

Current Issues in Retirement Benefits (16th CIRB) Hotel Sea Princes

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New mortality table- readiness to implement

P K Dinakar
Appointed Actuary – PNB MetLife

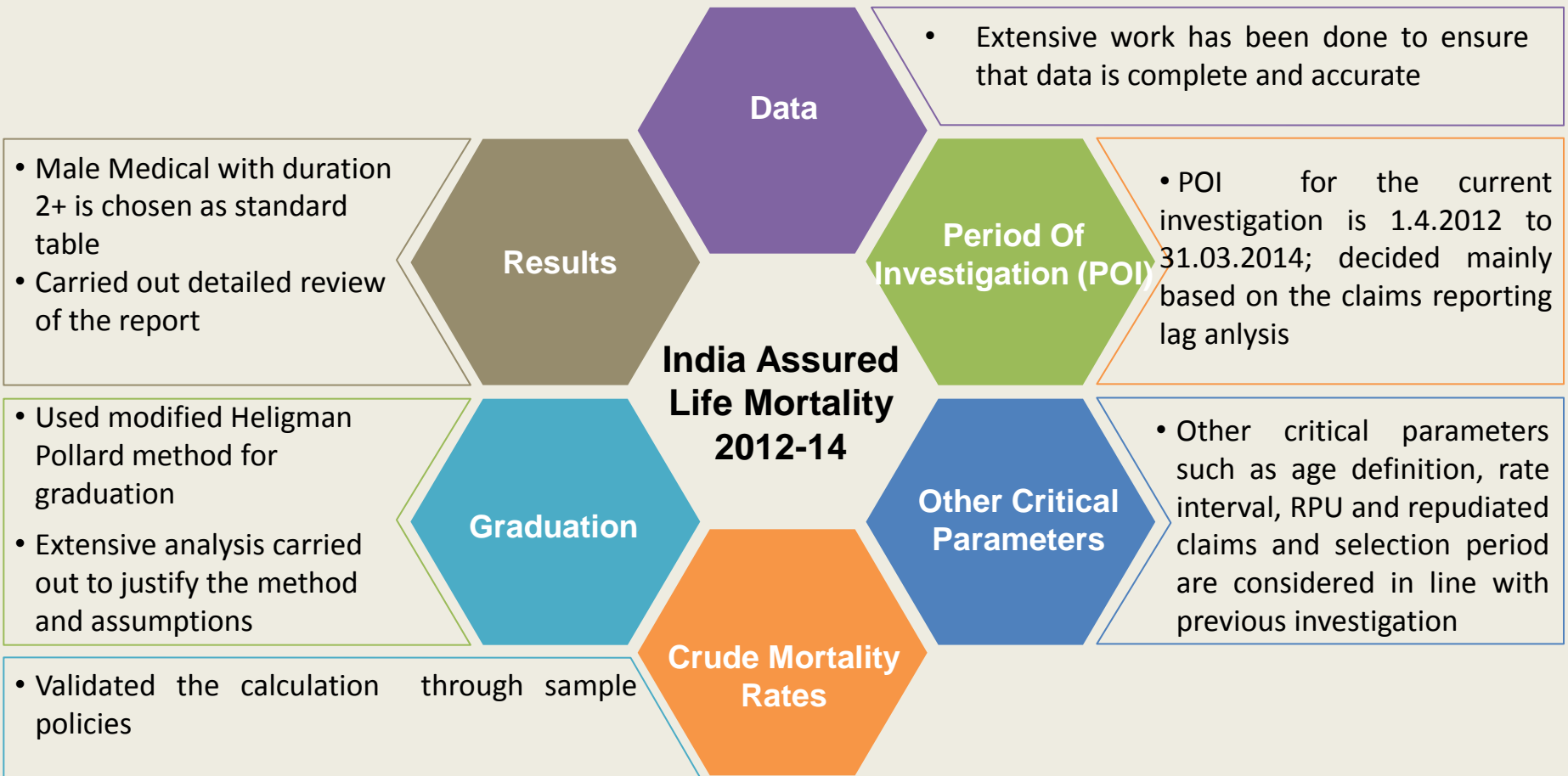


Agenda



- Summary
- Data
- Definition/Methodology
- Crude Mortality Rates
- Graduation of Rates
- Results
- Key Trends

Summary



- The investigation was conducted by MMIC within IIB
- Two oversight committees were formed for guidance– Actuarial (5 members) and Operations
- Effective date for the adoption of table – 1 April 2019

Data

	Duration 2 & over		All Durations	
Study period	2012-14	2006-08	2012-14	2006-08
Exposed to risk	462,725,781	247,697,398	602,651,281	350,952,803
Deaths	1,231,974	667,380	1,454,519	786,572

- Data is almost twice the same used for the previous investigation
- All 24 life insurance companies submitted the data
- Multiple round of iterations carried out to ensure that the data used is error free

Definition/ Methodology

Period of Investigation (POI)

- POI is restricted to two years basis the analysis of claims reporting lag
- As per the analysis, it takes at least 2 years to report ~98% of death claims

Age Definition/Rate Interval

- Both definitions similar to previous investigation : Age definition – **Age last birthday** & Rate interval – Life year

Repudiated Claims

- Repudiated claims are included as part of the investigation for following reasons - Complexities in terms of modeling & consistency with previous investigation

Reduced Paid-up cases

- These cases have been included for following reasons – unable to establish the policy statuses at the time of reporting death claims; given the analysis is based on number of policies and hence this will have minimum impact on the investigation

Select Period

- Duration 2 and onwards as ultimate rates which is consistent with previous investigation

Crude Mortality Rates

Calculation

- Checked the calculation of Crude Mortality Rates (CMR) at industry level for overall reasonableness (through sample policies)
- Checked the progression of exposure and deaths to ensure that there are no anomalies

Trends

- CMR compared with same that was calculated for previous investigation (2006-08)
- Rates were calculated separately for medical/non medical/different sum assured groups/products groups

Graduation of Rates

Explored different methods

- Investigated different models – Heligman Pollard , Whittaker Henderson , Cubic Spline, Carriere model and Gompertz Makeham
- Both Heligman Pollard and Whittaker Henderson graduate rates by obtaining balance between adherence to data and smoothness

Heterogeneity tests

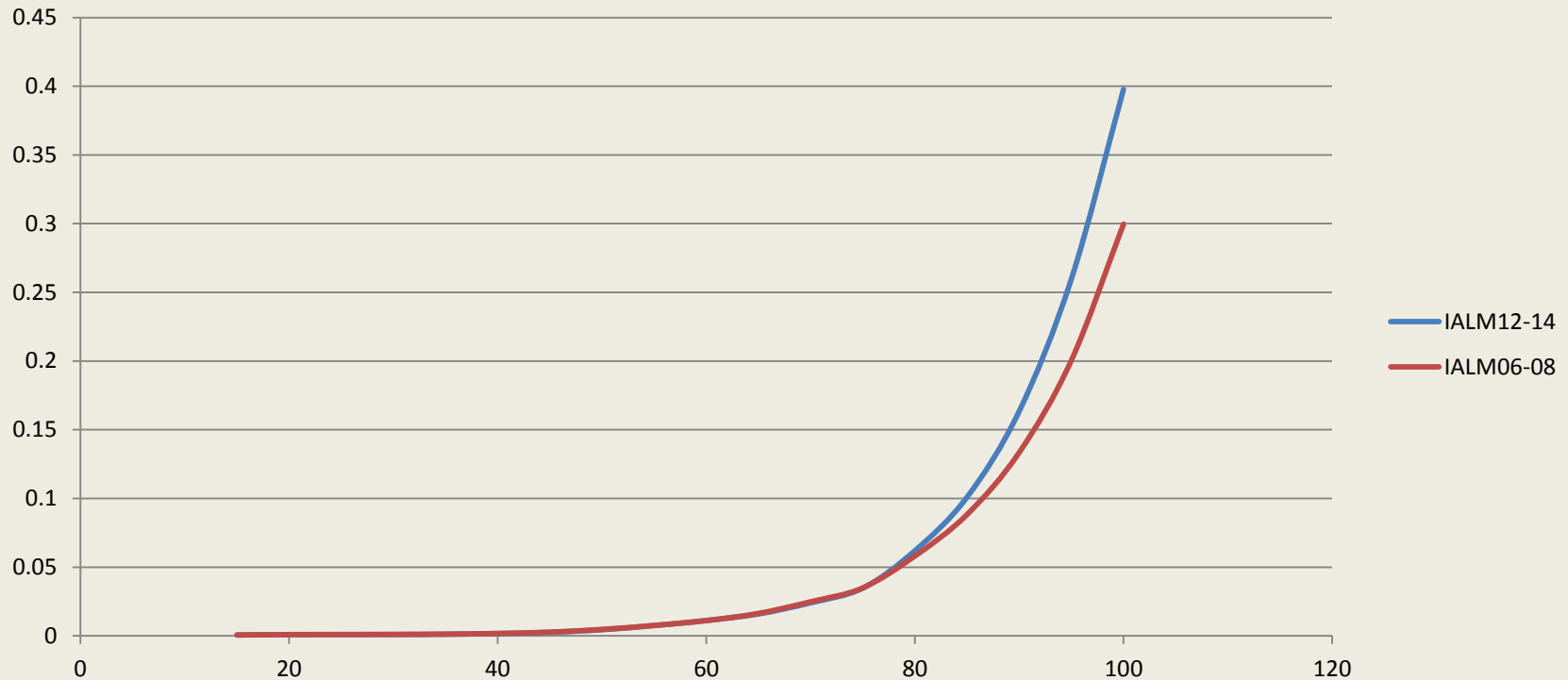
- Like previous investigation, the heterogeneity test is done by using Reddington Michaelson test
- Key modification in the approach during this exercise – chosen average value for K^2 instead of best out of 4 values

References

- Referred methodologies used by various countries, in particular – UK, US, Singapore, Canada, Australia
- Research paper by R. H. Daw in JIA 113 for determination of K^2 value

Consistent with previous investigation modified Heligman Pollard was used for Graduation of rates

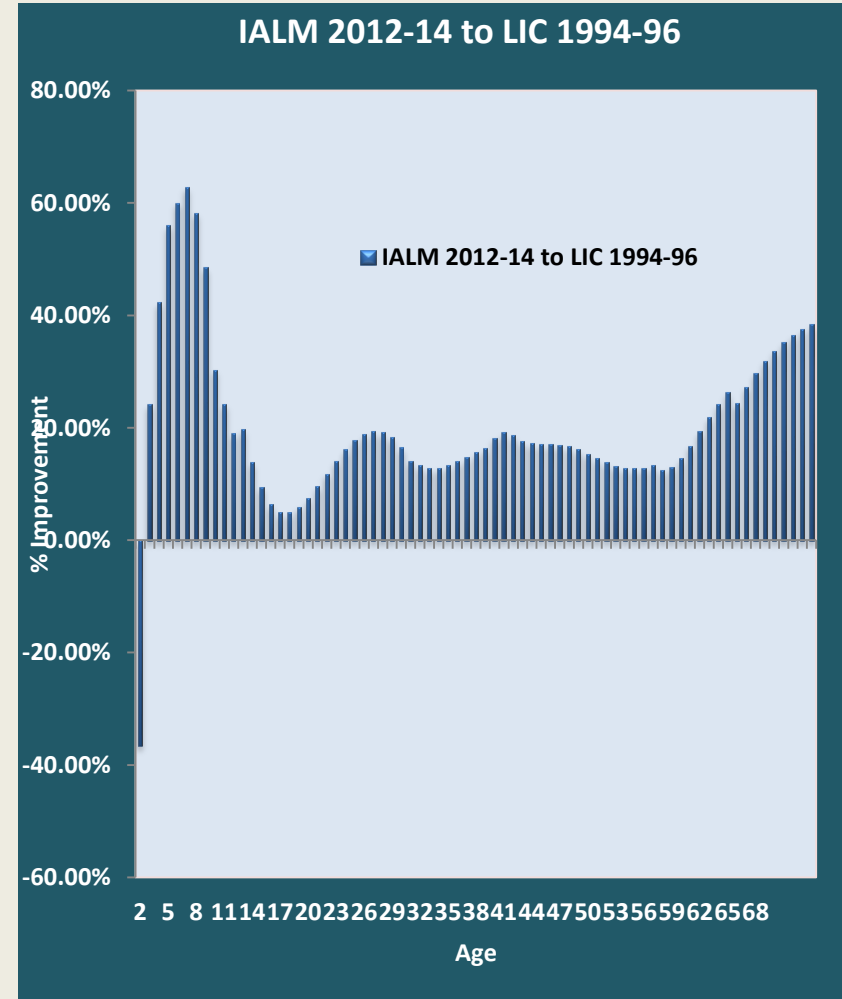
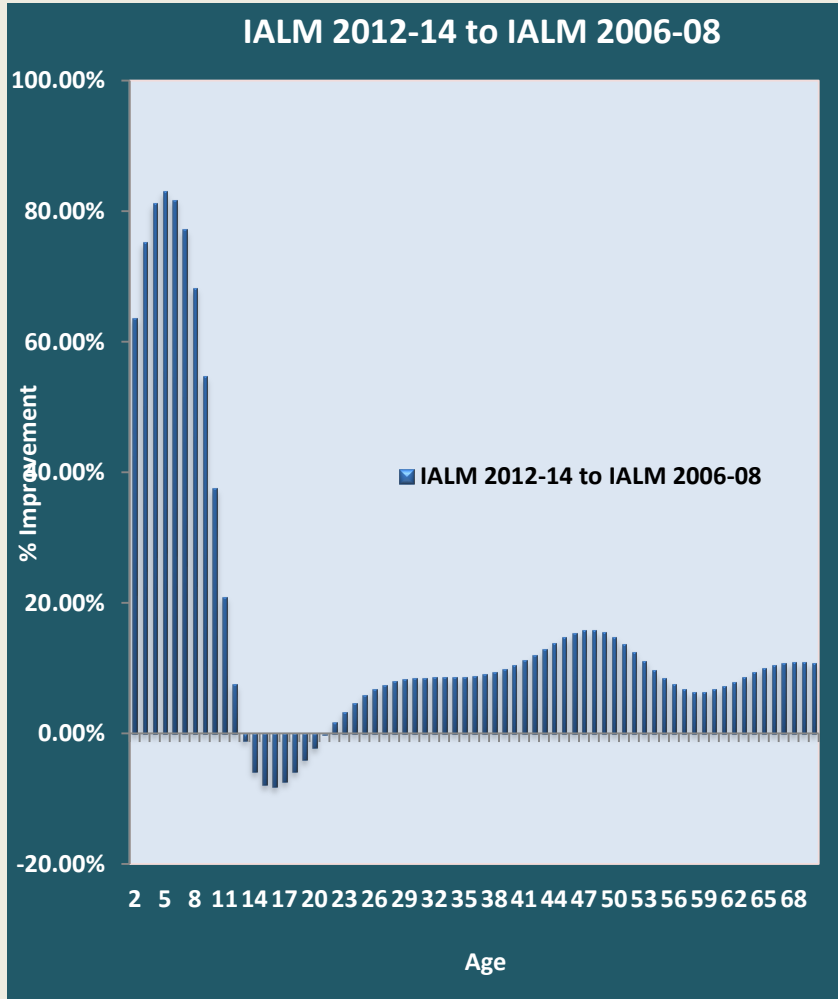
Results – Standard Mortality Rates



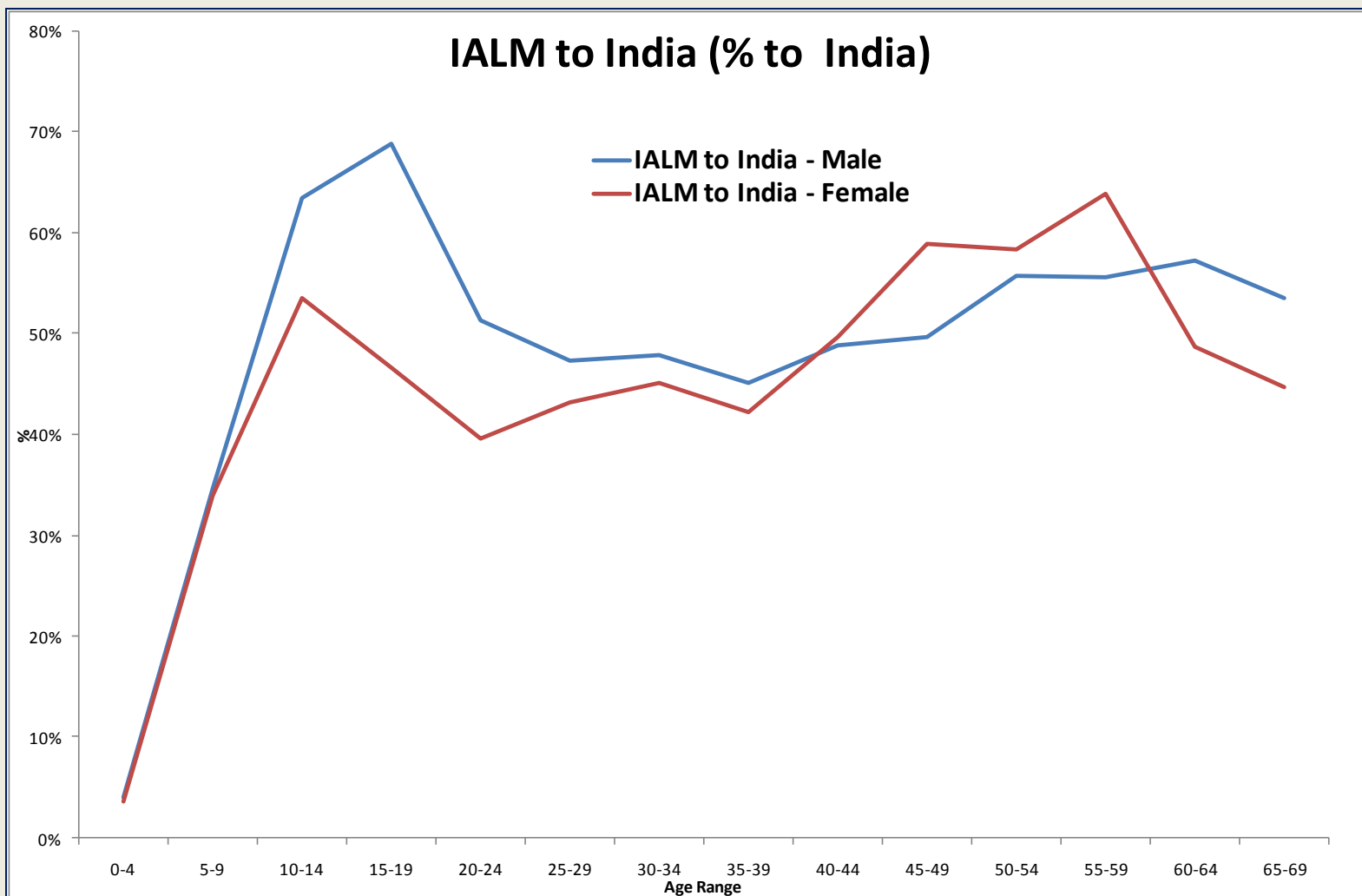
Male Medical with duration 2 and over is chosen as standard mortality table; consistent with previous two investigations

IALM 2012-14 are lighter than the Standard Rates of IALM 2006-08 across all ages up to 75 except at age range 12-21 due to shift of accident hump to younger ages.

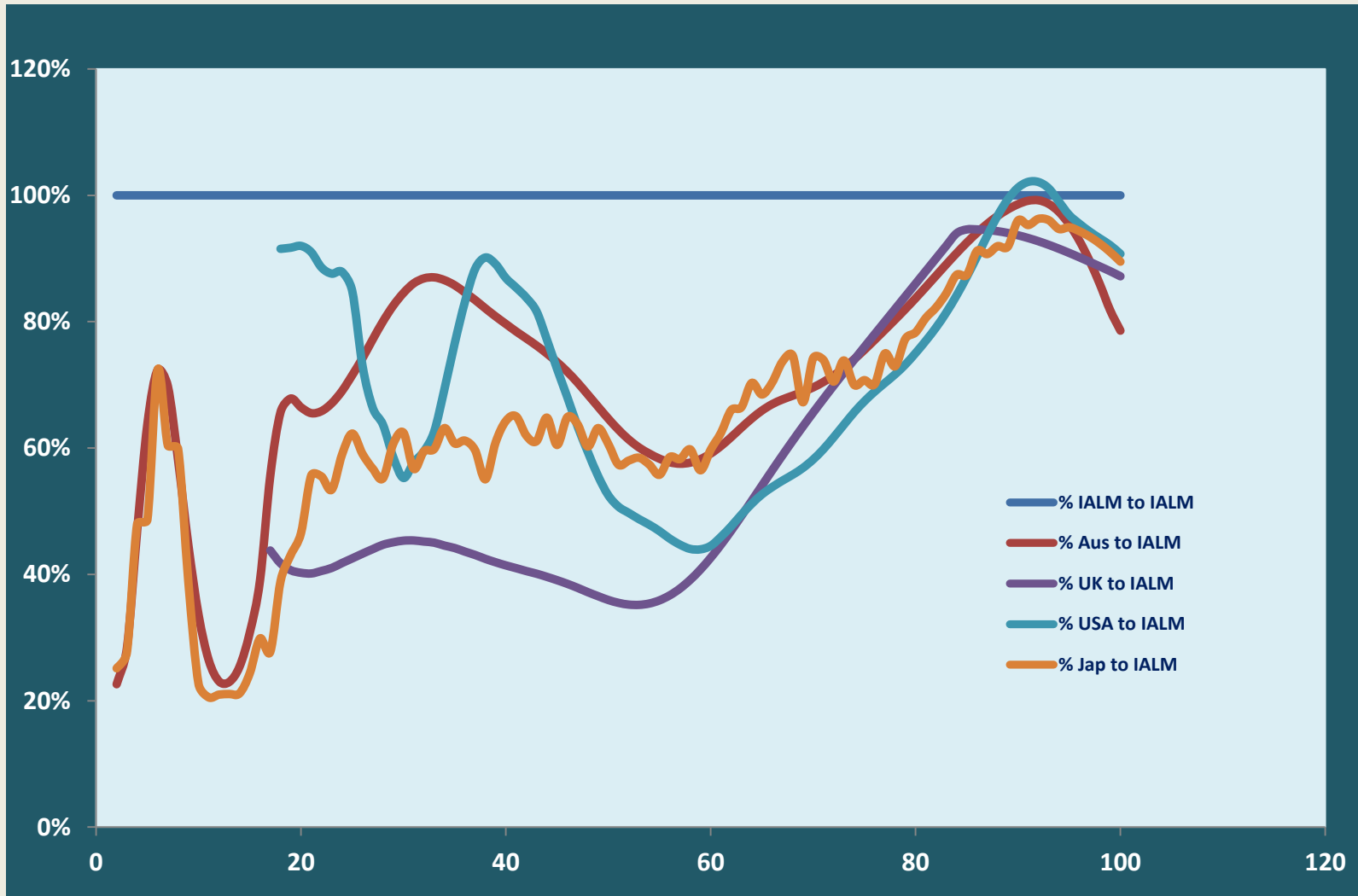
Improvement in Standard Rates over 2006-08 & 1994-96 Rates



IALM 2012-14 Vs Census 2013



Country wise Mortality Study



Thank You