Pandemics: Proactive Considerations

NAIC CIPR seminar
March 27, 2015
Max J. Rudolph, FSA CFA CERA MAAA
My Background

- ALM and ERM strategist
- Using common sense with ORSA
- LHATF 2008 – Interest Rate Generator
- Credentials
  - FSA CFA CERA MAAA FLMI RHU
- Trying to understand pandemics since 2004
Research

- 2015 Interest Rate Risk
- Sustained Low Interest Rates 2014
- Emerging Risks (annually since 2008)
- ERM for Health Practitioners 2009
- Insurer Crisis Investing Strategies 2011
- Value Investing and ERM: Two Sides of the Same Coin 2013
• MERS 931/400 S. Arabia
• Influenza
  • H5N2, H7N3: turkeys KS AR MO WA MN CA
  • H5N1(Egypt, China, Nigeria), H1N1 (India)
  • H5N8: Taiwan, S. Korea
  • H7N9: China 602/227, finches, quail, waterborne
• Measles: vaccine, herd immunity
• Ebola, Chikungunya, meningitis, norovirus, cholera, listeria, Marburg, tuberculosis
Why a severe scenario won’t happen

• Better health care
  • Intensive Care Units, germ theory, antibiotics, antivirals, vaccines
• Better sanitation
• Better coordination between human and animal disease researchers (reservoirs)
• Better able to deal with secondary infections
Why a severe scenario could happen

- Virus mutates (RNA)
- Virus builds resistance to antibiotics/antivirals/vaccines
- Higher at risk population (HIV, cancer, diabetes)
- Poverty and malnutrition
- Urbanization
- Supply chain constraints
- Reaction time
  - Travel/trade
  - Vaccines take 6 months to develop
- Overconfidence
Risk to Insurers

- Insurance risk
  - Mortality and morbidity
- Economic risk
  - Global recession likely
- Counterparty risk
  - Reinsurer solvency
- Business continuity
  - Claims and customer service
1918 Influenza Pandemic

- US: 25% morbidity, 2.5% mortality
  - 25% x 2.5% = .6% excess mortality
  - US population today 320 million
  - 2 million deaths
  - Secondary bacterial infections (pneumonia)
- Fewer insured – limited group policies
- Age distribution
- Human behavior is not constant – note Ebola funerals, WWI victory parades
Insurance Risk

• Life Insurers (ACLI 2014 Fact Book)
  • Gross Net Amount at Risk
    • $18.6 trillion
  • Statutory Surplus
    • $350 billion
  • Excess deaths 0.6%
  • Cost: Flat Extra (before tax benefit and reinsurance)
    • $111 billion or 32% of surplus
  • Reinsurance ceded – face amount
    • $1.6 trillion

• Annuity – payout annuities, GMDB
• Health – interaction with vaccination/voluntary procedures
• P/C – claims, terrorism
• Direct response (mail) products – special concerns
Economic Risk

• Global recession: GDP growth -3%
• Asset default rate will spike
• Interest rates will go down (offset)
• Who will buy your assets?
• Liquidity event (like 2008?)
• Other risks don’t stop (e.g., hurricane)
Counterparty Risk

- Reinsurers have low Reserves set aside relative to Face Amount (term)
- Other catastrophes will not go away
- Multi-year event
- Might defer payment or not pay
- Will direct writers survive if reinsurers fail?
- Do regulators understand reinsurer interactions? (transparency)
Business Continuity Risk

• Advance planning and communication is critical
  • Minimal notice once clusters form
• High absenteeism due to being sick, caring for family
  • Assume 40-50%
  • Succession planning
  • Multiple locations (field offices/international)
Issues

• Just-in-time supply chain
  • Hospitals: oxygen, gloves, ventilators
  • Individuals: medicine, parts, food, energy, garbage
  • Will FedEx, UPS and US Post Office deliver?
  • Pockets of social unrest
  • Borders

• Prioritization
  • Vaccines
  • Hospital beds
  • Emergency personnel

• Back up plans rely on internet
• Economic: no built in recovery
Advice

- React proactively and think for yourself
- Climate change, biodiversity, rate of change
- Insurers
  - HR practices (send sick home, caregiver pay practices)
  - Reinsurer risk, Stress testing
  - Telecommuting/multiple shifts
  - Privacy issues
  - Stockpile supplies
- Employees
  - Use available resources from county, CDC, WHO
- Regulators
  - Transparency, leave politics at home
Thank you!
MAX J. RUDOLPH, FSA CFA CERA MAAA

- Rudolph Financial Consulting, LLC
  - ERM and ALM strategist
  - Getting value from ORSA
  - Private investor/writer/presenter
  - Pandemics/emerging risks
  - Common sense practitioner
  - Research/continuing education: seminars, newsletter, ERM, Investing

- Professionalism
  - SOA Board of Governors
  - SOA President’s Award
  - Chair, ERM Symposium
  - Chair, Investment Section
  - ASB ERM Committee

max.rudolph@rudolph-financial.com
Twitter @maxrudolph
Omaha, Nebraska
(402) 895-0829