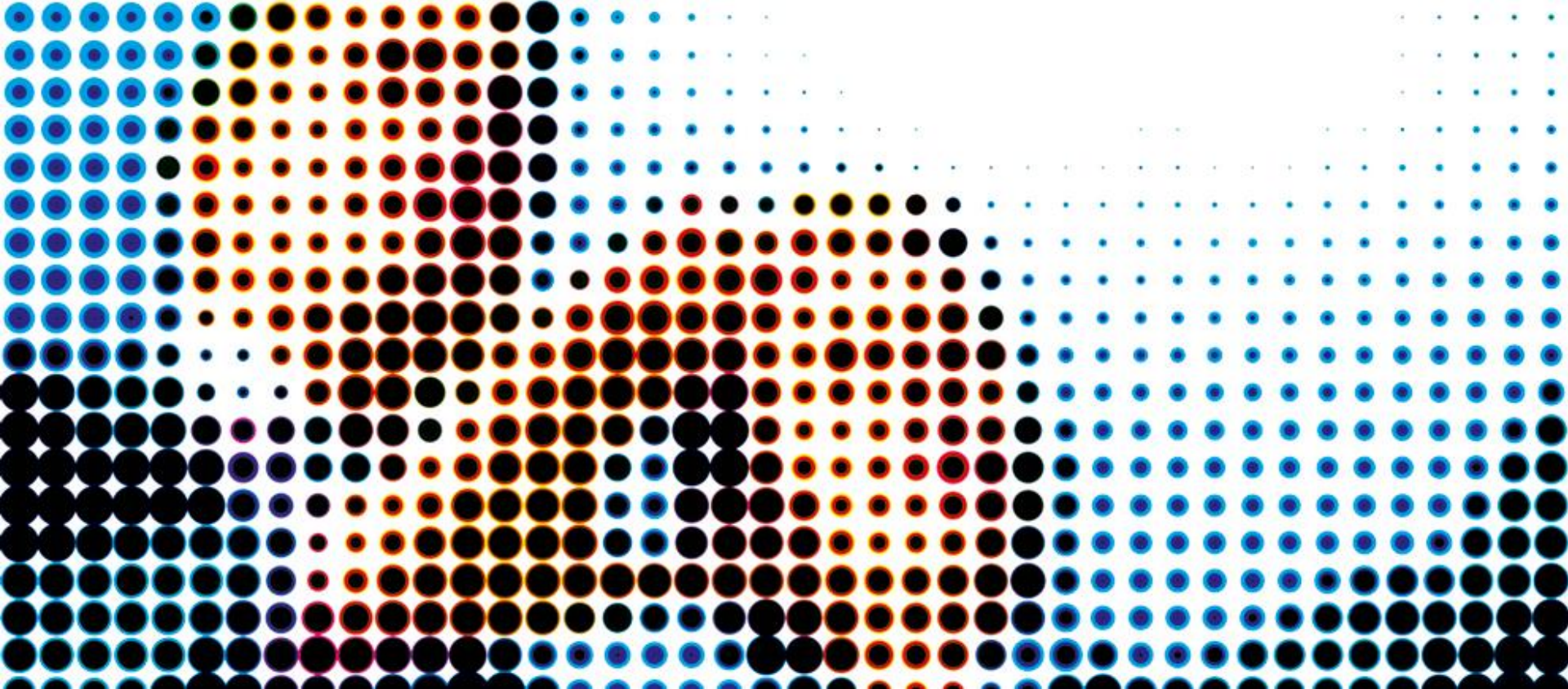
- Benefit limits amount
- New benefit category?
- Complexity vs simplicity
- Policy Definition
 - Unclear
 - Abuse
 - Incentive
- Exclusion list

-
- Underwriting questions
 - Underwriting acceptance – loading, exclusion
 - Non medical limits
 - Underwriting authority
 - Claims authority
 - Claims processing
 - Direct billing approach



Questions?

Thank you



Re-pricing via Portfolio Monitoring

Samuel Tan
Date: Feb 2011