Medical Professional Liability Outlook and Economic Impacts of the Changing Healthcare Environment

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Presentation Outline

- The US Healthcare System & the Economy
- Employment/Professional Trends in Healthcare
- Medical Professional Liability: Performance Overview & Outlook
- The Affordable Care Act: Potential Impacts on MPL
- Overall P/C Insurance Industry Performance
- Investment Overview & Outlook
- Tort Trends
- Cyber Risk and the Healthcare Industry
- Q&A
U.S. health care expenditures have been on a relentless climb for most of the past half century, far outstripping population growth, inflation of GDP growth.

Health care expenditures as a share of GDP rose from 5.8% in 1965 to 18.0% in 2013 and are expected to reach 19.9% of GDP by 2022.

Since 2009, health expenditures as a % of GDP have flattened out at about 18%--the question is why and will it last?

Medical Cost Inflation vs. Overall CPI, 1995 - 2013

Though moderating, medical inflation will continue to exceed inflation in the overall economy.

Average Annual Growth Average
Healthcare: 3.8%
Total Nonfarm: 2.4%

Rate of Health Care Expenditure Increase Compared to Population, CPI and GDP

Accelerating business investment will be a potent driver of commercial property and liability insurance exposures and should drive employment and WC payroll exposures as well (with a lag).

Source: Insurance Information Institute research.
Employment Trends in the Healthcare Industry

Employment Will Grow but Skills, Responsibilities and Risks Will Evolve
Healthcare employment has continued to grow in good times and bad - including the Great Recession.

Occupations Ranked by Projected Percentage Growth, 2012-2022F

Healthcare Support: 28.1%
Healthcare Practitioners: 21.5%
Construction: 21.4%
Personal Care and Service: 20.9%
Computer and Math: 18%
Social Service: 17.2%
Business & Financial: 12.5%
Groundskeeping/Janitorial: 12.5%
Education: 11.1%
All Occupations: 10.8%
Legal: 10.7%
Life, Phys and Social Science: 10.1%
Repair: 9.6%
Food Preparation: 9.4%
Transportation: 8.6%
Fire, Police, Etc.: 7.9%
Architects and Engineers: 7.3%
Sales: 7.3%
Management: 7.2%
Arts and Media: 7%
Administrative Support: 6.8%
Production: 0.8%
Farming: 3.4%

Healthcare professions are expected to grow at 2 to nearly 3 times employment growth overall.

Growth in Healthcare Profession by Skill Level, 2012 – 2022F

(Thousands of Jobs)

- Practitioners, including RNs: +1.015 Mill (+20.3%)
- Technicians, including LPNs: +697,000 (+24.1%)
- Aides: +750,000 (+30.1%)
- Other: +425,000 (+24.0%)

Physician Supply and Demand, 2008–2020

Demand for physicians is expected to outstrip supply through 2020 by a wide margin.

Source: American Association of Medical Colleges [https://www.aamc.org/advocacy/campaigns_and_coalitions/fixdocshortage/]; Insurance Information Institute.
A potential large and growing shortage of physicians looms. Estimates suggest a shortage of 91,500 physicians by 2020—a gap 12% gap.

Will this be a negative for MPL?
A potential large and growing physician gap looms over the next decade, with potential negative impacts on MPL.

Source: American Association of Medical Colleges [https://www.aamc.org/advocacy/campaigns_and_coalitions/fixdocshortage/]; Insurance Information Institute.
12 Industries for the Next 10 Years: Insurance Solutions Needed

<table>
<thead>
<tr>
<th>Industry</th>
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</thead>
<tbody>
<tr>
<td>Health Care</td>
</tr>
<tr>
<td>Health Sciences</td>
</tr>
<tr>
<td>Energy (Traditional)</td>
</tr>
<tr>
<td>Alternative Energy</td>
</tr>
<tr>
<td>Petrochemical</td>
</tr>
<tr>
<td>Agriculture</td>
</tr>
<tr>
<td>Natural Resources</td>
</tr>
<tr>
<td>Technology (incl. Biotechnology)</td>
</tr>
<tr>
<td>Light Manufacturing</td>
</tr>
<tr>
<td>Insourced Manufacturing</td>
</tr>
<tr>
<td>Export-Oriented Industries</td>
</tr>
<tr>
<td>Shipping (<em>Rail, Marine, Trucking, Pipelines</em>)</td>
</tr>
</tbody>
</table>

Many industries are poised for growth, though insurers’ ability to capitalize on these industries varies widely.
Medical Professional Liability

Performance Overview
Medical Professional Liability: 4 Major Challenges

- **Increasing Competition**
  - Price (rate) competition is intensifying
  - Physicians: More employed by hospitals, large inst. hurts exposure
  - Self-insurance by hospitals adds to downward pressure

- **Falling Investment Income**
  - Despite Fed “tapering,” rates remain low
  - More complete “normalization” will not occur until 2015

- **Rising Number of Self-Insured Exposures**
  - Hospitals increasingly self-insure
  - More use of captives

- **Legal & Legislative Reform**
  - Tort reform law changes (caps)
  - Affordable Care Act (“ObamaCare”)
  - Impacts on practice of defensive medicine

- **Other: Reserves, Loss Frequency & Severity Trends**
Medical Errors: Rate of Lethal and Serious Adverse Events

September 2013 study in the *Journal of Patient Health* suggests that 210,000 – 400,000+ die each year from preventable medical errors (implies 3rd leading cause of death in US)

New study reviewed 4 studies authored since 2008

Error Rate

<table>
<thead>
<tr>
<th></th>
<th>Lethal Events</th>
<th>Serious Adverse Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>OIG (2008)</td>
<td>1.1%</td>
<td>15%</td>
</tr>
<tr>
<td>OIG (2010)</td>
<td>1.4%</td>
<td>15%</td>
</tr>
<tr>
<td>Classen, et al (2011)</td>
<td>1.1%</td>
<td>21%</td>
</tr>
<tr>
<td>Landrigan, et al (2011)</td>
<td>0.6%</td>
<td>14%</td>
</tr>
</tbody>
</table>

Distribution of MPL Premium by Segment, 2001 vs. 2012

RRG and Specialist market shares have risen over the past 10+ years

**2001**

- RRG: 1%
- Multiline: 33%
- Specialist: 66%

**2012**

- RRG: 8%
- Multiline: 22%
- Specialist: 70%

Source: Conning.
MPL Statutory Net Income After Tax, 2006 – 2015F

Rates and yields will need to improve to reverse the drop in profits.

MPL profits peaked in 2010. Falling rates and exposures and lower investment earnings are impacting the bottom line.

Source: Conning.
MPL insurers in 2013 paid out an estimated $0.96 in loss and expense for every $1 they earned in premiums.

The dramatic improvement over the past decade has restored med mal’s viability, though some deterioration has occurred and is expected to continue.

In 2001, med mal insurers paid out $1.55 for every dollar earned.

Since 2005, MPL has outperformed the P/C insurance industry overall by a wide margin.

Average 2003-2012
All P/C Lines: 7.9%
MPL: 12.3%

Sources: NAIC.
As underwriting results deteriorate, ROEs are have began to decline.

Source: Conning; Insurance Information Institute.
Capital and surplus growth in the MPL shows steady growth mirroring the overall P/C insurance industry.

Source: Conning.
Since 2006, MPL capital and surplus has grown at twice the pace of the p/c insurance industry overall.

Average 2006-2013E
All P/C Lines: 5.2%
MPL: 10.6%

Source: Insurance Information Institute from A.M. Best and Conning data.
# P/C Estimated Loss Reserve Deficiency/Redundancy, Excl. Statutory Discount

<table>
<thead>
<tr>
<th>Line of Business</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Auto Liability</td>
<td>-$3.9B</td>
</tr>
<tr>
<td>Homeowners</td>
<td>-$0.4</td>
</tr>
<tr>
<td>Other Liab (incl. Prod Liab)</td>
<td>$7.5</td>
</tr>
<tr>
<td>Workers Compensation</td>
<td>$11.1</td>
</tr>
<tr>
<td>Commercial Multi Peril</td>
<td>$1.9</td>
</tr>
<tr>
<td>Commercial Auto Liability</td>
<td>$0.7</td>
</tr>
<tr>
<td>Medical Malpractice</td>
<td>-$3.5</td>
</tr>
<tr>
<td>Reinsurance—Nonprop Assumed</td>
<td>$1.0</td>
</tr>
<tr>
<td>All Other Lines*</td>
<td>-$4.6</td>
</tr>
<tr>
<td><strong>Total Core Reserves</strong></td>
<td><strong>$9.8</strong></td>
</tr>
<tr>
<td>Asbestos &amp; Environmental</td>
<td>$11.2</td>
</tr>
<tr>
<td><strong>Total P/C Industry</strong></td>
<td><strong>$21.0B</strong></td>
</tr>
</tbody>
</table>

MPL Direct Premiums Written: 2004-2015F

$ Millions

MPL direct premiums written have been declining steadily since 2006

MPL DPW is expected to trough at $9.05B in 2014, down 23.8% from its 2006 peak of $11.9B

Competition and an increasing number of self-insured exposures are weighing on MPL premium growth.

Source: Conning.
Incurred losses have been generally increasing since 2011 after years of sharp declines.

Source: Conning.
Medical Professional Liability: Change in Premium and Incurred Losses, 2006-2015

Mid-2000s: Favorable loss trends precipitated lower prices and falling premium

Today: Premium seems to be lagging an increase in losses

Source: Insurance Information Institute from A.M. Best and Conning data.
Medical Professional Liability, RNW
By State, Average 2003-2012

Top 25 States and DC

Source: NAIC; Insurance Information Institute.
Medical Professional Liability RNW By State, Average 2003-2012

Bottom 25 States

Source: NAIC; Insurance Information Institute
Medical Professional Liability, RNW By State, 2012

Top 25 States and DC

Source: NAIC; Insurance Information Institute.
Medical Professional Liability RNW By State, 2012

Bottom 25 States

Source: NAIC; Insurance Information Institute
Medical Professional Liability, RNW By State, 2003

Top 27 States and US

Source: NAIC; Insurance Information Institute.
Medical Professional Liability RNW By State, 2003

Bottom 24 States and DC

Source: NAIC; Insurance Information Institute

OK -202.5
Medical Professional Liability, RNW By State, 2004

Top 25 States and DC

Source: NAIC; Insurance Information Institute.
Medical Professional Liability RNW By State, 2004

Bottom 25 States

Source: NAIC; Insurance Information Institute
Medical Professional Liability, RNW
By State, 2005

Top 25 States and DC

Source: NAIC; Insurance Information Institute.
Medical Professional Liability RNW By State, 2005

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Source: NAIC; Insurance Information Institute
Medical Professional Liability, RNW By State, 2006

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Medical Professional Liability RNW By State, 2011

Bottom 25 States

Source: NAIC; Insurance Information Institute
The Affordable Care Act and Medical Professional Liability

A Summary of Potential Impacts
### Potential Impacts of the ACA on Medical Professional Liability

<table>
<thead>
<tr>
<th>Issue</th>
<th>Concern</th>
<th>Contravening Argument</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surge in People Covered by Health Insurance</td>
<td>• System is overwhelmed</td>
<td>• Over time, people will have access to preventative care, improving the general health of the population</td>
</tr>
<tr>
<td></td>
<td>• Doctors spend less time on patients</td>
<td>• People are receiving care already via suboptimal channels</td>
</tr>
<tr>
<td></td>
<td>• Patient care adversely impacted</td>
<td>• Less use of ERs</td>
</tr>
<tr>
<td>Electronic Health Records</td>
<td>• Digitization could create a treasure trove of data for plaintiff attorneys</td>
<td>• Computerization of patient data could help flag issues and improve risk management and improve patient outcomes</td>
</tr>
<tr>
<td>MPL Claim Severity</td>
<td>• More large verdicts will</td>
<td>• ACA will help contain system costs</td>
</tr>
</tbody>
</table>

Source: Insurance Information Institute research.
Number of People Signed Up for Health Care Under the ACA, Oct. 1 – March 1

As of March 1, 4.2 million people have signed up for coverage under the ACA since enrollment opened on Oct. 1, 2013

UPDATE

HHS announced that enrollment as of 3/16 now exceeds 5 million

Source: Centers for Medicare and Medicaid as of March 7, 2014:
The projected decline in the uninsured population is very sensitive to the enrollment rate under the Affordable Care Act.

By 2018 the number of people under age 65 without insurance is expected to drop by 25 million (~45%).

*Under age 65.

P/C Insurance Industry
Financial Overview

2013: Best Year in the Post-Crisis Era
P/C Net Income After Taxes
1991–2013:Q3 ($ Millions)

- 2005 ROE* = 9.6%
- 2006 ROE = 12.7%
- 2007 ROE = 10.9%
- 2008 ROE = 0.1%
- 2009 ROE = 5.0%
- 2010 ROE = 6.6%
- 2011 ROAS¹ = 3.5%
- 2012 ROAS¹ = 5.9%
- 2013:9M ROAS¹ = 9.5%

ROE figures are GAAP;¹ Return on avg. surplus. Excluding Mortgage & Financial Guaranty insurers yields a 8.9% ROAS through 2013:Q3, 6.2% ROAS in 2012, 4.7% ROAS for 2011, 7.6% for 2010 and 7.4% for 2009.

Sources: A.M. Best, ISO, Insurance Information Institute

Net income is up substantially (+54.7%) from 2012:Q3 $27.8B

2013:9M ROAS was 9.5%

Shaded areas denote “hard market” periods
Sources: A.M. Best (historical and forecast), ISO, Insurance Information Institute.

Net Written Premiums Fell 0.7% in 2007 (First Decline Since 1943) by 2.0% in 2008, and 4.2% in 2009, the First 3-Year Decline Since 1930-33.

2013:9M = 4.2%
2012 growth was +4.3%
Profitability Peaks & Troughs in the P/C Insurance Industry, 1975 – 2013:Q3*

*Profitability = P/C insurer ROEs. 2011-13 figures are estimates based on ROAS data. Note: Data for 2008-2013 exclude mortgage and financial guaranty insurers.

Source: Insurance Information Institute; NAIC, ISO, A.M. Best.
A 100 Combined Ratio Isn’t What It Once Was: Investment Impact on ROEs

A combined ratio of about 100 generates an ROE of ~7.0% in 2012, ~7.5% ROE in 2009/10, 10% in 2005 and 16% in 1979.

Combined Ratios Must Be Lower in Today’s Depressed Investment Environment to Generate Risk Appropriate ROEs

* 2008-2013 figures are return on average surplus and exclude mortgage and financial guaranty insurers. 2013:9M combined ratio including M&FG insurers is 95.8; 2012 =103.2, 2011 = 108.1, ROAS = 3.5%.

Source: Insurance Information Institute from A.M. Best and ISO Verisk Analytics data.
As Recently as 2001, Insurers Paid Out Nearly $1.16 for Every $1 in Earned Premiums

Heavy Use of Reinsurance Lowered Net Losses

Relatively Low CAT Losses, Reserve Releases

Higher CAT Losses, Shrinking Reserve Releases, Toll of Soft Market

Relatively Low CAT Losses, Reserve Releases

Avg. CAT Losses, More Reserve Releases

Cyclical Deterioration

Lower CAT Losses

Sandy Impacts


Sources: A.M. Best, ISO.
Note: 2005 reserve development excludes a $6 billion loss portfolio transfer between American Re and Munich Re. Including this transaction, total prior year adverse development in 2005 was $7 billion. The data from 2000 and subsequent years excludes development from financial guaranty and mortgage insurance.
Sources: A.M. Best, ISO, Barclays Research (estimates).
Policyholder Surplus, 2006:Q4–2013:Q3

($ Billions)

2007:Q3 Pre-Crisis Peak

Drop due to near-record 2011 CAT losses

Surplus as of 9/30/13 stood at a record high $624.4B

The industry now has $1 of surplus for every $0.78 of NPW, close to the strongest claims-paying status in its history.

2010:Q1 data includes $22.5B of paid-in capital from a holding company parent for one insurer’s investment in a non-insurance business.

The P/C insurance industry entered 2014 in very strong financial condition.

Sources: ISO, A.M. Best.
History Suggests that MPL, Like Other Long-Tailed Lines Is Much More Difficult to Underwrite
The Number of Impairments Varies Significantly Over the P/C Insurance Cycle, With Peaks Occurring Well into Hard Markets

Source: A.M. Best Special Report “Pace of P/C Impairments Slowed in 2012; Auto Writers, RRGs Continued to Struggle,” June 2013; Insurance Information Institute.
Impairment Rates Are Highly Correlated With Underwriting Performance and Reached Record Lows in 2007; Recent Increase Was Associated Primarily With Mortgage and Financial Guaranty Insurers and Not Representative of the Industry Overall.

Source: A.M. Best; Insurance Information Institute
Historically, Deficient Loss Reserves and Inadequate Pricing Are By Far the Leading Cause of P-C Insurer Impairments. Investment and Catastrophe Losses Play a Much Smaller Role.

Medical Professional Liability Accounts for Only About 2% of Industry DPW but 6.7% of Insurer Impairments

Source: A.M. Best Special Report “Pace of P/C Impairments Slowed in 2012; Auto Writers, RRGs Continued to Struggle,” June 2013; Insurance Information Institute.
INVESTMENTS: THE NEW REALITY

The Challenge of Low Investment Yields Is a Critical Issue for MPL Insurers

Is Relief in Sight?
Investment Income Fell in 2012 and is Falling in 2013 Due to Persistently Low Interest Rates, Putting Additional Pressure on (Re) Insurance Pricing

Investment earnings are running below their 2007 pre-crisis peak

1 Investment gains consist primarily of interest and stock dividends.
*Estimate based on annualized actual 9M:2013 investment income of $34.338B.
Sources: ISO; Insurance Information Institute.
Insurers Posted Net Realized Capital Gains in 2010, 2011 and 2012 Following Two Years of Realized Losses During the Financial Crisis. Realized Capital Losses Were the Primary Cause of 2008/2009’s Large Drop in Profits and ROE.
Investment Income Continued to Fall in 2013 Due to Low Interest Rates but Realized Investment Gains Were Up Sharply; The Financial Crisis Caused Investment Gains to Fall by 50% in 2008

1 Investment gains consist primarily of interest, stock dividends and realized capital gains and losses.

* 2005 figure includes special one-time dividend of $3.2B;

Sources: ISO; Insurance Information Institute.
In order to offset a 1% decline in investment yield, an MPL insurer needs to reduce its combined ratio by about 5.2 points to maintain the same ROE

*Based on 2008 Invested Assets and Earned Premiums
**US domestic reinsurance only
Source: A.M. Best; Insurance Information Institute.
MPL Cash and Invested Assets, 2006 – 2015F

Growth in invested assets has been strong since the recession, mirroring the p/c insurance industry overall.

MPL invested assets continue to grow despite declining profits

Source: Conning.
Yields on 10-Year U.S. Treasury Notes recently plunged to record modern-era lows in early 2013 but have since risen as the Fed begins “tapering” its QE program in 2014.

Yields on 10-Year U.S. Treasury Notes have been essentially below 5% for a full decade.

Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.

*Monthly, through February 2014. Note: Recessions indicated by gray shaded columns.
Sources: Federal Reserve Bank at [http://www.federalreserve.gov/releases/h15/data.htm](http://www.federalreserve.gov/releases/h15/data.htm), National Bureau of Economic Research (recession dates); Insurance Information Institutes.

Yields on 10-Year U.S. Treasury Notes have been essentially below 5% for a full decade.

U.S. Treasury yields plunged to historic lows in 2013. Only longer-term yields have rebounded.

Since roughly 80% of P/C bond/cash investments are in 10-year or shorter durations, most P/C insurer portfolios will have low-yielding bonds for years to come.

*Monthly, constant maturity, nominal rates, through February 2014.
Treasury yield curve remains near its most depressed level in at least 45 years. Investment income is falling as a result. Even as the Fed “tapers” rates are unlikely to return to pre-crisis levels anytime soon.

The Fed is actively signaling that it is determined to keep rates low until unemployment drops below 6.5% or until inflation expectations exceed 2.5%; low rates add to pricing pressure for insurers.

Source: Federal Reserve Board of Governors; Insurance Information Institute.
Treasury Yield Curves: Pre-Crisis (July 2007) vs. Feb. 2014

Longer term yields are expected to rise in 2014 and 2015 while short-term yields will not begin to normalize until 2015.

Higher longer-term yields will help insurers but short term yields are expected to lag behind.

Outlook for U.S. Treasury Bond Yields Through 2015

Long-term yields should begin to normalize in 2014 but short-term yields will remain very low until 2015.

Longer-tail lines like MPL and workers comp will benefit the most from the normalization of yields.

Average Maturity of Bonds Held by US P/C Insurers, 2006—2011*

The average bond maturity is down by a full year between 2007 and 2011.

Falling Average Maturity (and Duration) of the P/C Industry’s Bond Portfolio is Contributing to the Drop in Investment Income Along With Lower Yields

*Year-end figures. Latest available.
Sources: Insurance Information Institute calculations based on A.M. Best data.
The main shift over these years has been from bonds with longer maturities to bonds with shorter maturities. The industry first trimmed its holdings of over-10-year bonds (from 24.6% in 2003 to 15.5% in 2012) and then trimmed bonds in the 5-10-year category (from 31.3% in 2003 to 27.6% in 2012). Falling average maturity of the P/C industry’s bond portfolio is contributing to a drop in investment income along with lower yields.

Sources: SNL Financial; Insurance Information Institute.
There are many ways to capture higher yields on bond portfolios. One is to accept greater risk, as measured by NAIC bond ratings. The ratings range from 1 to 6, with the highest quality rated 1. Even in 2012, over 95% of the industry’s bonds were rated 1 or 2.

Sources: SNL Financial; Insurance Information Institute.
Shifting Legal Liability & Tort Environment

Is the Tort Pendulum Swinging Against Insurers?
Over the Last Three Decades, Total Tort Costs as a % of GDP Appear Somewhat Cyclical, 1980-2013E

($ Billions)

Tort System Costs  Tort Costs as % of GDP

2.21% of GDP in 2003 = pre-tort reform peak

Deepwater Horizon Spike in 2010

1.68% of GDP in 2013

Sources: Towers Watson, 2011 Update on US Tort Cost Trends, Appendix 1A
Commercial Lines Tort Costs: Insured vs. Self-(Un)Insured Shares, 1973-2010

Tort Costs and the Share Retained by Risks Both Grew Rapidly from the mid-1970s to mid-2000s, When Tort Costs Began to Fall But Self-Insurance Shares Continued to Rise

Commercial Lines Tort Costs: Insured vs. Self-(Un)Insured Shares, 1973-2010

The Share of Tort Costs Retained by Risks Has Been Steadily Increasing for Nearly 40 Years. This Trend Contributes Has Left Insurers With Less Control Over Pricing.

# Business Leaders Ranking of Liability Systems in 2012

## Best States
1. Delaware  
2. Nebraska  
3. Wyoming  
4. Minnesota  
5. Kansas  
6. Idaho  
7. Virginia  
8. North Dakota  
9. Utah  
10. Iowa

### New in 2012
- Wyoming  
- Minnesota  
- Kansas  
- Idaho

## Worst States
41. Florida  
42. Oklahoma  
43. Alabama  
44. New Mexico  
45. Montana  
46. Illinois  
47. California  
48. Mississippi  
49. Louisiana  
50. West Virginia

### Newly Notorious
- Oklahoma

### Rising Above
- Arkansas

The Nation’s Judicial Hellholes: 2012/2013

Source: American Tort Reform Association; Insurance Information Institute

Watch List
- Philadelphia, Pennsylvania
- South Florida
- Cook County, Illinois
- New Jersey
- Nevada
- Louisiana

Dishonorable Mention
- MO Supreme Court
- WA Supreme Court

Illinois
Madison County

West Virginia

Maryland
Baltimore

California

New York
Albany and NYC
CYBER RISK

Cyber Risk is a Rapidly Emerging Exposure for Businesses Large and Small in Every Industry

NEW III White Paper:  
The Total Number of Data Breaches (+38%) and Number of Records Exposed (+408%) in 2013 Soared

The majority of the 447 data breaches in 2012 affected business and medical/healthcare organizations, according to the Identity Theft Resource Center.

- Business, 165 (36.9%)
- Medical/Healthcare, 154 (34.5%)
- Educational, 61 (13.6%)
- Govt/Military, 50 (11.2%)
- Banking/Credit/Financial, 17 (3.8%)

Medical/Health organizations accounted for more than 1/3 of all cyber breaches in 2012.

Government/Military and Business organizations accounted for the majority of records exposed by data breaches during 2012.

- Govt/Military, 7.7 million (44.4%)
- Medical/Healthcare, 2.2 million (12.9%)
- Business, 4.6 million (26.7%)
- Educational, 2.3 million (13.3%)
- Banking/Credit/Financial, 470,048 (2.7%)

Medical/Health organizations accounted for 12.9% of records exposed in 2012.

While companies are focused on managing a variety of business risks, cyber attacks are a top concern. Some 85% of 258 executives surveyed said they were very or somewhat concerned about cyber attacks on their businesses.

Source: Penn Schoen Berland on behalf of American International Group.
Malicious code, denial of service and web-based attacks account for more than 58 percent of the total annualized cost of cyber crime experienced by 56 companies.

Information loss (44%) and business disruption or lost productivity (30%) account for the majority of external costs due to cyber crime.

Information loss is the major concern, business interruption could cause serious issues for health institutions as well.

* Other costs include direct and indirect costs that could not be allocated to a main external cost category

<table>
<thead>
<tr>
<th>Date</th>
<th>Company</th>
<th>Description of Breach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2013*</td>
<td>South Korean banks, media cos</td>
<td>Cyber attack causes computers to crash at South Korean banks and media companies, paralyzing bank machines across the country. No immediate reports of records compromised.</td>
</tr>
<tr>
<td>July 2012</td>
<td>Yahoo</td>
<td>Security breach at Yahoo in which some 450,000 passwords lifted and posted to the Internet.</td>
</tr>
<tr>
<td>July 2012</td>
<td>eHarmony</td>
<td>Online dating site eHarmony confirms security breach in which some 1.5 million user names and passwords compromised.</td>
</tr>
<tr>
<td>July 2012</td>
<td>LinkedIn</td>
<td>Social networking site LinkedIn reportedly targeted in hacker attack that saw 6.5 million hashed passwords posted to the Internet.</td>
</tr>
<tr>
<td>April 2012</td>
<td>Utah Dept of Technology Services</td>
<td>Utah Department of Technology notifies of a March 30 breach of a server containing personal data including social security numbers for about 780,000 Medicaid patient claims. Breach traced to Eastern Europe hackers.</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>Global Payments</td>
<td>Credit card processor Global Payments confirms hacker attack has compromised the payment card numbers of around 1.5 million cardholders.</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>CA Dept of Child Support Services</td>
<td>Officials announce that four computer storage devices containing personal information for about 800,000 adults and children in California’s child support system were lost by IBM and Iron Mountain Inc.</td>
</tr>
<tr>
<td>Jan 2012</td>
<td>Zappos</td>
<td>Online shoe retailer Zappos announces that information, such as names, addresses and passwords on as many as 24 million customers illegally accessed.</td>
</tr>
<tr>
<td>Jan 2012</td>
<td>NY State Electric + Gas Co</td>
<td>Security breach at NYSEG that allowed unauthorized access to NYSEG customer data, containing social security numbers, dates of birth and bank account numbers, exposing 1.8 million records.</td>
</tr>
</tbody>
</table>

*March 2013 attack is not part of ITRC research.

The average organizational cost of a data breach in 2011 was $5.5 million, down 24% from $7.2 million in 2010. Companies have improved steps taken in both preparing for and responding to a data breach.

*Findings of this benchmark study pertain to the actual data breach experiences of 49 U.S. companies from 14 different industry sectors, all of which participated in the 2011 study. Total breach costs include: lost business resulting from diminished trust or confidence of customers; costs related to detection, escalation, and notification of the breach; and ex-post response activities, such as credit report monitoring.

Source: 2011 Annual Study: U.S. Cost of a Data Breach, the Ponemon Institute.
Negligent employees and malicious attacks are most often the cause of the data breach. Some 39 percent of incidents involve a negligent employee or contractor, while 37 percent concern a malicious or criminal attack.

Source: 2011 Cost of Data Breach Study: United States, Ponemon Institute, March 2012
Interest in cyber insurance continues to climb. The number of companies purchasing cyber insurance increased 33 percent from 2011 to 2012.
Cyber insurance limits purchased in 2012 averaged $16.8 million across all industries, an increase of nearly 20% over 2011.

Among larger companies, average cyber insurance limits purchased in 2012 increased nearly 30% over 2011.

($ Millions)

Insurance Information Institute Online:

www.iii.org

Thank you for your time and your attention!

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